TOWN OF CALEDON PLANNING RECEIVED Dec 22, 2023

Environmental Impact Statement

13290 NUNNVILLE ROAD, BOLTON ON

Prepared for

Bolton Summit Developments Inc.

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December 6, 2023 Project No. P2022-612

Prepared by



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1. Introduction



GeoProcess Research Associates Inc. (GRA) been retained by Bolton Summit Developments Inc. to complete an Environmental Impact Statement (EIS) for a property located at 13290 Nunnville Road in Bolton, Ontario. This is herein referred to as the "Subject Property". The "Study Area" refers to the Subject Property plus 120 metres of adjacent lands. It is GeoProcess' understanding

that the Subject Property is the proposed site of a residential development that includes fifteen (15) townhouse units. An EIS is required prior to approval of any proposed development to determine the significance and functions of natural heritage features associated with the Subject Property. The Subject Property contains and is adjacent to designated Environmental Policy Areas and as such, triggered the requirement for an EIS. Refer to Map 1 for review of these boundaries and property location.

1.1. Site Description

The Subject Property is approximately 0.86 hectares and is located at the end of the cul-de-sac on Nunnville Road in Bolton, ON. The Subject Property currently contains a residential dwelling, landscape trees, a hedgerow, manicured lawn and a European Buckthorn and Scots Pine thicket within and bordering the Subject Property limits. The landscape slopes down in several areas throughout the property (TRCA Crest of Slope) but especially within the aforementioned thicket to the north and west of the property. The Subject Property also contains a second structure just southwest of the homestead. The Study Area consists primarily of forest, thickets, and residential homes. The Humber River is located approximately 200 metres north from the Subject Property limits.

2. Policy Context

2.1. Provincial Policy Statement

The Provincial Policy Statement (PPS), 2020 is administered under Section 3 of the *Planning Act*. It became effective May 1, 2020 and replaces the 2014 PPS. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The policies of the PPS may be complemented by provincial and municipal plans and policies.

The PPS defines eight natural heritage features and provides planning polices for each, listed below. The function of Natural Heritage Features and Areas is further clarified by the definition of a Natural Heritage System, which is "a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems."

- 1. Significant wetlands;
- 2. Coastal wetlands:
- 3. Fish habitat;
- 4. Significant woodlands;



- 5. Significant valleylands;
- 6. Habitat of endangered species and threatened species;
- 7. Significant Wildlife Habitat; and,
- 8. Significant Areas of Natural and Scientific Interest (ANSIs).

Section 2.0 and 3.0 of the PPS deal with development and site alteration, and where these activities shall not be permitted. Section 2.0 policies surround the conservation of biodiversity, and protection of the health of the Great Lakes, natural heritage, water, agricultural, mineral and cultural heritage and archaeological resources for their economic, environmental and social benefits. Section 3.0 directs development away from areas of natural or human-made hazards to mitigate risks to public health or safety, and property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate.

Policies in Section 2.1 are particularly relevant as they surround development and site alteration in and adjacent to natural heritage features. These policies and select others are outlined below, in Table 1.

Table 1. Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
(2.1 - Natural Heritage) 2.1.2	The diversity and connectivity of natural features in an area and the long-term <i>ecological</i> function and biodiversity of natural heritage systems, should be maintained, restored or where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.
2.1.3	Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.
2.1.4	Development and site alteration shall not be permitted in: a) significant wetlands in Ecoregions 5E, 6E and 7E; and, b) significant coastal wetlands.
2.1.5	Development and site alteration shall not be permitted in: a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E; b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); d) significant wildlife habitat; e) significant areas of natural and scientific interest; and f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
2.1.6	Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
2.1.7	Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.
2.1.8	Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Policy Number	Policy
(2.2 - Water) 2.2.2	Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.
(3.1 - Natural Hazards) 3.1.1	Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of: a) hazardous lands adjacent to the shorelines of the Great Lakes - St. Lawrence River System and large inland lakes which are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards; b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards; and c) hazardous sites.
3.1.3	Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards

2.2. Endangered Species Act (2007)

The Endangered Species Act (ESA) (2007) protects habitat and individuals of wildlife species designated as Endangered, Threatened or Extirpated in Ontario. These designations are defined as:

- Endangered: A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.
- Threatened: A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.
- Extirpated: A species shall be classified an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.

Activities that relate to SAR are regulated through the following subsections:

9 (1) No person shall,

kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

- 10 (1) No person shall damage or destroy the habitat of,
 - a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species;

Or

 a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c. 6, s. 10 (1).



Provincial Species at Risk are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO). The ESA protects species listed by COSSARO as Endangered, Threatened or Extirpated in Ontario and their habitats by prohibiting anyone from killing, harming, harassing or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. All listed species are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. In addition, specific habitat regulations for some species have been developed that specifically define the extent and character of their protected habitat beyond what is stated in the general habitat regulation.

Activities that may impact a protected species or its habitat require the prior issuance of a Permit from the Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempted under Regulation. The current (June 29, 2020) Ontario Regulation 242/08 identifies activities which are exempt from the permitting requirements of the Act, these activities are subject to rigorous controls outside the permit process including registration of the activity and preparation of mitigation plans. Activities that are not exempted under O. Reg. 242/08 require a complete permit application process.

2.3. Region of Peel Official Plan (2022)

The Subject Property is subject to policies and regulations detailed within the Region of Peel Official Plan (ROP), which provides descriptions and permitted uses for the property and surrounding area. Per Schedule C-1, the Subject Property contains Greenlands System designation, but does not contain Core Areas identified on Schedule C-2.

As per Section 2.14.5 of the Greenlands System in the ROP, the Greenlands System includes:

- a) Core Areas, which are designated and shown generally on Schedule C-2, which are protected, restored and enhanced in this Plan and in the local municipal official plans;
- b) Natural Areas and Corridors, which will be interpreted, protected, restored, and enhanced and shown, as appropriate, in the local municipal official plans;
- c) Potential Natural Areas and Corridors, which will be interpreted, protected, restored, and enhanced and shown, as appropriate, in the local municipal official plans. Potential Natural Areas and Corridors will be analyzed to determine their functional role in supporting and enhancing the ecological integrity of the Greenlands System;
- d) The Natural Heritage System overlay of the Growth Plan and the key natural heritage features and key hydrologic features, which will be protected in accordance with the Plan;
- e) The Natural Heritage System overlay of the Greenbelt Plan and the key natural heritage features and key hydrologic features, which will be protected in accordance with the Plan;
- f) Urban River Valleys of the Greenbelt Plan, which will be protected and, where appropriate, restored, in accordance with the policies of this Plan;
- g) The Natural Core Areas and Natural Linkage Areas land use designations of the Oak Ridges Moraine Conservation Plan and the key natural heritage features and key hydrologic features, which will be protected in accordance with the Plan; and,
- h) The Escarpment Natural Area and Escarpment Protection Area land use designations of the Niagara Escarpment Plan and the key natural heritage features and key hydrologic features, which will be protected in accordance with the Plan.

Figure 7 (Regional Greenlands System) of the ROP, the Subject Property is designated as Natural Areas and Corridors (NAC). Per Section 2.14.18 of the ROP, woodlands that are defined as Natural Areas and Corridors meet one or more of the criteria for NAC woodland in Table 1 of the ROP, noted below:

Table 2. Criteria and Thresholds for the Identification of Natural Area and Corridors for Woodlands (Table 1 of the Region of Peel Official Plan, 2022).

ROP Category	Size	Age	Linkage	Proximity	Surface Water Quality	Significant Species and Communities
NAC Supports Integrity of the System	Urban System: Any woodland =/> 2 ha up to 4 ha	Any woodland =/> 0.5 ha and less than 4 ha and containing at least 0.5 ha of woodland in native trees older than 100 years and having late successional characteristic (excludes plantations)	Any woodland =/> 0.5 ha supporting a significant linkage function, as determined through a natural heritage study approved by the Region or local municipality	Any woodland =/> 0.5 ha within 100 m of another significant feature supporting a significant ecological relationship between the features	Any woodland =/> 0.5 ha within 30 m if a watercourse, surface water features or any wetland that is or can be identified as a wetland in accordance with Ontario Wetland Evaluation System.	Any woodland =/> 0.5 ha up to 4 ha that supports any of the following: i. any G1, G2, G3, S1, S2, or S3 plant or animal species, or community as designated by NHIC; or ii. any species designated by COSEWIC or COSSARO as Threatened, Endangered or Special Concern; or iii. The following forest communities: FOC 1-2, FOM 2-1, FOM 2-2, FOM 6-1, FOD 1-1, FOD 1-2, FOD 1-4, FOD 2-2, FOD 2-3, or FOD 6-2

Based on the criteria outlined in the ROP, the woodland within the Subject Property meets the criteria for NAC due to its size and potential to supports both Endangered and Special Concern species at risk (refer to Species at Risk Screening).

Section 2.14.20 of the ROP states that for Natural Areas and Corridors, the Region of Peel will 'direct the local municipalities, in consultation with the conservation authorities, appropriate federal and provincial agencies and the Niagara Escarpment Commission to include objectives, enhancement, proper management and *Stewardship* of the Natural Areas and Corridors and Potential Natural Areas and Corridors which conform to the intent of this Plan, consistent with provincial policy, the Growth Plan, the Niagara Escarpment Plan, the Oak Ridges Moraine Plan, the Greenbelt Plan, and local considerations, where applicable.

As per Section 5.4 Growth Management of the ROP, the Growth Plan sets out requirements for ensuring that intensification occurs within the Greater Golden Horseshoe. The plan directs a significant portion of growth to the Delineated Built-up Areas through intensification, particularly Strategic Growth Areas such as the Urban Growth Centres, intensification corridors and Major Transit Station Areas. As per Schedule E-3, The Growth Plan Policy Areas in Peel (2022), the Subject Property is designated Built-up Area.

The limits of the woodland were delineated with the Toronto and Region Conservation Authority and appropriate protection and enhancement are proposed in this EIS.

2.4. Town of Caledon Official Plan

The Town of Caledon's Official Plan (OP) contains principals, goals, objectives, and policies which help guide future land use within the municipality, which may be developed and used in the future. Environmental Policy Areas (EPA) includes all Natural Core Areas and Natural Corridors as listed in Table 3.1 – Ecosystem Framework in Chapter 3 of the OP. Ecosystem components that make up the EPA include the following:

- Woodlands
- Wetlands
- Niagara Escarpment Natural Areas
- Niagara Escarpment Protection Areas
- Areas of Natural and Scientific Interest (ANSIs)
- Environmentally Significant Areas (ESAs)
- Threatened and Endangered Species
- Significant Wildlife Habitat
- Fisheries
- Valley and Stream Corridors
- Groundwater Systems
- Native soils including erosion prone soils
- Natural Slopes (>15%)
- Oak Ridges Moraine Key Natural Heritage Features
- Oak Ridges Moraine Hydrologically Sensitive Features
- Greenbelt Key Natural Heritage Features
- Greenbelt Key Hydrologic Features

Section 3.2.3.1 states that the Ecosystem Framework incorporates and refines the components of the Regional Greenlands System, as defined in the Region of Peel Official Plan, in a manner which conforms with the

environmental policy directions contained in the Region of Peel Official Plan. As such, per the Region of Peel Official Plan and Table 3.1 in the Town of Caledon Official Plan, the Subject Property contains Supportive Natural Systems in the form of "all other woodlands". Section 3.2.5.3.2 of Caledon's Official Plan states that new development will not be permitted in Other Woodlands unless it can be demonstrated that such development will not result in the degradation of ecosystem integrity, to the satisfaction of the Town and Ministry of Natural Resources and Forestry, or other delegated approval authority.

As per Schedule C-2 Bolton South Hill Land Use Plan (2018), the Subject Property is designated as Low Density Residential land use. The Subject Property has designated Environmental Policy Areas (EPA) to the northeast portion of the property. Adjacent lands to the north and west of the Subject Property is also designated as EPA.Section 5.7.3.1.4 of the OP states 'as more detailed environmental information becomes available, such as information derived from approved studies or site investigations/inspections, minor refinements to the limits of lands designated EPA on the Schedules to this Plan, including minor additions or deletions, may be permitted without an amendment to this Plan, provided such a minor refinement is satisfactory to the Town and other relevant agencies.'

2.5. Toronto and Region Conservation Authority

The Toronto and Region Conservation Authority (TRCA) is responsible for O. Reg 166/06 - Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, a regulation made under the Conservation Authorities Act, 1990. This regulation prohibits development in or on the areas within jurisdiction of the Authority and applies to shorelines, rivers, stream valleys, hazardous lands, wetlands or areas adjacent to a wetland. A permit will need to be issued to develop in the Regulated Areas. As per the TRCA Regulation Mapping tool, the Subject Property contains a Crest of a Slope which exists on the northern, western, and eastern areas of the Subject Property. The TRCA designated Regulated Area (2020) occurs to the northern, western, and eastern portions of the Subject Property.

As per the TRCA Erosion Risk Management document (2022), The Conservation Authorities Act gives the Conservation Authorities the power to establish and undertake initiative on private and public land to help achieve its objectives and can include:

- Monitoring of areas affected by flooding, erosion, and or slope instability;
- Study and investigation of the watershed; and,
- Remediation of erosion and/or slope stability standards.

2.6. Greenbelt Plan

The Greenbelt Plan was originally enacted in 2005 and has since been updated (2017). It provides policies to protect the agriculture land base and the associated ecological and hydrological features and functions within the Greater Golden Horseshoe. Lands included in the Greenbelt Area are defined by O.Req 59/05. The Subject Property is not within the Greenbelt Plan boundaries. The Subject Property limits are approximately 114 metres from the Greenbelt Area boundary (attributed to Humber River) to the north and approximately 273 metres from the Greenbelt Area boundary to the east.

2.7. Oak Ridges Moraine Conservation Plan

The updated Oak Ridges Moraine Conservation Plan [ORMCP] (O. Reg 140/02), 2017, made under the Oak Ridges Moraine Conservation Act (2001) came into effect on July 31, 2017. The plan provides land use and resource management planning direction for all land and features located within the Moraine, one of Southern Ontario's most significant landform features. The Subject Property is not located near the Oak Ridges Moraine Boundary.

3. Methodology

3.1. Background Studies

Literature and data pertaining to the Subject Property were reviewed and evaluated to obtain natural heritage data and background planning policy information. A list of documents and information sources consulted for the purpose of this study are provided below:

- Region of Peel Official Plan (September 2021)
- Town of Caledon Official Plan (April 2017)
- Toronto and Region Conservation Authority
- Endangered Species Act (2007) and Species at Risk in Ontario list (O. Reg 230/08)
- Natural Heritage Information Center (NHIC) database information
- iNaturalist
- Ontario Breeding Bird Atlas & eBird
- Ontario Moth & Butterfly Atlases
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map
- Tree Inventory and Preservation Plan (March 30, 2022)

3.2. Field Work

GeoProcess Research Associates conducted field studies to characterize and inventory the natural heritage features and wildlife activity of the Subject Property and surrounding landscape. A summary of the field work details is provided below.

Activity	Timing	Date	Staff
Floristic Studies	Spring Summer	May 26, 2022 July 6, 2022	Brittany Quesnel Gillian Leava
Breeding Bird Survey	Visit 1 Visit 2	May 26, 2022 July 6, 2022	Brittany Quesnel Gillian Leava
Snag Survey	Leaf-off	March 18, 2022	Gillian Leava
Feature Staking	Summer	August 31, 2022	lan Roul
Incidentals	In tandem wi	th all field surveys	Brittany Quesnel Gillian Leava

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3.2.1. Floristic Studies

A spring and summer inventory of all floristic species were completed on May 26, 2022 and July 6, 2022. Species nomenclature and ranking was determined provincially by the Ministry of Natural Resources Natural Heritage Information Database (S_Ranks).

Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al., 2008). Vegetation community boundaries were determined using desktop analysis and further refined in the field. The results of this assessment are found in Section 4.5 and Map 2.

3.2.2. Leaf-off Snag Surveys

Snag surveys were conducted for the Subject Property during the leaf-off season following the Ministry of Natural Resources and Forestry current bat habitat survey protocol for Species at Risk Bats within Treed Habitats (MNRF 2017). The survey included an assessment of all trees with a Diameter at Breast Height (DBH) of 10 cm or greater, live, or dead, with loose or naturally exfoliating bark, cavities, hollows or cracks that provide suitable bat maternity roosting habitat.

3.2.3. Tree Inventory

Kuntz Forestry Consulting Inc. completed a tree inventory on March 11, 2022 to identify and assess the existing trees for the Study Area. An assessment of individual trees included all trees 10 cm Diameter at Breast Height (DBH) or greater for the Subject Property and included 6 metres of adjacent lands. Trees were assessed for condition utilizing the following parameters:

- a) Tree # number assigned to trees that corresponds to Figure 1.
- b) Species common and botanical names provided in the inventory table.
- c) DBH diameter (centimeters) at breast height, measured at 1.4 m above the ground.
- d) Condition condition of tree considering trunk integrity (TI), crown structure (CS) and crown
 - a. vigor (CV). Condition ratings include poor (P), fair (F), and good (G);
- e) Crown Die Back Percentage of dead branches within the crown.
- f) Drip Line Crown radius; and
- g) Comments Any other relevant tree condition information.

Refer to Appendix E for the full Tree Inventory and Preservation Plan completed by Kuntz Forestry Consulting Inc. on November 7, 2023.

3.2.4. Breeding Bird Surveys

Breeding bird surveys were undertaken on 2 separate dates by a breeding bird expert under appropriate weather conditions. Point count methodology was based on protocols set by the Ontario Breeding Bird Atlas (OBBA, 2001). Bird species were observed for 5 minutes at each breeding bird plot after a 5-minute period of silence upon arriving at the plot. Breeding bird plots were based on broad habitat characteristics, Subject Property size and a 100 m radius from plot centre. Only species observed within the 100 m radius were recorded, flyovers did not count towards the total but were noted. Additional incidental observations were

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also noted. The level of breeding evidence (using *Ontario Breeding Bird Atlas* [OBBA] protocols) was determined after both surveys. The results are found in Section 4.6.

3.2.5. Species at Risk Screening and Assessment

An assessment and screening of potential Species at Risk was conducted for the Property based on Federal and Provincial status. Following the MECP (2019) Client's Guide to Preliminary SAR Screening, this screening was based on a review of the Natural Heritage Information Centre, the regional species list, Ontario Breeding Bird Atlas (OBBA), Ontario Moth Atlas, Ontario Butterfly Atlas, citizen science databases (i.e. iNaturalist), eBird, the Department of Fisheries and Oceans (DFO) Species at Risk Distribution Mapping, and any additional lists provided by the MECP. The preliminary screening was submitted as a memo to sar@ontario.ca for assignment to a management biologist for review. The Species at Risk assessment results are found in Section 5. The results of the preliminary screening are found in Appendix B.

3.2.6. Significant Wildlife Habitat Screening and Assessment

A screening for Significant Wildlife Habitat following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (January 2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies. The results of this assessment are found in Section 6.

4. Existing Conditions

4.1. General Landscape Position

The Subject Property is located within a residential neighbourhood consisting of single unit homes. Based on aerial imagery and a review of the provincial NHIC *Make a Map tool*, the Subject Property contains designated Woodlands to the west, north, and east portions of the property and adjacent lands.

The Humber River is located approximately 200 m north of the Subject Property. As a tributary of Lake Ontario, the Humber River is within the Great Lakes Basin and was officially designated as a Canadian Heritage River in 1999 (The Canadian Heritage Rivers System, 2011). It encompasses 911 km² and is the largest watershed within the TRCA's jurisdiction (TRCA, 2022). The West Humber branch begins in Caledon and flows 45 km over the Peel Plain in Brampton before joining the Main branch of the Humber River in Toronto. According the TRCA, the entirety of the area of the Humber River includes 1,800 kilometers of waterway and 600 bodies of water, and is home to 755 species of plants, 42 species of fish, and over 185 animal species (2022).

4.2. Natural Heritage Systems

The province defines Natural Heritage Systems (NHS) as a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or

have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue (PPS, 2020). The proposed development supports the PPS' definition of NHS by protecting it's features by virtue of providing linkages and areas of restoration between the development and the limits of the natural heritage features.

Natural Heritage Systems associated with the Subject Property can be attributed to the presence of the provincially designated Woodland on and adjacent to the property and Environmental Policy Area that overlaps the property surrounding adjacent lands. Additionally, the Subject Property contains TRCA Regulated Areas and Crest of Slope.

4.2.1. Woodland

As per NHIC's Make a Map tool, the Subject Property and surrounding adjacent areas contain designated woodland. Upon GRA's field investigation, this feature is primarily dominant in invasive/non-native species, such as European Buckthorn (Rhamnus cathartica) and Scot's Pine (Pinus sylvestris). Woodlands are defined in the PPS as treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the Province's Ecological Land Classification system definition for "forest".

The identified woodland does not generally meet the criteria of woodland set out by the PPS. Ecological Land Classification will be completed in the appropriate seasons to further define this feature; however, the feature appears to meet the criteria more so of a Buckthorn Deciduous Shrub Thicket Type (THDM2-6). Due to the invasive nature of this species, ecological function and environmental benefits are limited. Further, the Forestry Act (1990) criteria for defining woodlands as having at least:

- 1,000 trees, of any size, per hectare,
- 750 trees, measuring over five centimetres in diameter, per hectare,
- 500 trees, measuring over 12 centimetres in diameter, per hectare, or
- 250 trees, measuring over 20 centimetres in diameter, per hectare.

Detailed surveys for density will be completed as part of the spring and summer field surveys. A dripline staking exercise was completed with the TRCA on August 31, 2022 and is shown in Figure 1.

4.3. Tree Inventory

The tree inventory completed by Kuntz Forestry Consulting Inc. documented a total of 74 trees located on and within 6 metres of the Subject Property. Trees species identified in the inventory included Freeman Maple (Acer x freemanii), Manitoba Maple (Acer negundo), Norway Maple (Acer platanoides), Shademaster Honey Locust (Gleditsia triacanthos 'inermis'), Black Walnut (Juglans nigra), Apple Species (Malus spp.), White Mulberry (Morus alba), White Spruce (Picea glauca), Blue Spruce (Picea pungens), Red Pine (Pinus resinosa), Scots Pine (Pinus sylvestris), Bur Oak (Quercus macrocarpa), Red Oak (Quercus rubra), Ivory Silk Lilac (Syringa reticulata 'Ivory Silk'), and Eastern White Cedar (Thuja occidentalis). Of the 74 trees identified in the Tree

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Inventory and Preservation Plan, 34 are proposed for protection and 40 are proposed for removal. Refer to Appendix D for the full Tree Inventory and Preservation Plan.

4.4. Snag Surveys

One (1) suitable snag tree was identified on the Subject Property (Tree ID 457 as per the tree inventory prepared by Kuntz Forestry Consulting Inc., Figure 1). The tree was identified as a Norway Maple (Acer platanoides) with a DBH of 46 cm and contained a split in the trunk, cracks, and small cavities.

4.5. Vegetation Communities

Table 3 Ecological Land Classification Communities

	Table 3 Ecological Earla Classification Communities				
ELC Code and Classification	Vegetation				
Cultural Block	Ground	Oxeye Daisy (Leucanthemum vulgare), Common Bedstraw (Galium aparine), Tufted Vetch (Vicia cracca), Bentgrass (Agrostis), Common Yarrow (Achillea millefolium), Sweet Pea (Lathyrus odoratus)			
Cultural Black Walnut Deciduous Plantation (FODM12)	Sub-canopy	Common Teasel (<i>Dipsacus fullonum</i>), Timothy Grass (<i>Phleum pratense</i>), Tatarian Honeysuckle (<i>Lonicera tatarica</i>), Black Wanut (<i>Juglans nigra</i>), Thicket Creeper (<i>Parthenocissus vitacea</i>), European Buckthorn (<i>Rhamnus cathartica</i>), Hawthorn (<i>Crataegus sp.</i>), Wayfairing Tree (<i>Viburnum lantana</i>)			
	Canopy	Black Walnut (Juglans nigra)			
	Ground	Joe Pye Weed (<i>Eutrochium sp.</i>), Common Burdock (<i>Arctium minus</i>), Bird's-foot Trefoil (<i>Lotus corniculatus</i>), Oxeye Daisy (<i>Leucanthemum vulgare</i>), New-England Aster (<i>Symphyotrichum novae-angliae</i>)			
Cultural Sumac Thicket (THDM2-1)	Sub-canopy	Riverbank Grape (<i>Vitis riparia</i>), European Buckthorn (<i>Rhamnus cathartica</i>), Eastern White Cedar (<i>Thuja occidentalis</i>), Philadelphia Fleabane, White Sweet Clover, Broad Thistle, Wild Carrot (Daucus carrota), Staghorn Sumac, Amur Corktree, Wayfairing Tree, Manitoba Maple (Acer negundo), White Mulberry, Norway Maple, Scot's Pine, Choke Cherry, American Plum, Goldenrod sp			

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	Canopy	Eastern White Cedar (Thuja occidentalis), Red Maple, Manitoba Maple (Acer negundo)
Buckthorn Deciduous Shrub Thicket (THDM2-6)	Ground	Black Medic, Strawberry, Forget-me-not, Oxeye Daisy (<i>Leucanthemum vulgare</i>), Dog-strangling Vine
	Sub-canopy	European Buckthorn (<i>Rhamnus cathartica</i>), Multiflora Rose, Tatarian Honeysuckle (<i>Lonicera tatarica</i>), Alternate-leaved Dogwood, American Elm, Milkweed, Eastern White Cedar (Thuja occidentalis), Hawthorn
	Canopy	European Buckthorn (<i>Rhamnus cathartica</i>), White Pine, Manitoba Maple (Acer negundo), Norway Spruce

4.6. Breeding Bird Surveys

Breeding bird surveys were undertaken on 2 separate dates by a breeding bird expert under appropriate weather conditions. A point count methodology, based on certain protocols set by the Ontario Breeding Bird Atlas (OBBA, 2001) was used to acquire breeding data. Bird species were observed for 5 minutes at each breeding bird plot after a 5-minute period of silence upon arriving at the plot. Breeding bird plots were based on broad habitat characteristics, Subject Property size and a 100 m radius from a plot centre. Only species observed within the 100 m radius were recorded, flyovers did not count towards the total but were noted. Additional incidental observations were also noted. The level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after both surveys. The results of this assessment are found in Table 5.

Breeding Bird Survey Results

One breeding bird plot was established for the Subject Property. Refer to Map 2 for the location. Birds heard and observed outside of the allotted survey time were recorded as incidental observations. The surveys were conducted under suitable conditions between 6-10 am (Table 4).

Visit Date Visit Time Temp. Range [°C] **Cloud Cover [%]** Wind Speed [Beaufort scale] May 26 2022 06:41 17 100 3 2 July 6 2022 07:38 22 35

Table 4. Breeding Bird Survey Conditions

Species heard and or observed within the 100 m plot were recorded and the level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after completion of both surveys (Table 5).

Table 5. Breeding Bird Survey Results Summary

Species Common	Species Scientific	612- 1	BE Level	S_Rank	Comment
Red-winged Blackbird	Agelaius phoeniceus	1		S5	
Great Crested Flycatcher	Myiarchus crinitus	2	S	S5B	
Northern Cardinal	Cardinalis cardinalis	1	S/T	S5	
American Robin	Turdus migratorius	2	S/A/T	S5	
Chipping Sparrow	Spizella passerina	1	S/T	S5B, S3N	
Baltimore Oriole	Icterus galbula	1	S/T	S4B	
Rose-breasted Grosbeak	Pheucticus ludovicianus	1	S	S5B	
Eastern Wood- pewee	Contopus virens	1	S/T	S4B	Heard outside of plot radius only on the first visit.
Red-eyed Vireo	Vireo olivaceus	1	S/T	S5B	
American Crow	Corvus brachyrhynchos	1	S	S5	
Ruby-throated Hummingbird	Archilochus colubris	1	S/T	S5B	Male territorial song
European Starling	Sturnus vulgaris	2	S/T	SNA	
Eastern Phoebe	Sayornis phoebe	1	S	S5B	
Indigo Bunting	Passerina cyanea	1	S	S5B	Heard on outside of the plot radius
American Goldfinch	Spinus tristis	2	S/T	S5	
Mourning Dove	Zenaida macroura	2	S/T	S5	
Song Sparrow	Melospiza melodia	1	S/T	S5	
Blue Jay	Cyanocitta cristata	2	S/A	S5	
Common Grackle	Quiscalus quiscula	2	S/T	S5	
Cedar Waxwing	Bombycilla cedrorum	2	S/T	S5	

In the species columns, each species is assigned a breeding level, based on the highest level of breeding evidence observed, by plot. A species observed, showing no breeding evidence or where no suitable habitat is present, is marked 'X'. The number recorded represents the highest one-day total for that species.

OBBA Breeding Evidence Codes

POSSIBLE

- H- species observed in breeding season in suitable nesting habitat
- S- singing male present or breeding calls heard in breeding season in suitable habitat

PROBABLE

- P- pair observed in their breeding season in suitable habitat
- **T** permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.
- **D** -courtship or display between a male and female, or two males including courtship feeding and copulation.
- V-visiting probable nest site.
- A-agitated behavior or anxiety calls of adults
- **B**-brood patch on adult female or cloacal protuberance on adult male
- N-nest building or excavation of nest hole

CONFIRMED

DD-distraction display or injury feigning

NU-used nest or eggshell found [occupied/laid during atlas period]

FY-recently fledged young or downy young.

AE-adults leaving or entering nest site in circumstances indicating occupied nest

FS-adult carrying faecal sac

CF-adult carrying food for young

NE-nest containing eggs

NY-nest with young seen or heard

4.6.2. Species of Conservation Concern

Species status for all fauna was evaluated using the following sources:

• The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) list for national status designations (current list at time of report preparation).

The Species at Risk Act (SARA) for federally listed species (current at time of report preparation);

- The Committee on the Status of Species at Risk in Ontario (COSSARO) list for provincial status designations (current list at time of report preparation);
- The NHIC / Biodiversity Explorer website for provincial rarity ranks (i.e. S-Ranks);
- The Significant Wildlife Habitat Technical Guide (OMNR 2000) list of 'Area Sensitive' bird species.

Of the 20 spring/summer resident bird species (most with some breeding evidence), there was one (1) species of conservation concern for its status of Special Concern in Ontario:

Eastern Wood-pewee

4.7. Incidental Wildlife

Table 6. Incidental Wildlife Summary

Scientific Name	Common Name	Evidence	Abundance
Anaxyrus americanus	American Toad	Visual	1
Sylvilagus floridanus	Eastern Cottontail	Auditory	1
Tamiasciurus hudsonicus	Eastern Red Squirrel	Visual and Auditory	
Falconiformes sp.	Falcon sp.	Visual	

5. Species at Risk Screening

The Endangered Species Act, 2007, S.O. 2007 was passed to protect the biodiversity of Ontario by using the best available scientific, community and indigenous traditional knowledge and the precautionary principle as its doctrine. The purpose of the Act is to identify species at risk, protect species at risk and their habitats, and to promote the recovery of species at risk and stewardship activities which assist in these goals. The Committee on the Status of Species at Risk in Ontario (COSSARO) functions to maintain an up-to-date database of information pertaining to species in Ontario and their classification. COSSARO advises the Minister of Natural Resources and Forestry, who makes and files a regulation that lists all plant and animal species classified by COSSARO as extirpated, endangered, threatened, or of special concern. This regulation is the Species at Risk in Ontario List, O. Reg 831/21. Ontario Regulation 831/21 provides general policies concerning exemptions and habitat specifications for those listed species, Species at Risk (SAR).

5.1. Screening

Screening for the possible occurrence of Species at Risk was conducted using the various sources including the NHIC Make-a-Map feature, that screens for potential Species at Risk on or within a 1-kilometer grid of the Subject Property (17PJ0259). The following screening results (Table 7) include the NHIC report and additional sources and databases detailed in Appendix C.

Table 7. Screening Results

Common Name	Scientific Name	S Rank	SARO Status	COSEWIC Status	Database
		В	irds		
Acadian Flycatcher	Empidonax virescens	S2S3B	Endangered	Endangered	OBBA
Common Nighthawk	Chordeiles minor	S4B	Special Concern	Special Concern	OBBA
Eastern Wood-pewee	Contopus virens	S4B	Special Concern	Special Concern	OBBA

Common Name	Scientific Name	S Rank	SARO Status	COSEWIC Status	Database		
Bank Swallow	Riparia riparia	S4B	Threatened	Threatened	OBBA		
Wood Thrush	Hylocichla mustelina	S4B	Special Concern	Threatened	OBBA		
Bobolink	Dolichonyx oryzivorus	S4B	Threatened	Threatened	NHIC, OBBA		
Eastern Meadowlark	Sturnella magna	S4B	Threatened	Threatened	NHIC, OBBA		
Chimney Swift	Chaetura pelagica	S4B,S4N	Threatened	Threatened	OBBA		
Barn Swallow	Hirundo rustica	S5B	Threatened	Threatened	OBBA		
Fish							
Redside Dace	Clinostomus elongatus	S 1	Endangered	Endangered	NHIC, DFO		
Reptiles							
Snapping Turtle	Chelydra serpentina	S4	Special Concern	Special Concern	NHIC		
Midland Painted Turtle	Chrysemys picta marginata	S4	Special Concern	Special Concern	NHIC		
Eastern Ribbonsnake	Thamnophis sauritus	S4	Special Concern	Special Concern	NHIC		
Eastern Milksnake	Lampropeltis Triangulum	S4	NAR	Special Concern	NHIC		
Insects							
Monarch	Danaus plexippus	S2N,S4B	Special Concern	Endangered	Butterfly Atlas		

5.2. Assessment

Based on the results of the SAR screening and the habitat potential on the Subject Property to host SAR identified through field reconnaissance, the following species were brought forward for a species assessment:

- Little Brown Myotis (Myotis lucifugus) **Endangered** [Habitat]
- Tri-coloured Bat (Perimyotis subflavus) Endangered [Habitat]
- Northern Myotis (Myotis septentrionalis) **Endangered** [Habitat]

- Eastern Wood-pewee (Contopus virens) **Special Concern** [Occurrence]
- Eastern Milksnake (Lampropeltis Triangulum) Special Concern [Habitat]
- Eastern Ribbonsnake (*Thamnophis sauritus*) **Special Concern** [Occurrence]

SAR Bats:

Little Brown Myotis

The little brown myotis was designated Endangered under Ontario's *Endangered Species Act* on January 23, 2013. Its population is widespread across Ontario and most of North America. It is nocturnal and hibernates from fall until spring, most often in caves or abandoned mines which are humid. In the active half of the year they roost in trees and buildings where they colonize to raise young. They have glossy brown fur and weigh between 4 -11 grams with a wingspan of 22-27 centimeters. A fleshy projection that covers the entrance to the ear which is long, thin and rounded at the tip distinguishes them from other bat species. They feed at night on insects and are most active in the hours just after sunset. White nose syndrome, caused by a fungus of European origination, threatens this species. It propagates in environments very similar to the hibernating environments use by these bats (humid and cold). Mass dies offs are possible at more than 75% of Ontario's hibernation sites due to the fungus' affect on hibernation cycles, metabolism and fat storage.

Northern Myotis

The northern myotis was designated Endangered under Ontario's *Endangered Species Act* in January 2013, impacted by the white nose syndrome. Prior to the spread of the fungal disease across North America, the North Myotis was found throughout forested areas across southern and northern Ontario, and throughout all Canadian provinces. This species, previously known as northern long-eared bats, had long, rounded ears with dull yellow-brown fur and pale grey bellies. They are approximately eight centimeters in length and have a wingspan of approximately 25 centimeters. This Myotis species is similar in looks to the little brown bat (*Myotis lucigufus*) save for the pointed tip at the northern myotis ear. Distinct from the little brown bat, this species prefers to roost under loose, exfoliating bark more often than within tree cavities during the summer rearing months. Hibernation throughout the winter occurs in obscure caves far from the summer foraging grounds and is the root location for the spread of the white nose syndrome. Mass die-offs of up to 90 percent of overwinter populations occur in infected hibernacula. This emphasizes the importance of successful reproduction of remaining individuals at summer maternity roosting habitat.

Tri-coloured Bat

The Tri-coloured bat was designated Endangered under Ontario's *Endangered Species Act* on June 15, 2016, due to the impacts of white nose syndrome on the population. This species is very rare and their population is more scattered across the province as such. The species is similar in size to the myotis, but orange-red colouring in the muzzle, ears and forearms distinctly mark it. Tri-colouring on its back in black, yellow and brown, is indicated by its name. Similar to the myotis, this species is an aerial insectivore with

summer roosting locations in forests and buildings and overwinter hibernation in caves. Unlike myotis, they typically hibernate by themselves rather than in a larger unit.

The Subject Property contains mature trees that have the potential to host SAR bats. A leaf-off snag survey determined one suitable tree for roosting bats on the Subject property. Buildings/structures on the property may also support SAR roosting bats. Removal of the structures should undergo an assessment to determine suitable habitat. If suitable maternity roosting habitat is determined, structures should be removed outside of the roosting bat window to minimize potential impacts to SAR bats. Additionally, the restoration plan includes artificial bat habitat to offset the removal of the single landscape tree.

Eastern Wood-pewee:

The Eastern Wood-pewee was designated as Special Concern on the Species at Risk in Ontario List on June 27, 2014. An aerial insectivore forest bird, it is identified by its distinct "pee-ah-wee" song and is difficult to distinguish from related species by morphology. Individuals reach only 15 cm in length and colouring is adapted to provide camouflage within the forest setting. It is one of many forest flycatchers which partition the forest canopy into different niches of foraging habitat. The most common habitat is intermediate-age to mature forest with limited understory vegetation, though it is also found along forest edges and within clearings of forests. The species is found throughout the eastern half of the continent with its northern limit located north of the Great Lakes system. Threats to the species survival are relatively unclear but may include overall land use conversion and loss of forest, a decrease in available prey, an increase in predators (urbanized squirrels and jays), and impacts related to the over-browsing of forests by White-Tailed Deer. Threats specific to migration and overwinter habitat in the south must also be considered.

The Eastern Wood-pewee was heard in the forested area on the edge or outside the boundaries of the Subject Property. This species habitat is not being impacted by the proposed development, therefore no negative impacts are anticipated.

Eastern Milksnake:

The Eastern Milksnake was designated as Special Concern under COSEWIC in 2002 and reconfirmed in May 2014. It is a non-venomous constrictor with brightly coloured, glossy smooth scales and a single anal plate. There are currently 25 recognized subspecies of Milksnake, only the northernmost subspecies, the Eastern Milksnake (L. t. triangulum), occurs in Canada. This subspecies generally grows to be 60-90 cm in length. It has large red or reddish-brown oval blotches outlined in black along its back, and one or two rows of smaller blotches along each side. The blotches are bright red in young Eastern Milksnakes but fade as the snake ages. There is usually a light-coloured Y- or V-shaped pattern on the back of the head and neck. The belly has a black checkerboard pattern on a tan, gray or whitish background, which may be obscured by dark pigment in older individuals.

In Canada, the Eastern Milksnake ranges throughout the Carolinian and the Great Lakes/St. Lawrence zones. In Ontario, some records have occurred as far north as Sault Ste Marie, the north shore of Lake Huron, and Lake Nipissing. The current distribution of the Eastern Milksnake in Ontario stretches from the extreme southwest up to Echo Lake in Algoma District and as far east as Ottawa and Brockville.

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The Eastern Milksnake inhabits a wide variety of natural and human-modified habitats including prairies, meadows, pastures, hayfields, rocky outcrops, rocky hillsides and forests (deciduous, coniferous, and mixed). In addition, an analysis of Ontario's Reptile Atlas identifies the Eastern Milksnake within the 10km grid square (17PJ05) of the Subject Property in 2012. Due to the composition of the site and surrounding area (Section 1.1), there is suitable habitat for the Eastern Milksnake. As such, the Subject Property has the potential to provide habitat for this species at risk. Development of the property should consider ecological enhancements for this species to prevent any net negative impacts.

Eastern Ribbonsnake

The Eastern Ribbonsnake was already assessed as a species of special concern when the *Endangered Species Act* took effect in 2008 and was re-assessed as special concern in 2013. The Eastern Ribbonsnake is a slender snake with three bright yellow stripes running down its back and sides, contrasting sharply with its black back. Eastern Ribbonsnakes have a white chin, whitish-yellow belly and a distinct white crescent in front of each eye that can be used to distinguish it from a Gartersnake. The Eastern Ribbonsnake is usually found close to water, especially in marshes, where it hunts for frogs and small fish.

Although there is little historical data on the occurrence of this species in Ontario, it is likely that the Eastern Ribbonsnake has declined or even disappeared from many parts of southwestern Ontario due to the extensive loss of wetland and shoreline habitat in that region. The ongoing conversion of wetland to agricultural and urban uses, shoreline development and other habitat loss continues to be the main threat to this species in Ontario.

Ontario's Reptile Atlas' most recent observation for this species was in 1984. In addition, their habitat is restricted to areas within the valley. No net negative impacts to this species are expected.

5.3. SAR Assessment Discussion

A number of species at risk were brought forward as potentially occurring within the Study Area. Based on a review of available online resources and observations made in the field, the Subject Property has the potential to provide suitable habitat for the following species:

- Little Brown Myotis (Myotis lucifugus)
- Tri-coloured Bat (Perimyotis subflavus)
- Northern Myotis (Myotis septentrionalis)
- Eastern Milksnake (Lampropeltis Triangulum)

Based on this assessment, development at the site allows opportunity to provide ecological enhancements for these species, to provide an overall net gain to the area (refer to Section 9.1).

6. Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) is considered natural heritage and is protected as per Section 2.1 of the Provincial Policy Statement, 2020. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description, and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for

assessing and confirming SWH within Ontario. This section will provide a screening in the form of a summary table followed and an assessment of the potentially or confirmed occurring SWH.

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Study Area. The documented groups wildlife habitat into five main categories:

- a) Seasonal concentration areas of animals;
- b) Rare vegetation communities or specialized habitats for wildlife;
- c) Specialized Habitat for Wildlife
- d) Habitat for species of conservation concern; and,
- e) Animal movement corridors.

The full screening found in Table A 3 in Appendix D consisted of a review of the habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 5.

6.1. SWH Assessment

Based on a review of background information and accompanying field studies, there is one habitat of seasonal concentration areas of animals:

a) Bat Maternal Colonies

Bat Maternity Colonies are designated as seasonal concentration areas of animals as per the Criteria for SWH in Ecoregion 6E (MNRF, 2015). One snag tree was identified for the Subject Property that may be suitable habitat for bat maternity roosting. The Subject Property contains mature landscape trees that may be suitable for roosting bats. The woodland within and adjacent to the property may also contain suitable bat habitat.

No candidate or confirmed SWH was found in the categories of specialized habitat for wildlife, habitat for species of conservation concern (SCC), rare vegetation communities or animal movement corridors.

7. Proposed Development

The Subject Property is approximately 0.86 ha with the proposed development occupying approximately 0.14 ha. The proposed development will include the construction of fifteen (15) townhouse units and associated parking and backyard areas. The proposed Site Plan (Figure 1) indicates that some trees will be removed within EPA lands to accommodate the widening of Nunnville Road as per the Town of Caledon's urban design requirements. As per Figure 1 from the TPP (see Appendix D), the trees proposed to be removed for the purpose of widening Nunnville Road are primarily small non-native/hybrid species such as Scots Pine and Freeman Maple.

7.1. Natural Heritage System Buffers

A detailed review of the site found that the natural heritage system is defined on this site by the presence of the valley slope. The limit of the valley slope was calculated using the Long Term Stable Top of Slope. The vegetation community found on the valley slope was characterised as a buckthorn thicket. Woodlands in the Town of Caledon are defined as vegetation communities that are greater than 0.5 ha and have

- a) A tree crown cover of over 60% of the ground, determinable from aerial photography, or
- b) A tree crown cover of over 25% of the ground, determinable from aerial photography, together with on-ground stem estimates of at least:
- *i)* 1,000 trees of any size per hectare, or
- ii) 750 trees measuring over five centimetres in diameter at breast height (1.37m), per hectare, or
- iii) 500 trees measuring over 12 centimetres in diameter at breast height (1.37m), per hectare, or
- iv) 250 trees measuring over 20 centimetres in diameter at breast height (1.37m), per hectare (densities based on the Forestry Act of Ontario, 1998)

The buckthorn thicket doers not meet the minimum requirements for definition as a woodland in the Town of Caledon.

Additionally, the Town of Caledon Official Plan states that 'additional exclusions may be considered for treed communities which are dominated by invasive non-native tree species such as buckthorn (Rhamnus species) and Norway maple (Acer plantanoides), or others deemed to be highly invasive, that threaten the ecological functions or biodiversity of native communities. Such exceptions should be supported by site-specific studies that consider 1) the degree of threat posed; 2) any potential positive and/or negative impact on the ecological functions or biodiversity of nearby or adjacent native communities; and 3) the projected natural succession of the community. Communities where native tree species comprise approximately 10 percent or less of the tree crown cover and approximately 100 or fewer stems of native tree species of any size per hectare would be candidates for exclusion.'

On the basis of the above, the buckthorn thicket was not used as a determining limit for the natural heritage feature and the buffer was measured from the Long Term Stable Top of Slope. The proposed buffer encroachment to the LTSTOS 10 m buffer is 261 m².

8. Environmental Impact Assessment

The following section presents potential impacts of the proposed development based on the existing conditions of the natural heritage features located on or adjacent to the Subject Property as identified to date. This section also identifies mitigation measures and compensation opportunities that will be used to minimize impacts of the proposed development. The proposed development will result in a slight intensification of land use; however, this is not expected to result in any additional impacts to the adjacent natural heritage features.

8.1. Impact Summary Table

Impacts to the various natural heritage features associated with and adjacent to the Subject Property were considered in the impact analysis. Table 8 presents the natural heritage components which were considered in this assessment, the proposed activity associated with that component, potential short term and long-term impacts and recommended mitigation measures and if any residual effects are anticipated. Potential impacts were assessed using field collected data and secondary source information, including an overlay of the proposed site plan.

Table 8. Impact Assessment Table

Impact	Impact Assessment	Mitigation Measures	Residual Effects					
Short-term Impacts								
Noise from construction activity	Excessive noise could displace or interfere with breeding birds within surrounding wooded areas. Noise may result in the avoidance of the adjacent areas during construction, however as the majority of the wildlife found within the local landscape is tolerant to disturbances, they are anticipated to return to the area once construction activities end.	Since construction noise is very difficult to mitigate, the most effective measure is to limit construction activities during the breeding bird season (April to August) during dawn and dusk periods, as these are the birds most active calling periods.	Noise impacts to wildlife may occur when construction is active. It is anticipated that if wildlife avoids the area during construction, they will likely return once these activities cease. No long-term residual effects expected.					
Dust from construction activities	Dust from construction activities can drift to natural areas and impact nesting birds, visibility, fill voids in gravels used by insects and coat plants.	Water suppression of dust should occur for all construction activities including, but not limited to site grading, haul roads and concrete cutting.	Residual effects are anticipated to be minor and short termed given appropriate dust suppression mitigation measures are incorporated to reduce levels of dust due to construction.					
Tree cutting	Disruption or destruction of active nests. Damage to trees on adjacent properties.	Vegetation clearing should not occur between March 31 st and August 31 st as per the Migratory Birds Convention Act	Residual effects from tree removal are assumed to be relatively minor with proper implementation of tree					

Impact	Impact Assessment	Mitigation Measures	Residual Effects					
		(1994). If clearing is to occur during this time, a nest survey should be completed by a qualified bird biologist to identify nests that are not to be disturbed until the young have fledged.	protection zones for trees located off property. Bat boxes could be erected to offset the removal of potential bat roosting habitat.					
	Long-term Impacts							
Encroachment	Encroachment into the dripline of the forested area could displace the species that inhabit the edge of the forest. Potential of encroachment in the Environmental Policy Area and provincial woodland. Increase in human disturbance.	Incorporation of native plantings within the offset area is recommended. Maintain tree vegetation protection zones where applicable.	Proposed Encroachment areas are proposed primarily for backyards which will likely result in minimal disturbance. The feature is dominant in invasive/non-native species and therefore minimal impacts are expected.					
Light pollution	Light penetration can disrupt nocturnal wildlife by attracting insects to places they may not normally be and making it more difficult for prey to hide in the dark, it may force some animals away from habitats they would otherwise occupy and can alter day/night patterns.	Direct outdoor lighting downward and away from the vegetated communities located east of the Study Area. Reduce the number of outdoor lights that remain on throughout the night. Use long wavelength (ambers and reds) lighting for outdoors, as this colour is perceived as being lower intensity to wildlife (most mammals).	If lighting options are carefully considered during the building design, residual effects and impacts can be limited.					

8.2. Direct Impact Assessment

Construction activity that includes grading, servicing, and development can cause short-term direct impacts to surrounding habitats and possible local and migrating wildlife. In particular, the release of dust from construction activities and the increased noise from construction equipment. GRA has recommended construction measures to ensure minimal impact to the surrounding landscape, therefore no residual effects are expected.

Eight landscape trees are proposed to be removed for the widening of Nunnville Road. As mentioned in Section 7, the trees proposed to be removed are primarily small non-native/hybrid species such as Scots Pine and Freeman Maple no greater than 14 DBH, with the exception of one Scots Pine with a DBH of 20.

The removal of landscape trees identified for removal could have an impact on breeding bird habitat if timing restrictions are not observed. As per the Migratory Bird Convention Act (MBCA), vegetation should not be cleared during the breeding bird season (April 1 – August 31) to mitigate these impacts. Should tree clearing proceed during this time, a nest survey must be completed by a qualified avian biologist to identify any nests that may require a species and disturbance specific protective buffer. The protective buffer is to remain until the young have fledged the nest, or if the nest is deemed inactive. Nest surveys should be completed within 48 hours of the proposed works. Tree removal should also occur outside of the maternal bat roosting window. Recommended mitigation measures include planting of native vegetation within the offset areas and in the streetscape, where feasible. Bat boxes are recommended to offset loss of potential bat roosting habitat. With the proposed offsetting measures, impacts are expected to be minimal.

8.2.1. **Encroachments**

Direct impacts associated with the proposed development includes the minor encroachment into the proposed NHS buffer. Impacts of encroachment into the NHS buffer are expected to be minimal due to the species composition of the woodland/thicket, which is dominant in invasive/non-native trees and shrubs including European Buckthorn and Scot's Pine. Encroachments are proposed at several locations on the site plan (Lots 6 -12) but are expected to be offset by more larger buffers from the dripline in other areas (Lots 2-5) of the proposed plan as seen on Map 3. Approximately 259 m² of a compensatory buffer is proposed north of units 2-5 (Figure 1). An additional ~250 m² of compensatory planting area is proposed north of the site on Town of Caledon land (Drawing L-3). It is expected that the proposed encroachments into the dripline buffer will have minimal impacts to the Natural Heritage Systems associated with the Subject Property as most encroachments will occur within backyards in the proposed plan. The property currently has a manicured lawn currently in the buffer, and therefore changes to the landscape will be minimal.

8.3. Indirect Impact Assessment

Indirect impacts are those which occur as a secondary result of the proposed activity, and not necessarily as a direct result of the activity. These are usually associated with effects such a population growth or density changes or alterations or additions to road networks. In the case of this proposed development, induced impacts are likely minor as there are no proposed changes to road networks (increase road density or alignments), and a small change to population densities. Indirect impacts include an increase in population density near the Environmental Policy Area and Woodland, which could result in pet and wildlife interactions and informal trail use. Impacts are expected to be minimal as the woodland/thicket within the EPA is comprised dominantly of invasive plant species (European Buckthorn and Scot's Pine).

8.4. Cumulative Impacts

Cumulative impacts are changes to the environment due to past, present and the reasonably foreseeable future impacts. The Study Area and surrounding landscape have experienced on-going disturbance from historical and current residential land use.

Since the Study Area and adjacent natural heritage features have been part of an anthropogenic-dominated matrix for some time, large cumulative impacts are not anticipated as a result of the proposed development. It is possible that there will be an additional shift in wildlife, insect and plant communities to those that are more resilient to anthropogenic influences as a result of the proposed development. These changes are expected to be very minimal, as the property will remain residential land use.

9. Mitigation Measures

The following mitigation measures are recommended to avoid and minimize impacts. The measures have two distinct intended outcomes: mitigation to reduce the impact on the NHS and mitigation to reduce the impact of active construction.

9.1. Ecological Enhancements

Based on recent revisions to the site plan, an average 9.0 m buffer was applied to the development from the LTSTOS. To offset the 1 m of buffer that could not be achieved, the following ecological enhancements are recommended to provide an overall net gain to the area.

9.1.1. **Snake Hibernacula**

Under COSEWIC, the Eastern Milksnake was designated as Special Concern in 2002 and reconfirmed in 2014. As per Ontario's Reptile Atlas (Section 0), the Eastern Milksnake was observed within the 10km grid square (17PJ05) of the Subject Property in 2012. As per the Species at Risk Act Management Plan for the Eastern Milksnake (2015), this species inhabits a wide variety of natural and human-modified habitats including prairies, meadows, pastures, hayfields, rocky outcrops, rocky hillsides, and forests (deciduous, coniferous, and mixed). Based on the Site Description (Section 1.1), the Study Area consists primarily of forest, thickets, and residential homes, while the Subject Property consists of a residential dwelling, landscape trees, a hedgerow, manicured lawn and a European Buckthorn and Scots Pine thicket within and bordering the Subject Property limits. Due to the overlap of preferred Eastern Milksnake habitat and the site description, it is possible that the Subject Property may contain suitable habitat for the Eastern Milksnake. As such, the development allows opportunity to provide ecological enhancements for this species.

The Eastern Milksnake requires a variety of habitats for their various life stages:

- Egg-laying sites: rotting logs, stumps, mammal burrows, piles of manure, leaf mounds, sawdust piles, compost, sand, under boards, or in loose soil;
- Hibernation habitat: natural sites such as old burrows and rock crevices human-made structures such as the foundations of old buildings and other human debris (e.g., car parts, old pipes) (Rowell, 2013);
- Basking sites: open and edge habitat. Within these areas, at a micro-habitat scale, Eastern Milksnakes most frequently bask under objects (e.g., planks, stumps, rock piles, rubbish, metal) that are in direct sunlight and provide some protection from predators and are less frequently found basking in the open (COSEWIC 2002).

Based on the aforementioned information, the implementation of artificial planks, rock piles, stumps, leaf and sand mounds, brush piles to be incorporated into the development plan for snake hibernacula enhancements are included in the restoration plan.

9.1.2. **Bat Hibernacula**

As per Section 5.3, the Subject Property has the potential to contain suitable habitat for SAR bats. Any tree removal is recommended to take place between November and March to avoid the bat maternity roosting window. In addition, GeoProcess recommends installing the following:

- Bat boxes: there are several options when considering bat houses for your project. Canadian Bat Houses offers a 4-chamber Motel which holds up to 600 bats. This multi-chamber has received the bat approved certification through Bat Conservation International (BCI), a program that was established in 1998 to help guide proponents on what bat box works best for individual projects. The program outlines the specifications in accordance with published standards to allow certain boxes to become BCI certified. Although it is uncertain how many bats would initially use the box, the Motel allows for expansion as the bats begin to colonize, so they won't need to find a new roost in later years.
- Simulated loose bark: another effective option is installing simulated loose bark on standing structures such as tree snags and utility poles. BrandenBark has been noted amongst literature to have a high success rate as it was designed to mimic natural bark both visually as well as its microclimate conditions of natural roosts (Gumbert et al., n.d). BrandenBark offers a variety of patterns which mimic many different tree species, allowing the proponent to target which bat species is in the area of their project. A study conducted in 2012 placed six BrandenBark structures and found that all six of them were in use by bats within 85 days of installation. Moreover, the study conducted exit count surveys and concluded that 1,892 days were occupied by bats over the four-year study (Gumbert et al., n.d). The study also found that several bat species utilized the BrandenBark structures, such as the endangered species' Little Brown (Myotis lucifugus) and Northern Long-eared Bat (Myotis septentrionalis). Literature suggests that BrandenBark structures should be installed either in forest openings or along edge habitats grouped in clusters of 3-5 roost structures. The research and development behind the BrandenBark structures have been conducted in close coordination with, and approved by the United States Fish and Wildlife Service as a successful mitigation tool (Gumbert et al., n.d).

9.1.3. **Buffer Restoration Plan**

A detailed landscape restoration plan has been prepared by Laud Studios Inc. and includes large stock trees (60 mm cal.) and potted shurbs within the buffer (Drawing L-1). Additional restoration is proposed on municipal land north of the site in an area with an existing clearing (Drawing L-2). Planting details, specifications and habitat structure details are provided on Drawings L3-L7. All landscape drawings are included in Appendix E.

9.1.4. Invasive Species Removal

As per Section 1.1, a European Buckthorn and Scots Pine thicket is located within and bordering the northwestern Subject Property limits. It is recommended that a removal and restoration plan be developed as it will provide an overall net benefit to the area. It is also recommended that the restoration plan incorporate fruit and nut producing native species in replace of the buckthorn to allow for more species

diversity and provide foraging opportunities to wildlife. A detailed Invasive Species Management Plan for buckthorn is provided in Appendix F.

9.1.5. **Other Mitigation Measures**

- Minimize outdoor lighting and direct it down and away from natural areas.
- Inspection by a qualified person(s) to conduct regular monitoring of all sediment and erosion measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.
- Provision of appropriate buffers to the NHS and compensation requirements.
- Incorporate native plantings within the offset areas to compensate for the loss to the NHS.

9.2. Construction Measures

General construction related mitigation measures include the following:

- Tree protection barriers and fencing should be erected at locations as prescribed in the Tree Protection Plan. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail;
- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified in the Tree Protection Plan as a tree protection zone (TPZ) at any time during or after construction;
- The limits of construction are to be delineated and tree protection fencing installed alongside prior to the arrival of heavy equipment on site;
- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented;
- Heavy machinery on site should be washed prior to entering the Subject Property to prevent the spread of invasive species.
- No heavy machinery is to be used or parked beyond the limits of construction within the tree protection zones
- All trees should be felled into the work zone:
- Clearing of vegetation within the Subject Property as part of site preparation should be conducted in late summer or winter months (September-March) so as not to coincide with breeding bird season. If clearing is to proceed within the breeding bird window, the Subject Property should be screened by a qualified bird biologist to determine if any migratory song birds are nesting within work zone;
- Top-soil removed during stripping is recommended to be stockpiled for reapplication postconstruction;
- A construction work plan should designate specific locations for stockpiling of soils and other material;
- Implementation of the erosion and sediment control plan is recommended to prevent releases of sediment into the adjacent natural areas; and,
- Implementation of dust control measures is recommended to reduce dust impacts on the adjacent lands.

10. Policy Conformity

An outline of the applicable policies, including federal, provincial, and municipal protection and planning policies and regulations, relative to the Study Area was provided in Section 2 of this report. In conformity with the policies identified within the Town of Caledon, Peel Region, and TRCA regulations, an evaluation of how the Study Area complied with these policies concludes that the proposed development meets the requirements of mitigating impacts on wildlife habitat and natural functions of the Study Area. It should be noted that the proposed development encroaches within TRCA's regulated areas and, as such, a permit will be required in order to develop within these limits. Potential impacts associated with the proposed development can be mitigated through the appropriate measures mentioned in Section 9. Planning, design, offsetting, and construction measures identified for the Study Area will promote the protection of natural features outlined in this preliminary EIS.

11. Closing



This preliminary EIS has reviewed the proposed development as it relates to the surrounding natural heritage system. Based on the proposed use, the existing site conditions, and surrounding land uses, this preliminary EIS finds that with mitigation and ecological enhancements such as snake hibernaculum, artificial bat roosts and invasive species removal,

the proposed development is anticipated to have minimal impacts on the surrounding woodland and the ecological system that it supports, and the overall natural heritage system of the Town of Caledon.

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Preliminary EIS for 13290 Nunnville Road, Bolton

Prepared for Bolton Summit Developments Inc.

December 6, 2023

Reviewed by:

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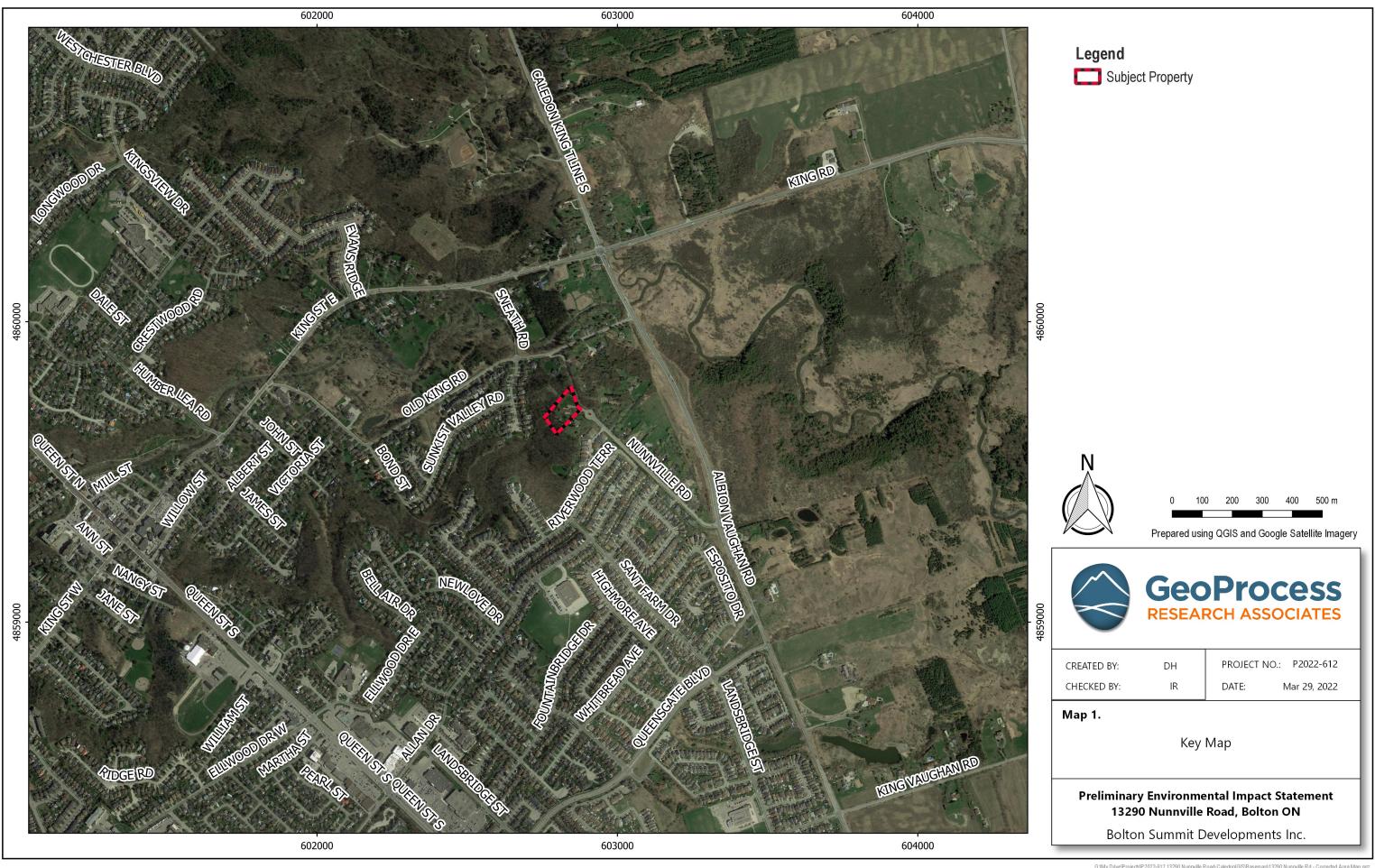
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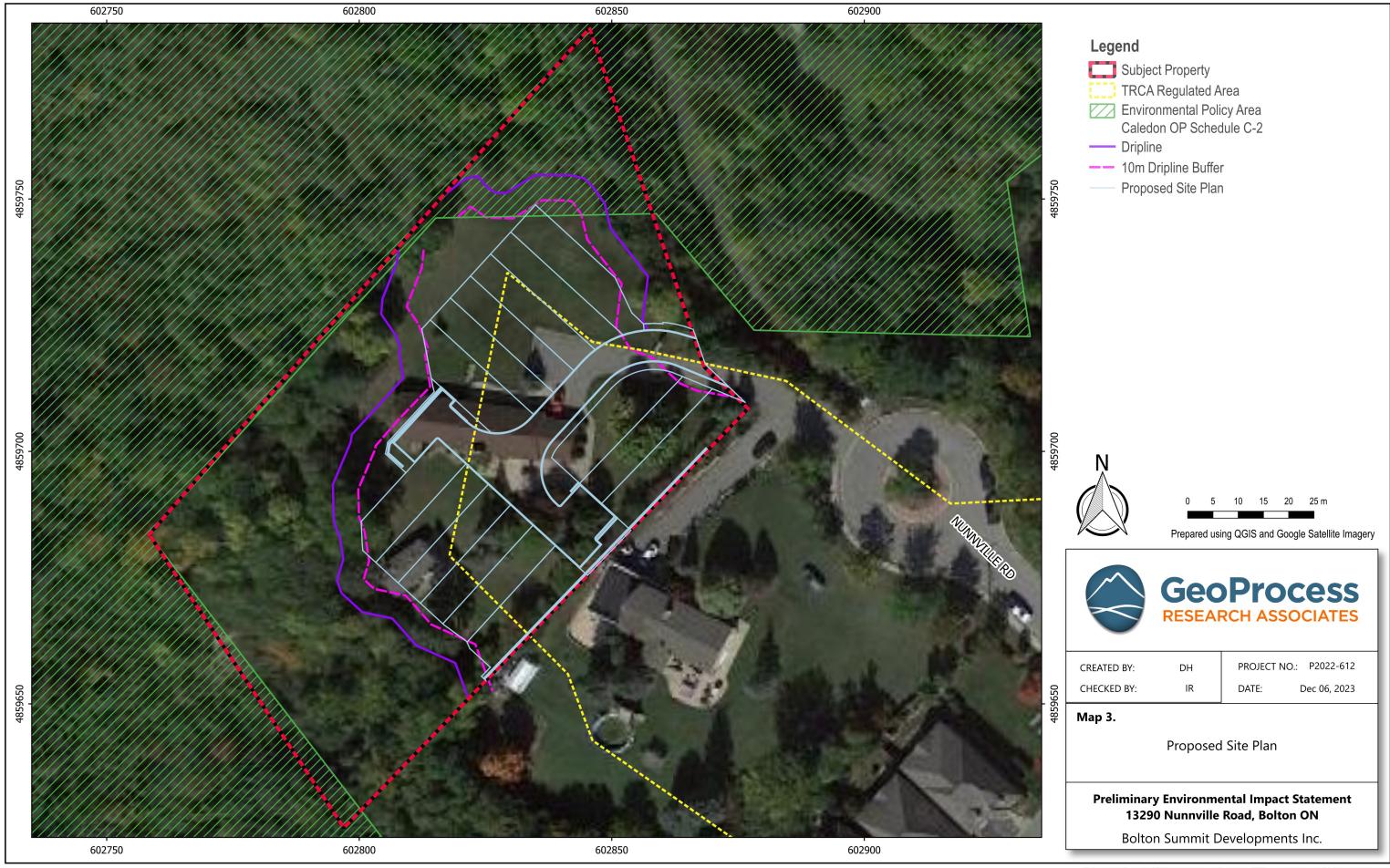
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Maps and Figures









Appendix A

OBBA Full Species List





Consulting

Table A 1. Ontario Breeding Bird Atlas Summary

Scientific Name	Common Name	S RANK	Category
Empidonax virescens	Acadian Flycatcher	S2S3B	POSS
Chordeiles minor	Common Nighthawk	S4B	PROB
Contopus virens	Eastern Wood-pewee	S4B	PROB
Riparia riparia	Bank Swallow	S4B	CONF
Hylocichla mustelina	Wood Thrush	S4B	PROB
Dolichonyx oryzivorus	Bobolink	S4B	CONF
Sturnella magna	Eastern Meadowlark	S4B	CONF
Chaetura pelagica	Chimney Swift	S4B, S4N	POSS
Hirundo rustica	Barn Swallow	S5B	CONF
Branta canadensis	Canada Goose	-	PROB
Aix sponsa	Wood Duck	-	CONF
Anas platyrhynchos	Mallard	-	CONF
Bonasa umbellus	Ruffed Grouse	-	CONF
Meleagris gallopavo	Wild Turkey	-	CONF
Butorides virescens	Green Heron	-	PROB
Cathartes aura	Turkey Vulture	-	PROB
Circus cyaneus	Northern Harrier	-	POSS
Accipiter striatus	Sharp-shinned Hawk	-	CONF
Accipiter cooperii	Cooper's Hawk	-	PROB
Buteo jamaicensis	Red-tailed Hawk	-	CONF
Falco sparverius	American Kestrel	-	PROB
Rallus limicola	Virginia Rail	-	PROB
Porzana carolina	Sora Rail	-	POSS
Charadrius vociferus	Killdeer	-	CONF
Columba livia	Rock Pigeon	-	CONF
Actitis macularius	Spotted Sandpiper	-	CONF
Bartramia longicauda	Upland Sandpiper	-	CONF
Gallinago gallinago	Common Snipe	-	PROB
Scolopax minor	American Woodcock	-	POSS
Zenaida macroura	Mourning Dove	-	CONF
Coccyzus americanus	Yellow-billed Cuckoo	-	CONF

Scientific Name	Common Name	S RANK	Category
Coccyzus erythropthalmus	Black-billed Cuckoo	-	CONF
Megascops asio	Eastern Screech Owl	-	CONF
Bubo virginianus	Great Horned Owl	-	CONF
Aegolius acadicus	Northern Saw-whet Owl	-	PROB
Archilochus colubris	Ruby-throated Hummingbird	-	PROB
Megaceryle alcyon	Belted Kingfisher	-	CONF
Sphyrapicus varius	Yellow-bellied Sapsucker	-	POSS
Picoides pubescens	Downy Woodpecker	-	CONF
Leuconotopicus villosus	Hairy Woodpecker	-	CONF
Colaptes auratus	Northern Flicker	-	CONF
Dryocopus pileatus	Pileated Woodpecker	-	CONF
Empidonax alnorum	Alder Flycatcher	-	PROB
Empidonax traillii	Willow Flycatcher	-	PROB
Empidonax minimus	Least Flycatcher	-	PROB
Sayornis phoebe	Eastern Phoebe	-	CONF
Myiarchus crinitus	Great Crested Flycatcher	-	CONF
Tyrannus tyrannus	Eastern Kingbird	-	CONF
Vireo gilvus	Warbling Vireo	-	POSS
Vireo olivaceus	Red-eyed Vireo	-	CONF
Cyanocitta cristata	Blue Jay	-	CONF
Corvus brachyrhynchos	American Crow	-	CONF
Eremophila alpestris	Horned Lark	-	CONF
Tachycineta bicolor	Tree Swallow	-	CONF
Stelgidopteryx serripennis	Northern Rough-winged Swallow	-	PROB
Petrochelidon pyrrhonota	Cliff Swallow	-	CONF
Poecile atricapillus	Black-capped Chickadee	-	CONF
Sitta carolinensis	White-breasted Nuthatch	-	CONF
Certhia americana	Brown Creeper	-	POSS
Troglodytes aedon	House Wren	-	CONF
Troglodytes hiemalis	Winter Wren	-	POSS



Scientific Name	Common Name	S RANK	Category
Regulus satrapa	Golden-crowned Kinglet	-	POSS
Sialia sialis	Eastern Bluebird	-	CONF
Catharus fuscescens	Veery	-	PROB
Turdus migratorius	American Robin	-	CONF
Dumetella carolinensis	Gray Catbird	-	CONF
Mimus polyglottos	Northern Mockingbird	-	CONF
Toxostoma rufum	Brown Thrasher	-	CONF
Sturnus vulgaris	European Starling	-	CONF
Bombycilla cedrorum	Cedar Waxwing	-	CONF
Vermivora cyanoptera	Blue-winged Warbler	-	POSS
Leiothlypis ruficapilla	Nashville Warbler	-	POSS
Setophaga petechia	Yellow Warbler	-	CONF
Setophaga virens	Black-throated Green Warbler	-	CONF
Setophaga pinus	Pine Warbler	-	PROB
Mniotilta varia	Black-and-white Warbler	-	POSS
Setophaga ruticilla	American Redstart	-	CONF
Seiurus aurocapilla	Ovenbird	-	PROB
Parkesia noveboracensis	Northern Waterthrush	-	PROB
Geothlypis philadelphia	Mourning Warbler	-	CONF
Geothlypis trichas	Common Yellowthroat	-	CONF
Pipilo erythrophthalmus	Eastern Towhee	-	PROB
Spizella passerina	Chipping Sparrow	-	CONF
Spizella pallida	Clay-colored Sparrow	-	CONF
Spizella pusilla	Field Sparrow	-	PROB
Pooecetes gramineus	Vesper Sparrow	-	PROB
Passerculus sandwichensis	Savannah Sparrow	-	CONF
Melospiza melodia	Song Sparrow	-	CONF
Piranga olivacea	Scarlet Tanager	-	POSS
Cardinalis cardinalis	Northern Cardinal	-	CONF
Pheucticus ludovicianus	Rose-breasted Grosbeak	-	CONF
Passerina cyanea	Indigo Bunting	-	CONF



Scientific Name	Common Name	S RANK	Category
Agelaius phoeniceus	Red-winged Blackbird	-	CONF
Quiscalus quiscula	Common Grackle	-	CONF
Molothrus ater	Brown-headed Cowbird	-	CONF
Icterus spurius	Orchard Oriole	-	CONF
Icterus galbula	Baltimore Oriole	-	CONF
Haemorhous mexicanus	House Finch	-	PROB
Spinus tristis	American Goldfinch	-	CONF
Passer domesticus	House Sparrow	-	CONF



Appendix B

Species at Risk Screening Sources

Table A 2. SAR screening resources

Screening Resource	Description
Natural Heritage Information Center (NHIC)	The Natural Heritage Information Center (NHIC), operated by the Ontario Ministry of Natural Resources and Forestry, collects, reviews, manages and distributes information on Ontario's biodiversity. Data distributed by the NHIC is used in conservation and natural resource management decision making and was a primary resource for this report. Through the NHIC Make-a-Map tool, data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. The mapping interface provides current and historical occurrences of SAR within the specified grid unit. The database also identifies environmental designations which provide insight into habitat potential including wetland, areas of natural and scientific interests and woodlands.
Breeding Bird Atlas	The atlas divides the province into 10×10 km squares and then birders find as many breeding species as possible in each square. Atlassers who know birds well by song complete 5-minute "Point Counts", 25 of which are required to provide an index of the abundance of each species in a square. Data from every square are mapped to show the distribution of each species. Point count data from each square show how the relative abundance of each species varies across the province.
eBird	eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard during the outing. eBird's free mobile app allows offline data collection anywhere in the world, and the website provides many ways to explore and summarize your data and other observations from the global eBird community. eBird hotspots that are within 1 km of the Study Area are selected for species review.
Ontario Moth Atlas	The Ontario Moth Atlas is a project of the Toronto Entomologists' Association. The atlas currently covers about 250 species from 7 of the best-known families. The atlas presently includes 62,000 records. The last update of the atlas was in April 2020. The atlas is updated at least every 3 months. Most atlas data come from iNaturalist records. However, there is some data from Chris Schmidt of Agriculture Canada, the BOLD (Barcode of Life Datasystems) project of the University of Guelph, and from other records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
Ontario Butterfly Atlas	The Ontario Butterfly Atlas is a project of the Toronto Entomologists' Association (TEA). The TEA has been accumulating records and publishing annual seasonal summaries (Ontario Lepidoptera) for 50 years, with the first edition appearing in 1969. Atlas data comes from eButterfly records, iNaturalist records, BAMONA records, and records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
i-Naturalist	i-Naturalist is a nature app that helps public identify plants and animals. Using algorithms as well as scientists and taxonomic experts' multiple observations can be identified at a research scale. This data generated by the iNat community can be used in science and conservation. The program actively distributes the data in venues where scientists and land managers can find it. I-Naturalist has a project group for (NHIC) Rare species of Ontario. GRA only records observations with-in 1 km of the Study Area.
Fisheries and Ocean Aquatic Species at Risk Maps	The DFO has compiled critical habitat and distribution data for aquatic species listed under the Species at Risk Act (SARA). The interactive map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters. The official source of information is the Species at Risk Public Registry. Using this map, a 1 km radius circle is outlined around aquatic features located within the Study Area.



Appendix C

SWH Full Assessment (6E)







Table A 3. Significant Wildlife Habitat Screening (6E)

Wildlife Habitat	Candidate SWH Habitat Criteria		Detential on Cita	Rationale	Confirmed Defining Criteria=		
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm		
	Seasonal Concentration Areas of Animal						
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site or species aggregation.	•Any mixed species aggregations of 100+ individuals • the flooded field plus 100- 300m radius, dependant on localized site and adjacent land us • Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required		
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2,MAS3,SAS1,SAM1,S AF1,SWD1,SWD2,SWD3,SWD4,S WD5,SWD6,SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No habitat features on site.	 Aggregations of 100 + of species listred for 7 days, results in > 700 waterfowl use days. Areas with annual staging for ruddyducks, canvasbacks and redheads. The combined area of the ELC ecosites and a 100m radius area. Wetland area and shorelines associated with sites identified within the SWHTG, Appendix 		

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Shorebird		•Shorelines of lakes, rivers		No habitat	K, are significant wildlife habitat. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required •Presence of 3 or more of
Migratory		and wetlands, including		features on	listed species and > 1000
Stopover Area	BBO1,BBO2,BBS1,BBS2,BBT1,BBT 2,SDO1,SDS2,SDT1,MAM1,MAM 2,MAM3,MAM4,MAM5	beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment or storm water management ponds.	No	site.	shorebird use days during spring or fall migration period. •Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
Raptor Wintering	Combo of one of each	A combination of fields		No habitat	•One or more Short-eared
Area	Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW).	and woodlands that provide roosting, foraging and resting habitats for	No	features on site.	Owls or; •One of more Bald Eagles or; • At least 10 individuals and
	Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	wintering raptors. • Need to be > 20 ha.	INO		two of the listed hawk/owl species.



Wildlife Habitat	Candidate SWH	Habitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		 Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water and large trees and snags available for 			 To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. Specific evaluation methods required
Bat Hibernacula	CCR1,CCR2,CCA1,CCA2. * buildings are not to be considered SWH	roosting . May be found in caves, mine shafts, underground foundations and Karsts. •Active mine sites are not considered SWH.	No	No habitat features on site.	•All sites with confirmed hibernating bats are SWH. • area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. •Studies are to be conducted during the peak swarming period (Aug. – Sept.). • Specific survey methods required
Bat Maternity Colonies	All Ecosites in: FOD,FOM,SWD,SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Buildings are not considered SWH.	Yes	Tree snags observed on site	Confimed use by: >10 Big Brown Bats >5 Adult female Silver Haired Bats. The area of the habitat includes the entire woodland or a forest stand ELC Ecosite



Wildlife Habitat	Candidate SWH H	Candidate SWH Habitat Criteria		Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		 Not found in caves or 			or an Ecoelement containing
		mines in ON.			the maternity colonies.
		•Located in Mature			Specific evaluation methods
		Deciduous or mixed			required
		forest stands with			
		>10/ha large diameter			
		(>25cm dbh) wildlife			
		trees.			
		Prefer snags in early			
		stages of decay (class 1-3			
		or class 1 or class 2).			
		•Silver-haired Bats prefer			
		older mixed or			
		deciduous forests with at			
		least 21 snags/ha.			
Turtle Wintering		Wintering areas are in the		No habitat	•Presence of 5 over-wintering
Areas		same general area as their		features on	Midland Painted Turtles is
		core habitat. Water has to		site.	significant
		be deep enough not to			•One or more Northern Map
		freeze and have soft mud			Turtle or Snapping Turtle
	Snapping and Midland Painted:	substrates.			over-wintering within a
	SW,MA,OA,SA and FEO/BOO	•Over-wintering sites are			wetland is significant
	Series. Northern Map: Open	permanent water bodies,	No		The mapped ELC ecosite
	water areas such as deeper	large wetlands, and bogs			area with the over wintering
	rivers or streams and lakes.	or fens with adequate			turtles is the SWH.
		Dissolved Oxygen.			If the hibernation site is
		*Man-made ponds such as			within a stream or river, the
		sewage lagoons or storm			deepwater pool where the
		water ponds should not be			turtles are over wintering is
		considered SWH.			the SWH.





Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
					• Search for congregations in Basking Areas in spring and fall.
Reptile Hibernaculum	Any ecosite other that very wet. •Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. •Observations of congregations in spring or fall is good indicator.	Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in	No	No habitat features on site.	 Presence of snake hibernacula used by - a minimum of five individuals of a snake sp. or; - individuals of two or more snake spp Congregations of -a minimum of five individuals of a snake sp. or; -individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). If there are Special Concern Species present, then site is SWH. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. Hibernacula are used annually, often by the same
		bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.			individuals (strong site fidelity) and other life processes often take place near by





Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		•Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures			
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. CUM1,CUS1,BLS1,CLO1,CLT1,CUT1,BLO1,BLT1,CLS1.	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area *does not include manmade structures, recently (2 years) disturbed soil areas or licenced Mineral Aggregate Operation.	No	No habitat features on site.	 Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. Field surveys to observe and count swallow nests are to be completed during the breeding season. Specific evaluation methods required
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2,SWM3,SWM5,SWM6,SW D1,SWD2,SWD3,SWD4,SWD5,S WD6,SWD7,FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No	No habitat features on site.	Presence of 5 or more active nests of Great Blue Heron or other listed species. The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. Confirmation of active heronries are to be





Wildlife Habitat	Candidate SWH Ha	abitat Criteria	Detential on Cita	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Calavialla Martina		Nextina		No bakitat	achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	No habitat features on site.	 Presence of 25 active nests for Herring Gulls or Ring-billed Gulls, 5 active nests for Common Tern or >2 active nests for Caspian Tern. Presence of 5 or more pairs for Brewer's Blackbird. Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. Studies would be done during May/June when actively nesting. Specfic evaluation methods required



Wildlife Habitat	Candidate SWH Habitat Criteria		Detential on Cita	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD,FOM,CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. •Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. •Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No	No habitat features on site.	 Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD,SWC,SWM,SWD	Woodlots > 10ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those < 2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes.	No	No habitat features on site.	 Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. Studies should be completed during spring (Mar to May) and fall (Aug to Oct) migration using standardized assessment techniques. Specific evaluation methods required





Wildlife Habitat	Candidate SWH Ha	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		•The largest sites are more			
		significant.			
		 Woodlots and forest 			
		fragments are important			
		habitats to migrating			
		birds, these features			
		located along the shore			
		and located within 5km of			
		Lake Erie and Lake Ontario			
		are Candidate SWH.			
Deer Yarding		Deer yarding areas or		Based on a	No Studies Required:
Areas		winter concentration areas		review of	Snow depth and
		(yards) are areas deer		Land	temperature are the greatest
		move to in response to the		Information	influence on deer use of
		onset of winter snow and		Ontario (LIO)	winter yards. Snow depths >
		cold. This is a behavioural		mapping, no	40cm for more than 60 days in
		response and deer will		Deer Yards	a typically winter are minimum
	Note: OMNRF to determine this	establish traditional use		exist on the	criteria for a deer yard to be
	habitat.	areas. The yard is		Subject	considered as SWH.
	ELC Community Series providing	composed of two areas		Property	Deer Yards are mapped by
	a thermal cover component for a	referred to as Stratum I	No		OMNRF District offices.
	deer yard would include; FOM,	and Stratum II. Stratum II	110		Locations of Core or Stratum 1
	FOC, SWM and SWC.	covers the entire winter			and Stratum 2 Deer yards
	Or these ELC Ecosites; CUP2	yard area and is usually a			considered significant by
	CUP3 FOD3 CUT	mixed or deciduous forest			OMNRF will be available at
		with plenty of browse			local MNRF offices or via LIO.
		available for food.			Field investigations that
		Agricultural lands can also			record deer tracks in winter
		be included in this area.			are done to confirm use (best
		Deer move to these areas			done from an aircraft).
		in early winter and			Preferably, this is done over a
		generally, when snow			series of winters to establish



Wildlife Habitat	Candidate SWH H	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		depths reach 20 cm, most			the boundary of the Stratum I
		of the deer will have			and Stratum II yard in an
		moved here. If the snow is			"average" winter. MNRF will
		light and fluffy, deer may			complete these field
		continue to use this area			investigations.
		until 30 cm snow depth.			• If a SWH is determined for
		In mild winters, deer may			Deer Wintering Area or if a
		remain in the Stratum II			proposed development is
		area the entire winter.			within Stratum II yarding area
		• The Core of a deer yard			then Movement Corridors are
		(Stratum I) is located			to be considered as outlined
		within the Stratum II area			in Table 1.4.1 of this Schedule.
		and is critical for deer			
		survival in areas where			
		winters become severe. It			
		is primarily composed of			
		coniferous trees (pine,			
		hemlock, cedar, spruce)			
		with a canopy cover of			
		more than 60%.			
		OMNRF determines deer			
		yards following methods			
		outlined in "Selected			
		Wildlife and Habitat			
		Features: Inventory			
		Manual.			
		•Woodlots with high			
		densities of deer due to			
		artificial feeding are not			
		significant			





Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Deer Winter Congregation Areas	All forested ecosites within: FOC,FOM,FOD,SWC,SWM,SWD + conifer plantations much smaller than 50 ha may be used.	Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. *Woodlots with high densities of deer due to artificial feeding are not significant.	No	No habitat features on site.	*Will be mapped by MNRF. *All woodlots exceeding the criteria are significant unless determined to be not by the MNRF. *Studies to be completed during winter when > 20 cm of snow is on the ground, using aerial survey or pellet count.
		Rare Vegetation Com	munities		
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		debris. Most cliff and talus slopes occur along the Niagara Escarpment.			
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < or equal to 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Sand Barrens. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2, Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with	No	No habitat features on site.	 Studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.





Wildlife Habitat	Candidate SWH H	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		alternating periods of			
		inundation and drought.			
		 Vegetation cover varies 			
		from sparse lichen-moss			
		associations to grasslands			
		and shrublands and			
		comprising a number of			
		characteristic or indicator			
		plants. Undisturbed alvars			
		can be phyto- and			
		zoogeographically diverse,			
		supporting many			
		uncommon or are relict			
		plant and animals species.			
		 Vegetation cover varies 			
		from patchy to barren with			
		a less than 60% tree cover.			
Old Growth Forest		Woodland areas 30 ha or		No habitat	•If dominant trees species of
		greater in size or with at		features on	the area are >140 years old,
		least 10 ha interior habitat		site.	then the area containing these
		assuming 100 m buffer at			trees is Significant Wildlife
		edge of forest.			Habitat.
		Characterized by heavy			The forested area containing
	FOD FOC FOM SWD SWC SWM	mortality or turnover of	No		the old growth characteristics
		overstorey trees resulting			will have experienced no
		in a mosaic of gaps that			recognizable forestry activities
		encourage development			• The area of forest ecosites
		of a multi-layered canopy			combined or an eco-element
		and an abundance of			within an ecosite that contain
		snags and downed woody			the old growth characteristics
		debris.			is the SWH.



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
					• Determine ELC vegetation types for the forest forest area containing the old growth characteristics
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. • Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 6E of the SWHTG, OMNR (2000). •Entire area of the ELC Ecosite is SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic species).
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. •An open Tallgrass Prairie habitat has < 25% tree cover. •No minimum size to site. •Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Prairie indicator species in Appendix N, Ecoregion 6E of The SWHTG, OMNR (2000). •Area of the ELC Ecosite is the SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Techinical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M.	No	No habitat features on site.	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within



Wildlife Habitat	Candidate SWH H	Candidate SWH Habitat Criteria		Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		•May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.			Appendix M of SWHTG, OMNR (2000). •Area of the ELC Vegetation Type polygon is the SWH.
		Specialized Habitat fo	r Wildlife		
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (> 0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. •Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.	No	No habitat features on site.	 Presence of 3 or more nesting pairs for listed species excluding Mallards OR Presence of 10 or more nesting pairs for listed species including Mallards. Any active nesting site of an American Black Duck is considered significant. Nesting studies should be completed during the spring breeding season (April - June). Specific evaluation methods required A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.



Wildlife Habitat	Candidate SWH Ha	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. *Nests located on manmade objects are not to be included as SWH. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	No habitat features on site.	One or more active Osprey or Bald Eagle nests in an area. •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. •For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH. *with additional requirements •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. * with additional requirements •To be significant a site must be used annually. •When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. •Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid August. • Specific evaluation methods required



Wildlife Habitat	Candidate SWH Ha	abitat Criteria	Detential on Cite	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands > 30ha with > 10ha of interior habitat. • Interior habitat determined with a 200m buffer. • Stick nests found in a variety of intermediateaged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No No	No habitat features on site.	Presence of 1 or more active nests from species list is considered significant. •Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) •Barred Owl – A 200m radius around the nest is the SWH. •Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH. •Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search
					area.



Wildlife Habitat	Candidate SWH H	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtlenesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. *Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No	No habitat features on site.	Presence of:
Seeps and Springs	Where ground water comes to the surface. Often they are	Any forested area (with <25%		No habitat features on	Presence of a site with 2 or more seeps/springs should be
	found within headwater areas	meadow/field/pasture)	No	site.	considered SWH.
	within forested habitats. •Any	within the headwaters of a			•The area of a ELC forest
	forested Ecosite within the	stream or river system.			ecosite or an ecoelement

Wildlife Habitat	Candidate SWH H	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
	headwater areas of a stream could have seeps/springs.				within ecosite containing the seeps/springs is the SWH. •The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.
Amphibian Breeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD •Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	Presence of a wetland, pond or woodland pool (including vernal pools) > 500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). • Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	No	No habitat features on site.	Presence of breeding population of: - 1 or more of the listed newt/salamander species or - 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or - 2 or more of the listed frog species with Call Level Codes of 3. • A combo fo observational and call count surveys required during the spring (March-June) . • The habitat is the wetland area plus a 230m radius of woodland area. • If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.





Wildlife Habitat	Candidate SWH Ha	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Amphibian Beeding Habitat (Wetlands)	ELC Community Classes SW, MA, FE, BO, OA and SA. •Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	Wetlands > 500m2 (about 25m diameter), supporting high species diversity are significant; •some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. •Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	No	No habitat features on site.	Presence of breeding population of: -1 or more of the listed newt/salamander species or -2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or -2 or more of the listed frog/toad species with Call Level Codes of 3. or; -Wetland with confirmed breeding Bullfrogs are significant. •The ELC ecosite wetland area and the shoreline are the SWH. •A combo of observational and call count surveys will be required during the spring (March-June). •If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.
Woodland Area- Sensitive Bird Breeding Habitat	All Ecosites withing: FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.	No	No habitat features on site.	Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. *any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		•Interior forest habitat is at least 200 m from forest edge habitat.			 Conduct field investigations in spring and early summer. Specific evaluation methods required
	Habitat for Species of Con	servation Concern (Not inclu	ıding Endangered oı	Threatened Sp	ecies)
Marsh Bird Breeding Habitat	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water	No	No habitat features on site.	Presence of: - 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes or; -breeding by any combination of 5 or more of the listed species. •any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. •Area of the ELC ecosite is the SWH. •Breeding surveys should be done in May/June. • Specific evaluation methods required
Open Country Bird Breeding Habitat	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) > 30 ha. •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay	No	No habitat features on site.	Presence of nesting or breeding of: -2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH.



Wildlife Habitat	Candidate SWH F	labitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		or livestock pasturing in the last 5 years). •Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.			 The area of SWH is the contiguous ELC ecosite field areas. Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. Specific evaluation methods required.
Shrub/Early Successional Bird Breeding Habitat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 •Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha in size. •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years). •Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species.	No	No habitat features on site.	Presence of nesting or breeding of - 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellowbreasted Chat or Golden-winged Warbler is to be considered as SWH. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.





Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		•Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.			Specific evaluation methods required
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1- with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. •Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.	No	No habitat features on site.	Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. • Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.
Special Concern and Rare Wildlife Species	All plant and animal element occurrences (EO) within a 1 or 10km grid. All Special Concern and Provincially Rare plant and animal species.	identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	N/A	See SAR Screening Section	Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. •The area of the habitat to the finest ELC scale that protects



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
					the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.
		Animal Movement C	orridors		
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	No habitat features on site.	Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.



Wildlife Habitat	cat Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.	 Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway Shorter corridors are more significant than longer corridors.
		Exceptions for EcoRe	gion 6E		
Mast Producing Areas (Black Bear) •EcoDistrict 6E-14	All Forested habitat represented by ELC Community Series: FOM FOD	Black bears require forested habitat that provides cover, winter hibernation sites, and mastproducing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears Criteria	No	Site not located within EcoDistrict 6E- 14	•All woodlands > 30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5





Wildlife Habitat	Candidate SWH	Habitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=		
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm		
Lek (Sharp-tailed grouse) •EcoDistrict 6E-17	LEC LCOSITE COdes	•Woodland ecosites >30ha with mast- producing tree species, either soft (cherry) or hard (oak and beech) The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in		Site not located within EcoDistrict 6E- 17	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with		
		topography. • Leks are typically a grassy field/meadow > 15ha with adjacent shrublands and > 30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.			sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.		
	CUM CUS CUT	Criteria •Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed	No				





Wildlife Habitat	Candidate SWH H	abitat Criteria	Potential on Site	Rationale	Confirmed Defining Criteria=
	ELC Ecosite Codes	ELC Ecosite Codes	Potential on Site		Studies to confirm
		by cultivation or invasion by woody plants or tree planting			



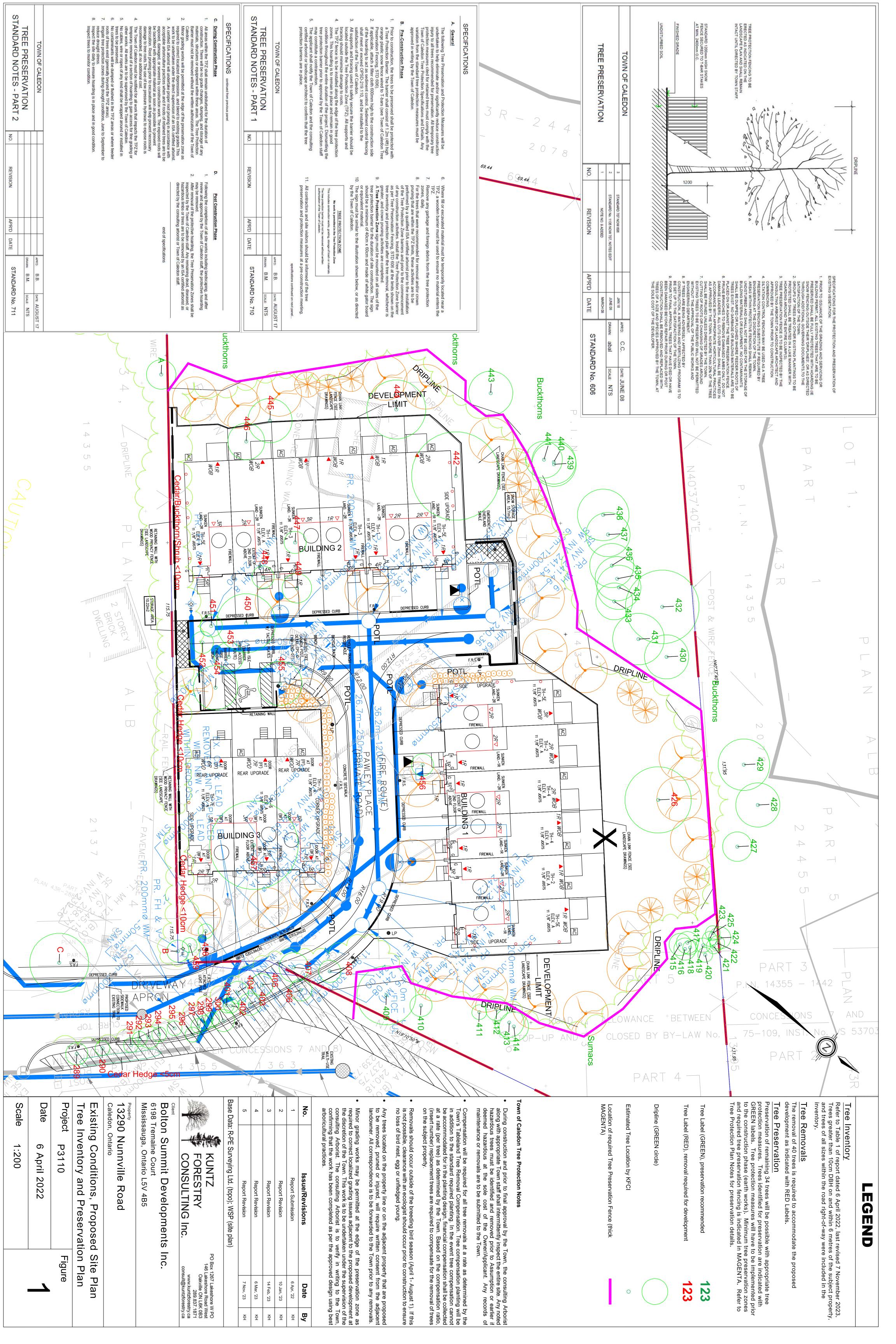


Appendix D

Tree Inventory







Tree Inventory and Preservation Plan Report 13290 Nunnville Road Caledon, Ontario

prepared for

Bolton Summit Developments Inc. 6198 Tremaine Court Mississauga, Ontario L5V 4B5

prepared by



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6 April 2022, revised 10 January 2023, 14 February 2023, 6 March 2023 and 7 November 2023

KUNTZ FORESTRY CONSULTING Inc. Project P3110

Introduction

Kuntz Forestry Consulting Inc. was retained by Bolton Summit Developments Inc. to complete a Tree Inventory and Preservation Plan Report in support of a development application for the property at 13290 Nunnville Road in the Town of Caledon, Ontario. The subject property is located on the north end of Nunnville Road, within a residential area.

The work plan for this study included the following:

- Prepare inventory of the tree resources over 10cm on and within six metres of the proposed development:
- Evaluate tree saving opportunities based on proposed site plans and grading; and,
- Document the findings in a Tree Inventory and Preservation Plan report.

Trees included were visually assessed for condition utilizing the following parameters:

Tree # - number assigned to trees that corresponds to Figure 1.

Species - common and botanical names provided in the inventory table.

DBH - diameter (centimeters) at breast height, measured at 1.4 m above the ground.

Condition - condition of tree considering trunk integrity (TI), crown structure (CS) and crown vigor (CV). Condition ratings include poor (P), fair (F), and good (G);

Crown Die Back – Percentage of dead branches within the crown.

Drip Line - Crown radius; and

Comments – Any other relevant tree condition information.

The results of the evaluation are provided below.

Methodology

Trees measuring over 10cm DBH on and within six metres of the proposed development were identified included in the tree inventory. Trees were located using a handheld GPS unit (Trimble GeoExplorer® 6000 series) accurate to ±1m. Trees included in the inventory were identified with numbers 289-300 and 401-459. Trees located on the neighbouring properties are identified with letters A-C. Tree locations are shown on Figure 1. See Table 1 for the results of the inventory.

Existing Site Conditions

The subject property is currently occupied by one residential dwelling, a shed, and an asphalt driveway. There is a woodlot on the west and east side of the subject property regulated by the Toronto and Region Conservation Authority (TRCA). Tree resources exist in the form of landscape trees and natural generations. Refer to Figure 1 for the existing site conditions.

Individual Tree Resources

The tree inventory was conducted on 11 March 2022. The inventory documented 74 trees on and within six metres of the proposed development. Refer to Table 1 for the full tree inventory and Figure 1 for the location of tree reported in the tree inventory.

Tree resources included in the inventory are Freeman Maple (*Acer x freemanii*), Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Shademaster Honey Locust (*Gleditsia triacanthos 'inermis'*), Black Walnut (*Juglans nigra*), Apple Species (*Malus spp.*), White Mulberry (*Morus alba*), White Spruce (*Picea glauca*), Blue Spruce (*Picea pungens*), Red Pine (*Pinus*)

resinosa), Scots Pine (*Pinus sylvestris*), Bur Oak (*Quercus macrocarpa*), Red Oak (*Quercus rubra*), Ivory Silk Lilac (*Syringa reticulata 'Ivory Silk'*), and Eastern White Cedar (*Thuja occidentalis*).

The woodlot located on the west side of the subject property is dominated by invasive European Buckthorn (*Rhamnus cathartica*) with scattered Hawthorns (*Crataegus spp.*). This woodlot can be a candidate for restoration opportunities.

Proposed Development

The proposed development includes the demolition of the existing dwelling and the construction of 15 townhouses and associated driveway. Refer to Figure 1 for the proposed development.

Discussion

The following sections provide a discussion and analysis of development impacts, tree removal requirements and tree preservation relative to the proposed development.

Development Impacts/Tree Removals

The removal of 40 trees is required to accommodate the proposed development. Required tree removals include Trees 289-300, 401-408, 426, 442, 444-459, B and C. Trees 289-300, 401-406 and C are located within the Town road right-of-way; the remaining trees for removal are located within the subject property. Refer to Figure 1 for the location of the proposed tree removals.

During the construction and prior to the final approval by the Town of Caledon, KFCI staff along with appropriate Town staff shall inspect the entire site. Any noted hazardous trees must be identified and removed prior to final approval. No additional hazard tree monitoring will be required as all hazard trees should be removed prior to the proposed development. All tree removals must be conducted outside of the bird breeding season (April 1st – August 1st).

The owner must retain the same Certified Arborist to carry out the recommendations in TIPP report to the satisfaction of the Town. A certification letter will be provided by a Certified Arborist that tree removals have been completed as per the approved TIPP report. An additional certification letter from the same Arborist that confirms any long-term requirements and recommendations in the report have been carried out.

The owner is solely responsible for ongoing maintenance and repairs to tree protection fencing throughout the proposed development.

Tree Preservation

The preservation of the remaining 34 trees will be possible with appropriate tree protection measures. Recommended tree preservation includes Trees 409-425, 427-441, 443, and A. Sediment and erosion control fencing should be sufficient as tree protection fencing. Refer to Figure 1 for the location of prescribed tree preservation fencing, further tree preservation plan notes and the tree protection fencing detail.

Areas within the tree protection zone shall remain undisturbed for the duration of site construction and shall not be used for the storage of excavated fill, building/construction materials, or equipment.

The limit of tree protection hoarding shall be confirmed in the field by the consulting arborist, Town staff, and conservation authority (if applicable). The Owner/Applicant shall be responsible for ongoing maintenance and repairs to the tree protection fencing to the satisfaction of the Town, until final approval by the Town and conservation authority (if applicable). The Owner/Applicant shall not remove and not cause or permit any tree preservation fencing to be removed without the approval of the Town and conservation authority (if applicable).

Tree Compensation

The Town of Caledon requires tree compensation for any healthy tree removal. The compensation ratio is below:

Diameter at Breast Height (DBH)	Compensation Ratio
<10cm	Not applicable
10-20cm	1:1
21-35cm	2:1
36-50cm	3:1
51-65cm	4:1
>65cm	5:1

The removal of 40 trees is proposed to accommodate the proposed site plan. Trees 455 and 457 are in poor condition and not applicable to compensation requirements. As such, a total of 46 replacement plantings is required on the subject property. Refer to Landscape Plan for the planting plan.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Bolton Summit Developments Inc. to complete a Tree Inventory and Preservation Plan in support of a development application for the property located at 13290 Nunnville Road in Caledon, Ontario. A tree inventory was conducted and reviewed in the context of the proposed development plan.

The findings of the study indicate a total of 74 trees on and within six metres of the proposed development. The removal of 40 trees is required to accommodate the proposed development. The preservation of the remaining 34 trees will be possible with appropriate tree protection measures.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for additional Tree Protection Plan Notes and tree preservation fence detail.

- Tree protection barriers and fencing should be erected at locations as prescribed on Figure 1.
 All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.
- No construction activity including surface treatments, excavations of any kind, storage of
 materials or vehicles, unless specifically outlined above, is permitted within the area identified
 on Figure 1 as a tree protection zone (TPZ) at any time during or after construction.
- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree

protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

Town of Caledon Tree Protection Notes

- During construction and prior to final approval by the Town, the consulting Arborist along with appropriate Town staff shall intermittently inspect the entire site. Any noted hazardous trees must be identified and removed prior to Assumption or earlier if deemed hazardous at the sole cost of the Owner/Applicant. Any records of maintenance or removals are to be submitted to the Town.
- Compensation will be required for all tree removals at a rate as determined by the Town's
 Tableland Tree Removal Compensation. Tree compensation planting will be in addition to the
 standard required planting. In the event tree compensation cannot be accommodated for in
 the planting design, financial compensation shall be collected at a rate (per tree) as determined
 by the Town. Based on the compensation ratio, (insert number) replacement trees are required
 to compensate for the removal of trees on the subject property.
- Removals should occur outside of the breeding bird season (April 1- August 1). If this is not
 possible, clearance with an ecologist should occur prior to construction to ensure no loss of
 bird nest, egg or unfledged young.
- Any trees located on the property line or on the adjacent property that are proposed to be removed, pruned or injured, will require written consent from the adjacent landowner. All correspondence is to be forwarded to the Town prior to any removals.
- Minor grading works may be permitted at the edge of the preservation zone as required to correct localized grading issues adjacent to the proposed development at the discretion of the Town. This work is to be undertaken under the supervision of the consulting Arborist. The consulting Arborist is to verify in writing to the Town, confirming that the work has been completed as per the approved design using best arboricultural practices.

Respectfully Submitted, Kuntz Forestry Consulting Inc.

Kaho Hayashi

Kaho Hayashi, B.Sc., M.Sc.F. Associate Forest Ecologist ISA Certified Arborist #ON-2153A

Table 1. Tree Inventory Location: 13290 Nunnville Road, Caledon

Date: 11 March 2022 Surveyors: KH

Tree #	Common Name	Scientific Name	DBH	TI	cs	CV	CDB	DL	Comments	Owner	Action	Comp.
289	Red Oak	Quercus rubra	11.0	FG	G	G	ODD		Seam (L)	Town	Remove	1
290	Red Pine	Pinus resinosa	5.5	G	G	G		1.0	Court (E)	Town	Remove	0
291	Freeman Maple	Acer x freemanii	4, 3.5	FG	G	G		1.0	Union at base	Town	Remove	0
292	Scots Pine	Pinus sylvestris	8.0	G	G	G		1.0		Town	Remove	0
293	Freeman Maple	Acer x freemanii	8, 7.5	FG	G	G		1.5	Co-dominance at 0.1m	Town	Remove	0
294	Freeman Maple	Acer x freemanii	8.0	G	G	G		1.0		Town	Remove	0
295	Freeman Maple	Acer x freemanii	6.5	G	G	G		1.0		Town	Remove	0
296	White Spruce	Picea glauca	10.5	G	G	G		1.0	Crook (L)	Town	Remove	1
297	Freeman Maple	Acer x freemanii	6.5	G	G	G		1.0		Town	Remove	0
298	Scots Pine	Pinus sylvestris	7.5	G	G	G		1.0		Town	Remove	0
299	Freeman Maple	Acer x freemanii	5.5	G	G	G		1.0		Town	Remove	0
300	White Spruce	Picea glauca	13.0	G	G	G		1.5		Town	Remove	1
401	Freeman Maple	Acer x freemanii	5.0	G	G	G		1.0		Town	Remove	0
402	Scots Pine	Pinus sylvestris	11.0	G	G	G		1.0		Town	Remove	1
403	White Spruce	Picea glauca	13.5	FG	G	FG		1.5	Co-dominance at 1.6m	Town	Remove	1
404	Scots Pine	Pinus sylvestris	14.0	G	G	G		1.5		Town	Remove	1
405	White Spruce	Picea glauca	13.5	G	G	G		1.5		Town	Remove	1
406	White Spruce	Picea glauca	14.0	G	G G	O O		1.5		Town	Remove	1
407	Bur Oak Scots Pine	Quercus macrocarpa Pinus sylvestris	12.0 20.0	G	G	G F		2.0		Private Private	Remove	1
409	Manitoba Maple	Acer negundo	24, 18	P	PF	F	20		Union at base, lean (L-M), deadwood, crook (M), broken branches (M), epicormic branches (H)	Private	Remove Preserve	,
410	Scots Pine	Pinus sylvestris	12.0	G	G	FG		1.5	. ,	Private	Preserve	
411	Scots Pine	Pinus sylvestris	10.5	G	G	G		1.0		Private	Preserve	
412	Scots Pine	Pinus sylvestris	12.0	G	G	FG		1.5		Private	Preserve	
413	Norway Maple	Acer platanoides	11.5	FG	G	G		2.0	Co-dominance at 1.6m, crook (M)	Private	Preserve	
414	White Mulberry	Morus alba	11, 10	FG	G	G		2.0	Co-dominance at 1.5m	Private	Preserve	
415	Eastern White Cedar	Thuja occidentalis	15, 14	FG	G	FG		1.5	Co-dominance at 0.3m	Private	Preserve	
416	Eastern White Cedar	Thuja occidentalis	20.0	G	FG	G		1.5	Asymmetrical crown (M)	Private	Preserve	
417	Eastern White Cedar	Thuja occidentalis	18.5	FG	FG	FG		1.5	Co-dominance in crown, asymmetrical crown (M)	Private	Preserve	
418	Eastern White Cedar Eastern White Cedar	Thuja occidentalis	15.0	G	G	FG		1.0		Private	Preserve	
419		Thuja occidentalis	15.0	G	G	F		1.0	C- di	Private	Preserve	-
420 421	Eastern White Cedar Eastern White Cedar	Thuja occidentalis	18.0 15.5	FG G	G FG	F			Co-dominance at 3m Asymmetrical crown (M)	Private	Preserve Preserve	1
421		Thuja occidentalis	17.5	G	G	G		1.0	Asymmetrical crown (IVI)	Private		
423	Eastern White Cedar Eastern White Cedar	Thuja occidentalis Thuja occidentalis	16.5	G	G	F		1.0		Private Private	Preserve Preserve	1
424	Eastern White Cedar	Thuja occidentalis	16.0	G	G	G		1.5		Town	Preserve	1
425	Eastern White Cedar	Thuja occidentalis	11.0	G	G	F	15		Dead leader	Private	Preserve	1
426	Honey Locust (shademaster)	Gleditsia triacanthos inermis	50.5	F	FG	FG	20		Co-dominance at 2.5m with 4 stems, pruning wounds (H) with rot, crook (M), epicormic branches (M)	Private	Remove	3
427	Black Walnut	Juglans nigra	17.0	G	G	G		2.0	, ,	Town	Preserve	
428	Annia Chasica		10-18 (avg.	F	FG	FG		3.0	Union at 0 Em with E atoms areak (M)	Tours	Drosonn	
429	Apple Species Apple Species	Malus spp. Malus spp.	14) 22, 10-15	FG	FG	FG			Union at 0.5m with 5 stems, crook (M) Union at base with 7 stems, crook (M)	Town	Preserve Preserve	
		* * * * * * * * * * * * * * * * * * * *	(avg. 12)						, ,			
430	Manitoba Maple	Acer negundo	21.0	FG	G	FG		3.0	Co-dominance at 3.5m, crooK (M), sweep (L)	Private	Preserve	
431	Manitoba Maple	Acer negundo	24, 21	FG	G	FG		3.5	Co-dominance at 1m with included bark (M), crook (M)	Private	Preserve	
432	Manitoba Maple	Acer negundo	23, 17.5	PF	FG	FG		5.0	Union at base, lean (H) to east, sweep (M)	Private	Preserve	
433	Scots Pine	Pinus sylvestris	24.0	G	G	G		2.5		Private	Preserve	
434	Scots Pine Scots Pine	Pinus sylvestris	27.5 23.0	G	G	G		3.0		Private Private	Preserve Preserve	
436	Scots Pine	Pinus sylvestris Pinus sylvestris	25.0	G	G	G		3.0		Private	Preserve	-
437	Scots Pine	Pinus sylvestris Pinus sylvestris	22.0	G	G	G		3.0		Private	Preserve	1
438	Scots Pine	Pinus sylvestris	28.5	G		G		3.5		Private	Preserve	
439	Scots Pine	Pinus sylvestris	24.0	FG	G	FG			Crook (M)	Private	Preserve	
440	Scots Pine	Pinus sylvestris	21.5	G	G	FG		3.0	- (***)	Private	Preserve	
441	Scots Pine	Pinus sylvestris	19.5	G	G	FG		2.5		Private	Preserve	1
442	Honey Locust (shademaster)	Gleditsia triacanthos inermis	59.0		FG			6.0	Co-dominance at 2m with 3 stems, asymmetrical crown (M)	Private	Remove	4
443	Manitoba Maple	Acer negundo	26.5	F	F	F	20	3.0	Co-dominance at 1.6m with included bark (M), lean (L), epicormic branches (M)	Private	Preserve	
444	White Spruce	Picea glauca	45.5	FG	G	F	20		Lean (L), sparse crown (M)	Private	Remove	3
445	White Spruce	Picea glauca	47.5	G	G	F		3.0		Private	Remove	3
446	White Spruce	Picea glauca	35.5	G	G	F			Sparse crown (L)	Private	Remove	2
447	Blue Spruce	Picea pungens	25.0	G	G	F		1.5	Sparse crown (L)	Private	Remove	2
448	Blue Spruce	Picea pungens	23.5	FG	G	F	10	1.0	Crook (M), sparse crown (L)	Private	Remove	2
449	Blue Spruce	Picea pungens	23.0	G	G	F		1.0	Sparse crown (L)	Private	Remove	2
450	Honey Locust (shademaster)	Gleditsia triacanthos inermis	36.0	FG	G	FG		1.0	Co-dominance at 1.8m, pruning wounds (M), epicormic branches (M)	Private	Remove	3
451	Ivory Silk Lilac	Syringa reticulata 'Ivory Silk'	20.5	G	G	G		1.0		Private	Remove	1
452	lvory Silk Lilac	Syringa reticulata 'Ivory Silk'	18.5	G	G	G		1.0		Private	Remove	1

Bolton Summit Developments Inc. 6 Tree Inventory and Preservation Plan, 13290 Nunnville Road, Caledon, ON

453	Blue Spruce	Picea pungens	21.5	G	G	G		1.0		Private	Remove	2
454	White Spruce	Picea glauca	23.0	G	G	G		1.0		Private	Remove	2
455	Norway Maple	Acer platanoides	26.5	F	PF	F	25	1.0	Seam (L), lost leader	Private	Remove	0
456	Blue Spruce	Picea pungens	~13, 12, 10	FG	G	G		1.0	Union at base	Private	Remove	1
457	Norway Maple	Acer platanoides	46.0	Р	PF	PF	40	1.0	Union at 1.6m and 2.5m with 3 stems, vertical crack at union, 1 stem lost leader, stem wound (H), broken branches (M)	Private	Remove	0
458	Norway Maple	Acer platanoides	11.0	G	G	G		1.0		Private	Remove	1
459	Blue Spruce	Picea pungens	17.5	G	G	F	10	1.0	Sparse crown (M)	Private	Remove	1
Α	Black Walnut	Juglans nigra	17.0	G	G	G		2.0		Neighbour	Preserve	
В	Blue Spruce	Picea pungens	18.0	G	G	G		1.5		Private/ Neighbour	Remove	1
С	Red Oak	Quercus rubra	~30	G	G	G		4.0		Town	Remove	2
											TOTAL	46

	Codes								
DBH	DBH Diameter at Breast (cm)								
TI	Trunk Integrity	(G, F, P)							
CS	Crown Structure	(G, F, P)							
CV	Crown Vigor	(G, F, P)							
CDB	Crown Die Back	(%)							
DL	Dripline in radius	(m)							
~ = estimate: (VL) - very light: (L) = light: (M) =									

moderate; (H) = heavy

Appendix A. Photographs of Trees and Property



Image 1. Driveway – view from Nunnville Road (Tree C on left)



Image 2. Trees 289-300 along driveway



Image 3. Trees 300 and 401-408 on left and Trees 458-459 and N on right



Image 4. Trees 406-414



Image 5. Trees 415-425 (right), 427, 428



Image 6. Trees 426 (front), 428, 429



Image 7. Trees 430-438



Image 8. Trees 439-442



Image 9. Trees 443-444



Image 10. Trees 445-446



Image 11. Hedge along fence line on the southwest corner



Image 12. Trees 447-450



Image 13. Trees 451-454



Image 14. Trees 454-455



Image 15. Tree 456



Image 16. Tree 457

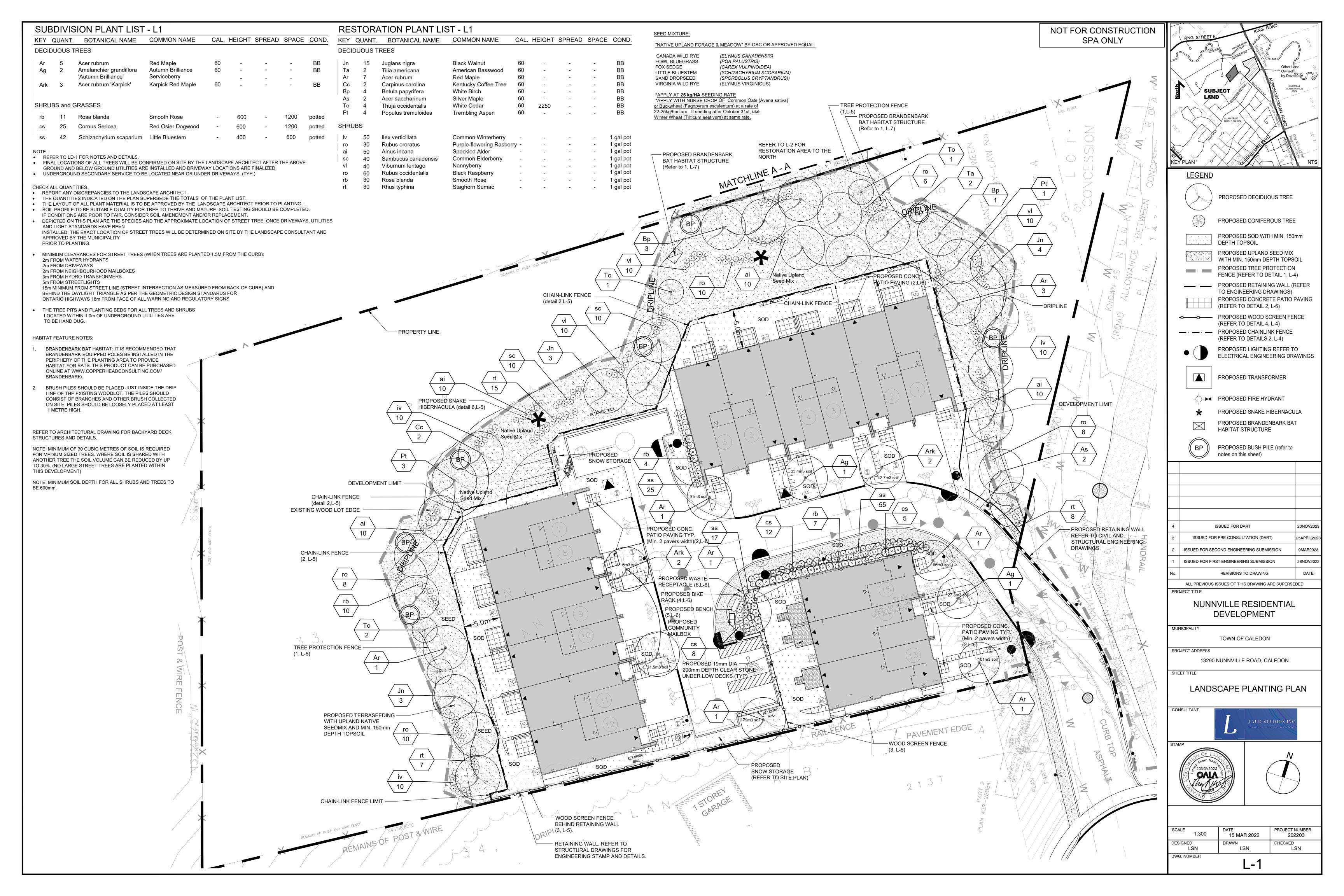


Image 17. Trees 458-459 and B



Appendix E

Landscape Drawings



REFER TO LD-1 FOR NOTES AND DETAILS.

- FINAL LOCATIONS OF ALL TREES WILL BE CONFIRMED ON SITE BY THE LANDSCAPE ARCHITECT AFTER THE ABOVE
- GROUND AND BELOW GROUND UTILITIES ARE INSTALLED AND DRIVEWAY LOCATIONS ARE FINALIZED. • UNDERGROUND SECONDARY SERVICE TO BE LOCATED NEAR OR UNDER DRIVEWAYS. (TYP.)

CHECK ALL QUANTITIES.

 REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT. THE QUANTITIES INDICATED ON THE PLAN SUPERSEDE THE TOTALS OF THE PLANT LIST.

- THE LAYOUT OF ALL PLANT MATERIAL IS TO BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
- SOIL PROFILE TO BE SUITABLE QUALITY FOR TREE TO THRIVE AND MATURE. SOIL TESTING SHOULD BE COMPLETED. IF CONDITIONS ARE POOR TO FAIR, CONSIDER SOIL AMENDMENT AND/OR REPLACEMENT.

RESTORATION PLANT LIST - L1

llex verticillata

Rubus ororatus

Viburnum lentago

30 Rosa blanda

30 Rhus typhina

Rubus occidentalis

Sambucus canadensis

KEY	QUANT.	BOTANICAL NAME	COMMON NAME	CAL.	HEIGHT	SPREAD	SPACE	COND.
DECI	DUOUS T	REES						
Jn	15	Juglans nigra	Black Walnut	60	-	-	-	ВВ
Та	2	Tilia americana	American Basswood	60	-	-	-	BB
Ar	7	Acer rubrum	Red Maple	60	-	-	-	BB
Сс	2	Carpinus carolina	Kentucky Coffee Tree	60	-	-	-	BB
Вр	4	Betula papyrifera	White Birch	60	-	-	-	BB
As	2	Acer saccharinum	Silver Maple	60	-	-	-	BB
То	4	Thuja occidentalis	White Cedar	60	2250	-	-	BB
Pt	4	Populus tremuloides	Trembling Aspen	60	-	-	-	BB
SHRI	JBS							

Common Winterberry -

Purple-flowering Rasberry -

Common Elderberry - -

- - - - 1 gal pot

- - - - 1 gal pot

- - - - 1 gal pot

Speckled Alder

Black Raspberry

Staghorn Sumac

Smooth Rose

Nannyberry

- DEPICTED ON THIS PLAN ARE THE SPECIES AND THE APPROXIMATE LOCATION OF STREET TREE. ONCE DRIVEWAYS, UTILITIES
 REFER TO LD-1 FOR NOTES AND DETAILS. AND LIGHT STANDARDS HAVE BEEN INSTALLED, THE EXACT LOCATION OF STREET TREES WILL BE DETERMINED ON SITE BY THE LANDSCAPE CONSULTANT AND APPROVED BY THE MUNICIPALITY
- MINIMUM CLEARANCES FOR STREET TREES (WHEN TREES ARE PLANTED 1.5M FROM THE CURB):
- 2m FROM WATER HYDRANTS

PRIOR TO PLANTING.

- 2m FROM DRIVEWAYS
- 2m FROM NEIGHBOURHOOD MAILBOXES
- 3m FROM HYDRO TRANSFORMERS
- 5m FROM STREETLIGHTS
- 15m MINIMUM FROM STREET LINE (STREET INTERSECTION AS MEASURED FROM BACK OF CURB) AND BEHIND THE DAYLIGHT TRIANGLE AS
- PER THE GEOMETRIC DESIGN STANDARDS FOR ONTARIO HIGHWAYS 18m FROM FACE OF ALL WARNING AND REGULATORY SIGNS
- THE TREE PITS AND PLANTING BEDS FOR ALL TREES AND SHRUBS LOCATED WITHIN 1.0m OF UNDERGROUND UTILITIES ARE TO BE HAND DUG.

SEED MIXTURE:

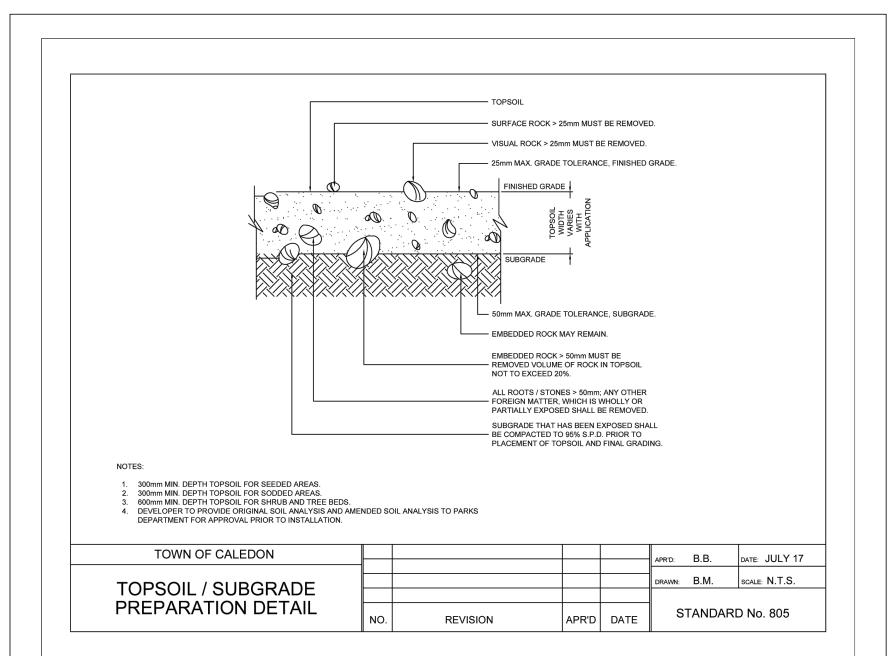
"NATIVE UPLAND FORAGE & MEADOW" BY OSC OR APPROVED EQUAL

(ELYMUS CANADENSIS) CANADA WILD RYE FOWL BLUEGRASS (POA PALUSTRIS) FOX SEDGE (CAREX VULPINOIDEA) LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM) (SPORBOLUS CRYPTANDRUS)) SAND DROPSEED VIRGINIA WILD RYE (ELYMUS VIRGINICUS)

*APPLY AT 25 kg/HA SEEDING RATE *APPLY WITH NURSE CROP OF Common Oats (Avena sativa)

or Buckwheat (Fagopyrum esculentum) at a rate of

22-25kg/hectare . If seeding after October 31st, use Winter Wheat (Triticum aestivum) at same rate.





 DEPICTED ON THIS PLAN ARE THE SPECIES AND THE APPROXIMATE LOCATION OF STREET TREE. ONCE DRIVEWAYS, UTILITIES AND LIGHT STANDARDS HAVE BEEN INSTALLED, THE EXACT LOCATION OF STREET TREES WILL BE DETERMINED ON SITE BY THE LANDSCAPE CONSULTANT AND APPROVED BY THE MUNICIPALITY PRIOR TO PLANTING.

MINIMUM CLEARANCES FOR STREET TREES (WHEN TREES ARE PLANTED 1.5M FROM THE CURB):

2m FROM WATER HYDRANTS

2m FROM DRIVEWAYS 2m FROM NEIGHBOURHOOD MAILBOXES

3m FROM HYDRO TRANSFORMERS

5m FROM STREETLIGHTS 15m MINIMUM FROM STREET LINE (STREET INTERSECTION AS MEASURED FROM BACK OF CURB) AND BEHIND THE DAYLIGHT TRIANGLE AS

PER THE GEOMETRIC DESIGN STANDARDS FOR ONTARIO HIGHWAYS 18m FROM FACE OF ALL WARNING AND REGULATORY SIGNS

• THE TREE PITS AND PLANTING BEDS FOR ALL TREES AND SHRUBS LOCATED WITHIN 1.0m OF UNDERGROUND UTILITIES ARE TO BE HAND DUG. SEED MIXTURE:

"NATIVE UPLAND FORAGE & MEADOW" BY OSC OR APPROVED EQUAL:

CANADA WILD RYE (ELYMUS CANADENSIS) FOWL BLUEGRASS (POA PALUSTRIS) FOX SEDGE (CAREX VULPINOIDEA) LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM) (SPORBOLUS CRYPTANDRUS)) SAND DROPSFED VIRGINIA WILD RYE (ELYMUS VIRGINICUS)

APPLY AT 25 kg/HA SEEDING RATE APPLY WITH NURSE CROP OF Common Oats (Avena sativa) or Buckwheat (Fagopyrum esculentum) at a rate of 22-25kg/hectare . If seeding after October 31st, use Winter Wheat (Triticum aestivum) at same rate.

- FINAL LOCATIONS OF ALL TREES WILL BE CONFIRMED ON SITE BY THE LANDSCAPE ARCHITECT AFTER THE ABOVE
- GROUND AND BELOW GROUND UTILITIES ARE INSTALLED AND DRIVEWAY LOCATIONS ARE FINALIZED.

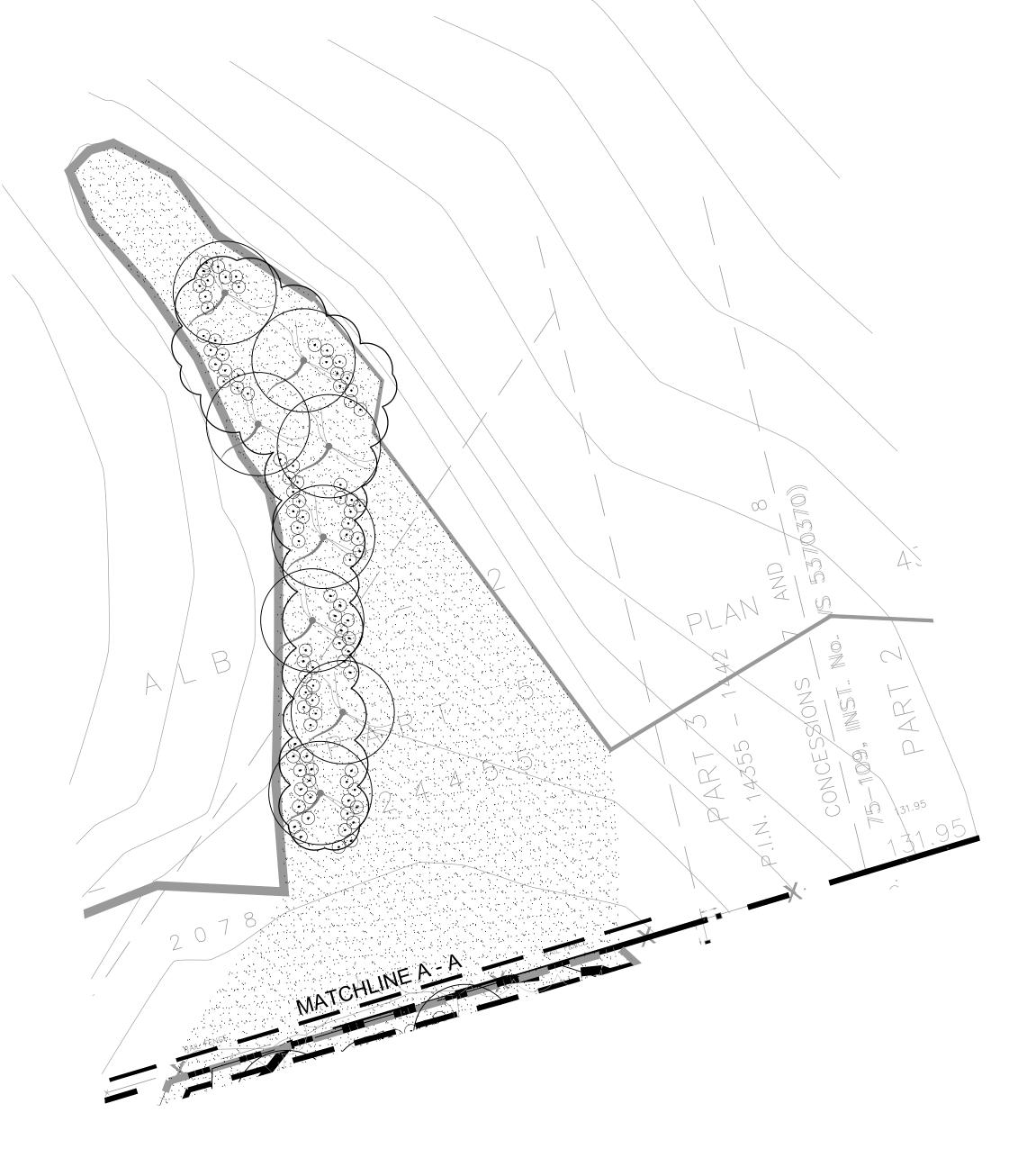
UNDERGROUND SECONDARY SERVICE TO BE LOCATED NEAR OR UNDER DRIVEWAYS. (TYP.)

CHECK ALL QUANTITIES.

SCALE: N.T.S.

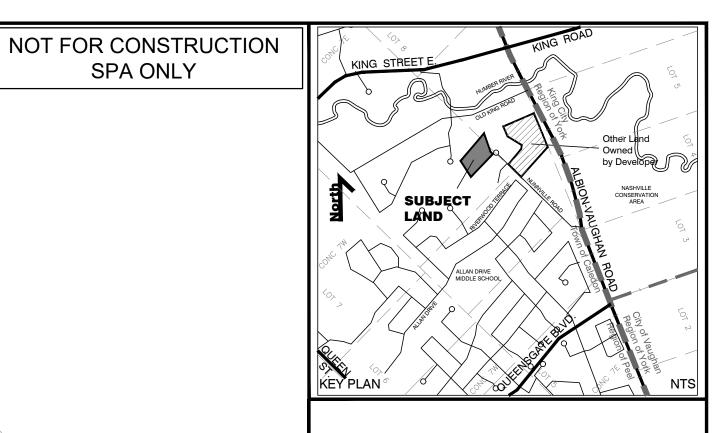
REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.

- THE QUANTITIES INDICATED ON THE PLAN SUPERSEDE THE TOTALS OF THE PLANT LIST.
- THE LAYOUT OF ALL PLANT MATERIAL IS TO BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
- SOIL PROFILE TO BE SUITABLE QUALITY FOR TREE TO THRIVE AND MATURE. SOIL TESTING SHOULD BE COMPLETED. IF CONDITIONS ARE POOR TO FAIR, CONSIDER SOIL AMENDMENT AND/OR REPLACEMENT

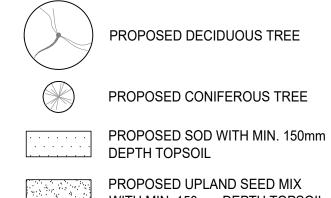


<u> Planting Notes:</u>

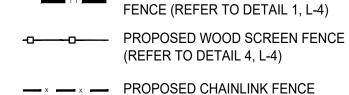
- 1. General Planting Notes: Planting stock should be installed during the growing season to ensure survivorship of plant material. Planting locations, plant according to micro—site selection based on existing natural competition. Plantings will be installed within the restoration areas in natural groupings under the supervision of the project restoration specialist. Planting holes may be either dug by hand or augured with a handheld auger to avoid any impacts to the existing environment. Holes will equal the depth of the root ball and be 1.5 times the width.
- 2. Site Preparation: Prior to planting installation, invasive species removal and refuse removal is highly recommended. Where soil compaction is present, soil should be mechanically loosened and aerated prior to planting and receive a layer of topsoil and organic matter to improve growing conditions for plantings. Organic matter will consist of decayed organic material (humus) such as compost; composted woody debris and leaf litter; forest product residuals placed at a depth ranging from 2 to 4 inches. Areas where gravel is present spilling from the adjacent truck yard should have the gravel removed and replaced with soil prior to planting.
- 3. Composition & Spacing: Caliper size material for all tree planting is recommended to expedite the development of canopy cover. Shrub material will include 1 to 2 gallon potted material. Planting should follow standard densities of 5.0 metre on centre for trees, 1.0
- 4. Replacement Planting Material: In the event of plant mortality following restoration initiatives, replacement plant material should be replaced by species provided in the planting schedule. Cultivars of native species are NOT acceptable. If species are no longer available, plant selection should be made by a qualified individual as approved by TRCA's native species list.
- 5. Mulch Placement: Newly planted trees and shrub species should receive a suitable layer of mulch following planting to help retain moisture in the plant's root zone and deter competition. Replacement mulch should be provided over the first three years throughout the growing season as necessary. Mulch should be restricted to the tree and shrub base to alleviate any impacts to adjacent growth and regeneration.
- 6. Shrub Protection: Plastic rodent and mammal guards should be installed on newly planted trees and shrubs to provide protection from herbivory until established.
- Watering: All trees and shrubs to be maintained by regular watering throughout plant warranty period. Watering of planted stock should occur for three years during dry periods and weed mats or brush blankets should be installed where abundant herbaceous competition arises to ensure the survivorship of planted species.
- 8. Invasive Species Removal: Prior to establishing native plantings, removal of non—native invasive species identified within the riparian area, including Common Buckthorn, is recommended. Removal and control of invasive species should be addressed during monitoring events to prevent invasive species from becoming well established and completed yearly for a period of no less than 3 years.
- 9. Monitoring: A monitoring schedule involving yearly site inspections by a qualified biologist or other environmental professional is recommended. Monitoring events should occur twice during the growing season for a minimum of three years following the installation of restoration plantings. Due to the size of the area, permanent plots or sample quadrants are not necessary for successful monitoring. Visual analysis incorporating detailed notes to address survivorship of plant species, individual plant health and potential growth of invasive species is recommended. Mortality of all planted individuals should be determined, and the causes of mortality identified (shade/sun intolerance, herbivory, drought, etc.). Removal and control of invasive species should be addressed during monitoring events and completed yearly for a period of no less than 3 years.
- 10. Individual Plantings: Recommended tree, shrub and herbaceous species should be planted following invasive species and refuse removal, where applicable. Species should be planted based on specific site conditions, i.e., species are suitable to light conditions of planting area. Early successional species should be used alone or in concert with late—seral species can be used if conditions are favourable and in areas where a source of late—seral seed does not exist in order to promote succession.
- 11. Black Walnut trees should be planted along the edges of the planting area adjacent to European Buckthorn thickets to help reduce the spread of European Buckthorn into the restoration zone.
- 12. Planting Zone 1 should be planted with a mix of trees and shrubs from the plant list. Planting Zone 2 should be planted with shrubs only. Tree placement on this plan is conceptual. Trees should be planted based on site conditions at time of planting.

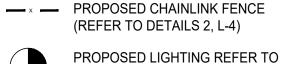


SPA ONLY





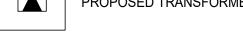


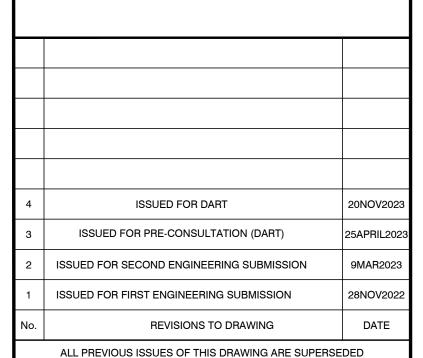


ELECTRICAL ENGINEERING DRAWINGS



○-► PROPOSED FIRE HYDRANT





NUNNVILLE RESIDENTIAL DEVELOPMENT

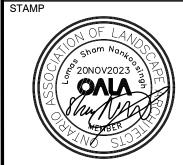
TOWN OF CALEDON

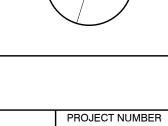
MUNICIPALITY

13290 NUNNVILLE ROAD, CALEDON SHEET TITLE

LANDSCAPE REFORESTATION PLANTING PLAN CONSULTANT







1:300 15 MAR 2022 LSN DWG. NUMBER

end of specifications

any additional requirements and submission items.

Refer to the most recent version of the Development standards for

I. Additional Notes:

SPECIFICATIONS

A. **GENERAL**

i) These Specifications are to be read in conjunction with the General Conditions of the contract, as prepared by and available at the offices of LAUD STUDIOS INC.

ii) Prior to commencing work, the Contractor shall: 1. Become familiar with the plans, details, and specifications of this project,

2. Visit the site to ascertain and take account of existing conditions and any deviations from the plans in work by others, and 3. Finalize all design alternatives in consultation with the Landscape Architect.

iii) Prior to excavating, the Contractor shall verify the location of all underground utilities. In the event of a conflict between a proposed tree location and an underground service, the exact location of the tree shall be determined on site by the landscape architect and/or the Town's representative.

iv) The Contractor shall, at his or her own expense, repair any damage to existing utilities, structures, facilities, etc. done in the performance of his work.

v) All site work shall conform to the Canadian National Master Construction Specifications, a copy of which can be obtained from Construction Specifications Canada, 100 Lombard St., Suite 200, Toronto, Ontario M5C 1M3; Tel. (416) 777-2198; Fax (416) 777-2197. It is the responsibility of the Contractor to be thoroughly familiar with

these specifications and their implications for this project.

TOWN OF CALEDON					APR'D: C.C.	DATE: JUNE 08
		STANDARD No. 712 NOW 701		JUNE 08	APR'D: O.O.	DATE: JOINE 00
STREETSCAPE SPECIFICATIONS STANDARD NOTES	2	STANDARD No. 1170.01 NOW 712		JUNE 08	DRAWN: abal	SCALE: NTS
	1	CHANGES TO NOTES VI & VII.		MARCH 08		
PART 1	NO.	REVISION	REVISION APR'D DATE STAN			D No. 701

B. PLANT MATERIAL i) All plants shall be installed true to specified names, sizes, grades, etc., and shall conform to the standards of the Canadian Nursery Landscapes Association.

ii) All plants shall be nursery grown in a hardiness zone appropriate to site conditions, as published by Agriculture Canada, titled 'Map of Plant Hardiness Zones in Canada'.

iii) In the event of a discrepancy in plant quantity between the Planting Plan and the Plant List, the Planting Plan shall govern.

iv) The Contractor shall make plants available for inspection by the Landscape Architect and/or the Town's representative prior to shipping to the site. This does not limit the right of the Landscape Architect and/or the Town's representative to later reject plant material that is of poor quality, damaged during shipping or installation, performing poorly while the guarantee period is still in effect, or otherwise does not conform to the specifications.

v) Plant substitutions must be approved in writing by the Town and the Landscape Architect prior to delivery of the material to the site. All substitutions shall be recorded on the as-recorded drawings and planting chart.

vi) The Contractor shall use standard industry methods for planting trees and shrubs. Trees shall be turned to give the best appearance; they shall also be guyed or staked immediately after planting and as detailed on the drawings.

specifications continued on next panel .

PR'D: C.C.	DATE: JUNE 08									
RAWN: abal	SCALE: NTS									
STANDARD No. 701										

SPECIFICATIONS continued from previous panel

C. BED PREPARATION

i) The Contractor shall scarify the sides and bottom of excavated tree pits and shrub beds prior to backfilling, in areas with heavy clay soils, tree and planting beds shall be backfilled to the specified depths with:

> 2 Parts "triple mix," delivered to the site, to be wellmixed with .

1 Part local topsoil (viz., subdivision topsoil that has been removed and stockpiled.) If topsoil is unavailable, topsoil with clay content shall be imported and mixed with triple mix.

ii) Tree pits shall be constructed with saucers and mulch as detailed.

D. PRELIMINARY ACCEPTANCE

STREETSCAPE

i) When landscaping is completed, the Consulting Landscape Architect shall submit a Certificate of Completion for preliminary acceptance to the Town of Caledon certifying that all landscape works have been 100% completed in accordance with the approved

ii) The Consulting Landscape Architect shall prepare a Summary Chart, indicating the plant species, quantity, location, planting date(s), and any other relevant information, as requested by the Municipality.

iii) Upon receipt of the Certificate of Completion, Town Staff will conduct a preliminary inspection of the site and, provided that the works are in satisfactory condition, will grant preliminary acceptance of the landscaping.

E. INTERIM ACCEPTANCE

i) One year after Preliminary Acceptance is granted by the Town, the Consulting Landscape Architect shall submit a Certificate of Completion for Interim Acceptance to the Town of Caledon certifying that all maintenance requirements as outlined in Section I and in accordance with the approved plans have been

ii) The Consulting Landscape Architect shall update the Summary Chart, indicating any modifications to approved substitutions, maintenance information, and any other relevant information as requested by the Municipality.

iii) Upon the receipt of the Certification of Completion, Town Staff will conduct an interim inspection of the site and, provided the works are in satisfactory condition, will grant Interim Acceptance of the landscaping.

F. GUARANTEE

i) All streetscape landscaping shall carry a guarantee/maintenance of TWO (2) years, commencing from the date that written preliminary acceptance is granted by the Town of Caledon. In each of the next two years, the Consulting Landscape Architect shall conduct an inspection and prepare a report, recommending the replacements and/or works needed to achieve the intent of the approved landscape plan. All replacements shall be recorded in the inspection Summary Chart. The Consulting Landscape Architect shall file a copy of the report and/or Summary Chart with the Municipality.

specifications continue on next panel . .

TOWN OF CALEDON					APR'D:	C.C.	DATE: JUNE 08
EETSCAPE SPECIFICATIONS	2	STANDARD No. 713 NOW 702		JAN 18	DRAWN:	abal	SCALE: NTS
STANDARD NOTES	1	STANDARD No. 1170.02 NOW 713		JUNE 08			
PART 2		REVISION	APR'D	DATE	S	TANDARI	O No. 702

SPECIFICATIONS continued from previous panel

ii) Replacement plant material and repaired work shall be guaranteed for a minimum TWO (2) years from the date of replacement, and will not be granted final acceptance until the guarantee has expired or as otherwise determined by Town

G. MAINTENANCE

i) The maintenance of all landscape installations throughout the guarantee period shall include but not limited to the following:

Municipality or Consulting Landscape Architect.

1) proper irrigation to ensure optimum growth of trees and shrubs, 2) cultivation and weeding of tree pits and planting beds, 3) insect and disease control, and 4) pruning and fertilizing, as required or as directed by the

5) replace all dead plant materials as identified by the Municipality.

H. CERTIFICATE OF ASSUMPTION

i) At the end of the guarantee period, the Contractor shall remove all tree stakes, and bark wrap, and shall add extra mulch where necessary. And/Or additional items as directed by the Municipality.

ii) When these final tasks have been completed, the Consulting Landscape Architect will provide the Town with all items as outlined in the Development Standards. All landscape work will then be inspected by the Municipality and, if satisfied that all work has been completed in accordance with the approved landscape plans, will issue a Certificate of Assumption and release any outstanding

funds.							
TOWN OF CALEDON					APR'D:	C.C.	DATE: JUNE 08
STREETSCAPE SPECIFICATIONS	2	STANDARD No. 714 NOW 703		JAN 18	DRAWN:	abal	SCALE: NTS
STANDARD NOTES	1	STANDARD No. 1170.03 NOW 714		JUNE 08			
PART 3	NO.	REVISION	APR'D	DATE	S	TANDARI	D No. 703

STREETSCAPE SPECIFICATIONS STANDARD NOTES

SCALE: N.T.S.

SPECIFICATIONS

i) These Specifications are to be read in conjunction with the General Conditions of the contract, as prepared by and available at the offices of LAUD STUDIOS INC.

ii) Prior to commencing work, the Contractor shall: 1. Become familiar with the plans, details, and specifications of this project, 2. Visit the site to ascertain and take account of

existing conditions and any deviations from the plans in work by others, and 3. Finalize all design alternatives in consultation

with the Consulting Landscape Architect. iii) Prior to excavating, the Contractor shall verify the location of all underground utilities. In the event of a conflict between a proposed tree location and an underground service, the exact location of the tree shall be determined on site by the Consulting Landscape Architect and/or the Town's representative.

iv) The Contractor shall, at his or her own expense, repair any damage to existing utilities, structures, facilities, etc. done in the performance of

v) All site work shall conform to the Canadian National Master Construction Specifications, a copy of which can be obtained from Construction Specifications Canada, 31 Adelaide Street East P.O Box 36, Toronto M5C 2H8; Tel: 1-844-427-2867; Email: admin@csctoronto.ca. It is the responsibility of the Contractor to be thoroughly familiar with these specifications and their implications for

B. PLANT MATERIAL

i) All plants shall be installed true to specified names, sizes, grades, etc., and shall conform to the standards of the Canadian Nursery

ii) All plants shall be nursery grown and sourced from a hardiness zone appropriate to site conditions, as published by Agriculture

Canada, titled 'Map of Plant Hardiness Zones in Canada'. iii) In the event of a discrepancy in plant quantity between the Planting

Plan and the Plant List, the Planting Plan shall govern. iv) The Contractor shall make plants available for inspection by the Consulting Landscape Architect and/or the Town's representative prior to shipping to the site. This does not limit the right of the Consulting Landscape Architect and/or the Town's representative to later reject plant material that is of poor quality, damaged during shipping or installation, performing poorly while the guarantee period

v) Plant substitutions must be approved in writing by the Town and the Consulting Landscape Architect prior to delivery of the material to the site. All substitutions shall be recorded on the as-recorded drawings and planting chart.

is still in effect, or otherwise does not conform to the specifications.

vi) The Contractor shall use standard industry methods for planting trees and shrubs. Trees shall be turned to give the best appearance if adjacent to streets or pathways. They shall also be guyed or staked immediately after planting and as detailed on the drawings.

specifications continued on next panel .

TOWN OF CALEDON					APR'D:	C.C.	DATE: JUNE 08
NATURALIZATION SPECIFICATIONS	2	STANDARD No. 715 NOW 704		JUNE 18	DRAWN:	abal	SCALE: NTS
STANDARD NOTES	1 NO	TES EDIT, STANDARD No. 1175.01 NOW 715		JUNE 08			
PART 1	NO.	REVISION	APR'D	DATE	s	TANDARI	O No. 704

SPECIFICATIONS continued from previous panel

C. BED PREPARATION

i) The Contractor shall scarify the sides and bottom of excavated tree the Bolton area, tree and planting beds shall be backfilled to the specified depths with:

2 Parts "triple mix," delivered to the site, to be well-1 Part local topsoil (viz., subdivision topsoil that has been removed and stockpiled.) If topsoil is

unavailable, topsoil with clay content shall be

imported and mixed with triple mix. ii) Tree pits shall be constructed with saucers and mulch as detailed.

D. TOPSOIL AND FINE GRADING

i) The Contractor shall place 100mm of rich topsoil on approved subgrades. Topsoil shall be imported when insufficient amounts are

ii) Minor grade deficiencies and irregularities shall be eliminated prior

i) The Contractor shall apply 2280 kg/ha fibre mulch over the newly the absorption and percolation of water.

ii) The area seeded in a single day shall not exceed the area that can be mulched that same day.

iii) The Contractor shall apply the specified seed mixture using accepted industry methods for hydroseeding and at rates recommended by the seed supplier. The type and rate of fertilizer application shall be as recommended in the topsoil test report for the particular area being seeded.

F. PRELIMINARY ACCEPTANCE

i) When landscaping is completed, the Consulting Landscape Architect shall submit a Certificate of Completion for Preliminary Acceptance to the Town of Caledon certifying that all landscape works have been completed in accordance with the approved plans.

ii) Upon receipt of the Certificate of Completion, the Town Staff will conduct a preliminary inspection of the site and, provided that the works are in satisfactory condition, will grant preliminary acceptance of the landscaping.

specifications continued on next panel .

TOWN OF CALEDON					APR'D: C.C.	DATE: JUNE 08
					APRU: C.C.	DATE: JOINE OO
NATURALIZATION SPECIFICATIONS	2	STANDARD No. 716 NOW 705		APR 19	DRAWN: abal	SCALE: NTS
STANDARD NOTES	1 S	ANDARD No. 1175.02 NOW 716		JUNE 08		
PART 2	NO.	REVISION	APR'D	DATE	STANDAR	D No. 705

SPECIFICATIONS continued from previous panel

G. INTERIM ACCEPTANCE

i) One year after Preliminary Acceptance is granted by the Town, the Consulting Landscape Architect shall submit a Certificate of certifying that all maintenance requirements as outlined in Section G and in accordance with the approved plans have been

ii) Upon the receipt of the Certification of Completion, Town Staff will conduct an interim inspection of the site and, provided the works are in satisfactory condition, will grant Interim Acceptance

of the landscaping. H. GUARANTEE

i) All naturalized landscaping shall carry a guarantee/maintenance of THREE (3) years, commencing from the date that preliminary acceptance is granted by the Municipality. The Owner shall provide the Municipality with a copy of the maintenance agreement between the Owner and the Contractor. In each of the next three summers, the consulting Landscape Architect shall conduct an inspection and prepare a report, recommending the replacements and/or works needed to achieve the intent of the approved landscape plan. The

Landscape Architect shall file a copy of the report with the	
Municipality. Replacement plant material shall be guaranteed for a	
period of time determined by the Municipality.	
IAINTENANCE	

i) The maintenance of all landscape installations throughout t guarantee period shall include but not be limited to the foll	g:	
I		

landscape installations throughout the	
include but not be limited to the following:	

guarantee period shall include but not be limited to the f	ollowin	g:
TOWN OF CALEDON		
	ll .	

all work has been completed in accordance with the approved landscape plans, the Municipality will issue a Certificate of Assumption and release any outstanding funds.

1) applying appropriate fertilizer to promote growth,

5) replacing dead deciduous and shrub naturalization species to

shrubs by adding more mulch and/or removing weeds by hand,

i) At the end of the guarantee period, the Contractor shall remove all

mulch where necessary. Additional items my be included as directed

tree stakes, rodent guards, and bark wrap, and shall add extra

ii) When these final tasks have been completed, and all items as

outlined in the Development Standards have been submitted, all

end of specifications

landscape work will be inspected by the Municipality. If satisfied that

maintain a minimum live-stocking standard of 90%, and

6) suppressing weed growth around newly planted trees and

not by cutting the weeds down with power trimmers.

minimum live-stocking standard of 90%,

2) pruning dead or diseased tissue,

3) removing dead plant material,

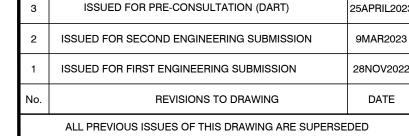
J. CERTIFICATE OF ASSUMPTION

K. <u>ADDITIONAL NOTES</u> Refer to the most recent version of the Development Standards for any additional requirement and submission items.

APR'D DATE

TOWN OF CALEDON						C.C.	DATE: JUNE 08
					APR'D:	0.0.	DATE: JUINE UO
NATURALIZATION SPECIFICATIONS	2	STANDARD No. 717 NOW 706		JAN 18	DRAWN:	abal	SCALE: NTS
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PART 3	NO	PEVISION	V D D I D	DATE	S	TANDARI	D No. 706

REVISION



ISSUED FOR DART

SUBJECT

NUNNVILLE RESIDENTIAL DEVELOPMENT

MUNICIPALITY TOWN OF CALEDON

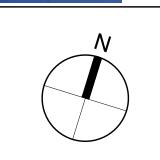
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SHEET TITLE

CONSULTANT

LANDSCAPE NOTES AND DETAILS

13290 NUNNVILLE ROAD, CALEDON



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20NOV2023

9MAR2023

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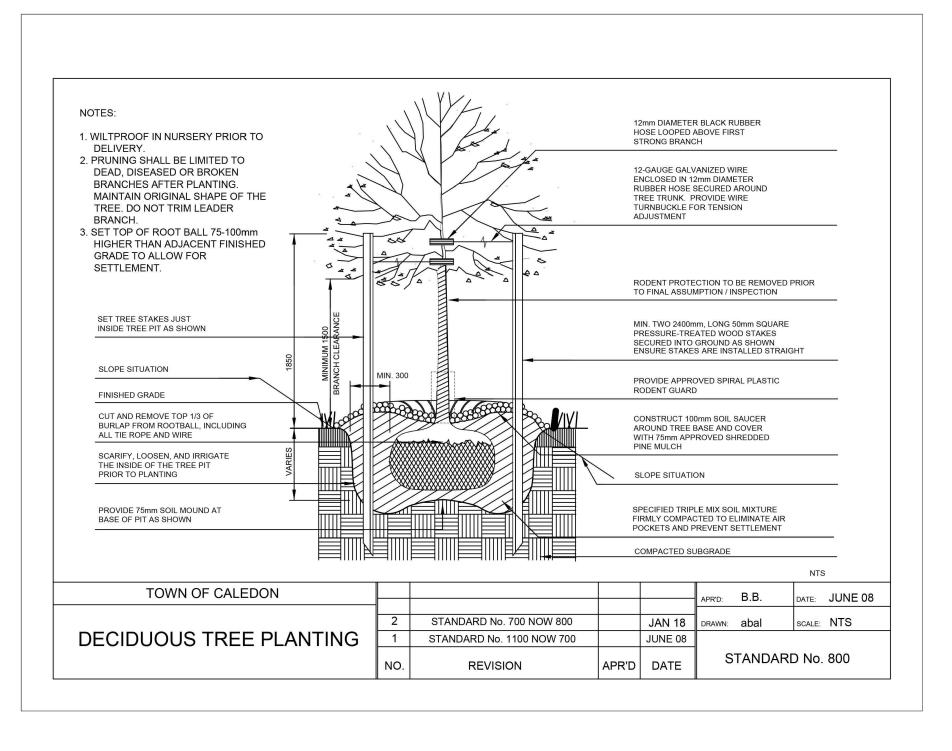
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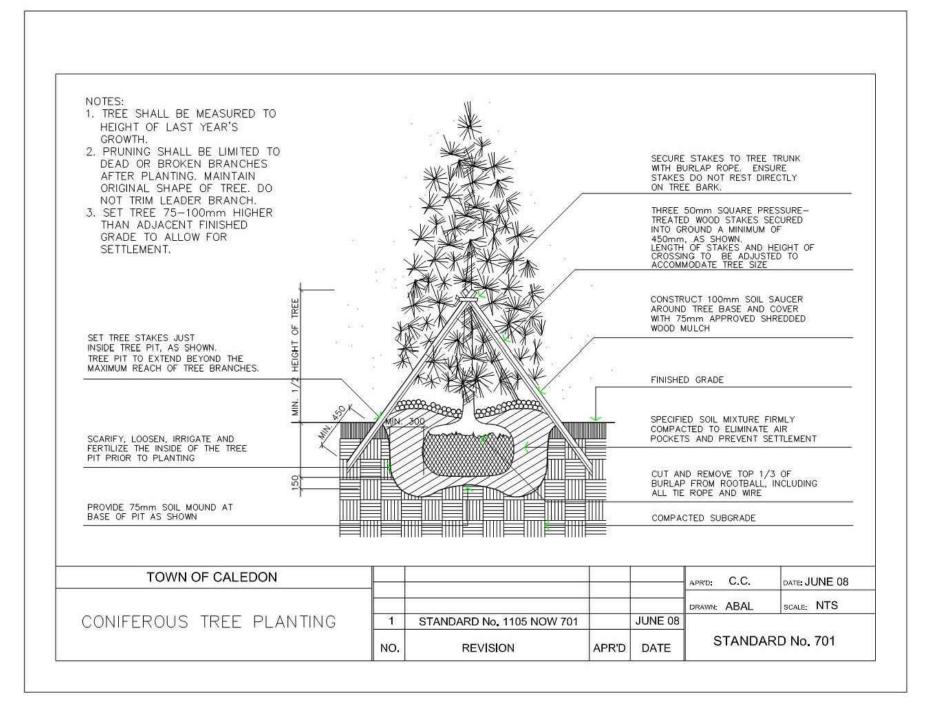
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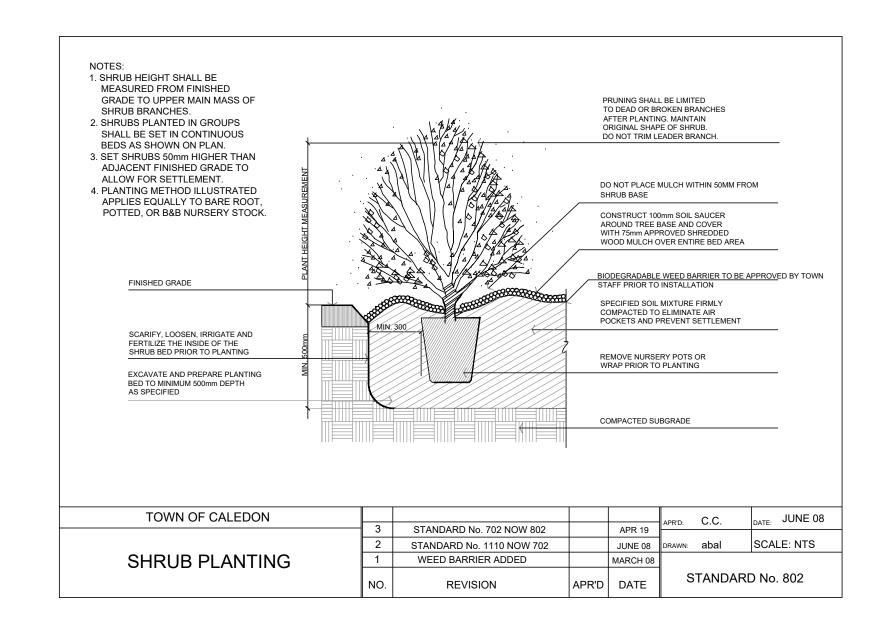
NATURALIZATION SPECIFICATIONS STANDARD NOTES L-3

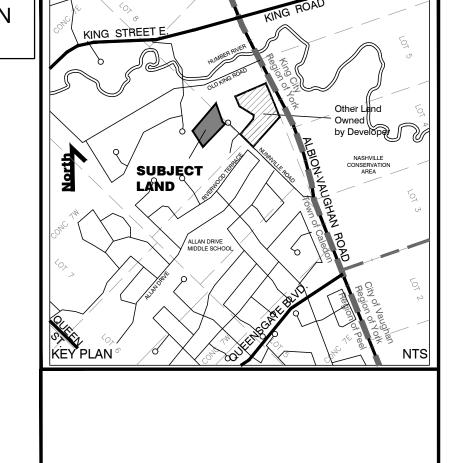
SCALE: N.T.S.

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DECIDUOUS TREE PLANTING DETAIL (ALL SPECIES AND CALIPER TREES)

SCALE: N.T.S.

CONIFEROUS TREE PLANTING DETAIL (ALL SPECIES AND 1500mm HEIGHT)

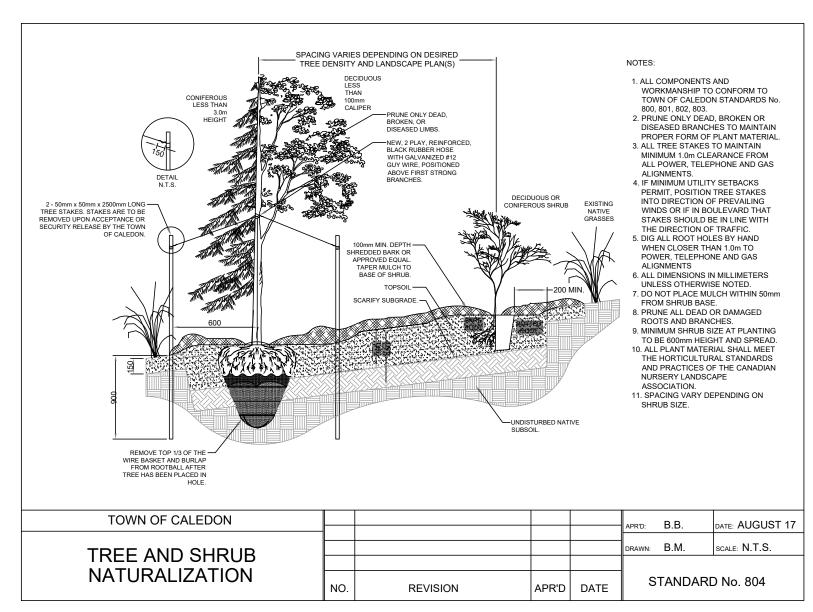
SHRUB PLANTING DETAIL

L-4

SCALE: N.T.S.

SCALE: N.T.S.

- 75MM THICK APPROVED SHREDDED WOOD MULCH OVER ENTIRE BED AREA DO NOT PLACE MULCH WITHIN BARRIER TO BE APPROVED BY TOWN STAFF PRIOR TO INSTALLATION POTS OR WRAP PRIOR -TO PLANTING ------ SPECIFIED SOIL MIXTURE FIRMLY COMPACTED TO ELIMINATE AIR POCKETS AND PREVENT SETTLEMENT UNEXCAVATED OR COMPACTED SUBGRADE NOTE: 1. PLANT IN DIAGONAL PLANTING PATTERN. REFER TO PLANT LIST FOR SPACING REQUIREMENTS.
2. REFER TO PLANT LIST FOR GROUNDCOVER OR PERENNIAL TYPE. TOWN OF CALEDON B.B. DATE: AUGUST 17 GROUNDCOVER AND vn: B.M. SCALE: N.T.S. PERENNIAL PLANTING DETAIL STANDARD No. 803 REVISION APR'D DATE



1. THE CONTRACTOR SHALL REVIEW ALL INFORMATION IN THE DRAWINGS. DETAILS AND SPECIFICATIONS FOR THIS PROJECT, AND REPORT ANY DISCREPANCY OR SUBSTITUTION TO THE CONTRACT ADMINISTRATOR IN WRITING PRIOR TO COMMENCEMENT OF WORK. 2. ALL PLANTING MATERIAL AND OPERATIONS TO MEET OR EXCEED THE HORTICULTURAL STANDARDS OF THE CANADIAN NURSERY LANDSCAPE ASSOCIATION AND LANDSCAPE ONTARIO. ALL PLANT MATERIAL TO BE No. 1 GRADE NURSERY STOCK. THE TOWN OF CALEDON RETAINS THE RIGHT TO REFUSE ANY UNSATISFACTORY 3. SOD TO BE CANADA No.1 NURSERY SOD, MEETING THE NURSERY SOD GROWERS ASSOCIATION OF ONTARIO STANDARDS. ALL AREAS TO RECEIVE A MINIMUM 200mm DEPTH OF TOPSOIL AND SOD UNLESS OTHERWISE INDICATED. SEE DRAWINGS AND SPECIFICATIONS FOR AREAS TO BE MULCHED OR HYDROSEEDED. 4. CONIFEROUS TREES SHALL HAVE A STRAIGHT CENTRAL LEADER AND DENSELY BRANCHED WITHIN 300mm OF THE TOP OF ROOT BALL AND THE FIRST WURL (NOT LEADER HEIGHT). REFER TO STANDARD No. 801. 5. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND IS RESPONSIBLE FOR ANY DAMAGE TO SERVICES, EXISTING VEGETATION, OR ANY OTHER FEATURES TO BE RETAINED. 6. THE CONTRACTOR SHALL STAKE OUT ALL PLANTING LOCATIONS FOR APPROVAL BY THE CONTRACT ADMINISTRATOR, AND/OR TOWN STAFF PRIOR TO PLANTING. 7. FOR ALL LANDSCAPE PLANS, ALL DIMENSIONS ARE TO BE SHOWN IN MILLIMETRES UNLESS OTHERWISE INDICATED. 8. ALL MASS PLANTINGS OF CONIFERS AND SHRUBS SHALL BE IN CONTINUOUS BEDS AND MULCHED WITH SHREDDED MULCH. 9. SCHEDULE AND PERFORM OPERATIONS FOR OPTIMUM PLANTING CONDITIONS, AND TAKE WHATEVER MEASURES NECESSARY TO ENSURE HEALTHY, VIGOROUS 10. ALL PLANT MATERIAL AND WORKMANSHIP WILL BE INSPECTED AND IS UNDER WARRANTY FOR A MINIMUM OF TWO YEARS FROM THE DATE OF WRITTEN ACCEPTANCE. ALL PLANT MATERIAL MUST BE IN HEALTHY, VIGOROUS GROWING CONDITION SATISFACTORY TO THE CONTRACT ADMINISTRATOR AND TOWN AT THE END OF THE WARRANTY PERIOD, OR TO BE REPLACED AT THE CONTRACTORS EXPENSE. 11. WATER AT THE TIME OF PLANTING AND WHENEVER DEEMED NECESSARY TO MAINTAIN THE PLANT MATERIAL IN A HEALTHY CONDITION. 12. INSTALLATION OF PLANT MATERIAL PRIOR TO THE INSPECTION BY THE TOWN OF CALEDON WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE TOWN RESERVES THE RIGHT TO REJECT ANY PLANTS, WHETHER INSTALLED OR NOT, WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND/OR SITE DRAWING(S). REMOVE ALL REJECTED PLANTS FROM THE SITE IMMEDIATELY. DO NOT REMOVE ANY LABELS FROM PLANTS UNTIL THE PLANTS HAVE BEEN INSPECTED AND APPROVED BY THE TOWN LANDSCAPE ARCHITECT. 13. ALL PLANT MATERIAL WHICH CANNOT BE PLANTED IMMEDIATELY UPON ARRIVAL ON SITE SHALL BE PROPERLY HEELED IN OR WELL PROTECTED WITH SOIL OR SIMILAR MATERIALS TO PREVENT DRYING OUT, AND SHALL BE KEPT MOIST UNTIL COMMENCEMENT OF PLANTING. 14. ALL NEW WORK TO BLEND NEATLY AND SMOOTHLY WITH EXISTING CONDITIONS. 15. NO GRADING OR SODDING SHALL BE DONE WITHIN THE LIMIT OF PRESERVATION AREAS. 16. IN THE EVENT OF A DISCREPANCY BETWEEN A PLANT LIST AND DRAWING, THE DRAWING WILL BE ASSUMED TO BE CORRECT. TOWN OF CALEDON B.B DATE: JAN 18 SCALE: NTS wn: H.L GENERAL PARK

REVISION



TREE AND SHRUB NATURALIZATION PLANTING DETAIL

SCALE: N.T.S.

STAMP

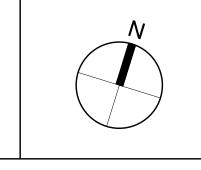
PROJECT TITLE

MUNICIPALITY

SHEET TITLE

CONSULTAN'

PROJECT ADDRESS



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PROJECT NUMBER SCALE N.T.S. 15 MAR 2022 202203 DESIGNED LSN LSN LSN DWG. NUMBER

ISSUED FOR DART

ISSUED FOR PRE-CONSULTATION (DART)

ISSUED FOR SECOND ENGINEERING SUBMISSION

REVISIONS TO DRAWING

ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED

NUNNVILLE RESIDENTIAL

DEVELOPMENT

TOWN OF CALEDON

13290 NUNNVILLE ROAD, CALEDON

LANDSCAPE NOTES AND DETAILS

ISSUED FOR FIRST ENGINEERING SUBMISSION

20NOV2023

25APRIL202

9MAR2023

28NOV2022

DATE

SCALE: N.T.S.

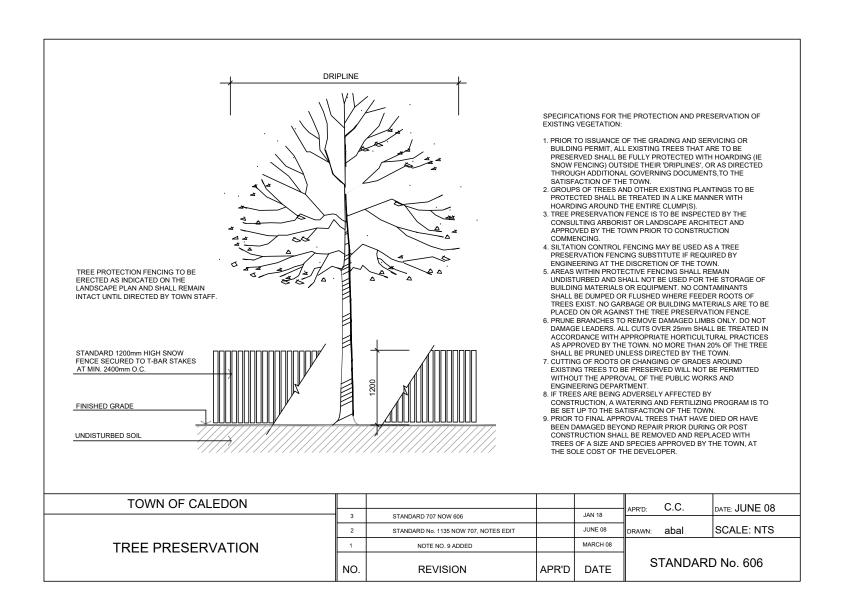
GENERAL PLANTING NOTES

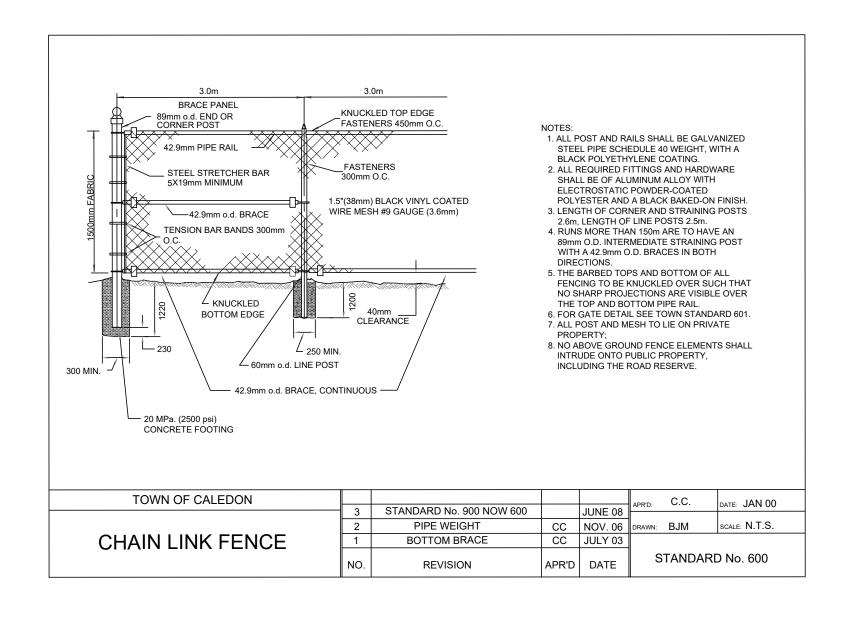
PLANTING NOTES

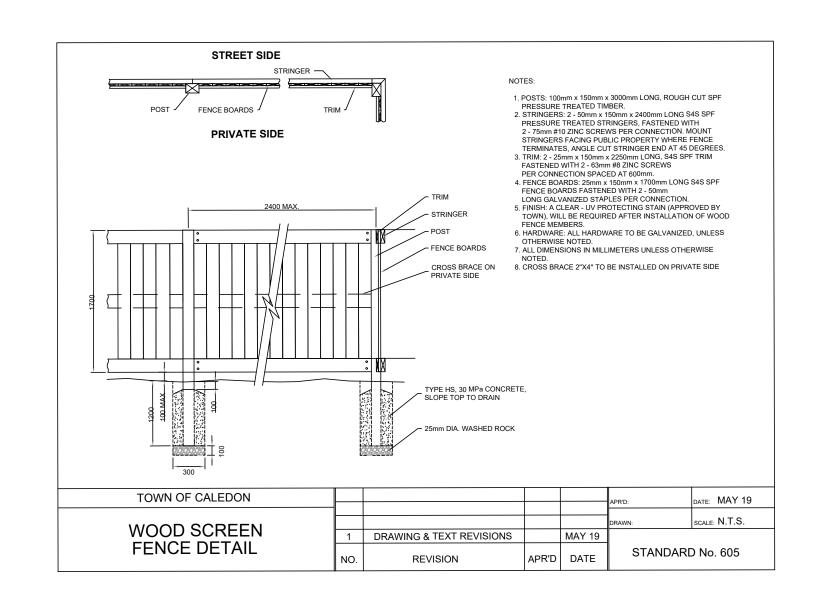
STANDARD No. 708

APR'D DATE

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1 TREE PRESERVATION FENCE DETAIL

2 CHAIN LINK FENCE DETAIL

SCALE: N.T.S.

SCALE: N.T.S.

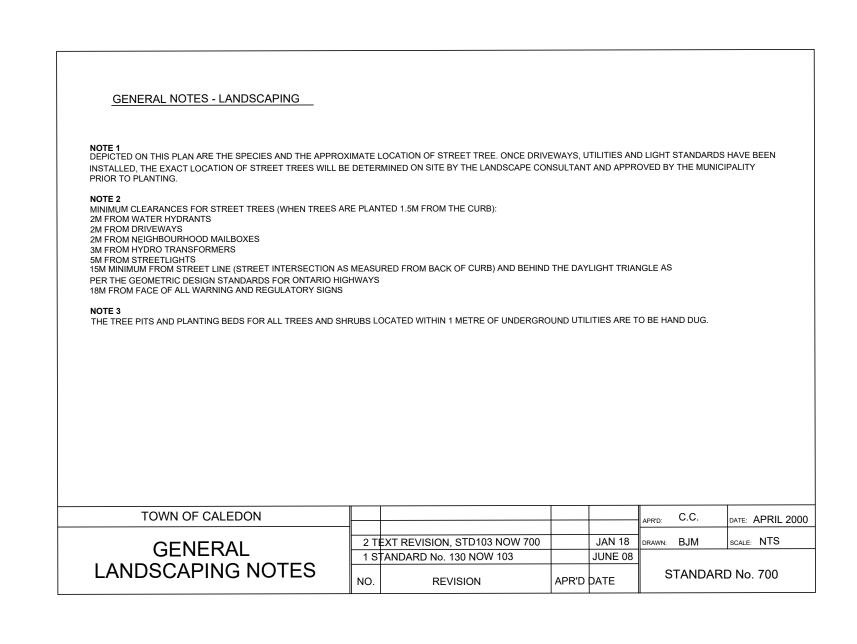
WOOD SCREEN FENCE DETAIL

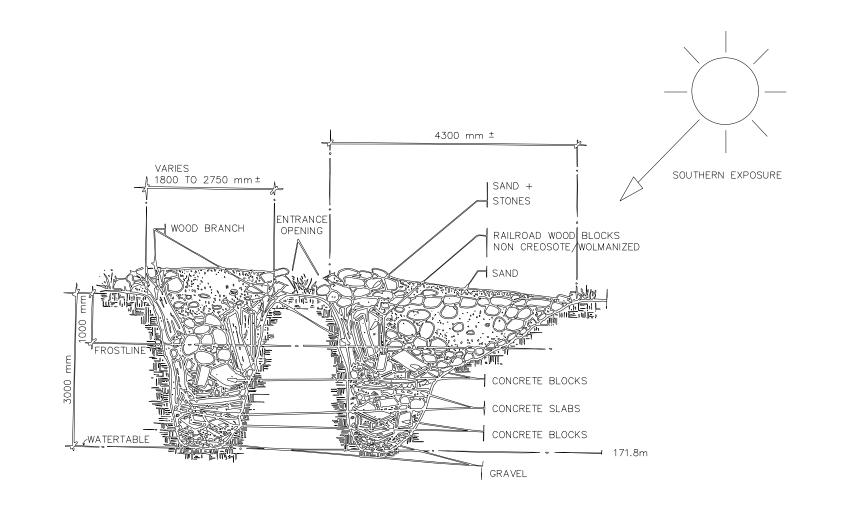
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— TOPSOIL - SURFACE ROCK > 25mm MUST BE REMOVED. - VISUAL ROCK > 25mm MUST BE REMOVED. - 25mm MAX. GRADE TOLERANCE, FINISHED GRADE. 50mm MAX, GRADE TOLERANCE, SUBGRADE EMBEDDED ROCK > 50mm MUST BE - REMOVED VOLUME OF ROCK IN TOPSOIL NOT TO EXCEED 20%. FOREIGN MATTER WHICH IS WHOLLY OR PARTIALLY EXPOSED SHALL BE REMOVED. SUBGRADE THAT HAS BEEN EXPOSED SHALL BE COMPACTED TO 95% S.P.D. PRIOR TO
 PLACEMENT OF TOPSOIL AND FINAL GRADING. 300mm MIN. DEPTH TOPSOIL FOR SEEDED AREAS.
 300mm MIN. DEPTH TOPSOIL FOR SODDED AREAS.
 500mm MIN. DEPTH TOPSOIL FOR SHRUB AND TREE BEDS.
 4. DEVELOPER TO PROVIDE ORIGINAL SOIL ANALYSIS AND AMENDED SOIL ANALYSIS TO PARKS DEPARTMENT FOR APPROVAL PRIOR TO INSTALLATION. TOWN OF CALEDON B.M. SCALE: N.T.S. TOPSOIL / SUBGRADE PREPARATION DETAIL STANDARD No. 805 REVISION





4 TOPSOIL / SUB-GRADE PREPARATION DETAIL

5 GENERAL LANDSCAPING NOTES

6 SNAKE HIBERNACULA DETAIL

HIBERNACULA DETAIL
SCALE: N.T.S.

SUBJECT LAND

ALIAN DRIVE MIDDLE SCHOOL

ALIAN DRIVE MIDDLE SCHOOL

NTS

4 ISSUED FOR DART 20NOV2023
3 ISSUED FOR PRE-CONSULTATION (DART) 25APRIL2023
2 ISSUED FOR SECOND ENGINEERING SUBMISSION 9MAR2023
1 ISSUED FOR FIRST ENGINEERING SUBMISSION 28NOV2022
No. REVISIONS TO DRAWING DATE

ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED PROJECT TITLE

NUNNVILLE RESIDENTIAL

DEVELOPMENT

MUNICIPALITY

CONSULTANT

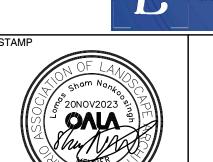
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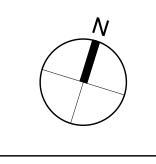
PROJECT ADDRESS

13290 NUNNVILLE ROAD, CALEDON

SHEET TITLE

LANDSCAPE NOTES AND DETAILS





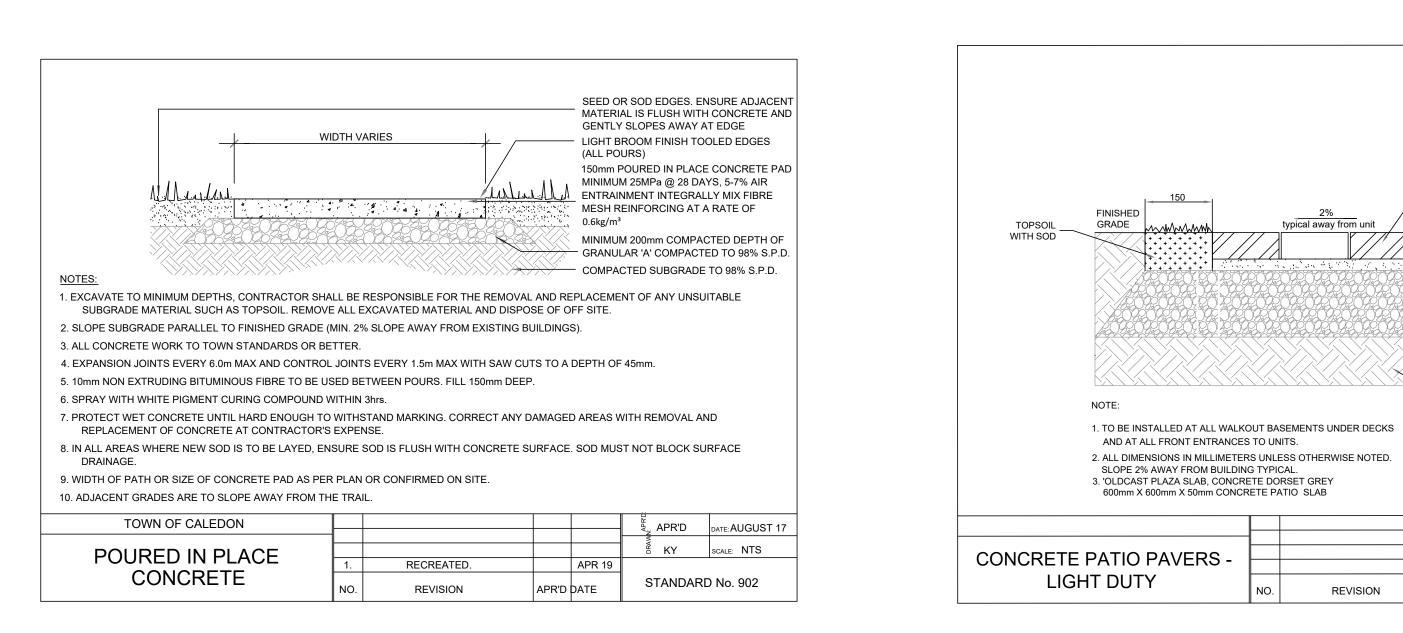
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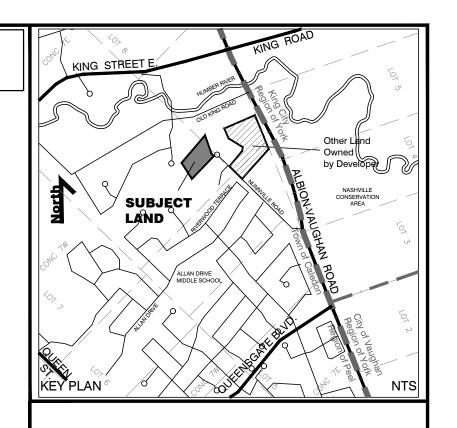
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DESIGNED DRAWN CHECKED LSN LSN LSN

DWG. NUMBER

L-5





POURED IN PLACE CONCRETE PAVING DETAIL

SCALE: N.T.S.

SCALE: N.T.S.

PATIO PAVING DETAIL AT WALKOUT BASEMENTS (UNDER DECKS)

APR'D DATE

— PATIO PAVING STONES (SEE NOTES BELOW)

- 25mm BEDDING SAND

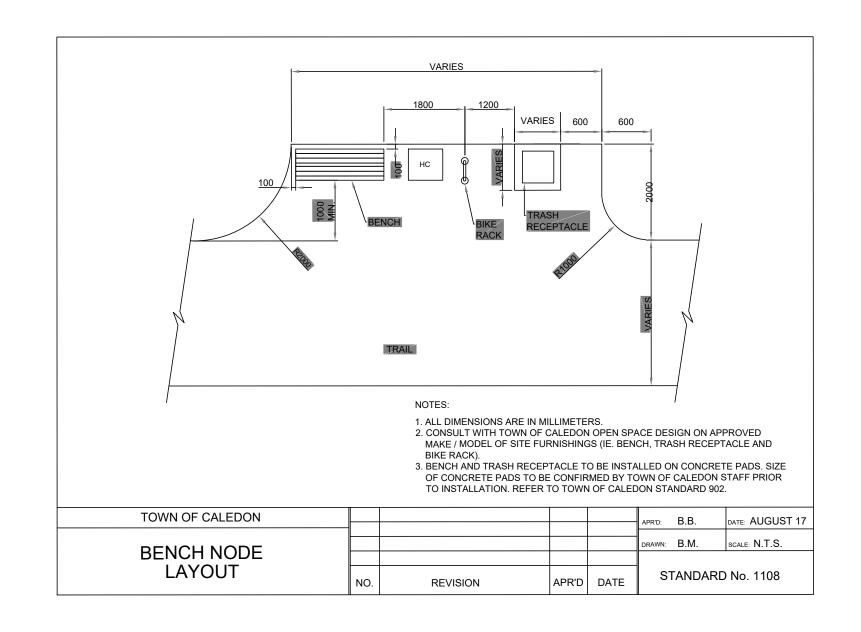
POLYMERIC SAND TO BE BRUSHED INTO

JOINTS PRIOR TO FINAL COMPACTION.

200mm DEPTH 19mm CRUSHED GRAVEL BASE
COMPACTED TO 98% S.P.D.
SUBGRADE COMPACTED TO 95%

DATE: NOV 2023

SCALE: N.T.S.











BICYCLE RACK DETAIL SCALE: N.T.S.



SCALE: N.T.S.

WASTE/ RECYCLE RECEPTACLE DETAIL SCALE: N.T.S.

CONSULTANT LAUD STUDIOS I

ISSUED FOR DART

ISSUED FOR PRE-CONSULTATION (DART)

ISSUED FOR SECOND ENGINEERING SUBMISSION

REVISIONS TO DRAWING

ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED

NUNNVILLE RESIDENTIAL

DEVELOPMENT

TOWN OF CALEDON

13290 NUNNVILLE ROAD, CALEDON

LANDSCAPE NOTES AND DETAILS

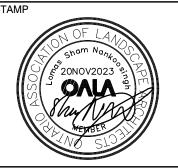
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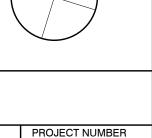
PROJECT TITLE

MUNICIPALITY

SHEET TITLE

PROJECT ADDRESS





20NOV2023

25APRIL202

9MAR2023

28NOV2022

DATE

PROJECT NUMBER 15 MAR 2022 202203 LSN LSN LSN DWG. NUMBER

L-6

BRANDENBARKTM — CONSTRUCTION OVERVIEW BARK 2 MICH OAP BEWEEN THE BOTTOM OF THE BANK AND THE POLE 225' LENGTH X 1' WIC'H) RECAMON GUARD (2 5)

- BOTTOM 5' OF POLE TREATED

SONOTUBE AND CONCRETE

Replacement Roosting Structures will be constructed to accommodate roosting bats to mitigate for impacts to cavity trees providing potential SAR bat roosting habitat.

- 1. Replacement Roosting Structures shall be constructed as shown on the drawing using Brandenbark™ or an equivalent artificial bat bark.
- Brandenbark™ is available for purchase at Copperhead Environmental Consulting, 11641 Richmond Road P.O. Box 73, Paint Lick, Kentucky 40461. Contact: Office No. (859) 925-9012 or by email at information@copperheadconsulting.com
 The artificial bat bark shall be wrapped tightly around the top of the utility pole, and shall be positioned flat against the pole and secured around the top with screws and washers to mitigate water seepage between the bark and pole. The bark should flare out gently towards the bottom to create a 2" gap between the bottom of the bar bark and the pole for bat access. The bat bark is shaped (51" high, 38" wide at the top and 44" wide at the bottom) so that it naturally bells around
- 4. Additional installation instructions may be avilable from copperhead consulting inc.
 5. Construction methodologies outlined within this document may be refined at the construction stage to ensure structures provide optimal roosting habitat for SAR bats, are safe and structurally sound, and that structures are built to withstand all
- weather conditions (i.e., excessive rainfall and/or snowfall, extreme wind conditions, etc.).
- 6. Site shall be cleaned up and all waste materials removed. replacement structure Construction Notes:

the pole when installed.

- 1. Structure dimensions shall be as shown on the drawing.
- 2. the utility pole to be used will be pressure—treated only at the base or the bottom 1.5 m (5 feet), the depth that will be set into the ground, to prevent rot. all materials are to be arsenic free.
- 3. The top of the utility pole shall be painted/sprayed with Rhino Liner or an equivalent product that will create a protective layer across the top of the pole.
- 4. Brandenbark™ or an equivalent artificial bat bark shall be wrapped around the upper portion of the utility pole and affixed using suitable screws and washers around the top of the sheet.
 5. all Screws and washers used shall be exterior grade (e.g., galvanized, coated, stainless, etc.).
- 6. screws and washers shall be used along the side seams of the artificial bat bark to secure the bark to the pole.
- 7. at the bottom of the bat bark a single screw and washer shall be used to secure the side seams, leaving the bottom of the bark with a 2" gap between the bark and the pole for bat access. as noted above, the bark is shaped so that it naturally
- 8. material such as aluminum flashing or similar material shall be used to create a cover or roof over the top of the utility pole. the cover shall be arched over the top of the utility pole and affixed along the sides of the pole as shown on the
- 9. Dig/auger a suitable sized hole to fit the utility pole into the earth to a depth of 1.5 m (5 feet).
- 10. A concrete pad may be needed to create a base at the bottom of the hole on which the pole will sit (to be determined by contractor).
- 11. Pole should be installed to be true vertical.
- 12. backfill the hole with gravel materials, and continuously pack down to firm the backfilled material around the pole. the gravel will help to drain water away from the pole.
- 13. Metal predator guards shall be installed around the pole. predator guards are to be 24 gauge galvanized steel sheets wrapped around the pole. guards are to be mounted 1.0 m (3 feet) above grade and are to be 1.2 m high. guards are to be securely fastened to the pole with galvanized steel screws (flush with the guard).

 replacement structure location:
- replacement structure location:

 1. replacement structures shall be installed in the locations shown on the accompanying landscape plan drawing.
- location of replacement structures may be refined on—site at the time of construction in consultation with the regulatory agencies and an ecologist who is experienced in habitat requirements for sar bats.
 If a Replacement Roosting Structure is positioned next to an existing tree line, it should be placed 3.0 m (10 feet) from the closest tree branch, or wires or other potential perches that can be used by aerial predators.
- 4. Vegetation within the 3.0 m (10 feet) radius is to be removed, except trees with minimum diameter at breast height of 10 cm.







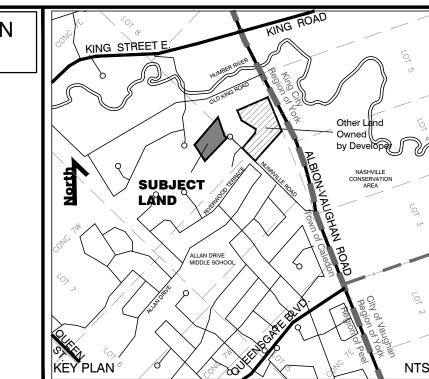
300 (1')

PREDATOR GUARD ———— (SHEET METAL BAND)

GROUND ———

SCALE: N.T.S.

NOT FOR CONSTRUCTION SPA ONLY



4	ISSUED FOR DART	20NOV2023
3	ISSUED FOR PRE-CONSULTATION (DART)	25APRIL2023
2	ISSUED FOR SECOND ENGINEERING SUBMISSION	9MAR2023
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No.	REVISIONS TO DRAWING	DATE

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NUNNVILLE RESIDENTIAL DEVELOPMENT

MUNICIPALITY

TOWN OF CALEDON

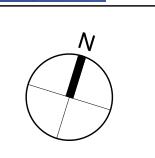
PROJECT ADDRESS

SHEET TITLE

LANDSCPE NOTES AND DETAILS

13290 NUNNVILLE ROAD, CALEDON





SCALE	DATE	PROJECT NUMBER
N.T.S.	15 MAR 2022	202203
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L-7



Appendix F

Invasive Species Management Plan



Invasive Species (European Buckthorn Management Report: 13290 Nunnville Road, Bolton, ON

Prepared for

)

Bolton Summit Developments Inc.

6198 Tremaine Court Mississauga, Ontario L5V 4B5

November 22, 2023 Project No. P2022-612

Prepared by



GeoProcess Research Associates Inc.

133 King Street West PO Box 65506 DUNDAS Dundas, ON L9H 6Y6



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1. Introduction



GeoProcess Research Associates (GeoProcess) was retained by Bolton Summit Developments Inc. to provide an invasive species management plan for a mature section of Common Buckthorn located at 13290 Nunnville Road, Bolton ON. This property is herein referred to as the 'subject area' throughout the rest of this report. It is understood that there is section of

Common Buckthorn located within the subject area where management is required. This report provides an overview of the management approach as well as recommendations for restoration post-treatment and monitoring.

Common Buckthorn (Rhamnus cathartica) is a plant native to Europe and is also known as European Buckthorn. It was likely introduced to Canada in the 1880s, often used in hedgerows and windbreaks, it was widely planted across the country. Common Buckthorn is a shade-tolerant plant that quickly out-competes native plants, reduces biodiversity, and degrades the quality of wildlife habitat. Common Buckthorn is listed as a noxious weed in Ontario's Weed Control Act.

2. Best Management Practices

The Ontario Invasive Plant Council has published a thorough best management practices document for Common Buckthorn, which is publicly available on their website. It is recommended that this document be consulted alongside this report to inform the treatment of the invasive buckthorn within the study area. The BMP is attached to this report as Appendix A.

Given the density of the patch of Common Buckthorn on site as well as the maturity of the stand, a combination of treatment techniques is proposed. It is recommended that a qualified contractor who is experienced in plant identification conducts the treatment to reduce the likelihood that native plants are damaged or removed in the process.

2.1. Cut-Stump Treatment

Due to the height of the majority of the Common Buckthorn on site, it is recommended that the invasive shrubs are managed using a combined cut-stump approach.

A cut-stump treatment is a woody invasive plant control method that combines the physical removal of the above-ground portions of the target plant combined with the chemical control of the roots. Though often effective and highly targeted, it is a relatively labour-intensive process.

The first step of a cut-stump treatment is cutting down the above-ground portions of the target plants. For multi-stemmed plants, all stems should be cut. Removing the above-ground portions immediately prevents plants from photosynthesizing and producing fruit in the short term. However, all woody invasive species regrow from the root system following cutting. Herbicide is applied to the cut-surface of the stump in order to kill the root system, preventing regrowth.

2.1.1. Seasonality

Cut-stump treatment can be practiced during most of the year. It should not be conducted during heavy sap flow (typically during early spring). If stems are cut during sap flow, they may leak water or sap, preventing herbicide applied to the stump from being properly absorbed (Enloe et al. 2011). Mid-to-late fall is generally the best time for cut-stump treatment. Woody plants transport carbohydrate reserves down to the root system in the fall, which aids herbicide translocation (Schalau 2006).

2.1.2. Weather

Application shortly before rainfall may cause treatment to be less effective. Knowledge of the herbicide product rainfastness (time after application that is needed to guarantee control) is critical to avoid losses in effectiveness. Herbicides mixed in water may have limited effectiveness in winter when temperatures are consistently below freezing as the product may freeze on the stump surface. Oil-based mixtures can often be used at temperatures below freezing.

2.1.3. Timing of Herbicide Application Relative to Cutting

The herbicide should be applied to cut-surfaces as soon as possible following cutting as many woody invasive species seal off their vascular tissues following injury. Herbicides mixed with water generally have less penetrative power than those mixed with oil, and it is more critical to apply them while the cut is still fresh; within 5 minutes if possible (Enloe et al. 2013). The window for application may be longer if herbicide mixed with oil is used (Jackson 2018, Ferrell et al. 2015). Delays between cutting and application may impact effectiveness (Ballard and Nowak 2006).

2.2. Herbicide Application

Herbicides must be applied in accordance with all label directions and only for the control of specified pests. A licensed exterminator will be required to apply any commercial herbicide. The appropriate product and application rate will be selected by the licensed applicator. Garlon RTU is one the more commonly used herbicides used to stump treat woody invasives like Common Buckthorn.

Guidance will need to be provided to the licensed exterminator regarding how the felled plant material should be dealt with. It is recommended that the felled material be mulched on site, removed from site or relocated outside of the treated area to make room for native shrubs that will be planted as part of the restoration activities. If the felled buckthorn material is left nearby the proposed restoration site, this could provide satisfactory winter habitat for rabbits, which would likely damage and browse on newly planted native plants.

3. Post-Treatment Restoration

The removal of Common Buckthorn is the first critical step to restoring the subject area. Without the removal of the buckthorn population, it will not be possible to reestablish native species and improve biodiversity.

Once treatment and removal are complete, the installation of native shrub species should be implemented shortly afterward to outcompete any buckthorn seedlings that might regenerate on site. The table below provides a list of native shrub species that would be appropriate to plant in the area according to the Ontario

Plant Hardiness Zone Map. Bolton is listed as Zone 5b. It is recommended that as many of the different species provided below be planted to increase the biodiversity of the site as well as foraging opportunities for animals and pollinators.

Table 1: List of suitable native shrub species to be planted post-treatment.

Common Name	Scientific Name
Nannyberry	Viburnum lentago
Pussy Willow	Salix discolor
Chokecherry	Prunus virginiana
Sandbar Willow	Salix exigua
Red Osier Dogwood	Cornus sericea
Highbush Cranberry	Viburnum trilobum

3.1. Planting Guidance

It is recommended that a variety of heights and ages of plants be installed to increase the resiliency of the plant material to disturbance. Plant sizes should include a mix of:

- Seedlings (or plugs): 10-60 cm in height
- 1 or 2 gallon pots: 40-150 cm in height

To achieve the greatest density of plant material, shrubs should be spaced out so that the plants are one metre apart off centre no matter the size of the pot/plug. The same species can be planted in clusters of 3-4 plants evenly distributed throughout the site. See the planting details below to guide the proper installation of the shrubs. For potted stock, timing should be the months of June and September to avoid planting them during periods when weather is too hot or cold.

Consulting

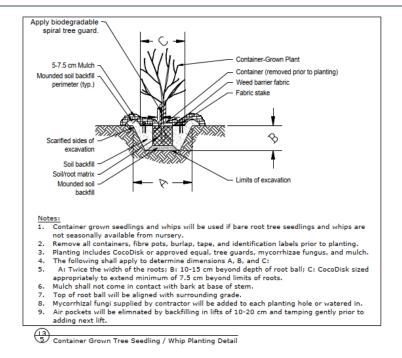


Figure 1: Seedling planting details

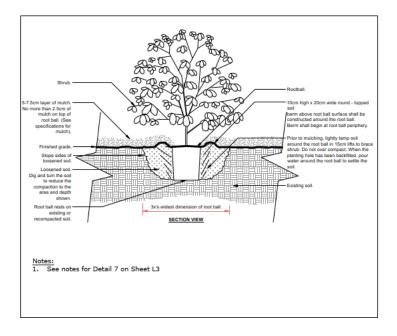


Figure 2: Potted shrub planting details

To improve the survivability of the plants a weed suppression mat (i.e. coco-disk) should be placed at the bottom of each plant and secured with 1-2 sod staples. This will help reduce competition from surrounding plants. When planting potted stock with a single stem, it is recommended that a plastic spiral guard be applied to reduce herbivory and damage to the native stock. If the shrub is multi-stemmed then a spiral guard should not be applied.

4. Monitoring

Any woody invasive treatment needs to be monitored for effectiveness and regrowth in the years following treatment. Regrowth from treated stumps is most easily addressed with a foliar application of herbicide, which involves the use of equipment to coat the leaves of a target plant with herbicide. Because woody plants seal wounds, re-application of herbicide to a previously cut and treated stump will not be effective unless a fresh cut is made.

5. Permits and Authorizations

Disturbance to nesting birds and/or destruction of nests during the breeding season is prohibited under the Migratory Birds Convention Act. It is possible that migratory birds use this area for nesting, therefore the cutting of Common Buckthorn should be completed in the late fall or winter outside of the Migratory Birds breeding season window from March 30-August 31.

6. Conclusion



The subject area contains a dense patch of mature Common Buckthorn. A cut-stump treatment approach is recommended to treat the invasive species, using a combined approach of mechanical and chemical treatment techniques. The treatment must be completed by a licensed exterminator and should avoid taking place within the Migratory Birds breeding seaons

window (March 30-August 31). Post-treatment, a restoration planting plan should be implemented in the following growing season to outcompete any buckthorn seedlings that may regenerate naturally. Annual visual monitoring is recommended to determine how the native plantings are surviving and determine if another round of treatment (cut-stump or otherwise) is required.

7. References

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Invasive Species Management Plan (European Buckthorn)

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Maps

