ENVIRONMENTAL IMPACT STATEMENT
UPPERS LANE PROPERTY – CITY OF THOROLD

Prepared for:

Farz Holdings Inc.

14039 Bayview Ave Aurora, ON L4G 3G8

Prepared by:

Sullivan Planning Services Inc. & Colville Consulting Inc.

File: C18011
September 2018

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1.0 Introduction

Sullivan Planning Services Inc. (SullivanPLAN) and Colville Consulting Inc. were retained by Farz Holdings Inc. to jointly prepared this Scoped Environmental Impact Statement (SEIS) related to a Plan of Subdivision proposed to be constructed on the property located north of the unopened Uppers Lane, approximately 550m west of Townline Road, in the City of Thorold. This EIS has been prepared to assess the potential impacts of development on natural heritage features on and adjacent to the Subject Properties. A summary of our assessment is included below.

1.1 Description of the Subject Lands

The Subject Property is approximately 15ha (37.1ac) in size and is described as Part Lot 67 and Part of Road Allowance between lots 67 and 68, City of Thorold (See **Figure 1**). This parcel has not been assigned a municipal address as it does not contain buildings. From our observations of the site, the majority of the property is in active agricultural production with surrounding hedge rows delineating the extent of the property boundary. The site is also bisected from the northwest to southeast by a pipeline easement.

The Subject Lands are generally flat, with a slight grade from south to north into the watercourses that bisected the property. These lands ultimately drain to Beaverdam's Pond, which is located approximately 500m north of the property. Although no buildings or structures are present on the property, properties to the south and west are currently, or scheduled to be, developed for residential use.

Based on our review of background mapping, it is our understanding that natural heritage features on the Subject Property consists of a watercourse, which is a tributary to Beaverdam's Pond. According to correspondence from the NPCA, this watercourse has been designated as Type 2 Fish Habitat. In addition to the watercourse, a small portion of a significant woodland is located along the east property line. The majority of this woodland occurs on the property to the east however a portion of this woodland does appear to occur on the Subject Lands. The extent of the natural heritage features on and adjacent to the properties are illustrated in **Figure 2**.

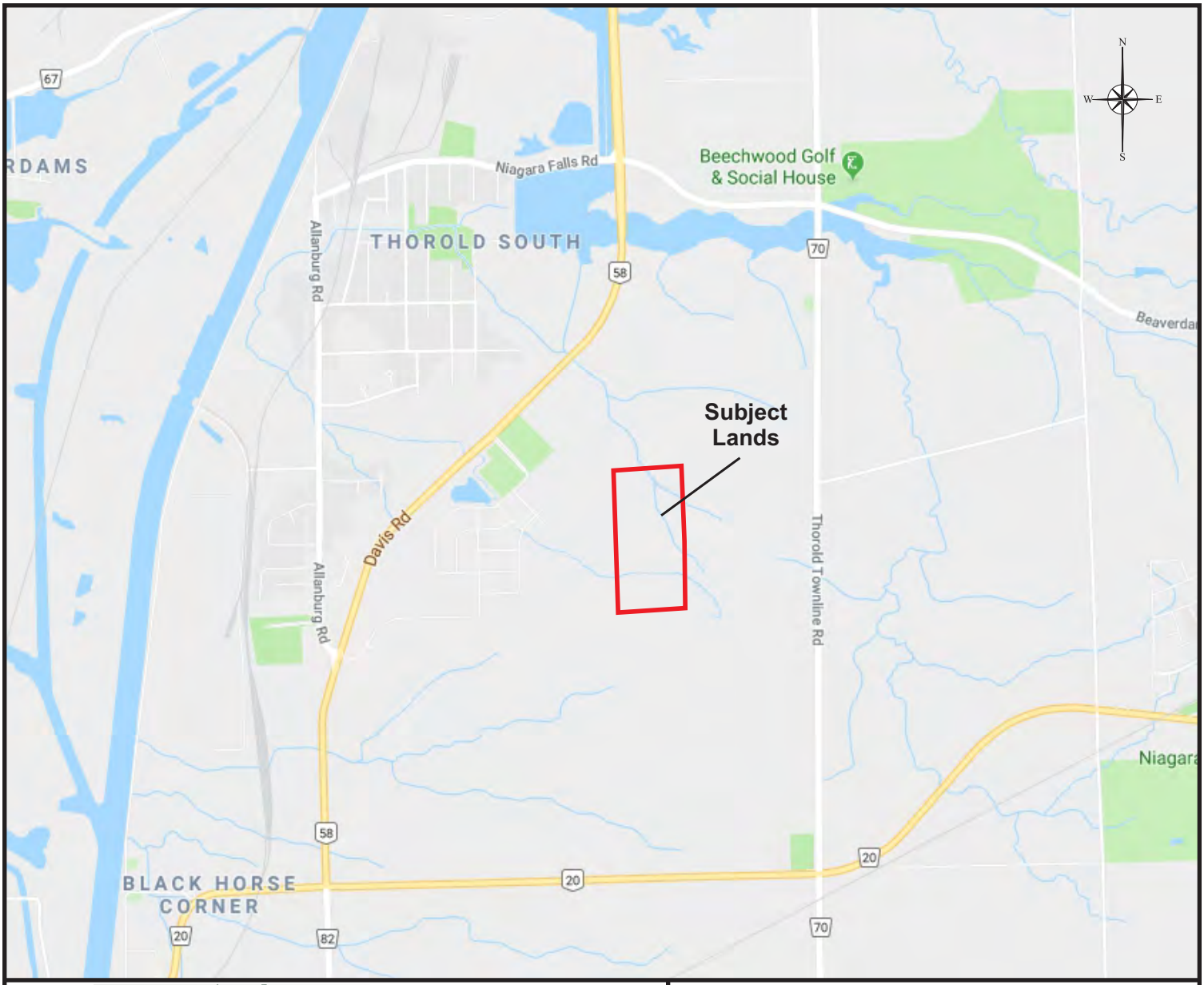
1.2 Description of Proposed Development

Proposed development on the Subject Property will include residential development of approximately 364 units, to include single detached and townhouse unit types, with associated servicing and amenity areas. The approximate extent of the proposed development is illustrated in **Appendix A**.

2.0 Environmental Policy

The following environmental laws and policies pertain to the Site and the natural features of the Site:

- Provincial Policy Statement (2014), Section 2.1 Natural Heritage;
- Growth Plan for the Greater Golden Horseshoe (2006);
- Endangered Species Act (2007);
- Region of Niagara Official Plan (2014);
- Niagara Peninsula Conservation Authority watershed development policies;
- City of Thorold Official Plan;
- City of Thorold Zoning By-law;



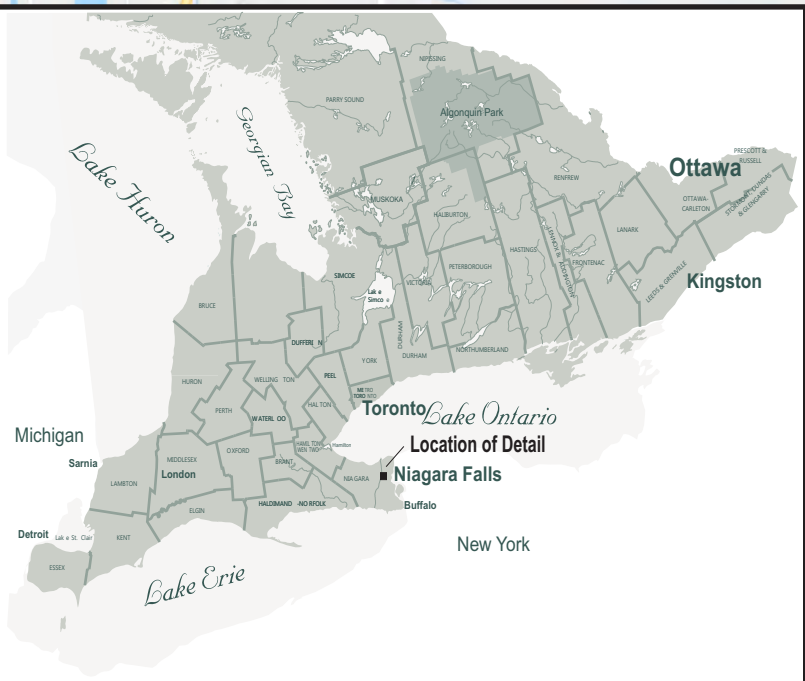


Figure 1
Location of Subject Lands

Environmental Impact Study
Uppers Land Property

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Legend

- Property Boundary
- Watercourses
- Significant Woodland

Figure 2
Mapped Natural Heritage Features on the Subject Lands

Environmental Impact Study
Uppers Land Property

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- Fish and Wildlife Conservation Act (1997);
- Migratory Birds Convention Act (1994); and
- Forestry Act (1990).

2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS, 2014) applies to all land development in Ontario. Changes in land use, including Plans of Subdivision are considered development so the impacts of the proposed use need to be assessed. Section 2.1 of the PPS regulates the protection of natural heritage features and their related functions.

Specifically, where significant features are identified, including woodlands, development is prohibited unless an Environmental Impact Study (SEIS) can demonstrate no negative impact on the features.

This application is consistent with the PPS.

2.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (Growth Plan) provides policy direction on the use of lands from Bowmanville (east) to Simcoe County (north). In general, the Growth Plan focuses on directing growth to existing urban centres in the Region of Niagara, which includes the City of Thorold. The subject property is within the built boundary of the City of Thorold.

Section 4.2 of the Growth Plan deals with Natural Heritage Systems, primarily focusing on creating links to other planning policies, such as the Greenbelt Plan. This approach allows the Growth Plan to focus its policy on growth management, leaving natural heritage conservation for existing and more specific policy vehicles.

This application is consistent with the policies of the Growth Plan.

2.3 Greenbelt Plan

The Site is located outside and south of the Greenbelt Plan therefore the Greenbelt Plan does not apply to this proposed development.

2.4 Niagara Region Official Plan

The Site is designated as "Urban Area" in the Regional Official Plan (ROP). In addition, the property is subject to "Environmental Conservation Area" (ECA) constraints, which indicates that a woodlot or possibly the habitat of a significant wildlife species may be found on-site or nearby and create a constraint to any proposed land use.

The ROP also provides policy direction when land use change is proposed. In this instance, the natural features on the site do not qualify as Regionally significant. This confirmed by a review of the ROP Schedule C – Natural Heritage. However, a Regionally Significant Woodlot is located arguably within 120m of the Site, as presented in **Figure 5**, therefore impacts must be assessed.

The Regional Official Plan designates the site as "Urban Area" with an "Environmental Conservation Area" overlay to the east, relating to the Significant Woodland. Chapter 7 – Natural

Environment. Section 7.B policies of the Regional OP apply to the natural heritage aspects of the subject site and are highlighted in **Table 1**.

Table 1 - Regional Natural Environment Planning Policy Review

Policy	Description	Compliance
7.B.1	To maintain, restore and, where possible, enhance the long-term ecological health, integrity and biodiversity of the Core Natural Heritage System	YES. The project has been designed to avoid any more than minor impacts to the woodland.
7.B.1.1	The Core Natural Heritage System consists of potential bat Candidate Habitat: Core Natural Areas (EPA & ECA).	YES. This EIS focuses on impacts to Significant Woodlands. The project has been designed to minimized impacts.
7.B.1.2	Development and Site alteration within the ECA Core Natural Heritage System, where potentially permitted by policies elsewhere in this Plan, shall be subject to Chapter 7.A as well as 7.B.	YES. This application will result in minor encroachments into the ECA area
7.B.1.3	EPA includes PSW's and Significant Wildlife habitat.	YES. This application proposes only minor encroachments into the Significant Woodland. The functions of this feature are not affected.
7.B.1.4	ECA's include significant woodlands and wildlife habitat.	YES. The Site contains features identified as Wildlife Habitat, however it is not considered SWH. The development has been designed to minimize removal of trees, which will not impact the feature or its functions.
7.B.1.5	To be identified as significant, a woodland must meet one or more of the following criteria	
	a) Contain threatened or endangered species or species of concern	NO. 3 Plausible 8 Likely
	b) In size, be equal to or greater than 10 hectares (outside of Urban Areas & south of the Escarpment)	YES. Woodlot is 15ha in size.
	c) Contain interior woodland habitat at least 100 m in from the woodland boundary	YES. Woodlot is less than 100m in depth.

Policy	Description	Compliance
	d) Contain older growth forest and be 2 ha or greater in area	YES. Trees are a maximum of between 50 – 75 years old
	e) Overlaps or contain one or more of the features (PSW, PANSI, SWH)	NO.
	f) Abut or be crossed by a watercourse or waterbody	YES. Watercourse (local drainage ditch) bisects the feature.

Figure 3 – Regional Official Plan: Core Natural Heritage (source: Regional Official Plan, Schedule C)

The woodland on the Subject Property is Significant. The proposed development has been designed to meet the "no negative impact" test, as required.

2.5 City of Thorold Official Plan

The City of Thorold Official Plan Schedule A refers the reader to Schedule A-3, which is the Rolling Meadows Secondary Plan. Accordingly, Schedule A-3 designates the property as "Residential", with "Environmental Protection Two" and "Greenfield Overlay". In addition, an "Off-Road Multi-Use Trail". For this EIS, we will focus on the "Environmental Protection Two" and "Greenfield Overlay".

Within the Official Plan, we refer to Section B1.8 – The Neighbourhoods of Rolling Meadows Secondary Plan. More specifically, Section B1.8.9 – Natural Environment applies to this EIS and notes that all lands "…shall be subject to the policies of Section B3.3 of this Plan."

The policies of Section B3.3.2 apply to this proposal as the protected features include:

b) Significant habitat of special concern species;

c) Significant woodlands; and

h) Significant wildlife habitat.

This EIS will address each of these topics. Specifically, Table 3 presents a policy analysis of Policy B3.3.4.

Policy	Description	Compliance
B3.3.2	Components of the Environmental Protection Two Designation: b) Significant habitat of special concern species; c.) Significant woodlands; h) Significant Wildlife habitat.	YES. Areas designation EPA have been demonstrated not to contain any of the features/functions noted. The woodland at the northeast corner of the property will remain intact. Mature trees/woodlands will be maintained, where possible.
B3.3.3	Permitted Uses	NO Permitted uses do not include

Policy	Description	Compliance
		residential. An Official Plan Amendment will be required.
B3.3.4.1	General Conditions for New Development New development and site alternation may be permitted provided it has been demonstrated through an EIS that there will be no negative impacts to the natural heritage features..	YES This EIS was prepared to meet Regional EIS Guidelines, per Regional OP policy.
B3.3.4.3	Existing Uses in the EPA2 Designation	NO The subject property is active farm land, with mature hedgerows along the perimeter and bisecting the property. No buildings or structures exist.
B3.3.4.6	Lot Creation: Where lot creation is proposed, the new lot(s) shall not comprise land in the EPA2 designation. The retained lands shall be retained as a single lot.	NO Several new lots are proposed, via a Plan of Subdivision, which will meet a higher standard for approval than a single lot severance. Existing vegetation will be retained where possible and using best management practices.
B3.3.4.11	Transfer of Environmental Land into Public Ownership The use of conservation easements by public agencies or others will be considered by the City to implement the environmental policies of this Plan	POSSIBLE The applicant may be open to this. However early discussions with the City have suggested they would prefer to retain mature hedgerows within new lots, where possible. Ownership of separate blocks does not appear to make sense in this situation.
B3.3.4.12	Significant Woodlands Where development or site alteration is proposed within 120m of a Wooded Area identified in Schedule B, an assessment may be required to determine if it is significant per Regional standards.	NO The woodland at the northeast corner of this property is identified in this EIS as meeting the Regional test for significance. As a result, it is being protected from development.
B3.3.5	Zoning By-law Interpretation The boundaries of the EP2 designation were derived from Region of Niagara mapping. The Zoning By-law shall also incorporate general	YES A Zoning By-law Amendment is being requested with this application.

Policy	Description	Compliance
	setbacks for lot lines, buildings, structures, and similar areas, in relation to the extent and sensitivity of the natural features and functions of the area.	All significant features are being respected in this application. For mature hedgerows, the trees will be maintained to the extent possible.
C6	Requirements for an Environmental Impact Study	
C6.1	Purpose of an EIS An EIS required by this Plan must be prepared in accordance with the Environmental Impact Study Guidelines (EIS Guidelines) adopted by the Region of Niagara.	YES The Region of Niagara approved a Terms of Reference for this EIS.
C6.2	Contents of an EIS	YES A Terms of Reference was prepared and approved by the Region of Niagara.
C6.3	Agencies Responsible for Review and Approval The review and approval of any EIS prepared to fulfill this Official Lan shall be undertaken by the City, in consultation with the Region and NPCA.	YES At Pre-Consultation, the Region confirmed it is the agency responsible for approval of the EIS.

2.6 Niagara Peninsula Conservation Authority

The Niagara Peninsula Conservation Authority (NPCA) is responsible for the management of lands regulated by O.Reg. 155/06. The NPCA has indicated the need for a review of works that may impact the watercourses on-site.

To-date, the NPCA has generally supported the concept of development on these lands, subject to the overland flow for each watercourse being maintained post-development. This may include channelling, piping or otherwise re-directing the current flows.

Stormwater management plans will need to include the watercourses and speak to how the flow will be maintained. Subject to this design meeting the NPCA requirements, no specific biological work is required related to this feature.

The applicant will work with the NPCA during the course of the planning process to meet their needs.

3.0 Study Approach

3.1 Background Review

Prior to the commencement of primary field inventories, a review of background material available for the Subject Lands and surrounding area was conducted. Some of the background information reviewed included:

- Niagara Escarpment Plan Mapping (NEC 2017)
- Niagara Region Core Natural Heritage Mapping (Niagara Region 2008);
- NPCA Policies, Procedures and Guidelines for the Administration of Ontario Regulation 155/06 and Land Use Planning Policy Document (2011);
- NPCA Natural Areas Inventory (2010); and,
- Background data available from the Ministry of Natural Resources and Forestry.

3.2 Field Inventories

To identify potential natural heritage constraints on the property, Colville Consulting Inc. submitted a Terms of Reference (ToR) to the region (Appendix B) and conducted the following inventories:

1) Breeding bird survey;
2) Single season botanical inventory;
3) Assessment and description vegetation communities on the properties using the Ecological Land Classification System for Southern Ontario;
4) Watercourse Assessment;
5) Bat Roosting habitat assessment;
6) Active hand searching for reptiles and amphibians; and
7) Document of any wildlife species observed on the properties; and
8) Species at Risk Screening.

The methods employed for each of the above components are provided in the appropriate sections below.

4.0 Study Findings

4.1 Botanical Inventories and Vegetation Mapping

Botanical inventories of the Subject Properties were conducted on July 19, 2018. Vegetation communities (ELC units – following Lee et al. 1998) were mapped and described, and a list of botanical species was compiled (see **Appendix C**). Species status was assessed for Ontario (Oldham and Brinker 2009) and Niagara Region (Oldham 2010). Representative photos of the vegetation communities on these properties are presented in **Appendix D**. The results of our observations and assessment are provided below.

4.1.1 Botanical Inventories

Sixty-eight (68) plant species were documented during our inventories (see **Appendix C**). No species considered at risk in Ontario were documented on the Subject Property. One locally uncommon species, Bur Oak, was documented on the Subject Property occurring along the northwest hedgerow.

4.1.2 Vegetation Communities

The Subject Property consists of two square farm fields currently planted to wheat (but recently plowed under before being harvested), surrounded by **Naturalized Deciduous Hedge-row (FODM11)** and a **Dry - Fresh Deciduous Hedgerow Thicket (THDM3)**. The woodland adjacent and partially within the Subject property to the east consists of **Dry-Fresh Oak-Maple-Hickory Deciduous Forest (FOD2).** The western limits of the woodland encroach approximately 5m into the Subject Property along the north eastern border.

FODM11 Naturalized Deciduous Hedge-row

The deciduous treed hedgerow supports several mature individual trees, particularly along the east - west trending hedgerow, which separates the two farm fields. The largest tree observed in the hedgerows is an open grown White Oak (approx. 1.5m dbh), with a crown that spreads 20-25m in diameter. This exceptional oak tree anchors the middle, east - west, hedgerow to the western hedgerow. Other large diameter individuals along the hedgerows include several Shagbark Hickory, Sugar Maple, and Basswood trees. The majority of large diameter trees occur along the east - west hedgerow, but also along the north hedgerow as well.

The middle, east - west, hedgerow is composed of very large and mature Shagbark Hickory trees, with several Hop Hornbeam and Basswood trees as associates. In the understory of this mature hedgerow is an abundance of Common Buckthorn and younger tree saplings.

The northern hedgerow consists of many large diameter and old growth White Oak trees on the east half; and Shagbark Hickory with White or Bur Oak trees on the west half.

The west and east treed hedgerows consist of similar species.

THDM3 Dry - Fresh Deciduous Hedgerow Thicket

The southern hedgerow and a section of the north half of the west hedgerow are composed only of the occasional mature tree and is considerably thinner and open, and instead supports a Common Buckthorn - Wild Pear Deciduous Hedgerow thicket.

FOD2 Dry-Fresh Oak-Maple-Hickory Deciduous Forest

The deciduous forest is mature (>100 years) and comprised primarily of Hickory and associated species. The forest and Subject property are both bisected by the right of way of an underground pipeline running north east to south west**.**

4.2 Wildlife and Wildlife Habitat

4.2.1 Breeding Bird Survey

Two breeding bird surveys were conducted on May 28 and June 22, 2018 to inventory breeding birds on the Subject Property. Surveys were completed at least 15 days apart, under suitable weather conditions with little to no wind or precipitation. A thorough search of the subject property was completed during both surveys between dawn and no later than 10:00 am. All birds seen or heard calling were recorded and the highest breeding evidence per species was determined in accordance with the criteria of the Atlas of the Breeding Birds of Ontario (Cadman et al. 2007).

A total of 29 species of birds were observed or heard on or above the subject property and 8 additional species on adjacent lands. According to Ontario conservation status ranks (S-rank) designations, except for 1 non-native species, all other recorded species are considered to be "secure" (S5 - common, widespread and abundant) or "apparently secure" (S4 - uncommon but not rare) in the province of Ontario. The recorded species are also considered to be very common to common permanent or summer residents in the Niagara Region except for the uncommon summer resident Brown Thrasher, Red-tailed Hawk, Turkey Vulture, White-breasted Nuthatch, Wood Thrush, uncommon permanent resident Red-bellied Woodpecker, Wild Turkey and extremely rare summer straggler Black-and-white Warbler (Niagara Natural Areas Inventory, 2010).

The Barn Swallows observed flying and calling over the Subject Property on both site visits are listed as Threatened under Ontario's Endangered Species Act. 2007 (ESA) and have been designated as Threatened in Canada by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The Eastern Wood-pewee heard calling on the second site visit, on adjacent lands to the east of the Subject Property is designated as Special Concern in provincially and federally.

The Wood Thrush heard calling, on the first site visit, on adjacent lands to the east of the Subject Property is designated as Special Concern in Ontario and has been designated as Threatened in Canada.

Table 2. Results of Breeding Bird Surveys.

Species	S Rank	Niagara Status*	Subject Lands	Adjacent Lands	Highest Breeding Evidence**	Breeding Code***
American Goldfinch	S5B	C R	X	X	PO	S
American Robin	S5B	VC R	X	X	PR	A
Baltimore Oriole	S4B	C R	X		PO	S
Barn Swallow	**S4B**	**VC R**	**X**		**OBS**	**X**
Black-and-white Warbler	S5B	ER S		X	PO	S
Black-capped Chickadee	S5	C P	X	X	CO	FY
Blue Jay	S5	VC P	X	X	PR	A
Brown Thrasher	S4B	U R	X		PO	H
Brown-headed Cowbird	S4B	VC R	X	X	CO	FY
Canada Goose	S5	VC P	X		OBS	X
Cedar Waxwing	S5B	C R	X		PO	H
Chipping Sparrow	S5B	C R	X		PO	S
Common Grackle	S5B	VC R	X		PO	H
Downy Woodpecker	S5	C P		X	PO	S
Eastern Kingbird	S4B	C R	X		PR	P
Eastern Wood-pewee	**S4B**	**C R**		**X**	**PO**	**S**
Gray Catbird	S4B	C R	X	X	PR	A
Great Crested Flycatcher	S4B	C R	X		PO	S
Horned Lark	S5B	C R		X	PO	S
House Sparrow	SNA	VC P	X		PO	H
Indigo Bunting	S4B	C R		X	PO	S
Killdeer	S5B,S5N	C R	X	X	PO	S
Northern Cardinal	S5	C P	X	X	PR	P
Northern Flicker	S4B	C R	X		PO	H
Red-bellied Woodpecker	S4	U P	X	X	CO	AE
Red-eyed Vireo	S5B	C R	X	X	PO	S
Red-tailed Hawk	S5	U R		X	PR	A
Red-winged Blackbird	S4	VC R	X		PO	S
Ring-billed Gull	S5B,S4N	VC R	X		OBS	X
Savannah Sparrow	S4B	VC R	X	X	PR	A
Song Sparrow	S5B	VC R	X	X	CO	FY
Tree Swallow	S4B	VC R	X		PO	H
Turkey Vulture	S5B	U R	X		PO	H
Warbling Vireo	S5B	C R	X		PO	S
White-breasted Nuthatch	S5	U R		X	PO	S
Wild Turkey	S5	U P	**X**		**PO**	**H**
Wood Thrush	**S4B**	**U R**		**X**	**PO**	**S**

* VC – very common; C – common; U – uncommon; UR – Uncommon to rare; O – Occasional; P – permanent resident; R – summer resident; S - Straggler (Niagara Natural Areas Inventory, 2010)

** OBS – observed, no evidence of breeding; PO – possible breeding; PR – probable breeding; CO - confirmed breeding

*** X – observed in its breeding season, no evidence of breeding

H – species observed in its breeding season in suitable nesting habitat

S – singing male present in its breeding season in suitable nesting habitat

P – pair observed in their breeding season in suitable nesting habitat

A – agitated behavior or anxiety calls of an adult

FY – recently fledged young

CF – adult carrying food for young

NY – nest with young

‡ – Area Sensitive Species

4.2.2 Assessment of Potential Bat Roosting Habitat

During the summer, the Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis and Tri-coloured Bats are found in a variety of forested habitats, as well as abandoned buildings, barns and attics. In forested habitats, cavities in trees, loose bark, foliage and other cover objects are used for roosting. These species forage in a variety of habitats where flying insects and spiders are present, often in association with wetlands, ponds and streams. Overwintering typically occurs in caves.

An assessment of potential bat roosting habitat was conducted on March 21 and June 5, 2018 using methods described in MNRF (2017b). The March 21, 2018 visit was intended to inventory tree cavities and the June 5, 2018 was intended to identify any dead foliage on live oak and maple trees.
From our observations of trees on the property, no cavity trees and no dead foliage on live trees were present, however there were several dead Ash trees on and adjacent to the Subject Lands which were exhibiting some bark exfoliation.

4.2.3 Wildlife Observations

To assess potential reptile and amphibian use of the property, active hand searches were conducted during site assessments using methods described in MNRF (2013), however no amphibian or reptile species were observed.

Incidental wildlife observations including signs were recorded during each visit to the property. Observations include eastern cottontail, coyote, grey squirrel, racoon and signs of White-tailed Deer.

Incidental insect observations including signs were recorded during both breeding bird survey visits. Observations includes Admiral Butterfly *(Limenitis arthemis)*, Ants (Formicidae), Bumble Bee (Bombini), Cabbage White Butterfly *(Pieris rapae)*, Cricket (Gryllidae), Deer Fly (Chrysops), Dragonfly (Odonata), Flesh Fly (Sarcophagidae), Mosquito (Culicidae), and Moth (Lepidoptera)

4.3 Watercourse Assessment

As illustrated on **Figure 2**, two watercourses are located on the northern half of the Subject Lands. Both watercourse features are tributaries to Beaverdam's pond. No fish community information was available from MNRF for either watercourse, however Beaverdam's Pond is known to support a warmwater fish community. For ease of description, these watercourses have been assigned numerical identifiers, which are illustrated in **Figure 3.**

Watercourse 1

Watercourse 1 is located on the northern portion of the Subject Lands and runs north to south. Based on our observations, the channel of this watercourse measures approximately 70cm in width and 20cm in depth. Most of the watercourse runs through the agricultural portion of the property and provides drainage function for active row crop production on the property. Flow in this watercourse is ephemeral and associated with the spring freshet and major precipitation events. The watercourse does not appear to be providing any fish habitat function. No fish habitat is present in this feature.

Watercourse 2

Watercourse 2 is located on the north east portion of the Subject Lands and within the Woodland adjacent to the east. Based on our observations, the channel of this watercourse measures approximately 70cm in width and 20cm in depth. Flow in this watercourse appears to be

Legend

	Property Boundary
	Watercourses
OAGM1	Annual Row Crops
FOD2	Dry-Fresh Oak-Maple-Hickory Deciduous Forest
FODM11	Naturalized Deciduous Hedge-row
THDM3	Dry-Fresh Deciduous Hedgerow Thicket
①	Watercourse Identifier

Figure 3
Vegetation Communities on and Adjacent to the Subject Lands

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ephemeral and associated with the spring freshet and major precipitation events. No fish habitat is present in this feature.

From our assessment, neither of these watercourses appears to be providing any significant fish habitat function on site and are not likely contributing significantly to fish habitat downstream or. We recommend that the watercourses will be piped in conjunction with the storm water management plan (SWM).

5.0 Assessment of Significant Natural Heritage Features

5.1 Species at Risk

5.1.1 Significant Habitat of Endangered and Threatened Species

As part of our assessment of this property we submitted an information request to the Ministry of Natural Resources and Forestry (MNRF) (**Appendix** E. Information provided by MNRF indicated that SAR and rare species know to occur in this area include Barn Swallow, Bank Swallow, Round-leaved Greenbrier, Snapping Turtle, Wood Thrush, and Black Gum.

In addition to the above, our assessment of the Subject property indicates that potential roosting or maternal habitat for species at risk bats is limited to exfoliating bark on dead ash trees and shagbark hickory trees in the woodland adjacent. Since this type of habitat is not limited in the area, it is our conclusion that the Subject Property is not providing significant habitat for SAR bat species

No Endangered species were documented on the property during our observations, however Several Barn Swallows (designated as Threatened in Ontario) were documented flying and calling above the Subject Property on both site visits. No suitable nesting structures are present on the property, and therefore it is our assessment that the Subject Property is providing incidental foraging habitat for this species, but is not providing a significant habitat function.

The habitats available on and adjacent to the property are not considered to be typical habitat for any Endangered or Threatened species known to occur in the City of Thorold. It is therefore our conclusion that the Subject Properties are not providing significant habitat for any Endangered or Threatened species. (See **Appendix F**)

5.1.2 Species of Conservation Concern

Two Species of Special Concern, the Eastern Wood-pewee and the Wood Thrush were documented during our survey work. These species were documented within the woodland adjacent to the east of the Subject Lands.

The Eastern Wood-pewee was observed on the second site visit on adjacent lands east of the Subject Property. Its habitat includes intermediate-age mature forest stands with little understory vegetation, but also utilizes the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. The Wood Thrush heard calling on the first site visit in the woodland to the east is designated as Special Concern in Ontario and has been designated as Threatened by COSEWIC. It is not anticipated that development on the Subject Property will impair the continued use of this property by these species.

Although not considered a species at risk, the locally uncommon Bur Oak was documented within the northwest hedgerow on the Subject Property.

5.2 Significant Wildlife Habitat

5.2.1 Seasonal Concentration Areas

The Significant Wildlife Habitat Technical Guide (SWHTG) (OMNRF 2000) identifies 13 types of seasonal concentrations of animals that may be considered significant wildlife habitat. These include, but are not limited to:

- winter deer yards;
- colonial bird nesting sites;
- waterfowl stopover and staging areas;
- waterfowl nesting areas;
- shorebird migratory stopover areas;
- land bird migratory stopover areas;
- raptor winter feeding and roosting areas;
- Wild Turkey winter range;
- Turkey Vulture summer roosting areas;
- reptile hibernacula;
- bat hibernacula;
- bullfrog concentration areas; and
- migratory butterfly stopover areas.

Seasonal concentration areas are typically designated as significant wildlife habitat if it supports a species at risk or a large population may be lost if the habitat is destroyed. Although White-tailed Deer tracks were incidentally observed within the Subject Property these were individual sightings and it is not anticipated that this property provides significant winter habitat for these species.

5.2.2 Rare or Specialized Habitat

Rare habitat includes those vegetation communities with are designated as extremely rare to uncommon in Ontario. Those areas that qualify as rare habitats are assigned an S-Rank of S1, S2 or S3 by the Natural Heritage Information Center.

The SWHTG defines 10 specialized habitats that may be considered significant wildlife habitat. They are:

- habitat for area-sensitive species;
- forests providing a high diversity of habitats;
- old-growth or mature forest stands;
- foraging areas with abundant mast;
- amphibian woodland breeding ponds;
- turtle nesting habitat;
- specialized raptor nesting habitat;
- mineral licks;
- highly diverse areas; and
- seeps and springs.

No rare or specialized habitats are present on the Subject Property.

5.2.3 Migration Corridors

The Significant Wildlife Habitat Technical Guide (SWHTG) defines animal movement corridors as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. To qualify as significant wildlife habitat, these corridors should be a critical link between habitats that are regularly used by wildlife.

Based on our review of air photos, it appears that the woodland on and adjacent to the Subject Land may form part of a potential wildlife migration corridor in the area for Beaverdam's Pond, however due to size and continuity of the natural areas surrounding the Subject Lands, it is not likely that development on this parcel will impact any migration corridors that may be present in this area.

5.3 Significant Areas of Natural and Scientific Interest (ANSI)

No Areas of Natural and Scientific Interest are located on or adjacent to the Subject Lands.

5.4 Provincially Significant Wetlands

No Provincially Significant Wetlands are located on the property.

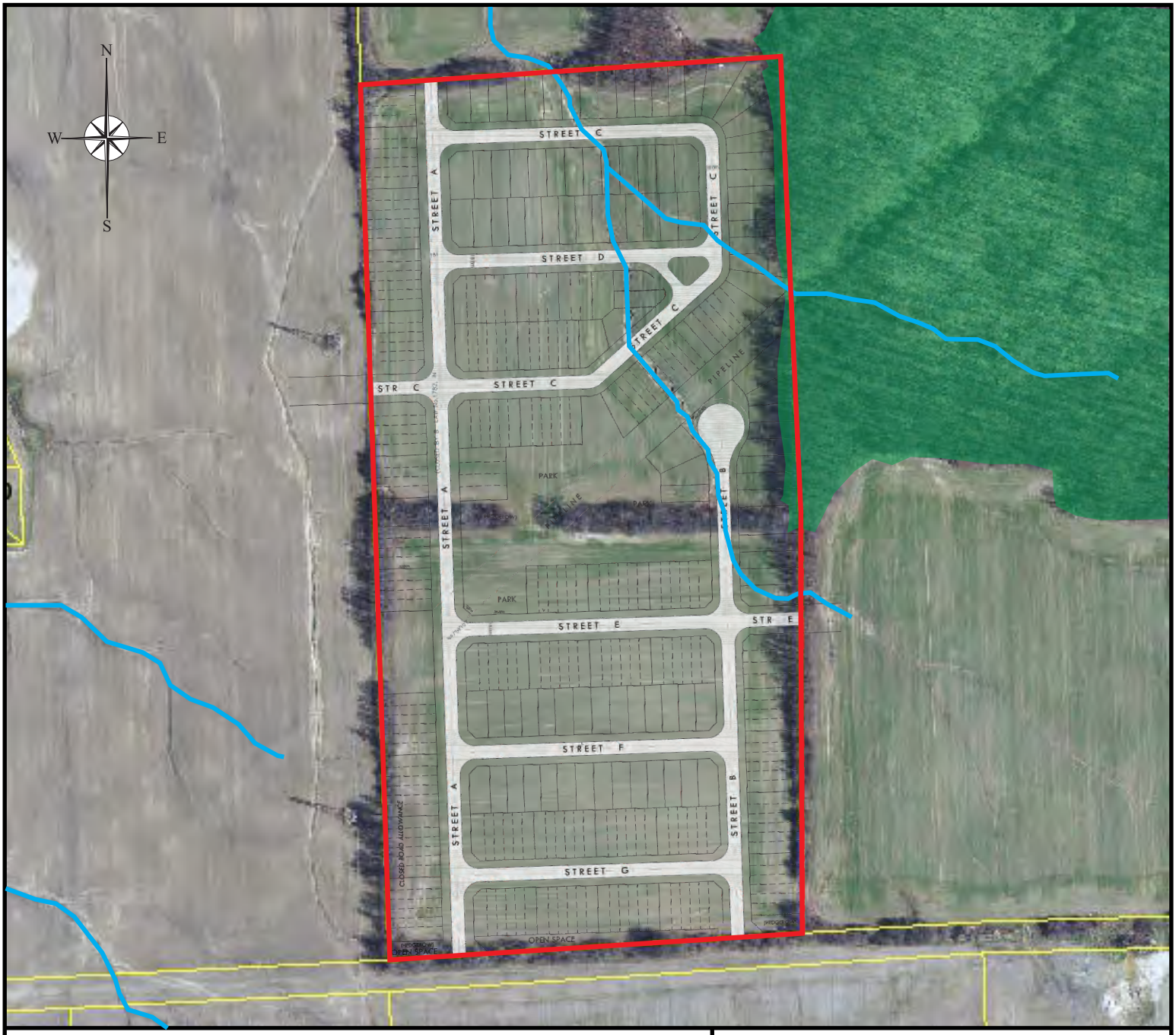
5.5 Significant Woodlands

As illustrated in **Figure 2**, the eastern portion of the Subject Property has been designated as Significant Woodland by the Niagara Region. It is our understanding that this woodland has been designated as significant due to size, potential presence of rare species and proximity to a watercourse. Our assessment confirmed that the Significant Woodland is located on the east side of the Subject property.

There are a number of hedgerows on the Subject lands that have been designated Environmental Protection Two within the Town of Thorold's Official plan. The Regional Official Plans Schedule C - Natural Mapping does not identify these features as ECA, with the exception of a small portion of a hedgerow adjacent to the woodland on the northeast portion of the property. Section 7.3.2 of the Natural Heritage Reference Manual (2005) states that in order for a treed area such as a hedgerow to be considered part of a woodland, it must meet a minimum patch width. Based on the size of the woodland feature these hedgerows are associated with (14.0ha) the minimum metre average of the hedgerow would need to meet a 60m width size threshold to be considered part of the existing woodland. None of the hedgerow's on site meet this requirement, and have therefore are not considered part of the Significant Woodland on and adjacent to the property.

The Significant Woodland on the property measures approximately 0.23ha in size, and forms part of a larger woodland to the east that measures approximately 14.0ha in size. The proposed development will ultimately lead to a slight reduction in tree cover in the woodland, however the overall size of the woodland is not expected to be reduced as part of this project. No other portions of the Subject Lands exhibited characteristics of a Significant Woodland. The refined extent of the Significant Woodland on the Subject property is illustrated in **Figure 4**.

As indicated above, no endangered or threatened species were documented on the properties, however the Eastern Wood-pewee and Wood Thrush, Species of Special Concern, appears to be breeding on or adjacent to the Subject Lands.



Legend

- Subject Property
- Watercourses
- Significant Woodland

Figure 4
Refined Extent of Natural Heritage Features on the Subject Lands

Environmental Impact Study
Uppers Land Property

Prepared for: **Farz Holdings Inc.**

Prepared by: COLVILLE CONSULTING INC.

DATE: September 2018

FILE: C18011

6.0 Impact Assessment

The approximate extents of the proposed developments are illustrated in **Appendix A** and **Figure 4.**

6.1 Direct Impacts

Some removal of trees and related vegetation is proposed at the northern end of the property and at the southwest corner of the woodland. This activity represents minor encroachments, and is not considered to have a direct impact on the ability of the woodland's function.

Lot lines for the proposed development will be located at the drip-line of the FODM11 community in the northern end of the property. This design approach is to avoid impacts to the woodland, while allowing the current conceptual subdivision design to move forward.

The remaining lands that are not proposed for development should be considered as parkland, or alternatively can be considered for donation to the NPCA, should they be interested. If no public authority is interested in this land, it may be included in the proposed development, subject to compensation measures for vegetation removal.

Compensation should be at a rate of 3 trees planted per 1 removed. The ratio and approach to compensation is open to discussion with the Region of Niagara.

6.2 Indirect Impacts

Indirect impacts to the Significant Woodlands will include noise, light, dust and increased human activity. These impacts are best addressed using the following mitigation measures;

- Street lights should have glare shields installed, to direct all light to the street surface.
- Noise pollution will be minimal as the woodland will be adjacent to residential backyards, reducing direct impact from street noise such as traffic and other human sources.
- Densifying the edge of the woodland using new shrubs and ground level vegetation is recommended, using an Edge Management Plan, that would be prepared by a qualified professional. This could be included as a Condition of Final Approval.

7.0 Mitigation Measures

Based on our assessment, it is our expectation that the proposed development will have minimal impact on the ecological functions of the woodland on and adjacent to the property. To assist in minimizing any impacts associated with the proposed development, it is recommended that the following mitigation measures be implemented during final design and construction of the proposed development.

- A light duty silt fence should be installed at the limit of excavation and grading to delineate the work area and help minimize impacts to adjacent vegetation.
- The silt fence should be properly embedded into the ground to reduce any offsite movement of silt and help prevent wildlife movement into the work area.
- A survey for active bird nests should be conducted prior to any vegetation removal or site alteration planned to occur during this window.

- The removal of trees and vegetation should be timed to minimize impacts on any wildlife species. It is recommended that tree removal be completed prior to April 15 or after October 31 to minimize impacts to bird and bat species that may be utilizing the woodland on the property.
- Tree removal required as part of this project should be conducted by a forestry professional to help avoid impacts to trees to remain on site.
- Any grading or filling to be conducted on the property should be designed to maintain existing overland flow patterns to help avoid impacts to soil moisture in the adjacent woodland areas.
- To help minimize potential impacts associated with future ambient lighting on the woodland, it is recommended that a continuous band of tall shrub species be installed or maintained adjacent to the woodland communities.
- It is recommended that tree removal be minimized on these properties where possible to help reduce impacts to the woodland.
- It is recommended that Bur Oak on this property be marked in advance of any clearing works and measures be implemented to maintain as many individuals as possible on these properties.
- All existing mature trees comprising native species should be protected and maintained as part of the proposed development, where possible. It is recommended that these trees be identified on the Draft Plan of Subdivision, or in a Tree Inventory, if appropriate.
- An Edge Management Plan is recommended to be completed by a qualified professional to maintain the functionality of the significant woodland, post-construction when the current edge species are removed. This Plan is recommended to enhance the vegetation along the edge of the woodland using native species.
- Where tree removal is required, it is recommended that the equivalent number of new trees (native species) are planted within the parkland or associated with any stormwater management facilities.

8.0 Conclusions and Recommendations

This EIS demonstrates that the proposed development will result in no significant impact to the Significant Woodland and watercourses identified on-site. This is subject to the successful implementation of the recommended mitigation measures.

To assist with minimizing impacts associated with the proposed developments, it is recommended that the above mitigation measures be implemented during the final design, construction and future use of these properties.

Respectfully submitted by:

Michael Sullivan, RPP, EP
Certified Environmental Professional
Sullivan Planning Services Inc.

Ian Barrett, M.Sc.
Senior Ecologist
Colville Consulting Inc.

9.0 Literature Cited

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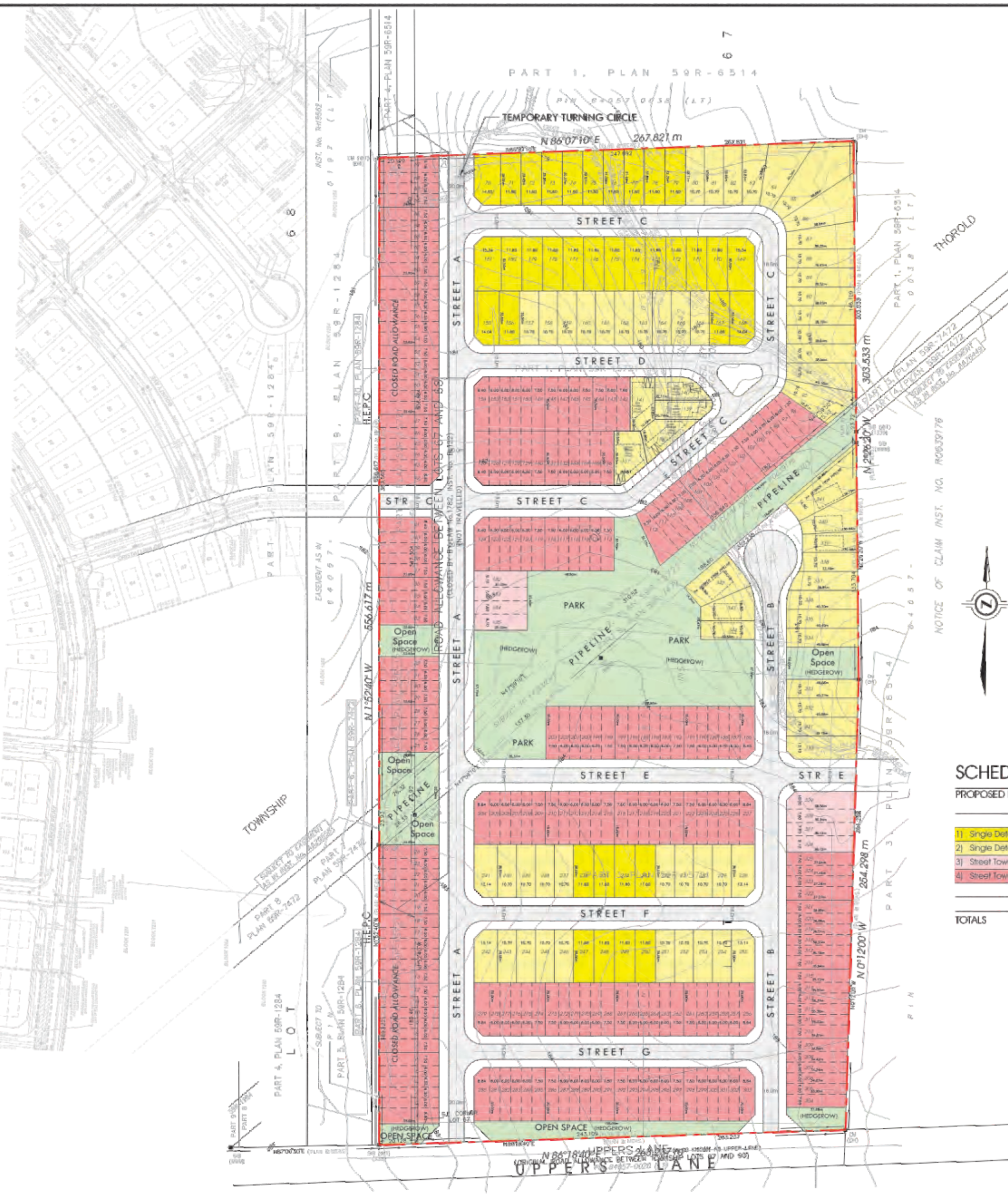
Appendix A
Proposed Development Plan



SCHEDULE OF LAND USE

Option 06E

PROPOSED LAND USE	REFERENCE Lots / Blocks / Streets	YIELD Units	%
1) Single Detached Lots 11.6m (38') min.	Lots nn - nn.	35	10.2
2) Single Detached Lots 10.7m (35') min.	Lots nn - nn.	66	19.2
3) Street Townhouse Lots 7.6m (25') min.	Lots nn - nn.	8	2.3
4) Street Townhouse Lots 6.0m (20') min.	Lots nn - nn.	235	68.3
TOTALS		344	100.0

KEY PLAN
1:50,000

SCHEDULE OF LAND USE

ADDITIONAL INFORMATION
REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

OWNER'S AUTHORIZATION

SURVEYOR'S CERTIFICATE

No.	REVISION	DATE

SOURCES

DRAFT PLAN of Subdivision

PREPARED FOR:

PART OF LOT 67
and PART OF ROAD ALLOWANCE
BETWEEN LOTS 67 AND 68
CITY OF THOROLD
REGIONAL MUNICIPALITY OF NIAGARA

NT-T-nnn

0 10 20 50m

APPROVED	DESIGN	DRAWN	DATE
RWW	mvs	mvs/dac	2018-09-25

NORTH

LARKIN+ land use planners inc.
849 Gorham Street
Newmarket, ON
Canada L3Y 1L7
905-895-0554 / 888-854-0044
www.larkinassociates.com

SCALE 1:1250

PROJECT No. FARZ

DRAWING No. 06e

Appendix B

Terms of Reference

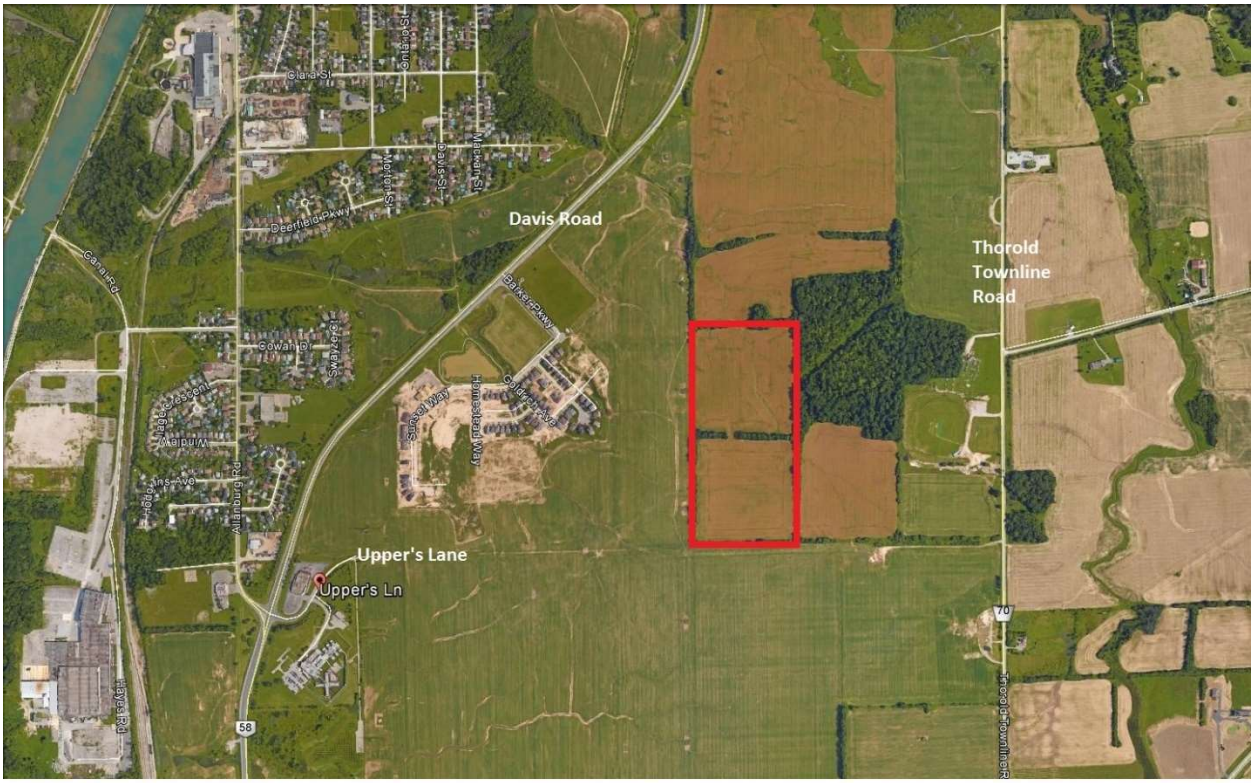
MEMORANDUM

To: Pat Busnello, RPP, Manager, Development, Region of Niagara
Lindsay Earl, RPP, Senior Development Planner, Region of Niagara
From: Michael Sullivan, RPP, EP, SullivanPLAN
Ian Barrett, M.Sc., Colville Consulting inc.
Date: April 20, 2018
Re: Draft Terms of Reference – Uppers Lane Scoped EIS

Please accept this Terms of Reference (ToR) for the Scoped Environmental Impact Statement (SEIS) being prepared for a vacant property on Uppers Lane in the City of Thorold This ToR has been prepared to outline inventories and assessments that will be completed in 2018 as part of the preparation of an SEIS that will be prepared to assess impacts the proposed development may have on natural heritage features.

The Subject Property is located west of Townline Road and East of Highway 58, and north of an unopened portion of Uppers Lane. For your convenience, the subject property is presented in **Figure 1** (attached). The property is approximately 14.9 hectares in size, located in the City of Thorold. Access to the property is from the east, using an existing agricultural entrance culvert. As this is private land, not owned by the applicant, permission to enter will be arranged in advance of field work.

Figure 1 - Subject Property (Highlighted in Red)



LARKIN+ land use planners inc.
849 Gorham Street, Newmarket ON L3Y 1L7

N
N.T.S.

FIGURE 1: Context Plan (site outlined red)
Part Lot 67, Upper's Lane, Thorold

It is our understanding that the Subject Property has historically been used for agricultural purposes, as is currently the case. Historical air photo analysis suggests that this property has never been developed and has historically been used for agricultural purposes. This analysis also suggests that the watercourses and adjacent woodland have remained relatively unchanged for the past several decades.

From our review of background mapping available for this area, it is our understanding that the watercourses on the property are identified as natural features and that the adjacent woodlands are identified as Environmental Conservation Area (ECA) in the Region of Niagara Official Plan. The ECA, while not on the subject property are adjacent and therefore impacts must be identified and addressed per Provincial Policy.

It is recognized that the ECA designation is based on the adjacent woodlot being classified as "significant" per Regional Policy. In addition, the two watercourses traversing the property are mapped as "Fish Habitat (Type 2 – important). Both features confirm the need for an EIS.

A conceptual subdivision design has been completed for this property and will be revised based on the findings of this EIS, including environmental constraints. As part of this SEIS, we propose to complete a series of field inventories and investigations during the 2018 field season. Field inventories and surveys completed on and adjacent to this property included the following (**bold denotes Regional comments added on the draft**):

1) Breeding bird surveys of the property and adjacent lands during spring 2018, using the Ontario Breeding Bird Atlas survey protocol methods;
    a. Two separate visits will be conducted, at least two weeks apart between May 24th and July 10th.
    b. Weather conditions and time of all site visits will be logged.
2) Botanical inventory (**spring & summer**) of the property and adjacent lands during the late-spring or early summer 2018;
    a. If existing records do not indicate any known (NHIC, NPCA databases) occurrences <u>and</u> there is no suitable habitat for spring SAR or rare species, then a single season survey would be acceptable.
    b. The EIS should provide rationale for why a single-season botanical survey is deemed sufficient.
3) An Assessment and description of vegetation communities on the property using the Ecological Land Classification System for Southern Ontario;
4) Bat roosting habitat (snag) survey using the methods developed by the MNRF (Guelph District);
    a. "Leaf on" and "Leaf off" season surveys will be conducted, as appropriate.
5) Reptile and amphibian search using techniques described in Survey Protocol for Ontario's Species at Risk Snakes;
    a. If suitable habitat for amphibians and reptiles is present, an especially if there are known occurrences of significant species in the area, the surveys should adhere to the appropriate protocols as outlined in the EIS Guidelines.

6) Aquatic habitat assessment of the two watercourses on-site as well as adjacent lands;
   a. **DFO and MNRF will be contacted as early in the process as possible, to confirm the status of the fish habitat.**
   b. **DFO's self-assessment process will be followed.**
   c. Options for channelizing, redirecting and possibly entombing one/both watercourses will be considered during the analysis.
7) Document any observations of wildlife on the property during site visits, including but not limited to mammals, Lepidoptera, reptiles and amphibians.

It is our intention to utilize the data listed above to prepare the SEIS for the proposed project. The EIS will also incorporate any relevant background information obtained from the Niagara Peninsula Conservation Authority (NPCA), City of Thorold, NHIC and other information sources. The EIS will be prepared following the Region of Niagara EIS guidelines.

Relevant natural heritage planning policy will be addressed in his SEIS, in particular the Provincial Policy Statement (PPS), Growth Plan, Niagara Region Official Plan, City of Thorold Official Plan, and NPCA policies.

The EIS will provide federal, provincial and local status/designation of each species observed, as well as delineate the extent of natural heritage features on the property. **The EIS should include any species-specific setbacks or other mitigation required by MNRF.**

A sample Table of Contents is provided below. This is based on the Region of Niagara's EIS Guidelines and should be considered as a general outline of the anticipated contents of the report. It is also understood that these topics may change, subject to Regional comments.

1. INTRODUCTION
- 1.1. Description of the Subject Property
- 1.2. Rationale for an EIS
- 1.3. Consultation Activities Summary
- 1.4. Terms of Reference

2. CONSTRAINTS ANALYSIS
- 2.1. Policy and Legislative Framework
  - 2.1.1. Provincial Policy Statement
  - 2.1.2. Growth Plan for the Greater Golden Horseshoe
  - 2.1.3. Greenbelt Plan
  - 2.1.4. Region of Niagara Official Plan
  - 2.1.5. Niagara Peninsula Conservation Authority Regulations
  - 2.1.6. City of Thorold Official Plan
  - 2.1.7. City of Thorold Zoning By-law
- 2.2. Literature Review
  - 2.2.1. Desktop research findings
  - 2.2.2. SARA | COSEWIC } COSSARO | NHIC
- 2.3. Baseline Data Assessment
  - 2.3.1. Findings anticipated for field work
- 2.4. Defining the Natural Heritage and Hydrologic Systems

2.5. Existing Ecological Conditions
2.5.1. Botanical Inventories and ELC/Vegetation Mapping
2.5.1.1. Botanical Inventory
2.5.1.2. Vegetation Communities (ELC)
2.5.1.3. ELC Community mapping
2.5.1.4. Rare Species (SARA, COSSARO)
2.5.2. Wildlife
2.5.2.1. Breeding Bird Surveys
2.5.2.2. Amphibian Call Surveys
2.5.2.3. Reptile Surveys
2.5.2.4. Bat Roosting Habitat Surveys
2.5.2.5. Significant Habitat of Endangered and Threatened Species
2.5.2.6. Habitat of Other Potential Species of Conservation Concern
2.5.2.7. Seasonal Concentration Areas
2.5.2.8. Rare or Specialized Habitat
2.5.2.9. Migration Corridors
2.6. Assessment of Features and Functions
2.6.1. Environmental Protection Areas
2.6.1.1. Significant Wildlife Habitat
2.6.1.2. Watercourses
2.6.2. Environmental Conservation Areas
2.6.2.1. Significant Woodlands
2.6.3. Other areas
2.7. Constraints Map
2.7.1. Detailed mapping of SAR and S1 – S3 ranked species locations and on-site habitat must be included, as well as any identified constraint buffers.
2.8. Constraints Analysis and Recommendations
2.8.1. Features and Functions that require protection
2.8.2. Recommendations to Avoid | Mitigate | Compensate for potential impacts

3. ECOLOGICAL IMPACT ASSESSMENT
3.1. Description of the Proposed Development
3.1.1. Description will include any proposed site alteration works which may have an environmental impact (e.g. watercourse alteration) and must include the proposed site plan overlaid on the constraints mapping)
3.2. Impact Assessment
3.2.1. Direct Impacts
3.2.2. Indirect Impacts
3.2.3. Cumulative Impacts
3.3. Design Changes and Mitigation Measures
3.3.1. Design changes resulting from ecological work
3.3.2. Mitigation measures incorporated into design
3.4. Ecological Restoration or Enhancement Opportunities (if required)
3.5. **Residual** Environmental Impacts (if any)
3.6. Monitoring

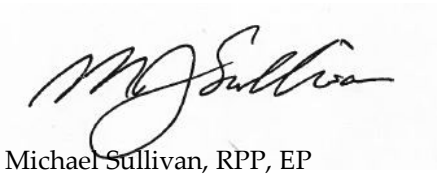
4. RECOMMENDATIONS AND CONCLUSION

4.1. EIS should recommend whether or not the proposed development should proceed subject to conditions and make recommendations for the Region's consideration;

4.2. Demonstrate no negative impact on significant environmental features and functions

Please let me know if you have any questions or comments. This report will be co-authored by Ian Barrett, M.Sc., and Michael Sullivan, RPP, EP.

Yours sincerely,



Michael Sullivan, RPP, EP
Sullivan Planning Services Inc.

Ian Barrett, M.Sc.
Colville Consulting Inc.

Appendix C

Vascular Plant Checklist

Plant list for the Hedgerows and Unplowed Field Edges West of the terminus of Uppers Lane between Thorold Townline Road and Hwy 58, Thorold, ON. Conducted on July 19, 2018										
ScientificName	CommonNames	Coef. Cons	Coeff. Wet.	GRank	COSEWIC	COSSARO	SRank	Lrank	FODM11	Notes
Acer rubrum	Red Maple	4	0	G5			S5		x	
Acer saccharum ssp. saccharum	Sugar Maple	4	3	G5			S5		x	Observed old growth individuals of this species in hedgerows exhibiting characteristic old growth bark.
Alliaria petiolata	Garlic Mustard	0	0	G?			SE5		x	
Ambrosia artemisiifolia	Common Ragweed	0	3	G5			S5		x	
Anthemis cotula	Stinking Chamomile	0	3	G5			SE5	IR	x	
Arctium minus ssp. minus	Common Burdock	0	5	G?			SE5		x	
Asclepias syriaca	Common Milkweed	0	5	G5			S5		x	
Aster lanceolatus ssp. lanceolatus	Panicled Aster	3	-3	G5			S5		x	
Aster pilosus var. pilosus	Hairy Aster	4	2	G5			S5		x	
Bidens sp	Beggar-ticks Species								x	
Bromus sp	Brome Species								x	A type of non-native Chess grass
Carya ovata	Shagbark Hickory	6	3	G5			S5		x	Observed a number of old growth individuals of this species in hedgerow
Centaurea jacea	Brown Knapweed	0	5	G?			SE5		x	
Chrysanthemum leucanthemum	Ox-eye Daisy	0	5	G?			SE5		x	
Circaea lutetiana ssp. canadensis	Canada Enchanter's Nightsh	3	3	G5			S5		x	
Cirsium arvense	Canada Thistle	0	3	G?			SE5		x	
Cirsium vulgare	Bull Thistle	0	4	G5			SE5		x	
Cornus foemina ssp. racemosa	Grey Dogwood	2	-2	G5			S5		x	
Crataegus mollis	Downy Hawthorn	4	-2	G5			S5		x	
Daucus carota	Wild Carrot	0	5	G?			SE5		x	
Dipsacus fullonum ssp. sylvestris	Common Teasel	0	5	G?			SE5		x	
Elymus repens	Quack Grass	0	3	G5			SE5		x	
Epilobium sp	Willow-herb Species								x	
Erigeron annuus	Daisy Fleabane	0	1	G5			S5		x	
Euthamia graminifolia	Grass-leaved Goldenrod	2	-2	G5			S5		x	
Festuca rubra	Red Fescue		1	G5			S5		x	
Fragaria virginiana ssp. virginiana	Common Strawberry	2	1	G5			S5		x	
Fraxinus americana	White Ash	4	3	G5			S5		x	One dead tree exhibited characteristic old growth bark and was over 1m dbh.
Fraxinus pennsylvanica	Red Ash	3	-3	G5			S5		x	
Galium sp	Bedstraw Species								x	
Geum laciniatum	Rough Avens	4	-3	G5			S4		x	
Juncus tenuis	Path Rush	0	0	G5			S5		x	
Lactuca saligna	Willow-leaved Lettuce	0	3	G?			SE1	IR	x	
Lactuca sp	Lettuce Species								x	
Lythrum salicaria	Purple Loosestrife	0	-5	G5			SE5		x	
Malus pumila	Common Apple	0	5	G5			SE5		x	
Medicago lupulina	Black Medick	0	1	G?			SE5		x	
Oenothera biennis complex	Common Evening-primrose	0	3	G5			S5		x	
Ostrya virginiana	Hop Hornbeam	4	4	G5			S5		x	
Parthenocissus inserta	Thicket Creeper	3	3	G5			S5		x	
Phalaris arundinacea	Reed Canary Grass	0	-4	G5			S5		x	
Phleum pratense	Timothy	0	3	G?			SE5		x	
Plantago major	Common Plantain	0	-1	G5			SE5		x	
Poa pratensis ssp. pratensis	Kentucky Blue Grass	0	1	G?			S5		x	

ScientificName	CommonNames	Coef. Cons	Coeff. Wet.	GRank	COSEWIC	COSSARO	SRank	Lrank	FODM11	Notes
Polygonum pensylvanicum	Pink Knotweed	3	-4	G5			S5		x	
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	-1	G5			S5		x	
Populus grandidentata	Largetooth Aspen	5	3	G5			S5		x	
Potentilla recta	Rough-fruited Cinquefoil	0	5	G?			SE5		x	
Prunella vulgaris ssp. lanceolata	Heal-all	5	5	G5			S5		x	
Prunus avium	Sweet Cherry	0	5	G?			SE4		x	
Prunus serotina	Black Cherry	3	3	G5			S5		x	
Pyrus communis	Common Pear	0	5	G5			SE4		x	
Quercus alba	White Oak	6	3	G5			S5		x	A number of 1-2m dbh trees and one with 20-25m diameter crown!
Quercus macrocarpa	Bur Oak	5	1	G5			S5	U	x	
Quercus palustris	Pin Oak	9	-3	G5			S4		x	
Rhamnus cathartica	Common Buckthorn	0	3	G?			SE5		x	
Rosa multiflora	Multiflora Rose	0	3	G?			SE4		x	
Rubus allegheniensis	Common Blackberry	2	2	G5			S5		x	
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	-2	G5			S5		x	
Rumex crispus	Curly Dock	0	-1	G?			SE5		x	
Salix cinerea	Ashy Willow	0	5	G5			SE2		x	
Solidago altissima var. altissima	Tall Goldenrod	1	3	G?			S5		x	
Solidago juncea	Early Goldenrod	3	5	G5			S5		x	
Sonchus sp	Sow-thistle Species									
Tilia americana	Basswood	4	3	G5			S5		x	Observed old growth individuals of this species in hedgerow
Ulmus americana	White Elm	3	-2	G5?			S5		x	
Vicia cracca	Cow Vetch	0	5	G?			SE5		x	
Vitis riparia	Riverbank Grape	0	-2	G5			S5		x	

Legend

CoeCons. - Coefficient of Conservatism. Scores for each species range from 0 (low conservatism) to 10 (high conservatism).
A conservatism value of 0 indicates species is widespread. A value of 8, 9 or 10 indicates that a species is a habitat specialist.
CoeWet. - Coefficient of Wetness
5 - Almost always occur in upland areas
4, 3, 2 - Usually occur in upland areas
1, 0, -1 - Found equally in upland and wetland areas
-2, -3, -4 Usually occur in wetlands
-5 Almost always occur in wetlands

Grank - Global Rank G1 — Critically Imperiled, G2 — Imperiled, G3 — Vulnerable, G4 — Apparently Secure, G5 — Secure
COSEWIC - Committee on the Status of Endangered Wildlife in Canada
COSSARO - Committee on the Status of Species at Risk in Ontario

Srank - Subnational Rank
S1 — Critically Imperiled - Critically imperiled in the province because of extreme rarity, (often 5 or fewer occurrences)
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer)
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer)
S4 — Apparently Secure - Uncommon but not rare
S5 — Secure - Common, widespread, and abundant in the province
SE — Exotic
Lrank - Local Rank
R - Rare

Appendix D

Site Photos

Photo 1. Example of vegetation conditions in the agricultural (OAGM1) portion of the property.

Photo 2. Example of vegetation conditions in the agricultural (OAGM1) portion of the property.

Photo 3. Example of habitat conditions within and adjacent to Watercourse 1 on the Subject Property.

Photo 4. Example of habitat conditions within and adjacent to the watercourse downstream of the Subject Property.

Photo 5. Example of vegetation conditions in the FODM11 community on the property.

Photo 6. Example of vegetation conditions in the east-west hedgerow (FODM11) on the property.

Photo 7. Example of vegetation conditions at the transition between the OAGM1 and FOD2 community on the property.

Photo 8. Example of vegetation conditions at the within the pipeline cut in the FOD2 community on the property.

Photo 9. Example of vegetation conditions at the within the FOD2 community on the property.

Photo 10. Example of vegetation conditions at the within the FOD2 community on the property.

Appendix E
MNRF Correspondance

Ministry of Natural Resources And Forestry

Ministère des Richesses naturelles et des Forets

Box 5000
4890 Victoria Ave. N.
Vineland Station, Ontario
LOR 2E0

Telephone: (905) 562-4147
Facsimile: (905) 562-1154

July 31, 2018

Ian Barrett
Colville Consulting Inc.
404 Queenston Street
St Catharines, ON L2P 2Y2
ian@colvilleconsultinginc.ca

RE: Uppers Lane Estates
Thorold

Dear Mr. Ian Barrett,

The Ministry of Natural Resources and Forestry (MNRF), Guelph District – Vineland Field Office, has reviewed the natural heritage information available for the above-noted property and surrounding area (the "study area"), and offers the following comments:

FISHERIES

Restricted activity timing windows are applied to protect fish from impacts of undertakings in and around water during critical life cycle stages. The recommended timing restrictions for the unnamed tributary of the Welland Canal are March 1st to July 1st (Note: dates represent when work should be avoided).

The MNRF does not have any detailed fisheries information for this section of unnamed tributary of the Welland Canal.

SPECIES AT RISK

There are records in the area for the following species at risk (SAR) and rare species:

- Barn Swallow *(Hirundo rustica)* (Threatened)
- Bank Swallow (*Riparia riparia*) (Threatened)
- Round-leaved Greenbrier (*Smilax rotundifolia*) (Threatened)
- Snapping Turtle *(Chelydra serpentina)* (Special Concern)
- Wood Thrush (*Hylocichla mustelina*) (Special Concern)
- Black Gum (*Nyssa sylvatica*) (S3)

Threatened and Endangered Species receive both individual species and habitat protection under the *Endangered Species Act, 2007* (ESA). SAR habitat prescribed under regulation is listed in Ont. Reg. 242/08 (https://www.ontario.ca/laws/regulation/080242).

Please be advised that because the province has not been surveyed comprehensively for the presence of listed species, the absence of a record does not necessarily indicate the absence of SAR from an area. To determine the presence of SAR for a given study area, the District's recommended approach is as follows:

I. Habitat Inventory

The Ministry recommends undertaking a comprehensive botanical inventory of the entire area that may be subject to direct and indirect impacts from the proposed activity. The vegetation communities should be classified as per the "Ecological Land Classification (ELC) for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level. For aquatic habitats in the study area, we recommend that you collect data on the physical characteristics of the waterbodies and inventory the riparian zone vegetation, so that these habitats can be classified as per the Aquatic Ecosites described in the ELC manual.

II. Potential SAR within the Study Area

A list of SAR that have the potential to occur in the area can be produced by cross-referencing the ecosites described during the habitat inventory with the habitat descriptions of SAR known to occur within the planning area. The list of SAR known to occur in the City of Thorold is attached for your reference. The species-specific COSEWIC status reports (https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html) are a good source of information on habitat needs and will be helpful in determining the suitability of the study areas ecosites for a given species.

Please note that the Species at Risk in Ontario (SARO) List is a living document that is periodically amended as a result of species assessment and re-assessments conducted by the Committee on the Status of Species at Risk in Ontario (COSSARO). The SARO List can be accessed on the following webpage: https://www.ontario.ca/environment-and-energy/species-risk-ontario-list.

COSSARO also maintains a list of species to be assessed in the future. It is recommended that you take COSSARO's list of anticipated assessments into consideration, especially when the proposed start date of an activity is more than 6 months away, or the project will be undertaken over a period greater than 6 months. This list can be viewed at: https://www.ontario.ca/page/how-comment-protecting-species-risk.

III. SAR Surveys

The Ministry recommends that each potential SAR identified under Step II is surveyed for, regardless of whether or not the species has been previously recorded in the area. The survey report should describe how each SAR was surveyed for, and provide a rationale for why certain species were not afforded a survey (e.g., habitat within the study area is not suitable for a specific SAR). Please note that some targeted surveys may require provincial authorizations (e.g., ESA permit or Wildlife Scientific Collector's Permit).

ADDITIONAL INFORMATION

Natural heritage features (e.g. wetlands, ANSIs) can be viewed for a given study area through the MNRF's "Make a Map" web application: https://www.ontario.ca/page/make-natural-heritage-area-map. Digital data layers can be obtained through the Land Information Ontario (LIO) geowarehouse https://www.ontario.ca/page/land-information-ontario.

Additionally, the MNRF recommends contacting the municipality and the conservation authority to determine if they have any additional information or records of interest for the study area.

Please be advised that it is your responsibility to comply with all other relevant provincial or federal legislation, municipal by-laws, other MNRF approvals or required approvals from other agencies. If your investigations reveal the presence of Threatened or Endangered species, please contact the MNRF at esa.guelph@ontario.ca for further direction.

I trust that the above information is of assistance.

Sincerely,

Elizabeth Reimer
A/Management Biologist

Appendix F

Species at Risk Screening

THOROLD

Species At Risk Designations	
ENDANGERED	
THREATENED	
SPECIAL CONCERN	
EXTIRPATED	

BIRDS		ESA Protection	Key Habitats Used By Species	Subject Property
Acadian Flycatcher (*Empidonax virescens*)	Known to Occur	*Species and General Habitat Protection*	generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines	Suitable habitat not present on properties. Not detected during breeding bird surveys,
Bank Swallow (*Riparia riparia)*	Suspected to Occur	*Species and General Habitat Protection*	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	Suitable habitat not present on properties. Not detected during breeding bird surveys,
Barn Owl (*Tyto alba*)	Suspected to Occur	*Species Protection and **Habitat Regulation***	generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	Suitable habitat not present on properties. Not detected during breeding bird surveys,
Barn Swallow (Hirundo rustica)	Suspected to Occur	*Species and General Habitat Protection*	prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc.	Suitable nesting habitat not present on property. Observed foraging over and adjacent to property only. Proposed development not likely to impact species.
Bobolink (*Dolichonyx oryzivorus*)	Suspected to Occur	*Species and General Habitat Protection*	generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Chimney Swift (*Chaetura pelagica*)	Suspected to Occur	*Species and General Habitat Protection*	historically found in deciduous and coniferous, usually wet forest types, all with a welldeveloped, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Common Nighthawk (*Chordeiles minor*)	Suspected to Occur	*N/A*	generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops)	Suitable Habitat not present on Property.
Eastern Meadowlark (*Sturnella Magna*)	Known to Occur	*Species and General Habitat Protection*	generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Eastern Whip-poor-will (Caprimlugus vociferus)	Known to Occur	*Species Protection and General Habitat Protection*	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	Suitable habitat present on property. Species not detected on property during breeding bird surveys.
Eastern Wood-Pewee (*Contopus virens*)	Known to Occur	*N/A*	Asscoiated with deciduous and mixed forestes. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges	Suitable habitat not present on property. Species detected on adjacent property during breeding bird surveys.
Golden-winged Warbler (Vermivora chrysoptera)	Known to Occur	*N/A*	generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Least Bittern *(Ixobrychus exilis)*	Known to Occur	*Species and General Habitat Protection*	generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Peregrine Falcon *(Falco peregrinus)*	Known to Occur	*N/A*	generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas.	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.
Red-Headed Woodpecker *(Melanerpes erythrocephalus)*	Known to Occur	*N/A*	generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.

Wood Thrush (*Hylocichla mustelina)*	**Known to Occur**	*N/A*	Nests mainly in second growth and mature deciduous and mixed forests, with saplings and well developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments	Suitable habitat not present on property. Species detected on adjacent property during breeding bird surveys.
Yellow-breasted Chat *(Icteria virens)*	**Known to Occur**	*Species and General Habitat Protection*	generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Suitable breeding habitat not present on property. Not detected during breeding bird surveys.

FISH		ESA Protection	**Key Habitats Used By Species**	

INSECTS		ESA Protection	**Key Habitats Used By Species**	
Monarch Butterfly *(Danaus plexippus)*	**Known to Occur**	*N/A*	exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	Suitable habitat not present on property. Not detected during inventories.
Rusty-patched Bumble Bee (Bombus affinis)	**Formerly Occurred and May Still Occur**	*Species and General Habitat Protection*	generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows	Suitable habitat not present on property. Not detected during inventories.
West Virginia White (Pieris virginiensis)	**Known to Occur**	*N/A*	generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor.	Suitable habitat not present on property. Not detected during inventories.

MAMMALS		ESA Protection	**Key Habitats Used By Species**	
Eastern Small-footed Myotis	**Suspected to Occur**	*Species and General Habitat Protection*	Overwintering habitat: caves and mines that remain above 0 degrees Celcius. Maternal Roosts: primarily under loose rocks on exposed rock and outcrops, crevices and cliffs, and occasionally buildings, under bridges and highway overpasses and under tree bark	Potential roosting or maternal habitat on property limited to exfoliating bark on dead ash trees. Property not providing significant habitat for roosting bats.
Grey Fox *(Urocyon cineroargenteus)*	**Suspected to Occur**	*Species and General Habitat Protection*	generally prefers deciduous forests, marshes, swampy areas, and urban areas	Suitable habitat not present on property. Not detected during inventories.
Little Brown Myotis (Myotis lucifugus)	**Suspected to Occur**	*Species and General Habitat Protection*	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).	Potential roosting or maternal habitat on property limited to exfoliating bark on dead ash trees. Property not providing significant habitat for roosting bats.
Northern Myotis (Myotis septentrionalis)	**Suspected to Occur**	*Species and General Habitat Protection*	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often asssociated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)	Potential roosting or maternal habitat on property limited to exfoliating bark on dead ash trees. Property not providing significant habitat for roosting bats.
Tri-colored Bat (Perimyotis subflavus)	**Suspected to Occur**	*Species and General Habitat Protection*	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Can be in trees or dead clusters of leaves or arboral lichens on trees. May also use barns or similar structures	Typical roosting and maternal habitat not present on property.

MOLLUSCS		ESA Protection	**Key Habitats Used By Species**	

MOSSES		ESA Protection	**Key Habitats Used By Species**	

PLANTS		ESA Protection	**Key Habitats Used By Species**	
American Chestnut *(Castanea dentata)*	**Known to Occur**	*Species and General Habitat Protection*	found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Potential habitat present on property. Not detected during bontanical inventories.
Broad Beech Fern *(Phegopteris hexagonoptera)*	**Known to Occur**	*N/A*	generally inhabits shady areas of beech and maple forests where the soil is moist or wet	Suitable habitat not present on property. Not detected during bontanical inventories.
Butternut *(Juglans cinerea)*	**Known to Occur**	*Species and General Habitat Protection*	generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows	Potential habitat present on property. Not detected during bontanical inventories.
Cucumber Tree *(Magnolia acuminata)*	**Suspected to Occur**	*Species and General Habitat Protection*	generally grows in rich, well-drained soils in deciduous forest habitats	Suitable habitat not present on property. Not detected during bontanical inventories.

Eastern Flowering Dogwood *(Cornus florida)*	**Known to Occur**	*Species Protection and* ***Habitat Regulation***	generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments; Also grows around edges and hedgerows	Suitable habitat present on property. Not detected during bontanical inventories.
Round-leaved Greenbrier *(Similax Rotundifolia)*	**Known to Occur**	*Species and General Habitat Protection*	Generally grows in open moist to wet woodlands, often growing on sandy soils. Habitat is variable	Suitable habitat not present on property. Not detected during bontanical inventories.
Swamp Rose-mallow *(Hibiscus moscheutos)*	**Known to Occur**	*Species and General Habitat Protection*	generally grows in open, coastal marshes, but it is also sometimes found in open wet woods, thickets and drainage ditches	Suitable habitat not present on property. Not detected during bontanical inventories.
White Wood Aster *(Eurybia divaricata)*	**Known to Occur**	*Species and General Habitat Protection*	generally grows in open, dry, deciduous forests. It has been suggested that it may benefit from some disturbance, as it often grows along trails.	Suitable habitat not present on property. Not detected during bontanical inventories.

REPTILES		ESA Protection	**Key Habitats Used By Species**	
Common Five-lined Skink *(Plestiodon fasciatus)*	**Known to Occur**	*Species Protection and* ***Habitat Regulation***	generally occur near dunes, fields, and deciduous forests. This species is generally associated with relatively open environments.	Suitable habitat not present on property. Not detected on property.
Eastern Hog-nosed Snake *(Heterodon platirhinos)*	**Historically Known to Occur**	*Species and General Habitat Protection*	generally prefer habitats with sandy, well-drained soil and open vegetative cover, such as open woods, brushland, fields, forest edges and disturbed sites. The species is often found near water.	Suitable habitat not present on property. Not detected on property.
Eastern Ribbonsnake *(Thamnophis sauritus)*	**Suspected to Occur**	*N/A*	generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Suitable habitat not present on property. Not detected on property.
Snapping Turtle *(Chelydra serpentina)*	**Known to Occur**	*N/A*	generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Suitable habitat not present on property. Not detected on property.