DILLON CONSULTING

URBANDALE CONSTRUCTION LTD.

Environmental Impact Study

Huntmar Lands

Final – February 2016 – 14-9917

February 17, 2016

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Huntmar Lands Environmental Impact Study

Dear Ms. Jarvis,

The following Environmental Impact Study (EIS) for the Huntmar Lands Development has been prepared in accordance with the City of Ottawa's EIS guidelines. The report includes both the EIS and the Tree Conservation Report elements as recommended during the pre-consultation meeting on March 24th, 2015.

If you have any questions about the report please feel free to contact me to discuss.

Yours sincerely,

DILLON CONSULTING LIMITED

Alexander Zeller, M.Sc.
Associate

Encl.

Our file: 14-9917

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Executive Summary

Dillon Consulting Limited was retained by Urbandale Construction Ltd. (Urbandale) to complete an Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for the proposed Huntmar Lands Development, located at 130 Huntmar Drive, in the City of Ottawa. The primary objective of the EIS and TCR is to evaluate environmental impacts associated with the proposed residential development.

Field surveys consisted of Ecological Land Classification and a Tree Inventory.

1) The property is not located near any provincially significant wetlands, significant woodlands, significant valleylands, areas of natural and scientific interest, significant wildlife habitat, or any other designated natural heritage system constraints.

2) A number of mature trees are growing within fencerows bordering the Study Area. In total, 3 Distinctive Trees (>50cm DBH) were identified within the Study Area with an average DBH of 60.8 cm. All three of the trees were determined to be in good health.

3) Impacts of development include erosion and sedimentation, and disturbance to breeding birds associated with the removal of trees from the Study Area. With the implementation of proper mitigation measures, impacts will be avoided and no residual effects are anticipated.

4) No Species at Risk or Species at Risk habitat was identified within the Study Area.

The mitigation measures proposed in this report have been developed to avoid negative impacts associated with development on the natural environment. Overall, no residual impacts are anticipated as a result of this development provided appropriate mitigation is applied, and therefore there are no expected impediments to development.

It is our opinion that the proposed Urbandale Huntmar Lands Development, located at 130 Huntmar Drive, can be accepted with the condition that the mitigation measures recommended herein will be implemented.

1.0 Introduction

1.1 Purpose

Dillon Consulting Limited (Dillon) was retained by Urbandale Construction Ltd. (Urbandale) to complete an Environmental Impact Study (EIS) and Tree Conservation Report (TCR) for the proposed Urbandale Huntmar Lands Development, located at 130 Huntmar Drive, Kanata, in the City of Ottawa (the "Study Area")(**Figure 1**).

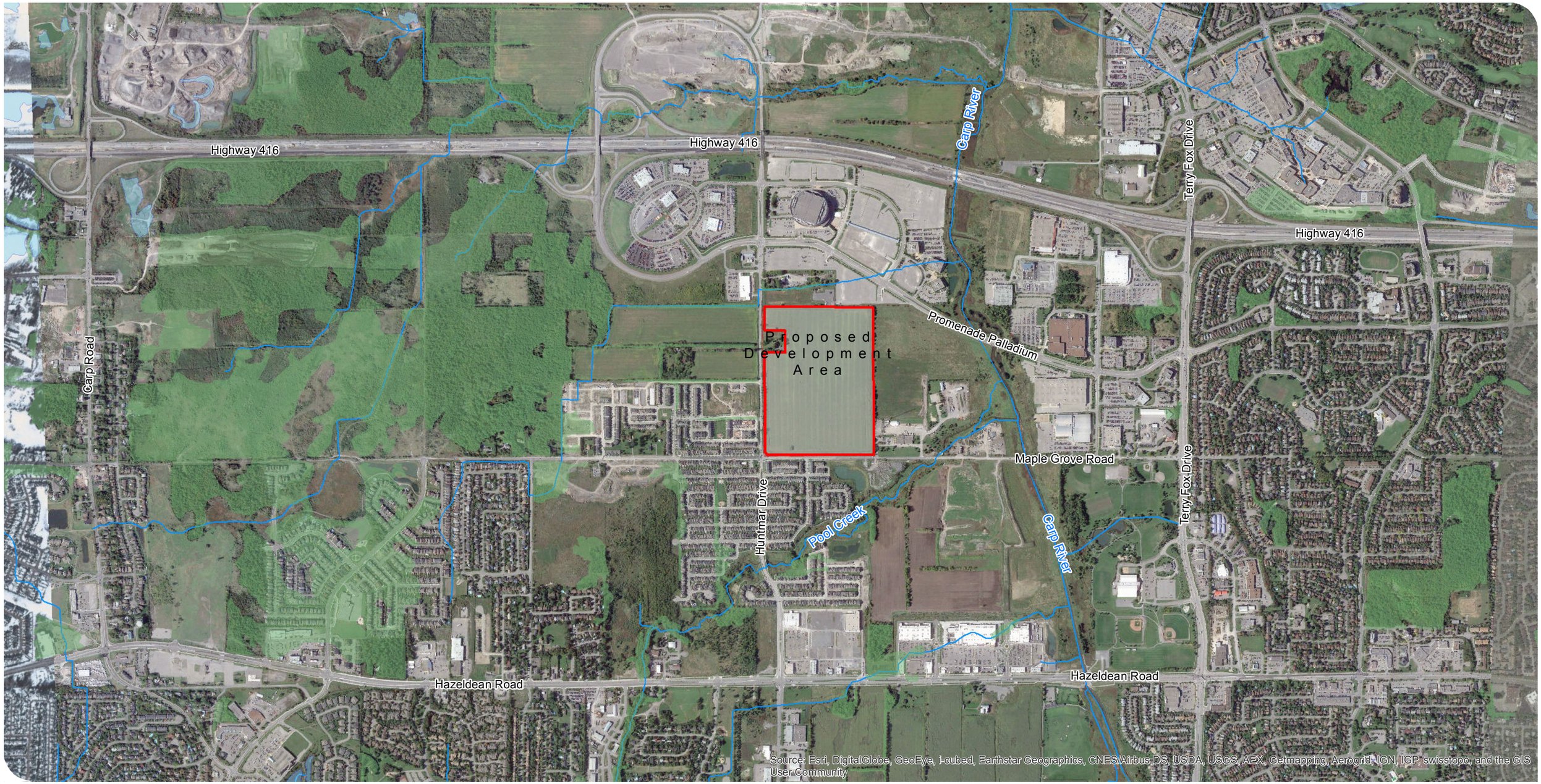
This EIS and TCR has been prepared to evaluate the potential for environmental impacts associated with the proposed development and to recommend mitigation measures to offset those impacts.

1.2 Background

A pre-consultation meeting was held on March 24th, 2015 where a number of specific requirements were outlined with respect to this study. These requirements include;

- Completion of a Tree Conservation Report; and,
- To conduct a search for Butternut trees.

This EIS and TCR has been prepared to ensure that the development does not contravene the *Endangered Species Act, 2007* (ESA); retain as much vegetation as possible, including mature trees, stands of trees, and hedgerows; evaluate potential environmental impacts; and to develop mitigation plans addressing potential impacts.



Urbandale Construction Ltd.

Huntmar Lands
130 Huntmar Drive

Figure 1:
Study Area

- Boundary of Study Area
- Waterbody (MNR LIO)
- Watercourse (MNR LIO)
- Wooded Area (MNR LIO)

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR & CITY OF OTTAWA

MAP CREATED BY: AZ
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N

N W E S

0 150 300 600 900 1,200
Meters

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Path: G:\CAD\2014\149917\EIS\MXD's\EIS\Huntmar-Fig1_Study Area.mxd

PROJECT: 14-9917 STATUS: DRAFT DATE: 12/21/2015

1.3 Property Information

Owner:	Urbandale Construction Ltd.
Address:	130 Huntmar Drive, Stittsville Ward
Lot and concession:	Part Lot 1, Concession 1
Property Identification Number(s):	045090137
Zoning:	Development Reserve Zone
OP designation:	Mixed Use Centre

Location

The Study Area is located in the community of Kanata West, at 130 Huntmar Drive, south of the Canadian Tire Centre. The Study Area is bounded by Huntmar Drive to the southwest and Maple Grove Road to the southeast.

Land Use and Zoning

The City of Ottawa's Official Plan designates the Study Area as a Mixed Use Centre. The property is zoned as Development Reserve (DR).

Policy Framework

Various regulatory agencies and legislative authorities have established a number of governing policies in an effort to protect ecological features and functions. **Table 1** lists the policies and legislation that apply to the protection of natural heritage features within the Ottawa area and supporting guidance documents and resources respective to each policy. The scope of this report evaluates the natural features governed by the policies outlined in **Table 1**.

TABLE 1: POLICIES AND LEGISLATION

Policy	Guidelines and Supporting Documents
PROVINCE OF ONTARIO	
Provincial Policy Statement (2014)	Ministry of Natural Resources and Forestry (MNRF) Kemptville District Main Contact: Erin Seabert, Fish and Wildlife Technical Specialist • *Records requested directly from MNRF Kemptville District relating to natural features and wildlife species (**Appendix A**)*
	MNRF Natural Heritage Information Centre (NHIC) • *Species of Conservation Concern* • *Natural heritage features*
	Ecological Land Classification for Southern Ontario, First Approximation and its Application 1998
	Natural Heritage Reference Manual, Second Edition, March 2010
	Ontario Wetland Evaluation System, Southern Manual, Third Edition, 2013
	MNRF Significant Wildlife Habitat Technical Guide (2000) • *Significant Wildlife Habitat Eco-region 6E Criterion Schedules, 2015*
	Fisheries and Oceans Canada (DFO) • *Distribution of Fish Species at Risk mapping for Rideau Valley Conservation Authority (valid May 2015- May 2016)*
	Federal Species at Risk Public Registry, accessed September 2015
	Ontario Breeding Birds Atlas (OBBA)- online data accessed September 2015
	Ontario Reptile and Amphibian Atlas- online data accessed September 2015
	Ontario Butterfly Atlas- online data accessed September 2015
	Atlas of the Mammals of Ontario
Ontario *Endangered Species Act* (2007)	MNRF Species at Risk in Ontario (SARO) List (O.Reg. 230/08), September 2015
	MNRF Kemptville District Main Contact: Erin Seabert, Fish and Wildlife Technical Specialist • *Received Species at Risk occurrence records (**Appendix A**)*
	MNRF NHIC • *Species at Risk occurrence records*
	Ontario Breeding Birds Atlas (OBBA)- online data accessed September 2015
	Ontario Reptile and Amphibian Atlas- online data accessed September 2015
CITY OF OTTAWA	
City of Ottawa Official Plan (2014)	Schedules B, K, and L1, consolidated to 2014 City of Ottawa's "geoOttawa" online mapping service
	Environmental Impact Statement Guidelines, 2nd Edition (2012)
	Protocol for Wildlife Protection During Construction (2015)
CONSERVATION AUTHORITY	
Conservation Authorities Act, Ontario Regulation 153/06	Mississippi Valley Conservation Authority • *Floodplain mapping*

2.0 Description of the Natural Environment

A desktop review of the property indicates that the property is agricultural land, cultivating annual row crops (corn and soybean) (**Figure 2**). The only trees within the Study Area are restricted to hedgerows bordering the Study Area. A review of available historic aerial photos indicates that the property has been agricultural since at least 1976. The surrounding area is also agricultural with recent development to the south and west along Huntmar Drive and Maple Grove Road.

FIGURE 2: LAND USE CHANGES OVER TIME

The following sections provide a brief summary of the existing environmental conditions within the Study Area. This information provides the background information upon which the EIS and TCR is based.

2.1 Landforms, Soils and Geology

The Study Area lies over Lower Ordovician bedrock consisting of dolostone and sandstone (Ministry of Northern Development and Mines 1991). The physiography of the area is described as clay plains with scattered drumlins (MNRF 1984).

2.2 Aquatic Environment

The Study Area lies within the Carp River Watershed, which flows north into the Ottawa River (Mississippi Valley Conservation Authority, 2004). The watershed has been studied by the City of Ottawa and Conservation Authority due to development pressure within the watershed. Studies include the *Carp River Watershed/Subwatershed Study* (2004) and associated catchment summaries, including the *Poole Creek 2013 Summary Report* (MVCA 2013).

2.3 Natural Heritage Features

A number of natural heritage features require consideration for protection under the Ontario Provincial Policy Statement (Ministry of Municipal Affairs and Housing, 2014) and are administered by both the City of Ottawa and the Province of Ontario. These features are:

- Provincially Significant Wetlands (PSW),
- Significant woodlands,
- Significant valleylands,
- Areas of natural and scientific interest (ANSI),
- Significant wildlife habitat,
- Species at Risk habitat, and,
- Fish habitat.

2.3.1 Wetlands

No PSWs were identified within or adjacent to the Study Area.

2.3.2 Woodlands

No significant woodlands were identified within or adjacent to the Study Area.

2.3.3 Valleylands

No significant valleylands were identified within or adjacent to the Study Area.

2.3.4 Areas of Natural and Scientific Interest

No ANSIs were identified within or adjacent to the Study Area.

2.3.5 Significant Wildlife Habitat

No significant wildlife habitat was identified within the Study Area due to lack of natural heritage features and natural vegetation communities. However, several Species of Conservation Concern also have the potential to occur within or adjacent the Huntmar Lands Development (see **Table 2**).

TABLE 2: SPECIES OF CONSERVATION CONCERN IDENTIFIED WITHIN THE GENERAL VICINITY OF THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	SARA	ESA	S-RANK[1]	INFO SOURCE[2]
VASCULAR PLANTS					
Cypripedium arietinum	Ram's-head Lady Slipper	---	---	S3	NHIC
BIRDS					
Chlidonias niger	Black Tern	---	SC	S3B	MNRF
Contopus virens	Eastern Wood-Pewee	---	SC	S4B	MNRF, OBBA
Ammodramus savannarum	Grasshopper Sparrow	---	SC	S4B	OBBA
Falco peregrinus	Peregrine Falcon	THR	SC	S2S3B, ZN	MNRF
Asio flammeus	Short-eared Owl	SC	SC	S2N, S4B	MNRF, OBBA
Hylocichla mustelina	Wood Thrush	---	SC	S4B	MNRF
Coturnicops noveboracensis	Yellow Rail	SC	SC	S4B	MNRF
HERPETOZOA					
Chelydra serpentina	Snapping Turtle	SC	SC	S3	MNRF, ON
Sternotherus odoratus	Eastern Musk Turtle	THR	SC	S3	MNRF, ON
Graptemys geographica	Northern Map Turtle	SC	SC	S3	MNRF, ON
Thamnophis sauritus septentrionalis	Eastern Ribbonsnake	SC	SC	S3	MNRF
Lampropeltis triangulum	Eastern Milksnake	SC	SC	S3	MNRF, ON
Pseudacris triseriata pop. 1	Western Chorus Frog (Great Lakes/ St. Lawrence- Canadian Shield Population)	THR	SC	S3	ON
LEPIDOPTERA					
Danaus plexippus	Monarch	SC	SC	S2N, S4B	MNRF, TEA

[1]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. [2]Information sources include: MNRF = Ministry of Natural Resources and Forestry; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; SARA = Species at Risk Act; TEA = Toronto Entomologists' Association; --- denotes no information or not applicable.

2.3.6 Species at Risk

A number of species listed as *Endangered* and *Threatened* under the ESA have been identified as potentially occurring within the vicinity of the Study Area (**Table 3**).

TABLE 3: SPECIES AT RISK IDENTIFIED AS POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	SARA	ESA	S-RANK[1]	INFORMATION SOURCE[2]
VASCULAR PLANTS					
Juglans cinerea	Butternut	END	END	S3?	MNRF
Platanthera leucophaea	Eastern Prairie Fringed Orchid	END	END	S2	MNRF
LICHENS					
Leptogium rivulare	Flooded Jellyskin	THR	THR	S3	MNRF
BIRDS					
Riparia riparia	Bank Swallow	---	THR	S4B	MNRF, OBBA
Hirundo rustica	Barn Swallow	---	THR	S4B	MNRF, OBBA
Dolichonyx oryzivorus	Bobolink	---	THR	S4B	MNRF, OBBA
Chaetura pelagica	Chimney Swift	THR	THR	S4B, S4N	MNRF
Sturnella magna	Eastern Meadowlark	---	THR	S4B	MNRF, OBBA
Ixobrychus exilis	Least Bittern	THR	THR	S4B	MNRF
Lanius ludovicianus	Loggerhead Shrike	END	END	S2B, SZN	MNRF
Caprimulgus vociferus	Whip-poor-will	---	THR	S4B	MNRF
MAMMALS					
Myotis lucifugus	Little Brown Myotis	END	END	S4	MNRF
HERPETOZOA					
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	MNRF, ON

[1]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. [2]Information sources include: MNRF = Ministry of Natural Resources and Forestry; NHIC = Natural Heritage Information Centre; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; --- denotes no information or not applicable.

2.3.6.1 Species at Risk Habitat

A review of aerial photos of the property was used to identify candidate Species at Risk habitat based on habitat requirements defined by the MNRF. The agricultural fields and fencerows within the property may provide habitat for:

- Barn Swallow, and
- Butternut.

The Species at Risk habitat identified above is consistent with those identified in the MNRF's response to the Information Request (***Appendix A***).

2.3.7 Fish Habitat

The Study Area consists of a large row crop agricultural field. No watercourses or water bodies are located within the Study Area and therefore, no potential fish habitat is present.

2.4 Trees

A review of aerial photos suggests that the property only contains trees within fencerows bordering the property.

2.5 Incidental Wildlife

A review of aerial photos and local knowledge suggests that there are several common wildlife species found within the general area with potential to occur in the Study Area.

2.6 Other Development Constraints

This property is not considered to be a significant part of the City of Ottawa's Natural Heritage System and is not within any Natural Environment Areas or Urban Natural Features as defined by the City of Ottawa (City of Ottawa, 2014).

2.7 Scope of Work

To evaluate potential natural features within the Study Area the following studies were required based on the description of the natural environment. These studies establish baseline conditions within the site and enable the assessment of potential negative impacts resulting from the proposed development.

Natural Heritage Features

- Ecological Land Classification (ELC)

Species at Risk

- Identification of potential Species at Risk (Butternut, Barn Swallow)

Trees

- Tree Inventory

Incidental Wildlife

- Visual and auditory observations of wildlife during all field studies

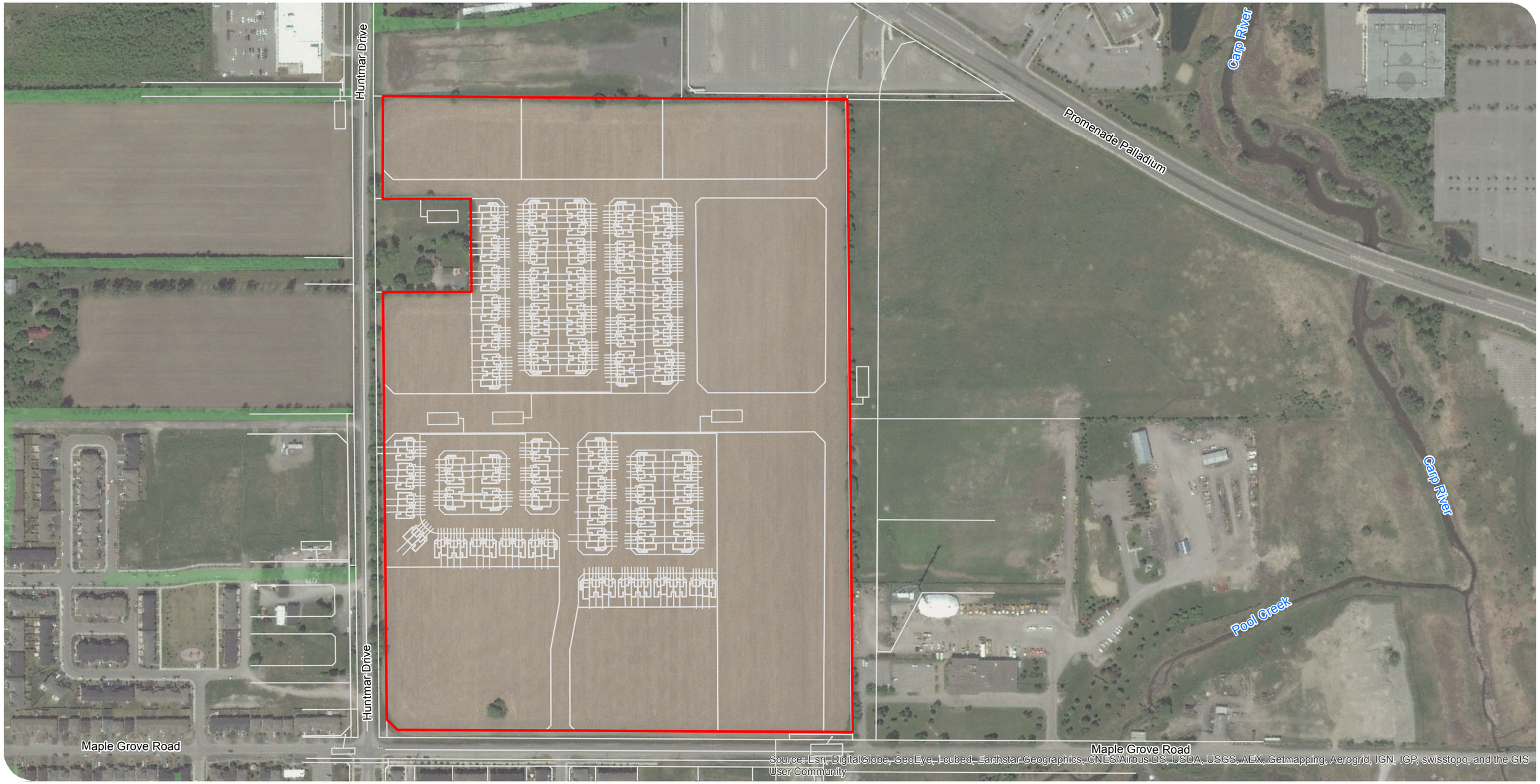
3.0 Description of the Proposed Project

Figure 3 illustrates the draft concept plan for this community consisting of a mix of high density residential, commercial, and industrial uses.

Property Construction

The development of this property will include the following major project components:

- Surveying and staking out the development;
- Clearing and grading property to accommodate construction;
- Installation of storm water drainage network and related infrastructure;
- Excavation to accommodate underground utilities including water, sewer, gas, and hydro;
- Paving roadways;
- Excavation and construction of houses;
- Landscaping and fencing; and,
- On-going usage and maintenance.



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Huntmar Lands
130 Huntmar Drive

Figure 3:
Draft Concept Plan

Boundary of Study Area
Draft Concept Plan (Nov 2015)
Wooded Area (MNR LIO)

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR & CITY OF OTTAWA

MAP CREATED BY: AZ
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N

0 25 50 100 150 200
Meters

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PROJECT: 14-9917 STATUS: DRAFT DATE: 12/21/2015

4.0 Methodology

4.1 Fieldwork

Fieldwork conducted for the EIS and TCR took place between September 2014 and August 2015 when weather conditions and timing were deemed suitable based on the survey protocols being implemented (**Table 2**). Fieldwork consisted of ELC of vegetation communities and a Tree Inventory. Any incidental wildlife observations made during the surveys were also documented. Curricula Vitae of staff involved in the project have been included in ***Appendix B***. The following sub-sections outline the survey methodologies used in the EIS and TCR.

TABLE 4: DATES AND TIMES OF FIELD SURVEYS

Date	Time	Personnel	Weather Conditions	Air Temperature (°C)	Purpose of visit
Sept 22, 2014	8:00	M. Seabert	Clear, breezy, no precipitation	10	ELC
June 2, 2015	8:00	A. Zeller	Clear, no precipitation	16.5	Tree Inventory, Barn Swallow Survey
June 4, 2015	8:00	K. Robinson	Sunny, no breeze, no precipitation	26.0	Tree Inventory, Barn Swallow Survey
August 12, 2015	7:20	M. Wolosinecky	Overcast, no precipitation	17	Tree Inventory, Barn Swallow Survey

4.2 Natural Heritage Features

4.2.1 Ecological Land Classification

Vegetation communities are assessed using ELC as a first step to identify and assess potential natural heritage features within the Study Area. During the field investigations, vegetation was characterized using the ELC System for Southern Ontario (Lee et al., 1998) in order to classify and map these ecological communities to the vegetation level. The ecological community boundaries were determined through the review of aerial photography and then further refined through on site vegetation and tree surveys. In addition to the vegetation survey, a basic soil assessment was conducted to identify the soil moisture class within the ecosystem.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described to the community level only. In some instances, where vegetation is less than

0.5 ha, but appears relatively undisturbed and clearly fits within an ELC vegetation type, the more refined classification was used.

In early 2007, the MNRF refined their original vegetation type codes to more fully encompass the vast range of natural and cultural communities across Southern Ontario. Through this process many new codes have been added while some have changed slightly. These new ELC codes have been used for reporting purposes in this study as they are more representative of the vegetation communities within the Study Area.

4.2.2 Wetlands

No wetland delineation was required for this site as there are no wetlands within or adjacent to the Study Area.

4.2.3 Woodlands

No woodland evaluation was required for this site as there are no woodlands within or adjacent to the Study Area.

4.2.4 Significant Wildlife Habitat

No surveys for significant wildlife habitat were required as no potential significant wildlife habitat is present within the Study Area.

4.2.5 Species at Risk

Several Species at Risk have been identified with potential to occur within the general vicinity of the Study Area. Both Butternut and Barn Swallow were searched for during field investigations. Since there was no access to the property containing the barns and potential Barn Swallow nesting habitat, roadside surveys were done nearest to the property to determine if Barn Swallows were entering or existing buildings.

4.2.6 Fish Habitat

No fish habitat or aquatic surveys were required for this site as no watercourses or water bodies are present within the Study Area.

4.3 Trees

4.3.1 Tree Inventory

Within the Study Area trees greater than 10 cm Diameter at Breast Height (DBH) were surveyed following the City of Ottawa's TCR guidelines. All Distinctive Trees (50 cm DBH or greater), will be surveyed by an approved professional as outlined in the City of Ottawa's guidelines. The survey for all Distinctive Trees included the identification of species, DBH,

condition, and location. Trees measuring less than 50 cm DBH were estimated based on their density, average size, and overall health.

4.4 Incidental Wildlife

A wildlife assessment within the property was completed through incidental observations while on site. Any incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat. For each observation notes, and when possible, photos were taken. These observations also helped validate our conclusions on the overall ecological function of the Study Area.

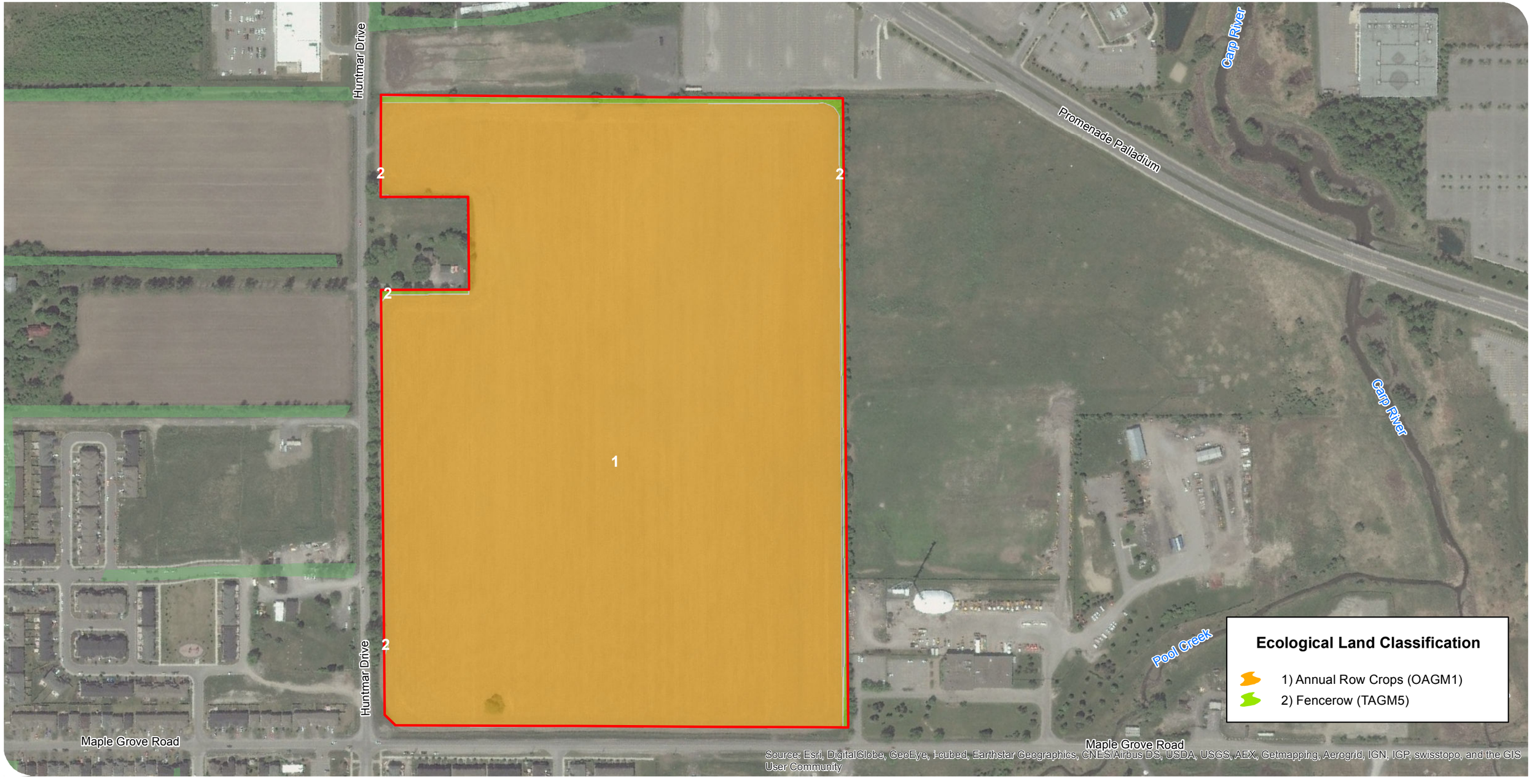
5.0 Results

The following sections outline the findings from the both the background review and field surveys completed within the Study Area.

5.1 Natural Heritage Features

5.1.1 Ecological Land Classification

A total of two vegetation communities were observed within the Study Area during the ELC survey, neither of which are considered natural vegetation communities. The dominant land cover within the Study Area is annual row crop with hedgerows bordering the site. The location, type, and boundaries of these communities are delineated in **Figure 4**. Vegetation communities surveyed within the Study Area are considered common in Ontario. **Table 4** outlines the communities documented during ELC surveys and summarizes the dominant vegetation cover. Reference photos for each of the plant communities observed can be found in ***Appendix C***. A list of plant species observed during the field studies is included in ***Appendix D***.



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Huntmar Lands
130 Huntmar Drive

Figure 4:
Existing Condition & Constraints

Boundary of Study Area

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR & CITY OF OTTAWA

MAP CREATED BY: AZ
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N

0 25 50 100 150 200
Meters

FILE LOCATION: FILE LOCATION:
Path: G:\CAD\2014\149917\EIS\MXD's\EIS\Huntmar-Fig4_NatHeritage.mxd

PROJECT: 14-9917 STATUS: DRAFT DATE: 12/21/2015

TABLE 5: ECOLOGICAL LAND CLASSIFICATION

ELC CODE	CLASSIFICATION	SOILS	AREA (HA)	VEGETATION	COMMENTS	APPENDIX C, PHOTO #
OAGM1	Annual Row Crops	Loam (A Horizon); Clay Loam (B and C Horizon)	25.84 ha	Soy Bean (*Glycine max*) dominate the site with Grass species (*Grass sp*) and Goldenrod species (*Solidago sp*) associates. Manitoba Maple (*Acer negundo*) and Common Buckthorn (*Rhamnus cathartica*) were also observed.	Polygon: 1	1
TAGM5	Fencerow	N/A	0.5 ha	Common Buckthorn (*Rhamnus cathartica*), Green Ash (*Fraxinus pennsylvanica subintegerrima*), and Manitoba Maple (*Acer negundo*) were the dominant tree species with Staghorn Sumac, Crabapple species (*Malus sp*), and American Elm (*Ulmus americana*) associates. Groundcover consisted mostly of Grass species (*Grass sp*), Grape species (*Vitis sp*), and Virginia Creeper (*Parthenocissus quinquefolia*) with Goldenrod species (*Solidago sp*), Burdock species (*Arctium sp*), Wild Parsnip (*Pastinaca sativa*), Aster species (*Symphyotrichum sp*), Swamp Aster (*Symphyotrichum puniceum var. puniceum*), Dandelion species (*Taraxacum officinale*), Reed Canary Grass (*Phalaris arundinacea*), Thistle species (*Cirsium sp*) and Milkweed species (*Asclepias sp*) associates.	Polygon: 2	2

5.1.2 Wetlands

There are no wetlands present within the Study Area.

5.1.3 Woodlands

There are no woodlands present within the Study Area.

5.1.4 Valleylands

There are no valleylands present within the Study Area.

5.1.5 Areas of Natural and Scientific Interest

There are no ANSIs present within the Study Area.

5.1.6 Significant Wildlife Habitat

Due to lack of natural features and vegetation communities within the site, there is no significant wildlife habitat present within the Study Area.

5.1.7 Species at Risk

No Butternut trees or Barn Swallows were observed within the Study Area during site investigations.

Therefore no Species at Risk or Species at Risk habitat is present within the Study Area.

5.1.8 Fish Habitat

There is no fish habitat present within the Study Area due to lack of watercourses and water bodies within the Study Area.

5.2 Trees

A Tree Inventory was conducted in conjunction with ELC survey to evaluate the potential impacts on the trees within the Study Area. All trees identified are considered common to the Ottawa area and none were considered at risk. **Table 6** below outlines the tree species that were identified within the vicinity of the Study Area. **Figure 5** illustrates the location of trees within the Study Area.

TABLE 6: TREE SPECIES WITHIN THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	NOTES
Acer negundo	Manitoba Maple	Found within field and fencerow
Fraxinus americana	White Ash	Found along fencerow
Fraxinus pennsylvanica	Green Ash	Found along fencerow
Malus sp	Crabapple Species	Found along fencerow
Ulmus americana	American Elm	Found along fencerow

5.2.1 Distinctive Trees

A total of 3 trees within the Study Area are considered 'Distinctive Trees' by the City of Ottawa definition. **Table 7** provides a summary of the Distinctive Trees identified within the Study Area, including an assessment of health and size. The locations of Distinctive Trees are illustrated in **Figure 5**.

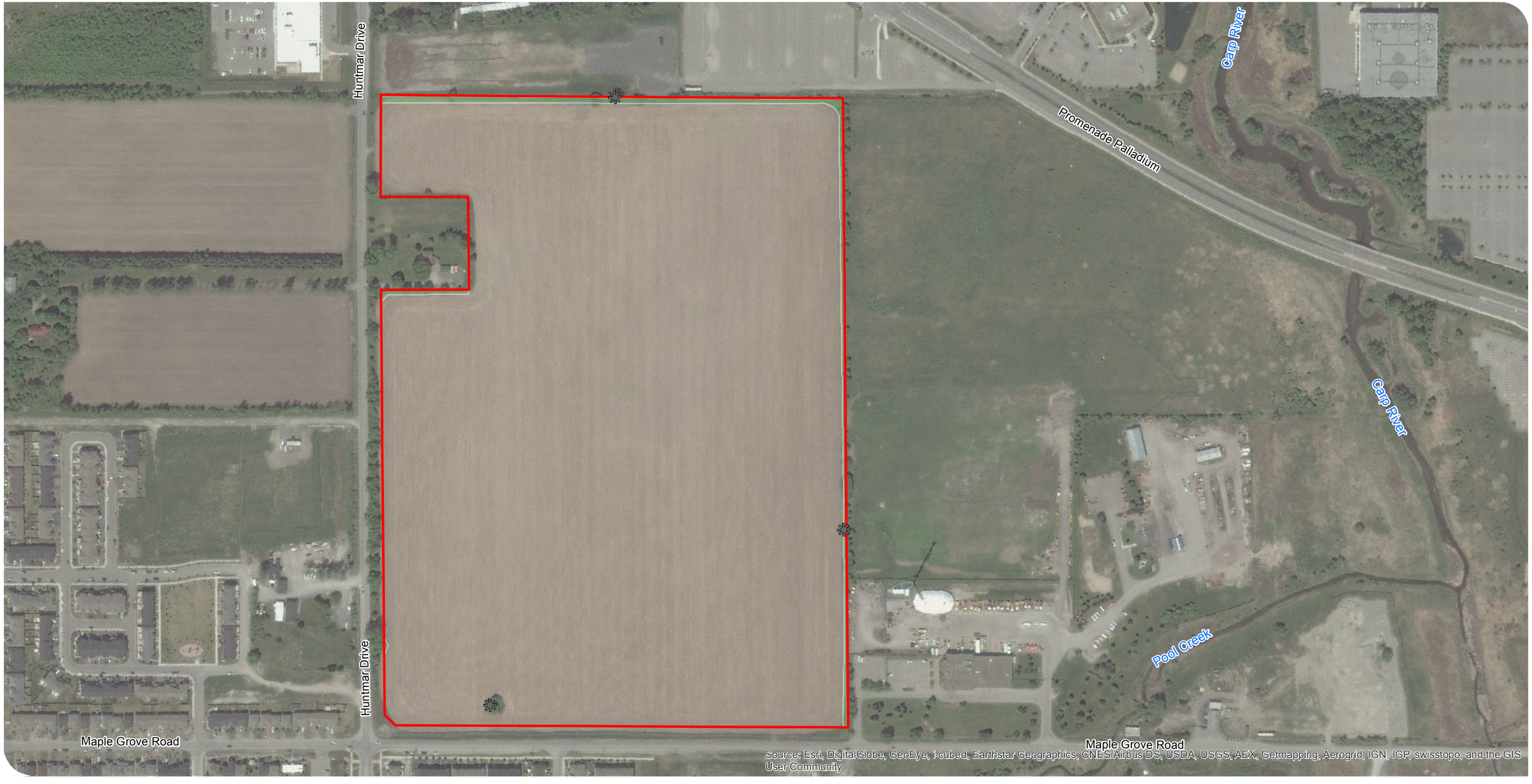
TABLE 7: DISTINCTIVE TREES OBSERVED

SCIENTIFIC NAME	COMMON NAME	UTM LOCATION	DBH (CM)	CONDITION
Acer negundo	Manitoba Maple	427603, 5016079	85	Good
Acer negundo	Manitoba Maple	427894, 5015562	51	Good
Acer negundo	Manitoba Maple	428039, 5015910	53	Good

The Study Area contains fencerows characterized by mature trees with an overall health as "Good". None of the trees identified within the Study Area are considered Species at Risk.

5.3 Incidental Wildlife

There were no incidental wildlife observations were made within the Study Area during site investigations.



Urbandale Construction Ltd.

Huntmar Lands
130 Huntmar Drive

Figure 5:
Tree Inventory

Treed Areas and Distinctive Trees

Boundary of Study Area

Treed Fencerow (0.5 ha)

Manitoba Maple

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR & CITY OF OTTAWA

MAP CREATED BY: AZ
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N

0 25 50 100 150 200
Meters

FILE LOCATION: FILE LOCATION:
Path: G:\CAD\2014\149917\EIS\MXD's\EIS\Huntmar-Fig5_Trees.mxd

PROJECT: 14-9917 STATUS: DRAFT DATE: 2/17/2016

6.0 Impact Assessment and Mitigation

The following sections outline general measures that should be considered to mitigate impacts associated with the development of the property (**Figure 6**). This includes both construction related mitigation measures and mitigation measures to address impacts related to impacts associated with the occupation of the development.

6.1 Aquatic Environment

Since there is are no aquatic features present within the Study Area, there will be no impacts as a result of development.

6.2 Natural Heritage Features

6.2.1 Vegetation Communities

The following are the potential impacts and recommended mitigation measures to avoid impacts to adjacent terrestrial vegetation communities associated with the clearing of vegetation communities within the Study Area.

6.2.1.1 Impacts

Potential impacts to vegetation communities as a result of development include the following:

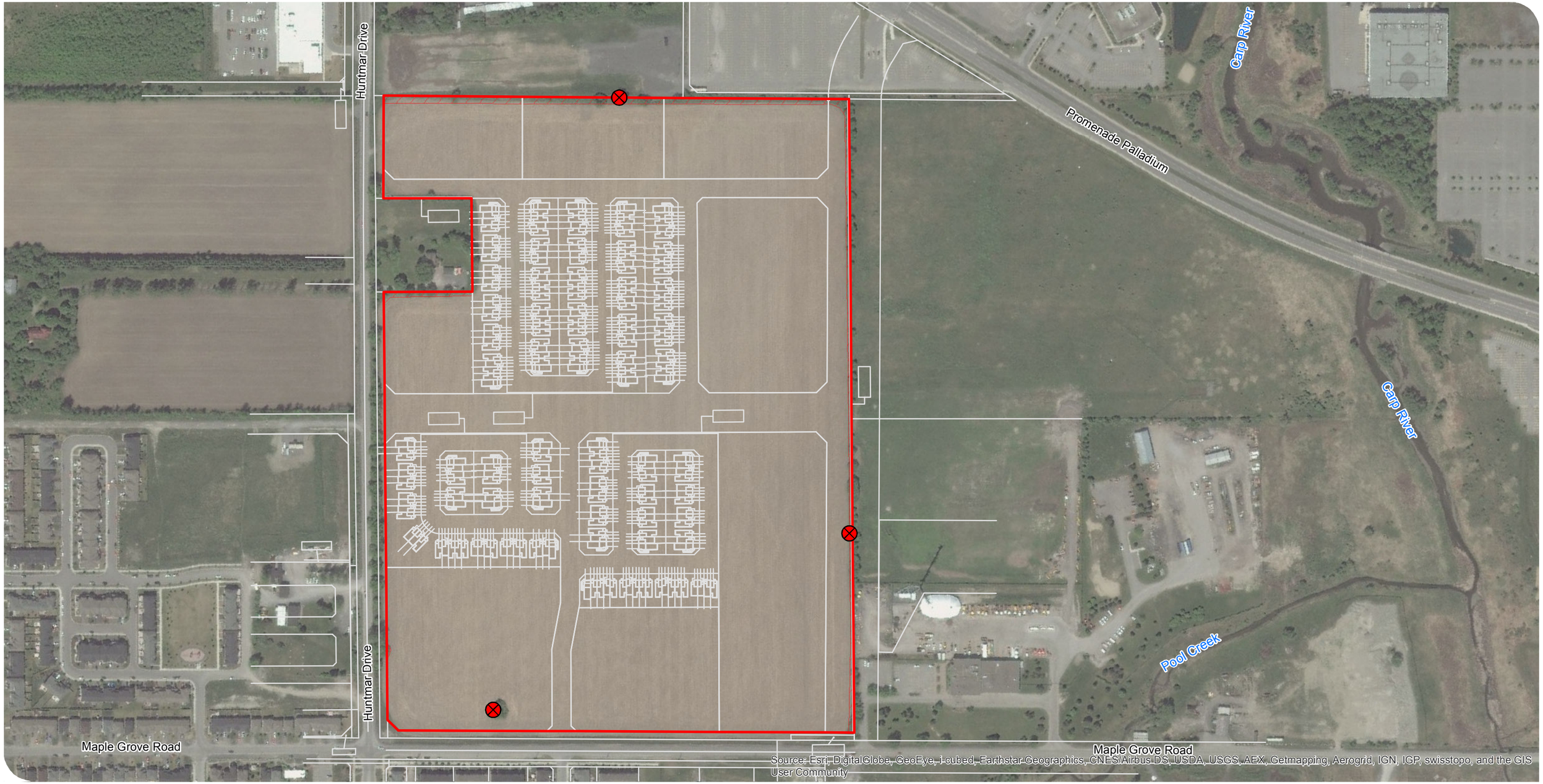
- Loss of 25.34 ha of terrestrial communities (**Figure 6**). This includes;
    - 0.5 ha of Fencerow; and,
    - 25.84 ha of Cropland.
- Accidental damage or loss of trees as a result of site alteration or construction activities;
- Erosion and sedimentation into adjacent vegetation communities; and,
- Loss of native diversity due to increased presence of non-native invasive species after development.

6.2.1.2 Mitigation

Mitigation during construction

The installation and maintenance of standard erosion and sediment control measures should be implemented to protect the terrestrial environment outside of the development area, including the following:

- Limit of development shall be maintained reflecting the environmental setbacks illustrated in **Figure 6.**



Urbandale Construction Ltd.

Huntmar Lands
130 Huntmar Drive

Figure 6:
Environmental Impacts

Boundary of Study Area

Draft Concept Plan (Nov 2015)

Impacts & Constraints

Remove Treed Fencerow (0.5 ha)

Distinctive Tree to be Removed

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR & CITY OF OTTAWA

MAP CREATED BY: AZ
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N

N W E S

0 25 50 100 150 200
Meters

FILE LOCATION: FILE LOCATION:
Path: G:\CAD\2014\149917\EIS\MXD's\EIS\Huntmar-Fig6_Impacts.mxd

PROJECT: 14-9917 STATUS: DRAFT DATE: 1/15/2016

- Heavy duty silt fencing (OPSD 219.130) should be installed around the perimeter of the work area to clearly delineate the development from the adjacent habitat. This will prevent encroachment into natural features and minimize the likelihood of animals entering the construction area. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas;
- It is recommended that dewatering ponds (OPSD219.240) or similar standards should be implemented to avoid sedimentation and erosion in adjacent areas. If dewatering requires more than 50,000 L of water to be pumped per day, appropriate permits must be obtained from the Ministry of Environment and Climate Change prior to the dewatering; and
- All construction equipment should enter the site clean and free of debris, and should be visually inspected upon entry for evidence of plant material to prevent the spread of invasive species to the site.

Mitigation after occupation

- Provide new homeowners with lists of locally appropriate native species for use in landscaping, along with information on the negative impacts of non-native species.

6.2.2 Significant Natural Heritage Features

Since there are no significant natural heritage features present within the Study Area, there will be no impacts as a result of development.

6.2.3 Species at Risk

No Species at Risk are expected to be encountered within the development area; however, the following are potential impacts and recommended mitigation measures to ensure no negative impacts to Species at Risk in the area.

6.2.3.1 Impacts

Potential impacts to Species at Risk within the development area include the following:

- Incidental injury or death as a result of vegetation clearing and other activities associated with site alteration or development.

6.2.3.2 Mitigation

- The most current Species at Risk information available will be reviewed in comparison with EIS findings immediately prior to commencement of on-site activities to confirm that all known Species at Risk in the area have been adequately addressed in the EIS;
- Avoid vegetation clearing during sensitive times of year for local wildlife (i.e., spring and early summer);
- Conduct vegetation clearing such that existing connections to adjacent areas are maintained until the final stage of clearing, so wildlife can use these connections to leave the site;
- Ensure perimeter fencing does not prevent wildlife from leaving the site during clearing activities by clearing the area prior to installing the fence;
- Contractors and other on-site workers should be briefed on appropriate measures to reduce human-wildlife conflict during work activities; and,
- If a Species at Risk is observed, the MNRF will be contacted as soon as possible to provide further direction if impacts are anticipated.

6.2.4 Fish Habitat

Since there is no fish habitat present within the Study Area, there will be no impacts as a result of development.

6.3 Trees

6.3.1 Distinctive Trees

A review of the proposed site plan indicates that approximately 3 Distinctive Trees will likely be removed to accommodate the proposed development. In general, trees within the Study Area are healthy specimens.

6.3.1.1 Impacts

The following are impacts associated with the removal of Distinctive Trees;

- Reduction in the number of specimen trees within the area;
- Loss of genetic diversity for healthy mature trees;
- Loss of most productive trees;
- Loss of general wildlife habitat (e.g. song birds, small mammals, etc.); and,
- Accidental damage or loss of trees as a result of site alteration or construction activities.

6.3.1.2 Mitigation

Mitigation during construction

The mitigation measures outlined below should be implemented to minimize the potential negative impacts to Distinctive Trees and otherwise retainable trees. Mitigation requirements outlined by the City of Ottawa only apply to Distinctive Trees within the Urban Area and should be applied to all retainable trees where possible. These mitigation measures include the following:

- A tree protection fence should be constructed around all Distinctive Trees and retainable trees. The tree protection fence should be constructed at the Critical Root Zone (CRZ) boundary. This boundary is defined by the City of Ottawa's tree conservation by-law as the DBH (in cm) multiplied by 10.
- Tree protection fence can be constructed around more than one tree provided the CRZ is protected.
- The existing grading around all retainable trees must be maintained. It is not permissible to add fill or otherwise alter the grading within the CRZ.
- Ensure exhaust fumes from construction equipment is not directed towards the canopy of any trees.
- Do not attach any signs or notices to any tree.
- Do not place any material or equipment within the tree protection zone.

TREE PROTECTION FENCE

The following measures should apply to all trees that will be cut down:

- The City of Ottawa forester must be consulted prior to the removal of all Distinctive Trees.
- It is recommended that an effort be made to incorporate Distinctive Trees into the proposed development (i.e., parkland etc.).
- Planted trees should only include species that are consistent with the City of Ottawa's TCR Guidelines.
- All Green Ash trees removed should be treated as infected by the Emerald Ash Borer beetle and appropriately disposed of so not to infect other areas of the city.

6.4 Incidental Wildlife

Since there is little habitat for wildlife species within the Study Area and no significant wildlife habitat is present, impacts of development on wildlife should be negligible. However, some inadvertent impacts on local wildlife maybe associated with construction activities for this development.

6.4.1 Impacts

Potential impacts to wildlife as a result of the development include the following:

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods;
- Conflict between wildlife and humans or domestic pets following development, including predation, mortality from vehicles, and poisoning.

6.4.2 Mitigation

Mitigation during construction

The best practices outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015) should be followed during all construction activities associated with the development. The following measures are consistent with the protocol;

- Minimize impacts to breeding birds by clearing naturalized vegetation outside of the breeding bird season (April 1 – August 31). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within 10 m of the tree should cease until the nest has fledged. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act*;
- Pre-stress the area on a regular basis leading up to construction to encourage wildlife to leave the area before construction starts. Other recommendations for pre-stressing are outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa , 2015)
- Orange snow fencing should be installed around the perimeter of the work area to clearly demarcate the development area and prevent wildlife from entering the construction zone. Fencing should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Wildlife located within the construction area will be re-located to an area outside of the development into an area of appropriate habitat, as necessary;

- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center for care with a small donation of money to help pay for the care (a local facility is the Rideau Valley Wildlife Sanctuary).

Mitigation after occupation

- Provide Owner Awareness Package to all new residents living adjacent to the Mosquito Creek valley lands. This information could include;
    - Impacts of cat predation on bird populations and the importance of keeping household cats indoors;
    - Legal restrictions of uncontrolled pets;
    - The risks of feeding wildlife; and
    - Mitigation options for reducing the potential bird strikes with windows (i.e., falcon silhouette stickers for windows).

7.0 Cumulative Impacts

As this Urbandale Huntmar Lands Development is a part of a rapidly expanding area, cumulative impacts must also be considered in the context of the local environment. Since the Urbandale Huntmar Lands Development Study Area had been in active agriculture dating back to at least 1976, habitat features within the Study Area are limited, and the same is true for lands surrounding the development. Fragmentation and lack of connection between remnant vegetation communities and other natural features limits the potential for significant features and wildlife habitat within the local area.

In addition to the mitigation measures listed above which were developed in consideration of cumulative impacts, the following mitigation should be considered to address the cumulative impacts resulting from the proposed development. To mitigate the impacts associated with a net increase in impermeable surfaces, the following measures are recommended:

- Promote the use of rain capture systems like rain barrels; and
- Promote the use of permeable landscaping materials during the landscaping.

8.0 Summary and Conclusions

This report outlines the environmental impacts associated with the construction and long-term occupation of the Urbandale Huntmar Lands Development, located 130 Huntmar Drive, in the City of Ottawa (**Figure 1**). A brief summary of the key potential impacts that may occur as a result of the proposed project, the recommended mitigation measures to address these impacts.

Given that the there are no natural features or wildlife present within the Study Area, few substantive impacts are likely to occur as a result of the proposed development of this property. Impacts include the removal of mature trees (including 3 Distinctive Trees), and loss of habitat for birds and other native wildlife living utilizing Distinctive Trees as habitat.

The mitigation measures proposed in this report have been developed to avoid negative impacts associated with development on the natural environment. Overall, no residual impacts are anticipated as a result of this development provided appropriate mitigation is applied, and therefore there are no expected impediments to development.

It is our opinion that the proposed Urbandale Huntmar Lands Development, located at 130 Huntmar Drive, can be accepted with the condition that; the mitigation measures recommended herein will be implemented.

This study was completed by Alex Zeller, M.Sc. (Biology) with technical and field assistance provided by; Michael Seabert, Kevin Robinson, and Mike Wolosinecki. Resumes of key staff are included in ***Appendix B***.

The results and findings of this study have been reported without bias or prejudice. The conclusions of this study are based on our own professional opinion substantiated by the findings of this study and have not been influenced in anyway.

_____

Alex Zeller, M.Sc.
Ecologist and Project Manager
Dillon Consulting Limited

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Appendix A

MNRF Information Request

Ministry of Natural Resources

Kemptville District
P.O. Box2002
10 Campus Drive
Kemptville, ONK0G 1J0

Tel.: (613) 258-8204
Fax.: (613) 258-3920

Ministère des Richesses naturelles

District de Kemptville
CP 2002
10 Campus Drive
Kemptville, ONK0G 1J0

Tél.: (613) 258-8204
Téléc.: (613) 258-3920

Thu. Oct 2, 2014

Alex Zeller
Dillon Consulting
177 Colonnade Rd, Suite 101
Ottawa
K2E 7J4
(613) 745-6338 ext 3011
azeller@dillon.ca

Attention: Alex Zeller

Subject: Information Request - Developments
Project Name: Proposed Residential Development on 130 Huntmar Dr
Site Address:
Our File No. 2014_MAR-2802

Natural Heritage Values
The Ministry of Natural Resources (MNR) Kemptville District has carried out a preliminary review of the area in order to identify any potential natural resource and natural heritage values.

The MNR works closely with partner agencies and local municipalities in order to establish concurrent approval process and to achieve streamlined and efficient service delivery. The MNR strongly encourages all proponents to contact partner agencies (e.g. MOE, Conservation Authority, etc.) and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements and approval timelines.

There are no known Natural Heritage Features (e.g. Provincially Significant Wetlands, Areas of Natural and Scientific Interest, etc.) identified on or in close proximity to the site.

Municipal Official Plans contain additional information related to natural heritage features. Please see the local municipal Official Plan for more information such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality.

Where natural values and natural hazards exist (e.g., floodplains), there may be additional approvals and permitting required from the local Conservation Authority. The MNR strongly recommends contacting the local Conservation Authority for further information and approvals. Please see the MNR Kemptville Information Guide (2012) for contact information pertaining to Conservation Authorities located within the Kemptville District area.

For additional information and online mapping tools, please see the Natural Heritage Information Centre (NHIC), where additional data and files can be downloaded in both list and digital format. In addition sensitive species information can be requested and accessed through the NHIC at NHICrequests@ontario.ca.

As per the Natural Heritage Reference Manual (Section 13; OMNR 2010) the MNR strongly recommends that an Ecological Site Assessment be carried out to more thoroughly determine the presence of natural heritage features, and Species at Risk and their habitat located on site. The MNR can provide survey methodology for particular species at risk and their habitats. In addition, the local planning authority may have more details pertaining to the requirements of the assessment process, which will result in allow for the municipality to make planning decisions which are consistent with the Provincial Policy Statement (2005).

Species at Risk

With the new Endangered Species Act (ESA, 2007) in effect, it is important to understand which species and habitats exist in the area and the implications of the legislation. A review of the Natural Heritage Information Centre (NHIC) and internal records and aerial photograph interpretation indicate that there is a potential for the following Threatened (THR) and/or Endangered (END) species on the site or in proximity to it:

- Barn Swallow (THR)
- Blanding's Turtle (THR)
- Bobolink (THR)
- Butternut (END)
- Eastern Meadowlark (THR)

All Endangered and Threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Thus any potential works should consider disturbance of possible important habitat (e.g. nesting sites). Please note that as of June 30, 2013 general habitat protection applies to all Threatened and Endangered species. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. Please keep this date in mind when planning any species and habitat surveys

Species receiving General Habitat protection:

- Barn Swallow (THR)
- Blanding's Turtle (THR)
- Bobolink (THR)
- Butternut (END)
- Eastern Meadowlark (THR)

If the proposed activity is known to have an impact on the species mentioned above or any other SAR, an authorization under the Endangered Species Act, 2007 (ESA) may be required. It is recommended that MNR Kemptville be contacted prior to any activities being carried out to discuss potential survey and mitigation measures to avoid contravention of the ESA.

Habitat has been identified within the project area that appears suitable for one or more species listed by SARO as Special Concern (SC). In Addition, one or more Special Concern species has been documented to occur either on the site or nearby. Species listed as Special Concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act. Species of Special Concern for consideration:

- Milksnake (SC)
- Snapping Turtle (SC)

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNR should be contacted immediately and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNR.

Please note that information regarding species at risk is based on documented occurrences only and does not include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNR's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. i.e.: Species at Risk (SAR) or their habitat could still be present at the location or in the immediate area. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed; or their habitat is not damaged or destroyed through the activities carried out on the site. The MNR continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNR for technical advice and to discuss what activities can occur without contravention of the Act. If an activity is proposed that will contravene the ESA (such as Section 9 or 10), the proponent must contact the MNR to discuss the potential for a permit (Section 17). For specific questions regarding the Endangered Species Act (2007) or SAR, please contact a district Species at Risk Biologist at sar.kemptville@ontario.ca. For more information regarding the ESA (2007), please see attached ESA Information Sheet.

As of July 1, 2013, the approvals processes for a number of activities that have the potential to impact SAR or their habitat were changed in an effort to streamline approvals processes while continuing to protect and sustainably manage Ontario's natural resources. For those activities that require registration with the Ministry, businesses and individuals will be able to do so through a new online system. The online system will also include information to help guide individuals and businesses through the new processes. For further information on which activities are authorized through this new online registration process and how to apply, please refer to the following website: http://www.mnr.gov.on.ca/en/About/2ColumnSubPage/STDPROD_104342.html. General inquiries may be directed towards Kemptville District MNR, while questions and comments involving the new

online forms can be directed to the Registry Approvals Service Centre (RASC) at 1-855-613-4256 or mnr.rasc@ontario.ca.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species.
- Additional occurrences of species are discovered.
- Habitat protection comes into force for one of the above-mentioned species through the creation of a habitat regulation (see general habitat protection above).

This letter is valid until: Fri. Oct 2, 2015

MNR is streamlining and automating its approvals processes for natural resource-related activities. Some activities that may otherwise contravene the ESA may be eligible to proceed without a permit from MNR provided that regulatory conditions are met for the ongoing protection of species at risk and their habitats. There are regulatory provisions for projects that have attained a specified level of approval prior to, or shortly after, the specified species or its habitat became protected under the ESA. There requirements include registering the activity with the Ministry of Natural Resources, taking steps to immediately minimize adverse effects on species and habitat, and developing a mitigation plan. Anyone intending to use this regulatory provision is strongly advised to review Ontario Regulation 242/08 under the Endangered Species Act, 2007 for the full legal requirements.

For more information please check out the following link http://www.ontario.ca/environment-and-energy/development-and-infrastructure-projects-and-endangered-or-threatened-species

The MNR would like to advise, by way of this letter, that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Sincerely,

Erin Seabert
Management Biologist
erin.seabert@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

Appendix B

Curricula Vitae

Whitney Moore, B.Sc.

BIOLOGIST
wmoore@dillon.ca

PERSONAL PROFILE

Whitney is a biologist with experience in reviewing environmental applications and reports for various government agencies using applicable legislation, policies and procedures. She has reviewed natural heritage assessments and species at risk reports for renewable energy projects and work permit applications for shoreline works in Ontario. She is knowledgeable in both terrestrial and aquatic habitats and has expertise in wildlife and habitat protection requirements and worked on projects involving species at risk permitting, writing natural heritage assessment reports and amendments and post-construction mortality monitoring for wind farms.

EDUCATION

B.Sc. (Hons), Biology, Wilfrid Laurier University, 2009

RELEVANT EXPERIENCE

Biologist, Solar Farms, Canadian Solar Solutions Inc., Ontario

Completed Renewable Energy Approval (REA) amendment reports for several solar projects for submission to the Ministry of the Environment. Prepared Notice of Activity forms for the Ministry of Natural Resources species at risk registry and prepared species at risk letters and habitat management plans. A sampling of the solar projects this work was completed for includes:

SunE Demorestville LP
Alfred LP
Aria LP
CItyLights LP
DiscoveryLights LP
EarthLight LP
FotoLight LP
CSI Glenarm LP

Biologist, Dufferin Wind Farm, Dufferin Wind Power Inc.

Coordinated the Ontario Renewable Energy Approvals (REA) process a 49 turbine (100 MW) wind farm and assessed two transmission options - a 30 km 69 kV option and a 40 km 230 kV option. The project included a wind resource assessment, turbine siting, nose assessment, transmission routing, natural heritage assessment, visual assessment, public and agency consultation, and aboriginal consultation.

Biologist, Integrity Digs, Enbridge Gas New Brunswick, Southern Ontario

Completed permit application packages for Integrity Digs in various conservation authority jurisdictions. Completed Environmental Clearance memos for several Integrity Dig sites across southern Ontario.

Biologist, ESLC Wind Farms, GDF Suez Energy
Assisted in obtaining both provincial and federal permits for post-construction mortality monitoring at two wind farms in southern Ontario. Prepared the health and safety plans and assisted in scheduling the post-construction monitoring. Prepared project binders for staff involved in the projects.

Biologist, Erieau Wind Farms, GDF Suez Energy
Assisted in obtaining both provincial and federal permits for post-construction mortality monitoring at two wind farms in southern Ontario. Prepared the health and safety plans and assisted in scheduling the post-construction monitoring. Prepared project binders for staff involved in the projects.

Biologist, Windsor Phase III Solar, Samsung Renewable Energy Inc., Location
Completed the renewable energy approval and a system impact assessment as they related to 50 MW transmission connected solar projects. The project included substation design, transmission line design review and energy studies.

Biologist, Southgate Phase III Solar, Samsung Renewable Energy Inc., Location
Completed the renewable energy approval and a system impact assessment as they related to 50 MW transmission connected solar projects. The project included substation design, transmission line design review and energy studies.

EMPLOYMENT HISTORY

DILLON CONSULTING LIMITED

2013 - Present Biologist

ONTARIO MINISTRY OF NATURAL RESOURCES

2013 Renewable Energy Planning Ecologist

2012 A/Integrated Resource Management Technical Specialist

2010 - 2012 Renewable Energy Planning Ecologist

2010 Lands Technician

FISHERIES AND OCEANS CANADA

2009 - 2010 Fish Habitat Biologist

QUINTE CONSERVATION AUTHORITY

2009 Watershed Technician

MINISTRY OF THE ENVIRONMENT

2008 Abatement Summer Student

PROFESSIONAL DEVELOPMENT

Headwater and Barrier Attrition Workshop, Rideau Valley Conservation Authority, April 2015

Post-Construction Bird and Bat Mortality Monitoring Training, MNR, 2014

Bat Maternity Colony Habitat Training, MNR, 2014

Advanced Open Water with Coral Reef Research Specialty, PADI, Seychelles, 2014

Ecological Flow Requirements Workshop, WWF Canada and Grand River Conservation Authority, 2011

Small Non-Pleasure Vessel Basic Safety (MED A3) Certified, MNR, 2011

Ontario Wetland Evaluation System Course, MNR, 2011

Fish Identification Course (Level 1), MNR, 2011

Clear Writing, MNR, 2011

Environmental Review Tribunal Training, MNR, 2011

Project Management 101 Training, MNR, 2011

Introduction to ArcGIS training, ERSI, 2010

Data Sensitivity Training (Natural Heritage Information Centre), MNR, 2010

Pleasure Craft Operators Card, Government of Canada, 2010

ATIP Training, Department of Fisheries and Oceans Canada, 2010

Habitat Referral Protocol Training, Department of Fisheries and Oceans Canada, 2010

Ontario Benthos Biomonitoring Network Training, Quinte Conservation Authority, 2009

PADI Open Water, Southwest Sulawesi, Indonesia, 2007

Coral Reef Population Researcher, Cap Ternay, Seychelles

Check Your Watershed Day, Lower Trent Conservation Authority, Brighton, Ontario

Coral Reef Research Assistant, Hoga Island, Indonesia

Alexander Zeller, B.ES., M.Sc.

ASSOCIATE
azeller@dillon.ca

PERSONAL PROFILE

Alex is an ecologist with experience in natural resource, urban development, water resources and planning fields. His broad knowledge of ecology, GIS and remote sensing has proved a successful complement to large-scale environmental planning projects.

EDUCATION

M.Sc., Biology, Lakehead University, 2007

B.ES. (Hons), Lakehead University, 2003

RELEVANT EXPERIENCE

URBAN DEVELOPMENT

Project Manager, Riverside South Phase 12, Urbandale Corporation, Ottawa, Ontario
Completed a planning rationale, environmental impact statement, tree conservation report, and headwater stream assessment for a new development in Riverside South. Project work included field surveys, reporting, agency consultation and approval applications.

Lead Biologist, Henderson Lands, Lioness Developments Inc., Kemptville, Ontario
Completed a planning rationale, environmental impact statement, tree conservation report, and headwater stream assessment for a new development in Kemptville. Project work included field surveys, reporting, agency consultation and approval applications.

Lead Biologist, Huntmar Lands - 130 Huntmar Drive, Urbandale Construction Ltd., Ottawa, Ontario
Completed a traffic impact study, environmental impact statement, and tree conservation report for a new development in the Kanata West Lands. Project work included field surveys, reporting, agency consultation and approval applications.

Project Manager, Riverside South Phase 15, Riverside South Development Corporation, Ottawa, Ontario
Completed a planning rationale, environmental impact statement, tree conservation report, and headwater stream assessment for a new development in Riverside South. Project work included field surveys, reporting, agency consultation and approval applications.

Project Manager, Riverside South Phase 14, Riverside South Development Corporation, Ottawa, Ontario
Completed a planning rationale, environmental impact statement, tree conservation report, and headwater stream assessment for a new development in Riverside South. Project work included field surveys, reporting, agency consultation and approval applications.

Project Manager, Riverside South Phase 16, Riverside South Development Corporation, Ottawa, Ontario
Completed an environmental impact statement and headwater stream assessment for a new development in Riverside South. Project work included field surveys, reporting, agency consultation and approval applications.

Project Manager, Clark Lands Development, Environmental Impact Statement, Minto Communities Inc., Ottawa, Ontario
Prepared a combined Environmental Impact Statement and Tree Conservation Report in support of a plan of subdivision for a residential development.

Project Manager and Lead Biologist, Plotter's Key Development, Minto Communities Inc., Ottawa, Ontario
Completed an Environmental Impact Statement and Tree Conservation Study for a development in Stittsville. The study was completed as part of an application for residential development. The project included Species at Risk surveys and permitting, mitigation development, a restoration plan, and agency consultation.

Project Manager and Lead Biologist, Fernbank Lands Development, Richcraft Homes, Ottawa, Ontario
Completed an Environmental Impact Statement and Tree Conservation Study for a development in west Ottawa. The study was completed as part of an application for residential development. The project included Species at Risk surveys and permitting, mitigation development, and agency consultation.

Project Manager and Terrestrial Ecologist, Ecological Screening Assessment, Walton Development & Management Inc., Ottawa, Ontario
Documented natural features through background review of secondary sources and field studies to determine potential constraints to development that may exist as a result of the natural environment. Also identified stewardship and enhancement opportunities on a number of properties in southwest Ottawa.

Project Manager, Country Hill Estates, City of Ottawa, Ontario
Completed a Scoped Environmental Impact Statement to specifically address concern for the impact of a rural residential development in south Ottawa on species at risk.

Project Manager, Chapman Mills Environmental Impact Statement, Minto Developments Inc., Ottawa, Ontario
Prepared an environmental impact statement addendum assessing the impact of a residential development on trees and local hydrology within a small woodlot.

NATURAL RESOURCES STUDIES

Project Manager/Lead Biologist, Ecological Land Classification, National Capital Commission, Ottawa, Ontario
Completed mapping of all ecotypes within the NCC's urban and greenbelt lands to be used for future ecological landscape management projects. The ecological mapping used Ontario Ecological Land Classification and covered an area of ~62 km^2.

GIS Analyst/Biologist, Species at Risk Survey, Defence Construction Canada, CFB Shilo, Manitoba
Completed a survey of 24 possible species at risk in Range Area 9, modelled habitat use by 18 species and completed an internal environmental assessment to plan for digbox training.

Project Manager/Lead Biologist, Species at Risk Screening Study, City of Ottawa, Ontario
Completed this study to identify the potential threat of 489 planned infrastructure projects had to species at risk (SAR). The study also developed tools for the management and implementation of this data. These tools included a suite of mitigation recommendations, a GIS database of the screening results, Google Earth files of all the results to ease accessibility of the spatial data, a document summarizing and illustrating the SAR that may be found and a SAR screening process flowchart.

Project Manager/Lead Biologist, Innes Road Environmental Monitoring, Enbridge Gas Distribution Inc., Ottawa, Ontario
Provided environmental monitoring and environmental awareness training for the pipeline installation along Innes Road. The project developed a bespoke environmental awareness training program to ensure the on staff contractors were aware of the environmental constraints and mitigation measures expected on site. The project also included ongoing construction environmental monitoring to ensure construction complied with mitigation requirements and all potential impacts were minimized.

Project Biologist, Ottawa West Reinforcement Pipeline Environmental Assessment, Enbridge Gas Distribution Inc., Western Ontario
Conducted detailed biophysical surveys to support environmental authorizations, pre and post construction water well monitoring and development of a detailed mitigation strategy for the installation of 20 km of 24 inch natural gas pipeline. Mitigation measures included; physical mitigation measures, environmental awareness training, daily on-site environmental monitoring, environmental compensation; and an assessment of agricultural crop loss and associated compensation.

Project Ecologist, Terry Fox Drive Extension, Construction Services, City of Ottawa, Ontario
Completed the construction and contract administration for the 5.4 km extension of Terry Fox Drive including sidewalks, recreational pathways, storm and sanitary sewers, floodplain compensation, preloading, street lighting and traffic signals, utility coordination and environmental features and remediation. Wildlife crossings, turtle fencing and a retaining wall guidance system was installed for animal protection and post-construction monitoring was completed to monitor their effectiveness. *Environmental Achievement Award, Transportation Association of Canada, 2014.*

Project Ecologist, Terry Fox Drive, Final Design, City of Ottawa, Ontario
Completely reworked the preliminary design based on geotechnical and species at risk constraints related to the compressed construction schedule. The design, tendering and construction administration process included updating the transportation model, a detailed traffic management plan, public consultation, natural environment inventory, a drainage strategy and stormwater management plan, and full-time environmental monitoring. *Award of Merit - Transportation, Consulting Engineers of Ontario, 2013.*

Lead Landscape Ecologist, Natural Heritage Study, County of Frontenac, Ontario
Completed a study to increase understanding of natural heritage features and systems across the Frontenacs (~4000 km2). The project included a comprehensive map to identify component environmental features of the natural heritage system; identification of significant areas for protection; policies addressing land use, growth and environmental preservation and conservation; recommendations for restoration and enhancement; and steps to encourage and facilitate private stewardship.

GIS Analyst and Biologist, Westside Creek Wetland Reconfiguration, St. Marys Cement Inc. (Canada), Bownmanville, Ontario
Developed and implemented a ten-year monitoring program for a reconfigured 24.7 ha wetland and 2.8 km creek. The program was developed to understand the impacts on natural populations and confirm that the habitat components were installed and functioning in a satisfactory manner.

Lead Ecologist, Rideau Corridor Landscape Strategy, Parks Canada, Ontario
Completed a landscape character assessment study as a component of an overall landscape strategy for the Rideau corridor from the Ottawa River to Lake Ontario. The Rideau Corridor Landscape Character Assessment combines GIS mapping, visual analysis tools, and other desk based research with public consultation and visual preference surveys to identify areas of distinctive landscape character within the Corridor which may be sensitive to physical and visual changes.

Project Ecologist, Birds Creek Secondary Plan, Municipality of Hastings Highlands, Ontario
Developed a secondary plan for the area including a land use study, public consultation, innovative “Healthy Hamlet” approach and urban design. The project included statutory processes including County of Hastings Official Plan amendments and Ministry of Municipal Affairs and Housing liaison. Responsibilities include consultation with public and client, assessing the existing natural resources, assisting in incorporating natural heritage features into the plan and developing GIS mapping for study area.

Ecologist and Spatial Analyst, Greater Toronto Area Reinforcement Pipeline Environmental Assessment, Enbridge Gas New Brunswick Inc., Ontario
Provided environmental and socio-economic constraints and opportunities input for the installation of a reinforced natural gas supply line throughout the GTA. The project included several potential routes followed by additional work to ascertain the feasibility of installation with a marine environment and in northern areas of the GTA. Also provided environmental and due diligence support for the proposed pipeline route and potential alternatives.

Project Ecologist, Infrastructure Master Plan, Town of Perth, Ontario
Reviewed water servicing alternatives in support of a master plan for a proposed new build-out north of Highway 7, including hydraulic analysis of servicing alternatives, including establishing design requirements, water delivery, fire flow, water storage requirements, sewage lift station and cost evaluations.

Project Ecologist, Commercial Vehicle Inspection Facilities (CVIFs) Strategic Plan, Ministry of Transportation, Ontario
Devised a province-wide strategy to increase commercial driver and vehicle safety. The condition assessment reviewed remaining useful life and life-cycle costs for the existing 16 truck inspections stations (TISs) due for reconstruction/upgrade to CVIFs. The project included

planning and implementation with site-specific schematic layouts, cost estimates, and CVIF conversion options based on present conditions, and outlined steps to be taken to manage the conversion of the TISs to CVIFs.

Project Ecologist, Regional Ecology Planning Framework, Regional Municipality of Wood Buffalo, Alberta
Developed an ecological planning framework to aid the municipality in balancing development pressures with municipal-specific environmental conservation goals. Responsible for developing the GIS-based ecological planning model and decision support tools created specifically for the municipality.

Ecologist and Spatial Analyst, Land Use Plan, Tlicho Government, Northwest Territories
Prepared a regional land use plan to guide the management of the 39 000 km2 Tlicho settled land claim area. The project resulted in a draft plan that accommodates the Tlicho way of life, and considers the economic and social well-being of the Nation into the future. Specific works included development of the GIS database and spatial model within the GIS to aid in the production of the final land use plan. This model incorporates traditional indigenous knowledge and ecological features with economic and social influences to identify suitable land use zones.

Project Ecologist, Ecological Area Preservation Strategy, City of Yellowknife, Northwest Territories
Completed a multi-year study to develop a strategy for preserving valued natural areas for city growth over the next 50 years. A GIS based landscape database was developed to provide quantitative and qualitative information needed to guide development decisions affecting natural areas within the urban boundary. Public consultation included interviews, an open house and a community design charrette.

Project Ecologist, Satellite Image Classification, Tsuu T'ina First Nation, Calgary, Alberta
Conducted a satellite image classification to update outdated vegetation mapping. Landsat-7 TM data was classified using IDRISI Andes software. Training areas were delineated to represent the various vegetation communities in the image and a maximum likelihood classification method was used to classify the image. The results of the image classification proved to be excellent and corresponded to ground-truth landcover classes very well.

Project Biologist, Matthews Lake Habitat Restoration, Public Works Government Services Canada, Fort Smith, Northwest Territories
Completed the fish habitat restoration and enhancement at work at the lake, as compensation to the loss of fish habitat in lakes and streams associated with a nearby diamond mine development. Post-construction monitoring was also provided.

ENVIRONMENTAL ASSESSMENTS

Project Ecologist, Enbridge Ottawa West Pipeline Reinforcement Environmental Assessment, Enbridge, Ontario
Conducted an Environmental Assessment for submission to the National Energy Board for the construction and installation of a 20 km, 24 inch natural gas pipeline. Specific works included evaluating the natural heritage system, outlining mitigation requirements, agency consultation, and undertaking ecological field surveys as required. Mitigation measures included; physical mitigation measures, environmental awareness training, daily on-site environmental

monitoring, environmental compensation; and an assessment of agricultural crop loss and associated compensation.

Project Ecologist, Terry Fox Drive Environmental Assessment Addendum, City of Ottawa, Ontario

Prepared an addendum to the environmental study report. The addendum addressed Phase 1 preliminary design improvements to the alignment and geometric features, stormwater management facilities and natural environment impact mitigation features, and grade separation options of a railway.

Project Ecologist, Goulbourn Forced Road Environmental Assessment, City of Ottawa, Ontario

Completed planning and functional design for the widening and upgrade of two interconnected major collector roadways. Both projects were done under "Schedule "C" of the Municipal Class EA guidelines. Specific works included evaluating the natural heritage system, outlining mitigation requirements, facilitation at public open house and undertaking ecological field surveys as required.

Project Ecologist, Eagleson Road/Fernbank Road Environmental Assessment, City of Ottawa, Ontario

Completed planning and functional design studies for widening/upgrade of two interconnected suburban arterial roadways. Both projects were done under "Schedule "C" of the Municipal Class EA guidelines. The study area included residential, park space and recreational land uses along the 1.5 km corridor. Key challenges addressed were the crossing of Monahan Drain and the rural to urban roadway transition. Public consultation comprised three public open houses.

EMPLOYMENT HISTORY

DILLON CONSULTING LIMITED

2006 - Present Ecologist, Associate

ONTARIO MINISTRY OF NATURAL RESOURCES

2001 - 2006 Research Technician (Contract)

LAKEHEAD UNIVERSITY

2003 - 2005 Teaching Assistant - Geography and Biology Departments

PROFESSIONAL DEVELOPMENT

Ecological Land Classification Training (MNR), 2010

Landscape Ecology (Lakehead University, Thunder Bay, Ontario), 2005

Quantitative Methods in Ecology (Lakehead University, Thunder Bay, Ontario), 2005

Disturbance Ecology (Lakehead University, Thunder Bay, Ontario), 2004

Advanced GIS (Lakehead University, Thunder Bay, Ontario), 2003

Remote Sensing (Lakehead University, Thunder Bay, Ontario), 2003

Water Resource Management (Lakehead University, Thunder Bay, Ontario), 2003

Natural Resource Management (Lakehead University, Thunder Bay, Ontario), 2003

PUBLICATIONS

Gleeson, J., A.Zeller and J.W. McLaughlin. 2006. Peat as a Fuel Source in Ontario: A Preliminary Literature Review, Ontario Forest Research Institute, Forest Research Information Paper 161, Sault Ste. Marie, Ontario.

Zeller, A.J. 2005. Using landscape indices to model environmental gradients within the Mixedwood Boreal Forests of northwestern Ontario, Canada. Poster Presentation at Ontario Ecology and Ethology Colloquium, 2005. Ottawa, Ontario

Appendix C

Site Photos

Ecological Land Classification Photos	
Photo 1 September 22, 2014 Notes: Annual Row Crop (OAGM1)	
Photo 2 September 22, 2014 Notes: Fencerow (TAGM5)	

Appendix D

Vegetation Inventory

Scientific Name	Common Name	S-Rank	Coefficient Conservation	Coefficient Wetness
Acer negundo	Manitoba Maple	S5	0	-2
Acer rubrum	Red Maple	S5	4	0
Acer saccharinum	Silver Maple	S5	5	-3
Arctium sp	Burdock Species	---	---	---
Asclepias sp	Milkweed Species	---	---	---
Cirsium sp	Thistle Species	---	---	---
Cypripedium arietinum	Ram's-head Lady's-slipper	S3	10	-4
Fraxinus americana	White Ash	S4	4	3
Fraxinus pennsylvanica	Green Ash	S4	3	-3
Glycine max	Soy Bean	SNA	---	5
Grass sp	Grass Species	---	---	---
Malus sp	Crabapple Species	---	---	---
Parthenocissus quinquefolia	Virginia Creeper	S4?	6	1
Pastinaca sativa	Wild Parsnip	SNA	---	5
Phalaris arundinacea	Reed Canary Grass	S5	0	-4
Picea glauca	White Spruce	S5	6	3
Rhamnus cathartica	Common Buckthorn	SNA	---	3
Rhus hirta	Staghorn Sumac	S5	1	5
Solidago sp	Goldenrod Species	---	---	---
Symphyotrichum puniceum var. *puniceum*	Swamp Aster	S5	6	-5
Symphyotrichum sp	Aster Species	---	---	---
Taraxacum officinale	Common Dandelion	SNA	---	3
Thuja occidentalis	Eastern White Cedar	S5	4	-3
Tragopogon pratensis	Meadow Goat's-beard	SNA	---	5
Ulmus americana	American Elm	S5	3	-2
Vitis sp	Grape Species	---	---	---