Interim Environmental Impact Assessment: Lansdowne Project

November 21, 2019

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1.0 Introduction

This interim natural heritage assessment describes available information on the study area. It is based on information from summer and fall site visits in 2018, spring fieldwork in 2019, our knowledge of the regional ecology, and information available from cited sources. The focus is on identified natural heritage values that could be impacted by the proposed concept of development/redevelopment of the site. It is noted that the concept has been altered as natural heritage information has been gathered.

Statement of Purpose:

Our purpose for undertaking environmental assessment work is to determine if a proposed development will have a negative impact on natural heritage features and their associated ecological functions, as set out under Provincial policy and legislation, and in municipal planning documents. All development will have some type of natural heritage impact, but for this to be relevant for the purposes of an Official Plan or the Provincial Policy Statement (PPS) those impacts must surpass pre-set thresholds, as described in the provincial *Natural Heritage Reference Manual*. Development can be restricted if overtaking an impact threshold is expected, but the EIS process does allow for mitigation (e.g., design changes) or compensation (e.g., habitat improvement elsewhere) to ameliorate impacts in order to facilitate development approval.

2.0 Records Review

A list of the literature reviewed, references reviewed, and contacts is also included in the Literature Cited, References, and Personal Contacts section.

Available resources online included:

eBird - an online checklist program that provides access to many bird observations made each year by birders. <www.ebird.org/content/canada/>

Fish ON-Line database. Website maintained by the Ministry of Natural Resources and Forestry, with information on fish species associated with various water bodies. <https://www.gisapplication.lrc.gov.on.ca/FishONLine/Index.html?site=FishONLine&viewer=FishONLine&locale=en-US>

Google Earth - satellite imagery, which includes current and historic imagery. In the area of the subject property imagery was available from July 2005, April and August 2009, September 2015, and July 2018.

iNaturalist - an online citizen scientist forum that permits access to observations made and submitted. <www.inaturalist.org>

Official Plan. The Official Plan for the Township of Leeds and the Thousand Islands was reviewed to assess identification of any natural heritage values.
< http://www.leeds1000islands.ca/en/governing/resources/Documents/TLTI-OP---Council-Adoption-September-10-2018-reducedTextOnly.pdf>

Natural Heritage Information Center database. Web site maintained by the Ontario Ministry of Natural Resources and Forestry, with species rarity rankings in Ontario, and information on reported element occurrences. Information was reviewed for all available natural heritage values, including information layers on wetlands, woodlands, Areas of Natural and Scientific Interest, and Species at Risk. <http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US >

3.0 Description of Study Area

The study area is a parcel of approximately 94 hectares located south of Lansdowne (Figure 1). The land has been and is currently used for agricultural purposes (hay and corn crop most recently), but also supports areas of woodland and wetland.

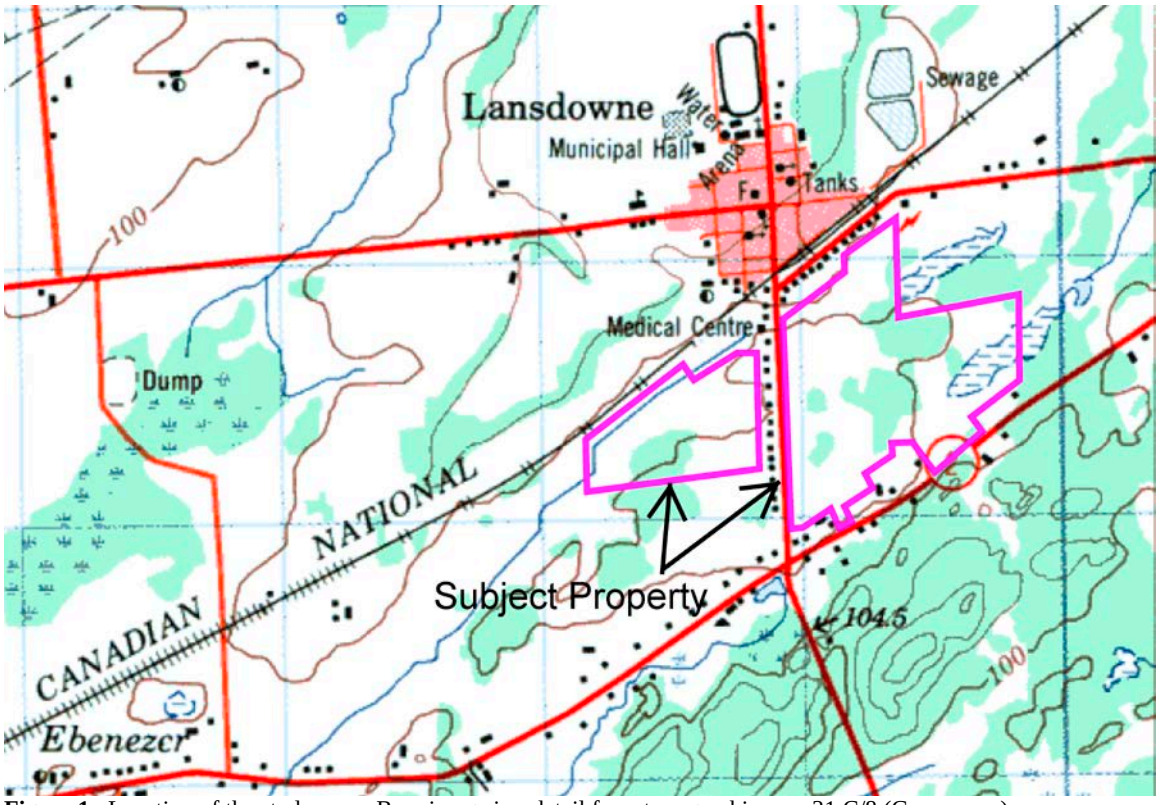
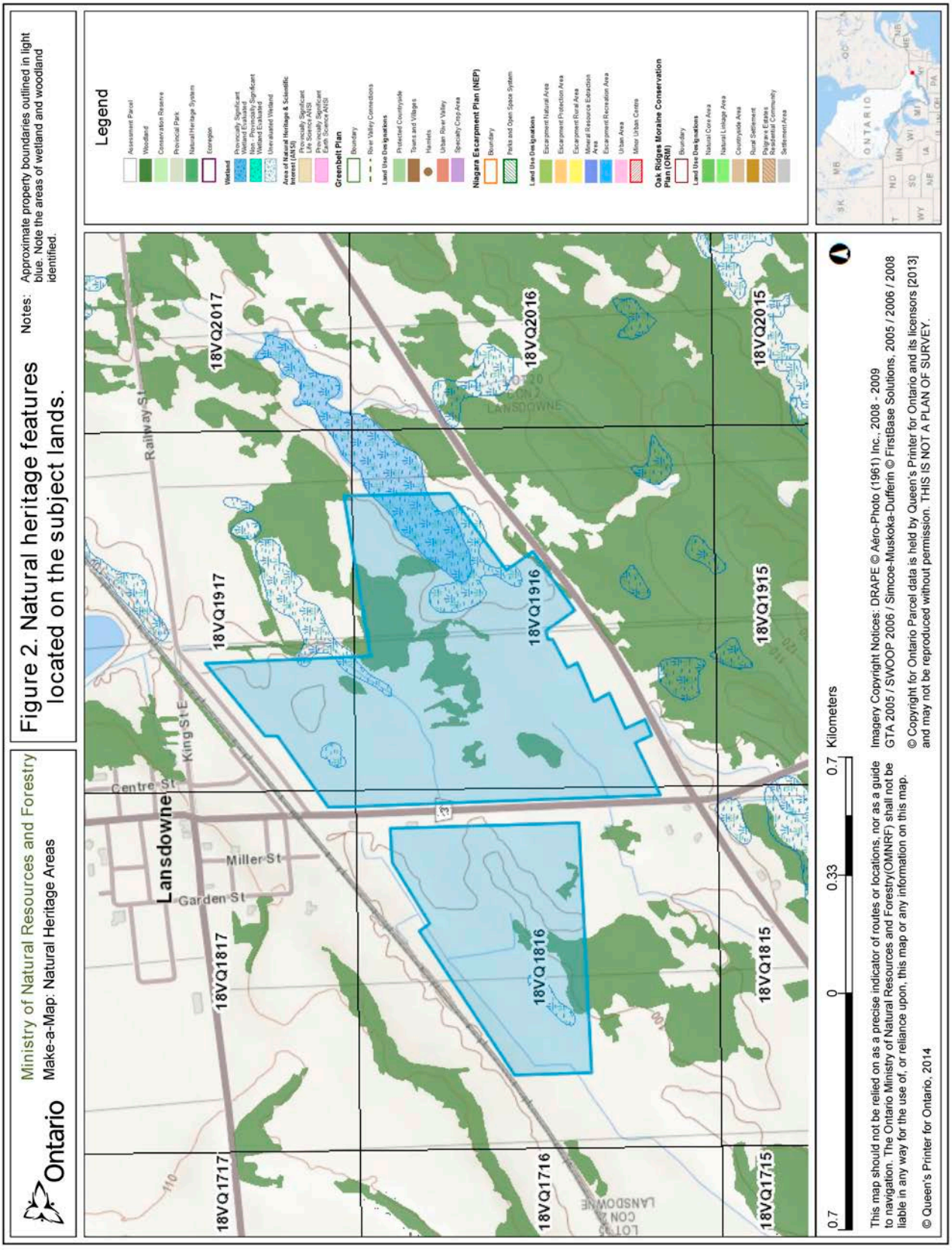


Figure 1. Location of the study area. Base image is a detail from topographic map 31 C/8 (Gananoque).

The Natural Heritage Information Center (NHIC) natural heritage mapping tool (see Figure 2) shows some of these features, but provides no detail on the nature of the agricultural lands.

Figures 3 and 4 provide the most recent concept for the development of this area. As noted above, the concept has undergone revisions, informed by the natural heritage findings to date, and may require further adjustments as that work continues.


Ontario
Ministry of Natural Resources and Forestry
Make-a-Map: Natural Heritage Areas
Figure 2. Natural heritage features located on the subject lands.
Notes: Approximate property boundaries outlined in light blue. Note the areas of wetland and woodland identified.
Legend
Assessment Parcel
Woodland
Conservation Reserve
Provincial Park
Natural Heritage System
Ecoregion
Wetland
Provincially Significant Wetland Evaluated
Non - Provincially Significant Wetland Evaluated
Unevaluated Wetland
Area of Natural Heritage & Scientific Interest (ANSI)
Provincially Significant Life Science ANSI
Provincially Significant Earth Science ANSI
Greenbelt Plan
Boundary
River Valley Connections
Land Use Designations
Protected Countryside
Towns and Villages
Hamlets
Urban River Valley
Specialty Crop Area
Niagara Escarpment Plan (NEP)
Boundary
Parks and Open Space System
Land Use Designations
Escarpment Natural Area
Escarpment Protection Area
Escarpment Rural Area
Mineral Resource Extraction Area
Escarpment Recreation Area
Urban Area
Minor Urban Centre
Oak Ridges Moraine Conservation Plan (ORMCP)
Boundary
Land Use Designations
Natural Core Area
Natural Linkage Area
Countryside Area
Rural Settlement
Palgrave Estates Residential Community
Settlement Area
Lansdowne
Railway St
King St E
Centre St
Miller St
Garden St
18VQ1717
18VQ1716
18VQ1715
18VQ1817
18VQ1816
18VQ1815
18VQ1917
18VQ1916
18VQ1915
18VQ2017
18VQ2016
18VQ2015
0.7
0
0.33
0.7 Kilometers
This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.
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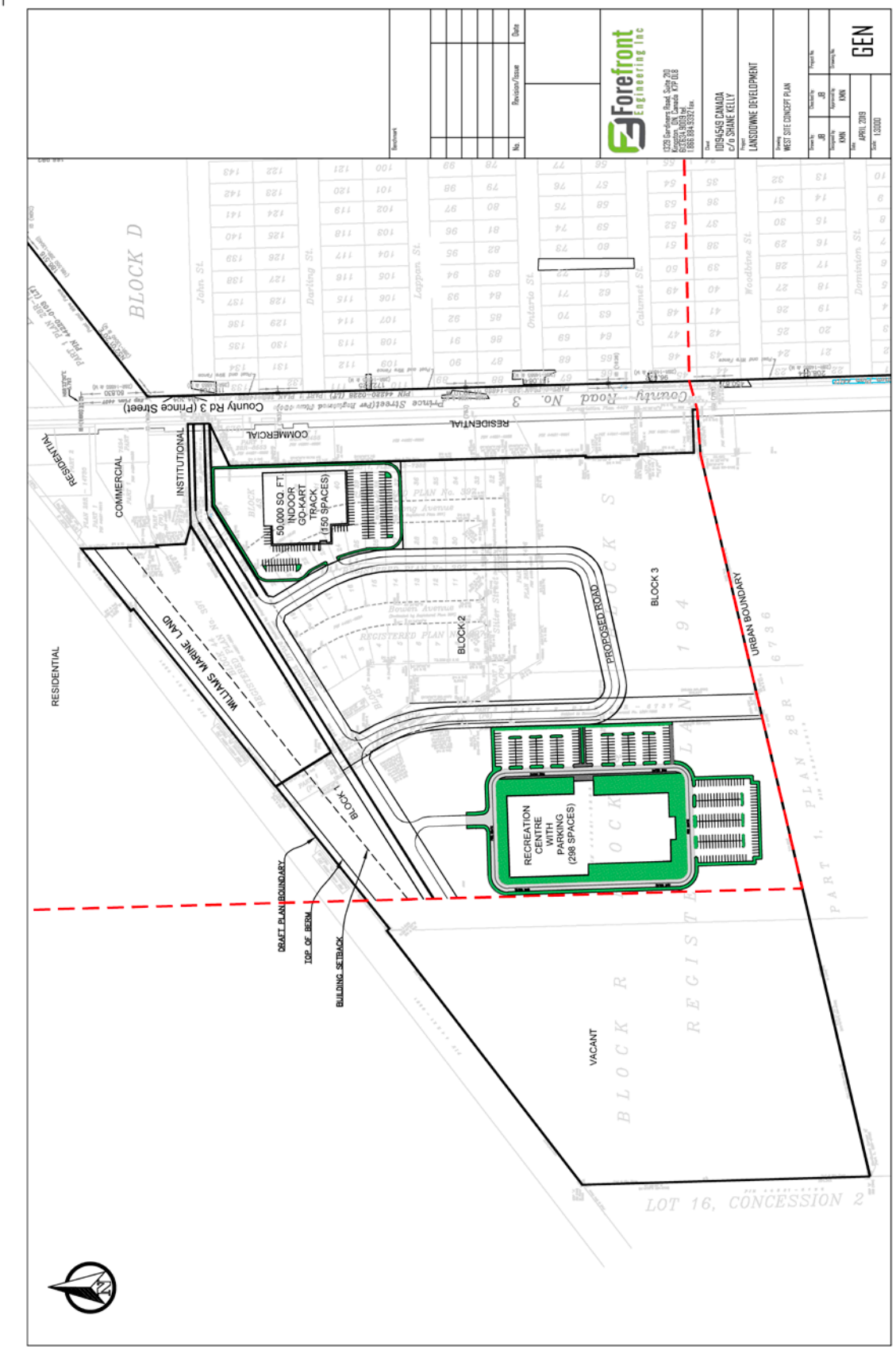


Figure 3. Current development concept for the Lansdowne project, west of County Road 3. Image prepared by Forefront Engineering Inc, and provided by FoTenn Planning and Design.

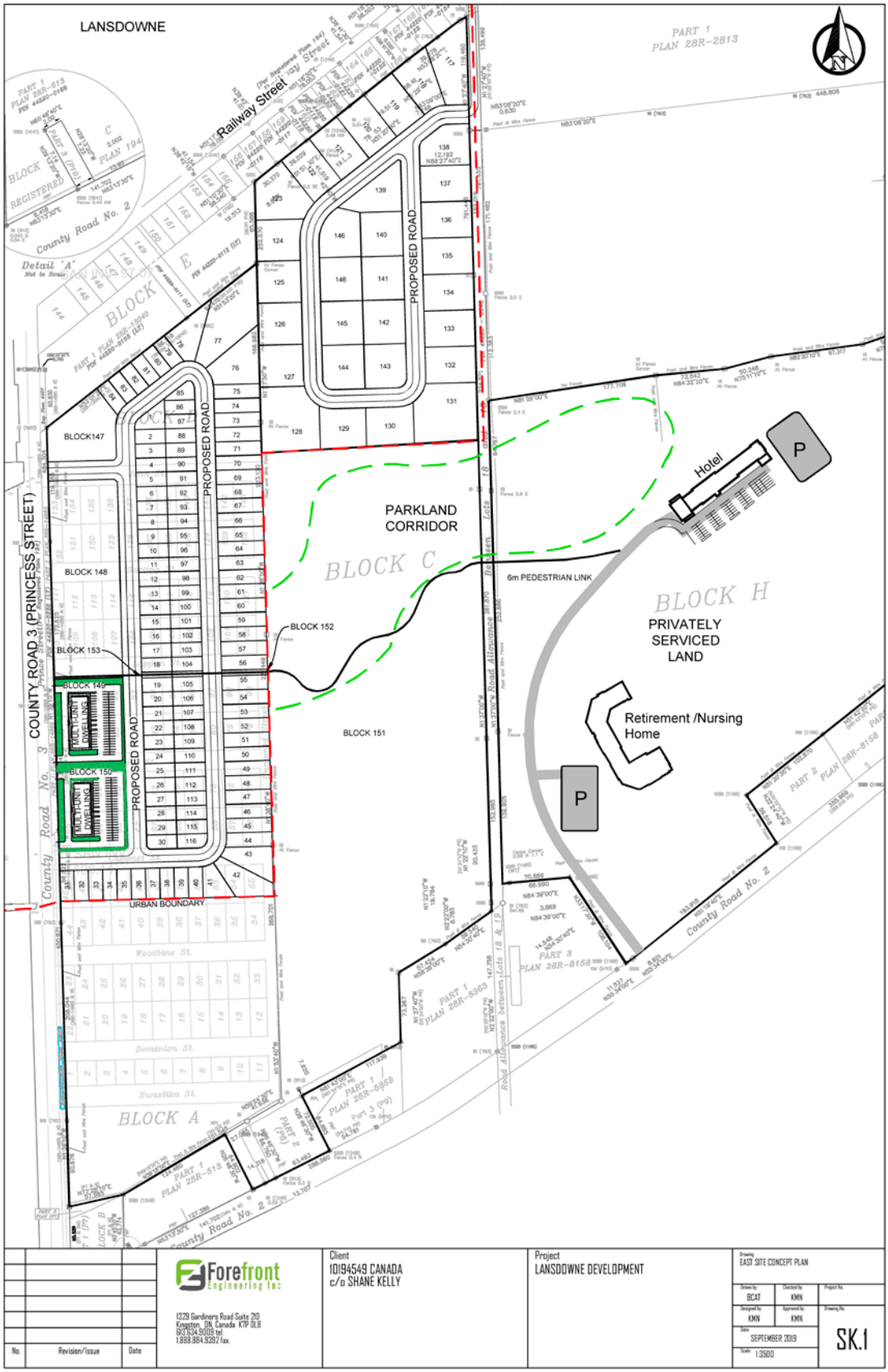


Figure 4. Current development concept for the Lansdowne project, east of County Road 3. Image prepared by Forefront Engineering Inc, and provided by FoTenn Planning and Design.

4.0 Review of Natural Heritage Values

From a review of information available on the Natural Heritage Information Center (NHIC) database, and correspondence with the Ministry of Natural Resources and Forestry[1] (MNRF), there are potential natural heritage values in the area. These are discussed below.

Significant Wetlands/Significant Coastal Wetlands

A review of the NHIC database found no evaluated wetlands in the area, but the mapping indicated the presence of some unevaluated wetland patches on the property; this is shown on a map using their database in Figure 2. The accuracy of this mapping is variable, and the Ecological Land Classification mapping was based on our field work. The closest provincially significant wetland is the Waterton Marsh, located approximately 3.75 km northwest of the subject property.

Significant Woodlands

The Official Plan of the Township of Leeds and the Thousand Islands recognizes the importance of protecting significant woodlands (Leeds and Thousand Islands 2018). Schedule B, which cover most of the lands, does not identify woodlands, but Schedule A3 does show one patch of woodland as part of their natural heritage mapping.

The Natural Heritage Reference Manual (NHRM - OMNR, 2010) outlines the criteria that we will use to make an assessment of the area woodlands.

Significant Wildlife Habitat

The Ministry of Natural Resources and Forestry offers manuals and other supporting documents to aid in the identification of significant wildlife habitat (SWH).
SWH may include habitats of seasonal concentrations of wildlife (e.g., snake hibernacula, amphibian breeding habitat, etc.), rare vegetation communities or specialized habitat for wildlife (e.g., amphibian breeding habitat), habitat for species of conservation concern (such as Special Concern species), and animal movement corridors (e.g., along riparian corridors). It is our opinion that SWH will not be likely be found within most of the study area as it is primarily characterized by agricultural land (pasture, hay, and evidence of past corn).

The site is located within UTM blocks 18VQ1816, 18VQ1916, and 18VQ1917; there are several historic species observations recorded in the NHIC database, along with two more recent listings. A review of the surrounding UTM blocks showed similar and no additional information.

We note that Special Concern (SC) species are not protected under the Endangered Species Act (*ESA*), but are given consideration under the Provincial Policy Statement

[1] See Appendix A for MNRF correspondence dated November 7, 2018.

(PPS) as indicating potential Significant Wildlife Habitat. The only SC species reported in our review of the NHIC database is discussed briefly below:

Red-headed Woodpecker (*Melanerpes erythrocephalus*). These birds are listed as an Endangered (END) species under the Species at Risk Act of Canada (SARA), and as a species of Special Concern (SC) under the ESA. This North American species has shown long-term declines, estimated at a 70% decrease in the population over the past 40 years. These birds are flexible in their habitat types (e.g., 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), but in the winter depend mainly on open, mature woodlands, such as oak stands, oak-hickory stands, maple stands, ash stands and beechwoods. Continuing decline is expected due to ongoing habitat loss and degradation. In Ontario, however, they are considered to be of Special Concern, as they are widespread across the southern part of the province, but rare. Weir (2008), for example, notes serious declines over the past twenty years in the Kingston region. Declines in Ontario are believed to be due to habitat loss due to forestry and agricultural, and the removal of dead trees in which they nest is also believed to be a threat to these birds. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) notes that the Canadian population *"appears to not be self-sustaining, and ongoing declines may accelerate given that numbers are also decreasing in adjacent parts of the U.S. range."* This bird was not seen during any of the bird surveys on the property, nor are there any reports on eBird (2019).

There is potential for other species of conservation concern to occur, based on their relative abundance in this part of the province, and the limitations of the NHIC database. We also observed the following snake species.

Eastern Ribbonsnake (*Thamnophis sauritus*) is a species of Special Concern under both SARA and the ESA. They are well known to be closely associated with water, and this is usually where we observe them in the region. In their radio tracking study, Bell et al. (2007) found that these snakes spent most of their time within 5 m of a water body from June to September. The Eastern Ribbon Snake is at the northern limit for the species and may never have been common or widespread in Ontario. The Ontario Reptile and Amphibian Atlas (Ontario Nature) also has several scattered records of them in the 10 km square that contains the property. One individual was observed was in the west half of the property, at the edge of an old cornfield but immediately beside a thicket swamp area.

Areas of Natural and Scientific Interest

The closest ANSI area appears to be the Fitzsimmon's Mountain, located approximately 2.0 km to the SSW of the subject property. This ANSI is at a significant distance, and the proposed development will not be within adjacent lands. The development will have no negative impact on the ANSI for the purposes of the Provincial Policy Statement (PPS 2014) or the Official Plan (Leeds and the Thousand Islands 2018).

Fish Habitat

We checked the Fish ON-Line database and found no reports of any fish on or immediately adjacent to the subject property. Field investigation has confirmed the presence of some wetland areas, but there appears to be no connection to any creek system, and we saw no evidence of fish or appropriate fish habitat conditions. We do not anticipate finding any evidence of fish habitat on the subject property.

Species at Risk

There appears to be potential for species at risk to be present within the study area or its surroundings. We reviewed the database maintained by the NHIC, and found listings for three Endangered or Threatened species. These are discussed briefly below:

Henslow's Sparrow (*Ammodramus henslowii*) is designated an Endangered species under both SARA and the ESA. The NHIC observation dates from 1898. This bird lives in open fields with tall grasses, flowering plants, and a few scattered shrubs, and is considered to be extirpated as a breeding species in Ontario, though a few migratory birds are seen in migration hotspots each spring. A review of eBird information shows no observations of this species. Given the age of the NHIC record, and the lack of recent sightings, this species is not believed to be present on the property or in the area.

Piping Plover (*Charadrius melodus*) is designated an Endangered species under both SARA and the ESA. The NHIC observation dates from 1894. A review of eBird information shows no observations of this species. Given the age of the NHIC record, the lack of recent sightings, and the lack of appropriate habitat on the property, this species is not believed to be present on the property or in the area.

Eastern Meadowlark (*Sturnella magna*) is designated as a Threatened species under both SARA and the ESA. This grassland bird breeds primarily in moderately tall grasslands, such as pastures and hayfields, but also in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches. Threats include habitat loss and degradation, changes in farming practices, overgrazing of pasturelands, reforestation, and the use of pesticides. We observed Eastern Meadowlarks on June 28, 2018, several were observed on July 2 during a breeding bird survey (Appendix B), and others have been reported in the nearby area in the past few years (eBird).

In addition to the species noted in the NHIC database, there is potential for other species at risk to occur, based on their relative abundance in this part of the province. We observed Bobolinks, and note that the MNRF correspondence provides a list of other species potentially present.

Bobolink (*Dolichonyx oryzivorus*) is designated as a Threatened species under both SARA and the ESA. This is another grassland bird species, populations of which have declined significantly since the 1960s, particularly in its range in eastern Ontario. COSEWIC identifies threats to include "*incidental mortality from agricultural*

operations, habitat loss and fragmentation, pesticide exposure and bird control at wintering roosts." Bobolinks are found in grassy or weedy meadows, preferring habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter, and without the presence of woody vegetation. They occur in native and cultural grasslands, hayfields, lightly to moderately grazed pastures, no-till cropland, small-grain fields, old fields, wet meadows, and planted cover. We observed Bobolinks on June 28, 2018, many were observed on July 2 during a breeding bird survey, and others have been reported in the nearby area in the past few years (eBird).

The MNRF correspondence will be more fully addressed in our final environmental impact assessment. However, we note that Gray Ratsnakes are relatively abundant in this region, and we comment upon them below.

The Gray Ratsnake (*Pantherophis spiloides*) is designated as a Threatened species under both the SARA and the ESA. Also known as a Black Rat Snake or Eastern Ratsnake, the Great Lakes – St. Lawrence population of this species uses edge habitats, particularly old fields next to deciduous forest, and can often be found in hollow logs or rock crevices, or basking on bedrock outcrops. It is known to occur on the Frontenac Axis/Canadian Shield areas. Threats include habitat loss and fragmentation and persecution by people, as well as motor vehicles and destruction of suitable hibernation sites.

Lands in the region to the south and east of Lansdowne and the proposed development lands contain Gray Ratsnake habitat features in that they are a mosaic of forest/field/wetlands on the Canadian Shield. Remnants of such features exist on the eastern edge of the development lands, but overall, they have limited Ratsnake habitat value, primarily as a result of historical agricultural use. Furthermore, no Ratsnakes were observed during the site visits, including during the fall hibernacula migration period, when the probability of encounters is higher. The region to the south, south of Highway 2 has some observed hibernacula features, but no such features were observed on the proposed development lands.

5.0 Discussion of Field Observations

We visited the site on June 28, July 11, September 27, and October 19, 2018, and a dedicated breeding bird survey was undertaken on July 2, 2018. In 2019, we visited the site on July 8, 2019. This has given us a basic understanding of the natural heritage features and functions of the site, and will provide focus for our continued natural heritage assessment in 2019.

Mapping of the site's ecological land classes (ELC) is provided in Figure 4. This mapping was developed using the Ecological Land Classification system developed for southern Ontario by Lee et al. (1998). The subject property consists of a west block and an east block on opposite sides of Prince Street. The bulk of the property appears to have a history of cultural use, with most of the land cover being of current or former agricultural use (e.g., crop field, hay field, livestock field, and orchard).

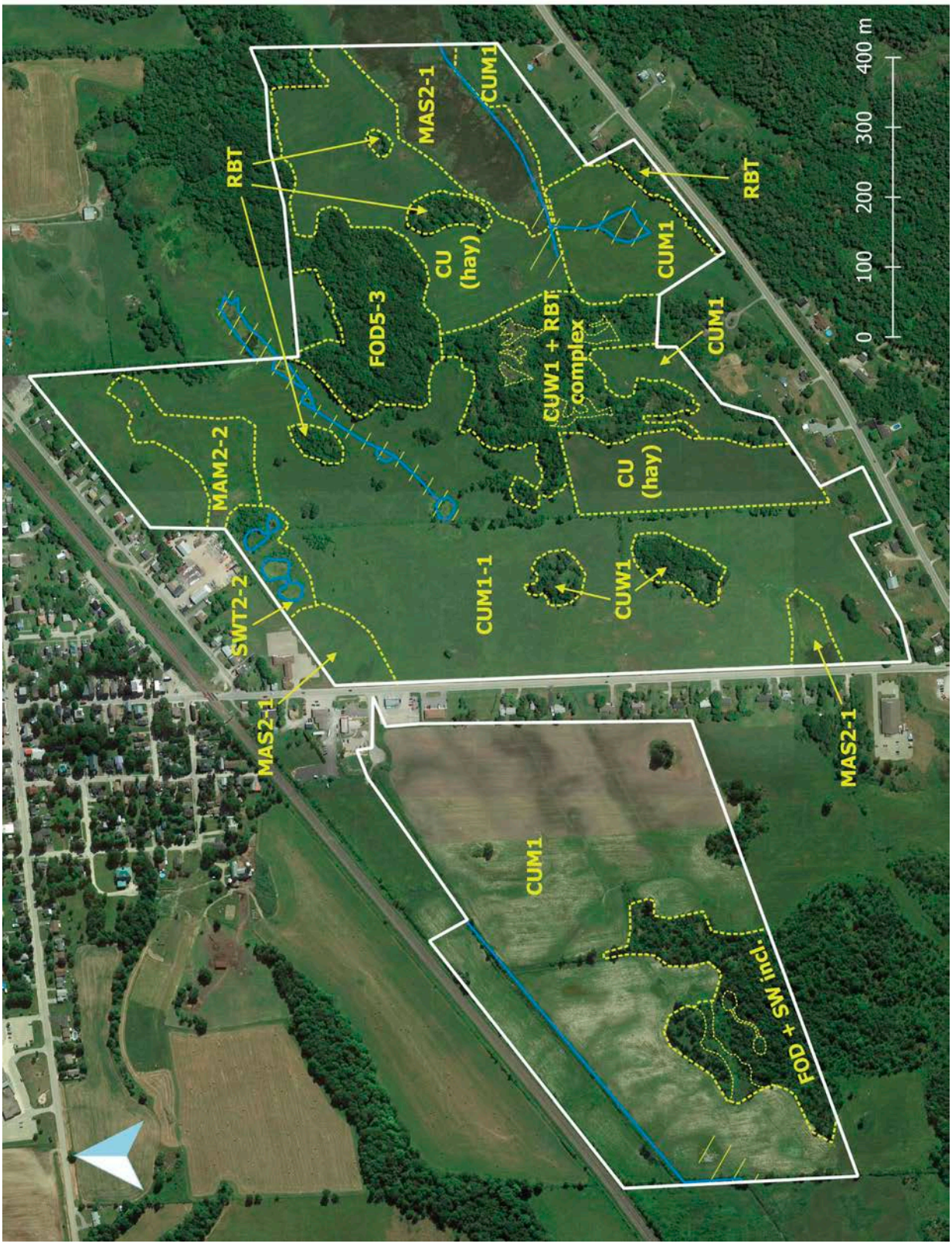


Figure 4. Ecological Land Classification mapping of the Lansdowne site. ELC codes (after Lee et al. (1998) are discussed in the text. Hatched areas depict riparian areas that could not be put in a distinct ELC class. Base image from Google Earth.

On the west block the land cover is predominately **Mineral Cultural Meadow Ecosite (CUM1)**, along the rear of the properties on Prince Street and extending west into the property. This cultural meadow had evidently been ploughed when we visited the site in 2018, but spare vegetation growth was present throughout. The vegetation cover consists of a variety of disturbance-associated plants, e.g., Ragweed, Panicgrass, Foxtail, Sow Thistle, Lamb's Quarters, and Cinquefoil. There are several farm ditches, some with permanent standing water (indicated with a blue line), dividing the fields. Along the largest ditch, toward the west end of the west block, the surrounding land appears to be riparian in nature (see areas with dashed lines). We observed several water-associated species (e.g., Spike-rush, Water Plantain, *Scirpus atrovirens*, Water Hemlock, Arrow-leaved Tearthumb), but these did not make up over 50% of the overall vegetation composition. In our opinion, this riparian area is not wetland, but it does experience seasonal wetness.

There is one woodland area on the west block, which may have been passed over for field conversion due to its sometimes rocky topography. The woodland is a **Deciduous Forest (FOD)** with no clear dominant; we observed White Ash, Black Cherry, Yellow Birch, American Beech, American Basswood, Red Maple, Sugar Maple, Silver Maple, White Oak, Red Oak, and Eastern Hemlock. Over 75% of the trees were deciduous, but there did not appear to be one or two species more prevalent than the others. This may be a result of the varied topography, which had high, dry areas as well as low, wet ones. Some of these low areas had small patches of wetland, which we have mapped as a **Swamp (SW)** inclusion into the forest. A corridor of thicket swamp wetland cuts across part of the woodland, running between two areas of the cultural meadow. Species observed include *Spirea alba*, Bebb's Willow, and *Salix petiolaris*. Further south into the forest was a low area with little vegetation that appeared to be a vernal pool (although damp to dry during our visits), which was connected by a narrow corridor of wetland vegetation (e.g. Spotted Jewelweed) to another wetland pocket within the forest (Reed-canary Grass, Sensitive Fern, *Iris versicolor, Spirea alba*).

On the east block of land, a large component of the land is **Dry – Moist Old Field Meadow Type (CUM1-1)**, mainly covered with various grasses (e.g., Orchard Grass, Timothy). In 2019, we found the area had been ploughed, but remained grass-dominated (Timothy and Brome). The large field with frontage on Prince Street was being used to pasture cattle when we walked through the area on July 2 and 11, though they had not yet been put onto pasture on June 28, 2018; we understand that the area has served this purpose for many years, and the observed condition of the lands supports this report. In 2019, we did not observe pastured cattle. Within this field were two patches of **Mineral Cultural Woodland Ecosite (CUW1)**, with varying compositions of deciduous trees (e.g., Shagbark Hickory, Red Oak, American Basswood, and Sugar Maple). It was apparent that cows use these patches for shelter. There are some other treed patches visible from satellite imagery. We have differentiated these patches as **Treed Rock Barren (RBT)** rather than as cultural woodland, because they are situated on elevated mounds of sometimes-exposed rock; it is unknown if these are naturally-formed rock piles, or the result of clearing the surrounding land by farmers. Some of the trees we observed on the mounds include Sugar Maple, White Oak, Hop-hornbeam, American Elm, Basswood, and Bur Oak. One of the treed barrens is in a CUM1-1 field, two other

are in one of the hay fields in current **Cultural (CU)** use with hay having been taken off in 2018, and a fourth is adjacent to one of the **Mineral Cultural Meadow Ecosite (CUM1)** fields. These old fields are overgrown with various different disturbance-tolerant species (e.g., Goldenrod, Queen Anne's Lace, Bird's-foot Trefoil, Common Milkweed).

There are two types of woodland on the east block. The smaller is a **Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3)**, with Sugar Maple and Red Oak as clear dominants, as well as some Hop-hornbeam, White Pine, and American Elm. We observed several horse droppings in this woodland, indicating that it may have recreational or agricultural-related use. The larger woodland polygon is a mosaic of land cover, which we have identified as a **Mineral Cultural Woodland Ecosite (CUW1)** containing a **Treed Rock Barren (RBT)** complex; these two ecotypes are too intermingled to map accurately. This section of woodland is topographically elevated, with visible exposed rock. There are some areas with consistent tree coverage (e.g., Sugar Maple, American Elm, Hop-hornbeam) and fewer instances of exposed rock. There are also intermittent patches of relatively open cover (some Red Cedar, Gray Dogwood, etc.) where the rocky substrate is more visible. There are also old apple trees throughout much of the area, suggesting that it may have been an orchard at some point.

We also found several wetland patches and adjacent wet areas on the east block, mostly around the perimeter. A **Willow Mineral Thicket Swamp Type (SWT2-2)** is growing around some open water ponds at the north end of the cow pasture. The dominant species is *Salix petiolaris*, with Common Winterberry and Downy Arrowwood. The ponds appear to be greatly used by the cows, and do not show natural wetland characteristics as a result. East of this area is an area that seems to experience regular flooding, and that supports wetland-associated species. We have identified it as **Reed-canary Grass Mineral Meadow Marsh Type (MAM2-2)** because that is more descriptive of the overall polygon, but there are also several tree and shrub species, nearing 25% cover (e.g., Trembling Aspen, *Salix petiolaris*, Nannyberry, Downy Arrowwood, Bebb's Willow, and Shining Willow). Some other marsh species include Narrow-leaved Cattail and *Scirpus atrovirens*.

There is a large **Cattail Mineral Shallow Marsh Type (MAS2-1)** at the east end of the property, and two smaller patches at the edges of the cow pasture. The latter two have likely formed from runoff collecting in low areas, while the former seems to be associated with a farm ditch (blue line and associated hatching). The MAS2-1 area also continues off the property to the east. The farm ditch connected to the cattail marsh and another that runs through a CUM1-1 field to the north have apparent permanent water, with some ponding. As with the ditches on the west block, their borders appear to be riparian in nature, but would not be characterized as wetland.

6.0 Assessment

With respect to constraints to development, we have broken this into a discussion of the different ELC areas of the property. The main natural heritage features of potential

concern on the subject property include significant woodland, wetland, significant wildlife habitat, and species at risk.

Agricultural Lands

The agricultural lands are mapped under ELC classes CUM1, CU, and CUM1-1. This part of the site is fairly extensive, and was found to have potentially significant natural heritage conflicts. On the west half, the lands had been ploughed and showed evidence of past use for corn crops; for the most part it *appears* to have low value for grassland birds due to the ploughed soils and crop history (although on a hayfield on neighboring lands just to the west of the block, we observed Bobolinks). Much of the east half, in contrast, was grassland (being used to pasture cattle in 2018; none observed in 2019), with abundant tall grasses in evidence. However, while the west side was of greater value, we observed numerous Bobolinks on both sides, and a few Eastern Meadowlarks on both sides (see Appendix B). The four most abundant species seen were Red-winged Blackbirds, Song and Savannah Sparrows, and Bobolinks.

While agricultural lands are often considered to have low ecological value, in this case it appears to have significant natural heritage potential. Research has shown that cattle and Bobolinks can coexist where the density of cattle is low to moderate (Kellar et al. 2017). It is our opinion that development of these lands will have an impact on natural heritage features or functions, and that plan modification will be required in order to be consistent with the natural heritage policies of the PPS. While the development concept for the west block (Figure 3) will affect ploughed land with poor characteristics (plus a small area of deciduous woodland), we find that the development concept for the east block (Figure 4), particularly the area of Lots 1 to 116, would eliminate a substantial portion of the identified Bobolink habitat.

The Provincial Policy Statement (PPS 2014) states:

> *2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*

It is our interpretation that the current development concept would not be consistent with Policy 2.1.7 of the PPS unless the proponents seek and obtain an authorization from the Province.

Woodland

There are small patches of woodland present on the property, of which the FOD5-3 patch on the east half of the property appears to coincide with Schedule A3 mapping in the Official Plan. The plan does not identify significant woodlands, however, but requires assessment as set out by the Natural Heritage Reference Manual (NHRM - OMNR 2010)

The subject property is located within Site District 6E-10. Henson and Broadribb (2005) note that nearly 83% of the ecodistrict remains as natural cover, primarily forest. The Cataraqui Region Conservation Authority (Beaubiah, personal communication) breaks

forest cover down by watershed, and identifies 46.3% forest cover in the St. Lawrence River watershed. The NHRM advises that where woodland cover occupies over 60% of the landscape, a minimum size is not suggested for significance, while if cover is between 30 to 60%, woodlands of 50 ha in size or greater would be considered to be significant. The woodland block identified in the Official Plan is approximately 10.2 ha, approximately 3.8 ha of which is on the subject property, which does not meet the minimum threshold required by the NHRM, even taking the more conservative approach. It is our opinion that the woodland would not be considered to be significant for the purposes of size. (In contrast, to the south of the property, south of Highway 2, extensive woodlands are present that are likely to be significant for size.)

The NHRM also outlines other means of evaluating woodlands, including:
- woodland interior (using a 100 m edge measurement, there is none);
- proximity to other woodlands: there are other small patches of woodland to the east of the property, but the substantial forests land mentioned above are approximately 400 m to the south (not within 120 m);
- linkages (the woodlands are identified as part of the Natural Heritage System as depicted in Schedule A3 of the Official Plan), but linkages are intended to have ecological function as important connections. The woodland patch on the property has standing deciduous tree cover, but little ecological integrity as it has had apparently long-term use for pasturing cattle and horses. It is difficult to see any linkage function associated with these patches;
- water protection (not applicable);
- woodland diversity (all tree species observed are common in Ontario, and little diversity of terrain);
- uncommon characteristics (no criteria are met); and
- economic and social functional values (none identified).

The woodland shows signs of impacts from human-based activity, primarily agriculture-related, including habitat fragmentation and habitat loss/degradation. In considering these criteria, based on our fieldwork to date and available information, it is our opinion that the woodland is not likely to be significant for the purposes of the PPS or the municipality's Official Plan. Further, we note that the current development concept will affect only a few small areas or patches of woodland, so there will be no extensive loss of trees.

Wetland

The field work has confirmed the presence of habitat characterized by wetland vegetation on the property. Swamp patches were found in association with woodlands on the west block, and areas of MAS2-1 (cattail marsh) were found on the east block. The cattail marsh area along the eastern boundary is the largest of these wetland areas: approximately 5.2 ha in size, some 3.0 ha of the marsh is on the property, with the balance occurring on lands to the east; a further 50 m to the east there is a 1.2 ha pond that may be connected by surface drainage. (We did not inspect these areas that occur on lands owned by others.)

These wetland patches are unevaluated. All but the cattail marsh area are too small in extent to be assessed based on the Ontario Wetland Evaluation System, which recommends a minimum wetland size of 2 ha for the purposes of assessment in most cases. We also note that Lee et al. (1998) specify a minimum polygon size of 0.5 ha, so the smaller wetland patches are on the borderline of even being appropriate for mapping for ELC purposes. However, we have included them as it provides a more detailed understanding of what is present. If the largest wetland area were evaluated, given its small size, the monotypic vegetation present, and its setting, it is our opinion that it would not be a significant wetland for the purposes of the PPS.

From a practical perspective, however, flood-prone or wetland habitat is generally not appropriate for development purposes, and these habitat patches can provide local ecosystem services (e.g., frog or salamander breeding). It was not possible to assess any potential function during our field work, but this can be assessed when we are able to do spring fieldwork. Ecosystem functions are likely limited, however, because of its small size and isolated situation.

We note that the current development concept will affect some of the small wetland patches on the east block of land, but that it will not affect the area where the larger wetland area is located. It is our opinion that the loss of these wetland pockets is unlikely to contravene the intent of the PPS.

Potential Natural Heritage Conflicts on Site:

Significant Wildlife Habitat

The NHRM guides assessment of significant wildlife habitat (SWH) by requiring assessment of habitats of seasonal concentrations of animals, rare vegetation communities or specialized wildlife habitat, habitat for species of conservation concern, and animal movement corridors.

As our fieldwork has been undertaken in the summer and fall seasons, we have had no opportunity to assess early calling amphibians, to observe early flowering plants or some breeding birds, etc. Based on our observations, we do not anticipate finding extensive wildlife habitat significant for the purposes of the PPS. However, we observed an Eastern Ribbonsnake in the western block of land, and there is some potential for SWH functions associated with the wetland blocks. If so determined, these would require accommodation in the development concept.

We note that there are few reports of species of conservation concern on or around the subject property. We observed one SC species, and there is potential for the presence of others; for example, in the eBird database both Wood Thrush and Eastern Wood-pewee have been reported in the general area (eBird 2018). These species were not detected during our site visits, but spring field work would be valuable.

Our assessment of the site is that the woodland and wetland have only limited potential as SWH; we note that the PPS does permit development within SWH, but only if it can be

demonstrated that there will be no impact to the natural features and their ecological functions as a result. Where it may be determined that there is SWH present, redesign of the development concept may be able to meet PPS standards, through avoidance of sensitive areas, a low-density of development, and mitigation measures. The area where the Eastern Ribbonsnake (SC) was observed is in the west block of land, but the proposed development will not affect that area.

Species at Risk

As noted in the discussion of the agricultural lands, we found many Bobolinks and several Eastern Meadowlarks on the property. The observation of many of these birds, including on areas of suitable habitat, confirmed that they are breeding here (east block). They and their habitat are protected under the Endangered Species Act. Ecological Services were engaged too late in the season to survey for these birds within the recommended dates, but the observations made during our field work give strong indication that this will be an important natural heritage feature, and one that may require significant amendment to the development concept or authorization from the Province.

Barn Swallows were also observed, but the lack of appropriate nesting structures on the property likely means that they are feeding here, but not nesting. Timing windows will likely be sufficient to ensure that there is no impact to these birds. As well, there is potential for the presence of other species at risk; for example, Butternut trees were not observed, but we will continue to assess for their possible presence. The November MNRF letter (Appendix A) lists several others that will be further considered.

7.0 Recommendations

The natural heritage concern of primary significance is the presence of numerous grassland birds (Bobolinks and Eastern Meadowlarks - both Threatened species) in association with appropriate habitat. It is our opinion that the development concept for the east half of the site would result in the loss of approximately 15 hectares of habitat. The PPS prohibits this except in accordance with provincial and federal requirements. The proponent may wish to explore options for a redesign or for provincial authorization.

8.0 Literature Cited, References, and Personal Contacts

eBird Canada. 2019. Website maintained by Bird Studies Canada: <http://ebird.org/content/canada/>

Fish ON-Line. Website maintained by the Ministry of Natural Resources and Fisheries: <https://www.gisapplication.lrc.gov.on.ca/FishONLine/Index.html?site=FishONLine&viewer=FishONLine&locale=en-US>

Henson, B.L. and K.E. Brodribb. 2005. Great Lakes Conservation Blueprint for Terrestrial Biodiversity: Volume 2 – Ecodistrict Summaries. Nature Conservancy of Canada. Completed as a partnership project between the Nature Conservancy of Canada and the Ontario Ministry of Natural Resources. 344 pp. Online at:

< http://nhic.mnr.gov.on.ca/projects/conservation_blueprint/Terr_Vol2_final_e-version.pdf>

iNaturalist. Online tool that provides a database of submitted species sightings by citizen scientists. iNaturalist is a joint initiative by the California Academy of Sciences and the National Geographic Society. <http://inaturalist.org>

Kellar, M., A. Parsons, R. Short and E. Travers. 2017. Land Conservancy for KFLA: Best Stewardship Practices for Bobolink and Eastern Meadowlark Breeding Success. Prepared by Fleming College, School of Environmental and Natural Resource Sciences. 9 pp., plus appendices.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario. First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Technology Transfer Branch. SCSS Field Guide FG-02. 225 pp.

Leeds and Thousand Islands. 2018. Official Plan. Available online at: <http://www.leeds1000islands.ca/en/governing/resources/Documents/TLTI-OP---Council-Adoption-September-10-2018-reducedTextOnly.pdf>

Natural Heritage Information Center. 2018. Web site maintained by the Ontario Ministry of Natural Resources and Forests, with species rarity rankings in Ontario, and information on reported element occurrences. <http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US >

Ontario Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criterion Schedules for Ecoregion 6E. OMNRF Regional Operations, Peterborough, Ontario. 38 pp.

Ontario Ministry of Natural Resources. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. 2nd edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources. 2009. Significant Wildlife Habitat Ecoregion Criteria Schedules: Addendum to Significant Wildlife Habitat Technical Guide - Working Draft. Toronto: Queen's Printer for Ontario. 70 pp.

Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section, Science Development and Transfer Branch, Southcentral Sciences Section. 139 pp., plus appendices.

Ontario Ministry of Natural Resources. 1993. Ontario Wetland Evaluation System: Southern Manual. 3rd Edition. NEST Technical Manual TM-002. 178 pp., plus forms.

Ontario Nature. 2018. Ontario Reptile and Amphibian Atlas database. Website maintained by Ontario Nature. https://ontarionature.org/oraa/maps/

Provincial Policy Statement. 2014. Issued under Section 3 of the *Planning Act*. Province of Ontario. 50 pp.

Leeds and Thousand Islands, Township. 2018 (adopted by Council). Official Plan. Available online at: <http://www.leeds1000islands.ca/en/governing/resources/Documents/TLTI-OP---Council-Adoption-September-10-2018-reducedTextOnly.pdf >. Specific reference is made to OP Schedule 8-B, which identifies natural heritage areas.

Appendix A. Ministry of Natural Resources and Forestry letter.

Ministry of Natural Resources and Forestry

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920

Ministère des Richesses naturelles et des Forêts

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Téléc.: 613 258-3920

Ontario

Wed. Nov 7, 2018

Mary Alice Snetsinger
Ecological Services
3803 Sydenham Rd, RR1
Elginburg
K0H 1M0
(613) 376-6916
mail@ecologicalservices.ca

Attention: Mary Alice Snetsinger

Subject: Information Request - Developments
Project Name: Lansdowne Development - Mixed Use Development
Site Address: Lots 16-19, Con 2, Lansdowne
Our File No. 2018_LANS-5065

Natural Heritage Values
The Ministry of Natural Resources and Forestry (MNRF) Kemptville District has carried out a preliminary review of the above mentioned area in order to identify any potential natural resource and natural heritage values.
The following Natural Heritage values were identified for the general subject area:

- Unevaluated Wetland (Not evaluated per OWES)

Municipal Official Plans contain 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. Many municipalities require environmental impact studies and other supporting studies be carried out as part of the development application process to allow the municipality to make planning decisions which are consistent with the Provincial Policy Statement (PPS, 2014).

The MNRF strongly encourages all proponents to contact partner agencies and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements, authorizations and approval timelines; Ministry of the Environment and Climate Change (MOECC) and the local Conservation Authority may require approvals and permitting where natural values and natural hazards (e.g., floodplains) exist.

As per the Natural Heritage Reference Manual (NHRM, 2010) the MNRF strongly recommends that an ecological site assessment be carried out to determine the presence of natural heritage

features and species at risk and their habitat on site. The MNRF can provide survey methodology for particular species at risk and their habitats.

The NHRM also recommends that cumulative effects of development projects on the integrity of natural heritage features and areas be given due consideration. This includes the evaluation of the past, present and possible future impacts of development in the surrounding area that may occur as a result of demand created by the presently proposed project.

Wildland Fire

MNRF woodland data shows that the site contains woodlands. The lands should be assessed for the risk of wildland fire as per PPS 2014, Section 3.1.8 "*Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards*". Further discussion with the local municipality should be carried out to address how the risks associated with wildland fire will be covered for such a development proposal. Please see the Wildland Fire Risk Assessment and Mitigation Guidebook (2016) for more information.

Significant Woodlands

Section 2.1.5 b) of the PPS states: *Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* The 2014 PPS directs that significant woodlands must be identified following criteria established by the Ontario Ministry of Natural Resources and Forestry, i.e. the Natural Heritage Reference Manual (NHRM), 2010. Where the local or County Official Plan has not yet updated significant woodland mapping to reflect the 2014 PPS, all wooded areas should be reviewed on a site specific basis for significance. The MNRF Kemptville District modelled locations of significant woodlands in 2011 based on NHRM criteria. The presence of significant woodland on site or within 120 metres should trigger an assessment of the impacts to the feature and its function from the proposed development.

Significant Wildlife Habitat

Section 2.1.5 d) of the PPS states: *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* It is the responsibility of the approval authority to identify significant wildlife habitat or require its identification. The MNRF has several guiding documents which may be useful in identification of significant wildlife habitat and characterization of impacts and mitigation options:

- Significant Wildlife Habitat Technical Guide, 2000
- The Natural Heritage Reference Manual, 2010
- Significant Wildlife Habitat Mitigation Support Tool, 2014
- Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E and 6E, 2015

The habitat of special concern species (as identified by the Species at Risk in Ontario list) and Natural Heritage Information Centre tracked species with a conservation status rank of S1, S2 and S3 may be significant wildlife habitat and should be assessed accordingly.

2

Water

The Ministry of Natural Resources and Forestry (MNRF) has established timing window guidelines to restrict in-water work related to an activity during certain periods. These restricted periods are identified in order to protect fish from impacts of works or undertakings in and around water during spawning and other critical life stages. A suite of appropriate measures should be taken for projects involving in-water works to minimize and mitigate impacts to fish, water quality and fish habitat, and include:

- avoiding in-water works during the timing guidelines;
- installation of sediment/erosion control measures;
- avoiding the removal, alteration, or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures to manage falling debris (e.g. spalling).

Timing guidelines are based on species* presence and are therefore subject to change if new information becomes available. Timing guidelines in Kemptville District are:

Waterbody (and applicable geography or Fisheries Management Zone)	Timing Guidelines (no in-water works)
○ St. Lawrence River (FMZ 20)	March 15 – July 15 (Spring spawning species)
○ Ottawa River – Lac Des Chats (FMZ 12)	October 1 to July 15 (Spring and fall spawning species, including Lake Trout and Lake Whitefish)
○ Ottawa River – Lac Deschenes (FMZ 12)	October 15 to July 15 (Spring and fall spawning species, including Cisco)
○ Ottawa River – Lac Dollard des Ormeaux (FMZ 12)	January 1 to July 15 (Winter and spring spawning species, including Burbot)
○ Big Rideau Lake (South Burgess, North Burgess, Bastard and South Elmsley Twps) ○ Charleston Lake (Lansdowne and Escott Twps) ○ Crow Lake (South Crosby Twp)	October 1 to June 30 (Spring and fall spawning species, including Lake Trout)
○ Bass Lake (South Elmsley Twp) ○ Lower Rideau Lake (South Elmsley Twp) ○ Bob's Lake (South Sherbrooke Twp) ○ Christie Lake (South Sherbrooke Twp) ○ Dalhousie Lake (Dalhousie Twp) ○ Davern Lake (South Sherbrooke Twp) ○ Farren Lake (South Sherbrooke Twp) ○ Grippen Lake (Leeds Twp) ○ Indian Lake (South Crosby Twp) ○ Little Long Lake (Lansdowne Twp) ○ Millpond Lake (South Burgess) ○ Otter Lake (South Elmsley, South Burgess and Bastard Twps) ○ Otty Lake (North Burgess and North Elmsley Twps) ○ Pike Lake (North Burgess Twp) ○ Silver Lake (South Sherbrooke Twp) ○ Redhorse Lake (Lansdowne Twp) ○ Tay River (South Sherbrooke, Bathurst, Drummond and North	October 15 to June 30 (Spring and Fall spawning species, including Lake Whitefish and Cisco)

3

Elmsley Twps) ○ Wolfe Lake (North Crosby Twp)	
○ Bennett Lake (Bathurst Twp) ○ Crosby Lake (North Crosby Twp) ○ Gananoque River (Leeds Twp) ○ Lac Georges (Plantagenet and Alfred Twps) ○ Gillies Lake (Lanark Twp) ○ Little Crosby Lake (North Crosby Twp) ○ McLaren Lake (North Burgess Twp) ○ Mississippi Lake (Drummond, Beckwith and Ramsay Twps) ○ Mississippi River (Beckwith, Ramsay, Pakenham and Fitzroy Twps) ○ Raisin River below Martintown dam (Charlottenburgh Twp) ○ Rideau River (Wolford, Oxford, Montague, Marlborough, South Gower, North Gower, Osgood, Nepean and Gloucester Twps) ○ South Lake (Leeds Twp) ○ South Nation River below Plantagenet weir (Plantagenet Twp) ○ Upper Rideau Lake (North Crosby Twp) ○ Westport Sand Lake (North Crosby Twp)	January 1 – June 30 (Winter and spring spawning species, including Burbot)
○ Small rivers and streams (denoted on 1:50,000 National Topographic System maps as being one lined) ○ All other waterbodies in FMZ 18	March 15 to June 30 (Spring spawning species)

**Please note: Additional timing restrictions may apply as they relate to endangered and threatened species for works in both water and wetland areas. Timing restrictions are subject to change, depending on species found in a given waterbody.*

In addition to adhering to the above timing guidelines, a work permit from the MNRF may be required depending on the nature and scope of work. No encroachment on the bed or banks of a waterbody/watercourse (e.g. abutments, embankments, etc.) is permitted without MNRF approval. Additional information regarding work permits may be found online at https://www.ontario.ca/page/crown-land-work-permits#section-2.

The MNRF does not have any water quality or quantity data available. We recommend that the Ministry of the Environment and Climate Change be contacted for such data along with the local Conservation Authority. For further information regarding fish habitat and protocols, please refer to the following interagency, document, *Fish Habitat Referral Protocol for* Ontario at: http://www.web2.mnr.gov.on.ca/mnr/ebr/fish_hab_referral/protocol_en.pdf.

Additional approvals and permits may be required under the Fisheries Act and the Species at Risk Act; please contact Fisheries and Oceans Canada to determine requirements and next steps. There may also be approvals required by the local Conservation Authority or Transport Canada, and these agencies should be contacted directly to determine requirements. As the MNRF is responsible for the management of provincial fish populations, we request ongoing involvement in such discussions in order to ensure population conservation.

Species at Risk

A review of the Natural Heritage Information Centre (NHIC) and internal records 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)
- Cerulean Warbler (THR)
- Chimney Swift (THR)
- Eastern Meadowlark (THR)
- Gray Ratsnake (THR)
- Henslow's Sparrow (END)
- Least Bittern (THR)
- Little Brown Bat (END)

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 to the individuals as well as their habitat (e.g. nesting sites). General habitat protection applies to all threatened and endangered species. Note some species in Kemptville District receive regulated habitat protection. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. For more on how species at risk and their habitat is protected, please see: https://www.ontario.ca/page/how-species-risk-are-protected.

If the proposed activity is known to have an impact on any endangered or threatened species at risk (SAR), or their habitat, an authorization under the ESA may be required. It is recommended that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey protocols to follow during the early planning stages of a project, as well as mitigation measures to avoid contravention of the ESA. Where there is potential for species at risk or their habitat on the property, an Information Gathering Form should be submitted to Kemptville MNRF at sar.kemptville@ontario.ca.

The Information Gathering Form may be found here:
http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&ENV=WWE&NO=018-0180E

For more information on the ESA authorization process, please see:
https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

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 and/or Migratory Birds Convention Act. Again, the habitat of special concern species may be significant wildlife habitat and should be assessed accordingly. Species of special concern for consideration:

- Canada Warbler (SC)
- Eastern Wood-Pewee (SC)
- Golden-winged Warbler (SC)
- Monarch (SC)
- Red-headed Woodpecker (SC)

- Short-eared Owl (SC)
- Snapping Turtle (SC)
- Wood Thrush (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, MNRF should be contacted and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNRF.

Please note that information regarding species at risk is based largely on documented occurrences and does not necessarily include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNRF'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. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The MNRF 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 MNRF for technical advice and to discuss what activities can occur without contravention of the Act. For specific questions regarding the Endangered Species Act (2007) or SAR, please contact MNRF Kemptville District at sar.kemptville@ontario.ca.

The approvals processes for a number of activities that have the potential to impact SAR or their habitat have recently changed. For information regarding regulatory exemptions and associated online registration of certain activities, please refer to the following website: https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization.

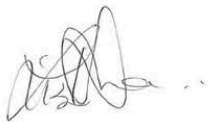
Please note: The advice in this letter may become invalid if:

- 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; or
- Additional occurrences of species are discovered on or in proximity to the site.

This letter is valid until: Thu. Nov 7, 2019

The MNRF would like to request 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,



Lisa McShane
Management Biologist
lisa.mcshane@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

7

Appendix B. Summary of results from bird survey conducted on July 2, 2018 by Chris Grooms. Species at risk or of conservation concern are noted with a **.

Species	East Side Count	West Side Count
Accipiter sp. (Accipiter sp.)		1
American Bittern (*Botaurus lentiginosus*)	1	
American Crow (*Corvus brachyrhynchos*)	1	5
American Goldfinch (*Spinus tristis*)	6	12
American Redstart (*Setophaga ruticilla*)	1	
American Robin (*Turdus migratorius*)	2	8
Baltimore Oriole (*Icterus galbula*)	1	
** Barn Swallow (*Hirundo rustica*)	1	5
Black-capped Chickadee (*Poecile atricapillus*)	2	8
Blue Jay (*Cyanocitta cristata*)		1
** Bobolink (*Dolichonyx oryzivorus*)	27	20
Brown Thrasher (*Toxostoma rufum*)		1
Brown-headed Cowbird (*Molothrus ater*)	2	
Cedar Waxwing (*Bombycilla cedrorum*)	2	2
Chestnut-sided Warbler (*Setophaga pensylvanica*)		1
Chipping Sparrow (*Spizella passerina*)	4	2
Common Grackle (*Quiscalus quiscula*)	9	3
Common Yellowthroat (*Geothlypis trichas*)	7	8
Eastern Bluebird (*Sialia sialis*)		1
Eastern Kingbird (*Tyrannus tyrannus*)	1	4
** Eastern Meadowlark (*Sturnella magna*)	7	2
Eastern Towhee (*Pipilo erythrophthalmus*)		2
European Starling (*Sturnus vulgaris*)	44	2
Gray Catbird (*Dumetella carolinensis*)	2	1
Great Blue Heron (*Ardea herodias*)	1	
Great Crested Flycatcher (*Myiarchus crinitus*)		1
House Sparrow (*Passer domesticus*)		2
House Wren (*Troglodytes aedon*)	4	1
Indigo Bunting (*Passerina cyanea*)		2
Mourning Dove (*Zenaida macroura*)	3	4
Northern Cardinal (*Cardinalis cardinalis*)		1
Northern Flicker (*Colaptes auratus*)	1	
Red-eyed Vireo (*Vireo olivaceus*)	1	5
Red-winged Blackbird (*Agelaius phoeniceus*)	46	45
Ring-billed Gull (*Larus delawarensis*)	2	2
Rose-breasted Grosbeak (*Pheucticus ludovicianus*)		2
Savannah Sparrow (*Passerculus sandwichensis*)	29	2
Song Sparrow (*Melospiza melodia*)	14	38
Spotted Sandpiper (Actitis macularius)		1
Swamp Sparrow (*Melospiza georgiana*)	2	
Tree Swallow (*Tachycineta bicolor*)		1
Turkey Vulture (Cathartes aura)		2
Warbling Vireo (*Vireo gilvus*)	1	1
White-breasted Nuthatch (*Sitta carolinensis*)		2
Willow Flycatcher (*Empidonax traillii*)		2
Yellow Warbler (*Setophaga petechia*)	2	3