Environmental Impact Statement:
Unity Inn & Spa
2285 Battersea Road, Kingston

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Prepared for:
BPE Developments

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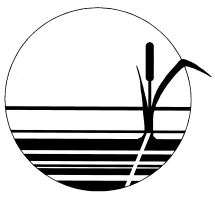

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EXECUTIVE SUMMARY:

Statement of Purpose:

> Our purpose for undertaking an EIS 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, those impacts must surpass pre-set thresholds, such as those described in the provincial *Natural Heritage Reference Manual*. Development can be restricted if an impact is anticipated to exceed a threshold, however the EIS process does allow for mitigation (e.g., design changes) or compensation (e.g., habitat improvement elsewhere) to avoid or offset impacts in order to facilitate development approval.

This environmental impact statement was initiated because of a proposal to develop a boutique hotel and spa on a parcel of land at 2285 Battersea Road (part of Lots 33 and 34, Concession VI, geographic Township of Kingston. The proposal would result in redevelopment of the existing residential building and the barn on site, and also includes 40 small cabin units, most of them to be scattered in secluded locations throughout the woodland and shrub areas in the northern part of the site. There are potential environmental issues with respect to the proposed development, which include the potential presence of significant woodland and of habitat for species at risk.

The proposed concept plan has been redesigned during the environmental evaluation process as a result of information obtained and recommendations made. This EIS is based upon the current concept plan, and we have focused our assessment on the potential impact of the proposed development on the natural heritage features present and their ecological functions. This entailed site visits to inventory life science features, assess the vegetation communities and the ecological land classification, etc.

It is our opinion that portions of the subject property may be considered to be significant woodland for the purposes of the Provincial Policy Statement. We concluded that there will be no loss of significant woodland, significant wildlife habitat, or habitat for species at risk. We present recommendations intended to mitigate the impact of the proposed development, which will affect lands adjacent to some of these natural heritage and water features. We conclude that provided our recommendations are fully implemented, the development proposal will be consistent with the relevant policies of the Provincial Policy Statement.

1.0 STUDY SCOPE

This environmental impact statement was initiated because of a proposal to develop a boutique hotel and spa, along with 40 associated sleeping cabins, on a parcel of land at 2285 Battersea Road (part of Lots 33 and 34, Concession VI, geographic Township of Kingston.

As identified in our Preliminary EIS (Ecological Services, July 2018), there are unevaluated wetland patches on the property, significant woodland has been identified by the Cataraqui Region Conservation Authority (2006), and we anticipated the potential presence of Significant Wildlife Habitat (SWH) on portions of the site. As well, the natural habitat on the site offers the potential presence of habitat for species at risk.

Based on the proposed concept plan, we considered the potential impact of the proposed development. The focus of the EIS was on the natural heritage features and functions of the area. This entailed site visits to inventory life science features, assess the vegetation communities and the ecological land classification.

2.0 INTRODUCTION

The subject property consists of approximately 13.4 hectares, located approximately 1.3 km ENE of Glenburnie, Ontario, at 2285 Battersea Road, City of Kingston (Figure 1). Ecological Services was contracted to prepare a preliminary environmental impact statement (EIS) for the property (Ecological Services, July 2018), to be followed by a full EIS. This final EIS is based on the proposed development as outlined below.

The Official Plan of the City of Kingston designates the property as 'Rural Lands,' and the property does not include any prime agricultural area. The Zoning By-law zones most of the property as 'A2,' with a small triangular block at the north end as 'A1.' These zones permit agricultural land uses. The development concept proposes a boutique inn, which will be constructed through redevelopment of the existing residential building and associated outbuildings (for uses including a corporate venue, gift shop and suites), and scattered individual cabins through the woodland and shrubland areas (Figure 2).

This EIS has been initiated because the proposed development has the potential to impact natural heritage features of the area. The EIS assesses the potential impact of the proposed development on the ecological features and functions of the site, and its conformity with the Provincial Policy Statement.

2.1 Provincial Planning Policy

The Provincial Policy Statement (PPS) expresses provincial interests on several matters related to planning and development. Issued under Section 3 of the Planning Act (PPS 2014), Policy 2.0 requires that municipalities consider natural heritage features in assessing development proposals. Natural features of potential significance occur on the subject lands. The woodland habitat that is present on the northern half of the property is potentially significant woodland, and envelops an area of unevaluated wetland. As well, the woodland may support wildlife habitat and/or species at risk. Policy 2.1 on Natural Heritage is the main focus of this report.

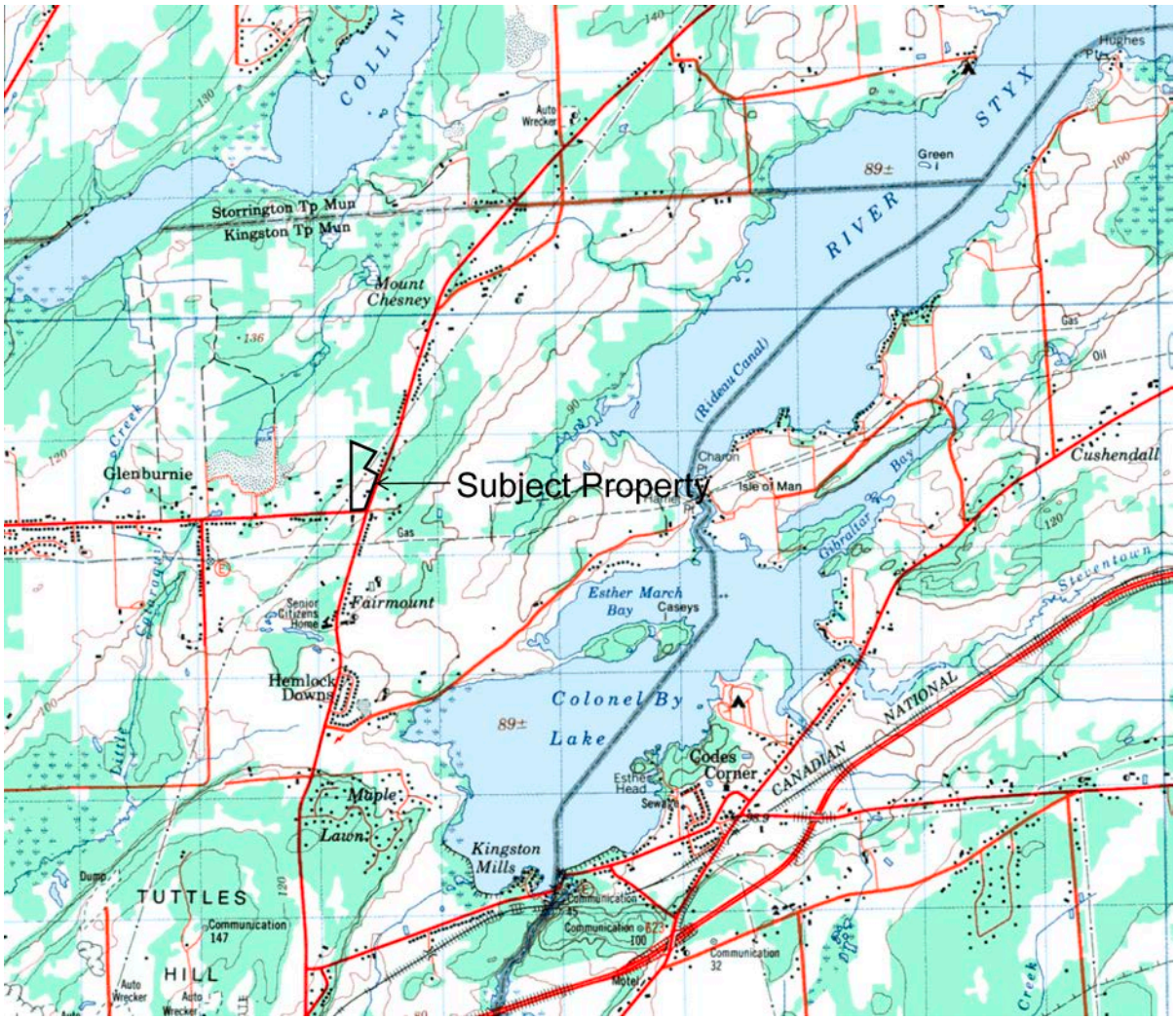

Figure 1. Approximate location of the proposed development. Base image is an annotated detail from topographic map 31 C/8 (Gananoque).

The policies sections that would be of particular relevance to this site are as follows:

Policy 2.1.5 states that:

Development and site alteration shall not be permitted in. . . (b) significant woodlands in Ecoregions 6E and 7E . . . [or] (d) significant wildlife habitat . . . unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Policy 2.1.7 states that:

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

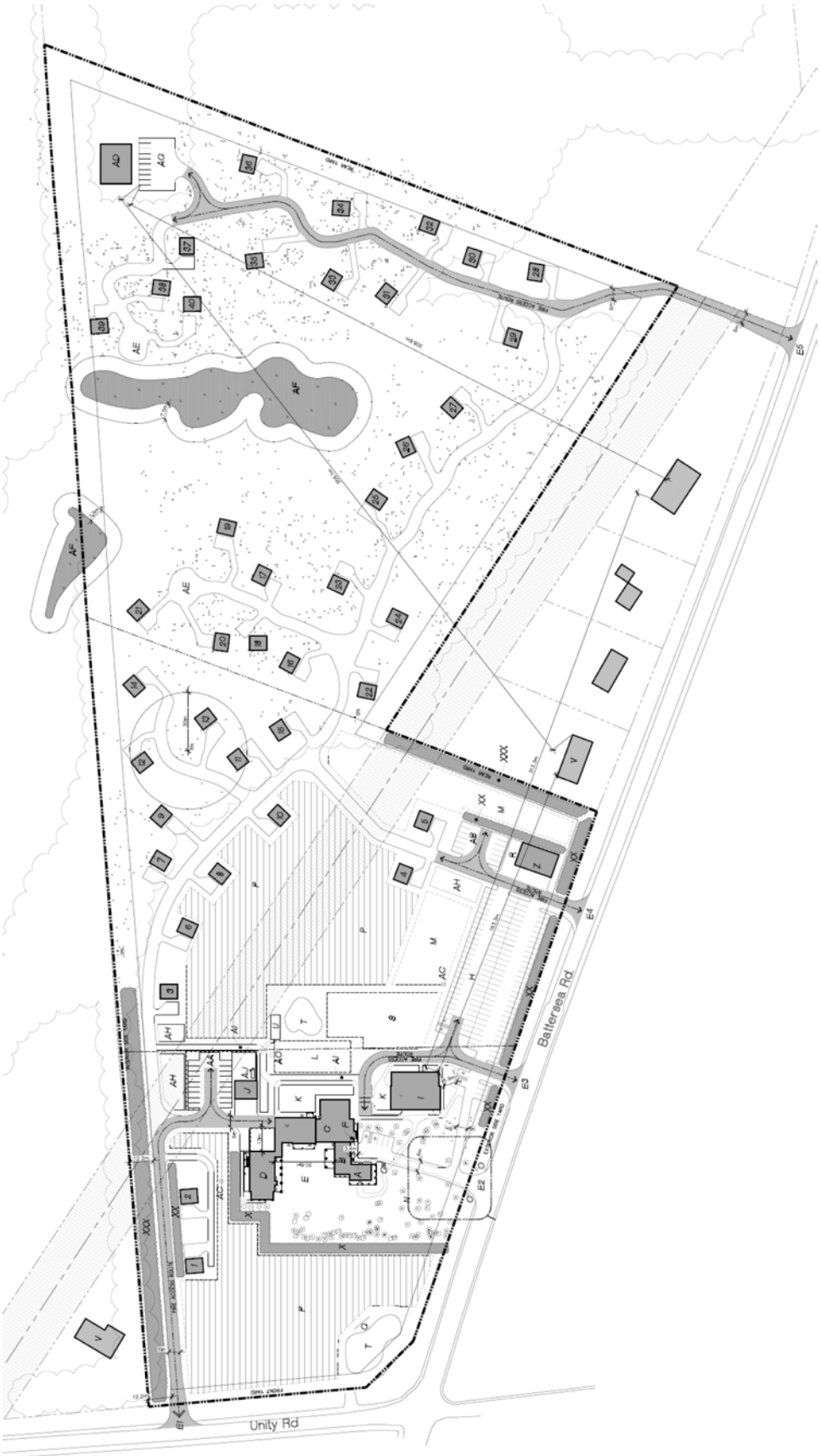

Figure 2. Development concept for the Unity Inn & Spa development. The inn will be associated with the existing house and barn area, and individual small cabin units will be scattered through the woodland and thicket areas. Image is a detail from a design concept prepared by Shoalts and Zaback Architects Ltd, Drawing Number A022, dated January 22, 2019.

Policy 2.1.8 adds that:

Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas ... unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Adjacent lands are defined in the PPS. For Policy 2.1.8, adjacent lands are considered to be:

"…lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have negative impact on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives."

Guidance on assessing natural heritage values for the purposes of the PPS, and on the extent of adjacent lands is provided in a Natural Heritage Reference Manual (NHRM) (OMNR 2010). In the case of all natural heritage features other than earth science areas of natural and scientific interest (ANSI), the recommended adjacent land width is 120 m from the habitat. Site-specific evaluations may allow for greater or lesser distances for adjacent land widths. It should be understood that "adjacent lands" are not required "buffers" or recommended "setbacks," but are lands that require assessment because of their proximity to a natural heritage feature, and their potential importance to protecting those features.

The PPS also speaks to the protection of water in its policy 2.2.

Policy 2.2.1 c) states that:

Planning authorities shall protect, improve or restore the quality and quantity of water by . . . identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed.

Policy 2.2.1 d) states that:

Planning authorities shall protect, improve or restore the quality and quantity of water by . . . maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas.

Policy 2.2.1 h) adds that:

Planning authorities shall protect, improve or restore the quality and quantity of water by . . . ensuring stormwater management practices minimize stormwater volumes and containment loads, and maintain or increase the extent of vegetative and pervious surfaces.

3.0 METHODOLOGY

The procedures used for the EIS were directed at determining the potential impacts to the relevant ecological features and functions of the site from the proposed development of the area.

The fieldwork was conducted by Ecological Services personnel, including Mary Alice Snetsinger and Megan Snetsinger, who made a preliminary visit on April 24, 2018, followed by site visits on May 14, May 17, May 30, August 20, and September 24. Additional sites visits were made by Chris Grooms to specifically survey for avifauna (May 17 and June 1, 2018).

Plants: satellite imagery was reviewed prior to fieldwork, and areas of potential interest identified. The site was traversed on foot and a running tally of plant species was kept, while an estimate of the dominant vegetation communities and vegetation types was made, and the ecological land classification assessed (after Lee *et al.* 1998). It should be noted that Lee *et al.* identify 0.5 hectares as the minimum polygon size mapping unit at a scale of 1:10,000. We have mapped smaller units where it provides more detail about the specifics of the site.

Birds and other Fauna: a running tally of all species observed was kept, and identification was based on calls/song, visual identification, tracks, scat, habitat characteristics, etc. Two visits were made specifically to survey the birds species present.

In assessing species at risk and other species of conservation concern, we reviewed the database of the Natural Heritage Information Center (NHIC). We reviewed the data from UTM squares 18UQ8308 and 18UQ8309, the 1-km^2 squares within which the subject lands are located, as well as those from the surrounding UTM squares. The results informed the field work planned. We also examined other available databases, as described in our preliminary EIS; these included eBird and iNaturalist.

4.0 BACKGROUND INFORMATION

Available background information on the natural heritage resources of this region was reviewed in conjunction with information gathered on site. This review included the report on Areas of Natural and Scientific Interest for Site District 6E-9 (Lindsay 1986), as well as other sources outlined in our preliminary EIS report:

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 August 2009, July 2011, April 2014, September 2015, April 2017, as well as some other imagery that is partially obscured by cloud cover.

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

Municipal Official Plan. The Official Plan for the City of Kingston was reviewed to assess identification of significant woodland and other natural heritage values. <https://www.cityofkingston.ca/documents/10180/541790/OfficialPlan_Schedule8B.pdf/528af114-c31c-4e44-a7cf-4fcc59833304 >

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 >

4.1 Natural Heritage Features

The PPS considers natural heritage features such as wetlands, woodlands, wildlife habitat, areas of natural and scientific interest (ANSI), fish habitat, and habitat for significant wildlife and species at risk.

In reviewing the NHIC website, it was noted that no provincially or regionally significant ANSIs occur on or closely adjacent to the subject lands. The closest identified ANSI is the provincially significant “Cataraqui River Marsh” ANSI, which lies approximately 3.5 km south of the site.

As noted above, the subject property lies within UTM blocks 18UQ8308 and 18UQ8309, and the NHIC database for those squares, as well as nine surrounding ones was checked. No evaluated wetlands were noted in any of the squares. The property is situated between provincially significant wetlands Glenburnie Marsh (1.1 km to the southeast) and the Collins Lake - Inverary Lake Complex (2.1 km to the northwest), and lies within the watershed of the Cataraqui River.

In our review of background material, we also attempted to find any documentation of other natural heritage features to which the PPS would apply. A search of the NHIC database for eleven UTM blocks, including the two 1-km^2 blocks within which the property is located, indicated a few species records; these will be discussed below in the discussion of species at risk in Section 6.3 of this report, and in the discussion of other species of conservation concern in Section 6.2.

5.0 ECOLOGICAL SITE DESCRIPTION

The study area is a parcel of land at the northwest intersection of Unity and Battersea Roads (Figure 1). Portions of the land have historically been used for agricultural purposes, at times as cropland (2011) and at times as grassland/hay (2015). The fields were ploughed and disked in 2018 for the purposes of undertaking archaeological examination. The northern half of the site supports a complex of woodland, wetland, and shrubland. Figure 3 illustrates the primary units

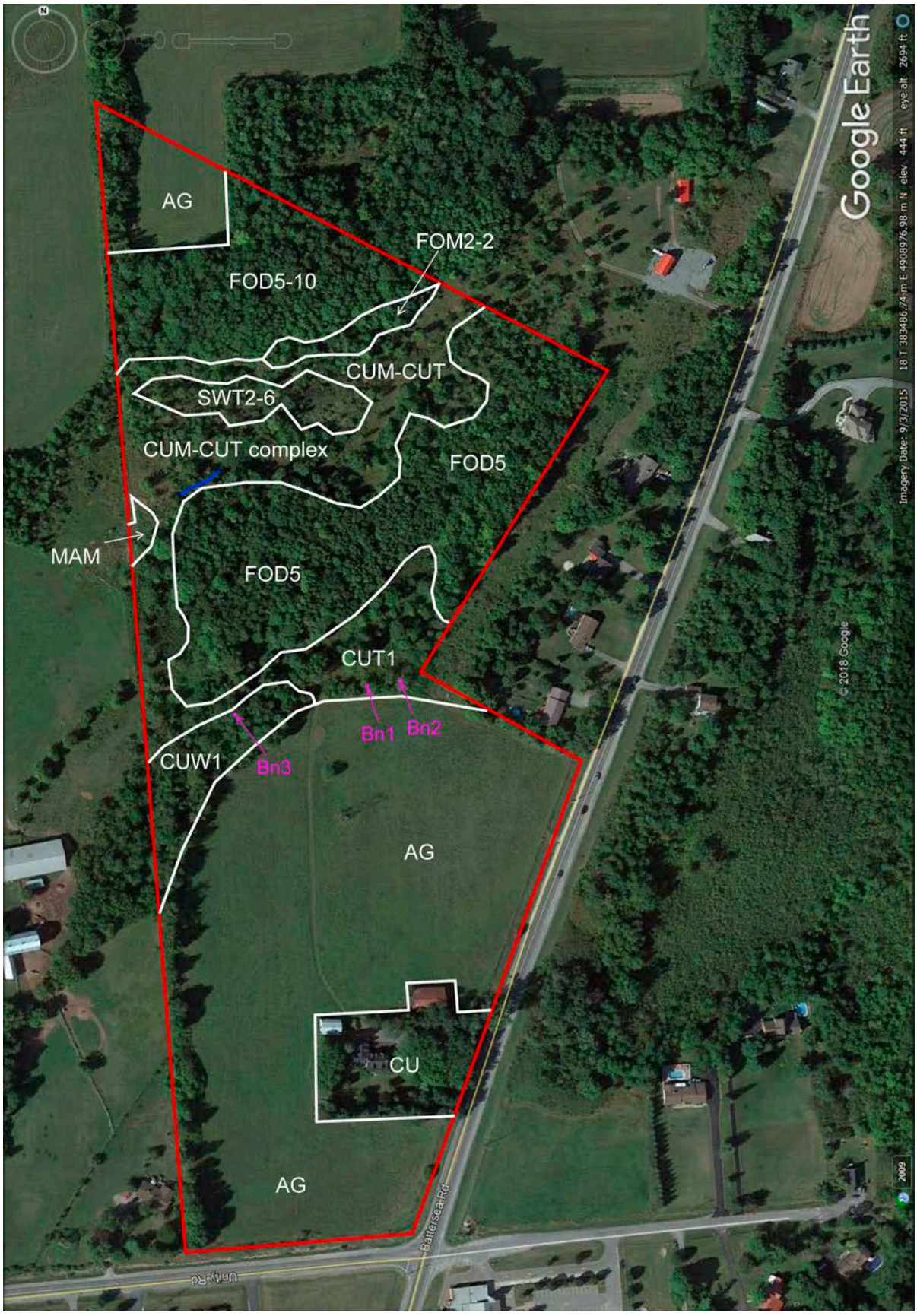

Figure 3. The Ecological Land Classification (ELC) of the subject property (outlined in red), after Lee *et al.* (1998). The ELC codes are: FOM2-2 = Dry - Fresh Hardwood - Hemlock Mixed Forest Ecosite; FOD5 = Dry - Fresh Sugar Maple Deciduous Forest Ecosite; FOD5-10 = Dry - Fresh Sugar Maple - White Birch - Poplar Deciduous Forest Type; SWT2-6 = Meadowsweet Mineral Thicket Swamp Type; MAM = Meadow Marsh; CUM-CUT complex = an ELC complex of Cultural Meadow and Cultural Thicket; CUT1 = Mineral Cultural Thicket Ecosite; CUW1 = Mineral Cultural Woodland Ecosite; AG = Agricultural; and CU = Cultural. The blue line indicates a small stretch of (dug) ditch, and the pink numbered Bn points show the location of the three Butternut trees found. See text for discussion. Base image from Google Earth.

of ecological land classification (ELC) found on the property, based on the approach to ELC classification developed for southern Ontario by Lee *et al.* (1998).

The ELC habitat types listed here represent the most common types within the habitat boundaries represented in Figure 3, but it should be noted that some areas contain patches of different sub-habitats that were too small to be mapped as separate units (Lee et al. recommends a minimum mapping polygon size of 0.5 ha). One area was mapped as a complex, where site vegetation conditions were variable, "represented by two or more communities intermingled in a mosaic that is too complex to map" (Lee et al. 1998). See Appendix A for site photographs.

Dry - Fresh Sugar Maple Deciduous Forest Ecosite (FOD5): the largest woodland block (approximately 2.3 ha), this woodland is located in the central part of the property, north of the agricultural lands and west of the utility corridor. It is dominated by Sugar Maples, but with no clear co-dominant. Other tree species observed were Ironwood, as well as Black Cherry, American Basswood, White Ash, and Hickory. We considered calling this FOD5-4, a site typical of managed or historically grazed sites, but decided there was insufficient presence of Ironwood. Nonetheless, there is evidence of long use in the presence of trails and piled rocks and stacked wood, and in the presence of numerous non-native species: Dame's Rocket, Tartarian Honeysuckle, and Garlic Mustard. We also heard a number of birds in this area, and undertook focused bird surveys as a result.

Dry - Fresh Sugar Maple - White Birch - Poplar Deciduous Forest Type (FOD5-10): the woodland block in the northern part of the site was also dominated by Sugar Maple, but here we found sufficient presence of White Birch to identify the area as a different ELC type. Note that we did not find poplar species to have any significant presence. Approximately 0.65 ha, this was a very open woodland, with Ironwood and Black Cherry also present. During our early spring visit, we found wet areas, but subsequent checks confirmed there was no wetland vegetation present. Portions of this area, particularly at its northernmost limits, may be grading into FOD7, which indicates more moisture in the soils and a transition toward wetland (swamp).

Dry - Fresh Hardwood - Hemlock Mixed Forest Ecosite (FOM2-2): This represented a small portion of the site, at the southern edge of the northernmost woodland block. Here we found similar presence of Sugar Maple, with White Birch and Black Cherry, but with sufficient cover ($\geq$ 25%) of coniferous species, here White Pine, to deem this a mixed woodland rather than a deciduous-dominated one. This area was mapped even though it was only 0.25 to 0.3 ha, as it was the one area on the site where we found any notable presence of coniferous species.

Meadowsweet Mineral Thicket Swamp Type (SWT2-6): the swamp thicket in the center of the northern block was difficult to map, as the interspersion with upland shrub and open old-meadow areas was notable. We eventually staked the boundary of the wetland, and it is shown in Figure 3. This area was dominated by Meadowsweet (*Spiraea alba*), and was hummocky, with very small upland patches throughout. The upland patches tended to be "weedy," with opportunistic species such as dandelions, Motherwort, Buttercup species, Yarrow, and strawberries; one lone Red Cedar was observed on one hummock. The wetland was dominated by Meadowsweet, but sedge species were also observed, along with Red Osier Dogwood and Willow species (including *S. petiolaris and S. bebbii*).

Meadow Marsh (MAM): this was a tiny area at the west edge of the property. The wetland habitat was primarily on the property to the west, but a small area was mapped on the subject site. It was indistinct, and tended to intersperse with the surrounding CUM-CUT complex that is discussed below. The MAM area was hummocky, and dominated by grasses (Reed Canary Grass, Timothy, etc.) with pockets of open water, and higher areas with scattered Prickly Ash and Elm.

Complex of Cultural Meadow and Cultural Thicket (CUM-CUT complex): much of the site was a mosaic of patchy old-field areas and shrub-dominated areas that could not be mapped clearly. This area supported a variety of habitat vegetation and conditions. Evidence of disturbance was more abundant here, with rock piles and dumped garbage, in the presence of species such as Riverbank Grape, Tartarian Honeysuckle, and Red Raspberry. Some areas were more old-field like, with species such as Mullein, Red and Black Raspberries, Yarrow, grass species, Common Strawberry, Queen Anne's Lace, Pussytoes, and Alfalfa; Red Cedar and Tartarian Honeysuckle were often invading. Edge areas had species like Manitoba Maple, Tartarian Honeysuckle, European Buckthorn, Garlic Mustard and Trout Lily. We also found a moderate patch of Dog-strangling Vine, and advised the landowners, should they wish to attempt control measures.

Mineral Cultural Thicket Ecosite (CUT1): between the woodland and the Agricultural fields, we mapped this as a shrub-dominated area, as there was less interspersion of open areas, but it could have been included in the general CUM-CUT complex discussed above. This area was dominated by Prickly Ash, which made it very difficult to access the two Butternut trees that were observed in this area.

Mineral Cultural Woodland Ecosite (CUW1): just over 0.5 ha, this area did not exhibit the necessary canopy closure to be deemed a forest type. Cultural woodlands have between 35% and 60% tree cover (Lee et al. 1998). Here we found Manitoba Maple, American Basswood, and White Ash, with Black Cherry in the subcanopy. Again, we noted signs of disturbance, including an abundance of Garlic Mustard on the ground, and piled rock that may be associated with past agricultural operations. It was what would be termed an "edge habitat."

Agricultural (AG): the southern half of the site, plus a small area in the northwest corner totaled approximately 5.5 ha. When we saw the site in April, it was grass-dominated, but the fields were subsequently plowed for cultural assessment. No grassland species were observed during any of the site visits.

Cultural (CU): the existing residence and its immediate surroundings are designated as cultural in nature, denoting communities that result from or are maintained by cultural or anthropogenic-based disturbances.

6.0 DISCUSSION & ASSESSMENT OF ECOLOGICAL IMPACT

6.1 Wetland Habitat

The Meadowsweet-dominated swamp was small, approximately 0.35 ha in size. We could find no evidence of a connecting riparian system, and concluded that this was an isolated wetland, or a wetland that is defined in the Ontario Wetland Evaluation System (OWES) as having no surface runoff. Such wetlands normally obtain nutrients from precipitation, diffused overland flow, and occasionally groundwater. This type of wetland may be formed in a depression between areas of higher lands.

Given the small size of the wetland, along with its limited diversity, it is unlikely that the wetland could ever be deemed to be significant for purposes of the PPS. In fact, OWES requires a minimum size of 2 hectares for evaluation purposes, and it is too small to meet that base criterion.

It is also noted that we heard few frogs during our spring field visits. On an evening check, we heard Gray Treefrogs and one Chorus Frog calling from adjacent lands to the west. We also

heard American Toads, and Gray Treefrogs calling during daytime visits, and one Chorus Frog calling on property on April 17th. The number of frogs heard calling did not meet thresholds to identify Significant Wildlife Habitat (SWH).

We conclude that this wetland area is not significant wetland for the purposes of the PPS. It does provide wildlife habitat, but does not meet the required thresholds to consider it SWH. It is not appropriate for development, but no development is proposed within the wetland. The development concept (Figure 2) indicates a minimum 7.5 m setback from the wetland, which we find to be adequate given the small size and modest ecological value of the wetland patch.

6.2 Woodland Habitat

The PPS states that: "Development and site alteration shall not be permitted in ... (b) significant woodlands in Ecoregions 6E and 7E ... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions."

The subject lands are located in Site District 6E-9, right on the boundary with 6E-15. It is also right near a watershed divide, with the Cataraqui River to the east, and the Collins Creek system to the northwest, but falling within the Cataraqui River watershed (Dakin, personal communication). Site District 6E-9 retains approximately 69% natural cover, approximately 80 percent of which is forest (Henson and Broadribb 2005). Forest cover for the Cataraqui River watershed is calculated to be 45.2% (Beaubiah, personal communication).

Taking the most conservative approach, we used a 45.2% woodland cover in our analysis of significance with respect to woodland size. OMNR (2010) directs that where forest cover is about 30 to 60% of the land cover, woodlands 50 ha in size or larger should be considered to be significant. The property is located within agricultural lands (Figures 1 and 3), much of which has been cleared for agricultural purposes. Taking the most conservation calculation of area, woodland area that lies partially on the property is limited to 8.4 ha, some 6 ha of which are on the property (forest blocks that are more contiguous in nature lie to the north (approximately 57 hectares, with a minimum separation from the subject property of approximately 60 m) and to the east of Battersea Road (approximately 53 ha, with a minimum separation of approximately 150 m). It is possible that these blocks may be significant, but it is stated that we did not inspect these other woodlands, located on lands owned by others, so offer no opinion on their nature and composition or their ecological integrity. The Natural Heritage Reference Manual (NHRM - OMNR 2010) notes that woodlands are considered to be continuous over gaps of 20 m or less, but the areas of woodland on the subject property are separated by greater gaps from the nearest woodlands. We concluded that this woodland block would not be considered to be significant in size for the purposes of the PPS. We note that this is not consistent with the Cataraqui Region Conservation Authority's Natural Heritage Study (CRCA 2006), which suggests that woodlands on the subject property may be significant for size, but based on our more detailed inspection of the site, we cannot agree with the identification, as the woodland fails to meet the criteria set out in the NHRM.

Woodland Interior: we considered the potential for forest interior on the subject lands. This potential has been compromised due to fragmentation, both natural due to the presence of a shrub

wetland between the woodland areas, and cultural from landscape alteration, the creation of trails, etc. (see Figure 3). We used the 100 m edge limit and 20 m break limit criteria described in OMNR (2010), and included the adjacent woodlands owned by others, and concluded there is no potential interior habitat. We note additionally that there is a threshold criterion of 8 hectares or more of interior habitat to achieve significance (OMNR 2010), and it is our opinion that these woodlands are not significant for interior habitat for the purposes of the PPS.

Proximity to other Woodlands or Habitats: the woodlands are close to other natural heritage features, including the small Meadowsweet wetland patch (approximately 0.35 ha), as well as the woodland areas to the north and east, as discussed above. Patches close to each other are of greater mutual benefit and value to wildlife. However, the woodland on the subject property is not located within 30 m of these other woodlands, and does not meet the minimum size threshold, as specified by OMNR (2010). With respect to proximity, therefore, it is our opinion that this woodland is not significant for the purposes of the PPS.

Linkages: the woodlands lie within a natural heritage system identified in the CRCA's Natural Heritage Study (CRCA 2006), and they may provide a linkage function between the woodlands to the north and east (particularly those to the north as the distance of separation is less, and there is no intervening transportation corridor). The woodlands to the north are within 120 m; the woodlands to the east appear to be greater than 120 m away, but it is possible that some of the existing tree cover within that intervening area may function to reduce that separation. Both these other parcels may meet the minimum size threshold of 50 hectares (based on review of imagery only). Based on linkages, it is our opinion that portions of this woodland *may* be significant, although we find the case to be weak based on the information available to us. We note that in the City's Official Plan, Schedule 8-B uses the CRCA study to identify significant woodland on the property, and indicates a linkage through this general area. As to the ecological *function* of such linkage, both documents are silent (see also section 6.3.5 below).

Water Protection: the NHRM identifies a concern by the province that natural hydrological processes be maintained, outlining several criteria that should be considered in assessing the significance of a woodland. The woodlands on the subject property do not meet any of the specified criteria. Based on water protection, it is our opinion that the woodland is not significant for the purposes of the PPS.

Woodland Diversity: while the woodlands on the subject property do support naturally occurring forest communities that have declined south and east of the Canadian Shield, they do not meet the minimum size requirement. Additionally, they do not exhibit a high native diversity through a combination of composition and terrain. Based on diversity, it is our opinion that this woodland is not significant for the purposes of the PPS.

Uncommon Characteristics and Economic and Social Functional Values: we found that the woodland had a common species composition for southern Ontario, and that none of the species were unusual. No information was found to suggest a high productivity of economically valuable products, a high value in special services (e.g., air quality improvement), or an important identified appreciation, education, cultural or historic value of the woodlands.

Based on the above-noted criteria, it is our opinion that portions of the woodland are *potentially* significant woodland for the purposes of the PPS, through the possible role of a linkage function. It is difficult to make a strong case for this function, as we have made conservative estimates of nearby woodland blocks' size, which barely meet the threshold requirements, and it is not clear that both the blocks actually meet the distance criteria set out in the NHRM. However, we conclude that this is a potential function, and have assessed the proposal accordingly.

The current proposal has been designed to maximize retention of the woodland cover, making use of existing trails for the base of the road network. Maintaining and improving a natural woodland cover is a core design feature, with a goal of providing secluded woodland cabins for a private get-away experience. As noted at the onset of this discussion, the PPS does allow for development within significant woodland, provided that the development will have no negative impacts on the natural features or their ecological functions. The proposal will result in the loss of some trees, but the woodland cover will in general be maintained, allowing the linkage function that it may provide to continue. During redesign, we have sought a minimizing of woodland loss, and continue to recommend that the maintenance of native tree and shrub species be maximized wherever possible on the subject property.

6.3 Wildlife Habitat

The PPS states that: "Development and site alteration shall not be permitted in ... (d) significant wildlife habitat ... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions." The site demonstrably provides wildlife habitat, and we observed a number of common plant and animal species. To be considered significant wildlife habitat (SWH) for purposes of the PPS, a site must meet specific criteria related to its habitat, including: habitats supporting seasonal concentration of animals, rare vegetation communities, specialized habitats for wildlife, habitat for species of conservation concern, and animal movement corridors (set out in OMNR 2000 and OMNR 2012).

6.3.1 Habitat of Seasonal Concentrations of Animals:

OMNR (2000) defines these as follows: "At certain times of the year, some species of wildlife are highly concentrated within relatively small areas." Examples include critical spring and fall stopover areas for migratory birds, winter deer yards, and hibernation sites for snakes. OMNRF (2015) provides specific guidance for Ecodistrict 6E, including ELC codes and defining criteria.

a) Waterfowl Stop-over and Staging Areas (Terrestrial) - no suitable habitat.
b) Waterfowl Stop-over and Staging Areas (Aquatic) - no suitable wetland habitat on the subject property.
c) Shorebird Migratory Stopover Area - no appropriate habitat. This type of habitat is extremely rare and typically has a long history of use. The small patch of MAM habitat is only approximately 0.07 ha in size, it does not exhibit appropriate characteristics, and there is no evidence of large numbers of the listed species.
d) Raptor Wintering Area - an appropriate combination of ELC forest communities (i.e., FOD, FOM and FOC) is not present, and the required upland communities are present only irregular complex on the property. As well, raptor sites need to be > 20 hectares in size, with a

combination of forest and upland, so there is insufficient appropriate area. No stick nests were observed during early spring field work.
e) Bat Hibernacula - none of the required ELC types are present on the subject property.
f) Bat Maternity Colonies - because the northern half of the property has a significant presence of FOD woodlands, there is potential for use by bats. There is no indication of bat colonies, but known locations of forested bat maternity colonies are extremely rare in all Ontario Landscapes. We found a low presence of large diameter (>25 cm dbh) trees, and the threshold of over 10 such trees per hectare was not met, thus this is not SWH for bat maternity colonies. In addition, the design of the project is such that the loss of trees will be minimized (e.g., road placement redesigns have been incorporated to reduce the loss of trees).
g) Turtle Wintering Areas - no suitable habitat. Only the MAM and SWT2-6 vegetation patches fell within an appropriate ELC community class, but no turtles were observed or reported, and threshold criteria for numbers are not met.
h) Reptile Hibernaculum - only two Eastern Gartersnakes were observed during field investigations. No indication was found of any hibernaculum, and a generally low number of snakes was observed on the site.
i) Colonial - Nesting Bird Breeding Habitat (Bank and Cliff) - no suitable habitat.
j) Colonial - Nesting Bird Breeding Habitat (Tree/Shrubs) - no suitable ELC communities were present, and no evidence of nesting sites was observed.
k) Colonial - Nesting Bird Breeding Habitat (Ground) - no suitable habitat.
l) Migratory Butterfly Stopover Areas - while an appropriate combination of ELC communities is present, the area does not meet minimum size or geographic location requirements, and there is no history of butterfly observations.
m) Landbird Migratory Stopover Areas - the woodlot areas do not meet the criteria as SWH, as they must be great than 10 hectares in size and within 5 km of Lake Ontario.
n) Deer Yarding Areas - no suitable combination of ELC communities.
o) Deer Winter Congregation Areas - woodlot does not meet minimum size criteria (woodlots are typically greater than 100 hectares in size).

6.3.2 Rare Vegetation Communities:

a) Cliffs and Talus Slopes - not present.
b) Sand Barren - not present.
c) Alvar - not present.
d) Old Growth Forest - not present.
e) Savannah - not present.
f) Tallgrass Prairie - not present.
g) Other Rare Vegetation Communities - not present.

6.3.3 Specialized Habitats for Wildlife:

a) Waterfowl Nesting Area - no appropriate habitat.
b) Bald Eagle and Osprey Nesting, Foraging and Perching Habitat - none observed during avian surveys, and no evidence of presence. No Bald Eagles reported; one incidental Osprey report (seen while the observer was driving) from 1989 (ebird 2018).
c) Woodland Raptor Nesting Habitat - no interior habitat; no raptors or stick nests observed.

d) Turtle Nesting Area - no appropriate ELC Ecosites on the subject lands.
e) Seeps and Springs - criteria not met in the woodland area.
f) Amphibian Breeding Habitat (Woodland) - vernal ponding was observed in the woodlands to the immediate north of the property, but not on the subject lands themselves. We heard some calling amphibians during April fieldwork, but observed no wetland habitat (see Figure 3).
g) Amphibian Breeding Habitat (Wetlands) - limited habitat on the subject property. Almost all the calling frogs heard during the spring fieldwork were located on lands to the west and north. The required thresholds to identify SWH were not met on the subject property.

6.3.4 Habitat of Species of Conservation Concern:

a) Marsh Breeding Bird Habitat - no appropriate habitat on the property.
b) Woodland Area-Sensitive Breeding Habitat - no appropriate interior habitat (a 200 m limit from edge is used for purposes of SWH). No area-sensitive listed species were observed (see Appendix B). OMNR (2012) specifies that significant habitat is usually mature woodland of greater than 30 hectares, and with interior forest habitat at least 200 m from the forest edge. The subject lands to not meet these criteria.
c) Marsh Breeding Bird Habitat - tiny patch of MAM only, and breeding bird surveys did not confirm species present as set out in criteria.
d) Open Country Bird Breeding Habitat - no appropriate habitat.
e) Shrub/Early Successional Bird Breeding Habitat - no indicator species present; one common species present (1 individual Field Sparrow on June 1), while a minimum of two common species are required to confirm SWH.
f) Terrestrial Crayfish - not applicable.
g) Special Concern and Rare Wildlife Species - species of Special Concern (SC) species are not protected under the *Endangered Species Act*, but are given consideration under the PPS as potential Significant Wildlife Habitat. We discussed potential species of conservation concern in our preliminary study, based upon review of the NHIC database. Of those species, only the Wood Thrush was found during site visits. We also observed a second species of Special Concern (Eastern Wood-Pewee). Both are discussed below.

Wood Thrush (*Hylocichla mustelina*). These birds are listed as a species of Special Concern under both the Species at Risk Act (SARA) and the Endangered Species Act (ESA). The Wood Thrush lives in mature deciduous and mixed forest, preferring moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds were heard several times, including during both breeding bird surveys (three individuals in May and two in June - Appendix B). In Canada, this species has shown significant long-and short-term declines in population abundance. The Wood Thrush is threatened by habitat loss on its wintering grounds and habitat fragmentation and degradation on its breeding grounds. On the breeding grounds the main threats include habitat degradation and fragmentation due to development and over-browsing by White-tailed Deer. It also suffers from high rates of nest predation and cowbird parasitism associated with habitat fragmentation on the breeding grounds. We note that the woodland on the subject property is somewhat fragmented, and that Brown-headed Cowbirds were observed during both avian surveys (Appendix B). Given the proposed low density of development, which relies upon maintaining woodland cover, it is our opinion that the proposed development will result in no additional impact on these birds.

Eastern Wood-pewee (*Contopus virens*). These birds are assessed as a species of Special Concern (SC) under both SARA and the ESA. The Eastern Wood-pewee is a woodland species that typically nests in forest edges. It prefers deciduous woodlands, but can be found in a wide variety of woodlands of different ages, stand compositions, and structures. As a woodland that is primarily composed of edge components, the subject property could provide suitable habitat, and three individuals were seen or heard during our June bird survey. eBird has scattered sightings of this species in this part of Ontario, including a 2003 sighting of a single bird near the Unity and Battersea Roads intersection.

6.3.5 Animal Movement Corridors:

a) Amphibian Movement Corridors - no corridors are present that meet the criteria set out in the guidelines (OMNR 2012).
b) Deer Movement Corridors - no Deer Wintering Habitat present; minimum size criterion cannot be met; and the site does not meet the criterion regarding roads and residential development.

6.3.6 Conclusion:

In conclusion, the subject lands provide wildlife habitat for a number of woodland species, but the lands do not meet the criteria set out in the OMNR guidelines (2000; 2010; and 2015); therefore, it is our opinion that the wildlife habitat on the property is not significant for the purposes of the PPS. Despite the possible linkage role played by the woodlands, when tested by specific criteria, it does not meet SWH thresholds for animal movement corridors.

In general, the site provides some woodland habitat, and has ecological value in this regard. Most of the animals observed or heard on the site were common and relatively insensitive species, but it is possible that species of conservation concern may be present even though they were not observed. More importantly, it should be recognized that the site provides temporary or permanent habitat for many of the birds protected under the *Migratory Birds Convention Act*.

It is recommended that removal of trees be minimized on this property, and be restricted to identified building envelopes. This is consistent with the proposal, for which the maintenance of the existing woodland is an important factor. All removal of woody vegetation (trees or shrubs) should be conducted during the fall and winter period to preclude impacts to nesting birds, and it is specifically recommended that no removal of woody vegetation occur between April 15 and July 31 in order to comply with the requirements of the *Migratory Birds Convention Act*.

6.4 Habitat for Species at Risk

The PPS states that: “Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.”

We reported in the preliminary report that we had then observed no Butternut trees, but we did find and assess three on the property after our full assessment. Butternut (*Juglans cinerea*) is

designated as an Endangered species under both *SARA* and the *ESA*. The Butternut is a small to medium sized tree that may be found to grow on rich loamy soils, as well as drier, rocky soils of limestone origin. It is a shade-intolerant species that is not typically found in pure stands, but that may be locally abundant in deciduous forests. The primary threat to this species being a fungal disease called Butternut Canker, which causes multiple cankers and eventually girdles the trees. Butternut trees that are growing vigorously even though they may be infected with the canker are considered essential to the recovery effort. It is for this reason that naturally-occurring, non-retainable butternut trees can only be removed after the tree has been identified as such by a designated Butternut Health Assessor (BHA).

The locations of the three identified trees are indicated in Figure 3. We conducted health assessments on the three trees, and the informal results are included in Appendix C. Two of the three trees were badly affected by canker, and were found to be "non-retainable" trees. This means that they are not considered to be viable trees. If their removal is required or desired, the health assessments must be formally submitted to the Province. After a 30 day period, provided the Province has made no response to the contrary, the trees may be cut without further requirement under the Endangered Species Act.

The third tree was found to be a "retainable" tree, which means that although it was affected by canker, it could be capable of surviving. If removal is required or desired, the health assessments must be formally submitted to the Province. After a 30 day period, provided the Province has made no response to the contrary, the removal of up to ten trees can go ahead under the Endangered Species Act, but the activity must be registered, and there are requirements for planting and monitoring of replacement trees. Given that this is an area where some of the small cabins are proposed, it would be more appropriate to adjust the location of a cabin or cabins such that the Butternut tree is not impacted.

We recommend that the placement of the cabins in this area of the property by adjusted, if needed, to ensure that no cabin is located within 30 m of the identified Butternut tree.

Further, the proponent is advised that if any other Butternuts are observed, they cannot be removed prior to a health assessment by a designated BHA undertaken in an appropriate season, and following provincial protocols. Given the low density of development, and assuming the implementation of appropriate setbacks and buffers, it is our opinion that the proposed development will have no impact on these trees.

6.4.1 Natural Heritage Information Center Reports

The subject property lies within UTM blocks 18UQ8308 and 18UQ8309 in the NHIC database, but we also reviewed the reports in the surrounding blocks. Information found therein is not geographically specific, due to the sensitive nature of some species, so we do not know the specific location of these sightings. We found few reports; these were discussed in our preliminary impact study, and particular effort was made to confirm or refute their presence on the property. We found no habitat for or presence of Bobolinks or Eastern Meadowlarks, and no evidence of breeding by Barn Swallows. The Wood Thrush was discussed in our assessment of Significant Wildlife Habitat above.

6.4.2 Other Species at Risk Potentially Present

More than 200 species of plants and animals are at some level of risk in Ontario, and the Endangered Species Act has been established to provide tools for recognizing and protecting these species and their habitat. On any natural site with diverse topography, largely natural vegetation cover and relatively little disturbance, the probability of species at risk being present is higher than in more disturbed or cultural sites. Much of the Unity Inn & Spa site is cultural in nature, and the woodlands show moderate levels of disturbance and cultural alteration. The fact that other species at risk were not observed does not guarantee that none are present, but we have considered all species for which there have been any reports, all species observed during our field visits, and any other species for which we have reason to believe they occur in the region. We checked for the presence of species (e.g., Eastern Whip-poor-wills) that we felt might be possible, and found none beyond the information provided above.

From our review of these species and the characteristics of the site, it appears that the most probable location for species at risk or species of conservation concern would be associated with the woodlands. This emphasizes the importance of minimizing tree loss across this site, and of establishing minimum setbacks from and maintaining an effective buffer of natural vegetation along the wetland areas.

6.5 Other Natural Heritage Features

The PPS considers several other natural heritage features and areas that should be protected. These include significant wetlands, significant valleylands, areas of natural and scientific interest, and fish habitat. There were no significant wetlands, ANSIs, or fish habitat on or adjacent to the subject property. No valleylands are present on the property.

7.0 RECOMMENDATIONS

1. It is recommended that a minimum setback of 7.5 m should be maintained around the small wetland patch, and that the setback be maintained as a “no-cut” zone, within which no removal of trees or shrubs is permitted.

2. It is recommended that tree removal be minimized for protection of the possible linkage function of the woodland habitat and for the protection of species of conservation concern that are or may be present. The identification of defined building envelopes for the small cabins should be part of this approach, prohibiting the landowners from clearing trees and shrubs outside the specified envelope.

3. It is recommended that any necessary vegetation removal be conducted during the fall and winter period to preclude impacts to nesting birds, and that no removal of woody vegetation (trees or shrubs) occur between April 15 and July 31 in order to comply with the requirements of the Migratory Birds Convention Act.

4. If the removal of any of the three identified Butternut trees is required, an official submission of the BHA assessment must be made prior to that removal, and all applicable requirements met.

5. It is recommended that the retainable Butternut tree be protected from impact by plan amendment, if required, such that no cabin is located within 30 m of the tree.

6. If any additional Butternut tree is encountered, such trees cannot be removed prior to a series of required steps: a health assessment must be completed by a designated BHA and undertaken in an appropriate season; the assessment must be submitted to the appropriate office; and provincial protocols must subsequently be followed, which vary depending upon its assessed health category, if the tree is to be removed.

8.0 IMPACT STATEMENT

8.1 Significant Woodlands

Key Question: will the proposed development of the subject property cause impact to significant woodlands in contravention of the Provincial Policy Statement?

No Loss of Significant Woodlands: it is our opinion that portions of the forest present on the subject property may be considered to be significant woodland based on the criteria established by the Ministry of Natural Resources and Forestry (OMNR 2010), and thus for purposes of the PPS. Linkages are the only aspects of this woodland that may be significant, and we note that the case is weak. Protection of the woodland cover is an important aspect of the project proposal, and the small cabins are intended to be scattered for privacy. The loss of tree cover will be modest, and the general maintenance of the woodland will allow such linkage function as the woodland may have to continue.

Site Alteration within Adjacent Lands: OMNR (2010) defines ‘adjacent lands’ for the purposes of the PPS as the area within 120 m of an identified significant woodland. As development is proposed within 120 m of the woodlands on the property and that on adjacent lands owned by others, there will be development within adjacent lands.

The PPS permits development within and adjacent to significant woodland if it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions. Implementation of our recommendations to minimize tree loss and to identify building envelopes outside of which tree cutting is prohibited will mean the loss of tree cover is minimized. The potentially significant ecological function of the woodland area on the subject property is the provision of linkages. We recommend several measures to reduce the potential for impacts to these functions: linkages (minimize clearing of trees, and identify permitted development envelopes). The adjacent lands are already cleared, and altered land use will have no impact on any linkage function within the woodland.

If the implementation of these and other recommendations is enforced, it is our opinion that the loss of woodland will be minimized along with impacts to its ecological functions. In our opinion, the proposed development is consistent with policies 2.1.5 b) and 2.1.8 of the PPS.

8.2 Significant Wildlife Habitat

Key Question: will the proposed development of the subject lands cause any impact to significant wildlife habitat in contravention of the Provincial Policy Statement?

No Loss of Significant Wildlife Habitat: it is our opinion that the wildlife habitat on the property is not significant wildlife habitat, as set out in the criteria established by the Ministry of Natural Resources and Forestry (OMNR 2010).

No Site Alteration within Adjacent Lands: OMNR (2010) defines 'adjacent lands' for the purposes of the PPS as the area within 120 m of identified significant wildlife habitat. No SWH has been identified, and most of the adjacent lands are cleared for agricultural purposes. The only exception is the contiguous woodland to the north of the subject property (approximately 1.5 ha, not examined as it is private property owned by others), but it is assumed that it is generally consistent with the woodland on the property, as it appears to be on satellite imagery.

The PPS does permits development within significant wildlife habitat if it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions. We recommend measures to reduce the potential for impacts to wildlife habitat and its ecological functions (minimizing the clearing of trees, identification of permitted development envelopes, and a protected buffer zone (no cutting) adjacent to the wetland).

If the implementation of these and other recommendations is enforced, it is our opinion that the proposed development will be consistent with policies 2.1.5 d) and 2.1.8 of the PPS.

8.3 Significant Habitat of Endangered and Threatened Species

Key Question: will the proposed development of the subject property cause impact to significant habitat of endangered and threatened species in contravention of the Provincial Policy Statement?

No Loss of Significant Habitat: it is our opinion that there is no habitat on the property for species at risk, based on the criteria established by the Ministry of Natural Resources and Forestry (OMNR 2010). The only species confirmed present is the Butternut tree, and mitigation measures can be applied to ensure that development and site alteration will proceed only in accordance with provincial and federal requirements. As there will be no development in habitat for species at risk, it is our opinion that the proposal will be consistent with the PPS.

No Site Alteration within Adjacent Lands: OMNR (2010) defines 'adjacent lands' for the purposes of the PPS as 120 m of area adjacent to identified habitat for species at risk. The PPS permits development adjacent to significant habitat for at-risk species only if it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions. Protection of the Butternuts will be achieved through modification of cabin locations, if needed, to ensure that the trees will be protected in accordance with provincial and federal requirements.

Provided that the recommendations of this report are implemented, it is our opinion that the proposed development of these lands will be consistent with policies 2.1.7 and 2.1.8 of the PPS.

9.0 CONTACTS, REFERENCES AND LITERATURE CITED

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Appendix A. Site photographs, taken by report author on May 17, 2018 unless otherwise indicated.

Photo 1. View of the ploughed field (AG) that characterizes much of the southern half of the site.

Photo 2. View of the house and immediate grounds, designated as Cultural (CU).

Photo 3. A view of part of the deciduous forest (FOD5) in the central portion of the site.

Photo 4. View of the deciduous woodland (FOD5-10) in the northern part of the site.

Photo 5. View of the shrub wetland (SWT2-6) found in the northern half of the site.

Photo 6. View of the Cultural Woodland (CUW) area. Note the exposed rock in this area.

Appendix B. Bird lists combined from breeding birds surveys on May 17 and June 1, 2018. SC indicates a species of Special Concern; THR indicates a species that is Threatened.

Species Observed	**SAR**	**May 17**	**June 1**
Red-winged Blackbird (Agelaius phoeniceus)		x	x
Mallard (Anas platyrhynchos)		x	x
Ruffed Grouse (Bonasa umbellus)		x	x
Northern Cardinal (Cardinalis cardinalis)		x	x
Killdeer (Charadrius vociferus)			x
Eastern Wood-Pewee (Contopus virens)	SC		x
American Crow (Corvus brachyrhynchos)		x	x
Blue Jay (Cyanocitta cristata)			x
Pileated Woodpecker (Dryocopus pileatus)		x	x
Gray Catbird (Dumetella carolinensis)		x	x
Common Yellowthroat (Geothlypis trichas)		x	x
Barn Swallow (Hirundo rustica)	THR		x
Caspian Tern (Hydroprogne caspia)			x
Wood Thrush (Hylocichla mustelina)	SC	x	x
Baltimore Oriole (Icterus galbula)		x	
Ring-billed Gull (Larus delawarensis)		x	x
Song Sparrow (Melospiza melodia)		x	x
Black-and-white Warbler (Mniotilta varia)			x
Brown-headed Cowbird (Molothrus ater)		x	x
Great Crested Flycatcher (Myiarchus crinitus)		x	x
Indigo Bunting (Passerina cyanea)			x
Savannah Sparrow (Passerculus sandwichensis)			x
Scarlet Tanager (Piranga olivacea)		x	x
Ovenbird (Seiurus aurocapilla)			x
Chestnut-sided Warbler (Setophaga pensylvanica)		x	x
White-breasted Nuthatch (Sitta carolinensis)		x	
American Goldfinch (Spinus tristis)			x
Chipping Sparrow (Spizella passerina)		x	
Field Sparrow (Spizella pusilla)			x
European Starling (Sturnus vulgaris)		x	
House Wren (Troglodytes aedon)		x	
American Robin (Turdus migratorius)		x	x
Red-eyed Vireo (Vireo olivaceus)		x	x
Mourning Dove (Zenaida macroura)			x
White-throated Sparrow (Zonotrichia albicollis)			x

Appendix C. Butternut Health Assessments for the Butternut trees observed on the Unity Inn & Spa site. Note that these are informal assessments unless officially submitted to the Province as required.

BHA Tree Analysis (version: December 2013)

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #	**1**	**Assessment Date(s)**	**24-Sep-18**	**Total # Butternut Trees in BHA Report**	**3**
BHA ID #	**133**	**BHA Name**	**Mary Alice Snetsinger**		
Landowner / Client Name			**BPE Developments**		
Property Location		**NW Corner of Unity and Battersea Roads, Kingston, Ontario**			

input field data										automatic calculations from field data						**Categories: 1: non-retainable, 2: retainable, 3: archivable**				
Tree #	Live Crown %	Tree dbh (cm)	# bole cankers: sooty (S) (will be assigned 2.5 cm per canker)		# bole cankers: open (O) (will be assigned 5 cm per canker)		# root flare (RF) cankers		<40 m from cankered tree? **(Y or N)**	**Circ.** (cm) = Pi x dbh	total **bole canker width** (sooty x 2.5 + open x 5)	total **RF canker width** (sooty x 2.5 + open x 5)	bole canker **%** of circ.	RF canker **%** of circ.	total bole & root canker % of 2xCirc	LC% >/= 50 & BC% = 0	LC% >70 & BRC% <20	LC% >70 & BC% <20	**Preliminary tree call**	**FINAL TREE CALL** a Cat 2, dbh>20cm <40m from a Cat 1
			S <2 m	S >2 m	O <2 m	O >2 m	RF S	RF O		**Circ** (cm)	**BC** (cm)	**RC** (cm)	**BC%**	**RC%**	**BRC%**					
1	15	23	14	3	4	0	0	0	y	72.2	62.5	0.0	**86.5**	**0.0**	**43.3**	1	1	1	**1**	**1**
2	30	48	12	5	11	3	0	0	y	151	112.5	0.0	**74.6**	**0.0**	**37.3**	1	1	1	**1**	**1**
3	75	26	3	1	0	0	0	0	n	81.6	10.0	0.0	**12.2**	**0.0**	**6.1**	1	2	2	**2**	**2**
4										0	0.0	0.0	**####**	**####**	**####**	###	###	###	**##**	**#DIV/0!**
5										0	0.0	0.0	**####**	**####**	**####**	###	###	###	**##**	**#DIV/0!**
6										0	0.0	0.0	**####**	**####**	**####**	###	###	###	**##**	**#DIV/0!**

Appendix D. CVs of Ecological Services personnel.

CURRICULUM VITAE OF MARY ALICE SNETSINGER

Environmental Consultant
3803 Sydenham Rd.
Elginburg, Ontario
K0H 1M0
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Email: mail@ecologicalservices.ca

Employment

1993 - present: Environmental Consultant
Specializing in the preparation of strategic planning documents, natural areas management plans, environmental impact assessments, fish habitat assessments, and floral and faunal resource inventories.

2001 - 2002: Fish Habitat Biologist. Fisheries and Oceans Canada. Prescott, Ontario.
Reviewed referrals for works affecting fish habitat, preparing letters of advice and Authorizations under the *Fisheries Act.*

1993 - 1997: Ecosystem Management Coordinator. Parks Canada, St. Lawrence Islands National Park. Mallorytown, Ontario.
Coordination of ecosystem management pilot project for Ontario region. Responsible for project coordination, contract development and supervision, and liaison with federal, provincial/state, and local governments (Canadian and American), and with non-government organizations such as land trusts. Prepared an Ecosystem Conservation Plan to guide the park in the conservation and management of natural and cultural resources from an ecosystem perspective.

1981 - 1993: Biologist, Environmental Planner, and Planning Supervisor. Cataraqui Region Conservation Authority. Kingston, Ontario.
Positions of increasing responsibility, with a focus on environmental land use planning from 1984 to 1993. Held position of Planning Supervisor from 1990 to 1993. Developed a Conservation Strategy to guide the Authority in its natural resource conservation actions.

Education

M. Sc., Biology, Queen's University. Kingston, Ontario.
B. Sc., Biology, Queen's University. Kingston, Ontario.

Certifications

Various certifications, including certification as Ontario Wetland Evaluation Assessor, Butternut Health Assessor, MTO/DFO/OMNR Fisheries Protocol Training Session for Fisheries Specialists.

Affiliations

Land Conservancy for Kingston, Frontenac, Lennox & Addington – Vice-President (2004 to present).
Director, Ontario Land Trust Alliance (2010 to 2013).

CURRICULUM VITAE OF MEGAN SNETSINGER

Environmental Consultant
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Employment

2010–Present: **Environmental Consultant**; Ecological Services
Evaluating sites of proposed development against natural heritage requirements: ecological land classification analysis, environmental impact assessments, species inventories (plants, herpetofauna).

2014: **Environmental Technician**; Ainley Group
Performing environmental impact studies for infrastructure restoration projects: species at risk assessment, ecological land classification analysis, species inventories (plants).

2017–Present: **Teaching Assistant**; Queen's University, BIOL 205, 206, 321, 440
Preparing and presenting tutorial and/or laboratory material to undergraduate students, grading tests and reports.

2011–Present: **Greenhouse Caretaker**; Queen's University, Biosciences Complex Phytotron
Watering greenhouse plants and monitoring environment-regulation equipment.

2014–2017: **Graduate Student**; Queen's University, Dr. Stephen Lougheed's Lab
Researching Butler's Gartersnakes and population dynamics.

Education

2014–2017 **M.Sc. Biology (granted Sept. 2017)**, Queen's University, Kingston, Ontario.
Genetic structure and connectivity of the endangered Butler's Gartersnake (Thamnophis butleri) across the fragmented landscape of Southwestern Ontario.

2009–2014 **B.Sc. Hons. Biology & Mathematics**, Queen's University, Kingston, Ontario.

2009–2013 **B.A. French Studies**, Queen's University, Kingston, Ontario

Certifications

2015: **Ecological Land Classification Training**, Conservation Ontario, Ministry of Natural Resources and Forestry
2014: **Ontario Reptile and Amphibian Field Survey and Training**, Nature Conservancy of Canada

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Employment

2006 – present: Research Assistant. Paleoecological Environmental Assessment and Research Laboratory, Queen's University

Duties include high arctic fieldwork, laboratory safety, maintenance and supply, data management, figure design for publication, website design, computer and analytical machine operation and maintenance.

2003 - 2005: Coordinator, Eastern Region. Ontario Nature - Federation of Ontario Naturalists.

Duties included liaison to other members groups, partners and the public; working with member groups and other conservation organizations to promote conservation, land stewardship and nature education; helping member groups with project planning, fundraising and public profile; and promoting the policies and vision of Ontario Nature.

1992 – 2003. Habitat Stewardship and Ornithological Experience. Contracts with the Canadian Wildlife Service, Ontario Ministry of Natural Resources (MNR), Wildlife Preservation Trust Canada, and Bird Studies Canada.

Worked with the endangered Loggerhead Shrike; coordinated habitat stewardship projects, the Napanee Recovery Action Group, population surveys and landowner contact efforts; monitored nests, oversaw the colour banding study, mapped shrike habitat, selected future shrike reintroduction sites, and wrote reports on the status of shrikes; and supervised the first experimental reintroduction of captive-bred shrikes to the wild.

Ontario Power Generation: inventory of the fauna of the Lennox Generating Station property.

Nature Conservancy of Canada: inventory of breeding birds and amphibians at Burnley Carmel Nature Reserve near Rice Lake, Ontario.

Acres & Associated Environmental Limited: bird usage inventory of proposed wind farm sites on Wolfe Island, Ontario, and a bird inventory for a proposed wind site on Amherst Island, Ontario.

Lower Trent Region Conservation Authority: documented nesting sites of Red-shouldered Hawks in five townships in eastern Ontario for the MNR over three years.

Education

B.Sc., 1998 (Biology), Queen's University. Kingston, Ontario.

Affiliations

Past President, Kingston Field Naturalists