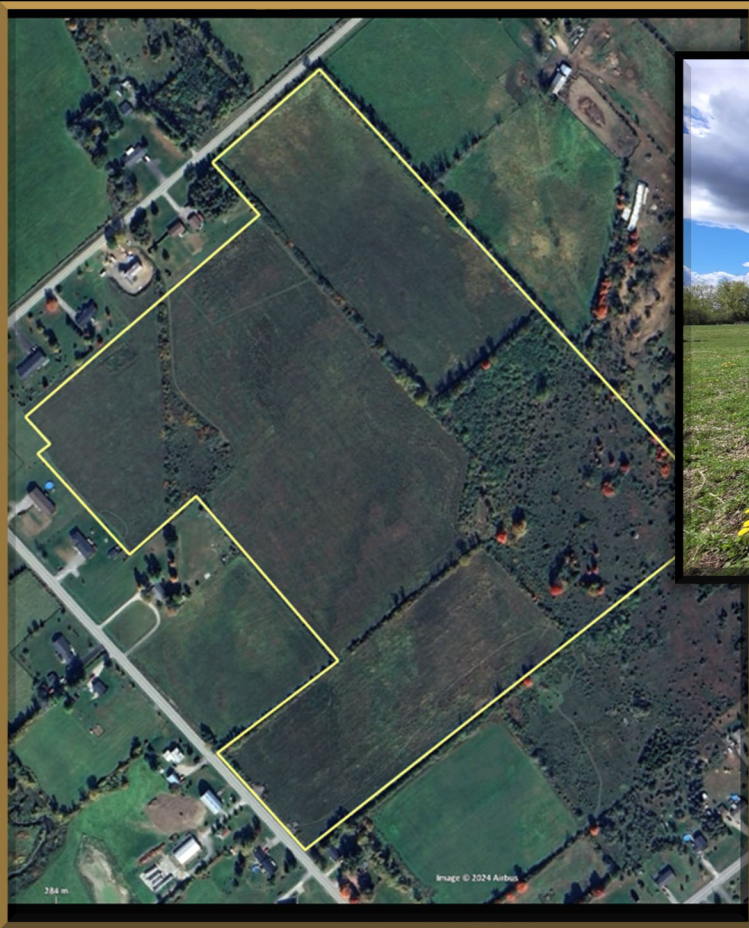




EFI

ENGINEERING
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PROCESS PROFESSIONALS

Environmental Impact Study

Rosedale Road/Matheson Drive - Revised

Prepared For: Smart Homes Ottawa Inc.

Subdivision Located At: Lot 20, Concession 3
in Montague Township

Prepared by: Tracey Geneau, Sr Biologist
BSc., Fish & Wildlife Technician, O.W.E.S.

Revision Date: June 2025

EXECUTIVE SUMMARY

Smart Homes has initiated a project to develop a new subdivision in Montague Township, specifically at Lot 20, Concession 3. The subdivision is planned to include several homes with access points from both Matheson Drive and Rosedale Avenue. To ensure the development meets environmental standards and regulations, Smart Homes engaged EFI Engineering to conduct an Environmental Impact Study (EIS).

The primary objective of this EIS is to ensure the proposed subdivision aligns and complies with federal, provincial, and municipal policies, including:

- Migratory Birds Act (2022)
- Fisheries Act (2019)
- Ontario Planning Act, R.S.O. 1990, c. P.13
- Provincial Policy Statement (MMAH, 2020)
- Species at Risk Act (Canada, 2002)
- Endangered Species Act (Ontario, 2019)
- Natural Heritage Reference Manual (OMNR, 2010)
- Township of Montague Official Plan (2023)
- Lanark County Sustainable Communities Official Plan (2012)

A combination of desktop research and field studies were used to assess the site. The property was divided into four vegetation polygons, and investigations included breeding bird surveys, habitat evaluations, and passive acoustic monitoring. No significant wetlands or woodlands were found on the property, although a small pond was identified in the southeast corner. Habitat assessments and field surveys confirmed that the site does not contain significant wildlife habitat or movement corridors.

No Species at Risk (SAR) were observed on the site or within adjacent lands (120 m), with the exception of a single Monarch butterfly (Special Concern). While several patches of milkweed were present, no Monarch larvae or chrysalides were detected during field surveys. As only one adult butterfly was observed and no breeding evidence was found, the area does not constitute significant Monarch habitat.

Although a nearby landowner reported past sightings of Eastern Meadowlarks, these were not observed during fieldwork, and the site lacks the open, contiguous grassland structure typically required by the species for nesting.

To minimize potential ecological impacts, a comprehensive suite of mitigation measures is recommended. These include:

- Seasonal restrictions for vegetation clearing and pond removal to avoid disturbance to breeding birds, roosting bats, and amphibians

- Passive acoustic monitoring supplemented visual surveys and allowed for broader temporal coverage, particularly for nocturnal species such as bats and nighthawks
- Pre-clearing wildlife sweeps conducted by a qualified biologist if construction must occur outside ideal timing windows
- Exclusion fencing to prevent turtle access, including a secondary barrier around the pond before overwintering season
- Vegetation restoration using native grasses, shrubs, trees, and milkweed to support pollinators, stabilize soil, and enhance ecological connectivity
- Sensitive construction of stormwater features with vegetated buffers and minimal disturbance to adjacent areas
- Daily wildlife sweeps, contractor training, spill containment protocols, and ongoing monitoring and documentation throughout the construction period.
- If any Species at Risk (SAR) individuals are encountered, all work in the vicinity must stop immediately until a qualified biologist has assessed the situation and appropriate measures have been implemented.

By following the mitigation strategies outlined in this EIS, the project is expected to proceed with minimal impact to local biodiversity, while meeting all applicable environmental policy requirements.

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1.0 INTRODUCTION AND OBJECTIVE

1.1 BACKGROUND

EFI Engineering was retained by Smart Homes Ottawa Inc. to complete a full Environmental Impact Study (EIS) in support of a proposed residential subdivision located at Lot 20, Concession 3 in Montague Township. The subject property is approximately 23.5 hectares (56.9 acres) in size and is located at the intersection of Rosedale Road South and Matheson Drive, immediately east of the Town of Smiths Falls. The lands are situated within the Rosedale Settlement Area, which is identified for residential growth in the Montague Township Official Plan.

The proposed development includes the creation of 41 single-detached residential lots, serviced by private wells and septic systems. The subdivision plan incorporates local road connections, a stormwater management facility in the southwest portion of the site, and landscaped open space areas. A concurrent zoning by-law amendment has been submitted to rezone the lands from Rural (RU) to Rural Residential (RR), with site-specific provisions to accommodate the draft plan of subdivision.

A full EIS was required as part of the development approval process to assess potential impacts on adjacent natural heritage features, including Significant Wildlife Habitat and a mapped Natural Heritage Corridor. The purpose of this study is to evaluate existing ecological conditions, identify potential constraints to development, and provide recommendations to avoid or mitigate negative environmental impacts.

Field surveys were completed by EFI Engineering in spring and summer 2024 to document vegetation communities, wildlife use, and potential habitat for Species at Risk (SAR). The EIS has been prepared in accordance with the Provincial Policy Statement (2024), the Lanark County Sustainable Communities Official Plan, and the Montague Township Official Plan.

This report presents the results of field investigations, desktop review, and policy analysis to support informed land use planning decisions and ensure that the proposed development proceeds in a manner that conserves natural heritage features and ecological functions.

1.2 OBJECTIVE

The primary objective of this Environmental Impact Study (EIS) is to assess the potential environmental impacts associated with the proposed 41-lot residential subdivision on Lot 20, Concession 3 in the Township of Montague (Figure 1). The development includes the construction of residential dwellings, associated road infrastructure, private servicing (wells and septic systems), and a stormwater management facility within a 23.5-hectare parcel located at the intersection of Rosedale Road South and Matheson Drive.

This EIS has been prepared to ensure conformity with the Provincial Policy Statement (PPS), 2024, the Montague Township Official Plan, the Lanark County Sustainable Communities Official Plan, and all other applicable municipal and provincial environmental policies. The assessment evaluates natural heritage features within and adjacent to the Subject Site, including Significant Wildlife Habitat and identified Natural Heritage Corridors, with consideration of potential direct and indirect

impacts resulting from the proposed development.

The study also considers the relevant requirements of the Endangered Species Act (ESA) and the federal Species at Risk Act (SARA), particularly with respect to the presence of suitable habitat for SAR and the need for protection of ecological functions. Appropriate mitigation measures and design considerations are recommended to support the conservation of ecological features while facilitating responsible residential development.

In addition to field-based assessments completed during the 2024 growing season, this EIS integrates background review and policy analysis to ensure that the proposed subdivision aligns with land use planning objectives and environmental stewardship goals for the Township and County.

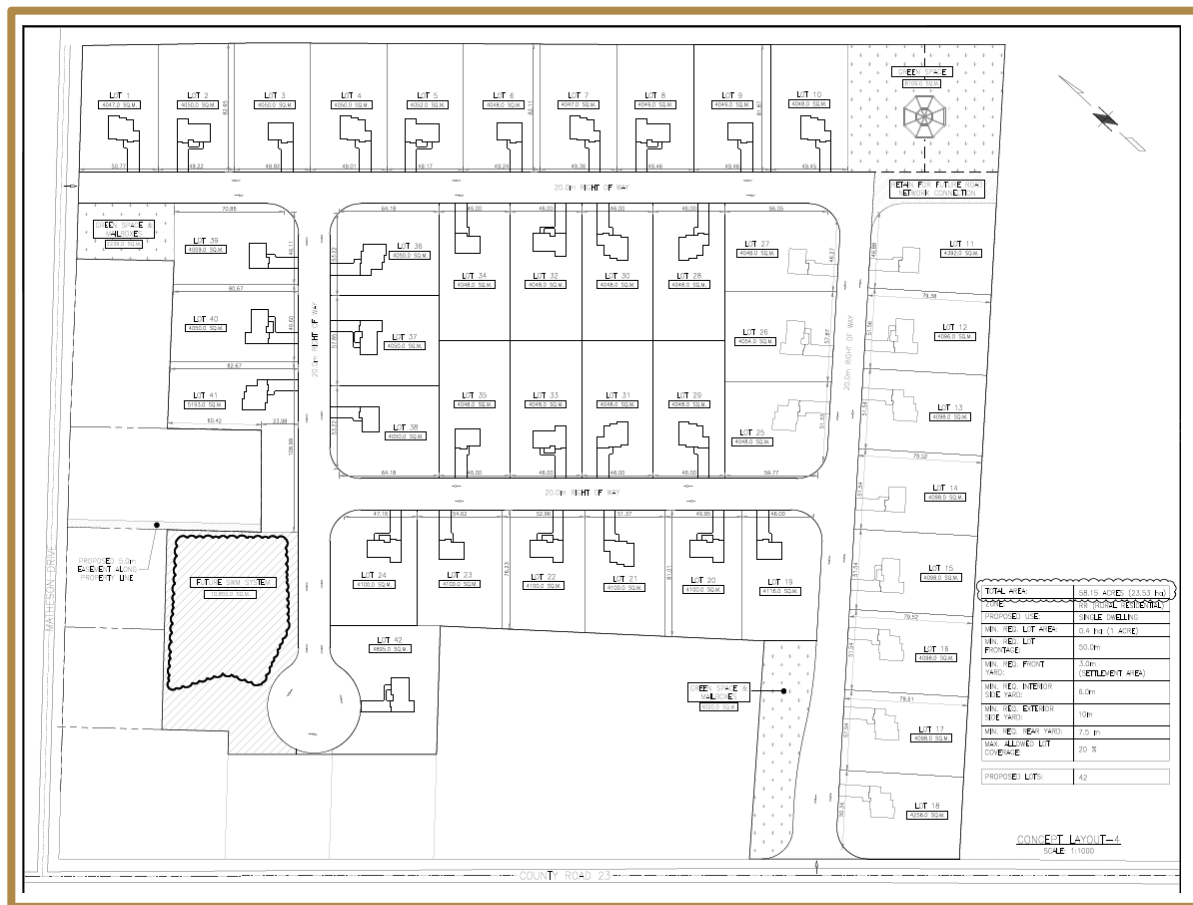


Figure 1: Draft Plan of the Subdivision for Rosedale South & Matheson Dr at Lot 20 Concession 3

2.0 POLICIES AND LEGISLATIVE REVIEW

2.1 FEDERAL LEGISLATION

2.1.1 MIGRATORY BIRDS ACT (2022)

Protection Scope: The Migratory Birds Convention Act (MBCA 1994) and Migratory Birds Regulations (MBR 2022) protect most migratory bird species, their nests, and eggs.

Prohibitions: MBR 2022 prohibits damaging, destroying, disturbing, or removing nests with live birds or viable eggs and depositing harmful substances in waters and areas frequented by migratory birds.

Year-round Nest Protection: For 18 species listed in Schedule 1, nests are protected year-round until deemed abandoned.

Criteria for Schedule 1: Includes species that reuse nests (colonial species) or whose nests are reused by other migratory birds, e.g., Pileated Woodpeckers.

- **Abandonment Criteria:** A nest is considered abandoned if it is not occupied for the waiting period specified in MBR 2022, losing its high conservation value.
- **ECCC Role:** Environment and Climate Change Canada (ECCC) implements policies and guidelines to protect migratory birds and provides guidance on compliance via the Environment Canada website.

Compliance Strategy: Achieve compliance through a due diligence approach based on site-specific analysis and adherence to ECCC avoidance guidelines, including timing restrictions to avoid disturbing birds during nesting periods.

Study Area: The identified study area occurs in Zone C3 and typically has nesting migratory birds from April 1st to August 31st annually.

2.1.2 SPECIES AT RISK ACT (SARA, 2002)

The Species at Risk Act (SARA) is federal legislation established to prevent wildlife species in Canada from becoming extinct or extirpated, to facilitate their recovery, and to ensure the protection of their critical habitats.

Protection Scope: SARA applies to species listed under Schedule 1 of the Act and offers legal protection to those classified as Extirpated, Endangered, or Threatened. It is primarily enforced on federal lands, including national parks, military reserves, Indigenous reserves, and lands managed by federal departments and agencies. SARA also applies across all jurisdictions for aquatic species and migratory birds protected under the Migratory Birds Convention Act.

Prohibitions:

- Section 32(1) prohibits the killing, harming, harassing, capturing, or taking of individuals of listed species.

- Section 33 prohibits the damage or destruction of the residence of a listed species.
- Section 58 prohibits the destruction of designated critical habitat for listed species on federal lands, or for aquatic species and migratory birds, anywhere in Canada.

Recovery Strategies and Critical Habitat: SARA requires the preparation of Recovery Strategies, which may identify critical habitat necessary for the survival or recovery of listed species. Once published in the public registry, critical habitat becomes subject to legal protection, especially on federal lands or waters.

Policy Alignment: While SARA is a federal statute, assessments under the Provincial Policy Statement (PPS, 2020) Section 2.1.7 must also consider the habitat of endangered and threatened species, including those listed under both provincial and federal frameworks. Integration of SARA considerations supports a precautionary and comprehensive approach to environmental planning and conservation.

2.1.3 FISHERIES ACT (2019)

Purpose of Fisheries Act (FA): Maintain healthy, sustainable, and productive Canadian fisheries through pollution prevention and fish and habitat protection.

Fish Habitat Definition: Includes spawning grounds, nursery, rearing, food supply, and migration areas necessary for fish life processes [subsection (2)1].

Prohibitions:

- Death of fish by means other than fishing [subsection 34.4 (1)].
- Harmful Alteration, Disruption, or Destruction of fish habitat (HADD) [subsection 35 (1)].

HADD Definition: Any temporary or permanent change to fish habitat impairing its capacity to support life processes (DFO 2019).

Protection Provisions: Standards, codes of practice, and guidelines for projects in and near water to avoid and mitigate impacts to fish and habitat; and comply with FA.

Compliance Strategy:

- Proponents must determine if projects affect fish and habitat and if impacts can be avoided or mitigated.
- Submit a request for review to Fisheries and Oceans Canada (DFO) if impacts cannot be fully avoided or mitigated.
- Obtain authorization under Subsection 35 (2) of the FA if DFO determines impacts result in fish death or HADD.

Pollution Prevention: Sections 34 and 36 prohibit depositing deleterious substances into waters frequented by fish unless authorized by FA regulations or other federal legislation.

2.2 PROVINCIAL LEGISLATION

2.2.1 ENDANGERED SPECIES ACT (2007)

Purposes of Ontario Endangered Species Act (ESA 2007):

- Identify species at risk using scientific information, community knowledge, and aboriginal traditional knowledge.
- Protect at-risk species and their habitats and promote their recovery.
- Promote stewardship activities to protect and recover at-risk species (2007, c. 6, s. 1).
- Species Status Classifications: Extinct, extirpated, endangered, threatened, or special concern.

Regulations:

- Ontario Regulation 230/08: Lists Species at Risk (SAR) in Ontario, updated regularly, last consolidated on January 27, 2025.
- COSSARO: Committee on the Status of Species at Risk in Ontario assesses species status using science and Aboriginal Traditional Knowledge.
- Ontario Regulation 242/08: Details possible exemptions and execution of ESA purposes.

General Habitat Protection: Applies to species listed as endangered or threatened, with science-based habitat descriptions developed for species affected by human activity.

Additional Requirements: Recovery Strategy or Management Plan needed for each listed species, following a timeline based on species status.

2.2.2 PROVINCIAL POLICY STATEMENT (2024)

The Provincial Planning Statement (PPS), 2024, effective October 20, 2024, supersedes the PPS, 2020, providing updated land use planning policies across Ontario. Below is a summary of the key policies from Sections 4.1.4 to 4.1.8, focusing on natural heritage protection:

4.1.4: Development and Site Alteration Restrictions

Development and site alteration are prohibited in:

Significant Wetlands: Identified in Ecoregions 5E, 6E, and 7E.

Significant Coastal Wetlands: Across all ecoregions.

4.1.5: Conditions for Development in Other Significant Areas

Development and site alteration are not permitted in the following areas unless it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions:

- Significant Woodlands: In Ecoregions 6E and 7E.

- Significant Valleylands: In Ecoregions 6E and 7E.
- Significant Wildlife Habitat: Across all ecoregions.
- Significant Areas of Natural and Scientific Interest (ANSI): Across all ecoregions.
- Coastal Wetlands: In Ecoregions 5E, 6E, and 7E.

4.1.6: Protection of Fish Habitat

Development and site alteration in fish habitats must comply with provincial and federal requirements to ensure the protection of these ecosystems.

4.1.7: Protection of Endangered and Threatened Species Habitats

Development and site alteration in habitats of endangered and threatened species are subject to provincial and federal regulations aimed at preserving these critical environments.

4.1.8: Adjacent Lands Considerations

For lands adjacent to the natural heritage features and areas identified in policies 4.1.4 to 4.1.6, development and site alteration are not permitted unless an evaluation demonstrates that there will be no negative impacts on the natural features or their ecological functions.

These policies reflect Ontario's commitment to balancing development needs with the preservation of its natural heritage, ensuring that growth does not compromise environmental sustainability.

2.3 MONTAGUE TOWNSHIP OFFICIAL PLAN (2023)

2.3.1 NATURAL HERITAGE AREAS

The plan prioritizes the protection of natural heritage features like wetlands, fish habitat, and woodlands, crucial for biodiversity. Existing agricultural activities are permitted near these features, but new developments require environmental impact assessments.

Specific policies prevent adverse effects on wetlands, fish habitat, and woodlands, with regulated buffers and consultation requirements for adjacent lands. Wildlife habitat, valleylands, and endangered species habitats are also safeguarded, with guidelines and assessment mandates.

All development proposals undergo environmental impact assessments, tailored to the project's scope and natural feature sensitivity, ensuring mitigation of negative impacts. Consultation with relevant authorities and indigenous communities is integral to this process.

2.3.2 ORGANIC SOILS

Development in areas with potential organic soils should ideally steer clear, as per Canada Land Inventory and Schedule B. If proposed in such areas, adequate soil and geotechnical data might be necessary for suitability proof. Development and site alteration within these zones are permissible if meeting Provincial standards, ensuring public safety through floodproofing, hazard prevention, environmental impact mitigation, and safe emergency access.

2.3.3 SOURCE WATER PROTECTION

The MRSSP covers 8,500km², guiding 31 municipalities. Montague has vulnerable areas: Smiths Falls Intake Protection Zone, Merrickville Wellhead Protection Area, Highly Vulnerable Aquifer, Significant Groundwater Recharge Area.

Policies include identifying protected zones, requiring clearance for certain applications, appointing a Risk Management Official (RMO), establishing Zoning By-Law policies, encouraging minimal impervious surfaces, launching an education program, implementing non-legally binding policies, providing annual summaries, and amending the Official Plan. Development is encouraged in settlement areas with services.

2.3.4 ANIMAL MOVEMENT CORRIDORS AND ECOLOGICAL CONNECTIVITY

Schedule C of the Montague Township Official Plan identifies wildlife movement corridors intended to maintain landscape connectivity between natural heritage features (Figure 2). These corridors support ecological function by allowing the movement of species between habitats, contributing to genetic diversity and overall ecosystem resilience.

Development proposals adjacent to these corridors must assess potential impacts on wildlife movement and identify opportunities to maintain or enhance connectivity. Fragmentation of natural linkages should be avoided through design mitigation, including retention of vegetation, fencing considerations, and strategic placement of development blocks.

The Subject Site borders a mapped Natural Heritage Corridor and lies near an identified animal movement route. This EIS evaluates whether the proposed subdivision would affect wildlife passage or ecological function and provides recommendations to mitigate any disruption.

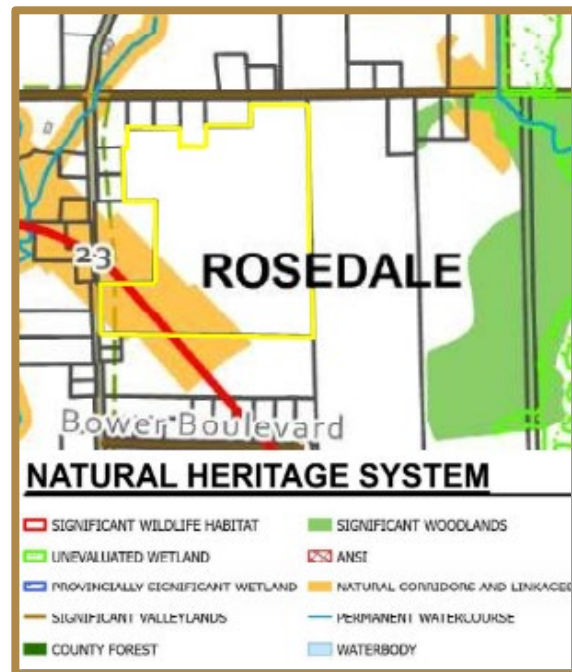


Figure 2: Montague Township Schedule C

2.3.5 STORMWATER MANAGEMENT

The Montague Township Official Plan requires developments to address surface water runoff and maintain pre-development hydrological functions. The subdivision design includes a stormwater management plan that meets the Township's engineering and environmental standards, minimizing erosion, protecting downstream habitats, and controlling water quality and quantity through on-site infiltration and controlled discharge.

2.4 RIDEAU VALLEY CONSERVATION AUTHORITY

The Rideau Valley Conservation Authority (RVCA) is dedicated to conserving and safeguarding natural resources in the Rideau River valley, emphasizing the importance of sound land use and municipal planning to protect both the environment and communities from flooding and erosion.

With the implementation of a new Minister's regulation (Ontario Regulation 41/24), the RVCA, alongside other Conservation Authorities, continues its role in regulating construction in sensitive areas like floodplains, wetlands, and shorelines, reviewing development proposals in natural areas, and administering building permits for sewage disposal systems. Through these efforts, the RVCA aims to ensure clean water, preserve natural shorelines, and promote sustainable land use practices across the watershed.

3.0 STUDY METHODS

3.1 INFORMATION GATHERING

For comprehensive environmental impact assessments, a variety of online resources are utilized to gather crucial data. These resources provide detailed information on species, habitats, and environmental conditions. They include tools for identifying fish, bird sightings, species at risk, land types, significant natural areas, and more. Utilizing these resources ensures a thorough understanding of the environment, helping to evaluate and mitigate potential impacts effectively. These include:

- eBird: The Cornell Lab of Ornithology. Has sightings of birds in certain areas.
- Ontario Breeding Bird Atlas.
- I Naturalist: Shows identifications of species in certain areas.
- Make a Natural Heritage Map: Provides species at risk classification for NHIC squares. Shows ANSI, significant woodlands, wetlands, etc.
- DFO Species at Risk Map: Search property of interest to see if there are any species at risk in the waterbodies.
- RVCA Mapping: RVCA Geoportal - shows flooding, significant woodlands, and other information.
- Ontario Nature - Amphibians and Reptiles: Amphibian Atlas

- Wildlife Value Areas: Geo Hub spatial data on wildlife value features.
- Government of Canada: Critical Habitat for Species at Risk National Dataset.
- Government of Canada: Species at Risk Act (SARA).

From the information gathered, a list of potential species at risk (SAR) was created as well as any significant features.

3.1.1 SPECIES AT RISK

Species at Risk in Ontario are designated by the Ontario Ministry of Natural Resources and Forestry to protect plants and animals that are facing threats to their survival. There are four categories of risk: extirpated, endangered, threatened, and special concern. These designations aim to safeguard Ontario's biodiversity by implementing conservation measures and recovery strategies for at-risk species. The protection efforts encompass habitat preservation, mitigation of human impacts, and legal regulations under the Endangered Species Act, 2007. These initiatives are vital for maintaining ecological integrity, promoting sustainable development, and ensuring the survival of Ontario's unique wildlife for future generations.

3.1.2 AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)

As part of the desktop analysis, spatial data from the Ontario Ministry of Natural Resources and Forestry (MNR) was reviewed to assess the presence of any Areas of Natural and Scientific Interest (ANSIs) within or adjacent to the subject property. ANSIs are provincially identified natural heritage features, categorized as either Life Science ANSIs or Earth Science ANSIs.

- Life Science ANSIs are recognized for representing key components of Ontario's biodiversity, including representative vegetation communities, wildlife habitat, and ecological functions.
- Earth Science ANSIs are designated based on unique geological formations, bedrock features, fossil records, and landforms of scientific value.

These designations inform land use planning and conservation priorities. No ANSIs were identified on or adjacent to the site based on current provincial mapping layers and planning documents at the time of review. The absence of nearby ANSIs suggests that the property does not fall within a formally recognized area of provincial scientific or ecological significance under this designation.

3.1.3 FISH HABITAT

Ensuring the protection of fish and their habitats is a federal mandate overseen by the Department of Fisheries and Oceans Canada (DFO). Under the Fisheries Act (Canada, 2019), fish habitat encompasses areas vital for spawning, nursery, rearing, food supply, and migration, essential for fish to complete their life cycles.

When a development project poses unavoidable significant threats to fish, such as changes in temperature, sedimentation, infilling, or depletion of nutrients and food supply, it necessitates an authorization under the Fisheries Act for the project to advance.

3.1.4 ORGANIC SOILS

Organic soils are vital for carbon sequestration, water retention, and biodiversity support, helping to mitigate climate change and improve water quality. These nutrient-rich soils enhance plant growth and ecosystem stability, a fact underscored by the Ontario Ministry of Natural Resources and Forestry (OMNRF). Conserving organic soils is crucial for sustaining their environmental benefits and ensuring long-term ecological health.

3.1.5 SOURCE WATER & GROUNDWATER RECHARGE AREAS

Montague Township is subject to the Mississippi Rideau Source Protection Plan (MRSP) under the Clean Water Act, 2006. As part of the desktop review, relevant policies and mapping were consulted, including Schedule B and Section 2.22.2 of the Montague Township Official Plan. It was confirmed that the subject property lies within:

- A Wellhead Protection Area (WHPA-C) with a vulnerability score of 4
- The Smiths Falls Intake Protection Zone for the local groundwater intake

To align with provincial and Township policies, the following requirements apply:

- Development applications within WHPA or IPZ areas require clearance from a Risk Management Official to confirm no significant drinking water threats are proposed
- Local zoning by-laws may include protective restrictions such as setbacks or activity limitations

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3.2 FIELD STUDIES

The property was divided into four vegetative polygons based off aerial imagery. The following diagram indicates the four separate areas identified (Figure 3).



Figure 3: Polygons of Vegetation Groups

3.2.1 AVIAN SURVEYS

Breeding bird surveys were conducted following the methodology outlined in the Ontario Breeding Bird Atlas (OBBA). Surveys were carried out during early morning hours under optimal weather conditions as specified by the OBBA protocol. Observations were conducted by an experienced field biologist familiar with avian vocalizations and habitat associations. The purpose of the surveys was to identify avian species present during the breeding season and to assess potential nesting activity.

Survey points were strategically located near the centre of habitat polygons to minimize edge influence and to allow for standardized coverage of distinct vegetation communities. At each point, the observer remained stationary for five minutes, recording all birds seen and heard during that interval. Most detections were acoustic in nature, and the Merlin Bird ID mobile application was used in the field to assist with call identification and to support real-time species detection.

To ensure accuracy and reduce misidentification, audio recordings captured by the Merlin app were reviewed following fieldwork to confirm species presence. This allowed for careful post-survey

verification, especially for cryptic or overlapping calls. Figure 4 indicates the locations and dates of avian surveys.



Figure 4: Map indicating the locations and dates of Avian and Loggerhead Shrike surveys along with ARU and Video Camera placement.

3.2.2 LOGGERHEAD SHRIKE SURVEY PROTOCOL SUMMARY

Surveys for Loggerhead Shrike (*Lanius ludovicianus*) were conducted in accordance with the Loggerhead Shrike Survey Protocol (2008) developed by Wildlife Preservation Canada. This protocol outlines standardized methods intended to detect shrike presence during the breeding season using a combination of passive visual observation and call playback.

All surveys were conducted between 6:00 a.m. and 10:00 a.m., corresponding with peak shrike activity. Fieldwork focused on Polygon 1 and Polygon 3, which provided the most suitable open habitat conditions. Each polygon was visited three times during the breeding season on May 9, May 31, and June 4, 2024. These dates correspond with the species' peak breeding window. Although the recommended early-season visit in April was not completed due to weather and scheduling constraints, all other protocol components were followed and the survey effort is considered

consistent with accepted standards for presence–absence determination. Figure 4 indicates where each survey was conducted.

Within each polygon, multiple points were assessed during each visit to ensure adequate spatial coverage. These points were selected to maximize visibility and encompass habitat heterogeneity.

Polygon 3 consisted of a partially grazed, regenerating cultural meadow with low herbaceous cover, scattered shrubs, and occasional elevated perches such as weathered fence posts and young trees. This habitat type is characteristic of Loggerhead Shrike preference, which includes open grasslands or pasture-like areas with patchy shrub structure for nesting and exposed perches for hunting and territorial display.

Polygon 1 contained open field habitat with variable shrub density and was surveyed from three distinct vantage points to ensure adequate coverage of potential nesting and foraging areas.

At each point, a 10-minute passive visual scan was conducted to detect visual or auditory evidence of shrike presence. If no detections occurred, recorded vocalizations were broadcast in four cardinal directions using a portable speaker. Playback was paused between loops to allow for auditory response. If any response was noted, playback was ceased immediately and visual monitoring continued from a minimum distance of 75 metres to minimize potential disturbance.

3.2.3 PASSIVE ACOUSTIC MONITORING

Passive acoustic monitoring was conducted using two Wildlife Acoustics Mini Bat 2 recorders, each equipped with both ultrasonic and acoustic microphones. These units were deployed simultaneously at different locations across the property during each field session to maximize spatial coverage and detect a broad range of species. Particular attention was given to placing units near the on-site pond, which provided suitable habitat for breeding amphibians and nocturnal birds. Figure 4 indicates where the recorders were positioned throughout the season.

The ultrasonic microphone was configured to record 24 hours a day on a trigger-based system, capturing echolocation calls from bats. In parallel, the acoustic microphone was programmed to override the ultrasonic mode and record five-minute audio clips every hour, on the hour. This dual-mode setup was designed to detect both bat activity and night-active bird species, including Common Nighthawk (*Chordeiles minor*), Eastern Whip-poor-will (*Antrostomus vociferus*), and other cryptic species that are often under-recorded in visual surveys.

Due to limited personnel and safety considerations, nighttime field surveys were not conducted manually. Passive recorders were chosen as a practical and effective alternative, aligning with current best practices in species at risk monitoring. Similar approaches have been successfully implemented in Eastern Ontario for Whip-poor-will surveys, where autonomous recorders increased detection probability with minimal field time (Knight et al., 2022).

Surveys were conducted during periods surrounding the full moon, which is recommended to enhance detectability of night-active wildlife such as bats and nighthawks. Additionally, acoustic recordings collected during daylight hours served to supplement daytime bird surveys conducted under the Ontario Breeding Bird Atlas (OBBA) protocol. This allowed for broader species detection across varying times of day and habitat use patterns.

All recordings were reviewed off-site using Kaleidoscope Pro, developed by Wildlife Acoustics. Bat calls were automatically identified by the software and then manually verified by reviewing frequency

ranges, call shapes, and duration patterns. Assistance was provided by bat biologist Dr. Brian Hickey of the St. Lawrence River Institute.

Bird call data was processed using Kaleidoscope's clustering algorithm, which grouped similar acoustic events for manual review. Reference audio libraries, including Xeno-Canto, were used to compare and confirm target species vocalizations.

3.2.4 INCIDENTAL WILDLIFE OBSERVATIONS

In addition to targeted surveys, incidental wildlife observations were conducted throughout all site visits. As fieldwork was carried out for vegetation assessment, breeding bird counts, and acoustic recorder placement, a systematic visual scan for wildlife was concurrently performed. This opportunistic monitoring allowed for the detection of various taxa that may not be encountered during formal point-based surveys. As an added measure, a wildlife camera was deployed in polygon 4 to capture wildlife (Figure 4).

Surveys focused on open habitats, wetland edges, and woodland margins where visibility and likelihood of encounter were highest. Particular attention was given to identifying Species at Risk (SAR) and documenting evidence of habitat use such as tracks, scat, basking sites, or nesting activity. Observations were made during transect walks, stationary point assessments, and while navigating between polygon boundaries.

Incidental wildlife observations were recorded during all phases of fieldwork. Any species of potential conservation concern were documented systematically. For each observation, relevant details such as location, habitat context, and time of day were recorded, and photographs were taken where possible to support identification. Visual searches were particularly attentive to turtle species, which are more likely to be detected during warm daylight hours when basking or foraging. Observations were conducted without disturbing wildlife or altering natural behaviour.

No formal turtle surveys were completed as part of this Environmental Impact Study. The pond located on-site was shallow (approximately knee-deep) and lacked features typically associated with suitable overwintering or breeding habitat for turtles, such as deep basins, abundant submerged vegetation, or permanent water sources. Based on visual assessment and hydrological context, the wetland feature appeared to offer limited long-term suitability for turtle habitation beyond potential transient use. As such, turtle presence was assessed opportunistically through incidental daytime observations rather than targeted survey protocols.

3.2.5 BAT ROOSTING HABITAT SURVEY

A visual assessment for potential bat roosting habitat was conducted during the leaf-off season to improve visibility of tree structures. The survey focused on identifying large diameter trees with features known to support bat roosting, including:

- Loose or exfoliating bark
- Visible cavities or hollows
- Snags (standing dead trees)
- Open branch structures or canopy gaps

Observations were made across the property, with particular attention to treed fencerows, disturbed areas, and any remaining mature trees. Where visibility allowed, binoculars were used to examine tree surfaces and cavities for signs of bat use or activity.

3.2.6 ECOLOGICAL LAND CLASSIFICATION - VEGETATION

Ecological Land Classification (ELC) survey methods were employed to identify vegetative communities present on the property. Prior to field visits, aerial imagery from Google Earth Pro was reviewed to develop preliminary land classification boundaries. These boundaries were then verified and refined through on-site surveys conducted in accordance with the Ecological Land Classification for Southern Ontario (1998) methodology. Initial ELC fieldwork was completed on May 3 and May 9, 2024 to delineate community boundaries. However, during all subsequent site visits, additional ecological information such as botanical data, wildlife observations, and bird activity was continuously recorded to supplement and refine the characterization of each polygon. This cumulative approach ensured a more complete and representative ecological assessment of the study area.

3.2.7 BOTANICAL SURVEYS

Botanical surveys were conducted during multiple site visits spanning spring and summer to ensure a comprehensive inventory of plant species across seasonal bloom periods. Observations were made during the following site visits: May 23–29, June 4–18, June 7–11, June 17–24, and July 5–9, 2024. Conditions were recorded during each visit (e.g., temperature, wind, cloud cover, and soil moisture), and botanical observations were completed using direct field knowledge, field guides, and the PlantNet app as a supplementary tool to confirm species identifications.

Vegetation was assessed across all habitat types present on the site, including regenerating fields, forest edges, and low-lying wet areas. These surveys were designed to capture both early and mid-successional flora, as well as any species that typically bloom later in the season.

Based on current provincial recovery strategies and species distribution records, no late-blooming SARO-listed vascular plant species are known to occur within eastern Ontario. Notably, species such as Showy Goldenrod (*Solidago speciosa*) and Willowleaf Aster (*Symphyotrichum praealtum*), which are listed under SARO and bloom later in the season, are restricted to southwestern or northwestern Ontario and are not known to occur in this region.

3.2.8 WETLANDS, WOODLANDS & VALLEYLANDS

The entire property was examined to identify and rule out the presence of any wetlands, woodlands or valleylands. Wetlands were assessed according to the methodologies outlined in the 4th edition (2022) of the OWES manual for Southern Ontario, while woodlands were classified based on the Ecological Land Classification (ELC) for Southern Ontario (1998). This examination was conducted continuously throughout the study period to ensure comprehensive coverage, adhering closely to the best practices recommended in the updated manuals for environmental assessments.

3.2.9 SIGNIFICANT WILDLIFE HABITAT & MOVEMENT CORRIDORS

The Township of Montague had indicated that the south-western portion of the property is significant wildlife habitat (Figure 2). An ongoing search of the property was undertaken throughout

the study period to ensure no significant habitats were overlooked. In addition to this, an evaluation was conducted to assess the significance of natural heritage features, the sensitivity of identified flora and fauna, and the potential impacts of the proposed development. This analysis utilized desktop and field investigation data, employing methodologies and criteria from the following documents:

- Natural Heritage Reference Manual (OMNR, 2010)
- Significant Wildlife Habitat Technical Guide (OMNR, 2000)
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6e (OMNR, 2015)
- Significant Wildlife Habitat Mitigation Support Tool (OMNR, 2014)

Animal movement corridors are elongated areas that wildlife use to travel between habitats and migrate seasonally (OMNRF, 2015). The Significant Wildlife Habitat Ecoregion Criterion Schedules for Ecoregion 6E-11 (OMNRF, 2015) identify amphibian and deer movement corridors. According to MNRF guidance (2015), these corridors should be classified as significant wildlife habitat only when confirmed or candidate significant wildlife habitat is identified by the MNRF district office or the regional planning authority.

4.0 RESULTS

4.1 SITE DETAILS AND ADJACENT LANDS

In accordance with the Provincial Policy Statement (PPS, 2024) section 2.1.8 and the Township of Montague's Official Plan (OP), a survey was required of the entire site and an additional 120 metres of adjacent land (Figure 5). The site primarily consists of fields that were formerly cultivated, likely for hay. The upper northwest corner of the site retains more water, especially in the spring, as noted by neighbouring residents. This area supports longer, and more abundant grasses compared to the rest of the fields. The adjacent lands included farmland, fields, small wood lots and rural residences.

In the southeast, there is a small pond, while the remainder of this corner of the property has been disturbed. This disturbed area contains many large trees, and aerial photographs reveal treed fence lines throughout the property.

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Figure 5: Property & Adjacent Lands - Rosedale Road & Matheson Drive

4.2 SPECIES AT RISK

This assessment was conducted as part of a scoped Environmental Impact Study (EIS), with much of the work completed through desktop review due to the late season. During the property survey, efforts focused on identifying potential species at risk (SAR) and evaluating their required habitats based on site conditions and available data. Particular attention was given to habitat features that could support SAR, although no species or their indicators were directly observed during the site visit.

In Ontario, species at risk assessments are guided by the provincial Endangered Species Act, 2007 (ESA), which utilizes the Species at Risk in Ontario (SARO) list. This list is maintained by the Committee on the Status of Species at Risk in Ontario (COSSARO) and reflects species that are considered at risk within the province. While the federal Species at Risk Act (SARA) provides protections for species at risk on federal lands and for certain federally regulated species, the ESA

and SARO list are the primary tools for species at risk assessments on non-federal lands in Ontario. This assessment therefore focused on species listed under the SARO list to ensure compliance with provincial legislation and policies.

Although several species are known to occur within the broader region, habitat for many of these species was assessed as unsuitable or absent on the subject property based on current site conditions. Species identified in Table 1 as not having suitable habitat were screened using established ecological criteria, including vegetation community type, soil characteristics, moisture regime, canopy structure, and landscape context. The absence of key features such as open grasslands, wetland complexes, permanent waterbodies, or specialized nesting or foraging habitat informed the determination that suitable habitat is not present. These species were therefore excluded from further discussion.

Only confirmed species and those with a high likelihood of presence based on desktop screening and habitat features are discussed in further detail. This focused approach ensures a comprehensive yet efficient evaluation aligned with the Provincial Policy Statement and relevant natural heritage planning guidance. The results of this assessment are summarized in Table 1.

Table 1: Species at Risk desktop discovery

Site Obtained	Common Name	Scientific Name	SRank	SARO Status	Suitable Habitat Present?	Observed On Site
NHIC	Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	Yes	No
NHIC	Blanding's Turtle	<i>Emydoidea blandingii</i>	S3	THR	Yes	No
OMNR	Butternut	<i>Juglans cinerea</i>	S3	END	Yes	No
NHIC	Colonial Waterbird Nesting Area	<i>Colonial Waterbird Nesting Area</i>	SNR	NA	No	No
eBird	Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	Yes	No
eBird	Eastern Meadowlark	<i>Sturnella magna</i>	S4B, S3N	THR	No	No
Ontario Nature	Eastern Musk Turtle	<i>Sternotherus odoratus</i>	S3	SC	No	No
eBird	Evening Grosbeak	<i>Coccothraustes vespertinus</i>	S4B	SC	No	No

<i>Site Obtained</i>	<i>Common Name</i>	<i>Scientific Name</i>	<i>SRank</i>	<i>SARO Status</i>	<i>Suitable Habitat Present?</i>	<i>Observed On Site</i>
NHIC	Loggerhead Shrike	<i>Lanius ludovicianus</i>	S1B	END	No	No
Ontario Nature	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S5	NAR	No	No
Field Observation	Monarch	<i>Danaus plexippus</i>	S4B, S2N	SC	Yes	Yes
eBird	Rusty Blackbird	<i>Euphagus carolinus</i>	S4B	SC	No	No
Ontario Nature	Snapping Turtle	<i>Chelydra serpentina</i>	S3	SC	No	No
eBird	Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	No	No
OMNR	Black Ash	<i>Fraxinus nigra</i>	S4	END	Yes	Yes

* S-Rank = S1 Extremely Rare, S3 Rare to Uncommon, S4 Common & S5 Widespread → B refers to breeding population of the species & N is non-breeding.

** SARO Status – END Endangered, THR Threatened, SC Special Concern, NAR Not a Risk & SNR Unranked.

Note: Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*) are commonly occurring native tree species in this region. Given their conservation statuses, with Butternut listed as Endangered and Black Ash as Endangered under Ontario's Endangered Species Act 2007 (ESA), they are routinely assessed during site visits, regardless of specific mapping or prior documentation. This proactive approach ensures compliance with provincial regulations and supports the early identification of these species, facilitating appropriate conservation measures when necessary.

4.2.1 BLACK ASH (THREATENED)

Black Ash (*Fraxinus nigra*) is a native deciduous tree commonly associated with wet environments such as swampy lowlands, riparian corridors, and seasonally saturated lowland hardwood forests. However, this species is also frequently found in non-wetland settings in rural Ontario, particularly within moist fencerows and transitional edges between forest and open habitat. This is consistent with regional silvicultural knowledge and documented in COSEWIC (2018), which notes that Black Ash can tolerate open sunlit conditions and is occasionally planted or regenerates in hedgerows and disturbed moist soils.

During field surveys in May 2024, multiple dead Black Ash trees were identified along moist fencerows on the property, with additional saplings located in disturbed areas, particularly within Polygon 4. The site is not classified as a wetland and does not exhibit characteristics of saturated forested systems; however, the fencerows likely provide the necessary seasonal moisture for historical establishment.

All Black Ash individuals observed on site were either standing dead or were small saplings. None exceeded 8 cm diameter at breast height (DBH), and all saplings had stem heights below 1.37 m. Under Ontario Regulation 6/24 of the Endangered Species Act (2007), protections for Black Ash do

not apply to trees below both of these thresholds.

Furthermore, the site lacks mature canopy or intact forest community structure required to support a regulated Black Ash habitat designation. Historical aerial imagery and site disturbance evidence suggest that clearing occurred prior to the 2024 field season.

In summary, while Black Ash was observed, it was limited to fencerows and disturbed areas, and all individuals fall outside the regulatory thresholds for protection under the ESA. The site does not support a Black Ash-dominated community or meet the criteria for significant habitat designation under provincial guidelines.

4.2.2 BLANDING'S TURTLE (THREATENED)

Blanding's Turtles typically live in shallow water, usually in large wetlands and shallow lakes with abundant water plants. It is not unusual to find them hundreds of meters from the nearest water body, especially while searching for a mate or traveling to a nesting site. These turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April.

The habitat of Blanding's Turtles can be categorized into three specific zones:

- 1) Nest and Overwintering Sites: This includes the nest and the area within 30 meters, as well as overwintering sites and the area within 30 meters.
- 2) Wetland Complex: This consists of all suitable wetlands or waterbodies within 500 meters of each other, extending up to 2 kilometers from an occurrence, and includes the area within 30 meters around those suitable wetlands or waterbodies.
- 3) Extended Suitable Habitat: This includes the area between 30 meters and 250 meters around suitable wetlands or waterbodies identified in Category 2, within 2 kilometers of an occurrence.

Wetlands located within a 2-kilometre radius of the subject property indicate that the site may be situated within the movement range of Blanding's Turtles (*Emydoidea blandingii*), a Threatened species under both provincial and federal legislation. Although no turtles were observed during the site visits and targeted surveys were not conducted, the potential presence of Blanding's Turtles or other turtle species cannot be ruled out.

A small retention pond is present on the property; however, based on site conditions, the pond is not considered suitable for long-term use by Blanding's Turtles. Specifically, the pond lacks the depth, substrate conditions, and vegetative cover typically associated with overwintering habitat. As such, it is unlikely to serve as a hibernation site.

Despite this, as a precautionary measure, it is recommended that the pond be temporarily fenced with exclusion fencing in late summer or early fall to prevent turtles from attempting to use it for overwintering. Installation should occur no later than September 15, which precedes the typical hibernation period beginning in early October in Eastern Ontario. Fencing should remain in place until the following spring to ensure the site is not used during overwintering or early emergence periods.

This precaution aligns with best management practices for development within or near potential

Significant Wildlife Habitat (SWH) and supports the protection of SAR under the Endangered Species Act, 2007.

4.2.3 BOBOLINK (THREATENED)

Bobolinks are primarily found in tallgrass prairie and other open meadows. Due to the clearing of native prairies, Bobolinks have adapted to living in hayfields. They often build their small nests on the ground within dense grasses, which provides them with necessary cover and protection.

The habitat of Bobolinks can be categorized into three specific categories:

Nest and Immediate Perimeter: This includes the nest itself and a 10-meter perimeter around the nest.

- 1) **Proximal Territory:** The area between 10 meters and 60 meters from the nest or the center of the approximated defended territory.
- 2) **Extended Suitable Habitat:** The area of continuous or suitable habitat between 60 meters and 300 meters from the nest or the center of the approximated defended territory.

During the property visits, Bobolinks were not observed. Although Bobolinks and Eastern Meadowlarks typically share similar habitats, the pasture on the property was not as thick and long as the grasslands where Bobolinks are typically found nesting. Due to the known presence of Bobolinks in the general area, neighboring lands were observed from the roadside, revealing several fields that appeared to offer more suitable habitat for these birds. Aerial photographs further show a vast amount of farmland in the vicinity, which likely contributes to the presence of Bobolinks in the area. This suggests that there is substantial habitat available on neighboring farms (outside the adjacent land) that would be more beneficial to Bobolinks, reducing the likelihood of them utilizing the subject property.

4.2.4 BUTTERNUT (ENDANGERED)

The Butternut (*Juglans cinerea*), also known as White Walnut, thrives in moist, well-drained soils often found along streams and gravel sites, and occasionally in dry rocky soils. This species does poorly in shaded areas, preferring sunny openings and forest edges. Historically, butternut trees were commonly planted in fencerows, providing both a boundary marker and a source of valuable nuts. Unfortunately, the Butternut is now endangered due to a canker disease caused by the fungus *Ophiognomonia clavigignenti-juglandacearum*. Conservation efforts are crucial for its survival, guided by the Ontario Ministry of Natural Resources and Forestry and Ontario's Species at Risk Public Registry (OMNRF, 2013).

The property contained several fencerows and open sunny areas, which were thoroughly surveyed; however, no Butternut trees were found on the property.

4.2.5 COMMON NIGHTHAWK (SPECIAL CONCERN)

The Common Nighthawk prefers open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. While they can also nest in cultivated fields, orchards, urban parks, and along gravel roads and railways,

they typically favor natural sites.

Nighthawks forage for flying insects in open areas during crepuscular periods (dawn and dusk), though they sometimes forage during the day. They require open ground or clearings for nesting and breed in a wide range of open habitats.

For roosting, Common Nighthawks are versatile and can use almost any site, including tree limbs, the ground, fenceposts, or rooftops. Ideal roosting sites provide shade from overheating, camouflage from predators, and unobstructed flight paths.

Although Common Nighthawks were monitored at dawn and dusk using digital recorders, they were not heard on the property. While they were not detected, given their known presence in the broader area, the site will continue to be managed as though Common Nighthawks could be present.

4.2.6 EASTERN MEADOWLARK (THREATENED)

Eastern Meadowlarks are found in a variety of grassland habitats, including pastures, hayfields, alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, and other open areas. They utilize small trees, shrubs, or fence posts as elevated song perches (OMNRF, 2022).

The habitat of Eastern Meadowlarks can be categorized into three specific Categories:

- 1) Nest and Immediate Area: This includes the nest itself and the area within a 10-meter radius of the nest.
- 2) Proximal Territory: The area between 10 meters and 100 meters from the nest or the center of the approximated defended territory.
- 3) Extended Territory: The area between 100 meters and 300 meters from the nest or the center of the approximated defended territory.

During the property visits, Eastern Meadowlarks were not observed. A letter received from a nearby neighbour mentioned past sightings of Eastern Meadowlarks in the area. Additionally, a review of the eBird database showed one sighting of an Eastern Meadowlark across the street from the subject property and two additional sightings to the east of the property. As shown in Figure 6, these sightings were located in close proximity but not directly on the subject property. However, when the mapping is zoomed out (Figure 7), it becomes apparent that there are far greater numbers of Eastern Meadowlark sightings concentrated to the south of the property. The larger number of birds observed to the south indicates that this area offers a better and more suitable habitat for the Eastern Meadowlark. This suggests that sightings on the property are more likely the result of birds crossing over rather than nesting or establishing a permanent habitat.

Extensive monitoring was conducted during the spring and summer, and no Eastern Meadowlarks were observed on the property. As with Bobolinks, Eastern Meadowlarks prefer taller, denser grasslands for nesting. Although the grass on the subject property was long, it was too sparse and not dense enough to provide suitable nesting habitat for Eastern Meadowlarks. Roadside observations and aerial imagery of neighbouring lands indicated that there are several fields and extensive farmland nearby that likely provide more suitable habitat for these birds. This suggests that the subject property is less likely to be utilized by Eastern Meadowlarks, as substantial suitable

habitat exists on neighbouring farms beyond the adjacent land. While the neighbour's observations are noted, the current habitat conditions on the property do not align with the specific requirements of Eastern Meadowlarks. The extensive monitoring conducted supports the conclusion that the property is unlikely to be utilized by this species, further evidenced by the concentration of sightings in better-suited habitats to the south, as seen in the eBird data and figures provided.



Figure 6: eBird Mapping of Eastern Meadowlark Sightings in the Area of Matheson and Rosedale

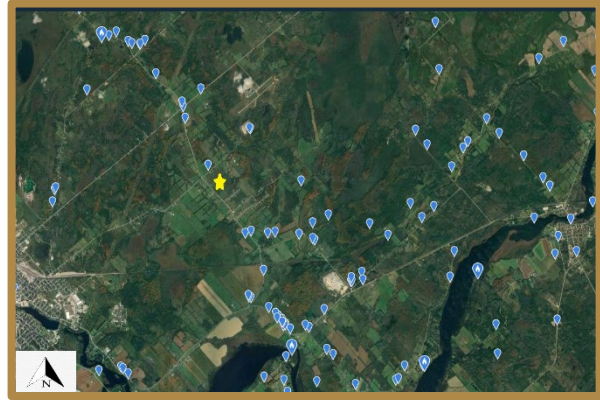


Figure 7: eBird Mapping of the Area Surrounding Matheson and Rosedale for Eastern Meadowlarks

4.2.7 HOARY BAT (ENDANGERED)

Hoary Bats (*Lasiurus cinereus*) typically roost individually within the foliage of mature deciduous or coniferous trees, often along forest edges. They are long-distance migrants, occupying Ontario during the summer months for breeding and foraging, and migrating southward for the winter. Their foraging activities predominantly occur over open areas, including fields and clearings, where they hunt for moths and other nocturnal insects (COSEWIC, 2023).

Acoustic monitoring conducted on the property detected the presence of Hoary Bats. However, the absence of substantial forested areas and forest edge habitats within the property suggests limited suitable roosting sites for this species. It is likely that Hoary Bats utilize the open fields on the property primarily for nocturnal foraging. Potential roosting may occur in nearby off-site forested habitats or within the treed fencerows and large oaks located in polygon 4 of the property.

Given the Hoary Bat's Endangered status and its reliance on specific roosting and foraging habitats, it is crucial to minimize disturbances to potential roosting sites, particularly during the breeding season. Further surveys, including mist netting and roost searches during the summer months, are recommended to better understand the species' use of the property and to inform appropriate conservation measures.

4.2.8 MONARCH (SPECIAL CONCERN)

The Monarch butterfly (*Danaus plexippus*) is typically associated with open habitats such as meadows, fields, roadsides, and areas with abundant nectar sources and the presence of milkweed (*Asclepias* spp.), which is essential for breeding and larval development. Adults forage on a variety

of wildflowers, while eggs are laid exclusively on milkweed, the only host plant for Monarch caterpillars.

During site surveys, a single adult Monarch was observed foraging. In response to this observation, all encountered milkweed plants were examined for the presence of Monarch eggs, larvae, and chrysalides. No evidence of breeding activity was found, and no multiple individuals were recorded. As such, the site was assessed as a foraging or pass-through location rather than a breeding habitat.

Given the lack of observed reproductive activity and the presence of only a single individual, the site does not meet the criteria for Significant Wildlife Habitat for Monarch under current provincial or federal guidelines. However, general best management practices will continue to be applied to support pollinator species, including Monarchs.

4.2.9 SILVER-HAIRED BAT (ENDANGERED)

The Silver-haired Bat (*Lasionycteris noctivagans*) is a medium-sized, migratory bat with distinctive dark brown fur tipped in silver. It is now listed as Endangered in Ontario due to significant population declines attributed primarily to mortality at wind energy facilities, habitat loss, and declining insect prey availability (COSEWIC 2023).

This species typically roosts solitarily in tree cavities, beneath loose bark, or in snags, and occasionally uses buildings. During the summer months, it forages in wooded areas, along forest edges, and over open clearings, flying low to capture soft-bodied insects like moths and flies. Although Silver-haired Bats typically migrate south to overwinter, a small number may hibernate in southern Ontario.

Acoustic surveys on the subject property confirmed the presence of Silver-haired Bats, suggesting the site is being used as a foraging area. However, the lack of mature forest stands or known roosting features on-site limits its suitability for roosting. Treed fencerows and large scattered trees, such as those in Polygon 4, may offer limited or transient roosting potential, but long-term or maternity roosts are considered unlikely.

This finding aligns with broader observations across Ontario that this species continues to use fragmented landscapes for foraging while remaining vulnerable to cumulative pressures. No additional survey work is recommended at this time, though conservation of nearby wooded areas would benefit the regional population.

4.3 AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)

No areas of natural and scientific interest (ANSI) were found on the property or within 120 meters of the adjacent property.

4.4 FISH HABITAT

The Department of Fisheries and Oceans Species at Risk map indicated that there were no species at risk or critical fish habitat present on the property or the adjacent lands (Figure 8).

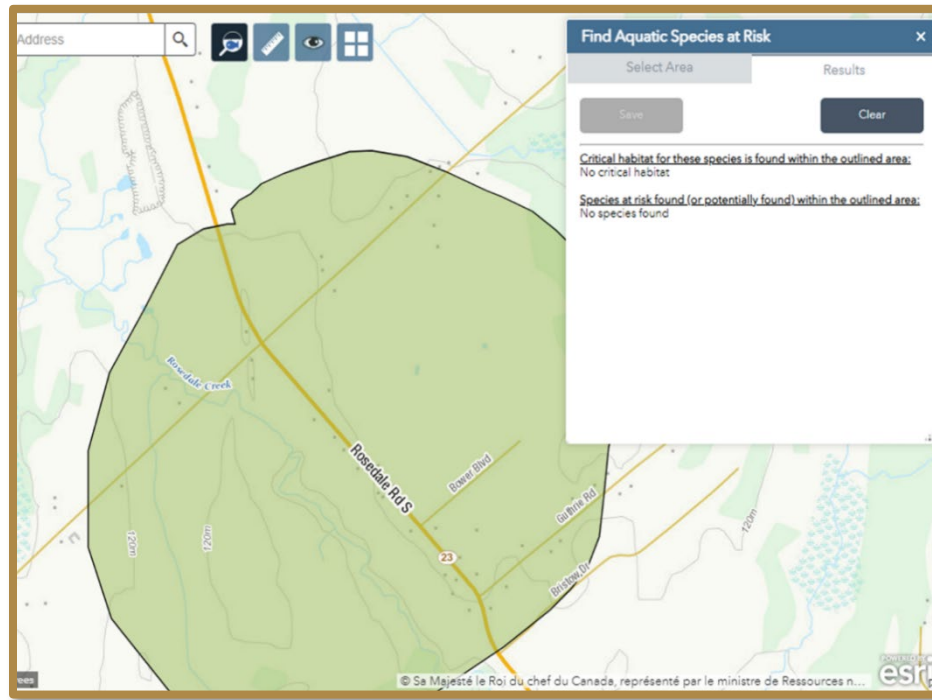


Figure 8: DFO Species at Risk and Critical Habitat Map

4.5 ORGANIC SOILS

No organic soils were found on the property or within 120 meters of the adjacent property.

4.6 SOURCE PROTECTION AREA

The property is in the Rideau Valley Source Protection Area. According to the Ontario GeoHub Source Protection Information Atlas the property is located on Wellhead Protection Area D (WHPA-D) with a score of 2 and on a Highly Vulnerable Aquifer with a Score of 6. These designations are based on the Mississippi-Rideau Source Protection Plan last update on April 28, 2022 (Figure 9).

The discrepancy between the township's designation of the property as WHPA C (Figure 10) with a score of 4 and the Source Protection Map's designation as WHPA-D with a score of 2 may be due to a mapping issue, as the Official Plan for Montague Township and the GeoHub website both reference the Mississippi-Rideau Source Protection Plan, but the GeoHub mapping matches the plan while the township's mapping does not.

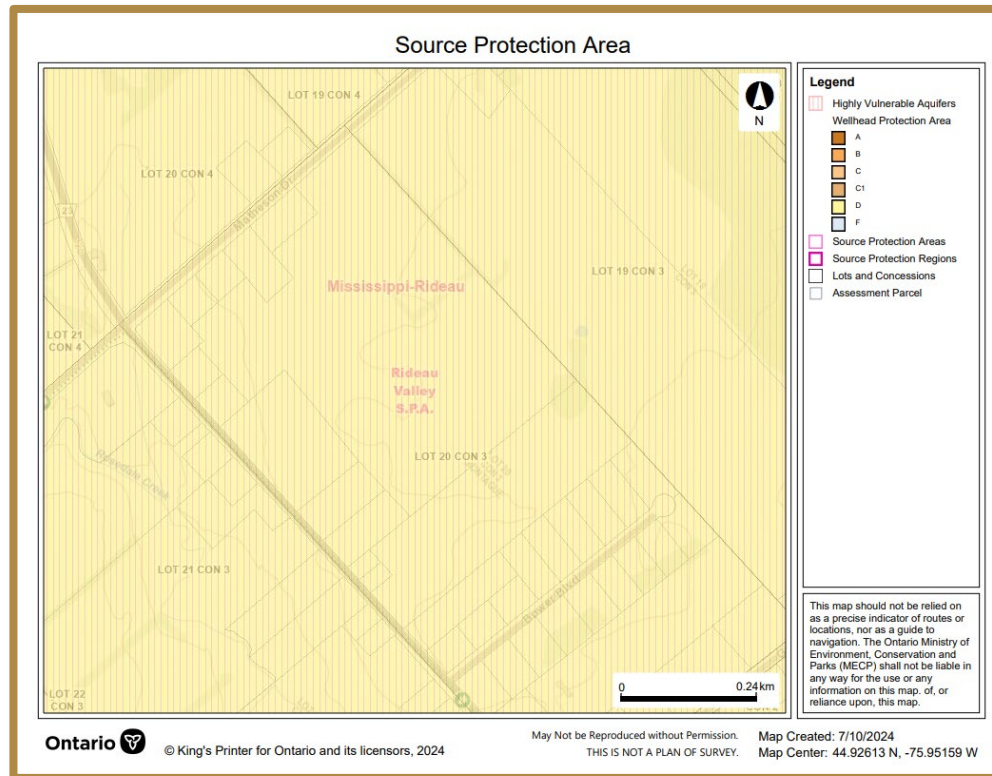


Figure 9: Source Protection Information Atlas - Matheson & Rosedale

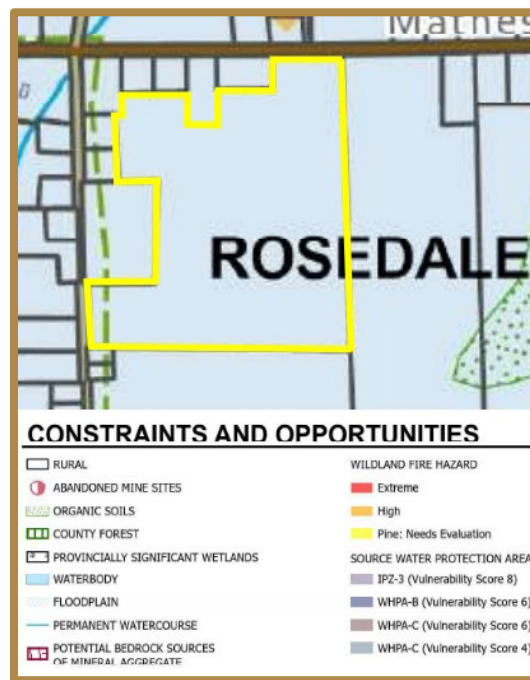


Figure 10: Schedule B indicating WHPA-C for the property

4.7 AVIAN STUDIES

Avian surveys recorded a range of bird species across all four polygons, with the majority of detections made acoustically during early morning visits. Species abundance was categorized qualitatively as rare, occasional, or abundant, based on repeated observations and vocal activity. Common and widespread species such as American Robin, American Crow, and Northern Cardinal were noted as abundant in multiple areas, while others including Brown Thrasher, Field Sparrow, and Gray Catbird were observed occasionally or rarely in appropriate habitat zones. No Species at Risk were detected during the breeding bird surveys. While a neighbor reported sightings of Eastern Meadowlark, the species was not confirmed on-site and the property lacks the dense grassland cover typically required for nesting. No active nests were discovered during fieldwork; however, the presence and vocalizations of several species suggest likely nesting activity within the survey polygons.

4.8 LOGGERHEAD SHRIKE SURVEYS

Targeted surveys for Loggerhead Shrike were conducted following the 2008 Loggerhead Shrike Survey Protocol published by Wildlife Preservation Canada. Three visits were completed during the peak breeding period (May 9, May 31, and June 4, 2024), using a combination of passive visual observation and call playback methods. Survey locations were selected to provide optimal coverage of potential habitat, including open field and regenerating cultural meadow areas with suitable perch and nesting structure. Despite following protocol standards, no Loggerhead Shrikes were detected on-site during any of the survey periods.

4.9 PASSIVE ACOUSTIC MONITORING

Two autonomous acoustic recorders were deployed throughout the study area during the 2024 field season to supplement traditional surveys. These units captured ultrasonic and audible vocalizations, providing continuous coverage of nocturnal and crepuscular species activity, including bats and night-calling birds. While no federally or provincially listed Species at Risk were detected acoustically, the recordings enhanced species documentation by confirming the presence of common bats and expanding daytime bird lists through additional detections. Bird identifications derived from acoustic recordings were incorporated into the species list provided in Appendix A, along with relative abundance rankings based on call frequency (Rare, Occasional, Abundant, or Dominant). Data were reviewed using Kaleidoscope Pro and verified manually, with expert input for bat call analysis.

4.10 BAT ROOSTING HABITAT

A small number of trees within the fencerows and several large oak trees in Polygon 4 were identified as having structural features suitable for Big Brown Bat (*Eptesicus fuscus*) roosting, including cavities and exfoliating bark. These features may provide potential roosting habitat, particularly for day roosts or small maternity colonies (Figure 11 and 12).

Big Brown Bats were detected through ultrasonic acoustic monitoring conducted during the survey

period, indicating that the site is used for foraging or movement. The other species detected ultrasonically, Silver-haired Bat (*Lasionycteris noctivagans*) and Hoary Bat (*Lasiurus cinereus*), typically roost in taller forest stands or along forest edges, often in concealed foliage or high-canopy trees. These habitat types are not present on the subject property, and the observed trees are unlikely to support roosting for either species.

No bats or active roosts were observed during the visual roosting habitat assessment. However, as a precaution, it is recommended that all potentially suitable trees be inspected prior to removal to ensure no bats are present. The installation of bat boxes along the property periphery is also advised to support Big Brown Bat roosting opportunities and to mitigate the loss of potential roosting habitat.



Figure 11: Large Oak Tree - Polygon 4 - Possible Roost Tree – May 3, 2024.



Figure 12: Large Sugar Maple in the Fencerow between Polygon 2 and 4. May 9, 2024

4.11 ECOLOGICAL LAND CLASSIFICATION - VEGETATION

A vegetation survey of the property revealed a mix of cultural meadow and disturbed communities, each characterized by distinct floristic and structural features (Figure 13). The two cultural meadows supported a diverse range of native and non-native herbaceous plants and grasses, while the two disturbed polygons had experienced significant vegetation removal and showed limited regrowth at the time of the survey.

Surveys were conducted in accordance with the Ecological Land Classification for Southern Ontario (Lee et al., 1998), ensuring that vegetation communities were delineated and described using a

standardized framework. Each polygon was assessed using detailed ELC field data collection methods, including soil moisture regime, dominant species, canopy structure, and site disturbance indicators.

The summary provided below (Table 3) outlines the key characteristics of each ELC polygon, including dominant species, observed abundance, community type, and site condition. This summary is based on the original field cards and compiled observations collected during multiple visits in 2024. The original field data sheets (ELC cards) are retained on file and can be provided upon request to support regulatory review or additional verification.

Table 2: Ecological Land Classification

Ecosite	Field	Description
Polygon 1 <i>CUM1-1</i>	Vegetation Type	Dry-Moist Cultural Old Field Meadow
	Soil Texture	Homogenous Clay Loam – 30 cm to bedrock
	Moisture Regime	Fresh
	Vegetation Layers	Herbaceous, Sparse Shrub
	Canopy Closure (%)	Herb Layer (70%), Shrub Layer (10%)
	Dominant Species	Grasses (Poaceae spp.), Dandelion (<i>Taraxacum officinale</i>), Alfalfa (<i>Medicago sativa</i>), Prickly Ash (<i>Zanthoxylum americanum</i>), Common Buckthorn (<i>Rhamnus cathartica</i>)
	Disturbance/Notes	Early to mid-successional field, formerly agricultural. Habitat patchy with strong herbaceous dominance. Moderate invasion by Buckthorn and Prickly Ash. Supports pollinators, small mammals, and field-nesting birds.
	Estimated Area	~13.19 ha (32.58 ac)
	Date Photo Taken	Figure 14 – May 9, 2024
Polygon 2 <i>Disturbed</i>	Vegetation Type	Disturbed Area Likely Cultural Savannah from Arial Photos
	Soil Texture	Homogenous Loam – 25 cm to bedrock
	Moisture Regime	Moist
	Vegetation Layers	Ground, shrubs and scattered trees.
	Canopy Closure (%)	10-20% Heavily disturbed
	Dominant Species	Eastern Red Cedar (<i>Juniperus virginiana</i>), Choke Cherry (<i>Prunus virginiana</i>), Common Buckthorn (<i>Rhamnus cathartica</i>), Prickly Ash (<i>Zanthoxylum americanum</i>), Hedge Bedstraw (<i>Galium mollugo</i>)
	Disturbance/Notes	Vegetation cut prior to survey; most trees dead; appears historically maintained as cultural savannah
	Estimated Area	0.53 ha (1.31 ac)
	Date Photo Taken	Figure 15 – May 9, 2024

Ecosite	Field	Description
Polygon 3 CUM-1	Vegetation Type	Dry-Moist Cultural Old Field Meadow
	Soil Texture	Variable – A – Clay Loam, B – Silty Clay Loam, C – Sandy Clay Loam Depth to Mottles 38cm – Depth to Clay 58cm – 95 cm to bedrock
	Moisture Regime	Fresh
	Vegetation Layers	Ground, Sparse Shrub
	Canopy Closure (%)	<5%
	Dominant Species	Grasses (<i>Poaceae spp.</i>), Common Buckthorn (<i>Rhamnus cathartica</i>), Prickly Ash (<i>Zanthoxylum americanum</i>), Wild Strawberry (<i>Fragaria virginiana</i>)
	Disturbance/Notes	Taller grass cover than in Polygon 1; patchy distribution; no tree canopy; signs of previous disturbance and early succession
	Estimated Area	4.36 ha (10.78 ac)
	Date Photo Taken	Figure 16 – May 9, 2024
Polygon 4 Disturbed	Vegetation Type	Disturbed area likely cultural thicket or cultural savannah
	Soil Texture	Loam – Depth to Bedrock 52 cm
	Moisture Regime	Fresh
	Vegetation Layers	Trees > 25m but sparse with ground cover
	Canopy Closure (%)	2 % - Sparse but mature trees
	Dominant Species	Red Oak (<i>Quercus rubra</i>), Sugar Maple (<i>Acer saccharum</i>), Ironwood (<i>Ostrya virginiana</i>), White Cedar (<i>Thuja occidentalis</i>), Yellow Trout Lily (<i>Erythronium americanum</i>), Gooseberry (<i>Ribes spp.</i>), Strawberry (<i>Fragaria spp.</i>), Lamb's Ear (<i>Stachys byzantina</i>)
	Disturbance/Notes	Significant vegetation removal; remaining vegetation consists of mature trees and scattered ground flora. Lamb's Ear suggests garden or cultural influence.
	Estimated Area	4.83 ha (11.94 ac)
	Date Photo Taken	Figure 17 – May 9, 2024
	Pond	There was a small pond located in polygon 4. There were no turtles found around the pond. The vegetation surrounding the pond had previously been disturbed by the first visit on May 1, 2024. The size of the pond was 300m ² .

Ecosite	Field	Description
Fencerows on Property	Perimeter of the polygons	The fencerows appeared to be planted to separate the old fields from each other. Although they are not classified using the Ecological Land Classification (ELC) system, they are worth mentioning as they provide habitat for various birds, insects, and mammals. Notably, there were substantial numbers of Common Buckthorn (<i>Rhamnus cathartica</i>) and Prickly Ash (<i>Zanthoxylum americanum</i>), as well as White Cedar (<i>Thuja occidentalis</i>), Wild Grape (<i>Vitis riparia</i>), dead Black Ash (<i>Fraxinus nigra</i>), Trembling (Quaking) Aspen (<i>Populus tremuloides</i>), and White Ash (<i>Fraxinus americana</i>).



Figure 13: Ecological Land Classification - Vegetative Groups

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Figure 14: Polygon 1 - CUM1-1



Figure 15: Polygon 2 - Disturbed



Figure 16: Polygon 3 - CUM1-1



Figure 17: Polygon 4 - Disturbed Area - Woody Debris

4.12 WETLANDS, WOODLANDS & VALLEYLANDS

While no formally designated woodlands were identified on the subject property, two disturbed treed areas were noted and assessed during field investigations. A small open water pond is also

present, located in the southeast portion of the site. All features were reviewed over the course of the continuous monitoring period to ensure accurate documentation of environmental characteristics.

The pond has an approximate surface area of 300 m², which falls below the threshold for classification as a provincially significant or unevaluated wetland under the Ontario Wetland Evaluation System (OWES). As such, it is not considered a regulated feature for the purposes of this assessment.

Polygon 3 was used as an agricultural field. Soil pits within this polygon exhibited some mottling and gleying, which are common indicators of periodic soil saturation. However, these conditions were not accompanied by hydrophytic vegetation or other indicators typically associated with wetland classification. Based on current observations, this area does not meet the criteria for a wetland and is considered to reflect standard agricultural drainage characteristics.

The soil profile in Polygon 3 includes an A horizon of clay loam, underlain by B horizons of silty clay loam and sandy clay loam, indicating moderate to poor drainage capacity consistent with agricultural land use.

4.12.1 SIGNIFICANT WETLANDS

No significant wetlands were identified within the subject property or the surrounding 120-metre influence area (Figure 18). The small pond located in the southeast portion of the site (Figure 19) is not considered a significant wetland due to its limited size and isolation from other hydrologically connected features.

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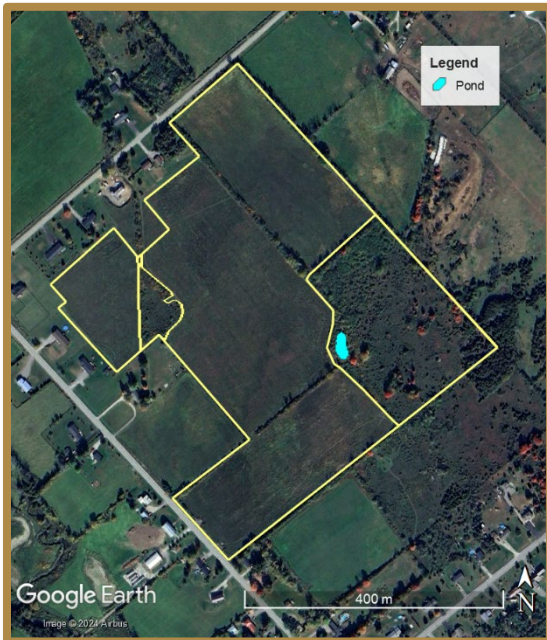


Figure 18: Map showing the pond on the property



Figure 19: Pond on the property – May 9, 2024

4.12.2 SIGNIFICANT WOODLANDS

No significant woodlands were identified on the property or within 120 metres of the site. The two disturbed treed areas observed do not meet the criteria outlined in the relevant municipal or provincial guidelines for significance.

4.12.3 SIGNIFICANT VALLEYLANDS

No significant valleylands were found on the property or within 120 meters of the adjacent property.

4.13 SIGNIFICANT WILDLIFE HABITAT AND MOVEMENT CORRIDORS

Based on information available from Ontario GeoHub's Wildlife Values Area mapping (OMNRF, 2020), no wildlife movement corridors were identified on the subject property or adjacent lands. However, the Township of Montague Official Plan indicated that the southwest corner of the property was designated as a natural corridor or wildlife movement corridor (Figure 2). According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (OMNRF, 2015), the two recognized corridor types are Amphibian Movement Corridors and Deer Movement Corridors.

Upon follow-up with the Township of Montague, it was confirmed that the designation had been applied by a previous consulting biologist, but no supporting documentation or rationale was available. In the absence of background materials, an independent field investigation was completed to verify whether the area supports the features required for corridor classification.

Field observations confirmed that the southwest portion of the property contains an existing house, a driveway, and is bordered by a municipal road, reducing habitat connectivity and making the area

unsuitable for amphibian or deer movement. No wetland features, natural linkages, or travel corridors were identified that would satisfy the criteria for Significant Wildlife Habitat (SWH).

The broader property consists primarily of cultural meadow with disturbed areas. A small open water pond (~300 m²) is present but does not meet the >500 m² minimum size requirement to qualify as Significant Amphibian Breeding Habitat under the 6E criteria. Based on these findings, no features consistent with a functional wildlife corridor or other SWH were identified on the site.

4.14 STORMWATER MANAGEMENT

A preliminary Stormwater Management (SWM) Report was prepared for the proposed subdivision to assess how post-development runoff will be managed (EFI Engineering 2024). The study concluded that surface drainage will be directed into a combination of engineered and natural features to ensure no increase in downstream flooding or erosion.

To achieve both quality and quantity control objectives, a wet pond with an extended detention basin will be installed in the west portion of the site. This facility is designed to slow and treat stormwater before releasing it off-site, thereby protecting downstream aquatic systems. The pond includes a forebay for sediment capture, a permanent pool for water quality treatment, and a spillway for safe conveyance of large storms.

In areas where connection to the main SWM pond is not feasible, low-impact development (LID) features such as vegetated filter strips and enhanced grass swales will be used to slow and treat runoff closer to its source. Together, these features meet or exceed provincial stormwater design criteria, including the removal of at least 80% of total suspended solids (TSS) across the site.

Erosion and sediment control measures will also be implemented during construction to minimize impacts to adjacent properties and habitats.

If the proposed stormwater management measures are implemented as designed, no negative impacts to surrounding wildlife, habitats, or vegetation are anticipated. These measures will support the long-term ecological health of the site and its receiving environment. Final grading and stormwater design details will be submitted separately by the project engineers following EIS review and will adhere to all regulatory requirements.

5.0 MITIGATION – PROTECTION OF WILDLIFE, HABITAT AND SPECIES AT RISK

Timing Restrictions for Vegetation Clearing: To protect nesting birds, roosting bats, amphibians, and SAR, vegetation clearing should occur between October 1 and March 31. Construction activities near sensitive habitats, including wetlands and woodland edges, should avoid amphibian breeding and migration periods (March 31 to August 31) and SAR active seasons (late April to early October). If activities are required during these periods, pre-construction sweeps must be conducted by a qualified biologist, and mitigation measures should be implemented as needed.

Minimizing Disturbances: Noise, vibrations, and light pollution near sensitive habitats should be minimized. Nighttime construction should be avoided to reduce disruption to nocturnal species, such as bats and Common Nighthawks. Quieter machinery and noise-dampening techniques

should be used where feasible. Construction lighting should be directed downward and shielded to avoid light spill into natural areas.

Vegetation Restoration: Disturbance to natural vegetation should be minimized. Replanting of disturbed areas with native plant species, including a mix of native shrubs and trees, should occur to stabilize soil, prevent erosion, and restore habitat value for wildlife. Restoration should aim to re-establish canopy cover, enhance connectivity, and replicate pre-disturbance vegetation composition where possible.

To support Monarchs and other pollinators, the vegetation restoration plan will include the planting of native milkweed species in suitable locations within or along the edges of green spaces. These plantings will enhance nectar availability and may encourage future breeding activity. Additionally, existing milkweed patches will be protected from disturbance during construction where feasible.

Vegetated buffers around the stormwater pond and along swales will be replanted using native grasses, shrubs, and milkweed where appropriate to support pollinator habitat and stabilize soil.

Exclusion Fencing: To protect species such as the Blanding's Turtle, exclusion fencing must be installed before May 1 and prior to any site preparation or construction activity. Fencing must comply with the *Government of Ontario Reptile and Amphibian Exclusion Fencing Guidelines (2021)* and should be regularly inspected and maintained to ensure its effectiveness throughout the construction period.

To prevent turtles from selecting the on-site pond for overwintering, a secondary exclusion fence must be installed around the pond in late summer or early fall, prior to the start of hibernation. This will ensure turtles are not inadvertently trapped within the work area once spring exclusion fencing is installed around the broader development envelope.

Stockpile Management: All stockpiled materials will be securely covered with geotextile fabric between May 1 and August 31 to prevent turtles from nesting. Stockpiles must be placed outside of any natural features or potential habitat areas.

Pond Removal Timing and Methods: If removal of the on-site pond is required, it must occur outside of the amphibian breeding and tadpole development window, which spans from March 31 to August 31. This avoids impacts to breeding frogs and other amphibians that may use the pond seasonally.

Where stormwater ponds or channels are to be newly constructed, vegetation clearing and earthworks must avoid amphibian breeding periods (March 31 to August 31). If construction must occur within this window, a pre-disturbance survey must be completed by a qualified biologist, and appropriate measures implemented (e.g., wildlife salvage, MECP consultation).

Prior to pond dewatering or disturbance, a qualified biologist must conduct a visual survey to confirm absence of amphibians, reptiles, or other wildlife. If any species at risk or breeding amphibians are encountered, the local MECP Species at Risk Biologist must be notified immediately, and removal or construction activities must be delayed or modified under their direction.

Dewatering should be gradual, using a method that allows any wildlife to escape and minimizes sedimentation and downstream impacts. Appropriate sediment and erosion control measures must be in place during and after pond removal or construction to prevent impacts to adjacent lands or

watercourses.

If feasible, a replacement habitat (e.g., shallow vegetated depression or pooled area) may be created nearby using native wetland vegetation to support local biodiversity and partially offset the loss or alteration of aquatic habitat.

Wildlife Timing Windows: Vegetation clearing, including removal of trees from fencerows or other areas, must occur between October 1 and March 31 to avoid impacts to breeding birds and roosting bats. If clearing must occur outside of this window, a qualified biologist will complete a pre-clearing wildlife survey. Any active nests encountered will be protected and left undisturbed until fledging is complete or the nest is confirmed inactive.

SAR Reporting Protocol: Prior to daily construction activities, a sweep of the work area should be conducted to check for wildlife that may have entered the site. If a species at risk (SAR) is observed within the work zone, the local MECP Species at Risk Biologist must be notified immediately. All work in the vicinity must pause, and activity may resume only once directed by the MECP to ensure no harm to the species.

Education for Construction Crews: All construction personnel should receive training on wildlife and habitat sensitivities, including identification of SAR and protocols for avoiding harm. Educating workers helps reduce accidental impacts on wildlife.

Spill and Waste Management: Fuel, lubricants, and hazardous materials must be stored at least 30 metres from natural features, with secondary containment in place. A spill response plan must be available on-site, and workers trained in its implementation.

Monitoring and Documentation: All mitigation measures, including fencing integrity, erosion controls, and wildlife observations, should be documented throughout the construction period. Inspection logs and wildlife encounter reports should be kept on file and made available upon request by regulatory agencies.

Cumulative Impacts: If construction activities are phased or occur in combination with nearby projects, potential cumulative impacts to local wildlife populations and habitats should be considered. Mitigation timing, scale of disturbance, and habitat connectivity should be reviewed to ensure overall ecosystem function is maintained.

Stormwater Management Infrastructure: Construction and maintenance of the stormwater management pond, swales, and associated outlets must be undertaken in a manner that minimizes disturbance to adjacent natural areas. Where possible, vegetated buffers around the pond should be retained or restored using native species. Pond grading and excavation should avoid critical timing windows for amphibians and nesting birds (see below). Access routes to the SWM facility must not bisect sensitive habitats without mitigation (e.g., temporary matting, fencing, or rerouting).

6.0 CONCLUSION

This Environmental Impact Study has evaluated the ecological features and conditions associated with the proposed subdivision at Lot 20, Concession 3 in the Township of Montague. The development includes the construction of multiple residential dwellings accessed from Matheson

Drive and Rosedale Avenue. The assessment incorporated a thorough desktop review and multiple field investigations conducted between May and July 2024.

No significant wetlands, woodlands, or movement corridors were identified on the property. A small, non-sensitive pond was documented in the northeast portion. One Monarch butterfly, listed as Special Concern, was observed during fieldwork; however, no larvae or chrysalides were detected, and the site was not determined to contain significant habitat for the species. No other Species at Risk were observed on the property or adjacent lands (120 m). While Eastern Meadowlark was reported by a neighbour, the species was not detected during surveys and the site lacks suitable grassland habitat.

The proposed development has been reviewed in the context of applicable environmental legislation and planning policies, including the Ontario Endangered Species Act, the federal Species at Risk Act, the Migratory Birds Convention Act, the Fisheries Act, the Provincial Policy Statement, and the Township of Montague Official Plan.

With the implementation of the mitigation strategies identified in this report, such as exclusion fencing, seasonal timing restrictions, vegetation restoration, and species protection protocols, the development is not expected to result in negative impacts to natural heritage features or biodiversity.

This Environmental Impact Study confirms that the proposed subdivision is consistent with federal, provincial, and municipal environmental policy, and supports responsible community growth while maintaining the ecological integrity of the site and surrounding landscape.

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Appendix A

List of Biological Species Observed

Table 4: Wildlife observations

Observed wildlife	Polygons Wildlife Observed Within	Abundance	SARO Status & Rank (Lack of status indicates species is unevaluated)
Trees & Shrubs			
Basswood (<i>Tilia americana</i>)	3	Rare	S5
Bitternut Hickory (<i>Carya cordiformis</i>)	3	Rare	S5
Black Ash (Dead) (<i>Fraxinus nigra</i>)	Fencerows	Occasional	END, S4
Buckthorn (<i>Rhamnus cathartica</i>)	1, 2, 3, 4 & Fencerows	Abundant	SNA, SE5
Chokecherry (<i>Prunus virginiana</i>)	2	Rare	S5
Common Juniper (<i>Juniperus communis</i>)	3	Rare	S5
Eastern Red Cedar (<i>Juniperus virginiana</i>)	3, 4	Rare	S5
Eastern White Cedar (<i>Thuja occidentalis</i>)	4	Occasional	S5
Green Ash (<i>Fraxinus pennsylvanica</i>)	1, 2, 3	Occasional	S4
Iron Wood (<i>Ostrya virginiana</i>)	4	Rare	S5
Manitoba Maple (<i>Acer negundo</i>)	1	Rare	S5
Norway Spruce (<i>Picea abies</i>)	2	Rare	SNA, SE3
Prickly Ash (<i>Zanthoxylum americanum</i>)	2,3 & Fencerows	Abundant	S5
Pussy Willow (<i>Salix discolor</i>)	3	Rare	S5
Quaking (Trembling) Aspen (<i>Populus tremuloides</i>)	3	Rare	S5
Red Clover (<i>Trifolium pratense</i>)	1, 2, 3 & 4	Abundant	SNA, SE5
Red Maple (<i>Acer rubra</i>)	3	Occasional	S5
Red Oak (<i>Quercus rubra</i>)	3 & 4	Occasional	S5
Sugar Maple (<i>Acer saccharum</i>)	4	Occasional	S5
Tartarian Honeysuckle (<i>Lonicera tatarica</i>)	1, 2, 3, & 4	Occasional	SNA, SE5
White Birch (<i>Betula papyrifera</i>)	3	Rare	S5

Herbaceous Vegetation			
Bird's-Foot Trefoil (<i>Lotus corniculatus</i>)	1 & 3	Occasional	SNA, SE5
Black Raspberry (<i>Rubus occidentalis</i>)	4	Occasional	S5
Common Bedstraw (<i>Galium aparine</i>)	1 & 3	Occasional	S5
Common Mullein (<i>Verbascum thapsus</i>)	4	Rare	SNA, SE5
Gooseberry (<i>Ribes spp.</i>)	4	Rare	n/a
Grape Vine (<i>Vitis spp.</i>)	3	Rare	n/a
Large Bird's-Foot Trefoil (<i>Lotus uliginosus</i>)	1	Occasional	SNA, SE5
Sulphur Cinquefoil (<i>Potentilla recta</i>)	1 & 4	Occasional	SNA, SE5
Tall Goldenrod (<i>Solidago altissima</i>)	1 & 3	Abundant	S5
Wild Asparagus (<i>Asparagus officinalis</i>)	2	Rare	SNA, SE5
Woodland Strawberry (<i>Fragaria vesca</i>)	4	Occasional	S5
Yellow Trout-lily (<i>Erythronium americanum</i>)	4	Rare	S5
Birds			
American Crow (<i>Corvus brachyrhynchos</i>)	1	Abundant	S5
American Goldfinch (<i>Spinus tristis</i>)	3	Occasional	S5
American Robin (<i>Turdus migratorius</i>)	1, 2 & 3	Abundant	S5
Black-capped Chickadee (<i>Poecile atricapillus</i>)	3 & 4	Occasional	S5
Blue Jay (<i>Cyanocitta cristata</i>)	3 & 4	Occasional	S5
Brown Thrasher (<i>Toxostoma rufum</i>)	3, 4 & Pond	Occasional	S4B
Common Raven (<i>Corvus corax</i>)	2	Rare	S5
Common Yellowthroat (<i>Geothlypis trichas</i>)	1, 3 & 4	Occasional	S5B, S3N
Eastern Kingbird (<i>Tyrannus tyrannus</i>)	1, 3 & 4	Occasional	S4B
Eastern Pheobe (<i>Sayornis phoebe</i>)	1 & 4	Occasional	S5B
Field Sparrow (<i>Spizella pusilla</i>)	4.	Rare	S4B, S3N
Gray Catbird (<i>Dumetella carolinensis</i>)	Pond	Rare	S5B
House Finch (<i>Haemorhous mexicanus</i>)	3	Occasional	SNA
Kill Deer (<i>Charadrius vociferus</i>)	4	Rare	S4B

Red-eyed Vireo (<i>Vireo olivaceus</i>)	3 & 4	Occasional	S5B
Northern Cardinal (<i>Cardinalis cardinalis</i>)	3	Abundant	S5
Red-winged Blackbird (<i>Agelaius phoeniceus</i>)	1 & 3	Occasional	S5
Song Sparrow (<i>Melospiza melodia</i>)	1, 3 & 4	Abundant	S5
Yellow Warbler (<i>Setophaga petechia</i>)	3 & 4	Occasional	S5B
Mammals			
Black Bear (<i>Ursus americanus</i>)	Scat on property	Rare	NAR
Big Brown Bat (<i>Eptesicus fuscus</i>)	2	Occasional	S5
Hoary Bat (<i>Lasiurus cinereus</i>)	2	Occasional	S4
Red Fox (<i>Vulpes vulpes</i> Linn)	4	Rare	NAR, S5
Silver-Haired Bat (<i>Lasionycteris noctivagans</i>)	2	Occasional	S4
White Tail Deer (<i>Odocoileus virginianus</i>)	Scat & Tracks throughout Property	Abundant	S5
Insects			
Carpenter Ant (<i>Camponotus spp.</i>)	4	Rare	n/a
Copper Butterfly Species (<i>Lycaninae spp.</i>)	1 & 3	Rare	n/a
Field Crickets	1, 2, 3 & 4	Abundant	
Hairstreak Butterfly Species (<i>Theclinae spp.</i>)	1, 2, & 3	Rare	n/a
Jumping Spider Species (<i>Pelegrina spp.</i>)	1, 2, & 3	Occasional	n/a
Leafhopper Species (<i>Cicadellidae spp.</i>)	1, 2, 3 & 4	Occasional	n/a
Mosquito Hawk (<i>Tipula paludosa</i>)	1	Rare	n/a
Red Soldier Beetle (<i>Rhagonycha fulva</i>)	3, 1	Rare	SNA, SE
Saddlebag Skimmer (<i>Tramea lacerata</i>)	1 & Pond	Rare	S4
Slender Crab Spider (<i>Tibellus spp.</i>)	3, 2.	Rare	n/a
Spittlebug Species (<i>Philaenus spp.</i>)	1, 2, & 3	Occasional	n/a
Three-banded Lady Beetle (<i>Coccinella trifasciata</i>)	1	Rare	S4S5
Wetland Wolf Spider (<i>Tigrosa helluo</i>)	4	Rare	S5
Yellow Jacket Species (<i>Vespula spp.</i>)	4.	Abundant	n/a
Monarch Butterfly (<i>Danaus plexippus</i>)	3.	Rare	SC, S2N, S4B

Herps			
Eastern Garter Snake (<i>Thamnophis sirtalis sirtalis</i>)	2.	Rare	S5
Gray Treefrog (<i>Dryophytes versicolor</i>)	Pond	Occasional	S5
Leopard Frog (<i>Lithobates pipiens</i>)	3.	Rare	NAR, S5
Green Frog (<i>Lithobates clamitans</i>)	Pond	Rare	S5

Note: Smaller invertebrates only identified to genus

* S-Rank = S1 Extremely Rare, S2 Very Rare, S3 Rare to Uncommon, S4 Common & S5 Widespread → B refers to breeding population of the species & N is non-breeding.

** SARO Status – END Endangered, THR Threatened, SC Special Concern, NAR Not a Risk & SNR Unranked.

Appendix B

Wildlife and Ecological Field Experience Summary

The following summarizes the relevant professional experience and qualifications of Tracey Geneau, Senior Environmental Technologist, who contributed to field investigations and reporting for this study.

Ms. Geneau has over 20 years of professional experience in biology, environmental monitoring, and ecological assessment. Her background spans both field-based wildlife survey work and laboratory-based environmental analysis, with a strong focus on species at risk, habitat evaluation, and compliance with provincial and federal legislation.

Currently employed with EFI Engineering, Ms. Geneau conducts field surveys for wildlife, vegetation, and species at risk; evaluates wetlands and woodlands; and performs bat acoustic monitoring and analysis using Kaleidoscope Pro software. She is certified to conduct Butternut Health Assessments, has completed the Ontario Wetland Evaluation System (OWES) certification course, and has advanced training in acoustic monitoring methodologies for bats.

Her previous roles include:

- Completion of avian surveys, ELC vegetation mapping, and SAR habitat assessments
- Leading a community-based water quality monitoring program, including technician supervision and stakeholder reporting
- Delivering environmental education for Carleton University, where she taught the stream ecology and water quality portion of an undergraduate field course
- Fieldwork with Fisheries and Oceans Canada and MNRF, including electrofishing, larval and adult sea lamprey surveys, fish habitat assessments, and water quality sampling
- Over a decade of experience in senior environmental laboratory roles with a focus on QA/QC, analytical chemistry, and protocol development

Ms. Geneau's combined field and technical experience contributes to thorough, defensible environmental reporting that aligns with the Provincial Policy Statement (PPS), the Endangered Species Act (ESA), and other applicable planning and conservation policies.

Education

- Bachelor of Science (B.Sc.), Biology – University of Guelph (1997–2001)
- Fish & Wildlife Technician Diploma – Fleming College (2001–2002)
- Biotechnology Technologist Diploma – St. Lawrence College (2005–2007)
- Data Analytics Certification – University of Toronto, School of Continuing Studies Boot Camp (2023)

Licenses & Certifications

- Butternut Health Assessor – Forest Gene Conservation Association, Issued June 2024
- Trained to assess Butternut tree health, diagnose Butternut Canker, and recommend management strategies.
- Ontario Wetland Evaluation System (OWES) Certification – ONresources, Issued April 2024
- Wildlife Acoustics – Kaleidoscope Pro Training Series:
 - Intro to Kaleidoscope for Bat Analysis (Beginner) – Issued April 2024
 - Using Kaleidoscope Pro for Bat Auto-ID (Intermediate) – Issued April 2024
 - Signal Extraction in Kaleidoscope Lite (Intermediate) – Issued March 2024
 - How to Start a General Survey with Kaleidoscope Pro (Advanced) – Issued March 2024
 - How to Target Sounds with Kaleidoscope Pro (Advanced) – Issued March 2024