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Township of The Archipelago

Pointe au Baril Housing Initiative

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Phase 2 Report – Preliminary Feasibility

January 17, 2025
JLR No.: 32250-000.1

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1.0 Executive Summary

The Township of The Archipelago (Township) is situated in the middle of the Georgian Bay Biosphere Reserve, designated as a world biosphere reserve by UNESCO. The Township is comprised of many islands in Georgian Bay and a number of inland freshwater lakes, all of which are used for recreational purposes.

The Township recently acquired approximately 16 hectares of land in the community of Pointe au Baril, which the Township would like to prepare to facilitate the development of housing within the community. Through this initiative, the Township will lead the planning and servicing of the lands with the goal of creating individual residential buildings lots that can be sold to and developed by the private sector, subject to the standards established by the Township.

J.L. Richards & Associates Limited (JLR) was retained by the Township to assist with this initiative. The first phase of this project relied primarily on desktop review, accompanied by limited on-site assessments. The current phase, Phase 2, builds upon this work and includes further archaeological assessment, natural heritage assessment, geotechnical assessment, preliminary consultation with the Ministry of Transportation (MTO) and Canadian Pacific / Kansas City (CPKC) Rail, as well as further conceptual planning, preliminary review of opportunities to incorporate sustainable energy initiatives, and consideration for future partnership opportunities and funding opportunities to support subsequent phases of this project.

The purpose of this report is to provide an overview of the findings of Phase 2 of the project and recommend to Council whether to proceed with subsequent phases of conceptual and detailed design. Based on the preliminary findings of the background review, technical studies, initial engagement with Indigenous communities and other key stakeholders over the course of Phase 1 and Phase 2, Council may opt to advance the project into subsequent phases. To aid in decision-making, we offer the following considerations to guide the appropriate development of the subject lands.

Cultural Heritage

The fieldwork completed by ASI has concluded that no additional archaeological assessment of the subject property is required, given that no archaeological resources were encountered. That said, should the proposed work extend beyond the current subject property or if there are changes that result in the inclusion of previously un-surveyed lands, such additional lands will be subject to further assessment.

Natural Heritage

Although additional fieldwork is still needed to determine the presence of certain other species-at-risk in the winter months, preliminary findings from the summer fieldwork indicate that endangered and threatened species were confirmed to be present on the subject property. The fieldwork completed to date has confirmed that the entirety of the subject property is considered species-at-risk habitat and is subject to authorization from the Ministry of the Environment, Conservation and Parks (MECP) prior to initiating any development or site alteration of the subject property.

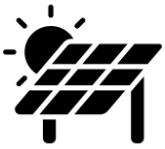
Next steps will vary depending upon the results of the remaining fieldwork and upon ongoing engagement with Indigenous communities and the MECP as to the likelihood of significant and negative impact to species-at-risk habitat with development of the subject property.

Private Servicing Feasibility

A desktop geotechnical assessment of the subject property was undertaken which considered the topography of the subject property and the predominant soil types of the surrounding area. The results of this assessment indicate that the subject property is suitable for low and medium density residential development serviced by private individual on-site well and septic systems. Furthermore, this assessment confirmed that the proposed lot sizes should be adequate to accommodate low and medium density residential development on the basis of private servicing over the long term with no negative impacts. Raised septic beds will likely be necessary, and during the future design of these lots, adequate clearance distances between ground water wells, storm water ponds and the septic beds will need to be ensured.

Potential Lot Configuration

Based on the available background information, the conceptual plan from Phase 1 has been refined to reflect a potential lot configuration for the subject property. A total of 21 lots have been shown in the conceptual plan, with a variety of future residential uses, including single detached dwellings (11), semi-detached dwellings (6), street or stacked townhouse dwellings (2), and low-rise apartment buildings (2). In total, it is anticipated that the subject property could accommodate approximately 42 new dwelling units, though the unit count is subject to change upon considering community and stakeholder input.



Opportunities for Sustainable Energy Initiatives

There are a variety of opportunities for renewable energy generation and other sustainability measures that could be implemented on the subject property. Based on a high-level review of preliminary feasibility, the Township may consider adopting a “zero combustion” approach to future development, encouraging energy efficient construction of any new buildings on the subject property, striving to achieve building performance standards or available certifications for residential construction, encouraging the use of solar renewable energy generation technology on the subject property, and/or implementing a community energy system. With each of these opportunities, we recommend that the Township take advantage of available funding sources targeted at energy efficiency should Council opt to proceed with subsequent phases of conceptual and detailed design.

Proximity to Highway 69

Although the subject property is outside of the Ministry of Transportation (MTO) controlled area under the Highway Corridor Management program, preliminary comments from MTO indicate an interest in discussing any plans for future development of the subject property, given that any future development will be accessed via North Shore Road from Highway 69. We recommend that MTO be consulted in future phases of the project when further information is available for their review and comment.

Proximity to Canadian Pacific / Kansas City Railway

Access to the subject property requires crossing a Canadian Pacific / Kansas City (CPKC) railway line located west of Highway 69, although the subject property does not directly abut the railway right-of-way. Preliminary comments provided by CPKC underscore that the safety and welfare of residents can be adversely affected by rail operations. While the subject property is located outside of the immediate influence area of the railway, CPKC recommends that a warning clause be included within any future property and tenancy agreements and offers of purchase and sale for all future dwelling units. We recommend that CPKC be consulted in future phases of the project when further information is available for their review and comment, with particular emphasis to ensure that there are no adverse impacts on the railway corridor or corridor-related infrastructure during construction should Council opt to proceed with future phases of this project.

Partnership Opportunities

To assist with the financial viability of this project and to achieve Council's vision for future development of the subject property, the Township may consider strategic partnerships with key stakeholders in the private, public, or not-for-profit sectors. Such strategic partnerships could leverage assets of stakeholders in these sectors, whether financial or otherwise, to guide future development of these lands in support of the community's needs for additional workforce housing. As future phases of this project advance with Council's direction to proceed, the project team can further refine a shortlist of interested stakeholders to engage in discussions around partnership. Ideally, such discussions would occur in advance of community visioning exercises to gather public input on the project's direction, such that these engagement activities could be held with joint participation between the Township and this future partner, whomever it may be.

Available Funding Sources

There are numerous funding opportunities that may be available to the Township to fund future phases of this project, based upon the recommendations of this feasibility study. These include funding available through the Green Municipal Fund offered by the Federation of Canadian Municipalities, the Sustainable Affordable Housing Initiative offered by the Federation of Canadian Municipalities, the Canada Community Building Fund offered by the federal government, and the Codes Acceleration Fund offered by Natural Resources Canada

(NRCAN). Additional funding sources may become available as the project goals are refined and there are more details on the proposed development, should Council opt to proceed with future phases of the project.

Should Council direct the project to proceed with subsequent phases of planning, community engagement, and design, next steps include:

- Seeking candidates to engage in future partnership on this project.
- Narrowing down the potential funding opportunities that may align with the project as it advances in planning and design and preparing the documentation required to apply for funding under any selected programs.
- Understanding the financial viability of developing the subject property, including an estimation of the Township's anticipated return on investment should the project advance into subsequent phases of design and construction.
- Engaging with key stakeholders in the future planning and design of residential development on the site, including, residents of Pointe au Baril and of the Township more broadly, representatives from nearby Indigenous communities, representatives of neighbourhood and community associations, and representatives of the MTO, MECP, and CPKC.
- Refining our understanding of the potential impacts of future development on species-at-risk habitat present on the subject property, with direction from MECP as to the permitting process under the *Endangered Species Act* should Ministry staff deem that the proposed development is likely to adversely affect species-at-risk.
- Understanding the potential impact of future development on nearby transportation infrastructure, including, for example, the potential impact of increased traffic on Provincial Highway 69 and/or the CPKC railway line which traverses North Shore Road.
- Crafting a common vision for the future of the site through ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.
- Consulting with senior levels of government and other key stakeholders on the technical aspects of future planning and design, including, for example, the MTO, MECP, and CPKC.
- Drafting a master concept plan for the site through further technical study input and ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.
- Preliminary civil engineering design for the internal street network and utilities and planning implementation (i.e., zoning approvals, site plan, community improvement plan).

We look forward to Council's direction on next steps in this project.

2.0 Introduction

2.1 Background

The Township of The Archipelago (Township) is situated in the middle of the Georgian Bay Biosphere Reserve, designated as a world biosphere reserve by UNESCO. The Township is comprised of many islands in Georgian Bay and several inland freshwater lakes, all of which are used for recreational purposes. The impetus for creating the Township originated from a strong desire by its inhabitants and the Province to preserve the natural environmental and recreational land use in the area.

Pointe au Baril is a strong, thriving hamlet situated in the northern portion of the Township which is home to approximately 250 permanent residents and 8,000 seasonal residents. The community includes a mix of residential, commercial, and institutional uses and acts as a hub for residents and destination for tourists. From a land use planning standpoint, Pointe au Baril serves as the 'central place' or 'settlement area' within the Township.

The Township, as well as other Georgian Bay Coastal communities, has been experiencing an acute shortage in housing, particularly for seasonal workers and municipal staff. The Township would like to enable the building of a variety of housing types, including single detached, semi-detached, triplex, and townhouses in Pointe au Baril.

The Township recently acquired approximately 16 ha of land in the community of Pointe au Baril, which the Township would like to prepare to facilitate the development of housing within the community. The Township will lead the planning and servicing of the project with the goal of creating individual residential building lots that can be sold to and developed by the private sector, subject to the standards established by the Township. The project is known as the Pointe au Baril (PAB) Lands Housing Initiative (PAB Housing Initiative).

2.2 Project Overview

Phase 1 of the project included a review of existing background information, including the Census community profile, the Township's Strategic Plan, Official Plan, and other background studies, plans, and site servicing information, as well as the completion of desktop studies to analyze existing site and surrounding area conditions, outreach to Indigenous communities and other stakeholders with interest in the proposed development, and preliminary identification of available funding opportunities. The final component of the Phase 1 scope of work included the preparation of a preliminary concept sketch outlining a potential layout of the site, a preliminary estimate of the unit count for the property, and a high-level cost estimate for road and site works, including stormwater management, for the development. This information was presented to Council in a Phase 1 report for decision on whether to advance the project into subsequent phases of more detailed study regarding the feasibility of future residential development.

Subsequent to the presentation of the Phase 1 report, Council directed Township staff and JLR to prepare a scope of work for Phase 2 of the project, with an accompanying timeline and budget estimate, which Council ultimately endorsed and provided their authorization for the project to continue.

The Phase 2 scope of work includes the following components, as shown in Table 1.

Table 1 Phase 2 Scope of Work for Pointe au Baril Housing Initiative

Natural Heritage Evaluation	• Targeted field surveys of selected species at risk and species of conservation concern with potential to habituate the site, building from the results of the initial natural heritage assessment completed as part of Phase 1. • Identification of any mitigation measures required prior to construction activities.
Archaeological Assessment	• Phase 2 Archaeological Assessment consisting of pit surveys at 5-metre intervals where the site retains archaeological potential, as determined through the Stage 1 Assessment completed in Phase 1, to determine the presence of archaeological resources.
Topographic Survey	• Topographic survey to depict the elevation of the land's surface and various features in order to provide ciritical information for site planning and design and inform the cost estimates for any future development on the site.
Geotechnical Study	• Desktop geotechnical study to review available subsurface soil and rock conditions of the site in order to assess the capacity of the soil to accommodate sewage disposal and confirm a source of potable water.
Preliminary Engineering Review	• Proceed with a preliminary design plan of the site, incorporating the results of the various technical studies, and presenting a concept for the proposed subdivision, including low and medium density blocks.
Preliminary Innovative Energy Review	• Provide recommendations and input into potential sustainable energy initiatives based on site conditions.
Key Stakeholder Consultation	• Engagement with Ministry of Transportation and Canadian Pacific Rail to determine their interests in the proposed development. • Engagement with the private development industry to identify those with interest in future partnership opportunities.
Detailed Exploration of Funding	• Investigate the Township's eligibility to apply to external funding programs, building on the information gathered in Phase 1, and identifying application requirements.

Should Phase 2 confirm the feasibility of the project, future phases of the project include:

- **Phase 3**: Crafting a common vision for the future of the site through ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.

- **Phase 4**: Drafting a master concept plan for the site through technical study input and ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.
- **Phase 5**: Preliminary civil engineering design for the internal street network and utilities and planning implementation (i.e., zoning approvals, site plan, community improvement plan).

2.3 Subject Property

The subject property is legally described as:

PART BROKEN LOT 27 CONCESSION 5 HARRISON PART 5, 42R6083 EXCEPT PARTS 1 AND 2, 42R6130, PART 2, 42R6131, PARTS 1, 2, 3 AND 4, 42R9399, PARTS 1, 2, 3 AND 4, 42R9400, PART 1, 42R15917, PARTS 1 AND 2. 42R16212, PART 1, 42R18179, PART 1, 42R18180, PARTS 1, 2 AND 3, 42R18181, LOTS 5, 6, 7, 8, 9, 10, 11, 12, AND 13, 42M602 AND PART 1, 42R20126, PARTS 2 AND 3, 42R21075 AND EXCEPT PART 3 42R21675 SUBJECT TO AN EASEMENT OVER PART 1, 42R21075 IN FAVOUR OF PART 2, 42R21075 AS IN GB117948 SUBJECT TO AN EASEMENT OVER PART 1, 42R21075 IN FAVOUR OF PART 3, 42R21075 AS IN GB117955 SUBJECT TO AN EASEMENT OVER PARTS 1 & 2 42R21675 AND PART 1 42R21075 IN FAVOUR OF PART BROKEN LOT 27 IN CONCESSION 5 HARRISON; PART 3 42R21675 AS IN GB148552 TOWNSHIP OF THE ARCHIPELAGO

The lands are irregularly shaped and approximately 16 hectares with frontages in two locations on North Shore Road. The lands are located inland on the north side of the Pointe au Baril Channel and are approximately 550 metres west from Highway 69. Access to the subject property requires crossing a railway line, located approximately 90 metres west of Highway 69. Refer to Figure 1Figure 1 and Figure 2 for the location and map of the subject property. The southerly North Shore Road frontage is characterized by a low-lying marshy area. The westerly North Shore Road frontage extends towards the Georgian Bay shoreline and provides a gravel access driveway to the subject property as well as adjacent residential properties.

The lands are generally forested and undulating with granite bedrock close to the ground surface and exposed rock in some areas. There is a drainage course on the northeast corner of the site which leads to a marshy area in the southeast corner of the site and outlets near the southerly North Shore Road frontage. The site generally presents a drainage divide providing positive drainage toward the northwest and southeast, toward the existing aforementioned wetland, based on topographic data. Other features of interest on the property include a low-lying ridge located in the northeast portion.

A triangular-shaped piece (of approximately 0.5 hectares) has been removed from the southwest area of the property and is occupied by Vianet, an Ontario-based Internet service provider, for a communications tower providing internet services.

Surrounding lands to the north and east are vacant, with limited low-density residential uses abutting the subject property to the south and to the west fronting on North Shore Road. Lands further south, beyond North Shore Road, are presently used for a mix of low-density residential uses as well as tourist commercial uses, including several commercial marina uses along Desmasdons Road and along South Shore Road.

Figure 1 Location of Subject Property[1]

[1] Ministry of Natural Resources and Forestry. (2023). Make a Topographic Map. Retrieved August 31, 2023 from https://www.lioapplications.lrc.gov.on.ca/MakeATopographicMap/index.html?viewer= Make_A_Topographic_Map.MATM

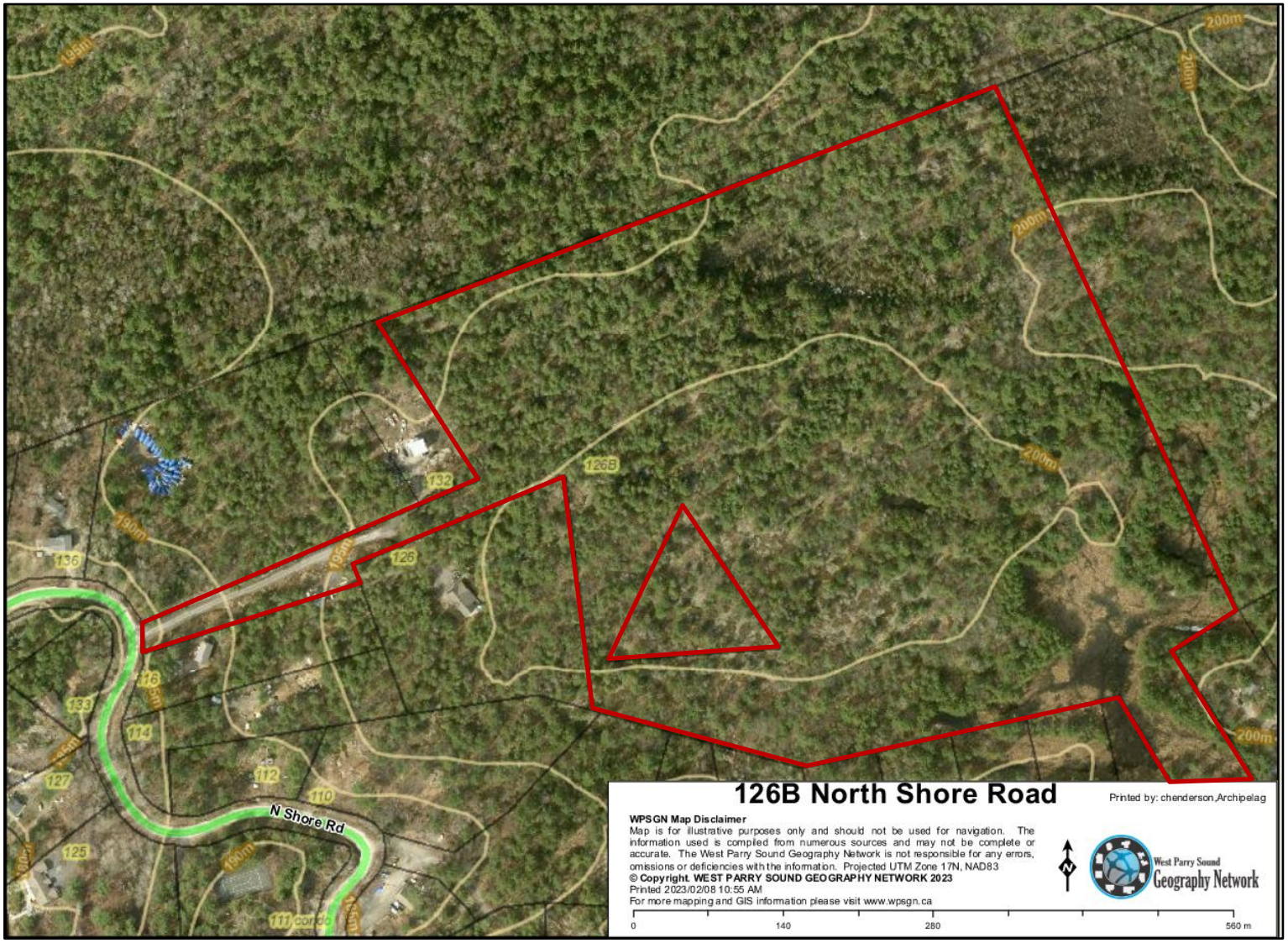


Figure 2 Map of Subject Property

2.4 Provincial Direction for Land Use Planning in Ontario

The Township's efforts to undertake this PAB Housing Initiative are timely in light of a growing housing shortage seen not only in Pointe au Baril, but also in many other communities across Ontario. In recent years, the provincial government has dedicated concerted effort to make legislative changes intended to spur residential development across the province to address the supply of housing options in urban and rural communities both large and small (including, for example, Bill 108, *More Homes, More Choice Act*, 2019; Bill 109, *More Homes for Everyone Act*, 2022; Bill 23, *More Homes Built Faster Act*, 2022; Bill 185, *Cutting Red Tape to Build More Homes Act*, 2024, among others).

Alongside these legislative changes, the Province also adopted a new Provincial Planning Statement (2024 PPS, which came into effect on October 20, 2024) to replace the 2020 Provincial Policy Statement and *A Place to Grow: Growth Plan for the Greater Golden Horseshoe*. The 2024 PPS introduces new or revised directions for planning authorities to consider in promoting residential development, among other matters of provincial interest in land use planning, including:

- Direction for local planning authorities to coordinate land use planning for housing with Service Managers to address the full range of housing options, including the need for housing that is affordable to low- and moderate-income households.

- Expanding upon the forms of housing that planning authorities are directed to provide for in planning for an appropriate range and mix of housing options and densities over the long term (e.g., laneway housing, garden suites, rooming houses, additional needs housing, multi-generational housing, student housing, farm worker housing, culturally appropriate housing, supportive, community and transitional housing, and long-term care uses).

- Requiring that planning authorities must maintain at all times sufficient land which is designated and available to accommodate residential growth for at least 15 years in designated settlement areas.

- Requiring that planning authorities must maintain at all times land with servicing capacity sufficient to provide at least a three-year supply of residential units available through lands suitably zoned for residential use in designated settlement areas (i.e., including units in draft approved or registered plans).

- Encouraging planning authorities to support the achievement of complete communities, a range and mix of housing options, intensification, and more mixed-use development in strategic growth areas (i.e., by planning strategic growth areas to accommodate significant population and employment growth; as focal areas for education, commercial, recreational, and cultural uses; and to support affordable, accessible, and equitable housing).
- Encouraging planning authorities to consider "locally appropriate" rural characteristics in addition to the scale of development and provision of appropriate service levels when directing development to rural settlement areas.

The 2024 PPS also includes the Province's target of building 1.5 million new homes by 2031 to increase the supply and mix of housing options and address the full range of housing affordability needs. This project represents an opportunity for the Township to align with the Province in realizing this goal by increasing the supply of workforce housing in the community of Pointe au Baril, marking one step towards this larger goal for the whole of Ontario. Accordingly, the Township must balance these directions with their responsibility to provide for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment, as is discussed throughout this feasibility report.

3.0 Preliminary Feasibility Assessment

3.1 Archaeological Assessment

3.1.1 Summary of Phase 1 Findings and Recommendations

As part of Phase 1 of the project, JLR retained ASI to complete a Stage 1 Archaeological Assessment of the subject property, given that it holds high potential for the recovery of archaeological resources due to its proximity to the shoreline of Georgian Bay. The background research conducted by ASI indicates that most of the study area retains archaeological potential and will require Stage 2 Archaeological Assessment prior to any development or site alteration.

3.1.2 Stage 2 Archaeological Assessment

A Stage 2 Archaeological Assessment was completed by ASI, with property survey conducted over the course of one week in June 2024 and one week in July 2024. The full report prepared by ASI and dated October 4, 2024, is attached as Appendix A to this report and includes summary of the development, historical, and archaeological context of the subject property, as presented in the Stage 1 Archaeological Assessment prepared by ASI, and further describes the field methods and a record of findings of the Stage 2 assessment.

The subsections to follow present a high-level summary of the key takeaways of the report prepared by ASI and dated October 4, 2024 for the Stage 2 Archaeological Assessment.

3.1.2.1 Methodology

All activities were carried out in accordance with the *Ontario Heritage Act*, the Standards and Guidelines for Consultant Archaeologists administered by the Ministry of Citizenship and Multiculturalism (MCM), and the *Environmental Assessment Act*.

Fieldwork was conducted between June 3rd and June 7th, 2024 and between July 22nd and 26th, 2024, with test pit surveys completed at five-metre intervals on areas of the subject property within 50 m of modern water sources and other features of archaeological potential, and test pit surveys completed at ten-metre intervals on areas of the subject property between 50 m and 150 m from other features of archaeological potential.[2]

[2] Refer to Figures 1 to 5 in the report prepared by ASI (October 4, 2024), included as Appendix A to this report, for the delineation of the areas subject to test pit survey.

3.1.2.2 Record of Findings

Low Archaeological Potential

The report prepared by ASI confirmed that most of the subject property (63.4%) was previously assessed by the Stage 1 archaeological assessment as having presumed low archaeological potential. Property inspection further confirmed the absence of indicators of archaeological potential in these areas and ASI recommends no further assessment for these areas. ASI confirmed that a further 11.6% of the subject property was deemed through visual inspection to have low archaeological potential, including previously disturbed areas (1.8%), permanently low and wet areas (4.8%), areas having exposed bedrock (4.4%), and naturally sloped areas (0.5%).

Marine Archaeological Potential

ASI identifies a small portion of the subject property (0.14%) which is comprised of a small waterbody where it is recommended that its marine archaeological potential be evaluated through a separate process following the Criteria for Evaluating Marine Archaeological Potential checklist administered by the MCM, should any plans for future development include any disturbance of this waterbody. At this time, this portion of the subject property is not contemplated for future development, and therefore no further study is anticipated.

Test Pit Surveys

The remainder of the property was subject to test pit surveys completed by ASI at five-metre intervals (24.6%) or ten-metre intervals (0.3%) given that it retains medium or high potential for the recovery of archaeological resources.

No archaeological resources were encountered through the above-mentioned test pit surveys. Based on the above, ASI recommends that the subject property does not require further archaeological assessment; however, should the proposed work extend beyond the current subject property or if there are changes that result in the inclusion of previously un-surveyed lands, ASI recommends that such additional lands will be subject to further assessment.

3.1.2.3 Next Steps

As per the report prepared by ASI, the Stage 2 Archaeological Assessment will be submitted to the MCM to be entered into the register and a letter will be issued by the Ministry confirming there are no further concerns regarding alterations to archaeological sites by the proposed development once all matters, if any, have been addressed to their satisfaction.

3.2 Natural Heritage Evaluation

3.2.1 Summary of Phase 1 Findings and Recommendations

JLR retained Blue Heron Environmental to conduct a natural heritage evaluation of the subject property and its adjacent lands. The initial evaluation completed in Phase 1 of the project consisted of a desktop study and site visit aimed at identifying sensitive ecological features that may be present and to assess potential impacts to those features from project activities. The initial evaluation completed in Phase 1 resulted in the following findings:

- No provincially significant wetlands are identified in the study area during the desktop records review.
- No Areas of Natural and Scientific Interest (ANSI) are identified in the study area.
- There is moderate and high potential for 28 species at risk to inhabit the study area based on range information and habitat availability, which include 14 protected species at risk (i.e., provincially designated as threatened or endangered under the *Endangered Species Act*).
- There is moderate and high potential for significant wildlife habitat to be present in the study area.

The natural heritage evaluation report included an impact assessment for significant wildlife habitat, fish habitat, and habitat of threatened and endangered species, as they may be subject to project-related impacts, and included a series of recommendations for best management practices to mitigate these potential project-related impacts. Blue Heron Environmental further recommended targeted surveys to be completed in the spring and winter before proceeding with additional phases of the project, which would indicate if any site-specific mitigation measures are required for the presence of species at risk or their habitat, or if further permitting steps under the *Endangered Species Act* are necessary.

3.2.2 Targeted Surveys for Species at Risk

Following the initial natural heritage evaluation of the subject property and its adjacent lands in Phase 1 of the project, JLR retained Blue Heron Environmental to complete species at risk (SAR) surveys and habitat mapping for the subject property and adjacent lands. For the purposes of SAR surveys, adjacent lands are within 120m of the proposed development area. Appendix B to this report includes a copy of the technical memorandum prepared by Blue Heron Environmental to outline the results of the fieldwork completed over the summer of 2024 and their preliminary recommendations for next steps in the project based on these initial results.[3]

The subsections to follow present a high-level summary of the preliminary findings of the Technical Memorandum prepared by Blue Heron Environmental and dated October 18, 2024.

3.2.2.1 Methodology

Blue Heron Environmental completed plant community surveys, breeding bird point count surveys, shorebird surveys, nightjar triangulation surveys, spotted turtle surveys, bat acoustic surveys, and species-at-risk habitat mapping. Winter track count surveys are scheduled for winter 2025. Refer to Appendix B to this report for a detailed description of the fieldwork methodology.

[3] There is remaining fieldwork to be completed in the winter of 2025 to complete surveys and habitat mapping for those species-at-risk that can only be assessed during the winter months (i.e., for the Eastern Wolf [*Canis Lycaon*], a designated threatened species).

3.2.2.2 Record of Findings

Plants

Based on the plant community surveys, none of the plant species observed were considered threatened or endangered under the *Endangered Species Act*.

Birds

The project team did not observe any of the threatened or endangered bird species which were identified in Phase 1 of the project as potentially present (i.e., Cerulean Warbler, Loggerhead Shrike, Lesser Yellowlegs, Eastern Whip-poor-will) through breeding bird point count surveys, shorebird surveys, and nightjar triangulation.

Mammals

The project team confirmed the presence of two endangered bat species (i.e., Little Brown Myotis and Northern Long-eared Myotis) within the subject property and adjacent lands, noting also that the observations are indicative of a maternity roost being nearby.

Reptiles

The project team confirmed the presence of two threatened reptile species (i.e., Blanding's Turtle and Massasauga Rattlesnake) within the subject property and adjacent lands; however, did not observe any Spotted Turtles on the subject property and adjacent lands.

Based on the observations, Blue Heron Environmental completed habitat mapping to determine the extent of the habitat of the threatened and endangered species which were confirmed to be present on the subject property and adjacent lands. This exercise concluded that the entirety of the subject property is considered species-at-risk habitat (i.e., Category 2 or Category 3 habitat for the Blanding's Turtle and/or Massasauga Rattlesnake, in accordance with the MNR General Habitat Description for each).[4,5]

3.2.2.3 Next Steps

Although additional fieldwork is still needed to determine the presence of certain other species-at-risk in the winter months, these preliminary findings from the summer fieldwork indicate that species-at-risk listed as endangered and threatened were confirmed present in the study area and that the entirety of the subject property is considered species-at-risk habitat. As such, Blue Heron Environmental indicates that the Township will be required to seek authorization from the Ministry of the Environment, Conservation and Parks (MECP) prior to initiating any development or site alteration of the subject property. Next steps in this process would include completing and submitting an *Information Gathering Form* to MECP listing the species that could be impacted by the project, as well as a description of the project (e.g., activities, schedules, equipment, etc.). Based on this information, MECP would determine whether the project is likely to contravene the *Endangered Species Act* and following their review of the Information Gathering Form, the MECP will either issue an authorization to proceed, request the submission of additional documentation, or determine that permitting under the *Endangered Species Act* is required.

[4] Ministry of Natural Resources (MNR). (2013). General Habitat Description for the Blanding's Turtle (*Emydoidea blandingii*).
[5] Ministry of Natural Resources (MNR). (2013). General Habitat Description for the Massasauga (*Sistrurus catenatus*).

If the MECP determines that permitting is needed (i.e., if they determine that the project is likely to have negative impacts to species-at-risk and/or their habitat), the permit type required is the Overall Benefit Permit. This permit commits the proponent of development, where negative impacts to species-at-risk and/or their habitat are likely, to provide an overall benefit to the species impacted. Blue Heron Environmental recommends that, should the MECP determine that a permit will be required, the process for obtaining the Overall Benefit Permit is iterative and can take between 12 and 15 months to complete, depending on the complexity of the project and the species being impacted.

For more information regarding what action is needed in light of the confirmed presence of species-at-risk and their habitat on the subject property and adjacent lands, refer to Figure 3 (Ontario Species at Risk Permitting Process) below.

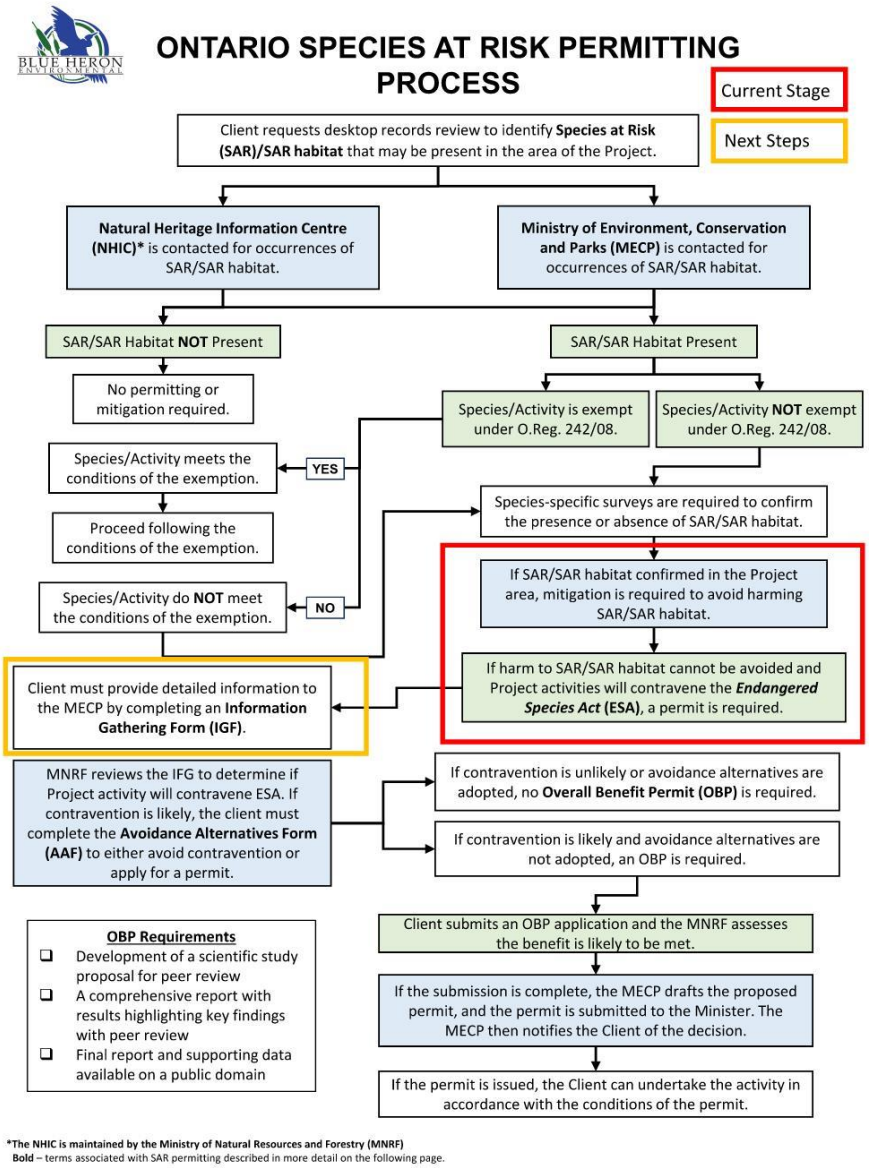


Figure 3 Ontario Species at Risk Permitting Process (Source: Blue Heron Environmental, 2024)

3.3 Preliminary Engineering Review

3.3.1 Site Servicing Review

JLR retained WSP to undertake a desktop geotechnical study to review available subsurface soil and rock conditions of the site to assess the capacity of the soil to accommodate sewage disposal and confirm a source of potable water. The analysis is presented in the technical memorandum prepared by WSP and dated November 12, 2024, included as Appendix D to this report. This memorandum presents a high-level review of topography and predominant soil types in the area and provides recommendations on the suitability of the site for low and medium density residential development.

Given the early stage of the project, the actual occupancy of each lot is yet to be confirmed. For the purpose of this desktop study of sewage disposal and potable water, a single detached 4-bedroom dwelling of typical construction was assumed, with typical demands assumed for water consumption and wastewater, as were semi-detached, townhouse, and low-rise apartment dwellings, based on the requirements of the Ontario Building Code for sewage disposal and potable water intake.

WSP indicates that the proposed lots should be adequate to support an onsite sewage system. Raised septic beds will likely be necessary, and during the future design of these lots, clearance distances between ground water wells, storm water ponds and the septic beds will need to be reviewed.

3.3.2 Conceptual Plan for Future Development of the Subject Property

The updated Conceptual Subdivision and Lotting Plan (the “conceptual plan”) is provided as Figure 4 in this report. The conceptual plan has not changed significantly from the Phase 1 assignment, except for a few key items as follows:

- More detailed survey information is illustrated based upon the legal and topographic survey completed by Surveyors on Site in June 2024. This additional information has not resulted in any significant changes to the proposed layout, though it has provided clarity on the proposed grading and drainage regime envisioned for the subject property.

- Additional storm water management (SWM) areas have been illustrated conceptually in the southeast of the subject property, upstream of the existing wetland area. These areas would provide additional storm water control over and above the lot-level controls at individual buildings to be developed on the subject property, such as rainwater harvesting and other low impact development (LID) practices. These SWM areas would help to mitigate any negative impacts that the storm water may have on the wetland and its ecological functions by providing both quality and quantity control. Such measures could include bioretention areas and enhanced swales for filtration of runoff.

- Based on the above-noted servicing report from WSP, the project team has made some adjustments to the conceptual plan provided in Figure 4. Some of the smaller lots have been combined, and the proposed higher density residential uses (e.g. low-rise apartments) have been conceptually illustrated on larger lots. These changes have been made due to anticipated issues with meeting minimum clearance

distances from groundwater wells and septic beds to the future buildings. The exact number of lots and form of development is subject to change depending upon the public input gathered through future community visioning exercises to be completed in Phase 3 of the project, should Council give direction for the project to proceed.

- Additional information has been included on the plan to provide context for future development of the subject property, including mapping related to surrounding properties and roads.

As shown in Figure 4, the conceptual plan illustrates a single roadway access to the subject property from North Shore Road, a looped internal road, as well as a future roadway connection to the adjacent property to the northeast of the subject property. The overall linear length of roadway is approximately 1,150 linear metres, and a "rural" (i.e. open ditch) cross section has been assumed for future design.

Three (3) storm water management (SWM) areas have been shown on the plan, which are generally located in the lowest areas of the two catchments, such that storm water runoff will be controlled prior to discharging from the site to adjacent properties or the existing wetland area. It is envisioned these SWM areas will need to be designed to address both quantity and quality control of increased runoff from the site arising from the loss of permeable surfaces as the site becomes developed for future residential use. Techniques such as bioretention and filtration of storm water runoff should be considered for these areas.

A total of 21 lots have been shown in the conceptual plan, with a variety of future residential dwelling types, as shown in Table 2 below.

Table 2 Potential count of dwelling units by form and occupancy per building

Form (Number of Buildings)	Occupancy	Unit Count
Single Detached Dwellings (11)	1 unit (3-4 bedrooms) each	11 dwelling units
Semi-Detached Dwellings (6)	2 units (3-4 bedrooms) each	12 dwelling units
Street or Stacked Townhouses (2)	4 units (1-2 bedrooms) each	8 dwelling units
Low-Rise Apartment Buildings (2)	6 units (1-2 bedrooms) each	12 dwelling units
Total 21 buildings	**Range of 1-4 bdrms/bldg.**	**Total 42 dwelling units**

The conceptual plan provides an illustrative example of the highest and best use of the land based on the opportunities and constraints for future development of the subject property (i.e., as gathered through the various technical assessments of the subject property, as summarized in this and earlier reports). It is the intent that the future community visioning exercises will provide an opportunity for interested stakeholders to build from the conceptual plan and background information provided in this report, to ultimately shape the future layout of the site (i.e., providing their input on the form of future development and the distribution of residential uses at varying levels of density), provided that Council directs this project to proceed to Phase 3.

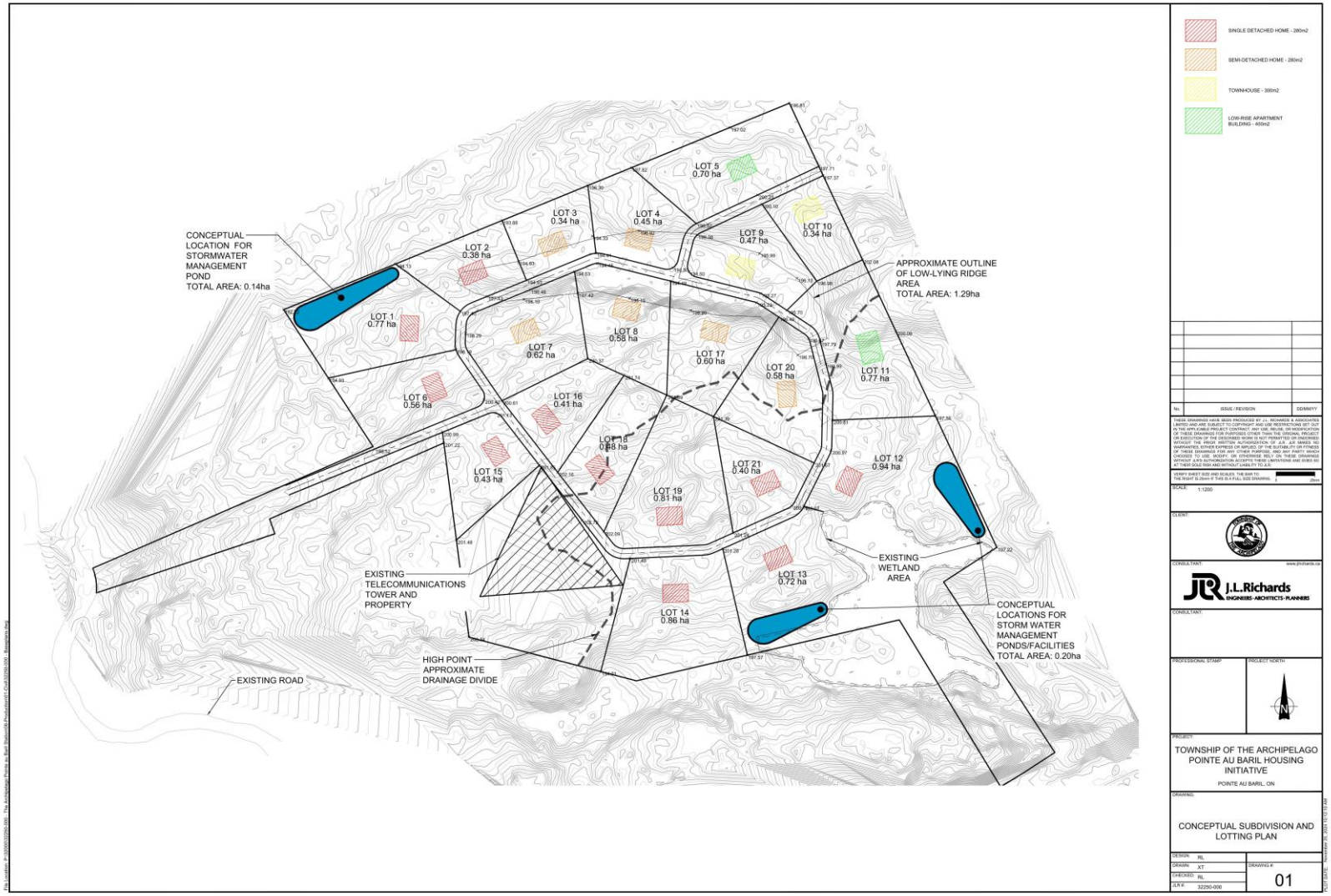


Figure 4 Conceptual subdivision and lotting plan for the subject property

3.4 Opportunities for Sustainable Energy Initiatives

This section provides a high-level discussion of the preliminary feasibility of various renewable energy generation and sustainability measures that could be implemented on the subject property.

3.4.1 Energy Efficient Construction

Energy-efficient building construction involves designing and constructing buildings to minimize energy use while maximizing comfort and functionality. This approach integrates materials, technologies, and strategies to reduce energy consumption, lower utility costs, and reduce the building's carbon footprint. Key aspects of energy-efficient building construction include:

- **Building Orientation and Design**: Positioning buildings to maximize natural lighting and heat retention in cold climates, while minimizing solar heat gain in warmer climates. Design features like overhangs, shading devices, and strategic window placement help manage energy loads.
- **High-Performance Insulation**: Installing high-quality insulation materials in walls, roofs, and floors to reduce heat transfer. This minimizes the energy needed for heating and cooling by keeping the indoor temperature stable.
- **Efficient Windows and Doors**: Using energy-efficient, double or triple-pane windows with low-emissivity (Low-E) coatings to reduce heat loss and gain. Properly sealed, insulated doors also help maintain consistent indoor temperatures.
- **Air Sealing**: Ensuring a tight building envelope by sealing gaps, cracks, and holes to prevent unwanted air leaks. This improves thermal efficiency and reduces the need for heating and cooling.

There are several building performance standards and certifications for residential construction. Common themes among certification programs include requirements for increased insulation, high-performance glazing, airtightness, energy recovery, and on-site renewable energy generation. Available programs include those outlined below in Table 3.

Table 3 Available building performance standards and certifications for residential construction

Certification Program	Target Standard/Performance Criteria
LEED v4 Residential (Canada Green Building Council)	• 20-30% less energy and water use than typical code-compliant homes
Passive House (Passive House Canada)	• 70-90% energy use reduction • Requires on-site renewable energy generation
Net Zero Home Labelling Program (Canadian Home Builder's Association)	• Net Zero: can be fully off-grid, requires on-site renewable energy systems • Net Zero Ready: up to 80% energy use reduction, ready to install renewable energy systems

Certification Program	Target Standard/Performance Criteria
Energy Star for New Homes Standard (Natural Resources Canada)	• Up to 20% better energy performance compared to typical code-compliant homes • No on-site generation requirements
R-2000 (Natural Resources Canada)	• Up to 50% better energy performance compared to typical code-compliant homes • No on-site generation requirements

These certifications are also performance-based, rather than prescriptive. Certification depends more on actual energy performance rather than specific construction methods.

3.4.2 Energy Systems

In general, it is recommended that the Township take a “zero combustion” approach to supplying energy to the proposed development on the subject property. Electrification of all energy systems, including space heating and domestic hot water will greatly reduce the lifetime GHG emissions from the site.

3.4.2.1 Solar Photovoltaics and Passive Solar Heating

Solar photovoltaics (PV) are the most straightforward renewable energy generation system that could be implemented in the new development. The current proposed lot sizing and layout provides a good opportunity for both rooftop and ground-mounted solar PV systems. Larger lots increase the feasibility and ease-of-installation for ground-mounted solar systems, as well as allow room for more generating capacity to be installed, reducing each lot’s reliance on grid electricity. Figure 5 and Figure 6 show examples of rooftop and ground-mounted PV panels, respectively.

Figure 5 Example of a roof-mounted solar photovoltaic installation

(Image source: CBC News c/o Ashley Reid)

Figure 6 Example of a ground mounted solar photovoltaic installation

(Image source: Unsplash)

The large and well-spaced lots also provide an opportunity to orient buildings to ensure good southern exposure for both rooftop PV systems and passive solar heat gain via south-facing windows. Rooftop solar heat collectors would likely also be feasible. Figure 7 illustrates a potential passive solar home design, with important features highlighted.

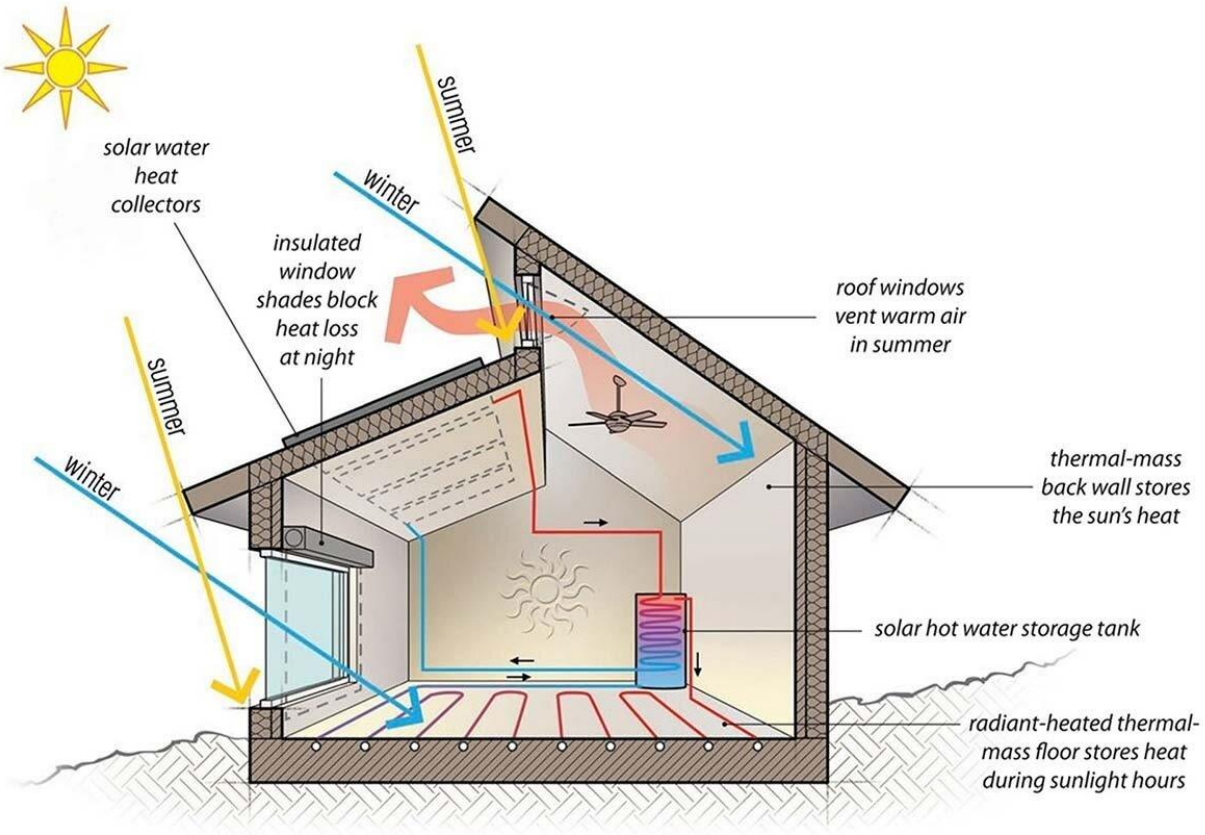


Figure 7 Conceptual diagram of a passive solar heating system

(Image source: Princeton University)

Depending on the ownership structure of the future dwellings on the subject property, it may be more cost-effective to delay PV system installation until after the dwellings are constructed. Because of this, we recommend that the Township require solar-ready design for any dwellings to be constructed on the subject property. Solar-ready design guidelines are published by Natural Resources Canada (NRCAN) and are available on their website.[6] These guidelines describe many simple and inexpensive design considerations that greatly simplify and reduce the cost of future solar thermal or solar PV installations. Some of these include:

- ensuring an unobstructed area of roof is available for PV module installation;
- pre-emptive rough-in of wiring and conduit; and,

[6] NRCAN. (2020). *Solar Ready Guidelines.* Retrieved from https://natural-resources.canada.ca/energy-efficiency/data-research-insights-energy-efficiency/housing-innovation/solar-ready-guidelines/5141

- ensuring that the home's electrical panel is suitable for connection to a PV system.

Given that future development of the subject property will be connected to the electrical grid, on-site renewable energy generation presents the opportunity for net metering. This billing structure allows homeowners or building operators to send the excess renewable energy generated at their site to the grid in exchange for a credit on their electricity bill. This grid connection will also reduce or eliminate the need for on-site battery storage, potentially reducing PV system costs.

3.4.2.2 Wind and Other Generation Technologies

Generating electricity from wind is accomplished using wind turbines, also known as windmills. Most Ontarians are familiar with utility-scale wind turbines, though smaller wind turbines are sometimes installed on farm or rural properties to generate supplemental electricity, or to supply electricity to a location where adding a grid connection would be difficult. Figure 8 shows a diagram of the type of turbine which might be installed on a large residential or farm property.

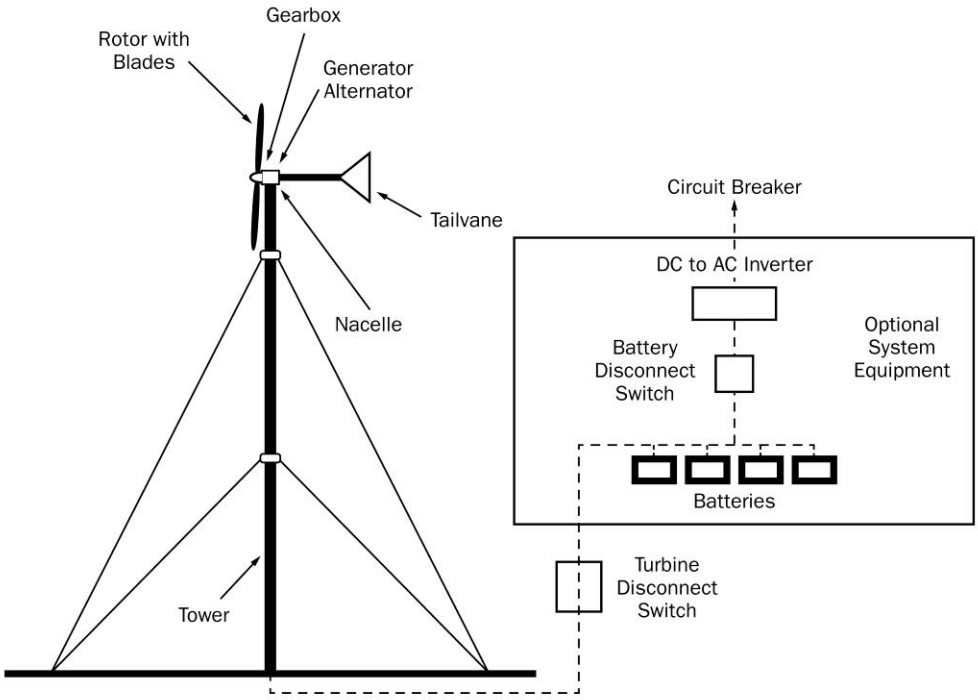


Figure 8 Conceptual diagram of a typical small-scale wind turbine system

(Image source: Ontario Ministry of Agriculture, Food and Rural Affairs)

Wind turbines are generally not recommended for residential energy generation due to noise, maintenance, and debris-throw concerns. Furthermore, the relatively higher density of the lots (as compared to large agricultural properties where turbines are typically installed), and proximity of the subject property to dense tree cover will likely lower the available wind resource.

Given that the site is expected to have a robust grid connection, other generation technologies, such as micro-hydro and biomass burning, have not been considered.

3.4.2.3 Heating and Cooling

Electrified heating and cooling systems are an important pathway to reducing greenhouse gas (GHG) emissions from buildings.

We recommend that heat pumps be used as the primary heating and cooling mechanism for the future development of the subject property. Cold-climate air-source heat pumps are commercially available, and function at ambient temperatures of -20°C and below. These units also typically include redundant electric resistance heating as a backup for colder conditions.

See Figure 9 for anFigure 9 illustration of the operating principles behind air-source heat pumps.

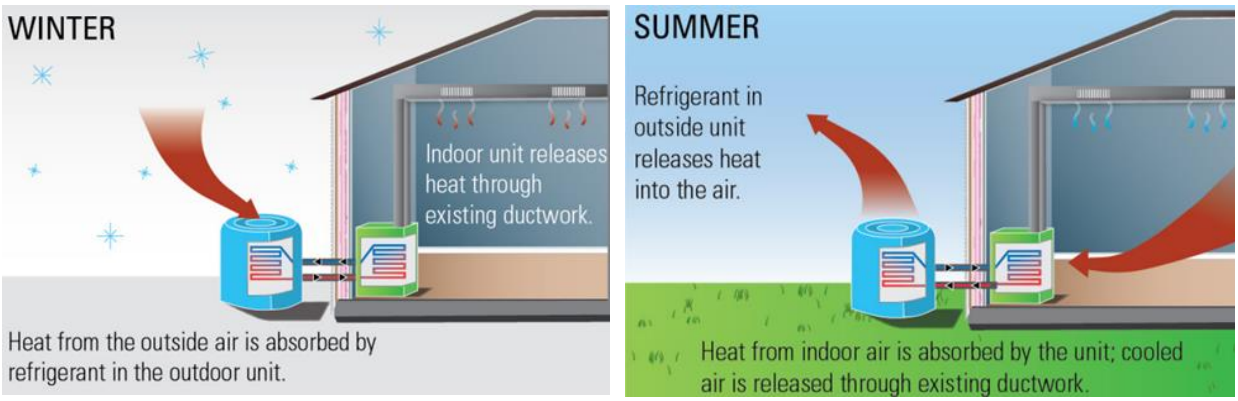


Figure 9 Conceptual diagram of air source heat pump operation

(Image source: Energy Star)

Alternatively, ground-source heat pumps take advantage of more stable ground temperatures for extracting heat during the winter, and sinking heat during the summer. These systems require either horizontal or vertical ground loops to transfer heat to and from the ground. The larger lot sizes are conducive to the relatively shallow but large-area excavation required to install horizontal ground loops. Suitability of the site for ground loops should be confirmed with geotechnical investigation.

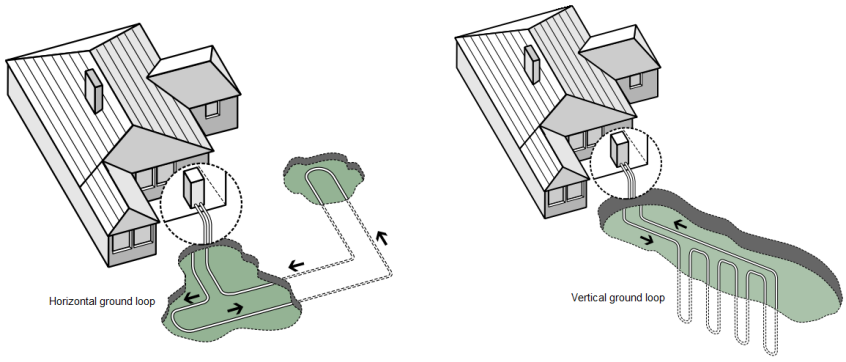


Figure 10 Conceptual diagram of a horizontal and a vertical ground source heat pump loop

(Image source: Natural Resources Canada)

As mentioned above, the proposed lot size and layout is conducive to orienting the new homes to take advantage of passive solar gains during the winter months. It is recommended that installation of high-performance glazing on the southern walls of new homes be investigated at the detailed design stage, as well as seasonal shading systems to prevent unwanted solar gains in the summer.

3.4.2.4 Domestic Hot Water

It is recommended that opportunities for implementing heat pumps for domestic hot water also be investigated. This can be done as part of the appliance energy efficiency component of an energy efficient construction certification if desired. Domestic hot water energy recovery technologies such as drain waste heat exchangers should also be evaluated at the design stage of any new homes. Drain waste heat exchangers recover some of the heat from a home's wastewater stream, and use it to pre-heat incoming cold water, reducing the amount of energy needed to achieve the desired domestic hot water temperature. Units typically consist of a copper drainpipe wrapped with smaller copper lines that carry cold water to be heated.

3.4.2.5 Community Energy Systems

As the subject property is being considered for development as a single parcel, there is an opportunity to include a community energy system in the future subdivision design. The most common community energy systems are thermal energy systems supplying hot water from a central utility plant to other buildings where it is used for heating and/or domestic hot water. Various fuels and heating technologies can be used in a central utility plant. These systems take advantage of the economies of scale to provide energy efficiencies. The most appropriate community energy system will depend on the form and ownership structure of the development. Therefore, it is recommended that the feasibility of specific community energy systems be investigated in more detail once the design has advanced.

3.4.3 Summary of Recommendations

Based on the high-level discussion of the preliminary feasibility of various renewable energy generation and sustainability measures that could be implemented on the subject property, we recommend the following considerations for future phases of this project:

- Adopt a "zero combustion" approach; encourage electric energy systems only.
- Encourage energy efficient construction of any new buildings and consider certification under one of the programs listed above.
- Encourage use of solar photovoltaics at the site, contingent on solar resource availability.
- Use heat pumps as the primary heating and cooling mechanism, and review opportunities for heat pumps for domestic hot water.
- Consider implementing a community energy system.
- Take advantage of the funding sources targeted at energy efficiency as plans for future development of the subject property and priorities are clarified, as discussed in greater detail in Section 5 of this report.

4.0 Preliminary Consultation with Key Stakeholders

4.1 Ministry of Transportation

As previously discussed, the subject property is located approximately 550 metres west from Highway 69, a provincial highway maintained by the Ministry of Transportation (MTO). At this stage, consultation with MTO has been limited to email correspondence to introduce the project and share preliminary details of the proposed approach to future development of the subject property. Although the subject property is located outside of the MTO controlled area under the Highway Corridor Management program, preliminary comments from MTO indicate an interest in discussing the plans for future development of the subject property given that the development will be accessed via North Shore Road through Highway 69. These initial comments from MTO include a request to be circulated on any traffic studies conducted for the proposed development in order to determine whether traffic volumes generated would have a negative impact on Highway 69, or if any highway improvements will be required at the intersection of North Shore Road and Highway 69. In addition, MTO requests to be circulated on the detailed concept plan at such as it is completed for their records.

It is recommended that MTO be consulted in future phases of the project when further information is available for their review and comment.

4.2 Canadian Pacific / Kansas City (CPKC) Rail

Access to the subject property requires crossing a Canadian Pacific / Kansas City (CPKC) railway line, located approximately 90 metres west of Highway 69, though the subject property does not directly abut the railway right-of-way. The most easterly boundary of the subject property is approximately 400 metres from the edge of the railway right-of-way, with adjacent properties located between the subject property and the railway right-of-way, as shown in Figure 11 below.

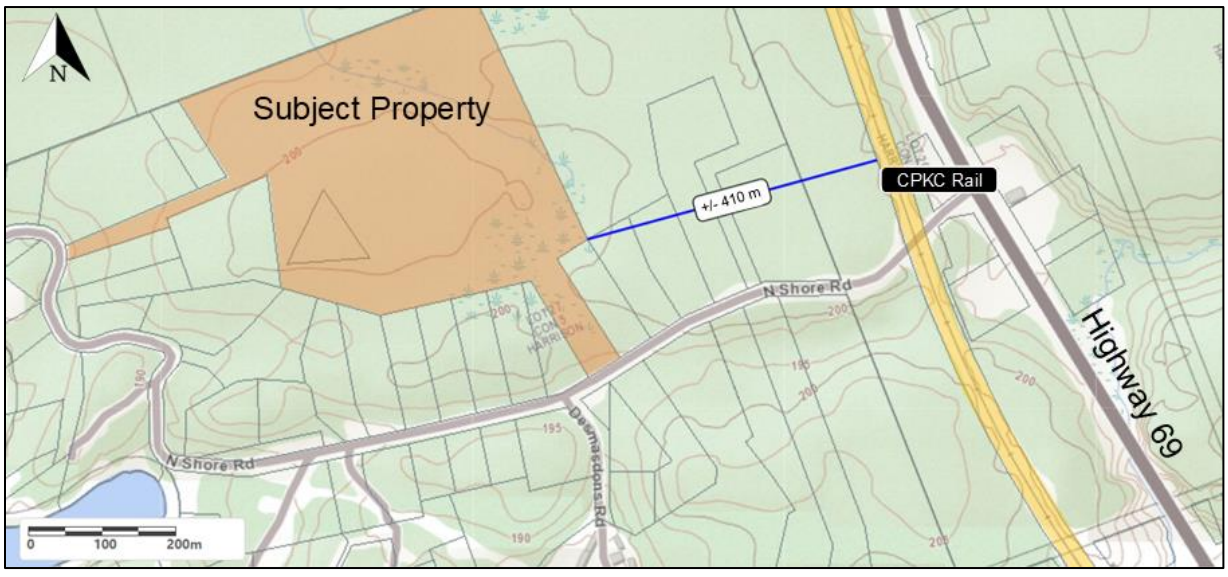


Figure 11 Proximity of the subject property to the CPKC railway adjacent to Highway 69

At this stage, consultation with CPKC has been limited to email correspondence to introduce the project and share preliminary details of the proposed approach to future development of the subject property. Preliminary comments provided by CPKC underscore the safety and welfare of residents which can be adversely affected by rail operations. Their preliminary comments share recommended guidelines developed through collaboration between the Railway Association of Canada (RAC) and the Federation of Canadian Municipalities (FCM) which encapsulates CPKC's approach to development in the vicinity of rail operations.

The Guidelines for New Development in Proximity to Railway Operations were prepared for the FCM RAC in May 2013 as part of the FCM/RAC Proximity Initiative.[7] The guidelines provide a comprehensive set of standards for use when developing lands in proximity to railway operations, with the goals of:

- Promoting awareness around issues of noise, vibration, and safety and associated mitigation measures.
- Promoting a greater consistency in application of relevant standards across the country.
- Establishing an effective approvals process for new residential development that allows municipal planners to effectively evaluate such proposals.
- Enhancing the quality of living environments in close proximity to railway operations.

Many of the considerations for new development in proximity to railway operations are more relevant to lands within a closer proximity than the subject property is to the CPKC railway right-of-way. Given that the subject property is located more than 400 metres from the CPKC railway right-of-way, we recommend that no additional building setbacks need to be incorporated into the site design beyond those prescribed by the Township's Zoning By-law, and further that the subject property is beyond the recommended influence area for noise and vibration mitigation measures. The key components of the guidelines which are relevant to future development of the subject property pertain to future construction activities, ensuring that there are no adverse impacts on the corridor or corridor-related infrastructure during construction, and to potential warning clauses. Preliminary comments from CPKC indicate their preference for a condition to be included in any future property and tenancy agreements and offers of purchase and sale for all future dwelling units, as follows:

> *"CPKC and/or its assigns or successors in interest has or have a railway right-of-way and/or yard located adjacent to the subject land hereof with operations conducted 24 hours a day, 7 days a week, including the shunting of trains and the idling of locomotives. There may be alterations to, or expansions of, the railway facilities and/or operations in the future, which alterations or expansions may affect the living environment of the residents in the vicinity. Notwithstanding the inclusion of any noise and/or vibration attenuating measures in the design of the development and individual dwellings, CPKC will not be responsible for complaints or claims arising from the use of its facilities and/or its operations on, over, or under the aforesaid right-of-way and/or yard."*

[7] Federation of Canadian Municipalities, Railway Association of Canada. (2013). *Guidelines for New Development in Proximity to Railway Operations*. Retrieved September 20, 2024 from https://www.proximityinitiative.ca/

We recommend that further consultation occur with CPKC once conceptual plans are advanced in subsequent phases of the project, with particular emphasis on identifying CPKC's interests in minimizing the impact of construction activities on the corridor or corridor-related infrastructure.

4.3 Partnership Opportunities for Future Development

To assist with the financial viability of this project and to achieve Council's vision for future development of the subject property, the Township may consider strategic partnerships with key stakeholders in the private, public, or not-for-profit sectors. Such strategic partnerships could leverage assets of stakeholders in these sectors, whether financial or otherwise, to guide future development of these lands in support of the community's needs for additional workforce housing.

Council may consider the following stakeholders who may have interest in future opportunities to partner with the Township in advancing the conceptual design through subsequent phases of this project and in the future construction and sale of individual residential lots to be created from the subject property:

- **Private sector**: Developers with residential development experience in near-north communities and with shared values of environmental protection and preservation as the Township and the community of Pointe au Baril.

- **Not-for-profit sector**: Non-governmental organizations (NGOs) with stated missions to improve access to affordable, attainable, or workforce housing in near-north communities (e.g., Habitat for Humanity Ontario Gateway North, Parry Sound Affordable Housing Development Corporation, Parry Sound Non-Profit Housing Corporation, Georgian Bay Native Non-Profit Homes, Golden Sunshine Municipal Non-Profit Housing Corporation, Non-Profit Organization for Almaguin Housing (NOAH), or others), depending upon the Township's desire for all or a portion of the units to be developed as "affordable" housing units.[8,9]

- **Public sector**: Other single-tier, lower-tier, or upper-tier municipalities, with a similar shortage of workforce housing, where available resources could be shared to improve access to affordable, attainable, or workforce housing.

- **Local Indigenous communities**: Neighbouring First Nation or Métis communities with a similar shortage of workforce housing, where available resources could be shared to improve access to off-reserve housing that is affordable and/or attainable to community members.

[8] For the purposes of this assignment, "affordable housing" means, in the case of ownership housing, the least expensive of housing for which the purchase price results in annual accommodation costs which do not exceed 30 percent of gross annual household income for low and moderate income households; or housing for which the purchase price is at least 10 percent below the average purchase price of a resale unit in the municipality, as per the Provincial Planning Statement, 2024.
[9] For the purposes of this assignment, "affordable housing" means, in the case of rental housing, the least expensive of a unit for which the rent does not exceed 30 percent of gross annual household income for low and moderate income households; or a unit for which the rent is at or below the average market rent of a unit in the municipality, as per the Provincial Planning Statement, 2024.

- **Government agencies**: As discussed in greater detail in Section 5 of this report, the Township may be eligible for funding from senior levels of government to assist with this project. Further to these available sources of funding, the Township may consider future partnership with the Parry Sound District Social Services Administration Board (DSSAB) in their role as the Service Manager responsible for the administration of social housing in the Parry Sound District, depending on the Township's desire for all or a portion of the units to be developed as social housing units.

As future phases of this project advance with Council's direction to proceed, the project team can further refine a shortlist of interested stakeholders to engage in discussions around partnership. Ideally, such discussions would occur in advance of community visioning exercises to gather public input on the project's direction, such that these engagement activities could be held with joint participation between the Township and this future partner, whomever it may be.

5.0 Summary of Available Funding Sources

This section provides an overview of the funding opportunities that may be available to the Township to fund future phases of this project, based upon the recommendations of this feasibility study. Additional sources of funding may become available as the project goals are refined and there are more details on the proposed development.

5.1.1.1 Green Municipal Fund

The Federation of Canadian Municipalities (FCM) offers funding for capital projects and feasibility studies that meet certain criteria via the Green Municipal Fund.

Through the Green Municipal Fund, FCM offers funding for:

- Community energy systems.
- District heating and cooling systems.
- Thermal energy recovery or renewable thermal energy systems.
- Feasibility and business case development studies for capital projects with significant environmental and social benefits.

Table 4 provides a summary overview of the funding offered by FCM for business case development, feasibility studies, capital projects, and accelerating community energy systems.

Table 4 Overview of funding programs offered through the FCM's Green Municipal Fund

Business Case	
Maximum Award	$200,000
Funding Breakdown	Up to 80% of eligible costs for municipalities with fewer than 10,000 residents
Expected Output	A business case that assesses low-carbon energy systems viable for a given site.
Deadlines	Applications remain open year-round until all available funding has been allocated

Feasibility Study	
Maximum Award	$200,000
Funding Breakdown	Up to 80% of eligible costs for municipalities with fewer than 10,000 residents
Expected Output	A detailed feasibility study outlining the design of a proposed low-carbon energy system
Deadlines	Applications remain open year-round until all available funding has been allocated
Capital Projects	
Maximum Award	$10,000,000
Funding Breakdown	Combined grant and loan for up to 80% of project costs (grant limited to 15% of project costs)
Expected Output	A capital project to construct a 100% renewable community energy system
Deadlines	Applications remain open year-round until all available funding has been allocated
Accelerating Community Energy Systems	
Maximum Award	$200,000
Funding Breakdown	Up to 80% of eligible costs for municipalities with fewer than 10,000 residents
Expected Output	A study that identifies opportunity areas for low-carbon community energy systems (including renewable and district energy systems) within your community and develops mechanisms to support implementation.
Deadlines	February 21, 2025

5.1.1.2 Sustainable Affordable Housing Initiative

FCM also offers funding under its Sustainable Affordable Housing (SAH) initiative, which would be most relevant should the Township decides to develop the subject property with affordable housing[10] and opt to maintain ownership over the long term. It should be noted that capital projects must meet the requirements for Net Zero Energy or Net Zero Ready under the Canadian Home Builder's Association Net Zero Home Labelling Program, discussed in Section 3.4 of this report. Furthermore, larger grants are available for northern applicants including the Township of The Archipelago.[11]

Through the Sustainable Affordable Housing Program, FCM offers funding in four categories, as detailed in Table 5.

[10] GMF requires that at least 30% of units in a proposed building or development must have rent at or below 80% of the local median market rent. This rent must be maintained for the entire GMF loan repayment period.
[11] FCM defines northern applicants in Ontario as organizations located in Statistics Canada census code 35, which applies to The Township of The Archipelago (Code 3549005).

Table 5 Overview of funding available through FCM's Sustainable Affordable Housing program

Study: Retrofit or new construction of sustainable affordable housing	
Maximum Award	$250,000
Funding Breakdown	Grants up to $250,000 to cover up to 80% of eligible costs
Expected Output	Evaluation of approaches to implementing a sustainable affordable housing project, including • Technical assessments and energy modelling • Financial options analysis • Site assessments • Stakeholder engagement • Detailed project planning
Deadlines	Applications remain open year-round until all available funding has been allocated
Planning: Early support grant for sustainable affordable housing projects	
Maximum Award	$30,000
Funding Breakdown	Grants up to $30,000 to cover up to 80% of eligible costs
Expected Output	Activities that form part of the planning phase of the project, including: • Project initiation: meetings, project scoping, work plan and timelines, background review, project visioning and goal setting • Needs assessment: evaluating housing stock, resident support, preliminary review of building opportunities • Basic financial assessment: review of current budget information, tasks and scope to assess magnitude of project costs and potential savings and funding sources • Stakeholder engagement activities • Evaluation of energy-efficient approaches • Support to identify qualified design consultants and contractors
Deadlines	Applications remain open year-round until all available funding has been allocated
Pilot Project: Retrofit or new construction of sustainable affordable housing	
Maximum Award	$500,000
Funding Breakdown	Grants up to $500,000 to cover up to 80% of eligible costs
Expected Output	Pilot projects that generate significant GHG reductions for affordable housing providers. These can include small-scale versions of larger planned capital projects, replicable application of new approaches, or application of solutions that were successful in other jurisdictions that have not been tested in the applicant jurisdiction.
Deadlines	Applications remain open year-round until all available funding has been allocated.

Capital project: New construction of sustainable affordable housing	
Maximum Award	$10,000,000
Funding Breakdown	Financing for up to 20% of total eligible project costs, to a maximum of $10,000,000. A distribution of 80% grant, 20% loan is available for Northern applicants.
Expected Output	New housing units that achieve at least net-zero ready performance. Units constructed to Note: GMF does not require certification
Deadlines	Applications remain open year-round until all available funding has been allocated

5.1.1.3 Canada Community Building Fund

The Canada Community Building Fund (CCBF) is a federal program that provides funding for a variety of municipal capital projects, including energy efficiency and community energy systems. Funding is transfer based, with approximately $4.7 billion allocated to the Province of Ontario between 2024 and 2029. According to the CCBF allocation table published by the Association of Municipalities of Ontario, the Township is set to receive $323,188 between 2024 and 2028.

5.1.1.4 Natural Resources Canada (NRCAN) Codes Acceleration Fund

The NRCAN Codes Acceleration Fund may also be applicable to development on the subject property. Per NRCAN, the objectives of the program are:

- Accelerate the adoption and implementation of the highest feasible energy performance tiers of the national model energy codes or other high-performance building codes, such as net-zero emissions codes.
- Promote higher rates of compliance with adopted codes.
- Build capacity and support market preparedness for ambitious codes adoption.

Canadian municipalities are eligible for funding under Stream 1 of the Codes Acceleration Fund. Energy codes and design guidelines have been adopted by several larger municipalities in southern Ontario, including the City of Toronto,[12] the Town of Whitby,[13], the Region of Durham,[14] and the City of Mississauga,[15] among others.

This fund is available until March 31, 2027, and is expected to provide approximately $30 million over all projects.

[12] Refer to the City of Toronto website for more information on the *Toronto Green Standard*: https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/
[13] Refer to the Town of Whitby's website for more information on the *Whitby Green Standard*: https://www.whitby.ca/en/work/whitby-green-standard.aspx
[14] Refer to the Region of Durham's website for more information on the *Durham Standard* and their *Sustainability and Resilience Design Checklist*: https://www.durham.ca/en/living-here/greening-regional-operations.aspx#Durham-Standard
[15] Refer to the City of Mississauga's website for more information on the *Corporate Green Building Standard*: https://www.mississauga.ca/publication/corporate-green-building-standard/

If desired, the Township could use future development of the subject property as a test case and opportunity to develop new energy efficiency codes, standards, or bylaws related to energy efficiency that could apply more broadly to new development or redevelopment across the Township.

6.0 Conclusion and Next Steps

The background information contained in this report is intended to support Council in making an informed decision on whether to proceed in their efforts to plan for future residential development of the property located on North Shore Road in Pointe au Baril. This report builds on the effort of Phase 1 to provide more detailed information regarding the feasibility and suitability of the site for future residential development. Although development of the subject property is feasible from a technical perspective, there are several factors which Council must weigh before deciding to advance the project into subsequent phases of design and construction. These factors include, for example, the presence of species-at-risk habitat across the entirety of the subject property, the potential impact of future development on nearby transportation infrastructure (i.e., Provincial Highway 69 and the adjacent CPKC railway line which traverses North Shore Road), the adequacy of existing or planned transportation infrastructure to accommodate future development of the subject property, as well as the financial feasibility of advancing this project into subsequent phases of design and construction.

In sum, we recommend that the Township weigh the below considerations in deciding whether to advance this project into subsequent phases:

Archaeological Resources

No archaeological resources were encountered through the above-mentioned test pit surveys. ASI indicates that the subject property does not require further archaeological assessment; however, should the proposed work extend beyond the current subject property or there be changes that result in the inclusion of previously un-surveyed lands, such additional lands will be subject to further assessment.

Natural Heritage Features and Areas

Based on field observations, Blue Heron Environmental completed habitat mapping to determine the extent of the habitat of the threatened and endangered species which were confirmed to be present on the subject property and adjacent lands (i.e., Blanding's Turtle and Massasauga Rattlesnake). This exercise concluded that the entirety of the subject property is considered species-at-risk habitat.

Next steps in this process would include submitting documentation to MECP listing the species that could be impacted by the project, as well as a detailed description of the project (e.g., activities, schedules, equipment, etc.). Based on this information, MECP would determine whether the project is likely to contravene the *Endangered Species Act* (i.e., have a negative impact on threatened or endangered species and their habitat) and following their review, the MECP would either issue an authorization to proceed, request the submission of additional documentation, or determine that permitting under the *Endangered Species Act* is required.

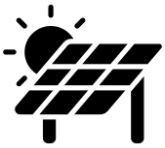
As previously noted, should the MECP determine that permitting will be required, the process is iterative and can take between 12 and 15 months to complete, depending on the complexity of the project and the species being impacted.

Private Servicing Feasibility

The site servicing study completed by WSP reviewed available subsurface soil and rock conditions of the site to assess the capacity of the soil to accommodate sewage disposal and confirm a source of potable water. WSP indicates that the proposed lots should be adequate to support onsite sewage systems. Raised septic beds will likely be necessary, and during the future design of these lots, clearance distances between ground water wells, storm water ponds and the septic beds will need to be reviewed.

Potential Lot Configuration

Based on the available background information, the conceptual plan from Phase 1 of this project has been refined to reflect a potential lot configuration for the subject property. The conceptual plan illustrates a single roadway access to the subject property from North Shore Road, a looped internal road, as well as a future roadway connection to the adjacent property to the northeast of the subject property. Storm water management areas have been shown on the plan, which are generally located in the lowest areas of the two catchments, such that storm water runoff will be controlled prior to discharging from the site to adjacent properties or the existing wetland area. A total of 21 lots have been shown in the conceptual plan, with a variety of future residential uses, including single detached dwellings (11), semi-detached dwellings (6), street or stacked townhouse dwellings (2), and low-rise apartment buildings (2). In total, it is anticipated that the subject property could accommodate approximately 42 new dwelling units, though the unit count is subject to change upon considering community and stakeholder input.



Opportunities for Sustainable Energy Initiatives

Based on a high-level assessment of the feasibility of various renewable energy generation and sustainability measures that could be implemented on the subject property, there are several considerations that we recommend for the project should it advance into further phases of planning and design. These include, for example, adopting a “zero combustion” approach; encouraging electric energy systems only; encouraging the energy efficient construction of any new buildings; considering certification under several available programs for new construction; encouraging the use of solar photovoltaics on the site; considering the implementation of a community energy system; and taking advantage of available funding programs offered to offset project costs.

Should Council direct the project to proceed with subsequent phases of planning, community engagement, and design, next steps include:

- Seeking candidates to engage in future partnership on this project.

- Narrowing down the potential funding opportunities that may align with the project as it advances in planning and design and preparing the documentation required to apply for funding under any selected programs.

- Understanding the financial viability of developing the subject property, including an estimation of the Township's anticipated return on investment should the project advance into subsequent phases of design and construction.

- Engaging with key stakeholders in the future planning and design of residential development on the site, including, residents of Pointe au Baril and of the Township more broadly, representatives from nearby Indigenous communities, representatives of neighbourhood and community associations, and representatives of the MTO, MECP, and CPKC.

- Refining our understanding of the potential impacts of future development on species-at-risk habitat present on the subject property, with direction from MECP as to the permitting process under the *Endangered Species Act* should Ministry staff deem that the proposed development is likely to adversely affect species-at-risk.

- Understanding the potential impact of future development on nearby transportation infrastructure, including, for example, the potential impact of increased traffic on Provincial Highway 69 and/or the CPKC railway line which traverses North Shore Road.

- Crafting a common vision for the future of the site through ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.
- Consulting with senior levels of government and other key stakeholders on the technical aspects of future planning and design, including, for example, the MTO, MECP, and CPKC.
- Drafting a master concept plan for the site through further technical study input and ongoing engagement with representatives of neighbouring Indigenous communities and members of the public.
- Preliminary civil engineering design for the internal street network and utilities and planning implementation (i.e., zoning approvals, site plan, community improvement plan).

We look forward to Council's direction on next steps in this project. Should you have any questions or would like any additional information, please contact the undersigned.

J.L. RICHARDS & ASSOCIATES LIMITED

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This report has been prepared by J.L. Richards & Associates Limited for the Township of The Archipelago's exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

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Appendix A

Stage 2 Archaeological Assessment
Final Report
(ASI)

Stage 2 Archaeological Assessment Pointe-au-Baril Housing Project (Part of Lot 27, Concession 5, Geographical Township of Harrison, County of Parry Sound) Township of the Archipelago, District of Parry Sound

Original Report

Prepared for:

J.L. Richards & Associates Ltd.
107 – 450 Speedvale Ave. West
Guelph ON, N1H 7Y6

Archaeological Licence: P383 (Williams)

PIF# P383-0443-2024

Archaeological Services Inc. File: 24EA-056

04 October 2024

Executive Summary

Archaeological Services Inc. was contracted by J.L. Richards & Associates Limited, on behalf of the Township of the Archipelago, to conduct a Stage 2 Archaeological Assessment as part of the Pointe-au-Baril Housing Project. This project involves the eventual development of a parcel located north of North Shore Road and west of the Trans-Canada Highway in Pointe-au-Baril, Ontario. The Study Area is an irregularly shaped polygon measuring approximately 650 by 560 metres and covering approximately 16.1 hectares.

A Stage 1 assessment for Pointe-au-Baril Housing Project was previously completed by ASI in 2024 (P094-0370-2023). Background research determined that portions of the Study Area presented low archaeological potential and required visual confirmation by property inspection, while other areas retained high archaeological potential and Stage 2 test pit survey was recommended.

The Stage 2 property survey was conducted on June 3-7 and July 22-26, 2024, in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists* by test pit survey. Approximately 1.83 percent (0.29 hectares) of the Study Area was determined to have been disturbed by the construction of an access road. In addition, large portions of the Study Area (63.4 percent or 10.2 hectares) were confirmed by property inspection as having low archaeological potential.

Smaller portions of the Stage 2 Study Area were confirmed as presenting permanently low and wet conditions (4.8 percent or 0.76 hectares), exposed bedrock (4.4 percent or 0.7 hectares) or slopes in excess of 20 degrees (0.52 percent or 0.08 hectares), hence presenting low archaeological potential. These areas were not subject to Stage 2 test pit assessment. Approximately 0.14 percent of the Study Area (0.02 hectares) is represented by a small pond within a natural swale. Its marine archaeological potential will be evaluated through a separate process following the *Criteria For Evaluating Marine Archaeological Potential* (MTCS 2016) checklist.

The remaining 24.9 percent of the Study Area (4.01 hectares), comprising woodlots, grasslands and scrubland, was subject to test pit survey at five-metre intervals, or judgmental test pit survey at ten-metre intervals to confirm the continuity of permanently low and wet and gleysolic conditions. No archaeological resources were encountered during the Stage 2 survey, and no further assessment is recommended.

ASI

Project Personnel

- **Senior Project Manager**: Lisa Merritt, MSc (P094) Partner, Director, Environmental Assessment Division
- **Project Manager**: Caitlin Lacy, BA (R303), Lead Archaeologist, Project Manager, Environmental Assessment Division
- **Project Director**: Blake Williams, MLitt (P383), Lead Archaeologist, Project Manager, Environmental Assessment Division
- **Division Coordinator**: Katrina Thach, BA Hons (R1225), Associate Archaeologist, Assistant Manager, Environmental Assessment Division
- **Project Administrator**: Justine Tenzer, BA, Project Administrator, Environmental Assessment Division
- **Field Director**: Jose Gutierrez, MA (R1213), Archaeologist, Field Director, Environmental Assessment Division; Brandon Reimer, BA (R1297), Archaeologist, Field Director, Environmental Assessment Division
- **Field Archaeologists**: Kevin Adamson; Elizabeth Anderson; Skyler Dawson; Megan Edwards; William Glenn; Morgan Lesko; Dina Blanco Pena; Abdur Rahman; William Clarke Robinson
- **Report Preparation**: Ciprian Ardelean, PhD, Senior Associate, Technical Writer and Researcher, Environmental Assessment Division
- **Graphics**: Peter Bikoulis, PhD, Archaeologist, GIS Technician, Operation Division; Carolyn Nettleton, BA, Archaeologist, GIS Technician, Operation Division
- **Report Review**: Caitlin Lacy; Jessica Lytle, MSc (P1066), Lead Archaeologist, Technical Writer and Fieldwork Coordinator, Environmental Assessment Division; Lisa Merritt.

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1.0 Project Context

Archaeological Services Inc. (ASI) was contracted by J.L. Richards & Associates Limited (Ltd.), on behalf of the Township of the Archipelago, to conduct a Stage 2 Archaeological Assessment as part of the Pointe-au-Baril Housing Project (Figure 1). This project involves the eventual development of the lands located at 126 North Shore Road in Pointe-au-Baril, Ontario. The Study Area is an irregularly shaped polygon measuring approximately 650 by 560 metres, which covers approximately 16.1 hectares.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2023) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), currently administered by the Ministry of Citizenship and Multiculturalism (MCM), formerly the Ministry of Tourism and Culture (MTC 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act, RSO* (Environmental Assessment Act, R.S.O. c. E.18, 1990 as amended 2022) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the *Municipal Class Environmental Assessment* process (Municipal Engineers Association, 2023).

In addition, this Stage 2 assessment has been commissioned to satisfy the recommendations of the previous Stage 1 assessment (ASI, 2024: P094-0370-2023) that was undertaken as part of the Pointe-au-Baril Housing Project in the Township of The Archipelago.

Authorization to access and carry out all activities necessary for the completion of this Stage 2 assessment was granted by J.L. Richards & Associates Ltd. on May 22, 2024.

1.1.1 Treaties and Traditional Territories

The Study Area is within the Robinson-Huron Treaty 61. In 1850, the Robinson-Huron treaty was signed in Baawating (Sault Ste. Marie) by the Lake Huron Chiefs and leaders of the Anishinaabeg signatory First Nations ceding the Lake Huron shoreline, including the islands, from Matchedash Bay to Batchewana Bay, and inland as far as the height of land, for resource extraction and settlement (Surtees, 1986). One of the signatories was Anishinaabe Chief Shingwaukonse (Little Pine) (1773-1854), veteran of the War of 1812 who had helped establish Garden River First Nation. While settlement was restricted to the established reserves, "the full and free privilege to hunt over the territory [then] ceded by them and to fish in the waters thereof as they have heretofore been in the habit of doing" was retained in the Treaty for the first time in treaty making history, as well as cash payment for annuities (Surtees, 1971, 1986).

During the negotiations of the Robinson Treaty, the Métis lost much of their rights, particularly regarding their land, despite having strong support from Chief Shingwaukonse from Garden River. However, regardless of the Crown's treatment of the Métis, the Ojibway continued to regard the Métis as having the same rights as them (Lytwyn, 1998; Préfontaine, 2003). It was also generally assumed that in spite of the Robinson Treaty, the Métis would continue to have the right to hunt and fish. This was evident in the nineteenth century census data which showed the occupation of many Métis as hunters, fishermen, trappers and traders. Although mostly removed from the core due to the inability to own land, the Métis continued to live on the outskirts of Sault Ste. Marie (Lytwyn 1998).

1.2 Historical Context

A comprehensive review of the precontact Indigenous and Euro-Canadian occupations of the Point-au-Baril area is presented in the Stage 1 report (ASI, 2024, pp. 7–12). To summarize, background research indicates that the general vicinity of the Study Area has been attractive to human settlement for thousands of years, primarily by Indigenous people and more recently by Euro-Canadian settlers. Historically, the Study Area corridor is within part of Lot 27, Concession 5, in the Geographical Township of Harrison, County of Parry Sound, Ontario.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MCM through *Ontario's Past Portal*; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

As described in the Stage 1 report (ASI, 2024, p. 15), the Study Area is set within a wider woodlot that extends across the majority of the area and beyond the Study Area limits on all sides. There is a wetland in the southeast portion of the Study Area that connects to a minor stream that flows east and northeast. A paved road extends through the western portion of the Study Area, which leads to a triangular area containing a hydro tower located outside of the Study Area. The Study Area is characterized by woodlots and open grasslands with patches of exposed bedrock, often buried under thin layers of moss or forest topsoil, and by large areas of permanently low and wet conditions, often with pooling water and seasonally running streams.

The Stage 2 survey for the Pointe-au-Baril Housing Project was conducted on June 3-7, 2024, under the field direction of Brandon Reimer (R1297), and on July 22-26, 2024, under the field direction of Jose Gutierrez (R1213).

1.3.2 Geography

A comprehensive summary of the geology and physiography of the Pointe-au-Baril region is presented in the Stage 1 report (ASI, 2024, pp. 12–14). To summarize, the Study Area is situated within the Bare Rock Ridges and Shallow Till physiographic landform of the Georgian Bay Fringe physiographic region (Chapman & Putnam, 1984).

The Georgian Bay Fringe is typified by extremely shallow soils overlaying the Precambrian Shield rock with numerous exposures of bedrock (Chapman & Putnam, 1984). The surficial topography has been heavily influenced by glacial scouring, followed by erosion and reworking by the receding waters of post-glacial Lake Algonquin. These factors, in combination with logging activities of the late nineteenth and early twentieth centuries and the influence of one or more large post-logging era forest fires, has created the present-day landscape. This landscape is invariably associated with a very shallow, to a non-existent, covering of glacial till soils. The exceptions to this trend are the occasional depressions in the bedrock where a deep soil mantle has accumulated through time. These areas of soil were often exploited for semi-subsistent agricultural pursuits by early European settlers leading to settlement patterns known as “pocket pattern agriculture”. The surficial geology of the majority of the Study Area comprises Precambrian bedrock. The northwest and west corners of the Study Area are underlain by primarily stratified drift cover of a bedrock drift complex in Precambrian terrain.

The Study Area is within the Georgian Bay watershed (Ministry of Natural Resources and Forestry, 2020). An unnamed stream flows east and north from a marsh located within the southeast corner of the Study Area.

1.3.3 Previously Registered Archaeological Sites

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MCM. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometres east to west, and approximately 18.5 kilometres north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *BjHc.*

According to the Ontario Archaeological Sites Database, one previously registered archaeological sites are located within one kilometre of the Study Area, but not within 50 metres (MCM 2023). A summary of the site is provided below.

Table 1: Registered Sites within One Kilometre of the Study Area

Borden Number	Site Name	Temporal/ Cultural Affiliation	Site Type	Researcher
BjHc-1	Mont-View Lodge	Indigenous	Findspot	Unknown, 1968

1.3.4 Previous Archaeological Assessments

(ASI, 2024) Stage 1 Archaeological Assessment, Point-au-Baril Housing Project (lot 27, Concession 5, Geographical Township of Harrison, County of Parry Sound) Township of The Archipelago, District of Parry Sound; PIF# P094-0370-2023, ASI file 23EA-157

This is the Stage 1 archaeological assessment (background research) that issued the recommendations for the current Stage 2 assessment. The survey area overlapped entirely with the present Study Area and included a small portion disturbed by the construction of an access road. The report showed that parts of the survey area retained archaeological potential and recommended Stage 2 test pit survey. It also found that parts of the survey area were in locations with permanently low and wet conditions; property inspection was recommended to assess the low potential of those areas.

ASI found that no other archaeological assessments performed fieldwork within 50 metres of the Study Area.

2.0 Field Methods

ASI was contracted by J.L. Richards & Associates Ltd., on behalf of the Township of the Archipelago, to conduct a Stage 2 Archaeological Assessment as part of the Point-au-Baril Housing Project (Figure 1). This project involves the eventual development of the lands of 126 North Shore Road in Pointe-au-Baril, Ontario. The Study Area is an irregularly shaped polygon measuring approximately 650 by 560 metres which covers approximately 16.1 hectares.

The Stage 2 property survey was conducted on June 3-7, 2024, under the field direction of Brandon Reimer (R1297), and on July 22-26, 2024, under the field direction of Jose Gutierrez (R1213), in accordance with the *Ontario Heritage Act* and the S & G, Section 2. During the field assessments, weather and lighting conditions permitted good visibility and were in accordance with the S & G, Section 2.1, Standard 3. During the time of survey, conditions were seasonal with sunny skies and temperatures reaching 26-28 degrees Celsius. Photographs of all field conditions were taken (Image 1-Image 39), and the location and direction of each photograph is mapped in Figure 2-Figure 5.

As per Section 2.1 of the S & G, all lands were within areas where ploughing was not possible or viable and therefore subject to test pit survey. According to Section 2.1.5, Standards 1 and 2 of the S & G, test pit survey at five-metre intervals is conducted within 50 metres of modern water sources and other features or archaeological potential. Test pits were placed at five-metre intervals until permanently low and wet gleysolic soils were encountered, and then judgmentally increased to 10 metre intervals as per S & G Section 2.1, Standard 2ai. Lands between 50 and 150 metres from other features or archaeological potential require test pit survey at 10 metre intervals, and survey is not required beyond 150 metres. All test pits were excavated following the S & G Section 2.1.2 Standards 5-9. All test pits were excavated by hand to a minimum of 30 centimetres in diameter and into the first five centimetres of subsoil. Each test pit was examined for stratigraphy, cultural features, and evidence of fill. Test pit fill was screened through six-millimetre mesh to facilitate artifact recovery. Afterwards, all test pits were backfilled, and their locations were recorded on field maps. Any factors that precluded the excavation of test pits (e.g., excessive slope, drainage, exposed bedrock, previous disturbance) were noted, and the areas were mapped and photographed.

Fieldwork was conducted using a Samsung Galaxy S4 tablet running Esri Collector software equipped with a sub-metre Trimble Catalyst Global Navigation Satellite System in conjunction with project mapping provided by the Township of The Archipelago to ensure the assessment remained within the Study Area limits.

2.1 Areas of Low Archaeological Potential

Approximately 63.4 percent of the Study Area (10.2 hectares) was previously assessed by the desktop Stage 1 archaeological assessment (ASI, 2024) as having presumed low archaeological potential due to its distance from indicators of archaeological potential, and was recommended for property inspection to confirm the absence of indicators. Areas of low archaeological potential identified by the preceding Stage 1 assessment were subject to a property inspection to confirm the absence of indicators of archaeological potential within the Study Area. The areas were determined to be located on the Canadian Shield and have low archaeological potential given that they were not within 50 metres of a primary modern water source or within 150 metres of other indicators of archaeological potential following S & G Section 2.1.5, Standards 1 and 2.c. The Property inspection confirmed the absence of indicators of archaeological potential in these areas. As such, no further assessment is recommended for these areas (Figure 2-Figure 5: areas highlighted in dashed light blue; Image 2-Image 12 and Image 38). The property inspection also confirmed an area of deep and extensive disturbance by road construction, holding no archaeological potential (1.83 percent of the Study Area or 0.29 hectares; Figure 2-Figure 4; Image 1).

Approximately 4.8 percent of the Stage 2 Study Area (0.76 hectares) was documented as being permanently low and wet and was not subject to Stage 2 survey, as per S & G Section 2.1, Standard 2.a.i. The areas documented as being permanently low and wet have low archaeological potential and include multiple strips of land showing characteristic low and wet vegetation, pooling water, and young running streams (Figure 3-Figure 5: areas highlighted in light blue; Image 13-Image 18 and Image 38).

Approximately 4.4 percent of the Study Area (0.7 hectares) was documented as having exposed bedrock and was not subject to Stage 2 survey, as per S & G Section 2.1, Standard 2.a.ii. The areas documented as having exposed bedrock have low archaeological potential and include portions of land with clearly visible exposed bedrock (Figure 3-Figure 5: areas highlighted in brown; Image 19-Image 25).

Approximately 0.52 percent of the Study Area (0.08 hectares) was documented as having naturally sloped conditions in excess of 20 degrees and not subject to Stage 2 survey, as per S & G Section 2.1, Standard 2.a.iii. The areas documented as being naturally sloped have no archaeological potential and include locations between high bedrock outcrops and low and wet areas (Figure 2-Figure 4: areas highlighted in pink; Image 25, Image 26).

2.2 Test Pit Survey

Approximately 24.6 percent of the Study Area (3.97 hectares) was found to contain natural topsoil (A-horizon) and was subject to test pit survey at five-metre intervals following S & G Section 2.1.2, Standards 1-9 and Section 2.1.5, Standards 1 and 2.a. The areas subject to test pit survey at five metre intervals include wooded areas and open grassed areas across most of the Stage 2 Study Area (Figure 2-Figure 5: areas highlighted in dark green; Image 27-Image 35).

Representative undisturbed stratigraphy within the Study Area can be characterized by:

- Approximately 13 centimetres of gray (10YR 5/1) sandy loam over a layer of pale brown (10YR 6/3) sandy clay (Image 31); or
- *Layer 1*, 8 centimetres (cm) thick: forest floor (Organic horizon), very dark grayish brown (10YR 3/2) loamy sand with some rock inclusions; *Layer 2*, 3 cm: A-horizon topsoil, black (10YR 2/1) loamy sand with abundant roots; *Layer 3*, 5 cm: dark brown (7.5YR 3/3) silty sand; and *Layer 4*: buried bedrock (Image 33); or
- *Layer 1*, 3 cm: O-horizon, very dark grayish brown (10YR 3/2) loamy sand with few rock inclusions; *Layer 2*, 2 cm: A-horizon, black (10YR 2/1) loamy sand; *Layer 3*, 3 cm: AE horizon, still topsoil, gray (10YR 6/1) sand with no inclusions; and *Layer 4*, 15 cm: subsoil, dark brown (7.5YR 3/3) clayey sand (Image 34).

Portions of the Study Area nearby watercourses and waterbodies demonstrated naturally permanently low and wet gleysolic conditions. Gleysolic soils result from prolonged water saturation of the soil profile. Landscapes with clay-dominated soil textures have very slow rates of water movement through the soil which

causes water saturation. Water saturation leads to depletion of oxygen in the soil and soil features associated with oxygen-depleted conditions. These conditions cause the transformation of metals, such as iron, and lead to changes in the dominant colour of soil horizons. When oxygen becomes depleted (due to water saturation) the iron is reduced and takes on a blue-gray hue and this dominates the colour of the horizon. Reduced iron is also mobile, and it can concentrate in the profile and re-oxidize, producing reddish or brown mottles. These features are collectively referred to as gley features, and the diagnostic criteria for gleysolic soils in the presence of well-developed gley features within 50 centimetres of the soil surface (University of Saskatchewan, 2021).

Approximately 0.26 percent of the Study Area (0.04 hectares) was subject to judgmental test pit survey at ten-metre intervals to confirm permanently low and wet gleysolic conditions, as per S & G Section 2.1, Standard 2ai. The areas subject to judgmental test pit survey include a small wooded area along the south limit of the Study Area, and west of a pond and permanently low and wet areas (Figure 4 and Figure 5: area highlighted in light green; Image 36 and Image 37).

Representative gleysolic stratigraphy within the Study Area can be characterized by:

- *Layer 1*, 0-7 cm: very dark brown (10YR 2/2) sandy loam; *Layer 2*, 7-48 cm: dark grayish brown (10YR 4/2) sand banded with grayish brown (10YR 5/2) sand; and *Layer 3*, 48-55 cm: pale red (2.5Y 6/2) sandy clay with oxidized reddish brown streaks (2.5Y 5/3); *Layer 4*: gray (Gley 1 7/N) gleyic subsoil (Image 36); or
- Approximately 20 centimetres of grayish brown (10YR 5/2) sandy clay with bands of black (10YR 2/1) sandy clay over a gleyic layer of gleyic (GLEY1 7/5GY) sandy clay (Image 37).

2.3 Waterbody

Approximately 0.14 percent of the Study Area (0.02 hectares) is represented by a small shallow pond within a natural swale (Figure 4 and Figure 5: area highlighted in dark blue; Image 39). Its marine archaeological potential will be evaluated through a separate process following the *Criteria For Evaluating Marine*

Archaeological Potential checklist administered by the MCM, formerly the Ministry of Tourism, Culture and Sport (MTCS 2016).

2.4 Stage 2 Assessment Results Summary

A summary of the Stage 2 assessment results for the Pointe-au-Baril Housing Project can be found in Table 2 below.

Table 2: Stage 2 Survey Results Summary

Survey Method	Area	Description	Images
Visually assessed as being previously disturbed; low archaeological potential	0.29 hectares (1.83 percent)	Access road	Image 1
Low archaeological potential confirmed by visual inspection	10.2 hectares (63.4 percent)	Multiple low/wet areas, pools and streams	Image 2 - Image 12, Image 38
Visually assessed as permanently low and wet; low archaeological potential	0.76 hectares (4.8 percent)	Multiple low/wet areas, pools and streams	Image 13 - Image 18
Visually assessed as having exposed bedrock; low archaeological potential	0.7 hectares (4.4 percent)	Canadian shield	Image 19 - Image 25
Visually assessed as naturally sloped (greater than 20 degrees); low archaeological potential	0.08 hectares (0.52 percent)	Slopes between high bedrock outcrops and low and wet areas	Image 25 - Image 26

Survey Method	Area	Description	Images
Test pit survey; five-metre intervals	3.97 hectares (24.6 percent)	Woodlot, grasslands	Image 27 - Image 35
Judgmental test pit survey; ten-metre intervals	0.04 hectares (0.26 percent)	Woodlot, gleysolic conditions	Image 36, Image 37
Marine archaeological potential will be evaluated through *Criteria for Evaluating Marine Archaeological Potential* (MTCS 2016)	0.02 hectares (0.14 percent)	Pond, swamp	Image 38

3.0 Record of Finds

No archaeological resources were encountered during the Stage 2 Archaeological Assessment for the Pointe-au-Baril Housing Project.

3.1 Inventory of Documentary and Material Record

The documentation related to this archaeological assessment will be curated by ASI until such a time that arrangements for their ultimate transfer to His Majesty the King in right of Ontario, or other public institution, can be made to the satisfaction of the project owner(s), the MCM, and any other legitimate interest groups.

Table 3 provides an inventory and location of the documentary and material record for the project in accordance with the S & G, Sections 6.7 and 7.8.2.3.

Table 3: Inventory of Documentary and Material Record

Material	Location	Comments
Digital field notes, field maps, GPS logs, etc.	Archaeological Services Inc., 528 Bathurst Street, Toronto, Ontario, M5S 2P9	Stored in ASI project folder 24EA-056; GPS and digital information stored on ASI network servers
Digital field photography	Same as above	Files stored on ASI network servers
Digital research, analysis, and reporting materials	Same as above	Files stored on ASI network servers

4.0 Analysis and Conclusions

ASI was contracted by J.L. Richards & Associates Ltd., on behalf of the Township of the Archipelago, to conduct a Stage 2 Archaeological Assessment as part of the Point-au-Baril Housing Project (Figure 1). This project involves the eventual development of the lands located at 126 North Shore Road in Pointe Au Baril, Ontario. The Study Area is an irregularly shaped polygon measuring approximately 650 by 560 metres which covers approximately 16.1 hectares.

A Stage 1 assessment for Pointe-au-Baril Housing Project was previously completed by ASI in 2024 (ASI, 2024). Background research determined that portions of the Study Area presented low archaeological potential and required visual confirmation by property inspection, while other areas retained high archaeological potential and Stage 2 test pit survey was recommended.

The Stage 2 property survey was conducted on June 3-7 and July 22-26, 2024, in accordance with the *Ontario Heritage Act* and the S & G by test pit survey. Approximately 1.83 percent (0.29 hectares) of the Study Area was determined to have been previously disturbed by the construction of an access road (Figure

2-Figure 4: area highlighted in yellow; Image 1). In addition, large portions of the Study Area (63.4 percent or 10.2 hectares) were visually confirmed by property inspection as having low archaeological potential (Figure 2-Figure 5: areas highlighted in dashed light blue and brown; Image 2-Image 12 and Image 38).

Additionally, smaller portions of the Stage 2 Study Area were confirmed as presenting permanently low and wet conditions (4.8 percent or 0.76 hectares; Figure 3-Figure 5: areas highlighted in light blue; Image 13-Image 18), exposed bedrock (4.4 percent or 0.7 hectares; Figure 3-Figure 5: areas highlighted in brown; Image 19-Image 25) or slopes in excess of 20 degrees (0.52 percent or 0.08 hectares; Figure 2-Figure 4: areas highlighted in pink; Image 25, Image 26), hence presenting low or no archaeological potential. All these areas were not subject to Stage 2 test pit assessment.

Approximately 0.14 percent of the Study Area (0.02 hectares) is represented by a small pond within a natural swale (Figure 4 and Figure 5: area highlighted in dark blue; Image 39). Its marine archaeological potential will be evaluated through a separate process following the *Criteria For Evaluating Marine Archaeological Potential* (MTCS 2016) checklist.

The remaining 24.9 percent of the Study Area (4.01 hectares), comprising woodlots, grasslands and scrubland, was subject to test pit survey at five-metre intervals, and judgmental test pit survey at ten-metre intervals to confirm the continuity of permanently low and wet and gleysolic conditions (Figure 2-Figure 5: areas highlighted in green; Image 27-Image 36). No archaeological resources were encountered during the Stage 2 survey, and no further archaeological assessment is recommended.

5.0 Recommendations

Considering these results, the following recommendations are made:

1. The Study Area does not require further archaeological assessment; and

2. Should the proposed work extend beyond the current Study Area or should changes to the project design or temporary workspace requirements result in the inclusion of previously un-surveyed lands, these lands should be subject to a Stage 2 archaeological assessment.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the MCM should be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without MCM concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MCM approval has been received.

6.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 2005, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a

known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.

- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

7.0 Bibliography and Sources

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8.0 Images

Image 1: Disturbed access road; low potential.

Image 2: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 3: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 4: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 5: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 6: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 7: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 8: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 9: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 10: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 11: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 12: Property inspection confirmed an absence of indicators of archaeological potential; low archaeological potential.

Image 13: Permanently low and wet; low archaeological potential.

Image 14: Permanently low and wet and sloped; low archaeological potential.

Image 15: Permanently low and wet; low archaeological potential.

Image 16: Permanently low and wet; low archaeological potential.

Image 17: Permanently low and wet; low archaeological potential.

Image 18: Permanently low and wet; low archaeological potential.

Image 19: Bedrock under moss; low archaeological potential.

Image 20: Bedrock, low archaeological potential.

Image 21: Test pit survey at five-metre intervals; foreground: bedrock bluff, low archaeological potential.

Image 22: Exposed bedrock under thin layer of moss, low archaeological potential; test pit survey in the background.

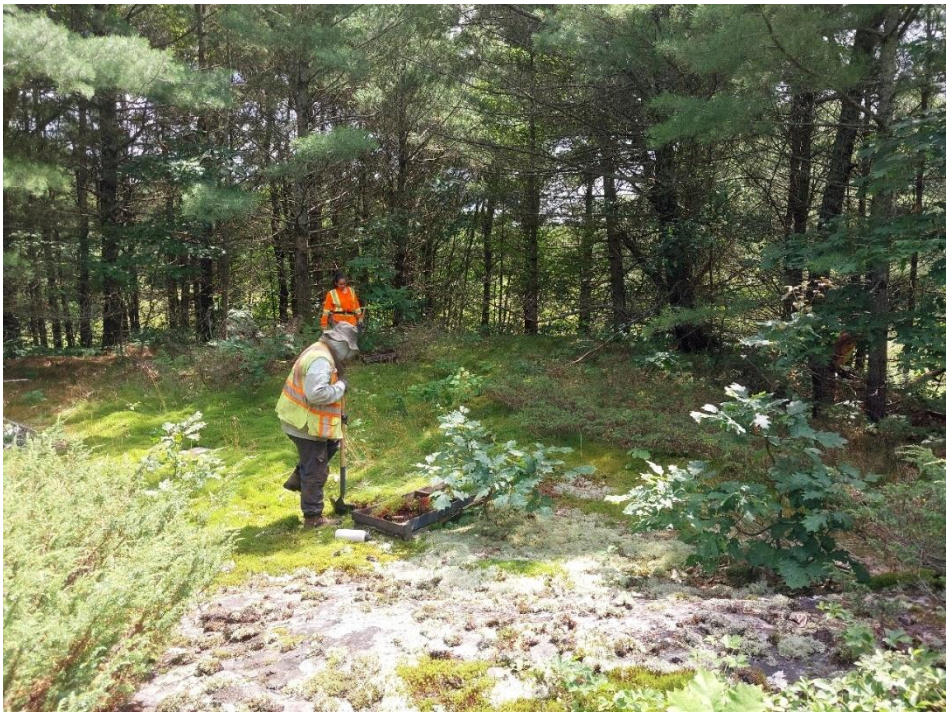


Image 23: Judgemental test pit survey around exposed bedrock area.

Image 24: Low archaeological potential – bedrock and slope; test pit survey in the background.

Image 25: Exposed bedrock and steep slope: low archaeological potential; test pit survey in the background.

Image 26: Steep slope: low archaeological potential; test pit survey in the foreground.

Image 27: Test pit survey at five-metre intervals in woodlot.

Image 28: Test pit profile in woodlot showing intact stratigraphy.

Image 29: Test pit in woodlot showing bedrock under topsoil.

Image 30: Test pit survey at five-metre intervals at the edge of a woodlot.

Image 31: Representative test pit in woodlot showing intact stratigraphy.

Image 32: Test pit showing bedrock under thin layer of moss and a thin layer of A-horizon topsoil.

Image 33: Representative test pit profile showing intact stratigraphy.

Image 34: Representative test pit profile showing intact stratigraphy.

Image 35: Test pit survey at five-metre intervals in woodlot.

Image 36: Representative test profile showing intact stratigraphy with gleyic subsoil.

Image 37: Representative test profile: intact stratigraphy with gleyic subsoil.

Image 38: Low potential, confirmed by property inspection – vegetation consistent with permanently low and wet conditions.

Image 39: Pond, permanently low and wet conditions; low archaeological potential.

9.0 Maps

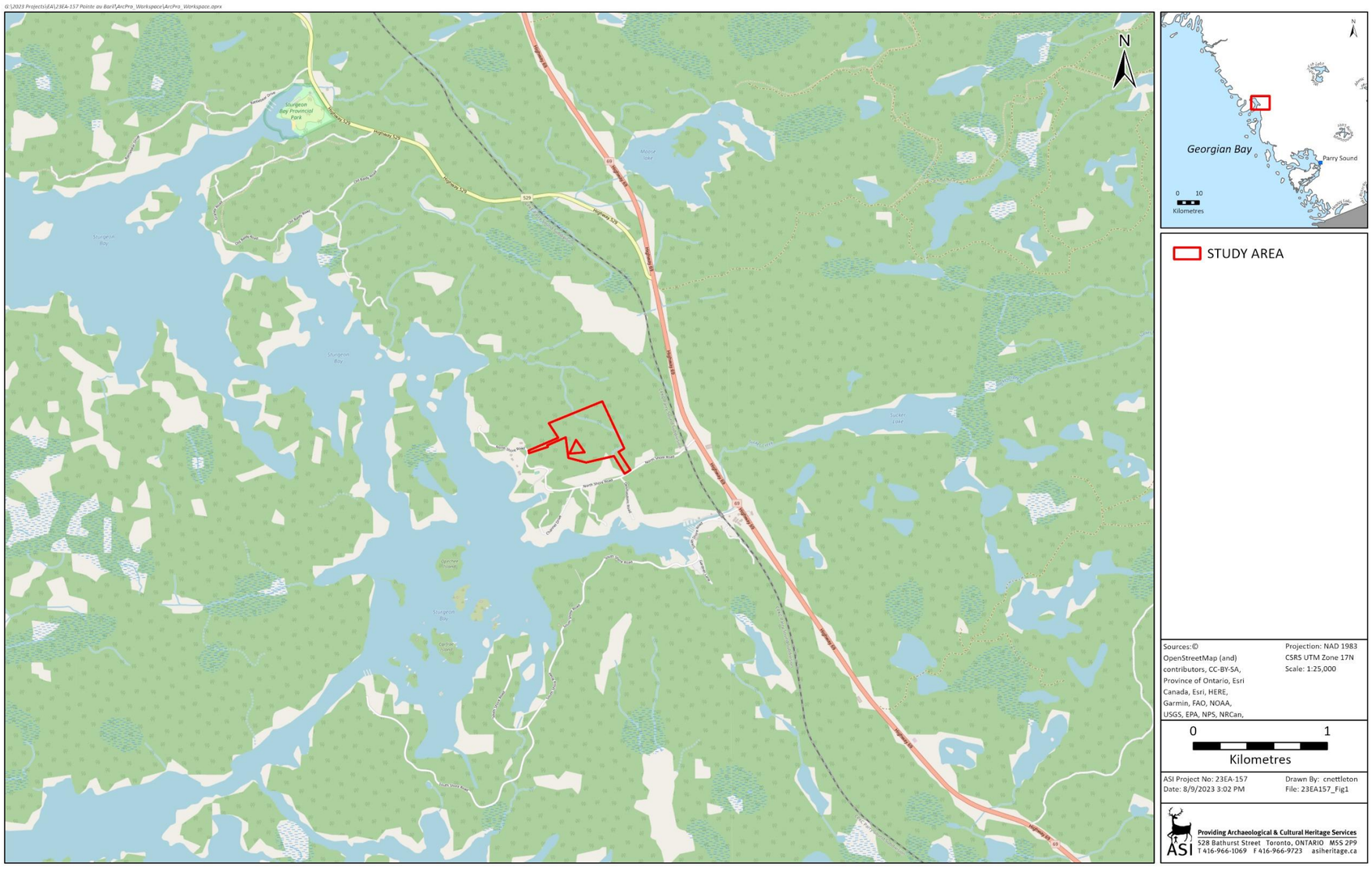


Figure 1: Location of the Study Area.

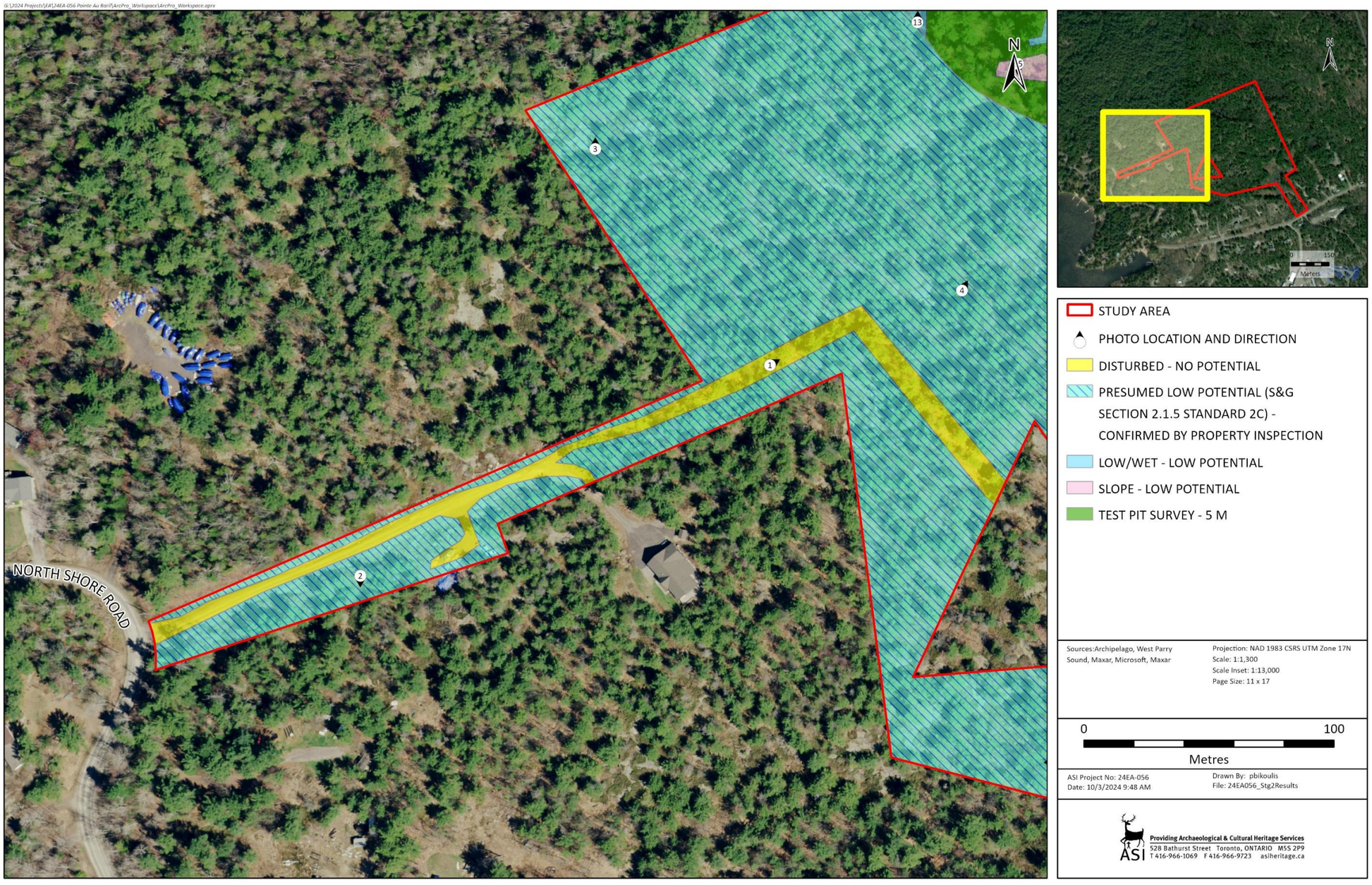


Figure 2: Results of the Stage 2 Archaeological Assessment, Sheet 1.

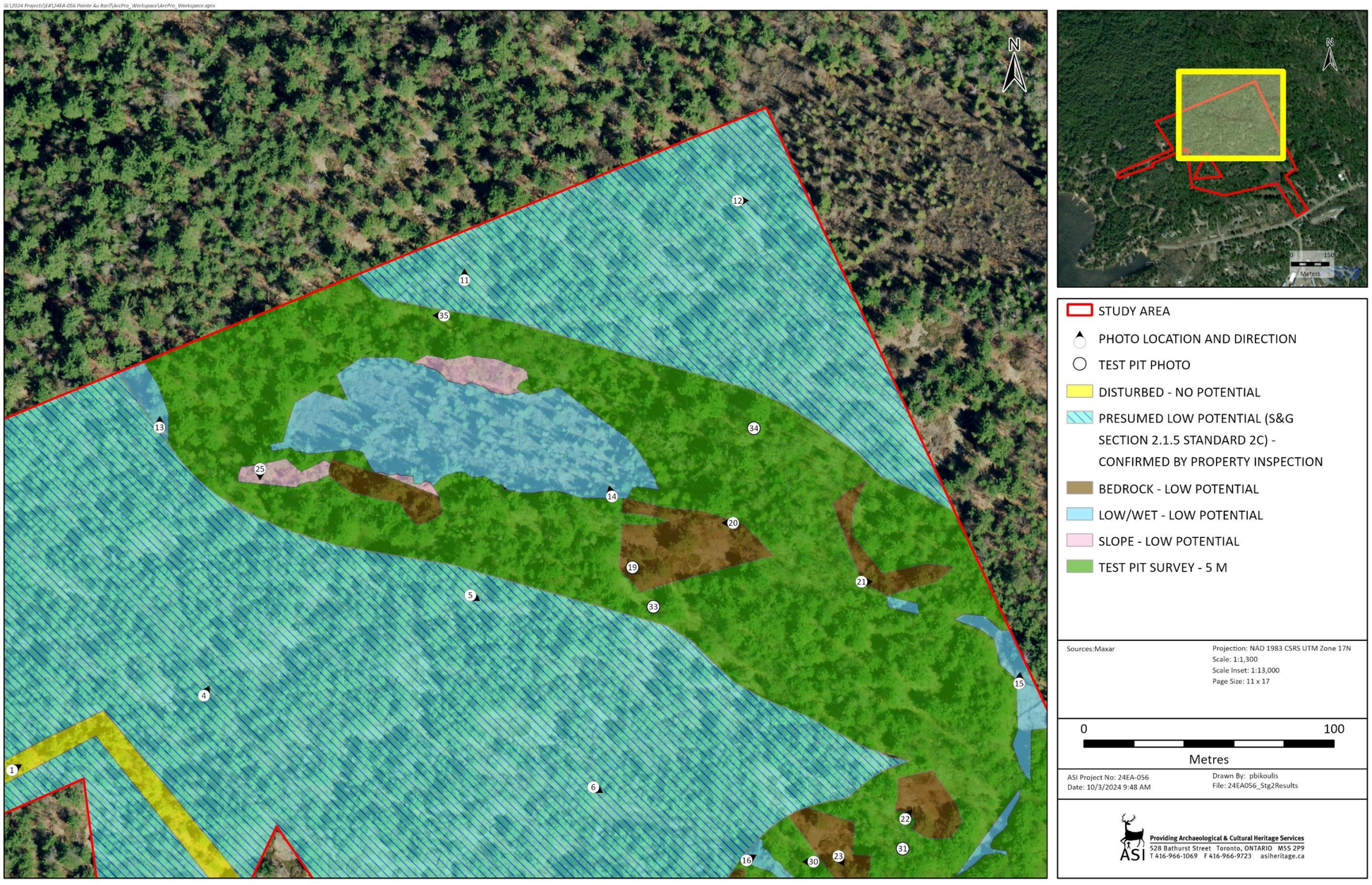


Figure 3: Results of the Stage 2 Archaeological Assessment, Sheet 2.

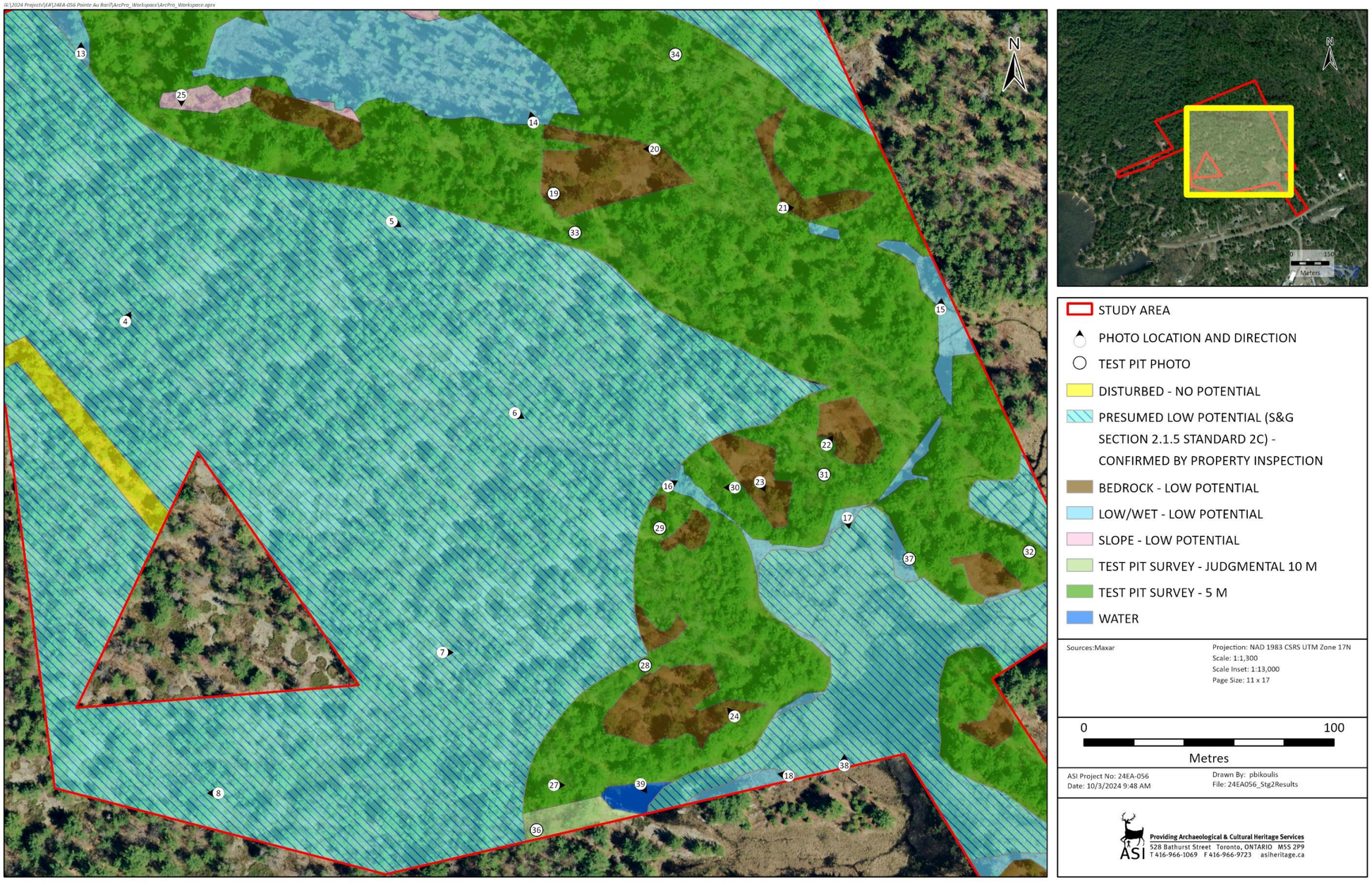


Figure 4: Results of the Stage 2 Archaeological Assessment, Sheet 3.

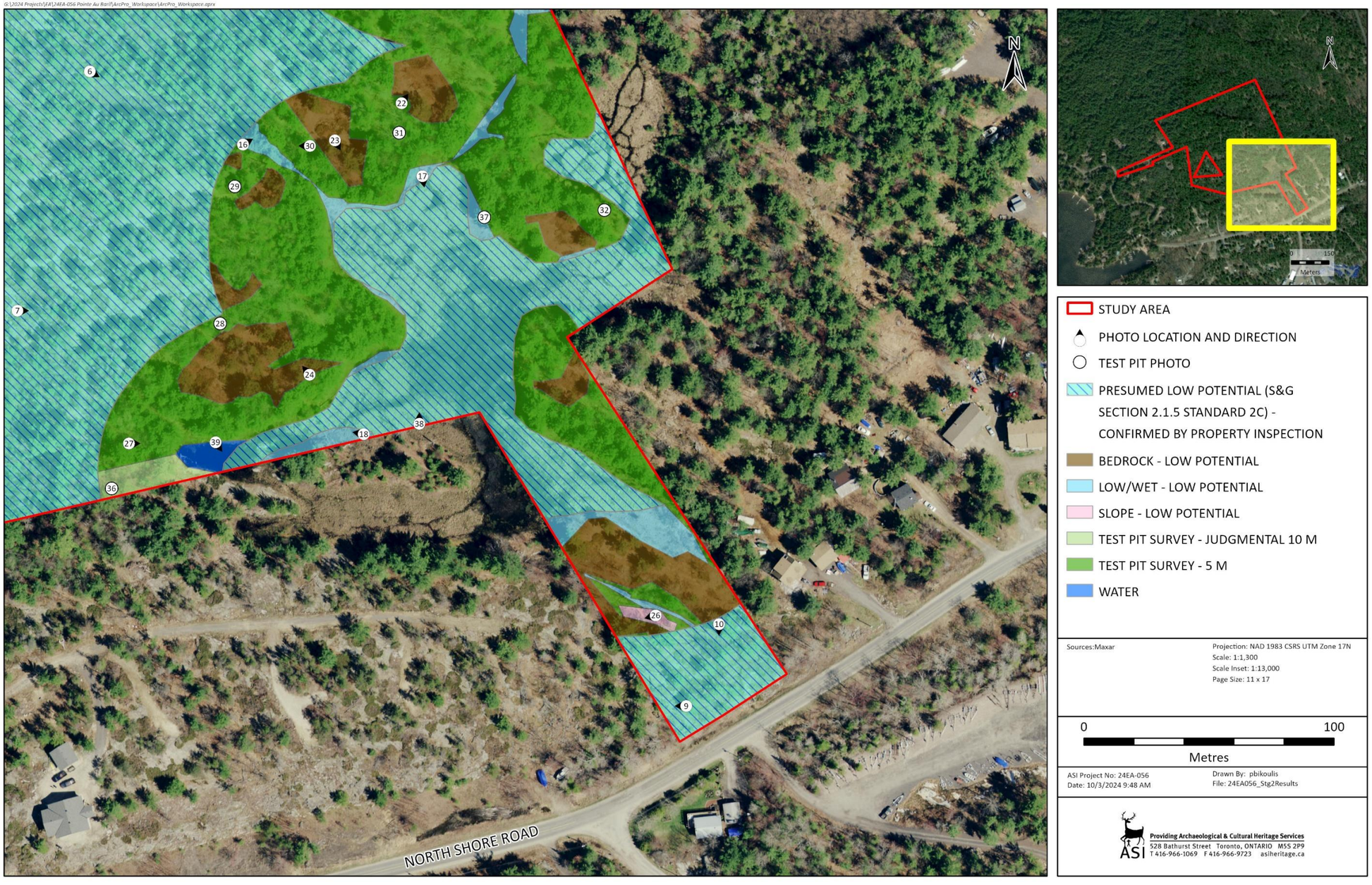


Figure 5: Results of the Stage 2 Archaeological Assessment, Sheet 4.

Appendix B

Natural Heritage Assessment
Technical Memorandum
(Blue Heron Environmental)

TECHNICAL MEMORANDUM

Date: 18 October 2024

To: Sarah Vereault, Associate / Senior Planner
J.L. Richards & Associates Ltd.
314 Countryside Dr., Greater Sudbury, On, P3E 6G2

From: Blue Heron Solutions for Environmental Management Inc.

Subject: BH-23-PJ-2330 – Species at Risk Surveys and Habitat Mapping 2024 Summary Memo

INTRODUCTION

Blue Heron Solutions for Environmental Management Inc. (Blue Heron) was retained by J.L. Richards & Associates Ltd. (JLR) to complete species at risk (SAR) surveys and habitat mapping in support of a new housing development (the Project), located in Pointe au Baril, Ontario.

In this regard, we submit this technical memorandum to present the results, to date, based on the fieldwork completed in the summer of 2024.

PROJECT OVERVIEW

An Environmental Impact Study (EIS) was completed in 2023 to identify existing natural heritage features and to assess the potential Project-related impacts to those features. Through the EIS, several protected SAR were identified as being potentially present in the Study Area (defined below). The objective of the 2024 scope of work is to assess the presence of protected SAR using industry accepted protocols and to map the habitat of protected SAR confirmed present in the EIS (e.g., Blanding's Turtle and Massassauga Rattlesnake).

Study Area

The Site is located in the Georgian Bay Ecoregion (Ecoregion 5E) and is defined as Lot 27 Concession 5 in the Township of Archipelago, Ontario. For the purpose of the SAR surveys, the Study Area is defined as the Site plus the 120 metres (m) of adjacent lands.

SCOPE OF WORK

The scope of work completed for the Pointe au Baril Master Plan housing initiative consists of:

- Plant community surveys;
- Breeding bird point count surveys;
- Shorebird surveys;
- Nightjar triangulation surveys;
- Spotted turtle surveys;
- Bat acoustic surveys; and
- SAR habitat mapping.

Winter track count surveys are scheduled for winter 2025.

RESULTS SUMMARY

Plant Community Surveys

Plant community characterization was completed using the *Ecosites of Ontario Ecological Land Classification System* (Banton et al. 2009).

Throughout the survey, a total of seven plant communities (i.e., ecosites) were determined and a total of 59 plant species were recorded.

None of the plant species observed are considered threatened or endangered under the *Endangered Species Act* (ESA; Government of Ontario 2007).

Breeding Bird Point Count Surveys

Through the 2023 desktop screening (Blue Heron 2023), two protected SAR birds were assessed as being potentially present within the Study Area: Cerulean Warbler (*Setophaga cerulea*) and Loggerhead Shrike (*Lanius ludovicianus*), designated as threatened and endangered, respectively, under the ESA. To determine their presence within the Study Area, one round of breeding bird count surveys was completed following methods provided by Ralph et al. (1983).

No Cerulean Warbler or Loggerhead Shrike was observed in the Study Area during the breeding bird point count surveys.

Shorebird Surveys

To assess the presence of Lesser Yellowlegs (*Tringa flavipes*) within the Study Area, five rounds of shorebird surveys were completed following the methods outlined in the *Ontario Shorebird Survey: Training Manual and Protocol* (Environment and Climate Change Canada 2016).

No Lesser Yellowlegs were observed in the Study Area during the shorebird surveys.

Nightjar Triangulation Surveys

To assess the presence of Eastern Whip-poor-will (*Antrostomus vociferus*) within the Study Area, three rounds of nightjar triangulation surveys were completed following methods provide in the *Draft Whip-poor-will Survey Protocol* (Ministry of Natural Resources and Forests [MNRF] 2014).

No Eastern Whip-poor-will were observed in the Study Area during the nightjar triangulation surveys.

Spotted Turtle Surveys

To assess the presence of Spotted Turtles (*Clemmys guttata*), biologists complete five rounds of transect/basking surveys, following methods provided in the *Survey Protocol for Spotted Turtle in Ontario* (MNRF 2015).

No Spotted Turtle were observed in the Study Area during the Spotted Turtle surveys.

Bat Acoustic Surveys

Through the 2023 desktop screening (Blue Heron 2023), four species of endangered bats have the potential to occur within the Study Area: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Tri-coloured Bat (*Perimyotis subflavus*), and Northern Myotis (*Myotis septentrionalis*). The presence or non-detection of SAR bats was verified following guidance provided in *Bats and Bat Habitats: Guidelines for Wind Power Projects* (MNR 2011). Wildlife Acoustics™ full spectrum SM4 ultrasonic recorders were deployed in suitable bat maternity roosting habitat identified in the Study Area. Recorders were deployed for a minimum period of 10 consecutive nights. The ultrasonic recordings were analyzed using Kaleidoscope software by a biologist trained on the identification of bat species through sonograms.

Little Brown Myotis and Northern Long-eared Myotis were confirmed present in the Study Area during the bat acoustic surveys. The high number of total and nightly passes at Bat02A is indicative of a maternity roost being nearby.

Incidental Observations

Wildlife incidental observations included visual observations of wildlife and wildlife sign (e.g., scat, tracks, hair, tree scrapes and/or dens, etc.) and auditory observations (e.g., wildlife vocalizations, beaver tail slaps, etc.). Focus was paid to edge habitats and specialized microhabitats within the Study Areas where wildlife might be more active. Areas of exposed substrate, such as sand or mud, were examined for visible tracks.

A total of four amphibians, 58 birds, five mammals, and six reptiles were observed during the 2024 field program. Of these, two protected SAR listed as endangered and threatened were observed in the Study Area. A total of 16 Blanding's Turtles (*Emydoidea blandingii*) were observed inhabiting the Study Area, with the maximum daily observation total of four. One Massasauga Rattlesnake (*Sistrurus catenatus*) was confirmed inhabiting the Study Area.

SAR Habitat Mapping

Blanding's Turtle and Massasauga Rattlesnake were confirmed present within the Study Area during the desktop records review (Blue Heron 2023) and during the 2024 field program. The extent of the habitat within and around the Study Area was determined through a mapping exercise, using the General Habitat Descriptions for each species.

CLOSING

Based on the 2024 field program, four protected SAR (Table 1) were observed inhabiting the Study Area and are afforded habitat protection under the ESA.

Table 1 - Species at Risk Observed in the Study Area During the 2024 Field Program

Common Name	Scientific Name	ESA Designation
Mammals		
Little Brown Myotis	*Myotis lucifugus*	Endangered
Northern Myotis	*Myotis septentrionalis*	Endangered
Reptiles		
Blanding's Turtle	*Emydoidea blandingii*	Threatened
Massasauga Rattlesnake	*Sistrurus catenatus*	Threatened

Since SAR listed as endangered and threatened were confirmed present in the Study Area, the Township of the Archipelago is required to seek authorization from the Ministry of the Environment, Conservation and Parks (MECP) prior to initiating the Project (Appendix A). The first step in the permitting process would be to complete and submit an Information Gathering Form (IGF) listing the species that could be impacted by the Project, as well as a description of the project (e.g., activities, schedules, equipment, etc.). This information will be used by the MECP to determine whether the Project is likely to contravene Section 9 and Section 10 of the ESA.

The IGF is a document that contains information necessary for the MECP to determine whether the Project is likely to impact SAR and/or SAR habitat includes. It includes the following:

- Proponent information;
- Project details:
    - Activity sector;
    - Brief project description;
    - Project purpose;
    - Project location;
    - Current land uses; and
    - List and schedule of project activities;
- Description of the ecological communities;
- Activity methodology:

    - Component stage (e.g., site preparation, clearing and grubbing, contouring, etc.);
    - Targeted start and end dates for the activity;
    - Detailed description of methodology used to carry out the activity; and
    - Site-related or technical limitations that may restrict how the activity is carried out;
- Species at risk and habitat found at or near the activity location:
    - Species name;
    - Species status in Ontario;
    - Number of individuals observed and type of observation;
    - Detailed ecological description of the landscape;
    - Description of habitat features on the site; and
    - How and when the species is or may be using the habitat to carry out its life cycle processes
- Anticipated impacts (positive or negative) to SAR and SAR habitat.

Following their review of the IGF, the MECP will either issue an authorization to proceed, request the submission of additional documentation or determine that permitting under the ESA is required. If the MECP determines that permitting is needed, the permit type required is the Overall Benefit Permit (OBP). As the name implies, the proponent must commit to providing an overall benefit to the species impacted if they wish to proceed with a project that will have negative impacts to SAR and/or SAR habitat. Obtaining an OBP is an iterative process, involving discussions with MECP SAR biologists to develop a strategy for achieving this target. Timelines for completing the OBP process is at least 12-15 months. The complexity of the project and the species being impacted are some of the factors that may affect the schedule for obtaining a permit under the ESA.

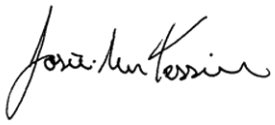
CLOSURE

This information presented in this report is confidential and has been prepared for the exclusive use of The Township of the Archipelago and JLR to provide an assessment of species at risk in support of the Project. Blue Heron accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the information presented in this report meets your needs and expectations. Should you have any questions, comments or concerns, please do not hesitate to contact the undersigned.

Sincerely,

BLUE HERON SOLUTIONS FOR ENVIRONMENTAL MANAGEMENT INC.



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APPENDIX A

Ontario Species At Risk Permitting Process

ONTARIO SPECIES AT RISK PERMITTING PROCESS

Current Stage

Next Steps

Client requests desktop records review to identify **Species at Risk (SAR)/SAR habitat** that may be present in the area of the Project.

Natural Heritage Information Centre (NHIC)* is contacted for occurrences of SAR/SAR habitat.

Ministry of Environment, Conservation and Parks (MECP) is contacted for occurrences of SAR/SAR habitat.

SAR/SAR Habitat **NOT** Present

No permitting or mitigation required.

SAR/SAR Habitat Present

Species/Activity is exempt under O.Reg. 242/08.

Species/Activity **NOT** exempt under O.Reg. 242/08.

Species/Activity meets the conditions of the exemption.

YES

Proceed following the conditions of the exemption.

Species/Activity do **NOT** meet the conditions of the exemption.

NO

Species-specific surveys are required to confirm the presence or absence of SAR/SAR habitat.

If SAR/SAR habitat confirmed in the Project area, mitigation is required to avoid harming SAR/SAR habitat.

If harm to SAR/SAR habitat cannot be avoided and Project activities will contravene the ***Endangered Species Act*** **(ESA)**, a permit is required.

Client must provide detailed information to the MECP by completing an **Information Gathering Form (IGF)**.

MNRF reviews the IFG to determine if Project activity will contravene ESA. If contravention is likely, the client must complete the **Avoidance Alternatives Form (AAF)** to either avoid contravention or apply for a permit.

If contravention is unlikely or avoidance alternatives are adopted, no **Overall Benefit Permit (OBP)** is required.

If contravention is likely and avoidance alternatives are not adopted, an OBP is required.

Client submits an OBP application and the MNRF assesses the benefit is likely to be met.

If the submission is complete, the MECP drafts the proposed permit, and the permit is submitted to the Minister. The MECP then notifies the Client of the decision.

If the permit is issued, the Client can undertake the activity in accordance with the conditions of the permit.

OBP Requirements

- ❑ Development of a scientific study proposal for peer review
- ❑ A comprehensive report with results highlighting key findings with peer review
- ❑ Final report and supporting data available on a public domain

***The NHIC is maintained by the Ministry of Natural Resources and Forestry (MNRF)**

Bold – terms associated with SAR permitting described in more detail on the following page.

Terms and Definitions Associated with Species at Risk Permitting

TERM	DEFINITION
Species at Risk (SAR)	A status category describing a species that may become threatened or endangered because of a combination of biological characteristics and identified threats in Ontario.
Natural Heritage Features	Natural features, geological and physiographical formations, and delineated areas that constitute the habitat of threatened species and natural sites of value from the view of science or conservation.
Natural Heritage Information Centre (NHIC)	The center collects, reviews, manages and distributes information for species of conservation concern, rare and exemplary plant communities, wildlife concentration areas, and natural areas. The NHIC is managed by the MNRF.
Ministry of Natural Resources and Forestry (MNRF)	This Ministry is responsible for developing and applying geographic information to help sustainably manage Ontario's natural resources.
Ministry of the Environment, Conservation and Parks (MECP)	This Ministry protects air, land, water, SAR, and their habitats. They use science and research to develop and deliver policies, legislation, regulations, standards, and programs. Additionally, they are responsible for monitoring and reporting environmental progress.
***Endangered Species Act* (ESA)**	The legislation prohibits the killing or harming of species designated as threatened, endangered, or extirpated under the ESA and provides immediate general habitat protection until regulations identifying species-specific habitat are developed.
Information Gathering Form (IGF)	The Client uses this form to provide the MECP with information on the Project activities that may affect SAR or SAR habitat protected under the ESA.
Avoidance Alternatives Form (AAF)	The Client addresses reasonable alternatives to the activities that have been proposed including alternatives that would not adversely affect the SAR or its protected habitat.
Overall Benefit Permit (OBP)	This permit authorizes the Client to perform the activities associated with a Project if the Client is providing an overall benefit to the species in Ontario.

Appendix C

Natural Heritage Assessment
Draft Report
(Blue Heron Environmental)

SPECIES AT RISK SURVEYS AND HABITAT MAPPING - DRAFT

FOR

J.L. Richards & Associates Ltd.
Pointe au Baril, Ontario

SUBMITTED TO:

Sarah Vereault
Associate/Senior Planner

svereault@jlrichards.cal

DECEMBER 2, 2024

Ref #: BH-23-PJ-2330

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1.0 INTRODUCTION

Blue Heron was retained by J.L. Richards & Associates Ltd. (JLR) to complete species at risk (SAR) surveys and habitat mapping in support of the Pointe au Baril Master Plan Housing Initiative (the Project), located in Pointe au Baril, Ontario. The Site is defined as Lot 27, Concession 5 Harrison, in the Township of the Archipelago, Ontario (Appendix A, Figure 1). The scope of work for the SAR surveys and habitat mapping included:

- Shorebird surveys;
- Breeding bird point count surveys;
- Nightjar triangulation surveys;
- Spotted turtle surveys;
- Bat habitat assessment;
- Bat acoustic surveys;
- Plant community surveys;
- Winter track counts;
- Blanding's Turtle (*Emydoidea blandingii*) habitat mapping; and
- Massasauga Rattlesnake (*Sistrurus catenatus*) habitat mapping.

The objective of the surveys was to assess the presence of protected SAR using industry accepted protocols. Habitat mapping was carried out to define the extent of protected SAR habitat for SAR previously confirmed present in the Study Area (defined below) through the Environmental Impact Study (EIS) completed in 2023 (Blue Heron 2023).

1.1 Background

An EIS was completed for the Project in 2023 to identify existing natural heritage features and assess the potential Project-related impacts to those features. Through the EIS, several protected SAR were identified as being potentially present in the Study Area (Blue Heron 2023), and include:

- Cerulean Warbler (*Setophaga cerulea*);
- Loggerhead Shrike (*Lanius ludovicianus*);
- Lesser Yellowlegs (*Tringa flavipes*);
- Eastern Whip-poor-will (*Antrostomus vociferus*);
- Spotted Turtles (*Clemmys guttata*);
- Eastern Small-footed Myotis (*Myotis leibii*);
- Little Brown Myotis (*Myotis lucifugus*);
- Tri-coloured Bat (*Perimyotis subflavus*);
- Northern Myotis (*Myotis septentrionalis*); and
- Eastern Wolf (*Canis lycaon*)

1.2 Study Area

For the purpose of this Project, the Study Area is defined as the Site plus the 120 m of adjacent lands (Appendix A, Figure 2).

2.0 ENVIRONMENTAL POLICY CONTEXT

2.1 *Endangered Species Act*, 2007

The Study Area is located on private lands and as such, is subject to the provincial *Endangered Species Act* (ESA; Government of Ontario 2007). The ESA prohibits the killing or harming of species designated as endangered or threatened in the various schedules of the Act. The ESA also provides habitat protection to species listed as threatened or endangered. Exceptions may be made for newly listed species, whereby the existing prohibitions for endangered and threatened species can be temporarily suspended by means of an order by the minister. Some species (e.g., Black Ash [*Fraxinus nigra*]) may be afforded protections based on geographic location within the province. The ESA has a permitting process where alterations to protected species or their habitats may be considered.

2.2 Species at Risk Act, 2002

The federal SARA (Government of Canada 2002) prohibits the killing, harming, harassment, capture or taking of a wildlife species that is listed as extirpated, endangered or threatened. The SARA also carries prohibitions against destroying or damaging the residence of one or more individuals of a listed wildlife species. The SARA applies only to federal lands, with the exception of aquatic species, birds protected by the *Migratory Bird Convention Act* (1994), or in cases where an order has been made by the Governor in Council. The SARA has a permitting process for activities that may impact protected species and/or their residences.

3.0 METHODOLOGY

The methods used for the 2024 SAR surveys are described in Section 3.1. Habitat mapping followed methods detailed in Section 3.2.

3.1 2024 Field Program

This field program was designed to target SAR (i.e., those designated as endangered and threatened under the ESA) identified as potentially present in the Study Area (Blue Heron 2023). Throughout the program, incidental observations of wildlife and wildlife sign (e.g., scat, tracks, browse, etc.) were georeferenced, documented, and where possible, photographed, to add to the overall understanding of the Study Area biodiversity. The dates of the surveys and corresponding weather conditions are presented in Table 1 below, with the field survey locations illustrated in Appendix A, Figure 3 through Figure 7.

Table 1 - 2024 Field Program Schedule and Weather Conditions

Survey Type	Dates	Weather Conditions[1)]		
		Air Temperature Range (˚C)	Wind Range (Beaufort Scale)[2)]	Cloud Cover Range (%)
Shorebird Surveys	April 22	0-2	1-2	0-10
	May 4	12-15	1	50-90

Survey Type	Dates	Weather Conditions[1)]		
		Air Temperature Range (˚C)	Wind Range (Beaufort Scale)[2)]	Cloud Cover Range (%)
	May 15	17-20	2	0
	May 29	12-16	1	0-5
	June 9	13-14	1	90-95
Spotted Turtle Surveys	April 22	12-14	1	0-15
	April 26	14-18	1	0
	May 2	15-19	1	20-40
	May 4	15-24	1	10-30
	May 15	12-20	1-2	0-30
Breeding Bird Surveys	June 9	13-14	1	90-95
Plant Community Surveys	July 19	17-23	1-3	0
Nightjar Triangulation Surveys	May 24	10	1	10
	June 19	20	0	60
	June 20	19	1	90
Bat Surveys	June 17	-	-	-
	June 27	-	-	-

1) Based on field conditions
2) Beaufort scale, whereby: 0 - 0-2 km/hr;
1 - 3-5 km/hr;
2 – 6-11 km/hr; and
3 – 12-19 km/hr.

3.1.1 Shorebird Surveys

Lesser Yellowlegs (*Tringa flavipes;* threatened under the ESA) has potential to be present in the Study Area (Blue Heron 2023). To assess the presence of Lesser Yellowlegs, five rounds of shorebird surveys were completed at two locations (Appendix A, Figure 3) during the spring migration season. Shorebird surveys were completed in suitable habitat following the methods outlined in the *Ontario Shorebird Survey: Training Manual and Protocol* (Environment and Climate Change Canada 2016). Survey rounds were separated by at least 10 days, beginning once ice had receded from the waterbodies.

3.1.2 Breeding Bird Surveys

Through the 2023 desktop screening (Blue Heron 2023), Cerulean Warbler (*Setophaga cerulea*) and Loggerhead Shrike (*Lanius ludovicianus*), designated provincially as threatened and endangered, respectively, were assessed as being potentially present within the Study Area. To assess their presence within the Study Area, one round of breeding bird count surveys was completed at two locations (Appendix A, Figure 3).

Following guidance from Ralph et al. (1995), plot centers for each of the survey locations were spaced at least 250 m apart in forested habitats (Appendix A; Figure 3). A qualified biologist familiar in the visual and auditory identification of avian species carried out 10-minute point count surveys throughout the Study Area. Birds detected during the 10-minute survey were recorded, noting the number and species.

Birds observed outside of the 10-minute point count survey or outside of the 100 m circular plots were noted incidentally.

3.1.3 Nightjar Triangulation Surveys

Eastern Whip-poor-will (*Antrostomus vociferus*), a type of nightjar, is designated as threatened provincially. Three rounds of nightjar triangulation surveys were completed at one preselected survey location (Appendix A, Figure 3). Following guidance provided in the *Draft Protocol for Eastern Whip-poor-will (Antrostomus vociferus) in Ontario* (Ministry of Natural Resources and Forestry [MNRF] 2014), the surveys were completed during appropriate weather conditions (i.e., minimal cloud cover and low wind). The surveys were timed to coincide with the appropriate lunar phases (i.e., at least 50% of the face of the moon was illuminated and the moon was above the horizon; Table 1). To complete the surveys, two crew members were spaced approximately 100 m apart, simultaneously listening for nightjars. If an Eastern Whip-poor-will was detected, the time, azimuth, and estimated distance to the bird were recorded by each surveyor. These data were used to triangulate the approximate location of the bird. This location was then assumed to be its breeding and/or nesting territory.

3.1.4 Spotted Turtle Surveys

Spotted Turtles (*Clemmys guttata*) are designated as endangered under the ESA. According to the *Survey Protocol for Spotted Turtle in Ontario* (MNRF 2015a), a minimum of five survey rounds are required to assess the presence of this small, cryptic species. The surveys were comprised of basking turtle occurrence surveys and transect surveys. To maximize the opportunities for observing turtles, turtle occurrence surveys occurred in the spring between ice-off, and June 15th, when turtles are emerging from their overwintering habitats. The surveys were completed during suitable weather conditions (i.e., sunny conditions when the air temperature was at least 5˚C and warmer than the water temperature). Searches for nests and nesting sign were completed in suitable habitat.

Basking Turtle Occurrence Surveys

The basking turtle occurrence surveys were completed at two locations (Appendix A, Figure4). Since not all basking sites were visible from one survey location at SP01, biologists walked the perimeter of the wetland to view the basking sites from different vantage points. Since this species startles easily, biologists quietly observed potential habitat with binoculars for approximately 20 minutes to allow turtles that may have been startled at the arrival of the observers to resurface. Air and water temperatures were taken at each location. If a turtle was observed, the Global Positioning System (GPS) location and photos were taken.

Transect Surveys

A total of five rounds of transect surveys were completed at two survey locations (Appendix A, Figure 4). During the surveys, observers walked along transect lines in suitable wetland habitats to search for the Spotted Turtles. Each round of surveys consisted of walking transects spaced 10 m apart twice a day. Each surveyor walked separate transect lines simultaneously. At each survey location, air and water temperatures were taken before the observers started walking the transect lines. If a turtle was observed, the GPS location and photos were taken.

3.1.5 Bat Surveys

Four species of endangered bats have potential to occur within the Study Area: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Tri-coloured Bat (*Perimyotis subflavus*), and Northern Myotis (*Myotis septentrionalis*) (Blue Heron 2023). A bat habitat assessment was conducted to determine whether suitable maternity roosting habitat was present within the Study Area. Acoustic surveys were completed in maternity roosting habitat to identify the species utilizing the area (Appendix A, Figure 5).

Bat Habitat Assessment

A modified approach adapted from *Bats and Bat Habitats: Guidelines for Wind Power Projects* (Ministry of Natural Resources [MNR] 2011) was used to determine if maternity roost habitat for SAR bats is present within the Study Area. Forested polygons that meet the criteria for suitable maternity roosting habitat as described in MNR (2011) were documented through a desktop exercise. The candidate maternity roosting habitat identified through the desktop exercise was field-verified in conjunction with the plant community surveys. The density of large-diameter (i.e., ≥ 10 cm diameter at breast height [DBH]) cavity trees was estimated and suitable large-diameter trees (e.g., trees with cavities, peeling bark, broken branch limbs) were noted, georeferenced, and photographed.

Bat Acoustic Survey

Wildlife Acoustics™ full spectrum SM4 ultrasonic recorders were deployed in suitable bat maternity roosting habitat identified during the bat habitat assessment. Three recorders were deployed for a period of 11 consecutive nights in June to record bat calls. The ultrasonic recordings were analyzed using Kaleidoscope v.5.6.6 software (Wildlife Acoustics Inc. 2024) by a biologist trained in the identification of bat species through sonograms. Big Brown Bat (*Eptesicus fuscus*) and Silver-haired Bat (*Lasionycteris noctivagans*) analyses are combined since their recordings cannot be distinguished. All of the calls were analyzed manually for species confirmation.

3.1.6 Plant Community Surveys

Plant community mapping was initially completed at a desktop level using the Forest Resource Inventory (FRI) data layers (MNRF 2020). Preliminary desktop mapping of the plant communities was then field-verified and detailed plant species inventories were completed for each of the plant community survey locations. Nine survey locations were assessed (Appendix A, Figure 6).

Plant communities were classified to the ecosite level using the *Draft Ecosites of Ontario Operational Draft* (Banton et al. 2009), and soil was described using the *Field Guide to the Substrates of Ontario* (MNRF 2015b) for each of the survey locations. Vascular and non-vascular plant species were inventoried, and their relative abundance recorded. Relative abundance was estimated using the DAFOR scale, which is used for semi-quantitative sampling, to provide an estimate of the relative abundance of each plant species in an area. The approximate percent cover ranges used in the DAFOR scale are presented in Table 2**Error! Reference source not found.**.

Table 2 - Relative Abundance DAFOR Scale

Code	Description	Approximate Cover (%)
D	Dominant	≥76
A	Abundant	51 to 75
F	Frequent	26 to 50
O	Occasional	11 to 25
R	Rare	<1 to 10

Plant height and plot conditions (e.g., surface expression, slope, aspect, percent surface substrate, and topography) were also recorded at each survey location. Ranges were used to approximate vegetation height and cover in the field (Table 3).

Table 3 - Plant Community Height and Cover Ranges

Code	Height (m)	Cover (%)
1	≥20	< 1 to 2
2	15 to 19	3 to 5
3	10 to 14	6 to 10
4	5 to 9	11 to 25
5	3 to 4	26 to 50
6	1 to 2	51 to 75
7	0.5 to <1	76 to 100
8	< 0.5	N/A

3.1.7 Winter Track Counts

Winter track counts are scheduled to take place during the winter of 2025. Methods for these surveys will be provided in a separate addendum to this report once completed.

3.2 Species at Risk Habitat Mapping

Blanding's Turtle (*Emydoidea blandingii*) and Massasauga Rattlesnake (*Sistrurus catenatus*) (both listed as threatened under the ESA) were confirmed present within the Study Area (Blue Heron 2023) and were observed in the Study Area during the 2024 field program. For each species, the extent of the protected habitat within and around the Study Area was determined through a mapping exercise, using the General Habitat Descriptions for each species (Appendix A, Figure 8a, through Figure 9b). General habitat is defined as the areas on which a species depends, directly or indirectly, to carry out its life processes necessary to survive and reproduce (e.g., nesting, denning, courtship, mating, egg incubation, gestation, birthing and rearing young, pollination, and germination). The General Habitat Description classifies habitat into three categories based on their level of tolerance to alterations.

- Category 1 has the lowest tolerance to alteration and is considered to be highly sensitive habitat for the species;
- Category 2 has a moderate tolerance to alterations; and
- Category 3 has the highest tolerance to alterations.

3.2.1 Blanding's Turtle Habitat

According to the General Habitat Description (MNR 2013a), Blanding's Turtle general habitat is defined as:

- Category 1 – Nest and the area within 30 m or overwintering sites and the area within 30 m;
- Category 2 – The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies; and
- Category 3 – Areas between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence.

3.2.2 Massasauga Rattlesnake Habitat

According to the General Habitat Description (MNR 2013b), Massasauga Rattlesnake general habitat is defined below as:

- Category 1 – Gestation sites and the area within 30 m, and overwintering sites and the area within 100 m;
- Category 2 – Open and semi-open habitat with suitable microhabitat, as well as forest edge habitat, that is within 1.2 km of an occurrence of the species; and
- Category 3 – Forest within 1.2km of an occurrence of the species

4.0 RESULTS

4.1 Field Program

The survey location identification, Universal Transverse Mercator (UTM) coordinates, habitat conditions, and representative photos for each survey location were documented and are provided in Appendix B and Appendix C, respectively.

4.1.1 Shorebird Surveys

No Lesser Yellowlegs were observed in the Study Area during the 2024 field program. A description of the shorebird survey locations is provided in Table 4.

Table 4 – Shorebird Survey Location Habitat Descriptions

Station ID	Habitat Description	Lesser Yellowlegs Observations
SB01	The habitat is a narrow-leaved emergent marsh comprised of rushes and sedges surrounded by upland species such as Red Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), Maple species (*Acer* sp.) and Oak species (*Quercus* sp.). Small streams of 0.25 m to 1.0 m deep meander throughout the wetland. Fallen logs, floating vegetation (e.g. Arrowhead [*Sagittaria* sp.]), and rocks provide basking opportunities.	none
SB02	The habitat is an alder thicket swamp consisting of Speckled Alder (*Ulnus incana*), Black Spruce (*Picea mariana*), Larch (*Larix laricina*), and Sphagnum moss. The water table is at surface and intermittently visible in low-lying areas. Water depth does not exceed 0.25m.	

4.1.2 Breeding Bird Surveys

A total of 13 bird species were detected at the two stations within the Study Area (Table 5). All birds heard or observed are considered secure in Ontario and no Cerulean Warbler or Loggerhead Shrike were observed in the Study Area during the 2024 field program.

Table 5 –Birds Observed in the Study Area During the Breeding Bird Point Count Surveys

Common Name	Scientific Name	ESA[1)]	SRanks[2)]	Station ID	
				BB01	BB02
American Redstart	*Setophaga ruticilla*	-	S5B	x	x
Black-and-White Warbler	*Mniotilta varia*	-	S5B	x	x
Black-Capped Chickadee	*Poecile atricapillus*	-	S5	-	x
Black-Throated Blue Warbler	*Setophaga caerulescens*	-	S5B	-	x
Black-Throated Green Warbler	*Setophaga virens*	-	S5B	x	-
Common Raven	*Corvus corax*	-	S5	-	x
Common Yellowthroat	*Geothlypis trichas*	-	S5B, S3N	x	-
Northern Waterthrush	*Parkesia noveboracensis*	-	S5B	-	x
Ovenbird	*Seiurus aurocapillus*	-	S5B	x	-
Red-Breasted Nuthatch	*Sitta canadensis*	-	S5	-	x
Red-Eyed Vireo	*Vireo olicaceus*	-	S5B	x	-
Swamp Sparrow	*Melospiza geogiana*	-	S5B, S4N	x	-
White-Throated-Sparrow	*Zonotrichia albicollis*	-	S5	x	x

[1)]ESA – *Endangered Species Act*
[2)]Provincial Ranks (SRanks) are Rarity Ranks assigned to a species or ecological communities Ranks where S3: Vulnerable; S4: Apparently Secure; S5: Secure; N: Non-breeding; and B: Breeding

4.1.3 Nightjars Triangulation Surveys

No Eastern Whip-poor-wills were detected in the Study Area during the 2024 field program. A description of the nightjar survey location habitat is provided in Table 6.

Table 6 – Nightjar Survey Location Habitat Description

Station ID	Habitat Description	Eastern Whip-poor-will Observations
PaB EWPW01	The habitat consists of exposed bedrock interspersed with tall trees, consisting of White Pine (*Pinus strobus*), Eastern White Cedar (*Thuja occidentalis*), Red Oak (*Quercus rubra*), and Juniper (*Juniperus communis*). Lichen was present on the bedrock.	None

4.1.4 Spotted Turtle Surveys

No Spotted Turtles were observed in the Study Area during the 2024 field program. The habitat description for each of the Spotted Turtle survey locations is provided in Appendix D, Table D.1.

4.1.5 Bat Surveys

Bat Habitat Assessment

Suitable bat maternity roosting habitat was identified in the Study Area through the EIS (Blue Heron 2023) and during the 2024 bat habitat assessment. Table 7 describes the suitable habitat for maternity roosting in the Study Area. Areas where clusters of five or more trees (specifically, Maples [*Acer* sp.], Oaks [*Quercus* sp.], and White Birch (*Betula papyrifera*]) of large diameter at breast height (DBH) >25 cm with evidence of decay, cavities, missing branch limbs, or peeling bark were chosen to set-up the bat acoustics.

Table 7 – Bat Acoustic Survey Location Habitat Descriptions

Station	Microphone Height (m)	Ecosite Type[1)]	Habitat Description
BAT01	2	G042	A mature maple hardwood forest with exposed bedrock below shallow (approximately 10 cm) soils is present. The forest lacks a subcanopy. The understory is comprised of Red Oak (*Quercus rubra*), Balsam Fir (*Abies balsamea*), *and* Red Maple (*Acer rubrum*).
BAT02	2	G042	A mature maple hardwood forest with exposed bedrock below shallow (approximately 10 cm) soils is present. The forest lacks a subcanopy. The understory is comprised of Red Oak, Balsam Fir, and Red Maple.
BAT03	3.5	G043	A mixedwood forest composed of White Spruce (*Picea glauca*), Red Maple, Balsam Fir, and White Birch (*Betula papyrifera*) is present. The forest lacks a subcanopy. Understory species are the same as the canopy composition.

Representative habitat photographs, as well as photographs of the deployment setups are provided in Appendix C. For the purpose of this analysis, Big Brown Bat (*Eptesicus fuscus*) and Silver-haired Bat were grouped together and counted as a single species.

Bat Acoustic Surveys

Five species of bat were detected within the Study Area (Table 8). Bat activity, measured in number of passes, was relatively low across all stations, with the maximum nightly passes detected being 187 passes on a single evening at BAT02. The maximum nightly passes detected was at station BAT02, with 47 Hoary Bat passes recorded in a single evening. BAT02 had the highest total number of passes (73 passes) and highest nightly passes (28) for myotis species within the Study Area (Table 8).

Table 8 - Bat Detections within Study Area

Common Name	Scientific Name	ESA Designation[1)]	Srank[2)]	Total No. of Passes	Maximum No. Nightly Passes
Big Brown/Silver-haired Bats	*Eptesicus fuscus/Lasionycteris noctivagans*	-	S4/S4	467	33

Common Name	Scientific Name	ESA Designation[1)]	Srank[2)]	Total No. of Passes	Maximum No. Nightly Passes
Eastern Red Bat	*Lasiurus borealis*	-	S4	37	7
Hoary Bat	*Lasiurus cinerus*	-	S4	109	47
Tri-colored Bat	***Perimyotis subflavus***	**Endangered**	**S3**	**28**	**4**
Little Brown Myotis	***Myotis lucifugus***	**Endangered**	**S3**	**50**	**8**
Northern Myotis	***Myotis septentrionalis***	**Endangered**	**-**	**2**	**1**
Unidentified Myotis	***Myotis* sp.**	**-**	**-**	**118**	**26**

[1)] *Endangered Species Act*
[2)] S Rank – Subnational Conservation Rank, whereby: S3 – Species is vulnerable in Ontario, S4 – Species is apparently secure in Ontario .
Bold – species at risk under the ESA

Big Brown Bats and Silver Hair Bats were the most common species detected, with a total of 467 nightly passes across all stations (Table 8). In total, these species comprised 56% of the total identifiable bat detections. The analysed raw acoustic data can be found in Appendix **D,** Table D.2**.**

4.2 Plant Community Surveys

Study Area is typical of that described for Ecoregion 5E, Georgian Bay Ecoregion within northeastern Ontario (Crins, et al. 2009). A total of eight plant communities (i.e., ecosites) were identified in the Study Area (Appendix A, Figure 6 and Figure 7). The list of ecosites identified in the Study Area are presented in Table 9. Detailed results of the ecosite communities are provided in Appendix D, Table D.3 and the floristic inventory is provided in Appendix D, Table D.4.

Table 9 – Plant Community Lists

Ecosite Code	Substrate Code	Ecosite Name
G015	R6	Very Shallow, Dry to Fresh: Red Pine – White Pine Mixedwood-
G042	M1	Dry, Sandy: Maple Hardwood
G043	D1	Dry, Sandy: Mixedwood
G054	S1	Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood
G135	O5	Organic Thicket Swamp
G144	O1	Organic Meadow Marsh
G164	R	Rock Barren
Disturbed	-	Disturbed

A total of 59 plants were identified to species during the plant community surveys including 11 trees, 13 shrubs/woody plants, seven ferns and fern allies, four graminoids, 17 forbs, two mosses, and five lichens and 17 forbs. The plant species recorded during the field surveys are listed in Appendix D, Table D.4. Most of the plants observed are native, with only Wild Red Raspberry (*Rubus idaeus*), and Jack Pine (*Pinus banksiana*) considered as species that occur both naturally and as introduced in Ontario. All plants observed during the plant community surveys are ranked as secure (S5) in the province of Ontario.

4.2.1 Winter Track Counts

Winter track counts are scheduled to take place during the winter of 2025. The findings of these surveys will be provided in a separate addendum to this report once completed.

4.2.2 Incidental Observations

A total of five mammals, six reptiles, four amphibians, and 48 birds were observed incidentally throughout the Study Area during the 2024 field survey, including two protected SAR. A total of 16 Blanding's Turtles were observed throughout the Study Area, with the maximum daily observation total of five Blanding's Turtles observed at Spotted Turtle survey location SP01. One Massasauga Rattlesnake was observed in the riparian habitat of the wetland near Spotted Turtle survey location SP01. A list of incidental wildlife observations by ecosite type is provided in Appendix D (Table D.5). All species observed incidentally (excluding Blanding's Turtle and Massasauga Rattlesnake) were ranked as secure (S5) or apparently secure (S4) in Ontario.

4.3 Species at Risk Habitat Mapping

Blanding's Turtle and Massasauga Rattlesnake were confirmed present within the Study Area during the desktop records review (Blue Heron 2023) and during the 2024 field program. The extent of the habitat within and around the Study Area was determined through a mapping exercise, using the General Habitat Descriptions for each species (Appendix A, Figure 8a through 9b). The habitat maps for these two species are provided in Appendix A (Figure 8a through Figure 9b). Table 10 presents the amount of the site and study area comprised of Category 2 habitat and Category 3 habitat for each species, respectively. No Category 1 habitat is present for either of the species.

Table 10 – Blanding's Turtle Protected Habitat Calculations

Blanding's Turtle					Massasauga Rattlesnake			
Habitat Category Level	Site		Study Area		Site		Study Area	
	Area (m^2)	%	Area (m^2)	%	Area (m^2)	%	Area (m^2)	%
Category 2	53,908	33	101,140	21	31,031	19	64,415	13
Category 3	109,236	66	341,073	70	134,577	81	372,352	77

5.0 SUMMARY

Based on the 2024 field program, the following findings were noted:

- Five protected SAR were confirmed present in the Study Area:
  - Blanding's Turtle;
  - Massasauga Rattlesnake;
  - Little Brown Myotis;
  - Tri-colored Bat; and
  - Northern Myotis.
- The following targeted species were not detected in the Study Area during the 2024 field program:
  - Cerulean Warbler;
  - Loggerhead Shrike;
  - Eastern Whip-poor-will; and

  - Spotted Turtle.
- A total of 13 bird species were detected at the two stations within the Study Area. (**Error! Reference source not found.**). All birds heard or observed are considered secure in Ontario.
- Five species of bat were detected within the Study Area, three of which are protected provincially.
- Eight plant communities (i.e., ecosites) were identified in the Study Area.
- The 59 plants recorded during the field surveys are ranked as secure (S5) in the province of Ontario.

6.0 RECOMMENDATIONS

Since SAR listed as endangered and threatened were confirmed present in the Study Area, the Township of the Archipelago is required to seek authorization from the Ministry of the Environment, Conservation and Parks (MECP) prior to initiating the Project. The first step in the permitting process is to complete and submit an Information Gathering Form (IGF) listing the species that could be impacted by the Project, as well as a description of the project (e.g., activities, schedules, equipment, etc.). This information will be used by the MECP to determine whether the Project is likely to contravene Section 9 and Section 10 of the ESA.

7.0 CLOSURE

This information presented in this report is confidential and has been prepared for the exclusive use of J/L/ Richards to provide a summary for the results of the Species At Risk Surveys for the Pointe au Baril Master Plan Housing Initiative Blue Heron accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the information presented in this report meets your needs and expectations. Should you have any questions, comments or concerns, please do not hesitate to contact the undersigned.

Sincerely,

BLUE HERON SOLUTIONS FOR ENVIRONMENTAL MANAGEMENT INC.

DRAFT
Josie-Ann Tessier, E.P.
Field Coordinator / Terrestrial Biology Supervisor

DRAFT
Jennifer Braun, M.Sc.
Senior Biologist / Biophysical Dept. Manager

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Appendix A

Site Map & Figures

Giroux Lake
Harris Lake
Northern Pike Lake
Long Moose Lake
Log Lake
Kashegaba Lake
Littles Back Lake
Bolger Lake
Gordon Lake
Lone Tree Lake
Carson Lake
Miskokway Lake
529
Naiscoot Lake
Round Lake
Little Wilson Lake
Black Lake
Clear Lake
MUNICIPALITY OF WHITESTONE
TOWNSHIP OF THE ARCHIPELAGO
529a
Cranberry Lake
Oxbow Lake
Moose Lake
Wilson Lake
Dogfish Lake
69
Argue Lake
Long Lake
Trout Lake
Turtle Lake
Georgian Bay
Rock Island Lake
Black Oak Lake
Partridge Lake
Birch Lake
Wallace Lake
Wiwassasegen Lake
Burnt Lake
Round Lake
TOWNSHIP OF CARLING

Legend

- Project Location
- Municipal Boundary

1 0 1 2 3 4 5 km

Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Drawn By	E.M.
Checked By	J.T.
Last Modified:	2024-09-30
Projection	NAD83 / UTM zone 17N

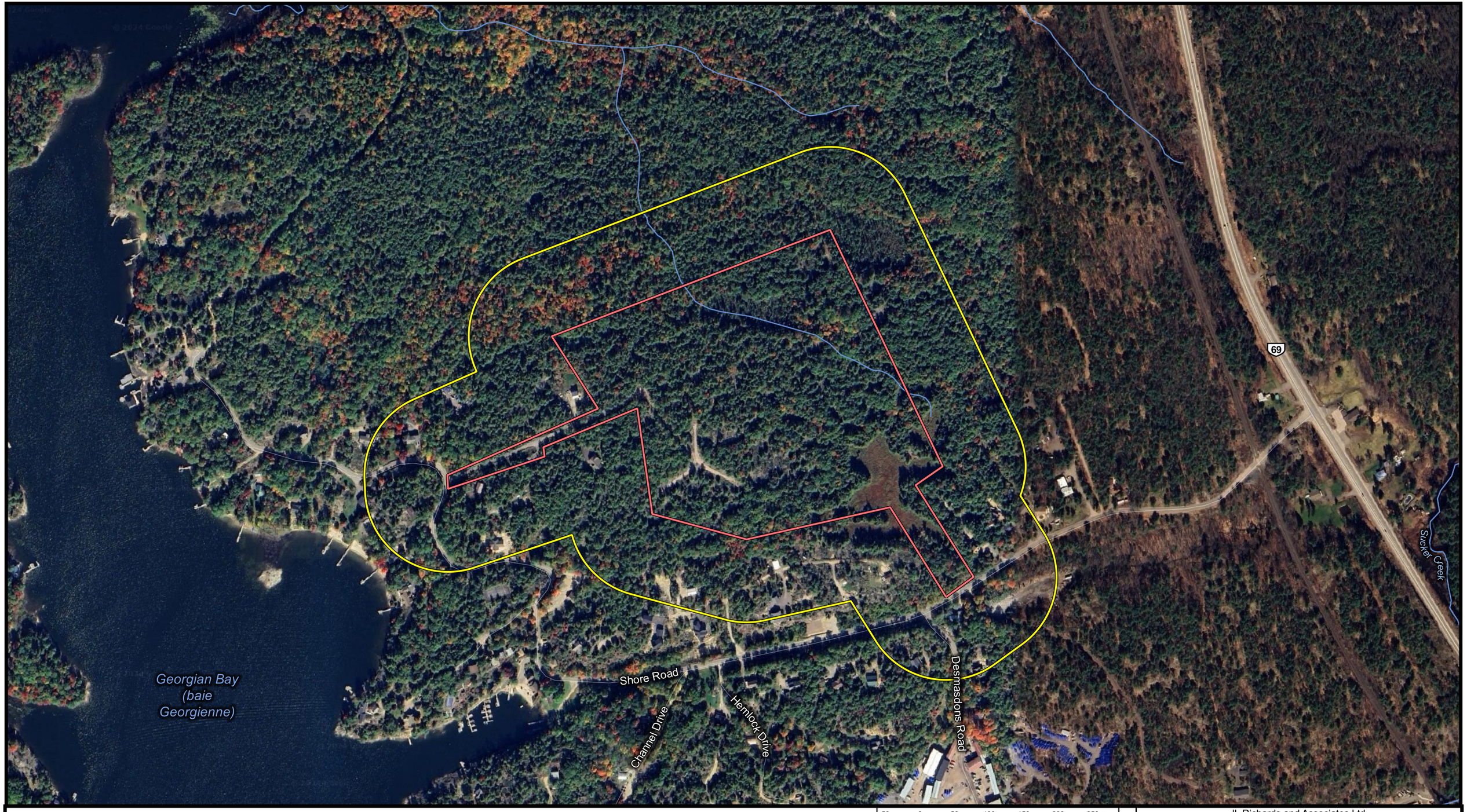
Project Location

Pointe Au Baril

Species at Risk Surveys

Figure 1

BH-24-PJ-2330



Legend

- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

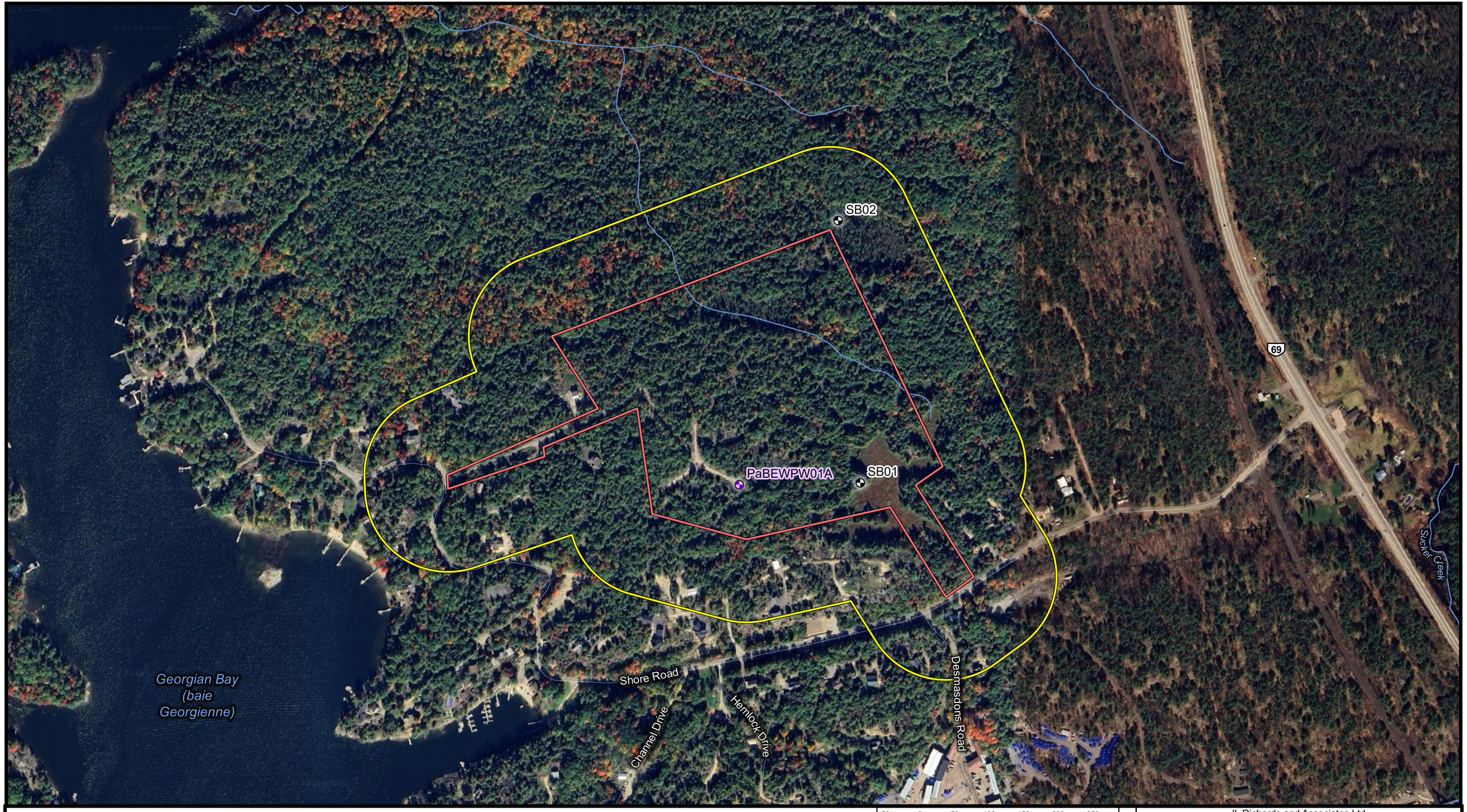
Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Study Area	Drawn By: E.M.
	Checked By: J.T.
	Last Modified: 2024-10-02
	Projection: NAD83 / UTM zone 17N
Pointe Au Baril	Figure 2
Species at Risk Surveys	

BH-24-PJ-2330



Legend

- Shorebird and Breeding Bird Point Count Survey Locations
- Nightjar Triangulation Survey Locations
- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Avian Survey Locations

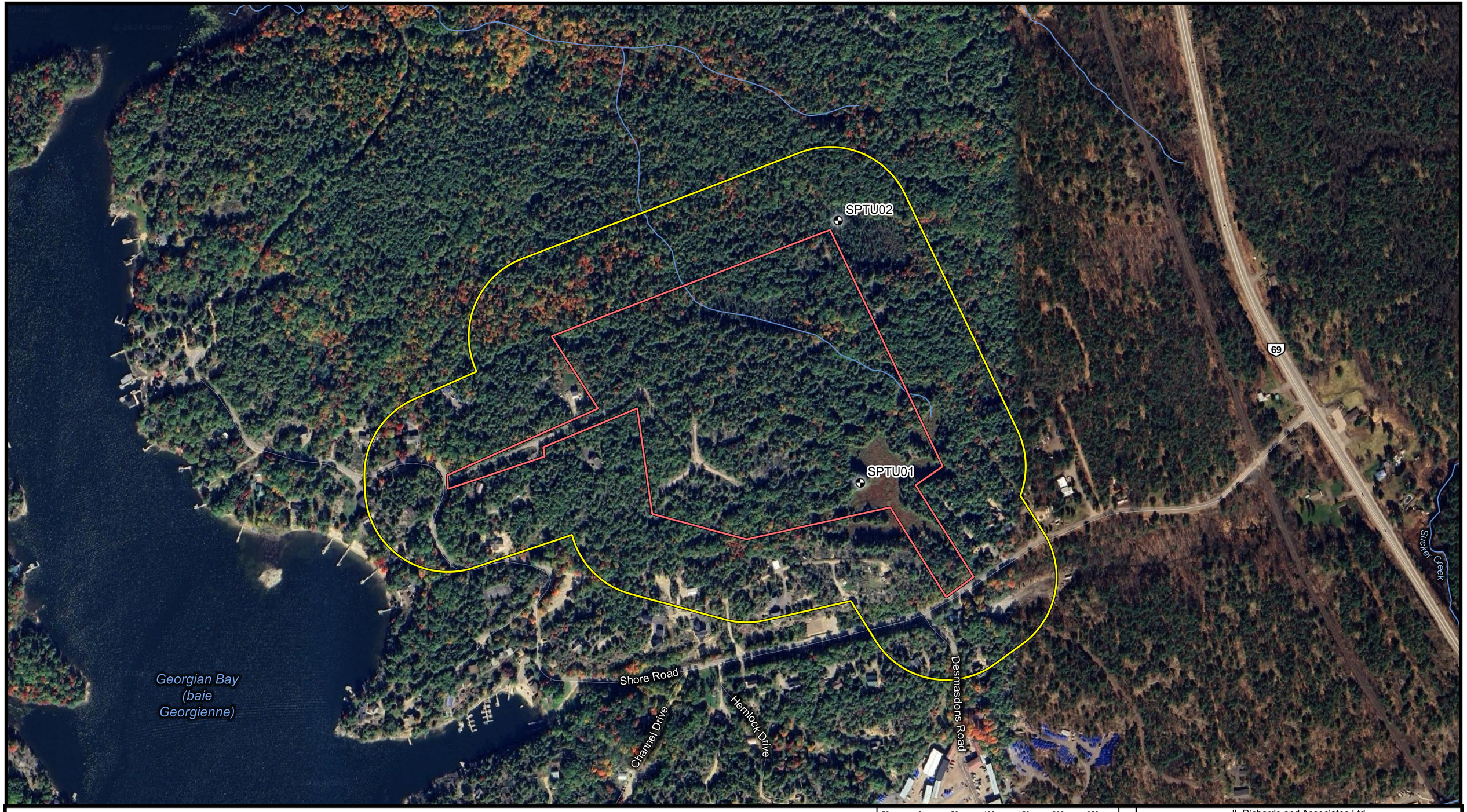
Drawn By	E.M.
Checked By	J.T.
Last Modified:	2024-11-29
Projection	NAD83 / UTM zone 17N

Pointe Au Baril

Species at Risk Surveys

Figure 3

BH-24-PJ-2330



Legend

- Spotted Turtle Survey Locations
- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

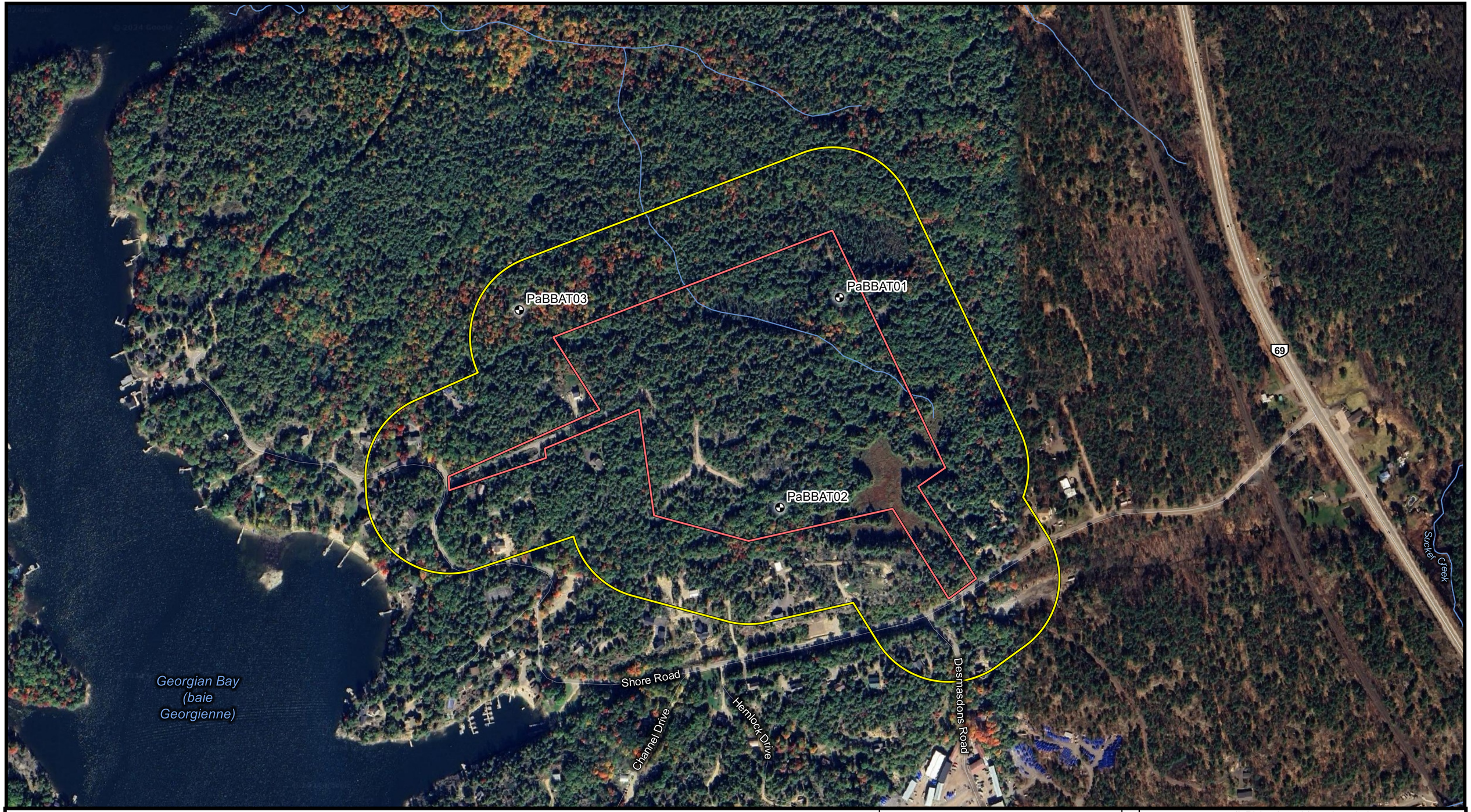
Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Spotted Turtle Survey Locations	Drawn By: E.M.
	Checked By: J.T.
	Last Modified: 2024-11-29
	Projection: NAD83 / UTM zone 17N
Pointe Au Baril	Figure 4
Species at Risk Surveys	

BH-24-PJ-2330



Legend

- Bat Acoustic Survey Locations
- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

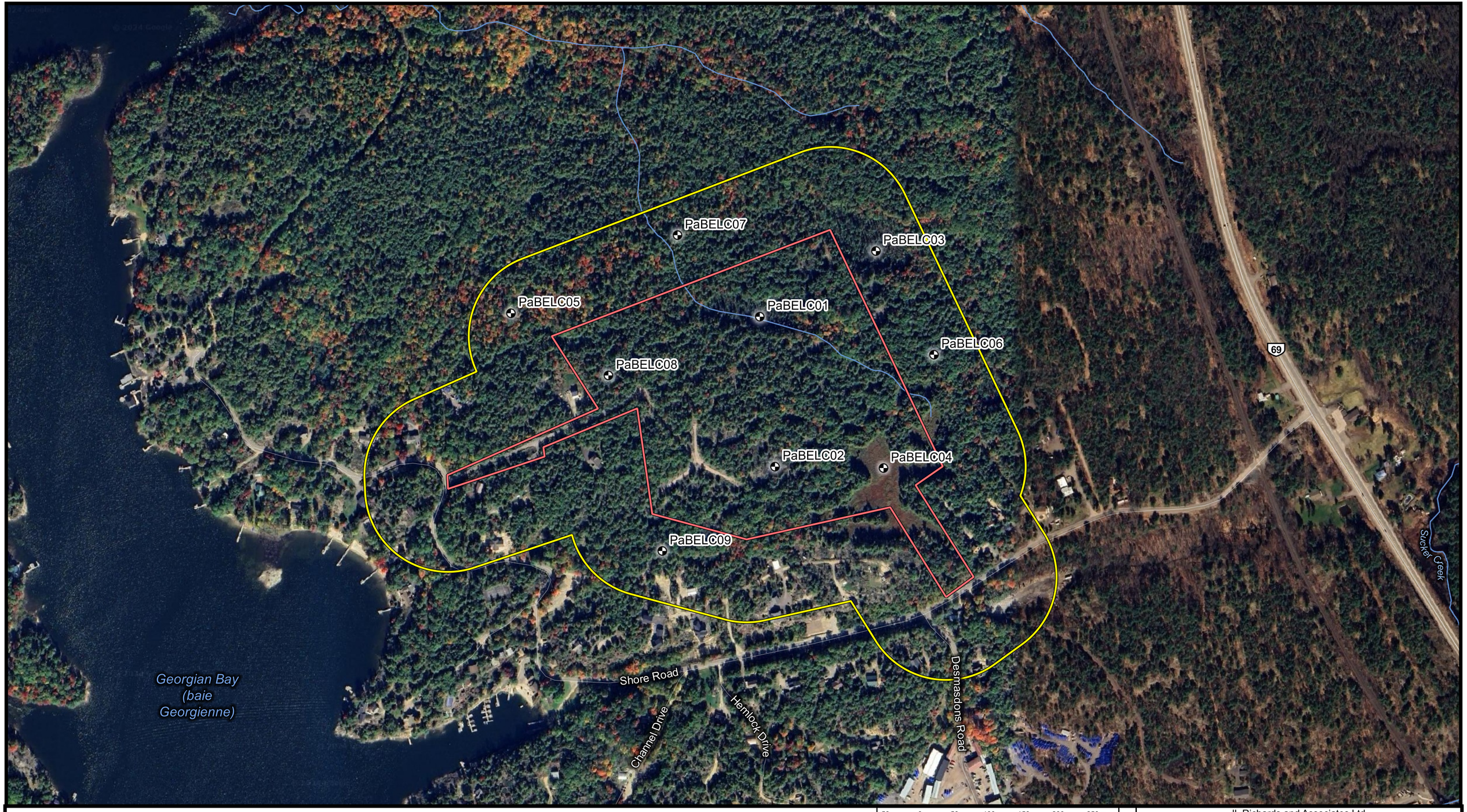
Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Bat Acoustic Survey Locations	Drawn By: E.M.
	Checked By: J.T.
	Last Modified: 2024-10-02
	Projection: NAD83 / UTM zone 17N
Pointe Au Baril	Figure 5
Species at Risk Surveys	

BH-24-PJ-2330



Legend

- Plant Community Survey Locations
- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

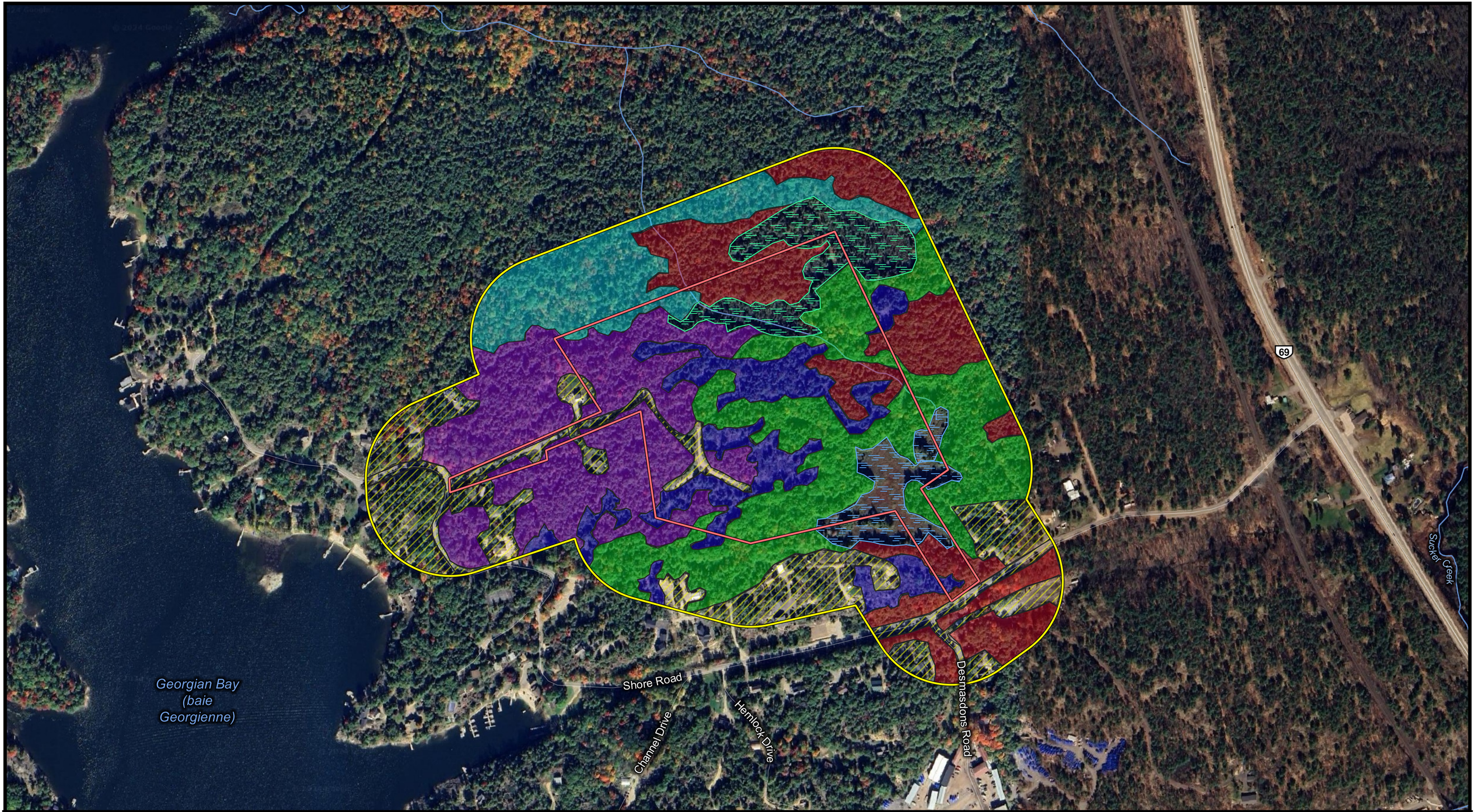
Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

JL Richards and Associates Ltd.

Plant Community Survey Locations	Drawn By: E.M.
	Checked By: J.T.
	Last Modified: 2024-10-02
	Projection: NAD83 / UTM zone 17N
Pointe Au Baril	Figure 6
Species at Risk Surveys	

BH-24-PJ-2330



Legend

Ecosite

- G015: Very Shallow, Dry to Fresh; Red Pine - White Pine Mixedwood
- G042: Dry, Sandy; Maple Hardwood
- G043: Dry, Sandy; Mixedwood
- G054: Dry to Fresh, Coarse; Red Pine - White Pine Mixedwood
- G135: Organic Thicket Swamp
- G144: Organic Meadow Marsh
- G164: Rock Barren
- Disturbed
- Study Area
- Site Boundary
- Watercourse

50 0 50 100 150 200 250 m

Notes:

Google imagery (Airbus) acquired from 2023-2024 may not reflect current site conditions.

BLUE HERON ENVIRONMENTAL

JL Richards and Associates Ltd.

Ecological Land Classification

Drawn By	E.M.
Checked By	J.T.
Last Modified:	2024-11-29
Projection	NAD83 / UTM zone 17N

Pointe Au Baril

Species at Risk Surveys

Figure 7

BH-24-PJ-2330

Appendix B

Survey Locations

Table B.1 – Survey Location UTM Coordinates [1)]

Survey Type	Survey Location ID	Easting	Northing
Shorebird Surveys	PaBSB01	547853	5049848
	PaBSB02	547868	5050179
Spotted Turtle Surveys	PaBSPTU01	547772	5049797
	PaBSPTU02	547847	5050184
Breeding Bird Surveys	PaBSB01	547853	5049848
	PaBSB02	547859	5050182
Ecological Land Classification	PaBELC01	547699	5050089
	PaBELC02	547721	5049872
	PaBELC03	547867	5050184
	PaBELC04	547878	5049875
	PaBELC05	547339	5050094
	PaBELC06	547951	5050034
	PaBELC07	547580	5050207
	PaBELC08	547480	5050004
	PaBELC09	547558	5049750
Nightjar Surveys	PaBEWPW01	547645	5049854
Bat Acoustic Surveys	PaBBAT01	547811	5050118
	PaBBAT02	547725	5049815
	PaBBAT03	547349	5050100

[1)] UTMs are in NAD83, Zone 17

Appendix C

Photologs

Photolog C.1 – Shorebird Survey Representatives Photos

Photolog C.2 – Breeding Bird Point Count Survey Representative Photos

Photolog C.3 – Nightjar Triangulation Survey Representative Photos

Photolog C.4 – Spotted Turtle Survey Representative Photos

Photolog C.5 – Bat Acoustic Survey Representative Photos

Photolog C.6 – Plant Community Survey Representative Photos

Photolog C.7 – Incidental Observation Photos

Photolog C.1 – Shorebird Survey Representative Photos

Photo C.1-1: PaBSB01, facing east

Photo C.1-2: PaBSB02, facing west

Photolog C.2 – Breeding Bird Point Count Survey Representative Photos

Photo C.2-1: PaBSB01, facing north

Photo C.2-2: PaBSB02, facing north

Photolog C.3 – Nightjar Triangulation Survey Station Photos

Photo C.3-1: PaBEWPW01, facing south

Photo C.3-2: PaBEWPW01, facing west

Photolog C.4 – Spotted Turtle Survey Representative Photos

Photo C.4-1: PaBSPTU01, facing east

Photo C.4-2: PaBSPTU02, facing west

Photolog C.5 – Bat Acoustic Survey Representative Photos

Photo C.5-1: PaBBAT01, facing east

Photo C.5-2: PaB02, facing east

Photo C.5-3: PaBBAT03, facing south

Photo C.5-4: Standard acoustic recorder deployment

Photo C.6-1: G015 - Very Shallow, Dry to Fresh: Red Pine-White Pine Mixedwood

Photo C.6-2: G042 - Dry, Sandy: Maple Hardwood

Photo C.6-3: G043 - Dry, Sandy: Mixedwood

PhotoC.6-4: G054 - Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood

Photo C.6-4: G135 - Organic Thicket Swamp

Photo C6-5: G144 - Organic Meadow Marsh

Photo C.6-6: G164 - Rock Barren

Photolog C.7 – Incidental Observation Photos

Photo C.7-1: Blanding's Turtle (*Emydoidea blandingii*)

Photo C.7-2: Eastern Gartersnake (*Thamnophis sirtalis sirtalis*)

Photo C.7-3 Green Frog (*Lithobates clamitans*)

Photo C.7-4 Spring Peeper (*Pseudacris crucifer*)

Photo C.7-5 Northern Watersnake (*Nerodia sipedon sipedon*)

Photo C.7-6: Massasauga Rattlesnake (*Sistrutus catenatus*)

Appendix D

Survey Data

Table D.1 – Spotted Turtle Survey Data

Table D.2 – Bat Acoustic Survey Data

Table D.3 – Plant Community Characterization

Table D.4 – Floristic Inventory

Table D.5 – Incidental Observations by Ecosite Type

Table D.1 - Spotted Turtle Survey Data

Station ID	Date (2024)	Air Temperature (˚C)[1)]	Water Temperature (˚C)[1)]	Search Effort (Minutes)		Habitat Description	Observations	
				Transect #1	Transect #2		Painted Turtle	Blanding's Turtle
SP01	April 22	12	10	98	108	The habitat is a narrow-leaved emergent marsh comprised of rushes and sedges surrounded by upland species (Red Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), Maple species (*Acer* sp.) and Oak species (*Quercus* sp.). Small streams of 0.25 m to 1.0 m deep meander throughout the wetland. Fallen logs, floating vegetation (e.g. Arrowhead [*Sagittaria* sp.]), Sphagnum moss (*Sphagnum* spp.). The substrate is organic.	-	1
	April 26	14	10	182	112		-	3
	May 02	15	12	160	120		4	-
	May 04	24	17	154	150		5	1
	May 15	17	12	123	150		3	-
	May 29	12	10	25	18		-	-
SP02	April 22	14	10	33	33	The habitat is an alder thicket swamp consisting of Speckled Alder (*Ulnus incana*), Black Spruce (*Picea mariana*), Larch (*Larix* laricina), and Sphagnum moss. The water table is at surface and intermittently visible in low-lying areas. Water	-	-
	April 26	16	8	71	69		-	-
	May 02	18	10	36	56		-	-
	May 04	15	13	62	68		-	-

Station ID	Date (2024)	Air Temperature (˚C)[1)]	Water Temperature (˚C)[1)]	Search Effort (Minutes)		Habitat Description	Observations	
				Transect #1	Transect #2		Painted Turtle	Blanding's Turtle
	May 15	19	10	48	33	depth does not exceed 0.25m. The substrate is organic.	-	-

[1)] Water and air temperatures are based on *in situ* conditions at the time of the surveys.

Table D.2 – Raw Bat Acoustic Survey Data[1)]

Bat Species	BAT01					BAT02					BAT03				
	Total # of passes	Average # of passes	St. Dev.	Maximum Nightly passes	Count (Nights)	Total # of passes	Average # of passes	St. Dev.	Maximum Nightly passes	Count (Nights)	Total # of passes	Average # of passes	St. Dev.	Maximum Nightly passes	Count (Nights)
Big Brown/Silver-haired Bats [1)]	147	13.36	9.09	28	11	157	14.27	9.34	24	11	163	14.82	8.02	33	11
Eastern Red Bat	19	1.73	2.10	7	11	6	0.55	1.04	3	11	12	1.09	1.51	5	11
Hoary Bat	8	0.73	1.01	3	11	61	5.55	14.00	47	11	40	3.64	4.20	13	11
Tri-colored Bat	16	1.45	1.69	4	11	4	0.36	0.67	2	11	8	0.73	1.01	3	11
Little Brown Myotis	13	1.18	1.25	4	11	10	0.91	1.51	5	11	27	2.45	2.34	8	11
Northern Long-eared Myotis	0	0.00	0.00	0	11	2	0.18	0.40	1	11	0	0.00	0.00	0	11
Unknown Myotis	26	2.36	1.21	4	11	61	5.55	7.67	26	11	31	2.82	2.60	8	11
No ID	33	3.00	1.73	6	11	152	13.82	24.92	85	11	150	13.64	5.01	22	11
Noise	181	16.45	10.50	36	11	210	19.09	30.94	108	11	411	37.36	34.33	132	11
Bat Files	262	23.82	11.08	44	11	453	41.18	52.09	187	11	431	39.18	14.80	71	11
Bat + Noise Files	443	40.27	21.31	80	11	663	60.27	82.10	295	11	842	76.55	39.55	177	11
Total Myotis Passes	39	3.55	1.44	6	11	73	6.64	8.14	28	11	58	5.27	4.47	16	11

[1)] Data are presented by number of passes, which may not reflect the number of bats present.
[2)] Big Brown Bat and Silver-haired Bats are difficult to distinguish with certainty, therefore they were combined for this analysis.

Table D.3 - Plant Community Characterization by Ecosite

Ecosite Code	Substrate Code	Ecosite/Substrate Description
G015	R6	**Very Shallow, Dry to Fresh: Red Pine-White Pine Mixedwood** The canopy is composed of White Pine (*Pinus strobus*), Red Oak (*Quercus rubra*) and Red Maple (*Acer rubrum*), providing between 51% and 75% cover. No subcanopy is present. Shrubs in the understory include predominantly Red Oak, Balsam Fir (*Abies balsamea*) and Red Maple. Canada Mayflower (*Maianthemum canadense*), Red Maple and Bracken Fern (*Pteridium aquilinum*) are present in the ground layer. The depth of organics is between 0 and 2 cm and the depth to coarse fragments is approximately 10 cm. The substrate is composed of rapidly draining, fine sand with a dry moisture regime. No gley or mottles were detected.
G042	M1	**Dry, Sandy: Maple Hardwood** The canopy is predominantly composed of Red Maple, Red Oak, and White Pine, providing 51% - 75% cover. No subcanopy is present in this ecosite. Shrubs in the understory include predominantly Balsam Fir, Red Maple and Red Oak. Bunchberry (*Cornus canadensis*), Starflower (*Trientalis borealis*) and Bracken Fern are present in the ground layer. The depth of organics is approximately 8 cm and the depth to coarse fragments is approximately 44 cm. The substrate is composed of a very rapidly draining, medium sand with a moderately dry moisture regime. No gley or mottles were detected.
G043	D1	**Dry, Sandy: Mixedwood** The canopy is composed of White Spruce (*Picea glauca*), Red Maple, and White Birch (*Betula papyrifera*), providing between 51% and 75% cover. No subcanopy is present in this ecosite. Shrubs in the understory include predominantly Balsam Fir, Red Maple and White Birch. Canada Mayflower, Bluebead Lily (*Clintonia borealis*) and Partridgeberry (*Mitchella repens*) are present in the ground layer. The depth of organics is approximately 7 cm and the depth to bedrock is approximately 120 cm. The substrate is composed of rapidly draining, medium sand with a moderately dry moisture regime. No gley or mottles were detected.

Ecosite Code	Substrate Code	Ecosite/Substrate Description
G054	S1	**Dry to Fresh, Coarse: Red Pine-White Pine Mixedwood** The canopy is predominantly composed of White Pine, Red Maple, and Red Oak, providing between 51% and 75% cover. No subcanopy is present in this ecosite. Shrubs in the understory include predominantly Red Maple, Red Oak, and White Pine. Bunchberry, Low-sweet Blueberry (*Vaccinium angustifolium*), and Sphagnum moss (*Sphagnum* sp.) are present in the ground layer. No organics were present. The mineral substrate depth to coarse fragments is approximately 23 cm. The substrate is composed of a rapidly draining, silty fine sand with a dry moisture regime. No gley or mottles were detected.
G135	O5	**Organic Thicket Swamp** The canopy is composed of Black Spruce (*Picea mariana*) and Tamarack (*Larix laricina*), providing between 5% and 75% cover. No subcanopy is present in this ecosite. Shrubs in the understory include predominantly Mountain Holly (*Ilex* mucronate) and Speckled Alder (*Alnus incana*). Sphagnum moss, Royal Fern (*Osmunda regalis*) and Canada Mayflower are present in the ground layer. The organic substrate is wet with very poor drainage. The depth of organics is between 100 cm and 120 cm, with the depth to bedrock exceeding 120 cm. No mineral substrate is present.
G144	O1	**Organic Meadow Marsh** There is no canopy or subcanopy in this ecosite. The understory includes predominantly Woolgrass (*Scirpus cyperinus*). Sphagnum moss is present in the ground layer. The organic substrate is moderately wet with very poor drainage. The depth of the organics is 60 cm, and the depth to bedrock is approximately 120 cm. Mineral substrate is present, and mottles were detected at 60 cm. No gley was detected.

Ecosite Code	Substrate Code	Ecosite/Substrate Description
G164	R	**Rock Barren** The canopy is composed of White Pine, Red Oak, Jack Pine (*Pinus banksiana*) and Red Maple providing between 5% and 9% cover. No subcanopy is present in this ecosite. Shrubs in the understory include predominantly White Pine, White Spruce and Red Maple. Creeping Juniper (*Juniperus horizontalis*), Coral Lichen (*Pulchrocladia* sp.) and Reindeer Lichen (*Cladonia rangiferina*) are present in the ground layer. No organics are present. The depth of bedrock is <1 cm. No mineral substrate is present.

Table D.4. – Floristic Inventory

Common Name	Scientific Name	Native Status[1)]	SRank[2)]	Ecosite						
				G015	G042	G043	G054	G135	G144	G164
Trees (11 Taxa)										
Balsam Fir	*Abies balsamea*	N	S5	x	x	x				
Black Spruce	*Picea mariana*	N	S5					x		
Eastern White Pine	*Pinus strobus*	N	S5	x	x	x	x	x		
Jack Pine	*Pinus banksiana*	N/I	S5							x
Eastern White Cedar	*Thuja occidentalis*	N	S5			x				x
Red Maple	*Acer rubrum*	N	S5	x	x	x	x	x		
Red Oak	*Quercus rubra*	N	S5	x	x	x	x			x
Tamarack	*Larix laricina*	N	S5					x		x
Trembling Aspen	*Populus tremuloides*	N	S5	x		x				
White Birch	*Betula papyrifera*	N	S5			x	x			
White Spruce	*Picea glauca*	N	S5			x				
Shrubs (13 Taxa)										
Canada Fly Honeysuckle	*Lonicera canadensis*	N	S5	x	x			x		
Canada Yew	*Taxus canadensis*	N	S4				x			
Creeping Juniper	*Juniperus horizontalis*	N	S5	x	x					x
Highbush blackberry	*Rubus allegheniensis*	N	S5							
Lowbush Blueberry	*Vaccinium angustifolium*	N	S5	x	x	x	x			x
Mountain Holly	*Ilex mucronata*	N	S5					x		
Partridgeberry	*Mitchella repens*	N	S5			x				
Speckled Alder	*Alnus incana*	N	S5					x		
Swamp Dewberry	*Rubus pubescens*	N	S5							
Sweetfern	*Comptonia peregrina*	N	S5	x			x			x

Common Name	Scientific Name	Native Status[1)]	SRank[2)]	Ecosite						
				G015	G042	G043	G054	G135	G144	G164
Wild Raisin	*Viburnum cassinoides*	N	S5					x		
Wild Raspberry	*Rubus idaeus*	N/I	S5							x
Wintergreen	*Gaultheria procumbens*	N	S5	x	x		x			
Ferns and Fern Allies (7 Taxa)										
Cinnamon Fern	*Osmunda cinnamomeum*	N	S5					x		
Clubmoss sp.	*Lycopodiopsida* sp.	N	S5			x				
Eastern Bracken Fern	*Pteridium aquilinum*	N	S5	x	x	x	x			
Ground Pine sp.	*Lycopodium* sp.	N	S5		x	x				
Rock polypody	*Polypodium virginianum*	N	S5	x						
Royal Fern	*Osmunda regalis*	N	S5					x		
Wood Fern sp.	*Dryopteris* sp.	N	S5					x		
Graminoids (4 Taxa)										
Lake-bank sedge	*Carex lacustris*	N	S5						x	
Poverty Oatgrass	*Danthonia spicata*	N	S5	x			x			
Three-seeded sedge	*Carex trisperma*	N	S5						x	
Woolgrass	*Scirpus cyperinus*	N	S5						x	
Mosses (2 Taxa)										
Schreiber's Moss	*Pleurozium schreberi*	N	S5	x	x	x	x			x
Sphagnum Moss sp.	Sphagnum *sp.*	N	S5	x	x	x	x	x	x	x
Lichens (5 Taxa)										
Coral Lichen sp.	*Pulchrocladia retipora*	N	S5							x
Parmalia sp.	*Parmalia* sp.	N	S5	x			x			
Pixie Cup Lichen	*Cladonia asahinae*	N	S5							x
Reindeer Lichen	*Cladonia arbuscula*	N	S5	x			x			x
Usnea sp.	*Usnea* sp.	N	S5	x		x	x			x

Common Name	Scientific Name	Native Status[1)]	SRank[2)]	Ecosite						
				G015	G042	G043	G054	G135	G144	G164
Forbs (17)										
American Cow-wheat	*Melampyrum lineare*	N	S5	x	x		x			
Bluebead Lily	*Clintonia borealis*	N	S5	x	x	x				
Bristly Sarsaparilla	*Aralia hispida*	N	S5							x
Bunchberry	*Cornus canadensis*	N	S5	x	x		x			
Canada Mayflower	*Maianthemum canadense*	N	S5	x	x	x	x	x		x
Common Cattails	*Typha latifolia*	N	S5					x	x	
Fireweed	*Chamerion angustifolium*	N	S5						x	
Ghost pipe	*Monotropa uniflora*	N	S5			x				
Largeleaf Aster	*Eurybia macrophylla*	N	S5	x	x					
Marsh Cinquefoil	*Cormarum palustre*	N	S5						x	
Pink Lady's Slipper	*Cypripedium acaule*	N	S5				x			
Prickly Bedstraw	*Galium aparine*	N	S5						x	
Shinleaf	*Pyrola elliptica*	N	S5	x	x				x	
Slender-leaved Solidago	*Euthamia graminifolia*	N	S5						x	
Spreading Dogbane	*Apocynum androsaemifolium*	N	S5							x
Starflower	*Trientalis borealis*	N	S5	x	x	x	x	x		x
Wild Sarsaparilla	*Aralia nudicaulis*	N	S5	x	x					

[1)]Endemic status, where N - species is native to Ontario; I - species is introduced to Ontario; I/N - species occurs both naturally and as introduced in Ontario.
[2)]Provincial Ranks (SRanks) are Rarity Ranks assigned to a species or ecological communities Ranks where S3 - Species is vulnerable in Ontario; S4 - Apparently Secure; S5 - Secure; N - Non-breeding; and B - Breeding.

Table D.5 - Incidental Observations by Ecosite Type

Common Name	*Scientific Name*	Srank[1)]	ESA[2)]	Observation Type	Ecosites							
					G015	G042	G043	G054	G135	G144	G164	Disturbed
Amphibians (5 Taxa)												
American Toad	*Anaxyrus americanus*	S5	-	audio	-	-	-	-	-	x	-	-
Green Frog	*Lithobates clamitans*	S5	-	audio/visual	-	x	-	-	x	x	-	x
Northern Leopard Frog	*Lithobates pipiens*	S5	-	audio	-	-	-	-	-	x	-	-
Spring Peeper	*Pseudacris crucifer*	S5	-	audio	-	-	-	-	-	x	-	-
Birds (44 Taxa)												
American Bittern	*Botaurus lentiginosus*	S5B	-	visual	-	-	-	-	-	x	-	-
American Crow	*Corvus brachyrhynchos*	S5	-	audio/visual	-	-	-	-	-	x	-	-
American Goldfinch	*Spinus tristis*	S5	-	audio	-	-	-	-	-	-	-	x
American Redstart	*Setophaga ruticilla*	S5B	-	audio/visual	-	-	-	-	x	x	-	-
American Robin	*Turdus migratorius*	S5	-	audio/visual	-	-	-	-	x	x	-	x
Belted Kingfisher	*Megaceryle alcyon*	S5B, S4N	-	audio	-	-	-	-	-	-	-	x
Blackburnian Warbler	*Setophaga fusca*	S5B	-	audio	-	-	-	-	-	x	-	-
Black-Capped Chickadee	*Poecile atricapillus*	S5	-	audio/visual	x	x			x	x		x
Black-Throated Blue Warbler	*Setophaga caerulescens*	S5B	-	audio	-	-	-	-	x	-	-	-
Black-Throated Green Warbler	*Setophaga virens*	S5B	-	audio	-	-	-	-	-	x	-	-
Blue Jay	*Cyanocitta cristata*	S5	-	audio	-	-	-	-	x	x	-	x
Blue-Winged Warbler	*Vermivora cyanoptera*	S4B	-	audio	-	-	-	-	x	x	-	-
Broad-Winged Hawk	*Buteo platypterus*	S5B	-	audio/visual	-	-	-	-	x	-	-	x
Brown Creeper	*Certhia americana*	S5	-	audio	-	-	-	-	-	-	-	x
Canada Goose	*Branta canadensis*	S5	-	audio	-	-	-	-	-	-	-	x

Common Name	*Scientific Name*	Srank[1)]	ESA[2)]	Observation Type	Ecosites							
					G015	G042	G043	G054	G135	G144	G164	Disturbed
Canada Warbler	*Cardellina canadensis*	S5B	Special Concern	audio	-	-	-	-	x	-	-	-
Cedar Waxwing	*Bombycilla cedrorum*	S5	-	audio	-	-	-	-	x	-	-	-
Common Grackle	*Quiscalus quiscula*	S5	-	audio	-	-	-	-	x	x	-	x
Common Raven	*Corvus corax*	S5	-	audio	-	-	-	-	x	-	-	-
Common Yellowthroat	*Geothlypis trichas*	S5B, S3N	-	audio	-	-	-	-	-	x	-	-
Dark-Eyed Junco	*Junco hyemalis*	S5	-	audio	-	-	-	-	-	-	-	x
Downy Woodpecker	*Dryobates pubescens*	S5	-	audio	-	-	-	-	x	-	-	-
Eastern Phoebe	*Sayornis phoebe*	S5B	-	audio/visual	-	-	-	-	-	x	-	-
Great Crested Flycatcher	*Myiarchus crinitus*	S5B	-	audio	x	x	-	-	x	-	-	-
Hermit Thrush	*Catharus guttatus*	S5B, S4N	-	audio	x	-	-	x	x	-	-	-
Mallard	*Anas platyrhynchos*	S5	-	audio/visual	-	-	-	-	-	x	-	x
Merlin	*Falco columbarius*	S5	-	audio	-	-	-	-	-	-	x	x
Nashville Warbler	*Leiothlypis ruficapilla*	S5B	-	audio	-	-	-	-	x	x	-	-
Northern Flicker	*Colaptes auratus*	S5	-	audio	-	-	-	-	-	x	-	x
Northern Waterthrush	*Parkesia noveboracensis*	S5B	-	audio	-	-	-	-	x	-	-	-
Ovenbird	*Seiurus aurocapillus*	S5B	-	audio	x	x	-	x	x	x	x	-
Pine Warbler	*Setophaga pinus*	S5B, S3N	-	audio	-	-	-	-	-	x	-	x
Purple Finch	*Haemorhous purpureus*	S5	-	audio	-	-	-	-	x	-	-	-
Red-Breasted Nuthatch	*Sitta canadensis*	S5	-	audio	-	-	-	-	x	-	-	x
Red-Eyed Vireo	*Vireo olicaceus*	S5B	-	audio	x	x	x	-	x	x	-	-

Common Name	*Scientific Name*	Srank[1)]	ESA[2)]	Observation Type	Ecosites							
					G015	G042	G043	G054	G135	G144	G164	Disturbed
Ruby-Crowned Kinglet	*Corthylio calendula*	S5B, S3N	-	audio	-	-	-	-	-	-	-	x
Ruffed Grouse	*Bonasa umbellus*	S5	-	audio	-	-	-	-	x	x	-	-
Song Sparrow	*Melospiza melodia*	S5	-	audio	-	-	-	-	x	-	-	x
Swamp Sparrow	*Melospiza geogiana*	S5B, S4N	-	audio/visual	-	-	-	-	-	x	-	-
Turkey Vulture	*Cathartes aura*	S5B, S3N	-	visual	-	-	-	-	x	x	-	-
White-Breasted Nuthatch	*Sitta carolinesis*	S5	-	audio	-	-	-	-	-	-	-	x
White-Throated Sparrow	*Zonotrichia albicollis*	S5	-	audio/visual	x	x	x	x	x	x	-	x
Winter Wren	*Troglodytes hiemalis*	S5B, S4N	-	audio	x	-	x	x	x	x	-	x
Yellow-Rumped Warbler	*Setophaga coronata*	S5B, S4N	-	audio	-	-	-	-	-	x	-	x
Mammals (5 Taxa)												
American Beaver	*Castor canadensis*	S5	-	visual	-	-	-	-	-	x	-	-
American Black Bear	*Ursus americanus*	S5	-	scat	-	-	-	-	x	-	-	-
Red Squirrel	*Tamiasciurus hudsonicus*	S5	-	visual	-	x	-	-	-	-	-	-
Snowshoe Hare	*Lepus americanus*	S5	-	scat	-	-	-	-	x	-	-	-
White-tail Deer	*Odocoileus virginianus*	S5	-	scat	x	-	-	-	-	-	-	-
Reptiles (6 Taxa)												
Blanding's Turtle	***Emydoidea blandingii***	**S3**	**Threatened**	**visual**	**-**	**-**	**-**	**-**	**-**	**x**	**-**	**-**
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-	visual	-	-	-	-	-	-	-	x
Eastern Smooth Green Snake	*Opheodrys vernalis*	S4	-	visual	-	-	-	-	-	x	-	-

Common Name	*Scientific Name*	Srank[1)]	ESA[2)]	Observation Type	Ecosites							
					G015	G042	G043	G054	G135	G144	G164	Disturbed
Massasauga Rattlesnake	***Sistrurus catenatus***	**S3**	**Endangered**	**visual**	**-**	**-**	**-**	**-**	**-**	**x**	**-**	**-**
Midland Painted Turtle	*Chrysemys picta marginata*	S4	-	visual	-	-	-	-	-	x	-	-
Northern Watersnake	*Nerodia sipedon sipedon*	S5	-	visual	-	-	-	-	-	x	-	x

[1)] S Rank – Subnational Conservation Rank, whereby: S3 – Species is vulnerable in Ontario, S4 – Species is apparently secure in Ontario, S5 – Species is secure in Ontario, N – Non-breeding in Ontario, and B – Breeding in Ontario.
[2)] *Endangered Species Act*
Bold – protected species at risk under the ESA

Blue Heron Environmental is committed to the highest quality of professionalism in assisting organizations in fulfilling their regulatory needs and stewardship goals.

Our clients and partners share in the success that comes from our years of practical experience in managing the risks associated with resource industry activities.

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Appendix D

Geotechnical Study
Technical Memorandum
(WSP)

MEMO

TO: Robert Langlois, JLR

FROM: Pat Whissell, WSP

CC: David Brown, WSP
Dan Cacciotti, WSP

SUBJECT: **Site Servicing Memo**
Pointe au Baril Housing Initiative
Pointe au Baril, Ontario

RE: CA0034505.3060

DATE: 12 November 2024

---

1 INTRODUCTION

WSP Canada Inc. has been retained by J.L. Richards & Associates Limited (JLR) to prepare a site servicing memo for the proposed rural residential subdivision development in Pointe au Baril, Ontario. The project scope (as per WSP Proposal 2024CA263050) involved the review of the proposed subdivision plan, as well as publicly available geotechnical information for the property, to provide recommendations on whether or not the proposed lots are suitable to provide adequate site servicing (on-site sewage systems and potable water).

2 BACKGROUND INFORMATION REVIEW

The following document was provided by JLR:

- The Archipelago – Preliminary Conceptual Subdivison and Lotting Plan, Drawing 01 by J.L. Richards & Associates Limited; JLR #32250-000

As the project is at an early stage of feasibility for residential development, the actual occupancy of each lot is yet to be confirmed. Based on discussions with JLR, it was proposed to evaluate different types of occupancies, to provide a range of requirements for future considerations. Therefore, WSP has evaluated the following:

- 4-bedroom dwelling
- Semi-detached dwelling
- Townhouse, and
- Apartment.

In summary, there is a large parcel of land in Point au Baril, Ontario, where a rural residential subdivision is being proposed. The conceptual plan developed by JLR in Phase 1 of this project shows a total of 23 lots ranging in size from 0.29 ha to 0.94 ha.

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Sudbury, Ontario
wsp.com

It is WSP's understanding that there have been no geotechnical investigations completed on the subject property. Therefore, historical data (Ontario Water Well Records, and the Quaternary Geology Mapping from the Ontario Geological Survey) in the general area has been taken into account for this site servicing memo. Based on review of 5 water well records on Northshore Drive in Pointe au Baril, Ontario, the overburden can be described as very thin (0 to 1 m thick) overlying bedrock. The thin overburden varies in the area from thin sand deposits to peat/organics. This information is consistent with the Quaternary Geology Mapping as well.

3 SITE SERVICING

The following table is taken directly from Part 8 of the Ontario Building Code, that illustrates how the Daily Design Sewage Flow (DDSF) for residential dwellings is calculated.

Residential Occupancy	Daily Design Flow Rate (Litres)
1. Number of Bedrooms	
a. 1 bedroom dwelling	750
b. 2-bedroom dwelling	1,100
c. 3-bedroom dwelling	1,600
d. 4-bedroom dwelling	2,000
e. 5-bedroom dwelling	2,500
2. Additional Flows	
a. Each bedroom over 5	500
b. Floor area	
i. Each 10 m^2 (or part thereof) over 200 m^2 up to 400 m^2	100
ii. Each 10 m^2 (or part thereof) over 400 m^2 up to 600 m^2	75
iii. Each 10 m^2 (or part thereof) over 600 m^2, OR	50
c. Each fixture unit over 20 fixture units	50
Apartments, condominiums, Other Multi-Family Dwellings – per person	275

Notes:

1. For the purpose of #2, the highest flow in a, b, or c, shall be added to the flow determined in #1, to determine the overall DDSF.

2. For the purpose of #2, the floor area means the total finished area of a dwelling, excluding the finished basement area.

As discussed above, the proposed lots may consist of a range of housing types, including single detached, semi detached, townhouse and low-rise apartment dwellings. For the purposes of this assessment, it is assumed that the single detached dwelling will consist of a 4-bedroom dwelling with 3 bathrooms and 279 m^2 of living space.

Therefore, the DDSF for the proposed single dwelling development is as follows:

4-bedroom dwelling	=	2,000 L/day
279 m^2 of living space @ 100 L per 10 m^2 over 200 m^2	=	800 L/day
Total DDSF	**=**	**2,800 L/day**

As for the townhouse and apartments, they are simply calculated on a per person basis at 275 L/person. As per Subsection 3.1.17. of the OBC, the occupant load is calculated based on 2 persons per bedroom within the structure.

For residential occupancies, the minimum septic tank is to be 3,600 litres (L) or twice the DDSF. To accommodate an onsite sewage system, a minimum contact area (area on the property) is required based on the type of soil and based on the DDSF. As described above, the site generally consists of thin overburden (sand and organics) overtopping bedrock. To be conservative, we have assumed a T-time (percolation) of >50 min./cm for the following calculation: minimum contact area equals to Q (DDSF) divided by 4 L/m^2 for a site with a T-time of greater than 50. The table below summarizes the potential occupant load in each structure, the DDSF and the minimum contact area required for each type of occupancy.

Residential Occupancy	Bedrooms	Persons	Bathrooms	DDSF (L/day)	Minimum Septic Tank Size (L)	Minimum Contact Area (m^2)
Single Dwelling	4	-	3	2,800	5,600	700
Semi-Detached	2 in each	-	2 in each	1100 for each unit (2200 total)	4,400	550
Townhouse	5	10	-	2,750	5,500	687.5
Low rise apartments	8	16	-	4,400	8,800	1,100

Additionally, since the overburden is so thin based on available data, the septic system will have to be fully raised (full importation of fill) to meet the OBC requirements of 900 mm vertical clearance from high water table or bedrock. With the smallest lot being 0.29 ha (or 2,900 m^2), It is WSP's opinion that the lots should be adequate to support an onsite sewage system, although the low-rise apartment may need to be

considered on a larger lot size. Without seeing the site and the natural contours of each site, it hard to say for certain. A site visit should be conducted to further investigate the lots and complete a few test pits to confirm all assumptions made in this memo.

It is also noted that 3 surface water management ponds are proposed within lots 1, 14 and 15. An additional 15 m clearance distance from any pond is required, as per Table 8.2.1.6.B of the OBC.

The potable water supply, whether it be a shallow or a drilled well, would need to comply with the clearance distances set out by Table 8.2.1.6.A and B of the OBC, to ensure that the onsite septic system does not affect the water quality. Since the overburden is so thin, a drilled well appears to be the most preferred option for water supply on these lots. A drilled well requires 15 m clearance distance from the septic system compared to 30 m for a shallow well, making a drilled well more favorable to fit all structures. It should be noted that the current quality or recharge rate of the aquifer have not been evaluated as part of this scope. A hydrogeological investigation should be conducted to confirm this.

In conclusion, the smaller lots on the proposed plan may have some difficulty meeting all the clearance distances set out by the OBC. Proper planning will be required to ensure that all requirements of the OBC are met. Nevertheless, there could be options of reducing the living space area or number of bedrooms for specific lots if the space requirements can't be met.

4 CLOSURE

We trust that the information presented in this memo meets with your needs at this time. Should you have any questions on the foregoing, please do not hesitate to contact the undersigned.

The Limitations of Report, as presented in Appendix A, forms an integral part of this report.

The discussion included in this memo, although site specific, has a general nature. Once the intended design details and construction methods are available, we recommend a consultant be retained to review this information to ensure conformance with the assumptions and limitations considered. At a minimum, a site visit, along with a hydrological evaluation is required.

Please do not hesitate to contact the undersigned if you require further elaboration or assistance regarding this memo.

Sincerely,

WSP Canada Inc.

Pat Whissell, P.Eng.
Senior Geotechnical Engineer

Dan M Cacciotti, P.Eng.
Senior Principal Geotechnical Engineer

Appendix A

Limitations of Report

Limitations to Geotechnical Reports

1. The work performed in the preparation of this report and the conclusions presented herein are subject to the following:
   a) The contract between WSP and the Client, including any subsequent written amendment or Change Order dully signed by the parties (hereinafter together referred as the "Contract");
   b) Any and all time, budgetary, access and/or site disturbance, risk management preferences, constraints or restrictions as described in the contract, in this report, or in any subsequent communication sent by WSP to the Client in connection to the Contract; and
   c) The limitations stated herein.
2. **Standard of care:** WSP has prepared this report in a manner consistent with the level of skill and are ordinarily exercised by reputable members of WSP's profession, practicing in the same or similar locality at the time of performance, and subject to the time limits and physical constraints applicable to the scope of work, and terms and conditions for this assignment. No other warranty, guaranty, or representation, expressed or implied, is made or intended in this report, or in any other communication (oral or written) related to this project. The same are specifically disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.
3. **Limited locations:** The information contained in this report is restricted to the site and structures evaluated by WSP and to the topics specifically discussed in it, and is not applicable to any other aspects, areas or locations.
4. **Information utilized:** The information, conclusions and estimates contained in this report are based exclusively on: i) information available at the time of preparation, ii) the accuracy and completeness of data supplied by the Client or by third parties as instructed by the Client, and iii) the assumptions, conditions and qualifications/limitations set forth in this report.
5. **Accuracy of information:** No attempt has been made to verify the accuracy of any information provided by the Client or third parties, except as specifically stated in this report (hereinafter "Supplied Data"). WSP cannot be held responsible for any loss or damage, of either contractual or extra-contractual nature, resulting from conclusions that are based upon reliance on the Supplied Data.
6. **Report interpretation:** This report must be read and interpreted in its entirety, as some sections could be inaccurately interpreted when taken individually or out-of-context. The contents of this report are based upon the conditions known and information provided as of the date of preparation. The text of the final version of this report supersedes any other previous versions produced by WSP.
7. **No legal representations:** WSP makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.
8. **Decrease in property value:** WSP shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **No third party reliance:** This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or Contract. Any use or reproduction which any third party makes of the report, in whole or in part, or any reliance thereon or decisions made based on any information or conclusions in the report is the sole responsibility of such third party. WSP does not represent or warrant the accuracy, completeness, merchantability, fitness for purpose or

usefulness of this document, or any information contained in this document, for use or consideration by any third party. WSP accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on this report or anything set out therein. including without limitation, any indirect, special, incidental, punitive or consequential loss, liability or damage of any kind.

10. **Assumptions**: Where design recommendations are given in this report, they apply only if the project contemplated by the Client is constructed substantially in accordance with the details stated in this report. It is the sole responsibility of the Client to provide to WSP changes made in the project, including but not limited to, details in the design, conditions, engineering or construction that could in any manner whatsoever impact the validity of the recommendations made in the report. WSP shall be entitled to additional compensation from Client to review and assess the effect of such changes to the project.

11. **Time dependence**: If the project/works contemplated by the Client is not undertaken within a period of 18 months following the submission of this report, or within the time frame understood by WSP to be contemplated by the Client at the commencement of WSP's assignment, and/or, if any changes are made, for example, to the elevation, design or nature of any development on the site, its size and configuration, the location of any development on the site and its orientation, the use of the site, performance criteria and the location of any physical infrastructure, the conclusions and recommendations presented herein should not be considered valid unless the impact of the said changes is evaluated by WSP, and the conclusions of the report are amended or are validated in writing accordingly.

    Advancements in the practice of geotechnical engineering, engineering geology and hydrogeology and changes in applicable regulations, standards, codes or criteria could impact the contents of the report, in which case, a supplementary report may be required. The requirements for such a review remain the sole responsibility of the Client or their agents.

    WSP will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

12. **Limitations of visual inspections:** Where conclusions and recommendations are given based on a visual inspection conducted by WSP, they relate only to the natural or man-made structures, slopes, etc. inspected at the time the site visit was performed. These conclusions cannot and are not extended to include those portions of the site or structures, which were not reasonably available, in WSP's opinion, for direct observation.

13. **Limitations of site investigations**: Site exploration identifies specific subsurface conditions only at those points from which samples have been taken and only at the time of the site investigation. Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Despite this investigation, conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies.

    Final sub-surface/bore/profile logs are developed by geotechnical engineers based upon their interpretation of field logs and laboratory evaluation of field samples. Customarily, only the final bore/profile logs are included in geotechnical engineering reports.

Bedrock, soil properties and groundwater conditions can be significantly altered by environmental remediation and/or construction activities such as the use of heavy equipment or machinery, excavation, blasting, pile-driving or draining or other activities conducted either directly on site or on adjacent terrain. These properties can also be indirectly affected by exposure to unfavorable natural events or weather conditions, including freezing, drought, precipitation and snowmelt.

During construction, excavation is frequently undertaken which exposes the actual subsurface and groundwater conditions between and beyond the test locations, which may differ from those encountered at the test locations. It is recommended practice that WSP be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered at the test locations, that construction work has no negative impact on the geotechnical aspects of the design, to adjust recommendations in accordance with conditions as additional site information is gained and to deal quickly with geotechnical considerations if they arise.

Interpretations and recommendations presented herein may not be valid if an adequate level of review or inspection by WSP is not provided during construction.

14. **Factors that may affect construction methods, costs and scheduling**: The performance of rock and soil materials during construction is greatly influenced by the means and methods of construction. Where comments are made relating to possible methods of construction, construction costs, construction techniques, sequencing, equipment or scheduling, they are intended only for the guidance of the project design professionals, and those responsible for construction monitoring. The number of test holes may not be sufficient to determine the local underground conditions between test locations that may affect construction costs, construction techniques, sequencing, equipment, scheduling, operational planning, etc.

    Any contractors bidding on or undertaking the works should draw their own conclusions as to how the subsurface and groundwater conditions may affect their work, based on their own investigations and interpretations of the factual soil data, groundwater observations, and other factual information.

15. **Groundwater and Dewatering**: WSP will accept no responsibility for the effects of drainage and/or dewatering measures if WSP has not been specifically consulted and involved in the design and monitoring of the drainage and/or dewatering system.

16. **Environmental and Hazardous Materials Aspects**: Unless otherwise stated, the information contained in this report in no way reflects on the environmental aspects of this project, since this aspect is beyond the Scope of Work and the Contract. Unless expressly included in the Scope of Work, this report specifically excludes the identification or interpretation of environmental conditions such as contamination, hazardous materials, wild life conditions, rare plants or archeology conditions that may affect use or design at the site. This report specifically excludes the investigation, detection, prevention or assessment of conditions that can contribute to moisture, mould or other microbial contaminant growth and/or other moisture related deterioration, such as corrosion, decay, rot in buildings or their surroundings. Any statements in this report or on the boring logs regarding odours, colours, and unusual or suspicious items or conditions are strictly for informational purposes

17. **Sample Disposal**: WSP will dispose of all uncontaminated soil and rock samples after 30 days following the release of the final geotechnical report. Should the Client request that the samples be retained for a longer time, the Client will be billed for such storage at an agreed upon rate. Contaminated samples of soil, rock or groundwater are the property of the Client, and the Client will be responsible for the proper disposal of these samples, unless previously arranged for with WSP or a third party.

WSP Canada Inc.

Appendix E

Summary of Guidelines for New Development in Proximity to Railway Operations
(FCM and RAC, 2013)

Township of The Archipelago
Pointe au Baril Housing Initiative

The guidelines for development in proximity to railway operations were developed through collaboration of the Railway Association of Canada (RAC) and the Federation of Canadian Municipalities (FCM) in their Proximity Initiative. The information below is a summary of the relevant considerations of final report prepared by RAC and FCM. Refer to the final report prepared by RAC and FCM for further detail.

The guidelines outline recommendations for mitigation design, consultation with the railway, building setbacks, noise mitigation, vibration mitigation, safety barriers, security fencing, stormwater management and drainage, warning clauses and other legal agreements, and issues that may arise during construction, as detailed below:

Early Consultation: Key issues or concerns that may need to be addressed in early consultation with the railway include:

- the frequency, types, and speeds of trains travelling within the corridor;
- the potential for expansion of train traffic within the corridor;
- any issues the railway may have with the new development or with specific uses proposed for the new development;
- the capacity for the site to accommodate standard mitigation measures;
- any suggestions for alternate mitigation measures that may be appropriate for the site; and
- the specifications to be applied to the project;

Building Setbacks: A setback from the railway corridor provides a buffer from railway operations, permits dissipation of rail-oriented emissions, vibrations, and noise, and accommodates a safety barrier. The standard recommended building setbacks for new residential development in proximity railway operations range from a minimum setback from a principal branch line of 15 m to a minimum setback from a freight rail yard of 300 m.

Noise and Vibration Mitigation: The recommended minimum noise influence areas to be considered for railway corridors when undertaking noise studies range from a 75 metre influence area from secondary branch lines to a 300 metre influence area for principal main lines and 1000 metre influence area from freight rail yards. The recommended minimum vibration influence area to be considered is 75 metres from a railway corridor or rail yard.

Warning Clauses: Municipalities are encouraged to promote the use of appropriate specific rail operations warning clauses, if feasible, in consultation with the appropriate railway, to ensure that those who may acquire an interest in a subject property are notified of the existence and nature of the rail operations, the potential for increased rail activities, the potential for annoyance or disruptions, and that complaints should not be directed to the railways. Such warning clauses should be registered on title if possible and be inserted into all agreements of purchase and sale or lease for the affected lots/units.

Construction Issues: Prior to the start of construction of a new development, rail corridor-related infrastructure must be identified and plans adjusted as required to ensure that these features are not adversely affected by the proposed construction. Existing services and utilities under a rail corridor must be protected from increased loads during the construction and operation of the development.

Further information is provided in the guidelines as it relates to common issues and constraints (e.g., safety, noise and vibration, standard mitigation, and challenges associated with new residential development), as well as recommendations for implementation. Regarding implementation specifically, the guidelines offer consideration for common implementation mechanisms, provide a model review process for new residential development, infill development, or conversion projects in proximity to railway corridors, comment on a mitigation and infrastructure maintenance strategy, discuss stakeholders' roles in implementation, and finally speak to dispute resolution.

These guidelines will serve as a reference document should the project moves forward into subsequent phases of design and development, with these considerations tailored to the subject property given its relative proximity to the CPKC railway line which traverses North Shore Road.

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