1000757443 LP

Mine Connector Merchant Transmission Line

Class EA

For a Transmission Facility

Prepared for:
1000757443 LP (Batchewana First Nation)(Co-proponent)
and Alamos Gold Inc. (Co-proponent)

Prepared by:
Azimuth Environmental
Consulting, Inc.

December 2024

AEC 23-028

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

December 20, 2024 AEC 23-028

Batchewana First Nation
c/o Aboriginal Business Network
1340 Terrace Ridge Drive
Carp, Ontario
K0A 1L0

Attention: Chief Mark McCoy

Re: **Batchewana First Nation Class EA for a Transmission Facility - Wawa, Ontario**

Dear Chief McCoy:

Azimuth Environmental Consulting, Inc. was retained to provide a Class EA Report for a proposed 115kV transmission line corridor between the Wawa Transmission Line near the Hollingsworth Dam, Hawk Junction and Island Gold Mine lands in Dubreuilville, Ontario. The structure of the report is based on the municipal Class Environmental Assessment for Transmission Facilities (Class EA)(2024) process in terms of considering potential environmental effects, multiple alternative locations for the transmission line corridor and recommending a preferred alternative. The project is eligible for exemption subject to the Class EA screening process.

Considerable work has been undertaken in order to document existing conditions and to bring environmental consideration into the facility design. The purpose of this report is to provide Batchewana First Nation with an understanding of environmental conditions and potential for impacts related to the proposed infrastructure on natural heritage features and functions associated with the four alternative solutions and adjacent lands. A fifth option – "Do Nothing" – was also considered. This report considers both provincially and federally-listed Species at Risk and their habitat. Alternative Solution #4 is identified as the preferred alternative for the transmission line corridor.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jordan Wrobel, B.Sc.
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1.0 PROJECT INTRODUCTION

Azimuth has been retained by 1000757443 LP (a limited partnership of Batchewana First Nation (BFN) in collaboration with Alamos Gold Inc. (Alamos) to provide a Class EA for a Transmission Facility (Class EA), in order to facilitate the construction process of a 115 kV transmission line between the Hollingsworth Transmission Station and Island Gold Mine lands near Dubreuilville, Ontario. The objective of this report is to assess multiple alternative solutions, and determine the least environmentally impactful option, by comparing factors outlined in Section 7.0.

1.1 Project Name and Proponent Contact Information

Project Name: Mine Connector Merchant Transmission Line Project

Proponent: 1000757443 LP

Proponent Contact:
Batchewana First Nation Natural Resources Department
Mr. Danny Sayers Jr, Batchewana First Nation Natural Resource Manager
236 Frontenac Street/ Rankin Reserve 15D
Batchewana First Nation, Ontario
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1.2 Application of the Class EA for Transmission Facilities

Based on Section 1.2, the Class EA applies to the proposed project, as the project includes the construction of a new 115kV transmission line that is more than 2 kilometers long. None of the exclusions described in Section 1.2.1 of the Class EA (2024) apply.

Regarding Project Category, the project is not an emergency situation, nor is it eligible for exemption subject to the Archaeological Screening Process. As described in Section 1.3.3 (Class EA, 2024), the project is eligible for exemption subject to the Class EA Screening Process, as the proposed transmission line has a nominal operating voltage of 115kV and the proposed corridor is approximately 45 km long.

The studies completed to date address additional aspects that go beyond the requirements to apply the Class EA Screening Process, in part due to the various routing opportunities and a need to understand the existing conditions in order to manage the project. Therefore, this report has included this information as well.

1.3 Establish the Need for the Transmission Facility

The transmission facility is required to provide electrical service to the mine site for existing operations and to facilitate future expansion. Currently, an on-site compressed natural gas (CNG) power plant is used to supplement the available electrical capacity. The expansion of mining activities will exceed the capacity of the existing 44kV supply. The proposed transmission facility represents an expansion of large industrial customer facilities with direct connection to Ontario's transmission network.

With the proposed facility, the use of the on-site CNG power plant will cease, significantly reducing the consumption of fossil fuels for mining equipment, and will promote the use of electrical vehicles and equipment for mining activities. Overall, it will result in a significant reduction of carbon and greenhouse gas emissions.

1.4 Statement of the Opportunity and Solutions

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by 1000757443 LP (a limited partnership of Batchewana First Nation (BFN) in collaboration with Alamos to provide a Class EA for a Transmission Facility for a proposed 115kV transmission line (the proposed infrastructure) near Wawa, Ontario (Ecoregion 3E). The assessment takes the form of a scoped review based on the "Class Environmental Assessment for Transmission Facilities (February 2024)" (previously called the Class Environmental Assessment for Minor Transmission Facilities (July 2022)) process in terms of considering multiple alternatives for the transmission line and recommending the preferred alternative, while considering the traditional knowledge of the BFN and various other agencies' guidelines. Protection of the land and environment is one of the most important priorities for the environmental assessment.

The Island Gold and Magino mines operated by Alamos Gold Inc. are located approximately 15km southeast of Dubreuilville, Ontario within the traditional lands of BFN. The mines are connected to the "#4" circuit of Algoma Power Inc. (API) at 44kV. Both mines are undergoing significant developments that are projected to exhaust the practical operating limits of the #4 circuit. The combined electrical load of the two mines is expected to reach a peak load of approximately 60 Megawatt (MW) by 2026. The Batchewana First Nation, in partnership with the two companies, wish to develop a new 115kV transmission line from the Hydro One network to the mining areas, thus serving the long-term electrical power requirements of both mines for the foreseeable future. This line is estimated to initially supply approximately 40MW of the total future peak load, with future increases expected to reach 60MW (BESTECH, 2023).

Four alternative solutions are being considered from Key Natural Heritage Feature (KNHF), site logistics/safety, hydrogeological/hydrological/geological, economical, and traditional

knowledge perspectives as potential routes for the transmission line (see Figure 1A-C) with a fifth option being "Do Nothing".

The five alternative solutions are:

1. Route 1 (Blue) Alternative Solution;
2. Route 2 (Magenta) Alternative Solution;
3. Route 3 (Orange) Alternative Solution;
4. Route 4 (Green) Alternative Solution; and,
5. Option 5 (Do Nothing) Alternative Solution.

For the purpose of this Class EA, assessment of the alternative solutions considers the following spatial scales:

- Right of Way (ROW) - each of the four alternative solutions that would construct the transmission line require impact footprints that may be as wide as 100m, though widths will be significantly less in sections of the corridor resulting in an estimated average width of 40-60m. 100m will be assumed for the entire infrastructure area as to assume worst-case scenario conditions;
- Potential Infrastructure Area (PIA) – lands within the 100m wide corridor directly impacted by the proposed infrastructure;
- Local Study Area (LSA) - adjacent lands within approximately 120m of the PIA; and,
- Regional Study Area (RSA) - the entire region encompassed by all four routes, bordered by the mines in the north, the Wawa transmission station in the south, and the LSA boundaries to the east/west of the ROWs.

The purpose of this Class EA is to:

1. Describe the alternative solutions based on a scoped field program;
2. Evaluate each solution based on specific criteria to recommend a preferred route; and,
3. Assess the potential for environmental impacts associated with construction of the transmission line along the preferred route.

A review of online background information, in combination with the detailed field program, and the Shaft Right of Way Selection Trade off Report (BESTECH, 2023) prepared for Alamos Gold Inc, are used to describe existing KNHF and hydrogeological conditions. The report also examines potential for federally-listed Species at Risk (SAR) and SAR habitat protected under Canada's *Species at Risk Act*, 2002 (SARA). Recommendations for avoidance and mitigation are provided where potential or confirmed KNHFs have been identified. Conducting wildlife surveys, environmental area mapping, and integration of Traditional Knowledge were all applied in conjunction to inform the selection of the preferred solution.

1.5 Project Components

The construction of various project components will be required regardless of the identified preferred solution, however the quantity of these components vary as outlined in the BESTECH (2023) report. These components include: swamp crib foundations, culverts, rock blasted foundations, support structures, access roads, and potential bridge repairs. For the most part, structures are single poles of composite (FRP) construction supported with guy wires. For segments where there is a change in direction of the line, additional poles are installed to provide additional structural support and additional guying points. The electrical cables are primarily strung by air which reduces ground requirements for access. Multiple cables can be strung from the same set of poles. The right-of-way will be regularly maintained, particularly to remove tall trees that may potentially damage the line. Local drainage is also routed to ensure that structure foundations are not compromised. These components are explored and evaluated in greater detail in Section 7.0.

The BESTECH (2023) report provides a review of the same route alignments from an engineering and construction point of view. The criteria considered included: topography, number of structures, different types of foundations, access from permanent and temporary roads and trails, avoidance of water courses and wetlands, ease of aerial stringing, approximate construction cost, and operational and maintenance costs. The BESTECH (2023) report concluded that the Green route (Route 4) was the Preferred Route based on engineering criteria. The following photos (from BESTECH, 2023) provide examples of the general appearance and types of structures proposed for the proposed transmission line.

Photo 1: Example of single poles and general ROW width

Photo 2: Examples of double pole groups for structural support at turns or longer spans

Photo 3: Example of triple pole group for support at turns or dead ends

Photo 4: Example of span across water course

1.6 Construction Summary

The Right-of-Way will be cleared of trees and tall brush by ground crews. Mechanized clearing will be used in most areas. Exceptions to this are within 30m of water features and in areas where tracked or wheeled machines cannot reach such as cliffs and rock out crops. These areas will be cleared manually. Clearing activities include grubbing of stumps and removal of boulders, roots, and buried logs within the right of way, however near watercourses grubbing or removal of ground cover will not be performed. Soil stripping of the entire transmission line corridor is not proposed. Disturbed areas will be required to be restored with an approved seed mix.

Pole structures can be constructed of a single pole or multiple poles and have with guy lines in order to support the poles. In harder to reach areas poles are expected to be brought to structure locations by helicopter and set in place with support from ground crews. Electrical conductor and OPGW shied wire will be strung between the poles. We anticipate the contractor will string primarily by helicopter due to terrain. Use of helicopters will minimize the transit of equipment and supplies through access trails. The overall construction will be completed within approximately one year.

Construction crews will access the route from either end, and will stay nearby at either the mine site or Wawa. There will be no construction camp along the transmission facility.

2.0 PLANNING AND AGENCY JURISDICTION CONTEXT

2.1 Provincial Planning Policy (2024)

The Provincial Planning Statement (PPS) (MMAH, 2024) outlines policies related to natural heritage features (Section 4.1) and water resources (Section 4.2). Ontario's *Planning Act*, (1990) requires that planning decisions shall be consistent with the PPS. The study area for this assessment is located entirely within **Ecoregion 3E**. According to the PPS development and site alteration shall not be permitted in:

- *Significant wetlands* in Ecoregions 5E, 6E and 7E; and,
- *Significant coastal wetlands*.

Similarly, Section 4.1.5 of the PPS states that, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E; and 7E;
b) *significant woodlands* in Ecoregions 6E; and 7E;
c) *significant valleylands* in Ecoregions 6E; and 7E;
d) *significant wildlife habitat*;
e) *significant areas of natural and scientific interest*; and,
f) *coastal wetlands* in Ecoregions 5E, 6E; and 7E that are not subject to policy 241.4(b).

It is ultimately the responsibility of the Province and/or the Municipality to designate areas identified within Section 4.1.4 and 4.1.5 of the PPS as "significant".

Section 4.1.6 of the PPS states that development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Section 4.1.7 of the PPS states that development and site alteration shall not be permitted in the habitat of Threatened and Endangered species, except in accordance with provincial and federal requirements.

Furthermore, under Section 4.1.8 of the PPS, no development or site alteration will be permitted on lands adjacent to natural heritage features and areas identified in policies 4.1.4, 4.1.5 and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and their ecological functions.

Although the PPS is not applicable for infrastructure, this policy was utilized as a guidance document to assess KNHFs.

2.2 Endangered Species Act, 2007

Ontario's ESA provides regulatory protection to Endangered and Threatened species prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species or an area on which the species depends, directly or indirectly, to carry out its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA included under O. Reg. 230/08 identify SAR in Ontario. These include species listed as Extirpated, Endangered, Threatened and Special Concern. As noted above, only species listed as Endangered and Threatened receive protection from harm and destruction to habitat on which they depend.

In this document, SAR and their status will reflect the provincial status of the species.

2.3 Federal *Fisheries Act*

The *Fisheries Act,* 1985 includes protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The Fisheries Act provides protection against the "death of fish, other than by fishing", (Section 34.4(1)) and the "harmful alteration, disruption or destruction of fish habitat", (Section 35(1)), otherwise known as HADD.

In cases where impacts to fish and fish habitat cannot be avoided, the project does not fall within waterbodies where Fisheries and Oceans Canada (DFO) review is not required, or the scope of the project is not entirely covered under standards and code of practice, proponents are asked to submit a request for review to their Fish and Fish Habitat Protection Program regional office. If death of fish, or HADD of fish habitat have the potential to occur, the project may require an authorization from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34.4(2)(b) or 35(2)(b) of the *Fisheries Act Regulations*. All projects are encouraged to avoid causing the death of fish and HADD of fish habitat, using measures to protect fish and fish habitat that include standards and codes of practice for common works, undertakings and activities.

2.4 Federal *Species at Risk Act*

Canada's *Species at Risk Act*, 2002 (SARA) provides federal regulatory protection for Extirpated, Endangered or Threatened wildlife species, and legislation for recovery of species that are Extirpated, Endangered or Threatened as a result of human activity. The SARA also provides for management of Special Concern species to prevent them from being up-listed to Threatened or Endangered. Schedule 1 of the SARA is the official list of plant and wildlife species listed as Extirpated, Endangered, Threatened or Special Concern in Canada.

SARA applies to federal lands including national parks, national marine conservation areas, national historic sites, and other protected heritage areas administered by Parks

Canada. For species also protected under the *Migratory Bird Convention Act*, or aquatic species as defined in the *Fisheries Act*, SARA applies on provincial and territorial lands (crown land) and waters.

As a large proportion of the study area occurs within private lands, SAR are referred to their provincial status in this document.

2.5 Other Jurisdictions

Ontario Ministry of Natural Resources

Each alternative solution considered would cross Provincial Crown Land for a portion of the proposed corridor. The proponent is in discussion with the MNR in regards to Land Use Permits.

Hydro One

Electrical power will be provided through the Hydro One network. Hydro One would be responsible for the construction of an interconnection at the Hollingworth tap point northwest of the Michipicoten River. The proponent is in discussion with Hydro One.

Ontario Ministry of Transportation

Permits will be required for the preferred corridor segments that transects or occur adjacent to existing infrastructure. The proponent is in discussion with the Ontario Ministry of Transportation.

Local Forest Licensee

Alternative solutions under consideration occur on private lumber corporation lands (*i.e.* Josephine Forest Resources and Grant Lake Forest Resources Properties) and require access by existing private logging trails for portions of the PIAs. The proponent requires approval from the local forestry licensee.

Other Interested Parties

In addition to the aforementioned agencies, others who may have interest in the project (*i.e.* in use of the private logging road) include hunters, snowmobile clubs, anglers, and trappers. Since these individuals may not have a centralized point of contact, they can be informed about the project by contacting BFN directly and/or during the public open houses and information centres.

3.0 PUBLIC CONSULTATION

Public consultation was held through two Public Information Centers held in Wawa and Dubreuilville in July 2024, and three Public Information Centers held in Wawa, Dubreuilville and Sault Ste. Marie in December 2024. Two additional Public Information Centers will be held in January 2025 in Sault Ste. Marie at First Nation communities. As a project eligible for the Class EA Screening Process, the level of engagement is minimal, and yet the project has provided ample opportunity to consult interested or affected parties.

The public information events have been attended by a individuals (a total of >50 that include members of the communities, local members of Council and members of BFN and Michipicoten First Nation (MFN). The feedback has been generally positive, with concerns raised about whether the project would affect environmental precautions to protect sensitive habitat, lake water levels in Whitefish Lake, economic opportunities for employment, particularly for First Nations members, and timeline to conduct First Nation ceremonies as part of the undertaking.

Members of MFN raised issues about First Nation consultation and whether appropriate consultation had occurred. This is addressed in the section below.

4.0 INDIGENOUS CONSULTATION

Indigenous consultation has been led by BFN and has been ongoing since the submission of the preliminary documentation to the Ontario Ministry of Environment, Conservation and Parks (MECP) on June 21, 2024.

BFN, as the First Nation co-proponent, respects the need for consultation with other indigenous parties and has been active in reaching out to affected indigenous Parties. BFN was proactive in reaching out to Garden River First Nation, Michipicoten First Nation and Missanabie Cree First Nation. Each First Nation Chief was sent the draft Class EA documentation and Interim Project Description for review and comment.

BFN submitted its Interim Project Description to the Ministry of Energy on June 20, 2024, seeking clarification on the delegation of the Duty to Consult. To obtain a final decision from the Ministry of Energy on the delegation of the Duty to Consult we undertook several specific activities including:

1. A letter to the Minister's Chief of Staff on August 12, 2024

2. Held a meeting with the Minister of Energy's Deputy Chief of Staff and Policy Analyst on September 13, 2024, and
3. Provided a further letter to the Assistant Deputy Minister, Ministry of Energy on October 3, 2024.

On October 24, 2024, we finally received an email from the Assistant Deputy Minister, Ministry of Energy delegating consultation responsibilities to the project for the following First Nations:

- Brunswick House First Nation
- Garden River First Nation
- Michipicoten First Nation
- Missanabie Cree First Nation

BFN committed to and has been providing updates and additional environmental information and has shared the comments from MECP with each First Nation and we will continue to provide updates on the environmental review process, and we will respond to any inquiries or feedback we receive including incorporating that feedback in the construction plan, where necessary.

An offer was provided to each First Nation to have in-person technical meetings to provide more details on the project including bringing in the various technical experts (environmental, powerline design) to answer any questions. An offer to provide financial support was given to each First Nation who responded that they wanted to have further technical discussion related to the project. BFN continues to work on providing access to our consultants and staff on the technical aspects of the project and we remain open to discussing the financial requirements of each responding First Nation on how to ensure meaningful consultation has taken place.

Updated information has been sent to each of the First Nations as it became available.

Despite the time lag in obtaining the delegated consultation list, BFN has made a special effort to meet with and update and Brunswick House First Nation and we will continue to engage with them on this project.

BFN is committed to long-term consultation with respect to this project. While the Class EA phase of the project will come to an end, BFN is open to continuing consultation with each of the identified First Nations. We have made commitments to additional Open House and technical meetings, and we will continue to provide updates and additional

information about the project including technical information with respect to construction activities and opportunities to participate in the construction of the line.

A Consultation Log identifying the various forms of communications and interaction with each First Nation has been provided separately.

5.0 STUDY APPROACH

Background information and a four-season field program was undertaken in 2023/2024 were used to fulfill the Natural Sciences objectives of this EA. Fieldwork focused on natural heritage features and functions at seven (7) pre-determined survey stations along the four LSAs (Figures 1). Azimuth worked in consultation with BFN throughout development of the scope of work.

With the exception of the turtle emergent surveys, Azimuth undertook the following activities for this study at each of the pre-determined survey stations:

- Spring Fieldwork (May 2023)
    - Completed a preliminary site visit to complete a high level evaluation of the seven pre-determined survey locations to generally characterize habitat features;
    - Completed an evening calling amphibian survey;
    - Completed turtle visual encounter (basking) surveys at eight (8) locations with potentially suitable turtle habitat along the LSAs (*i.e.* not at pre-determined survey stations);
    - Completed a high level evaluation of the seven pre-determined survey stations to review aquatic features an potential fish habitat during high flow conditions;
    - Recorded incidental wildlife observations;

- Summer Fieldwork (July 2023)
    - Completed one (1) spring plant inventory;
    - Delineate vegetation communities using Central Ontario Ecological Land Classification (ELC). A combination of air photo interpretation and windshield survey methodology was utilized for lands within the study areas beyond the seven survey stations;
    - Conducted one (1) round of dawn breeding bird surveys;

  - Completed a high level evaluation of the seven pre-determined survey stations to review aquatic features and potential fish habitat during low flow conditions;
  - Recorded incidental wildlife observations;
  - Completed a general physical survey (*e.g.* topography) and recorded observations of potential Species at Risk (SAR) habitat and significant wildlife habitat;

- Fall Fieldwork (September 2023)
  - Complete one (1) fall plant inventory;
  - Updated vegetation community mapping;
  - Updated general physical survey (*e.g.* topography) and recorded observations of SAR habitat and significant wildlife habitat;
  - Recorded incidental wildlife observations;
  - Completed a federally-listed SAR and provincial SAR habitat assessment using field data collected by Azimuth and other data available;

- Winter Fieldwork (December 2023-January 2024)
  - Conducted incidental wildlife tracking during winter snow cover conditions;
  - Deployed a total of 12 wildlife cameras for 20 days (to the extent possible based on winter road access); and,
  - Recorded incidental wildlife observations, as encountered during fieldwork, including evidence of active/old raptor nests.

- Summer Fieldwork (May-July 2024)
  - Conducted two (2) additional dawn breeding bird surveys at eleven (11) point count stations;
  - Conducted additional turtle visual encounter surveys at rivers and streams with potentially suitable habitat for Wood Turtles along the Local Study Area (LSA); and,
  - Completed fish habitat investigations to determine the presence and extent of direct and indirect fish habitat features, including fish sampling at locations where fish community information was not available or thermal regime was unknown.

- Compiled field data to identify and map significant natural heritage features and functions including potentially significant species documented as part of the field study;
- Completed a SAR assessment following provincial and federal guidelines;
- Completed a Significant Wildlife Habitat assessment (Ecoregion 3E) using provincial guidelines; and,
- As part of the impact assessment, ranked the four (4) alternative solutions based on specific criteria and assessed potential impacts of the proposed development on natural heritage features and functions identified.

The above scope of work was provided in a phased manner to the BFN Natural Resources Department as a Terms of Reference for the field program and impact assessment on December 12, 2022; the scope was approved on January 12, 2023.

5.1 Background Data

A review of background documents, provided information to aid in the characterization of natural heritage features and functions potentially associated with each alternative solution including physical characteristics of the landscape, wildlife and wildlife habitat, watercourses and fish habitat, vegetation communities such as woodland and wetland in addition to the potential for federally and provincially listed SAR. The review also included a review of traditional knowledge relating to natural heritage. The review included the following:

- Shaft Right of Way Selection Trade off Report (BESTECH, 2023);
- Government of Canada Species at Risk Public Registry (GOC, 2024a);
- Government of Canada Federal SARA (GOC, 2024b);
- iNaturalist Rare Species of Ontario (iNaturalist, 2024);
- Ministry of the Environment, Conservation and Parks (MECP) Species at Risk Ontario list (MECP, 2024);
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Center (NHIC) Make-A-Map: Natural Heritage Areas application (NHIC, 2023a);
- Ontario Hydro Network (OHN) mapping (OHN, 2023);
- Toporama interactive mapping (GOC, 2021);
- Atlas of the Breeding Birds of Ontario (OBBA; Cadman *et al*., 2007);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2023);
- Air photos available for the LSA (Google; VuMap, 2024);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Government of Canada Wildlife values area mapping (GOC, 2023);
- DFO aquatic SAR mapping (DFO, 2023);

- Land Information Ontario Aquatic Resource Area Survey Point online database (MNRF 2023b);
- Land Information Ontario Aquatic Resource Area Line Segment online database. (MNRF 2023c);
- Traditional use of medicinal plants in the boreal forest of Canada: review and perspectives (Uprety *et al.,* 2012);
- Journal of LL58FN food or medicinal uses (Waugh, 1916);
- Traditional ecological knowledge study: southern Ontario Métis traditional plant use (Métis Nation of Ontario, 2010);
- Review: northern Ontario medicinal plants (Hassan *et al.,* 2012);
- Ontario Forest Resource Inventory (GOC, 2023c);
- Land Information Ontario Fish ON-Line website (MNRF, 2022); and,
- Government of Canada land cover mapping (GOC, 2015).

5.2 Physical Setting

General descriptions of the topography relevant to the LSA were based on background information and field observations. In addition, geological conditions were observed during our ecological field program. Without a more intrusive geotechnical field program, observations of geologic conditions are limited to what can be discerned at surface.

5.3 Terrestrial and Wetlands

5.3.1 Vegetation Communities and Plant Inventory

Prior to undertaking field studies, an initial classification of vegetation communities was undertaken using recent air photo imagery for the LSAs. Federal land cover mapping (2015) and Ontario Forestry Resource Inventory (FRI; GOC, 2024c) database were also used to characterize major forest and wetland vegetation communities. Refinement of vegetation community boundaries and vascular plant inventories were undertaken for the alternative solutions in the field on May 9 to 11, 2023, July 4 to 6, 2023 and September 26 to 28, 2023 at each of the seven pre-determined stations. Vegetation community types were classified within the proposed development area using ELC protocols for Central Ontario (Central ELC, 2009). The LSA occurs within an area of the province where Central and Boreal ELC overlaps, and a majority of the LSA comprised of Central ELC codes in the FRI database; as such Central ELC was utilized throughout the entire assessment for consistency. ELC beyond the pre-determined survey stations is based on air photo interpretation, windshield surveys and extrapolation of site specific data collected in the field.

Field studies were completed by a qualified ecologist with existing knowledge related to provincially and federally Threatened and Endangered vascular plant species with potential to occur in the RSA.

5.3.2 Breeding Birds

One dawn breeding bird survey was conducted at seven (7) pre-determined survey stations on July 4 and 5, 2023 (Figures 2). In 2024, two (2) additional dawn breeding bird surveys were conducted at the seven (7) pre-determined survey stations identified in 2023, in addition to four (4) added stations (not included in the original surveys) in order to capture additional data from various habitat types. The eleven (11) 2024 survey stations are illustrated in Figure 2 (2-1, 2-3, 2-4, 2-6, 2-8, 2-10, 2-15, 2-18, 2-23, 2-25). In 2024, round one surveys occurred on June 11, and 12; and round two surveys occurred on July 3, and 4.

Surveys were guided by point count methodology presented in the OBBA Guide for Participants (OBBA, 2001). All surveys were conducted no earlier than one half hour before sunrise and were completed prior to 10:00am. Surveys were completed under suitable weather conditions [*i.e.* light winds (Beaufort wind scale ≤3)]. Point counts were ten minutes in duration and otherwise followed the protocol of the OBBA Guide for Participants (OBBA, 2001). All birds seen or heard were identified to species and included in the results. Dawn breeding bird surveys targeted a sub-set of the overall LSA due to the large extent of the study area, however results of dawn breeding bird surveys allowed the site investigator to infer overall habitat suitability and species use within targeted habitat types (*e.g.* Aspen-Birch Hardwood Forest). Results of point count data for each habitat type should be considered to be generally applicable to the overall footprint of each alternative solution due to habitat similarity. Azimuth also completed a background search of bird species in the PIA using the OBBA (Cadman *et al*., 2007), iNaturalist and NHIC to account for potential data gaps due to the overall size of the LSA.

5.3.3 Amphibians and Reptiles (Herpetofauna)

<u>Amphibians</u>

Azimuth conducted one evening calling amphibian survey at the seven pre-determined survey locations from May 9, 2023 to May 11, 2023; to assess the potential for amphibian breeding in the LSA in accordance with the Great Lakes Marsh Monitoring Program (Bird Studies Canada, 2008) protocol. Amphibian surveys were completed during the period between 30 minutes after sunset and midnight on evenings with

winds Beaufort <4. Surveys occurred during the initial (May 1-15) spring period on one evening with minimum temperatures ranging from 7°C to 9°C. The seven pre-determined survey station locations are illustrated on Figures 2.

Azimuth also conducted an online search of amphibian records in the LSA using iNaturalist, NHIC, and ORAA for background data.

Reptiles

Azimuth conducted seven visual encounter surveys at permanent waterbodies/wetlands with potentially suitable turtle habitat (*i.e.* emergent vegetation, basking logs) along the alternative solutions LSAs in 2023. The visual encounter surveys occurred between May 9, 2023 to May 11, 2023. The locations of the 2023 turtle visual encounter surveys are illustrated on Figures 2-9, 2-15, 2-18, and 2-23. The Survey Protocol for Blanding's Turtle in Ontario (MNRF, 2015b; "Survey Protocol") was used as a guideline for surveys, and the surveys were conducted as follows:

- Surveys were conducted between 8:00 a.m. and 5:00 p.m.;
- On sunny days, temperature was above 5°C;
- On partially cloudy or overcast days, temperature was above 15°C; and,
- Surveys were not carried out when temperatures were above 25°C.

Following the 2023 surveys, Azimuth completed additional field investigations focused on Wood Turtles as advised through preliminary consultation on May 7, 2024 with the MECP. As outlined in Flanagan *et al.,* 2013, survey methodologies for Wood Turtles are not standardized, and as such, there have been multiple methods utilized over varying times of the year. Due to the remote nature of the study area, access limitation, and difficult terrain; Azimuth added eight (8) additional visual encounter survey stations at potentially suitable river and streams (*i.e.,* sandy or gravelly bottoms, moderate current, deep pools, adjacent to wooded areas), and completed 13 additional surveys. The locations of the 2024 turtle visual encounter surveys are illustrated on Figures 2-1, 2-6 to 2-8, and 2-21 to 2-24. The Survey Protocol for Blanding's Turtle in Ontario was used as described above.

Azimuth also conducted an online search of reptile records in the LSA using iNaturalist, NHIC, and ORAA for background data.

5.3.4 Wildlife Camera Surveys

Twelve wildlife trail cameras were deployed on December 21, 2023 in proximity to five of the pre-determined survey locations to collect data on wildlife species present. Wildlife trail cameras were not deployed at stations 4A, or 4B due to inaccessibility and safety issues during winter conditions. Two cameras were deployed in proximity to Station 3 to the extent accessibility allowed, as shown on Figure 2-07. Locations were selected to obtain general coverage of wildlife that might use the trails, roadways, and other habitat areas associated with the alternative solutions. Cameras were operated until January 9, 2024 (20 days). Camera locations are illustrated on Figures 2 (2-01, 2-04, 2-07, 2-15, and 2-25). Wildlife species utilizing the LSA for each alternative solution were also identified based on direct observation, auditory signs, and through interpretation of other signs (tracks, scats, vocalizations, *etc.*) as a matter of course while conducting other field surveys.

To supplement wildlife field data, Azimuth reviewed mammal records (Dobbyn, 1994) and deer yard wintering area mapping (2023) for background data in addition to iNaturalist and NHIC.

5.4 Species at Risk

The SAR screening undertaken for the scope of the assignment included an assessment of SAR known to occur in the LSA that were listed either provincially (NHIC, 2023a; MECP, 2023) or federally on Schedule 1 of the SARA (2023) and that had potential to occur in the PIA relative to habitat features identified. To the extent possible, range information for Ontario SAR was used to confirm whether or not a species was known to occur in the PIA.

As part of the SAR assessment, Azimuth conducted a background bird species search of birds in the LSAs using the OBBA's 10 x 10 kilometre (km) grid square search tool (grid squares 16TFU80-16TFU83) in addition to review of the NHIC database. Species identified by the OBBA and/or NHIC were compared against known federal SAR birds with the potential to occur. A search for aquatic SAR was completed using the DFO (DFO, 2023) online interactive mapping tool. Habitat requirements and appropriate designations (Endangered, Threatened or Special Concern) are outlined in Table 1.

5.5 Fish and Fish Habitat

During spring and summer 2023 field surveys, Azimuth staff completed high level evaluations at the seven survey locations to review aquatic features and potential fish

habitat during high and low flow conditions. Given the large study area, a thorough desktop review was also completed to understand the key fisheries features throughout the LSAs. Online MNRF and DFO databases were reviewed to characterize fish community, thermal regime, and aquatic SAR for waterbodies within the 120m study area along the four LSAs. MNRFs watercourse mapping (Aquatic resource area line segment online database; MNRF, 2023c) was combined with aerial mapping and field observations to document all known waterbodies within the LSAs. From this mapping, a preliminary assessment of fish habitat was completed based on the MNRF watercourse mapping and aerial imagery interpretation (channel form/banks visible, notable changes in riparian vegetation community, proximity to known fish habitat features, etc.). A background fisheries information request was also sent to the Chapleau-Wawa MNRF District Office (Northeast Region) on March 22, 2024 to confirm fish community, thermal regime, and in-water timing windows, but a formal response has not been received at this time. Correspondence with MNRF is provided in Appendix G.
In 2024, additional detailed in-field fish habitat investigations were completed from May 13-16, June 11-12, and July 3-4, 2024. Field investigations were completed to understand the location of watercourses, lakes, and drainage features in the study area to determine the presence and extent of direct and indirect fish habitat features under both spring (high flow) and summer (low flow) conditions. Field documentation included characterizing fish habitat features such as wetted width, water depths, flow, bank slopes, aquatic vegetation, substrate, and general morphology. Fish sampling was completed during the June 11-12, 2024 field survey under a Licence to Collect Fish for Scientific Purposes (NRIP-CHWA-2024-FWCA-00075). Fish sampling was completed to understand the fish community at select locations where in-water work may occur so that spawning windows could be avoided.

6.0 EXISTING CONDITIONS

6.1 Physical Setting

6.1.1 Land Use

The RSA is located east of Wawa, Ontario (Figures 1). The PIAs originate from Highway 101 and the Michipicoten River; through Hawk Junction and extends to the Island Gold Mine. All alternative solutions PIA's contain deciduous and coniferous forests, wetland communities, lakes, watercourses, and anthropogenic disturbance associated with existing infrastructure and operations (*i.e.* hydro corridors, mine operations, roadways). The alternative solutions are proposed on lumber corporation owned land (*i.e.*, Grant Lakes Forest Resources, Josephine Forest Products), Ministry of Transportation land,

Great Lakes Power property, crown land, and Alamos Gold Mine patented surface and mineral rights.

The alternative solutions PIAs originate west of the Michipicoten River (Figures 1-01 and 2-01) and extends north towards Hawk Junction (Figures 1-02). The Alternative Solutions diverge approximately 7km north of Hawk Junction. Alternative Solution #1 and #3 occur westerly in proximity to the Agawa / Watco railway towards Goudreau, and follows Goudreau Road to Island Gold Mine/Magino Gold lands. Alternative Solution #2 and #4 diverge easterly in varying proximity to Hawk Junction Road towards the mine lands. The proportion of the alternative solutions PIAs occurring within or adjacent to existing roadways, hydro corridors, and the Agawa / Watco railway differs between alternatives.

No Conservation Reserves, Provincial Parks or Areas of Natural and Scientific Interest (ANSI) are associated with the study area (Appendix A).

6.1.2 Topography

During natural heritage surveys completed in 2023, Azimuth made general observations of sloping topography along all four routes, with various low-lying wetlands, swamps, fens, and marshes. Observations focused on noting general locations of changes in road slope and differences in elevation between the road and immediately adjacent lands in the ROW. The purpose of this survey was to gather general information for engineering consideration in the context of possible access limitations associated with the alternative solutions. This should not be construed as a topographic survey. A desktop review of topography in the RSA suggested elevations are fairly flat in the southern area of the proposed transmission line, with elevations ranging from ~280 Metres Above Sea Level (MASL) to ~310 MASL. Near Hawk Junction, there are steeper elevation changes, especially to the east of the community, where Alternative Solutions #1 and #4 are proposed. Elevation changes east of Hawk Junction range from ~310 MASL to ~360 MASL, while elevations closer to Hawk Junction (relevant to Alternative Solutions #2 and #3) are much flatter, ranging from ~315 MASL to ~340 MASL. The topography within the RSA north of Hawk Junction, where the alternative solutions once again diverge, is sloped along all four proposed ROWs, with elevation changes ranging from ~350 MASL to ~400 MASL (at the mine lands terminus) for the eastern routes (routes two and four), ~340 MASL - ~ 425 MASL for Alternative Solution #1, and ~340 MASL to ~400 MASL (at the mine lands terminus) for Alternative Solution #3.

6.1.3 Geology and Hydrogeology

Geological and hydrogeological conditions were observed during our ecological field work in 2023. Without a more intrusive geotechnical field program, observations of geologic conditions are limited to what can be discerned at surface, which was an abundance of exposed bedrock, and generally shallow overburden across the RSA. These observations were supplemented by a desktop approach, which provided valuable insight into the Quaternary and bedrock geology of the region. Geology of the Wawa area was mapped as part of Ontario Geological Survey Open File Report 6055 (Morris, 2001). Information from Morris related to the regional bedrock and Quaternary deposits are summarized below.

6.1.4 Bedrock Geology

The RSA is located within the Wawa sub-province of the Canadian Shield and contains Precambrian bedrock. The southern half of the RSA contains predominately felsic intrusive rock while the RSA area north west of Manitowick Lake contains predominately mafic volcanic rock.

6.1.5 Quaternary Geology

Most of the Quaternary geology in the vicinity of the RSA consists of a discontinuous, thin (<1m) sandy till veneer overlying the bedrock surface. Additional deposits of glaciofluvial outwash and fine to course grained glaciolacustrine material are found overlying the till in local pockets. Most of the thicker surficial deposits are located within the bedrock controlled valleys where glaciolacustrine water extended from Lake Superior. One of these bedrock valleys is found in the vicinity of the Michipicoten River valley, which overlaps with the southern end of the RSA. Numerous small pockets of organic deposits (peat and muck) are also noted in the north half of the RSA, northwest of Manitowik Lake.

6.1.6 Ground Water Quality

Ground water quality is potentially affected by activities that could potentially release contaminants into the natural environment. The construction and operations of the transmission line has limited opportunity to affect ground water quality, as the main use of contaminating substances is fuel sources for construction equipment. The safe handling and containment of fuels is a construction best management practice. In the event of a spill or a leak, there are remediation plans in place to contain, control and recover released contaminants. Ground water quality is not a factor that differentiates the alternative solutions.

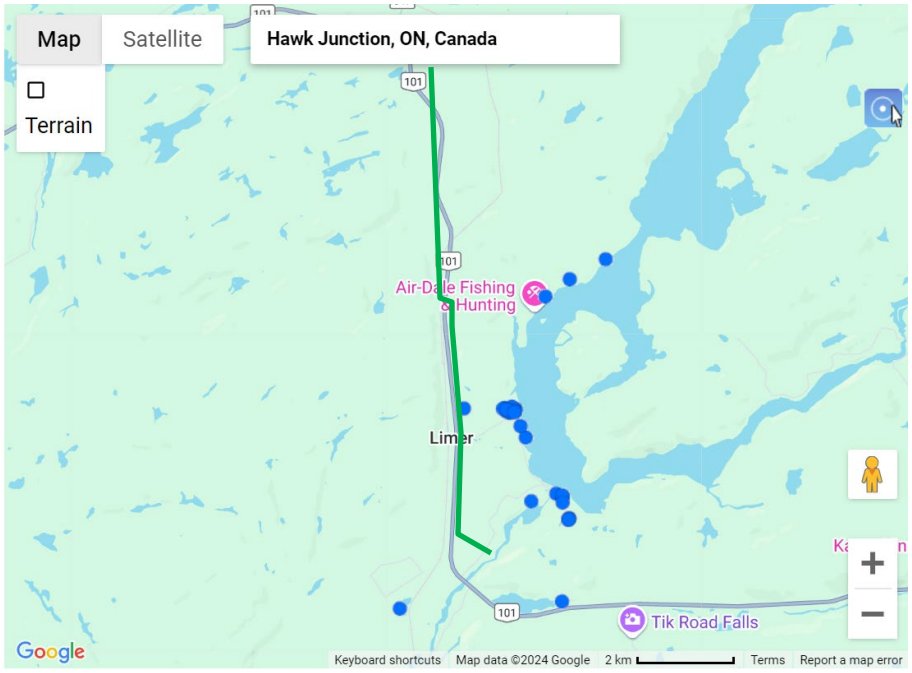
6.1.7 Ground Water Quantity

Ground water quantity is potentially affected by changes in ground water flow direction, infiltration rates, construction of hard surfaces, construction dewatering or significant grading. The proposed facility will not create any of these effects. Each pole location is relatively small with a limited footprint. Pole sites will not require significant grading, nor dewatering and will not re-direct ground water. Because the natural soils will be maintained, there will also be negligible change to infiltration rates.

There are few wells within 1km of the proposed routing. There are three clusters of wells along the route that are associated with residential areas. The following plates are taken from the MECP well log database portal (Map: Well records | ontario.ca). Each blue dot represents a well that has been registered with MECP. The approximate route of the preferred routing is shown as a green line on each plate.

The first plate shows the southern cluster, primarily related to camps and residences around Whitefish Lake. In this area, the main aquifer is a sand and gravel surficial overburden that is approximately 30m or more in depth. In this area, the ROW follows along Highway 101 so most of the wells are more than 1km from the ROW. There is one well close to the highway (just above the Limer label), however this well is owned by the Wawa Rotary Club; the well log location map shows that it is close to Whitefish Lake, so that the blue dot is shown in an incorrect location.

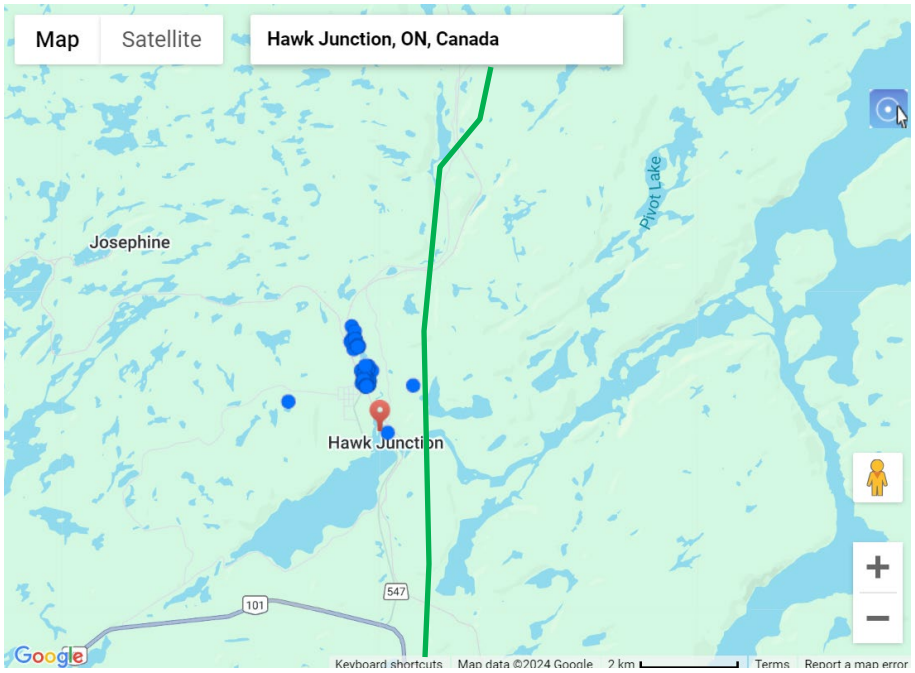
Plate 1: South well cluster



Green line = approximate preferred route

The central well cluster is located at the community of Hawk Junction. All of the wells shown along the rail alignment (which is all of the wells except two) have log notes that indicate they were related to a contaminant evaluation of the CN Yard in Hawk Junction. The three wells shown away from the community are actually located within the community (dots in incorrect locations compared to drillers maps). The main aquifer target is a surficial sand unit that is more than 10m deep. None of the residential wells within Hawk Junction have been registered with the MECP. A combination of drilled and dug wells are evident serving the community. The closest residential road in Hawk Junction is approximately 1,200m west of the ROW, and is in a separate watershed on the west side of McVeigh Creek. There are approximately 12 residences on Montgomery Avenue at the east side of Hawk Junction that are also served by a combination of drilled and dug wells. These residences are approximately 800m west of the proposed transmission line.

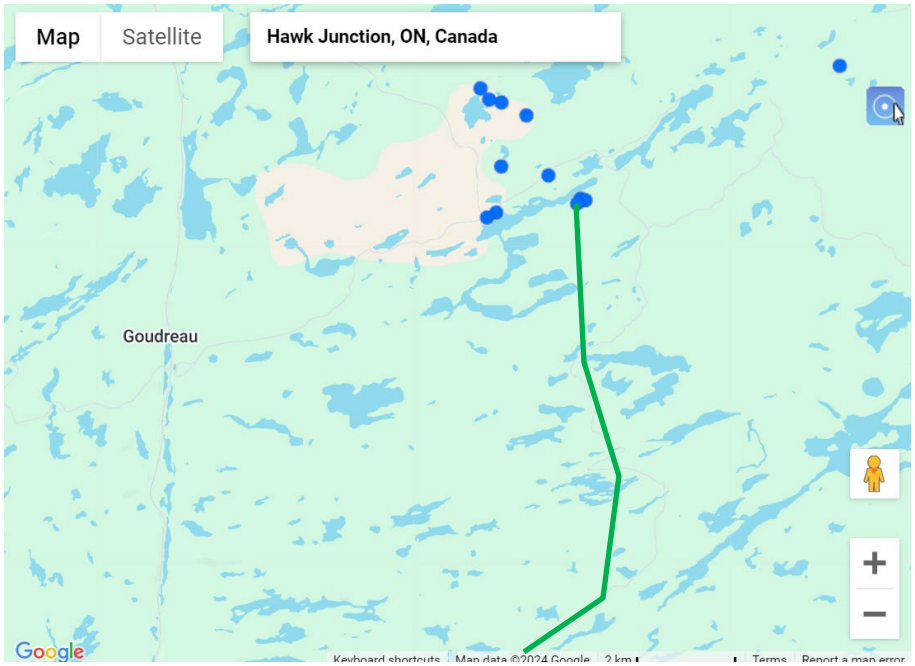
Plate 2: Hawk Junction well cluster



Green line = approximate preferred route

There are a number of wells that are shown near the mine sites at the north terminus of the transmission line. All of these wells are owned by the mining companies and are used for monitoring purposes.

Plate 3: Mine site (North) well cluster



Green line = approximate preferred route

Because of the distances involved, and that the construction of the transmission line has little potential to affect ground water flow, it is expected that there will be no effects from the transmission line to well water supplies. However, in the event that effects occur or are perceived to occur, the Ontario Water Resources Act provides protection so that anyone affecting someone else's water supply is obligated to remedy the effect or provide an alternate water supply. If complaints were received during construction, the claim would be evaluated and appropriate remediation would be implemented. Potential effect on ground water quality is not a factor that differentiates the alternative solutions.

6.1.8 Excess Materials and Waste

The construction of the transmission line does not generate excess materials and waste, as grading and fill will be used locally and each pole location, and aggregate (if required) will also be sourced locally. Excess materials and waste are not factors that differentiates the alternative solutions.

6.1.9 Soils, Sediment and Brownfields

The proposed transmission line traverses an area that is primarily natural woodlands, wetlands with streams and lakes. The presence of contaminated soils, sediment and brownfields are not known nor expected within the ROW. In the event that

contamination is found, then appropriate actions will be taken to control and mitigate it. Soils, sediment and brownfields are not factors that differentiates the alternative solutions.

6.2 Terrestrial Resources

6.2.1 Vegetation Communities and Plant Inventory

Complete list of vascular plant species identified for the seven pre-determined survey stations and additional incidental observations within the LSAs are presented in Table 2. A total of 222 vascular plants species were identified, of which 81% are considered native to Ontario (Table 2).

A summary of the ELC vegetation communities mapped (Figure 2 set) in association with the alternative solutions LSAs can be found in Table 3, and a corresponding ELC code matrix is found in Table 4. A total of 51 vegetation communities were documented in the RSA; to which 25 are forest communities, 23 communities are wetlands, and two represent rock barrens (Table 4). Areas associated with disturbed clearings, roadways, railways, and other anthropogenic disturbances are considered Disturbed Area (DA), as shown on the Figure 2 set.

Throughout the RSAs there are woodland communities in various states of regeneration following historical logging disturbance. In majority of occurrences these communities are comprised of Aspen-Birch Hardwood forests with Low Treed characteristics. Representative photographs of vegetation communities in the RSA are found in Appendix B.

No wetlands in the study area are identified by NHIC as Provincially Significant Wetland (PSW) or locally significant, as per provincial mapping resources. As such, the wetlands are treated as “Other Wetlands” for the purpose of this assessment.

Traditional knowledge related to medicinal plants has been instrumental to Indigenous communities as many vascular plants contribute to their spiritual, cultural, and physical health. Medicinal plants have been utilized for numerous ailments including colds, coughs, injuries, gastro-intestinal disorders, infections, and respiratory systems disorders (Uprety *et al.,* 2012). The documentation of vascular plant species historically harvested for medicinal use by Indigenous communities in northern Ontario is extensive. A list of some vascular plants commonly used for medicinal use is listed in Appendix C. Examples of these plant species identified during field surveys include

Paper Birch (*Betula papyrifera*) (splinting broken limbs), Mountain Maple (*Acer spicatum*) (stopping hemorrhaging, curing dysentery) and Red-Osier Dogwood (*Cornus sericea*) (stopping hemorrhaging).

6.2.2 Rare and Uncommon Plants

A review of MNRF's NHIC database identified records in 1 x 1km square 16FU8334 for provincially rare plant species (S-Rank 3) occurring in proximity to Wallace Lake. This record is for Spatulate Moonwort (*Botrychium spathulatum*). This provincially rare species was not observed during the field program; however this species occurs in a variety of partially open habitats and moderately disturbed sites; including lakeshore areas and riverbanks. As such, it could be associated with Wallace Lake and lands within the RSA.

6.2.3 Wildlife Surveys

Wildlife species utilizing the study area were identified from direct observation, auditory signs, and through interpretation of other signs (tracks, scats, vocalizations, *etc.*) as a matter of course while conducting field surveys.

6.2.4 Breeding Birds

Dawn breeding bird surveys in 2023 and 2024 identified a combined total of 56 bird species with an additional 11 bird species identified incidentally while conducting other surveys (Table 1). In the Regional Study Area (RSA) four Special Concern species were detected; Canada Warbler (*Cardellina canadensis*) and Wood Thrush (*Hylocichla mustelina*), Evening Grosbeak (*Coccothraustes vespertinus*), and Rusty Blackbird (*Euphagus carolinus*). Evening Grosbeak was previously assumed present in the RSA in the Class EA report, as such, the additional dawn breeding bird surveys have confirmed their occurrence. No additional Species at Risk (SAR) birds were identified during the 2024 surveys.

No evidence of Bald Eagle (or other raptor) nesting was observed during Azimuth's field program, however the overall RSA would be presumed to provide nesting opportunities for raptors as Bald Eagle and Broad-winged hawk were observed. It is expected that other woodland raptors are utilizing the RSA in addition to these observed species.

Background review of NHIC found records for Canada Warbler, Rusty Blackbird, Olive-sided Flycatcher (*Contopus cooperi;* Special Concern), Eastern Whip-poor-will (*Antrostomus vociferus*), and Evening Grosbeak (*Coccothraustes vespertinus;* Special

Concern) in relation to the alternative solutions LSAs. A review of Golder (2021) and OBBA records identifies Common Nighthawk (*Chordeiles minor*; Special Concern) associated with the RSA.

6.2.5 Amphibians and Reptiles (Herpetofauna)

Amphibians

Evening calling amphibians in May 2023 revealed the presence of Northern Spring Peeper (*Pseudacris crucifer crucifer*) at all survey stations with the exception of Station 2. Wood Frog (*Lithobates sylvaticus*) was detected at stations 2, 3, 5A, and 5B; and Boreal Chorus Frog (*Pseudacris maculata*) was detected at Station 5B (Table 6). None of the calling amphibians detected in the field are SAR provincially or federally.

Background information review from iNaturalist identified Green Frog (*Lithobates clamitans*) in the LSA. Search of the ORAA found the following species in the study area: Mink Frog (*Lithobates septentrionalis*); American Toad (*Anaxyrus americanus*); Wood Frog (*Lithobates sylvaticus*); and Red-spotted Newt (*Notophthalmus viridescens*). Wood Frog was observed throughout the LSAs. However, the remaining ORAA identified species were not identified during Azimuth's field investigations.

Reptiles

Turtle emergence surveys completed in May 2023 and June 2024 occurred at 15 representative waterbodies/wetlands, and watercourse within the alternative solutions LSAs when weather conditions and timelines permitted. One species, Midland Painted Turtle (*Chrysemys picta marginata*) was observed during the June 2024 turtle survey. This is the only turtle species observed throughout Azimuth's field investigations. Azimuth's field notes for 2023 and 2024 turtles surveys are provided in Appendix D.

Wood Turtle (Endangered) is not documented in available background information, and the RSA occurs slightly north of the species known range. As such, Wood Turtles have a low probability of occurring in the RSA, and as a precautionary approach are considered in this assessment.

Background information review identified the following species in the study area: Snapping Turtle (*Chelydra serpentina,* Special Concern), Eastern Gartersnake, and Northern Ring-necked Snake (*Diadophis punctatus edwardsii*). An Eastern Gartersnake was observed at Station 5B during field investigations, and Wood Frog was observed throughout the LSAs. However, the remaining ORAA identified species were not identified during Azimuth's field investigations.

Wood Turtle (Endangered) is not documented in available background information, and the RSA occurs slightly north of the species known range. As such, Wood Turtles have a low probability of occurring in the RSA.

In addition, MECP has indicated Blanding's Turtles have been recorded at similar latitudes as the RSA, and may be found in low densities. Azimuth notes that the population referenced by MECP as occurring at a similar latitude is located near Timmins, Ontario, and is considered an outlier located +/-170km north of the next-closest population near the city of Sudbury (Ontario Nature, 2020). The closest known Blanding's Turtle population to the study area is located near Batchewana Bay, +/-100km south of the study area (Ontario Nature, 2020). As such, both SAR turtles are highly unlikely to occur within the study area, but considered in this assessment as a precautionary approach.

6.2.6 Wildlife

Insects

Over the course of the field program incidental insect observations (Figure 2) identified the following species with the alternative solutions LSAs:

- Monarch (*Danaus plexippus;* Special Concern)
- Mourning Cloak (*Nymphalis antiopa;* Appendix B, Photograph 7)
- Least Skipper (*Ancyloxypha numitor*)
- Northern Azure (*Celastrina lucia;* Appendix B, Photograph 33)
- Inornate Ringlet (*Coenonympha tullia*)
- Clouded Sulphur (*Colias philodice*)
- White-faced Meadowhawk (*Sympetrum obtrusum;* Appendix B, Photograph 6)
- Common Green Darner (*Anax junius*)

A review of MNRF's NHIC database identified a record for a provincially rare dragonfly species (S-Rank 3) occurring in proximity to Wallace Lake, Uhler's Sundragon (*Helocordulia uhleri*). This provincially rare species were not observed during the field program; however this species occurs in creeks and slow moving rivers in shaded or semi-open forested areas. As such, the species is likely associated with waterbodies in proximity to Wallace Lake and all four alternative solutions.

Mammals

A total of 111 images of mammals were captured by the twelve cameras. In addition, all tracks observed during the camera deployment and retrieval process were documented. The results of the wildlife image captures and documented tracks are presented in Table A below and representative photographs are found in Appendix E. Photographs and observed tracks provided data of the local wildlife in the area exhibiting natural behaviours (*e.g.* hunting, foraging) (see Appendix B for photo appendix).

Wildlife camera field data from 2023/2024 indicates the presence of Otter (*Lontra canadensis*); Red Fox (*Vulpes vulpes*); Canada Lynx (*Lynx canadensis*); Moose (*Alces alces*); Red Squirrel (*Tamiasciurus hudsonicus*); Snowshoe Hare (*Lepus americanus*); American Marten (*Martes americana*); mouse species; grouse species; and Grey Wolf (*Canis lupus occidentalis*). Grey Wolf appeared to be the most commonly identified wildlife species based on the image data (Table A). Black Bear scat, moose, and wolf tracks were also observed throughout the field program. These mammal species have also been reported historically in the RSA (Dobbyn, 1994).

Incidental observations of mammals during Azimuth's Field investigations include; Moose, Grey Wolf, Beaver (*Castor canadiensis*) (Appendix B, Photograph 41), Red Squirrel (Appendix B, Photograph 12), and Eastern Chipmunk (*Tamias striatus*).

Table A. Number of Wildlife Camera Image Captures and Documented Tracks

Wildlife Species	Number of Image Captures	Number of Tracks observed During Camera Deployment/Retrieval*
American Marten	1	6
Canada Lynx	3	1
Grey Wolf	23	16
Moose	2	n/a
Red Fox	11	17
Red Squirrel	n/a	16
River otter	n/a	2
Snowshoe Hare	1	29
Mouse *sp*.	n/a	9
Grouse *sp*.	n/a	4

*Tracks associated with wildlife documented on cameras are not included in the total.

The LSA's are outside the main Caribou (Boreal Population) range. Provincial mapping shows the population is "discontinuous" in the RSA

(https://www.ontario.ca/page/caribou-boreal-population; Appendix A). Consequently, Caribou was excluded from further assessment.

Given the LSAs primarily comprises of large natural areas with minimal anthropogenic influence, in combination with background review data (Golder, 2021; Dobbyn, 1994); the following additional mammals are expected to be encountered: small mammal species (voles and shrews); Striped Skunk (*Mephitis mephitis*); Porcupine (*Erethizon dorsatum*); Raccoon (*Procyon lotor*); Muskrat (*Ondatra zibethicus*); Mink (*Neogale vison*); Ermine (*Mustela erminea*); Coyote (*Canis latrans* x *Canis lycaon*); Least Chipmunk (*Tamias minimus*); Woodchuck (*Marmota monax*); Northern Flying Squirrel (*Glaucomys sabrinus*); Groundhog (*Marmota monax*); Southern Bog Lemming (*Synaptomys cooperi*); Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*).

Of the mammal species observed in the field or identified as part of background information, Little Brown Myotis (Endangered) and Northern Myotis (Endangered) are federal and provincial SAR bats. A background review of MNRF's NHIC database identified six separate restricted species records associated with bat hibernaculum and nurseries near the northern limit of RSA between 2008 and 2013.

6.3 Species at Risk

The SAR assessment (Table 1) considered federal and provincial SAR and SAR habitat with potential to occur in the alternative solutions LSAs, in accordance with field data and known SAR for the region. Based on this assessment, and in combination with vegetation communities and other environmental features observed during the field program, Table B identifies the following species with the potential to be present within the RSA and are considered below in this report:

Table B. Species at Risk with the potential to occur in the RSA.

Species	Provincial Status (ESA)	Federal Status (SARA)
Eastern Small-footed Myotis	END	No Status
Eastern Red Bat	END*	No Status
Hoary Bat	END*	No Status
Little Brown Myotis	END	END
Northern Myotis	END	END
Silver-haired Bat	END*	No Status
Tricolored Bat	END	No Status
Blanding's Turtle	THR	END

Wood Turtle	END	THR
Lesser Yellowlegs	THR	No Status
Canada Warbler	SC	THR
Common Nighthawk	SC	THR
Eastern Whip-poor-will	SC*	THR
Evening Grosbeak	SC	SC
Olive-sided Flycatcher	SC	THR
Rusty Blackbird	SC	SC
Wood Thrush	SC	THR
Snapping Turtle	SC	SC

*Indicates new status for species as of January 31, 2025; as indicated by MECP.

Azimuth notes that in January 2023 the Committee on the Status of Species at Risk in Ontario (COSSARO) re-assessed the status of three (3) previously Not Listed bat species to Endangered status, including Eastern Red Bat, Hoary Bat, and Silver-haired Bat (COSSARO, 2023). Based on discussions with MECP, Azimuth understands that the province is likely to amend the ESA to adopt Endangered status for the species on January 31, 2025; and the three additional bat species should be considered. Notably, under the ESA a newly-listed Endangered or Threatened species does not receive individual or habitat protections for a period of two years after receiving Endangered or Threatened status under the Act.

In addition, Eastern Whip-poor-will was re-assessed by COSSARO as Special Concern (downlisted from Threatened)(COSSARO, 2023). If this status change is to occur, Azimuth notes that individual and habitat protections afforded to Eastern Whip-poor-will under Section 9 and Section 10 of the ESA would no longer apply to the species.

6.4 Candidate Significant Wildlife Habitat

An assessment of the potential Significant Wildlife Habitat (SWH) occurring within Ecoregion 3E (MNRF, 2015a) for the alternative solutions LSAs was conducted. An assessment of Candidate SWH categories relative to documented vegetation communities and habitats within the alternative solutions LSAs is presented in Table 7. The following Candidate SWH types were determined to be present, or have potential to be present based on the results of the field program:

- Waterfowl Stopover and Staging Areas (Aquatic)
- Bat Maternity Colonies

- Turtle Wintering Area
- Reptile Hibernacula
- Colonially-Nesting Bird Breeding Habitat (Tree/shrubs)
- Rock Barrens
- Waterfowl Nesting Area
- Bald Eagle and Osprey Nesting Habitat
- Woodland Raptor Nesting Habitat
- Turtle Nesting Areas
- Seeps and Springs
- Mineral Licks
- Denning Sites
- Rendezvous Sites
- Amphibian Breeding Habitat (Wetland and Woodland)
- Marsh Bird Breeding Habitat
- Habitat for Special Concern and Rare Wildlife Species
    - Canada Warbler, Evening Grosbeak, Olive-sided Flycatcher, Rusty Blackbird, Wood Thrush, Snapping Turtle

The above-listed potential SWH functions are associated with the identified natural heritage features within the RSA including woodlands, wetlands, rock barrens and watercourses.

6.5 Fish and Fish Habitat

A list of identified waterbodies for all four LSAs is provided in Table 8. A total of 130 waterbodies were located along the four (4) LSAs, which are shown on the Figure 2 drawing set. These waterbodies include both rivers and lakes that are located within the 120m study area. Waterbodies were identified if they cross a transmission line route or are in proximity to a proposed route (*i.e.,* within the 120m study area of a LSA) as works in proximity to waterbody features can also pose risks to fish habitat if proper mitigation measures are not implemented during the design and construction phases. The preliminary assessment of fish habitat presented in Table 8 will need to be confirmed during detail design for the selected preferred route. Fish habitat was characterized as direct or indirect. Waterbodies that are anticipated to host fish (year round or seasonally) were characterized as direct fish habitat. This characterization was determined through available online MNRF watercourse mapping and aerial imagery interpretation to determine if there were visible open water sections, channel

form/banks visible, notable changes in riparian vegetation community, etc. Indirect fish habitat features are those waterbodies which do no host fish, but provide key functions to support direct fish habitat downstream (*e.g.,* base flow, food supply, nutrients, etc.). These features were also identified through aerial imagery interpretation, but consisted of features that did not have visible open water sections, defined banks, or notable changes in riparian/terrestrial vegetation (which is more prominent along intermittent and ephemeral streams that do not flow year round). Both direct and indirect fish habitat features are protected under the Federal *Fisheries Act.*

Of the 130 waterbodies identified in Table 8 (direct and indirect fish habitat features), 104 waterbodies are characterized as coldwater features that may host species such as Brook Trout and Lake Trout based on background MNRF information (MNRF, 2023b/2023c). The remaining 26 features were identified as coolwater features that host species such as Northern Pike, Walleye, and Smallmouth Bass. One waterbody (WB62, Figure 2-18, along Alternative Solutions #2 and #4 LSAs) is known to be stocked by MNRF with Brook Trout (MNRF, 2022). No other stocking information was identified for the LSAs. No aquatic SAR are known to occur within and of the LSAs as per DFO aquatic SAR mapping (DFO, 2023).

Many of the waterbody identifiers shown on the Figure 2 drawing set consist of the same watercourse feature that flows parallel to a proposed route or is crossed multiple times by the LSA for a particular route. In these situations, a unique waterbody identifier was assigned to the same waterbody system (*i.e.,* the same river or creek system) that a proposed route crosses or flows directly adjacent to a lake or river. For instance, McVeigh Creek runs parallel to the study area of Alternative Solution #3 for approximately 21kms (Figures 2-08 - 2-14). Multiple waterbody identifiers were assigned to McVeigh Creek where these routes crossed the creek or were mapped as being directly adjacent to the creek shoreline, and would therefore present potential impacts to fish habitat within the creek.

The overall number of waterbodies identified within each LSA is as follow:

- Alternative Solution #1: 36 waterbody crossings
- Alternative Solution #2: 42 waterbody crossings
- Alternative Solution #3: 50 waterbody crossings
- Alternative Solution #4: 53 waterbody crossings

The overall number of coldwater waterbodies identified within each LSA is as follow:

- Alternative Solution #1: 25 waterbody crossings
- Alternative Solution #2: 32 waterbody crossings
- Alternative Solution #3: 37 waterbody crossings
- Alternative Solution #4: 45 waterbody crossings

The overall number of coolwater waterbodies identified within each LSA is as follow:

- Alternative Solution #1: 11 waterbody crossings
- Alternative Solution #2: 10 waterbody crossings
- Alternative Solution #3: 13 waterbody crossings
- Alternative Solution #4: 8 waterbody crossings

As discussed previously, the above waterbody counts do not include measurements for LSAs that run parallel to a waterbody, which should be accounted for when comparing LSAs and their potential impacts on fish habitat. An LSA that runs parallel to a coldwater system, such as Alternative Solution #3 that runs parallel to the McVeigh Creek for approximately 21kms (Figures 2-08 - 2-14), poses significantly more risk to fish habitat in that featured when compared to an LSA that crosses perpendicular to a coldwater feature, which would only impact a comparatively small segment of the watercourse system.

6.6 Climate Change

The project's effect related to climate change are considered for two components. The first component relates to the project goal of providing increased electrical supply to the mine sites. The overall effect is positive as the provision of electrical power will allow the mines to cease their use of on-site electrical generation from natural gas powered generators, and to convert vehicles from diesel power to electrically powered vehicles. The net result is a reduction in greenhouse gas emissions from the Magino Mine site projected to be approximately 50% versus the current situation. This is a significant benefit in reducing emissions over the mine lifespan.

During the construction phase, the use of petroleum-powered equipment is relatively consistent for the four alternative solutions that result in the construction of the transmission line. The main use of this equipment relates to the clearing of the ROW,

transportation of materials and the helicopter use and the transmission line itself. Construction will occur within approximately a one year timeframe so the additional load is transitory. In addition, the contribution is similar for the four alternative solutions, as they are similar in length, although the preferred alternative has the fewest number of pole locations and has the greatest number of straight segments, which simplifies the construction process. Climate change is not a significant factor in selecting a preferred alternative.

6.7 Noise, Dust and Vibration

Noise, dust and vibration are related to the construction of the proposed transmission line. The construction activities include clearing of the ROW and placement of line poles and installation of the transmission line conductors. As there is limited (if any) blasting requirements, vibration is a lesser concern. The preferred route is located away from residential developments so that the effect of these factors in minimized. After construction, noise and dust are limited to the occasional required line maintenance and vegetation clearing to ensure that vegetation growth does not create a threat to line safety. Noise, dust and vibration are not factors that significantly affect the selection of a preferred alternative.

6.8 Air Quality and Odour

Air quality and odour are related to the construction of the proposed transmission line. The construction activities include clearing of the ROW and placement of line poles and installation of the transmission line conductors. Odour is a lesser concern as odour-generating activities are minimal. The preferred route is located away from residential developments so that the effect of these factors in minimized. After construction, air quality and odour are limited to the occasional required line maintenance and vegetation clearing to ensure that vegetation growth does not create a threat to line safety. Air quality and odour are not factors that significantly affect the selection of a preferred alternative.

7.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The results of Azimuth's field studies combined with review of background information indicate the potential for the following KNHFs to be associated with the alternative solutions:

- Other Wetlands
- Threatened or Endangered Species;

    - Eastern Red Bat, Eastern Small-footed Myotis, Hoary Bat, Little Brown Myotis, Northern Myotis, Silver-haired Bat, Tri-colored Bat
    - Blanding's Turtle, Wood Turtle
    - Lesser Yellowlegs, Short-eared Owl
- Candidate Significant Wildlife Habitat
    - Waterfowl Stopover and Staging Areas (Aquatic)
    - Bat Maternity Colonies
    - Turtle Wintering Area
    - Reptile Hibernacula
    - Colonially-Nesting Bird Breeding Habitat (Tree/shrubs)
    - Rock Barrens
    - Waterfowl Nesting Area
    - Bald Eagle and Osprey Nesting Habitat
    - Woodland Raptor Nesting Habitat
    - Turtle Nesting Areas
    - Seeps and Springs
    - Mineral Licks
    - Denning Sites
    - Rendezvous Sites
    - Amphibian Breeding Habitat (Wetland and Woodland)
    - Marsh Bird Breeding Habitat
    - Habitat for Special Concern and Rare Wildlife Species
        - Canada Warbler, Common Nighthawk, Eastern Whip-poor-will, Evening Grosbeak, Olive-sided Flycatcher, Rusty Blackbird, Wood Thrush, Snapping Turtle
- Fish habitat – waterbody features
    - 104 coldwater features
    - 26 coolwater features

Section 6.0 below describes each alternative solution under consideration and develops the ranking criteria used to assign a score to each alternative solution.

8.0 PROPOSED ALTERNATIVE SOLUTIONS AND RANKING CRITERIA

The proposed works involves the construction of an estimated 45km long transmission line corridor to meet current and future electricity demands in the area. The transmission corridor is estimated to have an average width of 40-60m, with a maximum width up to approximately 100m. As such, the maximum extent of impacted

area (~100m) is utilized in this impact assessment and ranking of alternatives to gain a comprehensive understanding of the "worst case scenario". It should be noted the area of impact will be confirmed following selection of the preferred solution as a component of the Class EA, and preparation of the detail design.

Four alternative solutions are being considered as locations for construction of the transmission line corridor. North from the Michipicoten River to Hawk Junction, the four alternative solutions occur in relative proximity until approximately 7km north of Hawk Junction, after which the alternative solutions diverge. Alternative Solution #1 and #3 occur west along the Agawa / Watco railway to Goudreau, and follows Goudreau Road to the Alamos Gold's Island Gold Mine. Whereas, Alternative Solution #2 and #4 diverge easterly in varying proximity to Hawk Junction Road towards the mine. The proportion of LSAs occurring within or adjacent to existing roadways, trails, hydro corridors, and the Agawa / Watco rail line differs between alternatives. In addition, Alternative Solution #5 investigated a 'Do Nothing' option.

The alternative solutions are described below, followed by an outline of how each solution was assessed. The alternative solution descriptions summarize relative locations, development logistics, and natural heritage conditions associated with each option.

8.1 Alternative Solution #1

The Alternative Solution #1 begins at the Alamos Gold Mine site extending westerly to the small village located on Goudreau Road at the Agawa / Watco railway crossing. At this location, the alternative solution continues southward to Hawk Junction utilizing traditional transmission line practices with straight sections. Much of the proposed route remains inaccessible via existing roads/trails, therefore, an access trail will need to be created along the corridor to access the northern sections of the PIA during construction and post-construction activities. From this point, the corridor occurs east of Hawk Junction and extends to Road 547. Alternative Solution #1 continues in a southward direct adjacent to the existing hydro corridor and/or Highway 101 for approximately 21km, at which time is cuts 2km southeast to the Hollingworth tap point.

This alternative solution is 44km in length crossing or occurring adjacent to watercourses, lakes, wetlands, and woodlands throughout the PIA. The estimated total area of the Alternative Solution #1 occurring within various vegetation communities is documented in Table 3. The proportion of the PIA occurring within or adjacent to access points (*i.e.* roads, trails) is limited. The number of structures (utility poles) required for

Alternative Solution #1 is estimated at 136; of which 12 are crib foundations, 43 are direct embedment, and 81 require rock bore/blasting foundations (Appendix F). This alternative solution would occupy an estimated footprint of approximately 440ha (100m x 44km) and is depicted conceptually on Figures 1 and 2.

8.2 Alternative Solution #2

As proposed, Alternative Solution #2 begins at the Alamos Gold Mine site, extending southward adjacent to Hawk Junction Road on the eastern side of the study area, to approximately 3.4km north of Hawk Junction. At this location, the corridor continues west for approximately 1.5km and then south past Hawk Junction. Past Hawk Junction the alternative solution is primarily adjacent to Road 547, Highway 101, or the existing hydro corridor for approximately 21km to the to the Hollingworth tap point.

Alternative Solution #2 is located adjacent to roads, highways, and hydro corridors with various levels of existing disturbance for a large proportion of the PIA. Alternative Solution #2 occurs in proximity to Hawk Junction Road for the northern half of the PIA, resulting in a non-linear corridor and the longest route at 48km. The alternative solution crosses or occurs adjacent to watercourses, lakes, wetlands, and woodlands through the PIA. A number of woodland communities in the northern end of the PIA exhibit disturbance from historical logging practices. The total area of the Alternative Solution #2 occurring within various vegetation communities is documented in Table 3. The number of structures (utility poles) required for Alternative Solution #2 is estimated at 534; of which 77 are crib foundations, 252 are direct embedment, and 202 require rock bore/blasting foundations (Appendix F). The alternative solution would occupy an estimated development footprint of approximately 480ha (100m x 48km) and is depicted conceptually on Figures 1 and 2.

8.3 Alternative Solution #3

The Alternative Solution #3 begins at the Alamos Gold Mine site and follows Goudreau Road westerly to the Agawa / Watco railway adjacent to Summit Lake. The corridor extends southward adjacent to the Agawa / Watco railway on the western side of the RSA to approximately 8.5km north of Hawk Junction. The proposed route between Goudreau and Hawk Junction remains inaccessible via existing roads/trails, therefore, an access trail will need to be created along the corridor to access the northern sections of the PIA during construction and post-construction activities. At this location, the alternative solution continues south along Hawk Junction Road. Approximately 3.4km north of Hawk Junction the alternative solution continues west for approximately 1.5km

and then continues south. Past Hawk Junction the PIA continues south adjacent to Road 547 and Highway 101 for approximate 21km. The route then cut across southeast for approximately 1km to the Hollingworth tap point.

This alternative solution is 44km in length and is located adjacent to roads, the Agawa / Watco railways, and hydro corridors with various levels of existing disturbance for the majority of the PIA thus limiting the need to create additional access routes. The alternative solution crosses or occurs adjacent to watercourses, lakes, wetlands, and woodlands throughout the PIA. The total area of the Alternative Solution #3 occurring within various vegetation communities is documented in Table 3. The number of structures (utility poles) required for Alternative Solution #3 is estimated at 499; of which 108 are crib foundations, 161 are direct embedment, and 230 require rock bore/blasting foundations (Appendix F). The alternative solution would occupy an estimated development footprint of approximately 440ha (100m x 44km) as depicted on Figures 1 and 2.

8.4 Alternative Solution #4

Alternative Solution #4 begins at the Alamos Gold Mine site, extending southward on the eastern side of the RSA towards Hawk Junction. Similarly, to Alternative Solution #3, this corridor occurs in proximity to Hawk Junction Road, however, utilizing traditional transmission line practices with straighter sections resulting in the corridor occurring over 1km from accessible roads/trails at various locations thus requiring additional clearing for access routes. The corridor then extends easterly past Hawk Junction and Highway 547. South of Hawk Junction, Alternative Solution #4 continues in a southward direct adjacent to the existing hydro corridor and/or Highway 101 for approximately 21km, at which time is cuts 1km southeast to the Hollingworth tap point.

This alternative solution is 43km in length and crosses or occurs adjacent to watercourses, lakes, wetlands, and woodlands throughout the PIA. A number of woodland communities in the northern end of the PIA exhibit disturbance from historical logging practices. The total area of the Alternative Solution #4 occurring within various vegetation communities is documented in Table 3. The number of structures (utility poles) required for Alternative Solution #4 is estimated at 142; of which 11 are crib foundations, 88 are direct embedment, and 44 require rock bore/blasting foundations (Appendix F). The alternative solution would occupy an estimated development footprint of approximately 430 ha (100m x 43km).

8.5 Alternative Solution #5

Alternative Solution #5 would maintain the current site operations and not construct the transmission facility. This alternative fails to satisfy the project objectives, and would result in continued (and expanded) use of on-site electrical generation with elevated carbon and greenhouse gas emissions.

8.6 Alternative Solution Assessment Criteria

BFN does not currently have a formal environmental standards policy framework to assess and determine the best option for infrastructure projects such as this. Consequently, the approach of using an environmental standards policy framework based on meeting the more stringent of the existing Provincial or Federal policies/legislation was adopted. Based on this information, Azimuth developed a ranking system appropriate for the project to assess the proposed alternative solutions. The ranking criteria categories included consideration of the following factors:

- Suitability for Mine's Needs;
- Public Safety;
- Route Length;
- Pole Foundation Requirements;
- Access logistics (*e.g.* topography, presence/absence of existing roads/trails, rock ridges, risk of environmental contaminants entering adjacent lands, transmission line servicing limitations);
- Number/extent of natural heritage features/functions with potential for impact;
    - Fish/fish habitat areas;
    - SAR/SAR habitat;
    - Wildlife Habitat types;
    - Extent of Forest Removal/Impact; and,
    - Extent of Wetland Removal/Impact;

It is understood that medicinal plant values occur broadly throughout the RSA. Consequently, medicinal plants have not been considered as specific ranking criteria, as they would not provide a differentiating mechanism between the routes.

To provide a simplified, visual comparison, the evaluation is presented in Table 9 with colour-coded indicators. Green cell colouration represents the preferred option, as it will address key concerns, but result in the lowest impact to KNHFs. An orange cell indicates the potential impact is moderate or acceptable. A red cell colouration is

indicative of the least preferred option due to the high potential for impacts to KNHFs. The alternative solution with the highest proportion of green criteria's is considered the preferred solution.

9.0 IDENTIFICATION OF THE PREFERRED SOLUTION AND IMPACT ASSESSMENT

Each alternative solution was ranked based on a colour-coded scale. The ranking of each route and ranking rationales are presented in Table 9. Based on the ranking results, the Alternative Solution #4 received the largest proportion of green coloured cells (low impact) and no red coloured cells (high impact), and therefore, was identified as the preferred solution. Alternative Solutions #1 was ranked as acceptable, and Alternative Solution #2,#3, and #5 ranked as least preferred (Table 9). Engineering drawings of the preferred solution for the transmission line corridor will be reviewed from a natural heritage perspective during detailed design.

Based on all of the factors considered, Alternative #4 is the identified as the Preferred Solution. Discussion below separates the aquatic, terrestrial factors and other factors.

9.1 Terrestrial Impacts

Route Length and Pole Requirements

Construction components (required regardless of the identified route) with direct impacts to KNHFs include the clearing of the natural heritage features throughout the entire route length, structure requirements, and pole foundation types. An alternative solution exhibiting traditional transmission line practices with straighter segments in the corridor, result in decreased corridor length and minimizes impacts to vegetation communities and wildlife. Similarly, it is our understanding the number of poles required correlates with risks of direct environmental impacts to the LSAs, as lower pole requirements indicates infrastructure can span over more areas; consequently minimizing direct impacts to KNHFs (*i.e.* wetlands). As the number of poles increases, the risk of environmental impacts increases through the physical installation and movement of equipment; resulting in higher potential for erosion, leaching of material, and contamination (from refueling, excess materials, *etc.*) to adjacent vegetation communities. As such, Alternative Solutions #1 and #4 have significantly lower structure requirements according to BESTECH (2023), (Appendix F).

Pole Foundation Requirements

It is our understanding the complexity of the utility pole foundation is anticipated to correlate with the increase of equipment requirements, complexity of the installation

process, and risk of contaminants; resulting in higher potential impacts to sensitive communities and wildlife that rely upon them. Alternative solutions utilizing minimal crib foundations and solutions using rock culvert, rock boring or blasting foundations are preferred. In addition, crib foundations are utilized when infrastructure is required in wetlands, therefore alternatives with lower crib foundations will minimize the extent of impact on wetlands and the ecological functions of the feature. Alternative Solution #4 utilizes the highest percentage of direct embedment pole foundations according to BESTECH (2023)(Appendix F) and is the preferred solution for construction component considerations.

Access Logistics

Due to the scale of the proposed development and the remote nature of northern Ontario access logistics are important to incorporate into the impact assessment. Each alternative solution was evaluated on the presence of existing roads and trails, proximity to disturbed areas (*i.e.*, existing hydro corridors, recently logged area), challenges in topography, and need for additional access trails. It is our understanding the ease in access reflects anticipated equipment, machinery, and man-power requirements; and will correlate with risk of environmental contaminants entering adjacent communities due to proximity of machinery, fueling etc. to the natural heritage features and direct vegetation removal requirements. The southern halves of each alternative solution PIA are similar in access due to their alignment with Highway 101 and Hawk Junction Road. As the PIAs in the northern RSA diverge westerly and easterly as depicted in Figure 1-02, accessibility significantly differs. Alternative Solutions #2 and #4 occur in proximity to Hawk Junction Road for the remainder of the corridor segment. There are a number of historical logging and recreational trails (observed through aerial imagery and confirmed during site visits) available in Alternative Solutions #2 and #4 LSAs, and these existing trails could be modified (*i.e.* widened) to allow equipment access. Whereas, Alternative Solutions #1 and #3 do not follow an existing road/trail network; cutting directly north through relatively undisturbed habitats or following the Agawa / Watco Railway, respectively. Access for either route would result in new road/trail networks in previously undisturbed areas. As such, based on access logistics Alternative Solution #1 and #3 are not the preferred solutions (Table 9).

Species at Risk

There are 18 SAR species and their habitat (three turtles, seven bats, and eight birds) confirmed and/or have the potential to occur across all alternative solutions (Table 1). With consideration to the potential impact of the proposed transmission line to SAR, habitat availability was considered. General habitat for each identified SAR is extensive

in the RSA. As such, vegetation removal associated with woodlands and wetlands will not impact the ecological function of suitable SAR habitat within the RSA; as the majority of suitable habitat will remain unaltered. As a result, the proposed works will not contravene Section 9 or Section 10 of the ESA in regards to SAR and their regulated habitat, providing environmental consideration and mitigation measures described in Section 11 below are implemented.

Candidate Significant Wildlife Habitat

The alternative solutions were accessed based on impacts to candidate SWH. There are no mapped SWH associated with the alternative solutions LSAs (GOC, 2023); however this assessment identified 18 candidate SWHs (confirmed and/or have potential) to occur across all four alternative solutions (Table 7). These SWH are extensive in Northern Ontario and the RSA; as such, all alternative solution are anticipated to require equal considerations for SWH. The preferred solution in respect to SWH should aim to minimize vegetation removal and impacts to sensitive habitats, and implement the mitigation measures described in Section 11 below. Vegetation removal and potential impacts are mainly related to minimizing the ROW width to reduce the areal extent of disturbance.

Extent of Forest Removal and Impact

Alternative solutions were accessed based on the estimated impact to forest communities. All alternative solutions have unavoidable and large areas of forest removal required for the transmission corridor. Alternative Solution #3 is estimated to remove 288ha of forest; whereas, Alternative Solutions #1, #2, and #4 result in 388ha, 402ha, and 361ha (respectively) of forest removal. As such, the alternative solution in respect to forest impacts should minimize vegetation removal. Alternative Solution #3 is the preferred solution and Alternative Solution #2 is the least preferred in respects to impacts to forests and their ecological functions.

Extent of Wetland Removal and Impact

Similarly, the preferred alternative solution should minimize impacts to wetlands and their ecological features and functions (to the extent possible) for the proposed works. Alternative Solution #1 and #4 is estimated to contain approximately 38ha of wetland within the PIAs (Table 3), and the remaining alternative solutions are estimated to contain 46ha and 58ha of wetland (Table 3). With careful placement of support structures the transmission corridor may be able to span over certain wetland habitats to minimize impacts to the KNHF. However, as the occurrence and size of wetlands within the PIA increase the ability to avoid/minimize works in wetlands decreases as

shown in BESTECH (2023) report; due to the number of crib support structures required for each alternative solution. As such, Alternative Solution #1 and #4 are preferred in respect to wetland impacts.

Overall, when considering only the factors affecting terrestrial ecology, Alternative Solutions #1 would be acceptable, and Alternative Solution #4 would be preferred. Alternative Solution #2 and #3 are least preferred due the extent of wetland impact followed by access logistics, and various construction components. Alternative Solution #5 is least preferred as it does not meet the mine's requirements to continue and expand operations in the upcoming years.

9.2 Fish Habitat Impacts

The four alternative solutions are assessed below and in Table 9 based on the preliminary fisheries information provided in Table 7, general observations from aerial imagery interpretation, and our understanding of the anticipated impacts during and post-construction.

Alternative Solution #1 crosses the fewest number of waterbodies (36), and does not run parallel to any watercourse features for an extended length along the route. Alternative Solution #1 also has the fewest coldwater systems (25) of the four alternative solutions, which limits the impact on these sensitive fish habitat features. However, it is recognized that Alternative Solution #1 does traverse the most untouched lands due to the straight alignment, which as a result would require the clearing of riparian vegetation along many waterbodies that are currently isolated/untouched. Doing so would expose these waterbodies to an increase risk of sedimentation from potentially unstable riparian soils, reduce shading from riparian vegetation, and require additional waterbody crossings in remote areas that have no current access roads/crossings.

Alternative Solution #2 crosses the second fewest number of waterbodies (42), and does not run parallel to any watercourse features for an extended length of the route. Alternative Solution #2 also has the second fewest coldwater systems (25) of the four alternatives, which limits the impact on sensitive fish habitat features. Alternative Solution #2 can utilize an existing road network for a large segment of the route, which reduces access concerns/vegetation clearing to install new culverts and construction/maintenance roads.

Alternative Solution #3 crosses the second most number of waterbodies (50), and runs parallel to McVeigh Creek (coldwater fish habitat) for approximately 21kms. Therefore, a large segment of Alternative Solution #3 would likely result in the riparian vegetation removal along coldwater fish habitat, which is not preferred due to the increase risk of sedimentation from potentially unstable riparian soils and reduction in shading from riparian vegetation. The use of the existing rail alignment along a majority of the route may be beneficial for access purposes, but the proximity of a large segment of the route to direct coldwater fish habitat makes Alternative Solution #3 the least preferred option from a fish habitat perspective.

Alternative Solution #4 crosses the most waterbodies (53) and coldwater systems (45), but does not run parallel to any watercourse features for an extended length of the route. Alternative Solution #4 can also utilize an existing road network for a large segment of the route, which reduces access concerns/vegetation clearing to install new culverts and construction/maintenance roads. Only one new watercourse structure is proposed for Alternative Solution #4, which will be screened to determine if a DFO Request for Review is needed during the detail design stage. Pole foundations are being kept outside of direct fish habitat features, and impacts from riparian vegetation removal along the transmission line route are being mitigated through operational standards (*i.e.,* retaining vegetation below the 2-year high water mark, no machinery access within 30m of watercourses for vegetation removal, retain low-lying vegetation for soil stability, etc.). For these reasons, Alternative Solution #4 is an acceptable alternative if the appropriate mitigation measures are followed during design and construction.

Summary of alternative solutions from a fish habitat perspective:

- Alternative Solution #1: Acceptable
    - Pros: Fewest amount of waterbody crossings
    - Cons: Requires extensive vegetation clearing in untouched areas that will create potential impacts to fish habitat features.
- Alternative Solution #2: Most preferred
    - Pros: Second fewest amount of waterbody crossings, follows existing road network for large stretch of route to reduce access concerns/vegetation clearing.
    - Cons: none
- Alternative Solution #3: Least preferred
    - Pros: follows existing road network for large stretch of route to reduce access concerns/vegetation clearing.

  - Cons: Second most number of waterbody crossings, long stretch of route runs parallel to coldwater fish habitat in McVeigh Creek.
- Alternative Solution #4: Acceptable
  - Pros: Does not traverse parallel to fish habitat features for an extended stretch and can utilize existing road network for large stretch of route to reduce access concerns/vegetation clearing.
  - Cons: Requires highest number of waterbody crossings.

When considering the aspects only relate to fish habitat perspective, both Alternative Solutions #1 and #4 would be acceptable, and Alternative Solution #2 would be preferred. Alternative Solution #3 is the least preferred due to the long stretch of the route that runs parallel to coldwater fish habitat.

9.3 Construction Monitoring

Construction monitoring will focus on the watercourse crossings, fish habitat, and wetland habitat. Contractors will implement construction BMPS, particularly for crossings, to ensure that erosion and sedimentation control practices are used. As the project uses existing crossing locations at watercourse features, the expected impact on these features should be minimal during construction activities. If erosion and sedimentation are evident, then steps will be taken, including the use of sediment control measures to capture sediment, and re-vegetation of those areas to stabilize them. These activities follow standard construction best management practices. The contractor shall also have a supply of emergency erosion and sediment control measures available if needed (i.e., sediment fence and filter socks), and shall have a fully stocked emergency spill kit on-site at all times.

10.0 CLASS EA SCREENING PROCESS

The Class EA screening process is intended to identify projects that have minimal potential to affect the environment. The screening process includes 16 criteria that must be met, or the project must follow the full Class EA process. The project is eligible for the Class EA Screening Process (Section 1.3.3.a) as it is the establishment of a transmission line that has a nominal operating voltage of 115 kV and is less than 50km in length. The 16 criteria are met if they do not have a positive response to the criteria, which are presented below.

a. *Conflict with written environmental goals, objectives, plans, standards, policy statements or guidelines approved or adopted by the Province of Ontario;*

municipal government or local body within an unorganized territory as defined in the Municipal Act, 2001 where the project is to be located;

The propose facility does not conflict with provincial and municipal environmental goals, objectives, plans, standards, policy statements or guidelines.

b. Have significant effects on persons or property, including lands zoned to permit residential or other sensitive land uses;

The proposed facility is located over a length of approximately 2km of Crown land, and approximately 43km of land owned by Grant Lake Forestry Products. The project does not have a significant effect on persons or property.

c. Necessitate the irreversible commitment of any significant amount of non-renewable resources, including Prime Agricultural Lands, which includes Specialty Crop Areas (as defined in the Provincial Policy Statement under the Planning Act) and/or Canada Land Inventory Classes 1, 2 and 3 lands;

The proposed facility is located outside of the area of the Canada Land Inventory. The proposed facility does not include agricultural lands.

d. Pre-empt the use, or potential use, of a significant natural resource for any other purpose;

The main natural resources would be forestry and mining. As most of the land is owned by a forestry company, this resource will be harvested as part of the ROW clearing process. The purpose of the transmission line is to support mining. If mineral resources were to be developed in the future, the transmission line could be moved.

e. Result in a significant detrimental effect on air or water quality or on ambient noise levels for adjacent areas;

Outside of the construction period, the proposed facility does not affect air or water quality or ambient noise levels.

f. Cause significant interference with the movement of any resident or migratory fish, wildlife species, species at risk, or their respective habitats;

There are no line structures that are within water bodies and access will be undertaken using existing access points, bridges and crossings. Existing culverts will be restored and three bridges will be replaced in kind, and one new bridge located at a previous crossing

will be established. The transmission facility does not create barriers to the movement of animals.

g. Establish a precedent or involve a new technology, either of which is likely to have significant environmental effects now or in the future;

The project does not establish a precedent, not involve a new technology, which is likely to have significant environmental effects now or in the future.

h. Be a pre-condition to the implementation of another larger and more environmentally significant project that is subject to a comprehensive environmental assessment or Renewable Energy Approval that has not yet been approved at the issuance of the Notice of Commencement for the project;

No other environmentally significant project is being considered at this time.

i. Likely generate significant secondary effects, directly caused by the proponent's activities, which will adversely affect the environment;

The project does not create significantly secondary effects that will adversely affect the environment.

j. Block pleasing views or significantly affect the aesthetic image of the surrounding area;

The transmission facility primarily traverses a woodland area that is a privately owned forestry management area. The facility does not affect aesthetic views.

k. Significantly change the social structure or demographic characteristics of the surrounding neighbourhood or community;

The transmission facility has no effect on social structure or demographic characteristics of the surrounding community.

l. Overtax existing community services or facilities (e.g., transportation, water supply, sanitary and storm sewers, solid waste disposal system, schools, parks and/or care facilities);

The transmission facility has no effect on community services or facilities.

m. Result in undesired or inappropriate access to previously inaccessible areas;

The facility uses existing access points and will not introduce access to previously inaccessible areas.

n. Create the removal of a significant amount of timber resources;

Most of the land is owned by a forestry company and the facility does not sterilize forestry access outside of the ROW.

o. Result in significant effects to natural heritage resources

The route of the transmission facility has been identified to avoid natural heritage resources, and has been evaluated to not have any significant effects on natural heritage form or function.

p. Result in significant effects to cultural heritage resources (which may include built heritage resources, cultural heritage landscapes, and/or archaeological resources). Significant effects to cultural heritage resources are to be determined based on technical, cultural heritage studies prepared by qualified persons.

A Traditional Knowledge Study was completed related to the Magino Gold Mine in 2017. This study also included the study area for this transmission project. The 2017 study identified a large sacred site area from Hawk Junction and to the west of the rail line that covers approximately 30km x20 km. The study area is also generally identified as within a large hunting area that covers more than 4,800km^2. BFN is currently updating their Traditional Land Use Study that includes all of BFN territory. If cultural heritage or archaeological sites are identified in the area of the Preferred Route, they will be investigated and appropriately characterized. In the event that cultural heritage or archaeological sites are identified, the design of the transmission facility will be reviewed so that sites can be protected or avoided by ensuring that the pole locations span the site(s). Spans of up to 400m are possible, which provides adequate flexibility. The preferred route traverses a portion of a large hunting area and will not negatively affect the use of the land for that purpose.

11.0 RECOMMENDATIONS

11.1 Species at Risk

Care should be taken in interpretation of presence of SAR, including those listed under the SARA. Changes to policy or the natural environment could result in shifts, removal, or addition of new areas to the list of projects currently considered for SAR. This report is intended as a point in time assessment of the potential to impact SAR; not to provide long term "clearance" for SAR. While there is no expectation that the assessment should change significantly, it is the responsibility of the proponent to ensure that they are not in contravention of the SARA at the time development is undertaken.

11.1.1 Worker Training

Worker training would assist the on-site workers in the identification of the SAR with potential to occur in the area. Workers should be instructed to stop work immediately in the immediate vicinity of the SAR observation (*i.e.,* within 50m) if any SAR are encountered. Individuals working on site should ensure that SAR are not harmed during construction or killed by heavy machinery, vehicles or other equipment.

The contractor should educate all site personnel to ensure that, if identified, the SAR are not wantonly injured or killed, and to ensure that damage to features which could constitute habitat is avoided. Information should be conveyed through a SAR expert and include:

- Species habitat and identification;
- Requirements under the ESA including avoidance of harm to the species and damage to relevant habitat;
- Appropriate action to take if the species is encountered;
- How to record sightings and encounters; and,
- That care should be taken when undertaking construction activities in order to avoid harming the species or damaging/destroying habitat.

The expert should be a qualified biologist who specializes in ecology/biology, or SAR.

11.1.2 Species at Risk Bats

For Northern Ontario, activities involving tree removal should be avoided between **April 1 and September 30** of a given year, during the active period for bat species that may potentially use trees for maternity and/or day roosting purposes. This habitat window is driven by potential presence of Eastern Small-footed Bat, which are active for a longer

period in the season than Little Brown Myotis, Northern Myotis, and Tri-colored Bat (active window for these three species is May 1 to August 31 in Northern Ontario). It is anticipated that adherence to this timing restriction will avoid impacts to individual SAR bats that could conceivably be using trees in the preferred solution PIA as roosting habitat.

11.1.3 SAR Turtles

As detailed in Section 11.1.1 below, worker training should incorporate SAR Turtle identification and instruction on how to proceed if the species is identified in the PIA. Vegetation and tree removal operations in proximity (*i.e.,* within 30m) to potentially suitable habitat should occur outside the active season (**May 1 to September 30**) for Wood Turtle and (**April 15 to October 15**) for Blanding's Turtle to prevent negative impacts to individuals.

However, hibernation habitat is an exception to the above Blanding's Turtle timing window. Although not anticipated for the preferred solution, should proposed work occur in suitable Blanding's Turtle hibernation habitat (*i.e.,* bogs/fens/marshes with unfrozen shallow water), activities should occur between **May 15 to August 31**. The preferred solution should be reviewed at detailed design to identify if wetlands with potentially suitable hibernation habitat for Blanding's Turtle occur in the PIA.

If proposed infrastructure installation (*i.e.,* individual poles) is required adjacent to potentially suitable SAR turtle habitat, the work area should be screened for individuals prior to work commencing. Individuals working on site should ensure that SAR Turtles are not harmed during construction or killed by heavy machinery, vehicles or other equipment. If a SAR turtle is observed, work should stop immediately in the vicinity of the SAR turtle observation (i.e. within 50m), and the individual must be permitted to leave the area of work, of their own accord, and is no longer at risk from the construction activities before proceeding with further works. All SAR Turtle sighting should be documented with a photo and written documentation within a Daily Work Log (as outlined in Section 11.1.1) and should be reported to the supervisor.

Furthermore, if SAR turtle habitat is identified (*i.e.,* direct observation of a SAR turtle, potentially suitable habitat), it is recommended that silt fencing is installed when pole installations occurs within 30m of the suitable wetland habitat (as outlined in Section 11.5) to delineate the work area and prevent wildlife movement into the active work area (refer to the MNR Species at Risk Branch Best Practices Technical Note for Reptile and Amphibian Exclusion Fencing (July 2013)). In addition, the standard Best

Management Practices (BMP) for fish habitat as detailed in Section 11.7 below should be implemented to minimize impacts to SAR turtles and their habitat.

11.2 Significant Wildlife Habitat

The proposed work should minimize work within or adjacent to SWH. The below mitigation measures should be implemented if the following SWH are encountered.

11.2.1 Bat Maternity Colonies

As outlined in Section 11.1.1, activities involving tree removal should be avoided between **May 1 and August 31** of a given year, however note the bat habitat window for SAR bats (including Eastern Small-footed Myotis) encompasses a longer seasonal active window (April 1 to September 30). It is anticipated that adherence to this timing restriction will avoid impacts to potential Bat Maternity Colonies that could be present in the preferred solution PIA as roosting habitat.

11.2.2 Bald Eagle and Osprey Nesting

Should an active Bald Eagle nest be observed during construction or post construction maintenance, activities should minimize disturbance, as Bald Eagles are relatively intolerant of human disturbance while nesting and feeding. Vegetation removal should stop within a 400-800m radius around the active nest. The area of habitat protection is dependent on sight lines from the nest to the proposed work and inclusion of perching and foraging habitat. The distance of the setback will depend on the birds' tolerance for human disturbance (*i.e.* a nest next to a road or active hydro corridor would have a reduced setback, or if in undisturbed wilderness would have a greater setback) and the intensity of the proposed work. Vegetation and tree removal operations should not occur from **March 5 and August 31** of a given year, the critical breeding period for this species in northeastern Ontario.

In the case an Osprey nest encounter occurs in the PIA, mitigation measures should be implemented to minimize disturbance related to construction and post construction maintenance. Vegetation removal should stop within a 300m radius around the active nest. Vegetation and tree removal activities should not occur from **April 15 and August 31** of a given year, the critical breeding period for Osprey in northeastern Ontario.

11.2.3 Woodland Raptor Nesting

Should a woodland raptor nest occur within the PIA, mitigation measures should be implemented to minimize negative impacts to this SWH. Vegetation removal outside of

the timing window should stop within a 50-400m radius around the active nest; this radius is dependent on the species (see Table C). Vegetation and tree removal should be avoided in woodland raptor nesting areas between **March and July** of a given year.

Table C. Woodland Raptor Nest Setbacks

Species	Setback Radius From Active Nest
Northern Goshawk	400m
Barred Owl	200m
Broad-winged Hawk, Coopers Hawk, Great Horned Owl, Red-tailed Hawk, and Long-eared owl	100m
Merlin and Sharp-Shinned Hawk	50m

11.2.4 Turtle Nesting

In the case of a turtle nest or nesting turtle encounter occurs within the PIA, a 30-100m setback around the nest and/or nesting individual should be created immediately, and no work should occur within the setback until the eggs have hatched. The proponent should ensure the nest and nesting individual is protected from disturbance for the duration of the nesting season and should maintain the setback for the entirety of the egg incubation period to protect the nest. It is anticipated that adherence to these mitigation measures will avoid impacts to individual turtle nests that could conceivably occur adjacent to suitable wetlands and/or waterbodies in the preferred solution PIA.

11.3 Migratory Breeding Birds

Activities involving removal of trees or vegetation should be restricted from occurring during the breeding season. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, 1994 (MBCA) and the *Fish and Wildlife Conservation Act,* 1997 (FWCA). Environment Canada outlines dates when activities in any region have potential to impact nests (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html). In Zone C5, tree or vegetation clearing should be avoided between **April 15 and August 31** of a given year.

When considering potential SWH (*i.e.* Bald Eagle, Osprey, raptors) as described above in addition to Migratory Breeding Birds, tree or vegetation clearing should be avoided between **March 5 and August 31** of a given year.

11.4 Overall Timing Restriction Window

As discussed above, consideration is required for SAR (*i.e.* SAR bats, Wood Turtles), migratory breeding birds, and SWH with respect to vegetation and tree removal activities. To summarize Sections 8.1 to 8.3, vegetation and tree removal should be avoided between **March 5 and September 30** of a given year, and this timeframe is extended to October 15 within proximity (30m) of wetlands due to Blanding's Turtle Considerations.

If work requires vegetation clearing to extend past March 5, a screening for raptor nests (the restrictive nesting species during this timeframe) should be completed by a qualified ecologist prior to clearing. The completion of nesting screenings may allow vegetation removal to extend from March 5 to March 31 of a given year.

Should tree removal requirements extend into April, consideration for SAR bats is required, and consultation with MECP may be required.

11.5 Sediment and Erosion Controls

Where soil disturbance is proposed in proximity to wetlands or fish habitat, diligent application of sediment and erosion controls is recommended prior to construction activities to minimize the extent of accidental or unavoidable impacts to adjacent natural heritage features. It is recommended that erosion and sediment controls be maintained until vegetation is re-established post-construction. As mentioned below in Section 11.7, a Fisheries Screening Report will be completed at detail design to outline mitigation measures around watercourses, which will further refine the necessary ESC measures to be installed where works are occurring in-water and near-water.

It is our understanding that a majority of the site works along the proposed corridor will include the removal of trees and low-lying vegetation. Grubbing will occur to the extent of removing stumps and removal of boulders, roots, buried logs, boulders, rock fragments, and other debris within the right of way. However, grubbing or removal of ground vegetation cover will not be performed within 30m of watercourses. In addition, soil stripping of the entire transmission line corridor is not proposed. The Contractor is recommended to develop a sediment/erosion control plan and implement as required. Therefore, soil should not be disturbed throughout a majority of the work area, and the risk of sediment transport and sediment laden runoff is low. Should tree clearing result in disturbed/exposed soils that may generate turbid site runoff into adjacent natural heritage features (i.e., wetlands or fish habitat), sediment fence or other appropriate

ESC barriers shall be installed. It is also recommended that if lands slope towards a wetland or fish habitat feature where soils have been disturbed along the corridor, such as from extensive grubbing, a sediment barrier (silt fence or filter sock) shall be installed at the edge of the 30m setback. Pole construction (direct embedment and/or crib works) within 30m of a watercourse shall implement sediment control measures (silt fence or filter socks) to prevent sediment laden runoff and construction debris from entering adjacent waterbodies. The retained contractor shall monitor site conditions to ensure ESC measures effective, and shall repair ESC measures in a timely manner when necessary.

Materials storage on the property (*i.e*. soil stockpiles) should be located over 30m from natural features where feasible. Material storage areas should be contained with ESCs to avoid potential indirect impacts to natural features onsite.

11.6 Operations

All maintenance activities (including refueling) required during future construction should be conducted at least 30m away from natural features to prevent accidental spillage of deleterious substances that may harm natural environments.

The contractor shall have a Contaminant and Spill Management Plan in place prior to initiation of works. This should include keeping an emergency spill kit on site at all times. In the event of a spill, the contractor will follow reporting requirements, including notification to the provincial Spills Action Centre (SAC), as required.

11.7 Fish and Fish Habitat

Once the preferred route has been selected, fisheries recommendations will be considered as detail design advances and construction work plans are developed. These recommendations are preliminary and should be revised during detail design. Both design and construction activities occurring within the selected route alternative should have regard for the adjacent natural environmental features and utilize Best Management Practices (BMPs) for working near water and DFO Codes of Practice (COP; DFO, 2024) where possible. If a DFO COP can be used, which includes specific conditions and mitigation measures for managing risks to fish and fish habitat, submission to DFO through a Request for Review (RfR) may not be needed. Based on our understanding of the proposed works for installation of transmission line, the following DFO COPs (DFO, 2024) may be applicable during various construction activities:

- Beaver dam breaching and removal:
    - Outlines practices to follow for the breaching and removal of a beaver dam which is impounding water and may cause imminent threat or damage to nearby infrastructure.
    - Applicable to the project should beaver dam removal be needed to control flooding, install access roads, install culverts/poles/temporary crossings, etc.
- Bridge repair and maintenance/Culvert maintenance:
    - These interim COPs outline practices to follow for the repair and maintenance of bridges and culverts, such as the structural repair and maintenance of all bridge components (substructure, superstructure and deck) or removal of debris to protect piers and abutments.
    - Applicable to the project should existing bridges/culverts require maintenance/repair to allow for machinery access and maintenance of the infrastructure.
- Clear span bridges:
    - Outlines practices to follow for the design and construction of clear span bridges.
    - Applicable should the project require a new watercourse crossing(s) and can utilize a clear span design.
- Ice bridges and snow fills:
    - Outlines practices to follow for the construction, maintenance, and decommissioning of ice bridges and snow fills if temporary winter access to the other side of a watercourse is required in areas where an existing crossing is not available or practical to use.
    - Applicable should winter access be required during construction or maintenance works where an existing culvert/bridge is not located.
- Temporary Fords:
    - Provides best practices for fording a watercourse (*i.e.,* when short term seasonal access is needed by construction vehicles to the other side of a watercourse when an existing crossing is not available or practical to use.
    - Applicable should crossing a small stream be required in a remote area where an existing culvert/bridge is not located.
- In-water site isolation
    - In-water site isolation may be required to support the construction of new infrastructure or to support maintenance or removal activities associated with existing infrastructure.

- Applicable should in-water work be required to install new infrastructure or repair/upgrade existing infrastructure (*e.g.,* culvert and pole installations).

Vegetation Clearing

In addition to the different COPs outlined above, DFO also has *measures to protect fish and fish habitat* (DFO, 2023b), which if implemented during project activities can mitigate impacts to fish habitat and allow works to occur without DFO review. Specifically, there are *measures to protect fish and fish habitat* that relate to the removal of vegetation, which will be required along the preferred transmission line route. If the following measures can be implemented during design and construction during vegetation removal, impacts to fish habitat should be mitigable:

- Maintain an undisturbed vegetated buffer zone between areas of on-land activity and the high water mark of any water body.
- Should lands slope or drain towards a wetland or fish habitat feature where soils have been disturbed along the corridor, such as from extensive grubbing, a sediment barrier (silt fence or filter sock) shall be installed at the edge of the 30m setback.
- Use existing trails, roads or cut lines wherever possible.
- Avoid tree removal where possible below the high water mark.
- Use methods to prevent soil compaction, such as swamp mats or pads.

The extent of vegetation removal and the method for removing riparian vegetation should be reviewed during detail design to determine if these mitigation measures can be followed, or if impacts to fish habitat would require DFO review.

Rock Blasting

Pole installation will require rock bore or blasting in multiple locations in order to create adequate foundations. Where rock blasting is required, DFO has specific guidelines and protocols for blasting to limit the impacts to fish and fish habitat. These are provided in the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (DFO, 1998), herein referred to as the 'DFO Explosive Guidelines'. As per the DFO Explosive Guidelines, the federal Fisheries Act includes provisions for the protection of fish and fish habitat from the detonation of explosives in or adjacent to fish habitat. The use of explosives has been demonstrated to cause disturbance, injury, and/or death to fish, and/or the HADD of their habitats.

Given these known potential impacts, no explosives are to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa in nearby watercourses that host direct fish habitat. Setback distances from the land-water interface (e.g., lake shoreline or creek/river edge) are to ensure that explosive charges meet the 100 kPa overpressure. A mitigation plan is to be developed at detail design (as specified in the Fisheries Screening Report) which outlines the contractor's responsibility to ensure no impacts to fish habitat occur as a result of blasting. Assuming these mitigation measures are met, there is no expectation that fish habitat should be impacted from rock blasting.

Fisheries BMPs

The following are standard BMPs for working within and near fish habitat that should be following during the subsequent detail design process and construction activities:

- All ESC measures are to be installed prior to any ground disturbance, and shall be maintained until all disturbed soils have been restored and stabilized following construction. Along watercourses and wetland features, it is recommended that heavy duty sediment fence be installed where necessary (*i.e.,* when pole construction occurs within 30m of a wetland or fish habitat feature, or where extensive grubbing is to occur on lands that slope towards a wetland or fish habitat feature). Should ground conditions not support sediment fence where sediment controls are still required, such as rocky locations, sediment measures such as filter socks should be utilized.
- Vegetation removal below the high water mark of watercourses and lakes should be kept to a minimum where possible to retain riparian shading and soil stability along these features.
- All installed culverts/bridges should be appropriately sized and installed in a manner that does not limit or alter fish passage throughout the transmission corridor (*i.e.,* does not significantly alter flow that restricts fish movement upstream or downstream during the spring or fall spawning seasons). Culverts should be embedded properly and naturalized with stone substrate where feasible.
- If in-water work is required in direct fish habitat, fish salvage should be completed by a qualified Fisheries Ecologist in isolated work areas prior to dewatering. All fish salvages require a License to Collect Fish for Scientific Purposes from MNRF.
- All dewatering required within an isolated work area is to discharge water into a filter bag (*i.e.,* envirobag or equivalent). Filter bags should be placed a minimum of 30m from fish habitat on stable, vegetated ground to allow fines to settle out

of the water. Monitoring of dewatering operations should occur throughout the construction process to ensure water is free of fines before entering the watercourses.

- In-water work in both direct and indirect features shall only be permitted during the applicable in-water timing window unless granted otherwise by MNRF and/or DFO. For coolwater systems in the MNRF Northeast Region, no in-water is permitted during the spring spawning window, which would not permit in-water work from April 1 – July 15. For coldwater systems, no in-water is permitted during both the spring and fall spawning windows, which would not permit in-water work from Sept 1 – July 15 in the MNRF Northeast Region.
- Downstream flow quantity and quality is to be maintained at all times during and after construction.
- All stone placed below the high water mark in direct fish habitat should be natural and rounded material.
- If metre bags or "sandbags" are used for work area isolation (*i.e.*, as a temporary cofferdam), the contractor should ensure the bags do not contain sand, and alternatively utilize stone/pea gravel. All materials used for site isolation must be removed at the conclusion of in-water work.
- All site disturbances should be minimized to the extent possible.
- Disposal of material should occur in a timely fashion to minimize risk of entry into the watercourse.
- At no time should machinery enter a watercourse, alter or remove any bottom substrate in the watercourse, remove watercourse materials such as boulders and woody debris, or utilize the watercourse for the taking of, or discharge of water, to ensure that fish and fish habitat remains unaffected by the development.
- All machinery maintenance/refueling is recommended to maintain a minimum distance of 30m from retained woodlands and wetland, and fish habitat, to prevent accidental spillage of deleterious substances.

Once the preferred alternative is selected and detail design is initiated, a Fisheries Screening Report is being prepared to review the specific in-water and near-water works for the transmission line corridor. The Fisheries Screening Report will summarize all works with the potential to cause a HADD to fish habitat, and outline mitigation measures to eliminate or reduce impacts to fish and fish habitat. In addition, the need for DFO review will also be determined during the detail design process once impacts to fish habitat are known.

11.8 Permitting

Environmental approvals may be required at the detail design phase for the project. Consultation and/or permitting from the MECP and Environment and Climate Change Canada (ECCC) may be required in consideration of SAR and vegetation/tree removal timing windows outline in Section 8.11 and 8.3. Providing that clearing activities can be completed within the appropriate timing windows and following appropriate best management practices, the project is not expected to require authorization or exemption under the Endangered Species Act (2007).

The need for DFO review can be determined during detail design once plans are finalized. A Fisheries Screening will be completed during detail design to assess the various components of the project to determine if DFO review is required (such as culvert installations, pole installation, vegetation clearing, rock blasting, etc). If DFO COPs and/or *measures to protect fish and fish habitat* can be followed during design for specific project tasks, DFO permitting may not be required.

MECP permitting under the Ontario Water Resources Act includes Permits To Take Water and Permits to Discharge. Water taken and used for rock boring is not expected to exceed thresholds to trigger permits to take water. This project will not require these permits as there is no requirement for dewatering nor stormwater or drainage controls.

MNR consultation is being completed to ensure the necessary permits are being obtained for the following activities:

- Tree Clearing: A Forest Resource Licence will be required for harvesting trees on Crown land (Lastheels Township) for clearing access trails and for the transmission line corridor. No permits are required for tree harvesting on private land as the rights to harvest trees rests with the landowners.
- Trail Building: A Public Lands Act Work Permit is required to construct access trails on Crown land (Lastheels Township). The trails are required to access the transmission line corridor and to facilitate access along the Crown land segment of the corridor. Work Permits are not required for this activity on Private land.
- Bridge Replacement: MNR requires approval where the Crown has jurisdiction over the beds of the streams and/or where the drainage area upstream of the bridge location exceeds 5 square kilometres. Public Lands Act Work Permits or authorization under the Lakes and Rivers Improvement Act will be required to replace the three bridges.

- Tenure: Those segments of the transmission line corridor that traverse Crown land (Lastheels Township) or over the beds of watercourses on private land where the Crown has jurisdiction require tenure from the MNR. At the start of construction, tenure will be in the form of a Land Use Permit; however, once the project is completed and an Ontario Lands Survey has been registered, the MNR may require a Crown Easement.

12.0 CONCLUSIONS

The environmental conditions for the proposed transmission facility have been reviewed for four possible routes as well as a "Do Nothing" option. The project has followed the Class EA Screening Process and is successfully screened out of the Class EA as all 16 screening criteria (Section 3.3 of the Class EA for Transmission Facilities (2024) are met, and therefore the project is exempt from the EAA. This report is to advise the MECP and other interested parties of the outcome of this undertaking.

Additional work has been completed to evaluate existing conditions and potential routes. It is concluded that the environmental conditions are more suitable for Alternative Solution #4, and is the selected preferred solution from a natural heritage perspective. Environmental protection measures described in Section 11 of this report should be considered during subsequent design and construction phases.

Our findings are summarized as follows:

- Alternative Solution #4 is the preferred route proposed, with Alternative Solution #1 an acceptable alternative;
- Our impact assessment has given full consideration to federal SAR and SAR habitat assumed and/or documented as present in the vicinity of the RSA. Results indicate the proposed development is not anticipated to result in negative direct or indirect impacts to habitat of SAR.
- The incorporation of mitigation measures described in Section 8.0 are anticipated to limit negative impacts to KNHFs and their ecological functions associated with the preferred solution;
- No fish or fish habitat are expected to be impacted negatively as a result of the preferred solution if the appropriate mitigation measures are implemented during the design phase and construction. During the detail design process, a Fisheries Screening Report will be prepared to review all in-water and near-water works that have the potential to cause a HADD to fish habitat; and,

- Environmental approvals may be required at the detail design phase of the preferred solution, including a DFO review.

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APPENDICES

Appendix A: Background Information
Appendix B: Photographic Record
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APPENDIX A

Background Information

APPENDIX B

Photographic Record

APPENDIX C

Medicinal Plants

APPENDIX D

Field Notes for Turtle Surveys

APPENDIX E

Wildlife Camera Photographic Record

APPENDIX F

Right of Way Selection Trade off Study-Appendix B Table

APPENDIX G

MNR Information Request

APPENDIX H

Public and Indigenous Consultation Summary

Available On Request