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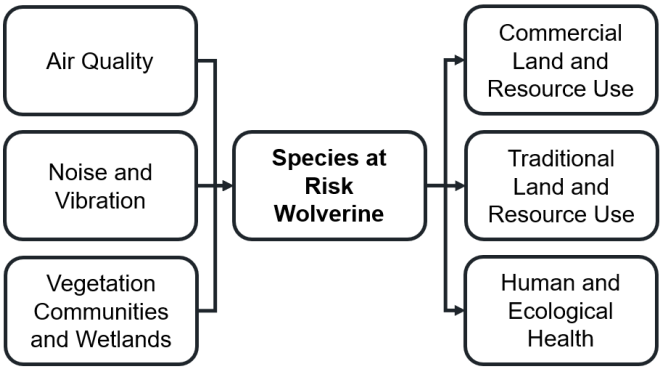
6.14 Wolverine

Wolverine are selected as a valued component (VC) given their ecological, cultural and economic importance in Ontario and Canada. Wolverine play a vital role in Ontario's ecosystems as both scavengers and predators affecting prey availability and behaviours. Wolverine are listed as Special Concern under Canada's *Species at Risk Act* (SARA; S.C. 2002, c. 29) and Threatened under Ontario's *Endangered Species Act, 2007* (ESA; S.O. 2007, c. 6). Given their reliance on large, connected and intact ecosystems and their sensitivity to disturbance, Wolverine are considered indicators of boreal forest ecosystem health.

In the absence of mitigation, the assessment of potential changes on Wolverine is directly linked to other VCs and is informed by the following sections:



- **Air Quality (Section 6.2):** The assessment of the potential effects on air quality includes changes in dust deposition during construction and operation of the Springpole Gold Project (Project) that may have indirect effects on habitat for Wolverine.
- **Noise and Vibration (Section 6.3):** The assessment of potential effects from noise and vibration includes changes in sound levels during construction and operation of the Project which may have indirect effects on habitat for Wolverine due to sensory disturbance.
- **Vegetation Communities and Wetlands (Section 6.11):** The assessment of potential effects on vegetation communities and wetlands includes changes in abundance and function of vegetation communities during construction and operation of the Project, which may affect habitat used by Wolverine.

In addition, the assessment of potential changes on Wolverine is also directly linked to other VCs, and informs the analysis of the following sections:

- **Commercial Land and Resource Use (Section 6.17):** The assessment of potential effects on commercial land and resource use is informed by changes in habitat for Wolverine during construction of the Project, which may affect wildlife resources used by local users for trapping.
- **Traditional Land and Resource Use (Section 6.21):** The assessment of potential effects on traditional land and resource use is informed by changes in habitat for Wolverine during construction of the Project, which may affect traditionally harvested wildlife species like Wolverine used by Indigenous people.
- **Human and Ecological Health (Section 6.24):** The assessment of potential effects on human and ecological health is informed by changes in the function of habitat for Wolverine from dust deposition during construction and operation of the Project, which may affect potential contaminants that could be ingested by Wolverine directly or indirectly as prey.

The assessment of the potential changes on Wolverine from the Project are compared to relevant provincial and federal criteria (Section 6.14.1.4) and existing conditions (Section 6.14.2). The terrestrial resources technical support documentation is included in Appendix P, which includes the Baseline Terrestrial Report (Appendix P-3).

6.14.1 Assessment Approach

The approach to the assessment of potential effects on Wolverine includes a description of the relevant regulatory and policy setting, a description of the input obtained through consultation specific to this VC, the identification of criteria along with the associated rationale, a description of the spatial and temporal boundaries used for this VC, and a description of the attributes used to determine the significance of any residual adverse effects. The assessment of potential effects is supported by a description of the existing conditions for the VC (Section 6.14.2), the identification and description of applicable pathways of potential effects on the VC (Section 6.14.3) and a description of applicable mitigation measures for the VC (Section 6.15.4). An outline of the analytical methodology conducted for the assessment and the key assumptions and/or conservative approach is found in Section 6.14.5.4. With the application of mitigation measures to the potential effects on the VC, the residual effects are then characterized in Section 6.14.6 and the significance of the residual effects is determined in Section 6.14.7.

6.14.1.1 Regulatory and Policy Setting

The effects assessment for Wolverine has been prepared in accordance with the requirements of the federal Environmental Impact Statement (EIS) Guidelines (Appendix B-1 and the provincial approved Amended Terms of Reference (Appendix B-3). Concordance tables, indicating where EIS Guidelines and Terms of Reference requirements have been addressed, are provided in Appendix B-2 and B-5, respectively. Government policies, objectives, standards or guidelines most relevant to the VC are summarized below.

Federal *Species at Risk Act*

The Canadian SARA was passed into law in 2002. SARA aims to prevent wildlife species in Canada from becoming extinct and secure necessary actions for their recovery through prohibitions to protect listed species (Threatened, Endangered and Extirpated) and their critical habitat. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction; COSEWIC selects wildlife species requiring assessment, compiles available data and provides an assessment of risk of the species' extinction or extirpation and subsequent designation. The Minister will take COSEWIC designations into consideration when establishing the official list of wildlife species at risk under SARA; these decisions are made after consultation with affected stakeholders and other groups

SARA provides legal protection to species at risk (SAR) listed in Schedule 1 to SARA with a designation of Extirpated, Endangered or Threatened. SARA applies to federal lands (i.e.,, Canada's oceans and waterways, national parks, military training areas, national wildlife areas, some migratory bird sanctuaries, and First Nations reserve lands); for migratory birds and aquatic species, some SARA protections apply beyond federal lands:

- Migratory birds (i.e., those species listed under Article I of the *Migratory Birds Convention Act, 1994* [S.C. 1994, c. 22]) that also fall under Schedule 1 of SARA; this does not include the species' critical habitat, but it does include residences of migratory birds that have residence descriptions; and
- Aquatic species that fall under Schedule 1 of SARA.

SARA prohibitions can be applied on private / public lands if provincial legislation or voluntary measures do not adequately protect federally listed species and their residence. Generally, compliance with provincial legislation in Ontario satisfies SARA requirements.

SARA includes prohibitions against killing, harming, harassing, capturing or taking individuals of SAR and damaging or destroying residences or critical habitats, and can impose restrictions on development and construction projects that could affect SAR.

Under Section 79 of SARA, environmental assessments conducted under federal legislation must notify the competent minister in writing if a project is likely to affect a listed wildlife species or its critical habitat. The person must identify the project's adverse effects on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.

The Project traverses federally regulated lands where the transmission line bisects Slate Falls First Nation. Therefore, SARA applies directly to Project components falling within the boundary of Slate Falls First Nation. Wolverine are listed as Special Concern under SARA; as such, they are not subject to the prohibitions of SARA and do not receive protection.

Provincial *Endangered Species Act*

The ESA was passed into law in 2007 and came into effect on June 30, 2008. The ESA aims to protect species that are at risk and their habitats, and to promote the recovery of species that are at risk. The Committee on the Status of Species at Risk in Ontario (COSSARO) is an independent committee of experts that reviews, assesses and classifies at-risk species. The Ministry of Environment, Conservation and Parks amends the Species at Risk in Ontario List (Ontario Regulation [O. Reg.] 230/08) to reflect new species classifications set out in COSSARO reports in accordance with section 7 of the ESA. Changes to the Species at Risk in Ontario List are the result of decisions made by COSSARO and not by the Minister of the Environment, Conservation and Parks.

Species that are classified as Extirpated, Endangered or Threatened automatically receive the following protections unless protections are temporarily suspended through a minister's order by regulation:

- Subsection 9 (1) prohibits killing, harming, harassing, capturing, taking, collecting, possessing, transporting, buying, selling or trading species classified as Extirpated, Endangered or Threatened.
- Subsection 10 (1) prohibits damaging and destroying the habitat of species classified as Endangered or Threatened.

Under the ESA, habitat is defined as the area prescribed by regulation ("Regulated Habitat") as the habitat of the species or generally ("General Habitat") as an area on which the species depends, directly or indirectly, to carry on its life processes (e.g., reproduction, rearing, hibernation, migration, feeding). General Habitat is further defined for some species through the development of technical General Habitat Descriptions which provide greater clarity on the area of habitat protected for a species.

Impacts to individual SAR and/or their habitats are considered a contravention of the ESA. Under certain circumstances, tools authorized under the ESA (e.g., permit, agreement, instrument) can be applied to allow activities that would otherwise be prohibited by the ESA. Requirements for achieving compliance with the ESA through permit, agreement or instrument often include confirmation that the activity will not jeopardize the survival or recovery of the species in Ontario, that reasonable steps are taken to minimize the adverse

effects, that reasonable alternatives have been considered and that beneficial actions achieved would outweigh adverse effects.

Protection under the ESA extends to both public and private lands. Any SAR ranked as Endangered or Threatened that may be impacted by any Project work requires consideration. Wolverine is listed as Threatened under the ESA and occurs in both the Local and Regional Study Areas.

Provincial *Fish and Wildlife Conservation Act*

The *Fish and Wildlife Conservation Act, 1997* (FWCA; S.O. 1997, c. 41) was passed into law in 1997 and is administered by the Ministry of Natural Resources (MNR). The FWCA applies to "fish and wildlife," whereby fish are defined as having the same meaning as in the *Fisheries Act* (R.S.C. , 1985, c. F-14) and wildlife are defined as "an animal that belongs to a species that is wild by nature and includes game wildlife and specially protected wildlife." Those species considered "specially protected wildlife" include specific amphibians, birds, invertebrates, mammals and reptiles, as identified within Schedules 6 to 11 under the FWCA O. Reg. 669/98: Wildlife Schedules. Through the FWCA, listed wildlife are protected from illegal harvest, and in some cases, their dens are protected from intentional damage or destruction.

Any activity that would necessitate the hunting or trapping of listed wildlife under O. Reg. 669/98 (e.g., collection, relocation) at any point in the Project will require licence, permit and/or approval under the FWCA. Any activity that would risk destruction or damage to a den protected under the FWCA would similarly require licence, permit and/or approval under the FWCA. Wolverine is listed as a furbearing mammal under O. Reg. 669/98 to the FWCA; hunting and trapping of this species is prohibited without licence. Subsistence harvesting is not regulated under the FWCA; Indigenous hunting and fishing are Treaty rights, protected under both the *Constitution Act* and the *Indian Act* (R.S.C., 1985, c. I-5). The dens or habitual dwellings of furbearing mammals (e.g., Wolverine) can not be intentionally damaged or destroyed without licence; no Wolverine dens have been documented to date on the Project.

6.14.1.2 Influence of Consultation with Indigenous Communities, Government and the Public

Consultation has been ongoing for several years, prior to and throughout the environmental assessment process, and will continue with Indigenous communities, government agencies and the public through the life of the Project. Section 2 provides more detail on the consultation process. The Record of Consultation (Appendix D) includes detailed comments received, and responses provided, during the development of the final Environmental Impact Statement / Environmental Assessment (EIS/EA).

Feedback received through consultation has been addressed through direct responses (in writing and follow up meetings) and incorporated into the final EIS/EA, as appropriate. The key comments that influenced the assessment for Wolverine between the draft and final EIS/EA is provided below:

Baseline Information

The Ministry of the Environment, Conservation and Parks (MECP) requested further information on the baseline studies being conducted for Wolverine. The Northwestern Ontario Métis Community (NWOMC) requested clarification on the number of years the study will occur and if it includes the mine access road. Additionally, the MNR noted that wildlife observations (including Wolverine) should be shown in more of the Regional Study Area (RSA) in applicable figures in the EIS/EA. A dedicated Wolverine program was initiated in February 2023 and continued during 2024 to collect additional baseline information for inclusion in the EIS/EA and to support future permitting. Baseline data were collected on Wolverine demographics (including sex, age, structure), occupancy / population density, habitat use and dispersal and areas of concentration / activity centres. The Wolverine program used a tessellated hexagon approach (a pattern of

repeating hexagons that fit together without gaps or overlaps) in which one station per subset of selected hexagons overlaid on the RSA is placed in the most suitable habitat within the hexagon (usually along a river / lake or ridge). The stations include dual cameras and hair traps, and collect information on Wolverine identification, sex and genotype. The cameras and hair traps can provide data on familial relationships, effective population size, dispersal patterns from DNA, survival rates in multi-year studies, lactation in females, centres of activity, population density using capture-recapture models, and behavioural information such as the association of individuals based on the date and time stamp on photographs. Further details on the Wolverine program methods and results are included in the Baseline Terrestrial Resources Report (Appendix P-3, Section 2.6 and Section 3.4, respectively). Figure 6.14-2 shows the observations of Wolverine during all baseline investigation programs.

Study Area Definitions

The MNR requested clarification to the terms used to describe study areas in the draft EIS/EA. Study areas used for the baseline reports have evolved based on previous results, optimization of the Project and input provided by Indigenous communities and government agencies. The baseline investigation areas include all combined study areas used during the baseline studies. In terms of the study areas used for the assessment of potential effects, three study areas are defined Section 6.14.1.3. This has also been clarified in Section 6.1.3, and the terminology has been used throughout the EIS/EA.

Traditional Knowledge

Cat Lake First Nation and Lac Seul First Nation undertook two studies, namely an Indigenous Knowledge and Use Study and Socioeconomic Study, and requested these be considered in the EIS/EA to inform the understanding of potential effects of Project. Further, NWOMC noted that Wolverine are both culturally significant and are a highly successful predator that can lead to additional displacement of prey species and requested this be considered in the EIS/EA. NWOMC also requested that Traditional Knowledge be disaggregated by Indigenous community. A description of how Traditional Knowledge was incorporated into the EIS/EA is provided in each VC section and in Section 6.21.1.2 of the final EIS/EA, including how the information is disaggregated by Indigenous community. Further, an assessment of the effects on Indigenous People is provided in Section 6.26 that includes the effects on current use of lands and resources for traditional purposes, socioeconomics, archaeology and cultural heritage. With respect to Wolverine, the non-confidential information from Traditional Knowledge and Land Use Studies provided by Indigenous communities has been reviewed and described in Section 6.14.2.1 for Wolverine. This information validates the selection of Wolverine as a VC and was considered in the assessment of potential effects and selection of mitigation measures and informs the monitoring programs for Wolverine.

Assessment Methods

The MNR requested clarification on the evaluation of impacts, mitigation and residual effects for Wolverine and other SAR for other alternative routes and locations for the mine access road, the transmission line and the potential aggregate sources. The assessment of alternative routes for the mine access road, transmission line routes and locations for aggregate sources has been completed as required by the federal and provincial legislation and in accordance with the EIS Guidelines (Appendix B-1) and the approved Amended Terms of Reference (Appendix B-3). The assessment of alternatives for the mine access road is found in Section 5.21, the transmission line routes in Section 5.26 and the aggregate source areas in Section 5.28. These are informed and supplemented by a dedicated assessment of alternatives for SAR in Appendix T.

The MNR requested that the change in prey populations and habitat for Wolverine be considered in the assessment of potential effects. Wolverine are facultative predators; they do not rely exclusively on animal prey and can use different food sources depending on availability and environmental conditions (ECCC 2016). This allows for adaptability and flexibility through a broad diet, hunting when prey is plentiful and scavenging for carrion when it is not. There are, however, limits to this flexibility based on the availability and nutritional value of alternative food sources. When prey is scarce, Wolverine may increase their home range size to find sufficient food. However, the Project will have a low effect on wildlife, and habitat will be maintained elsewhere in the RSA.

Mitigation Measures

The MNR requested clarification on the mitigation measures for habitat loss or the risk of mortality, including measures intended to mitigate noise, fragmentation and habitat alteration; control invasive species; and regenerate habitat. Further, the MNR requested clarification on reclamation measures that will be implemented at closure. The change in habitat availability and effectiveness, and the change in the risk of mortality for Wolverine, is assessed in Section 6.14.6.1 and Section 6.14.6.3, respectively. The assessment takes into consideration the mitigation measures identified in Section 6.14.4 and Table 6.14-4. The mitigation is segregated by criteria and includes specific measures for noise, fragmentation, habitat alteration and reclamation measures. Specific measures to mitigate the potential effects of invasive species are included in Section 6.11.4. Monitoring programs will be implemented to verify the accuracy of the predicted effects and assess the effectiveness of the implemented mitigation measures, and may be further optimized in response to monitoring data. A description of the monitoring program for wildlife is included in Section 12. It should also be noted that Section 5.19 provides a description of the conceptual closure plan, that will be further developed during the permitting phase.

Analytical Methods

The MNR requested clarification on the zone of influence used for the assessment of potential effects on Wolverine and other wildlife species. The Local Study Area (LSA) is intended to capture potential direct effects from the Project (such as habitat loss) and indirect effects (such as sensory disturbance) resulting from the Project. Direct effects could only occur within the Project Development Area (PDA); however, indirect effects could extend beyond the PDA. As a result, the area within the LSA is considered for the maximum zone of influence and is refined based on available literature and direction received from the MECP. This is further described in Section 6.14.5.1.

Characterization of Residual Effects

Mishkeegogamang Ojibway Nation requested clarification on the application of the ecological and/or social context attribute for the determination of significance for Wolverine. The ecological and/or social context attribute is used to describe the sensitivity of the VC to further changes. As Wolverine are designated as a Threatened species under the provincial ESA, there is likely a need to implement special measures to manage the potential effects on Wolverine, and therefore the ecological and/or social context is considered moderate. The characterization of the ecological and social context has been clarified in Section 6.1.5, and the evaluation of this attribute is described in Section 6.14.7.

6.14.1.3 Spatial and Temporal Boundaries

The PDA is defined as the footprint of the Project including the mine site, mine site access road and the transmission line corridor, as well as a buffer to allow flexibility for design optimizations during Project permitting. The buffer includes approximately 250 metres (m) around the mine site area. The buffer is

included within the 40 m wide corridor for the transmission line and within in the 30 m wide corridor for the mine access road. Where the mine access road and transmission line are aligned together, the buffer is included within a 60 m wide corridor.

The spatial boundaries used for the assessment of Wolverine are shown in Figure 6.14-1 and defined as follows:

- **Local Study Area (LSA):** the LSA includes the PDA and the area around it where there is a reasonable potential for indirect effects to occur to Wolverine due to an interaction with the Project components or activities. The LSA is a 10-kilometre (km) buffer around the PDA, including the outer boundary of the mine site area, the centreline of the mine access road and transmission line. This value was recommended for the Wolverine LSA by the MECP Species at Risk Branch.
- **Regional Study Area (RSA):** the RSA is a 50 km buffer around the PDA, including the outer boundary of the mine site area, the centreline of the mine access road and transmission line. The 50 km buffer around the PDA represents the long diagonal diameter of a 1,600 square metres (m^2) theoretical hexagonal home range of a male Wolverine and combines to a total area of suitable habitat (approximately 17,000 square kilometres [km^2]). Large areas are required to support a viable and self-sustaining Wolverine populations (Magoun et al. 2011); this area represents the scale necessary for monitoring Wolverine populations.

The temporal boundaries for the assessment of Wolverine are defined as:

- **Construction Phase:** Years -3 to -1, representing the construction period for the Project.
- **Operation Phase:** Years 1 to 10, with the first year potentially representing a partial year as the Project transitions from construction into operation. Mining of the ore from the open pit will end in Year 10, at which time the pit will begin refilling with water.
- Decommissioning and Closure Phase:
    - Active Closure: Years 11 to 15, when final decommissioning and the majority of active reclamation activities are carried out.
    - Post-closure: Years 16+, corresponding to the post-closure monitoring period when the filled open pit basin will be reconnected to Springpole Lake.

Effects on each VC are assessed for each Project phase (i.e., construction, operation and closure).

6.14.1.4 Criteria and Indicators

In undertaking the assessment of effects on Wolverine, the following criteria were used:

- Change in habitat availability and effectiveness;
- Change in movement; and
- Change in mortality risk.

The specific criteria, measurable indicators and the rationale for the selection of criteria are described in Table 6.14-1.

6.14.1.5 Description of Residual Effect Attributes

Residual effects are characterized in terms of the following attributes:

- Magnitude;
- Geographic Extent;
- Duration;
- Frequency;
- Reversibility; and
- Timing.

These attributes along with the rankings are further described in Table 6.14-2.

In addition, the residual effects for Wolverine are characterized according to the ecological and/or social context within which the VC is found. This is a qualitative measure of the sensitivity and/or resilience of the VC is to potential change. The following ranking is applicable:

- **Level I:** The VC may or may not be sensitive but is capable of supporting the predicted change with typical mitigation measures.
- **Level II:** The VC is sensitive and requires special measures to support the predicted change.
- **Level III:** The VC is sensitive and unable to support the predicted change even with special measures.

As noted in Section 6.1, a residual effect is defined as significant if both of the following criteria are satisfied:

- A Level II or III rating is attained for all of the attributes involving magnitude, extent, duration, frequency, reversibility and timing (where applicable); and
- A Level II or III rating is attained for ecological and/or social context.

Conversely, if a Level I rating is achieved for any of the attributes involving magnitude, extent, duration, frequency, timing or reversibility; or, if a Level I rating is achieved for the ecological and/or social context, then the residual effect is considered to be not significant.

In the event there is a significant adverse effect, the likelihood of occurrence is further described.

6.14.2 Existing Conditions

A description of the baseline conditions is presented below to characterize the existing conditions for Wolverine and is based on several years of study that has resulted in a comprehensive dataset for this stage of project planning. The existing conditions are used to support the assessment of potential effects from the Project on Wolverine and will support long-term monitoring for the Project. Further baseline information on terrestrial resources can be found in the technical support documentation (Appendix P) includes baseline data from field investigation conducted on Wolverine.

Historically, Wolverine were found throughout all of Ontario. Current day, the modelled core range for Wolverine in Ontario as presented in the Recovery Strategy for Wolverine (Ontario Wolverine Recovery Team 2013) has been determined based on historical trapping records (1980 to 2005), Ontario Boreal Wolverine Project aerial surveys (2003 to 2004) and subsequent surveys by the Wildlife Conservation Society (WCS) and the MNR (2009 to 2012). There is a strong concordance of Wolverine locations across the

datasets (Cat Lake / Slate Falls and MNRF 2016). Substantial efforts have been completed by the WCS in characterizing Wolverine occupancy, population density and habitat characterization across northern Ontario, primarily in the Red Lake area—these data are important to the Project in supporting the characterization of Wolverine within the RSA and broader provincial context.

Wolverine are the largest terrestrial member of the weasel family, inhabiting remote wilderness areas and occurring at low densities over the landscape (Pasitschniak-Arts and Larivière 1995). Wolverine have large home ranges (with males having larger home ranges than females) and broad-scale habitat requirements, resulting in sparsely distributed populations (COSEWIC 2003; Aubry 2009; Ontario Wolverine Recovery Team 2013). Wolverine rely primarily on scavenging in the winter (generally supported by presence of a top predator such as Wolf) and trend toward opportunistic omnivore in summer months (Banci 1994). Wolverine breed from May to August; females can delay implantation until late fall or early winter, generally coinciding with advantageous periods of higher resources. The average number of cubs for Wolverine is less than one per annum, with up to six weaned litters expected per lifetime (Magoun 1985; Rauset 2013). Denning is critical for survival of Wolverine; females will build both natal and maternal dens to support young in early stages. While not much is known about natal / maternal denning in Ontario, a small number of dens have been detected within the province that can help provide insights as to suitable habitat types and local-scale characteristics; dens tend to have structural features in common:

- Complex, extensive snow tunnel systems;
- Boulder pile, covered in snow;
- Slash pile, covered in snow; and/or
- Fallen tree root system, covered in snow.

Wolverine tend to inhabit large areas free of human disturbance and is one of the first species to disappear with the onset of human impacts; as such, Wolverine can be excellent indicators of ecosystem integrity. The ecological role of the Wolverine is as both top predator and scavenger relying on adequate large ungulate densities to maintain viable populations.

Early baseline investigations for the Project documented two separate locations of Wolverine tracks near the Project site in aerial surveys conducted in 2011 (DST 2012). During subsequent aerial surveys, Wolverine tracks were again documented (DST 2013). DST (2013) noted that Wolverine were reported in the area six times between 1982 and 2000 and that all observations for Wolverine in the Natural Heritage Information Centre database occurred in the winter. Additionally, it was reported that 13 Wolverines were trapped (harvested) over 25 years (1993 to 2017) within the Lake St. Joseph Ecoregion, of which one Wolverine trapping record was within 5 km of the mine site watershed catchments. There are no known historical records or observations of natal or maternal denning sites in the LSA, though these sites are notoriously difficult to detect on the landscape and are poorly described in Ontario outside of WCS efforts.

During the March 2020 aerial survey completed for the Project, Wolverine tracks were recorded south of the Project and a Wolverine was observed on Seagrave Lake (Appendix P-1). Winter habitat use by Wolverine was confirmed at multiple locations within the LSA during a winter aerial survey in February 2021 through track observations. Most observed Wolverine activity was more than 40 km east of PDA. There was no evidence of Wolverine or Wolverine use along the proposed mine access road corridor. Wolverine tracks were detected along the proposed transmission line corridor, approximately 2 km southwest of Bamaji Lake. These detections are shown in Figure 6.14-2. Although individual animals have been observed on Springpole Lake, there are no known denning sites near the PDA.

Given the Wolverine activity observed in previous years on aerial surveys, and in alignment with comments received from MECP to better describe the extent and population, a dedicated winter camera trap and run pole program was established in 2023 and 2024. The intent of the dedicated Wolverine program was to inform demographics (including sex, age, structure), occupancy / population density, habitat use and dispersal and areas of concentration / activity centres Twenty-five stations outfitted with white light cameras, infrared cameras, run-poles, and purpose-built hair snags were established in accordance with guidance from regulators (Figure 6.14-3). Through these efforts, 14 distinct Wolverine (as identified by chest patterns and where available, confirmed through genetic material) and 13 unidentified Wolverine (distinguishable features not visible, no genetic material retrieved) were detected and are shown in Figure 6.14-3. Two ear-tagged individuals, presumably originating from Wildlife Conservation Society of Canada studies, have been detected within the LSA. Of these detections, six individuals in 2023 were identified through genetic analysis of hair snag samples: four males and two females.

6.14.2.1 Traditional Knowledge

Indigenous Traditional Knowledge was acquired through a Habitat Stewardship Project, which contributed to filling knowledge gaps of Wolverine occurrences for local protection of Wolverine denning sites (Cat Lake / Slate Falls and MNRF 2016). Traditional Knowledge from Cat Lake First Nation and Slate Falls Nation indicates all known occurrences were within the past 25 years. Interviewed elders from Slate Falls Nation had no recollection of Wolverine sightings in their times of trapping or hunting. Cat Lake First Nation interviews indicated Wolverine observations were mainly by trappers and that Wolverine were not as common historically. No confirmed denning sites were identified but potential Wolverine travel corridors (e.g., Cat Lake to Madden Lake) were indicated. Collectively the Traditional Knowledge suggests Wolverine were not historically common, but the local population appears to be growing over the recent 10 to 20 years with dispersal movements eastward (Cat Lake / Slate Falls and MNRF 2016).

Lac Seul First Nation and Slate Falls Nation both noted that Wolverine were included as a species that was hunted or trapped (Lac Seul First Nation 2024; Slate Falls Nation 2024). Slate Falls Nation noted that prior to 1970, trapping furbearers such as Wolverine made up a large portion of the community's economy, however after that time trapping had declined substantially due to a decline in the market for furs primarily caused by the animal rights movement and high costs of trapping. Slate Falls Nation noted there is an increase in Wolverine sightings in clear cut areas, especially in association with transmission line corridors (Slate Falls Nation 2024). The low representation of Wolverine in available trapping records is consistent with the Traditional Knowledge documentation.

NWOMC noted that Wolverine are a complicated species which are not only important because of cultural significance to the NWOMC but they are also a highly successful predator that can lead to additional displacement of prey species.

6.14.3 Identification of Potential Effect Pathways

The initial step in the assessment process is to identify interactions between the Project and Wolverine that can result in pathways to potential effects. These potential effects may be direct, indirect and/or positive effects, where applicable. Table 6.14-1 includes the potential interactions of the Project with Wolverine, prior to the application of the mitigation measures. The professional judgment of technical experts experienced with mining projects in Ontario and Canada, as well as input from Indigenous communities, government agencies and the public informed the identification of those interactions that are likely to result in a pathway to a potential effect due to a measurable change on Wolverine. These pathways to potential effects are further described below for each phase of the Project, along with the rationale for those

interactions excluded from further assessment. Section 6.14.4 and Table 6.14-2 provide a description of the mitigation measures applied to during all phases of the Project. The residual effects, after the application of the mitigation measures, are then described and further evaluated in Section 6.14.6, using the criteria and indicators identified in Section 6.14.1.4.

Construction Phase

The construction phase of the Project is expected to be developed over a three-year period and will include preparation of the site and the construction of mine infrastructure. The following interactions with the Project result in pathways to potential effects on Wolverine as described below. After mitigation is applied to each pathway, as described in Table 6.14-2, the residual effects are assessed using the criteria identified for each pathway:

- Site preparation activities for the mine site area, including clearing, grubbing and bulk earthworks, interacts with Wolverine.
    - These activities result in pathways to potential effects on Wolverine due to:
        - The clearing of vegetation that may directly affect habitat;
        - The use of equipment which may indirectly affect habitat and movement corridors due to sensory disturbance associated with noise and light, the deposition of dust and edge effects; and
        - The use of equipment may increase the potential for collisions and may change the risk of mortality.
    - The assessment of potential effects on Wolverine includes: the change in habitat availability and effectiveness; the change in movement; and the change in the risk of mortality from these pathways.
- The construction of the mine access road, airstrip and the transmission line, including the associated site preparation activities and the development of the aggregate resource areas, interacts with Wolverine.
    - These activities result in pathways to potential effects on Wolverine due to:
        - The removal of vegetation that may directly affect habitat;
        - The use of equipment which may indirectly affect habitat and movement corridors due to sensory disturbance associated with noise and light, the deposition of dust and edge effects; and
        - The use of equipment may increase the potential for collisions and may change the risk of mortality.
    - The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness, the change in movement and the change in the risk of mortality from these pathways.
        - The development of temporary construction camp and staging areas, the development of the fish habitat development area, the development of the onsite haul and access roads, the development of buildings and onsite infrastructure, the construction of the central water storage pond, the construction of the starter embankments for the co-disposal

facility, the development of the surficial soil stockpile and ore stockpiles, the construction of the dikes, controlled dewatering of the open pit, lake bed stripping, pit development and development of the water management and treatment facilities interacts with Wolverine. These activities result in a pathway to a potential effect on Wolverine due to the use of equipment which may indirectly change habitat due to sensory disturbance associated with noise and light, the deposition of dust and edge effects. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from this pathway.

- The commissioning of the process plant interacts with Wolverine. This activity results in a pathway to a potential effect on Wolverine due to the operation of the plant and associated equipment may change sensory disturbances which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the changes in habitat availability and effectiveness from this pathway.

There is no plausible interaction between the employment and expenditures activities and Wolverine during any Project phase.

Operations Phase

The operations phase is anticipated over a 10-year period, but the majority of potential effects on Wolverine will occur during the construction phase resulting from a change in habitat. The following interactions with the Project result in pathways to potential effects on Wolverine as described below. After mitigation is applied to each pathway, as described in Table 6.14-2, the residual effects are assessed using the criteria identified for each pathway:

- The operation of the process plant interacts with Wolverine. This activity results in a pathway to a potential effect on Wolverine due to the operation of the plant and associated equipment may change sensory disturbances which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from this pathway.
- The operation of the open pit mine interacts with Wolverine. This activity results in a pathway to a potential effect on Wolverine due to the use of equipment and blasting which may change sensory disturbances and air emissions (including dust) which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from this pathway.
- The management of overburden, mine rock, tailings and ore in designated facilities interacts with Wolverine. These activities result in a pathway to a potential effect on Wolverine due to the following: the use of equipment and operation of haul trucks may change sensory disturbances and air emissions (including dust), which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from this pathway.
- The operation of water management and treatment facilities interacts with Wolverine. These activities result in pathways to a potential effect on Wolverine due to the use of equipment and operation of pumps may change sensory disturbances, which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from these pathways.

- The operation and maintenance of mine site infrastructure, including the mine access road, the transmission line and the airstrip interacts with Wolverine. These activities result in pathways to potential effects on Wolverine due to the following: the management of vegetation may indirectly affect habitat for Wolverine; the use of equipment, operation of Project vehicles and haul trucks, and the operation of aircraft may change sensory disturbances, which may indirectly affect habitat and movement corridors; and the use of equipment may increase potential collisions with Wolverine and may change the risk of mortality. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness, the change in movement corridors and the change in the risk of mortality from these pathways.
- Progressive reclamation activities interact with Wolverine. These activities result in pathways to potential effects on Wolverine due to the following: the change in vegetation communities from revegetation activities may directly affect habitat; ground disturbances from regrading may change the contribution of surface water and indirectly affect habitat; and the use of equipment may change sensory disturbances and air emissions (including dust), which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from these pathways.

The operation of the accommodations complex is not anticipated to interact with Wolverine and potential effects are unlikely.

Decommissioning and Closure Phase

Activities that will occur during the active closure phase will include regrading, placement of cover and revegetation. The following interactions with the Project result in pathways to potential effects on Wolverine as described below. After mitigation is applied to each pathway, as described in Table 6.14-2, the residual effects are assessed using the criteria identified for each pathway:

- The reclamation of impacted areas, such as by regrading to provide stable slopes and reduce the potential for erosion, placement of cover in designated areas to provide stability, and revegetation activities, interacts with Wolverine. These activities result in pathways to a potential effect on Wolverine due to the following: the change in vegetation communities from revegetation activities may directly affect habitat; ground disturbances from regrading may change the contribution of surface water and indirectly affect habitat; and the use of equipment may change sensory disturbances and air emissions (including dust) which may indirectly affect habitat. The assessment of potential effects on Wolverine includes the change in habitat availability and effectiveness from these pathways.

Removal of assets, the demolition and recycling and/or disposal of remaining materials and the removal and disposal of demolition-related wastes in approved facilities is not anticipated to result in potential effects on Wolverine and potential effects are unlikely. The filling of the open pit will return groundwater levels in the adjacent area and is anticipated to have a positive effect on habitat. Beyond closure, the activities will be primarily monitoring, and there are no anticipated potential effects on Wolverine.

6.14.4 Mitigation Measures

Measures to be implemented to avoid or minimize the effects of the Project on Wolverine include the following:

- Development of a compact mine site to limit the footprint of disturbance.

- During all phases of the Project, limit the removal of moderate and high-quality Wolverine habitat within the PDA, as practicable.
- Prior to the construction phase of the Project, undertake pre-construction winter aerial surveys to map activity centres and potentially active natal or maternity dens within a 10 km buffer of the PDA.
- Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to Wolverine (Section 6.12.4) including:
    - Provide any person who engages in Project activities with education and awareness training prior to entering the site to perform any Project activities. Training will address existence of Protected Species on site, identification of Protected Species and their habitats, awareness of Wolverine on roads within site to avoid collisions, the care that should be taken to avoid Protected Species individuals and/or their habitat, appropriate actions to take if any Protected Species is encountered; and how to record impacts to the Protected Species.
    - Log (and report as needed) observed wildlife, sign / tracks and wildlife-vehicle collisions and alter mitigation measures as appropriate.
    - Properly secure, store and dispose of all domestic solid waste products and similar materials at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. All domestic solid waste products will be transported to a landfill off site and therefore mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites.
- Implementation of mitigation measures for potential effects on air quality relevant to Wolverine (Section 6.1.4) including:
    - Control dust emissions from roads and mineral stockpiles through the application of water spray and supplemented by dust suppressants, if required.
    - Maintain site roads in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads.
    - Limit vehicle speeds.
- Implementation of mitigation measures for potential effects on noise relevant to Wolverine (Section 6.3.4) including:
    - Select or design motorized equipment with mufflers / silencers to limit noise emissions.
    - Use reversing alarms that are dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations.
    - Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection.
    - Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather.
    - Operate vehicles and equipment such that impulsive noise is minimized, where possible.
    - For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure.

- During construction, operations and closure phases of the Project, implement mitigation for lighting to minimize sensory disturbance, including the following:
    - To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms.
    - Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable.
- During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation:
    - Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat.
    - In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 m until the individual is no longer present within 500 m of the construction area.
    - In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 km of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies.
- During construction of the mine access road and transmission line, implement the following mitigation:
    - Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety.
    - Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure needs.
- During the operation of the mine access road, implement the following mitigation:
    - Minimize vegetation management along the transmission corridor to that necessary for safe operation.
    - Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings.
    - Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road.
- During operation of the transmission line, implement the following mitigation:
    - Minimize vegetation management along the transmission corridor to that necessary for safe operation.
    - Maintain natural vegetation structure and composition to the extent possible for Wolverine habitat connectivity, in areas along the transmission line identified as moderate or high-quality habitat for Wolverine.
- During the closure of the Project restore disturbed Wolverine habitat, implement the following mitigation:

- Remove any infrastructure and install physical barriers to prevent vehicular access.
- Replant disturbed areas and monitor vegetation reestablishment; many of the offsetting measures targeted towards other species (e.g., Caribou) will benefit Wolverine and their habitats.

The application of mitigation measures to specific pathways and phases is illustrated in Table 6.14-4. Mitigation measures described in this section are expected to be effective for their intended purposes given their effective implementation at similar projects.

Monitoring programs will be implemented to verify the accuracy of the predicted effects and assess the effectiveness of the implemented mitigation measures and may be further optimized in response to monitoring data. Extensive monitoring programs are in place for the Project with several years of data collection completed. Monitoring for the Project going forward is further described in Section 12 and will be further refined during the permitting phase to incorporate conditions of approvals and permits. Consultation on the monitoring programs is expected to continue through all phases of the Project.

6.14.5 Analytical Methodology

The analytical methods used for the assessment of potential effects on Wolverine includes both quantitative and qualitative approaches. A quantitative approach was used for determining changes to habitat within the RSA and a qualitative approach was used for assessing changes in movement and mortality risk.

6.14.5.1 Changes to Habitat Availability and Effectiveness

Habitat availability is considered in the context of habitat that is used by Wolverine for all life processes (e.g., foraging / scavenging, denning, rearing) important for survival and recovery. To identify the most critical habitats for Wolverine (i.e., those associated with natal and maternal denning), a habitat suitability model with three suitability indices (including vegetation community, presence of spring snow cover, and anthropogenic features) was developed to model suitable habitat for Wolverine. Habitat types were ranked as nil, low, moderate or high quality, and those ranked as high or moderate were categorized as suitable habitat.

The removal and alteration of vegetation changes the landscape and may directly change the amount and type of habitat available for use by Wolverine. A change in habitat occurs when vegetation is removed in an undisturbed area to construct various Project components. The change in habitat is presented as the total habitat removal (in square kilometres and percent) within the PDA relative to the assigned habitat quality. The assessment of this direct change conservatively assumes that habitat in the PDA will be of no value for Wolverine during the construction, operations and closure phase of the Project.

Habitat effectiveness is a measure of effective habitat loss and changes in habitat use by Wolverine that may occur from sensory disturbances during Project-related activities. Wolverine response to anthropogenic influences is complex and varies spatially depending on sex, seasonality, context and landscape; for example, they may be both attracted to and repelled by human activity: seismic lines, roads, and logged areas may initially attract Wolverine, but they also expose them to greater risks such as poaching or vehicle collisions (Scrafford 2017). Wolverine may avoid using habitats that are otherwise preferred because of the presence of human activity, potentially resulting in increased energy expenditure and lost foraging opportunities. As a result, habitat in the vicinity of a development is conservatively considered effectively lost. The duration and magnitude of human disturbance, and the behavioural response of Wolverine, will determine whether the extent of the effective habitat loss will be complete or partial, temporary or permanent. Effective habitat loss may be greatest in areas of high-quality habitat and areas

supporting critical reproductive habitats such as natal and maternal denning sites. The MECP recommends an LSA of 10 kilometres for Wolverine under a conservative zone of influence approach, which has been adopted herein. The zone of influence (ZOI) approach refers to the concept of measuring and managing the spatial extent within which a development or human activity affects wildlife behavior, habitat use, or ecological processes.

The assessment of change to habitat availability and effectiveness for Wolverine conservatively includes direct habitat loss within the PDA and indirect habitat loss within the LSA. Calculations for direct habitat loss are based on the footprint of the Project site. The Wolverine habitat suitability model was developed using ecosystem type (with highest value assigned to B128 ecosystem), presence of persistent spring snow cover, and a penalization factor for proximity to various types of anthropogenic disturbance. Further details on the habitat suitability model is provided in Appendix P1 (Attachment 9).

6.14.5.2 Changes to Movement

Wildlife movement patterns may be disrupted through the development of Project components that may result in habitat fragmentation due to physical and sensory barriers. Further, changes in movement dynamics may impact breeding and survival rates and may increase predation / mortality. Information on habitat use, locations of potential areas of high activity within the LSA and Wolverine responses to development activities were used to assess potential disruption of movement patterns.

A qualitative analysis was used to assess the change in movement patterns based on information from habitat mapping, presence / no detection data at run-pole stations (especially where Wolverine visited more than one station across monitoring years), disturbance patterns, and existing knowledge on Wolverine movement patterns and characteristics of Project components. Minimum enclosing circles were used to define the smallest circle that completely enclosed a set of spatial points (i.e., run-pole stations visited by individual Wolverine); this provides a visual representation of the spatial extent covered by individual Wolverine where they visited more than one station (see Figure 6.14-5). A minimum enclosing circle is the smallest possible circle that can contain a given set of points in a 2D space. Every point in the set either lies inside or exactly on the boundary of this circle. This representation is used to qualitatively assess the movement of Wolverine within the applicable study area and describe patterns of use and activity centres.

6.14.5.3 Changes to Mortality Risk

The risk of Wolverine mortality has been assessed qualitatively based on the likelihood of a species encountering sources of potential mortality and is informed by experience with other similar operating mines in the north. Mortality may be caused directly by humans (e.g., vehicle-wildlife collisions, habituation and exploitation of food and waste from mine sites). Direct sources of mortality are estimated through predictions of increases in construction activity and equipment, vehicular traffic and hunting activity. Direct sources of mortality are also assessed through predictions of wildlife interactions with Project infrastructure. Indirect mortality occurs when Project development contributes to other sources of mortality, such as increased hunting and trapping pressure, poaching, and management actions. Loss of habitat, through decreased habitat effectiveness or removal, may also contribute to indirect mortality due to limiting available food resources as well as potential for increased predation risk.

Changes in prey availability can directly impact the mortality risk of Wolverine. A decrease in prey abundance can lead to increased competition among individuals, higher energy expenditure in locating food, and potentially reduced reproductive success. If prey availability increases, it can reduce competition and improve the overall health and survival rates of Wolverine populations. Assessing changes in prey availability provides critical insights into how shifts in prey density might alter mortality risks and overall

population dynamics. Changes in prey availability are assessed qualitatively using species diversity across the RSA and the distribution of Wolf, ungulates and Snowshoe Hare populations during aerial surveys. Wolverine are adaptable predators with foraging strategies that are tailored to seasons and prey availability (e.g., in summer often a more prolific hunter, while in winter Wolverine become a forager of carrion acquired by other top predators).

6.14.5.4 Spatially Explicit Capture Recapture Model

A Spatially Explicit Capture-Recapture (SECR) model was used to account for spatial distribution of individuals and detection points across the 25 dedicated Wolverine run-pole stations, which allows for more accurate estimation of population density and distribution across a landscape. SECR models can be used to track changes in population density and distribution over time. The estimated density of Wolverine using SECR modelling was completed following methods described by Strampelli et al. (2022) for SECR density modelling of lion trailcam data and Scrafford et al. (2023) SECR density modelling of Wolverine run-pole and live-trapping data in Red Lake, Ontario. Only camera trap data were used from the run-pole station. The method for estimating density of Wolverine for the Project is consistent with approaches by others in Ontario and based on assumptions related to professional judgment and experience related to Wolverine and Wolverine habitat and available peer-reviewed and public literature, as described in Section 6.14.5.4.

A three-step approach was used to identify the density model that best fit the data. After each step, the best model was carried forward until an ultimate best fit model was selected. Sex was explored as a covariate influencing detection probability. The spatial covariates tested were snow cover, distance to the nearest road, road density and Project area. SECR was conducted with the SECR package in the statistical software, R.

Further details on the SECR model is available in Appendix P-1, Attachment 8.

6.14.5.5 Assumptions and the Use of the Conservative Approach

Habitat Suitability Modelling is based on assumptions related to Forest Resource Inventory (FRI), habitat interpretations, professional judgement and experience related to Wolverine and Wolverine habitat, available peer-reviewed, and publicly available literature:

- The quantitative rating of FRI units is based on similar models used and tested in Ontario.
- The habitat suitability value is assumed to reflect the current value of habitat and not the future value.
- Habitat ratings are interpreted to represent the potential reduction in habitat quality and effectiveness related to mine infrastructure.
- Although there is a distinction between available habitat and effective habitat in biological models (i.e., not all available habitat is effective or used), a conservative approach requires that all available habitat be included in the calculations of habitat impacted by the Project.
- The portion of the RSA without FRI data is assumed to have proportionally similar amounts of moderate and high-quality habitat for Wolverine as in the rest of the RSA, given the contiguous nature of habitat in this area. Recent FRI data were used for the PDA and LSA and for 83 percent (%) of the RSA.

The SECR model relies on several assumptions that have been considered and validated to support the reliability of the population estimate for Wolverine:

- The model assumes that the population within the applicable study area is spatially closed during the survey period (i.e., no individuals are entering or leaving the applicable study area).
- All individuals have an equal chance of being captured and marked during the survey, and the probability of recapture is the same for all marked individuals.
- The detection of individuals is assumed to be independent of one another (i.e., detection of one Wolverine does not influence detection probability of another).

In addition, the following assumptions and conservative approaches are used in the assessment of potential effects on Wolverine:

- All vegetation within the mine site area and mine access road of the PDA is assumed to be removed, whereas vegetation will be altered in the transmission line portion of the PDA.
- High and moderate ranked habitat are included in the calculation of change in habitat availability and effectiveness.
- The change in mortality risk due to site preparation and mine activities was assessed using a conservative approach, and it was assumed that Wolverine could be encountered routinely on Project-related roads and within the construction and operational footprint of the Project. The assessment of mortality risk focuses on the construction and operations phases, as a conservative scenario, as the risk of mortality would be expected to be less during the decommissioning and closure phase.
- Progressive rehabilitation will occur at selected locations during construction and operations when disturbance activities have been completed as practicable. The assessment of the effects assumes that final rehabilitation activities will be completed during the closure phase, and progressive reclamation is not accounted for during operations.

6.14.6 Characterization of Potential Residual Effects

The potential residual effects of the Project on Wolverine, after the application of mitigation, were subsequently assessed as discussed below.

Based on the results of the habitat suitability model, the potential overlap of the Project components on moderate to high value Wolverine habitat is tabulated in Table 6.14-5 and illustrated in Figure 6.14-4. The areas shown represent the maximum potential habitat affected and do not account for existing disturbance or mitigation measures. Within the RSA, there are 1,318.01 kilometres squared of suitable (quality) habitat for Wolverine, 1,761.50 in the LSA, and 16.35 kilometres squared in the PDA; the suitable habitat within the PDA makes up approximately 0.12% of the RSA.

The SECR model found that the best way to estimate how likely it was to detect a Wolverine followed a half-normal curve - meaning the farther an animal is from the camera trap, the less likely it is to be spotted. It also found that the detection probability at the Wolverine's main activity area depends on whether the animal is male or female. The best model did not include any geographic or environmental factors (spatial covariates) to explain detection patterns. Based on this, the combined 2023 and 2024 density estimates were 3.23 Wolverine per 1,000 km^2 (with a 95% confidence interval of 1.82 to 5.74). Applying this density estimate allowed the estimation of number of Wolverine within each applicable study area, as shown in

Table 6.14-6. The estimated total number of Wolverine in the PDA is less than one (0.07), 7.61 Wolverine in the LSA and 55.54 Wolverine in the RSA.

6.14.6.1 Change in Habitat Availability and Effectiveness

The habitat loss and alteration category of effects is a method of accounting for areas of vegetation removal and/or ground disturbance due to placement of infrastructure. To simplify the effects assessment, all lost areas are combined regardless of how long they are lost (even though the Project area will be reclaimed, except for some small features) to represent a worst-case scenario. The potential overlap of the Project components on moderate to high value Wolverine habitat is shown in Table 6.14-5 and illustrated in Figure 6.14-4. These areas represent the maximum potential habitat affected and does not account for existing disturbance or mitigation measures.

Seventy-six percent (13,181 km^2) of the RSA is rated as moderate or high-quality habitat for Wolverine. A high percentage of the RSA being classified as moderate or high quality habitat may be a result of the presence of optimal conditions for Wolverine (i.e., expansive and remote landscapes), suitable habitat mix (e.g., preferred forest type, aspect, variety in terrain) and relatively low human impact. A conservative approach was taken when setting habitat suitability values in the habitat suitability index (HSI) model; broad and inclusive thresholds make it easier for areas to qualify as suitable, ensuring that potential habitat is not overlooked. Direct changes to habitat through vegetation removal associated with the PDA footprint are quantified as 569 ha of quality habitat (i.e., sum of moderate quality and high-quality habitat). Although quality habitat for Wolverine makes up 80.63% of the total PDA footprint, this only represents 0.12% of total quality habitat for Wolverine within the RSA.

Indirect impacts affecting habitat effectiveness are addressed through ZOI approach where the LSA represents the biologically relevant area where indirect impacts may be expected on Wolverine; 1,761.50 km^2 of quality habitat will be affected. Quality habitat for Wolverine represents 74.77% of the total LSA and 13.36% of total quality habitat for Wolverine within the RSA. Using the conservative approach described above, this quality habitat is considered functionally lost for Wolverine throughout the life of the Project.

Whereas the ultimate determination of effects focuses on the effects associated with a conservative approach, it important to consider that a less conservative approach could also be reflective of true conditions. For example, the transmission line is currently proposed to twin the existing E1C transmission line corridor for approximately 57 kilometers. Under the conservative approach, it is anticipated that all habitat within the LSA will be functionally lost during both the construction and operations periods; however, it is reasonable to assume that during the operations phase, where the proposed transmission line parallels the existing E1C transmission line, the adjacent area will function as it currently does for Wolverine (as captured during baseline data collection characterizing the existing conditions). When the 57 kilometers of transmission line and the associated adjacent (10 kilometre) area are removed from the total LSA calculation (not including the adjacent areas to existing roads expected to experience higher traffic volumes), then the resulting % of functional habitat lost in the LSA becomes 714.69 km^2 of quality habitat. This represents 30.34 % of quality habitat in the LSA and 5.42% of total quality habitat for Wolverine within the RSA, reducing the area of total anticipated functional habitat loss following the completion of construction activities. Given the short timeline and phased approach assigned to construction of the transmission line along the existing corridor (one year) and the duration of the operations phase (15 years), this assessment considers residual impact calculations relative to the operations phase.

No dens associated with Wolverine have been identified in the PDA to date; dens of greatest importance are natal and maternal dens critical for birthing and rearing of young (Ontario Wolverine Recovery Team 2013). Wolverine dens present challenges to locate; in particular, natal and maternal dens which are often composed of ephemeral features (i.e., snow) that necessitate detection during late winter and spring. However, given the density of Wolverine within the baseline investigation area (3.23 Wolverine per 1,000 km^2), it is conservatively assumed that dens may be present but remain undetected to date. While female Wolverine are confirmed within the baseline investigation area, lactating females have not been identified to date. Wolverine do not necessarily breed every year; females may skip breeding seasons especially if conditions are not ideal or if they are not in optimal physical condition. This reproductive approach by Wolverine is facilitated by delayed implantation, a strategy that Wolverine use to ensure that birth of young is during the most favourable conditions (Brøseth 2024).

The direct loss of Wolverine habitat from vegetation removal and construction of the Project would have the greatest effect if it occurs during the natal and maternal denning period (between January 1 and April 30). The implementation of mitigation measures will reduce the potential for direct losses of Wolverine natal and maternal dens during vegetation removal, and proposed approaches to managing encounters are aligned with conservative provincial recommendations. There will be a change in the amount of effective habitat in the LSA during the operations phase; however, reclamation of habitat during Project closure phase may support the improvement in habitat suitability and effectiveness for Wolverine.

The overall effect of the Project on Wolverine habitat is anticipated to have a small direct reduction of quality habitat within the PDA (representing approximately 0.12% of the RSA) that may affect 0.07 (95% CI ±0.04 - 0.12) Wolverine, and an indirect effect through operations on quality habitat within the LSA representing 5.42% of the quality habitat available within the RSA.

6.14.6.2 Change in Movement

Construction activities associated with the development of Project components have the potential to create both physical and sensory barriers that may affect Wolverine movement. While Wolverine are known for their tenacity and wide-ranging movements, they are also known to be sensitive to anthropogenic disturbance and generally avoid areas of human activity (Roel et al. 2006; Scrafford 2017). Fourteen unique Wolverine were detected within the baseline investigation area, and of these, seven Wolverine visited more than one run-pole station. For these seven Wolverine, Minimum Enclosing Circles were applied (Figure 6.14-5) from which movement can be inferred. For example, SWOL10, SWOL08 and SWOL03 traversed the existing transmission line running east–west across the RSA as evidenced by their presence at run-pole stations on either side of the feature. It is unlikely that transmission lines act as physical barriers to Wolverine; however, recreational and maintenance activities typically associated with these features may affect their use of the area (Heinemeyer et al. 2019) and may affect movement choices by females with young during sensitive rearing periods (e.g., increased exposure to predators). Following construction, vegetation maintenance along the transmission line is anticipated to be infrequent. It is anticipated that the transmission line will experience some recreational use, though not in greater volumes than what is currently taking place within the existing transmission line ROW it is proposed to parallel.

Wolverine will often avoid roads, with greater avoidance associated with all-season roads (Scrafford et al. 2004; Stewart et al. 2016; ECCC 2024) which generally experience greater traffic volumes. Two Wolverine with distinct ear tags were captured on camera within the baseline investigation area. As WSC is the only organization known to be handling Wolverine in Ontario, these individuals likely originated from the Red Lake area indicating large scale movement by these individuals across landscapes including a variety of

linear infrastructure features. The Project does not incrementally exceed the linear disturbance / avoidance threshold (greater than 0.37 km/km^2; Scrafford et al. 2018; Bowman et al. 2010) for Wolverine when considering the regional scale; when observing patterns of Wolverine observations collected during baseline (Figure 6.14-2), there are few observations of Wolverine tracks within forestry roads and their associated 500 m buffer which are concentrated at the south and west portions of the RSA.

Wolverines are sensitive to industrial noise, especially denning females. Wolverine are unlikely to habituate and behaviourally will avoid disturbance by noise or traffic along transportation corridors (Scrafford et al. 2018). It is assumed that the greatest effect on Wolverine movement will be during the construction stage, a period that is anticipated to be characterized by heavy machinery, increased human presence and increased noise levels across the PDA. During operations, it is anticipated that the mine site area and mine access road will have a continued effect on movement of Wolverine (i.e., avoidance), while the transmission corridor is anticipated to be more permeable with reduced avoidance relative to the construction phase.

Impacts to Wolverine movement during the Project will have the greatest effect if occurring during the natal and maternal denning period (between January 1 and April 30). Mitigation measures will reduce the potential for direct changes to movement of Wolverine during vegetation clearing and construction, and proposed approaches to managing encounters are aligned with conservative provincial recommendations. During the operation phase, movement corridors may be altered in the LSA in proximity to the mine site area and mine access road; however, upon completion of the transmission line, which is not expected to have ongoing operational effects, movement corridors for Wolverine in this area may improve owing to a return of functional habitat adjacent to the corridor. Reclamation of habitat during Project closure phase will support the improvement in habitat suitability and effectiveness for Wolverine.

6.14.6.3 Change in Mortality Risk

Habitat loss and fragmentation, interaction with humans, vehicle collisions, construction disturbance, and changes to prey availability and abundance are all pathways that may affect mortality risk for Wolverine. The alteration of habitat for Wolverine during construction and operations resulting from the Project could result in displacement of young from natal or maternal dens resulting in an increased risk of mortality.

Increases in activity associated with the development of Project infrastructure, including the mine access road on which increased traffic and human presence is anticipated, can be expected to increase the risk of animal-vehicle collisions within the PDA. There are some examples in northern Ontario of Wolverine utilizing anthropogenic, linear and open features (Scrafford 2017), presumably to expedite travel and increase access. In some cases, this may result in increase mortality through exposure to increased human and predator access. The Project does not incrementally exceed locally documented linear disturbance / avoidance threshold for Wolverine (Bowman et al. 2010; Scrafford et al. 2018) for Wolverine which indicates that Wolverine may still use areas where roads are present, thereby increasing the risk of potential encounters and collisions. Given that the density of Wolverine within the PDA is 0.07 (95% CI ±0.04 – 0.12) and within the LSA is 7.61 (95% CI ±4.28 - 13.53) the risk of mortality resulting from vehicle collisions during operations is low and, based on the probability of encounter with a Wolverine.

Proposed mitigations such as seasonal timing windows, speed limits, attractant management, reporting and stop work protocols will minimize the risk of mortality in Wolverine, and therefore a residual effect is not predicted.

6.14.7 Significance of Residual Effects

The ecological and/or social context of Wolverine is considered moderate (Level I) as the VC is capable of supporting the predicted change with typical mitigation measures.

6.14.7.1 Change in Habitat Availability and Effectiveness

With the implementation of mitigation measures identified in Table 6.14-2, the magnitude of the residual effect of the change in habitat availability and effectiveness is moderate (Level II). While the removal of vegetation representing a direct loss of quality Wolverine habitat within the PDA represents less than a 0.2% of the available habitat in the RSA, the alteration of habitat due to sensory disturbances within the LSA represents less than 10% of the available habitat in the RSA. However, these habitats are common throughout the LSA and RSA, and there is a low potential to adversely affect Wolverine or their habitat to carry out the life processes necessary to survive and reproduce. The geographic extent of the residual effects for indirect habitat loss will be confined to the LSA (Level I). The duration of the residual effect of direct habitat loss on Wolverine is high (Level III), as the effects will last throughout all phases of the Project until suitable habitat is reestablished after closure. The timing of the residual effect is moderate (Level II) as sensory disturbances may occur throughout the year. The residual effect of the indirect habitat change is predicted to be continuous (Level III) as it will occur throughout operations but is reversible when disturbances from the Project end (Level I).

As a result, the adverse residual effect on the Wolverine due to a change in habitat availability and effectiveness is predicted to be not significant.

6.14.7.2 Change in Movement

With the implementation of mitigation measures identified in Table 6.14-2, the magnitude of the residual effect of the change in movement is moderate (Level II), as there is a predicted temporary change in behavior, but is not expected to have long-term impacts on the population. The geographic extent of the residual effects for the change in movement will be confined to the LSA (Level I). The duration of the residual effect from the change in movement is moderate (Level II), as the effects will only occur during operations. The timing of the residual effect is moderate (Level II) as it may occur throughout the year. The frequency of the residual effect due to changes in movement is predicted to be continuous (Level III) as it will occur throughout operations but is fully reversible at closure when disturbances from the Project end (Level I).

As a result, the adverse residual effect on the Wolverine due to a change in habitat availability and effectiveness is predicted to be not significant.

6.14.8 Confidence Prediction

Prediction confidence is considered moderate based on the quality and quantity of available existing conditions data, predictive habitat modelling techniques using generalized models, and the effectiveness of proposed mitigation during the construction and operations phases.

The predicted effects are based on recovery strategies and conservative assumptions. While individual and seasonal variability of Wolverine introduces uncertainty, predictions rooted in conservative assumptions can increase confidence in predictions representing a cautious estimate.

Potential effects and associated mitigation measures are industry standards and are informed by species-specific information where available. The confidence level in predicting the effects of change in habitat availability and effectiveness, movement, and mortality are considered moderate.

There is some uncertainty related to Wolverine denning (in particular, natal and maternal den sites) and movement in the PDA and LSA; measures will be implemented to address this such as pre-construction surveys and chance encounter protocols. This assessment uses conservative assumptions that is anticipated to overestimate the effects, including the assumption that the PDA will be entirely cleared, indirect effects are static and unlikely to be influence by environmental conditions, and progressive rehabilitation will occur during operations.

6.14.9 References

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Table 6.14-1: Wolverine Criteria, Indicators and Rationale

Criteria	Indicators	Rationale
Change in habitat availability and effectiveness	• Amount (ha) of Wolverine habitat directly affected. • Amount (ha) of high and moderate habitat directly and indirectly affected or altered for Wolverine. • Number of formally defined SAR residences (i.e., dens) directly or indirectly affected. • Habitat loss resulting from reduced habitat effectiveness, assessed qualitatively.	• Effects on population abundance and distribution are directly affected by habitat availability and displacement from effective habitat. Vegetation clearing for the Project and disturbance from Project activities during construction and operations may affect habitat availability and quality.
Change in movement	• Qualitative assessment of effects of habitat change and sensory disturbance on Wolverine movement.	• Changes in movement patterns may affect Wolverine breeding and survival rates and may increase predation/mortality. • Aspects such as noise, light, odours, and human presence may affect use of habitats close to Project activities.
Change in mortality risk	• Qualitative risk of mortality • Qualitative changes in prey availability	• Ground disturbance and vegetation clearing can result in physical disturbance of key habitat features (e.g., dens) • Vehicle and equipment movement can result in accidental mortality (i.e., wildlife-vehicle collisions) • Project may result in increased predation via creation of novel linear features and human-attractants. • Changes in prey availability can affect mortality risk.

Table 6.14-2: Significance Determination Attributes and Rankings for Wolverine

Attribute	Description	Category
Magnitude	A qualitative or quantitative measure to describe the size or degree of the residual effects relative to baseline conditions	**Level I:** Project-related changes (i.e., residual effect) have a low potential to adversely affect Wolverine and/or the habitat required for Wolverine to carry out the life processes necessary to survive and reproduce. Wolverine habitat functions are likely maintained elsewhere in the LSA. There is a less than 1% change in habitat abundance in the RSA. **Level II**: Project-related changes (i.e., the residual effect) have a moderate potential to adversely affect Wolverine and/or the habitat required for Wolverine to carry out the life processes necessary to survive and reproduce (e.g., some temporary changes in behaviour but not expected to have long-term impacts on the population or change the status of local populations or the availability of unique habitats). Wolverine habitat functions are likely maintained elsewhere in the RSA. There is change between 1% and 10% in habitat abundance in the RSA. **Level III**: Project-related changes (i.e., the residual effect) have a high potential to adversely affect Wolverine and/or the habitat required for Wolverine to carry out the life processes necessary to survive and reproduce. Wolverine habitat functions are not likely maintained elsewhere in the LSA. There is a greater than 10% change in habitat abundance in the RSA.
Geographic extent	The spatial extent over which the residual effect will take place	**Level I:** Effects restricted to the LSA. **Level II:** Effects extend beyond the LSA. **Level III:** Effects extend beyond the RSA.
Duration	The time period over which the residual effect will or is expected to occur	**Level I:** Effect occurs over the short term: less than or equal to three years. **Level II:** Effect occurs over the medium term: more than three years but less than 20 years. **Level III:** Effect occurs over the long term: greater than 20 years.
Frequency	The rate of occurrence of the residual effect	**Level I:** Effect occurs once, infrequently or not at all. **Level II:** Effect occurs intermittently or with a certain degree of regularity. **Level III:** Effect occurs frequently or continuously.
Reversibility	The extent to which the residual effect can be reversed	**Level I:** Effect is fully reversible. **Level II:** Effect is partially reversible or potentially reversible with difficulty. **Level III:** Effect is not reversible.
Timing	A measure of whether the residual effect occurs during a sensitive period of the year	**Level I:** Effects do not occur during a sensitive period; or related effects are fully mitigated. **Level II:** Effects occur during a sensitive period and related effects are partially mitigated. **Level III:** Effects occur during a sensitive period; or related effects cannot be fully mitigated.

Table 6.14-3: Screening of Potential Project Interactions with Wolverine

Project Component / Activity	Wolverine
Construction Phase	
Site preparation activities in the mine site area including clearing, grubbing and bulk earthworks	Yes
Construction of the mine access road and airstrip, including the development and operation of the aggregate resource areas	Yes
Development of temporary construction camp and staging areas	Yes
Construction of the fish habitat development area	Yes
Construction of the transmission line to the Project site	Yes
Construction of the onsite haul and access roads	Yes
Construction of dikes in the north basin of Springpole Lake	Yes
Construction of buildings and onsite infrastructure	Yes
Construction of the central water storage pond	Yes
Controlled dewatering of the open pit basin	Yes
Construction of the starter embankments for the co-disposal facility	Yes
Stripping of lake bed sediment and overburden at the open pit	Yes
Development of the surficial soil stockpile	Yes
Initiation of pit development in rock	Yes
Initiation of stockpiling of ore	Yes
Establishment and operation of water management and treatment facilities	Yes
Commissioning of the process plant	Yes
Employment and expenditures	-
Operations Phase	
Operation of the process plant	Yes
Operation of open pit mine	Yes
Management of overburden, mine rock, tailings and ore in designated facilities	Yes
Operation of water management and treatment facilities	Yes
Accommodations complex operations	-
Operation and maintenance of mine site infrastructure=	-
Progressive reclamation activities	Yes
Employment and expenditures	-
Decommissioning and Closure Phase	
Removal of assets that can be salvaged	-
Demolition and recycling and/or disposal of remaining materials	-
Removal and disposal of demolition-related wastes in approved facilities	-
Reclamation of impacted areas, such as by regrading, placement of cover and revegetation	Yes
Filling the dewatered open pit basin with water	-
Monitoring and maintenance	-
Employment and expenditures	-

Note:

- = The interaction is not expected, or the potential effect is not anticipated to be adverse, and no further assessment is warranted.

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
Change in habitat availability and effectiveness	•	–	–	Development of a compact mine site to limit the footprint of disturbance.
	•	•	•	During all phases of the Project, limit the removal of moderate and high-quality Wolverine habitat within the PDA, as practicable.
	•	–	–	Prior to the construction phase of the Project, undertake pre-construction winter aerial surveys to map activity centres and potentially active natal or maternity dens within a 10 km buffer of the PDA.
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to Wolverine (Section 6.1.4) including: • Control dust emissions from roads and mineral stockpiles through the application of water spray and supplemented by dust suppressants, if required. • Maintain site roads in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads. • Limit vehicle speeds.
	•	•	•	Implementation of mitigation measures for potential effects on noise relevant to Wolverine (Section 6.3.4) including: • Select or design motorized equipment with mufflers / silencers to limit noise emissions. • Use reversing alarms that are dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations. • Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection. • Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather. • Operate vehicles and equipment such that impulsive noise is minimized, where possible. • For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure.
	•	•	•	During construction, operations and closure phases of the Project, implement mitigation for lighting to minimize sensory disturbance, including the following: • To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms. • Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable.

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
	•	–	–	During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation: • Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat. • In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 m until the individual is no longer present within 500 m of the construction area. • In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 km of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies.
	•	–	–	During construction of the mine access road and transmission line, implement the following mitigation: • Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety. • Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure needs.
	–	•	–	During the operation of the mine access road, implement the following mitigation: • Minimize vegetation management along the transmission corridor to that necessary for safe operation. • Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings. • Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road.
	–	•	–	During operation of the transmission line, implement the following mitigation: • Minimize vegetation management along the transmission corridor to that necessary for safe operation. • Maintain natural vegetation structure and composition to the extent possible for Wolverine habitat connectivity, in areas along the transmission line identified as moderate or high-quality habitat for Wolverine.

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
	–	–	•	During the closure of the Project restore disturbed Wolverine habitat, implement the following mitigation: • Remove any infrastructure and install physical barriers to prevent vehicular access. • Replant disturbed areas and monitor vegetation reestablishment; many of the offsetting measures targeted towards other species (e.g., Caribou) will benefit Wolverine and their habitats.
Change in movement	•	–	–	Development of a compact mine site to limit the footprint of disturbance.
	•	•	•	Implementation of mitigation measures for potential effects on noise relevant to Wolverine (Section 6.3.4) including: • Select or design motorized equipment with mufflers / silencers to limit noise emissions. • Use reversing alarms that are dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations. • Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection. • Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather. • Operate vehicles and equipment such that impulsive noise is minimized, where possible. • For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure.
	•	–	–	During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation: • Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat. • In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 m until the individual is no longer present within 500 m of the construction area. • In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 km of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies.

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
	•	–	–	During construction of the mine access road and transmission line, implement the following mitigation: • Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety. • Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure needs.
	–	•	–	During the operation of the mine access road, implement the following mitigation: • Minimize vegetation management along the transmission corridor to that necessary for safe operation. • Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings. • Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road.
	–	•	–	During operation of the transmission line, implement the following mitigation: • Minimize vegetation management along the transmission corridor to that necessary for safe operation. • Maintain natural vegetation structure and composition to the extent possible for Wolverine habitat connectivity, in areas along the transmission line identified as moderate or high-quality habitat for Wolverine.
	–	–	•	During the closure of the Project restore disturbed Wolverine habitat, implement the following mitigation: • Remove any infrastructure and install physical barriers to prevent vehicular access. • Replant disturbed areas and monitor vegetation reestablishment; many of the offsetting measures targeted towards other species (e.g., Caribou) will benefit Wolverine and their habitats.
Change in mortality risk	•	•	•	Any person who engages in Project activities will be provided education and awareness training by a Qualified Professional, prior to entering the site to perform any Project activities. Training will address existence of Protected Species on site; identification of Protected Species and their habitats; awareness of Wolverine on roads within site to avoid collisions; the care that should be taken to

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
				avoid Protected Species individuals and/or their habitat; appropriate actions to take if any Protected Species is encountered; and how to record impacts to the Protected Species.
	•	–	–	Prior to the construction phase of the Project, undertake pre-construction winter aerial surveys to map activity centres and potentially active natal or maternity dens within a 10 km buffer of the PDA.
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to Wolverine (Section 6.12.4) including: • Provide any person who engages in Project activities with education and awareness training prior to entering the site to perform any Project activities. Training will address existence of Protected Species on site, identification of Protected Species and their habitats, awareness of Wolverine on roads within site to avoid collisions, the care that should be taken to avoid Protected Species individuals and/or their habitat, appropriate actions to take if any Protected Species is encountered; and how to record impacts to the Protected Species. • Log (and report as needed) observed wildlife, sign / tracks and wildlife-vehicle collisions and alter mitigation measures as appropriate. • Properly secure, store and dispose of all domestic solid waste products and similar materials at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. All domestic solid waste products will be transported to a landfill off site and therefore mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites.
	•	–	–	During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation: • Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat. • In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 m until the individual is no longer present within 500 m of the construction area. • In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 km of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies.

Table 6.14-4: Proposed Mitigation Measures for Potential Wolverine Effects

	Phase			
Pathways to potential effect	**Con.**	**Op.**	**Cl.**	**Proposed Mitigation Measure**
	–	●	–	During the operation of the mine access road, implement the following mitigation: • Minimize vegetation management along the transmission corridor to that necessary for safe operation. • Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings. • Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road.

Note:
Con. = construction; Op. = operations; Cl. = closure; ● = mitigation is applicable; – = mitigation is not applicable.

Table 6.14-5: Potential Wolverine Suitable Habitat Area Affected within Project Development Area, Local Study Area and Regional Study Area

	Total Study Area (km^2)	Moderate Quality Habitat Area (km^2)	High Quality Habitat Area (km^2)	Quality Habitat[A] (km^2)	Suitable Habitat as % of Total Study Areas	% of RSA Habitat[B]
PDA	20.28	5.69	10.66	16.35	80.63	0.12
LSA (Construction)	2,356.00	146.00	1,615.50	1,761.50	74.77	13.36
LSA (Operations)	1,017.45	33.73	680.99	714.69	70.24	5.42
RSA	17,195.00	1,517.75	9,466.00	13,181.01[C]	76.66	

Note:
[A] Quality Habitat is the sum of Moderate Quality Habitat and High Quality Habitat, except for RSA where extrapolation of combined % was used to fill in missing HSI area.
[B] % of RSA Habitat = Suitable Habitat in identified Study Area (i.e., PDA or LSA) ÷ Suitable Habitat in RSA x 100.
[C] Where HSI is missing, % suitable habitat was derived from proportion of moderate and high habitat within area within area with sufficient data. Suitable habitat (moderate and high) was represented at 76.66% of HSI area and is extrapolated proportionally to the missing value areas. Therefore, 10,983.75 km^2 (model calculated area) + 0.7666*2,866.24 km^2 (missing area) = 13,181.01 km^2.

Table 6.14-6: Estimated Wolverine Density within Each Study Area

Study Area	Total Study Area (km^2)	Estimated Total Number Wolverine (± 95% CI)
PDA	20.28	0.07 (0.04 – 0.12)
LSA (Construction)	2,356.00	7.61 (4.28 – 13.53)
LSA (Operations)	1,017.45	3.29 (1.85 – 5.84)
RSA	17,195.00	55.54 (31.24 – 98.73)

Note:
CI = confidence interval

Cat Lake Nation

Slate Falls Nation

Mishkeegogamang Nation

Wabauskang 21

LEGEND

- Project Development Area
- Local Study Area for Wolverine
- Regional Study Area for Wolverine
- First Nation Reserve
- Existing Transmission Line
- Watercourse
- Waterbody

MNRF Roads

- Existing Road
- Winter Road

0 25 50 75 100 125 km

NOTES:

- Topographic information extracted from ESRI.
- Watercourses, Waterbodies, Roads, Utilities, First Nations from Geohub
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

WSP

SPRINGPOLE GOLD PROJECT

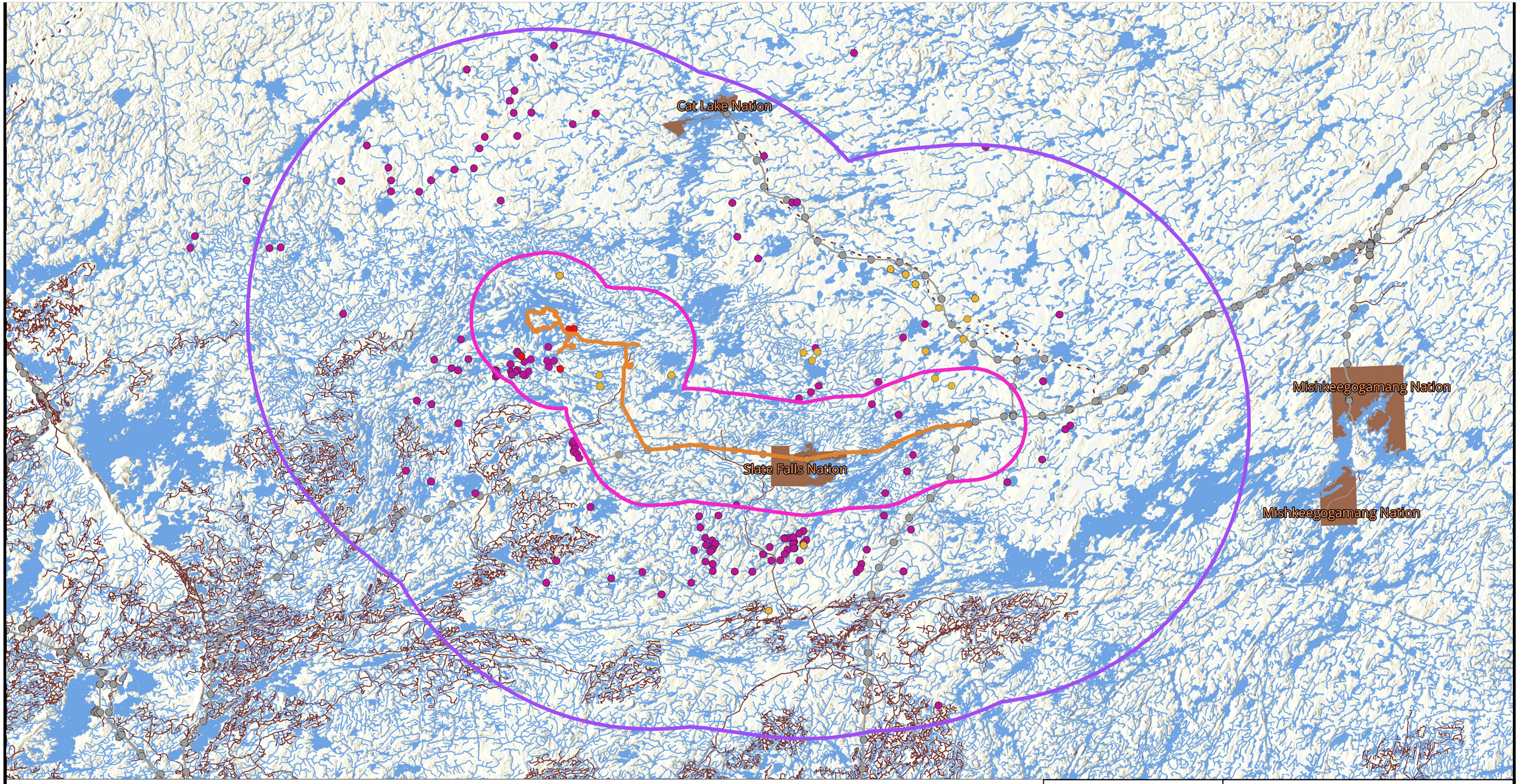
Local and Regional Study Areas for Wolverine

Project No.: ONS2104

Figure No. 6.14-1

Scale: 1:700,000

Date: July 2024



LEGEND

- Project Development Area
- Local Study Area for Wolverine
- Regional Study Area for Wolverine
- First Nations Reserve
- Transmission Lines

MNRF Roads
- Existing Road
- Winter Road

- Track Observations Prior to 2021
- Track Observations 2021
- Track Observations 2022

NOTES:

- ESRI Topography
- Watercourses, Waterbodies, Roads, Utilities, First Nations from Geohub
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

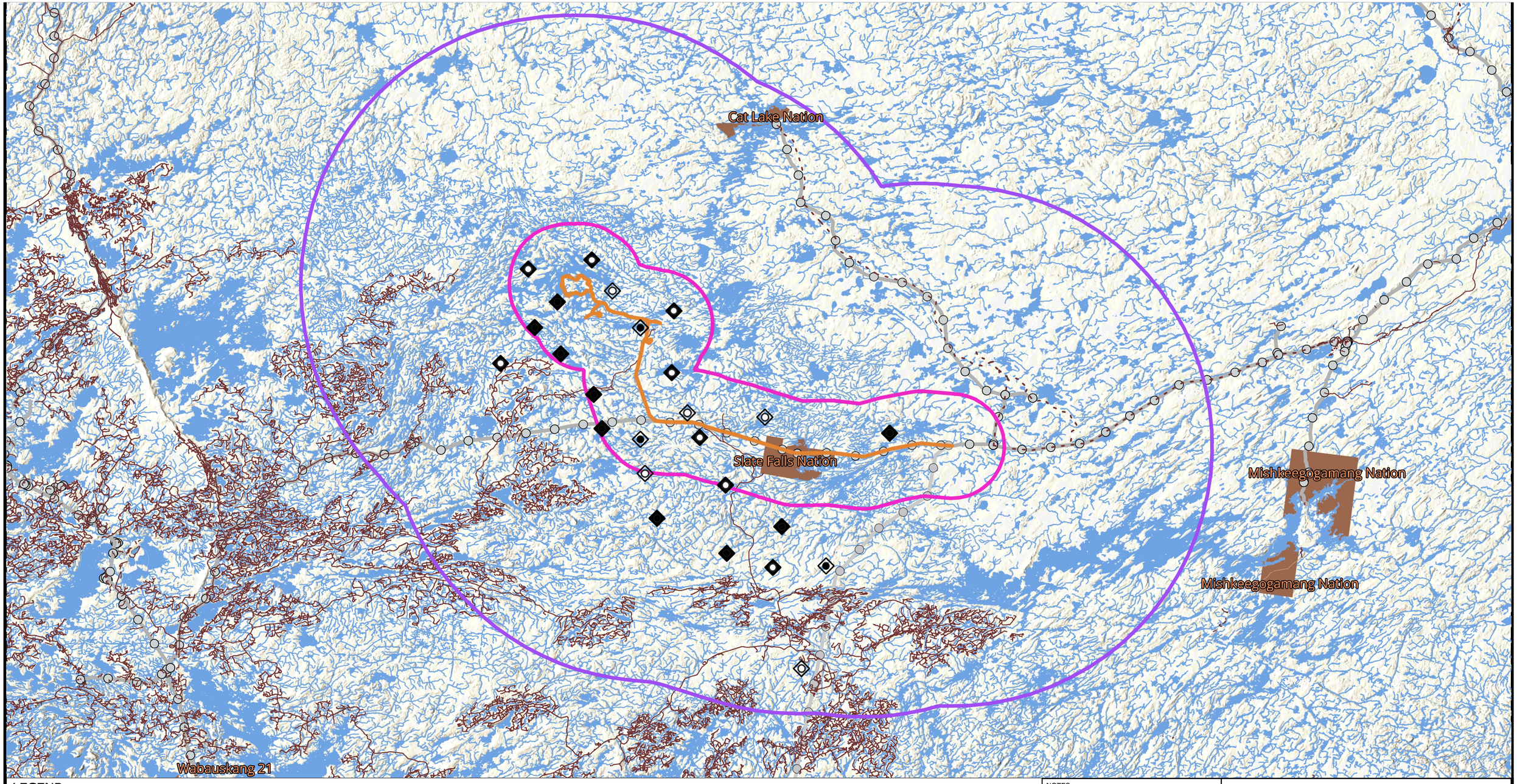
0 25 50 75 100 125 km

First Mining Gold

SPRINGPOLE GOLD PROJECT

Wolverine Track Observations Aerial Programs

Project No.: ONS2104	Figure No.
Scale: 1:650,000	Date: July 2024



LEGEND

- Project Development Area
- Local Study Area for Wolverine
- Regional Study Area for Wolverine
- First Nation Reserve
- Existing Transmission Line
- Watercourse
- Waterbody

MNRF Roads
- Existing Road
- Winter Road

Wolverine Observations 2023
- No Detection
- Present

Wolverine Observations 2024
- No Detection
- Present

NOTES:

- Topographic information extracted from ESRI.
- Watercourses, Waterbodies, Roads, Utilities, First Nations from Geohub
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

0 25 50 75 100 125 km

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

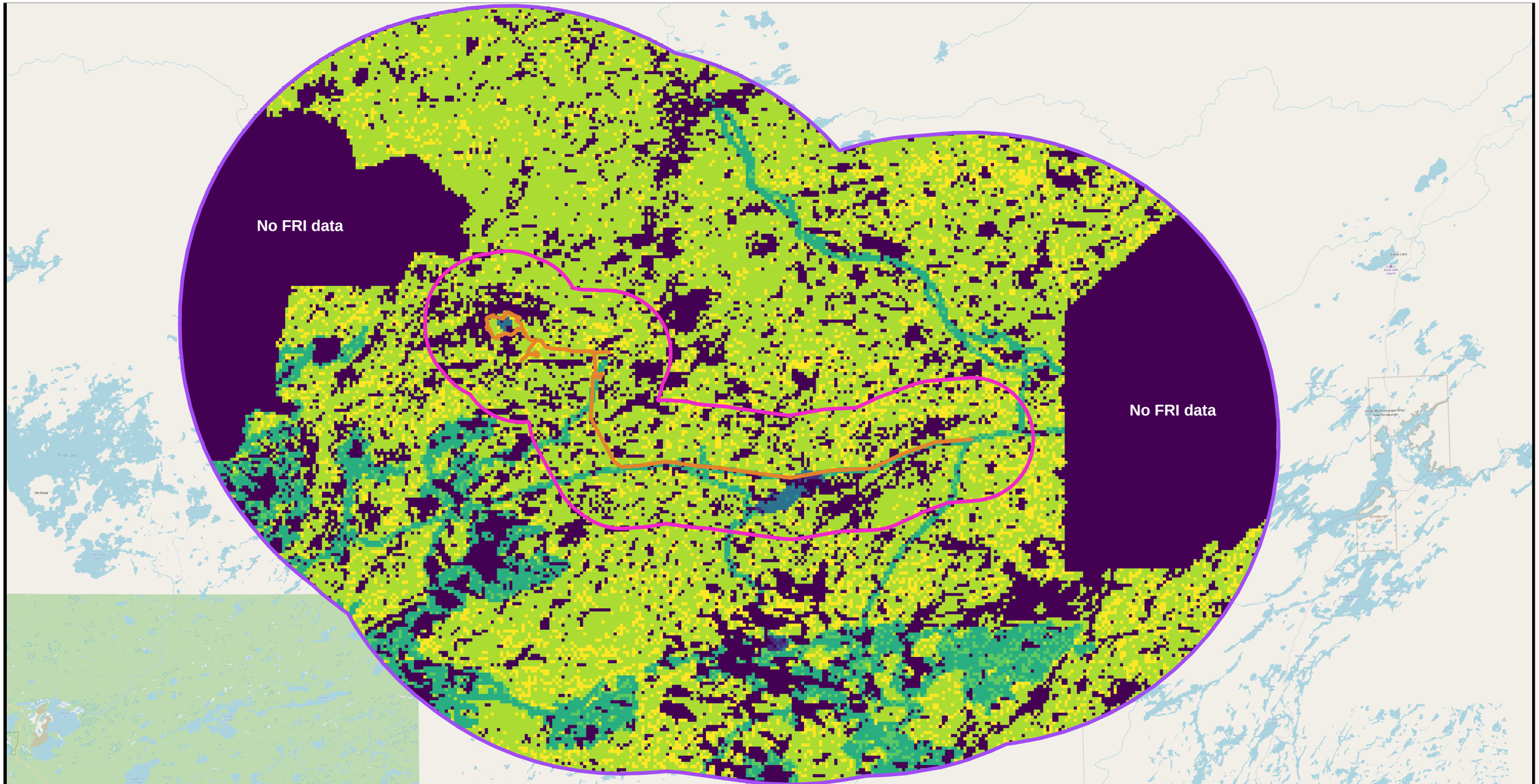
Presence/No Detection Wolverine at Run Pole Stations

Project No.: ONS2104

Figure No. 6.14-3

Scale: 1:700,000

Date: July 2024



LEGEND

- Project Development Area
- Local Study Area for Wolverine
- Regional Study Area for Wolverine

HSI Values

0	0.4
0.12	0.5
0.15	0.8
0.24	1
0.3	

0 25 50 75 100 125 km

NOTES:

- OpenStreetMap
- Watercourses, Waterbodies, Roads, Utilities, First Nations from Geohub
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

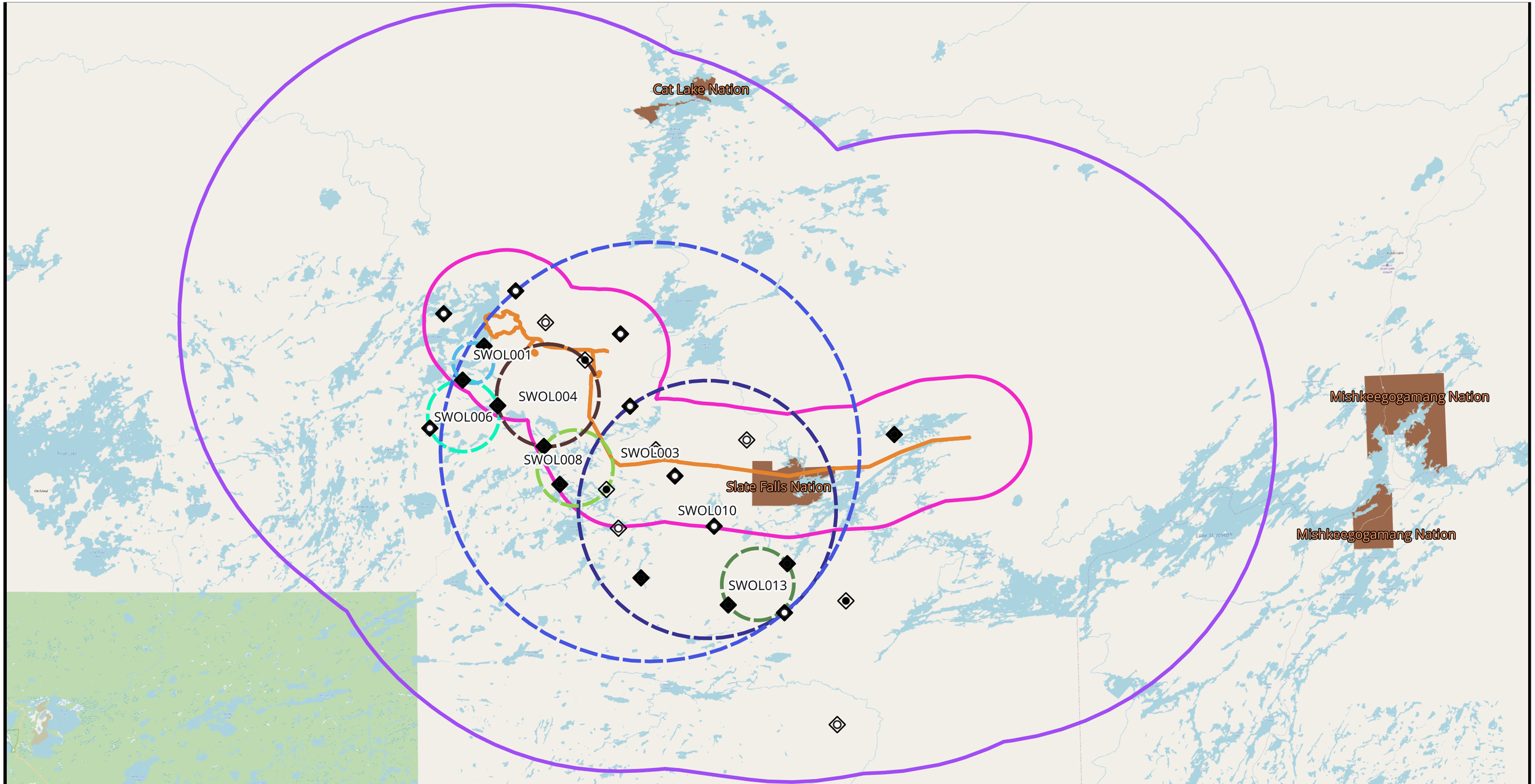
Habitat Suitability Model Wolverine

Project No.: ONS2104

Figure No. 6.14-4

Scale: 1:600,000

Date: July 2024



LEGEND

- Project Development Area
- Local Study Area for Wolverine
- Regional Study Area for Wolverine
- First Nations Reserve

Individual Wolverine
- SWOL001
- SWOL003
- SWOL004
- SWOL006
- SWOL008
- SWOL010
- SWOL013

Wolverine 2023
- No Detection
- Present

Wolverine 2024
- No Detection
- Present

0 25 50 75 100 125 km

NOTES:

- OpenStreetMap
- Watercourses, Waterbodies, Roads, Utilities, First Nations from Geohub
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

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SPRINGPOLE GOLD PROJECT

Minimum Enclosing Circles for Multi-Station Wolverine

Project No.: ONS2104

Figure No. 6.14-5

Scale: 1:600,000

Date: July 2024