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6.22 Archaeology

Archaeological resources contribute to our understanding of history and were selected as a valued component (VC). Archaeological resources include:

- Objects, sites or the locations of a traditional societal practice that are of historical, cultural or archaeological significance to Ontario, a community or Indigenous people, including locations containing, or with the potential to contain, the physical remains of past human activity;
- Certain landscape features; and
- Sites that contain evidence that Indigenous people have historically used an area.

These resources include, but are not limited to, burials / graves, accommodation complexes, special or spiritual places, travel routes, or find spots of Indigenous or Euro-Canadian artifacts. The effects assessment in this section has been scoped to archaeological sites (both Indigenous and Euro-Canadian).

In the absence of mitigation, the assessment of potential changes in archaeology resources is linked to other VCs, and is informed by the following sections:

- **Traditional Land and Resource Use (Section 6.21):** The assessment of potential effects on Traditional Land and Resource

Use includes changes in traditional habitation, cultural and spiritual sites / areas during construction of the Project that may affect archaeological resources of importance to Indigenous communities.



The assessment of potential changes in archaeological resources is linked to other VCs and informs the analysis of the following section:

- **Built heritage resources and cultural heritage landscapes (Section 6.23):** The assessment of potential effects on built heritage resources and cultural heritage landscapes is informed by changes in archaeological resources during construction of the Project.

The assessment of these potential changes on archaeological resources from the Project is compared to relevant provincial and federal criteria (Section 6.22.1.4) and existing conditions (Section 6.22.2). The assessment is informed by the archaeological technical support documentation: Stage 1 Archaeology Assessment for the Mine Site Report (Appendix S-1), Stage 2 Archaeology Assessment for the Mine Site Report (Appendix S-2), Stage 1 Archaeology Assessment for the Transmission Line Report (Appendix S-3) and Stage 1 Archaeology Assessment for the Effluent Pipeline and Remaining Portions of the Mine Access Road Report (Appendix S-4).

6.22.1 Assessment Approach

The approach to the assessment of potential changes on archaeology 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 and indicators 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 6.22.2), the identification and description of applicable pathways of potential effects on the VC (Section 6.22.3) and a description of applicable mitigation measures for the VC (Section 6.22.4). An outline of the analytical method conducted for the assessment and the key assumptions and/or conservative approach is found in Section 6.22.5. With the application of

mitigation measures to the potential effects on the VC, the residual effects are then characterized in Section 6.22.6 and the significance of the residual effects is determined in Section 6.22.7.

6.22.1.1 Regulatory and Policy Setting

The effects assessment for archaeology has been prepared in accordance with the requirements of the federal Environmental Impact Statement (EIS) Guidelines (Appendix B-1) and the provincially 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 and guidelines most relevant to the VC are summarized below.

Federal

For federal environmental assessments (EAs), the *Canadian Environmental Assessment Act, 2012* (SC 2012, c. 19, s. 52) requires the consideration of environmental effects on physical and cultural heritage resources (Section 5(1)(c)(ii)), including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance (Section 5(1)(c)(iv)). Technical guidance for assessing effects on cultural heritage resources where the Canadian Environmental Assessment Agency is the responsible authority is provided in *Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under the Canadian Environmental Assessment Act, 2012* (CEA Agency 2015).

Provincial

The Government of Ontario recognizes the importance of conserving the province's cultural heritage resources in the *Ontario Heritage Act* (OHA; RSO 1990, c. O.18) and in the Provincial Policy Statement. The Ministry of Citizenship and Multiculturalism (MCM), under Section 2 of the OHA, is "responsible for the administration of the OHA and may determine policies, priorities and programs for the conservation, protection and preservation of the heritage of Ontario." The MCM fulfills the lead role in terms of direct conservation and protection of cultural heritage resources in Ontario. This is generally accomplished through other legislated processes, such as the *Planning Act* (RSO 1990, c. P.13) and the *Environmental Assessment Act* (RSO 1990, c. E.18), rather than directly through the OHA itself.

Ontario provincial requirements also address heritage resources as they pertain to Indigenous and other interests, including:

- OHA;
- Ontario Heritage Tool Kit (MCM 2006); and
- *Standards and Guidelines for Consultant Archaeologists* (MCM 2011).

Archaeological assessments completed under this regulatory framework are issued a letter stating that the report has been accepted into the Ontario Public Register of Archaeological Reports.

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

Consultation has been ongoing for several years prior to and throughout the EA process, and will continue engagement 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 EIS/EA.

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

Traditional Knowledge / Traditional Land Use Information

Cat Lake First Nation (CLFN), Lac Seul First Nation (LSFN), Slate Falls Nation (SFN) and the Northwestern Ontario Métis Community requested that Traditional Knowledge and Traditional Land Use information be incorporated into relevant sections of the EIS/EA to inform the assessment, including the assessment of archaeological resources. A description of information relevant to the assessment of potential effects on archaeological resources is provided in Section 6.22.2.3. The Traditional Knowledge and Traditional Land Use information is further described in Section 6.21.2 (Traditional Land and Resource Use VC).

Baseline Archaeological Assessments

CLFN and LSFN requested further archaeological assessment for parts of the Project that have not undergone archaeological study. A Stage 1 archaeological assessment (Appendix S-7 of the EIS/EA) has been completed to cover portions of the Project footprint that extended outside the lands assessed by two previous studies (Appendix S-1 and Appendix S-2). The additional areas were found to be of no to low archaeological potential, requiring no further archaeological assessment. Based on the results of the Stage 1 archaeological assessment report for the transmission line (Appendix S-3) alternatives, a Stage 2 assessment will be required for identified areas of archaeological potential along the transmission line route prior to construction. Work and planning for the Stage 2 archaeological assessment fieldwork will commence once detailed engineering has been completed for the transmission line, given that the precise location of infrastructure such as transmission line poles need to be identified prior to fieldwork.

CLFN and LSFN requested clarification of the study area for the Stage 1 archaeological assessment for the mine site area. The Stage 1 study area is approximately 1,000 hectares (ha) and was focused on those parts of the Project that are centred on the north basin of Springpole Lake. Specifically, desktop study and property inspection were completed for the open pit, stockpiles, process plant and mine rock areas in 2020 (as shown in Map 4 of Appendix S-1). The open pit is proposed for the dewatered portion of Springpole Lake in the north basin of the lake, so shorelines within this basin and the island were reviewed during the property inspection.

CLFN and LSFN requested clarification on the status of cabins in the LSA for archaeological resources. The fieldwork for the Stage 2 archaeological assessment (Appendix S-2) examined the cabin sites noted on historical mapping and provides a description of the cabins. Additional information was gathered from existing and empty cabins and buildings within the mine site area and is included in Table 5-1 of the Cultural Heritage Research Report (Appendix S-4).

CLFN and LSFN requested additional information on the potential for marine archaeological resources in the dewatered basin of Springpole Lake. A discussion of the potential for marine archaeological resources is provided in Section 6.22.2.

Indigenous Participation in Archaeology Fieldwork

CLFN and LSFN requested information on participation in future fieldwork opportunities and clarification on how Indigenous Knowledge will be incorporated into future archaeological work. First Mining Gold has continued ongoing engagement with CLFN and LSFN, including extending invitations to participate in environmental fieldwork. First Mining Gold acknowledges that archaeological sites and resources are important to Indigenous communities and avoidance of impacts / effects on archaeological resources is

preferred over other alternative mitigation measures. First Mining Gold encourages continued involvement from Indigenous communities regarding the identification archaeological resources or sites of importance during the life of mine to help mitigate potential effects on archaeological resources. Indigenous communities will also be provided with an opportunity to participate in supplemental archaeological work that may occur through life of mine.

Assessment Methods for Archaeological Resources

CLFN, LSFN and the MCM requested clarification on the regulatory requirements for this Project's archaeological assessments, including whether the archaeological assessments for the Project have been prepared in accordance with federal requirements. As noted in Section 6.22.1.1, the regulatory framework related to archaeology is outlined for both the federal and provincial processes. Further, requirements outlined in the federal EIS Guidelines have been met, as described in the concordance table (Appendix B-2).

The MCM commented that there may be potential direct linkages with other VCs associated with archaeology, including cultural heritage and Traditional Land and Resource Use. The introduction to Section 6.22 includes direct linkages associated with archaeology from or to other VCs, including both Traditional Land and Resource Use and cultural heritage (i.e., built heritage resources and cultural heritage landscapes).

Mitigation and Management Measures

The MCM requested that relevant conclusions from the archaeological assessments conducted for the Project be included as mitigation measures for the assessment of potential effects on archaeology. The conclusions have been reviewed and the recommended Stage 1 and 2 archaeological assessments have either been undertaken since the draft EIS/EA or are planned to be conducted prior to construction. In particular, Stage 1 archaeological assessments for the mine access road and transmission line, north of the southeast arm of Springpole Lake, was undertaken in 2023 (Appendix S-7), and Stage 2 archaeological assessments are planned prior to construction for areas along the transmission line preferred route that may have archaeological potential. The mitigation measures discussed in Section 6.22.4 are consistent with the recommendations from the archaeological assessment reports for the Project.

The MCM requested further clarification on the steps that will be undertaken if archaeological resources or human remains are encountered. In the unlikely event that archaeological resources are detected, the relevant Project work will cease, the MCM will be notified and an archaeological assessment will be conducted by a qualified archaeologist. In the event human remains are encountered, Project activities will cease and the local police and coroner will be contacted, as well as the MCM. These measures have been included in Section 6.22.4 and in addition First Mining Gold has a Chance Find Procedure in place (Appendix S-5).

6.22.1.3 Spatial and Temporal Boundaries

The Project Development Area (PDA) is defined as the footprint of the Project encompassing the mine site area, 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 m around the mine site area—it is included within the 40 m wide corridor for the transmission line and within the 30 m wide corridor for the mine access road. Where the mine access road and transmission line are aligned, the buffer is included within a 60 m wide corridor.

The spatial boundaries used for the assessment of archaeological resources are shown in Figure 6.22-1 and defined as follows:

- **Local Study Area (LSA):** The archaeology LSA is defined as the area where potential effects of the Project on nearby archaeological resources may occur. The LSA is defined as a 2 km buffer around the mine site and a 1 km buffer on either side of the preferred transmission line alignment.
- **Regional Study Area:** The archaeology Regional Study Area is the same as the LSA, as potential effects would not extend beyond the LSA. Information collected within this boundary is used to provide regional context for the determination of significance.

The temporal boundaries for the assessment of archaeology are defined as follows:

- **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 operations. 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:**
 - o Active closure: Years 11 to 15, when final decommissioning and the majority of active reclamation activities are carried out; and
 - o Post-closure: Years 16+, corresponding to primarily the monitoring period for the Project, but also when the filled open pit basin will be reconnected to Springpole Lake.

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

6.22.1.4 Criteria and Indicators

In assessing effects on archaeological resources, the following criteria were used:

- Presence of archaeological resources; and
- Potential for the disturbance / impacts of unassessed or documented archaeological resources.

The specific criteria, measurable indicators and the rationale for the selection of criteria are described in Table 6.22-1.

6.22.1.5 Description of Residual Effect Attributes

The residual effects for archaeological resources are characterized by the following:

- Magnitude;
- Geographic extent;
- Duration;
- Frequency; and
- Reversibility.

These attributes along with the rankings are further described in Table 6.22-2.

In addition, the residual effects for archaeology are characterized according to the social context within which the VC is found. This is a qualitative measure of the sensitivity and/or resilience of the VC 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 and reversibility.
- A Level II or III rating is attained for social context.

Conversely, if a Level I rating is achieved for any of the attributes involving magnitude, extent, duration, frequency or reversibility—or if a Level I rating is achieved for the social contexts—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.

6.22.2 Existing Conditions

A description of the baseline conditions presented below characterizes the existing conditions for archaeology and is based on several years of study that has resulted in a comprehensive surface water dataset for this stage of Project planning. The existing conditions are used to support the assessment of potential effects from the Project on archaeological resources and will support long-term monitoring for the Project. Further baseline information on archaeological resources can be found in the technical support documentation provided in Appendix S, including the following completed studies:

- Stage 1 and Stage 2 archaeological assessments for the mine site (Appendices S-1 and S-2);
- Stage 1 archaeological assessment for the transmission line alternatives and mine access road (Appendix S-3); and
- Stage 1 archaeological assessment for the treated effluent pipeline, aggregate sources and remaining areas of the mine access road (Appendix S-4).

A Stage 1 archaeological assessment for the Project was undertaken in 2020 to determine the archaeological potential for the mine site area (Appendix S-1). The Stage 1 archaeological assessment determined that although there were no registered archaeological sites within the mine site area, several areas had archaeological potential that required Stage 2 archaeological assessment.

A Stage 2 archaeological assessment was completed in 2021 to evaluate the areas identified in the 2020 Stage 1 archaeological assessment as having archaeological potential (Appendix S-2). The 2021 Stage 2 archaeological assessment covered locations of archaeological potential in the area surrounding the mine site (Appendix S-2). Although fieldwork found no archaeological resources or areas of potential requiring further archaeological assessment, it did confirm two pictograph sites within the LSA (outside of the PDA) and a historical portage that intersects with the mine site area. The potential effects on the historical portage route are assessed under built heritage resources and cultural heritage landscapes (Section 6.23) and outdoor recreation (Section 6.18). Further, the Stage 2 archaeological assessment evaluated the bay

surrounding a pictograph site on Springpole Lake to determine whether an archaeological component to this resource existed. The 2021 Stage 2 archaeological assessment noted that no further archaeological work is required.

Also in 2021, a Stage 1 archaeological assessment with a helicopter flyover survey was conducted to determine archaeological potential along the four transmission line route alternatives and the mine access road. This study identified six major water crossings and/or areas adjacent to waterbodies that retain archaeological potential along the preferred transmission line route. A Stage 2 archaeological assessment with refined areas of assessment based on detailed engineering for more precise transmission line pole locations will precede construction of the preferred transmission line route (Figure 6.22-3), with opportunities for Indigenous participation.

In addition, a Stage 1 archaeological assessment was conducted, as a result of optimizations for the Project, for areas where assessment was not previously completed: the two proposed aggregate source areas, the treated effluent discharge pipeline route and discharge area, and portions of the mine access road. Analysis of the high-resolution aerial imagery, digital elevation model and wetlands mapping determined that most of the assessment's study area had low or no archaeological potential. An area identified as having archaeological potential on the shore of Springpole Lake was later determined through a property inspection to have no or low archaeological potential. Consequently, no further investigation is required within the study area based on the 2023 Stage 1 archaeological assessment.

It is understood that additional information may be brought forward during all phases of the Project through Traditional Land Use information sharing and ongoing consultation and engagement. As the Project advances, additional archaeological assessment may be undertaken, if required, based on new information or if refinements to the PDA are made. Indigenous communities will be provided opportunities to participate. A Chance Find Procedure has also been established for the Project (Appendix S-5).

6.22.2.1 Potential Marine Archaeological Resources

Under the *Ontario Heritage Act*, a marine archaeological site is an archaeological site that is fully or partially submerged or that lies below or partially below any body of water (Ontario Regulation 170/04, s. 1).

As part of the Project footprint is located within a portion of a body of water, this area has been evaluated. However, the bathymetry in the location of the proposed dewatering area shows a steep slope from the shoreline, reaching a depth of approximately 25 metres (m) over a distance of 60 m (Appendix O-4). This represents a steep slope of approximately 22.6 degrees (°). As the archaeological potential in this area of the lake is related to a submerged landscape, it is reasonable to apply the terrestrial Stage 2 archaeological assessment criteria to this area. Section 2.1 Standard 2a(iii) of the *Standards and Guidelines for Consulting Archaeologists* (MCM 2011) states that areas of slope greater than 20° are exempt from Stage 2 archaeological survey except in locations likely to contain pictographs or petroglyphs. With a slope of over 20°, the proposed dewatering area has low to no archaeological potential. Furthermore, bottom hardness mapping along this slope indicates a very hard, rocky bottom, which is not conducive to the preservation of buried archaeological resources.

Since the proposed dewatering area has low to no archaeological potential, further marine archaeological assessment is not required. However, Indigenous communities will be invited to participate in the monitoring of the dewatering process. In the unlikely event there is an archaeological find, the Chance Find Procedure will be implemented (Appendix S-5).

6.22.2.2 Paleontological Resources

Paleontological resources are not protected under the *Ontario Heritage Act*; however, their inclusion in other provincial heritage legislation and federal law concerning cultural exports acknowledges the importance of these resources to the people of Ontario. Paleontological resources are defined as the remains, traces or imprints of organic life preserved in sedimentary rock or unconsolidated sediment dating to any time in the past. The later part of the temporal range overlaps with the archaeological past. Paleontological resources may be classed as fossils, either contained within bedrock, or in more recent Pleistocene or early Holocene sediments such as peat or till. Older paleontological remains of extinct species, such as dinosaurs and associated plant and animal remains, are not known from the region.

The Project is situated in an area of complex volcanic and sedimentary bedrock dating to the Late Archean eon (2.5 to 3.4 billion years ago). The antiquity of the bedrock suggests that it predates most forms of life on Earth, leading to an evaluation of low potential for most types of macroscopic fossils from geological context. Paleontological resources dating from Late Pleistocene to Early Holocene have been noted in the region. The available records suggest that these resources are rare and generally found in deeply buried contexts. Considering this, the archaeological assessments for the Project do not consider palaeontological resources.

6.22.2.3 Traditional Knowledge

As part of the Project, all eight Indigenous communities were contacted to participate in the EA process, and to provide Traditional Knowledge and Traditional Land Use information. To date, six Indigenous communities, CLFN, LSFN, Mishkeegogamang Ojibway Nation, SFN, Wabauskang First Nation and the Northwestern Ontario Métis Community, have provided Traditional Knowledge and Traditional Land Use information. While the traditional knowledge sharing has not identified archaeological resources within the PDA, information relevant to the LSA is provided below.

SFN have identified pictographs in the Lake St. Joseph and Kezik Lake areas, which are outside the LSA, for the assessment of potential effects on archaeological resources. CLFN also identified pictographs in the Springpole Lake area.

SFN noted there are several burial grounds within the Cat River system, particularly along historical travel routes and old settlements. These burial grounds have historically been used by specific families, and they continue that use today. SFN noted two graveyards within the LSA that exist on reserve lands, including one on the north side of the reserve adjacent to the old settlement, which continues to be used occasionally, and a second burial ground that is located near the rapids, further south of the older burial grounds. Within the traditional territory, other burial grounds are unmarked and typically along or adjacent to historical travel routes. SFN places great importance on inspections of disturbed areas for signs of historical value prior to and throughout construction.

Wabauskang First Nation noted there are several recorded sacred sites of significance within the study area of their report, which includes burial sites, ceremonial sites and pictographs. Wabauskang First Nation noted the importance of these sites in maintaining a connection to Wabauskang history, providing cultural strength and solidarity through ceremonial practices and an acknowledgment of the devastation of epidemic episodes.

6.22.3 Identification of Pathways to Potential Effects

The initial step in the assessment process is to identify interactions between the Project and the VC that can result in pathways to potential effects. These potential effects may be direct, indirect and/or positive, where applicable. Table 6.22-3 includes the potential interactions of the Project with archaeological resources, 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 archaeological resources. 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 6.22.4 and Table 6.22-4 provide a description of the mitigation measures applied to these pathways to potential effects during all phases of the Project. The residual effects, after the application of the mitigation measures, are then described and further evaluated in Section 6.22.6, using the criteria and indicators identified in Section 6.22.1.4.

Construction Phase

The construction phase of the Project is expected to occur 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 archaeology resources, as described below. After mitigation is applied to each pathway, as described in Table 6.22-4, the residual effects are assessed using the criteria identified for each pathway:

- Site preparation activities, including clearing, grubbing and bulk earthworks interacts with archaeological resources. These activities result in a pathway to a potential effect on archaeological resources due to surface disturbances within the PDA. The assessment of potential effects on archaeological resources includes a change in the presence of archaeological resources and a change in the potential for unassessed disturbances / impact or undocumented archaeological resources from this pathway.
- The construction of the transmission line and mine access road, including the development and operation of the aggregate resource areas, interacts with archaeological resources. These activities result in a pathway to a potential effect on archaeological resources due to surface disturbances within the PDA. The assessment of potential effects on archaeological resources includes a change in the presence of archaeological resources and a change in the potential for unassessed disturbances / impact or undocumented archaeological resources from this pathway.

The initial site preparation activities in the mine site area of the PDA would include surface disturbances that would be more likely to affect any unknown archaeological resources, if present. As a result, all other interactions during construction between the Project and the archaeology VC are not considered further. There is no plausible interaction between the employment and expenditure activities and archaeological resources during any Project phase.

As indicated in Section 6.22.2, the Stage 1 and Stage 2 archaeological assessments of the mine site area did not identify any archaeological resources. Before construction, a Stage 2 archaeological assessment will be completed at the areas identified as having archaeological potential along the preferred route of the proposed transmission line. Additionally, as the Project advances, additional archaeological assessment may be undertaken before construction, if required to address new information or refinements to the PDA.

Although no archaeological resources have been documented to date, archaeological resources are still being carried forward as part of the effects assessment for two primary reasons. First, there is the possibility that archaeological resources could be encountered during the archaeological fieldwork program to be completed before construction; this program is discussed in Section 6.22.4. Second, it is possible that chance finds or deeply buried archaeological resources will be encountered during construction. If an archaeological resource was present but not mitigated, activities during the construction phase would cause the loss of the archaeological resource by removing the resource from its original context. Mitigation measures to address previously undocumented archaeological resources are discussed in Section 6.22.4.

Since areas of archaeological potential in the PDA will have been investigated prior to the construction phase, and any chance finds or deeply buried archaeological resources (if encountered) will be documented during construction activities, no effects on archaeological resources are anticipated during the construction phase.

Operation and Closure Phases

No pathways to potential effects on archaeological resources were identified during the operations, decommissioning and closure phases of the Project. No additional subsurface work is proposed during these phases.

6.22.4 Mitigation Measures

Effects on archaeological resources are not anticipated since archaeological assessment programs will be conducted in areas of archaeological potential prior to ground disturbance activities.

Key construction and operation staff will be trained to recognize archaeological artifacts, such as Indigenous material culture (e.g., lithics, ground stone, ceramics, faunal remains) and Euro-Canadian cultural material (e.g., ceramics, glassware, construction debris, domesticated animal remains), in the event that chance finds are made during Project construction and operation. Staff training will also include a brief history of the potential and documented historical use and occupation of the PDA and LSA. Local Indigenous communities will be invited to participate in the development and delivery of this training, and they will be invited to participate in construction monitoring. As the Project advances, effort will be made to locate infrastructure and laydown areas in areas identified as having no to low archaeological potential.

If chance finds or deeply buried archaeological resources (including paleontological resources in organic deposits beneath lakes, marshes and peat) are encountered during the construction phase, a Chance Find Procedure (Appendix S-6) will be implemented and the site secured. Local Indigenous communities and the MCM will be notified and all activities impacting the affected archaeological resources will cease immediately. A licensed archaeologist will carry out an archaeological assessment following the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists* (MCM 2011).

If human remains are encountered, all activities will cease immediately and the local police and coroner will be contacted. In situations where human remains are associated with archaeological resources, local Indigenous communities and the MCM will also be notified to help protect against the site being subject to further alterations.

Prior to construction, an Environment Committee(s) will be established and opportunities to participate offered to members of proximate Indigenous communities during the construction, operation and closure of the Project. The Environment Committee(s) will aim to:

- Facilitate communications and meaningful engagement during construction, operation and closure of the Project;

- Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and,
- Share and evaluate land use information, including information on archaeological resources, review Project approvals and environmental management and monitoring plans, and identify mitigation measure, if required

The application of mitigation measures to specific pathways and phases is illustrated in Table 6.22-4. Mitigation measures described in this section are expected to be effective for their intended purposes given their effective implementation at similar projects.

6.22.5 Analytical Method

A comprehensive assessment of the potential for archaeological resources within the PDA was undertaken to determine if environmental effects on archaeology could occur during the construction, operation and closure phases of the Project. The evaluation of archaeological potential included the development of a research plan to compile and inventory archaeological resources. In Ontario, archaeological assessment is directed by the *Standards and Guidelines for Consultant Archaeologists* (MCM 2011), which prescribe a sequential, four-stage process for the identification, evaluation and mitigation of impacts on archaeological resources in development. Each Stage is summarized below.

- **Stage 1 - Background Study and Optional Property Inspection:** The objectives of a Stage 1 archaeological assessment is to evaluate a property's archaeological potential. The Stage 1 reviews the property's geography, history, previous archaeological fieldwork and current land condition, to identify where archaeological sites or resources may be located, and if Stage 2 AA is required for all or portions of the property.
- **Stage 2 - Property Assessment:** A Stage 2 archaeological assessment involves a field survey of portions of the property identified to have archaeological potential in the Stage 1 archaeological assessment. The Stage 2 fieldwork, usually conducted through systematic fieldwalking or digging test pits at regular intervals, determines whether archaeological resources are located on the property and if these resources are archaeological sites that should be further investigated through Stage 3 archaeological assessment.
- **Stage 3 - Site-Specific Assessment:** Stage 3 archaeological assessment focusses on each of the archaeological sites recommended for further work in the Stage 2 archaeological assessment. Stage 3 archaeological assessment generally involves hand excavating 1-m square units at 5 or 10-m intervals to define the boundaries of the archaeological site, collecting a representative sample of artifacts, assessing the site's cultural heritage value or interest (CHVI), and determining whether Stage 4 Avoidance and Protection or Stage 4 Excavation is required for all or part of each archaeological site.
- **Stage 4 - Mitigation of Development Impacts:** The approach at Stage 4 follows the Stage 3 recommendations for how to manage the archaeological site. If the project can be redesigned to avoid an archaeological site, the Stage 4 will outline specific avoidance and protection measures to conserve the archaeological site over the short and long term. Stage 4 excavation is required when the project cannot viably avoid the archaeological site. In these cases, the archaeological site is fully excavated, with all finds documented and cultural material collected to preserve information about the site for future study.

6.22.5.1 Assumptions and the Use of Conservative Approach

The assessment of archaeological resources conservatively assumed that lands within 50 m of all navigable watercourses have archaeological potential and require a Stage 2 test pit survey, per the standards for northern Ontario and Canadian Shield terrain in the *Standards and Guidelines for Consultant Archaeologists* (MCM 2011). As a result, the approach overestimated the number of possible archaeological sites.

Although no archaeological resources have been documented during baseline data collection within the PDA, the possibility remains that undocumented archaeological resources may be present within the PDA and procedures have been put in place accordingly.

6.22.6 Characterization of Potential Residual Effects

Effects on archaeological resources are not anticipated after having carried out archaeological assessment programs in areas of archaeological potential prior to ground disturbance activities in the construction phase. As noted, additional archaeological assessment will be undertaken if refinements to the Project footprint are made during subsequent phases of the Project. Furthermore, protocols to protect archaeological resources will be implemented in the event of a chance find. Therefore, no residual adverse effect on archaeological resources is anticipated.

6.22.7 Significance of Residual Effects

With the proposed design and mitigation measures, residual effects on archaeology are not anticipated—therefore, a determination of significance is not required.

6.22.8 Confidence Prediction

The level of confidence in the effects prediction is considered to be high. A comprehensive background research and fieldwork program was completed to identify potential archaeological resources in the LSA. To assess the potential effects of the Project on archaeological resources, Stage 1 and Stage 2 archaeological assessments were completed for the mine site, and Stage 1 archaeological assessments completed for the transmission line alternatives, mine access road, aggregate sources, the treated effluent discharge pipeline and discharge point, and a portion of the mine access road. All archaeological assessment has been completed according to the provincial *Standards and Guidelines for Consultant Archaeologists* (MCM 2011).

6.22.9 References

- Canadian Environmental Assessment Agency (CEA Agency). 2015. Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under the Canadian Environmental Assessment Act, 2012. March 2015. <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/technical-guidance-assessing-physical-cultural-heritage-or-structure-site-or-thing.html>.
- Ministry of Citizenship and Multiculturalism (MCM). 2006. Ontario Heritage Tool Kit (5 vols.). Ministry of Citizenship and Multiculturalism.
- Ministry of Citizenship and Multiculturalism (MCM). 2011. Standards and Guidelines for Consultant Archaeologists. <https://files.ontario.ca/mhstci-standards-guidelines-consultant-archaeologists-en-2022-03-29.pdf>.



Table 6.22-1: Archaeological Resources Criteria, Indicators and Rationale

Criteria	Indicators	Rationale
Presence of archaeological resources	<ul style="list-style-type: none"> Number of registered archaeological sites or areas of archaeological potential in the PDA and LSA 	<ul style="list-style-type: none"> This indicator is consistent with the guidance provided by the MCM in the <i>Standards and Guidelines for Consultant Archaeologists</i> (MCM 2011).
Potential for the disturbance / impacts of unassessed or documented archaeological resources	<ul style="list-style-type: none"> Alteration, loss or removal of archaeological resources from original context during construction, operations or decommissioning and closure 	<ul style="list-style-type: none"> This indicator is consistent with the guidance provided by the MCM in the <i>Standards and Guidelines for Consultant Archaeologists</i> (MCM 2011).

Table 6.22-2: Significance Determination Attributes and Rankings for Archaeological Resources

Attribute	Description	Category
Magnitude	A qualitative or quantitative measure to describe the size or degree of the residual effects relative to baseline conditions	<p>Level I: The Project is not predicted to have a material effect, directly or indirectly, on known archaeological resources.</p> <p>Level II: The Project results in direct impacts on a portion of archaeological resources or sites, which requires excavation⁽¹⁾ and partial removal of context and/or change in access to archaeological resources or sites.</p> <p>Level III: The Project results in direct impacts on all or valued portions of archaeological resources or sites, which requires full excavation and total removal of context and/or change in access to archaeological resources or sites.</p>
Geographic extent	The spatial extent over which the residual effect will take place	<p>Level I: The effect is restricted to the LSA.</p> <p>Level II: The effect extends beyond the LSA.</p> <p>Level III: The effect extends beyond the Regional Study Area.</p>
Duration	The time period over which the residual effect will, or is expected to, occur	<p>Level I: The effect occurs over the short term: less than or equal to 3 years.</p> <p>Level II: The effect occurs over the medium term: more than 3 years but less than 20 years.</p> <p>Level III: The effect occurs over the long term: greater than 20 years.</p>
Frequency	The rate of occurrence of the residual effect	<p>Level I: The effect occurs once, infrequently or not at all.</p> <p>Level II: The effect occurs intermittently or with a certain degree of regularity.</p> <p>Level III: The effect occurs frequently or continuously.</p>
Reversibility	The extent to which the residual effect can be reversed	<p>Level I: The effect is fully reversible.</p> <p>Level II: The effect is partially reversible or potentially reversible with difficulty.</p> <p>Level III: The effect is not reversible.</p>

(1) "Excavation converts the archaeological site into data (excavation records, artifacts), resulting in loss of contextual information. Excavation should only be undertaken if avoidance and protection are not viable" (MCM 2011: 74).

Table 6.22-3: Screening of Potential Project Interactions on Archaeological Resources

Project Component / Activity	Archaeological Resources
Construction Phase	
Site preparation activities, including clearing, grubbing and bulk earthworks	Yes
Construction of the mine site access road and airstrip, including the development and operation of the aggregate resource areas	Yes
Development of temporary construction camp and staging areas	-
Construction of the fish habitat development area	-
Construction of the transmission line to the Project site	Yes
Construction of the onsite haul and access roads	-
Construction of the dikes in north basin of Springpole Lake	-
Construction of buildings and onsite infrastructure	-
Construction of the central water storage pond	-
Controlled dewatering of the open pit basin	-
Construction of the starter embankments for the co-disposal facility	-
Stripping of lake bed sediment and overburden at the open pit	-
Development of the surficial soil stockpile	-
Initiation of pit development in rock	-
Initiation of stockpiling of ore	-
Establishment and operation of water management and treatment facilities	-
Commissioning of the process plant	-
Employment and expenditures	-
Operations Phase	
Commissioning and operation of the process plant	-
Operation of open pit mine	-
Management of overburden, mine rock, tailings and ore in designated facilities	-
Operation of water management and treatment facilities	-
Accommodations complex operations	-
Operation and maintenance of mine site infrastructure	-
Progressive reclamation activities	-
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, placing of cover and revegetating	-
Filling of the open pit with water	-
Monitoring and maintenance	-
Employment and expenditures	-

Note:

- = interaction is not expected, and no further assessment is warranted.

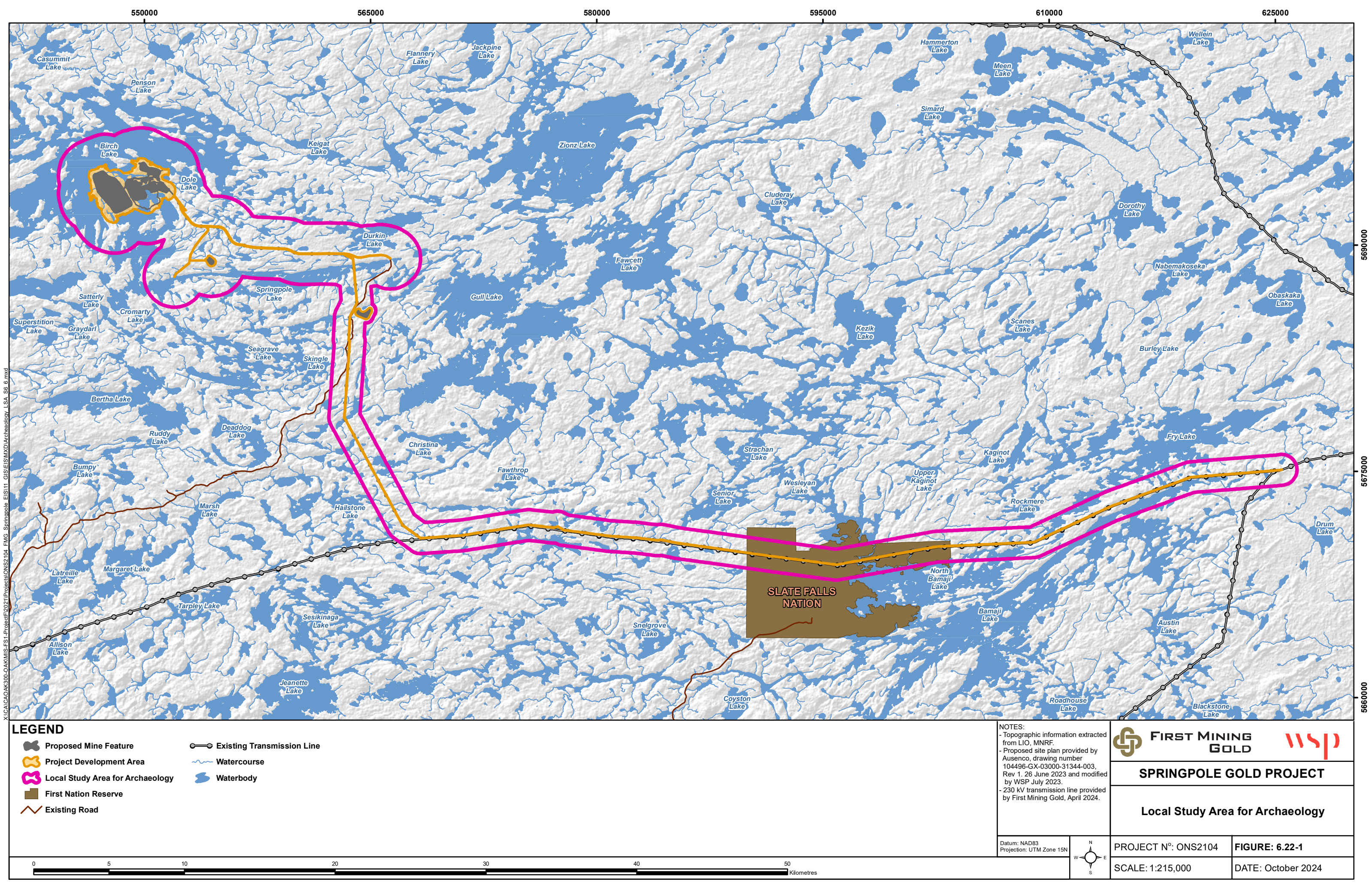


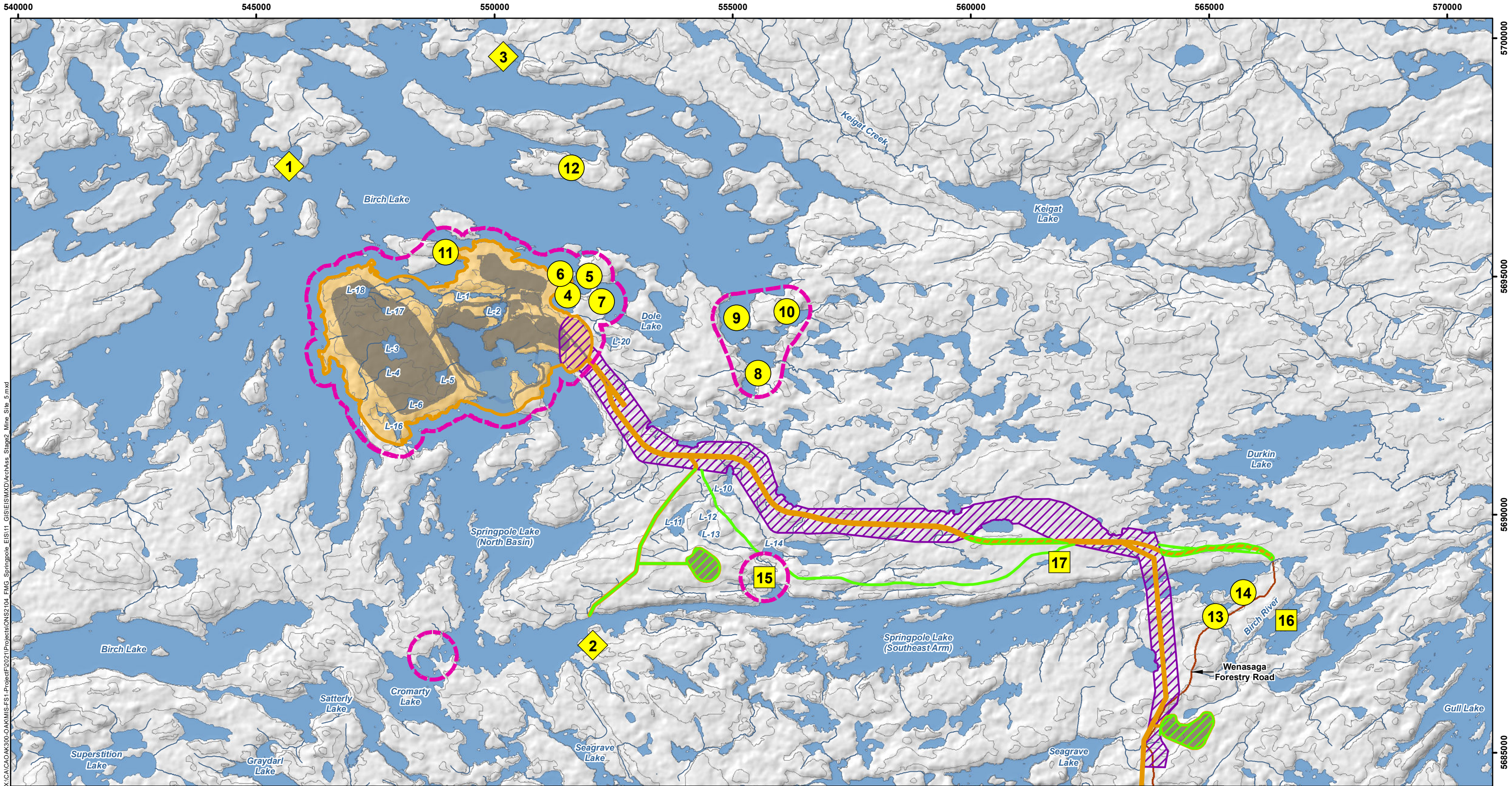
Table 6.22-4: Proposed Mitigation Measures for Potential Archaeological Resource Effects

Pathways to Potential Effects / Criteria	Phase			Proposed Mitigation Measure
	Con.	Op.	Cl.	
Direct or indirect land disturbances or removal of archaeological resources from original context	•	–	–	Key construction and operation staff will be trained to recognize archaeological artifacts, such as Indigenous material culture (e.g., lithics, ground stone, ceramics, faunal remains) and Euro-Canadian cultural material (e.g., ceramics, glassware, construction debris, domesticated animal remains), in the event that chance finds are made during Project construction and operation. Staff training will also include a brief history of the potential and documented historical use and occupation of the PDA and LSA.
	•	•	•	If chance finds or deeply buried archaeological resources (including paleontological resources in organic deposits beneath lakes, marshes and peat) are encountered during the construction phase, a Chance Find Procedure (Appendix S-6) will be implemented and the site will be secured. The MCM will be notified and all activities impacting the affected archaeological resources will cease immediately. A licensed archaeologist will carry out an archaeological assessment following the <i>Ontario Heritage Act</i> and the <i>Standards and Guidelines for Consultant Archaeologists</i> (MCM 2011).
	•	•	•	If human remains are encountered, all activities will cease immediately and the local police and coroner will be contacted. In situations where human remains are associated with archaeological resources, the MCM will also be notified to help protect against the site being subject to further alterations.
	•	•	•	Prior to construction, an Environment Committee(s) will be established and opportunities to participate offered to members of proximate Indigenous communities during the construction, operation and closure of the Project. The Environment Committee(s) will aim to: <ul style="list-style-type: none"> • Facilitate communications and meaningful engagement during construction, operation and closure of the Project; • Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and, • Share and evaluate land use information, including information on archaeological resources, review Project approvals and environmental management and monitoring plans, and identify mitigation measure, if required

Notes:

Con. = construction; Op. = operation; C. = closure; • = mitigation is applicable; – = mitigation is not applicable.





LEGEND

- Proposed Mine Feature
- Project Development Area
- WSP 2023 Study Area
- Portion of Stage 1 AA Study Area (Northwest Archaeological Assessments 2021, PIF P236-0163-2021)
- Stage 2 AA Study Area (Northwest Archaeological Assessments 2021, PIF P236-0170-2021)

- Existing Road
- Contour (10 m intervals)
- Watercourse
- Waterbody

Potential Archaeological Resources

1 EiKc-1 (Potato Is.)	15 EiKb-4
2 EiKb-2	16 EiKb-6
3 EiKb-1 (Peck's Pt.)	17 EiKb-7
4-14 2012 Survey Results	

NOTES:

- Topographic information extracted from LIO, MNRF.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.
- 230 kV transmission line provided by First Mining Gold, April 2024.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

SPRINGPOLE GOLD PROJECT

Previous Archaeological Investigations within 50 m of the Mine Site Area

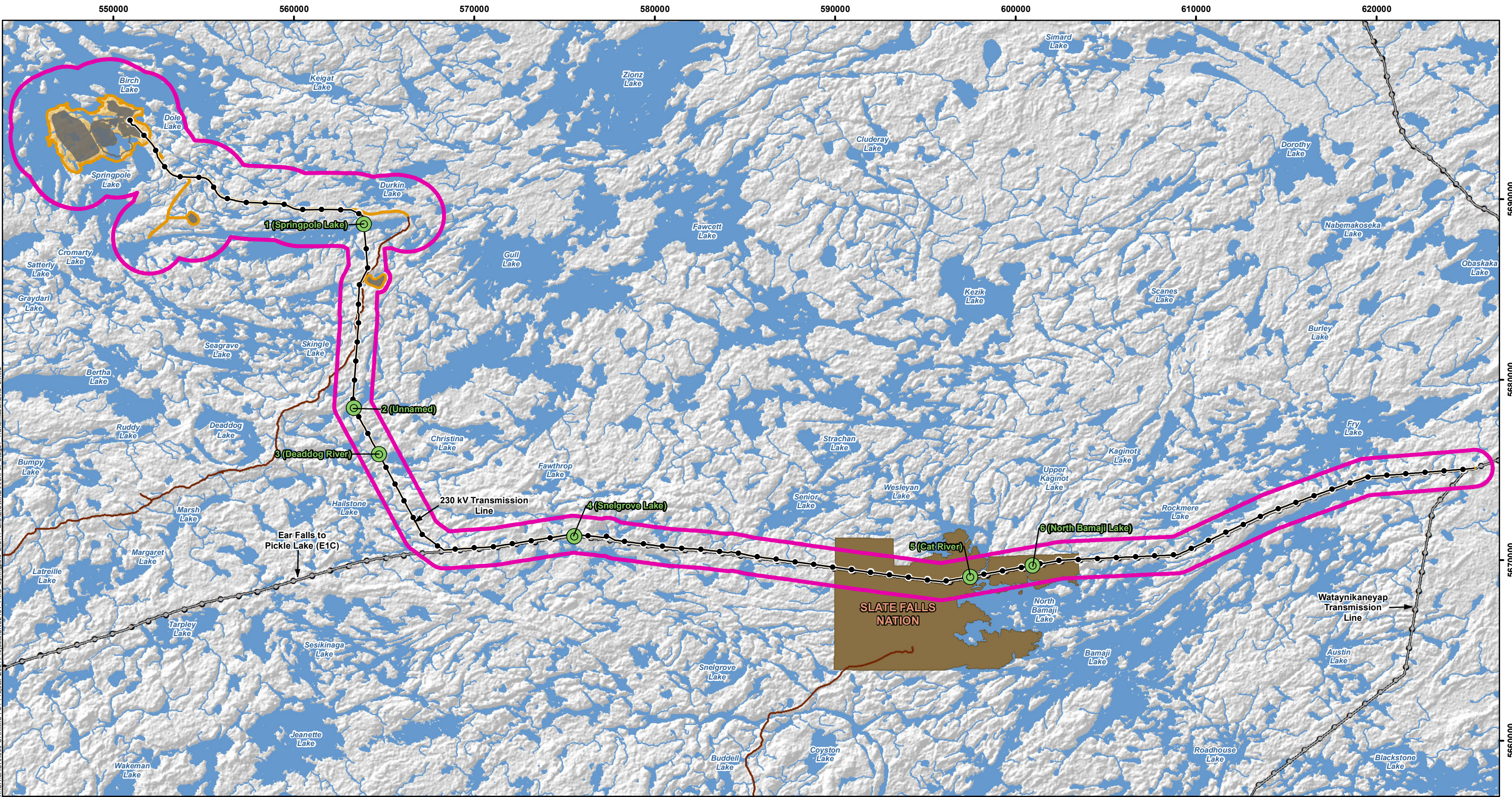
PROJECT N°: ONS2104

SCALE: 1:75,000

FIGURE: 6.22-2

DATE: September 2024

0 1 2 4 6 8 10 Kilometres



LEGEND

Proposed Mine Feature

Project Development Area

Local Study Area for Archaeology

Proposed 230 kV Transmission Line

Existing Road

Existing Transmission Line

First Nation Reserve

Watercourse

Waterbody

Locations Identified as Holding Archaeological Potential (Labelled with ID and Waterbody Name; Northwest Archaeological Assessments 2021)

NOTES:

- Topographic information extracted from LIO, MNR.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.
- 230 kV transmission line provided by First Mining Gold, April 2024.
- Archaeology assessment completed by Northwest Archaeology Assessments, 2021.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

SPRINGPOLE GOLD PROJECT

Areas of Archaeological Potential Following Stage 1 Assessment for the Transmission Line

PROJECT N°: ONS2104

FIGURE: 6.22-3

SCALE: 1:200,000

DATE: October 2024

0

5

10

20

30

40

50

Kilometres