



Marathon Palladium Project Environmental Impact Statement Addendum

VOLUME 2 OF 2

6.2.12 Indigenous Considerations

Prepared for:

GENERATIONPGM

Prepared by:



Date: April 2021

Environmental Assessment by Review Panel under CEAA 2012

Reference Number 54755

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

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Abbreviations

AIP	
AIRs	Additional information requests
BN	Biigtigong Nishnaabeg (formerly Pic River First Nation)
CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CIAR	Canadian Impact Assessment Registry
CoPC	constituent of potential concern
EA	Environmental Assessment
EIS	Environmental Impact Statement
FNFNES	First Nations, Food, Nutrition and Environmental Study
GCDWQ	Guidelines for Canadian Drinking Water Quality
GenPGM	Generation PGM Inc.
HHRA	Human Health Risk Assessment
IR	Information Request
LSA	Local Study Area
M2W	Terrace Bay-Manitouwadge transmission line
MECP	Ontario Ministry of Environment, Conservation and Parks
MNO	Superior North Shore Métis Council: Métis Nation of Ontario
MNRF	Ministry of Natural Resources and Forestry
MRSA	Mine Rock Storage Area
NFMC	Nawiinginkoima Forest Management Corporation
O. Reg.	Ontario Regulation

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OCIP	Jackfish Métis: Ontario Coalition of Indigenous Peoples
ODWQS	Ontario Drinking Water Quality Standards
PMFN	Pic Moberg First Nation/Netmizaaggamig Nishnaabeg
PPFN	Pays Plat First Nation/Pawgwasheeng First Nation
PSMF	Process Solids Management Facility
PTTW	Permit to Take Water
RSMIN	Red Sky Métis Independent Nation
SID	Supporting Information Document
SIRs	Supplemental Information Request
SSA	Site Study Area
TK	traditional knowledge
TLRU	Traditional Land and Resource Use
VEC	Valued Ecosystem Component

6.2.12 Indigenous Considerations

This section was structured to reflect the EIS Guidelines (Appendix B of this EIS Addendum [Vol 2]) to address the effects of changes to the environment and the potential effects on Indigenous peoples resulting from such changes to the following:

- health
- physical and cultural heritage
- the current use of lands and resources for traditional purposes
- any structure, site or thing that is of historical, archaeological, paleontological or architectural significance

An assessment to address the effects of the Project on socio-economic conditions, including those specific to Indigenous communities, is provided in Section 6.2.9 of this EIS Addendum (Vol 2).

The following steps were taken to consolidate the assessment of effects of the changes to the environment Indigenous Groups:

- Identification of Indigenous Groups, as detailed in Chapter 5 of this EIS Addendum (Vol 2) and briefly summarized in this section
- Determine the VECs assessed in the EIS Addendum that are relevant to Indigenous peoples and associated topics
- Discuss the changes to the environment identified in the assessment of VECs in this EIS Addendum and the potential effects on Indigenous peoples resulting from such changes as they related to key topics
- Identify mitigation measures for reducing potential effects on Indigenous peoples
- Discuss residual effects of changes identified in the assessment of the related VECs and the potential residual effects on Indigenous peoples

GenPGM recognizes that all Indigenous communities have unique rights recognized under Section 35 of the *Canadian Constitution Act*. Engagement with these communities is an on-going process during environmental assessment (EA) process for the Project.

It is important to note that the EIS Addendum primarily uses the word “indigenous”, although some references to “aboriginal” may remain in the following section due to the date of the release of the EIS

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Guidelines and/or reference to previous submissions¹. The term “Indigenous” will be primarily used in this section unless specific reference is made to a document, such as the EIS Guidelines or original EIS (2012) that uses the term “aboriginal”. The term “Indigenous peoples” will be used to refer to Indigenous or Aboriginal people generally, regardless of cultural or political affiliation. The term “Indigenous communities” incorporates Aboriginal groups and will be used to refer to more than one Indigenous community identified as potentially interested in, or affected by, the Project. Individual Indigenous communities will be referred to by their official titles.

Indigenous communities have a traditional relationship with the land that is used as part of their way of life. The exercise of Indigenous and treaty rights may be potentially affected by the Project based on where they practice traditional activities, or they may have a more general interest in the Project. Indigenous considerations rely on the typical biophysical VECs such as air, water and wildlife but broadens the assessment to encompass a holistic approach with focus on the traditional knowledge (TK), culture, spirituality and use of the environment, which makes it unique from the other VECs. It is recognized that there is an interconnectedness between Indigenous considerations and the other “typical” VECs assessed throughout Chapter 6 of this EIS Addendum (Vol 2). For example, changes in air quality could in turn impact vegetation, which could influence availability of country foods and health conditions of Indigenous people (physical, spiritual, cultural, and socioeconomic) and other land users in the area. Table 6.2.12-1 highlights and summarizes the direct relationships between these VECs and potential effects to Indigenous peoples.

The following section is not intended to repeat the various VEC assessments listed in Table 6.2.12-1, instead it relies on the findings of those assessments and is a customized list of subcomponents specific to Indigenous communities. Assessment of each VEC, included community specific VECs, TK and/or Traditional Land and Resource Use (TLRU) studies and concerns raised during consultation and engagement for the Project. The assessment is intended to link culture, spirituality, knowledge, traditions, family, and overall sense of well-being in a universal way to understand potential Project effects on topics identified in the EIS Guidelines (2011) including Identification of Groups and Rights, Indigenous Health, Current Use of Lands and Resources, and Indigenous Heritage and Archaeological Resources (physical and culture).

Additional topics of concern were raised and repeated by Indigenous communities including changes to surface water quality, impacts to fisheries, use of waterways, species at risk, use of land for future generations, enjoyment of the land and importance of water, especially Pic River, Hare Lake, Stream 6 (Angler Creek), Bamooos Lake and Lake Superior. Concern for potential socio-economic effects (i.e., community infrastructure and services) were also expressed. These topics were included in the assessment through the various biophysical VECs, and detailed in the relevant sections of the EIS Addendum

¹ The use of the term “Indigenous” has the meaning assigned by the definition of “aboriginal peoples of Canada” in subsection 35(2) of the *Constitution Act, 1982* which states: In this Act, “aboriginal Peoples of Canada” includes the Indian, Inuit, and Métis Peoples of Canada

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Table 6.2.12-1: VEC Relationship with Potential Effects to Indigenous Peoples

Valued Ecosystem Component	Indigenous Considerations: Potential Effects			Relevant Sections in EIS Addendum
	Current Land and Resources Use for Traditional Purposes	Indigenous Heritage and Archaeological Resources	Indigenous Health	
Atmospheric Environment	No direct relationship, indirect sensory disturbances	No direct relationship	Changes to air quality	Section 6.2.1 Air Quality Updated Effects Assessment (Appendix D1)
Acoustic Environment	No direct relationship, indirect sensory disturbances	No direct relationship	Changes in noise and vibration levels	Section 6.2.2 Noise Updated Effects Assessment (Appendix D2)
Water Quality and Quantity	Change in use of navigable waters	No direct relationship	Changes or perceived change to drinking water, surface and groundwater quantity and quality	Section 6.2.3 Surface Water Hydrology Updated Effects Assessment (Appendix D3) Hydrogeology Updated Effects Assessment (Appendix D4)
Fish and Fish Habitat	Change in available fish habitat for fishing and bait fish	No direct relationship	Potential or perceived change to quality and availability of fish	Section 6.2.4 Fish and Fish Habitat Offsetting Plan Update (Appendix D6)
Terrains and Soil	Changes as a result of project footprint which will alter current use of landscape	Change in physical or cultural heritage	Changes to soil quantity, quality, and availability	Section 6.2.5 Section 6.2.10
Vegetation	Changes in forestry, logging operation, and access to hunting, trapping, and gathering	No direct relationship	Changes in quality and availability of country foods	Section 6.2.6
Wildlife	Changes to access for hunting, trapping, and gathering	No direct relationship	Changes in quality and availability of country foods	Section 6.2.7
Species at Risk	Changes to access for hunting, trapping, and gathering	No direct relationship	Changes in cultural significance and represent overall well-being of the land	Section 6.2.8

Table 6.2.12-1: VEC Relationship with Potential Effects to Indigenous Peoples

Valued Ecosystem Component	Indigenous Considerations: Potential Effects			Relevant Sections in EIS Addendum
	Current Land and Resources Use for Traditional Purposes	Indigenous Heritage and Archaeological Resources	Indigenous Health	
Socio-economics and Culture	Changes in labour, economy, community services, commercial fishing, hunting, trapping, and gathering and cultural pursuits	Changes in labour, economy, community services and gathering	Changes in labour, economy, community services, recreation, can influence mental, physical, and spiritual health	Section 6.2.9
Human Health	Changes in fishing, hunting, trapping, and gathering and cultural pursuits	No direct relationship	Changes in effects on resources and VECs can influence mental, physical, and spiritual health	Section 6.2.10 Human Health Risk Assessment Update (Appendix D10)
Physical and Cultural Heritage Resources	No direct relationship	Changes to archaeological resources or built and cultural heritage resources	No direct relationship	Section 6.2.11

6.2.12.1 Summary of Original Indigenous Consultation Assessment

6.2.12.1.1 Assessment of Residual Effects in Original EIS

Section 6.2.11 of the original EIS (2012) and subsequent responses to information requests from the Panel provided an assessment of the following effects to the interests and considerations of Indigenous peoples as result of the Project:

- Change to Indigenous and treaty rights
- Change to TLRU Including:
 - availability of species and sites for animal harvesting
 - availability of species and sites for plant harvesting
 - availability of species and sites for fish harvesting
 - availability of species for sites timber harvesting
 - availability and access to country foods
- Changes to Traditional Dietary Habits

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- Changes to BN community trap line
- Change or alteration to Indigenous heritage resources including:
 - Spiritual sites
 - Habitation sites
 - Travel Routes
- Change to Indigenous archaeological resources

Additional information on the assessment of effects on Indigenous considerations was provided in responses to the following IRs:

- Responses to IR 8.2 ([CIAR #458](#))
- Response to IR15.2 ([CIAR #476](#))
- Responses to IR17.1, 17.2, 17.3, & 17.4 ([CIAR #478](#))
- Response to IR17.6 ([CIAR #459](#))
- Response to IR21.1 ([CIAR #474](#))
- Response to SIR7 and 10 ([CIAR #564](#))
- Response to AIR16 ([CIAR #659](#))

Main predicted effects to Indigenous peoples included the following:

- Restriction of traditional land uses, including animal and plant harvesting and country food collection in the SSA, as well as access to the LSA
- The loss of the contribution that the country foods collected in the SSA make to the traditional diet of Indigenous peoples
- Restricted access to parts of the BN trapline that fall within the SSA

Generally, the effects identified were limited to the SSA from the start of site preparation to the end of active reclamation when it is deemed safe for the general public to access the site. Effects related to country food gathering and use of the BN community trapline could extend into the closure phase for a somewhat longer period as the reclamation process takes hold and plant and animals communities re-distribute themselves in the landscape.

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Key mitigation measures originally proposed to avoid, reduce and/or offset potential effects of the Project on interests and consideration of Indigenous peoples include:

- Reduction of disturbed land, to the extent possible, required for mining operations
- The removal of Bamooos Lake as a process solids storage option
- The re-routing of the site access road away from its current route, which is in close proximity to the Pic River
- The removal of the portion of the MRSA that was west of the primary pit (the “west mine rock storage area”)
- The removal of the process water pond from the PSMF to reduce its overall footprint
- Allowing some restricted site access to Indigenous peoples during mine operation, when safe and feasible
- Ensuring continued public access of Camp 19 Road, to the extent possible
- Engagement with Indigenous community during preparation of closure plan
- Establish a standard operation procedure for protect Indigenous archaeological resources should a chance encounter occur

6.2.12.1.1 Determination of Significance in Original EIS

For Indigenous considerations, the original EIS (2012), as well as responses to IR17.2 and 17.4, concluded that once mitigation was proposed, there would be no significant adverse effect as a result of the Project. Continued engagement, including benefit agreements, was proposed to accommodate residual effects that could not be mitigated.

6.2.12.2 Approach to Update the Assessment

The following subsections provide an update to the assessment of residual environmental effects of the Project, including a determination of their significance based on the following:

- Updated environmental conditions within the SSA, LSA and RSA, as appropriate.
- Recognition of updated standards, criteria, guidelines, or other thresholds that inform the determination of significance.
- Consideration and recognition of project refinements, including changes to the project components and project activities, that may affect potential project interactions, mitigation measures and residual effects.

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- Consideration of additional comments received from Indigenous communities in regard to Indigenous rights and interests, including but not limited to TLRU and TK, trapping, hunting, fishing and cultural practices.

Some re-organization of the material pertaining to matters of Indigenous consideration has occurred relative to the original EIS (2012) (and relative to the organization proposed in Table 2.3.1 in Chapter 2 of the EIS Addendum [Vol 1]) ([CIAR #727](#)). This re-organization was proposed to focus the discussion by grouping similar topics together. Table 6.2.12-2 illustrates how the organization of this information has been revised.

Table 6.2.12-2: Re-organization of Indigenous Considerations

Original EIS (2012)	EIS Addendum (Vol. 2)
Traditional Land and Resource Uses, including Country Foods and Indigenous fisheries (6.2.11.3)	Traditional Land and Resource Uses (6.2.12.7.1)
BN Community Trapline (6.2.11.5)	
Indigenous Heritage Resources (6.2.11.6)	Indigenous Heritage and Archaeology (6.2.12.7.3)
Indigenous Archaeological Resources (6.2.11.7)	
Preponderance of Traditional Dietary Habits (6.2.11.4)	Indigenous Health (6.2.12.7.2)

Any changes to the results of the previous assessment have been highlighted and discussed below, as appropriate. Supplementary rationale and explanation for the conclusions of the assessment have been provided based on the previous responses to the information requests (IRs, SIRs, AIRs) and additional input from the various technical discipline leads based on the current assessment.

6.2.12.3 Scope of the Assessment

6.2.12.3.1 Regulatory and Policy Setting

As set out in section 5(1)(c) of *Canadian Environmental Assessment Act, 2012* (CEAA 2012), the environmental effects that are to be considered with respect to Aboriginal peoples include:

“...an effect occurring in Canada of any change that may be caused to the environment on

- I. health and socio-economic conditions,*
- II. physical and cultural heritage,*
- III. the current use of lands and resources for traditional purposes, or*
- IV. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.”*

In addition to CEAA 2012, the EIS Guidelines (Appendix B of this EIS Addendum [Vol 2]) require: *“Aboriginal land use at the site and within the local and regional study areas. The EIS shall identify the lands, waters and resources of specific social, economic, archaeological, cultural or spiritual value to Aboriginal people and groups which assert Aboriginal and treaty rights, or in relation to which Aboriginal and treaty rights have been established and that may be affected by the Project. “*

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Aboriginal and treaty rights are the collective rights of Indigenous communities as recognized and affirmed by Section 35 of the Constitution Act, 1982. Although not clearly defined in Section 35, the rights can include Aboriginal land title and rights to land, occupancy and use of land resources (e.g., hunting, fishing), social and cultural rights and self-government (Government of Canada, 2021). To collectively understand and assess potential effects of the Project on “Rights and Interests” of Indigenous communities, the assessment focused on the following subcomponents detailed in the EIS Guidelines, and refined through consultation and engagement with Indigenous communities, as follows:

- Identification of Indigenous Groups (detailed in Chapter 5 of this EIS Addendum (Vol 2) and briefly summarized in this section)
- Traditional territory and which communities have asserted or established treaty rights that may be impacted by the Project
- Current Use of Lands and Resources for Traditional Purposes: describe current use of lands and resources, traplines, heritage resources and potential areas of cultural importance
- Aboriginal Heritage and Archaeological Resources
- Health of Aboriginal People: including spiritual, health related traditional activities, and traditional dietary habits and dependence on country foods and harvesting both for medicinal and dietary purposes

The approach to describing and characterizing nature and extent of effects related to the rights of Indigenous people was guided by residual effects findings of each of the relevant VECs, and feedback received from potentially affect Indigenous groups. VECs were determined through consultation and engagement by GenPGM, the EIS Guidelines, and VECs identified by experts that could be potentially affected by the Project. The study area was based on a boundary of predicted residual effects of the Project on a VEC and the temporal boundary looked at future effects caused by the Project to a baseline of current conditions. The approach for the assessment aligns with CEEA 2012 and the EIS Guidelines (2011). GenPGM recognized that there is historical baseline and pre-existing adverse impacts within Aboriginal traditional territories and is sympathetic to the challenges faced by Indigenous communities.

Through several meetings and discussions (see Record of Consultation (Appendix C of this EIS Addendum [Vol 2]), BN specifically pointed to alienation of their traditional land, what they assert as their exclusive traditional territory, and recognizes the effects of various past and present projects and activities has occurred, and will likely continue to occur in the future, independent of (i.e., with or without) the Project. While GenPGM acknowledges the contribution of the Project to any project-related effects, BN has indicated that the government and not the proponent should be responsible for mitigating these broader regional adverse effects resulting from other past, present, or future projects and physical activities. This includes any such changes that have the potential to affect the VECs that are related to Indigenous health conditions, physical and cultural heritage, and current land and resource use. A more specific discussion in this regard, specifically how these broader regional concerns may affect Indigenous people is provided in the cumulative effects section (see Section 6.6 of this EIS Addendum [Vol 2]).

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6.2.12.3.2 Influence of Consultation and Engagement on the Assessment

Consultation for the Project has been ongoing since 2004 and will continue throughout the life of the Project. Chapter 4 of the original EIS (2012) and Chapter 5 of this EIS Addendum (Vol 2) covers the consultation process and activities undertaken by GenPGM and formerly by Stillwater.

The following three First Nations and three Métis communities from the original EIS (2012), continue to express direct interest in the Project based on asserted Indigenous rights and traditional and/or current land uses and have participated in the Project since the commencement of the EA in 2010:

- Biigtigong Nishnaabeg (BN) (formerly Pic River First Nation)
- Pays Plat First Nation/Pawgwasheeng First Nation (PPFN)
- Pic Moberg First Nation (also referred to as Netmizaaggamig Nishnaabeg) (PMFN)
- Red Sky Métis Independent Nation (RSMIN)
- Superior North Shore Métis Council: Métis Nation of Ontario (MNO)
- Jackfish Métis: Ontario Coalition of Indigenous Peoples (OCIP)

BN assert exclusive title to a territory in which the Project site is located. An application seeking a court declaration to this effect was initiated in Ontario Superior Court in 2004. The Robinson-Superior Treaty confers hunting and fishing rights on its signatories. BN, PPFN and the RSMIN assert these treaty rights based on lands within a traditional area that includes the Project site.

The IAAC stated in January 2021, an additional ten Indigenous would be notified. As of February 2021, GenPGM included the following ten communities in Project notifications:

- Michipicoten First Nation
- Long Lake #58 First Nation
- Ginoogaming First Nation
- Animiigoo Zaagi'igan Anishinaabek (Lake Nipigon FN)
- Bingwi Neyaashi Anishinaabek (Sandpoint First Nation)
- Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay First Nation)
- Red Rock Indian Band
- Fort William First Nation
- Kiashke Zaaging Anishinaabek First Nation
- Whitesand First Nation

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At the time of writing this report, Michipicoten First Nation has indicated interest in the Project and Ginoogaming First Nation stated they would be sending in comments. A meeting was held with Michipicoten First Nations in February 2021, the topics of interest to the community included water quality predictions for effluent discharge (phosphorus), understanding potential changes to Lake Superior and species at risk, in particular caribou.

Various communities have also provided documents to support the EA including detailed TK and/or TLRU studies, technical reviews and VECs list (see Table 6.2.12-3). The details of these reports are further discussed in Section 5.2.4 of this EIS Addendum (Vol 2). This information has been used to inform the original EIS (2012) and this EIS Addendum in understanding potential effects to these Indigenous communities. It is noted that some communities have shared TK and/or TLRU studies and technical reports with GenPGM for public disclosure; however, through deduction, publication of this information has the potential to jeopardize the confidentiality of information of other communities who want their information protected. For these reasons, Indigenous traditional information provided has been reviewed and incorporated into the EIS Addendum; however, explicit details are not included nor are communities identified.

Table 6.2.12-3: Summary of TK, TLRU, VEC, Technical Reviews and Pending Updates

Indigenous Community	VEC Lists	TK and/or TLRU	Technical Review (s)	Updates
Biigtigong Nishnaabeg	March 30, 2012, listed included input from 180 BN members, ecological, social, economic, and cultural importance for VECs and rationale for inclusion	June 2012, Living off Land (Driben), April 2012 numerous land use maps compiled as a result of use-and-occupancy map survey, 2012 Methodology (Tobias), a summary of the mapping TLRU/TK has been provided in Record of Consultation (Appendix C)	-	BN indicated they did not need to provide updated VEC, TK and/or TLRU but have retained a 3 rd party to complete a technical review of the EIS Addendum
Pays Plat First Nation	January 13, 2012, requested by PPFN to keep VEC list generic as possible to protect confidential information	September 2013, completed by F.G Foley for Dernoï & Associates, included ancestral identity, Territory Index, traditional pursuits, movements, and oral evidence of TK and TLRU	-	Retained a 3 rd party to complete a technical review and likely to provide updates to TK and/or TLRU
Pic Moberg First Nation	February 3, 2011, list included VEC, priorities/interests, description of VEC	Verbally presented information in April 2012	-	PMFN supports the Project and will no longer participate in EA

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Table 6.2.12-3: Summary of TK, TLRU, VEC, Technical Reviews and Pending Updates

Indigenous Community	VEC Lists	TK and/or TLRU	Technical Review (s)	Updates
Red Sky Métis Independent Nation	November 22, 2011, list included VEC, priorities/interests, description of VEC and potential indicators	November 22, 2011 completed by AECOM, included rights, socioeconomic, TK, TLRU and mitigation. A video was also presented	November 22, 2011, completed by AECOM	No significant changes in Project, no updates required to current information on record
Superior North Shore Métis Council: Métis Nation of Ontario	January 2012, list of VECs included terrestrial plant and animals and specific Métis concerns	May 2012 (Draft) and final received August 11, 2013 completed by CDCI Research, inclusive Traditional Land Use and Knowledge Study.	July 16, 2013 completed by Eagle Sun Consulting	MNO may provide additional updates to TK and/or TLRU plans to complete a technical review of EIS Addendum, Closure Plan, and IRs
Jackfish Métis: Ontario Coalition of Indigenous Peoples	November 10, 2011, confirmed list of VECs and provided additional details on culture, social, technical, archaeological, economic and aesthetics.	November 10, 2011, VECs list included TLRU, verbally presented through consultation with OCIP	September 7, 2012, completed by D.Vitone	No significant changes in Project, no updates required to current information on record

GenPGM has confirmed that BN, PMFN, RSMIN and OCIP will not be providing any updates to TK and/or TLRU studies and VECs used to assess potential impacts to their communities. It is understood, the MNO and PPFN may provide additional updates to their TK and/or TLRU already on record. BN and PPFN will be completing reviews of updated EA documentation with their technical experts and providing feedback once submitted. MNO and potentially Michipicoten may also be completing 3rd party reviews of updated EA documentation. PMFN supports the Project as it is within BN’s traditional territory and has decided not to participate in the EA. As stated in Chapter 5 of this EIS Addendum (Vol 2), GenPGM continues to consult and support communities to ensure Indigenous rights and interests are considered during the EA for the Project, as well for future permitting and throughout life of the Project.

Comments and feedback received throughout the consultation process pertaining to Indigenous considerations (beyond those listed previously for each VEC) are summarized below:

- Information was requested on the ability to access the SSA during operations (BN, MNO, RSMIN)
- Information requested on how existing TLRU activities may be affected by the Project (All)
- Request was made for Indigenous communities to be engaged with the development of the closure plan. Concerns regarding aesthetics, access and habitat productivity were identified (All)

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- Concern relating to consultation to ensure TK and TLRU information (confidential) is incorporated into the EIS Addendum and supporting documents:
 - Sites of ecological, cultural, social and/or economic importance, specific mention of Pic River, Stream 6/Angler Creek and Lake Superior (BN, PPFN, OCIP)
 - Robinson-Superior treaty area holds spiritual and culturally significant features for Métis way of life (RSMIN)
 - Harvesting of forest on fur bearers, birds, and other wildlife (BN, PPFN, MNO, OCIP, RMSIN)
 - Current and potential gatherings, events, celebrations, and traditional ceremonies related to harvesting, hunting, sharing, education, oral traditions, mental and physical health of individuals, families, and overall health of community (BN, PPFN, RSMIN, MNO, OCIP)
 - Pic River is used as a travel corridor for harvesting, traditional activities, and fishing, considered a VEC (BN)
- Concern that further consultation with PPFN is required to further incorporate their TK and TLRU information into the EIS Addendum and supporting documents (PPFN)
- Request for the inclusion of community members in environmental monitoring (All)
- Information requested on the availability of environmental monitoring reports (BN)
- Species at Risk in general are a concern for all communities, species are considered indicators of health of land, and hold cultural and spiritual significance to communities and cumulative effects to those species. Many communities did state they do not support current or proposed Woodland Caribou management strategies contemplated by federal and provincial management strategies for woodland caribou in their traditional territories due to the potential negative impacts to moose (BN) and deer population (MNO, OCIP).
- Groundwater wells and surface water quality, with specific comments on use of water for human consumption from Pic River (outlet at Superior), Angler Creek and Hare Creek (BN, PPFN)
- Inclusion of a fish tissue sampling in the monitoring programs for human and ecological health consumption limits, with mention of Pic River and Hare Creek (BN, PPFN, MNO)
- Effects on fish and fish habitat from blasting (BN, OCIP)
- Vegetation communities and plant species important to Métis, request for specific high priority species be included on list for reclamation and closure vegetation management (MNO)
- Air quality near site and potential effects outside of the Project boundary (BN, OCIP, MNO, RSMIN)
- MRSA flows to Pic River and impact to coldwater fisheries in small streams being overprinted by MRSA (BN, PPFN, OCIP)
- Concern regarding ecological health and cumulative effects (BN, PPFN, MNO)

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- Concern with Project influences on relationships with new and existing indigenous groups (BN, PPFN)
- Concern regarding access to land and waterways for current and future members (BN, PPFN, RSMIN, OCIP, MNO)

These comments and feedback have been incorporated throughout the assessment of effects on Indigenous consideration, and in the relevant VEC assessments, either in the form of providing further information, incorporation as specific components of the assessment (i.e., VECs), consideration to inform project design, identification of specific mitigation measures or consideration for future follow-up programs.

6.2.12.3.3 Potential Effects, Pathways and Measurable Parameters

Table 6.2.12-4 summarizes the potential environmental effects of the Project to Indigenous considerations, the effect pathway, and the measurable parameters. These potential environmental effects and measurable parameters were selected based on professional judgement, recent EAs for mining projects in Ontario, and comments provided during consultation.

Table 6.2.12-4: Potential Effects, Effects Pathways and Measurable Parameters Indigenous Considerations

	Potential Effect Pathway	Measurable Parameter(s) and Units of Measurement
Traditional Land and Resource Use	<ul style="list-style-type: none"> • Change to hunting areas or opportunities for wildlife harvesting • Change to BN Community Trapline • Change to fishing or fishing areas or opportunities • Change to plant harvesting areas or opportunities (incl medicinal, cultural, food and fuel wood) • Change to trails, travel routes or their use (including navigable waters) 	<ul style="list-style-type: none"> • Availability of species and habitats • Areas (ha) used for hunting, trapping, fishing, harvesting of plants and animals • Description of current land and resource use by communities referencing number of known harvesting features and land use locations • Discussion of general use of land by communities • Change in ability to use travel routes • Appropriate environmental conditions
Heritage and Archaeological Resources	<ul style="list-style-type: none"> • Changes, alteration or use to physical or cultural indigenous heritage and archaeological resources • Change to spiritual sites • Change to habitation sites • Change in access and travel routes 	<ul style="list-style-type: none"> • Number of known indigenous heritage resources • Number and access to of known indigenous spiritual sites • Number and access to known indigenous habitation site • Number and access to known indigenous trade/travel routes • Discussion of cultural heritage

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Table 6.2.12-4: Potential Effects, Effects Pathways and Measurable Parameters Indigenous Considerations

	Potential Effect Pathway	Measurable Parameter(s) and Units of Measurement
Indigenous Health	<ul style="list-style-type: none"> Changes to drinking water quality Changes to consumption and quality of plants, animals, fish for food, cultural and medicinal purposes (preponderance of traditional dietary habits) 	<ul style="list-style-type: none"> Identification of change in ability to access and quality of foods, medicinal and spiritual resources from participating indigenous communities

6.2.12.3.4 Assessment Boundaries

In general, the spatial boundaries for the assessment of environmental effects on Indigenous considerations rely on the LSA and RSA of the supporting VECs as identified and assessed in the previous sections. The spatial boundary for Indigenous considerations relies on the biophysical (i.e., air quality, acoustic, surface water, groundwater, vegetation, wildlife) and human health VECs and their associated LSAs since these LSAs represent the maximum areas where potential effects could reasonably be expected to occur. The LSAs consist of the SSA and adjacent areas where relevant Project related environmental effects are reasonably expected to occur based on available information and professional judgment.

Similarly, when looking at potential cumulative effects, the spatial extent for Indigenous considerations is the area within which residual environmental effects from Project activities and components may interact cumulatively with the residual environmental effects of other physical activities. It is similarly based on the RSAs for the biophysical and human health VECs.

The temporal boundaries for the Project that have been considered in the determination of environmental effects are described in Section 2.5 of the EIS Addendum (Vol 1) ([CIAR #727](#)). For the purposes of Indigenous Considerations, the timeline considered for the assessment includes all phases of the Project, including site preparation and construction, operation and closure and are dependent the individual biophysical VECs that have varying temporal boundaries.

6.2.12.3.5 Residual Effect Characterization

Table 6.2.12-5 summarizes how residual environmental effects are characterized in terms of direction, magnitude, geographic extent, timing, frequency, duration, reversibility and in ecological/societal value. Quantitative measures or definitions for qualitative categories are provided.

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Table 6.2.12-5: Characterization of Residual Effects on Indigenous Considerations

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The expected long-term trend of the effect	<p>Positive – Effect moves measurable parameters in a direction beneficial to Indigenous Considerations relative to baseline conditions.</p> <p>Adverse – Effect moves measurable parameters in a direction detrimental to Indigenous Considerations relative to baseline conditions.</p> <p>Neutral – No effect compared to baseline conditions</p>
Magnitude	The amount of change in measurable parameters relative to existing conditions	<p>N/A – Not applicable due to the subjective nature of the effects on Indigenous Considerations</p> <p>Negligible – no measurable change</p> <p>Low – a small, measurable change that cannot be distinguished from baseline conditions within normal range of variability</p> <p>Medium – a measurable change but does not impact activities, quality, size, or other factors and remains at or near baseline levels</p> <p>High – a measurable change that does impact activities, quality, size, or other factors and no longer near baseline levels</p>
Geographic Extent	The geographic area in which a residual effect occurs	<p>Negligible (SSA) – residual effects are limited to SSA</p> <p>Low – residual effects are restricted to the SSA or immediate surroundings</p> <p>Medium (LSA) – residual effects extend into the LSA</p> <p>High (RSA) – residual effects extend into the RSA</p>
Timing	Considers when the residual effect is expected to occur.	<p>No sensitivity - Effect does not occur during critical period (e.g., moose hunt, cultural activity times) or timing does not affect the VEC.</p> <p>Medium sensitivity - Effect may occur during a lower sensitive period.</p> <p>High sensitivity - Effect occurs during a critical period (e.g., moose hunt or culturally important activities)</p>
Duration	The time required until the measurable parameter or the VEC returns to its existing condition, or the residual effect can no longer be measured or otherwise perceived	<p>Negligible – residual effect is limited to a single event</p> <p>Low (short-term) – Effect is restricted to a single season / year during the construction or operation phase</p> <p>Medium – Effect occurs throughout construction and up to 10 years during operations</p> <p>High (Long-term) – Effect continues throughout the life of the Project to post-closure</p>
Frequency	Considers whether the residual effect is expected to occur once, at regular or irregular intervals or continuously	<p>Negligible – the condition of phenomena causing the effect rarely occurs, single event</p> <p>Low (Multiple irregular event) – occurs at no set schedule and are unlikely to occur</p> <p>Medium (Multiple regular event) – occurs at regular intervals (i.e., >1% of the time)</p> <p>High (Continuous) – occurs continuously</p>

Table 6.2.12-5: Characterization of Residual Effects on Indigenous Considerations

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Reversibility	Considers whether the residual effect is reversible or irreversible.	<p>Negligible – effect ceases immediately once source or stressor is removed</p> <p>Low – effect ceases once source or stressor is removed</p> <p>Medium – effect persists for some time after source or stressor is removed</p> <p>High (Irreversible) – the residual effect is unlikely to be reversed</p>
Ecological/Societal Value	General characteristics of the area in which the project is located, largely determined through consultation and engagement.	<p>Negligible – the VEC has no value from a cultural or societal context</p> <p>Low – the VEC is common in the LSA and/or has little to no value from a cultural or societal context</p> <p>Medium – the VEC is abundant in the RSA, though may be less so in the LSA, and/or has moderate cultural or societal value</p> <p>High – the VEC is rare and/or of high cultural or societal value</p>

Note: Timing was not included in the original EIS.

6.2.12.3.6 Significance Definition

Under CEAA 2012, there is a requirement to make a determination of significance for residual environmental effects on Indigenous considerations. The lack of laws, policies, management plans or standard industry practice regarding thresholds for this VEC makes choosing and applying significance thresholds methodologically challenging. The subjective nature of describing and understanding the importance of effects on current use of lands and resources for traditional purposes means that selected thresholds might not evenly apply across Indigenous communities and circumstances. For the purpose of the assessment, determination of significance of effects was guided by the residual effects findings of each of the relevant biophysical and socio-economic VECs, environmental assessment guidance documents, professional judgement and feedback received from potentially affected Indigenous groups.

6.2.12.4 Existing Conditions for Indigenous Considerations

Current conditions within the assessment boundaries are described in Chapter 4 of the EIS Addendum (Vol 1) ([CIAR #727](#)). The updated baseline reports for aquatic, terrestrial, air quality, noise and the socio-economic and current traditional resource use (Ecometrix 2020b; Northern Bioscience 2020; Stantec 2020b, 2020c, 2020g) ([CIAR #722](#)) provide an overview of how baseline conditions have changed since the original EIS and/or how the understanding of the baseline conditions has evolved. Chapter 5 of this EIS Addendum (Vol 2) further describes the Indigenous communities with an interest in the Project.

To understand potential Project effects on Indigenous Considerations, the following section will provide background on treaties and geographical location of Indigenous communities. Many communities consider traditional territory mapping confidential, and when those maps were not made available, a

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description of traditional territory was provided as well as location of reserve if the community has a land base, which is detailed in Table 6.2.12-6.

Table 6.2.12-6: Communities with Potential Interest in the Marathon Palladium Project

First Nation (Nearest Populated Land Base)	Métis
Biigtigong Nishnaabeg (BN) (~20km south)	Red Sky Métis Independent Nation (RSMIN) (no land base, signatories to Robinson-Superior Treaty)
Pic Moberg First Nation (PMFN) (~50km east)	Superior North Shore Métis, Métis Nation of Ontario (MNO) (no land base)
Pays Plat First Nation/Pawgwasheeng First Nation (PPFN) (~125km west)	Ontario Coalition of Indigenous People (OCIP) (no land base)
Ginoogaming First Nation (~100km north)	
Long Lake No. 58 First Nation (~110km north)	
Michipicoten First Nation (~145km southeast)	
Animbiigoo Zaagi'igan Anishinaabek (Lake Nipigon) (~150km northwest)	
Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay) (~150km northwest)	
Red Rock Indian Band (~150km west)	
Bingwi Neyaashi Anishinaabek (Sand Point First Nations) (~150km west)	
Fort William First Nation (~225km west)	
Kiashke Zaaging Anishinaabek (Gull Bay First Nations) (~230km northwest)	
Whitesand First Nation (~260km northwest)	





The three unique Métis communities with an interest in the Project (RSMIN, MNO, and OCIP) are individual groups and not affiliated with one another.

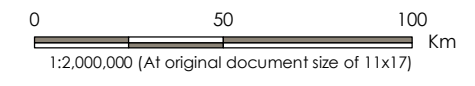
Some communities discussed in this section are in the geographic area of the Robinson Treaties of 1850, shown in Figure 6.2.12-1. The Robinson Treaties is the common name for the Robinson-Superior Treaty for Lake Superior Region and Robison-Huron Treaty for the Lake Huron Region, which were both signed in 1850. The communities who have indicated continued interested in the Project fall within the geographic area of the Robinson-Superior Treaty, with an estimated size of the treaty land to be 135,700 km² (Surtees, 1986) registered as the Crown Treaty Number 60. Many of the First Nations communities assert that they never relinquished their title to the land.

V:\0169\active\Other_PCs_Active\294 - Marathon\129673006 Marathon PGM\GIS\Map\129673006 Marathon and Treaty Map_2021 04 16.mxd Revised: 2021-04-16 8:30 chavez



Legend

-  Site Study Area Location
-  First Nation Community
-  Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
-  Waterbody



- Notes**
1. Coordinate System: NAD 1983 Statistics Canada Lambert
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
 3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

Project Location: Marathon
 Prepared by DH on 2021-04-16

Client/Project: GENERATION PGM INC.
 MARATHON PALLADIUM PROJECT

Figure No.: 6.2.12-1

Title: First Nation and Treaty Map

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6.2.12.4.1 Biigtigong Nishnaabeg

In 2003, BN brought legal action (known as the Michano litigation) against Canada and Ontario seeking a declaration of unextinguished exclusive Aboriginal Title to an area north of Lake Superior, claiming they did not enter the Robinson Superior Treaty in 1850 and did not adhere to the Robinson Superior Treaty after 1850. (Government of Ontario 2020).

BN asserts exclusive title to a territory in which the Project site is located. An application seeking a court declaration to this effect was initiated in Ontario Superior Court in 2004.

In 2015, a comprehensive land claim was filed in the Ontario Superior Court for Aboriginal title in BN traditional territory, which includes the Project site. The parties involved in the litigation began discussions to resolve the case outside of the court process. Through these discussions, the parties entered formal negotiations in May 2019 and the Michano litigation was put on hold in December 2019. Negotiations between BN, Ontario and Canada are ongoing. Figure 6.2.12-2 depicts BN's Exclusives Title Area of 10,500 sq km as well as the Shared Title Area of 27,300 sq km. Permission to use, distribute and publish the map showing BN traditional territory has been received from BN.

BN has completed numerous studies associated with the Project throughout their traditional territory. BN reports extensive traditional land and resource use in the SSA and LSA for the Project. They are the most proximate Indigenous community to the Project location, with their community located down river of the Project site on the bank of Pic River. They assert that the Project is within their exclusive territory. BN's community trapline encompasses the SSA and most areas of the LSA. Harvesting (hunting, gathering), consumption of country foods, and trapping are conducted by BN for furs, goods, food, and timber (fuel wood), which have economic value to the community as detailed in the presentation by BN on February 25, 2021 provided in the Record of Consultation (Appendix C of the EIS Addendum [Vol. 2]).

Based on the information gathered, it is evident that BN relies heavily on traditional diet and medicines in their community. Annually, BN hosts a community fall harvest east of the SSA. The harvest brings the community together to gather foods from their traditional territory, from moose and geese to berries and medicines. The annual harvest is an opportunity to share oral and traditional teachings amongst community members including youth, who have modified school days during the harvest to attend. BN's goal is to "increasing the connection to the land and understanding the historical traditional food systems - a deeper understanding of where food currently comes from and how to ensure health and sustainability in the longer term by looking at how their traditional food systems were changed as a result of colonization" (McLaughlin, 2019, p. 26).



Source: March 15, 2021 permission from BN Lands Resources via email

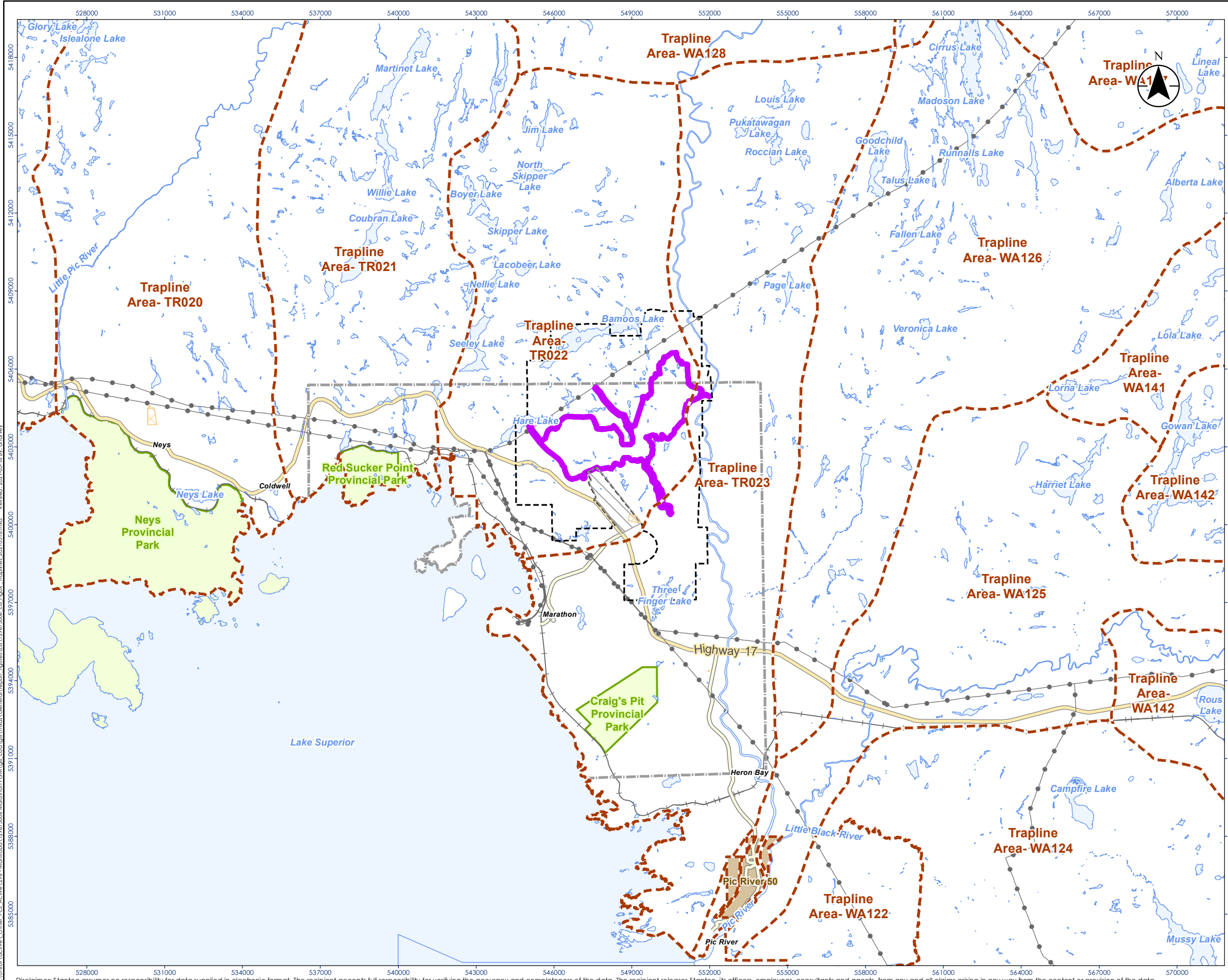
Figure 6.2.12-2: Biigtigong Nishnaabeg Exclusive and Shared Title Area

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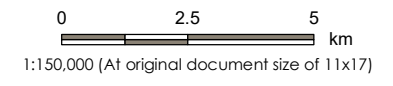
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BN has a community trapline (TR022) that encompasses the entire SSA and most of the LSA for the Project (Figure 6.2.12-3). Additional details on locations, specific quantities and types of wildlife harvesting activities have been provided by BN to GenPGM to inform the assessment but these details are considered confidential and not disclosed precisely in this assessment.

BN reports that extensive country food collections occur in the SSA and LSA, known locations for harvesting plants, animals and travel routes are detailed in a presentation they made on February 25, 2021 and provided with the Record of Consultation (Appendix C in the EIS Addendum [Vol. 2]). This presentation summarizes the reports and documents received from BN since 2011 on their TK/TLRU and VECs in which GenPGM has used to inform the assessment. Animal and plant harvesting activities will be restricted within the SSA over the life of the Project until such time as the site has been reclaimed and is deemed safe for public access. There is no fishery within the SSA. However, the SSA and LSA contribute meaningfully to BN's traditional diet and restricted access to these areas have the potential to negatively affect their traditional activities that support physical and spiritual health, gathering of medicinal plants and dietary health. The SSA and areas of LSA are largely within BN's community trapline, and trappers on Crown land have exclusive rights to their registered trapline (MNRF 2014).



- Legend**
- Project Boundary (MLAS, MENDM Changed 2017)
 - Site Study Area Boundary
 - Highway
 - Major Road
 - Hydro Line
 - Railway
 - Airport
 - Municipal Boundary, Lower Tier
 - Provincial Park
 - Waterbody
 - First Nations Reserve
 - Trapline Area Boundary
 - Waste Management Site



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 16N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.



Project Location: Marathon
 Prepared by: DH on 2021-03-18

Client/Project: GENERATION PGM INC.
 MARATHON PALLADIUM PROJECT

Figure No.: **6.2.12-3**
 Title: **BN Trapline - TR022**

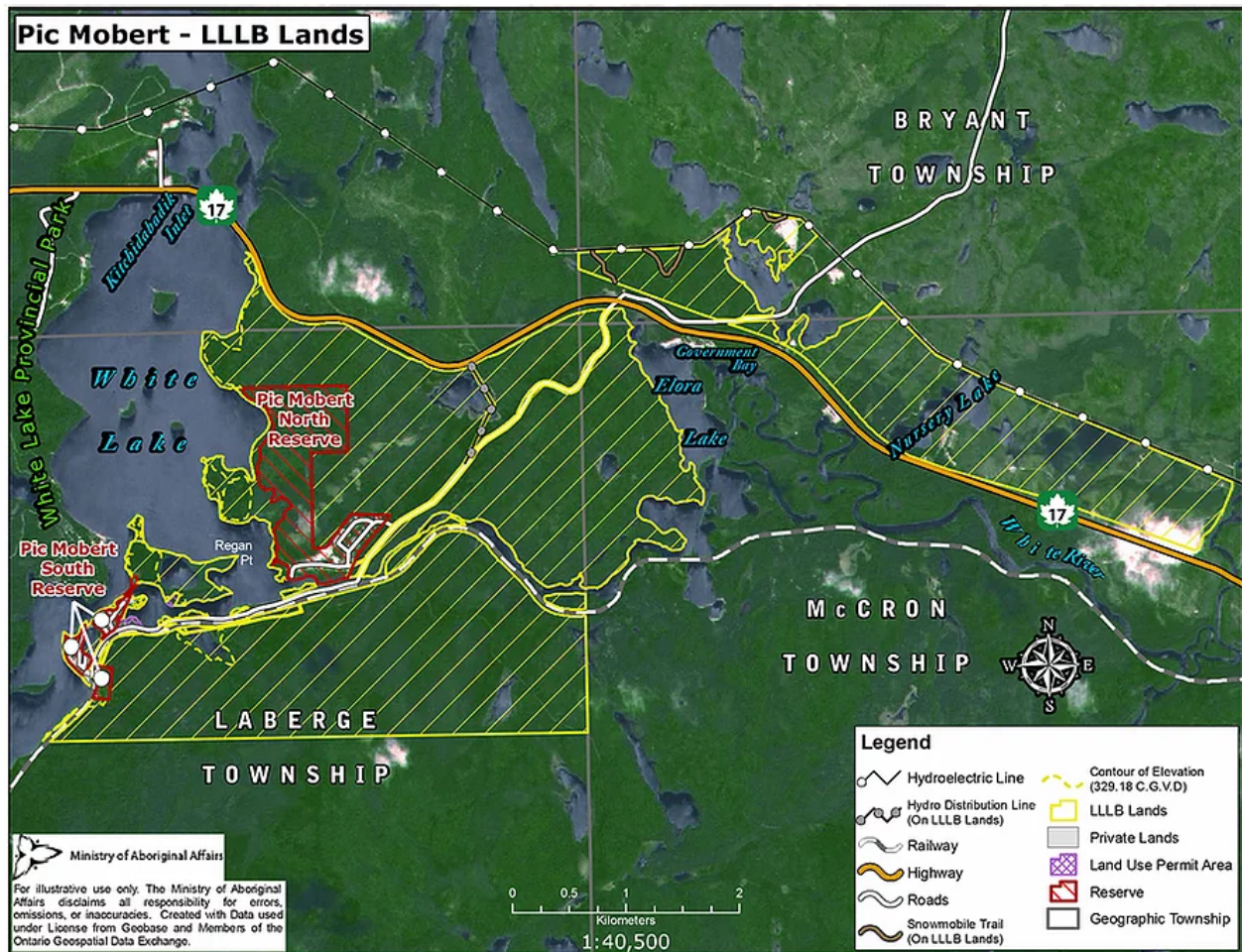
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6.2.12.4.2 Pic Mobert First Nation

PMFN also claims they were not signatories to the Robinson Treaties (1850), and that they never ceded or surrendered their Aboriginal rights or title over their territory (Netmizaaggamig Nishnaabeg, 2021). In 2014, PMFN signed an agreement with Ontario and Canada to add about 1,600 ha of provincial Crown land to existing PMFN reserve, illustrated in Figure 6.2.12-4.



Source: <https://www.picmobert.com/lands-resources>

Figure 6.2.12-4: Land and Larger Land Base Map for PMFN

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6.2.12.4.3 Pays Plat First Nation

PPFN has records documenting occupation on the north shore of Lake Superior dating to back to 1777. In 1850, William Benjamin Robinson and his group of Crown delegates were signing treaties with Ojibwa Chiefs from the north shore, and as written, the treaty included people who would later settle in the region of Pays Plat. According to the oral history of Pays Plat, many people were unaware of the signing as they were out hunting at the time.

Later in 1883, PPFN received one square mile of reserve land when Canadian Pacific Railway came to build a railway in the area (Pays Plat First Nations Pawgwasheeng 2021). In 2009, an Agreement-in-Principle was signed between PPFN and the Crown adding lands to the reserve, Figure 6.2.12-5 shows the original Reserve lands (blue) and expanded area (pink) included in the agreement.

On November 23, 2012, PPFN provided a summary of their Land Claim to the Panel ([CIAR #333](#)) stating the historic evidence assembled is to establish both its Aboriginal Title Claim or Specific Land Claim. The SSA and adjacent area are within PPFN's traditional overlapping territory and is not alleged to be exclusively used by PPFN but is shared between PMFN, BN and other Aboriginals.

As previously identified in IR 16.7 ([CIAR #457](#)), "Pays Plat First Nation have historically used an area alongside the lower reaches of Angler Creek as a camp/transient accommodation site and for related purposes in connection with past travel back and forth to Pic River First Nation to collect payments under the Robinson-Superior Treaty". A subsequent letter to the JRP on June 6, 2013 ([CIAR #466](#)) stated that there was a confusion in stream names due to error in signage on the highway but in recent conversations with PPFN, it was clear that the Stream 6, know as Angler Creek is the location of the camp.

The camp site of Angler Creek was documented in the *History of the Pic River Area* (Nute 1946) as follows:

"During the last Great War, German prisoners of war were employed in bush operations in the Thunder Bay District. To serve as a distribution point for these men, the Dominion Government built an internment camp on the sand flat behind Angler section house five miles west of Peninsula. This camp was in operation from 1942 to 1946, and only recently has been demolished."

PPFN continues to report trapping, fishing, hunting, gathering, picking, and harvesting in the SSA and LSA and throughout the Robinson-Superior Area. PPFN have indicated they fish in the lower reaches of Angler Creek near the outlet at Sturdee Cove for Rainbow Trout and Brook Trout and fish in Hare Creek, Hare Lake, Bamooos and Pic River and other waterbodies in or close to the study area.

6.2.12.4.4 Jackfish Métis: Ontario Coalition of Indigenous People

The Jackfish Metis (OCIP) do not currently have a formally recognized territory. OCIP reports that they live a traditional lifestyle. They have a strong connection to nature and the land. The members of OCIP state they practice traditional activities and share traditional knowledge with their families and members in the area of the SSA and LSA. OCIP has indicated use of Hare Creek and Hare Lake to travel north to access Bamooos Lake. OCIP has stated the importance of heritage sites, habitation sites, sites of historic importance, as well as trade and travel routes in the region.

In 2011, OCIP supplied a letter to the Panel ([CIAR #100](#)) detailing their interest in the Project. OCIP reports that they live a traditional lifestyle that is unique to OCIP. They are connected to all aspects of nature, the sky, wind, water, and land. The members of OCIP indicate they trap, gather, pick, fish, and harvest in the area of the SSA and LSA.

6.2.12.4.5 Red Sky Métis Independent Nation

RSMIN consists of descendants of the 84 “half-breeds” who were recognized by the Crown as beneficiaries and annuitants under the Robinson Superior Treaty of 1850, in concurrence with the First Nation peoples (RSMIN, 2021). RSMIN have a unique history, traditions, customs and practices that can be traced back to French Métis fur traders that settled in the area in the 1600s. RSMIN represents approximately 8,000 Metis citizens that reside throughout the Robinson-Treaty Area. Their traditional territory is illustrated in Figure 6.2.12-6, which totals roughly 115,000 km².

RSMIN has reported trapping, fishing, hunting, gathering, picking, and harvested rights in the SSA and LSA and throughout the Robinson-Superior Area. Community connections and relationships are important to RSMIN, the sense of shared interest, kinship, traditional activities, knowledge, and history help form a unique culture of RSMIN and Métis way of life. RSMIN has stated the importance of heritage sites, habitation sites, sites of historic importance, as well as trade and travel routes in the region.

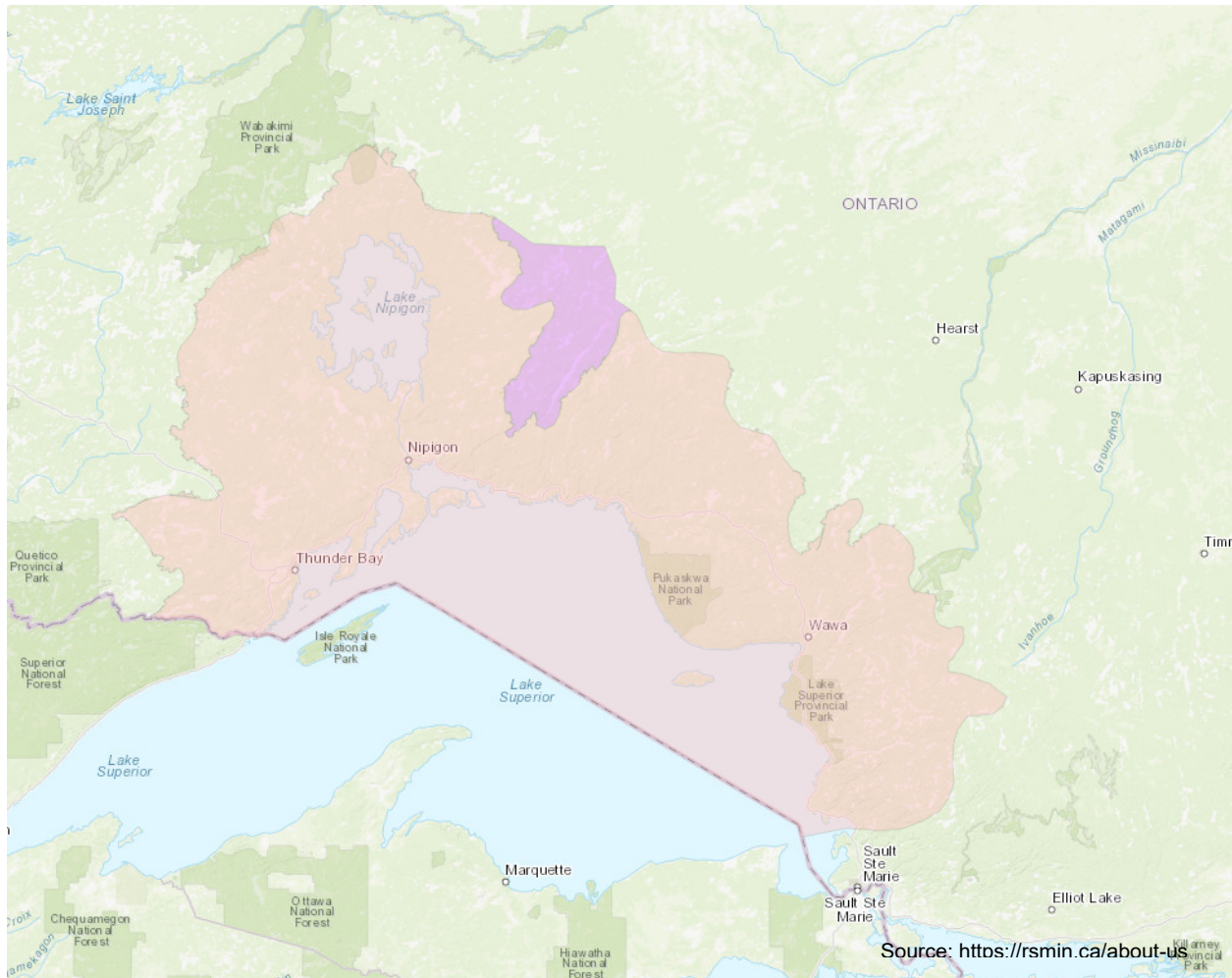


Figure 6.2.12-6: Red Sky Métis Independent Nation Traditional Territory Map

6.2.12.4.6 Superior North Shore Council of Métis Nation of Ontario (MNO)

The MNO represents regional rights-bearing Métis communities throughout Ontario. The Project is located in the Lakehead / Nipigon / Michipicoten traditional territory with a total area of approximately 130,000 km². A general geographical representation of the area is shown in Figure 6.2.12-7.

MNO has documentation showing that Métis have been practicing fishing, trapping and other traditional activities throughout the territory since the 1700s (MNO 2021a). The Superior North Shore Metis are direct descendants of the historic rights-bearers from the community. Many of the surnames from historical records are still present in the region. The MNO represents roughly 900 adults throughout the region and a total population of almost 3,000 Métis citizens.

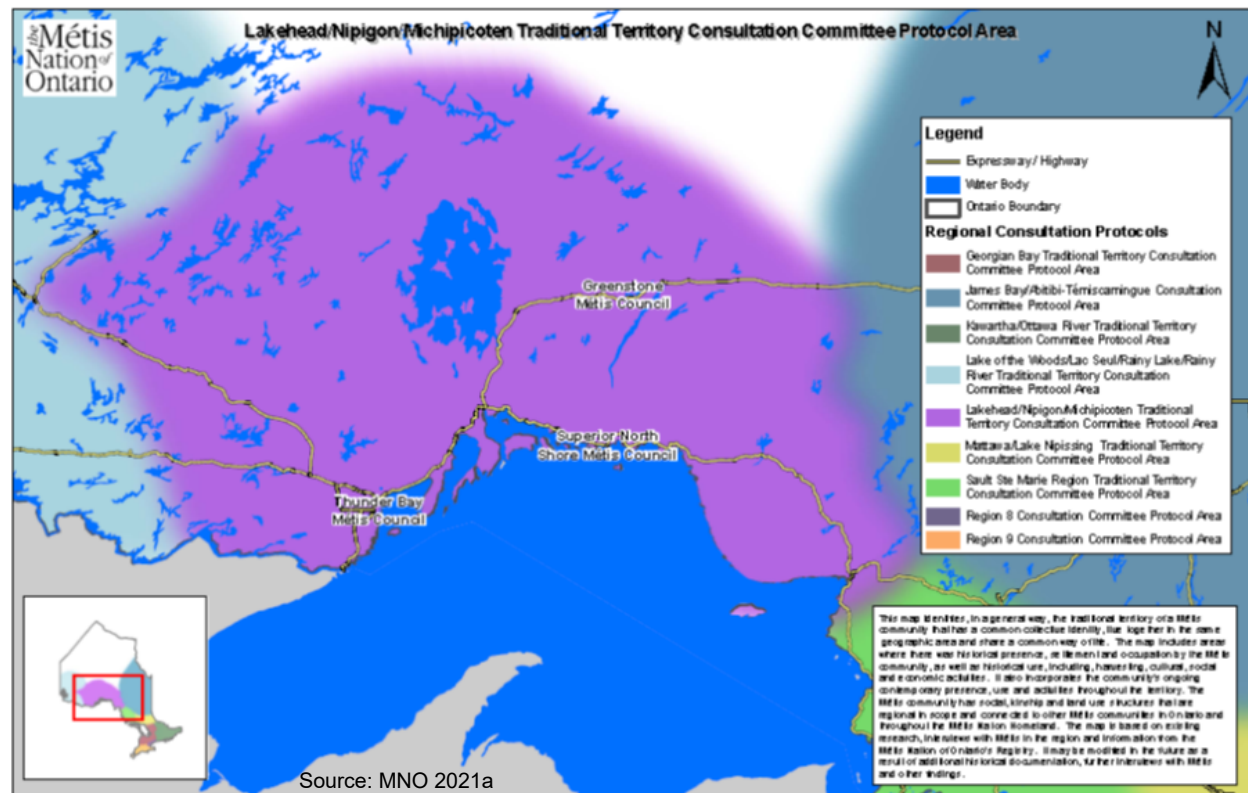


Figure 6.2.12-7: Lakehead/ Nipigon/ Michipicoten Traditional Territories Area Map

MNO have reported traditional diet, through hunting, gathering, and trapping in their historic harvest area identified in an agreement (renewed/updated April 2018) with the Ministry of Natural Resources and Forestry (MNR). The agreement recognizes Métis Harvesting Rights and has provisions to allow harvesting in historic Métis community areas by MNO citizens who hold a valid Harvesters Card. The agreement states that “MNO Harvesters Card holders who ancestrally connect to a Verified Métis Family Line for this Historic Métis Community may have their Métis Harvesting Area designated as: Lakehead, Nipigon and Michipicoten” (MNO 2021b, p. 13), which includes the SSA, LSA and portions of the RSA. MNO has indicated use of Hare Creek and Hare Lake to travel north to access Bamooos Lake. MNO has stated the importance of heritage sites, habitation sites, sites of historic importance, as well as trade and travel routes in the region.

It also contemplates areas in which Métis Rights co-exist with Aboriginal rights and in those situations, cooperative management regimes would need to be developed. However, as stated early the SSA and portions of the LSA are largely in the geographical area of BN’s trapline (TR022), and BN trappers have exclusive rights to their registered trapline. While within BN’s trapline, MNO members have not been precluded from using the SSA, LSA or RSA for gathering, hunting, and fishing and using these areas to promote spiritual, physical, or dietary health.

6.2.12.5 Determining Project Interactions with Indigenous Considerations

Potential effects as a result of Project-related activities are generally limited to the SSA, with some indirect effects extending to the LSA, and would occur from when the site preparation and construction phase begins to the time at which it is deemed safe for the general public to access the site following decommissioning. Effects related to First Nation and Métis country food gathering and use of the BN community trapline could extend into the closure phase for a somewhat longer period as the reclamation process takes hold and plant and animals communities re-distribute themselves in the landscape. Potential interactions between the Project and components of the environment have been identified in each of the specific sections above.

6.2.12.6 Assessment of Residual Effects on Indigenous Considerations

The assessment of residual effects on Indigenous considerations is broken down into 3 components:

- Changes to traditional land and resource use, including wildlife harvesting (with a focus on the BN trapline), traditional fish harvesting, traditional plant and material harvesting and access and travel routes
- Changes to Indigenous heritage and archaeological resources
- Changes to Indigenous health, including as a result of drinking water and country foods

6.2.12.6.1 Change to Traditional Land and Resource Use

Traditional land and resource use includes animal harvesting, plant harvesting, fish harvesting, country foods, timber harvesting, travel routes, and trapping. The Project-related potential effects include the loss, alteration or restriction of access to such traditional land and resource uses, temporary or permanent loss of locations identified for harvesting of plants, wildlife (hunting), fish for food, cultural and medicinal purposes, effects to the BN Community Trap line, and changes to travel routes for harvesting.

Analytical Assessment Techniques

Wildlife, Fish and Plant Harvesting

The assessment techniques on Project effects to traditional wildlife harvesting included a review of information on known features, traditional land and resource use, trails, travel routes, and harvest sites, which was gathered from numerous technical, TLRU and TK studies and land use mapping provided by indigenous communities to GenPGM. These documents are confidential but were used to inform the assessment and where possible general details have been provided to assist in the determination of potential Project effects.

The assessment techniques on Project effects to traditional land and resource use included a review of information on known features, traditional land and resource use, trails, travel routes, and harvest sites, which was gathered from numerous technical, TLRU and TK studies and land use mapping provided by

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indigenous communities to GenPGM. In most cases, these documents are confidential but were used to inform the assessment and where possible general details have been provided to assist in the determination of potential Project effects.

The analytical assessment techniques used to assess changes to traditional wildlife harvesting relied on the techniques and determinations from Sections 6.2.7 (wildlife), 6.2.4 (fish), and 6.2.6 (vegetation) of this EIS Addendum (Vol 2). These assessment techniques included an analysis of habitat quantity (e.g., amount of land lost), habitat quality (e.g., sensory disturbance), habitat fragmentation, and wildlife survival. Specific consideration of wildlife and plants identified as species of interest to Indigenous communities is specifically referenced in Sections 6.2.7.6.5 and 6.2.6.18, respectively.

BN Community Trapline

Specific consideration of potential effects to the BN trapline was informed by specific information on known features, traditional land and resource use, trails, travel routes, harvest sites and other considerations around BN's Community Trapline, which was gathered from numerous technical, TLRU and TK studies and land use mapping provided by BN to GenPGM. These documents are confidential but were used to inform the assessment and where possible general details have been provided to assist in the determination of potential Project effects on BN Community Trapline. Assessment techniques also included an analysis of fish mortality, habitat loss, change in habitat quality, and effects to benthic invertebrate communities, as well as an analysis of direct vegetation loss and indirect change or impairment.

Access and Travel Routes

In regard to access and travel routes, the assessment techniques on Project effects include review of TK and TLRU mapping that provided travel routes, consultation with communities explaining verbal accounts of travel routes and access in the Project area and navigable waters that are generally described in Appendix D7 of this EIS Addendum (Vol 2).

Project Pathways

Potential wildlife harvesting is affected by the ability to access areas for hunting and the availability of wildlife to hunt in those areas. Access to areas to perform traditional wildlife harvesting activities generally follows established travel routes via existing access locations. Understanding how these access points and travel routes may be affected will be assessed.

BN, PPFN, RSMIN, MNO and OCIP have reported traditional and current resource use within the region, PPFN has identified areas around Hare Creek, Hare Lake, Stream 6 (Angler Creek) and other locations outside of SSA, but nothing specifically within the SSA. RSMIN, MNO and OCIP did not provide known locations specific to the SSA or LSA but generally described use of the region and activities within their traditional territory. Based on available information provided by these Indigenous communities and organizations they appear to undertake similar types of TLRU, including animal harvesting, plant harvesting, fish harvesting, and country food harvesting.

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Wildlife Harvesting

Potential wildlife harvesting is affected by the ability to access areas for hunting and the availability of wildlife to hunt in those areas. Access to areas to perform traditional wildlife harvesting activities generally follows established travel routes via existing access locations. Understanding how these access points and travel routes may be affected will be assessed.

BN, PPFN, RSMIN, MNO and OCIP have reported general traditional and current resource use within the region, including the SSA and LSA.

BN has specifically identified locations on mapping illustrating wildlife harvesting, including hunting and trapping, features within the SSA for the Project, primarily situated along Camp 19 Road, the existing access road through the Project site. BN, PPFN, MNO, RSMIN and OCIP have not provided specific hunting locations within the SSA but have stated general use of the area for wildlife harvesting. The Métis groups have also stated the harvesting of foods and materials are used to trade, barter and gift to each other and other Indigenous communities.

Restricting access to foraging, trapping, and harvesting activities will negatively affect the economic benefits BN could obtain from these activities. Access to and through the SSA to access other areas for traditional wildlife harvesting has been restricted for the past 15 years, although arrangements have been made with BN for access. Once the Project commences, access to and through the SSA will no longer be available as the site will be actively mined and restrictions will be necessary for public safety. These restrictions will commence with site preparation and construction and last through operations and into closure until such time as the site is once again deemed safe for public access.

The potential effects of the Project as it pertains to current and resource use go beyond the act of harvesting itself. As described in this section, the activities associated with current and traditional land use play an important role in the economic, social, cultural, and spiritual lives of indigenous communities, including BN, PPFN, RSMIN, MNO and OCIP. Restriction of harvesting activity at the SSA scale will potentially affect the cultural benefits that are accrued to those who engage in these activities, and the Indigenous communities as a whole to the extent that harvesting helps to establish and maintain cultural identity. Species at risk are not harvested generally, and are not harvested in the SSA, but rather are indicators of overall well being of the environment and have spiritual and cultural value to Indigenous communities.

Changes to wildlife and wildlife habitat have potential to affect species of importance to Indigenous communities that occur on in the SSA and LSA including Canadian Goose, Mallard Duck, Ruffed Grouse (Partridge), Wolf, Lynx, Hare/Rabbit (snowshoe hare), Red Fox, Beaver, Black Bear, Marten, Moose, Mink and White-tailed Deer and eggs of various birds. Effects on wildlife and wildlife habitat have been assessed in Section 6.2.7. Site preparation and construction activities have the greatest potential interaction with wildlife through direct disturbance to wildlife and wildlife habitat as a result of removal of forest cover and vegetation to support the development of Project components and infrastructure (see Section 6.2.7.6). As discussed in Section 6.2.7.6.1 of this EIS Addendum (Vol 2), it is conservatively assumed that all vegetation in the SSA will be removed or altered. Potential pathways also include habitat

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fragmentation, edge effects and changes to predator prey dynamics. Indirect interactions are also expected to occur as a result of sensory disturbances.

No additional wildlife habitat will be removed during operation. Indirect interactions through noise, dust, light and other sensory disturbances are expected to occur within portions of the LSA nearest to the SSA as a result of Project activities. During closure, mining activities will cease and efforts to reclaim and restore the areas within the SSA will be implemented. Disturbances and displacing of wildlife as a result of Project-related activities will lessen as activity decreases and progressive rehabilitation activities occur.

BN Community Trapline

Site preparation, construction and operations activities could result in loss or alteration of currently available access to traplines, access, hunting areas and wildlife availability for Indigenous communities. These locations could be temporarily or permanently affected by direct disturbance (e.g., footprint, changes to access) and indirect change or impairment (e.g., visual, dust, light, smell) from the Project. It is expected that Indigenous hunters and harvesters would avoid the Project site during construction and operations due to workers being present and safety concerns associated with discharge of firearms or other hunt methods (traps, snaps, bows).

Areas of the BN Community Trapline (Figure 6.2.12-3) in the SSA will be removed with the commencement of site preparation and construction of the Project and access to some areas of LSA maybe restricted by the development of the Project. Changes in land features in the SSA associated with the development of Project infrastructure will impact the distribution and availability of wildlife in the SSA both for short-term and in the longer term after closure. Significant portions of the habitats that will be disturbed to accommodate the development of the mine will be restored through reclamation.

The entire footprint of the SSA and areas of LSA are largely within BN's Community Trapline, and trappers on Crown land have exclusive rights to their registered trapline (Ontario Ministry of Natural Resources 2011). Due to the exclusive right of BN to use the BN Community Trapline (TR022) the Project is not predicted to affect other Indigenous people or communities trapping. The Project is located in BNs asserted exclusive territory, that has a geographic area of 10,500 km² (1,050,000 ha). As reported in 2013, the BN members held 13 registered traplines, including TR022 within their exclusive territory. The approximate area of the BN Community Trapline TR022 is 15,500 ha (150 km²).

Fish Harvesting

Project-related activities have the potential to result in the loss of fish habitat and access to fish harvesting locations and to indirectly effect water quality and benthic invertebrate communities in habitats used by fish that have the potential to affect traditional fish harvesting. During construction, Project activities would result in the direct overprinting of fish habitat and may include the infilling or dewatering of existing waterbodies and loss of riparian areas which may result in loss of fish habitat. For construction, operations and closure stages of the Project, activities can indirectly effect water quality and quantity.

However, no Indigenous, recreational, or commercial fishery has been identified in the SSA. Reported use for fishing by Indigenous peoples largely focused on Bamooos Lake, Hare Lake, and the lower reaches of its outlet creek, as well as Lake Superior (near shore area) including the lower reaches of

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Stream 6 (Angler Creek) and the Pic River. Bait fishing has been reported north of the SSA in Claw Lake (L19).

Indirect effects would include any change in access that may preclude Indigenous communities from accessing locations where traditional fish harvesting occurs. Access to Bamoos Lake would be temporarily affected but the lake would continue to be accessible through a “trail” identified by Indigenous communities from Hare Lake to Bamoos Lake and by means other than the existing site access road, and specific arrangements to permit continued access for Indigenous peoples were to be arranged.

Plant and Material Harvesting

The Project has the potential to result in localized reduction and ability to forage for traditional plants and harvest other materials such as timber within the SSA. Access to gather traditional plants and materials will be restricted during construction and operations. Potential environmental effects to vegetation communities during Project construction are primarily associated with vegetation clearing and removal activities and are considered direct effects on vegetation communities. During Project operation and closure, vegetation removal will have already occurred, and additional vegetation removal is not anticipated; therefore, no additional Project interaction are anticipated with vegetation communities. During operations, the potential Project effects on traditional plant and material harvesting, in addition to access restrictions, are associated with indirect effects (e.g., from dust). Potential Project effects during decommissioning and active closure are associated with land reclamation and re-vegetation activities and are considered direct and indirect effects on vegetation and traditional plant and material harvesting.

Access and Travel Routes

Based on the review of available information provided by Indigenous communities, changes to access and travel routes located in the SSA could result from both direct and indirect effects. Potential effects include changes to use of current travel routes on land and changes to use of travel routes by water.

Changes in land features in the SSA associated with the development of site infrastructure will directly impact a roughly 6 km section of an access trail that provides a travel route north towards areas such as Bamoos Lake and into the northern end of the BN Community Trapline. There is potential for indirect impact as result of sensory disturbances that could deter traditional land users from travelling in areas due sensory disturbances. The development of the site can also impact navigable waters and those water travel routes directly through the removal of the waterways or changes in water quantity in the SSA both for short-term and in the longer term, after closure. Substantial portions of the habitats that will be disturbed to accommodate the development of the mine will be restored through reclamation.

Potential changes to access and travel routes would occur at the start of site preparation and constructions and continue throughout the life of mine. After closure and with installation of safety structures to protect the public, access would be restored and travel routes by land and water would be available.

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Mitigation and Enhancement Measures

During Project planning and optimization of the conceptual mine design, efforts have been made to optimize the Project footprint and reduce clearing of the SSA. Existing disturbed areas were incorporated into the SSA to accommodate Project components and, where possible, to reduce direct effects on wildlife habitat and corresponding vegetation species. Project design, planning, and management as well as the application of standard proven mitigation measures will be employed to reduce impairment of habitat use from sensory disturbance and indirect effects, decrease fragmentation and potential barriers to wildlife movements and minimize physical disturbance.

In addition to the mitigation measures proposed to reduce potential adverse effects on wildlife (see Section 6.2.7), fish (see Section 6.2.4), vegetation (see Section 6.2.6) and land and resource uses (see Section 6.2.11), the following additional mitigation measures are proposed to avoid or reduce Project-related effects, both direct and indirect, to traditional land and resource use:

- Planning and design of the Project was informed through consultation with local land users and Indigenous communities to identify existing uses and avoid waterbodies considered important to those communities and individuals
- Provide limited access to areas of the SSA that are outside of the primary areas of mining activity for Indigenous communities, to the extent possible
- Develop a protocol for use of the initial portion of the Camp 19 Road from which there is access to the Pic River and other travel corridors used to access areas for traditional wildlife, fish and plant harvesting. Though no restrictions are envisaged for this section of road, mine-related traffic on this section of road is a concern from a public safety point of view. GenPGM will work with local Indigenous peoples (as well as other local users) to develop a procedure that will ensure continued safe use of the road to access locations of interest that do not fall within the mine's direct zone of influence.
- Compensation for the loss of access, economic benefits of trapping, and use of a portion of BN Community Trapline within the SSA
- Where practicable, design site and place buildings situated in topographically low areas, blended with surrounding height of land and vegetative buffers with forested areas to break lines of sight to reduce visibility of site infrastructure from viewpoints in LSA.
- Prior to acceptance of the closure plan, which is required prior to the commencement of construction, GenPGM will consult with Indigenous peoples and in particular BN to discuss the concepts developed for closure and seek further information, opinion, and guidance. It is assumed that these consultations will include discussions of potential end use planning for the site, and more specifically how, the site can be reclaimed to support land and resource uses envisioned by Indigenous peoples and other stakeholders. This could include for example incorporating plants used for traditional purposes (country foods, ceremonial plants) into site revegetation plans; enhancing reclaimed areas to provide preferential habitat for particular wildlife species; and/or, various other uses

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- Implement Follow-up Monitoring and Environmental Management Plans on waterbodies such as Pic River extending downstream of the Project site to the mouth of Lake Superior, the outlet of Hare Creek at Port Munro and Stream 6 (Angler Creek) and the outlet at Sturdee Cove that have significance to Indigenous communities.

Project Residual Effect

Wildlife Harvesting

With respect to wildlife harvesting, the potential effects as a result of Project-related activities are generally limited to the SSA, which represents the area where with the greatest potential for direct effects due to habitat loss and displacement. It is expected that wildlife will be displaced from the SSA to seek similar suitable habitat in surrounding areas of the LSA. Further, hunting in the SSA will not be permitted for the duration of the Project. Therefore, the Project will result in the direct loss of 1,116 ha of area where traditional wildlife harvesting activities could occur. However, the use and quality of this habitat varies by the species and extensive areas exist outside of the SSA where traditional wildlife harvesting is currently practiced that will continue to be available to Indigenous communities.

The Project will restrict harvesting activities within the SSA over the life of the Project until the site has been reclaimed and is safe for public access. However, continued access to the LSA will not be affected by the Project for animal, plant, fish, and timber harvesting purposes.

Site preparation and construction will result in the loss of approximately 1,081 ha of forested habitat in the SSA, 21 ha of wetland, and less than 1 ha of rock barren/talus habitat. These habitats and ecosites are common and widespread in the RSA and their loss in the SSA is not predicted to jeopardize their long-term habitat availability (see Vegetation Section 6.2.6.7.6.1 of this EIS Addendum [Vol 2]). For comparison, the RSA for wildlife is approximately 1,153,240 ha. BN's traditional territory, including exclusive and shared territories, encompasses over 2,000,000 ha (BN, 2021a), and the BN trapline is 15,000 ha (see Figure 6.2.12-3). MNO's traditional territory is roughly 11,500,000 ha and RSMIN is estimated to be 13,000,000 ha. These are provided for reference only, and while not all of these areas are suitable for hunting, more specifically for traditional harvesting of wildlife, the loss of potential traditional harvesting in the SSA is only a fraction of the available areas.

For further reference, the boreal forest is a disturbance-driven ecosystem and loss of forest due to the Project is well within natural variation, and orders of magnitude smaller than annual disturbance levels from commercial forestry in the RSA (Pic Forest FMU) that are determined to be sustainable by the MNRF. In comparison, 17,514 ha of forest was scheduled to be harvested in the Pic Forest in 2020-2021 alone (NFMFC 2019) and the area cleared for commercial forestry on the Pic Forest during the life of the mine will be at least two orders of magnitude larger than the SSA.

Upon completion of mining activities, the SSA will be rehabilitated in accordance with the Conceptual Closure Plan (See Section 1.5.2.3 of the EIS Addendum [Vol 1]) ([CIAR #727](#)). Rehabilitated upland communities are predicted to include early successional treed areas, open meadows, and a mosaic of mixed early successional trees and shrubs, meadow, and exposed rock. See Vegetation Section 6.2.6 of this EIS Addendum (Vol 2) for conceptual post-closure vegetation communities and habitats.

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Most furbearers will be displaced from the SSA through site development and construction. Some species that are more tolerant of human disturbance (e.g., red fox) may become accustomed to human activity and move back to the periphery of the site, particularly portions of the SSA where at least some vegetation remains (e.g., understory vegetation or uncut pockets of overstory).

Following completion of mining activities and restoration of the areas disturbed by the Project, many of the mammal / furbearers are expected to return to the SSA. This has been observed following other mining projects, including the former Inmet zinc mine at Winston Lake (20 km northwest of Schreiber species), where approximately 20 years following suspension of mining operations, red fox, snowshoe hare, short-tailed weasel, least and eastern chipmunks were observed using partially rehabilitated areas (Foster 2019). Displaced beaver, river otter, and American mink may recolonize riparian and aquatic habitats in the SSA or LSA.

The portion of the LSA area affected by noise >50 dB (440 ha) is approximately 1/3 the size of the cleared SSA, and relatively few individuals will be impacted. Habituation to noise is anticipated, with individuals of some species likely to return to using those areas of the LSA. Although moose can be sensitive to anthropogenic activities and avoid areas where occasional or unpredictable disturbances occur, they often will habituate to non-threatening disturbances that are constant or ongoing (e.g., Horesji 1979; Rudd and Irwin 1985); they are routinely observed along highways in northern Ontario, for example.

Habitat suitability for beaver is quite variable in the SSA and broader RSA (Appendix D8.1 of this EIS Addendum [Vol 2]), reflecting varied terrain, hydrology, and forest composition. Approximately 400 ha (35% of the SSA) has at least 60% modelled occupancy for beaver based on FRI attributes. There are 23 waterbodies in the SSA, all less than 10 ha in size, which collectively encompass a total of 17.7 ha. Those represent less than 0.2% of the 11,256 remaining waterbodies of the same size class (i.e., <10 ha) in the RSA that collectively cover 11,409 ha. This comparison suggests that the loss of actual and potential beaver habitat in the SSA is minor compared to available habitat in the surrounding landscape. The 11,409 ha likely underestimates potentially available habitat in the RSA since beaver can also use larger waterbodies and create ponds on watercourses.

Approximately 62% of the SSA is modelled as preferred marten habitat (>75% suitability) (Appendix D8.2 of this EIS Addendum [Vol 2]). Due to their mobility, any marten present in the SSA are expected to be displaced, rather than killed, by forest clearing activity given appropriate mitigation (e.g., timing). Juvenile martens routinely disperse from their natal territories, often 10s of kilometres distance (Bull and Heater 2001), and marten are generally adapted to life in the disturbance-driven boreal forest. Clearing of the SSA will displace marten to adjacent landscape, where factors other than just habitat availability will influence marten numbers, such as prey availability, trapping, and predation by fishers, lynx, wolves and other species (e.g., Suffice et al. 2017). The loss of habitat in the SSA represents only a small fraction (<0.2%) of the 392,000 ha of preferred marten habitat (>75% suitability) available in the RSA (Appendix D8.2 of this EIS Addendum [Vol 2]). In addition, the marten habitat in the SSA is not part of a larger (i.e., 3,000 ha) block of contiguous habitat at the landscape scale (Appendix D8.2 in this EIS Addendum [Vol 2]).

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Overall wolf numbers are reported to have increased regionally (Patterson and de Almeida 2011), with a predicted wolf density in the RSA of approximately 12-13 wolves per 1,000 km² (Northern Bioscience 2012c) ([CIAR #722](#)). Given that average annual home range size for wolf packs in and near Pukaskwa National Park ranged from 101 km² to 644 km² with a mean of 388 km² (Forshner et al 2003), this suggests that the SSA represents only a portion of the home range of one wolf pack. Site development and construction are expected to displace wolves to other parts of their home range due to loss of habitat and potential prey and their main prey. Gray wolf distribution and density within the SSA and LSA will be affected through Project phases by prey availability

Clearing of the Project footprint will result in the loss of habitat for black bear, at least during the duration of operations. Habitat models (Appendix D8.3 of this EIS Addendum [Vol 2]) suggest the existing habitat in the SSA may be lower suitability for black bears relative to other areas of the RSA. However, the habitat models have not been validated for the boreal forest and the presence of the landfill immediately to the south of the SSA, which may increase suitability in the local landscape through additional food supply. Although black bears and signs of their presence were widespread throughout the SSA (Northern Bioscience 2020) ([CIAR #722](#)), bears were most frequently observed along the access road near the landfill in 2020 and during previous fieldwork.

Clearing of the SSA will result in the loss of moose habitat. As identified in the original EIS (2012), the SSA does not appear to represent high quality moose habitat and generally provides poor winter habitat. The updated moose habitat models presented in Appendix D8.4 of this EIS Addendum (Vol 2) confirm the SSA has a lower overall carrying capacity compared to other areas in the RSA, with the SSA having a mean carrying capacity of approximately 0.13 moose/km². In contrast, the total carrying capacity for the RSA is, on average, 0.24 moose/ km², with some portions of the RSA having carrying capacity as high as 0.55 moose/ km². Therefore, potential impacts on moose populations from the Project due to habitat loss appear limited, particularly given that moose population levels currently meet (WMU 21A) or exceed (WMU 21B) target objectives at the landscape scale. Furthermore, site rehabilitation may recover some lost habitat for moose after closure, such as shrubby browse along the transmission line corridor. The MRSA and PSMF will likely be revegetated with forbs and grasses initially to stabilize the soils, but as succession continues and forested areas begin to expand, early successional shrub and tree species such as willow (*Salix* spp.), balsam poplar (*Populus balsamifera*), and trembling aspen (*P. tremuloides*) are expected to provide increased moose browse.

The SSA provides limited waterfowl habitat, with nine small waterbodies (between 0.5 ha and 5.0 ha in size) and a total of 17.7 ha of aquatic habitat when smaller ponds are included as well. An aerial survey in late May 2011 of 50 lakes and ponds in the LSA typically found a single pair of nesting waterfowl on each waterbody, primarily hooded mergansers, ring-necked ducks, and common goldeneye (Northern Bioscience 2012b) (SID #25) ([CIAR #234](#)). Assuming a density of 1-2 nesting pairs per waterbody, potentially 10-20 pairs of waterfowl could potentially be displaced by site development and construction in the SSA. Some waterbodies will eventually be re-established (e.g., filling of the pit), but will likely not have the same productivity and characteristics of the waterbodies lost during site development of the SSA. However, similar habitat is widespread, with over 11,000 remaining waterbodies of similar size (i.e., <10 ha) in the RSA that collectively cover 11,409 ha.

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Limited residual effects are predicted on shorebirds, wetland birds, or waterfowl from sensory disturbance due to the low numbers of potentially impacted individuals and limited habitat in the LSA. The affected area of the LSA encompasses 12 small waterbodies totaling 14.4 ha, and limited wetland habitat according to the FRI (i.e., 1.1 ha of meadow marsh and 2.2 ha of treed fen [unsuitable for marsh birds or waterfowl]). If sensitive to disturbance, returning migrants will likely avoid the Project site and be displaced to available habitat elsewhere in the RSA.

There is no substantial shorebird habitat for resident breeders or migrants. Residual effects from the loss of wetland habitat (discussed above) and limited shoreline habitat along the margins of the few waterbodies within the SSA is expected to be negligible given the low density of shorebirds.

Although habitat fragmentation will reduce local connectivity within the LSA and SSA during the life of the Project, the fragmentation will not substantially alter the broad-scale landscape connectivity in the RSA. As discussed for Vegetation (Section 6.2.6 of this EIS Addendum [Vol 2]), with respect to forest fragmentation, the 1,116 ha SSA is larger than the average clearcut size on the Pic Forest FMU, which is projected to be 495 ha for the 2019-2029 period (Pic FMP unpublished data). In addition, 87% of the areas disturbed by wildfire over the last 60 years on the Pic Forest FMU were from fires greater than 1,000 ha in size (NFMCC 2018). During closure, it is anticipated fragmentation will also be reduced following the re-establishment of vegetation. Given the resilience of the boreal landscape to disturbance, the relatively small changes restricted to the SSA are not predicted to threaten the function of landscape connectivity.

BN Community Trapline

Residual effects for change to the BN Trapline are provided in Table 6.2.12-8 and discussed below. Site development and construction will result in the loss of 1,081 ha of forested habitat in the SSA, 21 ha of wetland, and less than 1 ha of rock barren/talus habitat. As mine development commences, access to and through the entire SSA (1,116 ha) will be restricted. Indirect loss of approximately 1,300 ha of land in the SSA may occur due to sensory disturbances and safety consideration in close proximity to the active mine site during construction and operations. The direct effects would also involve a 6 km section of the access trail through the SSA that would be restricted during construction and operations. The trail is currently accessible by highway vehicles to the M2W corridor, at which point only off-road vehicles could continue north. The total area of direct and indirect effects is 2,416 ha which represents 15.5% of the total land area of BN Community Trapline and 0.2% of BN's entire exclusive territory. Limited access would be made available by GenPGM to BN community members through the access protocol on occasion to the remaining trap line area north of the SSA. Compensation for the loss of access, economic benefits of trapping and use of a portion of BN Community Trapline within to the SSA will reduce the potential adverse effects.

Some disturbances are considered irreversible, such as alterations to the natural landscape even with reclamation, some disturbances are temporary and associated with intermittent Project activities that could have an indirect impact on wildlife and Indigenous hunters in the area, and other changes are considered reversible at closure, such as access to trails and final reclamation of the site. As noted above, some species are more tolerant to human disturbance and will remain in the area, and others can take 5 to 20 years to return to site depending on revegetation success and stabilization of the site. The

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adjacent areas and trapline TR023 to the east, it may experience some increase in furbearer harvest as a result of displacement in the SSA.

For BN, there is economic, societal value (gifts of food), spiritual and cultural value associated with foraging and trapping on their Community Trapline. A June 2012 study (unpublished, confidential) conducted by Dr. Paul Driben, summarized the cultural, societal, and economic values for BN members who hunt, trap, fish, and harvest foods (e.g., Blueberries) on and in the vicinity of the Project.

Fish Harvesting

No Indigenous, recreational, or commercial fishery has been identified in the SSA. The primary adverse residual effect resulting from direct physical HADD is through direct overprinting of fish habitat by mine infrastructure within SSA; however, no direct Project effect is predicted in areas used for fishing by Indigenous peoples, as such activities are largely focused on locations outside of the SSA (i.e., Bamoos Lake, Hare Lake, and the lower reaches of its outlet creek, as well as Lake Superior (near shore area) including the lower reaches of Stream 6 (Angler Creek) and the Pic River. Bait fishing was reported in Claw Lake (L19). Indirect effects to water quality and quantity are predicted to remain below criteria for the protection of aquatic biota (see Section 6.2.3 of this EIS Addendum [Vol 2]).

The primary means of mitigation will be through avoidance and management of water quality. The secondary means is through the implementation of fish habitat offsetting in consultation with DFO and other interested parties. It has been determined that a HADD of 9.22 ha will be created by the Project, which is the minimum area of offset that will be required. Section 6.2.4.6 of this EIS Addendum (Vol 2) includes an assessment of Project residual effects on fish and fish habitat, which are applicable to assessing a change to traditional fish harvesting.

The access road will require the installation of three crossings of tributaries of subwatershed 101. In addition, a road and pipeline crossing will be necessary at subwatershed 106 immediately west of the PSMF for the Hare Lake discharge pipeline / maintenance road to Hare Lake (See Figure 1.5.1 of the EIS Addendum (Vol 1)) ([CIAR #727](#)). An additional yet small area associated with the overall fish habitat loss area will be associated with the Hare Lake Discharge pipeline and outfall, at its direct outlet to Hare Lake. The design of these elements will be consistent with applicable best practices and standard codes as associated with works below the high-water mark and projects near water.

Bamoos Lake, which is known to support a local Lake Trout and Brook Trout recreational fishery, was avoided as part of the conceptual mine design included in the original EIS (2012) based on input received from Indigenous communities and the public at that time. The avoidance of Bamoos Lake within the footprint of the Project and as a receiver of mine discharge has continued as part of the updated Project design. As such, direct and indirect effects on Bamoos Lake and its fish and fish habitat are not anticipated.

The loss of habitat will be realized through the construction and early operation phases dependant on the schedule of the construction and implementation of mine site water balance and associated infrastructure. Additional effects are not expected during the remainder of operation or closure phases. Construction / implementation of offsetting measures are likely to occur during the phased approach of closure when the

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PSMF will be reclaimed and surface water features will be created to restore the natural drainage patterns in Stream 6 (106 subwatershed). The restoration of natural drainage patterns in Stream 6 are further discussed in Section 6.2.4.6.3 of this EIS Addendum (Vol 2). Portions of the MRSA will be reclaimed and surfaces re-graded as necessary to improve drainage during this period and the natural surface water drainages for Streams 2 and 3 will be restored.

During site preparation and construction, changes to surface water quality as a result of Project-related activities (e.g., vegetation clearing and grading) primarily relate to the mobilization of suspended materials into natural surface water features. These impacts are mitigatable through the adoption of standard erosion and sediment control methods including soil stabilization practices.

During operations, discharge of excess water is considered to be the primary potential water quality effect. This discharge would eb from the site water management system to Hare Lake. Effluent discharged to Hare Lake is expected to meet benchmarks, within 150 m (or less) of the discharge point, for the protection of aquatic biota and therefore will be protective of fish and fish habitat.

Following the cessation of mining operations, the discharge to Hare Lake will cease. Once acceptable water quality has been confirmed, it is expected that natural surface water drainages will be restored. No exceedances of water quality benchmarks in the Pic River as the result of closure scenario drainages are predicted

Plant and Material Harvesting

The removal of habitat that supports plant and fungus species of interest to Indigenous communities from the SSA is not anticipated to affect the viability of populations of these species in the LSA and RSA. Given that these plant and fungus species of interest are relatively common in the RSA and are predicted to maintain viable populations in areas that will be accessible throughout the life of the Project, the magnitude of the residual effect is rated as low. While there is potential to incorporate plant species of interest to Indigenous peoples during rehabilitation (revegetation plantings), where use and establishment of these species is appropriate and technically feasible, the residual effect is conservatively considered irreversible.

Access and Travel Routes

No navigable waters or corridors have been identified by communities in the SSA. Hare Lake to Bamooos Lake, as well as the Pic River, are navigable water corridors within the LSA. As such, no residual effects on navigable waterway routes are anticipated.

PPFN, RSMIN, MNO and OCIP have reported traditional and current resource use within the LSA, including access and travel routes. PPFN has stated they have used the Angler Creek and the communities of PPFN, MNO, RSMIN and OCIP have indicated use of the ground and water travel route from Hare Creek to Hare Lake and further northeast to Bamooos Lake. The Hare Lake to Bamooos corridor has been identified by all communities for traditional activities in the past and current use, including as a navigable water corridor. BN has identified specific locations in a series of maps highlighting the travel routes and access to their Community Trapline, summarized in a presentation available in Record of Consultation (Appendix C of the EIS Addendum [Vol. 2]). In reviewing the studies provided by BN, the

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detailed mapping illustrates extensive use of the SSA along the Camp 19 Road corridor, that extends north to Bamoos Lake and then south west through a land and water travel corridor to Hare Lake, Hare Creek and eventually returning to Highway 17.

Camp 19 Road is one of the few north-south corridors that provide direct access to the interior of BN's Community Trapline (TR022) and is important to them. Camp 19 Road was developed in 1940's by Marathon Paper Mills as a wood road to connect harvesting operations in the area to the CPR lines (Marathon Corporation of Canada Limited, N.D). The first 3 miles of Camp 19 Road from Highway 17 has been upgraded and renamed as Peninsula Road. From Highway 17, Camp 19 Road extends generally north for roughly 11km to the Manitowadge-Terrace Bay Transmission corridor (M2W), at which point it becomes only passable by off-road vehicles. The first 5km of Camp 19 Road provides unrestricted access for vehicles to reach a landing to the Pic River and other areas along the existing access road within the LSA. At the 5km point of Camp 19 Road, a gate was installed in early 2000's and has been in place to protect health and safety of workers of past proponents and GenPGM. The last 6km section of Camp 19 Road north is approximately 5m wide, has limited access, but can be travelled via 4x4 trucks and off-road vehicles.

BN have requested access to the areas of Camp 19 Road north of the gate, a key has been provided to the community and arrangements have been made with GenPGM to provide access north of the gate. MNO, RSMIN and OCIP have also discussed access and travel route on Camp 19 Road to reach Bamoos Lake. Through the development of mine infrastructure, access north of the existing gate will be restricted. However, an alternative travel corridor has been identified by Indigenous communities from Hare Lake north to Bamoos Lake.

The potential for direct project effects to access and travel routes by land are anticipated at the commencement of site preparation and construction and expected to last throughout the life of the Project. As result of these factors, the effects on travel routes by land and access can both be characterized as negative in direction, local in geographical extent, occur throughout the life of the Project, are reversible upon closure of the mine site and have high ecological and societal value. However, the magnitude of this effects is considered to be medium since an alternate access is available to maintain the ability of Indigenous communities to access areas beyond the SSA for traditional land and resource uses.

No Project-related effects are anticipated to change availability of access to navigable water routes within the LSA, specifically Pic River and the Hare Lake to Bamoos Lake corridor. No navigable waters or water routes have been identified by communities with the SSA. Due to these factors the residual effect to travel routes by water can be characterized as negligible.

GenPGM has finalized an Agreement in Principle (AIP) with BN and is in the process of establishing a Community Benefit Agreement with BN to address potential Project impacts. These benefits include training, jobs, business opportunities and financial participation, which among other things addresses impacts to TRLU, loss of access, financial benefits, and BN's Community Trapline.

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Determination of Significance

The residual effects of the Project arise from the loss of approximately 1,116 ha of wildlife habitat and corresponding vegetation in the SSA. With remediation at closure, at least some of this loss will be mitigated. The residual environmental effect of a change in wildlife habitat quantity is predicted not to threaten the long-term viability of wildlife in the RSA. Wildlife habitat is abundant and widespread in the RSA and the Project-associated loss is well within the range of annual disturbance considered sustainable in boreal ecosystems. Access to the LSA will be maintained throughout the duration of the Project, and access to the SSA will be restored once the mining activities cease and the site is restored and considered safe for public access.

The residual effect of a change in wildlife habitat quality is not expected to threaten the long-term viability of wildlife. Potential effects from elevated sound, vibration, light, smells, and dustfall, as well as possible changes to wildlife habitat from invasive species, groundwater or surface hydrology, or edge effects will only affect a relatively small proportion of the RSA and will not result in the permanent impairment of habitat or its use by wildlife. Clearing, collisions with Project vehicles, transmission lines and other infrastructure, and waste-related interactions will affect few individuals and will not substantively affect the sustainability of wildlife populations in the LSA or RSA. Rehabilitation of residual effects on wildlife habitat fragmentation, the residual effect of a change on wildlife habitat fragmentation and movement will affect few individuals and not substantively affect the sustainability of wildlife populations in the LSA or RSA.

GenPGM recognizes and respects the cultural, societal, and economic value of BN Community Trapline and how it contributes to the health, spirituality, sense of community, TK, and BN's ability to live off the land. Although substantial effort has been made to design and plan the site with community input and minimize disturbance, ultimately the deposit location and supporting infrastructure will have an impact on the BN Community Trapline. With mitigation during the life of the Project and reclamation of disturbed areas following mining activities, adverse effects are considered to be temporary and reversible.

No Indigenous, recreational, or commercial fishery has been identified in the SSA. Any loss of fish habitat will be compensated for through the implementation of fish habitat offsetting in consultation with DFO and other interested parties. Fishing by Indigenous peoples are largely focused on locations outside of the SSA (i.e., Bamooos Lake, Hare Lake, and the lower reaches of its outlet creek, as well as Lake Superior (near shore area) including the lower reaches of Stream 6 (Angler Creek) and the Pic River, with bait fishing reported in Claw Lake (L19). Indirect effects to water quality and quantity are predicted to remain below criteria for the protection of aquatic biota (see Section 6.2.3).

While access along Camp 19 Road is one of the few north-south corridors that provide direct access for wildlife, fish and plant harvesting, including access to the interior of BN's Community Trapline TR022, access will be maintained to the Pic River. Alternative access is available to lands within the LSA along an alternate travel corridor currently used by BN and other communities between Hare Lake and Bamooos Lake. No navigable waters or corridors have been identified by communities in the SSA, although Hare Lake to Bamooos Lake, as well as the Pic River, are navigable water corridors used by Indigenous communities within the LSA, which have been avoided through project design.

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Therefore, with implementation of the mitigation and environmental protection measures, the residual adverse effects of the Project on traditional land and resource uses by Indigenous communities are predicted to be not significant. GenPGM will continue to consult with Indigenous communities through the EA and permitting processes and will be involving Indigenous communities in appropriate follow-up and monitoring programs.

6.2.12.6.2 Change to Indigenous Heritage and Archaeological Resources

Analytical Assessment Techniques

Section 6.2.11 of this EIS Addendum (Vol. 2) provides a full assessment of Project effects on archaeological resources. Baseline data established through the completion of archaeology assessments (Woodland Heritage Services Ltd., 2008; Ross Archaeological Research Associates, 2009) was used to qualitatively assess if Indigenous heritage or archaeological resources could be affected by Project activities. If a Project component or physical activity potentially affected an Indigenous heritage or archaeological resource, mitigation procedures were considered, followed by characterization of the residual effect, and determination of significance.

An understanding of cultural heritage was gathered through the review of various technical, TLRU and TK studies by communities, collection, and confirmation of VECs and past and current land use mapping and how those activities and knowledge form cultural identities unique to each Indigenous community.

Project Pathways

Archaeological Resources

During the site preparation and construction phase, the SSA will be subject to soil disturbance and other activities that, in the absence of mitigation, could affect existing (known or unknown) physical Indigenous heritage or archaeological resources. If unmitigated, these activities would result in the loss or damage of the resource. No Indigenous heritage or archaeological resources were identified by Stage 1 and Stage 2 archaeological investigations undertaken to inform baseline conditions (Woodland Heritage Services Ltd., 2008; Ross Archaeological Research Associates, 2009). However, these assessments identified four sites on the perimeter of Hare Lake of high archaeological potential (including those of Indigenous importance), one in proximity to where the Hare Lake discharge pipeline is proposed to be located (see Section 6.2.11 of this EIS Addendum (Vol. 2)). Further archaeological assessment (i.e., Stage 2 archaeological assessment) was recommended for this area prior to construction.

It is possible that Indigenous heritage or archaeological resources could be found during the additional field work and chance finds or deeply buried archaeological resources could be uncovered during the site preparation and construction phase. Mitigation to address these previously undocumented Indigenous resources has been identified (Section 6.2.11.6 of this EIS Addendum (Vol. 2)).

Avoidance of high potential sites on the perimeter of Hare Lake is preferred, if archaeological potential (including Indigenous resources) in the SSA is investigated prior to the site preparation and construction

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phase and any chance finds or deeply buried archaeological resources (if they exist) will be documented during Project activities, it is not anticipated that Indigenous heritage or archaeological resources will be affected during the operation or closure phases.

Indigenous Heritage

The potential effects of the Project also consider sites and areas of importance to Indigenous peoples including spiritual sites, habitation sites, and cultural important travel corridors. Potential effects go to include social, cultural, and spiritual importance and a way of living for the community BN, as well as PPFN, RSMIN, MNO and OCIP. The presence of the Project, physical and visual changes and associated sensory disturbances (i.e., noise and dust) may affect the overall cultural and spiritual experience of Indigenous peoples in the LSA.

Spiritual Sites

Indigenous peoples place a general spiritual significance on all land and as such GenPGM acknowledges the potential effects of the development of the Project in this context. Based on information provided to GenPGM there are no specific locations identified as having unique spiritual significance that fall within the Site Study Area. A ceremonial site and a toponym are identified within the LSA but access to these locations is not envisaged to be affected by the Project.

Through the consultation process as part of preparing the EIS Addendum, BN, PPFN, RSMIN, MNO and OCIP provided or restated key comments, which have been generalized to protect confidentiality of communities. Comments received on heritage resources and potential areas of spiritual / cultural importance do not identify specific locations within the SSA, but associate spiritual / cultural importance to the Pic River (as a travel corridor for harvesting, traditional activities, and fishing) and access to land and waterways for current and future members for hunting, fishing, hunt and conduct ceremonies.

Habitation Sites

As part of the update, no habitation sites have been identified by Indigenous communities in the SSA. Habitation sites and temporary camps have been identified in the LSA, but they are in areas that will not be physically disturbed or to which access will not be restricted by the development or implementation of the Project.

Cultural Importance of Travel Routes

The Camp 19 Road is one of the few north-south corridors that provide direct access to the interior of BN's asserted traditional lands and it is therefore deemed to be of importance by them. Use of the segment of Camp 19 Road that provides access to the Pic River will not be restricted, but farther access on a 6km section that crosses the SSA will be restricted during mine operations. An alternative travel corridor has been identified by Indigenous communities from Hare Lake north to Bamooos Lake.

Water and waterways are spiritually and culturally important and play a vital role in the health and cultural identity of BN. In a 2016 report on Navigable Waters, BN states "Pic River, or the Biigtig, is the source of life for our people. Not only does it act as our highway for food, harvesting and recreation, it provides us

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with a connection to our culture, our spirituality, and our history. The river is deeply rooted to birth and death in our community. To us, water is essential to life.” (BN, 2016, p. 2). The Pic River flows along SSA to the reserve base of BN and has played a critical role for travel, fishing and supply of drinking water and is culturally and spiritually significant to the community and its overall health.

PPFN has stated they have used Angler Creek, Hare Creek and Hare Lake corridor for travel routes of cultural importance. MNO and OCIP have also indicated use of Hare Creek and Hare Lake to travel north to access Bamboos Lake. RSMIN, MNO and OCIP have stated the importance of heritage sites, habitation sites, sites of historic importance, as well as trade and travel routes in the region.

Mitigation and Enhancement Measures

In addition to the mitigation measures proposed to reduce potential adverse effects on wildlife (see Section 6.2.7), fish (see Section 6.2.4), vegetation (see Section 6.2.6) and land and resource uses (see Section 6.2.11), the following additional mitigation measures are proposed to avoid or reduce Project-related effects, both direct and indirect, to traditional land and resource use:

No additional mitigation measures are proposed to reduce potential adverse effects on archaeological resources beyond those already identified in the original EIS (2012) and Section 6.2.11 of this EIS Addendum (Vol. 2), which may include additional archaeological investigations targeting the discharge location at Hare Lake and implementation of an archaeological and heritage resource follow-up and monitoring program. Local Indigenous communities will be invited to participate in these field programs (i.e., as field monitors) and to review and inform the assessment of findings resulting from this work.

The mitigation measures proposed in the original EIS (2012), which are covered in Section 6.2.11.6.1 of this EIS Addendum (Vol 2), remain valid, including the establishment of a standard operating procedure for the protection of physical Indigenous and archaeological resources should an encounter occur. An archaeological and heritage resources follow-up and monitoring program will form part of the Project EMMP (refer to Chapter 7 of this EIS Addendum [Vol 2]), which will outline the responsive action and process of documentation regarding the unexpected discovery of Indigenous archaeological or heritage resources.

In addition to the mitigation measures proposed to reduce potential adverse effects on traditional land and resource use pertaining to wildlife, fish, plant and material harvesting, as well as access and travel routes to conduct such activities (see Section 6.2.12.6.1), the following additional mitigation measures are proposed to avoid or reduce Project-related effects, both direct and indirect, to traditional land and resource use:

- planning and optimization of the conceptual mine design to reduce land and water disturbance associated with the mine footprint
- avoidance of waterways, waterbodies, navigation routes and trails, where possible, used by Indigenous communities or that have been identified as culturally or spiritually important
- adjustment of construction and operation activities to limit sensory disturbance to achieve human health criteria at the Project boundary

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- ongoing engagement with communities to provide opportunity to identify physical or culturally important sites that have the potential to be affected by the Project

Project Residual Effect

To date, physical Indigenous heritage or archaeological resources have not been identified within the SSA. As such, no residual adverse effects on these resources are anticipated.

Culturally important heritage sites have been identified by BN associated with the Community Trapline and harvesting of wildlife and vegetation within the LSA. Project residual effects associated with BN Trapline have been addressed in Section 6.2.12.6.1 of this report. As noted, GenPGM recognizes and respects the cultural, societal, and economic value of the BN Trapline and how it contributes to the health, spirituality, sense of community, TK, and BN's ability to live off the land. Although substantial effort has been made to design and plan the site with community input and minimize disturbance, ultimately the deposit location and supporting infrastructure will have an impact on the BN Community Trapline. With mitigation during the life of the Project and reclamation of disturbed areas following mining activities, residual adverse effects are considered to be temporary and reversible.

GenPGM has finalized an AIP with BN and is in the process of establishing a Community Benefit Agreement with BN to address potential Project impacts to BN. These benefits include training, jobs, business opportunities and financial participation which, among other things addresses impacts to TRLU, loss of access, financial benefits, and BN's Community Trapline.

Determination of Significance

With the implementation of mitigation and environmental protection measures, residual adverse effects of the Project on Indigenous cultural heritage and archaeological resources are determined to be not significant. GenPGM will continue to consult with Indigenous communities through the EA and permitting processes and will be involving Indigenous communities in appropriate follow-up and monitoring programs.

6.2.12.6.3 Change to Indigenous Health

Changes to Indigenous health includes consideration of changes to the physical components that contribute directly to the health of individuals (i.e., air, food, water). This section will rely on the assessment of Project related effects completed previously in Section 6.2, more specifically related to changes to air quality (Section 6.2.1), surface and groundwater (Section 6.2.3), and human health (6.2.10), as well as Project-related effects on traditional land and resource uses (i.e., harvesting) (Section 6.2.12.6.1).

GenPGM recognizes the traditional relationship that Indigenous communities have with the land and associated spiritual and cultural connection to the land that is part of their way of life. Inherent in this assessment is a consideration that adverse effects on the ability of Indigenous communities to practice traditional land and resource uses, such as harvesting (wildlife, fish, plants, materials) may also affect the health of Indigenous communities.

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Analytical Assessment Techniques

Drinking Water

Potential effects of the Project on human health during each phase of the Project from changes to water quality were assessed following Guidance for Evaluating Human Health Impacts in Environmental Assessment: Drinking and Recreational Water Quality (Health Canada, 2016). Assessment techniques are detailed in Section 6.2.10.6.2 of this EIS Addendum (Vol 2). Provincial and federal drinking water quality benchmarks (Ontario Drinking Water Quality Standards (ODWQS) and Guidelines for Canadian Drinking Water Quality (GCDWQ)) were used to assess potential effects of Project-related changes in groundwater quality on the health of groundwater users.

Human Health from Country Foods

The updated human health risk assessment (HHRA) (Appendix D10 of this EIS Addendum [Vol 2]) assessed human health risks from consuming country foods by:

- Identifying potential consumers of country foods
- Identifying potential components of a country food diet
- Identifying potentially operable exposure pathways that could affect CoPC concentrations in the country food diet

The updated HHRA considered three types of human health receptors who are likely to consume country foods from the LSA and RSA. These included a subsistence harvester, a country food consumer and a seasonal resident. The subsistence harvester represented a member of a local Indigenous community who harvests and consumes country foods from the vicinity of the Project year-round, such as a resident of the BN community or possibly Métis who live in Marathon or nearby communities. The country food consumer represented a community member who consumes country foods year-round from the Project area and does not spend time in the vicinity of the Project site. The seasonal resident represents a cottager at Hare Lake who obtains and consumes country foods in the vicinity of Hare Lake while at the cottage.

Country foods are the traditional foods that are trapped, fished, hunted, harvested, or grown for subsistence or medicinal purposes, outside of the commercial food chain (Health Canada, 2018). Community-based research conducted in 2013, and summarized in the original EIS (2012), provided qualitative information about the country foods diet for Indigenous people who use resources from the LSA and RSA. The list of wildlife, plants and fish species identified as having traditional value or interest to Indigenous communities was updated in Table 12 and 13 of the Terrestrial Baseline Updated Report (Northern Bioscience 2020) ([CIAR #722](#)) and used for the HHRA (Appendix D10 of this EIS Addendum [Vol 2]) based on Project-specific TLRU and TK studies and consultation input.

Project-related increases in concentrations of CoPCs in air, water and sediment were reviewed to determine if in any CoPCs were predicted to exceed the range of background conditions and relevant

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benchmarks and were expected to represent a concern to human health because of potential uptake into country foods. These CoPCs would be carried through to a quantitative assessment. If CoPCs are not elevated in environmental media compared to background conditions or benchmarks, Project-related changes in country foods are assessed qualitatively.

Project Pathways

Drinking Water

During site preparation and construction, potential effects on water quality are related to the mobilization of suspended material into natural surface water features as a result of land disturbance and clearing. During operations, excess water not used as Process Water will be released to Hare Lake.

Water from Hare Lake may be used for drinking water by seasonal residents at cottages located on Hare Lake and by subsistence harvesters from local Indigenous communities who fish, hunt, trap, and harvest country foods in the vicinity of the Project.

Post-closure, the discharge to Hare Lake will cease and natural surface water drainage patterns will be restored to the extent possible. Seepage from the rehabilitated PSMF will be directed to the Stream 106 subwatershed. Run-off associated with the water management pond will be directed to the Stream 101 subwatershed. After the open pits fill, water will begin to drain naturally with overflow from the open pits and runoff from the MRSA flowing to the Pic River (Stream 102 and 103 subwatersheds).

Changes to groundwater quality may affect local groundwater users (e.g., drinking water) if users are located within the predicted zone of influence. No groundwater supply users or active groundwater Permit to Take Water (PTTW) holders were identified within the SSA. Potable water for the Project will be supplied to the site by a groundwater well and/or supplemented as required by a bulk water supplier. Groundwater will be pumped to the surface, stored, and treated to ensure compliance with ODWQS, and supplied to the site as needed through the associated water distribution infrastructure.

Human Health from Country Foods

The Project will restrict harvesting activities within the SSA over the life of the Project until the site has been reclaimed and is safe for public access. However, continued access to the LSA will not be affected by the Project for animal, plant, fish, and timber harvesting purposes. The release of CoPCs through Project-related air and water emissions can affect human health by changing the quality of environmental media such as air, water, and country foods. Potential pathways by which CoPCs from air and water emissions can travel through the environment to people who consume country foods and is detailed in Section 6.2.10.6.3 of this EIS Addendum (Vol 2).

A country food diet may include plants, game birds, large and small game mammals and fish that are harvested through gathering, hunting, trapping, and fishing. Plants can be affected through the deposition of CoPCs from air, both directly and indirectly through uptake from soil. Birds and game can be affected by changes to air and water quality through the food chain, water ingestion and incidental soil and sediment ingestion. Fish can be affected by changes to water quality.

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Mitigation and Enhancement Measures

Drinking Water

For safety reasons, public access to the SSA will be prohibited during the construction, operations, and decommissioning phases of the Project. Post-closure, public access to the open pits will be prohibited and limited by a perimeter berm per the requirements of the Mine Rehabilitation Code (O. Reg. 240/00).

A complete list of mitigation measures is described in Section 6.2.10.6.2 of this EIS Addendum (Vol 2), the primary mitigation measures to avoid or reduce potential effects of the Project on human health from changes in groundwater and surface water quality include the following practices:

- Limit construction footprint (i.e., SSA) to the extent possible to reduce the potential for reductions in groundwater recharge and limit the number of watersheds overprinted by the SSA
- Use of standard management practices throughout the Project, including drainage control and excavation and open pit dewatering
- Use of standard construction methods, such as seepage cutoff collars, where trenches extend below the water table to mitigate preferential flow paths
- Use of standard sediment control and water management practices during land disturbance and clearing activities (isolating disturbed areas with sediment curtains or similar structures, maintaining appropriate work area setbacks from surface water features, grading and/or covering surfaces to reduce erosion potential, controlling run-off from erosion-sensitive features, providing settling ponds or basins in which solids can be collected)
- Develop and implement a site-wide water management plan that provides an integrated framework to manage water quality that includes provision for water management practices for each of the primary site aspects, as well as areas of the site where there is contact water
- Monitor and manage effluent, including contingency for effluent treatment as may be required, so that water discharge objectives are achieved as defined in applicable provincial and federal regulatory instruments
- Develop and implement focused monitoring programs on waterbodies such as the Pic River extending downstream of the SSA to the mouth of Lake Superior, the outlet of Hare Creek at Port Munro and Stream 6 (Angler Creek) and the outlet at Sturdee Cove that have significance to Indigenous communities
- Work with the associated communities to develop and implement the program and develop a framework to share the results for the purpose of assessing the performance of the water management system

Human Health from Country Foods

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For safety reasons, public access to the SSA will be prohibited during the construction, operations, and decommissioning phases of the Project. Post-closure, public access to the open pits will be prohibited and limited by a perimeter berm per the requirements of the Mine Rehabilitation Code (O. Reg. 240/00).

Mitigation measures to avoid or reduce potential Project-related effects on air and water quality (Sections 6.2.1.6.1 and 6.2.3.6.4 of this EIS Addendum [Vol 2]) will also reduce potential Project-related effects on country foods and human health.

GenPGM recognizes the importance of traditional land and resource use and activities and is committed to working with Indigenous communities to monitor country foods. GenPGM will continue to engage BN and other interested Indigenous groups in the Project to monitoring activities. The monitoring program can be used as a means to communicate results of environmental monitoring to help alleviate potential concerns Indigenous resource users may have regarding Project impacts.

Project Residual Effect

Drinking Water

During construction, the primary potential water and sediment quality issue is the mobilization of suspended material into natural surface water features as the result of land clearing activities. With mitigation by virtue of the mine development plan and implementation of standard water management and sediment control practices, no downstream adverse effects to local surface waters and local users of surface water are expected.

During operations, the discharge to Hare Lake is predicted to increase the concentrations of constituents in water and sediment relative to background. As detailed in Section 6.2.3.6.4 of this EIS Addendum (Vol 2), constituent concentrations in surface water are not predicted to exceed water quality benchmarks protective of human health. Therefore, no adverse effects on human health are expected from Project-related changes to surface water quality in Hare Lake for people using water in Hare Lake for drinking water and recreational purposes.

No existing or foreseeable groundwater users are located in the areas where groundwater quality is predicted to exceed provincial and/or federal drinking water standards (ODWQS and/or GCDWQ). No groundwater supply wells are known to be located in the SSA and groundwater originating from the MRSA, ore stockpile, PSMF, and water management pond is predicted to discharge to the open pit and/or surface water and not to areas where groundwater supply users are known to be located. As a result, no adverse effects on human health are expected from groundwater affected by Project-related changes to groundwater quality.

A seasonal cottage on Crown lease is located on Hare Lake therefore surface water and groundwater use as drinking water was considered. Groundwater recharge from beneath the PSMF discharges primarily to the Stream 106 subwatershed (70%) with the remainder of discharge to the Stream 105 subwatershed (30%) (Hare Lake and its tributaries). Groundwater recharge from the PSMF is predicted to be less than provincial and federal drinking water standards (ODWQS and GCDWQ). Therefore, no adverse effects on human health are expected from drinking surface water or from potential future water supply wells at Hare Lake that could be affected by Project-related changes to groundwater quality.

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After closure, the water management ponds associated with the PSMF will be rehabilitated (e.g., dredged of deposited solids) and drainage will be directed to the Stream 101 subwatershed. Water quality in the Stream 101 subwatershed is expected to be similar to existing baseline conditions after the natural flow regime has been restored. Drainage from the MRSA will be collected by ditching and catch basins and allowed to flow to the Pic River. Based on predicted maximum post-closure concentrations described in Section 6.2.10.6.2 of this EIS Addendum (Vol 2), no incremental changes in concentration relative to background are expected for the majority of constituents and no exceedances of water quality benchmarks in the Pic River result from the MRSA drainage. In the few instances where background water quality exceeds water quality benchmark levels (e.g., aluminum, iron), no incremental increase in concentration relative to background is noted.

Human Health from Country Foods

The updated HHRA (Appendix D10 of this EIS Addendum [Vol 2]) identified CoPCs, human receptors and operable exposure pathways, and provided a conceptual site model illustrating potential pathways by which human receptors could be exposed to mine-related CoPCs in country foods. The HHRA noted that there are minimal predicted Project effects on CoPC concentrations in the environment and therefore on human health, including minimal risks from harvesting country foods (hunting, fishing, trapping, harvesting of plants). The updated Project effects have concluded the same results, limited Project effects on CoPCs concentrations in the environment. The results have been summarized in updated HHRA (Appendix D10 of this EIS Addendum [Vol 2]).

During Project construction, the predicted changes in CoPC concentrations in environmental media and therefore uptake into country food items was determined to be limited to a small area around the SSA, and did not extend to the areas of the LSA and RSA where country foods are obtained. Air emissions during site preparation activities and mine construction were predicted to increase CoPC concentrations in air in the SSA and near the property boundary. According to the site water balance (Appendix D5 of this EIS Addendum [Vol 2]), there is no planned discharge to Hare Lake or the Pic River during construction. The site water management system will be constructed early on during this phase and it is planned that all potential contact waters will be collected and diverted for storage, and no water will be released from the site. In the event that it is necessary to divert run off from areas where, for example, land clearing is occurring, standard industry mitigation practices (e.g., sediment control) will be employed to ensure there are no downstream adverse effects to local surface waters that could manifest as uptake of CoPCs in country foods.

Since changes to air quality and water quality were not identified to have an adverse effect on human health and did not differ substantially from background at sensitive receptor locations where subsistence harvesters may harvest country foods, no CoPCs from Project-related emissions were identified as being likely to accumulate in country foods at levels of concern to human health during construction.

During Project operation, emissions of air CoPCs were mainly associated with the combustion of diesel fuel in mining equipment and other stationary equipment, and from mining activities. The conservative maximum emission scenarios for mining activities indicated that the changes in air quality above background would be restricted to the LSA and any residual effects above air quality criteria (dustfall and

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nickel) were limited to a small area near the SSA and did not extend to the areas of the LSA and RSA where country foods are harvested.

During operations, the primary potential water quality effect from the Project is the seasonal (April to November) discharge of excess water from the site water management system to Hare Lake. There will be no routine discharge to the Pic River during operations – drainage associated with the MRSA will be collected and pumped to the water management pond. Small incremental changes in the concentrations of several parameters are predicted in Hare Lake during periods of treated mine discharge, but water quality in Hare Lake is predicted to meet benchmarks protective of aquatic biota at all times. As indicated above, since constituent concentrations will meet relevant water quality benchmarks, there is no expectation that the small changes in predicted concentrations would result in country food pathway risks for human health. It is noted that recommendations on prohibitions on fish consumption in Hare Lake related to mercury are currently in place, as discussed in Section 6.2.10.4 of this EIS Addendum (Vol 2). Such recommendations are common in lakes in this area. No increase in mercury concentrations in Hare Lake are predicted during periods of treated mine water discharge and therefore the Project is not expected to affect the existing consumption prohibitions. Generally, CoPC concentrations in sediment were predicted to be within the range of background except for molybdenum and vanadium. Molybdenum and vanadium in water are predicted to remain below water quality benchmarks protective of aquatic life and are not expected to accumulate in country foods to levels that would adversely affect human health.

Overall, changes to air, water and sediment quality are not expected to have an adverse effect on human health via country food consumption because CoPC concentrations in these environmental media during operations are predicted to meet relevant environmental benchmarks and/or not differ substantially from background conditions at locations where subsistence harvesters may harvest country foods. Project-related air and water emissions are not expected to cause CoPCs to accumulate in country foods to levels of concern for human health.

Air emissions during decommissioning are expected to be less than those during construction and operations. Air emissions are anticipated to be negligible after closure. Discharges to Hare Lake will cease following the cessation of mining operations. Surface water and sediment quality in Hare Lake will return to background conditions. Sediments in Hare Lake affected by increased concentrations of molybdenum and vanadium are expected to recover to within the range of measured background levels within 10 to 15 years following the cessation of discharge.

The site wide water management system will continue to operate such that GenPGM will remain in control of site affected water via the water management pond. During this time, water (runoff and shallow seepage) from the PSMF, drainage (run-off and shallow seepage) associated with the MRSA and contact water from the developed portion of the site (including for example, mine dewatering water, runoff from temporary stockpiles, process plant site) will continue to be collected and diverted to the water management pond. From the water management pond, the water will be directed to the open pit complex, where there are decades worth of water storage capacity. For planning purposes, it is assumed that these diversions will continue for a period of five years following the cessation of mining operations. This strategy ensures control of water quality on and off site while site decommissioning and rehabilitation activities are implemented, allowing the water quality associated with these site aspects to stabilize.

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Following this five-year period and the completion of site rehabilitation, assuming that water quality has in fact stabilized and is of a quality that would be protective of aquatic life, surface water drainage patterns in keeping with pre-mining conditions will be restored. For the PSMF, that means surface runoff and seepage will be re-directed into subwatershed 106. Runoff from the area of the water management ponds associated with the PSMF will be directed to subwatershed 101. For the MRSA, drainage (run-off and shallow seepage) that will be collected by ditching and catch basins will be allowed to flow to the Pic River through the lower reaches of subwatersheds 102 and 103, rather than diverting it to the water management system.

After the open pit has filled, water in the open pit will be allowed to passively discharge in the Stream 103 subwatershed through the MRSA and subsequently into the Pic River. This scenario represents the long-term configuration of the mine site from a surface water drainage perspective. Water quality predictions associated with the short-term and long-term phases of closure indicate that water quality will meet relevant benchmarks in the restored drainage areas and in the Pic River.

The uptake of CoPCs by country food items is expected to be less during decommissioning and post-closure than during operations because air emissions will decrease and cease, and the treated mine water discharge to Hare Lake will cease. When natural drainage is restored, no incremental changes in concentrations in surface water relative to background are predicted for the majority of constituents and no exceedances of water quality benchmarks are predicted to occur because of Project-related drainage.

Changes to air and water quality after closure are not predicted to adversely affect human health as predicted concentrations do not differ substantially from background at locations where subsistence harvesters may harvest country foods. No CoPCs from Project-related air and water emissions are expected accumulate in country foods at levels of concern to human health during decommissioning and post-closure.

Even with updated predictions for human health effects indicating minimal risks, Indigenous communities had stated they are concerned with background levels of CoPCs and potential pathways in country foods that can influence human health. Indigenous communities have indicated they fish and consume fish from Hare Lake, Hare Creek, Bamooos Lake, Stream 6 (Angler Creek) and Pic River, and want to ensure the safety of human consumption of fish from those waterbodies.

In reviewing the 2014 First Nations, Food, Nutrition and Environmental Study (FNFNES), the Project site falls within the geographic area of ecozone 1, defined as the Boreal Shield/Subarctic culture area (Chan, et al., 2014, p. 44). The FNFNES provides a summary of nutrients from traditional foods and potential chemical exposures that could result from traditional diets. Traditional food has been reported to appear in 93% of Indigenous diets in the region, with almost 70% of all Indigenous households reported participating in traditional harvesting and gather, and 73% of adults reported to consume fish as part of their traditional diet (Chan, et al., 2014). Similar statements on traditional food gathering and consumption have been made by BN and Indigenous communities consulted for this Project, many Indigenous people in these communities would be considered average to heavy consumers of country foods. As defined by FNFNES, the difference between average and heavy consumers are:

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At the regional level, the average daily intake of traditional food was 43 grams (or about 3 tablespoons), while older females (71+) and males (51+) had an average daily intake of 58 and 133 grams, respectively. Heavy traditional food consumers (those individuals eating at the upper end or the 95 percentile of intake) had a daily intake of 205 grams per day (range of 134 to 499 grams).

FNFNES provides background concentrations of metals such as mercury, that could result in hazard quotients (HQs) greater than 1 for “heavy” consumers (Chan, et al., 2014). If the HQ is 1 or less, than the risk of harm will be negligible. Ecozone 1 exposure levels for metals in traditional foods is provided in Table 6.2.12-7. Heavy consumers of traditional foods do have a higher risk of harmful exposure to lead and mercury in their traditional diets in ecozone 1.

Table 6.2.12-7: Exposure Estimates (µg/kg body weight/day) for Metals from Traditional Foods for First Nations adults in Ontario, using Average and Maximum Concentrations, Ecozone 1 consumers only

Contaminant	PTDI (µg/kg/day)	Level of concentration	n> PTDI	Mean	95th percentile	HQ Mean/PTDI	HQ 95th/PTDI
Arsenic	1	average	0	0.04	0.14	0.04	0.14
		maximum	1	0.07	0.27	0.07	0.27
Cadmium	1	average	20	0.19	0.74	0.19	0.74
		maximum	24	0.24	0.93	0.24	0.93
Lead	3.6	average	23	0.71	3.50	0.20	0.97
		maximum	62	1.80	7.64	0.50	2.12
Mercury	0.5	average	18	0.13	0.57	0.25	1.14
		maximum	57	0.28	1.26	0.55	2.52

Source: Chan, et al., 2014, p. 173

Consumption guidelines have been prepared by the MECP, specifically the Guide to Eating Ontario Fish 2017-2018 (the Guide). An advisory table provides sport fish consumption advice according to contaminant analyses, and includes advice for Bamoos Lake, Pic River below Black River and the Peninsula Harbour of Lake Superior.

As reported in the original Aquatic Resources Baseline Report (EcoMetrix, 2012a) (SID #1) ([CIAR #227](#)) a survey for the Project site was conducted on metal analyses in fish tissue in Hare Lake and Bamoos Lake in 2009. Boneless, skinless fillets and liver samples were collected from five Northern Pike from Hare Lake and five Lake Trout from Bamoos Lake. Five composite samples of whole body Spotttail Shiner from Hare Lake and five composite samples of whole-body Lake Chub from Bamoos Lake were collected.

The analyses of baseline concentrations of metals in fish tissues collected during the 2009 season were compared to MECP records for mercury in fish from Bamoos Lake, Gowan Lake and Lake Superior in the vicinity of the Town of Marathon. The 2009 data were also compared to consumption guidelines in the Guide to Eating Ontario Fish (MECP, 2017) to determine any potential risks associated with eating these fish.

Appendix B of the updated HHRA (Appendix D10 of this EIS Addendum [Vol 2]) summarizes the findings on fish chemistry data and sport fish consumption advisories for the Project site. Northern Pike in Hare

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Lake exceeded mean mercury concentrations for sensitive populations (women of child-bearing age and children under 15), with two Northern Pike exceeding the total consumption restrictions for the general population. Lake Trout in Bamboo marginally exceeded values for sensitive populations.

Recognizing that perceptions, beliefs and trust in activities of governments and companies have harmed the trust Indigenous people have in the Crown and proponents and predicted effects of a project, and even though PWQO and other health criteria for various VECs can be achieved at or near the Project boundary, past experiences can influence how Indigenous people interpret and trust the information presented and ultimately use their traditional lands and waterways throughout the life of the Project.

Even without predicted Project effects on CoPC concentrations in the environment that could influence human health, work completed for FNFNES, reported by the Guide and fish tissue surveys from 2009, background concentrations could pose a potential risk for potential chemical exposures to Indigenous communities that are heavy consumers or sensitive populations that practice traditional diets. GenPGM understands past mistrust by communities and recognizes the importance of traditional land use and activities and is committed to working with Indigenous communities to understand these contaminant pathways, and monitoring country foods, with a focus on fish consumption in the SSA and LSA.

Overall, there are minimal predicted Project-related effects on CoPC concentrations in the environment that would result in changes to CoPC concentrations in country foods in the LSA and RSA where country foods are likely to be harvested. Therefore, adverse effects on human health from country foods consumption are not expected from Project-related air and water emissions. This is consistent with the conclusion in the original EIS (2012) that the Project will have limited effects on CoPC concentrations in the environment.

Determination of Significance

No groundwater users are known within the area where groundwater quality will be influenced by Project components. Therefore, changes in groundwater quality are not expected to adversely affect human health via use of groundwater as drinking water.

Residual effects on surface water are limited to changes in water quality relative to background that do not exceed human health benchmarks during any phase of the Project. Therefore, changes in surface water quality are not expected to adversely affect human health via use of surface water as drinking or recreational water.

As changes to water quality were not identified as an adverse effect on human health and did not differ substantially from background at locations where subsistence harvesters may harvest country foods, no constituents of potential concern (CoPCs) from Project-related water emissions were identified as being likely to accumulate in country foods at levels of concern to human health.

No significant adverse effects on human health are expected from Project-related changes in the quality of country foods during any phase of the Project. With mitigation and environmental protection measures, changes to air and water quality are not expected to have a significant adverse effect on human health via country food consumption because air and water quality are not predicted to differ substantially from background conditions at locations where subsistence harvesters may harvest country foods.

6.2.12.7 Prediction Confidence

The main factors that affect confidence of the predications made in Indigenous Consideration assessment include:

- Availability and quality of TLRU and TK, mapping, and technical studies from communities
- Availability of baseline data
- Understanding of effect pathways
- Level of certainty associated with effectiveness of proposed mitigation measures

Indigenous Considerations depends on other disciplines and VECs assessments, those uncertainties and assumptions in those associated assessments. Substantial, detailed and high-quality data was received from some communities and others provided limited data or generalized land use in a region context. Data received from communities was considered high confidence. Additional supporting data was also obtained from publicly available sources, and most would be considered moderate confidence with academic papers a higher confidence rating.

As mentioned, Indigenous Considerations largely relied on individual VEC assessments and uncertainty has been reduced through the conservative assumptions and implementation of mitigation and monitoring measures for those VECs. There is no set or agreed upon thresholds for Indigenous land and resource use, but uncertainty is expected to be reduce through ongoing consultation and engagement, detailed permitting and adaptive management measures to address unexpected circumstances that present themselves.

6.2.12.8 Summary of Project Residual Effects

A summary of Project Residual Effects has been provided in Table 6.2.12-8. Most of the residual effects predicted are related to the same issue – that is, the development of the mine requires the disturbance of and/or restricted access to the SSA from the beginning of the site preparation and construction phase until such time following the cessation of operations as the site is deemed safe for access. In this sense, therefore, each of the effects is rated similarly in terms of the significance rating criteria. In each case the effects were rated as low to medium for geographic extent as the predicted effects will be limited to the SSA or within close proximity in the LSA. Each of the effects was rated “medium” with the exception to forest for duration because the predicted effects are limited to the operational and decommissioning phases. As it pertains to reversibility the effects varied, although the effects should generally be reversible it will take some time after the mine has closed for the reclamation process in the SSA to take hold (e.g., forest cover re-established) to the extent that future end uses such as hunting and trapping are again supported in the SSA. The societal importance of the predicted residual effects to the affected Indigenous communities and peoples, and in particular the traditional land and resource use of the BN Community Trapline, is rated as “high”.

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GenPGM believes it has been able to greatly reduce the potential effects of the Project on BN and other Indigenous peoples through the various mitigation measures described above and committed to as part of this Project. Redesigning the Project and implementing mitigation measures to avoid or reduce potential effects of the Project on areas and corresponding uses considered to be of interest and priority to Indigenous communities (i.e., revising the Project to avoid discharges to Bamooos Lake and to reduce encroachment upon the Pic River) was directly related to comments received from Indigenous communities. Developing and providing a protocol for access along Camp 19 Road, will help maintain access and connectivity to areas within the LSA for traditional land and resource uses to continue. Managing water, air, and noise emissions to reduce potential offsite effects beyond the SSA during site preparation and operation is intended to reduce the geographic extent and magnitude of adverse effects so that the use of lands and resources in such areas can continue. Input to the closure plan by Indigenous communities will be sought to inform how the lands will be restored and may be used following completion of mining activities. Potential effects will be confirmed, and adaptive management approaches implemented, through follow-up programs in conjunction with Indigenous communities as a means to confirm the effectiveness of mitigation measures and predictions made through the EA process.

While some residual adverse effects on Indigenous communities remain as a result of the Project, with mitigation and environmental protection measures, these residual adverse effects are predicted to be not significant. GenPGM is committed to on-going consultation with Indigenous communities through the EA, permitting, implementation and follow-up programs.

GenPGM has finalized an AIP with BN and is in the process of establishing a Community Benefit Agreement with BN to address potential Project impacts to BN. These benefits include training, jobs, business opportunities and financial participation which, among other things addresses impacts to TRLU, loss of access, financial benefits, and BN's Community Trapline. The AIP signal's BN's leadership support, in principle, for the Project.

Table 6.2.12-8: Project Residual Effects on Indigenous Considerations										
Residual Effect	Residual Effects Characterization									
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility	Ecological/Societal Value	Significance Determination
Change to Traditional Land and Resource Use	C, O, D	A	M	M	MS	M	M	M	H	NS
	Contributing VECs (EIS Addendum Section 6.2.4, 6.2.6, and 6.2.8)									
Change in Wildlife Habitat Quantity (6.2.8)	C, O, D	A	N	N	MS	M	M	L	L	NS
Change in Wildlife Habitat Quality (6.2.8)	C, O, D	A	N	N	MS	M	M	L	L	NS

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Table 6.2.12-8: Project Residual Effects on Indigenous Considerations										
Residual Effect	Residual Effects Characterization									
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility	Ecological/Societal Value	Significance Determination
Change to Wildlife Survival (6.2.8)	C, O, D	A	N	N	HS	M	M	L	L	NS
Change in Wildlife Habitat Fragmentation and Wildlife Movement (6.2.8)	C, O, D	A	N	N	MS	M	M	L	L	NS
Change to Wildlife of Interest to Indigenous Communities (6.2.8)	C, O, D	A	N	N	MS	M	M	L	L	NS
Change resulting in direct physical HADD (6.2.4)	C, O	A	H	L	MS	M	H	M	H	NS
Change in Water Quantity (6.2.4)	C, O, D	A	H	L	MS	M	M	M	H	NS
Change in Water Quality (6.2.4)	C, O, D	A	L	M	HS	M	H	L	H	NS
Change in forest cover (6.2.6)	C, O, D	A	N	N	N/A	H	M	H	L	NS
Change in non-forest cover (6.2.6)	C, O, D	A	N	N	N/A	H	M	H	L	NS
Change to plant species of interest to Indigenous communities (6.2.6)	N/A	A	N	N	N/A	H	M	H	L	NS
Change in Culturally Important Trade or Travel Routes (6.2.12.6.2)	C, O, D	A	L	M	MS	H	H	N	H	NS
Alteration or loss of BN Community Trapline (6.2.12.6.1)	C, O, D	A	M	M	HS	M	M	L-M	H	NS
Alteration or loss of access trails to BN Community Trapline (6.2.12.6.1)	C, O, D	A	M	M	HS	M	M	L	H	NS
Change to Indigenous Heritage and Archaeological Resources	C, O, D	A	L	M	HS	L	H	L	M	NS
Contributing VECs (EIS Addendum Section 6.2.11 and 6.2.12)										
Change to Archaeological Resources (6.2.11)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NS
Change to Built or Cultural Heritage Resources (6.2.11)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NS

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Table 6.2.12-8: Project Residual Effects on Indigenous Considerations											
Residual Effect	Residual Effects Characterization										
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility	Ecological / Societal Value	Significance Determination	
Change Spiritual Sites (6.2.12.6.2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NS	
Change Habitation Sites (6.2.12.6.2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NS	
Changes to Culturally Important Trade or Travel Routes (6.2.12.6.2)	C, O, D	A	L	M	HS	L	H	L	M	NS	
Change to Indigenous Health	C, O, D	A	L	M	NS	M	H	M	H	NS	
Contributing VECs (EIS Addendum Section 6.2.10)											
Change to Water Quality (6.2.10)	O, D	A	L	M	NS	M	H	M	H	NS	
Change to Human Health from Country Foods (6.2.10)	C, O, D	A	L	M	NS	M	H	M	H	NS	
KEY See Section 2.5 of EIS Addendum (Vol 1) and Table 6.2.12.5 for detailed definitions, as well relevant definitions for contributing VECs Project Phase: C: Site Preparation / Construction O: Operation D: Decommissioning Direction: P: Positive A: Adverse Magnitude: N: Negligible L: Low M: Medium H: High N/A: Not applicable	Geographic Extent: N: Negligible L: Low M: Medium H: High Timing: NS: No sensitivity MS: Medium sensitivity HS: High sensitivity Duration: N: Negligible L: Low M: Medium H: High Significance Determination S: Significant NS: Not Significant					Frequency: N: Negligible L: Low M: Medium H: High Reversibility: N: Negligible L: Low M: Medium H: High Ecological / Societal Value: N: Negligible L: Low M: Medium H: High					

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