



REPORT

Screening-Level Environmental Assessment for the Confirmation and Exploration Program

Pine Point Project

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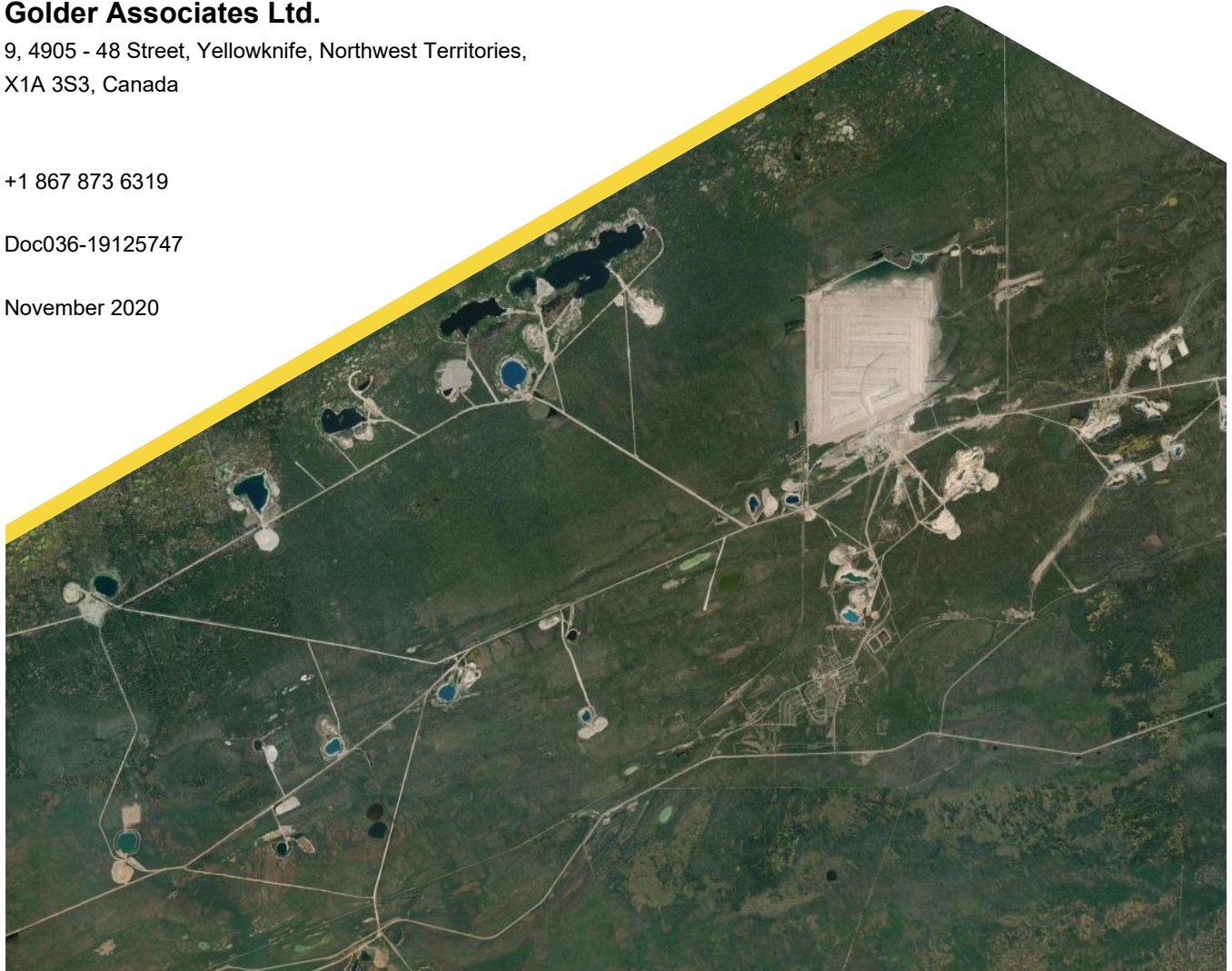
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Abbreviations and Units of Measure

Acronym	Definition
CEP	Confirmation and Exploration Program
Cominco	Cominco Ltd.
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
ECCC	Environment and Climate Change Canada
MVEIRB	Mackenzie Valley Environmental Impact Review Board
NWT	Northwest Territories
PPML	Pine Point Mining Limited
Tamerlane	Tamerlane Ventures Inc.

Unit of Measure	Definition
%	percent
°C	degree Celsius
km	kilometre
m	metre
m ³	cubic metre
m ³ /d	cubic metres per day
mm	millimetre

1.0 INTRODUCTION

Pine Point Mining Limited (PPML), the sole proponent for the Pine Point Project (Project) and a wholly owned subsidiary of Osisko Metals Incorporated, plans to undertake the development of deposits at the former Pine Point Mine. A Confirmation and Exploration Program (CEP) is proposed that will collect samples and information to be used to support initial design work for a feasibility study and for detailed engineering of mining, processing, and infrastructure requirements for construction and operation of a mine. The CEP consists of a proposed exploration and testing programs at the former Pine Point Mine, a brownfield site resulting from Cominco Ltd.'s (Cominco's) historical mining and operations in the Northwest Territories (NWT). The site is within the South Slave Mining District, south of Great Slave Lake (Figure 1), and the general location within which the CEP will be undertaken, showing mine leases and claims and existing disturbances, is shown in Figure 2.

PPML is proposing exploration activities, including definition drilling, exploration drilling, geotechnical drilling, test pitting, dewatering tests, and collection of a water sample to further define the mineral resources and to obtain the information required to complete a feasibility study. Recent exploration has been under the authority of Type B Water Licence MV2018L2-0003 and Type A Land Use Permits MV2018C0005 and MV2017C0024. This document supports the applications to extend and expand the exploration activities. The type B Water Licence was recently renewed under authorization MV2020L2-0008.

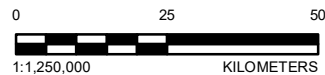
This document provides a screening-level environmental assessment to identify potential effects to the environment and people that may occur as a result of the CEP. Issues were identified by a variety of means including the following:

- issues raised during the environmental assessment of the Tamerlane Pine Point Pilot Project
- engagement with affected Indigenous groups and local land users
- consultation with territorial and federal regulators and various government departments
- experience with other developments in the NWT



LEGEND

- FORMER PINE POINT TOWN SITE
- POPULATED PLACE
- ALL-SEASON ROAD
- PARK/PROTECTED AREA
- WATERBODY
- GENERAL PROJECT LOCATION



REFERENCE(S)

1. BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
 2. PARKS AND PROTECTED AREAS OBTAINED FROM CONSERVATION AREAS REPORTING AND TRACKING SYSTEM (CARTS), CANADIAN COUNCIL ON ECOLOGICAL AREAS, 2017.
- PROJECTION: ALBERS CONIC EQUAL AREA

CLIENT

PINE POINT MINING LTD.

PROJECT

PINE POINT CONFIRMATION AND EXPLORATION PROGRAM

CONSULTANT



YYYY-MM-DD 2020-10-16

DESIGNED DC

PREPARED BW / MM / JE

REVIEWED DP

APPROVED DP

TITLE

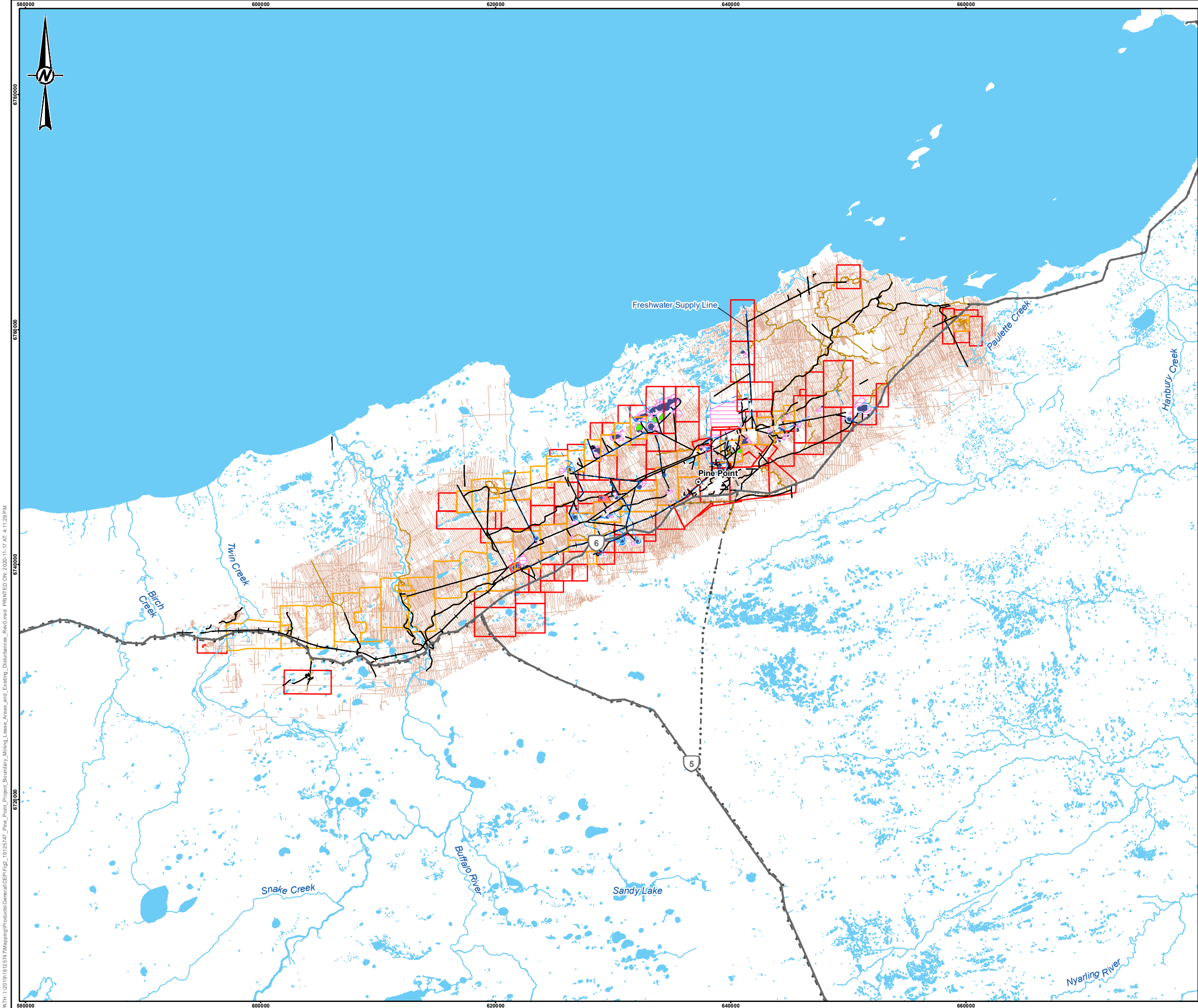
PROJECT LOCATION

PROJECT NO.
19125747

CONTROL

REV.
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FIGURE
1



LEGEND

- FORMER PINE POINT TOWN SITE
- BUSH ROAD
- CUTLINE
- DRAINAGE DITCH
- HISTORIC RAILBED
- HIGHWAY
- MINE ROAD
- TRANSMISSION LINE
- WATERCOURSE
- ACTIVE MINERAL LEASE
- ACTIVE MINERAL CLAIM
- CUTBLOCK
- WATERBODY

PINE POINT EXISTING MINING DISTURBANCE

- BACKFILLED PIT
- MINED PIT
- WASTE PILE

KEY MAP

0 5 10
1:325,000 KILOMETRES

REFERENCE(S)
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PROJECTION: UTM ZONE 11N DATUM: NAD83

CLIENT
PINE POINT MINING LTD.

PROJECT
PINE POINT CONFIRMATION AND EXPLORATION PROGRAM

TITLE
PINE POINT PROJECT BOUNDARY, MINING LEASE AREAS, AND EXISTING DISTURBANCES

CONSULTANT	YYYY-MM-DD	2020-11-17
	DESIGNED	JV
	PREPARED	MM/PMT
	REVIEWED	DP
	APPROVED	DP

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2.0 PROJECT SUMMARY AND ENVIRONMENTAL SETTING

2.1 Project Summary

The confirmation and exploration program will occur on mostly on previously disturbed land that was approved for mineral exploration and mine development (i.e., brownfield areas). The CEP will investigate target areas and obtain information to support a feasibility study for a potential mining operation. The Project Description provides details on operation activities, as well as closure and reclamation activities (PPML CEP Project Description 2020).

The present camp at the site is authorized to accommodate 49 people (Appendix A, Photo 1). During periods of high activity, greater accommodation capacity is required. The current camp sources potable water by truck from Hay River, and greywater is placed in a sump adjacent to the camp. Latrines are a waterless incinerating type and solid waste is removed for appropriate disposal in Hay River. This camp is to continue operation under the CEP permit to provide accommodation flexibility.

The CEP will require a new mobile camp to be installed at a previously disturbed location to supplement accommodations, and will include sleeping quarters, bathrooms, offices, first aid room, kitchen, and dining area for up to 200 people. Power for the camp is sourced from the existing on-site substation, and a fuel backup generator system will be available. Potable water will be delivered by truck from Hay River and sourced from Great Slave Lake using existing access from the old Pine Point mill site to Great Slave Lake. Although the details are to be finalized, the black and greywater will be treated and the treated water deposited to a sump. Sludge from the treatment will be either incinerated on site or transported to a licensed sewage lagoon.

Access to the Pine Point Project area is via current roads, historical drill trails, and cut lines developed during the operation of the historical Pine Point Mine and are now considered brownfield areas (see Figure 2).

The CEP will consist of a of diamond drilling on the currently known deposit locations and exploration diamond drilling on any future deposits discovered by the exploration team. This drilling program is required to define the extent and volume of mineralization at each deposit site. Typical drill pads will be 30 m by 30 m. It is estimated that up to 3,000 drill sites will be used. Another 200 drill sites are also estimated for the geotechnical core drilling program. It is possible more drill sites may be required as results are analyzed. In some cases, drill pads will be adjacent to others or overlap, which may result in larger cleared areas or the potential to drill more than one hole in the same cleared area. Existing roads (Appendix A, Photo 2), trails, and drill pads will be used to the greatest extent possible, and new areas will be cleared only when required. New trails, as short as possible, may be cut to reach drill pads from the nearest existing access points or previously cleared access trails; new access trails will be approximately 10 m wide. It is anticipated that new water crossing structures will not be required, or will be planned per applicable regulatory requirements and best practices if water crossings cannot be avoided. There will be minimal tree cutting, but when required, access trails will be cleared by cutting to ground level. The brush may be cleared by hand or by using heavy equipment such as a dozer and/or grader. Felled trees will be bucked and placed on the ground near the access trail to be subsequently spread over the corresponding drill site and trail during reclamation. Drill cuttings will be placed in the nearest natural sump to minimize further ground disturbance. A shallow sump will be prepared for the collection of drill cuttings where required. Drilling samples will be sorted and sent off site for analysis. Core will be examined at a site-based core logging facility before transport off site for further analysis. Upon completion, unless drill holes are required for ongoing monitoring purposes, casings will be removed and holes capped, and all other non-natural materials will be removed. Soil will be spread over the cap to the level of the surrounding grade and the location staked.

Characterization of surface and shallow subsurface materials for construction materials and infrastructure construction will be completed by sampling from borrow pits around the CEP area. Approximately 200 to 300 test pits will be excavated, typically disturbing an area of approximately 20 m by 20 m. Rock (bulk) samples for metallurgical testing and blasting tests are also required from up to twenty sites. An area of 100 m by 100 m will be cleared at these sites, with organic materials stored to the side. Drill holes for explosives will be drilled at these sites such as to yield approximately 10 to 30 tonnes of material. All samples will be sorted and sent off site for analysis. Sites will be covered with remaining blasting material and the retained organic material; non-local debris will be removed for proper disposal.

Other exploration activities will include a large diameter drilling program to install wells for groundwater withdrawal and reinjection, including a temporary pipeline for conveying groundwater to reinjection wells or the nearest historical open pit. This temporary pipeline is anticipated to be up to 3 km in length but may be longer as operations require. Groundwater dewatering tests will be conducted to obtain hydrogeological parameters to understand groundwater movement and flow rates for aquifers through subsequent modelling. This will help characterize some of the lesser understood potential mining resource areas, for the purposes of understanding and predicting dewatering requirements. The dewatering tests will involve pumping pit water from one existing water-filled open pit (Appendix A, Photo 3) to another pit; from an existing pit to a reinjection well; from a dewatering well to an existing pit; or from dewatering well to a reinjection well to test the rate of water recovery or response due to the movement of water from or to the aquifer, and to monitor the aquifer response through monitoring wells. Additional clearing will be required for up to 11 drill locations for the development of monitoring wells, with drill pads of 100 m by 200 m to include staging and laydown areas. Access trails may also be required for some locations.

Water will be used for the operation of individual drills, sourced from the nearest surface waterbody or watercourse, either natural waterbody or watercourse or from a constructed water source such as an existing open pit.

Minimal water is expected to be used for each test pit, estimated at less than or equal to 1 m³ in total per pit. A sample of up to 10 m³ will be abstracted from existing open pits and transported off site in totes for metallurgical testing purposes. The maximum total water use for exploration activities is expected to be 380 m³/d, with up to an additional 3,600 m³/d being withdrawn and returned to the source unimpacted during the course of the 10 groundwater dewatering tests.

2.2 History of Mineral Exploration

The first Pine Point lead-zinc deposit was discovered in 1898 by prospectors heading to the Klondike gold rush. Cominco began exploration at Pine Point in 1929, with test-pitting, drilling, and shaft sinking. In 1948, Cominco began major exploration work. Cominco proceeded to construction in the early 1960s and operated the Pine Point Mine between 1964 and 1988, producing 64 million tonnes. Fifty deposits were mined by open pit (Appendix A, Photo 3; Figure 2) and two using underground mining methods along the 60 km trend, supported by a town within the mine footprint (Appendix A, Photo 4). This historical production illustrates that the resource is composed of several small deposits rather than one or a few large ones. The mining operation closed in 1988 and Cominco left significant lower grade mineral resources in the ground at the site.

In the 2000s, the Pine Point Mine claims were purchased from Karst Investments by Tamerlane Ventures Inc. (Tamerlane) with the intent to mine the existing deposits. Tamerlane applied to the Mackenzie Valley Land and Water Board for a Land Use Permit (MV2006C0014) and Type B Water Licence (MV2006L2-0003) for the Pine Point Pilot Project in June 2006. In February 2008, the Mackenzie Valley Environmental Impact Review Board (MVEIRB) determined that, provided the commitments per the MVEIRB's Report of Environmental Assessment and Reasons for Decision were implemented, the development could proceed to the regulatory phase of approvals (MVEIRB 2008); however, the project did not proceed due to low metal prices.

Darnley Resources Bay Ltd. purchased the property in 2016 and continued with exploration. The property was acquired by Osisko Metals Incorporated in 2018. The history of mining at the site has left an extensive road network accessible from Highways 5 and 6, leading to frequent use of the area for recreation and hunting.

2.3 Environmental Setting

A large amount of environmental baseline data is available for the CEP area from previous studies and investigations, including studies for the environmental assessment from 2006 to 2008 by Tamerlane (MVEIRB 2008).

The CEP is located in the South Slave region of the NWT, within the eastern flank of the Western Canada Sedimentary Basin near the south shore of Great Slave Lake. This is approximately 175 km directly south of Yellowknife, 75 km east of Hay River, and 53 km southwest of Fort Resolution (Figure 1).

The CEP falls within the Level II Taiga Plains Ecoregion within the NWT, regionally within the Level III Taiga Plains Mid-Boreal Ecoregion, and includes the Great Slave Lowland Mid-Boreal and Slave Upland Mid-Boreal Level IV Ecoregions (ECG 2009). The Hay River lowland plain is broad and largely level in relief, drained by the Fort Nelson and Liard rivers in northeastern British Columbia and by the Hay River in northwestern Alberta, ultimately flowing into the Mackenzie River in the NWT. The CEP area is dominated by bedrock outcrops deposited as limestone and dolomite, interspersed with veneers of unconsolidated till overlying bedrock and topographic depressions consisting of organic accumulations of variable depth. Overburden consists largely of clay and glacial till, with occasional gravel beds, and can vary in thickness from less than 1 m to more than 40 m. The general area is characterized by long, cold, and snowy winters and short, warm summers, with a mean annual temperature of approximately -2.9°C. The ecoregion is classified as having a sub-humid, mid-boreal ecoclimate, with an annual precipitation ranging from 300 to 400 mm.

Vegetation cover in the general CEP area consists predominantly of closed canopy mixedwood, white spruce, and occasional birch and jack pine trees. Transitional areas support mixed black and white spruce stands with tamarack. Permafrost is largely discontinuous, with several peatlands, northern ribbed fens, and horizontal fens common in the area. Wetlands are often dominated by willow, dwarf-birch, or sedges.

Previous scientific and Indigenous Traditional Knowledge studies have identified 40 mammal species known to frequent the area, including boreal caribou (Appendix A, Photo 5), moose, black bear, wolf, wolverine, beaver and other furbearers, snowshoe hare, and occasional wood bison (Golder 2018). Many bird species potentially occur in and around the CEP area, including waterfowl, raptors, and upland breeding birds (Golder 2018). The south shore of Great Slave Lake is an important site for migratory birds; Beak Consultants Ltd. (Beak 1980) reported concentrations of waterfowl on Great Slave Lake near the mouth of Twin Creek.

2.4 Species at Risk

For the purposes of the environmental assessment, species of concern are those listed as endangered, threatened, or of special concern under the federal *Species at Risk Act*, the *Species at Risk (NWT) Act*, and/or by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

A total of 17 wildlife species of concern are known or are expected to be in the CEP area and could potentially interact with the CEP (Table 1).

As the *Species at Risk (NWT) Act* is implemented, it is expected that the NWT Species at Risk Committee will complete further species assessments and the Conference of Management Authorities will prepare the List of Species at Risk, providing legal protection for these species, which could affect the species of concern identified for the CEP.

Environment and Climate Change Canada (ECCC) has issued Species at Risk Recovery Strategies for 7 of the 18 species of concern: caribou (boreal population), wood bison, little brown myotis, northern myotis, common nighthawk, olive-sided flycatcher, and whooping crane (Environment Canada 2007, 2012, 2016a,b; ECCC 2018a,b, 2019). Critical habitat has been defined for caribou (boreal population) (Government of Canada 2019). ECCC has also issued Species at Risk Management Plans for three of the species of concern: rusty blackbird, yellow rail, and northern leopard frog (Environment Canada 2013a,b, 2015).

Table 1: Wildlife Species of Concern that may interact with the Confirmation and Exploration Program

Species	NWT List of Species at Risk ^(a)	Federal Species at Risk Act Schedule 1 Status ^(b)	Committee on the Status of Endangered Wildlife in Canada Status ^(c)	Observed at Pine Point?
Boreal caribou	Threatened	Threatened	Threatened	Yes
Wood bison	Threatened	Threatened	Special Concern	Yes
Wolverine	No Status	Special Concern	Special Concern	Yes
Little brown myotis	Special Concern	Endangered	Endangered	Yes
Northern myotis	Special Concern	Endangered	Endangered	Yes
Short-eared owl	Not applicable	Special Concern	Special Concern	No
Whooping crane	Not applicable	Endangered	Endangered	Yes
Bank swallow	Not applicable	Threatened	Threatened	Yes
Barn swallow	Not applicable	Threatened	Threatened	No
Common nighthawk	Not applicable	Threatened	Special Concern	Yes
Horned grebe (western population)	Not applicable	Special Concern	Special Concern	Yes
Olive-sided flycatcher	Not applicable	Threatened	Special Concern	Yes
Rusty blackbird	No status	Special Concern	Special Concern	Yes
Yellow rail	Not applicable	Special Concern	Special Concern	No
Gypsy cuckoo bumble bee	No Status	Endangered	Endangered	No
Yellow-banded bumble bee	No Status	Special Concern	Special Concern	No
Northern leopard frog	Threatened	Special Concern	Special Concern	No
Inconnu	Sensitive	Not status	No status	No

a) GNWT (2020)

b) Government of Canada (2019)

c) COSEWIC (2019)

3.0 SCREENING-LEVEL ENVIRONMENTAL ASSESSMENT

The objective of this screening is to provide a preliminary summary of potential effects from the CEP activities to the surrounding environment. The screening was completed using the following steps:

- Identification of pathways in which the CEP may affect the environment.
- Description of the proposed mitigation. Mitigation refers to the actions used to eliminate or reduce environmental effects from a pathway, and may include processes, procedures, or project design elements. Monitoring and inspections can also be used to identify where additional mitigation may be required under an adaptive management framework.
- Description of the resulting residual effects (i.e., the residual effects that remain after mitigation has been applied).

This screening-level environmental assessment is qualitative in nature and relies on professional judgement and experience from other exploration sites in the NWT and other northern projects. The criteria used to describe the residual effects are provided in Table 2, based on guidance provided by the MVEIRB (2004).

Table 2: Assessment Criteria

Criteria	Description
Direction	Direction is related to the type of an effect and indicates whether the effect on the environment is negative or adverse (i.e., less favourable), positive (i.e., an improvement), or neutral (i.e., no change). While positive changes are identified, more focus is given to changes likely to cause adverse effects on the environment or to cause public concern.
Magnitude	Magnitude is a measure of the intensity of an effect or the degree of change caused by the Project (and other developments, if applicable) relative to baseline condition. Where possible, magnitude is reported in absolute terms.
Geographic Extent	Geographic extent refers to the area (or distance covered or range) of the effect. Categories used here include the Project area within the existing mining leases or extending beyond the mining leases (existing mining leases are illustrated in Figure 2).
Duration	Duration is defined as the amount of time from the beginning of an effect to when the effect is reversed. As the duration of the potential effects is dependent upon the results of the Project, duration is defined in terms of phases of the Project (operation and closure) rather than in terms of months/years. In some cases, effects may also be permanent, in which case they are also irreversible. Construction phase was not considered as exploration is already underway.
Reversibility	Reversibility is the likelihood that the Project will no longer influence the environment at a future predicted time, after removal of the activity or stressor, and is usually classified as either reversible or irreversible.
Frequency	Frequency refers to how often an effect will occur and is expressed as infrequent (isolated or confined to a discrete period) or frequent (occurs intermittently, but repeatedly or continuously over the phases of the Project. Frequency is explained by identifying when the source/effect occurs (e.g., once at the beginning of the activities or several times during operations and closure and reclamation).
Likelihood	Likelihood is the probability of an effect occurring. Likelihood considers uncertainty, which may be influenced by a variety of factors such as the likelihood of a negative response to the environment or occurring or the likelihood of mitigation being successful. Three categories are used: ■ Unlikely: residual effect is possible, but unlikely ■ Likely: residual effect is possible, but is not certain ■ Highly likely: residual effect is mostly certain to occur

Effects from disturbance are typically stronger with proximity to a development, while environmental changes at larger distances are typically related to natural processes. For example, changes to wildlife distribution surrounding the exploration activities may be due to attraction or avoidance, whereas wildlife distribution within the ecoregion is more affected by forage quality, predators, weather, season, and biting insect abundance.

For this screening-level environmental assessment, the study area used was the existing mining lease boundaries, as indicated in Figure 2. This study area was defined to describe the anticipated effects of a relatively small operation and the mitigation proposed to limit these effects. This area is intended to include the exploration infrastructure, trails, and mineral deposits, as well as most of the indirect effects such as dust and noise.

4.0 SCREENING RESULTS

The pathways whereby the CEP may lead to environmental effects are listed in Table 3. For each pathway, proposed mitigation and the potential residual effects were identified, and the residual effects were described according to the criteria in Table 2.

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Changes to air quality (dust)	Roads and laydown areas will be watered to suppress dust	Some dust emissions are expected from drilling activities and use of roads	Minor and localized negative effects; most dust and particulates will settle near the source	Within the extent of the mining leases	Operations Closure	- Reversible - Frequent during operations - Highly likely
Changes to air quality (air emissions, including greenhouse gases)	Diesel use will be reduced with appropriately sized generators for power demands and use of the Northwest Territories Power Corporation substation connected to the Taltson Hydro.	Air and greenhouse gas emissions will occur from use of industrial equipment and vehicles	Minor negative effects; considerably less emissions than a mine but some contribution to NWT greenhouse gas production	Beyond the extent of the mining leases	Operations Closure	- Reversible - Continuous to closure - Highly Likely

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Changes to surface water quality and fish habitat	- Greywater and/or sewage will not be discharged directly to water; all discharges will be regulated by the Land Use Permit/ Water Licence - If required, a future waste water treatment plant will require development of effluent quality criteria, through a Water Licence amendment process - The Waste Management Plan will govern the storage, use, and disposal of all hazardous materials - Spills will be avoided and managed through the Spill Contingency Plan - Erosion will be controlled through conditions in the Land Use Permit and best management practices - Bulk sampling will require a Bedrock Sampling Management Plan, which will describe waste rock characteristics, storage, and seepage monitoring - Water crossings will be avoided; if any new water crossings are required, they will be planned per applicable regulatory requirements and best practices - Groundwater and pit water transferred to open pits will consider the quality and compatibility of the receiving pit, and the quantity (volume) of water in both the extracting pit and receiving pit, and will be monitored through the Groundwater Management Plan	Hazardous substance spills or use of industrial equipment near existing water crossings or waterbodies, as well as runoff and water management activities could lead to changes in surface water quality, which could affect fish habitat Movement of water to and from open pits may affect fish and aquatic habitat, through both changes in water quality and quantity	Minor negative effect; no direct discharges of waste to lakes or waterbodies are required and water transfers between pits and from groundwater to pits will be monitored and of limited duration	Within the extent of the mining leases	Operations Closure	- Reversible - Frequent - Likely

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Water withdrawal leading to changes in lake levels and fish habitat	- Water sources will be preferentially selected from existing flooded pits or water storage areas - Water withdrawals from waterbodies/watercourses will follow the conditions set out in the Water Licence - Water withdrawals from waterbodies will remain within the 10% of lake volume as recommended by Fisheries and Oceans Canada (DFO 2010) - Withdrawal volumes will be limited to volumes approved under the Water Withdrawal Plan - Potable water sourced from Great Slave Lake or will be delivered by truck from Hay River - Greywater and/or sewage will not be discharged directly to water	Process and potable water supply requirements could lead to changes in water levels and flows, which could affect fish habitat	Minor negative effect; changes to water levels are expected to be within seasonal normals	Within the extent of the mining leases	Operations	- Reversible - Infrequent, as water will be quickly replaced through natural drainage - Unlikely
Disruption of natural drainage patterns	- Existing roads and trails will be used to the extent practicable to limit the need for new trails - Best management practices to control erosion and sediment will be followed for all road and trail maintenance operations - Relevant conditions in the Land Use Permits will be adhered to - Water crossings will be avoided; if any new water crossings are required, they will be planned per applicable regulatory requirements and best practices	Site development may lead to changes in natural drainage patterns	Minor or no negative effect; new trails and vegetation clearing are expected to be minimal	Within definition drilling target areas and extent of the mining leases	Operations	- Reversible - Frequent - Likely

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Changes to groundwater quality	- Returned water will be contained in sumps - Drill cuttings/sludges will be buried in sumps located away from the high water mark, where required - Fuel-handling and spill protocols will be followed per the Waste Management Plan and the Spill Contingency Plan - Groundwater injection will be managed through the Groundwater Management Plan	Potential for drill cuttings and sludges, returned water from drilling, and/or fuel to enter groundwater in the area Possible changes to groundwater quality at injection sites, but this testing is required to further develop the mitigation for a future mine	Minor negative effect; activities are similar to exploration activities that are currently being conducted and managed at the site Negative effects from groundwater testing will be short duration, limited to ten sites, and are required to develop future mitigation	Within definition drilling target areas and extent of the mining leases	Operations	- Reversible - Infrequent - Likely
Disturbance of shallow permafrost	- Infrastructure will be placed on disturbed ground where appropriate and repaired as required - Best management practices to control erosion and sediment will be followed for all road and trail maintenance operations - Activity will be suspended at the first sign of rutting or soil compaction	Localized loss of permafrost may lead to slumping and loss of vegetation due to erosion and subsidence	Minor and localized negative effect; activities will be predominantly confined to existing roads and disturbed areas, and permafrost has a low ice content	Within the extent of the mining leases	Operations Closure	- Irreversible - Infrequent - Unlikely
Soil compaction or destabilization	- Existing roads and trails will be used to the extent practicable to limit the need for new trails - Best management practices to control erosion and sediment will be followed for all clearing and road and trail maintenance operations - Relevant conditions in the Land Use Permits will be adhered to	Some effects to soil may result from any required clearing	Minor and localized negative effect; activities will be predominantly confined to existing roads and disturbed areas	Within the extent of the mining leases	Operations	- Reversible - Infrequent - Likely

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Direct loss of vegetation and wildlife habitat	- The CEP area will be minimized, as practicable - Previously disturbed areas will be preferentially used where possible - Land clearing will occur outside of the nesting season - The Wildlife Protection Plan will be implemented - An Interim Closure and Reclamation Plan will be developed 1 year prior to expiration of the Land Use Permit	Clearing activities and development of new trails will alter or destroy some wildlife habitat	Minor and localized habitat loss; activities will be predominantly confined to existing roads and disturbed areas	Within the extent of the mining leases	Operations	- Irreversible, as reclaimed areas may not have the same ecological function and ongoing use of the area - Continuous - Highly likely
Sensory disturbance to wildlife	- Previously disturbed areas will be preferentially used - Roads and laydown areas will be watered to suppress dust - Unnecessary activity will be avoided - Best management practices and mitigation measures will be employed per applicable management plans to manage sensory disturbance and emissions to the environment - The Wildlife Protection Plan will be implemented	Noise disturbance due to operation of industrial equipment and vehicles, and blasting when required, and disturbance from odours, lights and activity, which may cause wildlife to avoid the area; effects are expected to be seasonal due to the seasonal presence of wildlife	Minor and localized sensory disturbance; activities will be predominantly confined to existing roads and disturbed areas	Within the extent of the mining leases	Operations Closure	- Reversible following closure or end of activity - Infrequent - more frequent during peak operations, less frequent during closure - Likely

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Direct mortality of wildlife	- Land clearing will occur outside of the nesting season - The Wildlife Protection Plan will be implemented - Feeding of wildlife will be prohibited - Wildlife incidents will be investigated - Food waste and other attractants will be isolated or disposed of, as per the Waste Management Plan	Direct mortality from operations and human-animal interactions may occur, and problem wildlife may have to be destroyed to ensure human safety	Minor to negligible negative effects; activities are similar to exploration activities that are currently being conducted and managed at the site	Within the extent of the mining leases	Operations	- Irreversible at the individual level; reversible at population level - Infrequent - Unlikely
Disruption of traditional land use	- Disruption of traditional land use will be minimized by seeking advice and suggestions from local communities through the Engagement Plan - The CEP area will be minimized, as practicable - Previously disturbed areas will be preferentially used where possible - Land users will not be inhibited from using any area within the mining lease claims or activity areas, except where safety concerns exist - Best management practices and mitigation measures will be employed per applicable management plans to manage sensory disturbance and emissions to the environment	Operations could cause a disruption in traditional land use, through changes to the aesthetic value of the area and through changes to the availability of wildlife	Minor and localized negative effects; activities are similar to exploration activities that are currently being conducted and managed at the site	Within the extent of the mining leases	Operations	- Irreversible effects to perception of the area's suitability for traditional land use - Infrequent, as the area is only used seasonally - Unlikely that any actual disruption will occur

Table 3: Screening-level Environmental Assessment for the Confirmation and Exploration Program

Pathway	Mitigation	Potential Residual Effects	Direction and Magnitude	Geographic Extent	Duration	Reversibility, Frequency, and Likelihood
Disturbance of historical and/or archaeological sites	- The CEP area will be minimized, and archaeological sites or high potential areas identified per previous studies will be avoided, as feasible - Previously disturbed areas will be preferentially used - Activities will adhere to the NWT <i>Archaeological Sites Act</i> and applicable management plans, and any new sites will be reported to the Government of NWT Cultural Places Program - Relevant conditions of the Land Use Permit will be adhered to	Operations could disrupt previously unknown or unidentified archaeological sites within the brownfield site	Minor to negligible and localized negative effects; activities will be predominantly confined to existing roads and disturbed areas	Within the extent of the mining leases	Operations	- Irreversible - Infrequent - Unlikely
Impacts to employment, income of individuals and local business opportunities	Positive effects from the CEP will not be mitigated	Exploration activities may provide seasonal employment or business opportunities for individuals or local businesses in surrounding communities; increased local employment and incomes may result in induced employment in other sectors of the local economy	Minor positive effects; activities are similar to exploration activities that are currently being conducted and managed at the site	Beyond the extent of the mining leases	Operations Closure	- Reversible - Frequent but limited to the exploration timeline - Likely

CEP = Confirmation and Exploration Program.

5.0 CONCLUSION

The proposed CEP will likely lead to some localized effects to the surrounding environment and some effects that may extend beyond the extents of the mining leases. Examples include potential effects on water quality and wildlife habitat, and effects to the aesthetic value of the area to traditional land users. There is also the potential for a positive effect to surrounding communities as a result of potential employment and business opportunities.

Many potential effects will be mitigated by preferentially using previously disturbed areas within the brownfield site, and many of the CEP activities are similar to exploration activities currently conducted and managed at the site. PPML has proposed mitigation to manage the residual risks of the CEP through a range of existing environmental management plans, including the Waste Management Plan, Wildlife Protection Plan, Groundwater Management Plan, Spill Contingency Plan, and the Engagement Plan, among others. Many of the possible impacts identified will be managed under conditions in existing permits/licences, or legislation such as the NWT *Archaeological Sites Act*. Regular inspections by the Government of the NWT Lands Inspector will confirm that impacts are adequately managed.

Considering the mitigation proposed, the suite of environmental management and monitoring plans, and the history of development in the Pine Point area, no significant adverse environmental effects are anticipated from the proposed CEP activities at Pine Point.

6.0 REFERENCES

Acts and Regulations

Federal

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APPENDIX A

Photos



Photo 1: Structures at the Existing PPML Exploration Camp



Photo 2: Existing Haul Road at Pine Point



Photo 3: Abandoned Open Pit near the Pine Point Townsite



Photo 4: Remaining Street and Sidewalk at the Pine Point Townsite



Photo 5: Image of a Woodland Caribou Captured by a Remote Camera on 24 June 2018



Photo 6: Recreational Use of the Pine Point Area, Captured by a Remote Camera on 19 May 2018



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