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# BIOSOLID REHABILITATION SUMMARY REPORT (REV01)

FOR

Glencore Canada Corporation  
Kidd Mine Operation

**SUBMITTED TO:**

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## GLOSSARY

<b>Abbreviation</b>	<b>Definition</b>
BUC	Biosolids Utilization Committee
DMB	Dewatered Municipal Biosolids
ECA	Environmental Compliance Approval
EPA	<i>Environmental Protection Act</i>
ha	Hectares
ICMM	International Council on Mining & Metals
km	Kilometres
m <sup>2</sup>	Square metres
MAC	Mining Association of Canada
MECP	Ministry of the Environment, Conservation and Parks
NASM	Non-Agricultural Source Material
NSIG	Northern Industrial Services Group
OMAFRA	Ministry of Agriculture, Food and Rural Affairs
TSM	Towards Sustainable Mining
WWTP	Waste Water Treatment Plant
EC	Electrical Conductivity
T/ha	Tonnes per hectares
cm	Centimetres



## 1.0 INTRODUCTION

Glencore Canada Corporation (Glencore) is a participant of the Mining Association of Canada (MAC) Towards Sustainable Mining (TSM) program. The TSM program is a set of standards that are intended to ensure that key mining risks are managed responsibly. As such, Glencore is required to demonstrate that standards of MAC TSM have been met.

Blue Heron was retained by Glencore to provide a summary of the proponent's efforts using sewage biosolids applications at the Kidd Mine Site (the Site; Appendix A, Figure 1 and Figure 2) as part of its commitments to adhering to the Biodiversity Conservation Management standards set out in MAC TSM. The MAC TSM program is explained in detail in Section 1.3.

### 1.1 Project Overview

Revegetation of mine-disturbed lands is a requirement under *Ontario Regulation 240/00*, of the *Mining Act* (Government of Ontario 1990a). Since 2017, Glencore has been undertaking field trials to assess the viability of applying treated municipal sewage biosolids onto the waste rock dump as part of its ongoing reclamation efforts. Biosolids are recognized as a cost-effective growth medium for the establishment of a vegetative cover during progressive and final reclamation. To date, 0.8 hectares (ha) of land have received applications of biosolids, approved under the Environmental Compliance Approval (ECA) No. 17-TIM-40695 (Appendix B). In 2020 Glencore received a new ECA (No. 20-TIM-63388; Appendix C) for the Site, approving an expanded biosolid testing program that covers 170 ha of lands.

The biosolids are being used for soil and waste rock conditioning at the Site and come from regulated Ontario Wastewater Treatment Plants (WWTP). According to the conditions of the ECAs, the biosolids must be treated by aerobic or anaerobic digestion, or other means of stabilization. At Closure, there will be approximately 170 ha of disturbed area that could eventually be rehabilitated using organic residuals, such as biosolids.

### 1.2 Project Location

The Site is located 27 kilometres (km) northeast of Timmins, Ontario, Kidd Township, Porcupine Mining Division (Appendix A, Figure 1). The expanded disturbed area is referenced on (Appendix A, Figure 2). The properties where the work was performed are wholly owned by Glencore Canada Corporation and are comprised of PAT-4425, PAT-4426 and PAT-5544. Please refer to the Study Area, Test Plots and Study Plots where the work was performed (Appendix A, Figure 3).

### 1.3 Industry Objectives

#### 1.3.1 Mining Association of Canada

As a member of MAC, Glencore must demonstrate a responsible approach to social, economic, and environmental performance that is aligned with their communities of interest. As a MAC member, Glencore also participates in the TSM program. The TSM program is a set of protocols that are intended to ensure that key mining risks are managed responsibly. One of the key concepts of the TSM program is to return mine sites to viable and diverse ecosystems that will



serve the needs of post-mining use, where practicable. The protocols intended to guide participants towards responsible mining include:

- Biodiversity Conservation Management Protocol;
- Climate Change Protocol;
- Crisis Management Protocol;
- Indigenous and Community Relationships Protocol;
- Prevention of Child and Forced Labour Protocol;
- Safety and Health Protocol;
- Tailings Management Protocol; and
- Water Stewardship Protocol.

The testing and use of biosolids applications to rehabilitate the waste rock is being done, in part, to fulfill Glencore's commitments to the Biodiversity Conservation Management Protocol.

## 1.4 Legislature

### 1.4.1 *Environmental Protection Act*

The application of processed organic waste and other waste materials at non-agricultural sites for a beneficial use requires an ECA, issued under Part V of the *Environmental Protection Act R.S.O. 1990, c. E.19 as amended* (Government of Ontario 1990b). These approvals are issued by Ministry of Environment, Conservation and Parks (MECP) district offices. In order for the proponents to use organic and other waste materials on non-agricultural lands must undergo a review by the "Biosolids Utilization Committee" (BUC) technical subcommittee, which is comprised of technical and program area experts from MECP and the Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

### 1.4.2 General – Waste Management

*Ontario Regulation 347 R.R.O. 1990* (Government of Ontario 1990c) is Ontario's law regulating hazardous waste under the EPA. It is enforced by the MECP and provides the rules and regulations for facilities and companies who generate, handle, use, store, ship, and transports hazardous and non-hazardous waste. Waste must be transported in accordance with an authorized waste management system.

### 1.4.3 *Nutrient Management Act, O. Reg 267/03*

The *Nutrient Management Act 2002, S.O. 2002, c.4* (Government of Ontario 2002) provides management guidelines to properly utilize manure or organic by-products as a plant nutrient source and to maintain and improve the physical, chemical, and biological condition of soils. OMAFRA is responsible for the approvals required for the safe application of Non-Agricultural Source Materials (NASM) and MECP is responsible for enforcing compliance with the regulation and does proactive inspections.

Part IX of the *Nutrient Management Act* outlines the sampling frequency, parameters, and procedures for Category 3 NASM. Category 3 NASM are treated and recycled material from non-



agricultural sources, like leaf and yard waste, fruit and vegetable peels, food processing waste, pulp and paper biosolids and sewage biosolids, that is applied to lands to provide a beneficial use.

## 2.0 LITERATURE REVIEW METHODES

Blue Heron completed a literature review to gain an understanding of the Site. Documents included in the literature review consisted of:

- Glencore company standards;
- Mining industry standards;
- Closure Plans; and
- Relevant technical studies.

These documents were reviewed to provide a historical context of the Site and to provide insight on the rehabilitation efforts being completed on the Site. A full list of the documents reviewed can be found below in Table 1.

**Table 1 - Documents Reviewed during the Literature Review**

Report Name	Publication Year
Application for Approval of Hauled Sewage (septage) Sewage Biosolids and Other Wastes	2020
ECA No. 17-TIM-40695	2017
ECA No. 20-TIM-63388	2019
Amended ECA No. 17-TIM-40695	2018
BUC Submission Screening Checklist	2020
Kidd Biosolids Report 2021 Final	2021
Biosolids Utilization Committee Letter	2020
Biosolids Utilization Committee Proposal	2020
Biosolids Utilization Committee Proposal Supplemental Documentation	2020
2021 Weights and Delivery Records	-
Kidd Mine Biosolids Management Manual	2018
Kidd Mine Biosolids Management Manual	2020
Kidd Mine Biosolids Management Manual	2021
Plant Site Closure Plan Falconbridge Limited Kidd Metallurgical Division, Timmins Ontario	2001
Closure Planning Standard	2021
2018, 2019 and 2021 SGS Certificates of analysis Wastewater Treatment Plant Cake Analysis	2018, 2019 and 2021

## 3.0 BIOSOLIDS

Biosolids are sewage end products that result from treating wastewater to meet regulatory requirements and are considered a waste product. Biosolids use in mine reclamation have been



shown to improve soil physical and biological properties, decrease erosion and runoff, increase macro and micronutrients, and increase land productivity and forage for wildlife and domestic herbivores (Sopper 1993, Epstein 2003, Gardner et al. 2010). The application of biosolids has a significant impact on establishment and productivity of vegetation, with considerably improved plant response (Gardner et al. 2010).

Because of its high organic content, the application of biosolids decreases bulk density, temperature, and risk of erosion and sedimentation, while increasing porosity, aggregation, hydraulic conductivity, water holding capacity, and infiltration (Brofas et al. 2000, Gardner et al. 2010, Sopper 1993). The application of biosolids also raises chemical properties such as pH, electrical conductivity (EC) in soils and helps to maintain soil texture (Bendfelt et al. 2001, Brofas et al. 2000, Castillejo and Castello 2010; Larney and Angers 2012; Wijesekara et al. 2016). Biosolids applications have also resulted in increased microbial biomass carbon and microbial enzymatic activities in the receiving mine spoils (Gardner et al. 2010, Mingorance et al. 2013) because of the increased soil organic content, which is the main energy source for microbes (Wijesekara et al. 2016).

In 2012 Vale Canada (Vale) was the first mine in Ontario to apply biosolids to tailings (Scales, 2018). Biosolids were applied at 150 dry tonnes per ha (t/ha) to help provide higher organic matter and nutrient levels, while stabilizing the tailings' pH levels (Scales 2018). In a study examining the rooting depths and successional development of selected boreal forest communities, 50% of the roots were found in the top 15 centimetres (cm) of substrate, with roots being shallower where more organic matter was present (Strong and La Roi 2011). The application rate of 150 dry t/ha provides a sufficient growth medium depth for most species.

## 4.0 MONITORING OF ORGANIC WASTE PRODUCTS

Proper sampling and analytical techniques are essential to accurately characterize the existing nutrient content and other properties of materials applied to the land for the purpose of improving the growing of crops.

The results from the biosolids testing at the Ontario Sewage Treatment Plants were reported in 2018 and 2019 by Mattagami WWTP and reported in 2021 and 2022 by Green for Life Environmental (GFL; formerly Terrapure) to the Kidd Operations Environmental Department. Samples were reviewed to verify compliance under the conditions of ECA No. 17-TIM-40695 and 20-TIM-63388. Analytical results are provided in Appendix D and Appendix E, respectively. The results of the analyses were reported annually to the MECP, with limitation exceedances communicated. Biosolid producers (Ontario Sewage Treatment Plants) are required to sample their biosolids prior to release. If the material is non-compliant for land application, it does not leave the Site of Origin. Metal parameters of the biosolids applied to the Site and their limits are listed in Table 2 below.

Furthermore, the concentration of *Escherichia coli* (*E. coli*) shall not exceed 2 million colony forming units per gram of total solids, as stated in the ECA. The ECA approval also states that waste received at the Site shall not exceed an odor detection threshold of 4,500 odor units per cubic metre.



**Table 2 - Metal Parameters and Limitations from Section 13 of ECA 17-TIM-40695 and Section 12 of ECA 20-TIM-63388**

Regulated Metals	Concentration (mg/kg) <sup>1)</sup>
Arsenic	170
Cadmium	34
Cobalt	340
Chromium	2800
Copper	1700
Lead	1100
Mercury	11
Molybdenum	94
Nickel	420
Selenium	34
Zinc	4200

<sup>1)</sup>Concentration in non-aqueous material (containing 1% or more total solids, wet weight), expressed as milligram/kilogram (mg/kg) of total solids, dry weight.

## 5.0 BIOSOLID WASTE ROCK MANAGEMENT AREA HISTORY AT KIDD MINE

Since 2017, Glencore has been conducting biosolid trials on waste work areas at the Site to determine the viability of using biosolids to facilitate vegetation growth and stabilize the soil. The following section describes the activities and results that occurred from 2017 to 2022 at the East Waste Rock Dump (Appendix A, Figure 1) at the Site.

### 5.1 Test Plots

#### 2017

In August 2017, 1.9 ha of waste rock was re-sloped (3H:1V) and graded at the East Rock Dump location (Appendix A, Figure 3) in preparation for closure. Clay and/or soil was placed on 0.8 ha of the graded area. The remaining 1.1 ha of graded lands was left untreated. As a result of grading, most of the larger material was either buried or removed from the slope, resulting in a surface consisting mostly of a mixture of 30% fines, 40% gravel up to 20 cm, and 30% gravel greater than 20 cm.

#### 2018 and 2019

On May 15, 2018, Kidd Mine received an additional ECA (Appendix B, ECA No.17-TIM-40695) for the application of dewatered municipal biosolids (DMB) from the Mattagami River Wastewater Treatment Plant (Mattagami WWTP) from the City of Timmins for an area approximately 0.8 ha. The biosolids were equally divided, with one half of them being applied to a portion of the clay and soil covered area, previously sloped and graded in 2017, and the rest applied to the mine waste fines and gravel portion, situated directly next to the clay and soil.



Biosolids were hauled by Northern Industrial Services Group (NSIG) under a Waste Management System Certificate of Assurance (C of A; No. 6178-WEHK). Table 3 lists the material weight (wet tonne) for each delivery from the Mattagami WWTP. Prior to the DMB being received at the Site, they were sampled and analyzed in accordance with the sampling frequency, parameters, and procedures specified in Category 3 NASM and the Sampling and Analysis Protocol in the *Nutrient Management Act*.

There were no ECA parameter exceedances. The analytical results are provided in Appendix D.

**Table 3 – Summary of Mattagami WWTP Biosolids Hauled in 2018 and 2019 by NSIG**

Date	Wet Weight (WT) in Tonnes
01-Aug-18	17.30
02-Aug-18	7.70
03-Aug-18	17.10
09-Aug-18	17.99
10-Aug-18	9.04
13-Aug-18	13.65
14-Aug-18	9.81
15-Aug-18	9.26
16-Aug-18	9.56
20-Aug-18	10.42
21-Aug-18	10.49
22-Aug-18	11.61
23-Aug-18	10.47
27-Aug-18	8.37
29-Aug-18	18.85
31-Aug-18	8.72
04-Sep-18	10.07
05-Sep-18	11.25
10-Sep-18	25.05
13-Sep-18	28.54
29-Oct-18	7.51
12-Nov-18	16.15
20-Nov-18	288.91
02-Jul-19	11.71
03-Jul-19	23.62
04-Jul-19	9.40
05-Jul-19	9.51
25-Jul-19	12.19
06-Aug-19	18.61
12-Aug-19	9.52
20-Aug-19	11.88

DMB were stockpiled on the East Rock Dump in accordance with the terms and conditions of the ECA. The ECA stated that storage of no more than 80 wet tonnes was permitted on Site, with a dry weight percentage no lower than 14%.

Placement of DMB on the 0.8 ha area took place during dry periods to allow ease of access and did not occur on frozen or snow-covered ground. The DMB was stored in a way to mitigate against



environmental impacts including run-off and nuisance odours. Site preparation (i.e., sloping and grading) was completed from June 18, 2019, to July 3, 2019 by Caron Equipment followed by NISG spreading the biosolids under contract with Kidd Operations after

The biosolids application was seeded with a reclamation seed mixture in September 2018 and 20169 by Erocon Environmental Group Inc. (Erocon).

### 2020 to 2022

In 2020, the application for a new ECA (Appendix C, No. 20-TIM-63388) was approved for hauled sewage biosolids and other wastes for the progressive rehabilitation of the 170 ha disturbed areas on the Site, including waste rock dumps, roads and building sites (Appendix A, Figure 3). The Site will be rehabilitated using DMB from locations in Ontario and Quebec; primarily sourced from the City of Timmins wastewater treatment facility. Other organic residuals can be mixed with the DMB, such as:

- Pulp and paper mill residuals, including:
  - Paper fibre residuals;
  - Virgin wood (bark and ground wood); and
  - Lime mud and ash (with minimum 18% dry matter content).
- Virgin wood residuals generated by saw mills plus forestry manufacturing;
- Facilities (e.g., sawdust, planer shavings, wood chips, bark and ash); and
- Kidd Mine Site residuals, such as:
  - Clean wood waste generated from demolition activities, which will be ground up prior to use (excludes painted wood and wood potentially contaminated with other materials such as oil);
  - Other organics generated from demolition activities; and
  - Residuals from an on-site sanitary sewage lagoon.

Either DMB or a mixture of DMB and other organic residuals will be spread across the 170 ha areas throughout the year, provided that Site conditions are suitable to support the application equipment. The proposed application rate will vary depending on the vegetative growth and/or substrate type in each location. Application rates will vary from a low of 20 dry t/ha of DMB to a maximum of 150 dry t/ha. The maximum depth of DMB applied is proposed to be 50 cm. When DMB is mixed with other organic residuals, the maximum application rate is proposed to be 240 dry tonnes/ha.

The progressive rehabilitation of the Site will occur progressively over several years, as areas and residuals become available.

In 2021 and 2022, GFL1) was contracted to haul biosolid materials to the Site and provide Glencore with a Bill of Ladings (BoL). GFL conducted the work under an authorized Waste Management System ECA (ECA No. 4400-4LBLXD). Table 5 and Table 66 shows the biosolid origin in Ontario and the material weight (wet tonnes) of every delivery. Prior to the biosolids being received at the Site, all DMB were sample and analyzed in accordance with the sampling frequency, parameters, and procedures specified in Category 3 NASM and the sampling and



analysis Protocol in under the *Nutrient Management Act*. Analytical results are provided in Appendix E.

There were exceedances of *E. coli*, an ECA parameter, in 2021 and 2022 (Table 4).

**Table 4 - *E. coli* Exceedances in WWTP Cake Analysis**

Date	Origin	<i>E. coli</i> Measure
August 18, 2021	Galt	2,450,000
July 20, 2022	Galt	6,970,000
May 18, 2022	Kitchener	4,300,000
July 6, 2022	Kitchener	23,700,000
July 20, 2022	Kitchener	8,990,000
July 27, 2022	Kitchener	3,770,000
September 28, 2022	Kitchener	2,480,000
October 5, 2022	Kitchener	2,500,000
May 11, 2022	Clarkson	18,900,000
May 11, 2022	Clarkson	22,500,000
May 11, 2022	Clarkson	16,300,000
May 11, 2022	Clarkson	41,100,000
October 5, 2022	Waterloo	2,690,000
November 9, 2022	Waterloo	3,670,000
May 10, 2022	Woodward	2,470,00
May 10, 2022	Woodward	2,590,000
May 24, 2022	Woodward	2,120,000
September 13, 2022	Woodward	5,740,000
September 21, 2022	Woodward	10,100,000
October 12, 2022	Woodward	6,520,000
October 25, 2022	Woodward	2,820,000
November 1, 2022	Woodward	2,560,000
ECA <i>E. coli</i> Limit		2,000,000

**Table 5 - Summary of Biosolids Hauled in 2021 by GFL in Appendix E**

Date	Origin	Wet Weight (WT) in Tonnes
March 31, 2021	Toronto	38.17
April 1, 2021	Galt	35.64
April 12, 2021	Toronto	37.05
April 21, 2021	Toronto	38.09
May 4, 2021	Toronto	39.22
May 4, 2021	Toronto	37.90
May 6, 2021	Toronto	39.12
May 19, 2021	BMC	27.57
May 26, 2021	BMC	24.97
June 1, 2021	BMC	25.20
June 2, 2021	BMC	28.35
June 3, 2021	Toronto	35.60
June 9, 2021	Toronto	35.21
June 9, 2021	Toronto	35.01



Date	Origin	Wet Weight (WT) in Tonnes
June 15, 2021	BMC	35.89
June 16, 2021	Toronto	35.91
June 17, 2021	Toronto	36.23
June 18, 2021	Toronto	34.61
June 18, 2021	Toronto	35.47
June 21, 2021	Toronto	35.52
June 21, 2021	Toronto	35.17
June 22, 2021	Toronto	34.76
June 22, 2021	Toronto	35.64
June 23, 2021	BMC	33.85
June 24, 2021	Toronto	36.03
June 28, 2021	Toronto	35.17
June 28, 2021	Toronto	35.74
June 29, 2021	Toronto	35.73
June 29, 2021	Toronto	35.93
June 30, 2021	Toronto	34.27
June 30, 2021	Toronto	35.35
July 2, 2021	BMC	34.95
July 2, 2021	Toronto	35.06
July 5, 2021	Toronto	34.83
July 13, 2021	Toronto	34.53
November 23, 2021	BMC	34.355
November 29, 2021	BMC	33.44
December 1, 2021	BMC	32.08
December 1, 2021	BMC	31.56
December 8, 2021	BMC	33.14
December 15, 2021	BMC	34.60
December 16, 2021	BMC	34.20
December 23, 2021	BMC	33.70
December 28, 2021	BMC	34.00
<b>Total 2021 WT Tonnes</b>		<b>1518.82</b>

Table 6 - Summary of Biosolids Hauled in 2022 by GFL

Date	Origin	Wet Weight (WT) in Tonnes
10-Jan-22	Toronto	39.19
14-Jan-22	Oakville	34.61
17-Jan-22	Toronto	37.39
20-Jan-22	Toronto	37.38
21-Jan-22	Toronto	38.28
24-Jan-22	Oakville	35.84
26-Jan-22	Toronto	36.84
27-Jan-22	Toronto	30.26
28-Jan-22	Oakville	30.03
1-Feb-22	Toronto	32.03



Date	Origin	Wet Weight (WT) in Tonnes
2-Feb-22	Toronto	32.65
3-Feb-22	Hamilton	30
4-Feb-22	Hamilton	34.04
17-Feb-22	Hamilton	30
18-Feb-22	Hamilton	23.92
24-Feb-22	Kitchener	33.4
25-Feb-22	Waterloo	25.53
<b>Total 2021 WT Tonnes</b>		<b>561.39</b>

Biosolids were stockpiled east of the open pit in an area approved under the ECA. Handling of the biosolid stockpiles and the spreading of biosolids were completed at the East Rock Dump during dry periods to prevent material runoff from the deposition locations.

GFL also delivered organic residuals loads to the Site in 2021 and 2022 (Table 7).

**Table 7 - Organic Residuals Hauled in 2021 and 2022 by GFL**

Date	Origin	Organic Residual	Wet Weight (WT) in Tonnes
Sept 28, 2021	Timmins	Bark Shavings	32.00
Sept 28, 2021	Timmins	Bark Shavings	33.50
Aug 04, 2022	Timmins	Bark Shavings	20.78
Aug 04, 2022	Timmins	Bark Shavings	16.46
Aug 04, 2022	Timmins	Bark Shavings	35.39
Aug 04, 2022	Timmins	Bark Shavings	29.71
Aug 05, 2022	Timmins	Bark Shavings	16.080
Aug 05, 2022	Timmins	Bark Shavings	32.35
Aug 05, 2022	Timmins	Bark Shavings	13.11
Aug 05, 2022	Timmins	Bark Shavings	25.11

Kidd Mine established 8 test plots in the 0.8 ha area in 2021 (Appendix A, Figure 3). Each test plot had a different soil mixture for seeding. Site preparations (i.e., grading and sloping) was completed by Caron Equipment between September 17, 2021, and October, 06 2021. Once biosolids and organic residuals had been spread over the 0.8 ha area (between September 04 2021 to October, 07 2021), Erocon evenly seeded the area, during the week of October, 13 2021, with a custom reclamation seed mix of perennial grasses and legumes (Erocon Reclamation Seed Mixture):

- 25% Coated Bird's-foot Trefoil;
- 20% Coated Alsike Clover;
- 10% Coated Double Cut Red Clover;
- 15% Sunrise Brand Timothy;
- 10% Coated Creeping Red Fescue;
- 20% Annual Ryegrass; and



- Other vegetation (such as oats or barley).

Table 8 describes the various treatments applied to the test plots. Treatments consisted of the application of various growth media with the same seeding rates. Test plot soil sampling events occurred in October 2021 and September 2021 to verify that the substrate did not have exceedances of regulated metal parameters identified in the ECA. Lab analysis on the organic residuals applied to the eight test plots was completed by SGS Canada Inc. for DMB and are available in Appendix F.

**Table 8 - Test Plot Treatments**

Plot No.	Treatment Description	Plot Area (m <sup>2</sup> )	2021 Area seeded (m <sup>2</sup> )
1	Biosolids	4057.2	4057.2
2	Biosolids applied on top of soil	2888.5	2888.5
3	Biosolids mixed with soil	1110.6	1110.6
4	Pastefill plant mixed with biosolids	2069.8	2069.8
5	Pastefill plant	1955.4	1955.4
6	Bark mixed with biosolids	983.9	983.9
7	Sand and clay mixed with biosolids	2982.3	2982.3
8	Biosolids mixed with soil	965.6	965.6
<b>Total</b>		<b>17013.3</b>	<b>17013.3</b>

All substrate tested was within the acceptable limits for metals and *E.coli* under Section 12 Metal Parameters and Limitations of the ECA 20-TIM-63388

In 2022 Kidd Mine established 6 new test plots north of the reclaimed east waste rock dump (Appendix A, Figure 4). Table 9 describes the various treatments applied to the test plots. Treatments consisted of the application of various growth media with an anticipated equal plot seeding rate in the future.

**Table 9 - Northwest Study Test Plot Treatments**

Plot No.	Treatment Description	Material Thickness
1	Seeding was completed directly on the graded waste rock	No material deposited prior to seeding
2	20% biosolids, 70% crusher rejects and 10% bark	100mm to 150mm
3	90% mine tailings, 10% bark	100mm to 150 mm
4	20% biosolids, 70% mine tailings and 10% bark	100mm to 150 mm
5	90% crusher rejects and 10% bark	100mm
6	45% biosolids, 45% crusher reject and 10% bark	Unknown



## 6.0 EXISTING CONDITIONS

### 6.1 Regional Context

The Site is located in the southeastern zone of the boreal forest of Ontario. The topography is flat with poor drainage (Crins 2009). A regional clay belt runs alongside the Quebec/Ontario border creating vast open bogs and stunted Black Spruce (*Picea marina*) treed muskeg habitats. The climate is influenced by James Bay and Hudson's Bay making it a cold climate with a short growing season and abundant precipitation (Crins et al. 2009).

### 6.2 Local Context

The local area surrounding the Site is comprised of typical boreal forest vegetation types including coniferous forest stands with scattered mixedwood stands, treed muskeg and shrub and cattail wetlands. Black Spruce, White Spruce (*Picea glauca*), Balsam Fir (*Abies balsamifera*), Tamarack (*Larix laricina*), and Eastern White Cedar (*Thuja occidentalis*) stands make up a large component of the area. Mixed stands comprised of Black Spruce, Trembling Aspen (*Populus tremuloides*), Balsam Fir and White Birch (*Betula papyifera*) are also abundant in the Site. Common shrub species in both coniferous and mixed stands include Labrador Tea (*Rhododendron groenlandicum*), Speckled Alder (*Alnus incana*), Blueberry (*Vaccinium* sp.), Bunchberry (*Cornus canadensis*), and Starflower (*Trientalis borealis*).

### 6.3 Test Plots

On August 10<sup>th</sup> and 12<sup>th</sup>, 2022, during a Site investigation by Blue Heron, the test plots were assessed qualitatively, documenting species presence in order of dominance, overall vegetation health, and signs of erosion.

A total of 25 species were observed. Of these, five are native to Ontario and are considered secure within the province (S5). Test plot qualitative characteristics are provided in Table 10. A full floristic inventory is provided in Appendix G and representative photos are provided in Appendix H.



**Table 10 - Test Plot Qualitative Characteristics**

Plot No.	Treatment	Dominant Vegetation		Substrate Exposure	Erosion	Plant Health
		Common Name	Scientific Name			
1	Biosolids	Lamb's Quarter	<i>Chenopodium album</i>	High exposed substrate	High erosion	Moderate
		Quack Grass	<i>Elymus repens</i>			
		Timothy Grass	<i>Phleum pratense</i>			
2	Biosolids on top of soil	Bird's-foot Trefoil	<i>Lotus corniculatus</i>	Plant cover is moderate due to plant leaves and branching. However, abundant exposed ground and rocks	Moderate erosion	Moderate (visual inspection of some dehydrated plants)
		Lamb's Quarter	<i>Chenopodium album</i>			
		Red Clover	<i>Trifolium pratense</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
Yellow Sweet Clover	<i>Melilotus officinalis</i>					
3	Biosolids mixed with soil	Alsike Clover	<i>Trifolium hybridum</i>	Plant cover is moderate due to plant leaves and branching. However, abundant exposed ground and rocks	Moderate erosion	Moderate (visual inspection of several dehydrated plants)
		Bird's-foot Trefoil	<i>Lotus corniculatus</i>			
		Lamb's Quarter	<i>Chenopodium album</i>			
		Quack Grass	<i>Elymus repens</i>			
		Red Clover	<i>Trifolium pratense</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
Yellow Sweet Clover	<i>Melilotus officinalis</i>					
4	Pastefill plant mixed with biosolids	Alfalfa	<i>Medicago sativa</i>	Plant cover is high due to plant leaves and branching. However, abundant exposed ground and rocks	Moderate erosion	Good
		Alsike Clover	<i>Trifolium hybridum</i>			
		Bird's-foot Trefoil	<i>Lotus corniculatus</i>			
		Lamb's Quarter	<i>Chenopodium album</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
Yellow Sweet Clover	<i>Melilotus officinalis</i>					
5	Pastefill plant	Red Fescue	<i>Festuca rubra</i>	Plant cover is high due to plant leaves and branching. However, abundant patches of exposed ground and rocks	Moderate erosion	Good (visual inspection of minimal dehydrated plants)
		Timothy Grass,	<i>Phleum pratense</i>			
6	Bark mixed with biosolids	Alsike Clover	<i>Trifolium hybridum</i>	Plant cover is high due to plant leaves	Moderate erosion	Good
		Bird's-foot Trefoil	<i>Lotus corniculatus</i>			



Plot No.	Treatment	Dominant Vegetation		Substrate Exposure	Erosion	Plant Health
		Common Name	Scientific Name			
		Lamb's Quarter	<i>Chenopodium album</i>	and branching. However, abundant exposed ground and rocks		
		Quack Grass	<i>Elymus repens</i>			
		Red Clover	<i>Trifolium pratense</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
		Yellow Sweet Clover	<i>Melilotus officinalis</i>			
7	Sand, clay mixed with biosolids	Lambs Quarter	<i>Chenopodium album</i>	Plant cover is high due to plant leaves and branching. However, abundant exposed ground and rocks	Moderate erosion	Good
		Quack Grass	<i>Elymus repens</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
		Yellow Sweet Clover	<i>Melilotus officinalis</i>			
8	Biosolids mixed with soil	Alsike Clover	<i>Trifolium hybridum</i>	Plant cover is high due to plant leaves and branching. However, abundant exposed ground and rocks	Moderate erosion	Good (visual inspection of minimal dehydrated plants)
		Lamb's Quarter	<i>Chenopodium album</i>			
		Quack Grass	<i>Elymus repens</i>			
		Timothy Grass	<i>Phleum pratense</i>			
		White Sweet Clover	<i>Melilotus albus</i>			
		Yellow Sweet Clover	<i>Melilotus officinalis</i>			



## 7.0 INVOICE

Table 11 summarizes the rehabilitation expenses incurred since 2019. Expense invoices can be found in Appendix I.

**Table 11 - Biosolids Project Invoices Since 2017**

Date	Title	Company	Company Contact	Kidd Mine Recipient	Amount
03-Jul-19	East Rock Dump Grading	Caron Equipment	-	Kidd Mine	\$30,086.25
18-Sep-19	East Rock Dump seeding test plots	Erocon Environmental	Dwight Chorney	Kidd Mine	\$18,786.25
12-Jan-20	Environmental Compliance Approval Development	Black Lake Environmental	-	Daniel Bonsall	\$1,186.50
01-Mar-20	Environmental Compliance Approval Development	Black Lake Environmental	-	Daniel Bonsall	\$1,695.00
02-Jul-20	Environmental Compliance Approval Development	Black Lake Environmental	-	Daniel Bonsall	\$678.00
05-Aug-20	Environmental Compliance Approval Development	Black Lake Environmental	-	Daniel Bonsall	\$508.50
23-Mar-21	Biosolids	Caron Equipment	-	Kidd	\$2,104.63
24-Mar-21	Rehab-Biosolids-Snow Removal	Caron Equipment	-	Kidd Mine	\$881.40
19-Oct-21	East Rock Dump seeding test plots	Erocon	Dwight Chorney	Leah Fedat	\$19,605.00
19-Oct-21	Environmental-Site Prep-Sloping	Caron Equipment	-	Kidd Mine	\$11,611.07
17-Nov-21	Surveyor and pickets	Talbot Surveys Inc.	-	Leah Fedat	\$2,276.95
23-Nov-21	Grade Roads for Biosolids	Caron Equipment	-	Kidd Mine	\$440.70
28-Feb-22	Rehab-Biosolids	Caron Equipment	-	Kidd Mine	\$565.00
03-Mar-22	Rehab-Biosolids	Caron Equipment	-	Kidd Mine	\$353.13
14-Oct-22	Bark Haulage	Green For Life Environmental	-	Kidd Mine	\$16,231.44
31-Oct-22	Seeding	Caron Equipment	-	Kidd Mine	\$18,080.00



Date	Title	Company	Company Contact	Kidd Mine Recipient	Amount
31-Oct-22	Biosolids Progressive Rehabilitation - sand Pit Road Project	Caron Equipment	-	Kidd Mine	\$49,192.29
31-Oct-22	Biosolids Progressive Rehabilitation	Caron Equipment	-	Kidd Mine	\$27,043.73
16-Jan-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$2,469.05
27-Jan-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$1,564.77
15-Feb-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$2,176.66
18-Feb-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$1,786.81
14-Mar-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$1,797.27
29-Mar-23	Rehabilitation Technical Report	Blue Heron Environmental	Josie-Ann Tessier	Corey Mclister	\$942.14
<b>Total</b>					<b>\$212,062.54</b>

## 8.0 SUMMARY

The overall plant health at the test plots was good but showed signs of dehydration. Every plot had signs of erosion, with minimal ground cover vegetation present to help prevent erosion and water run-off. Twenty-two (22) WWTP cake analysis samples exceeded *E.coli* limits under Section 12 Metal Parameters and Limitations of the ECA 20-TIM-63388. All other samples were within acceptable limits for metals and *E.coli*.

Plot 7 (sand, clay mixed with biosolids) and plot 8 (biosolids mixed with soil) had the best floristic representation and health and less erosion.

Plot 1 (biosolids) had minimal floristic representation, high evidence of erosion and high exposure to substrate.

Since the inception of the Project in 2017 to use sewage biosolids applications on the Site, a total of \$212,062.54 was spent by the proponent to meet the commitments of the Biodiversity Conservation Management standards set out in MAC TSM.



## 9.0 CLOSURE

The information presented in this report is confidential and has been prepared for the exclusive use of Kidd Mine to provide a summary of the Biosolid Rehabilitation Program. Blue Heron accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the information presented in this report meets your needs and expectations. Should you have any questions, comments or concerns, please do not hesitate to contact the undersigned.

Sincerely,

**BLUE HERON SOLUTIONS FOR ENVIRONMENTAL MANAGEMENT INC.**

A handwritten signature in black ink that reads "Josie-Ann Tessier".

**Josie-Ann Tessier, EP, Dipl. Forestry, Fish and Wildlife**  
**Terrestrial Biologist/Project Manager**  
**Tel: (249) 525-5553**  
[jtessier@blueheronenv.com](mailto:jtessier@blueheronenv.com)

A handwritten signature in black ink that reads "Jennifer Braun".

**Jennifer Braun, M.Sc.**  
**Senior Biologist/Division Manager**  
**Tel: (705) 929-9751**  
[jbrown@blueheronenv.com](mailto:jbrown@blueheronenv.com)





## 10.0 REFERENCES

- Bendfelt, E. S., J. A. Burger, and W. L. Daniels. 2001. *Quality of amended soils after sixteen years*. Soil Science of America Journals 65, 1736-1744.
- Bofras, G., P. Michopoulos, and D. Alifragis. 2000. *Sewage sludge as an amendment for calcareous bauxite mine spoils reclamation*. Journal of Environmental Quality 29, 811-816.
- Castillejo, J. M., and R. Castello. 2010. *Influence of the application rate of an organic amendment (Municipal Solid Waste (MSW) Compost) on gypsum quarry rehabilitation in seminard environments*. Arid Land Research and Management 24, 344-364.
- Crins, W. J., P. A. Gray, P. W. C. Uhlig, and M. C. Wester. 2009. *The Ecosystems of Ontario, Part I: Ecozones and Ecoregions*. SIB TER IMA TR-01, Inventory, Monitoring and Assessment, Peterborough, Ontario: Ontario Ministry of Natural Resources, 71 pp.
- Environment Canada. 1995. *Canadian Biodiversity Strategy - Canada's Response to the Convention on Biological Diversity 1995*. Catalogue No. En21-134/1995E, Hull, QC: Biodiversity Convention Office, Environment Canada.
- Epstein, E. 2003. *Land application of sewage sludge and biosolids*. Boca Raton, FL: Lewis publisher, CRC Press LLC, 201.
- Gardner, W.C., K. Broersma, A. Naeth, D. Chanasyk, and A Jobson. 2010. *Influence of biosolides and fertilizer amendments on physical, chemical and microbiological properties of copper mine tailings*. Canadian Journal of Soil Science 90, 571-583.
- Gouvernement of Ontario. 2002. *Nutrient Management Act, 2002, S.O. 2002, c. 4 last amendment: 2021, c. 4, Sched. 10, s. 3*. Accessed 2023. <https://www.ontario.ca/laws/statute/02n04?search=nutrient+management>.
- Government of Ontario. 1990b. *Environmental Protection Act, R.S.O. 1990, c. E.19, last amendment: 2021, c. 4, Sched. 10, s. 1*. Accessed 2023. <https://www.ontario.ca/laws/statute/90e19?search=environmental+protection>.
- Government of Ontario. 1990d. *Mining Act, R.S.O. 1990, c. M.14, last amended 2022*. Accessed 2023. <https://www.ontario.ca/laws/statute/90m14>.
- Government of Ontario. 1990a. "O. Reg. 240/00: Advanced Exploration, Mine Development and Closure Under Part VII of the Mining Act, Last Amendment 2021." Accessed 2023. <https://www.ontario.ca/laws/regulation/000240>.
- Government of Ontario. 1990c. *R.R.O. 1990, Reg. 347: GENERAL - WASTE MANAGEMENT, Last amendment: 324/22*. Accessed 2023. <https://www.ontario.ca/laws/regulation/900347>.
- Kidd Operations. n.d. *Biodiversity Conservation and Land Management Program*. KOP-ENV-PRG-00002, Kidd Operations, 30.
- Larney, F.J., and D.A. Angers. 2012. "The role of Organic Amendments in Soil Reclamation: A Review." *Canadian Science Publishing*. Accessed 2023. <https://cdnsiencepub.com/doi/10.4141/cjss2010-064>.



- Mingorance, M., O. Rossini, S. Valdes, Benito Gata, F. Leidi, G. Carrizosa, and I. Pena. 2013. *Stabilized municipal sewage sludge addition to improve properties of an acid mine soil for plant growth*. *Journal of Soils and Sediments*. 14. 10.1007/s11368-013-0743-x.
- Ontario Biodiversity Council. 2011. *Ontario's Biodiversity Strategy, 2011: Renewing Our Commitment to Protecting What Sustains Us*. Peterborough, ON: Ontario Biodiversity Council.
- Sopper, W. E. 1993. *Municipal sludge use in land reclamation*. Boca Raton, FL: Lewis Publisher, 163.
- Wijesekara, H., N.S. Bolan, P. Kumarathilaka, N. Geekiyanage, A. Kunhikrishan, B. Seshadri, C. Saint, A. Supapaneni, and M. Vithanage. 2016. *Chapter 3: Biosolids enhance mine site rehabilitation and revegetation*. In: M.N.V. Prasad and K. Shih (Eds.). *Environmental Materials and Waste Resources Recovery and Pollution Prevention*, 45-71.

# Appendix A

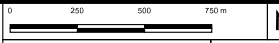
## Figures



<b>Legend</b> Project Location Cities Railway Track Access Road Roads	0      2.5      5      7.5 km 	Glencore								
	Notes:		<b>Project Location</b>							
	Kidd Operation		<table border="1"> <tr> <td>Drawn By</td> <td>D.S.</td> </tr> <tr> <td>Checked By</td> <td>J.T.</td> </tr> <tr> <td>Last Modified:</td> <td>2023.07.27</td> </tr> <tr> <td>Projection</td> <td>NAD83 / UTM zone 17N</td> </tr> </table>	Drawn By	D.S.	Checked By	J.T.	Last Modified:	2023.07.27	Projection
Drawn By	D.S.									
Checked By	J.T.									
Last Modified:	2023.07.27									
Projection	NAD83 / UTM zone 17N									
		Rehabilitation Technical Report	Drawing 1							



- Legend**
- Disturbed Area
  - Mining Land Tenure
  - Mining Rights
  - Mining and Surface Rights



Notes:



Glencore	
<b>Study Area</b>	Drawn By: D.S. Checked By: J.T. Last Modified: 2023.07.27 Projection: NAD83 / UTM zone 17N
Kidd Operation	Drawing 2
Rehabilitation Technical Report	




**Legend**

- Study Area
- Reclaimed East Rock Dump
- Test Plots
- Study Plots
- Mining Land Tenure
- Mining and Surface Rights

0 100 200 300 400 m

Notes:



Glencore

Test Plots	
Kidd Operation	Drawing 3
Rehabilitation Technical Report	

Drawn By	D.S.
Checked By	J.T.
Last Modified:	2023.07.27
Projection	
NAD83 / UTM zone 17N	

## **Appendix B**

**ECA No. 17-TIM-40695**



**AMENDED**  
**ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number 17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

This Environmental Compliance Approval, authorized under Part II.1 of the *Environmental Protection Act*, is issued to:

Glencore Canada Corporation  
Kidd Operations  
11335 Highway 655 North  
Timmins, Ontario  
P4N 7K1

Site Location: Kidd Mine Site  
11335 Highway 655 North  
Timmins, Ontario  
P4N 7K1

*For the purpose of this Environmental Compliance Approval, including the terms and conditions specified below, the following definitions apply:*

- (a) "Accredited laboratory" means a laboratory accredited by a body which accredits methods to ISO/IEC 17025 standards for analytical laboratories (such as the Standards Council of Canada, or Canadian Association for Laboratory Accreditation Inc.)
- (b) "Approval" means this entire Environmental Compliance Approval including its schedules, if any, issued under section 20.3 of Part II.1 of the Act;
- (c) "Commercial, Community or Institutional Use" means any commercial, community or institutional use, including without limitation the use of land for,
  - i. an office building,
  - ii. a hotel, motel, hostel or similar type of accommodation,
  - iii. an overnight camp or overnight campgrounds,
  - iv. indoor recreational or sporting activities,
  - v. indoor gatherings for civic, religious or social purposes,
  - vi. indoor performing arts activities,
  - vii. a railway station, airport passenger terminal or other embarkation or debarkation point for travellers,
  - viii. a day care centre,



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- ix. educational purposes, including a school, college, university, private career college or associated residence,
  - x. a health care facility, or
  - xi. a penitentiary, jail or other place of custody or detention;
- (d) "Company" means Glencore Canada Corporation, or its agents, successors or assignees;
- (e) "Dewatered Municipal Sewage Biosolids" means sewage biosolids from a municipal sewage works that has been dewatered such that the resulting material has a dry matter content of 14 percent or more or a slump of 150 millimetres or less using the Test Method for the Determination of Liquid Waste (slump test) set out in Schedule 9 to Regulation 347 made under the *Environmental Protection Act*;
- (f) "Environmental Protection Act" or "Act" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19 as amended;
- (g) "Liquid Municipal Sewage Biosolids" means sewage biosolids from a municipal sewage works that are not dewatered municipal sewage biosolids;
- (h) "Ministry" means the Ministry of the Environment and Climate Change.
- (i) "Nutrient Management Act" means the *Nutrient Management Act, 2002*, S.O. 2002, c. 4, as amended.
- (j) "Regulation 347" means Regulation 347 General – Waste Management, made under the *Environmental Protection Act*.
- (k) "Sewage Biosolids" means the residue from a municipal sewage treatment works following treatment of sewage and removal of effluent.
- (l) "Site" means the Kidd Mine Site described at "Site Location" above. .

**TERMS AND CONDITIONS**

**GENERAL**

1. This Approval is for the management and land application of sewage biosolids generated from the Mattagami River Waste Water Treatment Plant located in the City of Timmins.



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2. All Sewage Biosolids utilized at the Site must be generated at a municipal sewage treatment plant in Ontario that is regulated by an Environmental Compliance Approval and must be treated by aerobic or anaerobic digestion, or other means of stabilization.
3.
  - (a) The requirements of the Approval are severable. If any requirement of the Approval, or the application of any requirement of the Approval to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of the Approval shall not be affected in any way.
  - (b) The requirements specified in the Approval are the requirements under the Act. The issuance of the Approval in no way abrogates the Company's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.
4.
  - (a) Except as otherwise provided by these conditions, the Site shall be operated in accordance with the application submitted for the Approval and with the supporting documentation submitted to the Ministry as part of the application, all listed in Schedule "A".
  - (b) The Company, any owner of the property comprising the Site and the operator shall ensure the Site is operated in accordance with these conditions.
5. The Company shall ensure that any communication/correspondence made in relation to the Site or to the Approval includes reference to the Approval number.
6. The Company shall notify the Director in writing of any of the following changes within thirty (30) days of the change occurring:
  - (a) change of owner of the property comprising the Site; or
  - (b) change of Company or Company address.
7. In the event of any change in ownership of the Site, the Company shall forthwith notify in writing the succeeding owner of the existence of the Approval, and provide the successor with an up-to-date copy of the Approval and a copy of such notice shall forthwith be forwarded to the Director.
8. Without limiting the authority provided to Provincial Officers under the Act, the *Ontario Water Resources Act*, the *Pesticides Act*, or the *Nutrient Management Act*, a Provincial Officer from the Ministry has the authority under those acts, at any reasonable time, without a warrant and with any reasonable assistance, to inspect all areas of the Site except living quarters and to require that any records required to be kept under any of those acts or the Approval be made available for inspection by that Provincial Officer upon request.



**AMENDED**  
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9. Requirements specified in this Approval are minimum requirements and do not relieve the Company from the requirement to take all reasonable steps to avoid violating provisions of any and all applicable legislation.
10. The utilization of Sewage Biosolids at this Site is authorized throughout the calendar year.
  - (a) Land application shall not occur on frozen or snow covered ground
  - (b) Land application shall not occur during wet weather or saturated conditions to reduce the risk of the material or water contaminated by the material running off or otherwise discharging from spreading area.
11. Wastes received at Site must be transported by an authorized waste management system in accordance with Regulation 347 and the Environmental Protection Act.
12.
  - (a) Within 90 days of the issuance of the Approval the Company shall prepare a document outlining the roles and responsibilities of persons involved and procedures for the delivery, storage, handling and land application of Wastes at the Site
  - (b) The Company shall ensure that persons involved in the delivery, storage, handling or land application of Wastes at the Site are informed of the applicable roles, responsibilities and procedures referenced in paragraph (a) above as well as the requirements of the Approval.
  - (c) A copy of the document generated in accordance with paragraph (a) above shall be kept on file at the Site while the Approval remains in effect.

**QUALITY OF WASTES RECEIVED AT SITE**

13. Sewage biosolids received at the Site shall meet the following quality criteria:
  - (A) Solid Wastes received at the Site shall not exceed the concentration of metals set out in column 2 of Table 1 below.
  - (B) For Sewage Biosolids containing human body waste, the concentration of E. coli shall not exceed 2 million colony forming units per gram of total solids, dry weight calculated as a geometric mean of the results from samples collected during the four month period prior to the Sewage Biosolids being transferred to the Site.
  - (C) Wastes received at the Site shall not exceed an odour detection threshold of 4500 odour units per cubic metre as determined in accordance with the NASM Odour Guide under the Nutrient Management Act;



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Column 1 Regulated metal	Column 3 Concentration in non-aqueous material (containing 1% or more total solids, wet weight), expressed as mg per kg of total solids, dry weight
Arsenic	170
Cadmium	34
Cobalt	340
Chromium	2800
Copper	1700
Lead	1100
Mercury	11
Molybdenum	94
Nickel	420
Selenium	34
Zinc	4200

**OPERATIONS**

14. Sewage Biosolids are to be stored and land applied in accordance with the application for the Approval and supporting documentation listed in Schedule A of the Approval.

**15. Odours:**

- (a) The Company shall manage odours and potential off-site odour impacts associated with the handling, storage and land application of the Waste at the Site in accordance with the “External Stakeholder Feedback and Compliant Resolution Procedure” process set out in Company document KOP-HR-SOP-00010.
- (b) If odour issues persist and the District Manager reasonably believes there is no prospect of resolution of the odour problem, the District Manager may require the Company to remove some or all of the Waste from the Site to an authorized biosolids utilization site or other facility approved to receive the Wastes and may require the Company to discontinue use of some or all Waste at the Site for a specified period or permanently



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**ENVIRONMENTAL COMPLIANCE APPROVAL**  
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**16. Storage:**

- (a) No more than 80 wet tonnes of Sewage Biosolids shall be stored at any time as noted in the Company's application for Environmental Compliance Approval dated December 14, 2017
- (b) The storage of sewage biosolids shall be conducted in such a way so as to mitigate potential environmental impacts including run-off and nuisance odours.
- (c) A Spill Contingency Plan shall be developed within 90 days of the issuance of the Approval to deal with leaks or spills at the Site that are related to the storage or handling of the Wastes. The plan shall include, but not be limited to, describing the proponent's approach to dealing with leaks or spills, including notification and remediation procedures. The Spill Contingency Plan shall be kept on-Site and up to date.

**17. Land Application of Waste:**

- (a) Land application of the Sewage Biosolids will not occur on frozen or snow covered ground.
- (b) Land application of the sludge cake will not occur during wet weather or saturation conditions to reduce the risk of the material, or water contaminated by the material, running off or otherwise discharging from the spreading area. The proponent should consult local weather forecasts before land applying and avoid land application prior to heavy rains, particularly in areas with steeper slopes.

**SAMPLING AND ANALYSIS**

18. Prior to being received at the Site, the Company shall ensure that all Sewage Biosolids have been sampled and analyzed in accordance with the sampling frequency, parameters, and procedures specified for the corresponding Category 3 NASM in O. Reg. 267/03 under the *Nutrient Management Act* and the "Sampling and Analysis Protocol" made under the *Nutrient Management Act*.
19. The Company shall obtain results of the sampling required under condition 18 of the Approval from the generator of the Sewage Biosolids Material. These results shall include all analytical data that the generator has available from four (4) months prior to the Waste being received at the Site. The Company shall obtain the most recent available analytical information from the generator on an ongoing basis during the period that the Waste is received at the Site. The analytical information must include the lab certificates of analysis provided to the generator by the laboratory that conducted the analysis.



**AMENDED**  
**ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number 17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

**RECORD KEEPING AND REPORTING**

20. The Company shall maintain the following records:

- (a) All sampling and analytical records of the municipal sewage biosolids received at the site.
- (b) Daily records of the source and quantity of the sewage biosolids received and stored at the site.
- (c) Daily records of application events involving municipal sewage biosolids, including:
  - i. Quantities and applied;
  - ii. Locations where materials were applied;
  - iii. Equipment and techniques used to spread materials.
  - iv. Seeding rates, seeding methods, seeding dates and seed blends used to establish vegetative cover; and
  - v. Record of any complaints received regarding the storage or land application of the municipal sewage biosolids at the site. This record should include the nature of the complaint, whether the complaint was verified, the contact information of the complainant and the steps taken to address the concern.

21. An annual monitoring report shall be prepared for the preceding calendar year by June 1 submitted to the District Manager of the Timmins District Office of the Ministry. The report shall include, but not necessarily be limited to:

- (a) A summary of the quantities and sources of municipal sewage biosolids that were stored and applied at the site to promote vegetative growth and the location where they were applied
- (b) A summary of the equipment and techniques used to spread the material and an assessment of the effectiveness of techniques used to steeper sloped areas.
- (c) A summary of the analytical sampling results for the materials applied
- (d) An assessment of the ground cover growth within the test plot spreading areas at the site. This should include an assessment of the stability of the cover and summarize the benefits and concerns with respect to the utilization of sewage biosolids along with comments on any measures required to ensure the sustainability of the ground cover.

**OTHER:**

22. **This Approval expires on December 31, 2020**



**AMENDED  
ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number 17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

**SCHEDULE "A"**

*This Schedule "A" forms part of this Approval:*

1. The form entitled "Application for Approval of Hauled Sewage (septage), Sewage Biosolids and Other Wastes," signed by David Yaschyshyn, Glencore Canada Corporation, dated December 14, 2017.



**AMENDED**  
**ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number 17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

*The reasons for the imposition of these terms and conditions are as follows:*

1. The reason for Conditions 1 and 2, is to clearly define the type of Wastes that can be received at the Site under the Approval.
2. The reason for Conditions 3, 4, 5, 6, 7, 8, and 9 is to clarify the legal rights and responsibilities of the Company.
3. The reason for Condition 10 is to ensure that the Site is operated within the approved seasonal timeframe.
4. The reason for Conditions 11 and 12 is to ensure that all Wastes are transported to the Site in accordance with legislative requirements and in a manner that minimizes the potential for adverse impacts to people and the environment. .
5. The reason for Condition 13 is to establish minimum quality standards for Wastes brought to the Site for storage and land application to ensure the Wastes are suitable for use at the Site for the establishment of a growth media that promotes vegetative cover while at the same time minimizing the risk of adverse impacts to people and the environment. .
6. The reason for Condition 14 is to ensure that storage and land application activities at this Site subject to this Approval are managed in accordance with the application and supporting information documents submitted by the Company for the Approval.
7. The reason for Condition 15 is to ensure Wastes are managed at the Site in manner that limits the chance of nuisance odour impacts to people, businesses and property in the area of the Site.
8. The reason for Condition 16 is to require that Wastes are stored at the Site in a manner that limits the chance of adverse impacts to people and the environment.
9. The reason for Condition 17 is to ensure that Wastes are land applied at the Site in a manner that supports the establishment of a growth media that promotes vegetative cover growth while at the same time minimizing the potential of adverse impacts to people and the environment.
10. The reason for Conditions 18 and 19 is to ensure that Wastes accepted at the Site are sampled and analyzed to confirm that they meet the minimum quality standards required by Condition 13.
11. The reason for Conditions 20 and 21 is to ensure that the Company demonstrates, on a continual basis, that the quality and quantity of the Wastes accepted and used at the Site are consistent with the requirements of the Approval and that the operation of the Site does not result in a nuisance impacts to neighbours or adverse impacts to human health and the environment.
12. The reason for Condition 22 is to ensure a periodic review of the Approval occurs to ensure that Site operations have not resulted in adverse impacts to the land at the Site as a consequence of the continuous, long term application of Wastes at the Site.



**AMENDED**  
**ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the Environmental Compliance Approval or each term or condition in the Environmental Compliance Approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this Environmental Compliance Approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this Environmental Compliance Approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Environmental Compliance Approval number;
6. The date of the Environmental Compliance Approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*



**AMENDED**  
**ENVIRONMENTAL COMPLIANCE APPROVAL**  
*Soil Conditioning Site*  
**Number 17-TIM-40695**

Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement climatique

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director  
Section 20.2, *Environmental Protection Act*  
Ministry of the Environment and Climate Change  
5520 Highway 101 East,  
South Porcupine, Ontario  
P0N 1H0

\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal Toll Free at: Tel: 1 (866) 448-2248, Fax: 1 (877) 849-2066 or [ERTTribunalSecretary@ontario.ca](mailto:ERTTribunalSecretary@ontario.ca).

Dated at Timmins, this 15th day of May, 2018.

A handwritten signature in black ink, appearing to read "J. Guindon", written over a horizontal line.

Jean Guindon  
Director, Part II.1, *Environmental Protection Act*  
Ministry of the Environment and Climate Change

## **Appendix C**

**ECA No. 20-TIM-63388**



Ministry of the Environment,  
Conservation and Parks

Ministère de l'Environnement, de la Protection de  
la nature et des Parcs

Drinking Water and Environmental  
Compliance Division, Northern Region  
Timmins District, Timmins Office  
Ontario Government Complex  
5520 Highway 101 East  
PO Bag 3080  
South Porcupine ON P0N 1H0  
Tel.: 705 235-1500  
Fax: 705 235-1520

Division de la conformité en matière d'eau potable  
et d'environnement, Direction régionale du Nord  
District de Timmins, bureau de Timmins  
Complexe du gouvernement de l'Ontario  
5520 Route 101 Est  
C/P service de sacs 3080  
South Porcupine ON P0N 1H0  
Tél.: 705 235-1500  
Télééc.: 705 235-1520

This Environmental Compliance Approval, authorized under Part II.1 of the *Environmental Protection Act*, is issued to:

Glencore Canada Corporation  
Kidd Operations  
11335 Highway 655 North  
Timmins, Ontario  
P4N 7K1

Site Location: Kidd Mine Site  
11335 Highway 655 North  
Timmins, Ontario  
P4N 7K1

*For the purpose of this Environmental Compliance Approval, including the terms and conditions specified below, the following definitions apply:*

- (a) **"Accredited laboratory"** means a laboratory accredited by a body which accredits methods to ISO/IEC 17025 standards for analytical laboratories (such as the Standards Council of Canada, or Canadian Association for Laboratory Accreditation Inc.)
- (b) **"Approval"** means this entire Environmental Compliance Approval including its schedules, if any, issued under section 20.3 of Part II.1 of the Act;
- (c) **"Commercial, Community or Institutional Use"** means any commercial, community or institutional use, including without limitation the use of land for,
  - i. an office building,
  - ii. a hotel, motel, hostel or similar type of accommodation,
  - iii. an overnight camp or overnight campgrounds,
  - iv. indoor recreational or sporting activities,
  - v. indoor gatherings for civic, religious or social purposes,
  - vi. indoor performing arts activities,

- vii. a railway station, airport passenger terminal or other embarkation or debarkation point for travellers,
  - viii. a day care centre,
  - ix. educational purposes, including a school, college, university, private career college or associated residence,
  - x. a health care facility, or
  - xi. a penitentiary, jail or other place of custody or detention;
- (d) **“Company”** means Glencore Canada Corporation, or its agents, successors or assignees;
- (e) **“Dewatered Municipal Sewage Biosolids”** means sewage biosolids from a municipal sewage works that has been dewatered such that the resulting material has a dry matter content of 14 percent or more or a slump of 150 millimetres or less using the Test Method for the Determination of Liquid Waste (slump test) set out in Schedule 9 to Regulation 347 made under the *Environmental Protection Act*;
- (f) **“Environmental Protection Act”** or **“Act”** means the *Environmental Protection Act*, R.S.O. 1990, c. E.19 as amended;
- (g) **“Liquid Municipal Sewage Biosolids”** means sewage biosolids from a municipal sewage works that are not Dewatered Municipal Sewage Biosolids;
- (h) **“Ministry”** means the Ministry of the Environment, Conservation and Parks.
- (i) **“Nutrient Management Act”** means the *Nutrient Management Act, 2002*, S.O. 2002, c. 4, as amended.
- (j) **“Regulation 347”** means Regulation 347 General – Waste Management, made under the *Environmental Protection Act*.
- (k) **“Sewage Biosolids”** means the residue from a municipal sewage treatment works following treatment of sewage and removal of effluent.
- (l) **“Site”** means the Kidd Mine Site described at “Site Location” above. .

## **TERMS AND CONDITIONS**

### **GENERAL**

1. All Sewage Biosolids utilized at the Site must be generated at a municipal sewage treatment plant in Ontario that is regulated by an Environmental Compliance Approval and must be treated by aerobic or anaerobic digestion, or other means of stabilization.
2.
  - (a) The requirements of the Approval are severable. If any requirement of the Approval, or the application of any requirement of the Approval to any circumstance, is held invalid, the

application of such requirement to other circumstances and the remainder of the Approval shall not be affected in any way.

- (b) The requirements specified in the Approval are the requirements under the Act. The issuance of the Approval in no way abrogates the Company's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

3.

- (a) Except as otherwise provided by these conditions, the Site shall be operated in accordance with the application submitted for the Approval and with the supporting documentation submitted to the Ministry as part of the application, all listed in Schedule "A".

- (b) The Company, any owner of the property comprising the Site and the operator shall ensure the Site is operated in accordance with these conditions.

4. The Company shall ensure that any communication/correspondence made in relation to the Site or to the Approval includes reference to the Approval number.

5. The Company shall notify the Director in writing of any of the following changes within thirty (30) days of the change occurring:

- (a) change of owner of the property comprising the Site; or
- (b) change of Company or Company address.

6. In the event of any change in ownership of the Site, the Company shall forthwith notify in writing the succeeding owner of the existence of the Approval, and provide the successor with an up-to-date copy of the Approval and a copy of such notice shall forthwith be forwarded to the Director.

7. Without limiting the authority provided to Provincial Officers under the Act, the *Ontario Water Resources Act*, the *Pesticides Act*, or the *Nutrient Management Act*, a Provincial Officer from the Ministry has the authority under those acts, at any reasonable time, without a warrant and with any reasonable assistance, to inspect all areas of the Site except living quarters and to require that any records required to be kept under any of those acts or the Approval be made available for inspection by that Provincial Officer upon request.

8. Requirements specified in this Approval are minimum requirements and do not relieve the Company from the requirement to take all reasonable steps to avoid violating provisions of any and all applicable legislation.

9. The utilization of Sewage Biosolids at this Site is authorized throughout the calendar year.

- (a) Land application shall not occur during wet weather or saturated conditions to reduce the risk of the material or water contaminated by the material running off or otherwise discharging from spreading area.

10. Wastes received at Site must be transported by an authorized waste management system in accordance with Regulation 347 and the Environmental Protection Act.

11.

- (a) Within 90 days of the issuance of the Approval the Company shall prepare a document outlining the roles and responsibilities of persons involved and procedures for the delivery, storage, handling and land application of Wastes at the Site

- (b) The Company shall ensure that persons involved in the delivery, storage, handling or land application of Wastes at the Site are informed of the applicable roles, responsibilities and procedures referenced in paragraph (a) above as well as the requirements of the Approval.
- (c) A copy of the document generated in accordance with paragraph (a) above shall be kept on file at the Site while the Approval remains in effect.

**QUALITY OF WASTES RECEIVED AT SITE**

12. Sewage biosolids received at the Site shall meet the following quality criteria:

- (A) Solid Wastes received at the Site shall not exceed the concentration of metals set out in column 3 of Table 1 below.
- (B) For Sewage Biosolids containing human body waste, the concentration of E. coli shall not exceed 2 million colony forming units per gram of total solids, dry weight calculated as a geometric mean of the results from samples collected during the four month period prior to the Sewage Biosolids being transferred to the Site.
- (C) Wastes received at the Site shall not exceed an odour detection threshold of 4500 odour units per cubic metre as determined in accordance with the NASM Odour Guide under the Nutrient Management Act;

Column 1 Regulated metal	Column 3 Concentration in non-aqueous material (containing 1% or more total solids, wet weight), expressed as mg per kg of total solids, dry weight
Arsenic	170
Cadmium	34
Cobalt	340
Chromium	2800
Copper	1700
Lead	1100
Mercury	11
Molybdenum	94
Nickel	420
Selenium	34
Zinc	4200

## **OPERATIONS**

13. Sewage Biosolids are to be stored and land applied in accordance with the application for the Approval and supporting documentation listed in Schedule A of the Approval.

### **14. Odours:**

- (a) The Company shall manage odours and potential off-site odour impacts associated with the handling, storage and land application of the Waste at the Site in accordance with the "External Stakeholder Feedback and Complaint Resolution Procedure" process set out in Company document KOP-HR-SOP-00010.
- (b) If odour issues persist and the District Manager reasonably believes there is no prospect of resolution of the odour problem, the District Manager may require the Company to remove some or all of the Waste from the Site to an authorized biosolids utilization site or other facility approved to receive the Wastes and may require the Company to discontinue use of some or all Waste at the Site for a specified period or permanently

### **15. Storage:**

- (a) Storage should be limited to the designated areas identified in the ECA application and, within those areas, storage should only be permitted on land that has a slope of 3% or less.
- (b) A minimum 50m flow path should be maintained at all times from any dewatered municipal sewage biosolids or other organic biosolids residual stockpile to the nearest surface water feature.
- (c) A Spill Contingency Plan should be developed and kept up to date for dealing with odour and potential off-site odour impacts during the on-site storage and handling of sewage biosolids at the site. The plan should include, but not be limited to: describing the proponent's approach to dealing with odour complaints (e.g., response time); and measures that will be taken to address odour emissions during storage and land application.
- (d) Visual inspection by the proponent of the storage areas should be undertaken at regular intervals and a spill contingency plan should be developed to address any incident where contaminated run-off is identified as having impaired or likely to impair a surface water feature.
- (e) The approval should include time and/or volume limits on the storage activities. Specifically:
  - a. The maximum total volume of dewatered municipal sewage biosolids permitted to be stockpiled on-site at any given time should be limited to 2000 dry tonnes. Furthermore, the volume of dewatered municipal sewage biosolids stockpiled at the site should also be restricted to no more material than will be land applied within the subsequent 12-month period.
  - b. The maximum quantity of all other organic biosolid residuals that can be stored on-site at any given time should likewise be limited to no more material than will be land applied within the subsequent 12-month period.

### **16. Land Application of Waste:**

- (a) The maximum land application rate for dewatered municipal sewage biosolids should be restricted to 150 dry tonnes/ha with a maximum depth of 50cm.
- (b) The maximum land application rate for a mixture of dewatered municipal sewage biosolids plus other organic residuals should be restricted to 240 dry tonnes/ha (with no more than 150 dry tonnes of the material being comprised of dewatered municipal sewage biosolids).
- (c) Land application should not be permitted in any areas of the site with a slope greater than a 3:1 ratio (horizontal to vertical).
- (d) 4. Land application on frozen and/or snow-covered land should only be permitted if:
  - a. Spreading takes place on land with a slope no greater than 6%.
  - b. In the event more than 5cm of snow has accumulated on the ground, the excess snow must be removed from the spreading area prior to land application taking place.
- (e) 5. During land application, the following setbacks should be maintained:
  - a. A minimum 10m setback to the nearest surface water feature.
  - b. A minimum 50m setback to the nearest groundwater monitoring well.
  - c. A minimum 90m setback to the nearest drinking water well.
- (f) Land application of the sludge cake will not occur during wet weather or saturation conditions to reduce the risk of the material, or water contaminated by the material, running off or otherwise discharging from the spreading area. The proponent should consult local weather forecasts before land applying and avoid land application prior to heavy rains, particularly in areas with steeper slopes.

## **SAMPLING AND ANALYSIS**

### Dewatered Municipal Sewage Biosolids/ Sewage Sludge:

- 17. No dewatered municipal sewage biosolids should be received at the site nor should any sewage sludge extracted from the on-site sanitary sewage lagoon be land applied at the site, unless sampling and analysis has first been performed. Land application of the material should only be permitted if the analysis confirms that:
  - (a) the material meets the applicable quality standards for metals and pathogens that would apply if the material were to be land applied on agricultural land as a Category 3 Non-Agricultural Source Material under Ontario Regulation 267/03;
  - (b) the material meets the beneficial use requirements for a Non-Agricultural Source Material as set out in section 98.0.6 of Ontario Regulation 267/03; and
- 18. The sampling and analysis described in item 1 above must be conducted in accordance with the requirements that would apply under Ontario Regulation 267/03 and the Sampling and Analysis Protocol, 2012 if the material were to be land applied on agricultural land as a Category 3 Non-Agricultural Source Material that contains human body waste.
- 19. The material must meet the quality standards for foreign matter and plastics that would apply if the material were to be land applied on agricultural land as a Non-Agricultural Source Material under section 52.11 of Ontario Regulation 267/03.

### Pulp and Paper Fibre Sludge and Wood Ash Waste

20. No paper fibre sludge or wood ash waste should be received at the site unless sampling and analysis has first been performed. Land application of the material should only be permitted if the analysis confirms that:
- (a) the material meets the applicable quality standards for metals and pathogens that would apply if the material were to be land applied on agricultural land as a Non-Agricultural Source Material under Ontario Regulation 267/03;
  - (b) the material meets the beneficial use requirements for a Non-Agricultural Source Material stipulated in section 98.0.6 of Ontario Regulation 267/03; and
21. The sampling and analysis described in item 1 must be done in accordance with the requirements of the Sampling and Analysis Protocol, 2012 made under the NMA and Ontario Regulation 267/03 for a paper fibre sludge or wood ash waste.
22. The material must meet the quality standards for foreign matter and plastics that would apply if the material were to be land applied on agricultural land as a Non-Agricultural Source Material under section 52.11 of Ontario Regulation 267/03.

### Other Wood Wastes

23. No other wood wastes should be received or otherwise land applied at the site unless documentation has been provided by the generator that confirms:
- (a) the material is either virgin wood or is a clean wood waste that has not undergone any chemical treatment/processing;
  - (b) to the best of the generator's knowledge the waste wood has not been exposed to any contaminants of concern; and
  - (c) the wood waste contains less than 2 percent calculated in a dry weight basis of foreign objects (such as glass, metallic objects, and plastic).

### Lime Mud

24. No lime mud should be received at the site or otherwise land applied unless documentation has been provided by the generator that confirms:
- (a) to the best of the generator's knowledge the lime mud has not been exposed to any contaminants of concern; and
  - (b) the lime mud contains less than 2 percent calculated in a dry weight basis of foreign objects (such as glass, metallic objects, and plastic).

### Other Organic Waste Materials

25. No organic waste materials other than those listed above should be received at the site for the purpose of land application unless all of the following conditions are met:

- (a) the proponent provides written notice to the local District office that they wish to utilize a type of organic residual material for land application at the site that is not currently permitted under the ECA;
- (b) the proponent provides a written description of the source and type of material along with laboratory analysis that characterizes the material; and
- (c) the District Manager provides written authorization that permits the proponent to add the material in question to the list of materials that can be land applied at the site (note: i) it is recommended the District seek input from the BUC in the event such a request is received; and ii) the District Manager may ultimately determine that it is necessary to amend the existing approval to accommodate new terms/conditions).

## **RECORD KEEPING AND REPORTING**

26. The Company shall maintain the following records:

- (a) All material sampling and analysis records plus all documentation provided by material generators as described in the sampling and analysis section of this ECA.
- (b) Daily records of the source and quantity of the dewatered municipal sewage biosolids and other organic biosolid residuals received at the site.
- (c) Daily storage records that identify both the source and quantity of materials stored in each of the designated storage areas.
- (d) Daily records of any mixing of dewatered municipal sewage biosolids with other organic biosolid residual materials that occur at each of the designated storage areas at the site.
- (e) Daily records of all land application events involving dewatered municipal sewage biosolids or any of the other organic biosolid residuals subject to the ECA, including:
  - i. Type of material applied – when a mixture is applied the approximate proportion of each material should be estimated.
  - ii. Quantities of each type of material applied (volume);
  - iii. Depth of material(s) applied;
  - iv. Locations where materials were land applied;
  - v. Equipment and techniques used to spread the materials.
  - vi. Seeding rates, seeding methods, seeding dates, and seed blends used to establish vegetative cover;
  - vii. Record of any complaints received regarding the storage or land application of the dewatered municipal sewage biosolids or any other organic residuals at the site. This record should include the nature of the complaint, whether the complaint was verified, the contact information of the complainant and the steps taken to address the concern; and
  - viii. Record of any spills or incidents involving the storage or land application of the dewatered municipal sewage biosolids and any of the other organic residuals and the actions taken to address the incident.

27. An annual monitoring report shall be prepared for the preceding calendar year by June 1 submitted to the District Manager of the Timmins District Office of the Ministry. The report shall include, but not necessarily be limited to:

- (a) A summary of the quantities and sources of dewatered municipal sewage biosolids and other organic biosolid residuals that were received, stored and land applied at the site to promote vegetative growth along with the location where they were stored, and land applied;
- (b) A summary of the equipment and techniques used to spread the material and an assessment of the effectiveness of techniques used on steeper sloped areas;
- (c) A summary of the analytical sampling results for the materials applied;
- (d) An assessment of the ground cover growth established within the spreading areas. This should include an assessment of the stability of the cover and summarize the benefits and concerns with respect to the utilization of dewatered municipal sewage biosolids and other organic biosolid residuals along with comments on any measures required to ensure the sustainability of the ground cover;
- (e) A summary of any complaints, spills or other incidents involving the storage or land application of the dewatered municipal sewage biosolids and any of the other organic residuals along with a description of the actions taken to address the complaint/incident

**OTHER:**

28. **This Approval expires on December 31, 2025**

## SCHEDULE "A"

*This Schedule "A" forms part of this Approval:*

1. The form entitled "Application for Approval of Hauled Sewage (septage), Sewage Biosolids and Other Wastes," signed by David Yaschyshyn, Glencore Canada Corporation, dated February 10, 2020.

*The reasons for the imposition of these terms and conditions are as follows:*

1. The reason for Conditions **Error! Reference source not found.** and 1, is to clearly define the type of Wastes that can be received at the Site under the Approval.
2. The reason for Conditions 2, 3, 4, 5, 6, 7, and 8 is to clarify the legal rights and responsibilities of the Company.
3. The reason for Condition 9 is to ensure that the Site is operated within the approved seasonal timeframe.
4. The reason for Conditions 10 and 11 is to ensure that all Wastes are transported to the Site in accordance with legislative requirements and in a manner that minimizes the potential for adverse impacts to people and the environment.
5. The reason for Condition 12 is to establish minimum quality standards for Wastes brought to the Site for storage and land application to ensure the Wastes are suitable for use at the Site for the establishment of a growth media that promotes vegetative cover while at the same time minimizing the risk of adverse impacts to people and the environment.
6. The reason for Condition 13 is to ensure that storage and land application activities at this Site subject to this Approval are managed in accordance with the application and supporting information documents submitted by the Company for the Approval.
7. The reason for Condition 14 is to ensure Wastes are managed at the Site in manner that limits the chance of nuisance odour impacts to people, businesses and property in the area of the Site.
8. The reason for Condition 15 is to require that Wastes are stored at the Site in a manner that limits the chance of adverse impacts to people and the environment.
9. The reason for Condition 16 is to ensure that Wastes are land applied at the Site in a manner that supports the establishment of a growth media that promotes vegetative cover growth while at the same time minimizing the potential of adverse impacts to people and the environment.
10. The reason for Conditions 0, 18, 19, 20, 21, 22, 23, 24 and 25 is to ensure that Wastes accepted at the Site are sampled and analyzed to confirm that they meet the minimum quality standards required by Condition 12.
11. The reason for Conditions 26 and 27 is to ensure that the Company demonstrates, on a continual basis, that the quality and quantity of the Wastes accepted and used at the Site are consistent with the requirements of the Approval and that the operation of the Site does not result in a nuisance impacts to neighbours or adverse impacts to human health and the environment.
12. The reason for Condition 28 is to ensure a periodic review of the Approval occurs to ensure that Site operations have not resulted in adverse impacts to the land at the Site as a consequence of the continuous, long term application of Wastes at the Site.

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the Environmental Compliance Approval or each term or condition in the Environmental Compliance Approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this Environmental Compliance Approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this Environmental Compliance Approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Environmental Compliance Approval number;
6. The date of the Environmental Compliance Approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director  
Section 20.2, *Environmental Protection Act*  
Ministry of the Environment and Climate Change  
5520 Highway 101 East,  
South Porcupine, Ontario  
PON 1H0

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal Toll Free at: Tel: 1 (866) 448-2248, Fax: 1 (877) 849-2066 or [ERTTribunalSecretary@ontario.ca](mailto:ERTTribunalSecretary@ontario.ca).**

Dated at Timmins, this 10th day of November, 2020.



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Melinda Coleman  
Director, Part II.1, *Environmental Protection Act*  
Ministry of the Environment and Climate Change



## **Appendix D**

### **Mattagami WWTP Analysis Results for 2018 and 2019**

**Appendix D.1 - Mattagami WWTP Cake Analysis Results**

Date	Total Solids (%)	TKN (%)	Ammonia / Ammonium (mg/kg)	Nitrate	Nitrite	As (mg/kg)	Cd (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Mn (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)	E.coli (cfu/100 g)
May 22-2018	17.600	44,000	4,500	<30	<20	15	0.5	7	32	330	0.44	5	24	19	3	380	360,000
May 29-2018	20.000	-	-	-	-	15	0.4	7	32	330	1.36	5	25	18	2	350	-
May 30-2018	0.200	-	-	-	-	16	0.5	8	32	340	0.77	5	26	19	3	370	-
May 31-2018	0.193	37,000	5,300	<30	<20	15	0.5	8	33	350	0.96	5	26	20	3	390	17,000
June 06-2018	0.187	40,000	5,200	<30	<20	15	0.5	8	29	340	0.71	5	25	18	3	370	99,000
June 07-2018	0.187	39,000	5,200	<30	<20	16	0.6	8	34	360	0.88	5	27	24	3	400	37,000
Oct 24-2018	0.164	40,000	7,500	<30	<20	17	0.7	8	25	410	1.30	5	20	25	4	470	37,000
Apr 17-2019	0.190	41,000	7,900	<30	<20	14	0.5	8	32	390	0.40	4	28	21	4	410	60,000
Jul-18-2019	0.180	28,000	6,600	<30	<20	18	0.5	6	26	320	0.52	6	20	20	7	360	280,000
ECA Limit						170	34.0	340	2,800	1,700	11.0	94	420	1,100	34	4,200	2,000,000
No. of samples exceeding ECA limit						0	0	0	0	0	0	0	0	0	0	0	0

## **Appendix F**

### **Test Plot Analysis Results**



Appendix F.1 – Test Plot Analysis Results<sup>1)</sup>

Test Plot No. <sup>2)</sup>	Date	Total Solids (%)	TKN (%)	Ammonia / Ammonium (%)	Nitrate / Nitrite (mg/kg)	P (mg/kg)	K (mg/kg)	As (mg/kg)	Cd (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Mo (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)	E. coli (cfu/100g)	
1	6-Oct-21	48	1.00	0.27	16.00	12,000	1,400	40.00	38.00	22.00	86.00	<b>2,500.00</b>	0.47	6.00	48.00	220.00	8.00	<b>6,900.00</b>	56,000	
2	6-Oct-21	115	0.24	0.06	5.00	4,200	1,400	19.00	17.00	17.00	47.00	1,100.00	0.12	3.00	31.00	160.00	3.00	3,300.00	33,000	
3	6-Oct-21	124	0.21	0.04	12.00	4,600	1,500	22.00	19.00	18.00	49.00	1,100.00	0.14	3.00	32.00	150.00	4.00	3,500.00	1,000	
4	6-Oct-21	134	0.06	0.09	1.40	1,400	620	63.00	6.00	18.00	48.00	600.00	0.06	22.00	50.00	72.00	2.00	1,200.00	1,000	
5	6-Oct-21	167	0.01	0.01	1.50	560	550	51.00	5.00	16.00	44.00	500.00	0.05	21.00	44.00	54.00	1.00	960.00	<1000	
6	6-Oct-21	42	0.86	0.20	< 2	14,000	940	33.00	28.00	17.00	60.00	<b>1,900.00</b>	0.29	7.00	39.00	180.00	6.00	<b>5,100.00</b>	34,000	
7	6-Oct-21	94	0.73	0.14	2.40	5,500	1,300	10.00	6.00	11.00	48.00	420.00	0.14	2.00	27.00	37.00	2.00	1,100.00	41,000	
8	14-Oct-21	68	0.41	0.11	< 0.3	3,100	1,700	8.00	2.00	12.00	53.00	220.00	0.06	1.00	30.00	21.00	1.00	470.00	10,000	
ECA Limit								170.00	34.00	340.00	2,800	1,700.00	11.00	94.00	420.00	1,100.00	34.00	4,200.00	2,000,000	
No. of samples exceedance ECA limit								0	0	0	0	2	0	0	0	0	0	0	2	0

1) **Bold** text indicates exceedances.

2) Test Plot Treatments: 1 – Biosolids; 2 - Biosolids on top of dirt; 3 – Biosolids mixed with dirt; 4 – Pastefill Plant mixed with biosolids; 5 – Pastefill Plant; 6 – Bark Mixed with biosolids; 7 – Sand and clay mixed with biosolids; and 8 – Biosolids mixed with soil.

## **Appendix G**

### **Test Plot Floristic Inventory**



## Appendix G.1 – Test Plot Floristic Inventory

Common Name	Scientific Name	Endemic Status <sup>1)</sup>	S-Rank <sup>2)</sup>	Plot No. <sup>3)</sup>							
				1	2	3	4	5	6	7	8
<b>Shrub (1 Taxon)</b>											
Wild Red Raspberry	<i>Rubus idaeus</i>	N	S5	-	-	-	X	-	-	-	-
<b>Graminoids (3 Taxa)</b>											
Common Reed	<i>Phragmites australis</i>	N	SU	-	-	-	-	-	-	-	X
Timothy Grass	<i>Phleum pratense</i>	I	SNA	X	X	X	X	X	X	X	X
Quack Grass	<i>Elymus repens</i>	I	SNA	X	X	X	-	X	X	X	X
<b>Forbs (21 Taxa)</b>											
Alsike Clover	<i>Trifolium hybridum</i>	I	SNA	X	-	X	X	-	X	-	X
Bird's-foot Trefoil	<i>Lotus corniculatus</i>	I	SNA	X	X	X	X	X	X	X	X
Alfalfa	<i>Medicago sativa</i>	I	SNA	-	X	X	X	X	-	-	X
Barley	<i>Hordeum vulgare</i>	I	SNA	-	-	-	-	-	X	-	-
Black-bindweed	<i>Fallopia convolvulus</i>	I	SNA	-	-	-	-	-	-	X	-
Common Daisy	<i>Bellis perennis</i>	I	SNA	-	-	X	-	-	X	-	-
Common Dandelion	<i>Taraxacum officinale</i>	I	SNA	-	-	-	-	-	-	-	X
Cow Vetch	<i>Vicia cracca</i>	I	SNA	-	-	-	-	-	-	X	X
Evening Primrose	<i>Oenothera biennis</i>	N	S5	-	-	X	-	-	X	-	-
Heal All	<i>Prunella vulgaris</i>	N	S5	-	-	X	-	-	-	-	-
Lady's Thumb	<i>Persicaria maculosa</i>	I	SNA	-	-	-	-	-	-	-	X
Lamb's Quarter	<i>Chenopodium album</i>	I	SNA	X	X	X	X	X	X	X	X
Lamb's-ear	<i>Stachys byzantina</i>	I	SNA	-	-	-	-	-	X	-	-
Mountain Cornflower	<i>Centaurea montana</i>	I	SNA	-	X	-	-	-	-	-	-
Red Clover	<i>Trifolium pratense</i>	I	SNA	X	X	X	-	X	X	-	-
Red Fescue	<i>Festuca rubra</i>	N	S5	-	-	-	-	-	-	-	-
Salsify	<i>Tragopogon porrifolius</i>	I	SNA	-	-	X	X	-	-	-	X
Unidentified Thistle	<i>Cirsium</i> sp.	-	-	X	-	X	X	-	X	X	-
White Clover	<i>Trifolium repens</i>	I	SNA	-	-	-	-	-	-	-	-
White Sweet Clover	<i>Melilotus albus</i>	I	SNA	X	X	X	X	-	X	X	X
Yellow Sweet Clover	<i>Melilotus officinalis</i>	I	SNA	X	X	X	X	-	X	X	X

<sup>1)</sup>Status on whether the species is Native to Ontario (N) or is considered an alien or introduced species (I);

<sup>2)</sup> Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological community. These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists are produced annually. SU (conservation status not yet assessed), S5 (Secure), SNA (conservation rank is not applicable because the species is not a suitable target for conservation activities).

<sup>3)</sup>Test Plot Treatments: 1 – Biosolids; 2 - Biosolids on top of dirt; 3 – Biosolids mixed with dirt; 4 – Pastefill Plant mixed with biosolids; 5 – Pastefill Plant; 6 – Bark Mixed with biosolids; 7 – Sand and clay mixed with biosolids; and 8 – Biosolids mixed with soil.



## **Appendix H**

### **Test Plots Representative Photos**



**Photograph 1: Test Plot # 1**



**Photograph 2: Test Plot # 2**



**Photograph 3: Test Plot # 3**



**Photograph 4: Test Plot # 4**



**Photograph 5: Test Plot # 5**



**Photograph 6: Test Plot # 6**

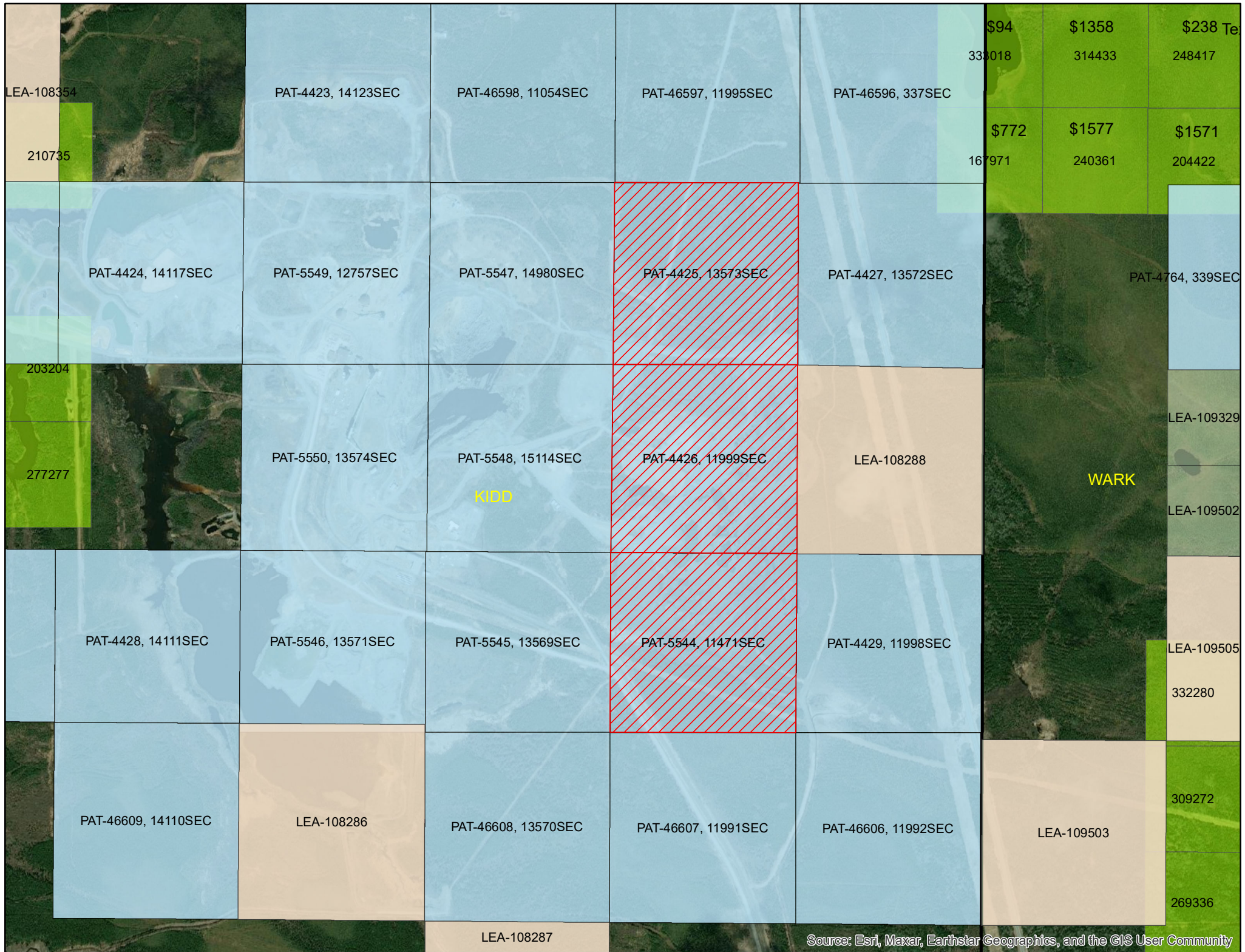


**Photograph 7: Test Plot # 7**



**Photograph 8: Test Plot # 8**

# WORK PERFORMED REFER TO APPENDIX A DRAWING 3

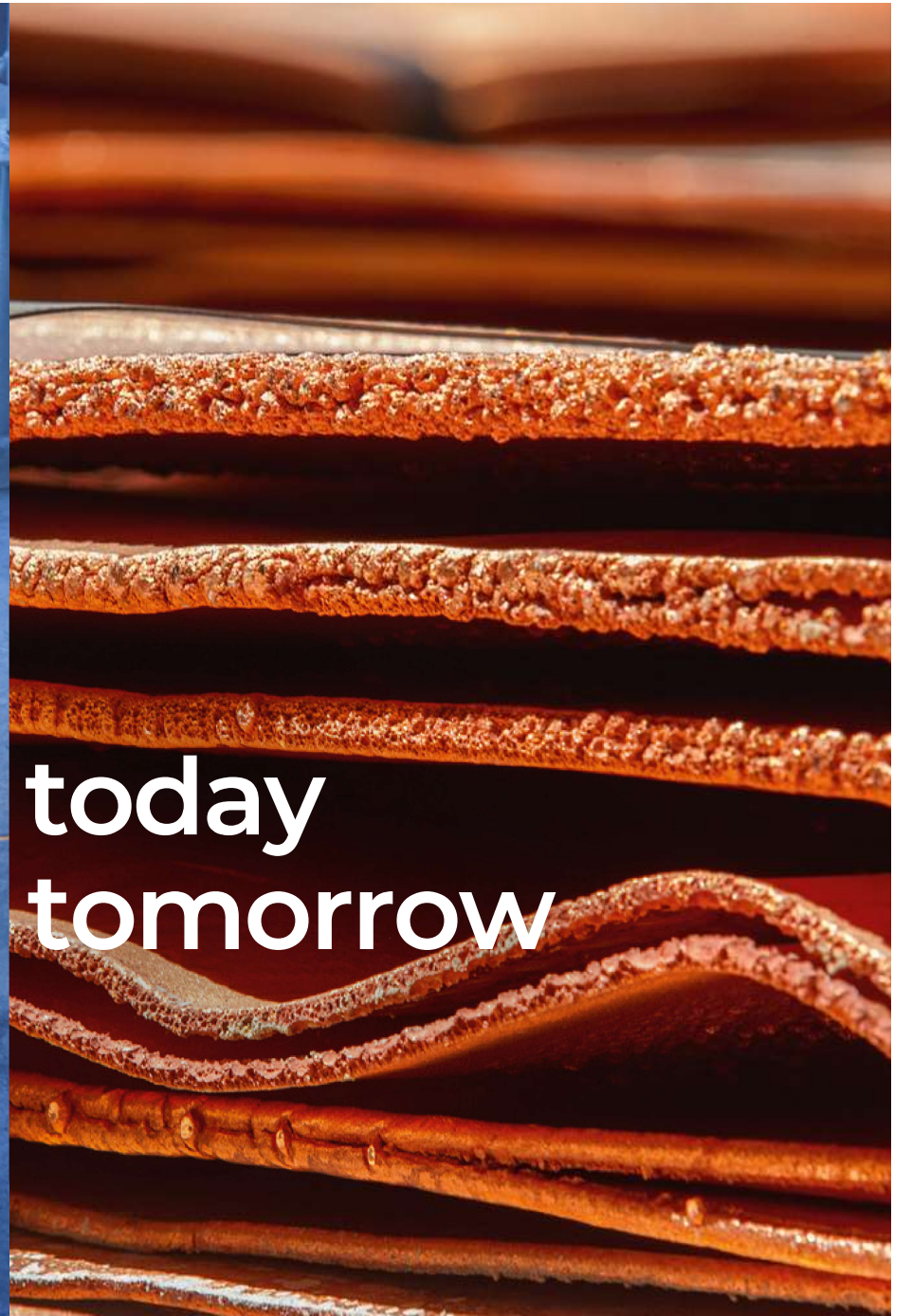


### Legend

- WORK PERFORMED
- GLENCORE LEASES
- GLENCORE PATENTS
- GLENCORE CELL CLAIMS

1:20,000

PREPARED BY CHRISTINE SAARI



Energising today  
Advancing tomorrow



## Production by quarter – Q4 2022 to Q4 2023 *continued*

### Metals and minerals

#### Production from own sources – Zinc assets<sup>1</sup>

		Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	2023	2022	Change 2023 vs 2022 %	Change Q4 23 vs Q4 22 %	
<b>Kazzinc</b>											
<b>Zinc metal</b>	kt	<b>28.0</b>	<b>24.9</b>	<b>24.6</b>	<b>31.6</b>	<b>32.7</b>	<b>113.8</b>	<b>125.7</b>	<b>(9)</b>	<b>17</b>	
<b>Zinc in concentrates</b>	kt	<b>8.6</b>	<b>9.4</b>	<b>13.1</b>	<b>15.8</b>	<b>21.8</b>	<b>60.1</b>	<b>20.7</b>	<b>190</b>	<b>153</b>	
<b>Lead metal</b>	kt	<b>3.8</b>	<b>4.8</b>	<b>4.0</b>	<b>5.2</b>	<b>4.7</b>	<b>18.7</b>	<b>16.9</b>	<b>11</b>	<b>24</b>	
<b>Lead in concentrates</b>	kt	<b>0.4</b>	<b>3.5</b>	<b>4.0</b>	<b>3.3</b>	<b>6.1</b>	<b>16.9</b>	<b>0.4</b>	<b>n.m.</b>	<b>n.m.</b>	
<b>Copper metal<sup>5</sup></b>	kt	<b>4.3</b>	<b>3.4</b>	<b>1.6</b>	<b>4.4</b>	<b>5.4</b>	<b>14.8</b>	<b>20.5</b>	<b>(28)</b>	<b>26</b>	
<b>Gold</b>	koz	<b>125</b>	<b>154</b>	<b>134</b>	<b>147</b>	<b>163</b>	<b>598</b>	<b>546</b>	<b>10</b>	<b>30</b>	
<b>Silver</b>	koz	<b>698</b>	<b>693</b>	<b>414</b>	<b>760</b>	<b>860</b>	<b>2,727</b>	<b>2,721</b>	<b>–</b>	<b>23</b>	
<b>Silver in concentrates</b>	koz	<b>12</b>	<b>140</b>	<b>123</b>	<b>143</b>	<b>142</b>	<b>548</b>	<b>12</b>	<b>n.m.</b>	<b>n.m.</b>	
<b>Kazzinc – total production including third-party feed</b>											
Zinc metal	kt	55.5	63.5	61.5	66.2	71.1	262.3	256.9	2	28	
Lead metal	kt	25.8	23.9	21.8	27.7	24.6	98.0	107.6	(9)	(5)	
Copper metal	kt	13.9	11.5	5.8	11.8	13.0	42.1	55.8	(25)	(6)	
Gold	koz	262	261	270	275	318	1,124	912	23	21	
Silver	koz	4,959	4,861	4,716	4,355	3,634	17,566	22,005	(20)	(27)	
<b>Australia (Mount Isa, McArthur River)</b>											
Mount Isa	Zinc in concentrates	kt	87.2	61.6	68.5	76.0	81.1	287.2	290.2	(1)	(7)
	Copper metal	kt	23.1	16.5	18.6	16.1	17.9	69.1	70.5	(2)	(23)
	Lead in concentrates	kt	36.0	18.8	27.8	25.4	24.7	96.7	114.5	(16)	(31)
	Silver	koz	207	180	158	134	143	615	557	10	(31)
	Silver in concentrates	koz	1,383	708	1,086	1,056	987	3,837	4,125	(7)	(29)
<b>Mount Isa, Townsville – total production including third-party feed</b>											
Copper metal	kt	56.2	44.3	50.5	53.0	49.4	197.2	191.5	3	(12)	
Gold	koz	43	37	35	46	50	168	148	14	16	
Silver	koz	578	408	386	482	475	1,751	1,885	(7)	(18)	
<b>McArthur River</b>											
	Zinc in concentrates	kt	70.5	66.9	66.4	63.1	65.8	262.2	273.8	(4)	(7)
	Lead in concentrates	kt	13.1	12.2	12.3	12.3	13.6	50.4	51.4	(2)	4
	Silver in concentrates	koz	371	366	261	262	403	1,292	1,467	(12)	9
	<b>Total Zinc in concentrates</b>	kt	<b>157.7</b>	<b>128.5</b>	<b>134.9</b>	<b>139.1</b>	<b>146.9</b>	<b>549.4</b>	<b>564.0</b>	<b>(3)</b>	<b>(7)</b>
	<b>Total Copper</b>	kt	<b>23.1</b>	<b>16.5</b>	<b>18.6</b>	<b>16.1</b>	<b>17.9</b>	<b>69.1</b>	<b>70.5</b>	<b>(2)</b>	<b>(23)</b>
	<b>Total Lead in concentrates</b>	kt	<b>49.1</b>	<b>31.0</b>	<b>40.1</b>	<b>37.7</b>	<b>38.3</b>	<b>147.1</b>	<b>165.9</b>	<b>(11)</b>	<b>(22)</b>
	<b>Total Silver</b>	koz	<b>207</b>	<b>180</b>	<b>158</b>	<b>134</b>	<b>143</b>	<b>615</b>	<b>557</b>	<b>10</b>	<b>(31)</b>
	<b>Total Silver in concentrates</b>	koz	<b>1,754</b>	<b>1,074</b>	<b>1,347</b>	<b>1,318</b>	<b>1,390</b>	<b>5,129</b>	<b>5,592</b>	<b>(8)</b>	<b>(21)</b>
<b>North America (Matagami, Kidd)<sup>6</sup></b>											
Matagami	Zinc in concentrates	kt	–	–	–	–	–	17.3	(100)	n.m.	
	Copper in concentrates	kt	–	–	–	–	–	3.2	(100)	n.m.	
Kidd	Zinc in concentrates	kt	8.4	10.7	11.5	8.8	7.6	38.6	39.2	(2)	(10)
	Copper in concentrates	kt	4.9	6.8	4.6	5.1	6.1	22.6	25.1	(10)	24
	Silver in concentrates	koz	292	392	477	254	255	1,378	1,346	2	(13)
	<b>Total Zinc in concentrates</b>	kt	<b>8.4</b>	<b>10.7</b>	<b>11.5</b>	<b>8.8</b>	<b>7.6</b>	<b>38.6</b>	<b>56.5</b>	<b>(32)</b>	<b>(10)</b>
	<b>Total Copper in concentrates</b>	kt	<b>4.9</b>	<b>6.8</b>	<b>4.6</b>	<b>5.1</b>	<b>6.1</b>	<b>22.6</b>	<b>28.3</b>	<b>(20)</b>	<b>24</b>
	<b>Total Silver in concentrates</b>	koz	<b>292</b>	<b>392</b>	<b>477</b>	<b>254</b>	<b>255</b>	<b>1,378</b>	<b>1,346</b>	<b>2</b>	<b>(13)</b>

## WORK HISTORY

AFRI_FID	FILE_ID	SUBM_TYPE	YEAR	PERFORM_FO	PROPERTY_N	TOWNSHIP	RGP_DIST	VALUE_W	WORK_TYPES	WORK_DESCR	YEAR_FR	YEAR_TO	GO_LINK
42A11NW0985	16	Approved Assessment	1964 - 1964	Texas Gulf Sulphur Co		Kidd	Timmins	0	PDRILL	Diamond Drilling	1964	1964	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0985">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0985</a>
42A11NW0574	63.1378, T-0823	Approved Assessment	1964 - 1964	Texas Gulf Sulphur Co	Kidd 56	Kidd	Timmins	0	IP	Induced Polarization	1964	1964	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0574">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0574</a>
42A11NW0578	63.1695, T-0823	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co	Kidd 35, Kidd 45	Kidd	Timmins	0	EM	Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0578">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0578</a>
42A11NW0529	63.1785, T-0461	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co		Wark	Timmins	0	AEM	Airborne Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0529">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0529</a>
42A11NW0571	63.1842, T-0823	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co	Kidd 35, 45, 56	Kidd	Timmins	0	AEM	Airborne Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571</a>
42A11NW0571	63.1842, T-0823	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co	Kidd 35, 45, 56	Kidd	Timmins	0	AEM	Airborne Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571</a>
42A11NW0571	63.1842, T-0823	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co	Kidd 35, 45, 56	Kidd	Timmins	0	AEM	Airborne Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0571</a>
42A11NW0578	63.1695, T-0823	Approved Assessment	1965 - 1965	Texas Gulf Sulphur Co	Kidd 35, Kidd 45	Kidd	Timmins	0	EM	Electromagnetic	1965	1965	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0578">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0578</a>
42A11NW0570	63.1835, T-0823	Approved Assessment	1966 - 1966	Texas Gulf Sulphur Co	Kidd 64	Kidd	Timmins	0	EM, IP	Electromagnetic, Induced Polarization	1966	1966	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0570">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0570</a>
42A11NW0971	21	Approved Assessment	1966 - 1966	Texas Gulf Sulphur Co		Kidd	Timmins	0	PDRILL	Diamond Drilling	1966	1966	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0971">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0971</a>
42A11NW0972	12, T-0823	Approved Assessment	1967 - 1967	Texas Gulf Sulphur Co	Kidd 35	Kidd	Timmins	0	PDRILL	Diamond Drilling	1967	1967	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0972">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0972</a>
42A11NW0972	12, T-0823	Approved Assessment	1967 - 1967	Texas Gulf Sulphur Co	Kidd 35	Kidd	Timmins	0	PDRILL	Diamond Drilling	1967	1967	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0972">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0972</a>
42A11NW0558	2.3791, T-2385	Approved Assessment	1981 - 1981	Texasgulf Canada Ltd		Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1981	1981	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0558">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0558</a>
42A11NW0558	2.3791, T-2385	Approved Assessment	1981 - 1981	Texasgulf Canada Ltd		Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1981	1981	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0558">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0558</a>
42A11NW0556	25, T-1872	Approved Assessment	1982 - 1982	Kidd Creek Mines Ltd		Kidd	Timmins	0	PDRILL	Diamond Drilling	1982	1982	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0556">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0556</a>
42A11NW0554	2.5265, T-0823, W8206.00452	Approved Assessment	1982 - 1982	Kidd Creek Mines Ltd	Kidd 44	Kidd	Timmins	0	POVERB	Overburden Drilling	1982	1982	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0554">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0554</a>
42A11NW0552	2.6177, T-2755, W8306.00373	Approved Assessment	1983 - 1983	Kidd Creek Mines Ltd	Kidd 22 & 23	Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1983	1983	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0552">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0552</a>
42A11NW0552	2.6177, T-2755, W8306.00373	Approved Assessment	1983 - 1983	Kidd Creek Mines Ltd	Kidd 22 & 23	Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1983	1983	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0552">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0552</a>
42A11NW0553	26, T-2936, W8506.00098	Approved Assessment	1984 - 1984	Kidd Creek Mines Ltd		Kidd	Timmins	0	PDRILL	Diamond Drilling	1984	1984	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0553">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0553</a>
42A11NW0550	2.8537, T-2755, W8506.00372	Approved Assessment	1985 - 1985	Kidd Creek Mines Ltd	Kidd 22 & 3	Kidd	Timmins	8472	POVERB	Overburden Drilling	1985	1985	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0550">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0550</a>
42A11NW0555	27, T-2755, W8606.00349	Approved Assessment	1986 - 1986	Kidd Creek Mines Ltd		8132 Kidd	Timmins	0	PDRILL	Diamond Drilling	1986	1986	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0555">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0555</a>
42A11NW0546	2.12835, T-3249, W8906.00474	Approved Assessment	1989 - 1989	Falconbridge Ltd	Kidd 11 North	Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1989	1989	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0546">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0546</a>
42A11NW0547	2.12236, T-3249, W8906.00054	Approved Assessment	1989 - 1989	Falconbridge Ltd	Kidd 24 Property	Kidd	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1989	1989	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0547">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0547</a>
42A11NW0593	2.12574, T-3160, W8906.00327	Approved Assessment	1989 - 1989	Falconbridge Ltd	Macdiarmid 46	MacDiarm	Timmins	0	EM, MAG	Electromagnetic, Magnetic / Magnetometer Survey	1989	1989	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0593">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0593</a>
42A11NW0024	T-2936, W9560-00120, W9560.00000	Approved Assessment	1995 - 1995	Falconbridge Ltd		Kidd	Timmins	0	ASSAY, PDRILL	Assaying and Analyses, Diamond Drilling	1995	1995	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0024">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW0024</a>
42A11NW2007	2.18532, T-4015, W9860.00564	Approved Assessment	1997 - 1998	Falconbridge Ltd		Kidd	Timmins	121440	ASSAY, PDRILL	Assaying and Analyses, Diamond Drilling	1997	1998	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2007">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2007</a>
42A11NW2006	2.18507, T-4000, W9860.00554	Approved Assessment	1998 - 1998	Falconbridge Ltd		Kidd	Timmins	2002	MAG, PCUT	Magnetic / Magnetometer Survey, Open Cutting	1998	1998	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2006">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2006</a>
42A11NW2018	2.20640, T-4479, W0060.00421	Approved Assessment	1998 - 1999	Falconbridge Ltd		Kidd	Timmins	30335	ASSAY, PDRILL	Assaying and Analyses, Diamond Drilling	1998	1999	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2018">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2018</a>
42A11NW2019	2.20663, T-4485, W0060.00438	Approved Assessment	2000 - 2000	Falconbridge Ltd		Kidd	Timmins	261700	ASSAY, PDRILL	Assaying and Analyses, Diamond Drilling	2000	2000	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2019">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2019</a>
42A11NW2026	2.28637, T-5044, W0460.01649	Approved Assessment	2002 - 2002	Falconbridge Ltd	West of Hemmingway	Kidd	Timmins	38333	PDRILL	Diamond Drilling	2002	2002	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2026">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=42A11NW2026</a>
20000020439	4767, 82483	Approved Assessment	2019 - 2020	Glencore Canada Corp	Kidd Mine	Kidd	Timmins	240755	REHAB	Rehabilitation	2019	2020	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=20000020439">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=20000020439</a>
20000021425	101666, 6070	Approved Assessment	2023 - 2023	Glencore Canada Corp	Timmins Glencore Claim	Prosser	Timmins	30693	AMAG	Airborne Magnetometer	2023	2023	<a href="https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=20000021425">https://www.geologyontario.mines.gov.on.ca/persistent-linking?assessment=20000021425</a>

## WORK HISTORY

In 1957, several anomalies were identified from airborne magnetic and electromagnetic surveys over the region. Few years later in 1963, the Texas Gulf Sulphur Company made the discovery of Kidd Creek world-class deposit which triggered a major staking rush in the area when announced in 1964 (Billis, 2020). According to the Ontario Geological Survey (OGS), multiple companies proceeded with exploration work in Kidd Twp. The enclosed table summarizes the work history in Kidd Township based on the Ontario Geological Survey (OGS) database.

# GLENCORE

April 30, 2024

Provincial Recording Office  
3rd Floor, 933 Ramsey Lake Road  
Sudbury ON P3E 6B5

## **NOTICE OF DETERMINATION ADDITIONAL INFORMATION**

**SUBMISSION DATE: 2024-03-20**

**SUBMISSION NUMBER: 6639**

**TRANSACTION NUMBER: 113482**

### **REQUEST FOR INFORMATION**

(vii) summarize **the history** of the property, with **prior property ownership**, **historical exploration** and past development or **production** and identify any significant areas where **hazards or risks** have been recognized.

(viii) where a proponent undertakes progressive rehabilitation of a site without being subject to a closure plan and met the prescribed standard, provide a **copy of the applicable progressive rehabilitation report**.

### **(VII)**

**OWNERSHIP & HISTORY** - PLEASE REFER TO ADDENDUM OWNERSHIP BIOSOLIDS WORK REPORT.

### **WORK HISTORY**

In 1957, several anomalies were identified from airborne magnetic and electromagnetic surveys over the region. Few years later in 1963, the Texas Gulf Sulphur Company made the discovery of Kidd Creek world-class deposit which triggered a major staking rush in the area when announced in 1964. According to the Ontario Geological Survey (OGS), multiple companies proceeded with exploration work in Kidd Twp. The enclosed table summarizes the work history in Kidd Township based on the Ontario Geological Survey (OGS) database. PLEASE REFER TO ADDENDUM KIDD TWP WORK PERFORMED TABLE OGS.

### **PRODUCTION**

Kidd Creek Mine Site is actively mined, and proof of production is enclosed. The full Glencore 2023 Annual Report can be accessed by the following link.

<https://www.glencore.com/publications>

I've taken an excerpt from the report due to the size of the file which cannot be downloaded to the MLAS site. If this is a problem, please advise and I will get a paper copy sent to the Ministry

GLENCORE Canada Corporation

6900 - 100 King Street West, P.O. Box 403, Toronto, Ontario M5X 1E3 CANADA  
Tel. +1 416-775-1200 Fax +1 416-775-1294 [glencore.com](http://glencore.com)

# GLENCORE

of Mines. PLEASE REFER TO ADDENDUM KIDD CREEK PRODUCTION ANNUAL REPORT 2023 EXCERPT.

## **HAZARDS AND RISKS**

The Kidd Creek Mine Site property has a closure plan submitted to the Ministry of mines which outlines the hazards and risks associated with the site. Glencore's closure plans provide a description of the site along with the impacts and how to mitigate and resolve the issues. I DO NOT HAVE A COPY OF THE CLOSURE PLAN HOWEVER THE MINISTRY OF MINES HAS ONE TO REFER TO

## **(VIII)**

The Report that was filed with the original submission is the Progressive Rehabilitation Report. PLEASE REFER TO THE ORIGINALLY SUBMITTED REPORT AND APPENDICIES.

It is my intention to provide all remedies for the above-mentioned Notice of Determination. Should you require any further information, or have any questions please contact me via email at [Christine.saari@glencore.ca](mailto:Christine.saari@glencore.ca), or via cell 1-647-326-3702.

Regards,  
Christine Saari  
Land Manager  
Glencore Canada Corporation

Phone: 1-647-326-3702  
Email: [christine.saari@glencore.ca](mailto:christine.saari@glencore.ca)

GLENCORE Canada Corporation

6900 - 100 King Street West, P.O. Box 403, Toronto, Ontario M5X 1E3 CANADA  
Tel. +1 416-775-1200 Fax +1 416-775-1294 [glencore.com](http://glencore.com)

## OWNERSHIP

Glencore Canada Corporation is 100% owner of the patents referred to in this report where the work was performed. The patents were originally in the name of Falconbridge Limited. On March 28, 2004, change of name from Falconbridge Limited to Xstrata Canada Corporation were registered with land titles. Subsequently there was a change of name from Xstrata Canada Corporation to Glencore Canada Corporation registered Sept 11, 2013 which reflects the current ownership of the properties.

LAND  
REGISTRY  
OFFICE #6

65351-0033 (LT)

PAGE 1 OF 1  
PREPARED FOR Jacques  
ON 2022/05/19 AT 18:27:43

\* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT \* SUBJECT TO RESERVATIONS IN CROWN GRANT \*

PROPERTY DESCRIPTION: PCL 13573 SEC SEC; N 1/2 LT 2 CON 5 KIDD; CITY OF TIMMINS

PROPERTY REMARKS: CROWN GRANT SEE TP6425.

ESTATE/QUALIFIER:  
FEE SIMPLE  
ABSOLUTE

RECENTLY:  
FIRST CONVERSION FROM BOOK

PIN CREATION DATE:  
2004/04/26

OWNERS' NAMES  
GLENCORE CANADA CORPORATION

CAPACITY SHARE

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
<b>** PRINTOUT INCLUDES ALL DOCUMENT TYPES (DELETED INSTRUMENTS NOT INCLUDED) **</b>						
C105617	1958/12/04	NOTICE				C
C151345	1965/12/29	NOTICE AGREEMENT				C
C478729	1998/01/08	TRANSFER	\$128,000		FALCONBRIDGE LIMITED	C
CB1644	2004/10/07	NOTICE		FALCONBRIDGE LIMITED		C
CB40383	2008/03/28	APL CH NAME OWNER		FALCONBRIDGE LIMITED	XSTRATA CANADA CORPORATION	C
		<i>REMARKS: MULTI</i>				
CB98132	2013/09/11	APL CH NAME OWNER		XSTRATA CANADA CORPORATION	GLENCORE CANADA CORPORATION	C

LAND  
REGISTRY  
OFFICE #6

65351-0045 (LT)

PAGE 1 OF 1  
PREPARED FOR Jacques  
ON 2022/05/20 AT 09:27:05

\* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT \* SUBJECT TO RESERVATIONS IN CROWN GRANT \*

PROPERTY DESCRIPTION: PCL 11999 SEC SEC; S 1/2 LT 2 CON 5 KIDD; CITY OF TIMMINS

PROPERTY REMARKS:

ESTATE/QUALIFIER:

FEE SIMPLE  
ABSOLUTE

RECENTLY:

FIRST CONVERSION FROM BOOK

PIN CREATION DATE:

2004/04/26

OWNERS' NAMES

GLENCORE CANADA CORPORATION

CAPACITY SHARE

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/CHKD
<b>** PRINTOUT INCLUDES ALL DOCUMENT TYPES (DELETED INSTRUMENTS NOT INCLUDED) **</b>						
C151345	1965/12/29	NOTICE AGREEMENT				C
C360815	1987/09/23	NOTICE REMARKS: CERTIFICATE OF APPROVAL				C
C478729	1998/01/08	TRANSFER	\$128,000		FALCONBRIDGE LIMITED	C
CB1644	2004/10/07	NOTICE		FALCONBRIDGE LIMITED		C
CB40383	2008/03/28	APL CH NAME OWNER REMARKS: MULTI		FALCONBRIDGE LIMITED	XSTRATA CANADA CORPORATION	C
CB98132	2013/09/11	APL CH NAME OWNER		XSTRATA CANADA CORPORATION	GLENCORE CANADA CORPORATION	C

LAND  
REGISTRY  
OFFICE #6

65351-0057 (LT)

PREPARED FOR Jacques  
ON 2021/09/16 AT 13:47:51

\* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT \* SUBJECT TO RESERVATIONS IN CROWN GRANT \*

PROPERTY DESCRIPTION: PCL 11471 SEC SEC; N 1/2 LT 2 CON 4 KIDD EXCEPT SRO OF PT 5 CR1035; S/T C161137; CITY OF TIMMINS

PROPERTY REMARKS: CROWN GRANT SEE SWP366.

ESTATE/QUALIFIER:  
FEE SIMPLE  
ABSOLUTE

RECENTLY:  
FIRST CONVERSION FROM BOOK

PIN CREATION DATE:  
2004/04/26

OWNERS' NAMES  
GLENCORE CANADA CORPORATION

CAPACITY SHARE

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/CHKD
<b>** PRINTOUT INCLUDES ALL DOCUMENT TYPES (DELETED INSTRUMENTS NOT INCLUDED) **</b>						
C161137	1967/06/19	TRANSFER EASEMENT			THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO	C
CR820	1967/06/19	PLAN REFERENCE				C
CR1035	1968/03/25	PLAN REFERENCE				C
C330624	1985/06/04	TRANSFER			128988 CANADA INC.	C
		<i>REMARKS: AMENDED UNDER MULTI C330626 &amp; C372759</i>				
CB1644	2004/10/07	NOTICE		FALCONBRIDGE LIMITED		C
CB40383	2008/03/28	APL CH NAME OWNER		FALCONBRIDGE LIMITED	XSTRATA CANADA CORPORATION	C
		<i>REMARKS: MULTI</i>				
CB98132	2013/09/11	APL CH NAME OWNER		XSTRATA CANADA CORPORATION	GLENCORE CANADA CORPORATION	C