



Waste Management Plan

PROJECT ID: Great Slave Lake Remediation

SUBMITTAL ID: AANDC - CARD - WMP - version 1

DATE OF SUBMISSION: January 3, 2014

SUBMITTED BY: Ron Breadmore – Aboriginal Affairs and Northern Development Canada (AANDC)

SUBMITTED TO: Mackenzie Valley Land and Water Board



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1 Introduction and Project Details

Aboriginal Affairs and Northern Development Canada (AANDC) - Contaminants and Remediation Directorate (CARD) has developed the *Great Slave Lake Remediation Project – Waste Management Plan* (Plan) in accordance with the “Guidelines for Developing a Waste Management Plan” (MVLWB 2011), and although conceptual in nature, the Plan is being submitted in support of our Type “A” Land Use Permit application. A more robust plan will be submitted by the successful Final Remediation Contractor as part of their contract submittal process and in advance of their mobilization to site.

This plan will be the minimum standard that submittals will be measured against.

1.1 Company Name, site name, site location and mailing address

Table 1 presents key corporate information pertaining to CARD.

Table 1. Key Information Pertaining to CARD

Federal Department	Aboriginal Affairs and Northern Development Canada – Contaminants and Remediation Directorate
Contact Person	Ron Breadmore Project Manager Telephone number: (867) 669-2743 Fax number: (867) 669-2721 Ron.Breadmore@aandc-aadnc.gc.ca
Project Office Location	PO Box 1500 4920 52 nd Ave Yellowknife, NT, X1A 2R3

1.2 Effective Date of the Waste Management Plan

This Waste Management Plan is effective as of the above date of submission. This is a living document that will be reviewed at minimum annually prior to the start of any site activities, with additional reviews as warranted.

1.3 Revisions to the Waste Management Plan

Table 2 tracks the Waste Management Plan revisions and ensures that all stakeholders have the most up to date copy of the plan. The table must be updated each time a revision is made to the Waste Management Plan.



Table 2. Revision history of the Waste Management Plan

Version #	Contractor Approval	Date	Crown Approval	Date	Sections Revised	Comments	Revision Distribution Date
v.1	n/a	n/a	Ron Breadmore, Project Manager	January 3, 2014	n/a	First Approval	n/a

1.4 Environmental, Health and Safety Policy

Within AANDC's Northern Contaminated Sites Program the health and safety of employees and protection of the environment are an overriding priority. Management is committed to doing everything possible to prevent injuries and to maintain a healthy environment. To this end:

- Senior managers are responsible for ensuring that all the requirements of this EHS Policy are fully implemented.
- All managers and supervisors are responsible for ensuring that their employees are trained in safe work procedures, to undertake their assigned duties without accidents, injuries or harm to the environment, and for ensuring that employees follow safe work methods and all related regulations.
- All personnel are required to support and comply with the EHS program, making safety, health and protection of the environment a part of their daily routine, and ensuring that they follow safe work methods and relevant regulations.
- All personnel will be held accountable for implementing, and adhering to, the requirements of the EHS program.
- All personnel are accountable for reporting to their immediate supervisor any unsafe practices or areas in need of improvement. Personnel are further accountable for bringing such reports to the attention of higher levels in the organization, without fear of reprisal, if the situation is not addressed appropriately.
- All relevant Territorial and Federal laws, regulations and policies, including the requirements of INAC's NAP Contaminated Sites Program Management Framework, are incorporated into our program as minimum standards.
- Pollution prevention practices and programs to achieve continuous improvement will be implemented as an ongoing requirement of the program.
- Where a conflict arises due to different standards or requirements between different regulations or standards, the more stringent of the two will apply.



The plan will be presented to all staff during their on-site orientation sessions. During the worker orientation seminar, training sessions will be scheduled to ensure employees have an understanding of their role within the waste management strategy on site.

1.5 Purpose and Scope

This plan is a guidance document for effective waste management. Through effective planning and waste reduction strategies, the environmental impact can be reduced and resources can be used more efficiently.

This plan is intended to be the minimum standard for waste management that CARD requires of itself and its contractors during project operations. Application of this plan to all potentially waste generating operations is intended to mitigate any potential environmental, health and safety risks associated with the project, and will ensure its operations and activities meet all applicable environmental regulatory requirements.

Waste management practices which best serve the public interest should be employed. This occurs through engagement with and consideration of the First Nations communities of the project area. CARD and its contractors will comply with applicable territorial and federal legislation. Table 1 provides the major acts, regulations and guidelines which are relevant to the project.

Acts, Regulations and Guidelines for Waste Management	
Federal	
<ul style="list-style-type: none">• <i>Transportation of Dangerous Goods Act</i> and Regulations• <i>Hazardous Products Act</i><ul style="list-style-type: none">○ Controlled Products Regulations• <i>Canadian Environmental Protection Act</i> and Regulations<ul style="list-style-type: none">○ Interprovincial Movement of Hazardous Waste Regulations○ Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations• <i>Mackenzie Valley Resource Management Act</i> and Regulations	
Territorial	
<ul style="list-style-type: none">• <i>Environmental Protection Act</i><ul style="list-style-type: none">○ Used Oil and Waste Fuel Management Regulations○ Guideline for General Management of Hazardous Waste○ Guideline on Waste Batteries○ Guideline on Waste Antifreeze○ Guideline on Waste Solvents○ Guideline on Waste Paint• <i>Transportation of Dangerous Goods Act</i> and Regulations• <i>Northwest Territories Waters Act</i>	



The Waste Management Plan is intended to mitigate the effect of two general waste sources; a.) existing legacy mining waste from the 3 abandoned mine sites, and b.) remediation project generated waste. One of the main objectives of the project is to remediate the existing legacy waste at all three sites. Waste Management for the legacy mine waste has been developed and is available within the associated Land Use Permit application (MVLWB) and Site Specific Remedial Action Plans (RAP). To avoid repetition, the Waste Management Plan will only consider project generated waste streams.

This waste management plan has been developed for all activities covered under the Land Use Permit application with the Mackenzie Valley Land and Water Board.

1.6 Project Description

The aim of this project is to remediate 3 abandoned mine sites and to leave as minimal presence in the area as possible. The footprint left behind must be acceptable to the affected aboriginal people for their future use and to ensure the safety of local wildlife and plants.

This project is expected to span approximately 2 years. Project works will be primarily limited to the open water season, with the exception of a portion of the mobilization and demobilization to Copper Pass via a re-activated winter road (~7 km). Work will commence June/July 2014 with initial mobilization following ice-out.

Activities for the GSL Remediation Project consist of the following tasks:

1. Mobilization and demobilization
2. Temporary camp operation
3. Sealing mine openings
4. Upgrading and maintenance of site roads and Copper Pass winter access road
5. Excavation and consolidation of hydrocarbon contaminated material
6. Excavation and consolidation of select waste rock
7. Excavation and consolidation of ore and ore concentrate
8. Excavation and consolidation of metals-impacted soil
9. Off-site disposal of hydrocarbon contaminated material, ore , and select metals-impacted soil
10. Stabilization of select ore and waste rock consolidations
11. Capping of select on-site ore and waste rock consolidations
12. Dewatering and backfilling select trenches
13. Quarrying and placing material as cover
14. Disposal of buildings/structures
15. Consolidation of hazardous and non-hazardous refuse for off-site disposal



1.7 Site Description

The GSL Remediation Project consists of the remediation of 3 abandoned mine sites within the East Arm Region of Great Slave Lake, including; Outpost Island Mine, Blanchet Island Mine, and Copper Pass Mine. All sites are remote with no nearby inhabitants.

The Outpost Island mine site is located approximately 94 km southeast of Yellowknife, NT and occupies two islands, Outpost Island (West Island) and East Island in Great Slave Lake. The coordinates for the site are 61° 44' 17" N, 113° 27' 30" W. The site consists of an abandoned underground mine. The majority of the mining operation was located on Outpost Island (West Island) including the main camp, mill and service buildings. Access to the site is by air or boat in the summer and by winter road, however a winter road to the site has not been constructed in recent years, and there are no plans to construct one. Mining operations took place on the site from 1941 to 1942 and 1951 to 1952.

The Blanchet Island mine site is located approximately 115 km southeast of Yellowknife, NT on the southern shore of Blanchet Island in Great Slave Lake. The coordinates for the site are 61° 59' 45" N, 112° 23' 45" W. The site consists of an abandoned underground mine. The mine area is located approximately 1.5 km northeast of the camp and beach areas of the site. Access to the site is by air or boat in the summer and by winter road, however a winter road to the site has not been constructed in recent years, and there are no plans to construct one. The mine operated from 1968 to 1970, with no milling operations on site.

The Copper Pass mine site is located approximately 129 km east of Yellowknife, NT on Sachowia Lake (7.5 km northwest of Sachowia Point on the Hearne Channel of Great Slave Lake). The coordinates for the site are 62° 24' 30" N, 111° 51' 45" W. The site consists of an abandoned mine site. The mining works were limited to aboveground operations with no milling. The majority of exploration occurred in late 1960s, with no other mining or significant exploration activities reported since 1970.

Site maps are included in Appendix A.

2.0 Waste Stream Hierarchy

A waste management hierarchy is useful in identifying what waste management strategies are most desirable. The methodology and definitions here are based on *MVLWB Guidelines for Developing a Waste Management Plan*. In order of preference (from most preferable to least), the options to be considered for each type of waste are:

- 1) **Source Reduction:** Elimination or decrease of the volume, mass and toxicity of waste generated
- 2) **Reuse:** Reuse of a product more than once for the same or different purpose, either on or off-site



3) **Recycle/Recovery:** Materials otherwise destined for disposal are collected, processed and remanufactured wither on or off-site

4) **Treatment:** Method to reduce the volume, mass and/or toxicity prior to disposal.

5) **Release to the Receiving Environment:** Least desirable option, often involving landfilling or other storage and containment options.

Any Contractor derived Waste Management Plan shall consider the waste management hierarchy and site specific practicality to develop waste disposal options.

3.0 Waste Types

Waste Management for the existing legacy mine waste has been developed and is available within the associated Site Specific Remedial Action Plans (RAP). To avoid repetition, the Waste Management Plan will only consider project generated waste streams. Table 2 shows a breakdown of waste types and the associated document that describes their specific management. Any waste stream that is shared between existing mine waste and project generated waste will be addressed in both the Waste Management Plan and the RAPs.

Table 2. Waste streams and associated management documents.

Waste Stream	Waste Management Plan (project generated waste)	Site Specific Remedial Action Plans (legacy mine waste)
Hazardous or Potentially Hazardous Wastes		
Ash or incinerator residue	✓	
Lead acid batteries and/or alkaline batteries		✓
Chemical wastes – liquids and solids	✓	
Contaminated Soils		✓
Used oil, fuels, lubricants, greases, oil filter, and solvents	✓	
Asbestos		✓
Non-Mineral Waste		
Domestic refuse	✓	
Scrap metal	✓	✓



Waste Stream	Waste Management Plan (project generated waste)	Site Specific Remedial Action Plans (legacy mine waste)
Non-Mineral Waste (Cont'd)		
Inert waste	✓	✓
Plastics	✓	
Construction materials	✓	
Rubber products	✓	
Sewage / Grey water	✓	
Mineral Waste		
Tailings (Outpost only)		✓
Waste rock		✓
Ore and ore concentrate		✓

3.1 Waste Categories

Successful waste management requires that different types of wastes are separated and dealt with appropriately. The types of project generated waste can be categorized as:

- 1) Waste for incineration;
- 2) Recyclable material;
- 3) Waste for transfer to approved Facility;
- 4) Grey Water

3.1.1 Waste for Incineration

There are several types of material which are eligible for incineration. Any incineration should occur after source reduction, reuse and recycling have been considered. Incinerators will be designed and operated to treat the suitable waste types and quantities. Incinerators must meet the requirements of the *Canada-wide Standards for Dioxins and Furans* and the *Canada-wide Standards for Mercury Emissions*. An incineration management plan will be submitted by the successful Project Contractor. The incineration management plan must be aligned with Environment Canada's *Technical Document for Batch Waste Incineration* and may require additional guidance from the *Operating and Emission Guidelines for Municipal Solid Waste Incineration*.



Some items may be appropriate for incineration, while others should never be burned. The following materials are appropriate for incineration on site, provided the incineration equipment is operating properly:

- paper-type products, including cardboard, paper, newspapers and magazines, most packaging, waxed paper, paper towels, serviettes, and paper cups;
- food garbage / waste, including food scraps, bones, coffee grounds, peelings;
- natural cloth materials, including clothes, linens, towels, rags;
- wood products, including non-impregnated building materials; and,

Human waste may be incinerated using fuel-fired incinerating toilets. Clean ash from this operation will be collected and shipped off-site for disposal.

3.1.2 Recyclable Material

All materials appropriate for normal recycling (i.e. empty food cans, plastics) will be bagged and shipped to an appropriate recycling facility. Materials such as plastics, foams and rubbers can be separated on-site and shipped to an approved facility.

Select items on site can be sent back to the manufacturing for recycling or reuse. Large, reusable containers such as drums can be sent back to the supplier. Metal parts from heavy equipment can be sent back to the supplier for reconditioning and reuse.

3.1.3 Waste for Transfer to Approved Facility

All project-generated hazardous waste as well as any material which cannot be incinerated or recycled will be packaged and shipped to an approved waste management facility for disposal. This includes material such as:

- scrap metal;
- waste oil from vehicles is not suitable for on-site incineration;
- vehicle components (e.g. anti-freeze and tires);
- lead acid or alkaline batteries;
- petroleum hydrocarbon contaminated soil;
- incinerator ash and residue; and
- solvents and paint.

All materials destined for off-site disposal must be stored safely and securely before transport. Handling of fuel spills on site is addressed in the Spill Contingency Plan.

Specific agreements have yet to be established with the landfills. Efforts will be made to ensure that the landfill can accept all waste or other landfill options will be explored.



3.1.4 Grey Water

The grey water produced at camp represents an example where release to the receiving environment is acceptable. Grey water is not considered hazardous. The water will be placed into natural depressions or sumps in the ground. Potential sumps will be regularly inspected to ensure proper functioning. Potential sumps will be located a minimum of 100 m from any water body, and a final location will be approved by an Inspector. This grey water management strategy has been recommended by Inspectors as an acceptable approach during previous CARD Remediation Projects.

In the event that an Inspector is not able to approve grey water disposal at a specific site (e.g. non-conductive surficial material), then grey water at that site will be securely stored in tanks, and will be disposed of in one of two manners:

- transport off-site to an approved disposal facility; or
- transport to a project site that has an approved grey water discharge location.



Appendix A

Site maps

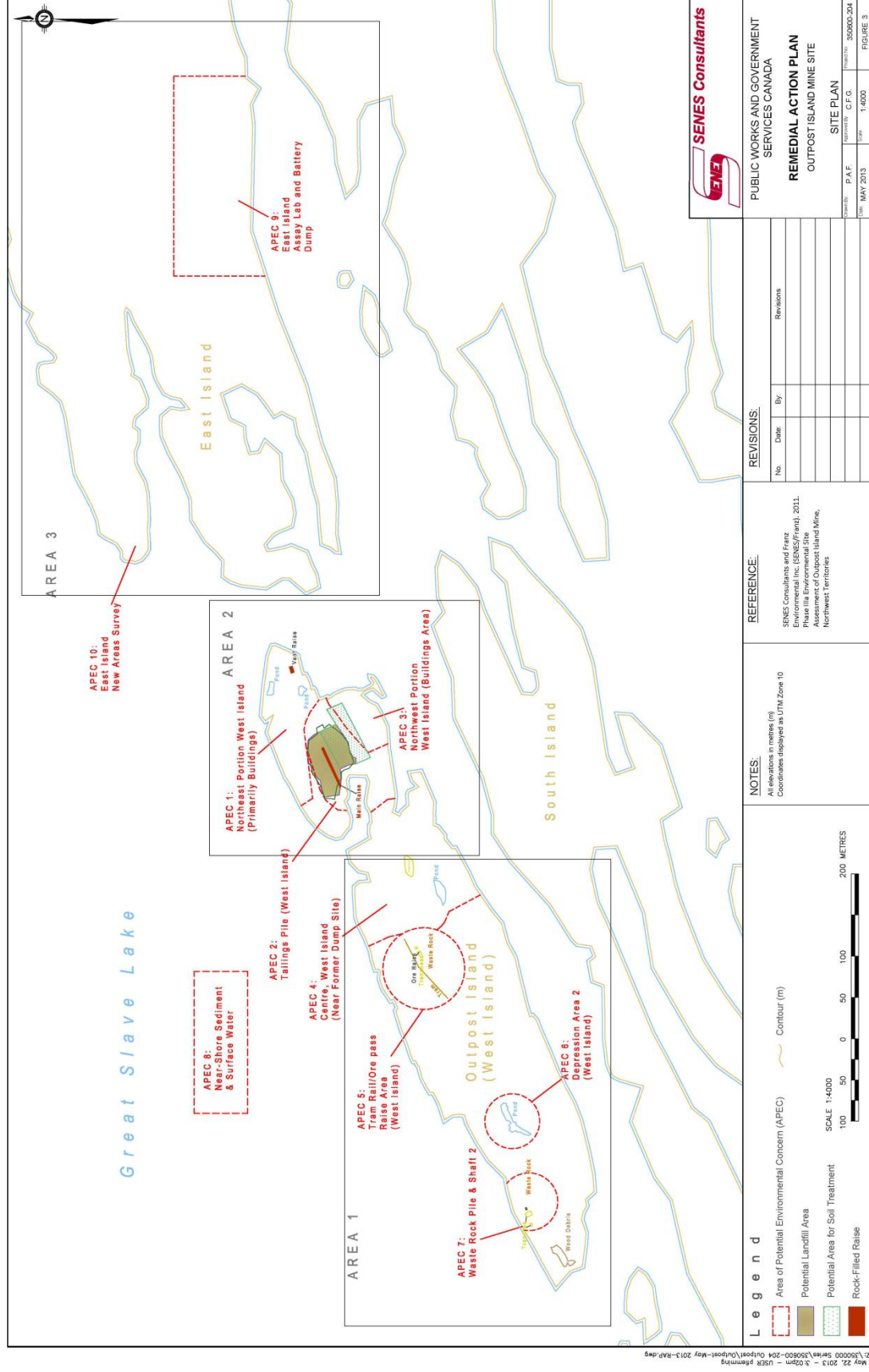
Legend

- Outpost Island Mine Site
- Iron Islands
- Blanchet Mine Site
- Copper Pass Mine Site
- Yellowknife
- Great Slave Lake

Map Details:

- Latitude: 40, 41, 42, 43, 44, 45, 46, 47, 48
- Longitude: 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80
- Map Scale: 1:50,000
- Map Date: Nov 2013
- Map Author: SENSE Consultants

Outpost Island Mine Layout



NOTES:
 All elevations in metres (m)
 Coordinates displayed as UTM Zone 18

REFERENCE:
 1:750 1:50,000 Impression 65419

LEGEND:

REVISIONS:

No.	Date	By	Revisions

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

BORROW SOURCE ASSESSMENT

BLANCHET ISLAND MINE SITE

LOCATION PLAN

SENEC Consultants

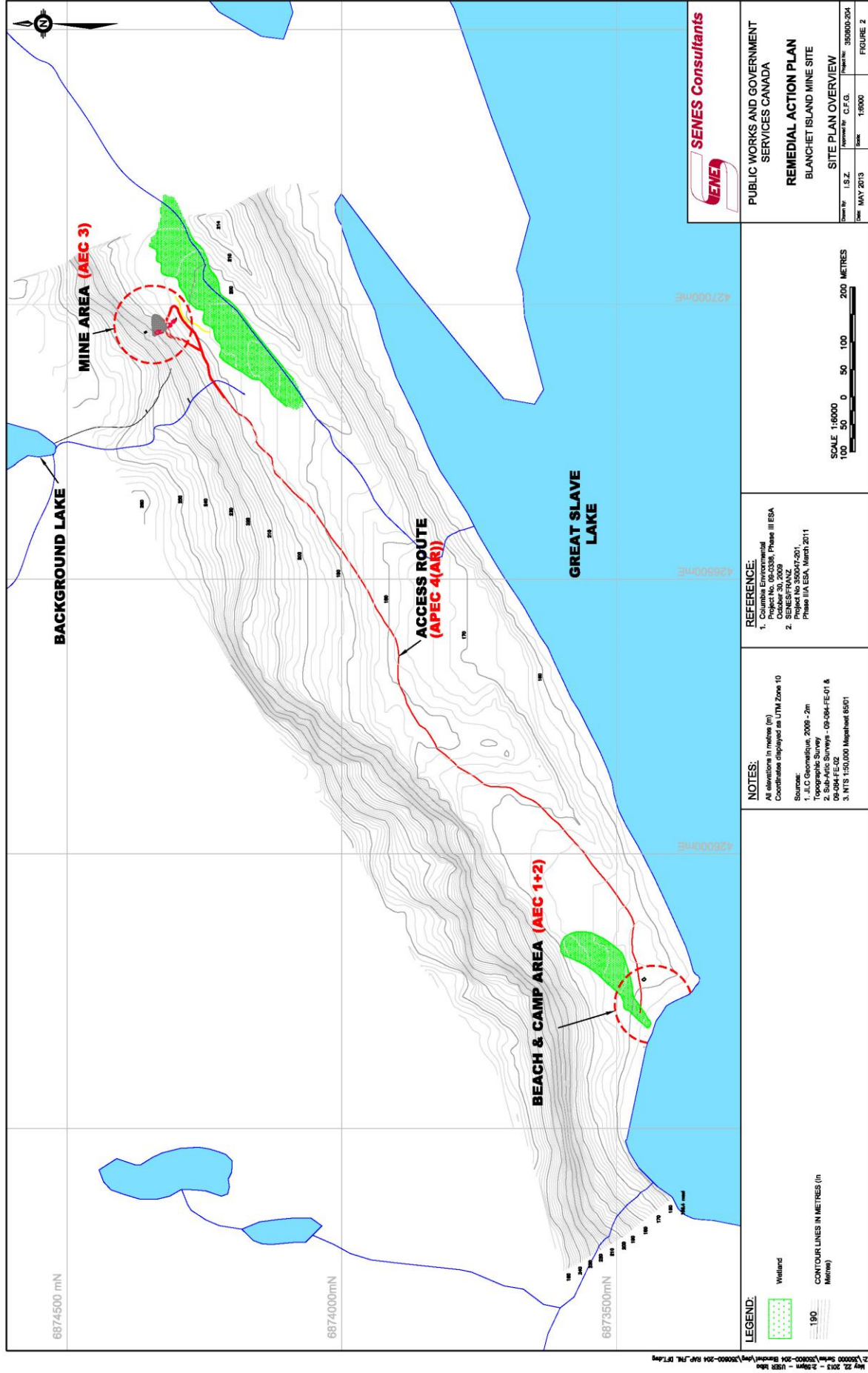
PROJECT No. 506000-207

Date: 15 Nov 2013

Scale: 1:50,000

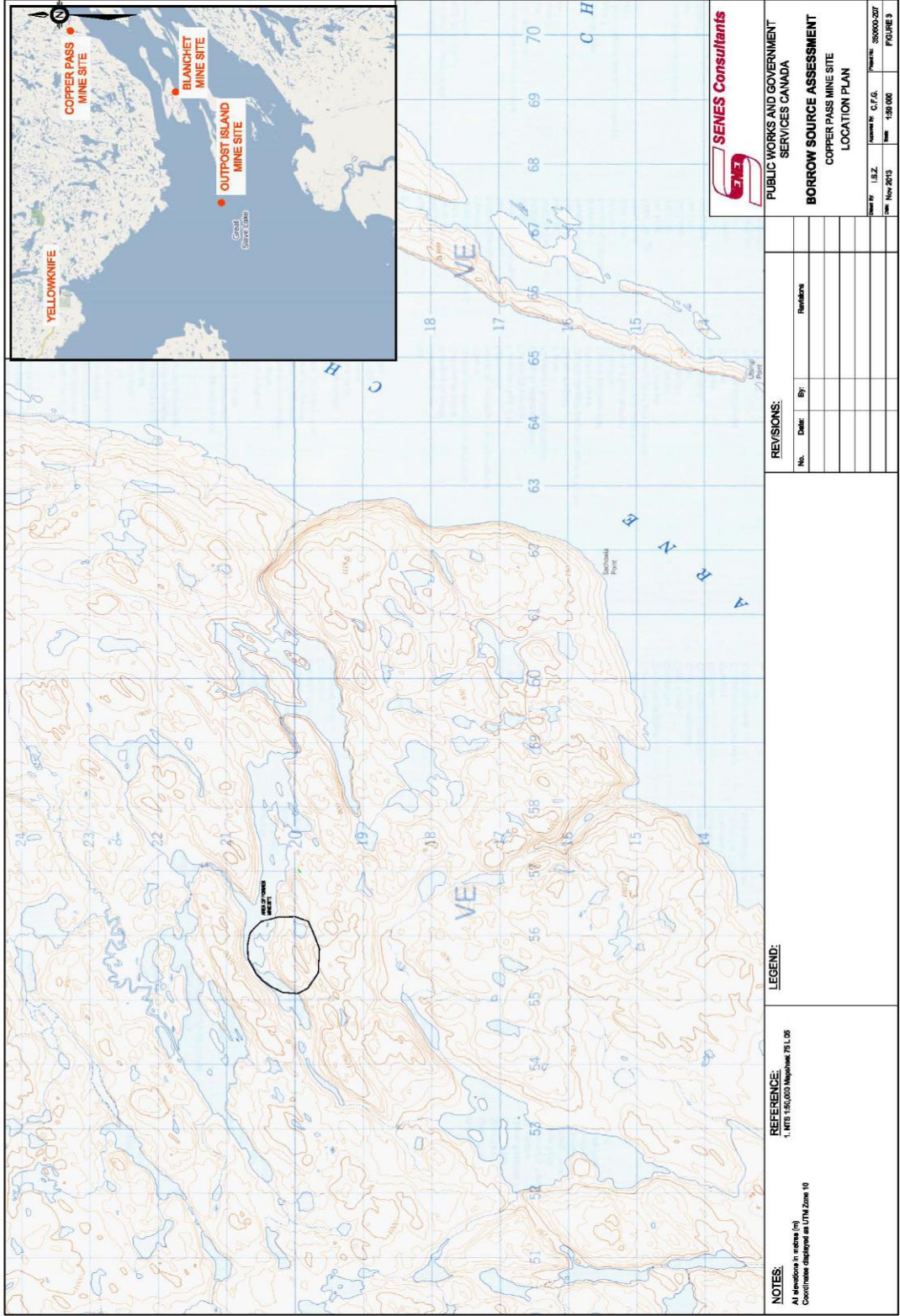
FIGURE 2

Blanchet Site Layout





Copper Pass – Site Location





Copper Pass Site Layout

