



# Closure and Reclamation Plan

(Version 4.0)

October 2023

KENNADY NORTH PROJECT

SOUTH MACKENZIE DISTRICT, NT

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## Summary

This Plan describes what Kennady Diamonds Inc. will do to secure the Kennady North Project upon seasonal and temporary closure, and how it would undertake final Project closure.

## Revision History

### Advanced Exploration Project

- Version 1 of the Closure and Reclamation Plan was submitted with the original application for MV2013L2-0005 on December 9, 2013.
- Version 1.1 was submitted on February 12, 2014 with revisions in response to initial reviewer comments (before issuance of the licence).
- Version 1.3 was submitted on May 26, 2014 as per requirement Part G, item 3 of MV2013L2-0005.
- Version 2.0 was updated for submission MV2013L2-0005 and MV2013C0023:
  - Some minor wording changes/clarifications
  - Incorporation of reference to the Kelvin Camp (the previous version only referred to the Bob Camp)
- Version 3.0 was updated as follows:
  - Additional information in support of KDI's amendment applications to the Mackenzie Valley Land and Water Board for advanced exploration

### Regional Exploration Project

- Note that Version 1.0 of the Regional Exploration Project Closure and Reclamation Plan was submitted with the original application for the Type A Land Use Permit and Type B Water Licence in October 2022.

### Kennady North Project

- Version 4.0 (this version) has been created to reflect consolidation of the AEP and REP activities under a single Kennady North Project (KNP) plan. Updates have included:
  - A new introduction for the Kennady North Project and consolidation of goals and objectives
  - Inclusion of seasonal closure with temporary closure activities
  - Alignment of roles and responsibilities with other management plans
  - Retention of AEP project components and activities

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## Glossary, Acronyms and Abbreviations

Term	Meaning
<b>AEP</b>	Kennady North Advanced Exploration Project and all of its components
<b>AGL</b>	Aurora Geosciences Ltd.
<b>AN</b>	Ammonium nitrate
<b>ANFO</b>	Ammonium Nitrate Fuel Oil
<b>closure goal</b>	Guiding statement that provides the vision and purpose of reclamation, attained once all closure objectives are satisfied.
<b>closure objectives</b>	What the closure activities are aiming to achieve, guided by the closure principles.
<b>closure principles</b>	Guide the selection of closure objectives and include four core principles: physical stability; chemical stability; no long-term active care requirements; future use
<b>Company</b>	Kennady Diamonds Inc.
<b>cuttings</b>	Very fine bits of rock that result from cutting drill core either in the ground by drilling or with a core saw.
<b>final closure</b>	Planned decommissioning of the entire Project at the end of the final season.
<b>Foundational Exploration</b>	includes prospecting, bedrock and surficial mapping, geological, geophysical, and geochemical surveys, and diamond drilling, small- and large- reverse circulation drilling, and trenching to delineate kimberlite targets and help determine economic grade
<b>GKJV</b>	Gahcho Kué Mine Joint Venture
<b>GNWT</b>	Government of Northwest Territories
<b>ha</b>	hectare
<b>KDI</b>	Kennady Diamonds Inc.
<b>km</b>	kilometre
<b>KNP</b>	Kennady North Project
<b>L</b>	litre
<b>m</b>	metre
<b>m<sup>3</sup></b>	cubic metres
<b>MPVD</b>	Mountain Province Diamonds Inc.
<b>MVLWB</b>	Mackenzie Valley Land and Water Board
<b>NWT</b>	Northwest Territories
<b>PAG</b>	potentially acid generating
<b>PK</b>	processed kimberlite
<b>Plan</b>	Closure and Reclamation Plan
<b>Project</b>	Kennady North Project and all of its components
<b>RainCoast</b>	RainCoast Environmental Services Ltd.
<b>RC</b>	Reverse Circulation
<b>REP</b>	Kennady North Regional Exploration Project and all of its components
<b>seasonal closure</b>	Planned annual site closure
<b>sump</b>	A natural or engineered depression used to temporarily contain liquids
<b>t</b>	Metric tonne
<b>temporary closure</b>	Either a planned or unplanned closure which may occur at any time and is not considered to be final
<b>winter road</b>	The locally developed winter access connecting camps to other winter roads or drilling areas
<b>/d</b>	Per day
<b>/yr</b>	Per Year

# 1 INTRODUCTION

Kennedy Diamonds Inc. (KDI or the Company) is currently exploring for diamondiferous kimberlites in the Kennady North area, located in the Northwest Territories approximately 280 kilometers (km) east-northeast of Yellowknife, immediately adjacent to the Gahcho Kué Mine (Figure 1). KDI's interests in the Kennady North area consist of 99 mineral claims and 30 mineral leases totalling ~113,437 hectares (ha) of land (Figure 2). KDI is a wholly owned subsidiary of Mountain Province Diamonds Inc. (MPVD). MPVD holds a 49% interest in the Gahcho Kué Mine Joint Venture (GKJV) with De Beers Group, who holds 51% interest in the GKJV and is the operating partner.

The purpose of this Closure and Reclamation Plan (the Plan) is to outline what tasks will occur to secure the Project upon seasonal and temporary closure, and to outline how the Project will undergo final closure.

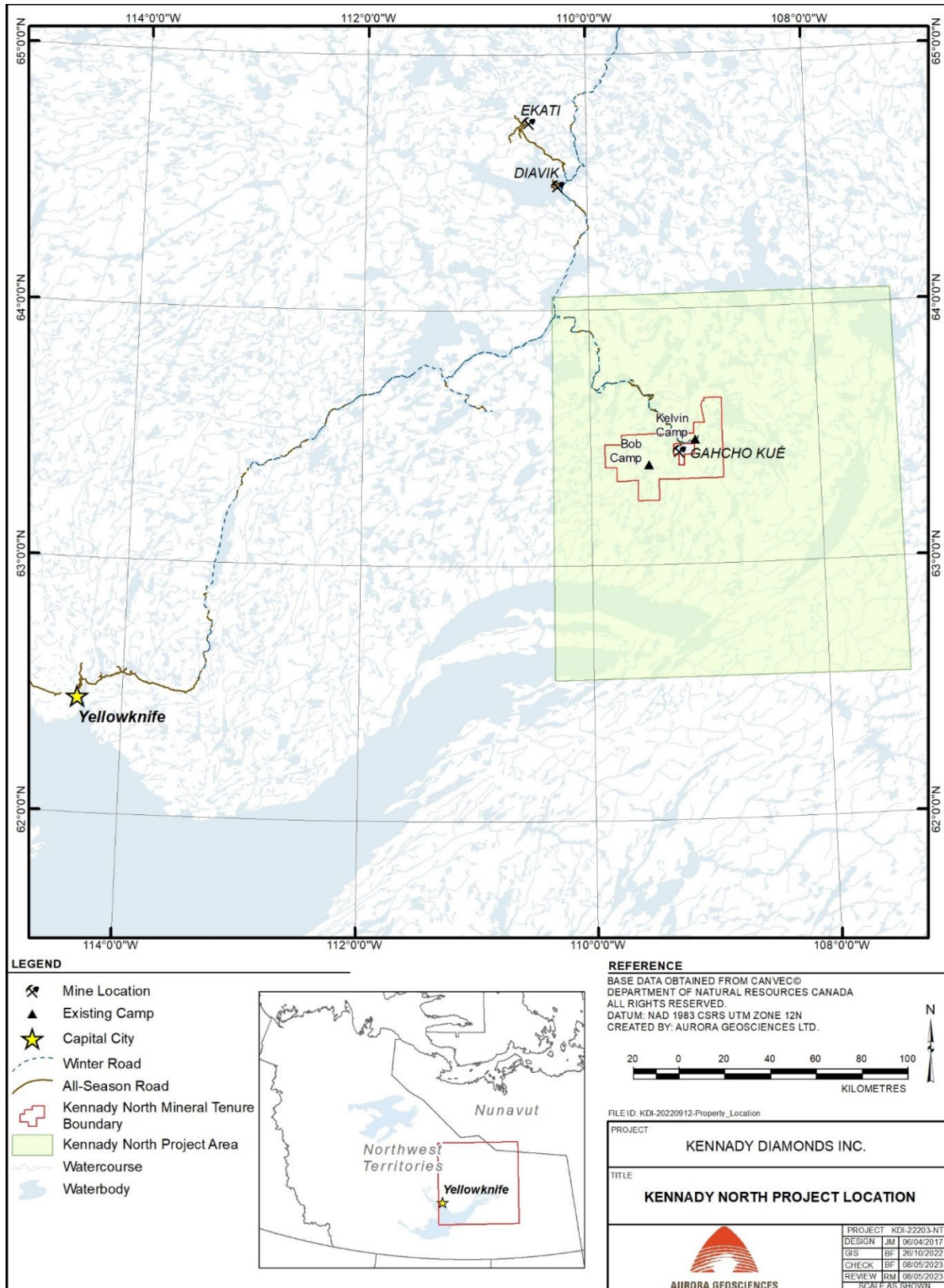
## 1.1 Project Description

The scope of the Kennady North Project (KNP) includes:

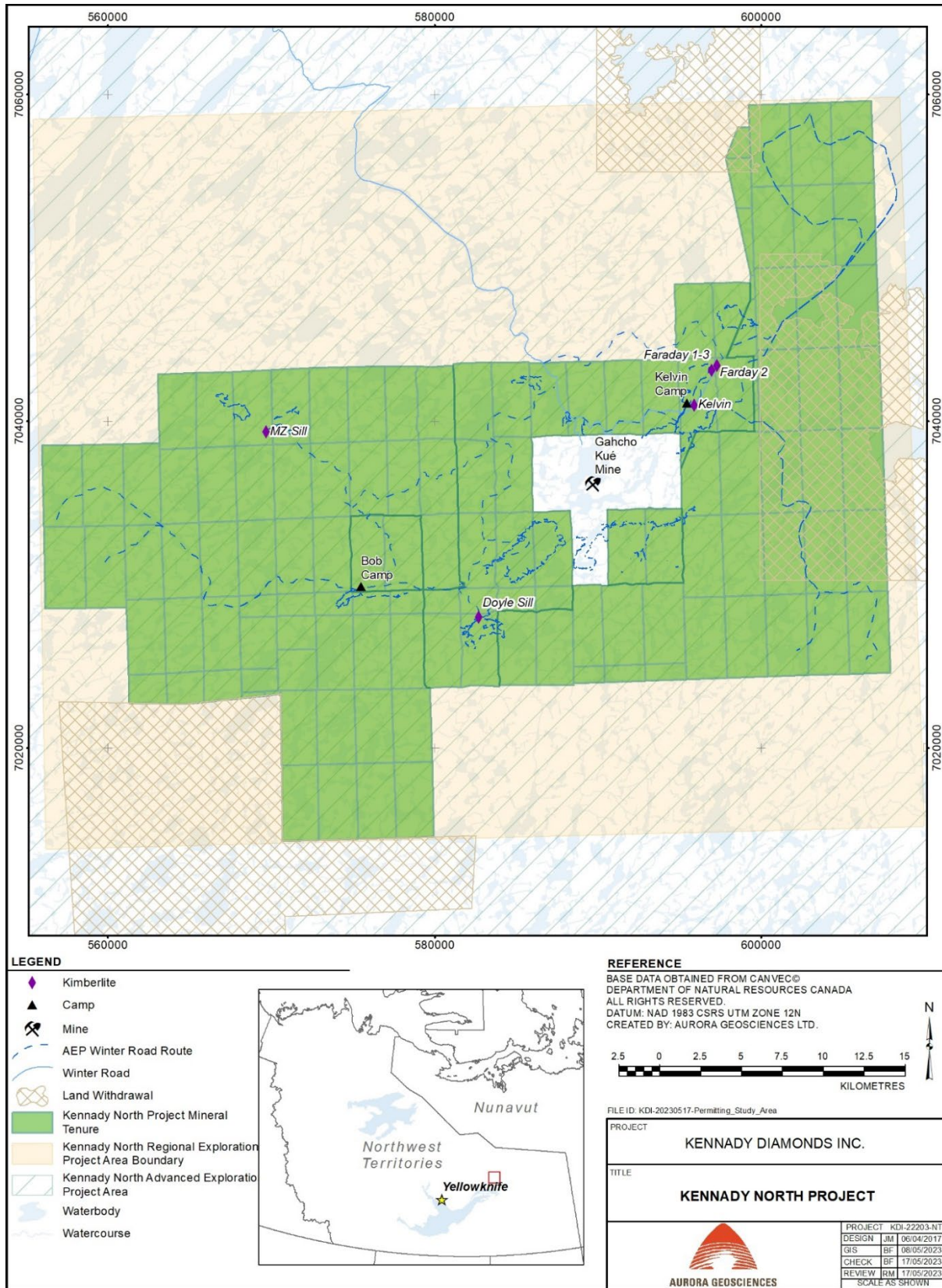
- Construction, operation, maintenance, and Reclamation of exploration camps; and
- Water withdrawal for camp use, drilling, winter road and pad Construction and maintenance, and dust suppression;
- Deposit of treated Sewage and Greywater;
- Mineral exploration including diamond drilling, large diameter diamond drilling, and trenching;
- Deposit of Drill and core Cuttings into Sumps;
- Deposit of Processed Kimberlite and Wastewater into a Sump; and
- Use and storage of explosives;
- Use of equipment, vehicles and machinery;
- Fuel storage and use;
- Quarrying;
- Construction, operation, maintenance, and Reclamation of a sewage treatment facility, quarrying, up to two Declines, all-season site roads, an all-season airstrip, multi-purpose laydown areas, and a Bulk Sample Process Plant.
- Management of Potentially Acid Generating Rock.
- Discharge from Secondary Containment into the Receiving Environment; and
- Progressive Reclamation and associated Closure and Reclamation activities.

### 1.1.1 Foundational Exploration

Currently, Kennady North Project exploration activities consist of conducting foundational exploration assessment work on claims and mineral leases held by the Company, including prospecting, bedrock and surficial mapping, geological, geophysical, and geochemical surveys, diamond drilling, small- and large- reverse circulation drilling, and trenching to delineate kimberlite targets and to help determine economic grade. Samples are sorted and sent off site for analysis or processing. At its maximum scope, foundational exploration drilling activities may consist of a combination of up to seven (7) drills of any type (i.e., five (5) diamond or small reverse circulation (RC) drills and two (2) large RC drills) in use at any one time.



**Figure 1: Kennedy North Project Location**



**Figure 2: Kennedy North Project**



Exploration activities are conducted from the existing Bob and/or Kelvin camps, which host approximately 50 to 150 people, typically operate up to 10 months of the year, and are accessible by air and seasonal ice road. Winter access occurs either by air from Yellowknife, Bob Camp, or Kelvin Camp, with drill mobilization and demobilization via the existing Tibbitt to Contwoyto Winter Road, the Gahcho Kué spur road, and spur roads to Bob and Kelvin camps. Additional winter trails, including ice bridges and roads, may be used to move heavy- and light-duty vehicles, equipment, and personnel around the Project site in the winter. Summer access occurs by fixed wing on floats or helicopter from Yellowknife to Bob or Kelvin camps.

A small number of remote fuel caches are in place to support drilling and helicopter activity, with fuel stored in drums or equivalent. Temporary, remote fuel caches may also be established in areas proximal to active drilling areas. Field sampling and drilling sites are progressively reclaimed.

### 1.1.2 Advanced Exploration

In September 2016, KDI submitted Land Use Permit and Water Licence applications to the Mackenzie Valley Land and Water Board (MVLWB) to obtain authorizations for advanced exploration activities, which focus on obtaining a larger bulk kimberlite sample that can be used to assess the economic value of the mineral reserve (see Kennady Diamonds - Advanced Exploration Project Description<sup>1</sup>). The Advanced Exploration activities that were additionally authorized in 2016 included the following:

- increase in extraction from 1,200 to 5,000 tonne (t)/year (yr) bulk sample;
- construction and operation of an underground decline to access the Kelvin and Faraday kimberlite deposits for bulk sampling;
- construction and operation of a multi-purpose laydown and camp area (approximately 5 ha);
- construction and operation of a pioneer all-season airstrip (approximately 1,650 metre (m) by 45 m) to accommodate larger aircraft for workers and resupply;
- construction and operation of limited all-season roads linking the winter road to the laydown, airstrip, declines, dock, and drilling locations at the Faraday and Kelvin deposits;
- construction and operation of a new 140-person mobile camp on the laydown area and consolidation of existing Kelvin Camp modules with this new camp (Kelvin Camp Expansion);
- quarrying and/or the use of cut and fill to obtain material for roads, laydown area and airstrip as necessary;
- increased use of explosives (including mixing and storage) for quarrying and construction of the decline;
- installation and operation of a portable Bulk Sample Processing Plant (< 100 t per day (/d)); and
- increase to the size and quantity of various types of equipment (e.g., trucks, loaders, underground equipment) as well as the amount of fuel storage allowed on site to accommodate the proposed activities.

Advanced exploration activities have not yet commenced but will be required to advance mine planning for known kimberlites in the coming years.

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<sup>1</sup> <https://registry.mvlwb.ca/Documents/MV2016C0030/MV2016C0030%20MV2013L2-0005%20-%20KDI%20-%20Project%20Description.pdf>

## 1.2 Purpose and Scope

This Plan addresses seasonal, temporary, and final Project closure as well as progressive reclamation, or all Project components.

Seasonal closure refers to planned annual Project closure and decommissioning of winter roads at the end of each season. Temporary closure refers to either a planned or unplanned closure which may occur at any time and is not considered to be final. Final closure refers to a planned decommissioning of the entire Project at the end of the final season. Progressive Reclamation refers to the reclamation or decommissioning, prior to permanent closure of specific Project components that are no longer needed.

## 1.3 Goals of Closure and Reclamation

The overall closure goal is to return any mineral exploration land use areas to viable, self-sustaining ecosystems compatible with a healthy environment and human activities. This will be done by following the four closure principles of leaving behind sites that are:

1. Physically stable;
2. Chemically inert;
3. Present zero long-term active care requirements; and
4. Are compatible with future land use activities (including aesthetics and values).

## 1.4 Regulatory Instruments and Guidance

This plan is intended to satisfy applicable components of the following:<sup>2</sup>

- Standard Outline for Management Plans (MVLWB 2021);
- LWB Guidelines for Closure and Reclamation Cost Estimates for Mines, draft (MVLWB 2021b);
- Guidelines for Closure and Reclamation Cost Estimates for Mines (Mackenzie Valley Land and Water Board, Indian and Northern Affairs Canada, Government of Northwest Territories 2017);
- Guidelines for Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (Mackenzie Valley Land and Water Board, Aboriginal Affairs and Northern Development Canada 2013);
- Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories (GNWT 1993);
- RECLAIM 7.0 Model for Estimating Reclamation Costs - User Manual: Mining Version (GNWT 2017a);
- RECLAIM 7.0 Spreadsheet – Mining (GNWT 2017b);
- Mine Site Reclamation Policy for the NWT (INAC 2007);
- Guidelines for Safe Ice Construction (GNWT 2015);
- *Mackenzie Valley Resource Management Act*;
- *Mackenzie Valley Land Use Regulations* (1998); and
- *Waters Act* and *Waters Regulations*.

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<sup>2</sup> Not an exhaustive list; other legislation and guidance may apply and be updated from time to time

Existing permits, authorizations and agreements consist of the following:

1. Type A Land Use Permit – Mackenzie Valley Land & Water Board MV2016C0030 and MV2022C0019.
2. Type B Water Licence – Mackenzie Valley Land & Water Board MV2013L2-0005 and MV2022L2-0007.
3. Exploration Agreements
4. Letter of Advice – Fisheries & Oceans Canada (DFO).

At the present time there are no other outstanding agreements. There are no surface leases for lands involved in the land use activities.

## 1.5 Related Documents

- Kennady North Project Engagement Plan
- Kennady North Project Rock Management Plan
- Kennady North Project Spill Contingency Plan
- Kennady North Project Waste Management Plan
- Kennady North Project Water Management Plan

## 1.6 Location

The Project is located approximately 280 km east-northeast of Yellowknife and is adjacent to the Gahcho Kué Mine (Figure 1). The site is accessed by ski- or float-equipped fixed-wing aircraft or helicopter either directly from Yellowknife or from KDI's Bob and Kelvin camps. Between January and April, the Project may be accessed via the seasonal Tibbitt to Contwoyto Winter Road, Gahcho Kué Mine spur road, and spur roads to Bob or Kelvin camps.

The nearest supply and logistics center is in Yellowknife.

## 1.7 Area Description

The Project occurs in the Taiga Shield Ecozone, within the Mackay Upland High Subarctic Ecozone (Ecosystem Classification Group 2008). This ecozone is characterized by level to gently rolling terrain with bedrock exposures common throughout. It is in the transition zone between forest and tundra with the Project area occurring just north of the tree line.

Vegetation in the ecozone is dominated by shrub tundra, which is characterized by a cover of dwarf birch, mountain cranberry, Labrador tea, red bearberry, crowberry, and lichens. Stunted black spruce grows in small clumps in sheltered locales and along lake shores. Small outwash terraces and eskers are common landforms throughout.

Large game wildlife in the region include barren-ground caribou, muskox, grizzly bear, and occasionally moose. Fur-bearing animals include hare, fox, wolf, wolverine, and arctic ground squirrel. Waterfowl and avian species in the region include migratory and upland breeding birds such as grouse, ptarmigan, passerine, shorebirds, raptor, falcon, hawk, eagle, owl, loon, crane, swan, duck, and goose. Fish resources in the area include Lake Trout, Cisco, Round Whitefish, Arctic grayling, Northern Pike, and Burbot.

## 1.8 Facilities Description

### 1.8.1 Current Foundational Exploration Activities

The Kennady North Project operates from two base camps—Bob Lake and Kelvin Lake (Figure 3) – which support exploration activities such as prospecting, glacial mapping, geophysical surveys, geochemical surveys, drilling to test and delineate kimberlite targets and trenching. Currently, the project site hosts approximately 50 to 150 people at each camp, operates 10 months of the year, and is accessible by air and seasonal ice road. Drill and infrastructure mobilization and demobilization occurs via the existing Tibbitt to Contwoyto Winter Road, the Gahcho Kué spur road, and spur roads to Bob or Kelvin camps.

The current camps each consist of plywood and fabric structures for sleeper tents, first-aid/refuge tent, kitchen, dry, core shack, and office. In addition, there are structures for the power generator, waterless toilets and general storage. A dock, fuel cache, drilling equipment yard and waste disposal area are also included. The total area in use is less than 2 ha per camp. The current camp layouts are shown in Figure 3 and aerial photos of the two camps are shown in Figure 4.

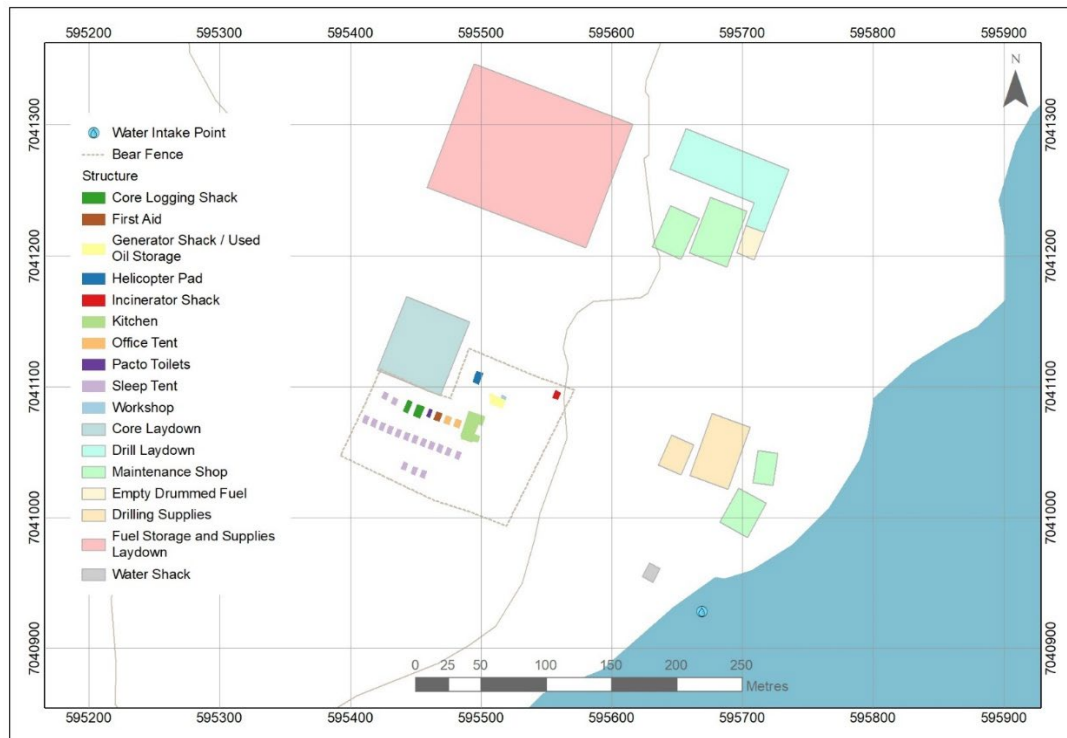
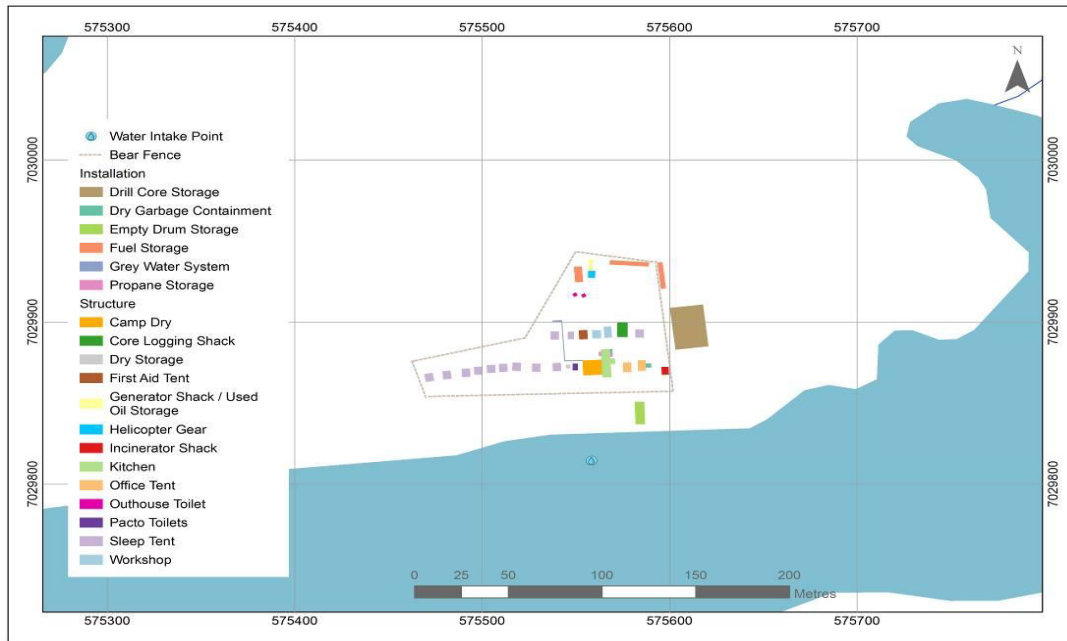
Drilling, the main project activity at site, consists of small diameter drilling (100 to 250 holes/yr) as well as large diameter drilling in the order of 1,200 tonnes/yr bulk samples. Drilling samples are sorted and sent offsite for analysis. The areas have several fuel caches in place to support the drilling and helicopter activity associated with normal exploration programs. Progressive restoration of field sampling and drilling sites is undertaken in parallel with the operation of the field program.

### 1.8.2 Future Advanced Exploration Works

Future Advanced Exploration work will be focused on obtaining a bulk kimberlite sample that can be used in part to assess the economic value of the mineral reserve. Bulk sampling may be undertaken at a rate of up to 5,000 t/yr. In addition to drilling from surface, KDI may also obtain a larger kimberlite sample by constructing an underground decline (i.e., excavating an underground tunnel for machine access) and processing the bulk samples on site using a portable bulk sample processing plant. Localized use of all-weather roads and airstrip, as well as a larger camp and laydown area may also be constructed to support the advanced exploration efforts near the Kelvin and Faraday kimberlites. Figure 5 provides a preliminary site layout for Advanced Exploration in the area of the Kelvin Camp; note that the layout of the Bob Camp will not be altered.

Approved but not yet undertaken Advanced Exploration works include:

- extraction of a 5,000 tonne/yr bulk sample;
- construction and operation of an underground decline to access the Kelvin and Faraday kimberlite deposits for bulk sampling;
- construction and operation of a multi-purpose laydown and camp area (approximately 5 ha);
- construction and operation of a pioneer all-season airstrip (approximately 1,650 m by 45 m) to accommodate larger aircraft for workers and resupply;
- construction and operation of limited all-season roads linking the winter road to the laydown, airstrip, declines, dock, other infrastructure locations, and bulk drilling locations at the Faraday and Kelvin deposits;
- construction and operation of a new 140-person mobile camp on the laydown area;
- quarrying and/or the use of cut and fill to obtain material for roads, laydown area and airstrip as necessary;



**Figure 3: Existing Bob (upper) and Kelvin (lower) Camp Infrastructure and Site Layouts**



**Figure 4:** Aerial photos of Bob Camp (upper picture) and Kelvin Camp (lower picture) (2015)

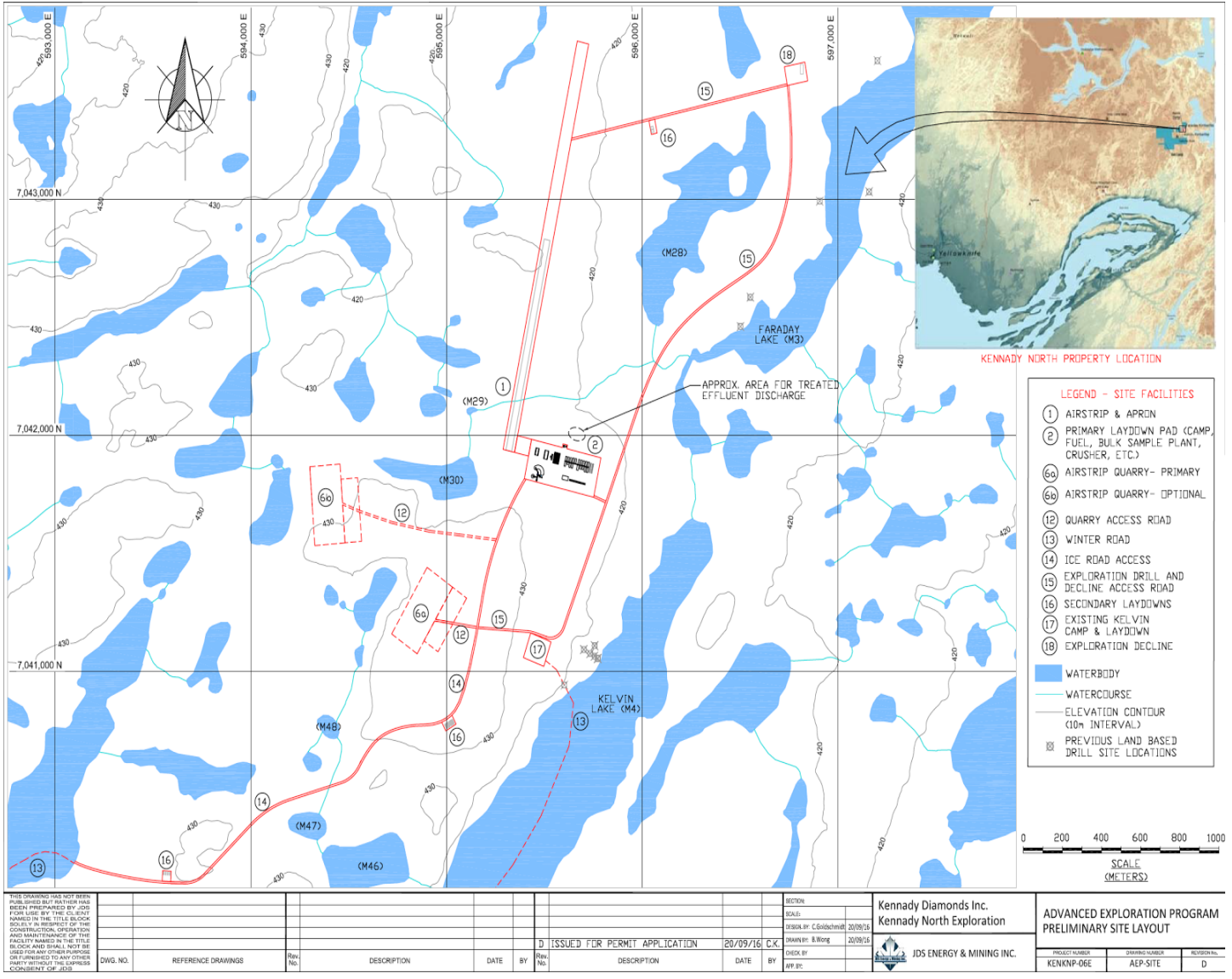


Figure 5: Approved Infrastructure and Site Layout for Advanced Exploration

- use of explosives (including mixing and storage) for quarrying and construction of the decline;
- installation and operation of a portable Bulk Sample Processing Plant (< 100 tonnes per day [/d]); and
- increases to the size and quantity of various types of equipment (e.g., trucks, loaders) as well as the amount of fuel storage allowed on site in order to accommodate the proposed activities.

## 1.9 Plan Management

The Plan is reviewed annually and updated as needed to ensure compliance with regulations, permits, and relevant legislation and to reflect changes in activities associated with the Project. Revisions are submitted to the MVLWB for approval. In the event that the scope of the Project changes in a significant way, KDI will re-evaluate the existing Plan, engage with relevant parties to discuss the changes, and revise the Plan as needed.

## 1.10 Plan Implementation

This Plan is effective upon approval and is valid throughout all phases of the Project. The Program Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained at the exploration camp from which activities associated with the Project are occurring in a given field season (i.e., Bob or Kelvin camp).

## 2 ROLES AND RESPONSIBILITIES

The AEP and REP are owned and operated by KDI. Aurora Geosciences Ltd. (AGL) has been contracted by KDI to manage and operate exploration activities since the beginning of exploration in the Kennedy North Project area. RainCoast Environmental Services Ltd. (RainCoast) has been contracted to by KDI to lead KDI's environmental, permitting, and engagement activities, including the development of this plan.

KDI is responsible for activities associated with its REP, including implementation and management of this Plan. KDI's contact information is as follows:

**Kennedy Diamonds Inc.**

161 Bay Street, Suite 2315

P.O. Box 216

Toronto, ON

M5J 2S1

Phone: 416-361-3562

**Contact: Matthew MacPhail**

Role: Chief Technical and Sustainability Officer

Email: [m.macphail@mountainprovince.com](mailto:m.macphail@mountainprovince.com)

AGL is KDI's exploration Program Manager. In some instances, KDI may delegate its authority for program components to AGL. AGL's contact information is as follows:

**Aurora Geosciences Ltd.**

3506 McDonald Drive

Yellowknife, NT

X1A 2H1

Phone: 867-920-2729



**Contact: Gary Vivian/Chris Hrkac**

Role: Program Manager

Email: [gary.vivian@aurorageosciences.com](mailto:gary.vivian@aurorageosciences.com) , [chris.hrkac@aurorageosciences.com](mailto:chris.hrkac@aurorageosciences.com)

RainCoast Environmental (RainCoast) is KDI's primary technical point of contact for environmental, permitting and engagement matters. RainCoast's contact information is as follows:

**RainCoast Environmental Services Ltd.**

221 Trincomali Heights

Salt Spring Island, BC

V8K 1M9

Phone:250-538-2306

**Contact: Katsky Venter**

Role: Environmental Consultant

Email: [Katsky.venter@gmail.com](mailto:Katsky.venter@gmail.com)

Manager and Supervisor and Program Manager roles, as outlined below, will be assigned by AGL prior to the commencement of activities associated with the REP.

## 2.1 Staff, Contractors, Suppliers and Visitors

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Taking all necessary steps to minimize negative effects to water, land, and air in accordance with existing, MVLWB-approved Management Plans;
- Cooperating fully with supervisors and/or KDI management to implement effective environmental protection programs;
- Only carrying out duties and tasks for which an appropriate level of training has been provided;
- Where there is uncertainty, asking questions and bringing concerns to the attention of Managers or Supervisors when working with products or conducting tasks that may pose potential environmental risks; and
- Reporting spills and emergency situations in accordance with relevant management plans.

## 2.2 Managers and Supervisors

Managers and Supervisors have a responsibility to ensure that staff, contractors, consultants, and visitors have been trained in KDI closure and reclamation expectations and procedures, where relevant. Additional Manager and Supervisor responsibilities include the following:

- Maintaining a no blame work environment in implementing mitigation measures and follow-up actions;
- Ensuring site-, task-, and material-specific training is provided to all departments and staff;
- Ensuring there are appropriate and sufficient supplies on site to support implementing mitigation measures and follow-up actions;
- Providing assistance in response to environmental hazards;
- Ensuring that facility inspections are routinely conducted;
- Maintaining records of inspections, personnel training, equipment testing, maintenance, and decommissioning;

- Ensuring compliance reporting is undertaken in a timely manner; and
- Engaging with relevant parties in a timely and transparent manner, where appropriate.

## 2.3 Program Manager

In addition to the responsibilities listed above, the Program Manager or designate has the following additional responsibilities:

- Overseeing waste handling, transport, sampling, and management;
- Ensuring drill site inspections are conducted following each drill move and that all corrective actions are completed prior to completion of drilling at the next site during exploration;
- Day-to-day oversight of all related reclamation efforts; and
- Coordinating with other managers and supervisors to ensure safe and appropriate allocation of resources on site.

## 3 SEASONAL AND TEMPORARY CLOSURE

The goal for seasonal and temporary closure is ensure the site is secure and that there is no potential for environmental or safety hazards. The objectives will be the consolidation of equipment at camp, proper storage of fuel, shutdown of drill sites and camps, and the cleanup/removal of any potential wildlife attractants.

Seasonal and temporary closure may occur for different reasons; however, related closure activities are the same. Typical activities associated with seasonal and temporary closure of each Project component are outlined below.

### 3.1 Seasonal and Temporary Closure Activities

**Site Access** – Inasmuch as fabric structures can be secured, those in camp will be shut for the temporary closure. There are no facilities or systems in place that require a care-taking crew.

**Guard or Block All Openings** – The trench works at the Doyle Sill are barred by a chain link fence. The decline (if started) will be barricaded.

**Treatment and Monitoring** – The exploration program is at the earliest advanced stage (bulk sample acquisition). Depending on the length of the temporary closure, inspections will be done of constructed roads and pads to check for erosion.

**Secure Waste Management Systems** – All waste is currently incinerated, burned or removed from site to Yellowknife for proper disposal into an appropriate waste stream. All waste containers on site are wildlife proof and will be cleaned to eliminate attractants. Grey water sumps will be covered to prevent wildlife attraction or access. All waste management facilities will be mechanically secured.

**Conduct Inventory** – During temporary closure of camp, all equipment is moved to the site for storage. All materials remaining in camp will be inventoried and photos acquired. All materials remaining in fuel caches will be inventoried.

**Record Fluid Levels** – The current fuel storage is in caches of 205 L (45 gallon) steel drums or bulk tanks or, in the case of liquefied propane gas (LPG), in 45 kilograms (100 pounds). The primary fuel tank levels will be taken to confirm the quantity of fuel on site prior to mechanically securing the access points and valves.

**Store Hazardous Waste** – All hazardous waste will be removed from camp and shipped to Yellowknife for proper disposal on an ongoing basis during operations and prior to temporary closure. Disposal is contracted out to KBL Environmental Ltd. of Yellowknife.

**Relocate Explosives** – Explosives will be removed from site and/or stored in locked magazines. Ammonium nitrate (AN) bags will be stored inside a seacan or other structure to keep weather and the sun off the bags preserving their integrity.

**Facilities Inspection** – The only facilities consist of fuel caches and seasonal camp sites. These are inspected at seasonal or temporary closure and again when reopened.

**Security Deposit** – The security deposit is for the current Land Use Permit under which only mineral exploration is being conducted.

### 3.2 Monitoring, Maintenance and Reporting

Requirements for monitoring and maintenance will depend on the specific circumstances of the temporary closure. Temporary closure of the seasonal operations at Kelvin and Bob Camp for example will not require monitoring or maintenance. If temporary closure of the New Kelvin Camp area is required, KDI will provide a plan, with rationale, for monitoring, maintenance and reporting.

### 3.3 Temporary Closure Contingency Program

Requirements for a contingency program will depend on the specific circumstances of the temporary closure as well as the amount and types of Advanced Exploration infrastructure on site at the time of the temporary closure. If temporary closure of the site is required, KDI will provide a plan, with rationale, for a contingency program.

### 3.4 Temporary Closure Schedule

Seasonal suspension of mineral exploration activities typically occurs in late October. The sequence of events for temporary or seasonal closure of Bob or the current Kelvin Camp are:

- Cease exploration survey and drilling operations.
- Transfer all equipment to base camp laydown area.
- Wrap fittings and install drip trays and spill pads under all stored equipment.
- Secure any potentially hazardous materials and ship offsite.
- Secure all fuel caches.
- Drain water lines and tanks. Coil and store water lines in camp.
- Store waste in appropriate containers for removal and disposal offsite.
- Clean Kitchen and Dry, including all grease traps and empty waste containers.
- Close and secure camp structures.

If temporary closure of the New Kelvin Camp (once constructed) becomes necessary, KDI will provide a schedule of temporary closure activities to the MVLWB prior to initiating the closure. This Plan may also be updated at that time.

## 4 FINAL CLOSURE

### 4.1 Definition of Closure and Reclamation

Permanent closure is the final closure of a site with no foreseeable intent by the existing proponent to return to either active exploration or to proceed to mining. Permanent closure indicates that the proponent intends to have no activity on the site aside from post-closure monitoring and potential contingency actions. Permanent closure does not preclude renewed interest at the existing site or in the area at a time beyond the foreseeable future.

The overall closure goal is to return any mineral exploration land use areas to viable, self-sustaining ecosystems compatible with a healthy environment and human activities. This will be done by following the four closure principles of leaving behind sites that are:

5. Physically stable;
6. Chemically inert;
7. Present zero long-term active care requirements; and
8. Are compatible with future land use activities (including aesthetics and values).

KDI makes the following commitments in line with the closure and reclamation goals:

1. Minimize, to the extent practical, all areas disturbed by mineral exploration activities.
2. Recover disturbed soil where feasible for use in reclamation activities.
3. Seek opportunities for the early reclamation of exploration sites.
4. Engage Indigenous organizations on CRP goals and outcomes.
5. Maintain active liaison with other mineral exploration projects to gain knowledge and experience for understanding challenges and successes related to reclamation activities.

### 4.2 Permanent Closure and Reclamation Requirements

The KNP has six components that have been identified as requiring permanent closure and reclamation plans:

- Surface development works (roads, pads and airstrip);
- Camp (buildings and stationary equipment);
- Drills;
- Mobile Equipment;
- Underground decline;
- Bulk Processing Plant;
- Quarry;
- Explosives storage;
- Fuel storage areas;

#### 4.2.1 Surface Development Works

Upon completion of the fully executed KNP (including advanced exploration works), remaining surface development will consist of all-weather exploration site roads, an all-weather airstrip approximately 1,650 m in length, and laydown pads. Figure 5 displays the proposed site layout.

The site roads and airstrip will be inspected for potential hydrocarbon contamination and sampled if necessary. Any contaminated soil will be bagged and disposed of in an approved facility. If needed, the site roads and airstrip would then be recontoured to be more consistent with surrounding landforms and scarified with two-pass ripping. Any fixed equipment associated with the airstrip, such as approach lighting, will be decommissioned and shipped offsite.

#### 4.2.2 Underground Decline

Upon completion of the KNP, all services (ventilation air, compressed air, electrical, supply water) will be removed. Wastes will be backhauled for sale, reuse, recycling or disposal.

The entrance of the decline will be barricaded or sealed with rock in sufficient quantity to prevent any wildlife or human access.

Prior to closing the decline entrance, and as aligned with the Rock Management Plan, any potentially acid generating (PAG) materials not already mitigated elsewhere will be backhauled underground. Also see quarry section below.

#### 4.2.3 Quarry

Advanced Exploration works will require quarrying and explosives use to obtain aggregate material for the surface development (roads, laydown area, pads and airstrip).

As described in the Rock Management Plan, two potential quarry locations have been identified; these are labelled as 6a and 6b in Figure 5. Rock from either quarry location has a negligible potential for metal leaching or acid rock drainage; further information can be found in KDI's Rock Management Plan. The Project plans to develop only one quarry but a second location was identified in case unexpected conditions are encountered in the primary quarry that would make it difficult to extract a sufficient amount of suitable materials for site development.

The quarry will be designed to allow extraction of approximately 400,000 banked cubic meters<sup>3</sup> (bcm) of material for surface development. Preliminary geotechnical investigations indicate that the quarry will be excavated into primarily bedrock and will not be excavated below permafrost conditions.

The floor of the quarry will be sloped (approximately 1% grade) to direct water to a collection area or sump for any waters that may enter the quarry area. Should a portable bulk sample processing plant be installed and operated, the quarry sump will be enlarged to have an estimated capacity of 25,000 cubic metres (m<sup>3</sup>).

Quarry closure would first involve the removal of all mobile and stationary equipment. Sump water will be tested and treated to remove residual hydrocarbons if necessary. Any pumps and other equipment will then be removed off-site.

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<sup>3</sup> Banked cubic metre: a cubic metre of rock or material in situ before it is drilled and blasted.

Oversize and overburden piles generated and stored near the quarry from quarrying activities will be contoured to better suit the surrounding landscape if necessary. Oversize materials may be placed inside the quarry if suitable space is available to accommodate. Depending on the stage of quarry development at closure, wildlife deterrents, such as the creation of berm around the quarry perimeter in high slope locations, or the sloping of quarry walls, will be investigated.

Quarry extraction will be performed with periodic geotechnical guidance and will be developed to ensure stability and safety. Therefore at closure, the quarry will be stable.

As well, implementation of the Rock Management Plan will ensure that any PAG material will be minimal. Should PAG materials be exhumed from any surface or underground decline development activities, these may be stored in the quarry during operations or on an aggregate pad on surface by the decline. Upon closure of the quarry, there are three potential options for the PAG material:

- Backhauling the PAG materials to the decline prior to decline closure.
- Placing the PAG material either in the quarry perimeter or in deeper fill sites on surface and then covering it with sufficient non-acid generating rock to mitigate the potential for contact with runoff water.
- Placing the PAG material in the deeper portion of the quarry and covering it with water to avoid contact with air.

The quarry area will then be allowed to fill naturally by precipitation to create a pond not connected to any adjacent water bodies.

#### **4.2.3.1 Quarry Sump for Processed Kimberlite**

If the bulk sample processing plant was utilized prior to closure, the quarry sump will contain processed kimberlite (PK) and water used in the bulk sample processing plant (process water). The PK is expected to be inert, however, confirmatory testing is currently being conducted. During operations, both PK and process water will be sampled and subjected to geochemical and water quality analysis, respectively; this data will be used to guide the final closure plan. Post closure monitoring will also be conducted to verify water in the reclaimed quarry is clean and suitable for closure if PAG material has been left in the Quarry on closure.

#### **4.2.4 Explosives Storage**

Ammonium nitrate (AN) will be stored on site during Advanced Exploration activities to be combined as needed with diesel fuel to form Ammonium Nitrate Fuel Oil (ANFO). AN will be stored in seacans or other structures to prevent exposure and in alignment with applicable storage guidelines. ANFO, as well as pre-packaged explosives, will also be stored on site within portable magazine storage units as per applicable regulations.

During closure, any remaining inventory of AN will be shipped offsite for return to the supplier or transferred to another licensed user. Any explosives remaining will be removed offsite by qualified contractors and handled only by certified employees in compliance with the federal Explosives Act and the Northwest Territories (NWT) Mine Health and Safety Act and Regulations or will be disposed of as recommended by the manufacturer, usually by detonation. The portable magazine storage units will be decommissioned, cleaned and shipped offsite.

#### **4.2.5 Buildings and Equipment**

Buildings that will be decommissioned for this project include (see Figure 5 for layout of buildings):

- Existing Kelvin Camp: Tents and other infrastructure;
- New Kelvin Camp: Modular camp units;
- Bob Camp: Tents and other infrastructure;
- Sewage treatment plant;
- Incinerators;
- Maintenance shop; and
- Portable bulk sample processing plant.

The New Kelvin Camp will consist of single-story, soft-wall dormitory, kitchen, office and washing facilities attached to a central core by means of ground level heated and insulated soft wall utilidors. The entire complex will be supported on cribbing placed on a laydown pad. These camps are intended for semi-permanent installations and can be reused or relocated as required.

For camp reclamation, all structures will be emptied, inspected for hazardous materials, and dismantled for sale or disposal off-site. Camp components and materials that are authorized to be burned may be burned on site.

The Sewage Treatment Plant will be a modular unit. At closure, it will be shut down and decommissioned according to manufacturer's recommendations and shipped offsite.

The incinerators are portable units capable of relocation and will be shipped offsite.

At closure, the maintenance shop will be decommissioned and the soils under the shop will be reviewed and sampled for hydrocarbon contamination. If required, the contaminated soils will be bagged and shipped offsite for treatment or disposal of hydrocarbon contaminated waste. The building will be disassembled and shipped offsite.

The bulk sample processing plant is designed as portable skid-mounted units that are conducive to redeployment at other locations. These modules will be disconnected and then shipped offsite for sale.

All disposals will occur in accordance with approved disposal options at facilities within or outside the NWT that are authorized to deal with particular waste streams and hazardous materials.

All mobile or fixed equipment will be removed from site. Salvageable equipment and materials will be removed for sale or reuse at other projects. Any equipment required for the closure and reclamation activities will remain on site until all activities requiring their use are completed.

#### **4.2.6 Fuel and Chemical Storage**

The fuel storage facility at New Kelvin Camp will be located on an aggregate pad near the power generation station. The fuel storage tanks will be compliant with Environment and Climate Change Canada's (ECCC) Petroleum and Allied Petroleum Products Storage Tanks Regulations and consist of:

- Prefabricated single wall tanks;
- Enviro tanks or double walled tanks;
- 1,000 litre (L) lubricant cubes; and
- Semi-permanent lined areas capable of containing 110% of the largest fuel tank.

Fuel at the existing Kelvin and Bob camps, helipads and airstrips will be stored in sealed drums or bulk fuel storage containers. All containers will be clearly marked with labels indicating their contents.

Waste oil will be collected and contained in 1,000 L lube cubes or 205 L drums, labeled, and stored at a lined area for backhaul.

Chemicals used onsite will include materials such as bleach, lubricants and degreasers. All of these products will be stored in a separate storage area, while items such as household cleaners and chlorine bleach will be stored in the kitchen, latrines and laundry facilities.

At permanent closure, an inventory will be conducted to assess the quantity and type of fuel remaining onsite. All remaining fuel will be removed offsite via winter road backhaul. Containment berms and liner materials will be removed and the areas re-contoured to resemble surrounding terrain, if necessary. Ground in the vicinity of the fuel storage areas will be sampled for any hydrocarbon contamination, with any contaminated soil bagged and backhauled.

Waste oil will be tested to meet the Used Oil and Waste Fuel Management regulations and if possible, disposed of by heat-recovery incineration using on-site equipment that is of acceptable performance and commonly in service in the NWT. If off-site disposal is selected, waste oil will be transferred to Yellowknife for disposal at an approved location.

The remaining unused inventory of chemicals will be transported off-site, recycled or sold to another camp or returned to the supplier. Any additional chemicals remaining will be removed offsite and disposed of according to the Waste Management Plan.

#### **4.2.7 Waste Disposal Sites**

All combustible waste, including kitchen waste and sewage treatment plant solids will be incinerated on site. The incinerator facilities consist of two dual-chambered, diesel-fired units capable of burning waste oil. Incinerator ash will be collected in sealed containers, and transported off-site for disposal.

All non-hazardous wastes and industrial wastes which require manifested transportation under the NWT Transportation of Dangerous Goods Regulations (TDGR) will be securely packaged and backhauled. Upon permanent closure of the site, all remaining combustible waste will be incinerated. The incinerator will remain on site for the duration of closure activities before being dismantled and removed off-site and recycled or sold to another site. Oversized combustible materials will be burned in the burn bin or a designated area.

All remaining non-combustible and hazardous wastes will be removed from site and disposed of at a suitable facility.

The project will not operate a landfill.

#### **4.2.8 Unsuitable Aggregate and Overburden Piles**

Organic soil layers, collected during quarrying and cut to fill activities, may be used and distributed on scarified and reclaimed areas to enhance natural revegetation.

Aggregate materials (including large oversize boulders, clay) will otherwise be contoured to better match grades of surrounding areas. Where applicable and feasible, materials may be hauled and placed in the quarry.



The exposed Doyle Sill bulk sample site will be reclaimed by moving in a portable excavator to backfill the bulk sample site.

#### 4.2.9 Water Management Systems

Water pumps, coil stoves and mud recovery units used to support diamond drilling as well as storage tanks and water lines for domestic water use in camp will be drained and completely removed from site.

## 5 PROGRESSIVE RECLAMATION

### 5.1 Definition of Progressive Reclamation

*“Progressive reclamation takes place prior to permanent closure to reclaim components and/or decommission facilities that no longer serve a purpose. These activities can be completed during operations with the available resources to reduce future reclamation costs, minimize the duration of environmental exposure, and enhance environmental protection. Progressive reclamation may shorten the time for achieving closure objectives and may provide valuable experience on the effectiveness of certain measures that might be implemented during permanent closure.”<sup>4</sup>*

### 5.2 Opportunities for Progressive Reclamation

At the current stage of activity, progressive reclamation will consist of closing any land-based drill sites and cuttings sumps as they are completed. It will also require timely removal and disposal of any fuel or hazardous materials spills at camp, drill sites or fuel caches.

The trench works at the Doyle Sill site will be reclaimed during the life of this project by moving in a portable excavator for reclamation. The equipment will then be removed in the same manner. Once the trench is backfilled the chain link fence will be removed and natural revegetation encouraged.

Short-term objectives include:

1. Reclamation of any disturbed areas as soon as they are no longer required.
2. Minimizing any erosion and sediment loss effects from on-site runoff.
3. Maintaining safe working conditions at all reclamation sites.
4. Removing and disposing of any infrastructure and material when no longer required to meet project objectives.
5. Removing or land farming (contingent on Inspector approval) any potentially contaminated soil materials.
6. Maintaining an environmentally safe work site.

### 5.3 Completed Progressive Reclamation

Exploration activity at Kennady North is still in its earliest stages. Progressive reclamation is underway for all land based drilling sites. Plans are in place for the remediation of the Doyle Sill trench works (Figure 6).

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[http://mvlwb.com/sites/default/files/documents/wg/WLWB\\_5363\\_Guidelines\\_Closure\\_Reclamation\\_WR.pdf](http://mvlwb.com/sites/default/files/documents/wg/WLWB_5363_Guidelines_Closure_Reclamation_WR.pdf)  
[http://mvlwb.com/sites/default/files/documents/wg/WLWB\\_5363\\_Guidelines\\_Closure\\_Reclamation\\_WR.pdf](http://mvlwb.com/sites/default/files/documents/wg/WLWB_5363_Guidelines_Closure_Reclamation_WR.pdf)



Figure 6: Photograph of the Doyle Sill trench

## 6 POST CLOSURE

Post closure site assessment of the fully executed Advanced Exploration development will depend on the final closure options chosen for the site, which are in turn dependent on the development that was undertaken. For example, monitoring requirements for the water in the quarry sump after closure will depend on the whether the quarry is used to store processed kimberlite and process water and the measured quality of those materials. Post closure inspections of foundational exploration activities at Kelvin and Bob Camp for example will not require monitoring or maintenance. If final closure of the New Kelvin Camp area and advanced exploration activities is required, KDI will provide a plan update outlining post closure activities for advanced exploration works including the monitoring necessary to ensure that closure goals have been met. It is noted that per Part I, Item 2 of MV2013L2-0005, requires an Interim Closure and Reclamation Plan be submitted 90 days prior to construction of the AEP decline and Part I, Item 4 additionally requires the submission of a Final Closure and Reclamation Plan 12 months prior to closure.

## 7 REPORTING AND DOCUMENTATION

Annual reporting occurs in accordance with Water Licence and Land Use Permit terms and conditions. Temporary and final closure efforts are photo-documented and an inventory is maintained.

## 8 SECURITY

Staged security has been established for the AEP under MV2016C0030 and MV2013L2-0005. As the KNP is retaining the same scope, activities, facilities, equipment and fuel as the approved AEP, it is proposed that these amounts simply be

adjusted for inflation at this time. KDI has discussed, and received support for, this approach with the Government of Northwest Territories and security update details are provided in the Land Use Permit and Water Licence Application Forms.

## 9 REFERENCES

*Mackenzie Valley Land Use Regulations (SOR/98-429)*

*Mackenzie Valley Resource Management Act (S.C. 1998, c. 25)*

*Waters Act. S.N.W.T. 2015,c.3*

*Waters Regulations. R-019-2014*

Department of Fisheries and Oceans Canada (DFO). 2020. Interim code of practice: temporary stream crossings. Available at <https://www.dfo-mpo.gc.ca/pnw-ppe/codes/temporary-crossings-traversees-temporaires-eng.html>

ECG (Ecosystem Classification Group). 2008. Ecological regions of the Northwest Territories - Taiga Shield. Yellowknife NT: Department of Environment and Natural Resources, Government of the Northwest Territories; [accessed October 2022]. [https://www.enr.gov.nt.ca/sites/enr/files/wkss\\_taiga\\_shield-2008.pdf](https://www.enr.gov.nt.ca/sites/enr/files/wkss_taiga_shield-2008.pdf).

GNWT. 2017a. RECLAIM 7.0 Model for Estimating Reclamation Costs - User Manual: Mining Version.

GNWT. 2017b. RECLAIM 7.0 Spreadsheet, Mining.

GNWT. 2015. Guidelines for Safe Ice Construction.

GNWT. 1993. Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories.

Indian and Northern Affairs Canada (INAC). 2007. Mine Site Reclamation Policy for the NWT

Land and Water Boards of the Mackenzie Valley (LWB). 2021a. Standard Outline for Management Plans.

LWB. 2021b. LWB Guidelines for Closure and Reclamation Cost Estimates for Mine. Draft, June 22, 2021.

Mackenzie Valley Land and Water Board (MVLWB), Aboriginal Affairs and Northern Development Canada. 2013. Guidelines for Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories

MVLWB, Indian and Northern Affairs Canada, Government of Northwest Territories. 2017. Guidelines for Closure and Reclamation Cost