

*Prepared for:*



**CANADIAN NORTH**  
Resources and Development Corp.  
加拿大北方資源開發有限公司

## FERGUSON LAKE PROJECT **Abandonment and Restoration Plan, 2015**

March 2015

**Canadian North Resources and Development Corporation**

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**ERM**

ERM Building, 15th Floor  
1111 West Hastings Street  
Vancouver, BC  
Canada V6E 2J3  
T: (604) 689-9460  
F: (604) 687-4277

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# FERGUSON LAKE PROJECT

## Abandonment and Restoration Plan, 2015

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# **1. PROJECT DESCRIPTION**

Canadian North Resources and Development Corporation's Ferguson Lake Project covers portions of NTS map sheets 65I/13, 14, and 15. The project is currently under care and maintenance with plans for geological mapping, prospecting, and some localized environmental sampling scheduled for the upcoming 2015 summer season. The program is presently permitted under Land Use Licenses: KVCA08Q17, KVRW06F09, KVCL305H27, Water License 2BE-FER1318 and Winter Road N2013X0023.

## **1.1 PURPOSE OF REPORT**

The purpose of this report is to provide an Abandonment and Restoration Plan for Canadian North Resources and Development Corporation's project activities as required under Part I, items 1 through to 13 of the Water Licence.

## **1.2 CAMP SITES**

In the spring/summer of 2006, the proponent began an expansion of its camp site. The proponent abandoned the "old" camp at Ferguson Lake Lodge on Ferguson Island in 2007 and all equipment and buildings were moved from the old camp to the new camp in 2008. The "new" camp site and core storage area are situated on a low ridge at an elevation between 120 and 130 m on a point on the southwest shore of Ferguson Lake centered approximately at Latitude 62° 53' 36.1" W, Longitude 96° 54' 18.7" N, and is located on Map Sheet NTS 65I/15. It is a level area of low bedrock outcrops and sand and gravel. The nearest waterbody is a small pond about 500 m south of the camp site. This pond drains to another pond and eventually south to Ferguson Lake.

## **1.3 AIRSTRIP**

Presently, Canadian North Resources and Development Corporation is using the new airstrip built near the camp to access the site by air. The old landing strip was abandoned in 2008 after the new landing strip was completed.

The airstrip is located approximately 200 m SW of the camp. The airstrip is designed to accommodate Twin Otter, Dash 8, and DHC-5 Buffalo sized aircraft, adequate to support future exploration work. It measures approximately 800 m x 25 m. There is also an aircraft apron to accommodate maintenance equipment storage.

## 2. REGULAR MAINTENANCE AND TEMPORARY CLOSURE

The camp is presently under short term temporary closure and the program is currently under care and maintenance, but the camp will be open for a short period of time during the summer to support site maintenance, localized environmental sampling, and any helicopter supported geological mapping, prospecting, required. The program, although currently on hold, is under review with the possibility of re-opening for longer periods in order to re-start diamond drilling supported exploration. The following section details maintenance programs that are completed on a continuing basis throughout the land use operation, seasonal closures, and temporary shutdowns.

### 2.1 CAMP

The new camp is maintained in a tidy orderly fashion. All staff upon arriving at the camp are trained in camp rules such as the Spill Contingency Plan, camp operations, how each type of waste is dealt with (incineration, storage until removal is applicable, etc.).

In the case of short term temporary shutdown (less than a year), all portable skid-mounted structures (survival shacks, generator shacks, etc.) will be stored in the camp area and other items will be stored in the sheds and locked up. All supplies and equipment of significance to exploration activities will be securely stored in SeaCans. The camp will be left free of any wastes or debris. If the temporary shutdown is determined to occur over a pre-determined extended time-frame, some equipment will be backhauled to Rankin Inlet and stored at M&T Enterprises.

Tables 2-1 and 2-2 show the building and equipment inventory to be left on site in a temporary closure.

**Table 2-1. Buildings to be Left On Site in a Temporary Closure**

Buildings	Size (feet)	Amount
Portable camp unit	52 x 78	1
Portable generator shed	8 x 8	6
Generator room	20 x 30	1
Electrical storage	20 x 24	2
Sea cans	8 x 20	3
Sea cans	8 x 44	2
Switch room	8 x 8	1
Heli shack	16 x 20	1
Weatherhaven	14 x 16	10
Truck shop	40 x 64	1
Weatherhaven	20 x 30	1
Carpenter shack	20 x 30	1
Lean-to	8 x 30	1
Storage shed	16 x 30	1
Storage shed	14 x 16	1
Storage shed	20 x 24	1
Wooden structures	16 x 32	4

**Table 2-2. Equipment to be Left on Site in a Short Term Temporary Closure**

Equipment Type	Number	Size
Caterpillar Dump Truck	2	
Caterpillar Dozer	1	D4 LGP
Cedar Rapid Crushing Plant	1	555
Grader	1	140G
Loader	1	955F
Caterpillar Excavator	1	320BL
Honda 4 x 4 Quads	4	
Caterpillar Loader	1	287BL
Caterpillar (ADV)		
Bombardier Snowcat	1	BR 160
Bombardier Snowcoach	1	
Skidoos	15	Various
GMC Crew Cab with Trax	2	1 tonne

## 2.2 FUEL STORAGE

All fuel storage and handling is guided by the procedures set out in the Spill and Contingency Plan for the Canadian North Resources and Development Corporation Ferguson Lake Project. Fuel and chemical quantities left on site are provided in Table 2-3. Location of fuel and chemical storage areas are presented in Figure 2-1.

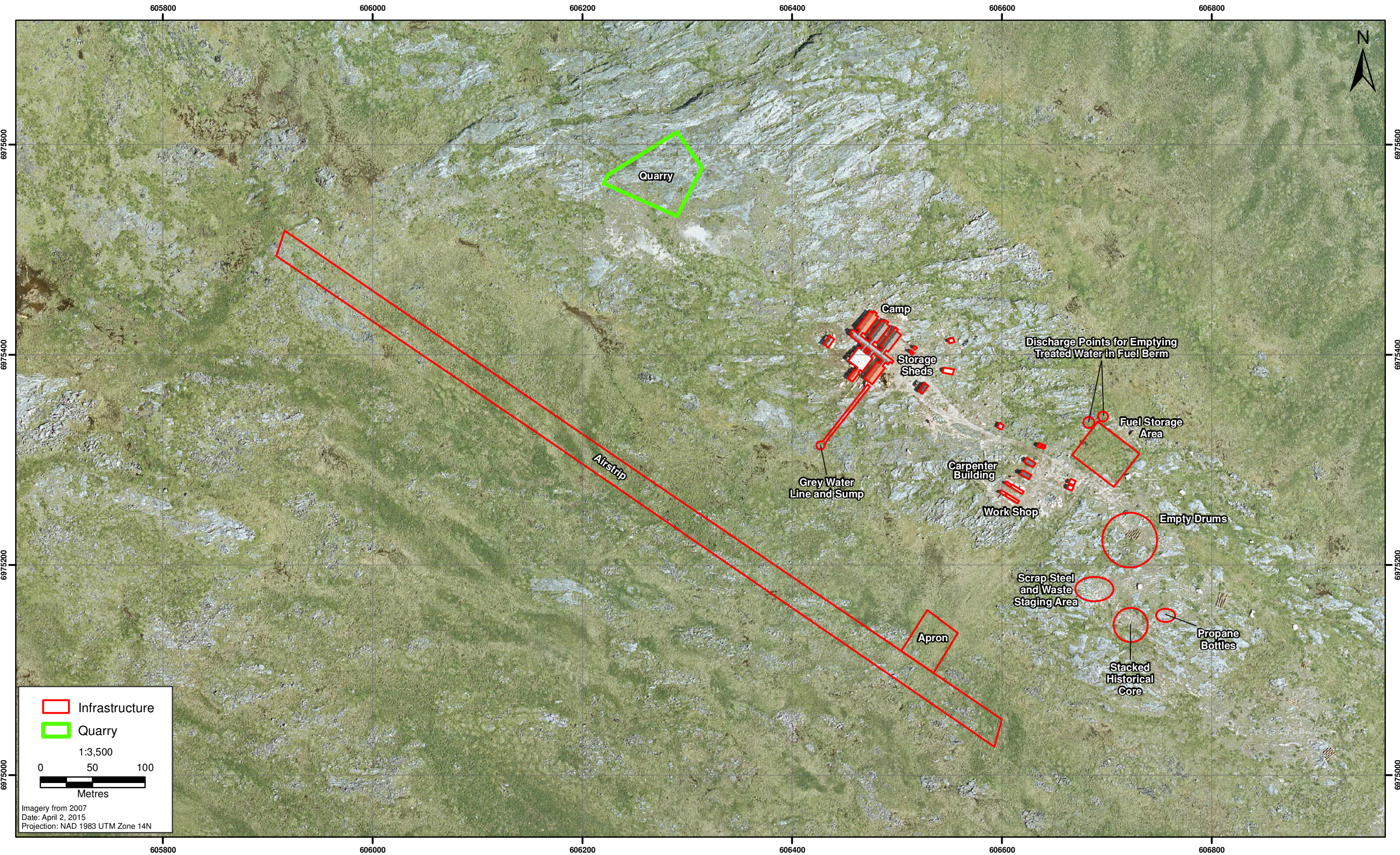
**Table 2-3. Quantities of Fuel and Oil Stored at Ferguson Lake Project Site**

Fuel Type	Container Type	Container Capacity	Total Volume to be Stored On-Site	Number of Containers
P-50	Barrels	205 L	30,750 L	150
Gasoline	Barrels	205 L	1,250 L	6
Jet-B	Barrels	205 L (sealed)	36,900 L	180
Propane	Pressured Tanks	100 lb Tanks	27,000 lbs	270
Oil	Barrels	205 L	4,715 L	23
Lubricants	Plastic Containers	10 L	250 L	25

Empty drums used during the exploration program are regularly rotated out of camp by fixed wing aircraft in order to be re-filled and then returned to camp during bi-annual re-supply programs. Any empty drums that are deemed not worthy of holding fuel are back hauled to landfill sites by M&T Enterprises. Empty fuel drums will be crushed and moved off site during the winter 2015-2016 by snow train along with any remaining empty propane tanks and scrap steel. In the case of temporary shutdown, all of the fuel barrels will be removed to an approved location.



Figure 2-1  
Ferguson Lake Camp





## 2.3 SOLID WASTES

All camp and kitchen wastes are incinerated daily in a CY 1020FA “D” KEYTEK Incinerator. Any waste that cannot be incinerated is stored in barrels and removed to the Rankin Inlet landfill. In the case of temporary shutdown, all waste will either be incinerated or removed.

## 2.4 WASTE OIL

Waste oil volumes from the camp and related activities will be approximately 0.1 cubic metres per week during exploration. Waste oil will be incinerated or used for heating purposes. In the case of temporary shutdown, all waste oil will be incinerated.

## 2.5 HAZARDOUS WASTE

There will be no hazardous waste materials on the project site.

## 2.6 DRILL HOLES

All drill sites are cleaned and maintained on a daily basis during exploration. Waste materials, garbage and any empty drums or propane cylinders are routinely returned to camp for incineration or removal to Rankin Inlet. Upon completion of an individual drill hole, the drill rig and supplies are moved to a new site and the drill set up is cleaned of any debris and the area returned, as closely as possible, to a pre-disturbed state. In the case of temporary shutdown, all drill sites will be cleaned. The location of all historical drill sites is presented in Figure 2-2.

## 2.7 BULKY ITEMS/SCRAP METAL

No bulky items have been brought on site by Canadian North Resources and Development Corporation. Scrap metal in the form of drill rods will be the responsibility of the drilling contractor, and they will be removing them. All drilling scrap will be removed from the project site as backhaul on supply flights.

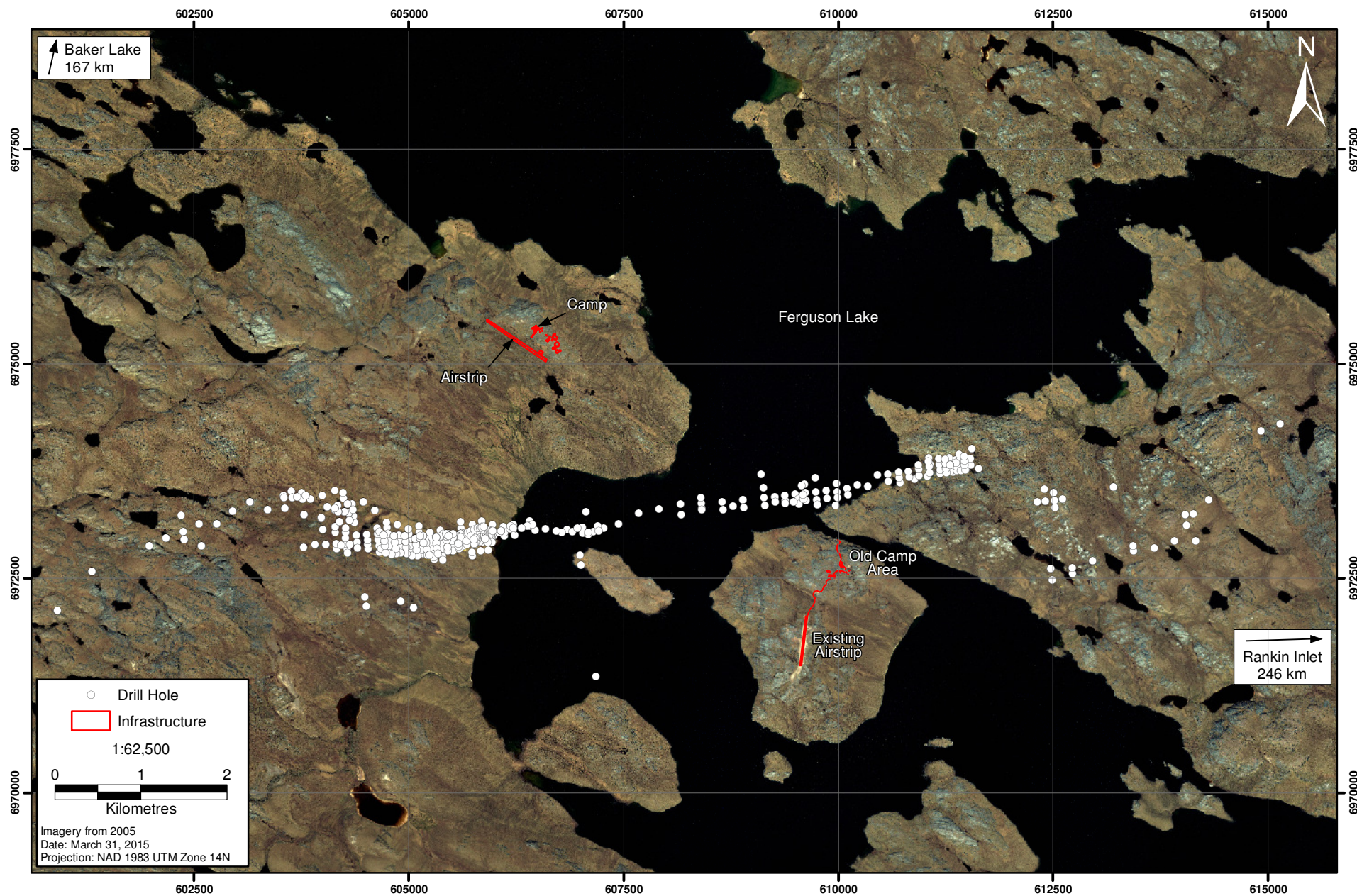
## 2.8 WATER INTAKE

The water intake is suspended above the bottom of Ferguson Lake nearshore. The intake end of the pipe is equipped with a screen to avoid fish entrapment. The screen size was determined following the calculations outlined in DFO's *Freshwater Intake End-of-Pipe Fish Screen Guidelines*. In the case of temporary shutdown, the water intake pump will be shut off.

## 2.9 AIRSTRIP AT THE “OLD” CAMP

The airstrip at the “old” Ferguson Lake Camp is not maintained and no longer used.

**Figure 2-2**  
**Historical Drill Site Locations for the Ferguson Lake Project**





## **2.10 AIRSTRIp AT THE “NEW” CAMP**

The new landing strip was completed in 2008 and has been in use since. It will be decommissioned as stated under section 3.2.10.

## **2.11 HELICOPTER LANDING PAD**

The helicopter landing is regularly inspected to ensure there is no debris around the area. A spill kit is located close by in the event of accidental fuel spillage while refuelling the helicopter. In the case of temporary shutdown, all debris will be cleared around the helicopter pad.

## **2.12 GENERATOR**

The three generators in use will receive regular maintenance. The generator shacks are equipped with spill kits, and/or absorbent matting should there be a spill of gas while filling the generator. In the case of temporary shutdown, the generators will be turned off, and the shacks will be closed and locked.

### **3. FINAL ABANDONMENT AND RESTORATION**

#### **3.1 FERGUSON LAKE “OLD” CAMP**

During the summer of 2006, soil and vegetation surveys were completed around the “old” camp area to assess hydrocarbon contamination; thus determining areas requiring restoration. Equipment and small buildings were removed in the following years and scrap metal was collected and stockpiled.

Any land that has been disturbed from the “old” camp site, such as matted/stressed vegetation, vehicle ruts, land affected from petroleum spills, and any other areas of disturbance will be recontoured (if required), stabilized and re-vegetated with a northern seed variety. The restoration will be as close as possible to a pre-disturbed state. The grey water sump will be back filled, recontoured, stabilized and re-vegetated with a northern seed variety, and restored as closely as possible to a pre-disturbed state.

A final inspection will ensure that there is no remaining material at the site and that there is little/no evidence of Starfield’s land use activity at the Ferguson Lake fishing lodge.

Written and photo documentation of the site restoration will be provided to the Nunavut Water Board, and the Kivalliq Inuit Association.

#### **3.2 NEW CAMP SITE AND DRILLING OPERATION**

##### **3.2.1 Time Frame**

The Ferguson Lake Project is currently under care and maintenance; therefore, it is not practical at this time to subscribe to a definitive schedule for the conclusion of this land use operation. However, if an early closure occurs, or upon Canadian North Resources and Development Corporation’s completion of the land use operation, the following procedures will be followed in order to allow for proper abandonment and restoration of the area.

##### **3.2.2 Site and Camp Description**

The “new” camp site and core storage area is situated on a low ridge at an elevation between 120 and 130 m on a point on the southwest shore of Ferguson Lake. The camp configuration consists of a 70-person portable camp with integrated facilities for sleeping, cooking, eating, recreation and washing, as well as structures for water and waste treatment, a core shack, ski-doo shed, tractor shed, office, safety shack, storage sheds, weatherhavens, generator shacks and pump sheds.

The camp will be in short term temporary closure except for a short period during the summer to conduct site maintenance, inspection and low impact exploration with a maximum of 10 persons. It will be a permanent camp with the possibility to support more people if the project restarts diamond drilling exploration and ultimately expansion in the development and production phases.



### 3.2.3 Restoration Procedures

#### 3.2.3.1 *Camp*

When the camp is no longer required all structures, temporary buildings, machinery, equipment, materials, fuel drums, storage containers, and any other items used in connection with the camp will either be burned or removed from the site. The area will be stabilized and re-vegetated with a northern seed variety, and restored as close as possible to a pre-disturbed state.

#### 3.2.3.2 *Fuel*

Upon closure all fuel drums will be removed and the non-reusable drums will go to the Rankin Inlet landfill. The containment system will either be removed or recontoured, and the area around the fuel containment will be sampled for hydrocarbon contamination. If there is any hydrocarbon contamination, the contaminated materials will be removed and the area will be stabilized and re-vegetated with a northern seed variety, and restored as closely as possible to a pre-disturbed state.

#### 3.2.3.3 *Waste Water Sump*

At time of closure the sump will be backfilled, recontoured and seeded with a northern seed variety.

#### 3.2.3.4 *Solid Wastes*

At the time of closure most wastes will be incinerated. Any waste that cannot be incinerated will be placed in barrels and removed to the Rankin Inlet landfill. At the time of closure the Incinerator will be removed along with any barrels of garbage. The soil under and around the incinerator will be stabilized and re-vegetated with a northern seed variety, and restored to a pre-disturbed state.

#### 3.2.3.5 *Waste Oil*

All waste oil will be incinerated

#### 3.2.3.6 *Hazardous Waste*

There will be no hazardous materials on the project site.

#### 3.2.3.7 *Drill Sites, Sumps and Cuttings*

All drill sites, sumps, and cuttings are dealt with and reclaimed at the completion of a hole. For final restoration all old drill sites, sumps and cuttings will be re-inspected to ensure that all areas have been restored as close as possible to a pre-disturbed state.

#### 3.2.3.8 *Bulky Items*

No bulky items have been brought on site by Canadian North Resources and Development Corporation. Scrap metal in the form of drill rods will be the responsibility of the drilling contractor, and they will be removing them. All drilling scrap will be removed from the project site as backhaul on supply flights.

### 3.2.3.9 *Water Intake*

Upon closure the water intake pipe and pump from Ferguson Lake will be removed, and backhauled off the site.

### 3.2.3.10 *Airstrip and Road at the "New" Camp*

The airstrip and road at the "new" Ferguson Lake Camp is located in a bedrock controlled area with outcroppings separated by depressions. Coarse and fine textured morainal and glaciofluvial materials fill the depressions.

The existing vegetation in the footprint of these facilities includes such species as dwarf birch, Labrador tea, cranberry, crowberry, sedges, and grasses. The airstrip and road will be reclaimed upon closure.

The stripped vegetative layer will be placed on the surface of the topsoil stockpile and gently pressed into the topsoil to achieve good contact between the roots and the topsoil. The subsoil stockpile will be seeded with a northern seed variety grass. The seeding of the subsurface material and the vegetative cover on the topsoil stockpile will prevent erosion of the stockpiled material. The vegetation will be assessed the following spring. Bare areas will be reseeded to ensure a good cover.

When the airstrip at the "new" Ferguson Lake Camp is no longer required by Canadian North Resources and Development Corporation, the fuel storage area will be removed. All fuel drums will be removed and the non-reusable drums will go to the Rankin Inlet land fill. The area around the fuel containment will be sampled for hydro-carbon contamination. If there are any contaminated soils/rocks they will be removed and the area will be stabilized and re-vegetated with a northern seed variety, and restored as close as possible to a pre-disturbed state.

The edges of the airstrip will be re-contoured and drainage ditches will be filled to return the site to previous conditions as much as possible. As the area is naturally variable with shallow to bedrock soils, the subsoils and topsoil will be spread onto the aggregate remaining on the airstrip and road. As there is a limited amount of soil, parts of the airstrip and road will be recontoured to provide an esker type of landform, common in the area. This will allow for sufficient soil to be placed on selected areas to achieve successful re-vegetation.

The subsoil will be spread first on the selected areas. Care will be taken not to compact the soils. The soils will be lightly ripped where compaction occurs. The grasses growing on the subsoil stockpile will be incorporated into the soils, providing organic matter to the soils. The vegetative cover on the topsoil stockpile will be carefully stripped. The topsoil will then be spread on the surface. Care will be taken not to compact the soils. If the soils are compacted, they will be lightly ripped. The vegetative mat will then be placed on the surface and lightly tapped to insure good contact between the roots and the topsoil. This will be carried out in the spring to allow the plants to get well established and grow during the short growing season. The vegetative cover will be assessed in the following spring for successful re-vegetation. Bare areas will be seeded with a grass mixture suited to the climate.



#### 3.2.3.11 *Helicopter Landing Pad*

The helipad is on the ground supported by its own supply shack at the new camp. Upon closure all debris around the helicopter landing area will be removed. The soils under the pad will have been compacted and, therefore, these areas will be gently ripped to reduce surface compaction. Care will be taken not to disturb the permafrost. The ripped areas where the vegetation is weak or non-existent, will be seeded with a grass mix suitable to the climate. This will be carried out in the spring to allow the new plantings to establish and the existing vegetation to grow. The success of the rehabilitation of the area will be assessed the following spring. At that time, any bare areas will be reseeded.

#### 3.2.3.12 *Generators*

Upon closure the generator shacks will be removed from the site, and the area around the shacks will be inspected for hydrocarbon spills, stabilized and re-vegetated with a northern seed variety (if need be), and restored to a pre-disturbed state.

## **4. SUMMARY**

Canadian North Resources and Development Corporation will operate the camp in a safe, efficient and environmentally responsible manner. The camp site will be kept in conditions that meet or exceed permit specifications. All wastes, materials, or used equipment will be treated as required or removed from the site as soon as practical. At time of closure, the disturbed area will be returned to a pre-disturbed state and to the satisfaction of an Inspector.