



NIRB Application for Screening #126014

The Ferguson Lake, Nunavut, Environmental Baseline Studies

Application Type: New

Project Type: Scientific Research

Application Date: 12/2/2024 2:19:51 PM

Period of operation: from 2025-06-01 to 2027-10-31

Project Proponent: Ryan VanEngen
Canadian North Resources Inc.
299 Courtneypark Drive East
Mississauga, Canada ON L5T2T6
Canada
Phone Number:: 5197108516, Fax Number::

DETAILS

Non-technical project proposal description

English: Ferguson Lake Project, NU, Environmental Baseline Studies The Ferguson Lake, Nunavut, Baseline Studies at site and to Evaluate the Winter road route, All dsfaWeather Road route and SeaLink Facility Project Development (the Project) is located in the Kivalliq region. Canadian North Resources Inc. (CNRI) is beginning to assess the feasibility of transportation and logistics infrastructure to connect the Ferguson Lake Project to a transportation hub, potentially either in Baker Lake, NU, or Arviat, NU. This includes consultation, engagement and environmental studies when considering winter road routes, All-Weather Road (AWR) routes, and potential SeaLink facility locations. This application is for NIRB to screen and permit CNRI to conduct basic baseline environmental field studies, which includes scientific data collection along potential routes from Ferguson Lake Camp to Baker Lake and Arviat. The entire baseline study and evaluation of routings and logistics for an AWR and/or Winter Road will be guided by a multi-year engagement and consultation process with Inuit to ensure the integration of Inuit Qaujimajatuqangit (IQ), as well as by scientific data and engineering assessments. Workers will travel to the study locations by helicopter and carry out their work on foot or by boat. The instrumentation may remain in place until at least the end of the summer in 2027. During the field program, workers will reside in existing authorized facilities. The 2025 to 2027 planned program involves basic field environmental monitoring, including: Archaeological Surveys and Traditional Land Use Studies Placement of wildlife observation cameras, automated recording units, and related support structures for wildlife and bird observations along the potential routes and near the Ferguson Lake Camp. Assessment of freshwater and possibly marine fish habitat using underwater cameras, short set gill nets, hoop nets and electrofishing to identify fish species, and ponars or kick nets for bathymetric data collection at watercourses and lakes along the potential routes, SeaLink Facilities and near the Ferguson Lake Camp. Biophysical data collection including terrestrial, soil, dust and water quality samples along the potential routes and near the Ferguson Lake Camp. Consultation, engagement and land use studies will be conducted for the duration of this work to ensure an integration of Inuit Qaujimajatuqangit (IQ) into the planning and environmental monitoring.

French: ****Projet du lac Ferguson, NU, Études de base environnementales**** Les études de base environnementales du lac Ferguson, Nunavut, sur le site et pour évaluer le tracé d'une route d'hiver, d'une route praticable en toute saison et d'une installation SeaLink (le Projet) sont situées dans la région de Kivalliq. ****Canadian North Resources Inc. (CNRI)** commence à évaluer la faisabilité des infrastructures de transport et de logistique pour connecter le projet du lac Ferguson à un carrefour de transport, potentiellement soit à Baker Lake, NU, soit à Arviat, NU. Cela inclut des consultations, des activités d'engagement et des études environnementales concernant les tracés des routes d'hiver, des routes praticables en toute saison (AWR) et des emplacements potentiels d'installations SeaLink. Cette demande vise à obtenir l'autorisation de la NIRB pour que CNRI effectue des études environnementales de base sur le terrain, y compris la collecte de données scientifiques le long des tracés potentiels entre le camp du lac Ferguson, Baker Lake et Arviat. L'ensemble des études de base et de l'évaluation des tracés et de la logistique pour une route praticable en toute saison et/ou une route d'hiver sera guidé par un processus pluriannuel de consultation et d'engagement avec les Inuits afin d'intégrer l'Inuit Qaujimajatuqangit (IQ), ainsi que par des données scientifiques et des évaluations techniques. Les travailleurs se rendront sur les lieux d'étude en hélicoptère et effectueront leur travail à pied ou en bateau. Les instruments utilisés pourraient rester en place jusqu'à au moins la fin de l'été 2027. Pendant le programme sur le terrain, les travailleurs résideront dans des installations autorisées existantes. Le programme prévu de 2025 à 2027 comprend un suivi environnemental de base sur le terrain, notamment : - Des relevés archéologiques et des études d'utilisation traditionnelle des terres. - L'installation de caméras d'observation de la faune, d'unités d'enregistrement automatisées et de structures de soutien associées pour l'observation de la faune et des oiseaux le long des tracés potentiels et près du camp du lac Ferguson. - L'évaluation de l'habitat des poissons d'eau douce et potentiellement marins à l'aide de caméras sous-marines, de filets maillants à pose courte, de nasses et de la pêche électrique pour identifier les espèces de poissons, ainsi que de ponars ou de filets de kick pour collecter des données bathymétriques dans les cours d'eau et les lacs situés le long des tracés potentiels, des installations SeaLink et près du camp du lac Ferguson. - La collecte de données biophysiques, notamment des échantillons de sols, de poussières et de qualité de l'eau, le long des tracés potentiels et près du camp du lac Ferguson. Des consultations, des activités d'engagement et des études d'utilisation des terres seront menées tout au long de ce travail pour assurer

[illegible]

Personnel on site: 10
Days on site: 40
Total Person days: 400
Operations Phase: from 2025-06-01 to 2027-10-31

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Ferguson Lake Project	Baseline data	Inuit Owned Surface Lands	Initial exploration in the area was undertaken in the 1950s by Inco. Starfield Resources continued exploration and expanded camp infrastructure in the 1990s and 2000s. CNRI acquired the interests from Starfield in 2013 and has continued advanced exploration. Now is planning more extensive baseline studies to support pre-economic assessments, technical studies and future environmental assessments.	Archaeological work was completed from 2005- 2008 by Starfield. Archaeological cultures present in or near the Ferguson Lake project area can be broadly classified as having originated either in the south (related to modern First Nations), or from the north. Southern cultures in/near the project area include Northern Plano, Shield Archaic, Taltheilei Shale, and Denesuline, and northern cultures include Pre-Dorset and Inuit. A range in site and paleontological value is found in this area.	165 km south of Baker Lake
Ferguson Lake Project	Sampling sites	Inuit Owned Surface Lands	Initial exploration in the area was undertaken in the 1950s by Inco. Starfield Resources continued exploration and expanded camp infrastructure in the 1990s and 2000s. CNRI acquired the interests from Starfield in 2013 and has continued advanced exploration. Now is planning more extensive baseline studies to support pre-economic assessments, technical studies and future environmental assessments.	Avoidance of known archaeological sites during vegetation, soil, water and air sampling sites	165 km south of Baker Lake

Ferguson Lake Project	Aerial surveys	Inuit Owned Surface Lands	Initial exploration in the area was undertaken in the 1950s by Inco. Starfield Resources continued exploration and expanded camp infrastructure in the 1990s and 2000s. CNRI acquired the interests from Starfield in 2013 and has continued advanced exploration. Now is planning more extensive baseline studies to support pre-economic assessments, technical studies and future environmental assessments.	Avoidance of known archaeological sites during vegetation, soil, water and air sampling sites. Work with local community members, hunters and KIA to ensure protection of wildlife during surveys	165 km south of Baker Lake
Ferguson Lake Project	Baseline data	Inuit Owned Surface Lands	Initial exploration in the area was undertaken in the 1950s by Inco. Starfield Resources continued exploration and expanded camp infrastructure in the 1990s and 2000s. CNRI acquired the interests from Starfield in 2013 and has continued advanced exploration. Now is planning more extensive baseline studies to support pre-economic assessments, technical studies and future environmental assessments.	Avoidance of known archaeological sites during wildlife surveys and vegetation, soil, water and air sampling sites. Use of non-invasive techniques for sampling as much as possible, including remote cameras.	165 km south of Baker Lake

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Baker Lake	Jamie Kataluk	Kivalliq Inuit Association - Lands	2024-09-06
Baker Lake	Hugh Ikoe	From Ferguson Lake	2024-09-06
Baker Lake	Hugh Ikoe	Originally from Ferguson	2024-06-10

		Lake	
Baker Lake	Russell Toolooktook	Families from Ferguson Lake	2024-06-10
Baker Lake	Hugh Ikoe and Family	Originally from Ferguson Lake	2024-09-08
Baker Lake	Kevin Ikisitaaryuk	Baker Lake Hamlet	2024-09-05
Baker Lake	Siabhon Iksiktaaryuk	Baker Lake Council	2024-09-07
Baker Lake	Michael Haqpi	Hunter	2024-09-08
Baker Lake	Uliut Iksitkaaryuk	Elder and Teacher	2024-09-07
Baker Lake	Bryan Ikoe	Community member	2024-09-08
Baker Lake	Jamie Iksiraq	Community Member	2024-09-08

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Water Board	Type 2BE-FER227	Active	2022-03-02	2027-03-01
Kivalliq Inuit Association	Commercial Lease I - KVCL305H27	Active	2022-03-02	2027-09-23
Kivalliq Inuit Association	Land Use License- KVCL305H27	Active	2022-05-27	2027-05-27
Kivalliq Inuit Association	Land Use License- KVRW06F09	Active	2023-10-17	2025-10-17

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	By helicopter to sample sites and baseline studies	
Water	Small 16 ft outboard motor boats on Ferguson Lake	
Land	On foot; near camp on ATV to sites	

Project accommodation types

Temporary Camp

Permanent Camp

Community

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Bell 206 Long Range Helicopter	1	34x10x10	Transportation of personnel from camp to field sites
Boat	2	11 x 5 ft	For fisheries assessments in lakes or rivers
ATV	2	5 ft x 4 ft	Transportation to sites near camp

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Aviation fuel	fuel	200	218	43600	Liters	Fuel for Helicopter
Gasoline	fuel	2	218	436	Liters	For boat and ATV use
N/A	hazardous	0	0	0	Kg	No hazardous materials are expected

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	No additional water use is required at this time as we will be using Ferguson Lake camp as a base, or communities.	

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Waste disposal	Combustible wastes	150L/day	Incinerated or disposed of in community landfill	N/A
Waste disposal	Greywater	150L per day	Discharged through the existing grey water discharge at Ferguson Lake camp	Incinerated if needed
Waste disposal	Sewage (human waste)	50L / day	Incinerated	N/A

Environmental Impacts:

Scientists, Engineers, Technicians and Researchers will be accommodated at existing authorized facilities. Waste generation will be limited to domestic solid waste, which will be backhauled and managed according to applicable facility authorizations (including incineration). The impacts of the baseline studies and research are considered negligible and mitigable. Potential acoustic impacts to fish are expected to be minimal and will occur only for short durations during the survey on lakes. Fish and fish habitat assessments will adhere to Animal Use Protocol and license requirements. To reduce potential wildlife disturbance during ground surveys and helicopter overflights, field activities will be scheduled outside the breeding bird season and the migratory period for barren-ground caribou. Researchers will travel with a local Inuk who will be responsible for spotting wildlife and taking actions to avoid crew interactions with wildlife. Helicopter overflights will be conducted at high altitudes, except in areas of takeoff and landing, where low-level flights are necessary for baseline work or safety reasons. Helicopter flights will follow guidelines designed to minimize effects on wildlife.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

Canadian North Resources Inc. (CNRI) is a Canadian mining company at late-stage exploration and development of a mining property, the Ferguson Lake Project, in the Kivalliq Region of Nunavut, Canada. The company owns 100% of the Ferguson Lake Project that has abundant base metals (nickel-copper-cobalt) and platinum-group metals (palladium, platinum, and rhodium) mineral resources. Our vision is to create shareholder value through the resource expansion and development of the critical minerals at Ferguson Lake, including large base metals ("BM") and platinum-group ("PGM") mineral resources, those critical minerals that will enhance the value chain for electric vehicles, green energy technology and high-tech sectors. Specifically, the company plans to increase the high-grade resources by: •Diamond-drilling prospective high-grade BM massive sulfides and high-grade PGM targets•Expanding metallurgical testing•Updating technical reporting•Advancing Prefeasibility Studies ("PFS"), environmental, social and feasibility studies

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

The Ferguson Lake Project is in Nunavut's eastern Kivalliq region, largely unaffected by local activities. The region experiences long cold winters and short cool summers, with predominantly northwest winds. Annual precipitation is low, occurring as late summer and fall rain. Limited air quality data exists, and baseline information will use data from air quality monitoring stations, Environment Canada and regional developments. The Ferguson Lake project area is situated within continuous permafrost, features groundwater flow systems associated with taliks connecting surface waterbodies. Expected systems include the active layer, taliks, and sub-permafrost, with a maximum active layer thickness of 4-6 m and permafrost exceeding 400 m thickness. Permafrost lateral extent may limit hydraulic communication between groundwater systems. The Project's freshwater aquatic environment is characterized by low ionic strength, very soft hardness, poor acid buffering capacity, neutral pH, and low nutrient concentrations. Sediment in the region may contain naturally high arsenic, chromium, and copper concentrations exceeding Canadian Sediment Quality Guidelines.

Description of Existing Environment: Biological Environment

The proposed baseline studies and associated field investigations of fish and fish habitat will be completed as part of this project application, the results from which will be submitted as part of baseline reports and used to inform future studies and environmental baseline studies. Based on similar projects conducted within the region, fish habitat availability for most streams along the Project corridor will likely be rated as none (i.e., no fisheries value) to poor as most streams are likely to be ephemeral or intermittent as a result of complete winter freezing and/or local drainage. However, permanent streams containing adequate overwintering habitat for fish are likely to provide some spring spawning, migration, and seasonal rearing habitat. Fish species likely to inhabit waterbodies of the region include lake trout / ihuqqit (*Salvelinus namaycush*), arctic char/iquakpiit (*Salvelinus alpinus*), arctic grayling/ihulukpuakkait (*Thymallus arcticus*), burbot/tiktaalit (*Lota lota*), round whitefish (*Prosopium cylindraceum*), slimy sculpin (*Cottus cognatus*), and

ninespine stickleback (*Pungitius pungitius*). Based on similar projects in the area, vegetation in the Ferguson Lake Project area is influenced by climate, substrate, terrain, and water patterns, with characteristic groupings at landscape and smaller scales. It's situated in the Southern Arctic Ecozone and the Arctic Tundra Zone, featuring low shrub subzone vegetation. Common communities include heath bedrock/boulder, heath tundra, and crypturbated heath tundra. Wildlife and habitat field investigations, integral to the proposed baseline studies and options analysis, will contribute to baseline reports. Expectations from similar regional projects suggest the presence of large mammals, predators, furbearers, small mammals, and various birds important to Inuit, with species like caribou, muskoxen, grizzly bear, wolf, wolverine, and various birds likely residing in the Project area. The Lorillard and/or Qamanirjuaq herds of caribou historically inhabit the region.

Description of Existing Environment: Socio-economic Environment

Seven communities are located within the Kivalliq – Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Rankin Inlet, Nauyasat, and Whale Cove. Six are coastal, and all are accessible only by water or air. Each community is governed by a Hamlet Council, which is the primary point of contact for municipal interests. The focus of CNRI consultation in September 2024 and in 2025 to 2027 will be in Rankin Inlet, Arviat and Baker Lake. Rankin Inlet is the largest community in the Kivalliq and second largest in Nunavut, after Iqaluit, with a population of nearly 3000 people. It is located on the west coast of Hudson Bay, approximately 300 km north of Churchill, Manitoba. This community is the central hub for government, transportation, health care, and business services in the Kivalliq. The Meliadine Gold Project is approximately 30 km north of Rankin Inlet and is connected to the community by an all-weather road. A marine harbour and airport are located at Rankin Inlet, along with schools, government offices, hotels, restaurants, shopping, health centre, and sports and recreation facilities. Arviat is the southernmost mainland community in Nunavut, located 100 km south of Rankin Inlet. It is the second largest community in the Kivalliq, with a population of approximately 2800. The name Arviat comes from the Inuktitut word for Bowhead whale (*arviq*), because of the resemblance of the nearby coast to this animal's shape. Wildlife seen in the Arviat area include caribou, seals, beluga whales, and polar bear. Arviat is known for its musicians, and the hamlet regularly organizes the Inuumariit Music Festival. Baker Lake (*Qamani'tuaq* – "Where the river widens") is the only inland community in Nunavut, with a population of about 2000 people. The community is situated between the mouths of the Thelon and Prince Rivers, on the northern shore of Baker Lake. Many Baker Lake residents are employed by the nearby Meadowbank Gold Complex, which is located approximately 100 km north from the hamlet via an all-weather road. The hamlet is known for arts and crafts, and other facilities include schools, hotels, coop and Northern stores, radio station, health centre, and recreational facilities. More can be learned about the Kivalliq communities on their individual websites, and through Travel Nunavut. As part of the scientific data collection that will provide information for technical studies and comprehensive environmental assessment, input from ongoing engagement, Inuit Quajimajatuqangit, and public consultation will heavily contribute to this options assessment. Furthermore, the future project related socio-economic assessment will focus on Kivalliq communities for economic, infrastructure, services, and wellbeing effects, with broader consideration of socio-economic impacts on Nunavut.

Miscellaneous Project Information

N/A

Identification of Impacts and Proposed Mitigation Measures

Scientists, Engineers, Technicians and Researchers will be accommodated at existing authorized facilities. Waste generation will be limited to domestic solid waste, which will be backhauled and managed according to applicable facility authorizations (including incineration). The impacts of the baseline studies and research are considered negligible and mitigable. Potential acoustic impacts to fish are expected to be minimal and will occur only for short durations during the survey on lakes. Fish and fish habitat assessments will adhere to Animal Use Protocol and license requirements. To reduce potential wildlife disturbance during ground surveys and helicopter overflights, field activities will be scheduled outside the breeding bird season and the migratory period for barren-ground caribou. Researchers will travel with a local Inuk who will be responsible for spotting wildlife and taking actions to avoid crew interactions with wildlife. Helicopter overflights will be conducted at high altitudes, except in areas of takeoff and landing, where low-level flights are necessary for baseline work or safety reasons. Helicopter flights will follow guidelines designed to minimize effects on wildlife.

Cumulative Effects

We are proposing standard and non-invasive, baseline study approaches, protocols and techniques. There are no expected cumulative effects.

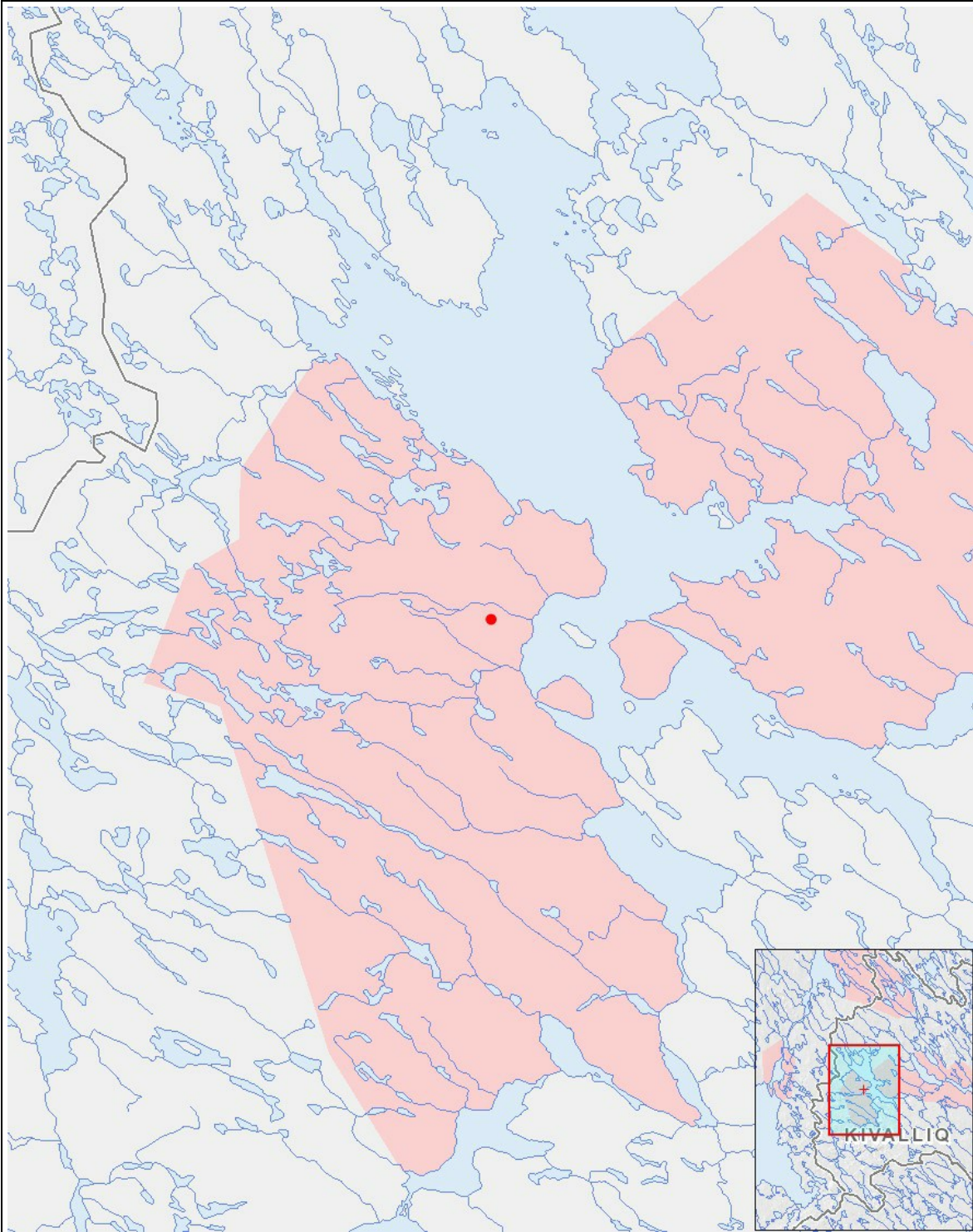
Impacts

Identification of Environmental Impacts

		PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Operation																										
Aerial surveys		P	P	P	-	P	P	P	P	P	P	P	P	P		P	P	P	P	P		P	P	P	P	P
Baseline data		P	P	P	-	P	P	P	P	P	P	P	P	P		P	M	M	M	P		P	P	P	P	P
Sampling sites		P	P	P	-	P	P	P	P	P	P	P	P	P		M	M	M	M	M		M	P	P	P	P
Decommissioning																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	point	Fergusson Lake Project
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