



Parks Canada Preliminary Screening under the *Mackenzie Valley Resource Management Act*

TYPE OF DEVELOPMENT:

- New
- Amended – NOTE: A lease may be granted to Wolverine Air pursuant to the *National Parks of Canada Lease and Licence of Occupation Regulations* (SOR/92-25) section 3 (1) (e). The lease application does not trigger a preliminary screening under the *Mackenzie Valley Resource Management Act*. However, Parks Canada will conduct its own screening of the lease application as a best practice.
- Requires a permit, licence or authorization under the *Preliminary Screening Requirement Regulations*
- Does not require permit, licence or authorization and is proposed by PCA

1. DEVELOPMENT TITLE & LOCATION

Lease Application at Glacier Lake in Nahanni National Park Reserve

2. PROPONENT INFORMATION

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3. PROPOSED DEVELOPMENT DATES

Planned commencement: 2023-09-14
Planned completion: 2043-09-01

4. INTERNAL FILE #

NAH2023-004

5. DEVELOPMENT DESCRIPTION



On September 26, 2002, the Department of Indian and Northern Affairs Canada issued a 20-year lease to Wolverine Air for docking and storage purposes at Glacier Lake. Subsequently, Nahanni National Park Reserve expanded in 2009, with Glacier Lake becoming included in the park reserve. Following expansion, the lease continued under its current terms and conditions until its expiry on April 30, 2022, whereupon Wolverine Air needed to apply for a new lease from Parks Canada.

On December 06, 2021, Wolverine Air wrote to Parks Canada to request a 20-year lease at Glacier Lake. The renewed lease would not change in size (~0.9 ha) and its purpose would be for “a docking station with the required upgraded storage shed”. Parks Canada and Wolverine Air have held ongoing discussions about the lease prior to making this public screening. Parks Canada would consider reissuance of a lease under the same purpose as outlined in the original lease from Indian and Northern Affairs Canada; that is “the Lessee shall use the land for docking and storage purposes only”.

Furthermore, Parks Canada notes that an existing shed on the lease does not meet building code, environmental or safety standards and for reasons of safety must be removed from the lease and the site must be cleaned. Parks Canada and Wolverine Air have considered negotiating terms for an Undertaking that may accompany a lease. An Undertaking would guarantee the shed’s removal on or before September 30, 2023.



Locations (see map, Appendix 1)

The lease is located at the northwest corner of Glacier Lake, at approximately 62° 05' N, 127° 35' W (Appendix 1).

6. VALUED COMPONENTS

Soil/Land Resources

- Glacier Lake is in the Selwyn Mountains ecoregion, which encompasses some of the most spectacular mountain landscapes in the Northwest Territories. The mountains here are large and rugged, with peaks averaging 2,200 m to 2,500 m in height; and ranging up to 2,773m at the summit of Mount Nirvana, the Northwest Territory's highest mountain. This area is also the home of the Northwest Territory's largest span of glacial ice: the Brintnell-Bologna Icefield.
- The mountains of the Ragged Range are geologically unique within Mackenzie Mountains. They were created millions of years ago as formations of intrusive igneous rock were eroded out from below a blanket of sedimentary layers to form a range of rugged granite peaks. These mountains now form islands of igneous rock surrounded by a sea of metamorphic and sedimentary stone.
- One of the most outstanding features of the Ragged Range is a group of peaks known as the "Cirque of the Unclimbables" (COTU) which is located roughly 5km north-west of Glacier Lake. Due to its towering granite cliff faces and spires the COTU is considered one of the top destinations in the world for big-wall rock climbing. The peaks of the COTU range from ~2,100m to 2,759m in height and form a series of 4 cirques which intersect to form a single valley hanging 700m above the main Glacier Lake valley. Mount James MacBrien is the highest mountain in the COTU (2,759m), and the second highest mountain in the Northwest Territories.
- Substrate in the RRMBAS ecoregion is composed mainly of exposed bedrock or bouldery colluvium with very little soil development. Brunisols and Regosols occur under spruce forests at higher elevations on valley slopes. Valley bottoms of the boreal-subalpine are typically composed of glacial till, fluvial and lacustrine sediments, with valley slopes primarily composed of clastic and carboniferous deposits. Brunisols are prevalent in well-drained areas while gleysols often underlie poorly drained areas. Permafrost is discontinuous (CCEA, 2014).

Air/Noise Quality

- No formal observations of air/noise quality have occurred in the Nahanni National Park Reserve; however, it is expected that these valued components are excellent and representative of their natural state. The Glacier Lake area is zone II Wilderness, which represents "extensive areas that are good representations of a natural region and are conserved in a wilderness state" and "in much of Zone II, visitors have the opportunity to experience remoteness and solitude. Motorized access is not permitted except for controlled air access" (Parks Canada, 2021).



Aquatic Resources

- Slimy sculpin (*Cottus cognatus*), arctic grayling (*Thymallus arcticus*), lake trout (*Salvelinus namaycush*), and longnose sucker (*Catostomus catostomus*) have been reported in Glacier Lake and tributaries (Babaluk et al., 2015).
- Melting glaciers produce streams which cascade down steep slopes to deposit sediment on alluvial fans in the valleys, often forming glacier lakes in hanging valleys and cirques. Glacial run-off from the Brintnell-Bologna Icefield forms the headwaters of Brintnell Creek, which is the main source of water for the Glacier Lake, the largest lake in the area.
- Brintnell Creek and the South Nahanni River are silt-laden (March and Scotter, 1975), as is common of many of the rivers and streams in this area as they flow through glacial deposits (CCEA, 2014). The Glacier Lake valley contains multiple beaver dams, wetlands and small ponds, particularly close to the Glacier Lake inlet and outlet.
- Multiple hot springs are found throughout the Selwyn Mountains, including a cold iron oxide tufa spring at the west end of Glacier Lake.

Flora and Fauna

- Migratory and SARA-listed birds are present in Nahanni National Park Reserve, including in the Glacier Lake area; the general nesting season for this area extends from approximately May 1 to August 25.
- SARA-listed bird species whose described ranges overlap the project location include: common nighthawk, olive-sided flycatcher, rusty blackbird, short-eared owl, bank swallow, horned grebe. No nesting sites or colonies for any of these species have been recorded in the Glacier Lake area.
- Mammals recorded in the Glacier Lake area include: caribou, grizzly and black bear, Dall's sheep, mountain goats, moose, beaver, fox, porcupine, wolf, and wolverine. Of these, woodland caribou (Northern Mountain Population), wolverine, and grizzly bear (Western population) are SARA-listed as Special Concern.
- Seven bat species – Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*M. septentrionalis*), both SARA-listed bat species, Long-legged Myotis (*M. volans*), Big Brown Bat (*Eptesicus fuscus*), Hoary Bat (*Lasiurus cinereus*), Long-eared Myotis (*M. evotis*) and Eastern Red Bat (*L. borealis*) – have been recorded in Nahanni (Lausen et al., 2014; EDI, 2019). As of 2019, two cave sites within Nahanni, including Grotte Valerie, have been confirmed as hibernacula for Myotis bat species and two additional sites are suspected (Horne and Critchley, 2020). Current evidence suggests that Grotte Valerie is likely used as a hibernaculum by five species: Little Brown Bat, Northern Myotis, Long-legged Myotis, Big Brown Bat and Long-eared Myotis (C. Lausen and G. Horne, pers. comm., 2017). Bat activity has been recorded near Glacier Lake, but hibernacula have not been identified in this area. All caves in the park reserves are off-limits to visitors.
- Grizzly Bear (*Ursus arctos* - northwest population) have a widespread distribution throughout the parks (Weaver, 2006). However, grizzly bear encounters in the parks are relatively uncommon with between 0 and 10 sightings reported annually by visitors and park staff in Nahanni from 2010 to 2017 (Nahanni National Park Reserve, 2017). Most grizzly bear sightings occur in areas of the park where food caches are provided for visitors to store food and other attractants – including at Glacier Lake. Additionally, in accordance with Nahanni's Bear Management Plan, all reported bear observations are carefully reviewed by park staff to



determine whether management action (e.g., public alerts, area closures, etc.) should be taken to prevent human-bear conflict.

- Woodland caribou occurring in the Glacier Lake area belong to the South Nahanni herd, which is part of a group of herds known as the Nahanni complex. Data gathered from traditional knowledge, staff observations, remote cameras and satellite collar-based monitoring of the South Nahanni herd demonstrates a routine pattern of spring and fall migration along the South Nahanni River valley, with established summer and winter ranges. These more sensitive summer and winter habitats are west and east of the project area, respectively. Observations of caribou in the Glacier Lake area are almost exclusively limited to the spring migration period, and Glacier Lake is not within the primary migration corridor of the South Nahanni herd, therefore occurrences of caribou in the Glacier Lake area are relatively few.
- Landcover in the vicinity of the lease is primarily white spruce (*Picea glauca*) forest. Vegetation surveys of the Frost Creek campground area performed in 2013 found vascular plant species which were consistent with the montane region of the Taiga Cordillera ecozone. The inventory of species included: bluebell (*Mertensia paniculata*), bunchberry (*Cornus canadensis*), mountain cranberry (*Vaccinium vitis-idaea*), fireweed (*Epilobium angustifolium*), horsetail (*Equisetum sp.*), lesser rattlesnake plantain (*Goodyera decipens*), twin flower (*Linnaea borealis*), one-sided wintergreen (*Pyrola secunda*), paper birch (*Betula papyrifeca*), pink mountain heather (*Phyllodoce empetriformis*), river alder (*Alnus incana*), stiff clubmoss (*Lycopodium annotinum*), white spruce (*Picea glauca*), wild black currant (*Ribes hudsonianum*), wild rose (*Rosa acicularis*), willow (*Salix sp.*).
- Invasive plant species surveys have been conducted in the Frost Creek campground area, including the lease land, since 2021. Potentially invasive common dandelion (*Taraxacum officinale*) was observed at a single location within the campground, but off the lease.
- No SARA-listed vegetation species will be impacted. Nahanni Aster (*Symphyotrichum nahanniense*), a SARA-listed species, exists at tufa thermal springs elsewhere within the Park (COSEWIC, 2014), but has not been observed at the Glacier Lake tufa spring (S. Arnold, pers. comm.).

Social/Cultural Environment (including Wildlife Harvesting)

- Harvesting (wildlife, plants, and trees) and motorized access for traditional activities within park boundaries is a right of local First Nations (Parks Canada 2021).
- The area surrounding Glacier Lake has a long history of human use, particularly the Frost Creek and Cirque of the Unclimbables areas. Archaeological evidence found in the Cirque of the Unclimbables has demonstrated pre-contact use, and post-contact records document visitation since at least 1934 when the Glacier Lake area was a hotbed of botanical and geological studies. Climbers began visiting the area in the 1950s beginning with an American expedition led by Andrew Wexler whose party accomplished 17 first ascents in the area. River trippers began appearing on the scene in the 1960s, side-tripping to the Glacier Lake area while on their voyages down the South Nahanni River.
- Nahanni National Park Reserve receives roughly 1,000 visitors per year, of which an estimated 15% visit the Glacier Lake area. Park users visiting the Glacier Lake area are often climbers who remain in the Cirque of the Unclimbables area for weeks at a time. As a result, the number of visitor-use days is relatively high, making it one of the most heavily used areas of the park.
- There are no major permanent human settlements in the ecoregion.



Heritage Resources

- Heritage resources are defined as a human work, an object, or a place that is determined, based on its heritage value, to be directly associated with an important aspect or aspects of human history and culture of a heritage area (Parks Canada, 2013). Heritage resources include archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural, or religious significance, and historical or cultural records (MVRMA (s.2)). Surveys have been conducted to identify these resources at certain locations within Nahanni National Park Reserve including along major river valleys, lakes, and in the Glacier Lake/Cirque of the Unclimbables area. Nevertheless, there remains a high potential for the presence of undocumented resources even within these areas.

7. EFFECTS ANALYSIS

See "*Parks Canada Best Management Practice (BMP) for Aircraft Operations and Landings in Nahanni and Nááts'j'ch'oh National Park Reserves of Canada*" (Appendix 4).

8. MITIGATION MEASURES

1. Wolverine Air will adhere to the mitigations described in the:
 - Parks Canada standard terms and conditions for a Lease (Appendix 3).
 - Parks Canada Best Management Practice (BMP) for Aircraft Operations and Landings in Nahanni and Nááts'j'ch'oh National Park Reserves of Canada (Appendix 4);
 - If applicable, Fuel Caching Protocol for Nahanni National Park Reserve and Nááts'j'ch'oh National Park Reserve (Appendix 5); and
2. Wolverine Air will remove the shed on or before September 30, 2023, as outlined in an Undertaking.
3. A new lease does not give authorization to Wolverine Air to construct new buildings or structures on the lease.
4. Any newly proposed developments to the lease will require detailed review by the Nah?a Dehé Consensus Team and Parks Canada.

9. OTHER CONSIDERATIONS

- Surveillance
- Follow-up monitoring, general
- Follow-up monitoring, required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act*)
- SARA Notification
- ✓ Submission to the Superintendent of proof that the shed has been removed on or before September 30, 2023.



10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Given the limited and short-term magnitude of effects, the location in predominantly pre-impacted areas, and the application of mitigation measures the development is not expected to cause residual adverse effects to natural/cultural resources or visitor experience.

11. EXPERTS CONSULTED

<i>Department:</i> Parks Canada / Government of Canada	<i>Date of Request:</i> January 9, 2018
<i>Expert's Name & Contact Information:</i> Patrick Carroll PO Box 750, Fort Smith, NT X0E 0P0 Patrick.carroll@pc.gc.ca / Tel: 867-872-7936	<i>Title:</i> Cultural Resource Management Advisor, SW NWT Field Unit
<i>Expertise Requested:</i> General information on heritage resource surveys/inventories for both parks	
<i>Response:</i> See information in section 6 (Valued Components)	
<i>Departments:</i> Wildlife Conservation Society Canada Parks Canada / Government of Canada	<i>Date of Request:</i> November 2017
<i>Experts Names & Contact Information:</i> Cori Lausen Suite 204 - 344 Bloor Street West, Toronto, ON M5S 3A7 cLausen@wcs.org Greg Horne 1 Compound road, Jasper, AB greg.horne@canada.ca / Mobile: 780-883-0253	<i>Titles:</i> Associate Conservation Scientist Resource Management Officer II
<i>Expertise Requested:</i> Information on bat species potentially using Grotte Valerie as a hibernaculum	
<i>Response:</i> See information in section 6 (Valued Components)	
<i>Department:</i> Parks Canada / Government of Canada	<i>Date of Request:</i> June 19, 2023



<i>Expert's Name & Contact Information:</i> Sarah Arnold PO Box 348, Fort Simpson, NT X0E 0N0 sarah.arnold@canada.ca / Tel: 867-695-7768	<i>Title:</i> Ecologist Team Lead, Nahanni National Park Reserve
<i>Expertise Requested:</i> Information on Nahanni Aster presence	
<i>Response:</i> See information in section 6 (Valued Components)	

11.1 References

Arnold, S. 2023. Personal communication June 2023. Ecologist Team Leader, Nahanni National Park Reserve, Parks Canada.

Babaluk *et al.* 2015. *Distribution of Fish Species within the South Nahanni River Watershed, Northwest Territories*. Department of Fisheries and Oceans Canada. Winnipeg, MB

Canadian Council on Ecological Areas (CCEA). 2014. *Ecological Framework of Canada: Ecozone and Ecoregion Descriptions*. Available online at: <http://www.ecozones.ca/english/zone/index.html>

COSEWIC. 2014. *COSEWIC assessment and status report on the Nahanni Aster *Symphyotrichum nahanniense* in Canada*. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

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Lausen *et al.* 2014. *Bats of Nahanni National Park Reserve and Surrounding Areas, Northwest Territories*. *Northwestern Naturalist*. 95:186-196.

Lausen, C. and G. Horne. Email, November 2017.

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March, A.H. and G.W. Scotter. 1975. *Vegetation Survey and Impact Assessment of the Nahanni Hot Springs and Virginia Falls Areas, Nahanni National Park*. Prepared for Parks Canada by the Canadian Wildlife Service, Edmonton.



Nahanni National Park Reserve. 2017. Bear Observation Database. Unpublished raw data.

Parks Canada. 2013. *Cultural Resource Management Policy*.

Parks Canada. 2021. *Nahanni National Park Reserve of Canada Nahʔq Dehé Management Plan*.

Weaver, J.L. 2006. Big Animals and Small Parks: Implications of Wildlife Distribution and Movements for Expansion of Nahanni National Park Reserve. Wildlife Conservation Society Canada. Conservation Report No. 1.

12. REVIEW PERIOD


The development description was sent to the MVEIRB, for posting on the public registry, and the distribution list (Appendix 2) on June 19, 2023. Anyone from the public could provide comments on or before July 10, 2023. No concerns were raised by the public.

13. DECISION

Taking into account the analysis and implementation of mitigation measures outlined in the analysis, the development:

- Might have a significant adverse impact on the environment, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- ✓ Does not have a likelihood of causing significant adverse impact on the environment.
- Might be a cause for public concern, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- ✓ Does not have a likelihood of causing public concern.

14. APPROVAL

Prepared by: <i>Sarah Arnold</i> Ecologist Team Lead, Nahanni National Park Reserve	Date: August 30, 2023
Approved by:  <i>Jonathan Testso</i> Superintendent, Nahanni National Park Reserve	Date: August 31, 2023



LIST OF APPENDICES

Appendix 1 - Map of Glacier Lake and lease location

Appendix 2 - Distribution list

Appendix 3 – Parks Canada standard terms and conditions for a Lease

Appendix 4 - Parks Canada Best Management Practice (BMP) for Aircraft Operations and Landings in Nahanni and Nááts'ihch'oh National Park Reserves of Canada

Appendix 5 - Fuel Caching Protocol

APPENDIX 1

Note: all flight start/end locations are from designated airports/aerodromes outside of the parks.

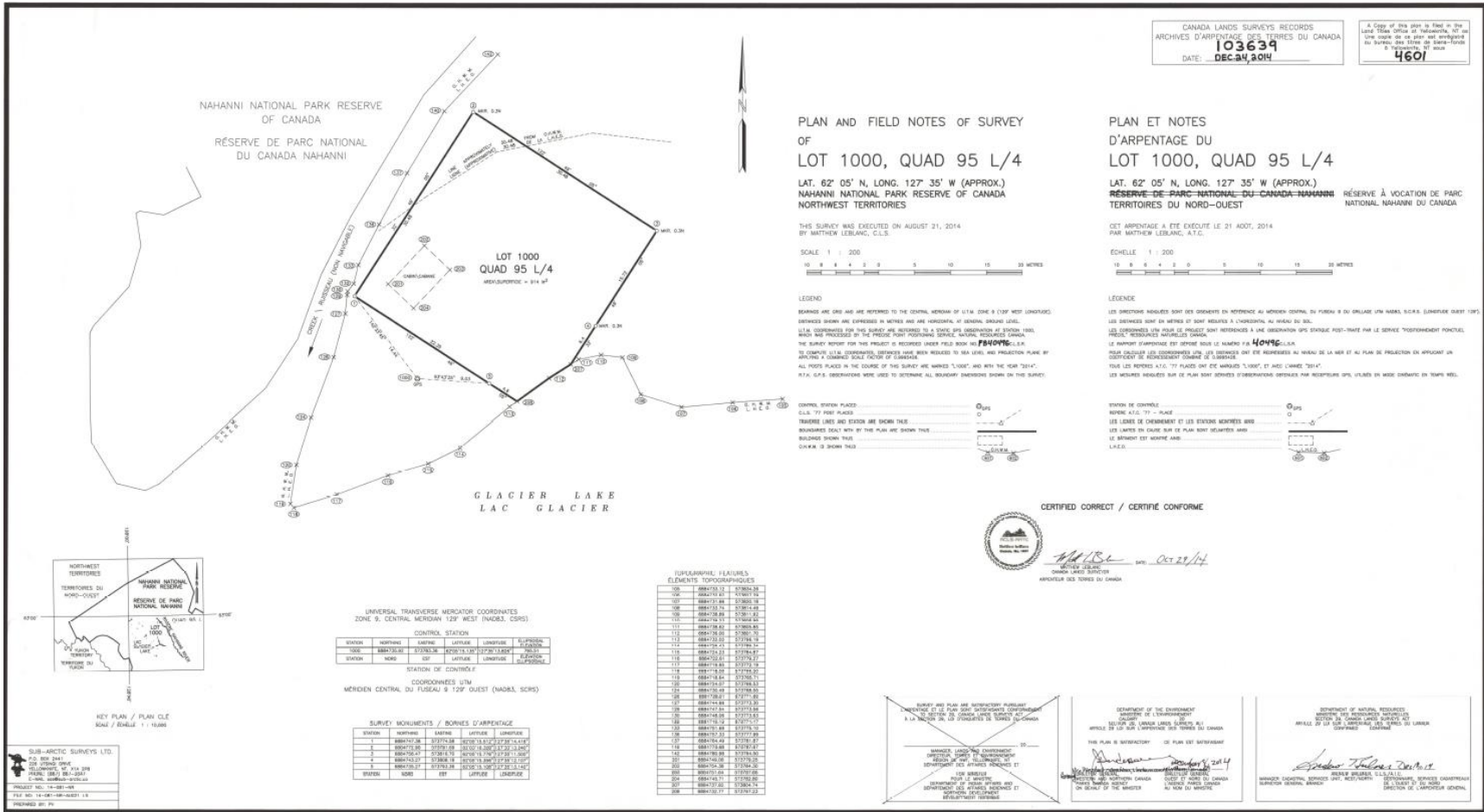


APPENDIX 1 - Map of Glacier Lake and Lease Location



APPENDIX 1

Note: all flight start/end locations are from designated airports/aerodromes outside of the parks.





APPENDIX 2 - Distribution List

Organization	Contact
Mackenzie Valley Environmental Impact Review Board	preliminaryscreening@reviewboard.ca
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