# HWY4 Lithium Ltd

**A subsidiary of**

LOYAL LITHIUM

# Project Description

# for the

## Hidden Lake Lithium Project V1.1

**Prepared for the**

**Mackenzie Valley Land and Water Board**

18 December 2023

**Document Maintenance and Control**

HWY4 Lithium Ltd is responsible for the distribution, maintenance and updating of the content in this document. This document will be reviewed at a minimum annually but will be revised any time to include changes to the Project, best practices, guidelines, advice from the Inspector, or contact information. Revised versions will be provided to the Mackenzie Valley Land and Water Board for approval and circulated accordingly.

**Revision History**

| Revision # | Section(s) Revised | Description of Revision | Issue Date |
|---|---|---|---|
| 0 | N/A | First version | 13 Oct 2023 |
| 1.1 | 2 | Fuel storage locations and the maximum spill size information<br><br>Statement on acceptance letters from Kavanaugh and KBL contained in the Waste Management Plan<br><br>Project conformity to Code of Practice Measures to protect fish & habitat. http://www.dfo- mpo.gc.ca/pnw-ppe/codes/screens-ecran-eng.html. Wildlife interaction and mitigation measures.<br><br>Mitigation measures for permafrost.<br><br>Engagement Practices | 18 Dec 2023 |

The following Plans along with and this Project Description were revised to include all changes detailed in the Reasons for Decision *Hidden Lake Lithium Project – Issuance Package – Land Use Permit MV2023C0034 – Lithium Exploration – Hidden Lake, NT December 12, 2023* and were submitted by the dates outlined in the table below.

| Condition Number and Title | Title of Plan (Version) | Version and Date Revision Due |
|---|---|---|
| 68, SPILL CONTINGENCY PLAN | Spill Contingency Plan (V1)[2] | **V1.1; January 15, 2024** |
| 47, WASTE MANAGEMENT PLAN | Waste Management Plan (V1)[3] | **V1.1; January 15, 2024** |
| 87, ENGAGEMENT PLAN | Engagement Plan (V1)[4] | **V1.1; January 15, 2024** |
| 36, EROSION MANAGEMENT PLAN | Erosion Management Plan (V1)[5] | **V1.1; January 15, 2024** |

# 1 INTRODUCTION

The Hidden Lake Lithium Project ("Project") is comprised of six contiguous mineral claims approximately 50 km directly east of Yellowknife, NWT (Figure 1). The Project is in NTS map sheets 085I11 and 085I12, totaling 2,500.29 ha.

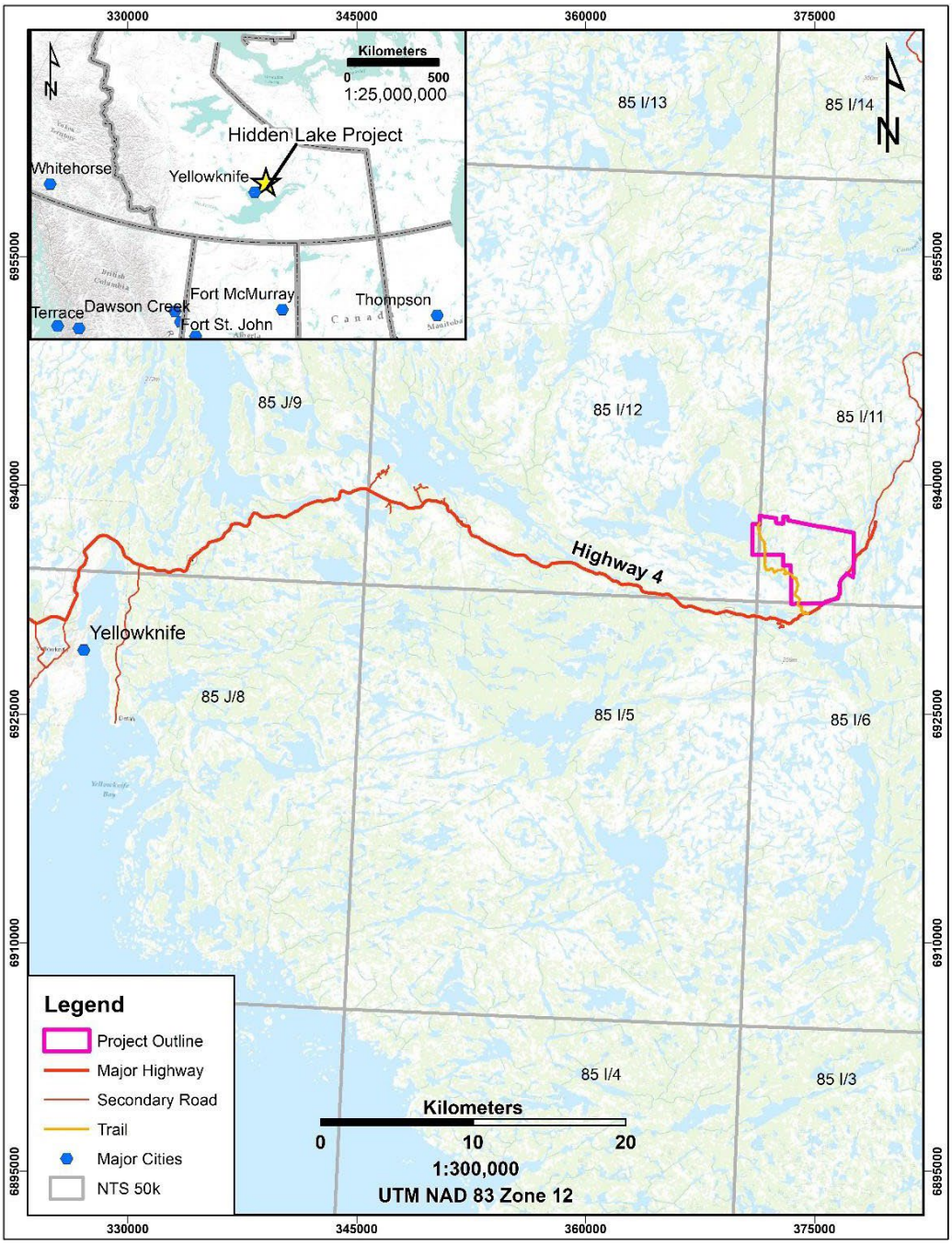


**Figure 1 Project Location and Access Map**

The Hidden Lake Project falls within the traditional Akaitcho Territory (Figure 2) which includes the following five (5) Dene First Nations as defined by Treaty 8 of 1899:

- Yellowknives Dene First Nation Dettah
- Yellowknives Dene First Nation Ndilo
- The Łutselk'e Dene First Nation
- The Deninu Kue First Nation
- Smith's Landing First Nation

The Hidden Lake Project is also within the Mǫwhì Gogha Dè Nıı̨tłèè of the Tłı̨cho, as defined by the signing of Treaty 11 in 1921. In 2005, the agreement was ratified, provides, and defines certain rights related to lands, resources, and self-government. The Project also falls within the area considered to be the traditional territory of the Metis people as represented by the North Slave Metis Alliance, The Fort Resolution Métis Council, and the Northwest Territories Métis Nation.

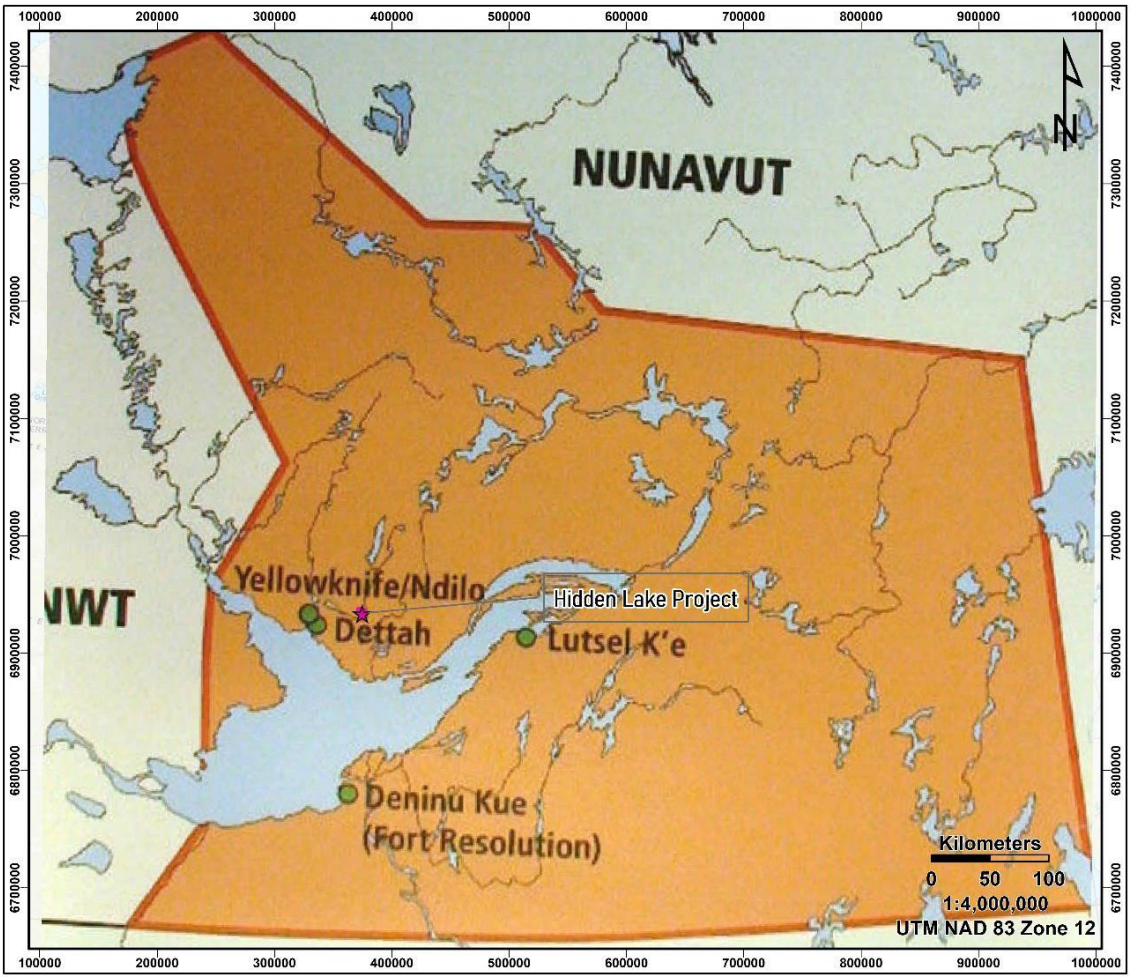


**Figure 2 Akaitcho Territory and Project Area** *(Source: modified from http://akaitcho.ca)*

Within the Project area, the mineral claims cover rolling topography, which ranges from lower-lying areas of swamp/muskeg and higher elevation bedrock ridges, ranging between 240 to 260m height above sea level. Tree cover on the Project is widely spaced due to a forest fire which occurred in the region in the 1990s (and 2010s?) and there are large areas of exposed bedrock. Small sized lakes are located throughout the Project and no rivers or perennial streams run through the mineral claims. Most of the targeted lithium bearing pegmatites form resistive topographic highs due to their inert weathering resistant mineral constituents of quartz, feldspar, mica, and pyroxene. From a north-south aligned topographic high within the claims' middle area, comprising the Project, with drainage from a central plateau, both towards the west and east. There are no anthropogenic communities within the immediate vicinity of the Project area and the proposed type of exploration is expected to have a minimal impact, from both a social and environmental respect due to the small size and temporary nature of the program.

The following is a list of studies relevant to the Project:

1. An Archaeological Overview Assessment and Archaeological Impact Assessment has been contracted to WSP. The survey is being completed prior to activities associated with this Land Use Permit Application. WSP Senior Archaeologist Consultant, Heritage Prairies and North, is managing this study. YKDFN (Yellowknives Dene First Nation) TK (Traditional Knowledge) Advisor consultants are being utilized to complete this survey. The WSP Archaeologist will manage on HWY4's behalf 3 employees, a YKDFN TK Advisor, a Tlicho TK Advisor, and an Ekedia Services Bear Monitor. The comprehensive Engagement to date and plan going forward is described both in the attached Engagement Record (Log) and Plan.
2. A Traditional Knowledge survey is being organized and planned and will be undertaken before the program begins.
3. A flown (no ground disturbance) LiDAR and high resolution orthophoto survey: These data will produce a detailed Digital Terrain Model (40 points per meter) of both the land surface and vegetation, that can be used to plan ground disturbance minimization, determine optimal routes for transport or temporary access. The accurate ground surface survey will also be used as a baseline for future studies and to monitor and mitigate erosion due to activities described for this project in this permit application.
4. A contract has been signed for two studies on historical drill core from the Project with SRK Consulting. These studies are currently in progress and are as follows:

    a. Geochemical - the first study will geochemically analyze the historical drill core, where additional drilling is planned under this Land Use Permit, for minerals and elements in the rocks to characterize metal leaching and acid rock drainage (ML/ARD) potential of rocks targeted in this exploration program including rock seepage monitoring, and interpretation and modelling of leachate chemistry.
    b. Geotechnical – the preliminary study on the structural and engineering characteristics of bedrock is being studied to understand the stability of the ground in the areas targeted for exploration.

5. Historical Sentient 2, ASTER satellite data has been reprocessed to produce a variety of map products useful for identifying biogeography and geomorphology on the claims. This data will be used with other datasets (e.g., including LIDAR and high resolution orthophotos) to prevent and mitigate erosion, understand the hydrology across the entire project and recognize optimal infrastructure sites in the future if required. HWY4 also has purchased

2022 Pléiades satellite imagery in the visible and infrared.

6. A real-time satellite imagery study is being commissioned with Geospatial Intelligence Ltd to provide monitoring data on ground disturbance and erosion identification and prevention. This is a powerful tool that very few resource companies are using at present. HWY4 Lithium is highly cognizant of the potential use of satellite monitoring (see 5 above).

This Land Use Permit Application contains the following items.

1. Land Use Permit Application
2. Engagement Plan and Engagement Record
3. Project Description including maps and Geographic Information System digital data.
4. Waste Management Plan
5. Erosion Management Plan
6. Spill Contingency Plan
7. Wildlife Monitoring and Management Plan Screening
8. Closure Cost Estimate

## 2 PROJECT DESCRIPTION- STRATEGIC DRILLING PROGRAM

The purpose of the exploration proposed by HWY4 Lithium is to investigate the potential for lithium in thin (10m wide), but laterally extensive quartz-feldspar pegmatite dykes, exposed as fresh rock on surface, within Hidden Lake Lithium Project. The Project is about 50 km east of Yellowknife and east of Hidden Lake (Figure 1). A list of project claims is shown in Table 1.

| Claim Name | Claim Number | Size (ha) | Expiry Date |
|---|---|---|---|
| HID 1 | K19925 | 410.14 | 3/1/2026 |
| HID 2 | K19926 | 692.15 | 3/1/2026 |
| HID 3 | K19927 | 500 | 3/1/2026 |
| HID 4 | K06903 | 48 | 6/30/2026 |
| HID5 | K06959 | 9 | 6/30/2026 |
| MON - 1 | M12265 | 841 | 12/14/2024 |

Table 1: Project Claims

HWY4 Lithium is applying for a Type A Land Use Permit from the Mackenzie Valley Land and Water Board which will include the following activities:

- Core drilling (See Figure 3 for drilling area locations)
    - Preliminary drill program consists of drilling ≈3,000-4,000m over 10 to 20 NQ sized (75.7mm outside diameter and 47.6mm core diameter) drill holes over nine primary areas (Figure 3) with drillhole depths between 50m to 400m.
    - A maximum of only two drill rigs will be utilized, to minimize the environmental footprint and wildlife impact.
    - Initial drilling will commence once the Land Use Permit is approved, and availability of drilling contractors determined. The first portion of the program is anticipated to require between two to four months to complete over winter

2023/2024

  - Depending on exploration results, additional drilling will occur over the duration of the five-year permit in both the summer and winter months, with between 2,000 and 10,000m of drilling completed per year over the duration of the permit.

- Helicopter transportation of drill rigs and personnel is the preferred option.
  - Drill rigs will be moved to Project locations and between each drill site by helicopter. But both helicopter-portable drill moves, and overland drill moves will occur when ground conditions permit, typically during winter conditions.
  - Winter roads are proposed within this permit application to enable, for example, movement of personnel, for safety and emergency responses if helicopter transport cannot access personnel due to variables such as weather/smoke/ availability, firefighting, spill, erosion, and wildlife monitoring, as well as positioning noise and dust monitoring equipment into the proposed Project areas.
  - A total of approximately 3.650 hectares of upgraded winter roads and 4.815 hectares of pioneered winter roads are proposed for the Land Use Permit for this Project. The upgraded TL trail and winter road branches off the all-season and weather Highway 4 (Ingraham Trail). Depending on exploration success, additional trails may be required. The trail width will be kept well under 10 meters and will be strategically placed to minimize disturbance within the land use area. Snow and ice cover (15-20cms) will be left on the TL trail and winter road to accommodate recreational snowmachines which traditionally use the trail and access recreational cabins on Hidden Lake shore. This snow and ice will also discourage and reduce unwanted vehicle access.
  - Winter access roads will be constructed using D6 Bulldozer (or equivalent) with road maintenance completed using a Grader and/or snowcat, and/or truck with snowplow. At least 10cm or greater of snow/ice cover will be present on all winter roads and/or access trails and will be diligently monitored in the spring and during seasonal changes to remain compliant with this requirement.
- Storage of fuel
  - Bulk fuel will be based in Yellowknife with smaller fuel caches near the drilling pad locations.
  - Fuel caches will consist of 205L steel drums, environment tanks or tidy tanks and will be stored within secondary containment or double walled containers with all appropriate spill kit material as required by the Land Use Inspector. See Spill Contingency Management Plan for additional information.
- Partial clearing of tree vegetation at drill pad sites: There are large areas of exposed relatively flat rock on the Project site and these areas will be utilized for drill locations whenever possible to minimize the amount of clearing of large flora (trees). Some trees will be left in place wherever possible on the drill pads and personnel will work around with equipment placed beside any trees preserved on the drill pads. Lower branches of trees may be removed to reduce the risk of safety hazards to personnel working on the drill pads.
- Project staff will overwhelmingly be based out of Yellowknife for the duration of the exploration program and will commute daily to the project site in helicopter or light vehicle if weather or length of daylight conditions prevent flying in winter or summer.

Options for personnel to be based for part of the time near the work site are being sought and may include utilizing temporary mobile camps or other exploration company camps. Two, small temporary low environmental impact self-contained portable camp facilities, of approximate size 10m2 width, are sought in this permit application. This unit will be Heli-portable and fully self-contained with ablutions restricted to a porta potty, pit privy and greywater will be disposed of in a sump greater than 100m from the nearest watercourse. Secondly, a safety and survival portable structure with a generator, Starlink and survival kit will be placed adjacent to each operating drill rig (see Appendix 1). This safety accommodation is for both first aid and any emergency requiring shelter and heat at the drill site. This safety shelter will be a minimum of 8x10m or 10x12m wall tent with a woodstove or oil stove. This same shelter will also function as a toilet facility with the placement of a purpose-built bag that can be removed to an appropriate disposal facility.

- HWY4 (and parent company Loyal Lithium) is working collaboratively with other minerals exploration companies operating in the same area of the Project. To reduce the environmental footprint of the Project, HWY4 has been in communication about the Thompson Lundmark (TL) Trail and winter road. Two companies will be using the same road for access to drill sites and camp, so it is both constructive and efficient to collaborate both on the construction and the various use activities undertaken on the winter road, to minimize the vehicular footprint and manage road traffic. Appropriate signage will be posted, as the area is used recreationally, particularly by the local community. Given that the road is officially deemed to be a "public road", having the road open may attract additional nonessential traffic, so sufficient warnings will be placed to alert all road users to the activities, when operating, by the Company and contractors. The TL Trail and winter road was originally put in place to service the 1940's era Thompson Lundmark Gold Mine at Thompson Lake, the property of which is still currently under tenure for both gold and lithium bearing pegmatites and the winter road route has been in continuous use over the last several decades for mining, mineral exploration, mine remediation and recreational activities.
- Water for drilling will be restricted to less than 99 $m^3$ per day, therefore a Water License will not be required. Note that HWY4 makes the commitment to fully comply with the DFO Protocol for winter water withdrawal In the Northwest Territories.
    - Water will be withdrawn from multiple unnamed lakes within the Project boundary (Table 2 and Figure 3).
    - It is estimated that for two diamond core drill rigs, each drill rig will utilize less than 40 $m^3$ per day. Water withdrawal for the small-scale water intakes will have water intake flow rates much lower than 0.150 m3/s, or 150 litres per second. Water reduction is anticipated if drilling is faster than estimated and/or drill cuttings are moved easily. The company is also considering a form of drilling called reverse circulation that uses virtually no water if drill rigs are available (two potential contractors have been sourced).
    - Water used for building up ice thicknesses on roads or tracks will be completed before drilling or when drilling is not occurring to enable usage of less than 99m3 per day.
    - HWY4 Lithium will meticulously document all water usage during the drilling program. An official Site Logbook (SLB) will always be on site while work is being conducted. In this book, daily inspections of water level at extraction sites (and additionally erosion and safety risks assessments, wildlife, and waste management plan observations) will all be documented.

- Note that the Company will document and report all wildlife sightings and encounters, especially of all mammals (large and small) and avifauna such as large waterfowl. These formal wildlife recordings will assist, in part going forward, with the requirements regarding establishing an environmental baseline for the project.

**Table 2: Ten Water Withdrawal Locations and Approximate Areas/Capacities**

| Withdrawal Site | Type | Area ($m^2$) | Estimated Capacity ($m^3$) |
|---|---|---|---|
| 1 and 7 | Lake | 447,506 | 44,750 |
| 2 and 8 | Lake | 34,246 | 3,424 |
| 3 | Lake | 42,031 | 4,203 |
| 4 | Lake | 81,688 | 8,168 |
| 5 | Lake | 33,617 | 3,361 |
| 6 | Lake | 12,877 | 1,287 |
| 9 | Lake | 144,413 | 14,441 |
| 10 | Lake | 11,981 | 1,198 |

Capacity calculated by Surface Area ($m^2$) x 0.10m depth

Note: these lake volume estimates are absolute minimum volumes. A planned LIDAR survey will identify very shallow areas within the unnamed lakes i.e., 1cm deep. But the LIDAR will also pick up the topography surrounding the water bodies and depths can be inferred from the slopes surrounding and entering the body of water. A second product being obtained during the same survey is very high-resolution orthophotography. This photography can see the relative bathometry within a water source and identify deeper portions of the waterbodies. Bathometry will be measured according to the DFO procedure.

Table 2 illustrates all proposed water withdrawal sites, but they may not all be used during winter drilling. The number of proposed locations provides HWY4 Lithium with the option of always using a different source in compliance with the Board's Guide and DFO requirements for any water source that will be used. Lake water withdrawal will be diligently monitored (water meters) and at no time will it be greater than 10% of the ice-covered volume withdrawn (water withdrawal will be recorded in the SLB). There are a small number of drill holes planned at water withdrawal sites 2, 3, 4, 6, 8, 9 and 10. The primary water withdraw sites are adjacent to the most advanced lithium pegmatite showings (outcrop rock chip, channel samples drill holes completed under a previous Land Use Permit, MV2017C0003) and therefore the majority of planned drill holes have water withdrawal sites at 1, 5 and 7. Sites 1 and 7 are in the largest standing water body on the Project. The project will comply with the conditions and measures set out in the Interim Code of Practice (http://www.dfo- mpo.gc.ca/pnw-ppe/codes/screens-ecran-eng.html) and the Measures to protect fish and fish habitat (dfo-mpo.gc.ca). End of pipe screens were identified in the Application form section 17. POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROJECT AND PROPOSED MITIGATIONS. Aquatic Habitat. Mitigation.

The application for a Land Use Permit will be for 5 years with the potential for a two-year extension. HWY4 Lithium is committed to continued engagement with all Indigenous Governments and organizations including additional stakeholders and will provide Project information in a comprehensive and timely manner as the Project continues to advance, as described in the Engagement Plan. HWY4 Lithium has a company policy of openness and

inclusivity and aims to be the preferred employer of natural resource personnel in the Yellowknife and Northwest Territories.

The number of drill hole collars and therefore the amount of clearing for drill hole pads applied for in this Land Use Permit is a maximum to enable optional locations to drill from dependent on results. During the program drill hole results will determine the locations of lithium pegmatites subsurface, that may be different than anticipated, so some drill holes may not be drilled. Also, one drill pad may be used for a multiple fan of drill holes, again requiring less requirement to use all proposed drill pads and creating much less disturbance than anticipated. Finally, due to the parallel nature of the small pegmatites, one drill hole may be used to intersect two parallel but spaced pegmatites in one drill hole, therefore this will reduce the program by not requiring a second drill setup (pad), effectively reducing the number of cleared pads required by one half, in areas where this can be accomplished.

For planned winter drilling in 2023/2024, initial operations will involve the construction of a small seasonal road to allow for drill access, emergency situations and environmental monitoring. The pioneered roads will extend from the pre-existing TL Trail or Winter Road which crosses the claims and provides sufficient access to multiple pegmatite dykes as displayed in Figure 3. The TL Trail or Winter Road will need minor upgrading to ensure the trail is kept open during winter. Two access scenarios have been proposed in Figure 3; Route A will be approximately 6.5 km long, using mostly the pre-existing TL Trail or Winter Road along with 1.8 km on a frozen lake resulting in less land disturbance. Route B will be entirely made up of the pre-existing TL Trail or Winter Road, totaling 7.3 km. A total of approximately 9.6 km of pioneered road would also be used, extending from the pre-existing TL Trail or Winter Road to the drill areas, proximal to water withdrawal site 1 shown in Figure 3. The planning, construction and operation of these winter roads will adhere to the GNWT's Northern Land Use Guidelines and operating conditions of the Land Use Permit. The final pioneered routes will be where the areas are shown but will be further evaluated using all available data and studies completed by HWY4 Lithium to minimize ground disturbance during creation and use of the seasonal roads.

A total of under approximately 10 hectares to be used over the life of the project (Table 3). The first phase in winter 2023/2024 will utilize approximately 0.2 hectares of drill pads and winter roads used will be 3.65 hectares of upgraded roads (TL Trail or Winter Road) and 4.815 hectares of pioneered winter roads. Only two drills will operate to reduce the environmental footprint of disturbance to wildlife, limited water extraction and minimization of waste production and reduction of erosion risk. Progressive reclamation of the drill pad sites, and access trails will be undertaken. So, the Project will only entail a maximum of 15% ground disturbance for drill rig pads with most disturbance being for upgraded and pioneered roads.

**Table 3: Land Use Calculation**

| Item | Length (m) | Width (m) | Quantity | Total Area (m2) | Total Area (ha) |
|---|---|---|---|---|---|
| Upgraded Road | 7,300 | 5 | 1 | 36,500 | 3.650 |
| Pioneered Road | 9,630 | 5 | 1 | 48,150 | 4.815 |
| Drill Sites | 10 | 10 | 150 | 15,000 | 1.500 |
| | | | | **99,650** | **9.965** |

The second phase of the drilling project is dependent on the first phase results. The estimation is that five times the first phase's area will be used for drill pads, which is one hectare maximum. This drilling will be completed either in the fall of 2024 or winter 2024/2025, with only two drills used to reduce the management and environmental footprint of areas being simultaneously worked, therefore there will be noise reduction and activity levels minimizing wildlife interactions and disturbance. Additional drilling phases will be completed over the permit's life that will use 0.3 hectares of drill pads. There will be a reduction in land area because of the use of existing drill pads to complete drilling at different angles (inclinations and azimuths) to enable testing of subsurface pegmatite targets using multiple drill collars on the same drill pad. The total area used for drill pads over the permit's life will be potentially reduced due to the application of this commonly used drilling technique.

Minimal impact exploration methods will be used to prepare drill pads, with little to no grubbing and vegetation cut as far above ground as possible to maintain root structure, with soils replaced on exploration sites to encourage natural revegetation establishment (where are soils encountered, but most of the drill pad areas are on outcropping rock). Travel of equipment or vehicles will be suspended at the first sign of rutting (not a high-risk issue in winter). Tree felling or use of coarse woody debris may be incorporated for access control and to support soil nutrients. A Closure and Reclamation Plan is required in this Land Use Permit. It will be made known to both operators and staff to follow the progressive reclamation plan and rehabilitate disturbed habitat as soon as practicably possible. Drill sites are primarily located on hard fresh rock basement or will be moved to a proximal site to ensure this substrate is present on the drill site therefore reducing the potential for loss of higher at-risk habitat vulnerable to erosion or collapse. Also, drilling in winter on a snow and ice substrate will reduce the potential for permanent habitat loss during winter.

Shutdown of equipment will occur when mammals are identified within 500m of the drill rig or heavy vehicle, including Caribou and all large ungulates including Moose, Bison and/or Muskoxen.

Vehicles will drive slowly and obey speed limits and animals will be given right of way when spotted.

Removal will promptly occur of all potentially harmful substances from the property, with an inspection upon completion of the program e.g., empty fuel containers, domestic refuse, and all possible attractants kept in animal-proof sealed containers.

Only small volume thermokarst formation will occur at individual drill hole locations. This scale small thermokarst development will occur across dispersed areas, in rock depressions where bedrock reaches surface, and no thermokarst will be developed over soils or swamps where there is the potential for permafrost destabilization. Water directed and contained within depressions will not be allowed to flow around a drill rig site, by placing a collar containment and flow direction device around the drill hole collar.

There will be a short duration of work times on each drill rig work site. Therefore, this light activity footprint, not exceeding more than 1 to 2 days at each site, will minimize the extent of thermokarst development. Flowing water will not be directed to any natural standing or running watercourses which will ensure permafrost stabilization in these most vulnerable of areas.

A drill contractor will be selected for the project that has operated recently in either in the NWT jurisdiction or similar, therefore contractors that are familiar with the requirements of mitigation techniques for permafrost stability and who are preferably familiar with drill site inspections of thermokarst development and permafrost stabilization by the NWT Inspector.

Waste removal services acceptance letters have been received from both from both Kavanaugh and KBL as shown in the Waste Management Plan.

Temporary fuel storage sites will be located at the following co-ordinates and will be confirmed and notified with the NWT Inspector and MVLWB: (UTM Zone 12 NAD83 Coordinates).
1. Y= 6,937,120mN ; X= 373,620mE
2. Y= 6,936,090mN ; X= 373,533mE

Spill Kits will be located at these temporary storage sites, on heavy vehicles and on drill rigs.

But also due to HWY4 Lithium working in collaboration with other exploration companies that have land use permits with fuel storage capacity which are proximal to the Hidden Lake Project, HWY4 Lithium potentially may purchase fuel from these facilities, negating and/or reducing the requirement for fuel storage facilities on HWY4 Lithium's Hidden Lake Project.

Maximum spill size is limited to the size of individual containers. Fuel potential spill volumes are limited to the fuel tank size in both drill rig, light vehicles, and single storage drums, so a maximum potential spill/worst case scenario is 500 liters, from drill rig tidy tanks.

The Engagement Plan was updated to include Engagement Strategy/Summary/Log, under Tłı̨chǫ Government (TG) to include Violet Camsell-Blondin, Manager of Lands Regulation and to cc lands@tlicho.ca in all future engagement practices as agreed to during the regulatory process.

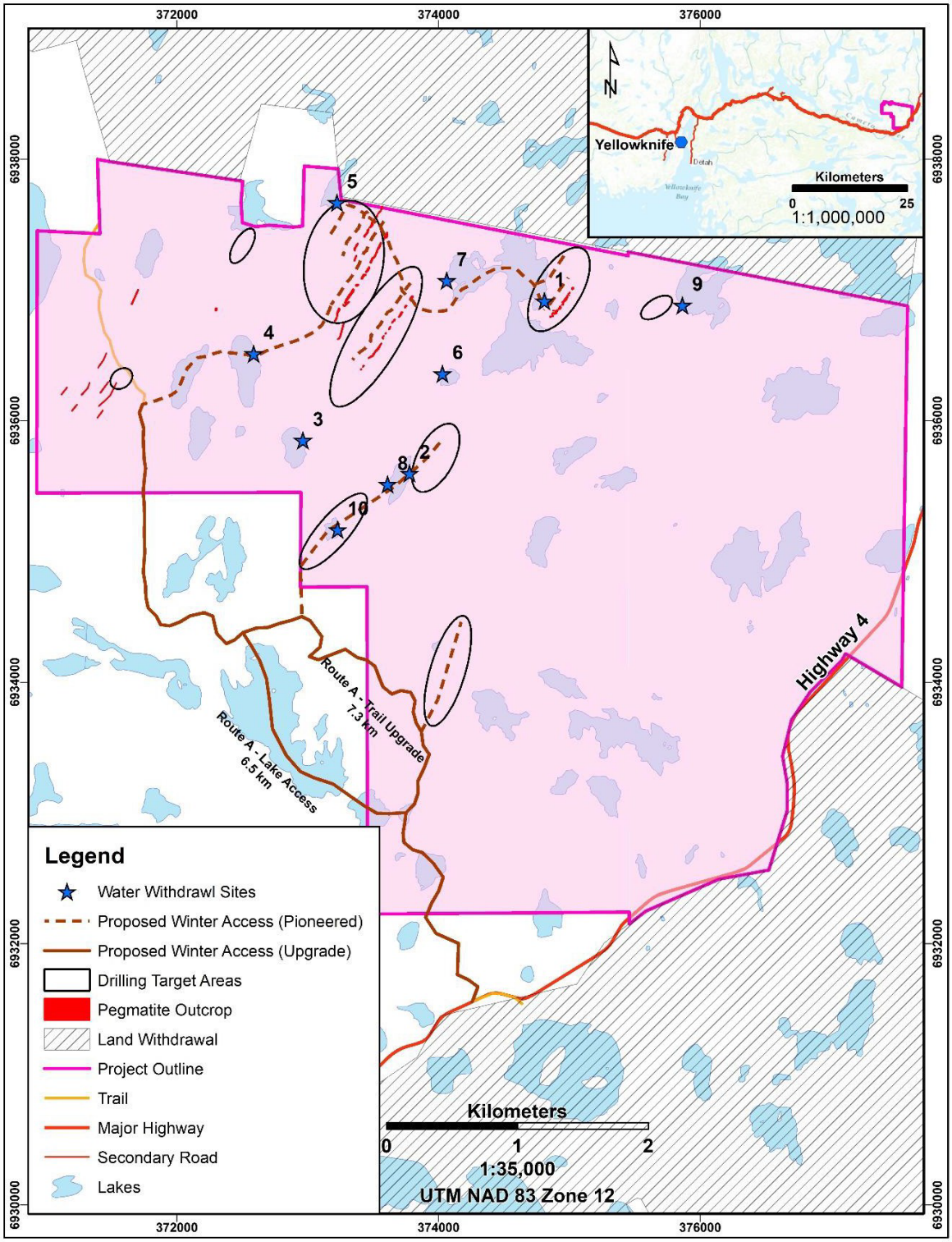


**Figure 3 Proposed Drilling Areas and Water Withdrawal Locations (1-10)**

**APPENDIX 1**

**Photos**: Typical types of low environmental impact survival and small self-contained Heli-portable mobile temporary tents for workers to be situated on the Hidden Lake property adjacent to Project drill rigs