

**TECHNICAL REPORT**

**On the**

**Barbara Lake Lithium Property  
Thunder Bay Mining District  
Northwestern Ontario, Canada**

**Prepared for:**

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## 1.0 SUMMARY

Martin Ethier, P.Geo., (the “author”) was retained by 1257590 B.C. LTD. (“1257590” or the “Company”) to prepare an independent Technical Report on the Barbara Lake Lithium Property (the “Property”). The report is intended to provide a summary of material scientific and technical information concerning the Property and, in so doing, fulfill the Standards of Disclosure for Mineral Projects according to Canadian National Instrument 43-101 (“NI 43-101”).

Barbara Lake Lithium Property comprises of 56 mining cell claims covering approximately 2,147 hectares’ land in the Barbara Lake / Jean Lake Areas, Thunder Bay Mining District, Ontario, Canada. The property is located about 160 kilometres to the northeast of the City of Thunder Bay near the provincial Highways 11 and 17. 1257590 has the option to acquire 100% of the right, title and interest in and to the Property from Alex Pleson, the current owner of the Property, by making aggregate cash payments of \$130,000, issuing an aggregate of \$130,000 worth common shares, and carrying out exploration work totaling \$850,000.

Geologically, the Property is situated in the Quetico Subprovince of the Superior Geological Province which consists dominantly of clastic metasediments with inter-formational chemical metasediments deposited between 2.70 and 2.69 Ga. The clastic metasediments represent a strongly metamorphosed turbidite sequence varying from arenaceous to argillaceous with local conglomerates units. Banded iron formations within the metasediments consist of ferruginous chert, oxide (magnetite-chert) and sulphide (sulphide-chert) facies with localized graphite. There are numerous pegmatite and diabase dykes cross-cutting the clastic and chemical metasediments. The igneous rocks in the Quetico Subprovince include abundant felsic and intermediate intrusions, metamorphosed rare mafic and felsic extrusive rocks and an uncommon suite of gabbroic and ultramafic rocks. The rare-element pegmatites have widespread distribution in the Quetico Subprovince covering at least a 540-km strike length from west to east and a large percentage of pegmatites occur in the centre of the Subprovince.

The Property area is a part of the Georgia Lake pegmatite fields which contain the largest concentration of known rare-element pegmatites in Ontario. Up to 40 lithium and beryllium pegmatites are exposed in outcrop over an area of approximately 600 square km. The pegmatites occur in two geometries: as irregular-shaped bodies and as thin dykes, sills and attenuated lenses. The irregular bodies of pegmatite are intimately associated with the granite bodies often within a few hundred metres of the contact zone. The pegmatite dykes, sills and lenses can be subdivided into rare-element pegmatites and granitic pegmatites. The rare-element pegmatites are of economic significance and they contain microcline or perthite, albite, quartz, muscovite and spodumene and minor amounts of beryl, columbite-tantalite and cassiterite. Two families of rare-element pegmatites are common in the Superior Province, Canada: Li-Cs-Ta enriched (“LCT”) and Nb-Y-F enriched (“NYF”). LCT pegmatites are associated with S-type, peraluminous (Al-rich), quartz-rich granites. Rare-

element pegmatites derived from a fertile granite intrusion are typically distributed over a 10 to 20 km<sup>2</sup> area within 10 km of the fertile granite.

The deposit model as described in OGS reports for the area is that the spodumene occurs in Li-Cs-Ta (“LCT”) rare-element pegmatite dykes. LCT pegmatites are associated with S-type, peraluminous (Al-rich), quartz-rich granites. S-type granites crystallize from a magma produced by partial melting of preexisting sedimentary source rock. They are characterized by the presence of biotite and muscovite, and the absence of hornblende. Rare-element pegmatites derived from a fertile granite intrusion are typically distributed over a 10 to 20 km<sup>2</sup> area within 10 km of the fertile granite. A fertile granite is the parental granite to rare-element pegmatite dykes.

The historical exploration work on the Property and surrounding areas started in 1950’s with the discovery of spodumene pegmatites of the Georgia Lake Area. After the first discovery of lithium, prospectors entered the area and about 3,200 claims were staked and within a short time numerous additional lithium deposits were located. Many of these deposits were tested by diamond drilling in 1955 and 1956. Due to lack of adequate markets, however, none of these have been developed. The lithium occurrence on the Barbara Lake known as “Georgia Lake SE Pegmatite” is one of the earliest discoveries in the Georgia Lake Pegmatite Fields.

The Property and its surrounding area near Barbara Lake pegmatites is relatively underexplored as compared to the western part of the Georgia Lake pegmatite field, due to its location farther to the east from Highway 11. However, there are several pegmatites documented in Ontario Geological Survey (OGS) and other publications indicating potential of Barbara Lake pegmatites field for follow up exploration work and discovering lithium deposits in the area.

Zayachivsky in his 1985 work described the Barbara Lake Stock as the northernmost exposure of two-mica leucogranite in the Georgia Lake area. It is an arcuate body lying between Barbara and Jean Lakes. A western portion of the stock is obscured by overlying diabase. The Barbara Lake Stock is in sharp contact with metasediments, where observed. The body is homogeneous with respect to texture and mineralogy, but a slight increase in grain size of feldspar and quartz occurs toward the northern contact.

In 2008, Ontario Geological Survey (OGS) carried out regional investigation of mineralization associated with rare element pegmatites and related S-type, peraluminous granites in the Superior Province. The main purpose of the study was to evaluate various peripheral areas of the Georgia Lake pegmatite fields for further fertile, peraluminous granites and related rare-element mineralization.

The results of bulk rock and mineral sampling by OGS indicated that the Barbara Lake stock consists of an irregular body of grey to white granite and various pegmatitic granite units. The electron microprobe compositions include tantalum-niobium oxide minerals (i.e., ferrocolumbite, ferrotantalite, manganocolumbite, manganotantalite, microlite and



ferrotapiolite), cassiterite, tourmaline (schorl, dravite and elbaite), garnet, fluorapatite, beryl, potassium feldspar, micas (lepidolite and muscovite), spodumene, alluaudite and lithiophilite). The eastern limits of the stock are currently not defined and it is plausible that the granitic rocks represent a gradation into the northeast part of the Glacier Lake batholith that also contains similarly evolved rocks, particularly in the Parks and Gathering lakes areas. Several beryl-bearing pegmatitic granite occurrences were found in the Barbara Lake stock. In addition, a beryl occurrence was described by Zayachivsky (1985) near the south shore of Barbara Lake. Niobium - tantalum (Nb-Ta) oxide minerals were found.

The Barbara Lake stock, which is plausibly derived from the northeastern Glacier Lake batholith, exhibits a range in cesium contents of 16 to 62 ppm Cs and K/Rb of 70 to 154. Rare-element pegmatite groups, derived from the Barbara Lake stock, however, reveal pronounced evolution that has led to a marked increase in cesium (range = 12.6 to 829 ppm Cs) and generally highly evolved K/Rb values (8 to 138). The Ta versus Nb plot shows a trend towards extremely evolved Nb/Ta in a data cluster that overlaps with the most fractionated part of the field for the parental northeastern Glacier Lake batholith. Rare-element pegmatite dikes derived from the Barbara Lake stock exhibit even higher contents (118 ppm to 289 ppm Ta). Such tantalum values in excess of 100 ppm can be deemed of exploration interest.

In August 2019, Pleson Geoscience carried out exploration work on a part of the Property. The exploration program tasks were to identify areas of prospective lithium mineralization, gain an overview of the terrain, and ultimately prospect and discover any new lithium occurrences. The work involved was to gain access and traversing around the historically discovered lithium pegmatite, noted in the MDI (Mineral Deposit Inventory) files as the "Georgia Pegmatite SE". The dyke prospected during this work was determined to be at least 3 meters wide and strikes for at least 400 meters. The observed spodumene content is at least 20% which should translate into at least 1-2% Li<sub>2</sub>O assays.

The Barbara Lake property falls under pegmatite LCT deposit types. LCT pegmatites are a petrogenetically defined subset of granitic pegmatites that are associated with certain granites. They consist mostly of quartz, potassium feldspar, albite, and muscovite. Common accessory minerals include garnet, tourmaline, and apatite. Lithium in pegmatites is most commonly found in the mineral spodumene, but also may be present in petalite, lepidolite, amblygonite and eucryptite.

1257590 has not carried out any exploration work on the Property. The author carried out a visit of the Property on September 08, 2020. The scope of Property inspection was to verify historical exploration work, to take geological, infrastructure, and other technical observations on the Property and assess the potential of the Property for discovery of lithium and rare metals pegmatites.

The data presented in this report is based on published assessment reports available from 1257590, Ontario MNDM, the Geological Survey of Canada, and the Ontario Geological

Survey. All the consulted data sources are deemed reliable. The data collected during present study is considered enough to provide an opinion about the merit of the Property as a viable exploration target.

In conclusion, the Property is considered to have potential to discover lithium and rare metals pegmatites within the Barbara Lake stock because of the following factors:

- The Georgia Lithium SE pegmatite occurrence located on the Property is documented to be at least 3 meters wide and strikes for at least 400 meters has a potential to extend along strike and in the subsurface through further exploration.
- The Barbara Lake stock indicated high cesium, niobium and tantalum values which are typical characteristics of LCT type pegmatites.
- The Barbara Lake area is an underexplored area within the Georgia Lake pegmatite fields due to its location away from the main highway 11, but have geological characters favoring discoveries of more lithium pegmatites.

Based on its favourable geological setting indicated above and other findings of the present study, it is further concluded that the Property is a Property of merit. Good road access from highway 11, availability of exploration and mining services in the vicinity makes it a worthy mineral exploration target.

### **Recommendations**

In the author's opinion, the character of the Property is enough to merit the following two-phase work program, where the second phase is contingent upon the results of the first phase.

#### ***Phase 1 – Geophysical Surveys, Prospecting, Trenching and Sampling***

Although spodumene bearing pegmatite discovery on the property area was made in the 1950's, the historical work at the Property was mainly focused on regional geological mapping, prospecting, and sampling. It is recommended to carry out detailed exploration work to explore the potential of the Georgia Lake SE pegmatite through trenching and channel sampling at suitable intervals along its strike extension. A combination of magnetic and radiometric geophysical survey along strike extension of this pegmatite occurrence is also recommended. Another recommended work is to carry out property wide detailed prospecting and sampling. Some budget also needs to be allocated to improve access trails to various claim blocks.

Total estimated budget for Phase 1 program is \$174,020 and it will take about four months' time to complete this work.

#### ***Phase 2 – Detailed Drilling and Resource Estimation***

If results from the first phase are positive, then a detailed drilling program would be warranted to check the Georgia Lake SE pegmatite and other targets identified during geological mapping, trenching, and sampling work in Phase 1. The scope of work for

drilling and location of drill holes would be determined based on the findings of Phase 1 investigations.

## **2.0 INTRODUCTION**

### **2.1 Purpose of Report**

This report was commissioned by 1257590 B.C. LTD. (“1257590” or “the Company”) and Martin Ethier, P.Geo. (the “author”) was retained to prepare an independent Technical Report on the Barbara Lake Lithium Property (the “Property”). The report is intended to provide a summary of material scientific and technical information concerning the Property and, in so doing, fulfill the Standards of Disclosure for Mineral Projects according to Canadian National Instrument 43-101 (“NI 43-101”).

### **2.2 Sources of Information**

The present report is based on published assessment reports available from the Ontario Ministry of Northern Development and Mines (MNDM), and published reports by the Ontario Geological Survey (OGS), the Geological Survey of Canada (“GSC”), various researchers, websites, and personal observations. All consulted sources are listed in the References section. The sources of the maps are noted on the figures.

The author carried out a visit of the Property on September 8, 2020. The scope of Property inspection was to verify historical exploration work, to take geological, infrastructure, and other technical observations on the Property and assess the potential of the Property for discovery of lithium and other rare metals such as cesium, rubidium, niobium and tantalum. The geological work performed was to verify existing data consisting of surface grab sampling and visiting reported approachable historical exploration work areas.

The author has also reviewed the land tenure on the MNDM Database. The author reserves the right but will not be obliged to revise the report and conclusions if additional information becomes known after the date of this report.

The information, opinions and conclusions contained herein are based on:

- Information available to the author at the time of preparation of this report;
- Assumptions, conditions, and qualifications as set forth in this report; and,
- Data, reports, and other information supplied by 1257590 and other third-party sources.

## **3.0 RELIANCE ON OTHER EXPERTS**

In respect of ownership information relating to the Property set out in Item 1.0 (Summary) and Table 1: List of Property Claims under Item 4.0 (Property Description and Location), the author has reviewed and relied on the Option Agreement and information provided by 1257590, which to the author’s knowledge is correct.

A limited search of tenure data on the MNDM Ontario website on September 7, 2020, confirms the data supplied by 1257590. However, the limited research by the author does not express a legal opinion as to the ownership status of the Property. This disclaimer applies to ownership information relating to the Property.

#### 4.0 PROPERTY DESCRIPTION AND LOCATION

Barbara Lake Lithium Property comprising of 56 mining cell claims covering approximately 2,147 hectares' land in the Barbara Lake / Jean Lake Areas, Thunder Bay Mining District, Ontario, Canada. (Figure 1 and 2). The property is located about 160 kilometres to the northeast of the City of Thunder Bay near the provincial Highways 11 and 17.

Pursuant to a property purchase option agreement (the "Option Agreement") between the Optionor and 1257590, dated July 30, 2020, 1257590 holds an option to acquire a 100% interest in the Claims by making cash payments, common shares issuances and exploration expenditures as follows:

Cash Payments:

DATE	AMOUNT
Within 7 business days of execution of the Option Agreement (the "Effective Date")	\$40,000
On or before the first anniversary of the Effective Date	\$40,000
On or before the second anniversary of the Effective Date	\$50,000
<b>TOTAL</b>	<b>\$130,000</b>

Share Issuances:

DATE	AMOUNT
As soon as practicable following completion of an IPO, and in any event within 10 Business Days of the IPO (subject to the below) Notwithstanding the foregoing, if an IPO is not completed within 180 days of the Effective Date, at the Purchaser's sole option, it may elect to satisfy the First Share Issuance by making a cash payment to the Vendor in the amount of \$40,000 by no later than the date that is 190 days following the Effective Date	Such number of Common Shares as is equal to: \$40,000 / the IPO Price (the "First Share Issuance")
On or before the first anniversary of the Effective Date	Such number of Common Shares as is equal to: \$40,000 / Market Price
On or before the second anniversary of the Effective Date	Such number of Common Shares as is equal to: \$50,000 / Market Price

## (c) Expenditures:

<b>DATE</b>	<b>AMOUNT</b>
On or before the first anniversary of the Effective Date	\$100,000
On or before the second anniversary of the Effective Date	\$250,000
On or before the third anniversary of the Effective Date	\$500,000
<b>TOTAL</b>	<b>\$850,000</b>

The Option Agreement also provides for a royalty in the Optionor's favour equal to a 2% Net Smelter Return ("NSR") on the Property. The royalty will be payable to the Optionor for as long as 1257590 and/or its successors and assigns hold any interest in the Claims. 1257590 will have the right to purchase from the Optionor 1% of the NSR for \$500,000, thereby reducing the NSR to 1%.

The Property claims were staked using Ontario's new online, self-service claim staking system introduced in 2018. The new electronic *Mining Lands Administration System* (MLAS) replaces the province's century-old traditional ground staking methods. All the mining claims in Ontario, which existed prior to the modernization (legacy claims in the new parlance), have been converted to what are now known as cell claims or boundary claims. A cell claim is a mining claim that relates to all the land included in one or more cells on the provincial grid. A boundary claim is a claim that is made up of only a part or parts of one or more cells. The claims expiry date is shown in Table 1.

All single cell mining claims are subject to \$200 - \$400 per unit worth of eligible assessment work to be undertaken before their expiry date as shown in Table 1 below. Total work commitment to maintain these claims is \$42,400 per year or the other option is to pay cash in lieu.

Mining claims in Ontario do not include surface rights. The surface rights on the Property are owned by Crown where a permit is required to carry out intrusive exploration work such as line-cutting, trenching and drilling.

First Nation communities within Greenstone municipal boundaries are Long Lake 58, Lake Nipigon Ojibway, Rocky Bay and Sand Point, while Aroland and Ginoogaming First Nations are situated just outside the Municipality, adjacent to the wards of Nakina and Longlac, respectively (Source: <http://greenstone.ca/>). Any exploration and mining work on the Property will need to be carried out in consultation with these communities.

Claim data is summarized in Table 1, while a map showing the Claims is presented in Figure 2. There is no past producing mine on the Property and there were no historical mineral resource or mineral reserve estimates documented.

There are no known environmental liabilities. There is one lithium pegmatite showing on the Property named "Georgia Lake SE Lithium Occurrence" which is documented in Pye's map M2056 (1965) attached to its report on the Georgia Lake pegmatites.

**Table 1: List of Property Claims**

Township / Area	Tenure ID	Tenure Type	Registered and Beneficial Title Holder	Work Required (\$)	Anniversary Date
BARBARA LAKE AREA	599765	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599764	Multi-cell Mining Claim	ALEXANDER PLESON (100%)	\$4,800	7/19/2022
BARBARA LAKE AREA	599763	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
LAKE JEAN AREA	599762	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
LAKE JEAN AREA	599761	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
LAKE JEAN AREA	599760	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
LAKE JEAN AREA	599759	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599758	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599757	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599756	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599755	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599754	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599753	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022



Township / Area	Tenure ID	Tenure Type	Registered and Beneficial Title Holder	Work Required (\$)	Anniversary Date
BARBARA LAKE AREA	599752	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599751	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599750	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
LAKE JEAN AREA	599749	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599748	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599747	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA, LAKE JEAN AREA	599746	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599745	Multi-cell Mining Claim	ALEXANDER PLESON (100%)	\$9,600	7/19/2022
BARBARA LAKE AREA	599744	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599743	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599742	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599741	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599740	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599739	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022

Township / Area	Tenure ID	Tenure Type	Registered and Beneficial Title Holder	Work Required (\$)	Anniversary Date
BARBARA LAKE AREA	599738	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599737	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599736	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599735	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599734	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599733	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599732	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599731	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599730	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599729	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599728	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599727	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599726	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599725	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022

Township / Area	Tenure ID	Tenure Type	Registered and Beneficial Title Holder	Work Required (\$)	Anniversary Date
BARBARA LAKE AREA	599724	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599723	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599722	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599721	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599720	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	7/19/2022
BARBARA LAKE AREA	599719	Multi-cell Mining Claim	ALEXANDER PLESON (100%)	\$6,800	7/19/2022
BARBARA LAKE AREA	596221	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596220	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596219	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596218	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596217	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596216	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596215	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022
BARBARA LAKE AREA	596214	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	6/17/2022

Township / Area	Tenure ID	Tenure Type	Registered and Beneficial Title Holder	Work Required (\$)	Anniversary Date
BARBARA LAKE AREA	547826	Single Cell Mining Claim	ALEXANDER PLESON (100%)	\$400	4/8/2021
56 Claims		Work Required		\$42,400	

Figure 1: Property Location Map



Figure 2: Claim map with physiography

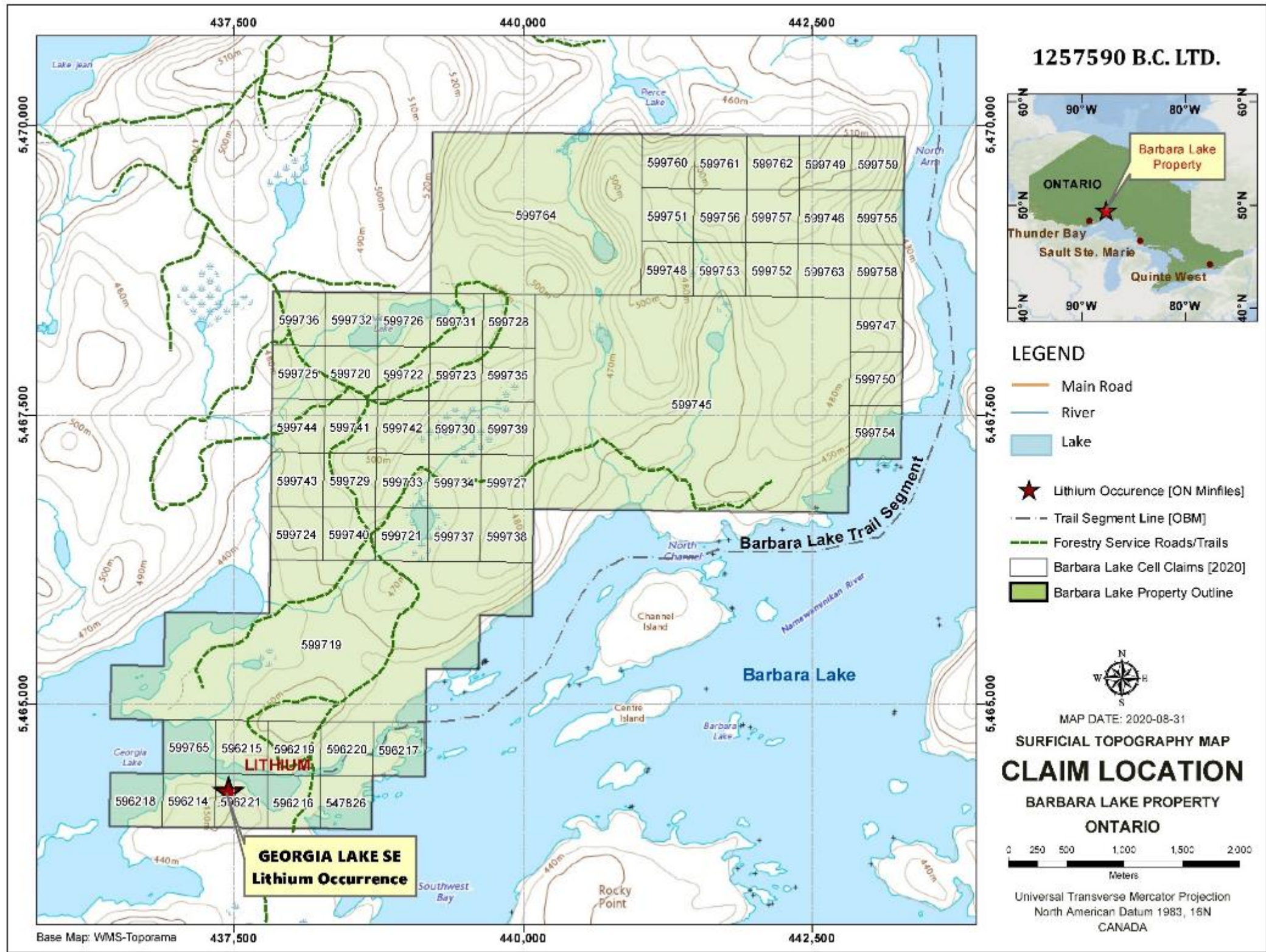
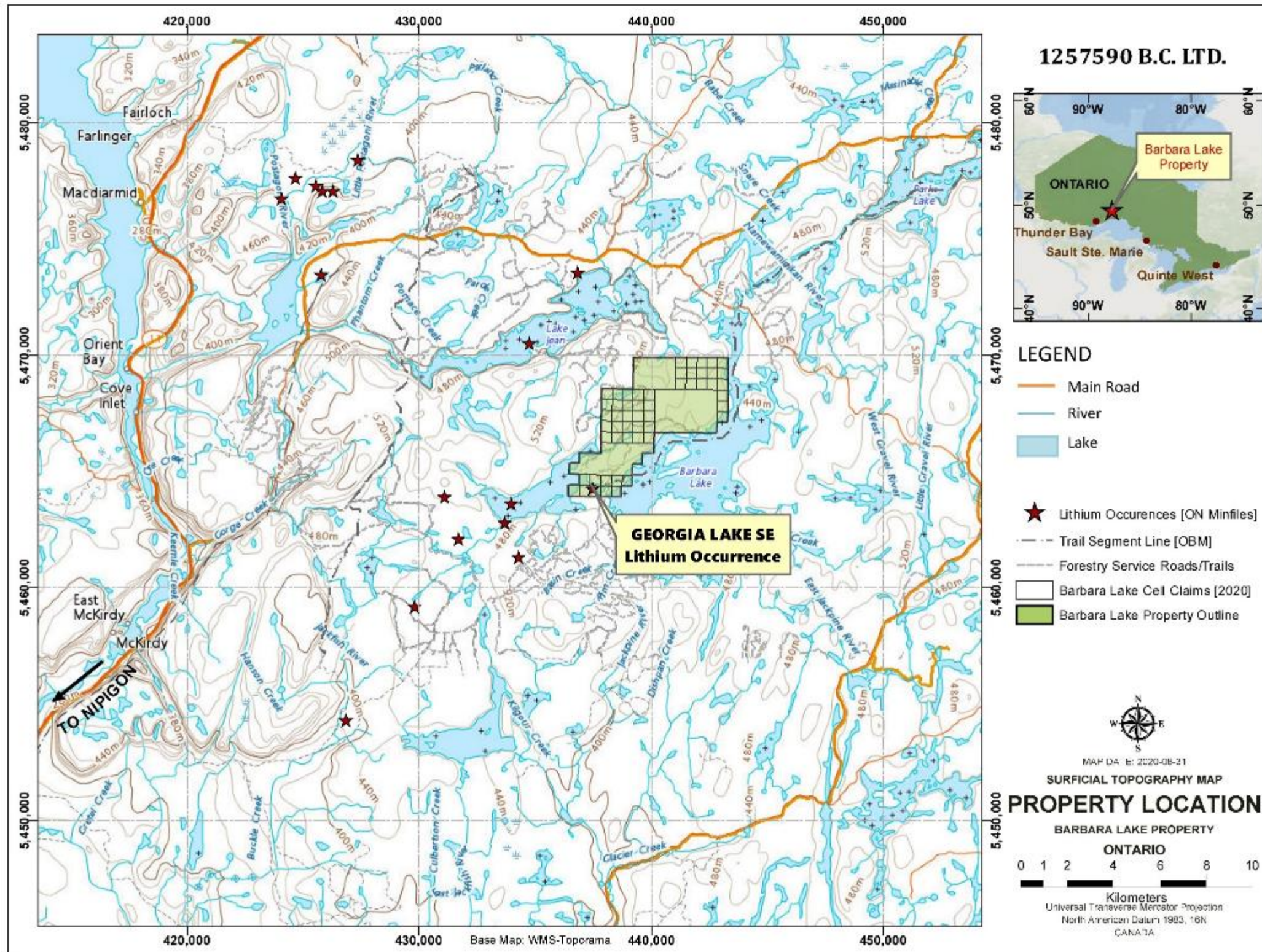


Figure 3: Claim location and access



## **5.0 ACCESS, CLIMATE, PHYSIOGRAPHY, LOCAL RESOURCES, AND INFRASTRUCTURE**

### **5.1 Access**

The Property is located about 160 kilometres to the northeast of the City of Thunder Bay near the provincial Highways 11 (Figures 2 and 3). The nearest town to the property is Nipigon situated 60 km to the southwest of the Property. The Property can be accessed by dirt roads off Highway 11 north of the town of Nipigon by driving 40 km north of the town of Nipigon on Highway 11, then driving approximately 23 km northeast on the Gorge Creek Road (Camp 75 Rd.) towards Jean Lake and continuing south towards Barbara Lake. The claim block can also be accessed continuing east from the Jean Lake road on the Gorge Creek Road to km 32 where a small gravel road leads to the Barbara Lake Landing. The most efficient means of access is 6.8km south by boat down Barbara Lake.

### **5.2 Climate**

The climate on the Property mirrors that of Nipigon which lies on 202m above sea level. The climate is cold and temperate. The rainfall in Nipigon is significant, with precipitation even during the driest month. The average temperature in Nipigon is 1.8 °C | 35.2 °F. The annual rainfall is 770 mm | 30.3 inch. The warm season lasts for 3.8 months, from May 21 to September 14, with an average daily high temperature above 61°F (16°C). The hottest day of the year is generally July 24, with an average high of 74°F (23°C) and low of 54°F (12°C). The cold season lasts for 3.0 months, from December 1 to March 1, with an average daily high temperature below 23°F(-5°C). The coldest day of the year is January 28, with an average low of -9°F (-23°C) and high of 12°F (-11°C).

The rainy period of the year lasts for 7.7 months, from March 29 to November 20, with a sliding 31-day rainfall of at least 0.5 inches (1.27 cm). The most snow falls during the 31 days centered around November 23, with an average total liquid-equivalent accumulation of 0.9 inches. Exploration work such as geological mapping, prospecting, trenching, and sampling can be carried out during summer months, whereas drilling and geophysical surveying can be done throughout the year.



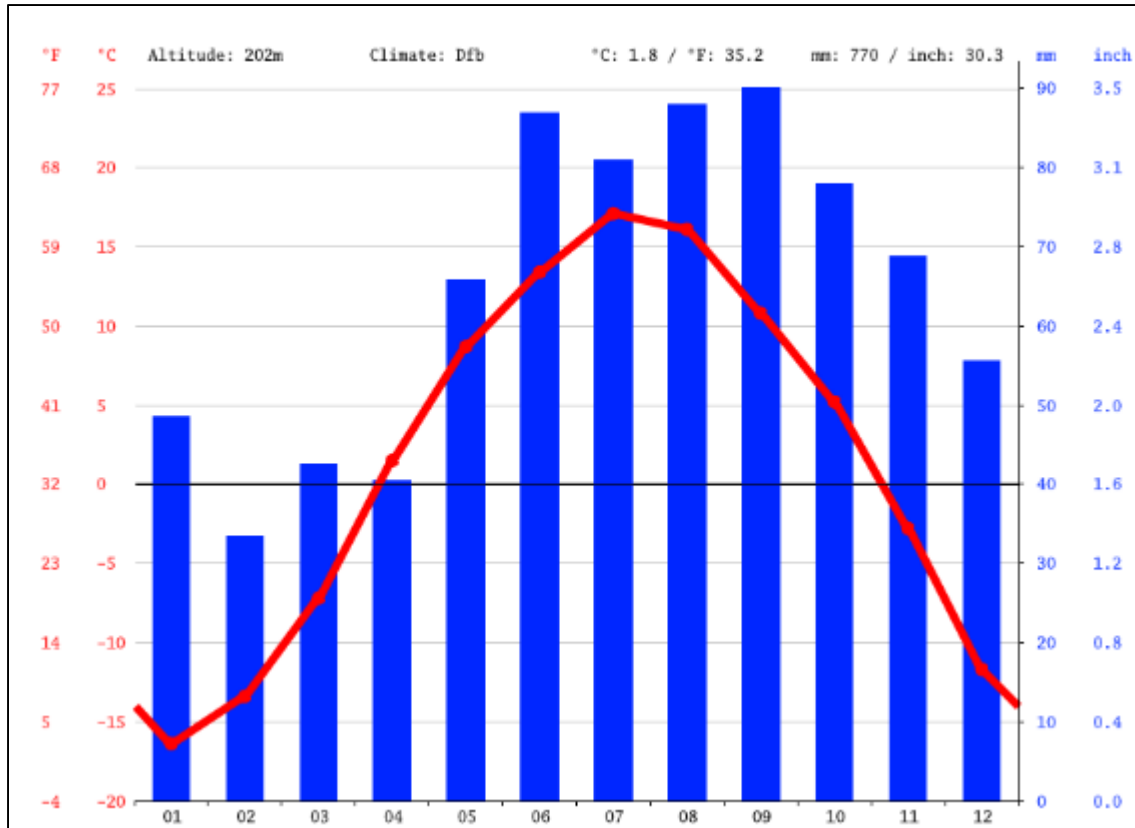


Figure 4: Nipigon Average Temperatures and Precipitation (Source: Climate-Data.Org)

### 5.3 Physiography

Physiography of the Property (Figure 2 and 3) is typical of the Canadian Shield, with large competent outcrops surrounded by lakes and swamps. The property comprises broadly rolling surfaces of Canadian Shield bedrock that occupies most of northwestern Ontario and which is either exposed at surface or shallowly covered with Quaternary glacial deposits. Late Wisconsinan glacial deposits cover the Property area is defined by glacial activity. The elevation changes are gradual with glacial lakes, muskeg and marshes surrounded by hills, moraines, and ridges of glaciofluvial material and till. Glacial material is typically unsorted sand, silt, and gravel. The height of the land in the Barbara Lake property varies between 440 m to 500 m above sea level (Figure 2). Small creeks exist throughout the region and drain into Barbara Lake. Sharp fault valleys and cliffs have been observed in the area and it appears to affect the outcrop exposure and distribution which is a mixture of large expansive outcrops and low-lying swamps. The glacial overburden is typically between one and five metres thick.

Mature coniferous forests cover most of the property, with sporadic young regeneration of deciduous trees due to past logging operations. The Property area is covered by boreal forest with the dominant species being Jack pine and Black Spruce. Willow shrubs and grasses dominate the low marshy areas. The land surface within the area varies somewhat from the

region in that there is considerable relief between the lakes in most areas and the ground surface.

#### **5.4 Local Resources and Infrastructure**

The nearest town to the property is Nipigon situated 60 km south of the Property. The town of Nipigon has most of the basic supplies needed, with a grocery stores, a hardware store, restaurants, hotels, a hospital and an OPP station. The population for Nipigon Township is 1,752 people in 2006 (Statistics Canada, [www.statcan.gc.ca](http://www.statcan.gc.ca)).

The Property has good road access, located east of Highway 11. Canadian National Railway (CN Rail) has a corridor connecting Nipigon with Toronto, Thunder Bay and Winnipeg. There are several lakes, rivers, and creeks in and around the Property area which can be a source of water for exploration work. The Property size is good enough for future exploration and mining operations. There is a power line that runs along the TransCanada highway #11 about 25 km from the property. There are three hydroelectric stations on the Nipigon River, all of which are controlled remotely by the headquarters in Thunder Bay: Alexander Station with 68 MW output (17 km north of the town of Nipigon), Cameron Falls with 87 MW output (17 km north of the town of Nipigon) and Pine Portage with 142 MW (39 km north of the town of Nipigon) ([http://www.opg.com/power/hydro/northwest\\_plant\\_group/](http://www.opg.com/power/hydro/northwest_plant_group/)).

The town of Thunder Bay, located about 160 kilometres from the Property, is the largest city in Northwestern Ontario, serving as a regional commercial centre. The town is a major source of workforce, contracting services, and transportation for the forestry, pulp and paper and mining industry. Thunder Bay is a transportation hub for Canada, as the TransCanada highways 11 and 17 link eastern and western Canada. It is close to the Canada-U.S. border and highway 61 links Thunder Bay with Minnesota, United States. Thunder Bay has an international airport with daily flights to Toronto, Ontario and Winnipeg, Manitoba, and the United States. There is a large port facility on the St. Lawrence Seaway System which is a principal north-south route from the Upper Midwest to the Gulf of Mexico.

The city of Thunder Bay has most of the required supplies for exploration work including grocery stores, hardware stores, exploration equipment supply stores, restaurants, hotels, and a hospital. Many junior exploration and mining companies are based in Thunder Bay, and thus the city is a source of skilled mining labour.

### **6.0 HISTORY**

The Ontario Department of Mines mapped the Georgia Lake area in the late 1950s over a period of several years after a staking rush prompted by the discovery of spodumene in this area. The objectives of the survey were to study the nature, distribution, and genesis of area pegmatites and to produce a geological map of the Georgia Lake area. The results are summarized by Pye (1965). A Ph.D. thesis (Milne, 1962) details the mineralogy of the more prominent pegmatites and provides maps of some pegmatites. General descriptions of the pegmatite occurrences are also summarized by Mulligan (1965). Interest in the lithium

pegmatites of the Georgia Lake area subsided soon after 1960 because of a 50% drop in the price of lithium hydroxide and a decrease in the consumption of lithium. The area has since remained idle except for sporadic staking activity and a brief examination of several pegmatites by the Ontario Geological Survey in 1980 (Breaks, 1980). With the surge in lithium prices due to its use in lithium-ion batteries, there was renewed interest in the Georgia Lake area pegmatites in 2009 when Rock Tech Lithium and several other juniors acquired properties over there and started exploration work.

There is one lithium pegmatite showing on the Property named “Georgia Lake SE Lithium Occurrence” which is documented in Pye’s map M2056 (1965) attached to its report on the Georgia Lake pegmatites (Figure 2). The Property and its surrounding area near Barbara Lake pegmatites is relatively underexplored as compared to the western part of the Georgia Lake pegmatite field, as it is located farther to the east on Highway 11. However, there are several pegmatites documented in Ontario Geological Survey (OGS) and other publications indicating potential of Barbara Lake pegmatites subfield for follow up exploration work and discovering lithium deposits in the area.

## **6.1 Zayachivsky 1985**

Zayachivsky in 1985 carried out a study on the Georgia Lake pegmatites for partial fulfilment of his master’s degree program at Lakehead University, Thunder Bay, Ontario. A part of the study included Barbara Lake pegmatites and is summarized below.

Field work for his project was carried out in May 1984. During this period 15 rare-element pegmatite occurrences were visited including Barbara Lake. The main purpose of the fieldwork was to collect an array of samples from pegmatites for subsequent geochemical analysis. Traverses were also made across many of the granitic bodies outcropping within and along the flanks of the pegmatite field.

### **Study Findings**

The Barbara Lake Stock is the northernmost exposure of two-mica leucogranite in the Georgia Lake area. It is an arcuate body lying between Barbara and Jean Lakes. A western portion of the stock is obscured by overlying diabase. The Barbara Lake Stock is in sharp contact with metasediments, where observed. The body is homogeneous with respect to texture and mineralogy, but a slight increase in grain size of feldspar and quartz occurs toward the northern contact. The proportion of muscovite to biotite in rock specimens is intermediate and increases slightly toward the northern contact. The mica that is present does not impart a distinct foliation. Simple granitic pegmatite dykes that crosscut the granite are numerous and variably oriented.

The most highly fractionated pegmatites are spodumene-bearing with minor tantalite-columbite. Two-mica leucogranites are fine- to coarse-grained granitoids with ubiquitous biotite and muscovite and subordinate garnet. Geochemically, the two-mica leucogranites are the most highly fractionated granitoids of the area and are presumed to be derived as partial

melts of metasediments. Spodumene-bearing, rare-element pegmatites of the Georgia Lake area are divided into three main groups. Southern, Central and Northern Group pegmatites where the Barbara Lake Pegmatites are part of the Northern Group.

## **6.2 Ontario Geological Survey Work 2008**

Ontario Geological Survey (OGS) carried out regional investigation of mineralization associated with rare element pegmatites and related S-type, peraluminous granites in the Superior Province of Ontario which is documented in report titled “The Georgia Lake Rare-Element Pegmatite Field and Related S-Type, Peraluminous Granites, Quetico Subprovince, North-Central Ontario” by F.W. Breaks, J.B. Selway and A.G. Tindle (OGS Open File Report 6199, 2008). Part of this work was carried out on the Barbara Lake pegmatite subfields on the Property Area. This work included mineralogical and petrochemical detection of fertile, peraluminous parent granites coupled with regional sampling aimed at discerning exomorphic dispersion in the host rocks adjacent to rare-element pegmatites (Figure 6).

The main purpose of the study was to evaluate various peripheral areas of the Georgia Lake pegmatite field for further fertile, peraluminous granites and related rare-element mineralization. These include the Barbara–Gathering–Barbaro lakes area that lies east from the edge of an area mapped by Pye and another area, which has never been previously subjected to geological mapping, the Helen Lake section along Highway 11, Highway 585 north of Nipigon and the Moseau Mountain Road. The second purpose of this survey was to expand the geochemical–mineralogical database of Kissin, Zayachivsky and Branscombe (1986) by examining the documented fertile granites and a representative suite of the rare-element pegmatite types.

A total of 237 bulk rock samples and 126 bulk mineral samples of rare element pegmatite indicator minerals were collected and analyzed at the Geoscience Laboratories of the Ontario Geological Survey. A total of 2331 electron microprobe analyses were undertaken by A.G. Tindle at The Open University and a further 91 analyses of garnet were analyzed at the Geoscience Laboratories of the Ontario Geological Survey. The electron microprobe compositions include tantalum-niobium oxide minerals (i.e., ferrocolumbite, ferrotantalite, manganocolumbite, manganotantalite, microlite and ferrotapiolite), cassiterite, tourmaline (schorl, dravite and elbaite), garnet, fluorapatite, beryl, potassium feldspar, micas (lepidolite and muscovite), spodumene, alluaudite and lithiophilite.

### **Barbara Lake Stock Description**

This 8 by 11 km granitic mass was also initially delineated by Pye (1965) and formally named by Zayachivsky (1985). The stock consists of an irregular body of grey to white granite and various consanguineous pegmatitic granite units. Three westward projections of the granitic mass into its clastic metasedimentary host rocks are apparent at Lake Jean, Georgia Lake and Reef Bay of Barbara Lake (Figure 6). The eastern limits of the stock are currently not defined and it is plausible that the granitic rocks represent a gradation into the northeast part of the Glacier Lake batholith that also contains similarly evolved rocks, particularly in the Parks and Gathering

lakes areas. The projections of the pluton into the Lake Jean and Georgia Lake areas are mainly composed of light grey, massive, medium-grained, biotite-muscovite granite and granodiorite that locally grade into pods and veins of pegmatitic units.

Several beryl-bearing pegmatitic granite occurrences were found in the Barbara Lake stock. In addition, a beryl occurrence was described by Zayachivsky (1985) near the south shore of Barbara Lake. Niobium - tantalum (Nb-Ta) oxide minerals were found (Figure 6).

Within the eastern part of the stock in the Barbara Lake area, the stock changes into a dominant pegmatitic granite facies with the following units observed:

- pegmatitic leucogranite
- sodic pegmatite
- potassic pegmatite
- sodic aplite
- quartz-rich pods within sodic and potassic pegmatites
- albitite

This fertile granite mass has bulk rock compositions similar to the adjacent northeastern part of the Glacier Lake batholith. The constituent fertile pegmatitic granite and two-mica granite units of the stock completely overlap with rare-element pegmatites of the Lake Jean pegmatite group. Albitites in the Barbara Lake stock and from the Foster and Brink pegmatites reveal peralkaline and mildly peraluminous compositions due to the high content of albite.

The Barbara Lake stock, which is plausibly derived from the northeastern Glacier Lake batholith, exhibits a range in cesium contents of 16 to 62 ppm Cs and K/Rb of 70 to 154. Rare-element pegmatite groups, derived from the Barbara Lake stock, however, reveal pronounced evolution that has led to a marked increase in cesium (range = 12.6 to 829 ppm Cs) and generally highly evolved K/Rb values (8 to 138). The Ta versus Nb plot shows a trend towards extremely evolved Nb/Ta in a data cluster that overlaps with the most fractionated part of the field for the parental northeastern Glacier Lake batholith (Figure 7). The Barbara Lake stock itself defines most of this trend and achieves Nb/Ta values in the range of 1.0 to 7.0 and a maximum concentration of 91 ppm Ta in albitite. Rare-element pegmatite dikes derived from the Barbara Lake stock exhibit even higher contents (118 ppm to 289 ppm Ta). Such tantalum values in excess of 100 ppm can be deemed of exploration interest.

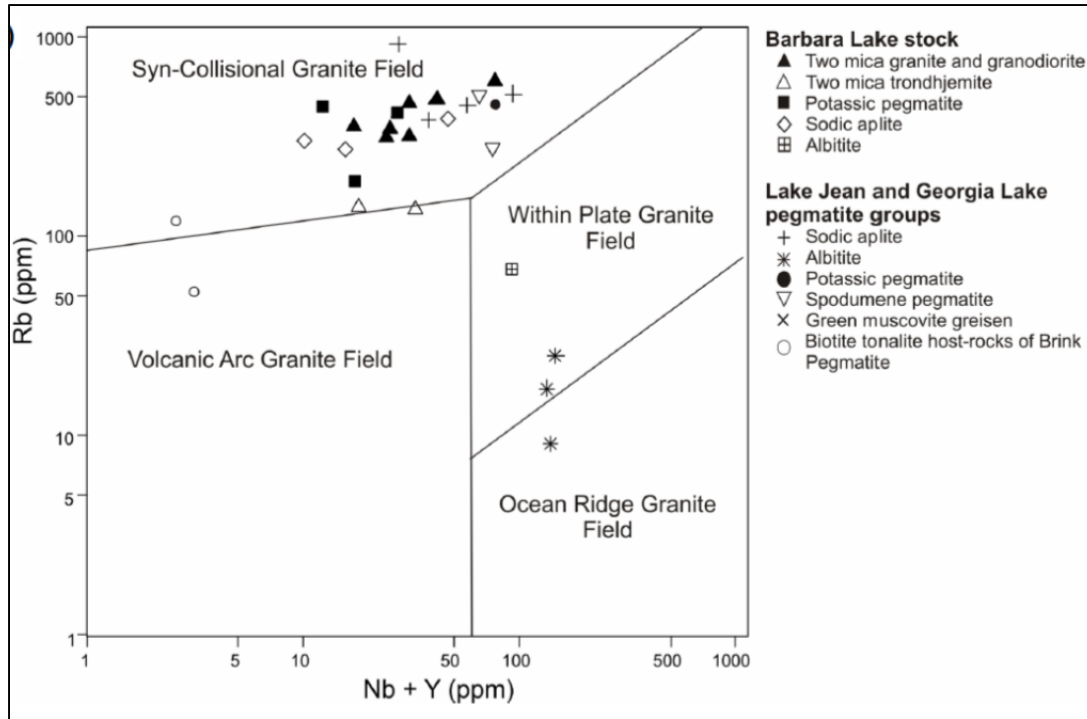


Figure 5: Nb+Y versus rubidium tectonic discrimination diagrams (Pearce, Harris and Tindle 1984) for bulk rocks from Barbara Lake stock, Georgia Lake and Lake Jean pegmatite groups (Source: OGS Report 6199).

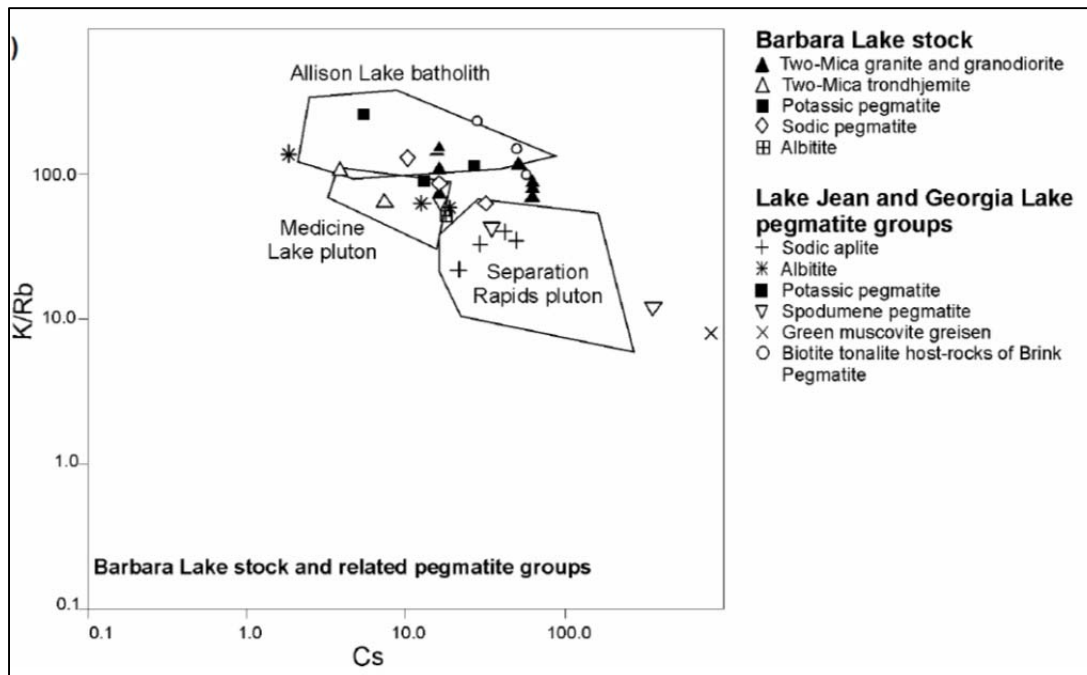


Figure 6: Cesium versus K/Rb variation in bulk rocks of the Barbara Lake stock, Georgia Lake and Lake Jean pegmatite groups (Source: OGS Report 6199).

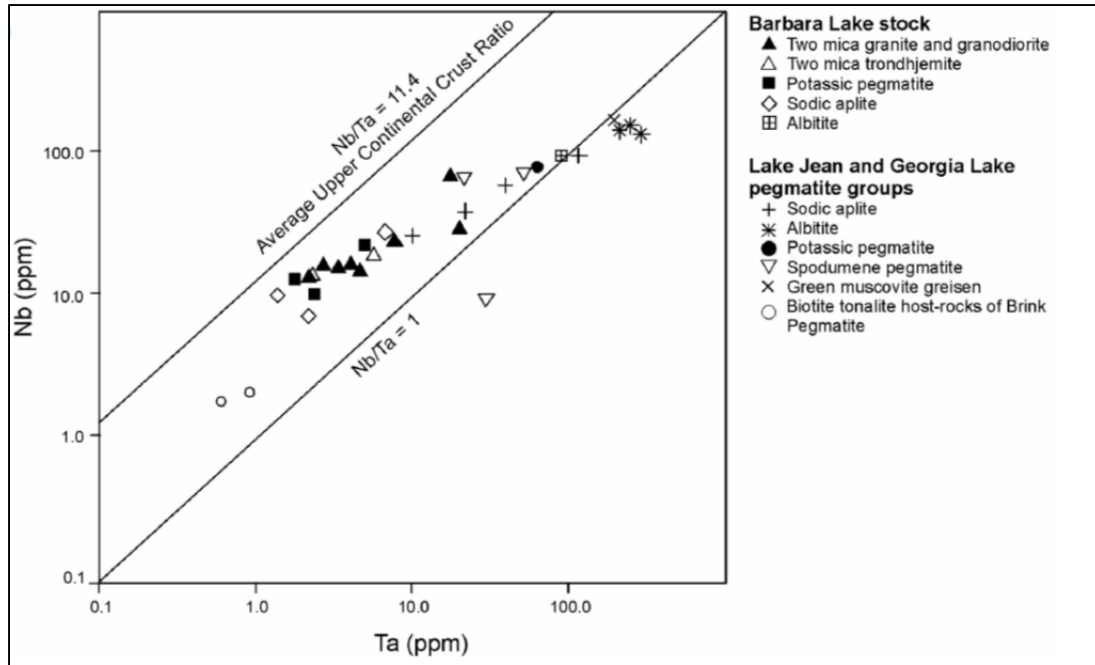


Figure 7: Tantalum versus niobium variation in bulk rocks of Barbara Lake stock, Georgia Lake and Lake Jean pegmatite groups (Source: OGS Report 6199).

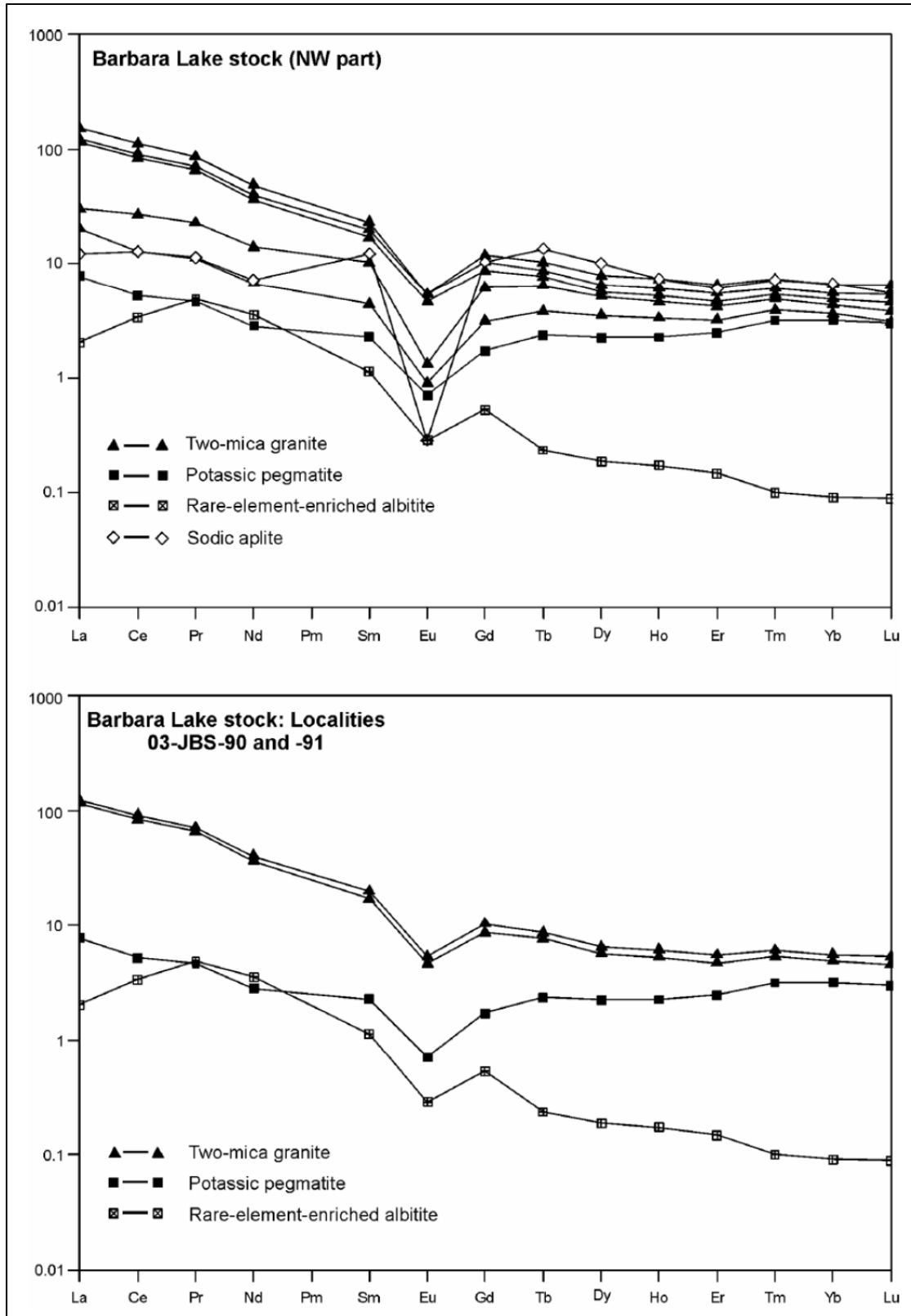


Figure 8: Chondrite- normalized REE patterns for Barbara Lake Stock (Source: OGS Report 6199)



## Study Findings

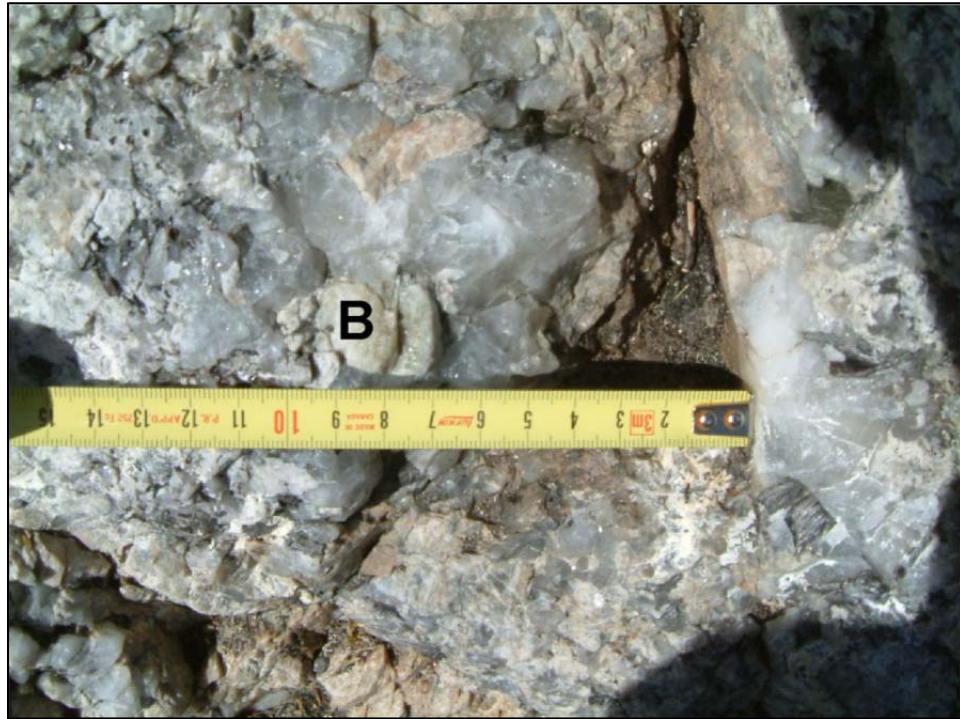
- Fractionation of residual pegmatitic granite melts produced fertile granite masses and related rare-element pegmatites that are distributed along the northeastern contact zone of the Glacier Lake batholith contact between Barbara Lake and Gathering Lake area.
- Detection of fertile granite and pegmatitic granite, which potentially spawned rare-element pegmatite swarms, is effectively undertaken by evaluation of indicator mineral chemistry (potassium feldspar, muscovite, garnet and tourmaline).
- Regional anatexis of clastic metasedimentary rocks and consequent generation of S-type, peraluminous granitic rocks occurred in the Quetico Subprovince at  $2670 \pm 2$  Ma (Percival and Sullivan 1988). A later event of probable I-type granitic magmatism led to emplacement of magnetite–biotite granite at  $2665 \pm 2$  Ma and this event was postdated by massive granitic pegmatite at  $2653 + 3 / - 4$  Ma.
- Sporadic occurrences of Nb-Ta oxide minerals were also documented in fertile granite plutons such as the Barbara Lake and the MNW stocks.



Photo 1: Contact between layered sodic aplite and muscovite potassic pegmatite, Barbara Lake stock at locality 03-JBS-93 (Source OGS report 6199)

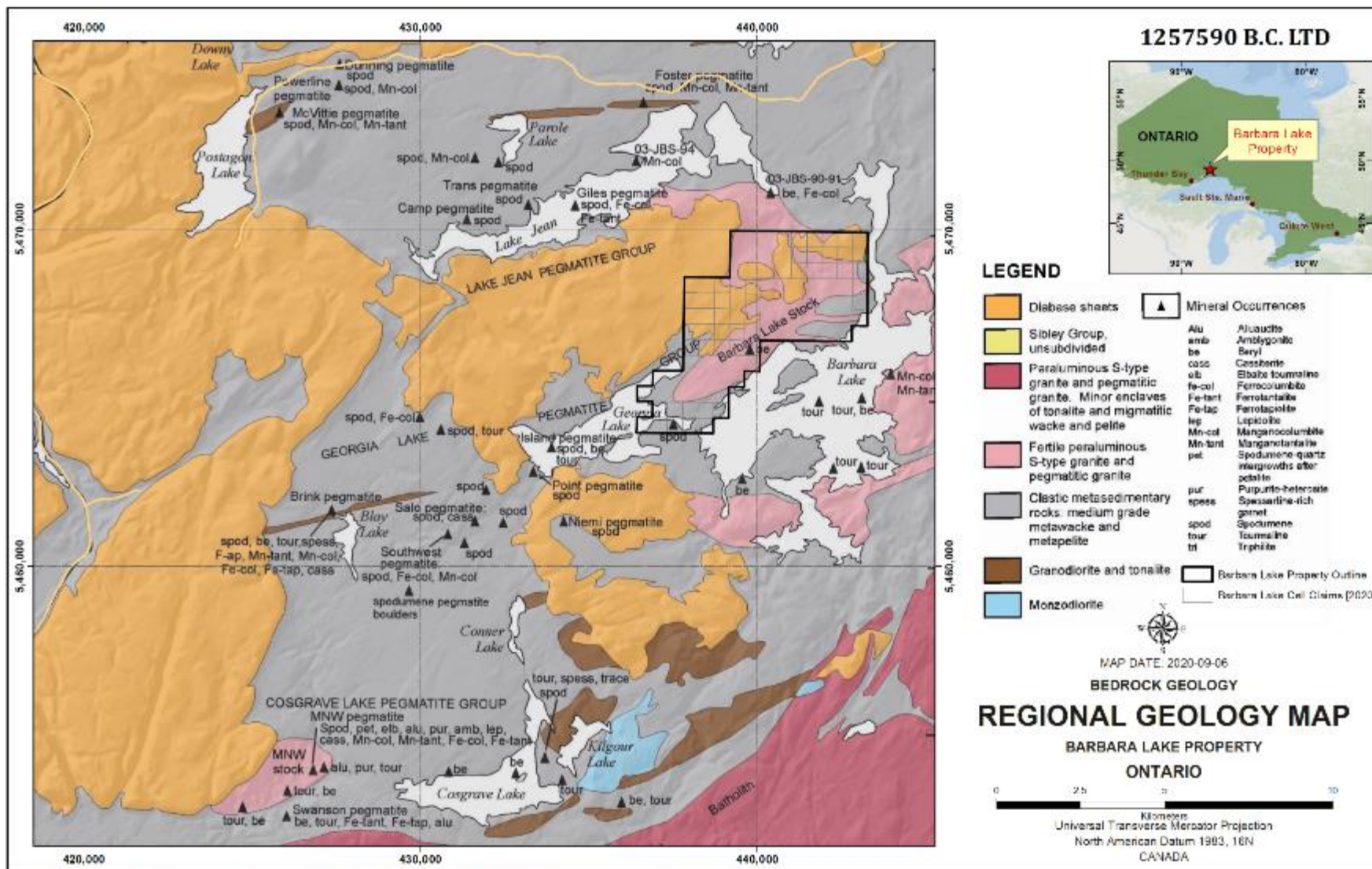


**Photo 2: Gradation from coarse-grained, garnet-muscovite granite into a pod of muscovite potassic pegmatite at locality 03-FWB-25 on Barbara Lake (Source OGS Report 6199).**



**Photo 3: Green beryl crystal (B) within a potassium feldspar-muscovite-bearing, quartz-rich pod hosted in biotite-muscovite potassic pegmatite on a small island in Barbara Lake at locality 03-FWB-24 (Source: OGS Report 6199).**

Figure 9: Map showing distribution of rare element pegmatite group with mineralogical occurrences from OGS 6199 report.



GEOLOGY: "The Georgia Lake Rare Element Pegmatite Field and Related S-Type, Peraluminous Granites, Quebec Subprovince, North-Central Ontario" by F.W. Brooks, J.B. Selway and A.G. Thole (OGS Open File Report 6199, 2018)

### 6.3 2019 Exploration Work

In August 2019, Pleson Geoscience carried out exploration work on claims 334337, 334338, 170640, 202919. The exploration program tasks were to identify areas of prospective lithium mineralization, gain an overview of the terrain, and ultimately prospect and discover any new lithium occurrences. The work involved was to gain access and traverse around the historically discovered lithium pegmatite, noted in the MDI (Mineral Deposit Inventory) files as the “Georgia Pegmatite SE”.

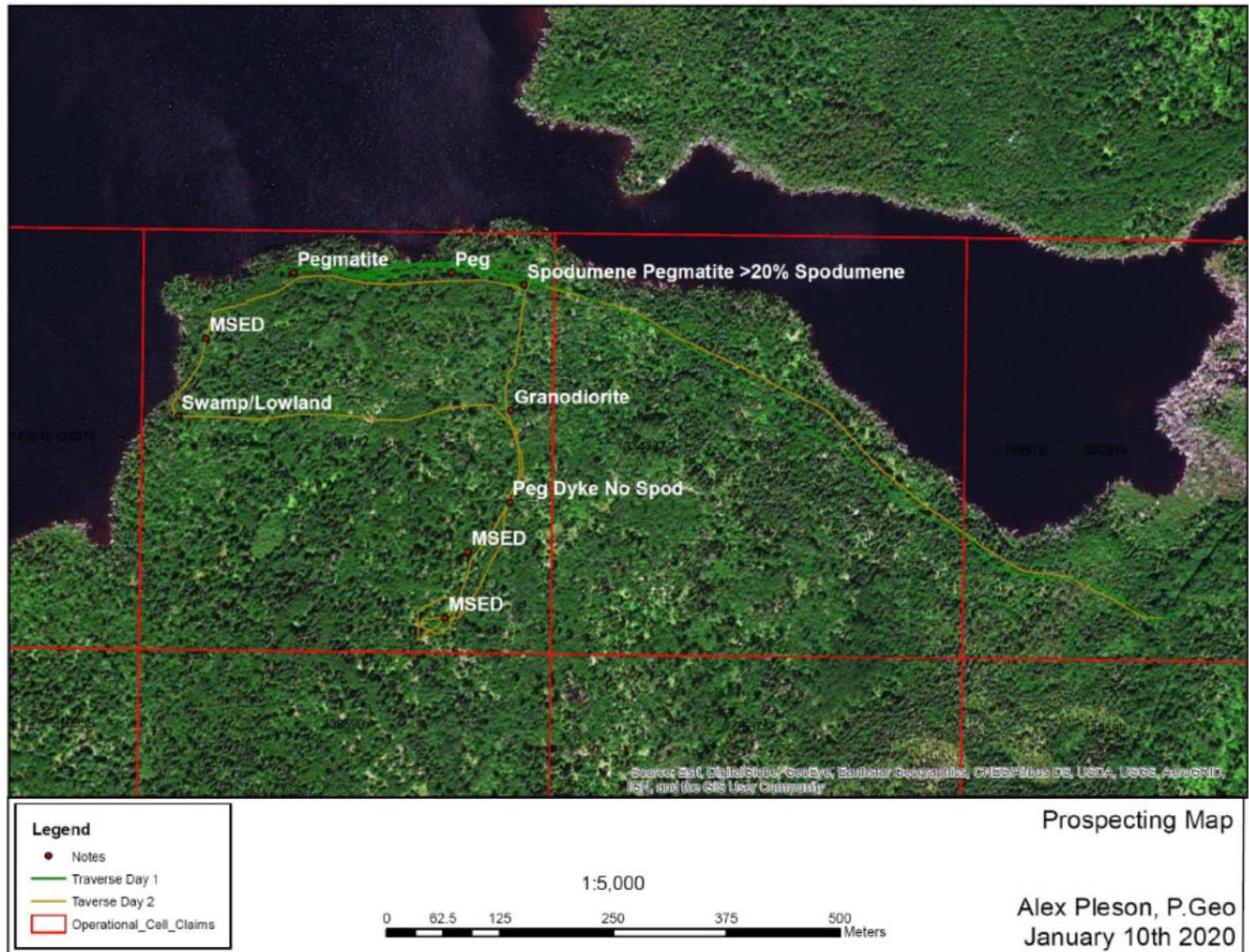
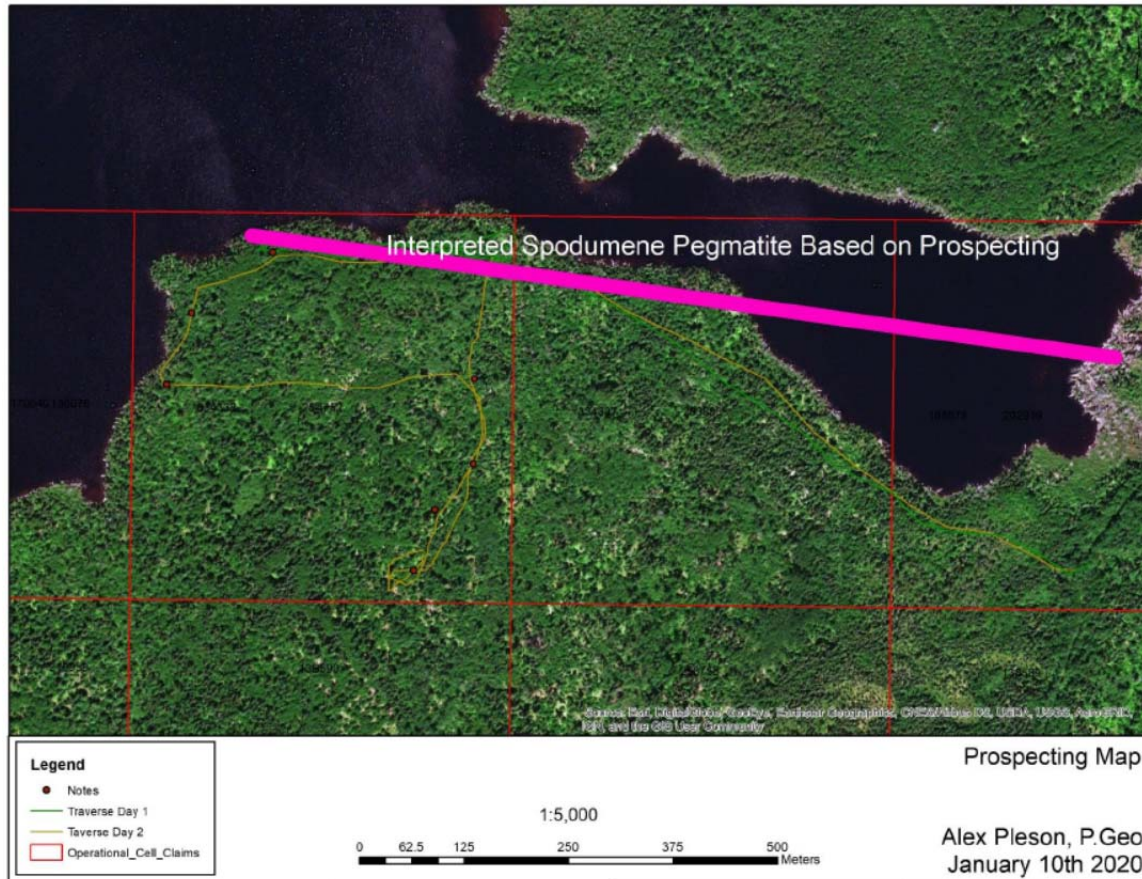


Figure 10: 2019 Prospecting Map



**Figure 11: 2019 Prospecting Map with Interpreted Pegmatite Extension**

### Program Results and Recommendations

The Georgia Lithium pegmatite located on the Property was one of the initial discoveries made in the Georgia Lake Area in the 1950s. The dyke prospected in August was determined to be at least 3 meters wide and strikes for at least 400 meters. The observed spodumene content is at least 20% which should translate into at least 1-2%  $\text{Li}_2\text{O}$  assays. Prospecting south of the known pegmatite did not uncover any further lithium mineralization but the lack of outcrop and low overburden shows promise for cost effective trenching in the future to uncover more mineralization.

It was recommended to apply for an exploration permit to carry out trenching work along the main dyke and do soil sampling using MMI or SGH to develop trenching targets.

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Property is situated in the Quetico Subprovince of the Superior Geological Province. This Subprovince consists dominantly of clastic metasediments with inter-formational chemical metasediments which deposited between 2.70 and 2.69 Ga. The clastic metasediments represent a strongly metamorphosed turbidite sequence varying from arenaceous to argillaceous with local conglomerates units. Banded iron formations within the metasediments consist of ferruginous chert, oxide (magnetite-chert) and sulphide (sulphide-chert) facies with localized graphite. There are numerous pegmatite and diabase dykes cross-cutting the clastic and chemical metasediments. General younging is to the north, but there are local south overturns. The rocks of the Quetico Subprovince have undergone lower amphibolite metamorphism (Smyk *et al.*, 2005).

The igneous rocks in the Quetico Subprovince include abundant felsic and intermediate intrusions, metamorphosed rare mafic and felsic extrusive rocks and an uncommon suite of gabbroic and ultramafic rocks. The earlier felsic intrusions occurred 5 to 10 million years after the accumulation of sediments and are interpreted to be I-type intrusions. The later felsic intrusions occurred 20 million years after the sedimentation and are designated as S-type (White and Chapell, 1983).

The Quetico Subprovince was subjected to four deformational events between approximately 2700 and 2660 million years (Williams, 1991). The predominant stratigraphic-facing direction is north. Regional schistosity is variably developed and oriented and is interpreted to be the result of regional shortening and dextral shearing.

Four major faults cut through the Quetico Subprovince: the easterly trending Quetico fault the Rainy Lake-Seine River fault, the northeasterly trending Gravel River fault (Williams, 1989) and the Kapuskasing Structural Zone (Selway 2011). Metamorphism, migmatite formation and granite intrusion occurred between 2.67 and 2.65 Ga (Williams, 1991). The grade of metamorphism ranges from lower greenschist to amphibolite facies and tends to be lower in the marginal rocks of the Subprovince and higher in the core regions.

Widespread economic mineralization within the Quetico Subprovince is generally lower than in the adjacent greenstone dominated terranes (Williams, 1991). Minor gold mineralization is associated with veining along the Quetico Fault (Poulsen, 1983). Molybdenite occurs in biotite leucogranites in the Dickinson Lake area. The only potentially important deposit type consists of the late-stage pegmatites that contain the rare elements lithium, beryllium, tantalum, niobium and tin (Williams, 1991). The rare-element pegmatites have widespread distribution in the Quetico Subprovince covering at least a 540-km strike length from west to east and a large percentage of pegmatites occur in the centre of the Subprovince (Breaks, Selway and Tindle, 2006).

The pegmatites in the Quetico Subprovince are hosted by metasediments and by their parent granite (Pye, 1965; Breaks, Selway and Tindle, 2003a, 2003b).

## 7.2 Property Geology

All the bedrock of the Georgia Lake area is of Precambrian age; and because of the presence of a major angular unconformity, can be separated into two principal divisions, the Archean and Proterozoic. The oldest Archean rocks are metasediments. They strike east-northeast and dip steeply, in general to the north. Since they do not appear to be separated from the metavolcanics by a surface of unconformity, they are considered by Peach (1951) to be a part of the same group, customarily referred to by previous workers in the region as Keewatin.

After their formation, the metasediments were invaded by large masses of Algonian granitic rocks, exposed in the southeastern, southern, and extreme western parts of the area, and by numerous sills and dikes of genetically-related porphyry, pegmatite, and aplite. Also cutting the metasediments are small stock-like masses and narrow dikes of basic rocks. Like the metasediments, these too have suffered from regional metamorphism; and because in places they were found to have been intruded by granite and pegmatite, they are considered to be Pre-Algonian in age.

Intrusive into the Proterozoic sedimentary rocks and the older formations are bodies of diabase. The largest occur as flat sheets (Logan sills), up to about 650 feet (198 m) in thickness; others occur as dikes of vertical or near-vertical attitude. Most of the dikes are no doubt related closely to the sheets and are of Keweenawan age. Some, however, are porphyritic in texture (Pye (1965).

### Metasediments

The oldest rocks are the Archean metasediments underlying the property area to the southeastern, southern and eastern fringes of the intrusive rocks. The metasediments strike east-northeast and dip steeply, in general, to the north. The dominant metasedimentary rock is biotite-quartz-feldspar schist or gneiss. It is a grey, rather dark coloured rock, having a distinct banded appearance due to compositional variations reflecting an original sedimentary stratification, with individual layers less than an inch to several feet thick. There is a distinct foliation due to parallel alignment of biotite crystals. Microscopic examination of the biotite-quartz-feldspar schist shows that it is made up of: 15-40 vol.% biotite, 20-35 vol.% quartz, 25-45 vol.% plagioclase, 1-3 vol.% magnetite, trace amounts of zircon and rare hornblende. Secondary minerals include chlorite, sericite and epidote. The plagioclase shows myrmekite texture. The most abundant texture in the biotite-quartz-feldspar schist or gneiss is granoblastic, but porphyroblastic rocks are also present with porphyroblasts of garnet, staurolite and cordierite.

### Metagabbro

East of Cosgrave Lake and south of Barbara Lake, the metasediments were intruded by metagabbro. Since the metagabbro is not present on the property, it is not discussed here, and the reader is referred to Pye (1965) for more information on them.

**Granite**

The metasediments were also intruded by large masses of granitic rocks and by numerous sills and dykes of genetically-related porphyry, pegmatite and aplite. The granitic rocks are pale-grey or pale-pink in colour and their essential components are: 45-65 vol.% feldspar (microcline and plagioclase), 40 vol.% quartz, and one or both of muscovite and biotite and rarely little hornblende. The plagioclase has a composition of albite. Minor components of the granites include magnetite, zircon, and garnet, and secondary minerals: chlorite, sericite and epidote. For the most part the granites are equigranular, but porphyritic phases with microcline phenocrysts also occur. The contacts between the equigranular granitic rocks and the metasediments are generally abrupt. These rocks cover majority of the Barbara Lake Property area.

**Pegmatite**

The Georgia Lake rare-element pegmatite field came into prominence in the 1950s following the discovery of a spodumene-bearing pegmatite on Georgia Lake (Pye, 1965). All other known occurrences, mainly of the lithium-bearing type, were located soon after the initial discovery. The Georgia Lake area comprises the largest concentration of known rare-element pegmatites in Ontario (Breaks, 1980). Up to 40 lithium and beryllium pegmatites are exposed in outcrop over an area of approximately 600 square km (Zayachivsky 1985). A regional zoning is apparent, and a genetic association of pegmatites and granite is indicated. The pegmatites occur in two geometries: as irregular-shaped bodies and as thin dykes, sills, and attenuated lenses. The irregular bodies of pegmatite are intimately associated with the granite bodies often within a few hundred feet of the contact zone. They typically are medium- to coarse-grained, up to very coarse-grained and are made up of quartz, microcline, perthite and little muscovite. These would be classified as potassic pegmatites. Accessory minerals include biotite, tourmaline and garnet.

The pegmatite dykes, sills and lenses can be subdivided into rare-element pegmatites and granitic pegmatites. The rare-element pegmatites are of economic significance and they contain microcline or perthite, albite, quartz, muscovite and spodumene and minor amounts of beryl, columbite-tantalite and cassiterite. The granitic pegmatites are similar to the irregular pegmatites described above except that they contain more abundant plagioclase. Some of the pegmatites are parallel to the foliation or bedding of the metasediments, whereas others occur in joints in either the metasediments or granite. Contacts are usually sharp and, except where dykes cut granitic rocks, often found to be marked by a thin border zone of aplite or granitoid composition. A few pegmatites are internally zoned with mica-rich or tourmaline-rich rock along or close to the walls and quartz cores (Pye 1965).

**Sedimentary rocks**

The Proterozoic is represented by sedimentary rocks (sandstone and shale). Since these are not present on the Barbara Lake property, they are not discussed here, and the reader is referred to Pye (1965) for more information on them.

**Diabase**



Intrusive into the Proterozoic sedimentary rocks and the older formations are bodies of diabase. The largest occur as flat sheets (Logan sills), up to about 650 feet (198 m) in thickness, and as dykes of vertical or near-vertical attitude. Most of the dykes are related closely to the sheets and are Keweenawan age. The gently dipping diabase sheets are dark coloured and massive. The diabase sheets are well-jointed and most of the joints are vertical or steeply dipping. In outcrop, the diabase shows poorly-formed columnar structure.

There are two types of diabase dykes: one is equigranular and the other is porphyritic. The equigranular dykes are more abundant. Some of the dykes along or close to the contact zone of the large granite mass strike easterly; most dykes in other localities strike north or within 20° of north. With few exceptions the dykes are vertical or dip steeply. The porphyritic diabase dykes are massive medium-grained, dark-coloured rock characterized by many pale-greenish yellow phenocrysts of highly altered plagioclase. Porphyritic diabase dykes are found near the Jackpot.

### **Pleistocene**

Deposits of unconsolidated sand and gravel form a mantle over large sections of the area. Most of these are distinctly crossbedded and are believed to be glaciofluvial deposits. Others are of glaciolacustrine origin; they form a number of flat terraces representing successive drops in the level of Lake Nipigon upon the retreat of the Pleistocene ice sheet that once covered the region.

## **7.3 Mineralization**

As described by Pye (1965), the Georgia Lake area is known principally for its numerous deposits of lithium-bearing pegmatite. Some of these pegmatites are large and have grades comparable with those now being mined in other regions. In several the only lithium mineral, spodumene, has been highly altered. In many, however, this alteration is of little or no significance; and generally, the principal deposits are not of present economic importance owing rather to lack of markets than to any deleterious properties of the pegmatites themselves.

Spodumene, like potash feldspar, occurs in the Georgia Lake pegmatites principally as large isolated crystals in a relatively fine-textured groundmass of other minerals, and to a lesser extent as a part of the groundmass itself. In most places it is of prismatic habit, and individual crystals have length: width ratios that range from 3:1 to a maximum of about 10:1. Locally, in some of the deposits it also occurs as irregular-shaped, poikilitic grains, with rounded blebs of quartz and included subhedral and anhedral feldspars. The Georgia Lithium SE pegmatite located on the Property has observed spodumene content of 20%.

Figure 12: Regional Geology map

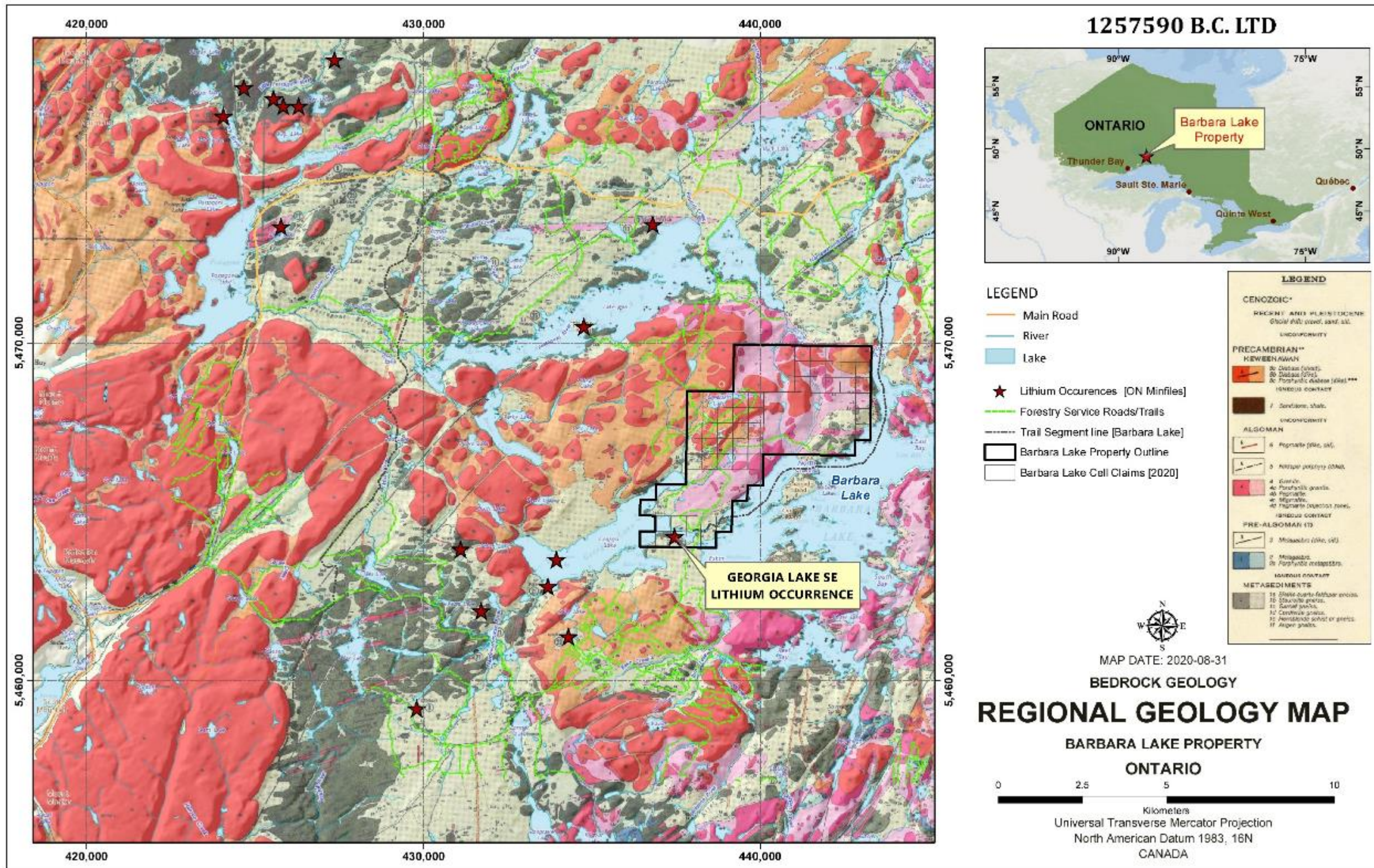
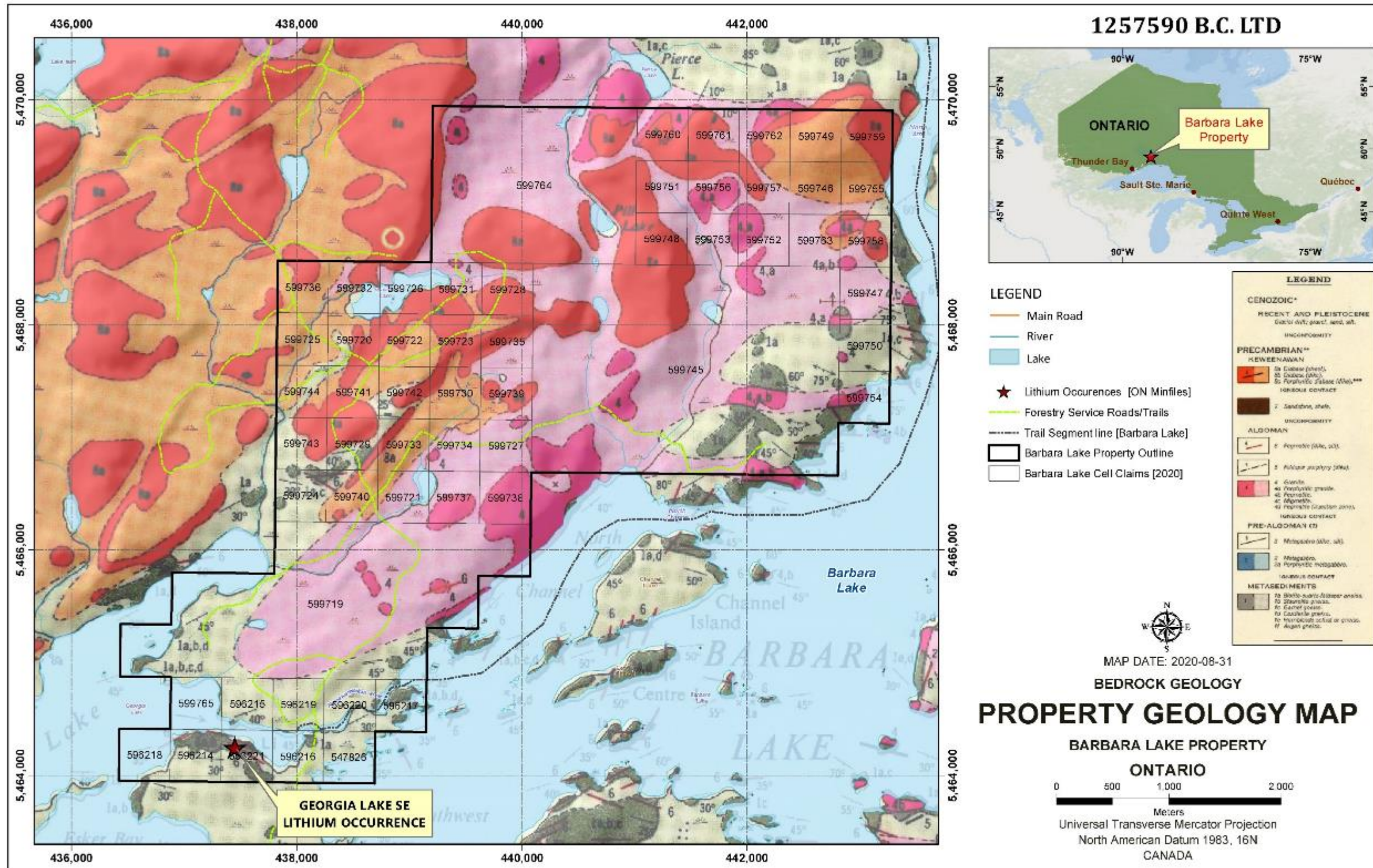


Figure 13: Property Geology Map

Figure 14: Property geology map



## **8.0 DEPOSIT TYPES**

### **8.1 Lithium Deposit Types**

Lithium does not occur as the free metal in nature because of its high reactivity and is extracted from the following three types of sources:

- Brines
- Pegmatites
- Sedimentary rocks

World-wide lithium resources are estimated to be 39 million metric tons (MT). Continental brines and pegmatites (or hard-rock ore) are the major sources for commercial lithium production. Generally, lithium extraction from brine sources has proven more economical than production from hard-rock ore. While hard-rock lithium production once dominated the market, most of lithium carbonate is now produced from continental brines in Latin America, primarily due to the lower cost of production.

#### **8.1.1 Brine Deposits**

Brine deposits represent about 66 percent of global lithium resources and are found mainly in the salt flats of Chile, Argentina, China and Tibet. The second half of the 20th century saw a dramatic shift in lithium carbonate (and some lithium chloride) production from the usual pegmatite sources to brines. Today, large quantities of lithium carbonate come from the brines of the Salar de Atacama, Chile, and Clayton Valley, Nevada (United States). Lithium chloride is also produced from the Salar del Hombre Muerto, Argentina. Various other salars and playas such as those of China, Bolivia, Argentina, and Tibet are being evaluated for future lithium chemical production (Kunasz 2004).

#### **8.1.2 Pegmatites Deposits**

Pegmatite is coarse-grained intrusive igneous rock formed from slow cooling of magma below the earth crust and contain large crystals. It can contain extractable amounts of a number of elements, including lithium, tin, cesium, niobium and tantalum. This form of deposit accounts for 26 percent of known global lithium resources. The Barbara Lake property falls under pegmatite deposit types. Lithium-cesium-tantalum (LCT) pegmatites are a petrogenetically defined subset of granitic pegmatites that are associated with certain granites. They consist mostly of quartz, potassium feldspar, albite, and muscovite. Common accessory minerals include garnet, tourmaline, and apatite (USGS 2016). Lithium in pegmatites is most found in the mineral spodumene, but also may be present in petalite, lepidolite, amblygonite and eucryptite.

### 8.1.3 Sedimentary rock deposits

Sedimentary rock deposits represent 8 percent of known global lithium resources and are found in clay deposits and lacustrine evaporites. In clay deposits, lithium is found in hectorite, which is rich in both magnesium and lithium. The most known form of lithium-containing lacustrine deposit is found in the Jadar Valley in Serbia for which the lithium- and boron-bearing element jadarite is named.

## 8.2 Deposit Model

Rare-element pegmatites may host several economic commodities, such as tantalum (Ta-oxide minerals), tin (cassiterite), lithium (ceramic-grade spodumene and petalite), rubidium (lepidolite and K-feldspar), and cesium (pollucite) collectively known as rare elements, and ceramic-grade feldspar and quartz (Selway *et al.*, 2005). Two families of rare-element pegmatites are common in the Superior Province, Canada: Li-Cs-Ta enriched (“LCT”) and Nb-Y-F enriched (“NYF”). LCT pegmatites are associated with S-type, peraluminous (Al-rich), quartz-rich granites. S-type granites crystallize from a magma produced by partial melting of preexisting sedimentary source rock. They are characterized by the presence of biotite and muscovite, and the absence of hornblende. NYF pegmatites are enriched in rare earth elements (“REE”), U, and Th in addition to Nb, Y, F, and are associated with A-type, subaluminous to metaluminous (Al-poor), quartz-poor granites or syenites (Černý, 1991a).

Rare-element pegmatites derived from a fertile granite intrusion are typically distributed over a 10 to 20 km<sup>2</sup> area within 10 km of the fertile granite (Breaks and Tindle, 1997a)(Figure 15). A fertile granite is the parental granite to rare-element pegmatite dykes. The granitic melt first crystallizes several different granitic units (e.g., biotite granite to two mica granite to muscovite granite), due to an evolving melt composition, within a single parental fertile granite pluton. The residual melt enriched in incompatible elements (e.g., Rb, Cs, Nb, Ta, Sn) and volatiles (e.g., H<sub>2</sub>O, Li, F, BO<sub>3</sub>, and PO<sub>4</sub>) from such a pluton can then migrate into the host rock and crystallize pegmatite dykes. Volatiles promote the crystallization of a few large crystals from a melt and increase the ability of the melt to travel greater distances. This results in pegmatite dykes with coarse-grained crystals occurring in country rocks considerable distances from their parent granite intrusions.

There are several geological features that are common in rare-element pegmatites of the Superior province of Ontario (Breaks and Tindle, 2001; Breaks *et al.*, 2003) and Manitoba (Černý *et al.*, 1981; Černý *et al.*, 1998) (Selway *et al.*, 2005):

1. *Subprovincial Boundaries*: The pegmatites tend to occur along subprovincial boundaries.

2. *Metasedimentary-Dominant Subprovince*: Most pegmatites in the Superior province occur along subprovince boundaries, except for those that occur within the metasedimentary Quetico subprovince.
3. *Greenschist to Amphibolite Metamorphic Grade*: Pegmatites are absent in the granulite terranes.
4. *Fertile Parent Granite*: Most pegmatites in the Superior province are genetically derived from a fertile parent granite.
5. *Host Rocks*: Highly fractionated spodumene- and petalite-subtype pegmatites are commonly hosted by mafic metavolcanic rocks (amphibolite) in contact with a fertile granite intrusion along subprovincial boundaries. Pegmatites within the Quetico subprovince are hosted by metasedimentary rocks or their fertile granitic parents.
6. *Metasomatized Host Rocks*: Biotite and tourmaline are common minerals, and holmquistite is a minor phase in metasomatic aureoles in mafic metavolcanic host rocks to spodumene- and petalite-subtype pegmatites. Tourmaline, muscovite, and biotite are common, and holmquistite is rare in metasomatic aureoles in metasedimentary rocks.
7. *Li Minerals*: Most of the complex-type pegmatites of the Superior province contain spodumene and/or petalite as the dominant Li mineral, except for a few pegmatites which have lepidolite as the dominant Li mineral.
8. *Cs Minerals*: Cesium-rich minerals only occur in the most extremely fractionated pegmatites.
9. *Ta-Sn Minerals*: Most pegmatites in the Superior province contain ferrocolumbite and manganocolumbite as the dominant Nb-Ta-bearing minerals. Some pegmatites contain manganotantalite or wodginite as the dominant Ta-oxide mineral. Tantalum-bearing cassiterite is relatively rare in pegmatites of the Superior province.
10. *Pegmatite Zone Hosting Ta Mineralization*: Fine-grained Ta-oxides (e.g., manganotantalite, wodginite, and microlite) commonly occur in the aplite, albitized K feldspar, mica-rich, and spodumene core zones in pegmatites in the Superior province.

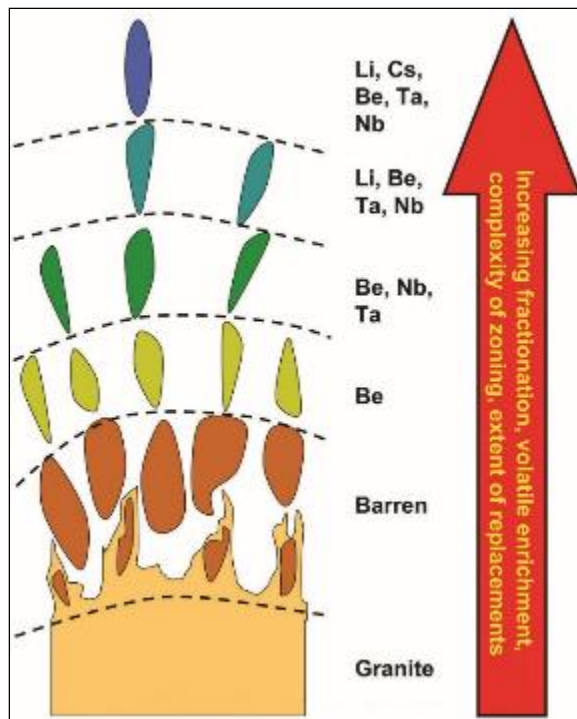


Figure 15: Chemical evolution of lithium-rich pegmatites with distance from the granitic source (London, 2008).

## 9.0 EXPLORATION

1257590 has not carried out any exploration work on the Property.

## 10.0 DRILLING

No drilling has been done on the Property by 1257590.

## 11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

The author visited the property on September 8, 2020 and did not collect any sample from the Property. During OGS work in 2008, A total of 237 bulk rock samples and 126 bulk mineral samples of rare element pegmatite indicator minerals were collected regionally in the Georgia Lake area and analyzed at the Geoscience Laboratories of the Ontario Geological Survey. A total of 2331 electron microprobe analyses were undertaken by A.G. Tindle at The Open University and a further 91 analyses of garnet were analyzed at the Geoscience Laboratories of the Ontario Geological Survey. The analytical methods and detection limits are shown on Table 2.

**Table 2: Analytical methods and detection limits for analyses reported in OGS Report 6199**

	Units	Analytical Method	Detection Limits (Lower)		Units	Analytical Method	Detection Limits (Lower)
SiO <sub>2</sub>	weight % oxide	WD-XRF	0.01 weight %	Cs	ppm	ICP-MS	0.007
Al <sub>2</sub> O <sub>3</sub>	weight % oxide	WD-XRF	0.01 weight %	Ga	ppm	ICP-MS	2
FeO	weight % oxide	Titrimetry	0.06 weight %	Hf	ppm	ICP-MS	0.2
Fe <sub>2</sub> O <sub>3</sub>	weight % oxide	WD-XRF	0.01 weight %	Nb	ppm	ICP-MS	0.2
MgO	weight % oxide	WD-XRF	0.01 weight %	Rb	ppm	ICP-MS	0.05
CaO	weight % oxide	WD-XRF	0.01 weight %	Sr	ppm	ICP-MS	0.5
K <sub>2</sub> O	weight % oxide	WD-XRF	0.01 weight %	Ta	ppm	ICP-MS	0.2
Na <sub>2</sub> O	weight % oxide	WD-XRF	0.01 weight %	Ti	ppm	ICP-MS	20
P <sub>2</sub> O <sub>5</sub>	weight % oxide	WD-XRF	0.01 weight %	Tl	ppm	ICP-MS	0.01
CO <sub>2</sub>	weight % oxide	IRA	0.03 weight %	W	ppm	ICP-MS	0.04
S	weight %	IRA	0.01 weight %	Zr	ppm	ICP-MS	4
LOI	weight %	WD-XRF	0.05 weight %	Y	ppm	ICP-MS	0.02
Li	ppm	AAS	5	La	ppm	ICP-MS	0.02
As	ppm	WD-XRF	1	Ce	ppm	ICP-MS	0.07
Ba	ppm	WD-XRF	20	Pr	ppm	ICP-MS	0.006
Cr	ppm	WD-XRF	4	Nd	ppm	ICP-MS	0.03
Pb	ppm	WD-XRF	5	Sm	ppm	ICP-MS	0.01
Sn	ppm	WD-XRF	5	Eu	ppm	ICP-MS	0.005
Be	ppm	ICP-AES	0.1	Gd	ppm	ICP-MS	0.009
Ca	ppm	ICP-AES	50	Tb	ppm	ICP-MS	0.003
Cd	ppm	ICP-AES	2	Dy	ppm	ICP-MS	0.008
Co	ppm	ICP-AES	1	Ho	ppm	ICP-MS	0.003
Cu	ppm	ICP-AES	3	Er	ppm	ICP-MS	0.008
Mg	ppm	ICP-AES	70	Tm	ppm	ICP-MS	0.003
Mo	ppm	ICP-AES	8	Yb	ppm	ICP-MS	0.01
Ni	ppm	ICP-AES	3	Lu	ppm	ICP-MS	0.003
Sc	ppm	ICP-AES	0.3	Sb	ppm	ICP-MS	0.05
V	ppm	ICP-AES	0.6	Sn	ppm	ICP-MS	0.05
W	ppm	ICP-AES	2	Th	ppm	ICP-MS	0.06
Zn	ppm	ICP-AES	2	U	ppm	ICP-MS	0.007

*Abbreviations for Table 2:*

*AAS = atomic absorption spectroscopy*

*ICP-AES = inductively coupled plasma mass spectrometry atomic emission spectroscopy*

*ICP-MS = inductively coupled plasma mass spectrometry*

*IRA = infra-red absorption*

*WD-XRF = wave dispersive X-ray fluorescence*

## 12.0 DATA VERIFICATION

The author visited the Property on September 8, 2020. The geological work performed in order to verify the existing data consisted of visiting approachable outcrops, historically reported pegmatite showings and claim areas. A limited search of tenure data on the MNDM Ontario website on September 7, 2020, confirms the data supplied by 1257590.

Historical grades and assay data are taken from MNDM assessment reports and OGS geological reports which are deemed reliable. Historical geological descriptions taken from different sources were prepared and approved by the professional geologists or engineers and are deemed reliable.





**Photo 4: Pegmatite rock on the Property (Sep 8, 2020 visit photo)**



**Photo 5: Pegmatite boulders along the shore of Barbara Lake (Sep 8, 2020 Property visit)**

The data collected during the present study is considered reliable because it was collected by the author. The data quoted from other sources is also deemed reliable because it was

carried out under the supervision of professional geoscientist and geophysical contractors and taken from ENDM Ontario, published reports by the Ontario Geological Survey (OGS), the Geological Survey of Canada (“GSC”), various researchers, and personal discussions.

### **13.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

No metallurgical testing was done on the Property by 1257590.

### **14.0 MINERAL RESOURCE ESTIMATES**

No mineral resource estimates were done on the Property by 1257590.

*Items 15 to 22 are not applicable at this time.*

### **23.0 ADJACENT PROPERTIES**

The Barbara Lake Property is located in an active and historical mining and mineral exploration region where many operators carried out exploration and/ or development work for lithium and rare metals. The following information is taken from the publicly available sources which are identified in the text and in Section 27. The Author has not been able to independently verify the information contained. The information is not necessarily indicative of the mineralization on the Property, which is the subject of this technical report.

#### **23.1 Rock Tech Lithium**

Rock Tech Lithium is acquiring and exploring prospects for lithium and other battery metals. The company’s flagship asset is the 100%-owned Georgia Lake lithium project in the Thunder Bay mining district in northwestern Ontario. The Company released an NI 43-101 compliant resource estimate that resulted in a measured resource of 1.89 million tonnes grading 1.04% Li<sub>2</sub> O, an indicated resource of 4.68 million tonnes grading 1.00% Li<sub>2</sub>O and an inferred resource of 6.72 million tonnes grading 1.16% Li<sub>2</sub>O (Source: Resource World Magazine Feb-March 2019; <https://www.rocktechlithium.com/>).

#### **23.2 Ultra Resources Inc.**

Ultra Resources Inc. owns several claims in the Georgia Lake area covering the following pegmatites.

##### **Jean Lake Pegmatites**

- **Giles Pegmatite** – is exposed on Treasure Island about midway along the south shore of Jean Lake. It runs at N80°E strike, dips steeply at 70° – 80° S, and was traced in surface exposures and diamond-drillholes for approximately 200

metres with width of 4-15 metres. Surface sampling during 1956-7 period indicated average lithium content of 1.25% Li<sub>2</sub>O.

- **Trans Pegmatite** – is a spodumene bearing lithium pegmatite dike cutting metasediments exposed along the north shore of Jean Lake. It strikes N50°W and dips vertically to steeply east. It is exposed for about 250 m along the lake shore with width range of 1-2 m.
- **Camp Pegmatite** – occurs in metasediments, on the south shore of a small pond along the river connecting the west end of Jean Lake with Parole Lake. It strikes N50°W and dips vertically, exposed over a length of 40 metres, having a width of 2-3 m, with 25 to 30% spodumene and lithium content of 1.5% Li<sub>2</sub>O or better.

### **Vegan Pegmatites**

Vegan No.2 pegmatite is an eastern extension of Newkirk pegmatite and has been traced for 2,000 feet (609 m) through diamond drilling, it is average 16 feet thick (5 m), strikes N75°W and dips 35°- 45° NE. It is made up of coarse-grained potash feldspar and prismatic crystals of spodumene, 5-20 cm long, in a groundmass of quartz, feldspar and muscovite. Spodumene is more concentrated in the central part; crystals are arranged parallel to each other and normal to the strike of pegmatite. Historical exploration during 1950s comprised of 19 diamond drill holes aggregating 2,423 feet (738 m).

### **Lucky Lake Pegmatites**

Six spodumene pegmatites dykes are documented by E.G. Pye (1965) in this area mostly held by Forgan Lake property of International Lithium Corp. The geological map indicates at least one pegmatite is extending to the south on Ultra Resources claim 4266312. Exploration work in this area was carried out by Lun-Echo Gold Mines Ltd. during the mid-1950s.

Ultra Resources also optioned Forgan Lake property adjoining to the north of the Lucky Lake pegmatite claims block (Source: <https://ultraresourcesinc.com/projects/georgia-lake-lithium-pegmatites/>).

### **23.3 Infinite Ore Corp**

Infinite Ore Corp.'s Jackpot Lithium property, located in the Georgia Lake Area about 140 km NNE of Thunder Bay, Ontario, is situated approximately 12 km by air from the TransCanada Highway (Hwy 11) and the main railroad which connects to the port town of Nipigon, on Lake Superior. The property has a historical resource on the Dyke No. 2 pegmatite zone, reported as 2Mt @ 1.09 Li<sub>2</sub>O estimated in 1956 by Ontario Lithium Company Limited\*. The Jackpot deposits were tested by a total of 32 diamond drill holes in 1955 by Ontario Lithium Company Limited, an associated company of Conwest Exploration Co. Ltd. The drilling confirmed the presence of at least two spodumene-

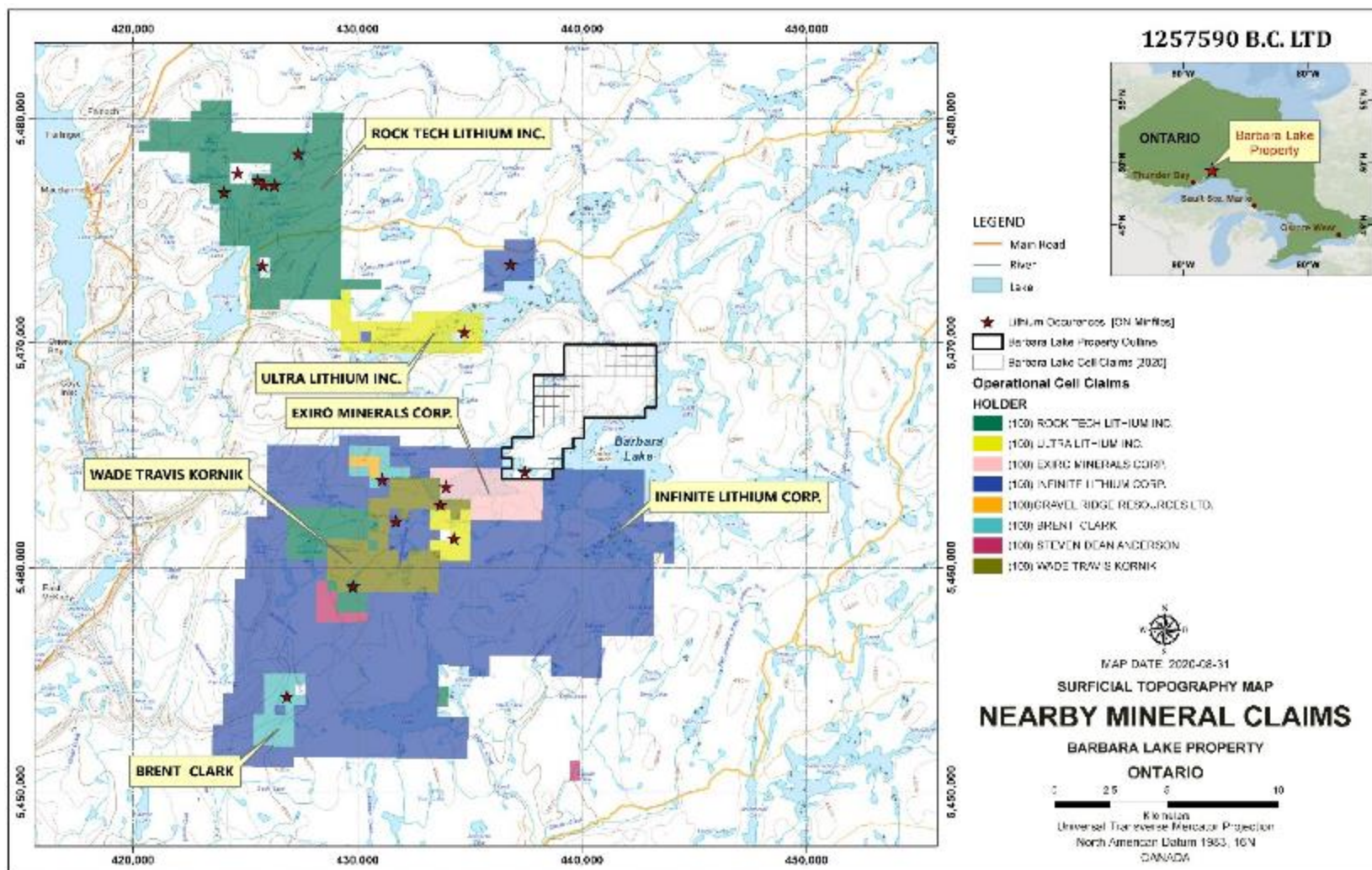
bearing granitic pegmatite bodies, one at the surface (Dyke No. 1) and a second body (Dyke No. 2) lying beneath the Dyke No. 1.

Dyke No. 1 is a 6 to 9 meters thick, flat-lying body occurring as outcrops and further exposed by historic trenching. A review of Ontario government assessment files suggest little drilling was completed on Dyke No. 1 as efforts appear to have been focused on the larger (No. 2) Dyke. The 1955 drill logs extracted from archived files indicate assaying from only one drilled section within the No. 1 Dyke, even if spodumene is identified in several drill logs. Records from DDH 428 intersected 1.47 wt. %  $\text{Li}_2\text{O}$  over 3.96 m from the surface. The Company has not verified the reported assays. The No.1 Dyke represents a readily accessible target for trenching and bulk sampling and to acquire sufficient material for metallurgical testing.

Dyke No. 2, is not exposed at the surface and was discovered by diamond drilling. Dyke No.2 has been described by Pye (1965) as follows: "... Historical drill intercepts include 1.52 per cent  $\text{Li}_2\text{O}$  over 10.6 metres (drill hole 411) and 1.17 per cent  $\text{Li}_2\text{O}$  over 21.2 metres from drill hole 407."

*\*Cautionary Statement: All drill intercepts reported are historical in nature and are taken from assessment files available at the Ontario Ministry of Northern Development and Mines. The assay results have not been verified by the Author. The estimates presented above are treated as historic information and have not been verified or relied upon for economic evaluation. These historical mineral resources do not refer to any category of sections 1.2 and 1.3 of the NI-43-101 Instrument such as mineral resources or mineral reserves as stated in the 2010 CIM Definition Standards on Mineral Resources and Mineral Reserves. Not sufficient work has been done yet to classify the historical estimates as current mineral resources or mineral reserves.*

Infinite Ore Corp. carried out sampling and drilling on its property during 2018 period. Significant results include the following: 0.85%, 2.08%, 1.02%, 2.01% and 2.82%  $\text{Li}_2\text{O}$  (lithium oxide). Drilling to date confirms the presence of the three pegmatite dykes, one near or at surface and relatively flat-lying (Dyke #1), the second striking approximately east-northeast and dipping shallowly to the northwest (Dyke #2), and a third pegmatite dyke (Dyke #3) below Dyke #2. (Source: <https://www.infiniteore.com/jackpot>).



GEOLOGY: Bathymetry of Ontario (NRE 196), Ontario Geological Survey 2011. A scaleless vector database derived from a 1:250,000 scale map of bathymetry of Ontario.

Figure 16: Adjacent Properties Map

## **24.0 OTHER RELEVANT DATA AND INFORMATION**

### **24.1 Environmental Concerns**

There is no historical production from the Property, and the author is not aware of any environmental liabilities which have accrued from historical exploration activity.

## **25.0 INTERPRETATION AND CONCLUSIONS**

Geologically, the Property is situated in the Quetico Subprovince of the Superior Geological Province which consists dominantly of clastic metasediments with inter-formational chemical metasediments deposited between 2.70 and 2.69 Ga. The clastic metasediments represent a strongly metamorphosed turbidite sequence varying from arenaceous to argillaceous with local conglomerates units. Banded iron formations within the metasediments consist of ferruginous chert, oxide (magnetite-chert) and sulphide (sulphide-chert) facies with localized graphite. There are numerous pegmatite and diabase dykes cross-cutting the clastic and chemical metasediments. The igneous rocks in the Quetico Subprovince include abundant felsic and intermediate intrusions, metamorphosed rare mafic and felsic extrusive rocks and an uncommon suite of gabbroic and ultramafic rocks. The rare-element pegmatites have widespread distribution in the Quetico Subprovince covering at least a 540-km strike length from west to east and a large percentage of pegmatites occur in the centre of the Subprovince.

The Property area is a part of the Georgia Lake pegmatite fields which contain the largest concentration of known rare-element pegmatites in Ontario. Up to 40 lithium and beryllium pegmatites are exposed in outcrop over an area of approximately 600 square km. The pegmatites occur in two geometries: as irregular-shaped bodies and as thin dykes, sills and attenuated lenses. The irregular bodies of pegmatite are intimately associated with the granite bodies often within a few hundred metres of the contact zone. The pegmatite dykes, sills and lenses can be subdivided into rare-element pegmatites and granitic pegmatites. The rare-element pegmatites are of economic significance and they contain microcline or perthite, albite, quartz, muscovite and spodumene and minor amounts of beryl, columbite-tantalite and cassiterite. Two families of rare-element pegmatites are common in the Superior Province, Canada: Li-Cs-Ta enriched ("LCT") and Nb-Y-F enriched ("NYF"). LCT pegmatites are associated with S-type, peraluminous (Al-rich), quartz-rich granites. Rare-element pegmatites derived from a fertile granite intrusion are typically distributed over a 10 to 20 km<sup>2</sup> area within 10 km of the fertile granite.

The deposit model as described in OGS reports for the area is that the spodumene occurs in Li-Cs-Ta ("LCT") rare-element pegmatite dykes. LCT pegmatites are associated with S-type, peraluminous (Al-rich), quartz-rich granites. S-type granites crystallize from a magma produced by partial melting of preexisting sedimentary source rock. They are characterized by the presence of biotite and muscovite, and the absence of hornblende.

Rare-element pegmatites derived from a fertile granite intrusion are typically distributed over a 10 to 20 km<sup>2</sup> area within 10 km of the fertile granite. A fertile granite is the parental granite to rare-element pegmatite dykes.

The historical exploration work on the Property and surrounding areas started in 1950's with the discovery of spodumene pegmatites of the Georgia Lake Area. After the first discovery of lithium, prospectors entered the area and about 3,200 claims were staked and within a short time numerous additional lithium deposits were located. Many of these deposits were tested by diamond drilling in 1955 and 1956. Due to lack of adequate markets, however, none of these have been developed. The lithium occurrence on the Barbara Lake known as "Georgia Lake SE Pegmatite" is one of the earliest discoveries in the Georgia Lake Pegmatite Fields.

The Property and its surrounding area near Barbara Lake pegmatites is relatively underexplored as compared to the western part of the Georgia Lake pegmatite field, due to its location farther to the east from Highway 11. However, there are several pegmatites documented in Ontario Geological Survey (OGS) and other publications indicating potential of Barbara Lake pegmatites field for follow up exploration work and discovering lithium deposits in the area.

Zayachivsky in his 1985 work described the Barbara Lake Stock as the northernmost exposure of two-mica leucogranite in the Georgia Lake area. It is an arcuate body lying between Barbara and Jean Lakes. A western portion of the stock is obscured by overlying diabase. The Barbara Lake Stock is in sharp contact with metasediments, where observed. The body is homogeneous with respect to texture and mineralogy, but a slight increase in grain size of feldspar and quartz occurs toward the northern contact.

In 2008, Ontario Geological Survey (OGS) carried out regional investigation of mineralization associated with rare element pegmatites and related S-type, peraluminous granites in the Superior Province. The main purpose of the study was to evaluate various peripheral areas of the Georgia Lake pegmatite fields for further fertile, peraluminous granites and related rare-element mineralization.

The results of bulk rock and mineral sampling by OGS indicated that the Barbara Lake stock consists of an irregular body of grey to white granite and various pegmatitic granite units. The electron microprobe compositions include tantalum-niobium oxide minerals (i.e., ferrocolumbite, ferrotantalite, manganocolumbite, manganotantalite, microlite and ferrotapiolite), cassiterite, tourmaline (schorl, dravite and elbaite), garnet, fluorapatite, beryl, potassium feldspar, micas (lepidolite and muscovite), spodumene, alluaudite and lithiophilite). The eastern limits of the stock are currently not defined and it is plausible that the granitic rocks represent a gradation into the northeast part of the Glacier Lake batholith that also contains similarly evolved rocks, particularly in the Parks and Gathering lakes areas. Several beryl-bearing pegmatitic granite occurrences were found in the Barbara Lake stock. In addition, a beryl occurrence was described by

Zayachivsky (1985) near the south shore of Barbara Lake. Niobium - tantalum (Nb-Ta) oxide minerals were found.

The Barbara Lake stock, which is plausibly derived from the northeastern Glacier Lake batholith, exhibits a range in cesium contents of 16 to 62 ppm Cs and K/Rb of 70 to 154. Rare-element pegmatite groups, derived from the Barbara Lake stock, however, reveal pronounced evolution that has led to a marked increase in cesium (range = 12.6 to 829 ppm Cs) and generally highly evolved K/Rb values (8 to 138). The Ta versus Nb plot shows a trend towards extremely evolved Nb/Ta in a data cluster that overlaps with the most fractionated part of the field for the parental northeastern Glacier Lake batholith. Rare-element pegmatite dikes derived from the Barbara Lake stock exhibit even higher contents (118 ppm to 289 ppm Ta). Such tantalum values in excess of 100 ppm can be deemed of exploration interest.

In August 2019, Pleson Geoscience carried out exploration work on a part of the Property. The exploration program tasks were to identify areas of prospective lithium mineralization, gain an overview of the terrain, and ultimately prospect and discover any new lithium occurrences. The work involved was to gain access and traversing around the historically discovered lithium pegmatite, noted in the MDI (Mineral Deposit Inventory) files as the "Georgia Pegmatite SE". The dyke prospected during this work was determined to be at least 3 meters wide and strikes for at least 400 meters. The observed spodumene content is at least 20% which should translate into at least 1-2% Li<sub>2</sub>O assays.

The Barbara Lake property falls under pegmatite LCT deposit types. LCT pegmatites are a petrogenetically defined subset of granitic pegmatites that are associated with certain granites. They consist mostly of quartz, potassium feldspar, albite, and muscovite. Common accessory minerals include garnet, tourmaline, and apatite. Lithium in pegmatites is most commonly found in the mineral spodumene, but also may be present in petalite, lepidolite, amblygonite and eucryptite.

1257590 has not carried out any exploration work on the Property. The author carried out a visit of the Property on September 08, 2020. The scope of Property inspection was to verify historical exploration work, to take geological, infrastructure, and other technical observations on the Property and assess the potential of the Property for discovery of lithium and rare metals pegmatites.

The data presented in this report is based on published assessment reports available from 1257590, Ontario MNDM, the Geological Survey of Canada, and the Ontario Geological Survey. All the consulted data sources are deemed reliable. The data collected during present study is considered enough to provide an opinion about the merit of the Property as a viable exploration target.

In conclusion, the Property is considered to have potential to discover lithium and rare metals pegmatites within the Barbara Lake stock because of the following factors:



- The Georgia Lithium SE pegmatite occurrence located on the Property is documented to be at least 3 meters wide and strikes for at least 400 meters has a potential to extend along strike and in the subsurface through further exploration.
- The Barbara Lake stock indicated high cesium, niobium and tantalum values which are typical characteristics of LCT type pegmatites.
- The Barbara Lake area is an underexplored area within the Georgia Lake pegmatite fields due to its location away from the main highway 11, but have geological characters favoring discoveries of more lithium pegmatites.

Based on its favourable geological setting indicated above and other findings of the present study, it is further concluded that the Property is a Property of merit. Good road access from highway 11, availability of exploration and mining services in the vicinity makes it a worthy mineral exploration target.

The author believes the present study has met its original objectives.

## **26.0 RECOMMENDATIONS**

In the author's opinion, the character of the Property is enough to merit the following two-phase work program, where the second phase is contingent upon the results of the first phase.

### ***Phase 1 – Geophysical Surveys, Prospecting, Trenching and Sampling***

Although spodumene bearing pegmatite discovery on the property area was made in the 1950's, the historical work at the Property was mainly focused on regional geological mapping, prospecting, and sampling. It is recommended to carry out detailed exploration work to explore the potential of the Georgia Lake SE pegmatite through trenching and channel sampling at suitable intervals along its strike extension. A combination of magnetic and radiometric geophysical survey along strike extension of this pegmatite occurrence is also recommended. Another recommended work is to carry out property wide detailed prospecting and sampling. Some budget also needs to be allocated to improve access trails to various claim blocks.

Total estimated budget for Phase 1 program is \$174,020 (Table 3) and it will take about four months' time to complete this work.

### ***Phase 2 – Detailed Drilling and Resource Estimation***

If results from the first phase are positive, then a detailed drilling program would be warranted to check the Georgia Lake SE pegmatite and other targets identified during geological mapping, trenching, and sampling work in Phase 1. The scope of work for drilling and location of drill holes would be determined based on the findings of Phase 1 investigations.



## 26.1 Budget

Table 3: Phase 1 budget

Item	Unit	Unit Rate (\$)	Number of Units	Total
<b>Mapping, Trenching and Sampling</b>				
Geological mapping (geologist 1)	days	\$600	7	\$4,200
Geological mapping (geologist 2)	days	\$600	7	\$4,200
Prospecting (2 person crew)	days	\$800	14	\$11,200
Ground geophysical survey	line-km	\$2,000	15	\$30,000
Excavator for stripping	hrs.	\$120	80	\$9,600
Cutting of trails and access roads	km	\$1,000	10	\$10,000
Mob and demob of excavator	ls	\$1	2000	\$2,000
Channel cutting and sampling	m	\$500	30	\$15,000
Accommodations and Meals	day	\$250	100	\$25,000
Supplies	ls	\$5,000	1	\$5,000
Sample Assays	sample	\$100	150	\$15,000
Transportation Road	km	\$1	10,000	\$10,000
Data Compilation	days	\$700	10	\$7,000
Report Writing	days	\$700	10	\$7,000
Project Management	days	\$750	4	\$3,000
Sub Total				<b>\$158,200</b>
Contingency 10%				<b>\$15,820</b>
<b>Total Phase 1 Budget</b>				<b>\$174,020</b>

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## 28.0 SIGNATURE PAGE

The effective date of this Technical Report, titled "Technical Report on the Barbara Lake Lithium Property, Thunder Bay Mining District, Northwestern Ontario, Canada", is September 14, 2020.

Martin Ethier, P.Geo.

Dated this 14<sup>th</sup> day of September 2020



A handwritten signature in black ink, appearing to read "Martin Ethier". To the right of the signature, the number "#1520" is handwritten in black ink.

## 29.0 CERTIFICATE OF AUTHOR

I, Martin Ethier, P.Geo., as the author of this report entitled, “Technical Report on the Barbara Lake Lithium Property, Thunder Bay Mining District, Northwestern Ontario, Canada”, dated September 14, 2020, do hereby certify:

1. I have been working since 2000 as a geologist / remote sensing / GIS specialist in the mining industry on a variety of properties. I have been a consulting geologist since 2002 with Hinterland Geoscience & Geomatics – 620 Brewster St. Haileybury Ontario P0J 1K0.
2. I graduated with a Bachelor of Arts, from Mount Allison University of Sackville New Brunswick (1997), majoring in Geography, and minors in Geology as well as Environmental Studies. In addition, I completed an intensive Post Graduate Advanced Diploma in Remote Sensing and Geographic Information systems from the Centre of Geographic Sciences (COGS) in Lawrencetown (1998), Nova Scotia. Furthermore, have obtained a Master of Science in Geology from Acadia University in Wolfville (2001), Nova Scotia.
3. This certificate applies to the report entitled, “Technical Report on the Barbara Lake Lithium Property, Thunder Bay Mining District, Northwestern Ontario, Canada”, dated September 14, 2020.
4. I am professional Geologist and a member of “Ordre de Geologues du Quebec” (Member #: 1520), Canada.
5. I have worked for the last 19 years as a geologist / remote sensing / GIS specialist in the mining industry on a variety of exploration properties such as lithium and rare metals, graphite, diamond bearing kimberlites, silver-cobalt deposits, gold, and Ni-Cu-PGE. In particular, I have worked and visited several pegmatites in Ontario including Superb Lake, Gathering Lake, and Georgia Lake, as well as in Abibiti-Témiscamingue, Québec, Cape Breton Island and South Shore Nova Scotia.
6. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI43-101”) and certify that by reason of my education, affiliation with professional associations and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purpose of NI43-101.
7. I visited the Barbara Lake Gold Property on September 8<sup>th</sup>, 2020.
8. I am responsible for all items of this report.
9. I have no interest, direct or indirect in the Barbara Lake Gold Property, nor do I have any interest in any other properties of 1257590 or the vendors.

10. I am independent of 1257590 and the property vendors as defined in Section 1.5 of NI 43-101.
11. I have no prior involvement with the Barbara Lake Lithium Property other than as disclosed in item 7 of this certificate.
12. I have read National Instrument 43-101 ("NI43-101"), and the Technical Report has been prepared in compliance with NI43-101, and Form 43-101F1.
13. I am not aware of any material fact or material change with respect to the Barbara Lake Gold Property the omission of which would make this report misleading.
14. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by public.
15. As at the date of this certificate, to the best of my knowledge, information, and belief the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Martin Ethier, P. Geo.

Dated: September 14, 2020



*[Handwritten signature]* #1520