ASX Announcement

10 October 2023

Fieldwork Discovers Multiple Pegmatite Outcrops at Root Lake's Morrison Extension

Positive start to maiden exploration program with multiple pegmatite outcrops identified within the Extended Morrison Corridor at Root Lake.

Highlights

- Multiple pegmatites have been identified by field teams along the Extended Morrison trend in the north-western portion of the Root Lake Project area, along-strike from Green Technology Metals (ASX: GT1) Morrison-McCombe pegmatite system.
- Outcrops mapped by field teams are interpreted to be open in multiple directions but are concealed beneath thick overburden and dense vegetation.
- Programs of systematic mapping, grab sampling and lithogeochemical channel sampling are underway.
- Fieldwork will continue over the coming weeks to test the Central Corridor in the south-eastern portion of the project area.

Pioneer Lithium Limited (ASX Code: **PLN**) ('**Pioneer Lithium**' or '**the Company**') is pleased to advise that it has made an extremely positive start to the recently commenced exploration program at the Company's 90%-owned Root Lake Lithium Project in Ontario, Canada with the discovery of multiple pegmatite outcrops in the Extended Morrison Corridor.

Commenting on the early success at Root Lake, Pioneer Lithium CEO, Clinton Booth, said:

"Whilst the thick overburden has limited the team's prospecting and mapping activities, it is extremely pleasing to see these initial encouraging results. The discovery of multiple pegmatites at Extended Morrison confirms our initial expectations of the potential for the continuation of the Morrison-McCombe pegmatite system. We are looking forward to including this information to support the design of the upcoming drilling program."

Early Success at Root Lake

The Autumn Fieldwork Program, which commenced recently in conjunction with Pioneer Lithium's experienced lithium geological consultants Coast Mountain Geological Ltd. ('**CMG**'), has identified three new pegmatites during initial prospecting activities along the Extended Morrison Corridor in the north-western portion of the Root Lake Project area, which could represent a continuation of the Morrison-McCombe

pegmatite system (Inferred Resource 4.5Mt @ 1.01% Li_2O)[1] held by Green Technology Metals (ASX:GT1) immediately to the west.

The pegmatite outcrops, observed over a 3km strike-length, are generally white in colour and can be easily differentiated from the surrounding mafic metavolcanic host rocks. Outcrops identified to date are up to 4m wide and are exposed over lengths of up to 10m. Importantly, all are open in multiple directions, but are concealed beneath thick overburden and densely vegetated forestry in what has proven to challenging terrain for field teams.

Initial interpretation of observations made in the field suggest that mineral assemblages include medium to coarse-grained crystals of potassium feldspar, plagioclase, quartz, muscovite and tourmaline, a common accessory mineral in LCT (Lithium-Caesium-Tantalum) pegmatites and an indicator of granite fractionation.

CMG personnel are in the process of systemically selecting grab samples and will shortly commence lithogeochemical channel sampling, with samples to be submitted for assaying once the fieldwork program has been completed.

To assist with the resolution of pegmatites under cover, the collection of additional geophysical datasets to support the development of high-confidence drill targets ahead of a maiden winter drilling program will be considered.

Field work will continue over the coming weeks, moving towards the Central Corridor in the south-eastern portion of the Root Lake Project area, which lies along the same trend as GT1s Root Bay pegmatite system (Inferred Resource 8.1Mt @ 1.32% Li_2O)[1] and recently announced Root Bay West spodumene discovery which is being actively explored[2].

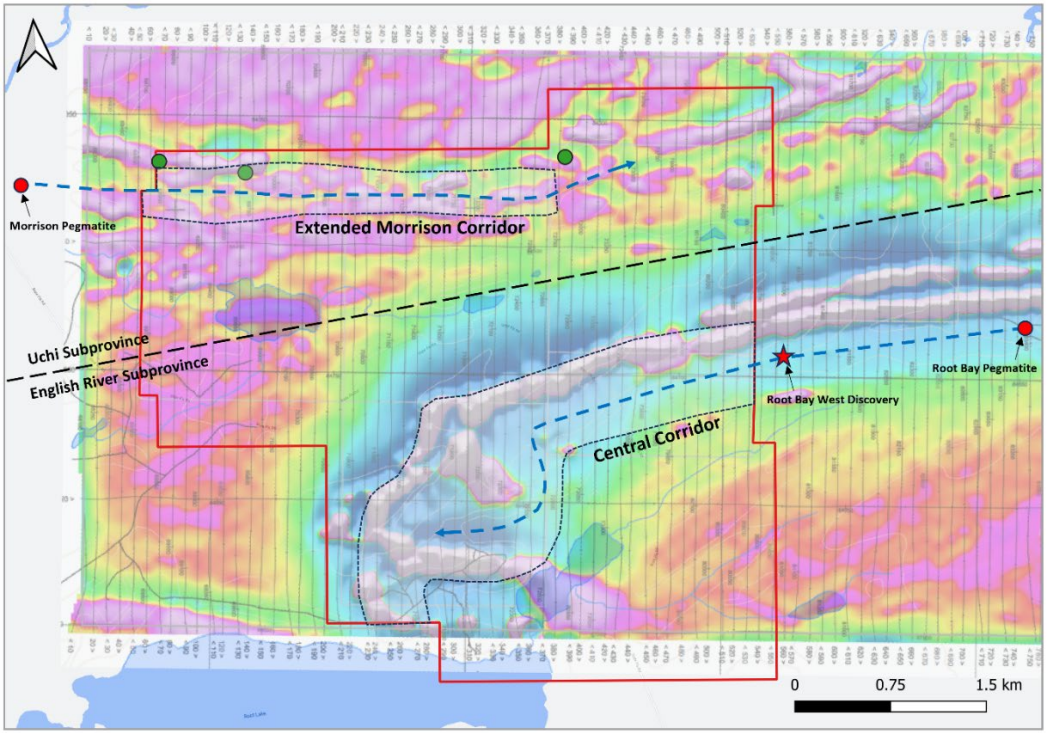


Figure 1. Map of the Root Lake Project showing the location of pegmatite outcrops identified Corridor.

[1] For full details of The Root Lithium Project Mineral Resource Estimate, see GT1 ASX releases dated 19 April 2023 & 7 June 2023.

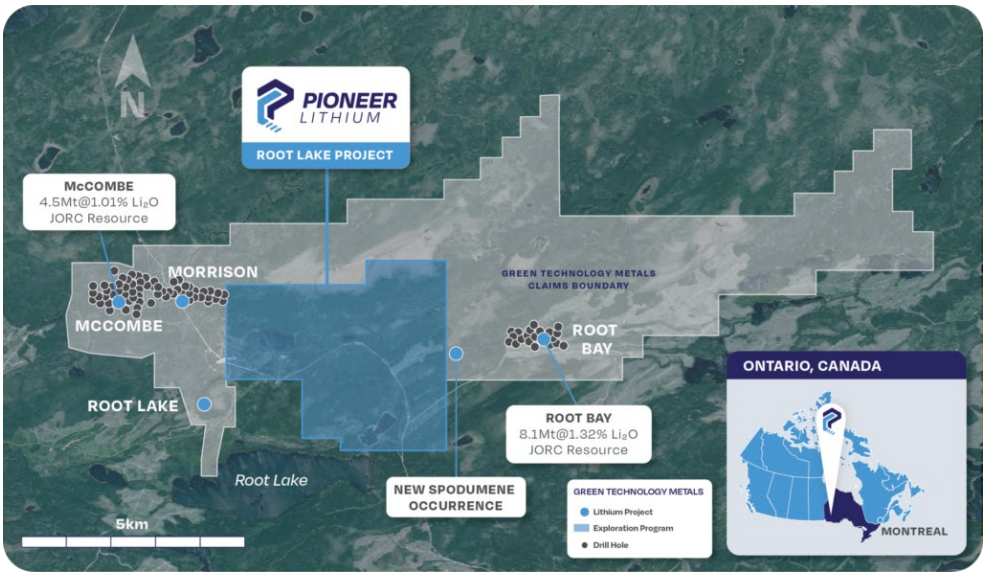
[2] For full details of The Root Bay West spodumene discovery and recent drill results, see GT1 ASX releases dated 26 June 2023, 4 July 2023, 7 August 2023 & 14 September 2023.

Figure 2. Pegmatite outcrop exposures concealed by thick overburden and dense vegetation in the Extended Morrison Corridor.

About the Root Lake Project

The Root Lake Project comprises 94 claims totalling 1,927ha, located within the eastern Superior Province straddling the Sydney Lake-Lake St. Joseph Fault, an east-west trending, steeply dipping brittle-ductile shear zone that defines the boundary between the Uchi and English River Sub-provinces.

Several S-Type, peraluminous granitic plutons hosting lithium and other rare-metal mineralised pegmatites have been discovered in proximity to the Sydney Lake-Lake St. Joseph Fault, including Green Technology Metals' McCombe, Morrison and Root Bay deposits (Root Lake Pegmatite Group), all of which are situated within 5km of the Root Lake Project.



For more information on Pioneer Lithium, refer to the Company's website at: www.pioneerlithium.com.au.

This announcement has been authorised for release by the Board.

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Competent Person Statement

The information in this Report that relates to new exploration results for the Root Lake Lithium Project is based on, and fairly represents, information and supporting documentation compiled and reviewed by Mr Nigel Broomham (BSc (Hons) Geology & Resource Economics) who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and holds a Professional Certificate in JORC Code Reporting. Mr Broomham is a Non-Executive Director of Pioneer Lithium. Mr Broomham has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Broomham consents to the inclusion in this report of the matters based on information in the form and context in which they appear. Mr Broomham holds securities in the Company.

Compliance statement

The previous exploration results for the Root Lake Project referred to in this announcement were first reported in accordance with ASX Listing Rule 5.7 in the Company's prospectus dated 3 August 2023, which was announced on the ASX market announcements platform on 26 September 2023 and is available to view on www.pioneerlithium.com.au and www.asx.com.au. Pioneer Lithium is not aware of any new information or data that materially affects the information included in the prospectus. The presence of pegmatite rock does not necessarily indicate the presence of lithium, caesium, tantalum (LCT) mineralisation. Laboratory chemical assays are required to determine the grade of mineralisation.

Forward-looking statements

This announcement may contain certain forward-looking statements and projections. Such forward looking statements/projections are estimates for discussion purposes only and should not be relied upon. Forward looking statements/projections are inherently uncertain and may therefore differ materially from results ultimately achieved. Pioneer Lithium Limited does not make any representations and provides no warranties concerning the accuracy of the projections and disclaims any obligation to update or revise any forward-looking statements/projects based on new information, future events or otherwise except to the extent required by applicable laws. While the information contained in this report has been prepared in good faith, neither Pioneer Lithium Limited or any of its directors, officers, agents, employees or advisors give any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement.

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data
(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Initial rock chip sampling of observed pegmatite outcrops is currently being undertaken. • Further targeted lithogeochemical channel sampling will be undertaken. • No results have been received to date – all samples collected are to be submitted for assaying to AGAT Laboratories Ltd in Thunder Bay, Ontario and results will be reported once received.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• No drilling has been conducted and no drill assays are being reported in this announcement.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• No drilling has been conducted and no drill assays are being reported in this announcement.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• No drilling has been conducted and no drill assays are being reported in this announcement.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Initial rock chip sampling of observed pegmatite outcrops is currently being undertaken and

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.
• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.
• Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.
• Whether sample sizes are appropriate to the grain size of the material being sampled.</td><td>has not been finalised at the time of writing.
• Locations of newly discovered pegmatites in this announcement referred to in the included map are shown in the following table (co-ordinates in NAD83/UTM Zone 15N).
<table><tr><th>Location ID</th><th>Easting</th><th>Northing</th></tr><tr><td>SPRL23-070</td><td>593564</td><td>5643638</td></tr><tr><td>SPRL23-075</td><td>594240</td><td>5643557</td></tr><tr><td>JMRL23-055</td><td>596742</td><td>5643709</td></tr></table></td></tr>
<tr><td>Quality of assay data and laboratory tests</td><td>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.
• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.
• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</td><td>• No assay data is being reported in this announcement.
• Both rock chip and lithogeochemical channel samples are to be dispatched to AGAT Laboratories Ltd in Thunder Bay, Ontario on the conclusion of the fieldwork program.
• AGAT Laboratories Ltd will utilise standards and blanks as part of their QA/QC protocols.</td></tr>
<tr><td>Verification of sampling and assaying</td><td>• The verification of significant intersections by either independent or alternative company personnel.
• The use of twinned holes.
• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.
• Discuss any adjustment to assay data.</td><td>• All data generated from the fieldwork program has been uploaded into the company's data storage.
• Data has been checked by personnel from CMG and Pioneer Lithium.</td></tr>
<tr><td>Location of data points</td><td>• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.
• Specification of the grid system used.
• Quality and adequacy of topographic control.</td><td>• All field data is being collected utilising a handheld GPS, a standard tool for early-stage reconnaissance exploration.
• The grid datum is NAD83/UTM Zone 15N.</td></tr>
<tr><td>Data spacing and distribution</td><td>• Data spacing for reporting of Exploration Results.
• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.
• Whether sample compositing has been applied.</td><td>• Not applicable to this early-stage reconnaissance exploration.</td></tr>
<tr><td>Orientation of data in relation to geological structure</td><td>• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.
• If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</td><td>• Not applicable to this early-stage reconnaissance exploration.</td></tr>
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Criteria	JORC Code explanation	Commentary
Sample security	• *The measures taken to ensure sample security.*	• All samples collected are being held onsite at CMG's exploration camp. Samples are stored within numbered sealed bags and labelled by field personnel.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews have been undertaken.

Section 2 Reporting of Exploration Results

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Pioneer Lithium acquired a 90% interest in the Root Lake claims, with Rockex Mining retaining a 10% interest. • The Root Lake Project consists of 94 claims totalling 1,927ha (Please refer to the company prospectus dated 3 August 2023 for a full list of the claims that make up the Root Lake Project). • All cell claims are in good standing.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Regional exploration for lithium commenced in the 1950s, but minimal exploration within the Root Lake claims has been conducted since. • In 1956, Consolidated Morrison Explorations Ltd explored and drilled in proximity to the Morrison showing, with three holes completed immediately to the northwest of the Root Lake claims. Lithium assays were reported for two holes and included intercepts 2m @ 2.83% Li_2O and 5m @ 1.86% Li_2O. • In 1957, Capital Lithium Mines Ltd drilled five holes within the Root Lake claims, targeting the Root Lake South showing. Pegmatites were identified in logging, but no lithium assays were reported. • In 2011, Geo Data Solutions GDS Inc. on behalf of Rockex Ltd. flew a high-resolution helicopter-borne aeromagnetic

Criteria	JORC Code explanation	Commentary
		survey over the Root Lake claims.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Root Lake claims are located within the Superior Province, along the Sydney Lake-Lake St. Joseph Fault, a regionally extensive east-west trending, steeply dipping brittle ductile shear zone that marks the boundary between the Uchi and English River Subprovinces. • The northern portion of the Root Lake claims is underlain by rocks of the Uchi Subprovince, which predominantly consists of metavolcanic units and numerous granitoid batholiths. • The southern portion of the Root Lake claims is underlain by rocks of the English River Subprovince, which consists of metamorphosed clastic and chemical metasedimentary units and numerous granitoid batholiths. • Several S-Type peraluminous granitic plutons hosting lithium and other rare-metal mineralised pegmatites have been discovered in proximity to the Sydney Lake-Lake St. Joseph Fault, hosted within the adjacent mafic metavolcanics of the Uchi Subprovince and metasediments of the English River Subprovince.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• No drilling has been conducted or reported to date.
		• No relevant data has been excluded from this announcement.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade*	• No drilling has been conducted and no drill assays are being reported.

Criteria	JORC Code explanation	Commentary
	truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No metal equivalent values are being reported.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• No drilling has been conducted and no drill assays are being reported.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate maps and figures have been included in this announcement.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All relevant and material exploration data has been included in the announcement. • A summary of historical exploration activities is included in the Independent Geologists Report within the company prospectus dated 3 August 2023 (See Annexure C).
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• All relevant and material exploration data has been included in the announcement. • A summary of historical exploration activities is included in the Independent Geologists Report within the company prospectus dated 3 August 2023 (See Annexure C).
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work planned at Root Lake may include, but not be limited to, prospecting, geological mapping, structural interpretation, rock chip sampling, geophysics surveys and drilling.