

10 May 2023

Pioneer Dome Lithium Project & Corporate Update

Lithium-focused exploration and feasibility study activities are ramping up as Essential re-engages with potential off-take and funding partners.

Highlights

- **Pioneer Dome Lithium Project, WA**
 - **Feasibility Study:** Work has commenced on the Feasibility Study with the immediate focus on designing and implementing a comprehensive metallurgical testwork programme.
 - **Exploration:** A drill programme is being planned to test several targets developed from the structural review study and field reconnaissance exploration completed in the March Quarter. Information on potential water sources for a Concentrator plant will also be gathered.
- **Expressions of Interest for off-take and funding**
 - Re-engagement has commenced with the parties who had shown interest in participating in the Expressions of Interest process covering spodumene concentrate off-take and the provision of funding for the project development.
- **Corporate**
 - **TLEA Scheme:** The Scheme of Arrangement (the Scheme), under which Tianqi Lithium Energy Australia Pty Ltd (TLEA) proposed to acquire all the shares in Essential for \$0.50 per share in cash (the Scheme Resolution), was not approved by Essential shareholders at the Scheme Meeting held on 20 April and the Scheme Implementation Agreement has been terminated.¹
 - **Mineral Resources Limited (ASX:MIN; MinRes)** now holds 19.55% of the issued shares in Essential. In its March Quarterly, MinRes stated: "Essential's Pioneer Dome Lithium Project is approximately 100km from Mt Marion. MinRes' interest in Essential is consistent with the Company's focus on lithium opportunities in the Mt Marion region." This was reaffirmed during a recent meeting with MinRes management.

Essential Metals Managing Director, Tim Spencer, said: *"Following the significant events of the past few weeks, Essential remains in a strong position as an Australian lithium developer. With Mineral Resources Limited recently becoming our new largest shareholder, and against the backdrop of improving sentiment in the lithium sector, we are of the view that the rest of 2023 will be very positive for Essential in terms of moving towards project development at Pioneer Dome."*

¹ Refer ASX:ESS announcement 21 April 2023 "Termination of TLEA Scheme Implementation Agreement"

PIONEER DOME LITHIUM PROJECT

The 450km² Pioneer Dome Project (ESS: 100%) is in the core of Western Australia's lithium corridor in the Eastern Goldfields, approximately 130km south of Kalgoorlie and 275km north of the Port of Esperance. A Mineral Resource² of 11.2Mt @ 1.16% Li₂O has been defined at Dome North in the northern area of the Project. The southern Yilgarn area is recognised as being well-endowed with spodumene deposits, including Pioneer Dome, the Bald Hill Mine, the Mt Marion Mine, the Manna Project and the Buldania Project – all of which are located within a 90km radius. The world-class Greenbushes Deposit, the Mt Holland Mine and the Mt Cattlin Mine are located further west, south-west and south-south-west, respectively.

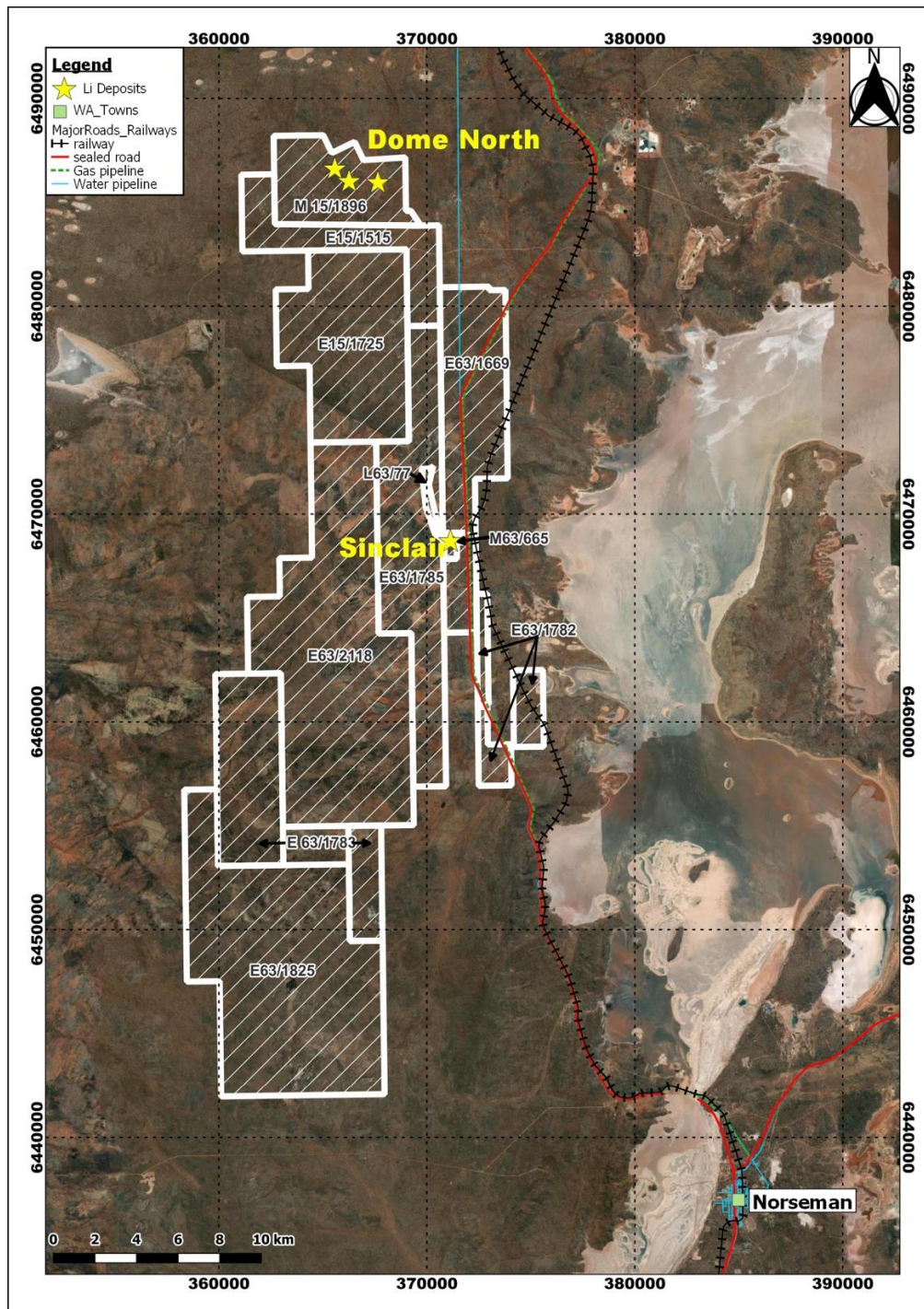


Figure 1 – Pioneer Dome Lithium Project lithium deposits, tenements and major infrastructure.

² Refer ASX:ESS announcement 20 December 2022 "Dome North Resource upgrade"

PIONEER DOME LITHIUM PROJECT – FEASIBILITY STUDY

Following on from the Scoping Study³ completed in February this year and the termination of the TLEA takeover Scheme in late April, planning for a detailed Feasibility Study is well underway with the immediate focus on metallurgical testwork.

To recap, the highlights of the Scoping Study are as follows:

Table 1: Pioneer Dome Lithium Project – Base Case Key Outcomes

SCOPING STUDY – BASE CASE KEY OUTCOMES	
Post-tax NPV_{10%} (real, post-tax)	Base Case of \$367M
Internal Rate of Return (IRR)	Base Case of 40%
Payback Period	~1.7 Years
Life-of-Mine Production Target	8.8Mt @ 1.11% Li ₂ O
Life of mine	~7.3 Years
Pre-production capital cost	~\$293M including \$36M contingency
Average LOM cash operating cost	~\$1,030/tonne (US\$721/tonne) of 5.7% spodumene concentrate. <i>Cash operating costs include all mining, processing, transport and loading at Esperance port, site administration and overhead costs and state and private royalties.</i>
Design Annual Production	~193,745 tonnes of 5.7% spodumene concentrate

The areas of focus for the next metallurgical testwork programmes include:

1. Further pilot dense medium separation (DMS) testwork on composites with varying mineralogy to confirm expected DMS recoveries.
2. Further flotation testwork on representative DMS mids float feed composites to confirm the expected recovery for differing samples using a hybrid DMS/flotation flowsheet.
3. Magnetic-separation optimisation testwork, to maximise iron rejection and minimise lithia losses, by testing samples at varying magnetic flux density and varying grind sizes.
4. Undertaking de-sliming ahead of flotation using larger samples and a pilot laboratory cyclone rig to more accurately depict the de-sliming behaviour expected in an operating plant.
5. Mica pre-flotation testwork at neutral, or basic pH, to check if CAPEX, OPEX and operability can be improved.
6. Mica pre-flotation optimisation testwork to improve spodumene flotation concentrate grade and recovery by reducing the quantity of gangue reporting to the spodumene flotation feed.
7. Further flotation testwork to improve spodumene flotation concentrate grade and recovery by optimising:
 - Rougher flotation time
 - Rougher collector addition

³ Refer ASX:ESS announcement 7 February 2023 “Pioneer Dome Scoping Study”

- The flotation flowsheet by potentially sending the first rougher con to the second cleaner.
- 8. Comminution testwork on composites with varying mineralogy as part of future testwork, including testing of material that may form mine dilution.
- 9. Undertaking mineralogy on each feed sample utilised in future testwork. Occurrences of petalite and other gangue minerals need to be tracked if reasonable predictions of grade and recovery are to be linked to the mine plan.
- 10. SMC testwork including bond rod and ball mill work index testing to support evaluation of the comminution circuit.
- 11. Identify target spodumene concentrate specifications prior to further testwork, so that the flowsheet can be tailored to maximise lithium recovery at the target specification.

Other key components of the Feasibility Study will cover:

- Mine optimisation, planning, design, scheduling and geo-technical/mechanical engineering
- Concentrator plant and infrastructure design
- Water sourcing and treatment, particularly for use in the concentrator flotation circuit
- Tailings storage
- Power supply, including potential to incorporate low/zero-carbon solutions
- Carbon footprint analysis
- Environmental studies
- Heritage surveys and consultation with the Ngadju People
- Logistics, contract services and personnel requirements

Essential is targeting completion of the Feasibility Study by September 2024 with a decision to mine to be considered in the December Quarter 2024, subject to satisfactory outcomes from the Feasibility Study and funding arrangements.

PIONEER DOME LITHIUM PROJECT – EXPLORATION

A Reverse Circulation (RC) drilling programme to test three target areas will commence next month. The drilling will test and advance targets at Dome North as well as on the eastern flank of Pioneer Dome, as shown in Figure 2.

Two targets are proposed to be drill tested at Dome North. The first is the south-western extension (DN_32) of the Heller spodumene-bearing pegmatite and the second is a north-east trending pegmatite that is poorly exposed (DN28/DN30) between Davy and Heller, as shown in Figure 3.

The second area selected for drilling is the third target (PEG004) on the eastern side of the Pioneer monzogranite, as shown in Figure 2.

The Company will test all of these targets with shallow RC drilling to fully penetrate any pegmatites that are intersected.

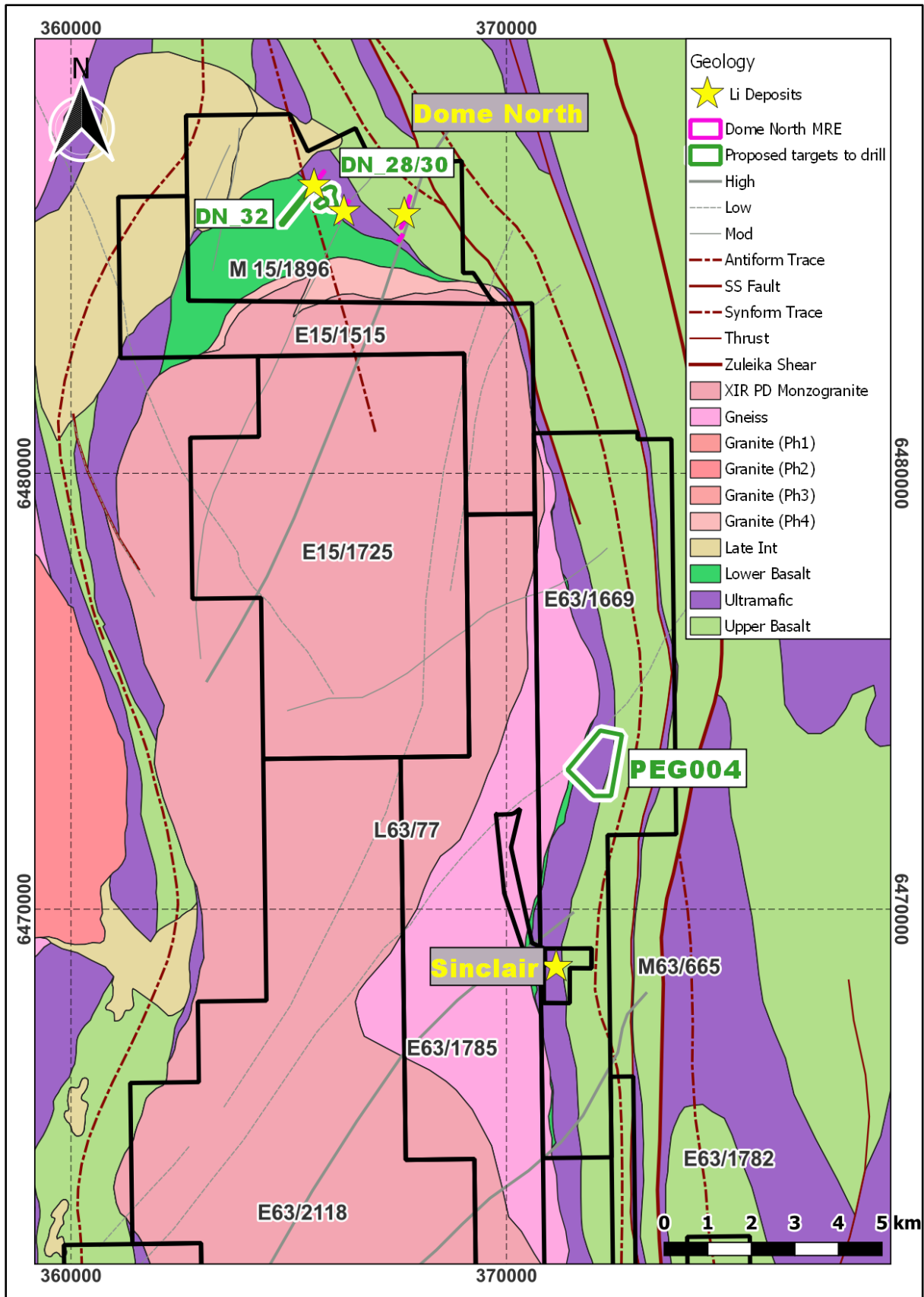


Figure 2: Proposed targets to drill test on top of the interpreted regional geology.

Dome North – Target DN_32

The southern extensions of two of the three spodumene-bearing pegmatites that host the Dome North Mineral Resource (Cade and Davy) have been previously drill tested but the third, Heller, has not. The Heller pegmatite remains open to the south-west with the possibility of another spodumene-bearing pegmatite being present, similar to both Cade and Davy.

The presence of up to 5m of transported cover to the south-west of the current drilling at Heller limits the effectiveness of soil sampling to identify potential pegmatites, so shallow RC holes will be drilled along the projected strike of Heller to test for the presence of pegmatites.

Dome North – Target DN_30/DN_28

Mapping and reconnaissance carried out late-2022 identified a poorly exposed north-east trending pegmatite that doesn't appear to have been effectively drill tested. Rock sampling results received earlier this year indicate that this pegmatite is moderately to strongly fractionated and is lithium enriched (up to 1,085ppm Li_2O).

Drilling conducted in July 2021 tested just beyond the north-eastern extent of the sub-cropping pegmatite with the results indicating two possible interpretations, as shown in Figure 4. The first is that the pegmatite pinched out before the drilling (PDRC531 to PDRC533) and the second is that it is north-west dipping.

The proposed drilling will be designed to test both scenarios, with holes orientated for the alternate dip and drill lines to the south to understand the bedrock thickness. As the DN_28 area has a thin veneer of cover, it is possible that poorly exposed pegmatite(s) continue to the south-west, as shown in Figure 4.

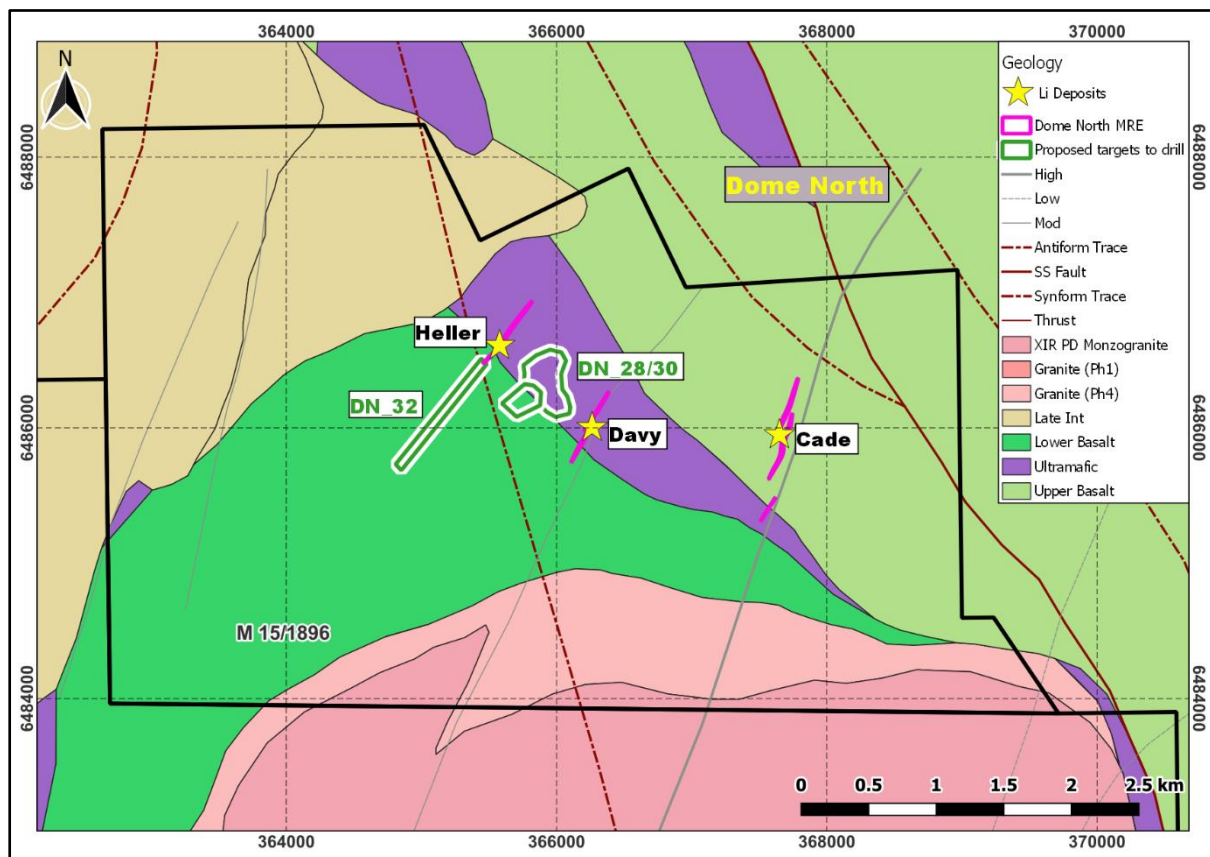


Figure 3: Proposed targets to drill test at Dome North.

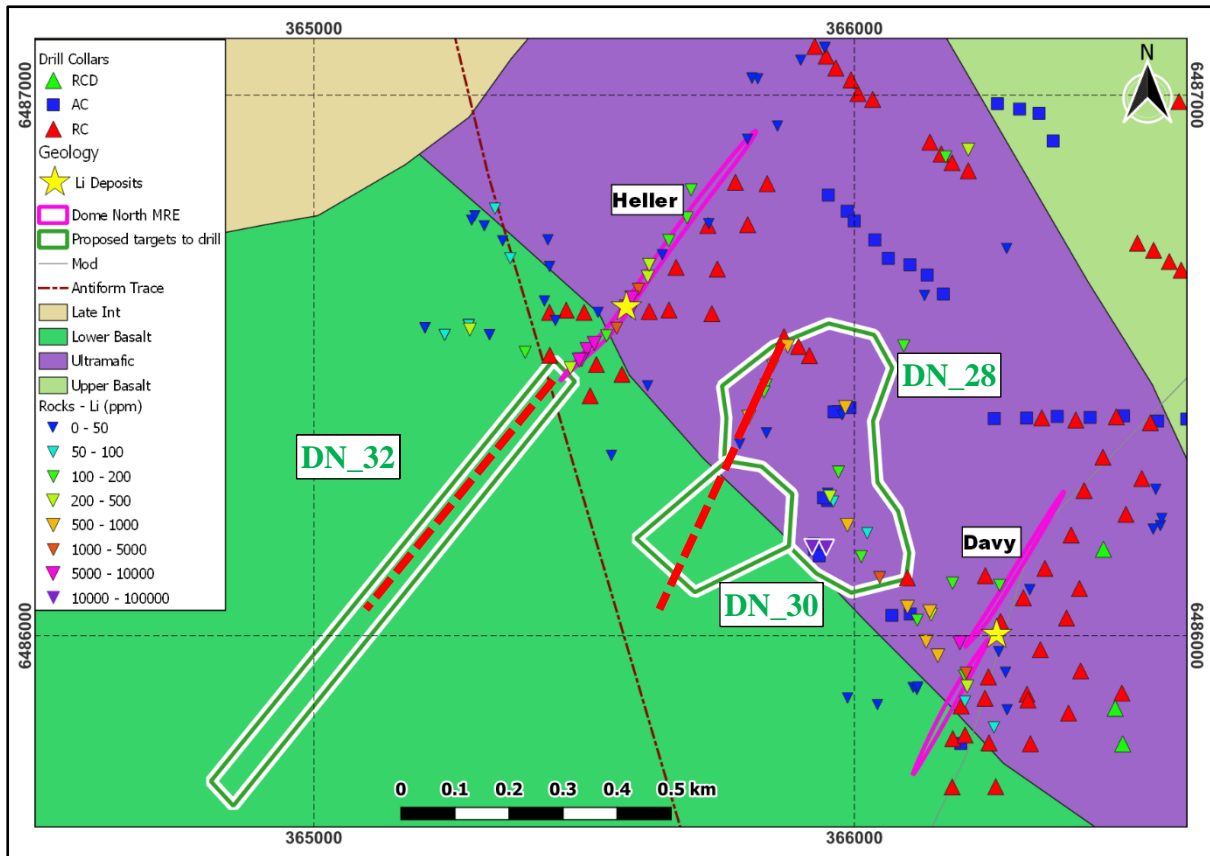


Figure 4: Proposed targets to drill test at Dome North along with drilling and rock sampling on top of the regional interpreted bedrock geology.

Eastern Flank – Target PEG004

Mapping has identified a north-trending lepidolite zone with selective rock samples returning up to 2.77% Li_2O . Field work conducted in late 2022 included sampling pegmatitic drill spoils from nickel exploration holes conducted in the 1990's and analysis of the assay results received earlier this year infers an increasing fractionation trend in a southerly direction, accompanied by an increase in lithium enrichment, as shown in Figure 5.

This could indicate that more fractionated and lithium-enriched pegmatites may be present to the south under a thin veneer of transported cover. The proposed drilling will assist in determining the thickness and orientation of the lepidolite-bearing pegmatite as well as understanding the thickness and zonation of the pegmatites associated with the drill spoils.

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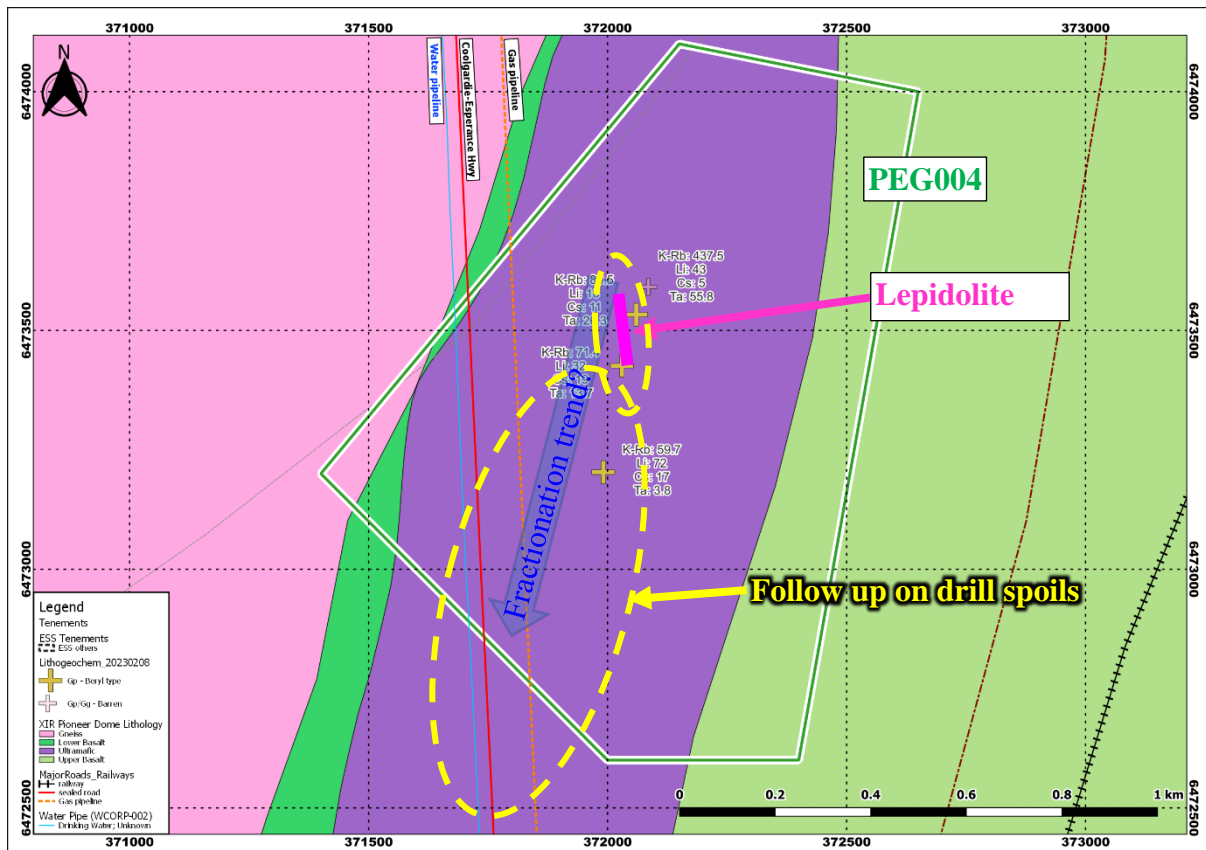


Figure 5: Recent drill spoil samples only with assays annotated (all values in ppm bar K/Rb ratio). Note the potential fractionation trend.

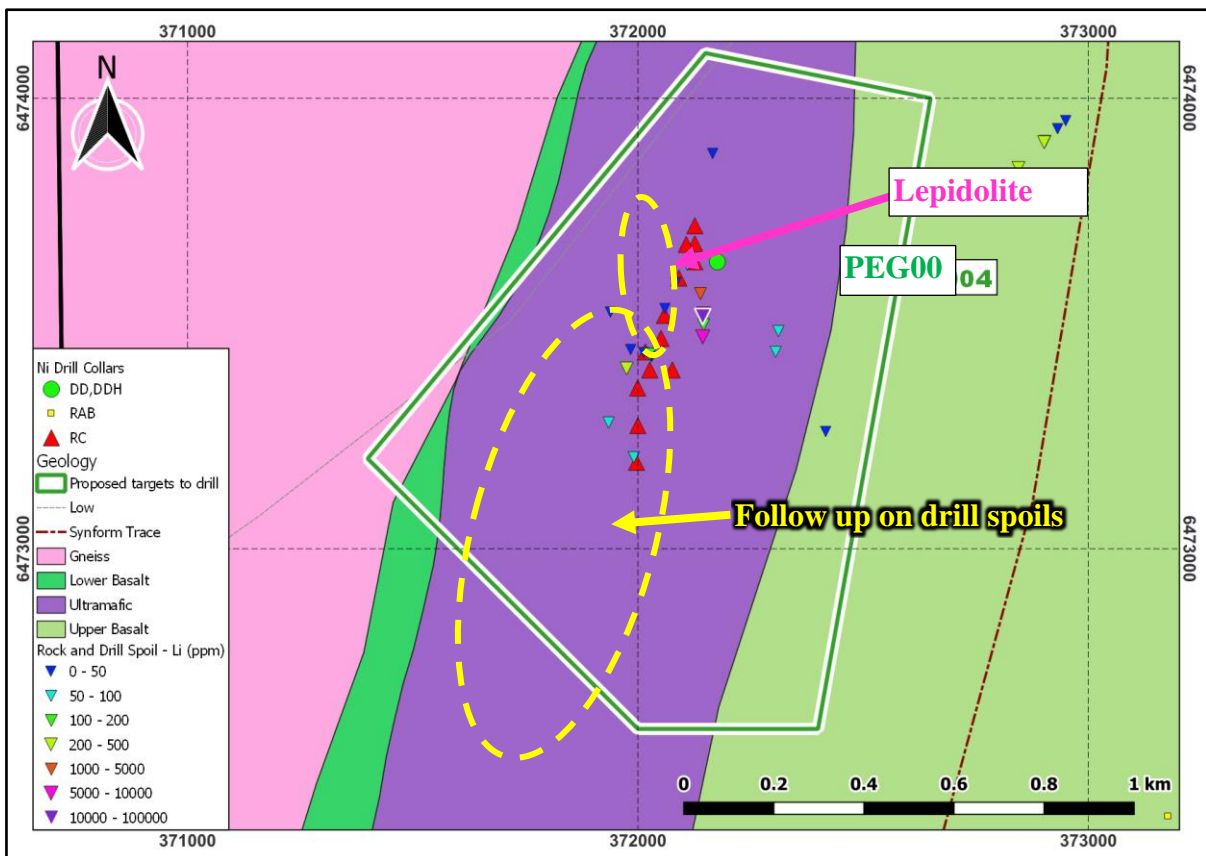


Figure 6: Drill spoil and rock samples with nickel exploration drilling and the interpreted regional geology.

REGIONAL EXPLORATION – Horse Rocks Lithium Project, Eastern Goldfields

The Horse Rocks Lithium Project consists of one 73km² tenement (E15/1710) located approximately 15km south-west of the Mt Marion Lithium Mine, which is 50% owned and operated by Mineral Resources Limited.

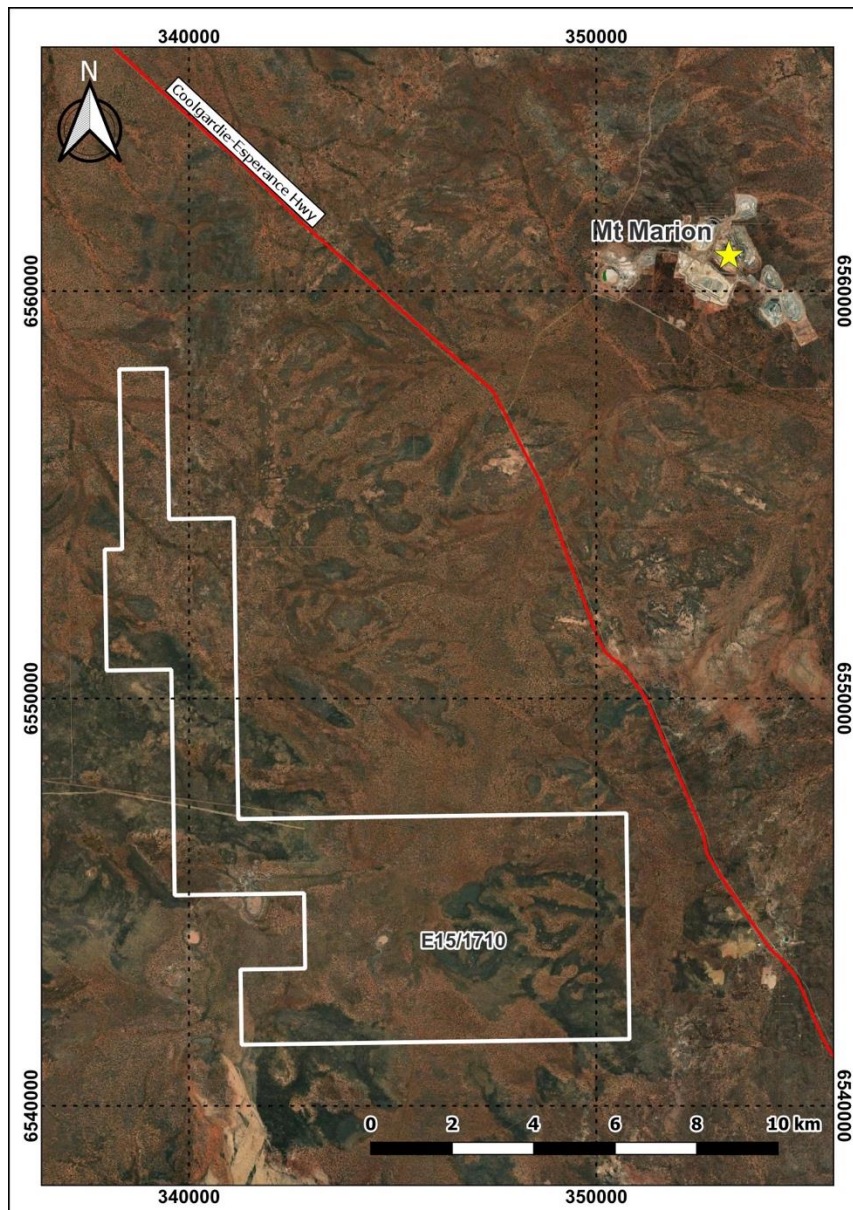


Figure 7: Proximity of the Horse Rocks Lithium Project to Mt Marion Lithium Mine.

An in-depth review undertaken earlier this year on newly acquired datasets identified 19 desktop targets which were visited during March and April. Field reconnaissance has identified numerous pegmatite outcrops in the northern part of the project and samples were taken from north-south trending pegmatites that contain tourmaline and thick mica sheets with assays pending (see Figure 8 for sample locations).

From field observations, it is interpreted that fractionation appears to increase to the north due to the increase in volatile/ flux components.

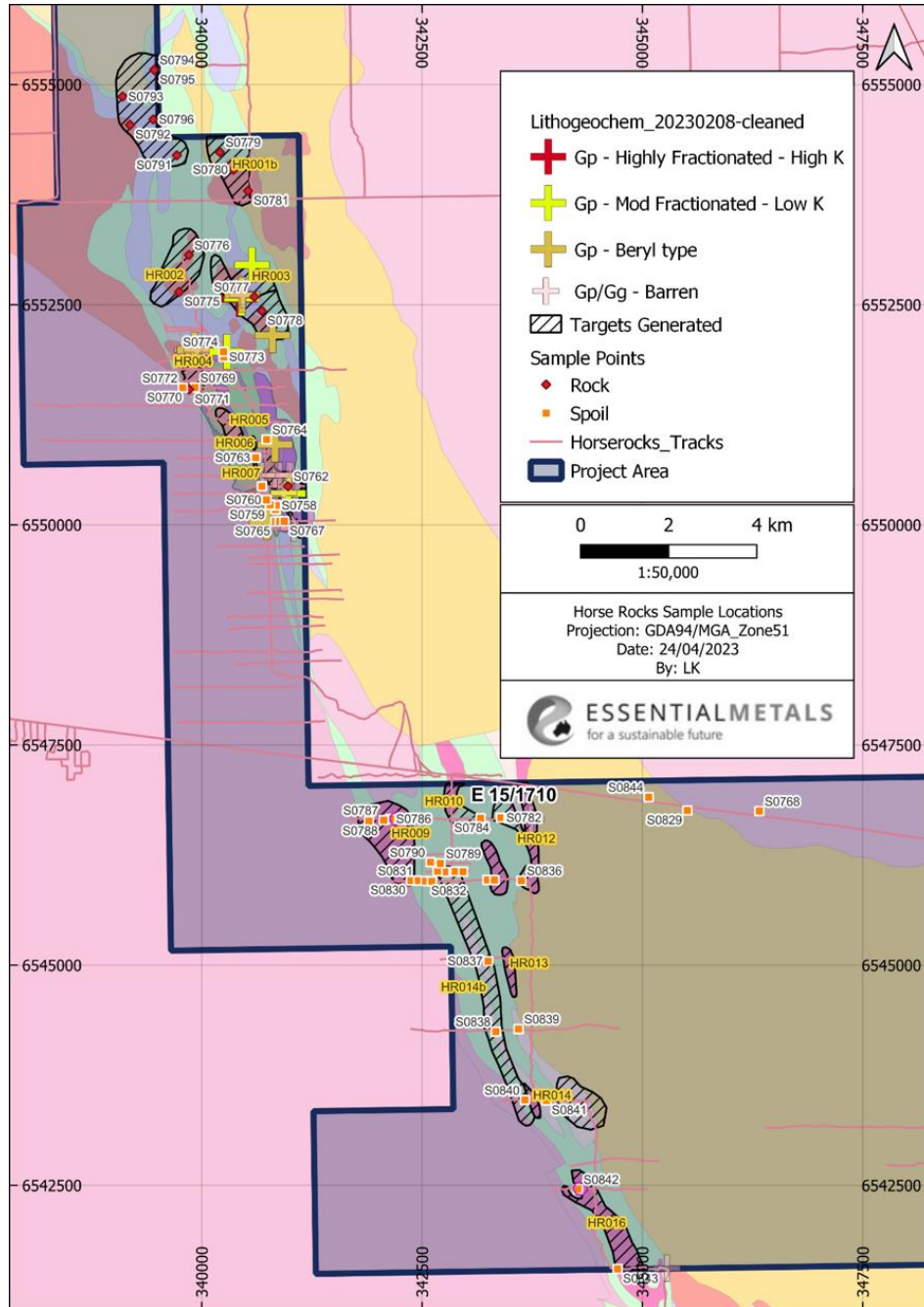


Figure 8: Sample locations of all rock and drill spoil samples collected in March and April 2023.

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EXPRESSIONS OF INTEREST – Off-take & Funding

In the December Quarter 2022, Essential invited various local and international lithium participants interested in off-take and/or investment to participate in an ‘Expressions of Interest’ (EOI) seeking a financing and off-take partnership to assist with advancing the Pioneer Dome Lithium Project into production.

The EOI process, which was put on hold upon the launch of the TLEA Scheme of Arrangement, has now recommenced and the Company is re-engaging with those parties who participated in the process. Pioneer Dome represents one of the few undeveloped lithium assets of scale in Australia which remains available for off-take, cornerstone investment, joint venture and project funding discussions.

As shareholder approval is not required to approve any of these important initiatives, Essential is free and unencumbered to fast-track these discussions and opportunities with a focus on achieving the best possible outcome for all Essential shareholders.

MINERAL RESOURCES LIMITED – 19.55% shareholder in Essential

After market close on Friday, 14 April 2023, Lithium Resources Operations Pty Ltd, a wholly-owned subsidiary of Mineral Resources Limited (ASX: MIN), and its related bodies corporate (together “**MinRes Group**”) lodged an ASIC Form 603 Notice of initial substantial holder, disclosing a holding of 52,300,000 ordinary shares in Essential, representing 19.55% of Essential’s total issued shares.

At a recent meeting with MinRes management, MinRes confirmed that its investment in Essential is consistent with its focus on lithium opportunities in the Mt Marion region, noting that the Pioneer Dome Lithium Project is approximately 100km from Mt Marion. MinRes also holds a 10% equity interest in Global Lithium Resources Limited (ASX:GL1), which owns the Manna Lithium Project and has joint ventures with two other ASX-listed companies in the Goldfields region.

MinRes has offered to assist Essential with various activities, such as exploration techniques and permitting.

This ASX release has been approved by the Board of Directors.

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ABOUT ESSENTIAL METALS LIMITED

Essential Metals is a well-funded and active explorer/developer focussed on the discovery of lithium and other key global demand-driven commodities, for the creation of shareholder wealth through exploration and project development. The Company operates three strategically located lithium and gold projects in Western Australia.

100% OWNED AND MANAGED PROJECTS:

- **LITHIUM:** The **Pioneer Dome Lithium Project** is highly prospective for lithium-caesium-tantalum (LCT) mineral systems and includes the **Dome North Lithium Mineral Resource** of 11.2 million tonnes @ 1.16% lithium (Li₂O) including 8.7 million tonnes @ 1.23% lithium (Li₂O) within the Indicated Category.⁴
- **GOLD:** The **Juglah Dome Project** is located 60km east-south-east of Kalgoorlie and is highly prospective for gold and has potential for VHMS style polymetallic deposits.
- **GOLD:** The **Golden Ridge Project** is located ~20km south-east of Kalgoorlie, WA. Our activities are focussed on reappraising known prospects as well as identifying new areas within the large land tenure.

JOINT VENTURE INTERESTS:

- **GOLD:** The **Acra Project** is near Kalgoorlie. Northern Star Resources Limited (ASX:NST) has earned a 75% Project Interest and continues to fully fund exploration programmes until approval of a Mining Proposal by DMIRS is received with Essential Metals holding a 25% interest.
- **GOLD:** The **Kangan Project** is in the West Pilbara and part of a joint venture with Novo Resources Corp (TSXV:NVO), who will fund 100% of gold exploration programmes until a decision to mine is made, with Essential Metals holding a 30% interest in precious metals and 100% of all other minerals.
- **GOLD:** The **Balagundi Project** is subject to a farmin & JV agreement where Black Cat Syndicate Limited (ASX:BC8) is earning a 75% interest in the Project located at Bulong, near Kalgoorlie. Black Cat will then fully fund exploration programmes until completion of a bankable feasibility study with Essential Metals retaining a 25% interest in all minerals.
- **GOLD:** The Company holds a 25% interest, free-carried interest up to a decision to mine, in all minerals except 20% for nickel rights in the **Larkinvile Project** near Kambalda, WA, with Maximus Resources Ltd (ASX:MXR).
- **NICKEL:** The nickel mineral rights on the **Blair-Golden Ridge Project**, which includes the suspended Blair Nickel Sulphide Mine, are subject to a Farmin/Joint Venture with Australian Nickel Company Ltd, a nickel exploration specialist which is earning up to a 75% interest. The Company will retain a 25% interest, free-carried interest up to a decision to mine.
- **NICKEL:** The Company holds a 20% (nickel only) interest, free-carried to a completion of a feasibility study which recommends that commercial mining operations be commenced, in the **Wattle Dam project** near Kambalda, WA, with Maximus Resources Ltd (ASX:MXR).
- **NICKEL:** The Company holds a 20% interest, free carried up to completion of a feasibility study which recommends the establishment of a mining area, in the **Maggie Hays project** near Lake Johnson, WA, with Poseidon Nickel Ltd (ASX:POS).

⁴ Refer ASX announcement 20 December 2022 "Dome North Resource upgrade".

Forward Looking Statement

This announcement may contain forward-looking statements which involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions, and estimates should change or to reflect other future developments.

Reference to previous market announcements

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The company confirms that the form and context in which Exploration Results or Competent Person's findings are presented have not been materially modified from the original market announcements.

Dome North Lithium Mineral Resource – Competent Person Statement

The information in this report that relates to the Dome North Lithium Project Mineral Resource is based on information compiled by Mr Andrew Dunn (Exploration Manager and permanent employee of Essential Metals Limited) and Mr Lauritz Barnes (consultant with Trepanier Pty Ltd). Mr Dunn is eligible to receive equity-based securities in Essential Metals Limited under the Company's employee incentive schemes. Mr Dunn and Mr Barnes are both members of the Australian Institute of Geoscientists. Mr Dunn and Mr Barnes both have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons 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. Specifically, Mr Dunn is the Competent Person for the database (including all drilling information), the geological and mineralisation models plus completed the site visits. Mr Barnes is the Competent Person for the construction of the 3-D geology / mineralisation model plus the estimation. Mr Dunn and Mr Barnes consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.

Dome North Mineral Resource by deposit and category: (0.3% Li₂O cut-off grade)

Deposit	Classification	Tonnes (Mt)	Li ₂ O %	Ta ₂ O ₅ ppm	Contained Li ₂ O (T)	Fe ₂ O ₃ %
Cade	Indicated	6.9	1.26	49	88,000	0.44
	Inferred	1.3	0.88	49	11,000	0.44
Davy	Indicated	1.6	1.08	81	18,000	0.54
	Inferred	0.6	0.89	73	4,000	0.58
Heller	Inferred	0.7	1.02	76	8,000	0.72
Total	Total	11.2	1.16	57	129,000	0.48

Note: Appropriate rounding applied.