

# Cooletha Lithium Project Sampling and Rankin Dome Drilling Update

## Highlights

### Cooletha:

- Phase 1 sampling at Cooletha completed with 251 rock samples collected
- One quarter of the granted tenure was investigated with the remainder to be accessed in coming months
- Four priority areas identified by the consulting geologist as having fractionation textures and spodumene.
- Individual pegmatites present as dykes and sills
- Pegmatite sills have an extent of up to 40m wide and 400m long
- Billy Creek Pegmatites observed to dip into and below the basal unconformity of the Fortescue Group which substantially increases the available lithium pegmatite target size
- Reverse circulation drilling planned to test this new potentially substantial target
- Manganese rich shales 30cm to 1m thick identified near the base of the extensive Fortescue Group in Eastern Cooletha

### Rankin Dome:

- Shallow Auger sampling program completed with 249 holes
- 900m Reverse Circulation Drilling currently in progress
- Auger samples submitted to laboratory with results pending

Australian Critical Minerals (ASX:ACM, “Australian Critical Minerals” or “the Company”) is pleased to announce that Phase 1 sampling of Cooletha has been completed with approximately 65 km<sup>2</sup> covered. A higher definition shallow auger program was completed at Rankin Dome which was followed by a 900m Reverse-circulation drill program of 6 x 150m deep drillholes,

### Managing Director, Dean de Largie said,

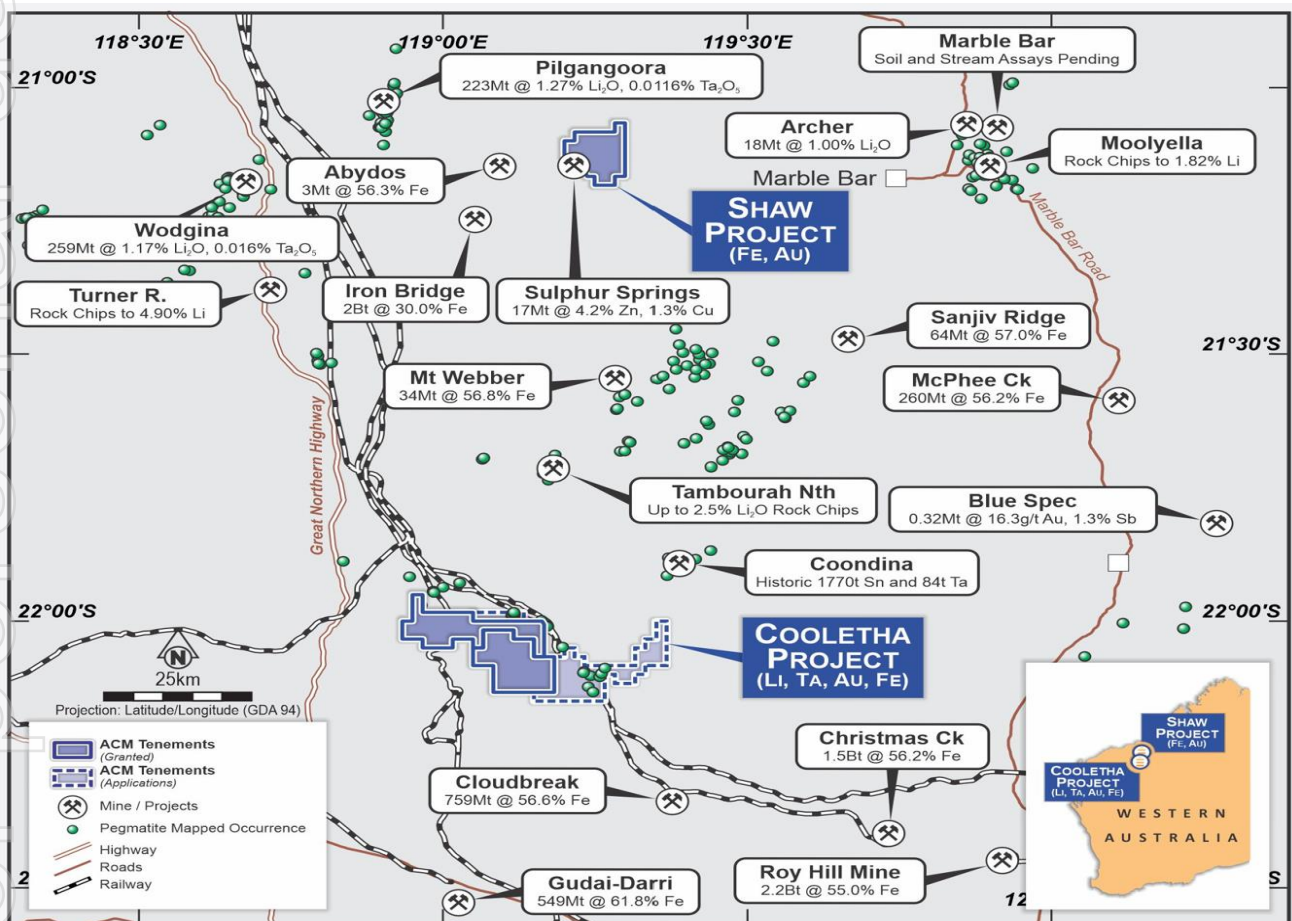
*“We are pleased to update our shareholders of the encouraging observations from the Cooletha Project. Our field investigations have increased the potential area of prospectivity for lithium pegmatites, identified four prospects described as having large pavements of pegmatites and identified shale-hosted manganese.*

*Whilst lithium exploration will remain our priority, the addition of manganese to our portfolio of green energy commodities will be received well by our shareholders. As foreshadowed previously, Rankin Dome has progressed further with additional shallow auger sampling completed and RC drilling currently in progress.*

## Cooletha Lithium Project, Pilbara

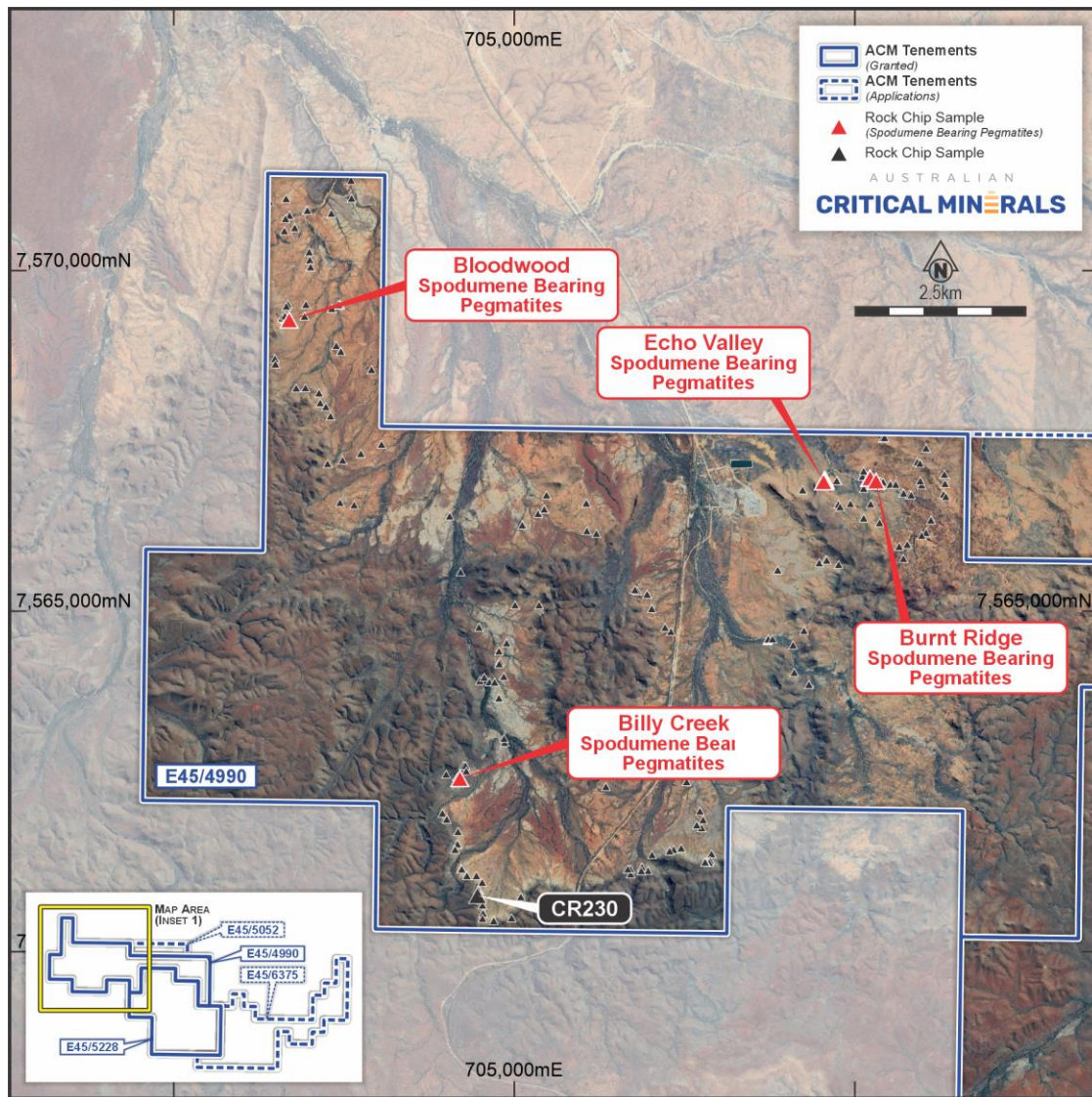
The Cooletha Lithium Project, ACM's flagship lithium project, has over 100km<sup>2</sup> of lithium prospectivity with outcropping pegmatite swarms in the Pilbara lithium district. The Project is located south of significant discoveries at Pilbara Minerals' (**ASX:PLS**) Pilgangoora Lithium Project (223Mt @ 1.25% Li<sub>2</sub>O), MinRes' (**ASX:MIN**) Wodgina Lithium Project (259Mt @ 1.17% Li<sub>2</sub>O), and Global Lithium Resources' (**ASX:GL1**) Archer Lithium Deposit at Marble Bar (18Mt @ 1% Li<sub>2</sub>O) (Figure 1).

The Cooletha project also sits 30km south of the Tambourah Lithium Project owned by Trek Metals (**ASX:TKM**), which has commenced its maiden 3,800m drill campaign following up on rock chip results up to 3.02% Li<sub>2</sub>O.



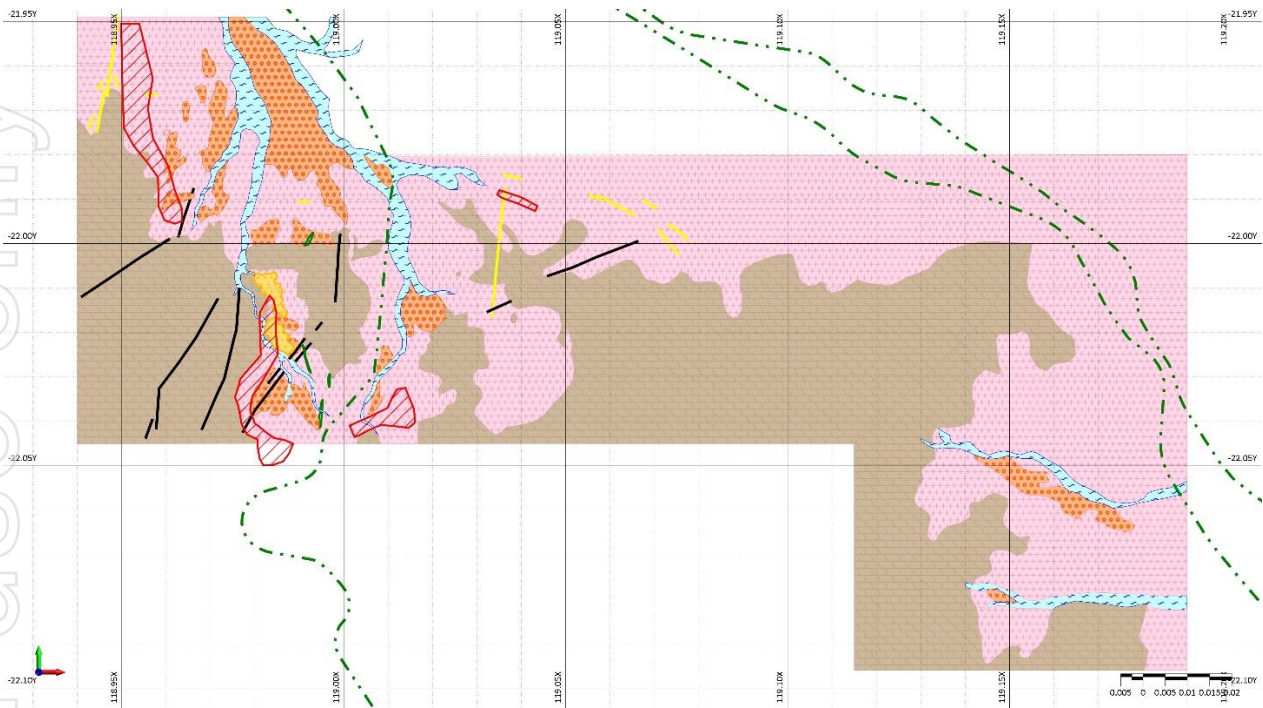
**Figure 1 – The location of the Cooletha Lithium Project in the Pilbara region, Western Australia.**

To date, Australian Critical Minerals has identified four areas named Bloodwood, Echo Valley, Burnt Ridge and Billy Creek as priority future work areas. The mapping and sampling program amassed 251 rock samples which have been delivered to Labwest for analysis.



**Figure 2 – Four lithium pegmatite prospects have been identified as priority areas during recent sampling at Cooletha.**

The pegmatites occur as dykes and broad pavements striking for several hundred metres and often with substantial widths (Figure 3). The pegmatites are hosted in the Tambourah Monzogranite which is a large domal batholith and part of the Split Rock Supersuite which regionally hosts lithium and tantalum bearing pegmatites.



**Figure 3 Geology mapping at Cooletha showing several pegmatite priority areas.**

The pegmatites sampled consisted of coarse to very coarse grained orthoclase-albite-quartz-biotite rich crystalline rocks within Tambourah Monzogranite (TMG). Some sampling of the basal Fortescue Group sedimentary rocks was also carried out together with sampling of amphibolite rafts within the TMG. The pegmatite samples mainly consisted of coarse to very coarse (up to 50cm size) crystalline orthoclase-quartz rich rocks often with graphic textures which indicate that fractionation processes have been at play. Unconformably overlying the TMG are basal units of the Fortescue Group: The unconformity between the TMG and the basal Tambourah Formation of the Fortescue Group is an irregular surface marked by ridges of pegmatitic TMG south of Redmont and in the Billy Ck area SW of Redmont the upper level of the TMG is calcretised and boulders of pegmatite occur within the basal Fortescue Group conglomerate (Figure 4).

Pegmatite morphology occurs as dykes and sills with sills occasionally presenting as extensive pavements. This style is common on the western side of Cooletha (Figure 5).



**Figure 4 Graded bedding from cobbles to sandstone observed in boulder south of Redmont**

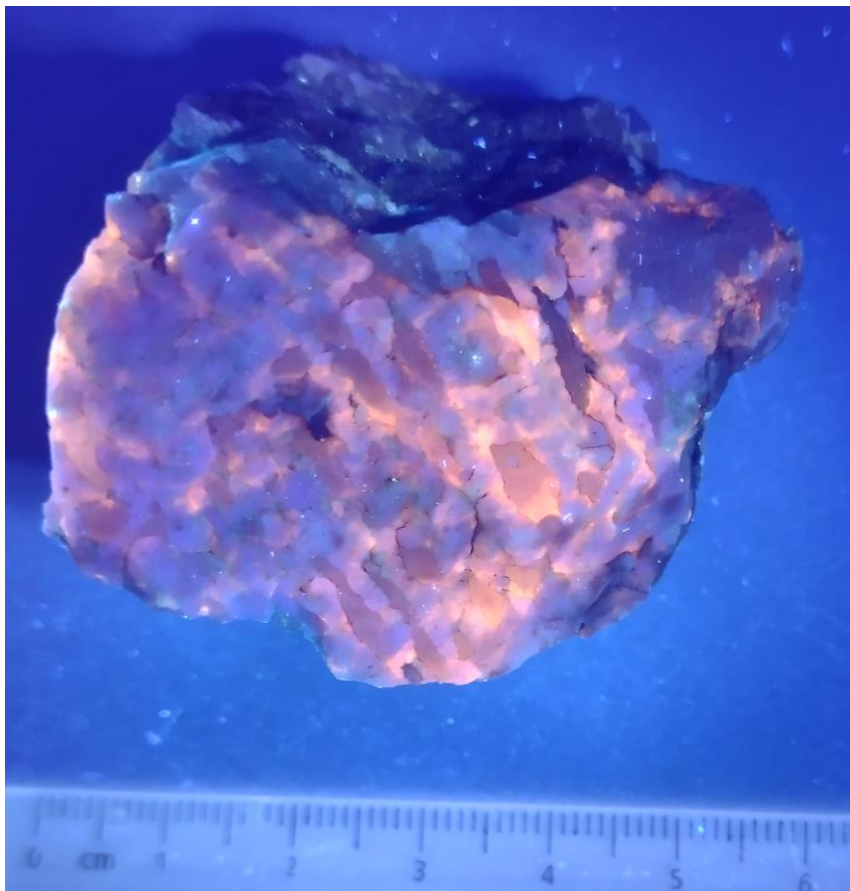
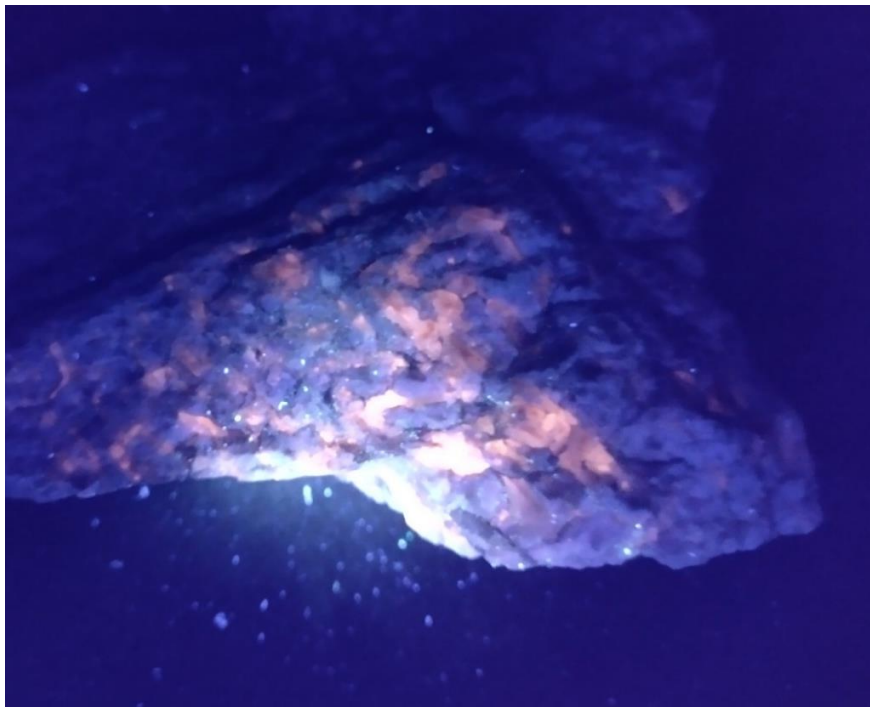


**Figure 5 – Billy Creek Pegmatite pavement**

The observation that the pegmatite sills at Billy Creek dip below the Fortescue Group indicates that the lithium pegmatite target may be larger than originally postulated. (Figure 6).



**Figure 6 – Thick Billy Creek pegmatite sills (left side of photo) dip beneath the Fortescue Group rocks**



**Figure 7 – Billy Creek Pegmatite specimens under Ultra Violet light. The glowing pink is interpreted to be spodumene (to be confirmed by assay analysis)**



**Figure 8 – Pegmatite sills and irregular bodies at Bloodwood.**



**Figure 9 - Amphibolite raft within the Tambourah monzogranite at Billy Hill with the Fortescue Group in the background**

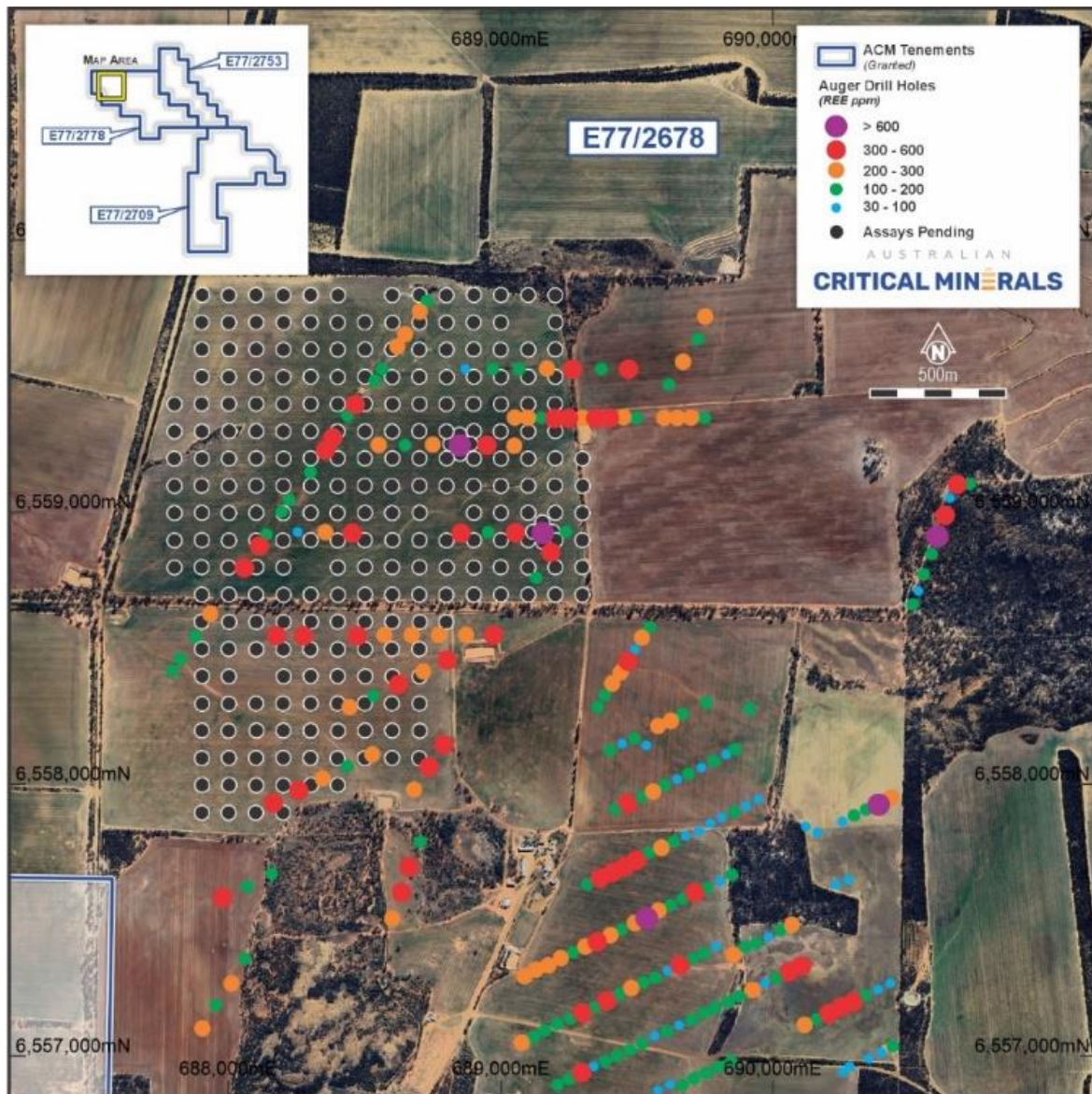


**Figure 10 – Manganiferous shale sample eastern Coolletha**

### **Rankin Dome Project, Yilgarn**

A 249 hole shallow auger soil program has completed at Rankin Dome (Figure 11). The auger program was performed on a 100m x 100m grid over the northwestern portion of the REE anomaly previously reported. The program will better define the REE anomaly geometry and provide improved orientation information to guide future drilling. Sampling was standardised across the region with the interval 1m to 2m being sampled. This is anticipated to provide a more robust geological interpretation when assays are received.

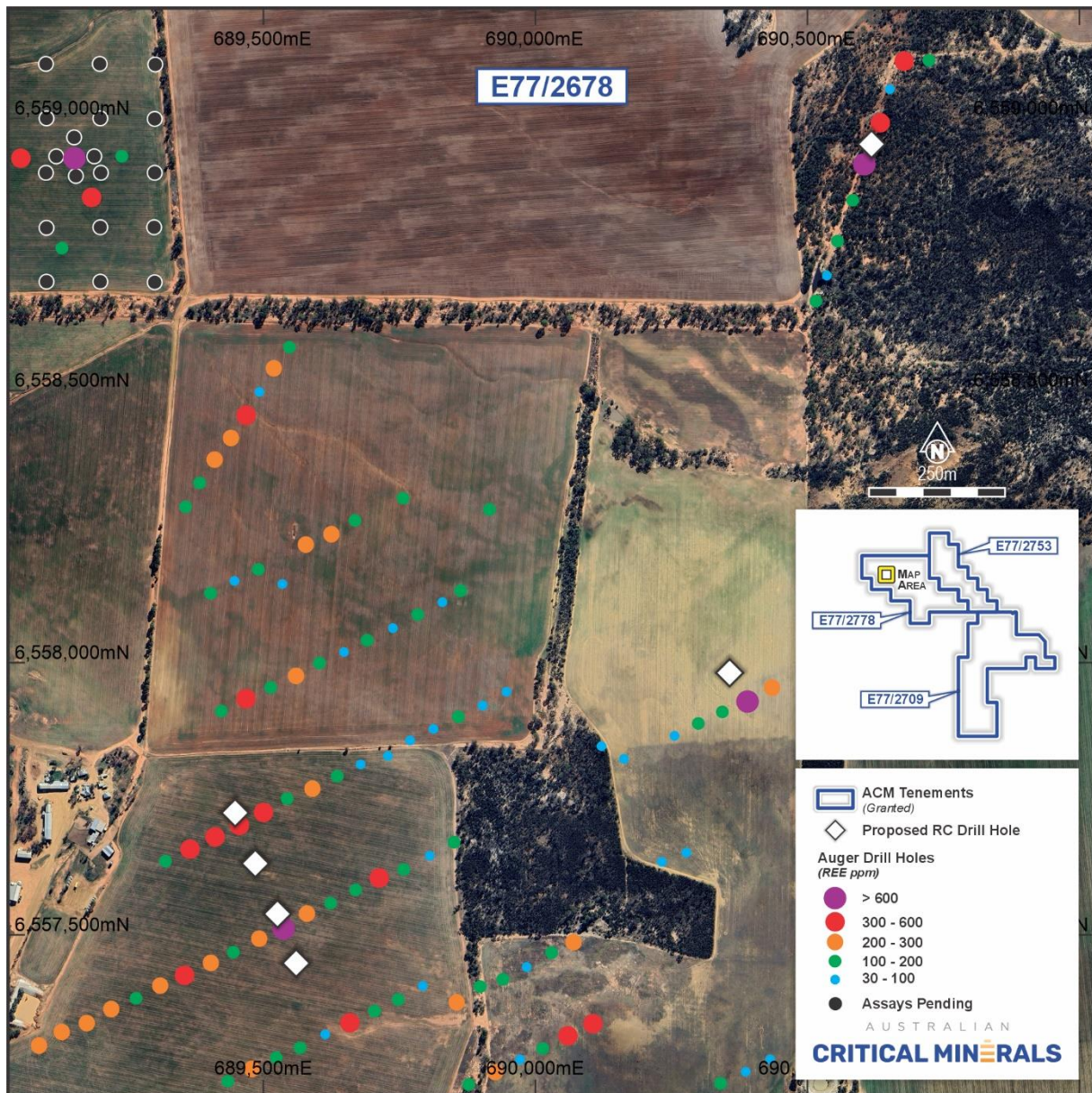
The area covered by the grid has scant outcrop and thus lacks bedrock depth information. The grid program included 1 in 10 holes drilled to refusal to gain further information including bedrock depth.



**Figure 11 – 100m gridded shallow auger at Rankin Dome**

Strongly anomalous results from the work performed by Kula Gold (**ASX: KGD**) was on sample lines of various orientations. To reduce interpretation bias resulting from the various sample line orientations ACM increased sample density and used the 100m by 100m grid. Auger samples have been submitted and assays are awaited.

A 900m RC drill program is currently in progress on the NW section of Rankin Dome. Bedrock is close to surface at this location. The RC drilling will test areas of REE anomalism in soils (Figure 12).



**Figure 12 – RC Drillhole collar locations Rankin Dome**

This release has been approved by the Board of Australian Critical Minerals Limited.

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## About Australian Critical Minerals

**Australian Critical Minerals** is an exploration company focused on developing a quality portfolio of critical minerals projects in Western Australia. The key projects are Cooletha (Pilbara) Lithium Project and Rankin Dome (Southern Cross) Rare Earth Project.

Battery metals, including rare earths and lithium are fundamental in the clean energy transition to net zero transmissions. ACM intends to play a pivotal role in delivering the processed minerals needed for a clean energy future.

ACM has established a highly experienced management team with a proven track record of exploration and corporate success in the mining industry.

### Reference to Previous Announcements

*Investors can refer to the Company's Prospectus for further disclosure on information in this Announcement and all of the Company's Projects. Investors should also refer to the Company's release 28 August 2023 "Cooletha Exploration Update" for more information on the pegmatite outcrops (and relevant samples).*

### Competent Persons Statement

*The information in this report that relates to Exploration Targets and Exploration Results is based on information compiled by Mr. Dean de Largie. Mr. de Largie is the Managing Director of Australian Critical Minerals Limited and is a Fellow of the Australian Institute of Geoscientists and has sufficient experience relevant to the styles of mineralisation under consideration and to the activity being reported to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. de Largie have verified the data disclosed in this release and consent to the inclusion in this release of the matters based on the information in the form and context in which it appears.*

### Forward Statement

*This news release contains "forward-looking information" within the meaning of applicable securities laws. Generally, any statements that are not historical facts may contain forward-looking information, and forward looking information can be identified by the use of forward-looking terminology such as "plans", "expects" or "does not expect", "is expected", "budget" "scheduled", "estimates", "forecasts", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or indicates that certain actions, events or results "may", "could", "would", "might" or "will be" taken, "occur" or "be achieved." Forward-looking information is based on certain factors and assumptions management believes to be reasonable at the time such statements are made, including but not limited to, continued exploration activities, commodity prices, the estimation of initial and sustaining capital requirements, the estimation of labour costs, the estimation of mineral reserves and resources, assumptions with respect to currency fluctuations, the timing and amount of future exploration and development expenditures, receipt of required regulatory approvals, the availability of necessary financing for the project, permitting and such other assumptions and factors as set out herein.*

*Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to: risks related to changes in commodity prices; sources and cost of power and water for the Project; the estimation of initial capital requirements; the lack of historical operations; the estimation of labour costs; general global markets and economic conditions; risks associated with exploration of mineral deposits; the estimation of initial targeted mineral resource tonnage and grade for the project; risks associated with uninsurable risks arising during the course of exploration; risks associated with currency fluctuations; environmental risks; competition faced in securing*

*experienced personnel; access to adequate infrastructure to support exploration activities; risks associated with changes in the mining regulatory regime governing the Company and the Project; completion of the environmental assessment process; risks related to regulatory and permitting delays; risks related to potential conflicts of interest; the reliance on key personnel; financing, capitalisation and liquidity risks including the risk that the financing necessary to fund continued exploration and development activities at the project may not be available on satisfactory terms, or at all; the risk of potential dilution through the issuance of additional common shares of the Company; the risk of litigation.*

*Although the Company has attempted to identify important factors that cause results not to be as anticipated, estimated or intended, there can be no assurance that such forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. Forward looking information is made as of the date of this announcement and the Company does not undertake to update or revise any forward-looking information this is included herein, except in accordance with applicable securities laws.*