

Deciphering the clues of the Mt Weld carbonatite source

Australian Rare Earth Conference

ANU, Canberra, 1 November 2022

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Acknowledgement

Lynas Rare Earths acknowledges the Traditional Owners of the lands on which we live, work and meet, across Australia.

We acknowledge and value Lynas' Aboriginal and Torres Strait Islander employees, partners and communities and pay respect to their Elders past and present.



Agenda

**1.
Discovery**

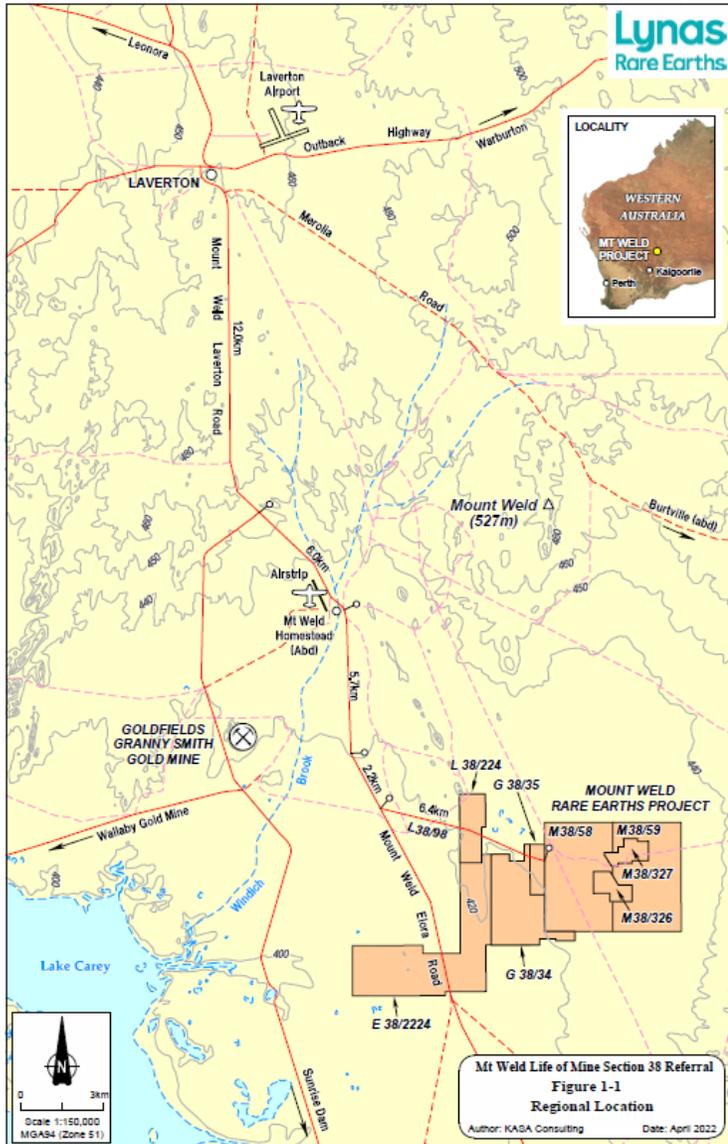
**2.
Economic
geology**

**3.
Brownfield
exploration
potential**

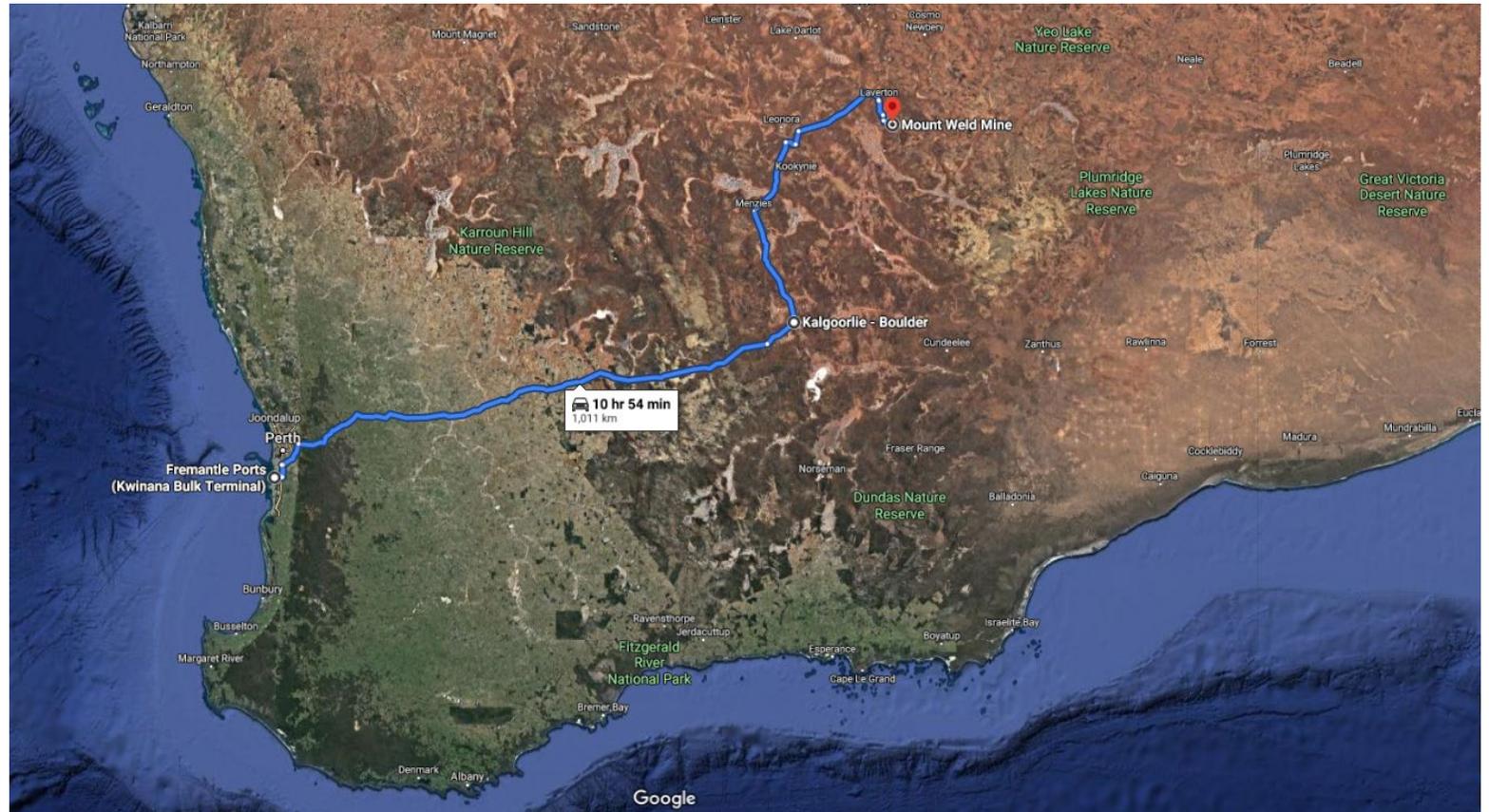
**4.
Developing
critical minerals
capability in WA**



Goldfields region of Western Australia

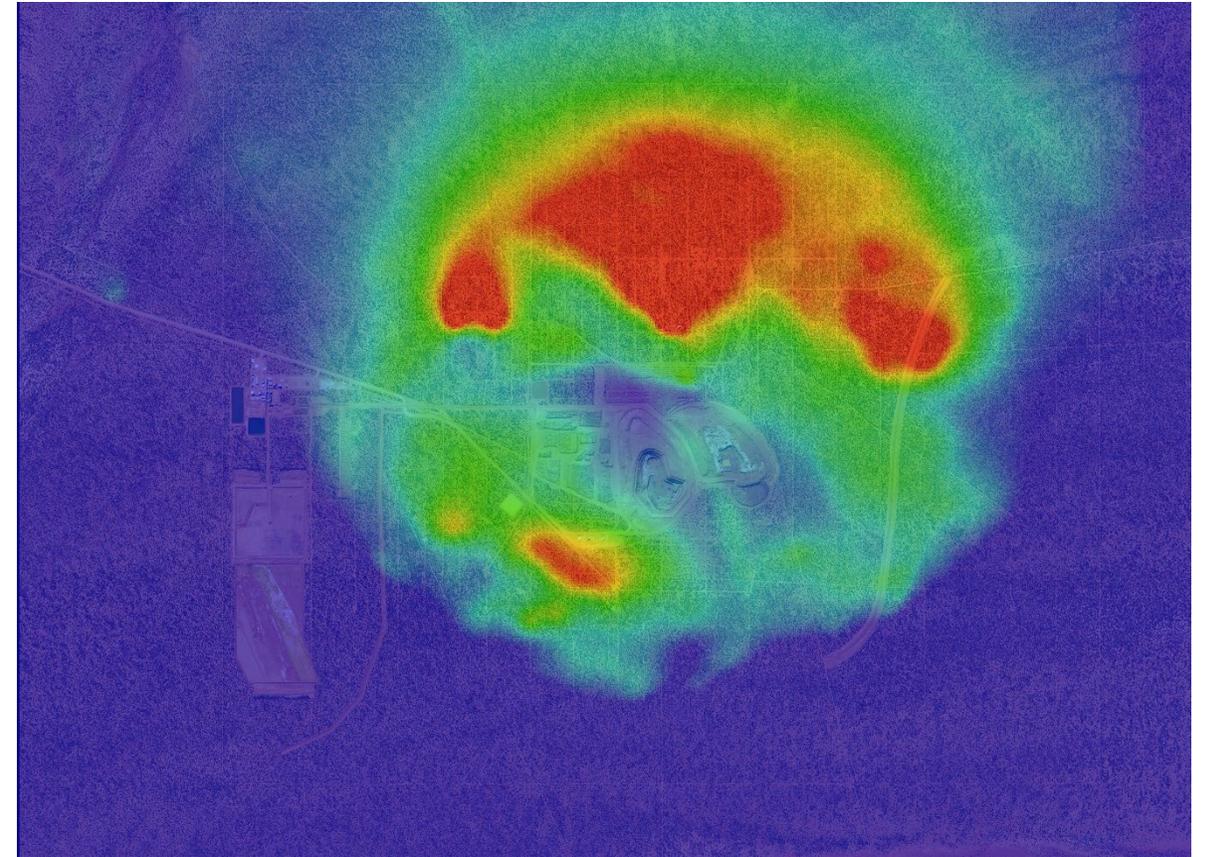
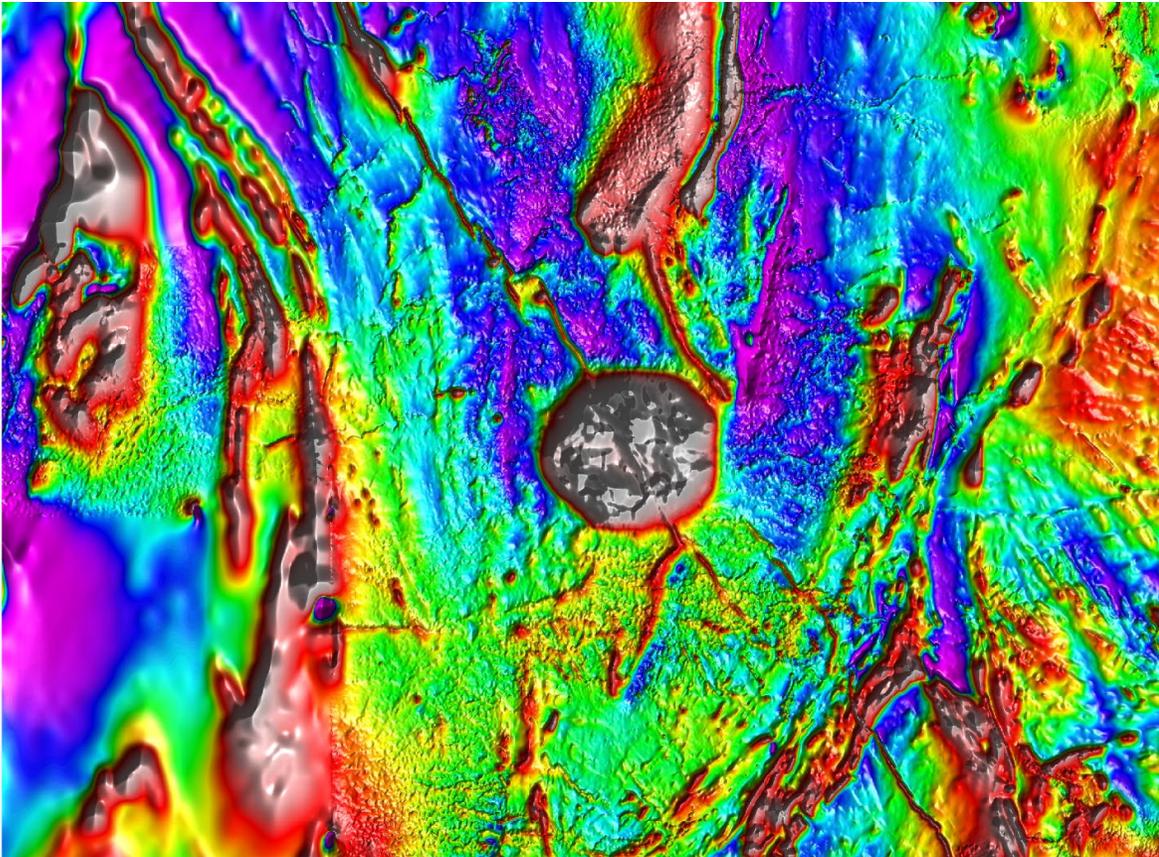


- Wongatha land
- Mt Weld is 28 kilometres south east of nearest community at Laverton
- Connected to sealed roads and rail network to Port of Fremantle



Discovered in 1966 by Government survey

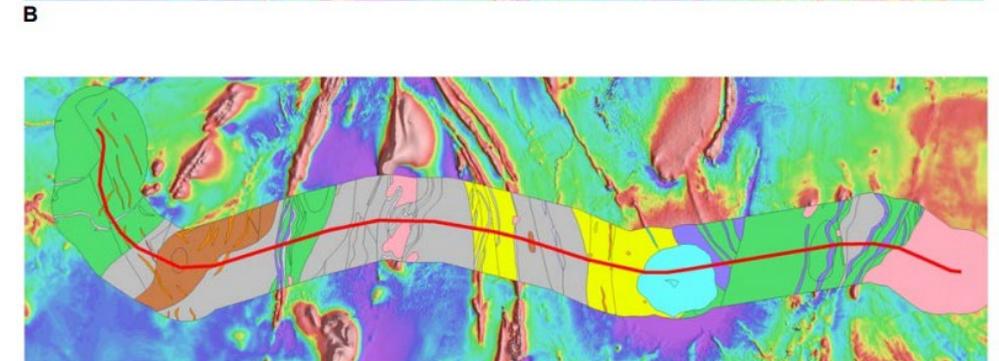
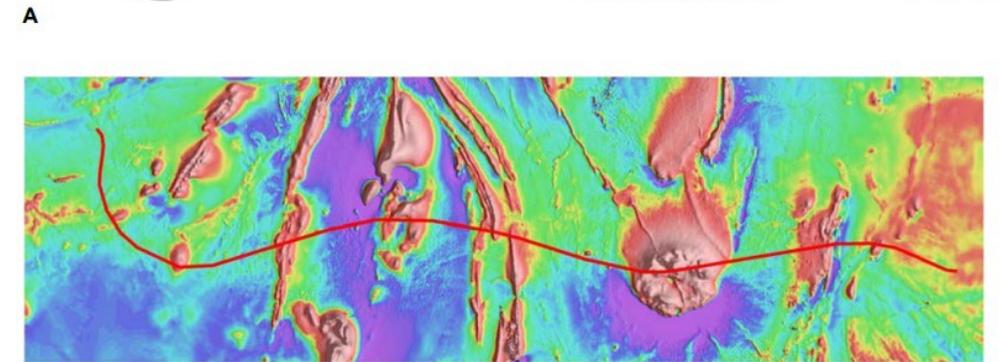
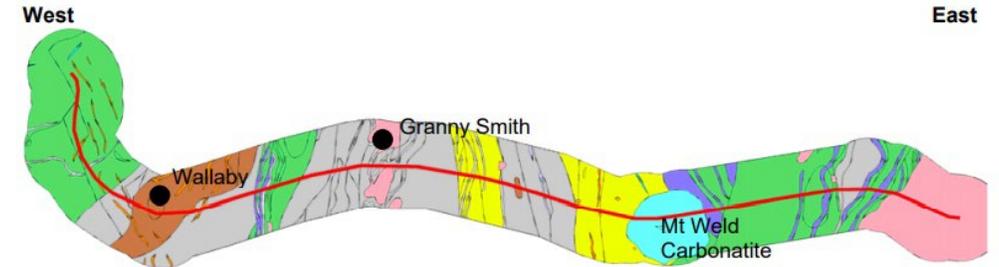
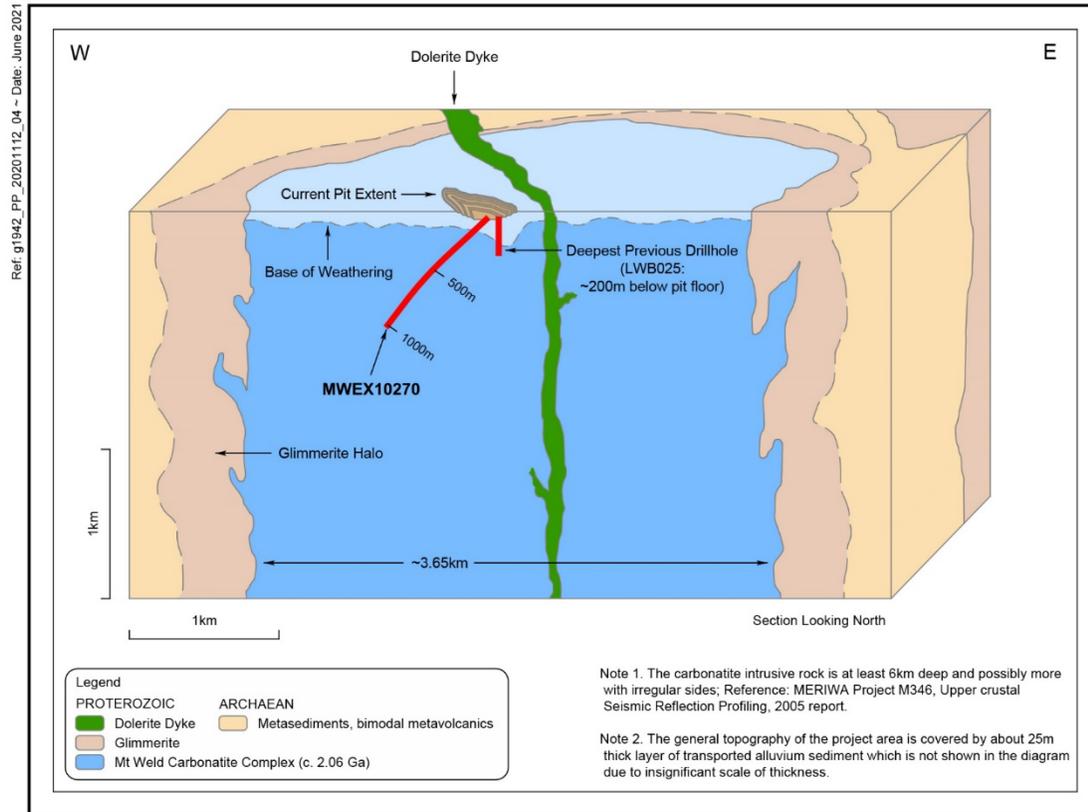
- Aerial magnetic anomaly of the concealed Mt Weld carbonatite, 3.5 km diameter
- The source of the magnetic anomaly was recently identified with magnetite at depth
- The upper 85 metre saprolite is the current zone of economic geology with an ore reserve



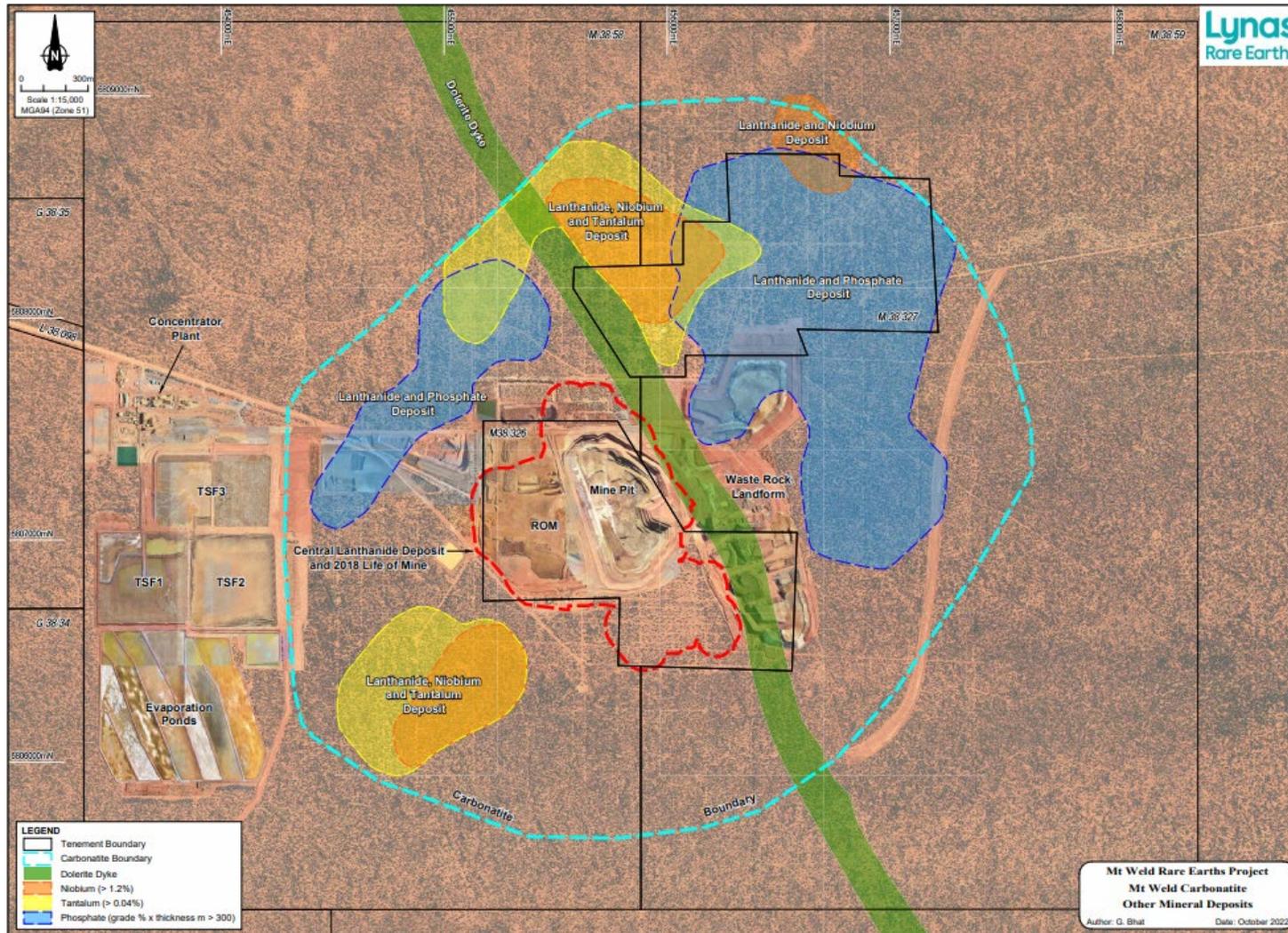
Blue and green implies thick saprolite zone

Open at depth

- Interpretation (MRIWA project M346) of regional seismic:
 - The carbonatite extends to depths of at least 6 km
 - Suggest sides are not vertical, rather has a cone shape and appears to form irregular boundaries



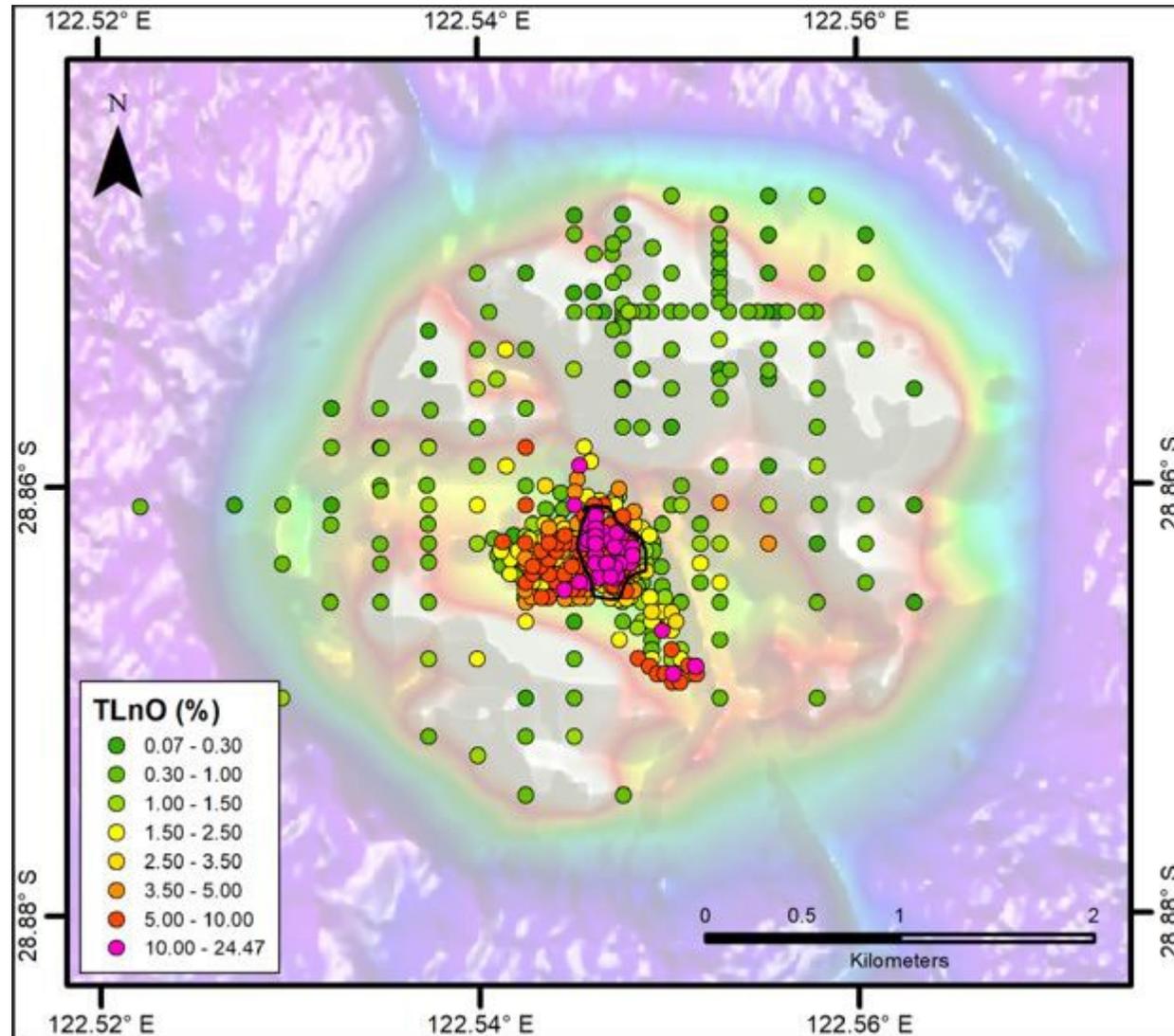
Economic geology of Mt Weld



- Ore production is focussed on REE
- Phosphate deposits are identified as apatite mineralisation

Central Lanthanide Deposit 2018 design Life of Mine as the red dashed outline

Widespread mineralisation



Exploration and resource drilling

- Wide spread REE mineralisation in Mt Weld carbonatite
- Drillhole depth varies from 60m to 120m below surface
- End of drillhole TREE or TLnO (REE + Y oxide) assays ranges from 700 ppm to 25%
- Aeromagnetic signature shows further REE resource expansion potential in carbonatite

Mt Weld Mineral Resource 2018

70% increase to 3.0 million tonnes TREO

Type	Measured		Indicated		Inferred		Total		Total
	Tonnes Mt	TREO %	Tonnes Mt	TREO %	Tonnes Mt	TREO %	Tonnes Mt	TREO	TREO kt
LI, CZ & MN	9.3	8.9	8.6	5.4	3.7	4.1	21.6	6.7	1,500
AP	8.2	6.9	3.4	5.6	0.4	5.6	12.0	6.5	800
TR					11.6	3.4	11.6	3.4	400
Fresh					10.2	3.7	10.2	3.7	400
Total	17.5	8.0	12.0	5.5	25.9	3.6	55.4	5.4	3,000

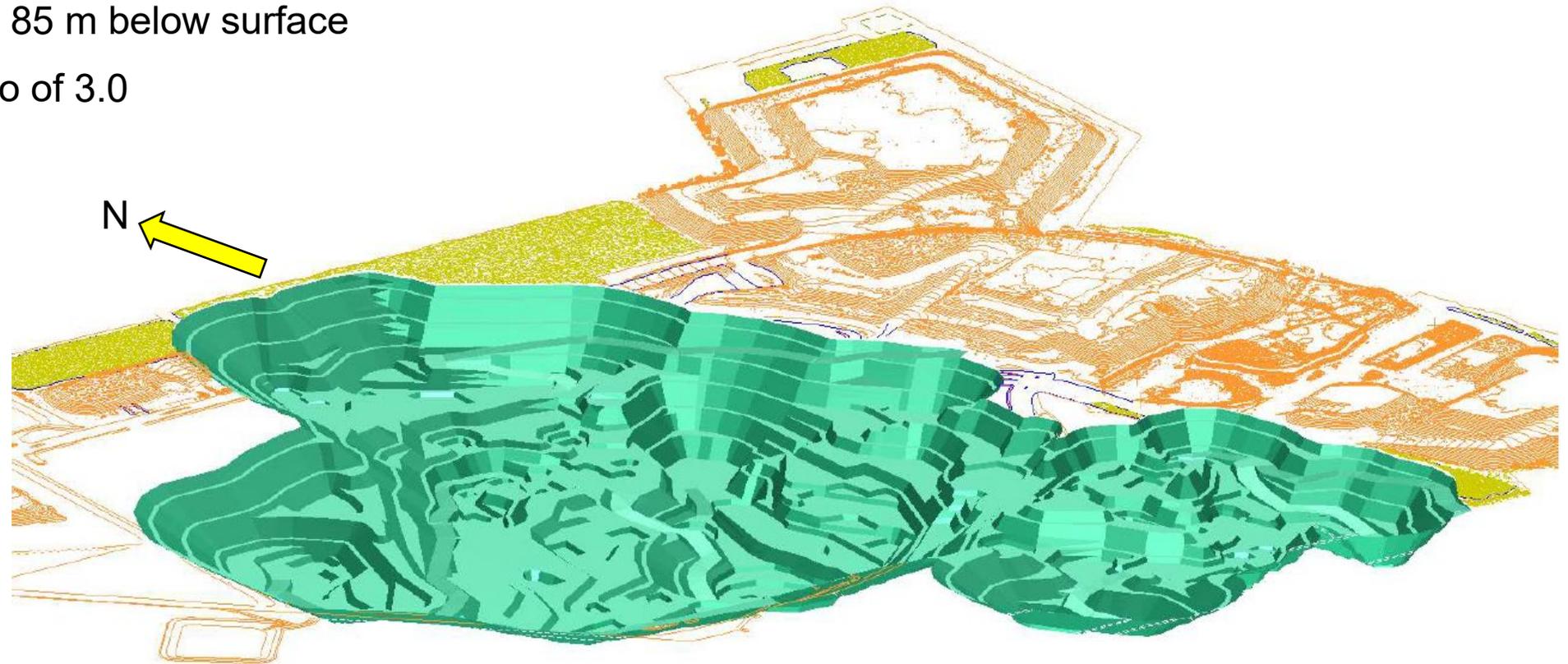
Resource cut-off grade 2.5% REO and rounding of figures may cause an imbalance in totals.

Total mineral resources 54.7 Million tonnes, at 5.3% TREO grade for 2,877 K tonnes contained REO- Annual report 2022

- Measured & Indicated - 28.8 Mt for 1,930 kt REO
- Currently the CZ, MN and AP units are within the Ore Reserve; these units contain approximately 75% of the contained REO (2,240 kt)
- The Transition and Carbonatite units contain the remaining 25% (760 kt) REO in the Inferred Category

Life of Mine

- Bounded by a dolerite dyke to the east
- Cut off grade 4.0% REO with Ore Reserve average 8.2% TREO*
- Whittle optimisation of TREO and recoveries to the north, west and south
- Shallow pit up to 85 m below surface
- Waste to ore ratio of 3.0

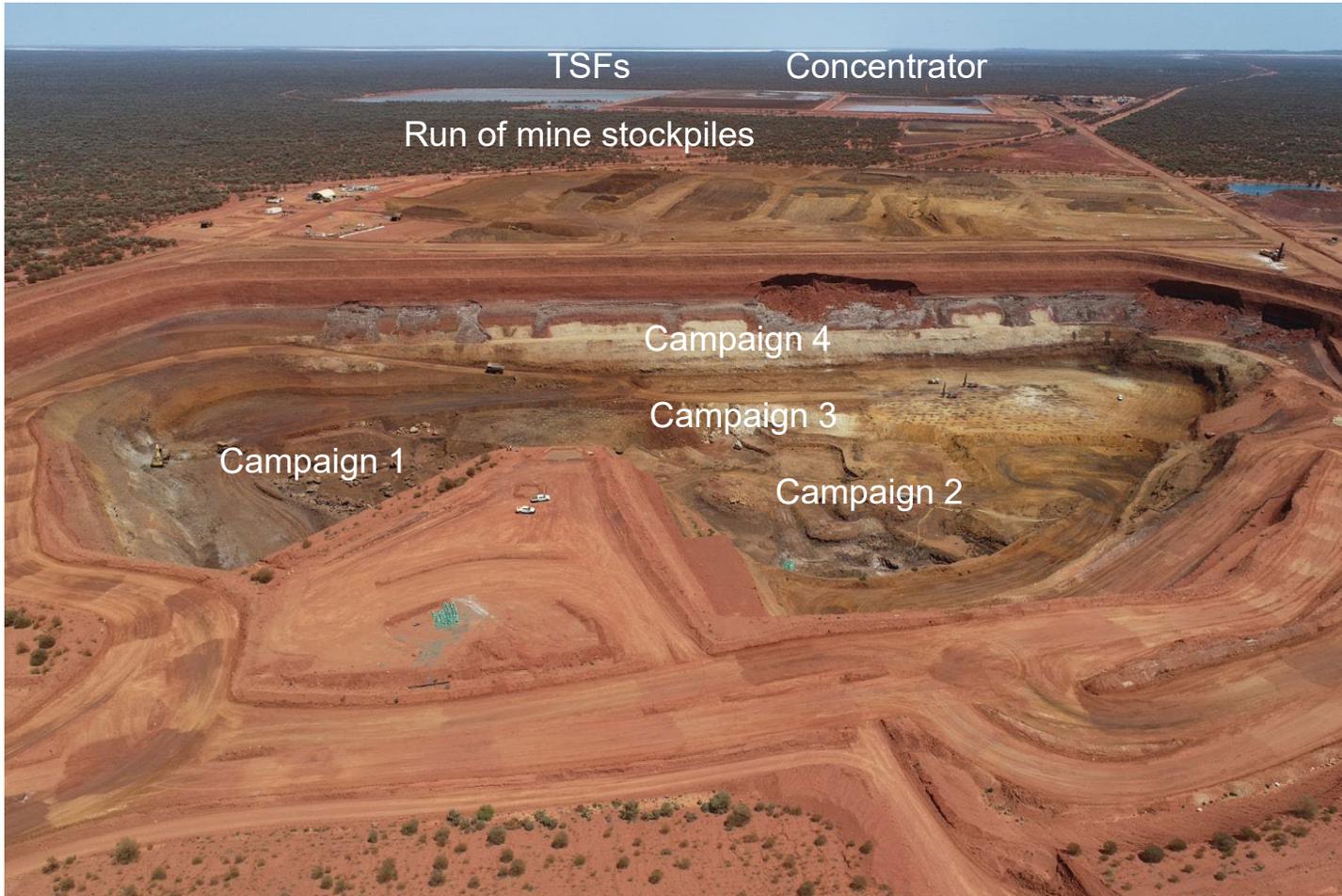


Ore reserve 30 June 2022

JORC CLASSIFICATION	MILLION TONNES	TREO %	CONTAINED REO '000 TONNES
Ore Reserves within Pit boundary			
Proved	13.1	8.3	1,092
Probable	5.0	7.4	369
Designed Pit Total	18.1	8.1	1,461
On Stockpiles			
Proved	0.6	12.0	66
Probable	0.0	0.0	0
Stockpiles Total	0.6	12.0	66
Total Ore Reserves			
Proved	13.7	8.4	1,158
Probable	5.0	7.4	369
Total	18.6	8.2	1,527

* TREO = Total Rare Earth Oxides (La₂O₃, CeO₂, Pr₆O₁₁, Nd₂O₃, Sm₂O₃, Eu₂O₃, Gd₂O₃, Tb₄O₇, Dy₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃) + Yttrium (Y₂O₃).
Totals may not balance due to rounding of figures

Current ore mining



October 2022 mining campaign 4, run of mine stockpiles

- Mine progression in four cutbacks from 2007 to present

Current classification of ores:

- High grade ore ranges from 24% to 45% REO
- Medium grade ore ranges from 16% to 24% REO
- Low grade ore ranges from 4% to 16% REO
- Reserve cut off grade 4.0% REO

Tailings Storage Facility



- Mt Weld tailings utilises assisted mechanical consolidation
- 50% reduction in volume of stored tailings
- Shear strength to >30 kPa
- 70% water recovery
- Able to be mechanically excavated
- Preserve option for future re-processing

Finalist in Western Australia Government 2022 *Golden Gecko Awards* for environmental excellence

Unlocking the long-term value of the Mt Weld ore body

Support from WA Exploration Incentive Scheme

Lynas has unique partnerships with:

- CSIRO, ANSTO
- Murdoch and Curtin Universities with Minerals Research Institute of WA; University of Adelaide; ANU
- World leading experts from Japan Oil, Gas and Metals National Corporation (JOGMEC)

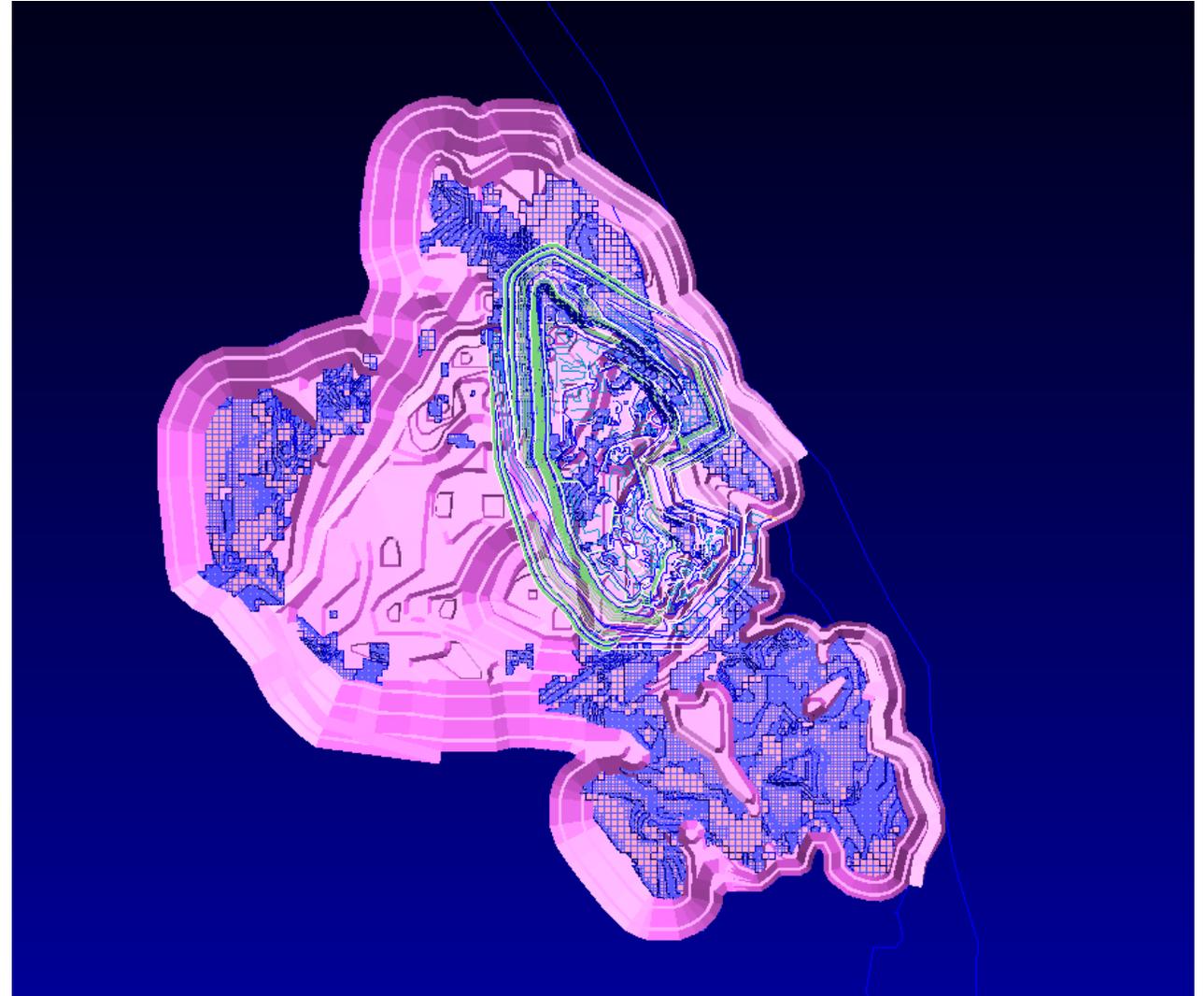
These collaborative partnerships will support ore body knowledge for:

- Rare earth minerals; phosphates and carbonates
- Heavy Rare Earth Elements
- Light Rare Earth Elements



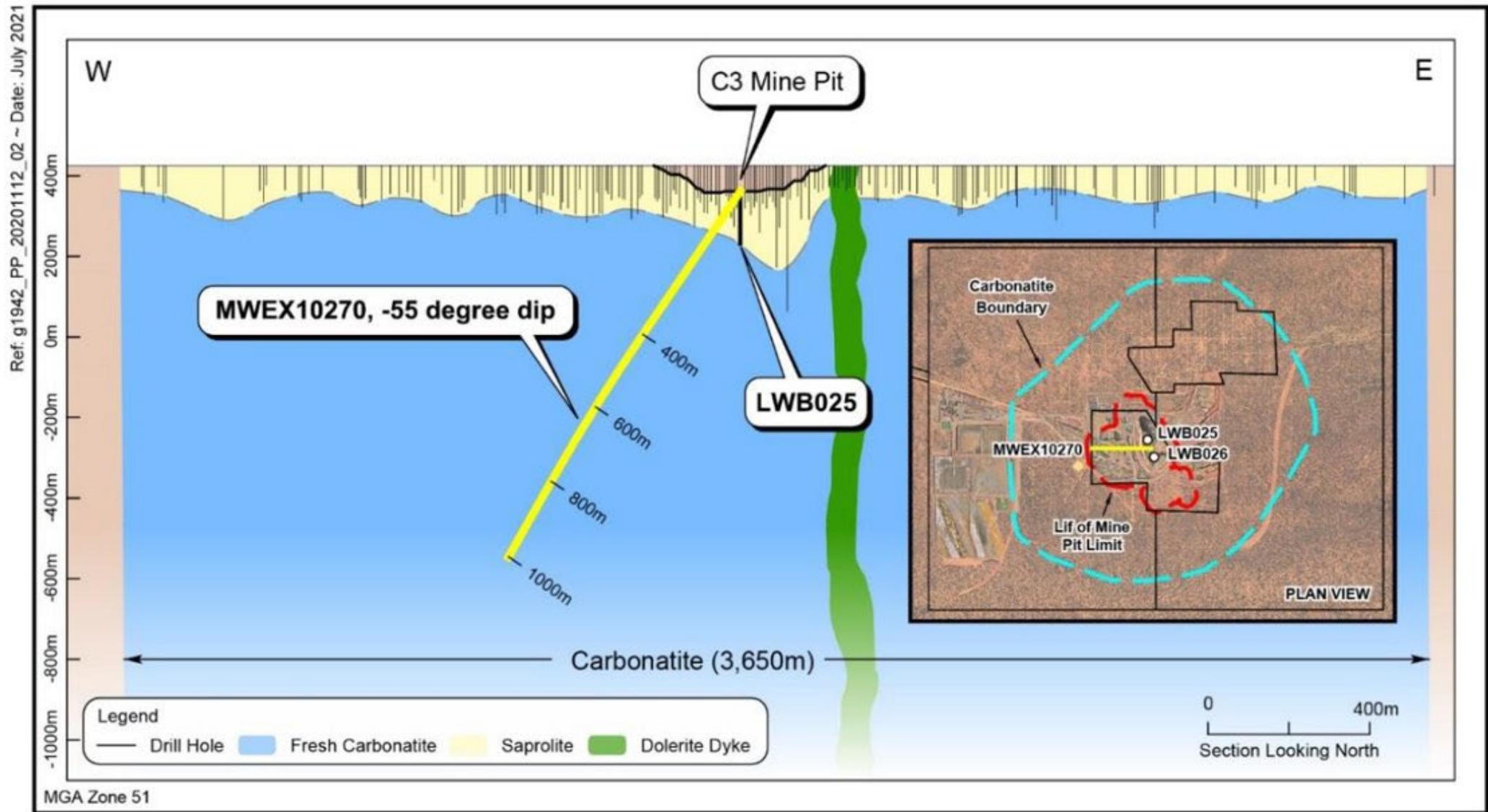
Heavy rare earth elements

- Yttrium (Xenotime) and HREE have positive correlation
- Mine plan optimises TREO extraction sequence
- Various hypotheses on placement to be tested

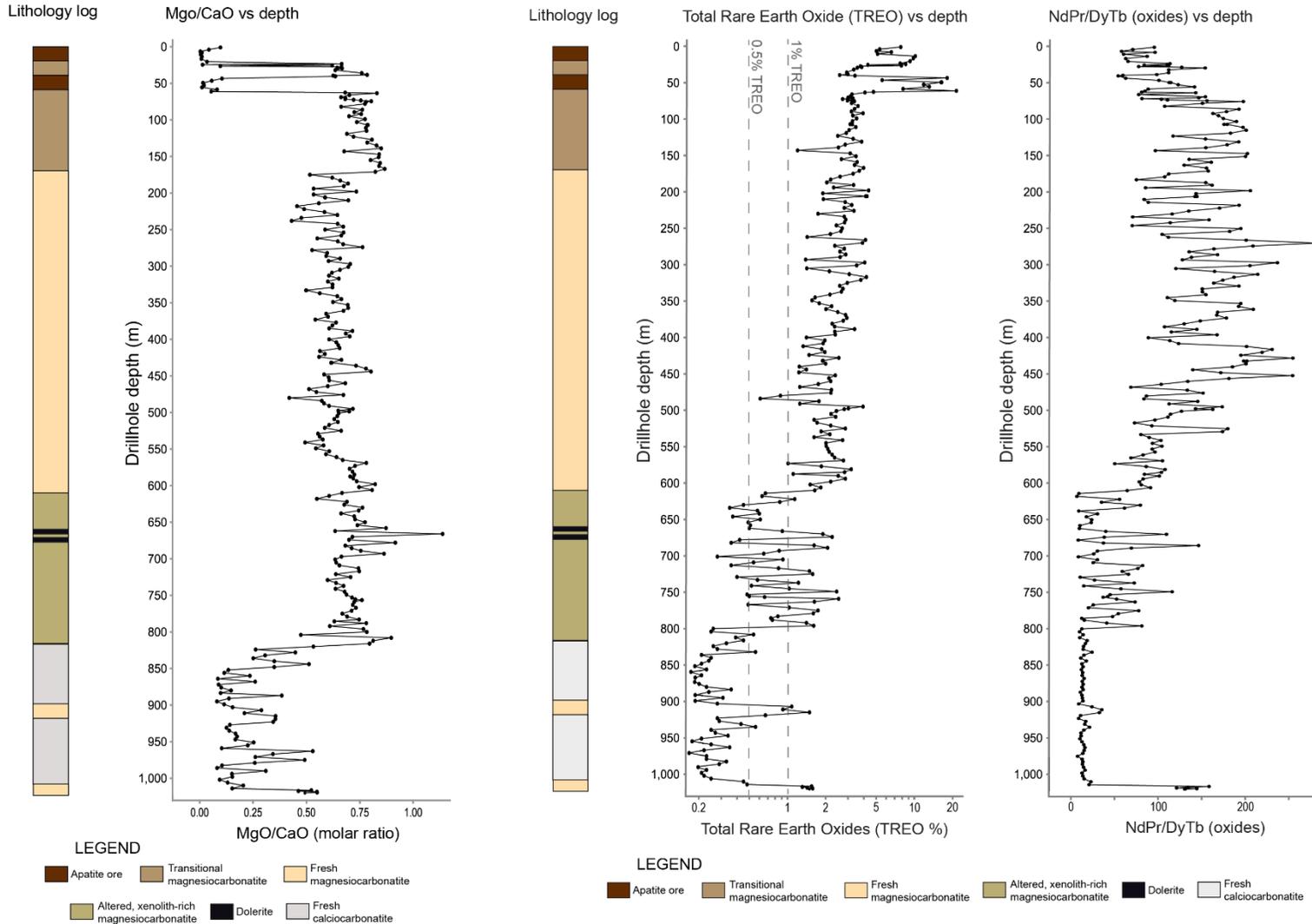


>500 ppm Dy₂O₃, Mt Weld Ore Reserve 2018

Continuous REE mineralisation over 1020m drill hole



Three types of carbonatite mineralogy



Significant findings:

- Clear distinction between carbonatite mineralogy
- Dolomite, Ankerite and Calcite type
- Increased REE mineralisation in dolomite type carbonatite (600m depth)
- REO 1.0% to 2.5% in carbonatite gets enriched to REO 10% to 25% in saprolite, 10 times REE enrichment

Mineralogy

- >40 minerals detected by QEM-SEM in weathered saprolite
- 3 fluoro-carbonate REE minerals in carbonatite
- Geo-metallurgical test work planned

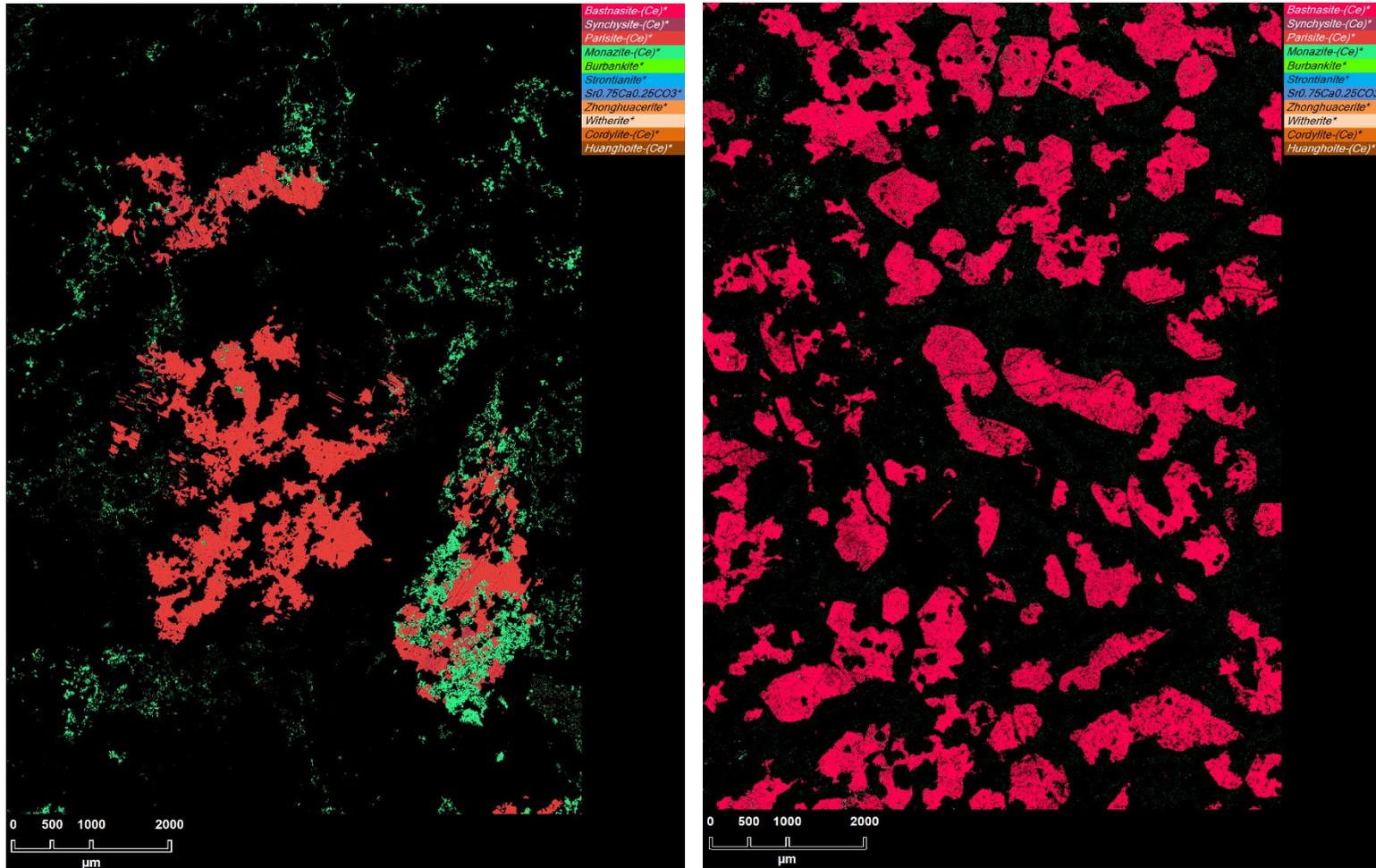


MWEX10270 drill core 23m, 244m, 673m depth
coarse grained Parisite / Synchysite / Bastnasite



Mafic zone at depth – revealed the source of the magnetic anomaly identified by the 1966 Government survey

Co-existence of bastnasite and monazite



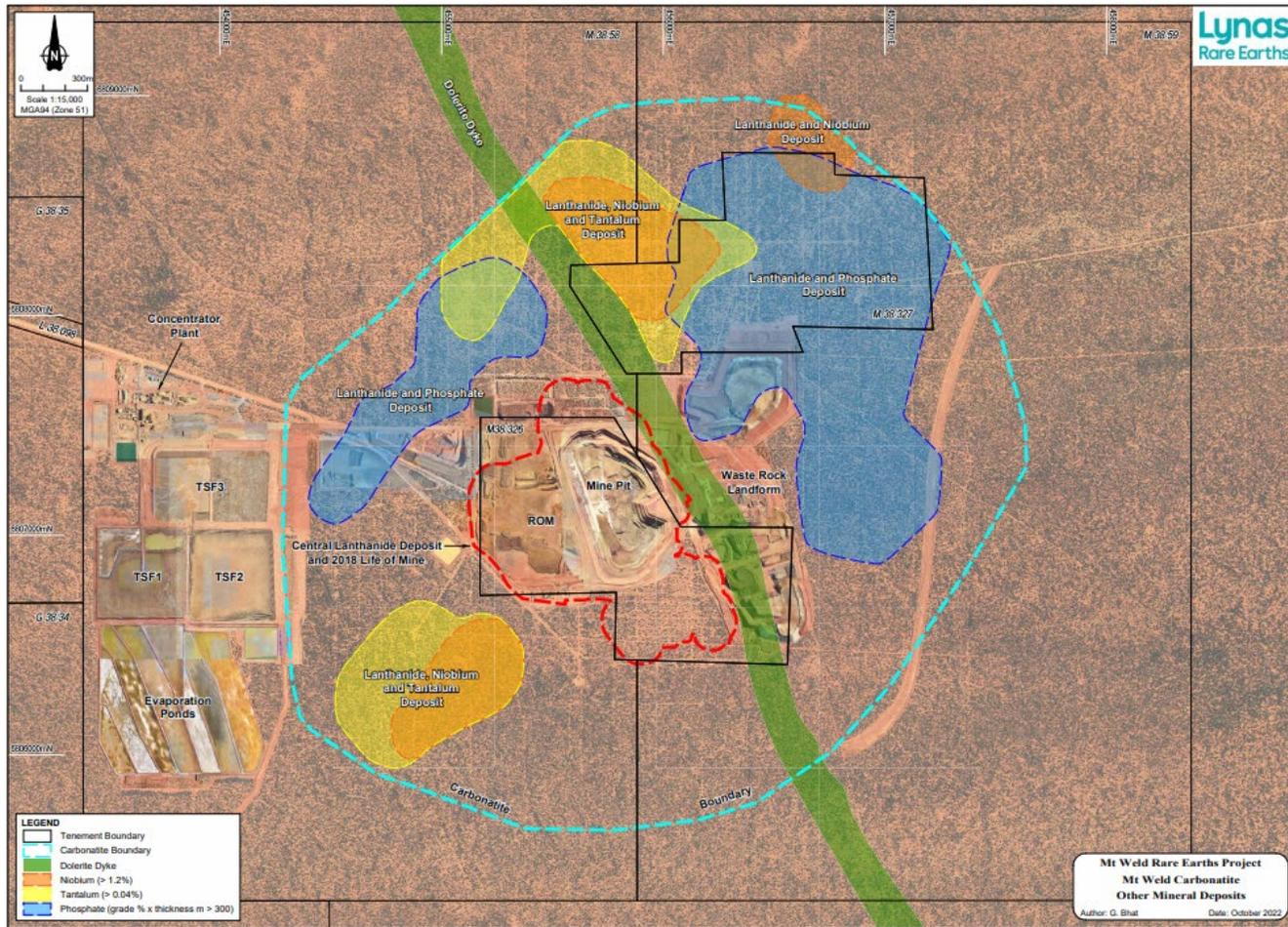
Significant findings:

- Coarse grained bastnasite – red
- Fine grained clusters of monazite - green
- Coexistence continues > 500m depth
- In saprolite zone parisite, synchysite and bastnasite are decomposed
- Monazite is fragmented to finer particles 2 to 50 microns, 1/10th grain size reduction in saprolite

30.2m and 514.1m hole depth images significance of REE mineralogy

It all starts at Mt Weld

An Australian critical minerals resource



Geological significance:

- Stable jurisdiction with strong track record in mining excellence
- Already in production - relatively quick production capacity increase
- Long mine life - significant resource expansion potential in both saprolite and carbonatite
- Carbonatite resources occur immediately below the high grade saprolite ore
- Hosts multiple mineral resources - LREE, HREE, Phosphates
- Subvertical carbonatite body - easier mining logistics than elongated and inclined bodies

Power Station

Mt Weld expansion integrates with existing operation



Exciting Kalgoorlie project underway





Care

We care for and respect each other, our communities and the environment. We make sure we all go home safe and well.



Achievement

We are resilient and committed. We overcome challenges to achieve our goals.



Expertise

We are driven to be the world's best in Rare Earths and to earn the respect of our customers.



Diversity

We are a multicultural company. We value and embrace diversity.



Sustainability

We are passionate about contributing to a sustainable future and green technologies.

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Appendix A: JORC Compliance and Competent Person's Statement

Exploration Results

The information in this report that relates to the Exploration Results is based on information compiled by Dr Sadangaya Ganesh Bhat. Dr Sadangaya Ganesh Bhat is a full-time employee of Lynas Rare Earths. Dr Sadangaya Ganesh Bhat is a member of the AusIMM. Dr Sadangaya Ganesh Bhat has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Dr Sadangaya Ganesh Bhat consents to the disclosure of information in this report in the form and context in which it appears.

The potential extent and grade of the Fresh Carbonatite is unknown at this stage, as there has been insufficient exploration and it is uncertain if further exploration will result in estimation of a Mineral Resource. The Exploration Results have been prepared and reported in accordance with the 2012 edition of the JORC Code

Mineral Resources and Ore Reserves

Full details of the material change that occurred in 2018 are reported in the Lynas ASX announcement dated August 6, 2018, titled “**Lynas announces a 60% increase to Mt Weld Ore Reserves, one of the world's richest sources of Rare Earths**”. Current Resource and Reserve Statements for the Mt Weld Rare Earth Mineral Deposit Mineral Resources are in the 2022 Annual Report created on 12 October 2022 and available to view at: <https://lynasrareearths.com/investors-media/reporting-centre/annual-reports/>. The company confirms that all material assumptions and technical parameters underpinning the estimated Ore Reserves set out in the ASX announcement dated August 6, 2018 continue to apply and have not materially changed.