

9 February 2023

Rimfire investigating nickel - cobalt - scandium recoveries at Melrose

Highlights

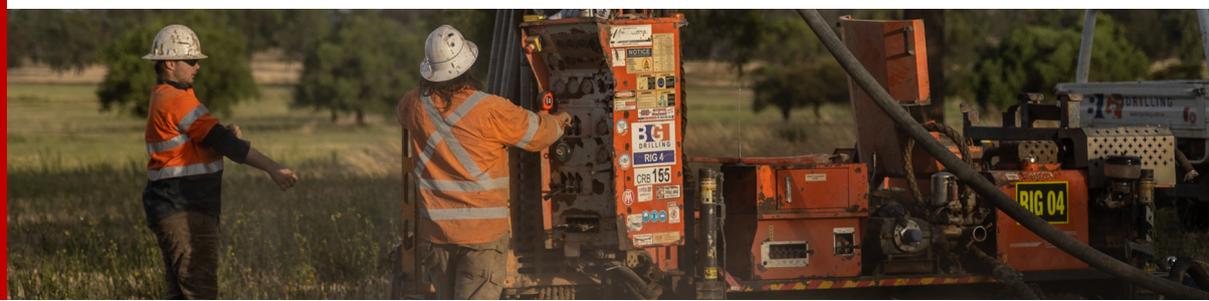
- Specialist metallurgical services group engaged to develop a conceptual processing flowsheet for Melrose nickel-cobalt-scandium mineralisation.
- 260 kg bulk sample of high-grade material submitted for beneficiation and leaching trials.
- 1,000m Melrose RC drill program to assist with maiden MRE & determine lateral extents of Melrose mineralisation commencing in March.

Rimfire Pacific Mining (**ASX: RIM**, “Rimfire” or “the Company”) is pleased to advise that it has engaged Perth specialist metallurgical services group - Independent Metallurgical Operations Pty Ltd (IMO) to develop a conceptual processing flowsheet with the aim of optimising atmospheric leach recoveries and production of a nickel – cobalt – scandium product from high-grade mineralised material from the Melrose prospect.

Melrose lies within the Company’s Avondale Earn In Project and is located 70 kilometres northwest of Parkes within the highly prospective Lachlan Orogen of central New South Wales (*Figures 1 and 2*).

Parkes is the site of the New South Wales Government’s proposed Critical Minerals Hub which will be central point for mining and value added processing of critical minerals within the state (source - [NSW Government - critical minerals and high tech metals](#) website).

Commenting on the announcement, Rimfire’s Managing Director Mr David Hutton said: *“Melrose is a significant critical minerals opportunity for the company and favourable results from the newly commissioned metallurgical studies and planned step-out drilling will justify a detailed drill out of the Melrose prospect with a view to estimating a maiden Mineral Resource Estimate for the location”.*



RIMFIRE PACIFIC MINING LTD

ASX: RIM

“Critical Minerals Explorer”

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Melrose metallurgical studies

IMO has been engaged by Rimfire to develop a conceptual processing flowsheet with the aim of optimising atmospheric leach recoveries of nickel – cobalt – scandium mineralised material from the Melrose prospect.

IMO will also undertake beneficiation work with the aim of generating an upgraded nickel – cobalt - scandium product from the atmospheric leach test work.

To underpin the studies, a bulk sample (260 kg) of high-grade nickel – cobalt – scandium mineralisation from Melrose (PQ quarter diamond drill core) was recently dispatched to IMO in Perth. In addition IMO will also incorporate the results of preliminary test work and analysis of a 10 kg sample of PQ diamond drill core from Melrose undertaken by ALS Metallurgy in Perth late in 2022.

The test work will take at least 3 months to complete with IMO to provide ongoing reports to Rimfire during this period.

As part of their work, IMO will also complete a detailed literature review on extraction processes relating to laterite – hosted nickel-cobalt-scandium deposits globally with an emphasis on maximising recoveries of scandium.

Geological details of the Melrose mineralisation

At Melrose, nickel – cobalt – scandium mineralisation occurs at shallow depths within a flat – lying manganese and iron rich (laterite) zone, which is developed over an east-dipping sequence of interlayered ultramafic rocks (pyroxenite, wehrlite, and serpentinised dunite) that is fault bounded against a gabbro to east and volcanoclastic sediments to the west (*Figures 3 and 4*).

Aircore and diamond drilling undertaken last year by Rimfire returned multiple strongly anomalous drill intercepts, including;

- 21m @ 0.11% Ni, 0.07% Co, and 529 Sc, from 3 metres in FI2397 *including 9m @ 0.17% Ni, 0.15% Co and 688ppm Sc from 14 metres,*
- 2.3m @ 0.15% Ni, 0.08% Co and 461ppm Sc from 3 metres and 5.0m @ 0.68% Ni, 0.07% Co and 302ppm Sc from 16 metres in FI2398,
- 4.9m @ 0.36% Ni, 0.11% Co and 349ppm Sc from 5 metres, and 4.3m @ 0.42% Ni, 0.09% Co and 296ppm Sc from 10.1 metres in FI2399,
- 10.0m @ 0.14% Ni, 0.10% Co and 456ppm Sc from 1 metre in FI2400 *including 5m @ 0.17% Ni, 0.17% Co and 568ppm Sc from 5 metres,*
- 12m @ 0.23% Ni, 0.11% Co, and 314ppm Sc from 9 metres in FI2163,
- 12m @ 0.32% Ni, 0.12% Co, and 221ppm Sc from 3 metres in FI2174,
- 21m @ 0.38% Ni, 0.08% Co, and 45ppm Sc from surface in FI2177, and
- 18m @ 0.10% Ni, 0.04% Co, and 286ppm Sc from 3 metres in FI2178.

The diamond drilling also identified anomalous levels of platinum and palladium (Pt + Pd “PGEs”) with the mineralisation, i.e.;

- 4.3m @ 0.48 g/t Pt + Pd from 10.1 metres in FI2399, and 5.0m @ 0.38 g/t Pt + Pd from 16 metres in FI2398

Melrose remains open along strike both to the north and south with Rimfire planning to drill a further 20 Reverse Circulation holes (1,000 metres) in early March to determine the extents of the mineralisation (*Figure 5*).

Market Significance of scandium

Rimfire’s Melrose drill results to date compare favourably to (with scandium grades exceeding) recent drill results announced by Sunrise Energy Metals Limited (ASX: SRL) at their adjacent Sunrise East prospect. (i.e., diamond drillhole SDD029 intersected 5.8m @ 0.31% Ni, 0.11% Co and 174 ppm Sc from 7 metres within a lateritised ultramafic) and their Sunrise Cobalt – Nickel – Scandium Deposit which has a Measured and Indicated Scandium Resource of 162.70Mt @ 76ppm scandium plus an Inferred Scandium Resource of 20.62Mt @ 283ppm scandium (*Sunrise Deposit NI 43-101 Technical Report dated 25 June 2018 and Sunrise’s ASX Announcement dated 20 January 2022*).

Scandium together with nickel and cobalt are included in the United States Geological Survey’s (USGS) 2022 List of 50 mineral commodities critical to the U.S. economy and national security and it’s important to note that the US is totally dependent on imports of scandium primarily from Europe, China, Japan, and Russia to meet its domestic needs ([USGS 2022 List of Critical Minerals](https://www.usgs.gov/centers/natural-resources/2022-list-of-critical-minerals)).

The demand for Scandium is increasing (forecast compound annual growth rate of 8.7% during the 2022 – 2030 period - <https://straitresearch.com/report/scandium-market>) with its usage as one of the primary materials in Hydrogen electrolysis solid oxide fuel cell technology as well as being used in the manufacture of high-strength aluminium alloys.

The current price of Scandium Oxide is US\$927 / kg (US\$927,000 / tonne) (Shanghai Metals Market - <https://www.metal.com/Rare-Earth-Oxides/202104090003>)

With rising geopolitical risk associated with a number of these jurisdictions, Rimfire believes that its Melrose prospect and surrounding NSW projects are ideally positioned to take advantage of the growing demand for critical minerals such as nickel, cobalt, and scandium.

Next Steps

Concurrent with the IMO studies, Rimfire is planning to drill a further 20 Reverse Circulation holes (1,000 metres) in early March to determine the extents of the mineralisation.

Subject to a favourable outcome from both the step out drilling and the metallurgical test work, Rimfire will undertake a detailed drill out of the Melrose prospect with a view to estimating a maiden 2012 JORC Code compliant Mineral Resource Estimate (MRE) for the location.

All exploration activities at Avondale are funded by Rimfire's exploration partner – Golden Plains Resources Pty Ltd (GPR) and all cash calls (for work undertaken on the project) issued by Rimfire to date for Avondale have been paid by GPR.

As previously announced, there remains an amount of \$2.4M currently due and outstanding (comprising \$0.9M remaining exploration payments, \$0.5M additional exploration payment and \$1.0M Corporate payment) at the adjoining Fifield Earn In Project. Rimfire has reserved its rights under the Fifield Earn In Agreement and the unpaid amount is accruing interest at the penalty rate stipulated in the Fifield Earn In Agreement (now 7.089% per annum). Refer to Rimfire's December 2022 Quarter Activities Report for further details.

Rimfire looks forward to providing a further update to shareholders as new information comes to hand.

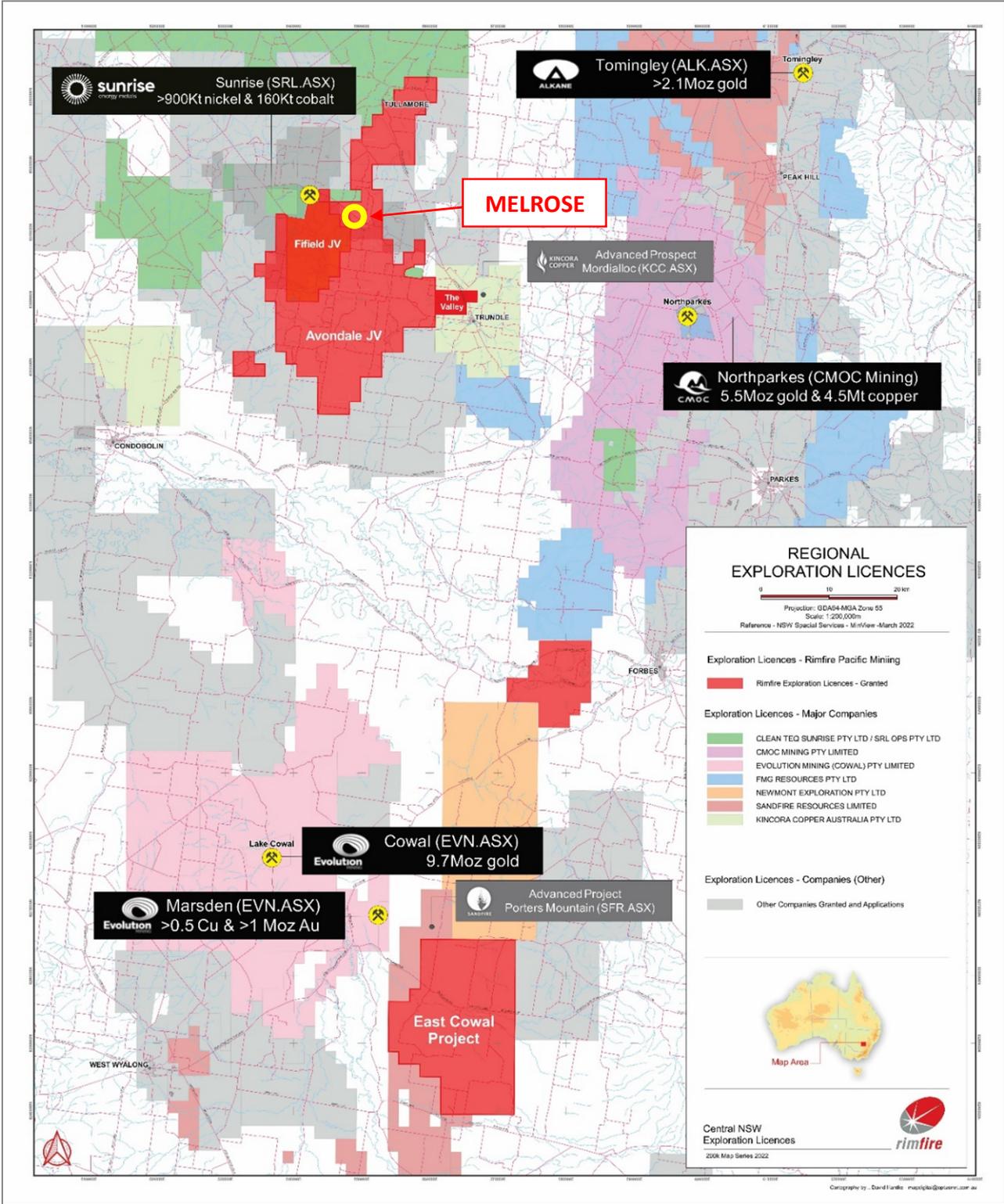


Figure 1: Rimfire Project Locations (in red) showing major competitors' active mines and key prospects.

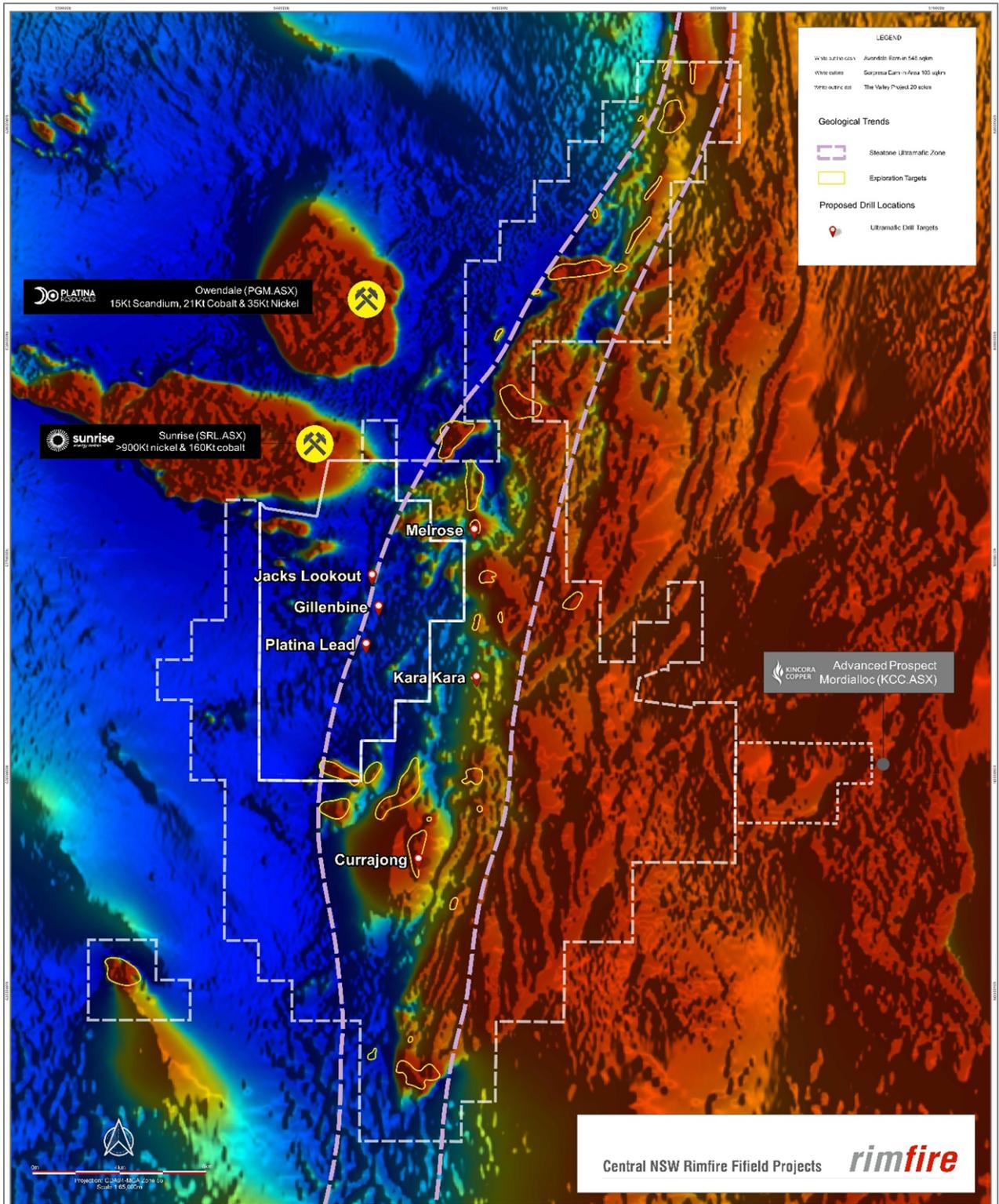


Figure 2: Rimfire’s Avondale and Fifield Projects on RTP TMI background image showing the Steeton Ultramafic Suture Zone (white dashed lines), critical minerals targets (yellow polygons) and prospect locations.

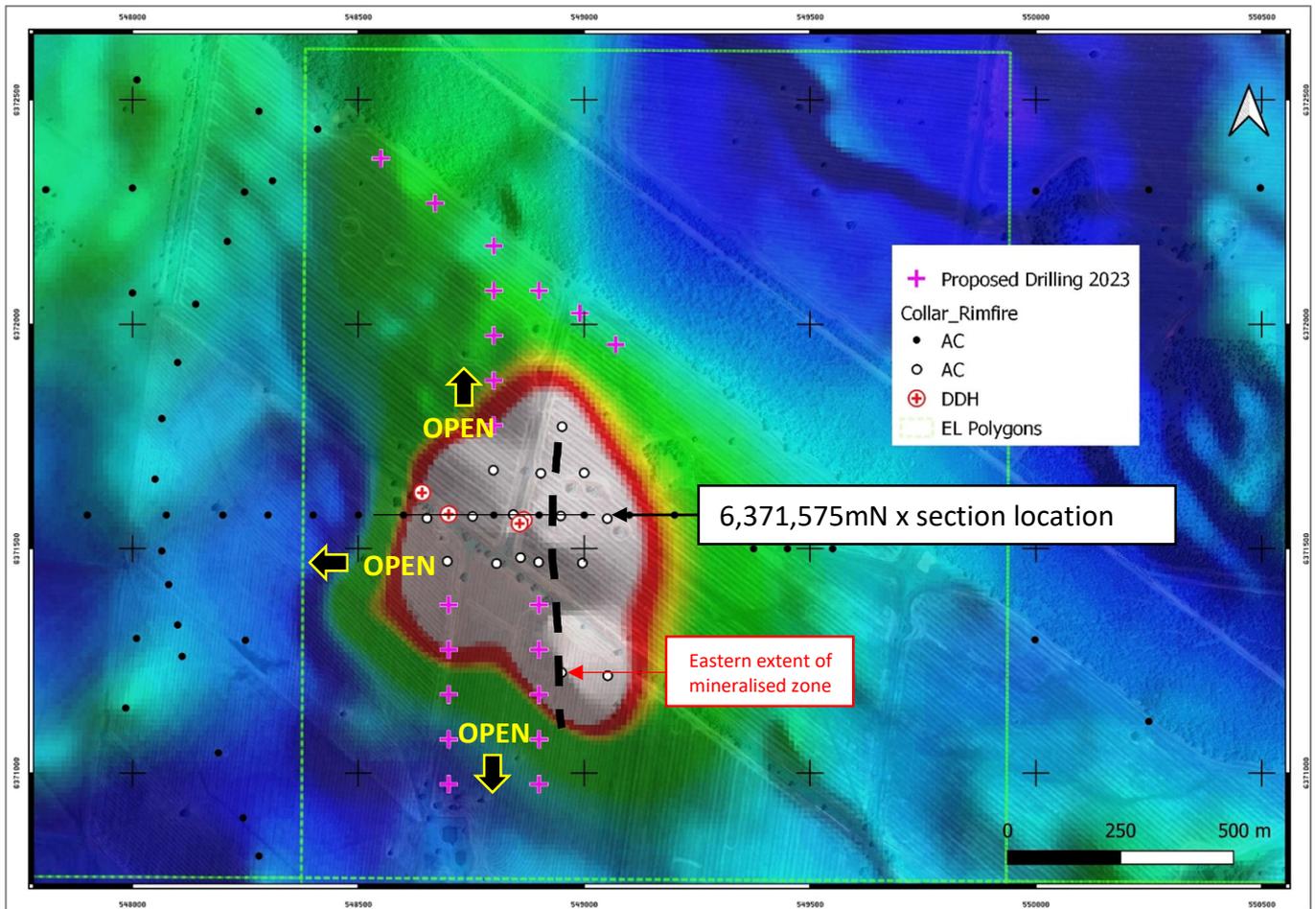


Figure 3: Melrose drill collar plan (TMI image) showing likely eastern extent of nickel – cobalt – scandium mineralised zone (as defined by a +100ppm Scandium contour) proposed RC drill collars. Note - the mineralised zone remains open along strike and to the west.

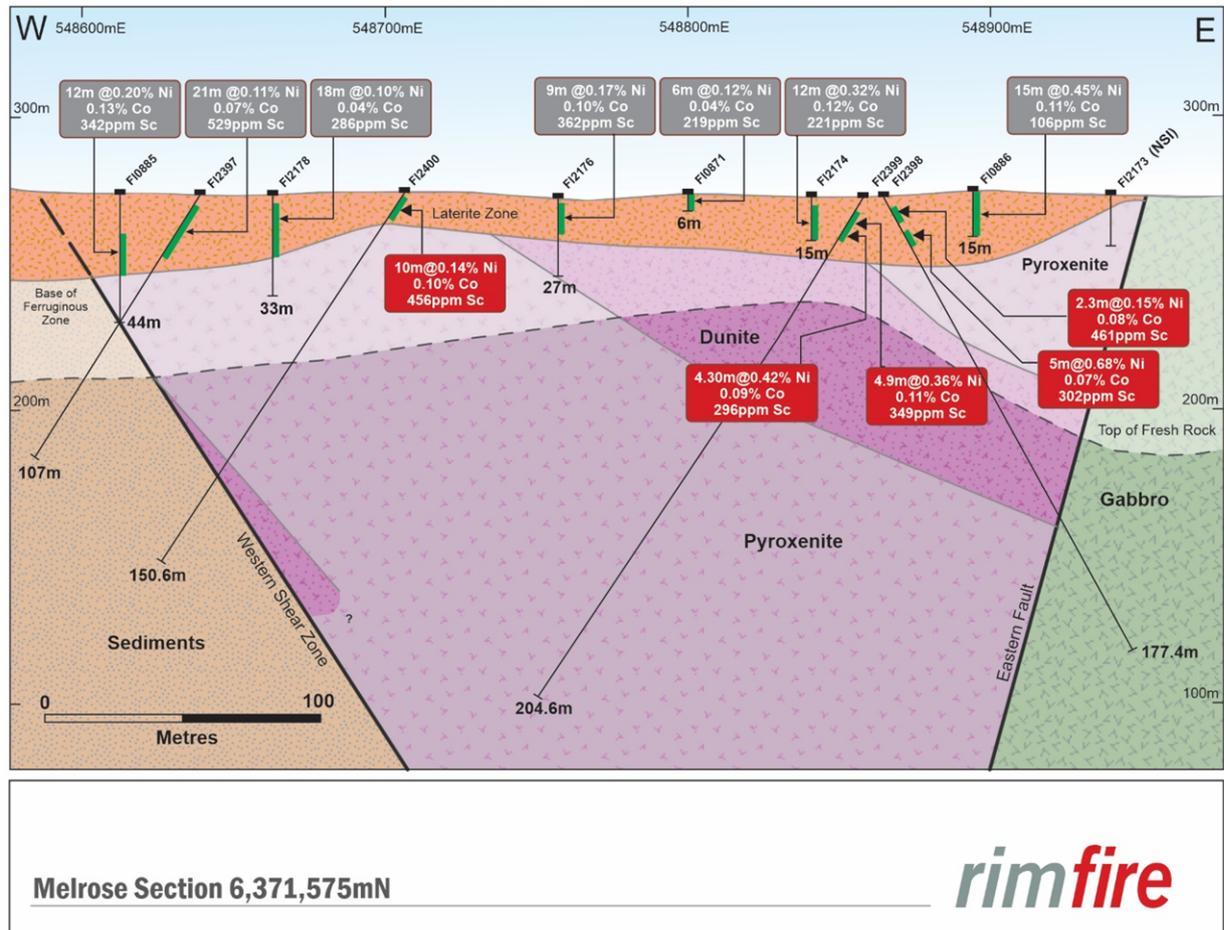


Figure 4: Melrose schematic cross section (6,371,575mN) showing drillhole traces, geology, and geological interpretation. Cross section location shown in Figure 3.

JORC Statement.

Rimfire confirms that all Exploration Results included in this ASX Announcement have been previously released to the market in the following ASX Announcements and that no new Exploration Results are included in this ASX Announcement;

- Strong nickel, cobalt and scandium drill results reinforce critical minerals exploration strategy – *dated 4 April 2022*
- High-grade scandium at Melrose – *dated 19 September 2022*
- Significant nickel cobalt scandium drilled from surface at Melrose – *dated 20 October 2022*

For JORC information relating to the Exploration Results please refer to the ASX Announcements listed above.

This announcement is authorised for release to the market by the Managing Director and Chairman of Rimfire Pacific Mining Limited.

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About Rimfire

Rimfire Pacific Mining (**ASX: RIM**, “Rimfire” or the “Company”) is an ASX-listed Critical Minerals exploration company which is advancing a portfolio of projects within the highly prospective Lachlan Orogen and Broken Hill districts of New South Wales.

The Company has two 100% - owned copper – gold prospective projects that are located west of Parkes and Orange in central New South Wales:

- The Valley Project - located 5km west of Kincora Copper’s Mordialloc porphyry copper gold discovery (KCC.ASX), and
- The Cowal Project - located to the east of Evolution’s Lake Cowal Copper / Gold mine (EVN: ASX).

Rimfire also has the 100% - owned Broken Hill Cobalt (Green View) Project which is located immediately west and northwest of Broken Hill and covers several targets including the interpreted along strike extension to Cobalt Blue Holdings’ Railway Cobalt Deposit (COB: ASX).

Rimfire has two additional projects in the Lachlan Orogen which are being funded by Rimfire’s exploration partner - Golden Plains Resources (GPR):

- Avondale Project (GPR earning up to 75%) & Fifield Project (GPR earning up to 60%)
 - ✓ Both projects are prospective for high-value critical minerals – nickel, cobalt, scandium, gold and PGEs - which are essential for renewable energy, electrification, and green technologies.
 - ✓ The development ready Sunrise Energy Metals Nickel Cobalt Scandium Project (ASX: SRL) is adjacent to both projects.
 - ✓ The Fifield Project hosts the historical Platina Lead mine, the largest producer of Platinum in Australia.

For more information on the Avondale and Fifield Earn In and Joint Venture Agreements see:

[ASX Announcement: 4 May 2020 - Rimfire enters into \\$4.5m Earn-in Agreement](#)

[ASX Announcement: 25 June 2021 - RIM Secures \\$7.5m Avondale Farm Out](#)

[ASX Announcement: 30 June 2022 - Rimfire to receive \\$1.5M cash to vary Fifield Project Earn In](#)

[ASX Announcement: 4 August 2022 – Exploration Partner funding update](#)

ENDS

Competent Persons Declaration

The information in the report to which this statement is attached that relates to Exploration and Resource Results is based on information reviewed and/or compiled by David Hutton who is deemed to be a Competent Person and is a Fellow of The Australasian Institute of Mining and Metallurgy.

Mr Hutton has over 30 years' experience in the minerals industry and is the Managing Director and CEO of Rimfire Pacific Mining. Mr Hutton has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken 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 Hutton consents to the inclusion of the matters based on the information in the form and context in which it appears.

Forward looking statements Disclaimer

This document contains "forward looking statements" as defined or implied in common law and within the meaning of the Corporations Law. Such forward looking statements may include, without limitation, (1) estimates of future capital expenditure; (2) estimates of future cash costs; (3) statements regarding future exploration results and goals.

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