

## Summary

- **Nicholson Project**
  - First stage exploration drilling program, sole-funded by South32 Group Operations Pty Ltd (South32) commenced during July 2019.
  - A total of 2,371.6 metres drilled at the end of the Quarter.
  - The joint venture arrangement involves significant drilling of several large-scale lead-zinc-silver targets.
  - Drilling confirmed the presence of thick Mount Les Siltstone rock unit containing multiple horizons of visible stratiform sulphide mineralisation.
  - Assay results expected during December 2019.
- **Bottletree (Greenvale)**
  - Field geological inspections conducted as part of planning for a Phase 2 diamond drilling program.
  - IP chargeability anomaly is 1.4kms in length and open to the north, south and at depth.
  - The copper intersections and 3D modelling indicate a large copper target may lie at depth and to the immediate south of 2018 diamond drilling.
- **Big Mag (Greenvale)**
  - Desktop data review, land access preparations and initial exploration program planning.
  - New exploration permit over the Big Mag magnetic feature and other areas.

## Superior Resources Limited

### ASX:SPQ

### Board

Carlos Fernicola – Chairman  
Peter Hwang – Managing Director  
Ken Harvey – Non-exec Director  
Carlos Fernicola – Company Secretary

### Securities

Ordinary Shares – 745,418,740  
Top 20 holders: 47.93% issued capital

### Summary

Superior Resources Limited is a Brisbane based ASX-listed mineral explorer with a portfolio of large base metal exploration projects, including a developing portfolio of nickel-cobalt projects in northern Queensland. The projects include large targets for Mount Isa style copper and lead-zinc-silver deposits in north western Queensland and exploration projects in northeast Queensland for VMS and porphyry style copper-gold-lead-zinc-silver deposits. The Company's cobalt projects are located across the northern Queensland region.

### Share Registry

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Brisbane, QLD, 4000

### Web Site

[www.superiorresources.com.au](http://www.superiorresources.com.au)

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## PROJECT LOCATIONS



## NICHOLSON PROJECT

### Summary

- First stage exploration drilling program, sole-funded by South32 Group Operations Pty Ltd (**South32**), commenced during July 2019.
- A total of 2,371.6 metres drilled at the end of the Quarter.
- Drilling confirmed the presence of thick Mount Les Siltstone rock unit containing multiple horizons of visible stratiform sulphide mineralisation.
- Assay results expected during December 2019.

An exploration drilling program commenced at the Nicholson Project during July 2019, which was sole-funded by South32 under the first stage of an Earn-in and Joint Venture Agreement. Under the agreement, Superior is appointed the Operator of the joint venture.

At the end of the reporting period a total of 2,371.6 metres over four holes was drilled on Aarhus-modelled VTEM geophysical targets located in two prospect areas (Nicholson West and Kingfisher East prospects).

Three completed holes confirmed the presence of substantially thick (up to 340m) Mount Les Siltstone, which is the prospective target horizon that is known within the area to host Mount Isa style deposits.

Mineralisation observed within the holes is in the form of multiple thin horizons of visible stratiform sulphide mineralisation, including pyrite and sphalerite (zinc sulphide) within the Mount Les Siltstone.

The Company considers the mineralisation to be a positive indication for a sedimentary-exhalative (SEDEX) style of mineralisation, examples of which are the McArthur River and Mount Isa mines.

An update on the drilling program will be provided to the market shortly.

The Company expects the receipt of assay results during December 2019.

### **Earn-in and Joint Venture Agreement**

The Company finalised and executed a comprehensive earn-in and joint venture agreement with South32 Group Operations Pty Ltd (**South32**) on 28 May 2019.

The agreement with South32 is structured in three stages. Stage 1 requires South32 to fully fund \$2 million or 4,000 metres of drilling (whichever comes first) within 12 months of the commencement of the first drill hole. No interest is earned at the completion of Stage 1. South32 may elect to proceed to Stage 2 by sole-funding a further \$4 million on exploration within the following four years to earn a 70% interest in the Nicholson Project. South32 may earn an additional 10% in Stage 3 by sole-funding a feasibility study.

Superior will be the Joint Venture Operator until South32 completes the Stage 2 earn-in requirements and has earned a 70% interest in the project.

### **Nicholson Project – Background**

The Nicholson Project, located near the Walford Creek lead-zinc-silver-copper-cobalt deposit, is considered to have potential to contain sediment-hosted lead-zinc-silver massive sulphide deposits, similar to the Mount Isa and McArthur River deposits.

The project is located within a sequence of prospective Proterozoic sediments within the east-northeast trending Hedleys Graben. This Graben is bounded by the Fish River Fault on its northern side and the Nicholson River Fault on its southern side (Figure 1).

Sediments of the Fickling Group within the Hedleys Graben are equivalent in age to sediments that host the large base metal mineral deposits at Mount Isa and McArthur River. In particular, the Mount Les Siltstone has potential for large stratiform base metal deposits. The Doomadgee Formation which unconformably overlies the Mount Les Siltstone is also thought to be of similar age to the part of the Lawn Hill Formation which contains the large stratiform Century lead-zinc-silver deposit. All of these formations are target horizons in the Nicholson Project area.

Superior has identified at least eight large high priority geophysical targets within the Nicholson Project area. Each of these targets has good potential to be caused by a large base metal deposit.

### **High priority conductivity targets**

An airborne VTEM (Versatile Time Domain EM) survey over 260-line kilometres of part of the Nicholson Project was completed by Geotech Airborne Pty Ltd in 2007. The original data was recently remodelled and interpreted by geophysical consultants – Aarhus Geophysics. The applied Aarhus method is designed for detection and delineation of subsurface contrasts in conductivity and resistivity. In particular, the responses can be interpreted from the collected data to detect subsurface accumulations of massive sulphide deposits.

The conductivity remodelling has significantly improved the quality of modelled information at depth and has also improved the vertical resolution of conductive formations. In particular, the results have upgraded the Company's original high priority Nicholson West conductivity target as well as identified a new high priority and highly conductive target, Nicholson River target (Figure 2), both of which are located within the same geological strata (refer ASX announcement dated 10 July 2019).

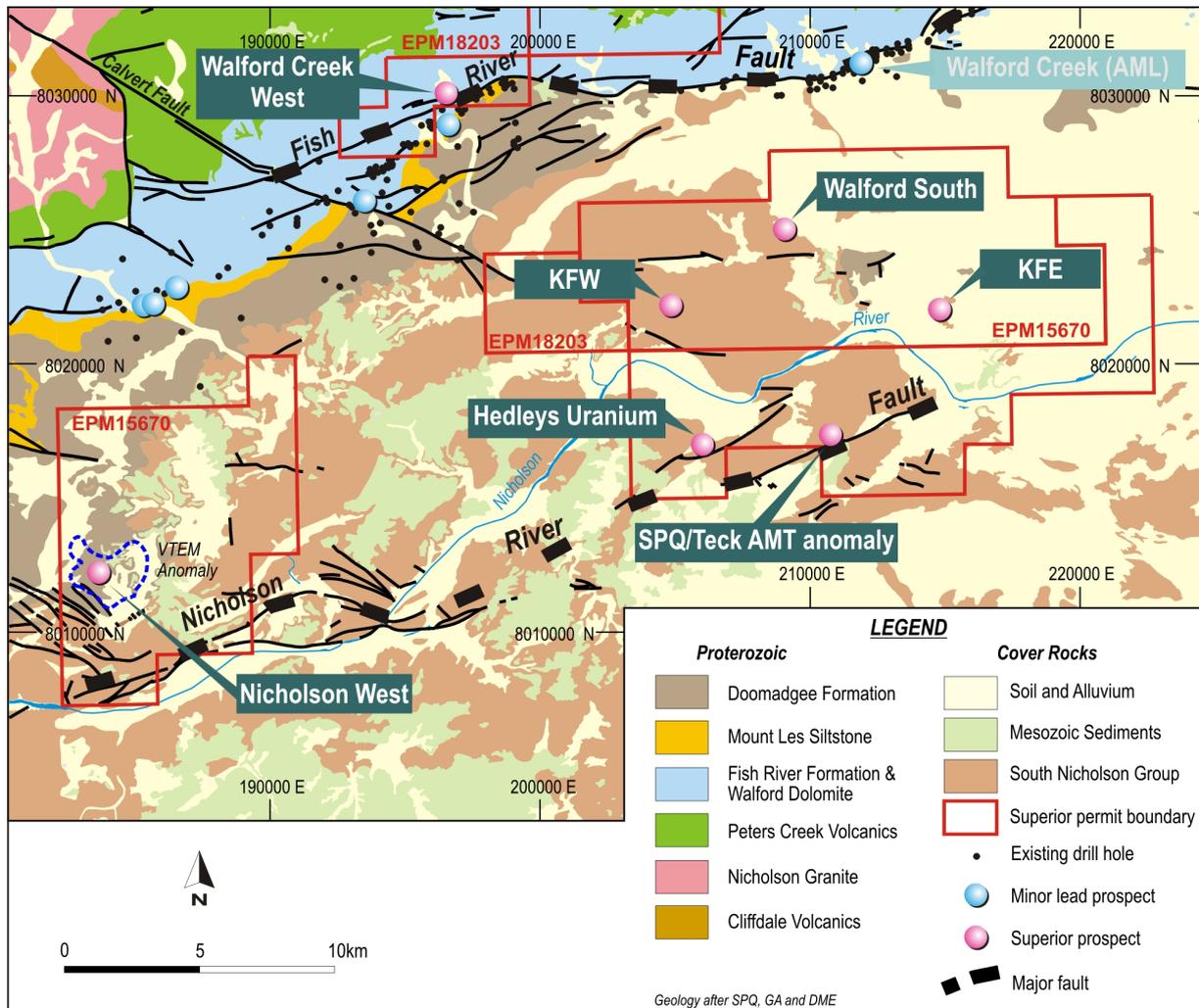


Figure 1. Nicholson Project tenements and key prospect locations overlain on regional geology.

The Nicholson River and Nicholson West targets are interpreted to dip shallowly to the south (parallel to the regional stratigraphy), which is consistent with field observations made to the north of the prospect area. A southwest-northeast trending fault structure is interpreted to be developed between the two anomalies.

Importantly, the Nicholson River and Nicholson West targets can be interpreted in vertical conductivity sections to be coincident with the Mount Les Siltstone, which is the prospective mineralisation host that is known in the region to host Sedimentary Exhalative (SEDEX) style deposits (e.g. the Walford Creek Cu-Pb-Zn-Co-Ag – Aeon Metals).

Most of the conductivity targets that are planned to be drilled in the current program are of sufficient size to be similar to a McArthur or Century-sized deposit.

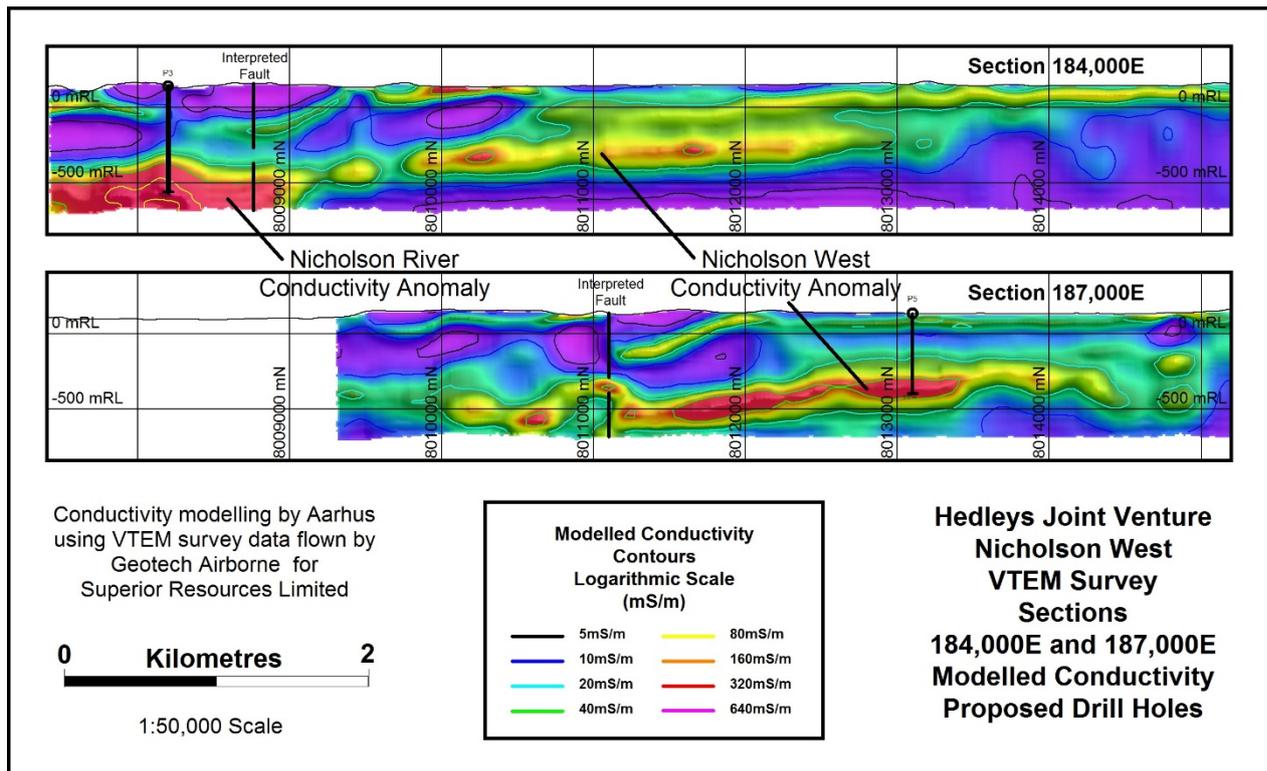


Figure 2. VTEM Aarhus modelled conductivity sections on lines 184,000E and 187,000E showing the Nicholson West and Nicholson River conductivity anomalies and interpreted major southwest-trending fault. Proposed drill holes P3 and P5 are also shown.

## GREENVALE PROJECT – BOTTLETREE

### Summary

- Field geological inspections conducted as part of planning for a Phase 2 diamond drilling program.
- IP chargeability anomaly 1.4kms in length and open to the north, south and at depth.
- August 2018 drilling confirmed<sup>1</sup>:
  - high grade copper mineralisation intersected in hole SBTRD006 of **18.7m @ 1.12% copper (328.0m to 346.7m)**; and
  - a broad zone of copper mineralisation intersected in hole SBTRD006 totalling **292m @ 0.22% copper (148.0m to 440.0m)**.
- The copper intersections and 3D modelling indicate a large copper target may lie at depth and to the immediate south of 2018 diamond drilling.

The Company continued to progress the planning of a Phase 2 diamond drilling program targeting a large IP chargeability target. Field work to obtain further geological information was conducted during the period.

Drilling during 2018 intersected extensive copper mineralisation averaging 0.22% copper over 292m, including 18.7m at 1.12% copper.

The geophysical modelling results together with the 2018 drill hole assay data indicate that higher grade copper mineralisation may exist within the main chargeable target zone, which is located to the

<sup>1</sup> ASX announcement, dated 25 October 2018.

south of the 2018 drilling and also at deeper levels.

A second phase diamond drilling program is currently envisaged to comprise up to four diamond core holes (Figure 3).

### Bottletree – Background

Bottletree is a large (2km x 1km) soil copper anomaly located in the southern part of the Greenvale Project (Figure 4). Coincident with the soil anomaly is a large and high order chargeability anomaly.

A two-hole diamond drilling program totalling 1,102 metres was completed during August 2018. This drilling followed up earlier shallow reverse-circulation (RC) drilling and confirmed extensive copper mineralisation extending to depths in excess of 300 metres.

The objective of the diamond drilling program was to determine whether large and high order chargeability anomalies identified from a MIMDAS IP geophysical survey completed in May 2018 (ASX Announcement - 16 May 2018) are caused by significant copper and gold mineralisation.

The deep drilling program represents the first deep drilling to have been undertaken at Bottletree.

Assay results show copper mineralisation present in SBTRD006 over a broad interval<sup>2</sup>:

- Average grade: **292m @ 0.22% Cu (148.0m to 440.0m)** (Cut-off of 0.1% Cu but with some narrow intervals of less than 0.1% Cu included); and
- High grade zones, including: **18.7m @ 1.12% Cu (328.0m to 346.7m)**.

Advanced 3D modelling of the MIMDAS survey results indicate a close correlation between the copper grades and chargeability.

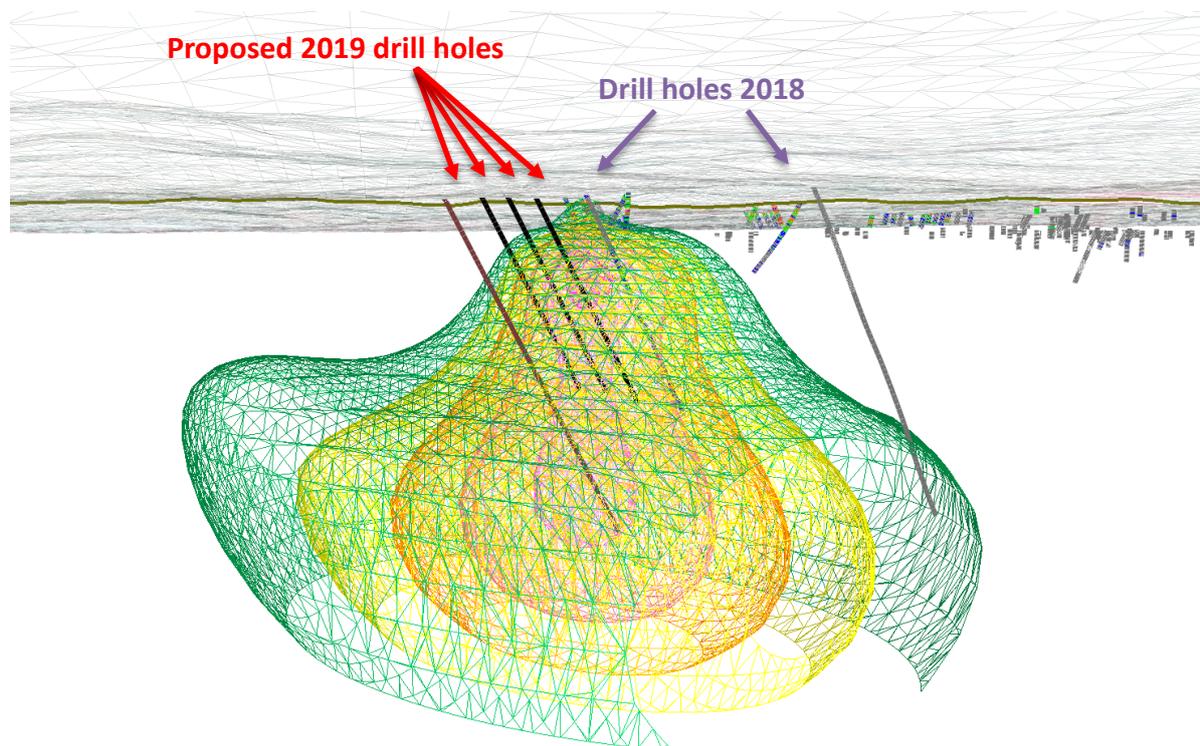


Figure 3. 3D modelling of Bottletree MIMDAS IP survey results presented in wireframe, showing locations of 2018 drill holes and proposed 2019 drill holes.

<sup>2</sup> Refer to ASX announcement, dated 25 October 2018 for more comprehensive information regarding drilling results.

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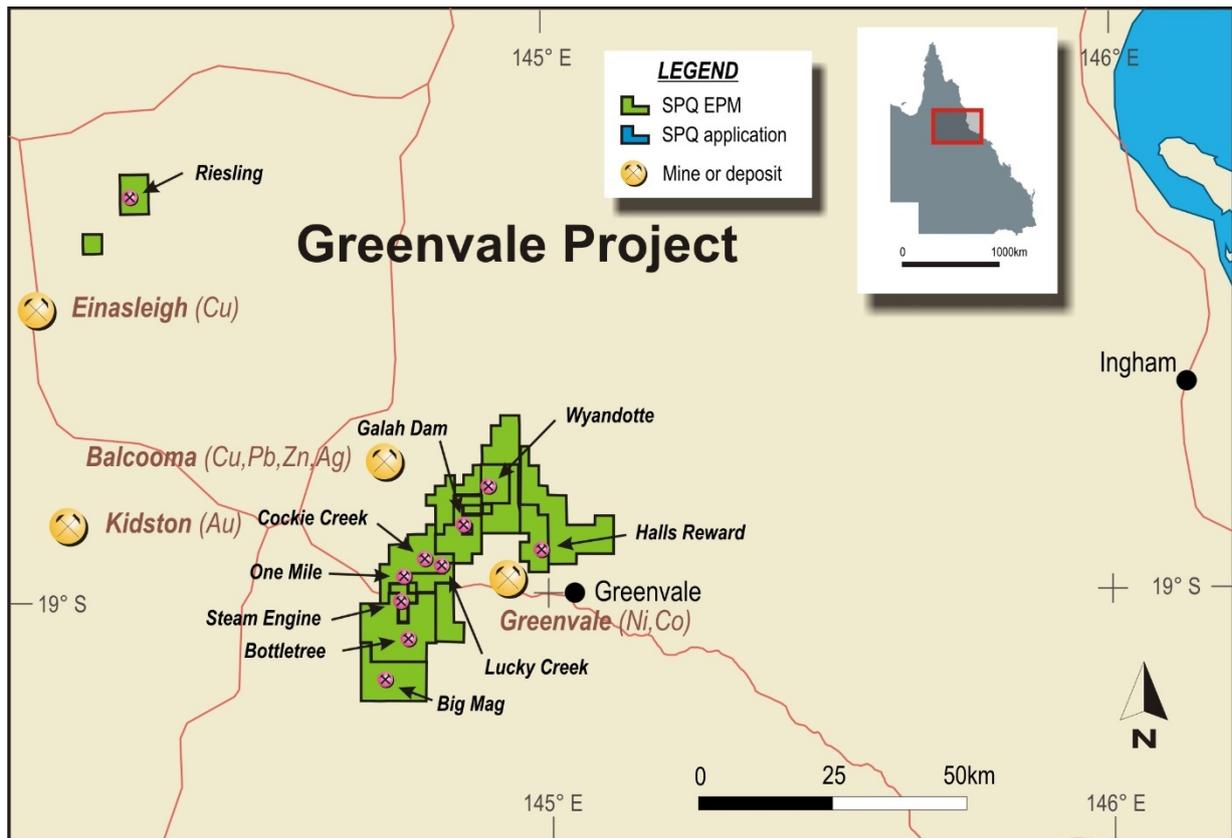


Figure 4. Map of the area north west of Townsville showing Superior's Greenvale Project tenements and the Bottletree Prospect location.

### GREENVALE PROJECT – BIG MAG

Desktop data review, land access preparations and initial exploration program planning was conducted during the Quarter on the Big Mag Prospect.

Big Mag is a regionally large and intense magnetic feature that appears to be a large mafic or ultramafic intrusion, or several such intrusions. Consequently, it has the potential to host nickel-cobalt-copper mineralisation, either as sulphides or in a laterite weathering profile. The Company is of the view that the Big Mag feature is developed within the same geological sequence as the "old" Greenvale Nickel Mine" (now part of the SCONI Project).

The Big Mag magnetic feature is regionally significant and under-explored and is covered by a recently granted new exploration permit (EPM26751, Twelve Mile Creek) (Figure 5).

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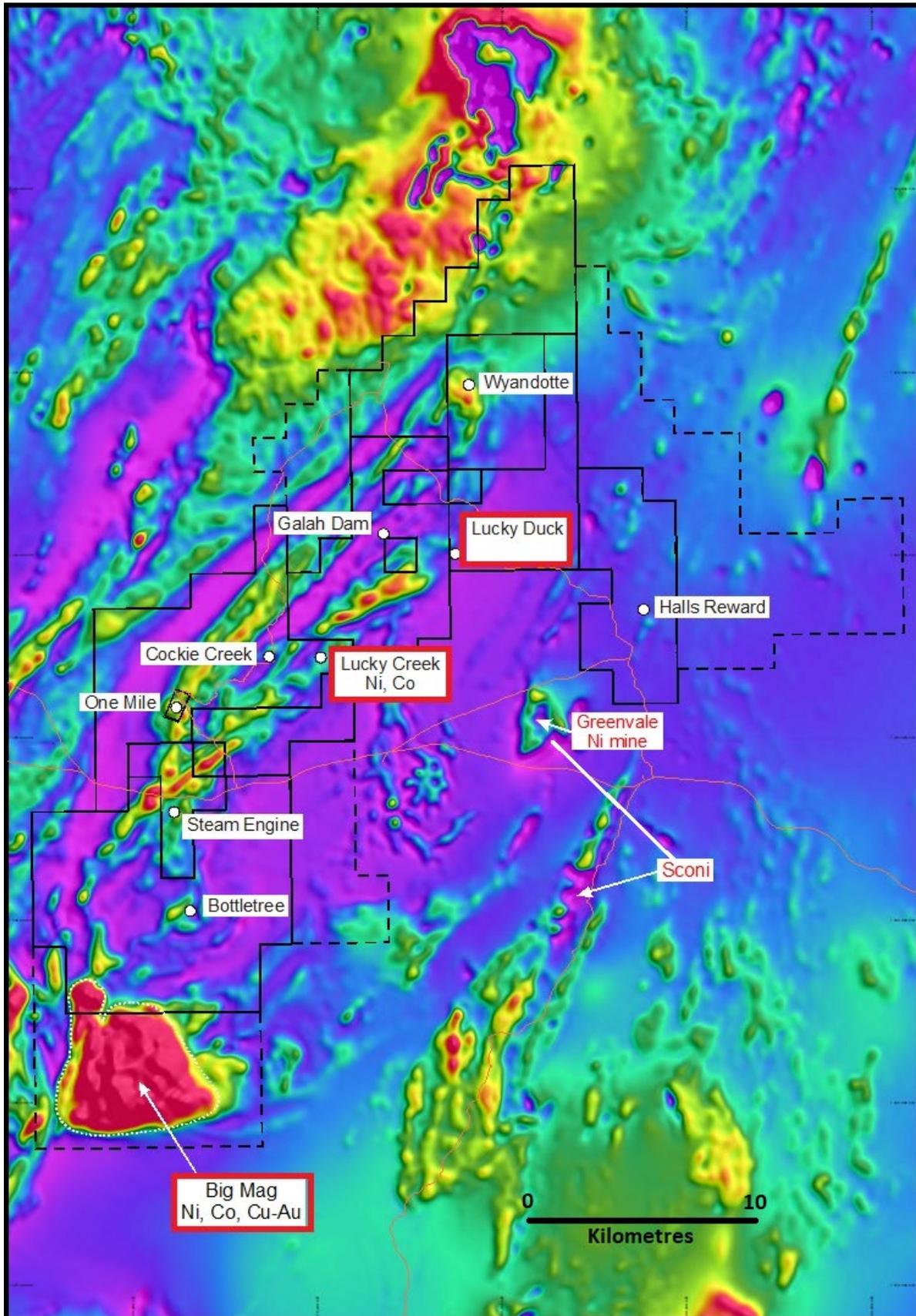


Figure 5. Airborne magnetics (RTP) processed image over the Greenvale Project area and surrounds. The “Big Mag” magnetic feature is visible in the lower left part of the image and is located within new EPM EPM26751 (dashed outline).

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## CORPORATE and COMMERCIAL

### INVESTMENTS

Superior maintains an exposure in relation to ASX listed entities, Deep Yellow Limited (ASX:DYL) and Carnaby Resources Limited (ASX:CNB).

As at 30 September 2019, the Company held 74,244 DYL shares with a closing value of \$22,273.20.

As at 30 September 2019, the Company held 2,403,846 CNB shares with a closing value of \$360,576.90.

### ASX Listing Rule 5.3.3

Appendix 1 sets out information that is required under ASX Listing Rule 5.3.3 (for exploration entities).



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**Reporting of Exploration Results:** The reporting of exploration results in this report reflects information that was originally reported in market announcements that have been referenced in the body of this report. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant original market announcement.

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## Appendix 1

### DISCLOSURES REQUIRED UNDER ASX LISTING RULE 5.3.3

- Mining tenements held at the end of the quarter and their location**

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
QLD	Hedleys 2	EPM15670	Nicholson	100%	SPQ	Granted
QLD	Hedleys South	EPM18203	Nicholson	100%	SPQ	Granted
QLD	Harris Creek	EPM18840	Victor	100%	SPQ	Granted
QLD	Tots Creek	EPM19097	Victor	100%	SPQ	Granted
QLD	Scrubby Creek	EPM19214	Victor	100%	SPQ	Granted
QLD	Cockie Creek	EPM18987	Greenvale	100%	SPQ	Granted
QLD	Cassidy Creek	EPM19247	Greenvale	100%	SPQ	Granted
QLD	Dinner Creek	EPM25659	Greenvale	100%	SPQ	Granted
QLD	Wyandotte	EPM25691	Greenvale	100%	SPQ	Granted
QLD	Tomahawk Creek	EPM25264	Victor	100%	SPQ	Granted
QLD	W Creek	EPM25843	Victor	100%	SPQ	Granted
QLD	Cockie South	EPM26165	Greenvale	100%	SPQ	Granted
QLD	Victor Extended	EPM26720	Victor	100%	SPQ	Granted
QLD	Twelve Mile Creek	EPM26751	Greenvale	100%	SPQ	Granted

- Mining tenements acquired and disposed of during the end of the quarter and their location**

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
QLD	One Mile	ML6750	Greenvale	100%	SPQ	Relinquished

- Beneficial percentage interests held in farm-in or farm-out agreements at end of the quarter**

State	Project Name	Agreement Type	Parties	Interest held at end of quarter by exploration entity or child entity	Comments
QLD	Hedleys Joint Venture	Farm-out JVA	SPQ and South32	100%	EPM15670 and EPM18203 ASX announcement 29/5/19

Abbreviations:

EPM	Exploration Permit for Minerals, Queensland
SPQ	Superior Resources Limited
JVA	Joint Venture Agreement

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