

**EL 13/2015 “Frankland River”**  
**Annual and Final Report on Exploration**  
**Nov. 2022 to Nov. 2023**  
**- D & B Mining Pty Ltd**

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## **Abstract**

Work on EL 13/2015 “Frankland River” during the reporting year has downgraded the relevant potential of the tenement and a decision has been made to relinquish the licence at its anniversary date of 14<sup>th</sup> November, 2023.

Work during the reporting year consisted of the completion of the exploration summary report (which was included in last years annual report which was supplied a little later than the anniversary date). The conclusion in this work that an airborne VTEM survey would be sub-optimal for Balfour-type copper mineralisation led to the shelving of the proposed survey.

Work on EL 13/2015 has been carried out in conjunction with work on the other contiguous tenements which constitute the Balfour project, i.e. EL 10/2014, EL 12/2015, EL 9/2021 and ML 1M/1976.

Work on other tenements during the period has included drilling at Murrays Reward (Balfour) and Toner River (EL 12/2015), the modelling of magnetic anomalies on the Lagoon and Lily sheets by MRT geophysicists/geologists, and further consideration of the significance or otherwise of pyrrhotite.

In light of the results of this work a decision has been made to relinquish the licence in its entirety and focus on the more prospective tenements.

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## **1.0 Introduction**

### **1.1 Exploration Rationale**

D & B Mining Pty Ltd, a wholly owned subsidiary of Zebs Minerals Pty Ltd is exploring the Balfour Copper Belt for copper, gold, tin and tungsten as well as any other commodities of value.

EL 13/2015 “Frankland River” is one of five contiguous tenements (EL 10/2014, EL 12/2015, EL 13/2015, EL 9/2021 and ML 1M/1976) which constitute the Balfour Project.

### **1.2 Location and access**

EL 13/2015 “Frankland River” lies in Tasmania’s west coast south of Smithton in the Balfour area.

Access to the tenement is via the Bass Highway to Smithton from Burnie and then on to Balfour via the Western Explorer Highway and the Balfour track. Access within the tenement is reasonable with logging tracks over much of the area.

### **1.3 Land status and usage**

All of the land within the licence is owned by the crown.

The majority of the licence area is Permanent Timber Production Zone Land or Future Potential Production Zone Forest. The south-eastern and south-western parts of the tenement are Arthur-Pieman Conservation area with the Sumac Regional Reserve intruding into the eastern side and the Warra Creek regional Reserve in the very north-western corner.

### **1.4 Tenure**

The tenement, EL 13/2015 was granted to Zebs Minerals Pty Ltd on 15<sup>th</sup> November 2016 for a period of five years and applies to all Category 1 minerals. The licence originally covered an area of 247.5 square kilometres.

A decision was made in 2020 to relinquish an area of 64 km<sup>2</sup> considered relatively non prospective and retain the remaining 183.5 km<sup>2</sup> as shown on figure 1.1.

The tenements were transferred into D & B Mining Pty Ltd, a wholly owned subsidiary of Zebs Minerals Pty Ltd in early 2022.

The licence was extended for a period of two years in November 2021. That period of extension expires on 14<sup>th</sup> November 2023 and a decision has been made to not apply for further extension and to allow the licence to lapse.

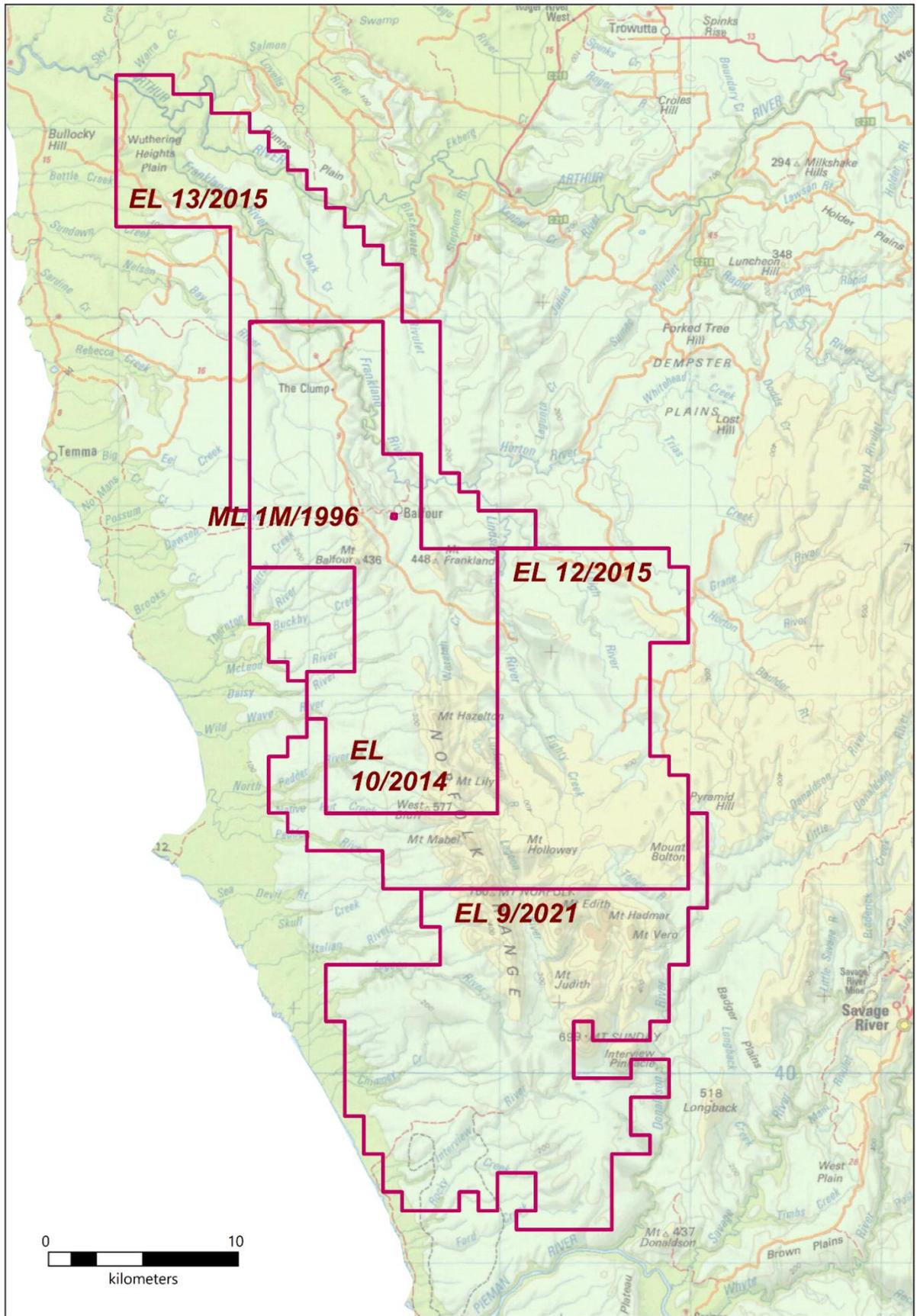
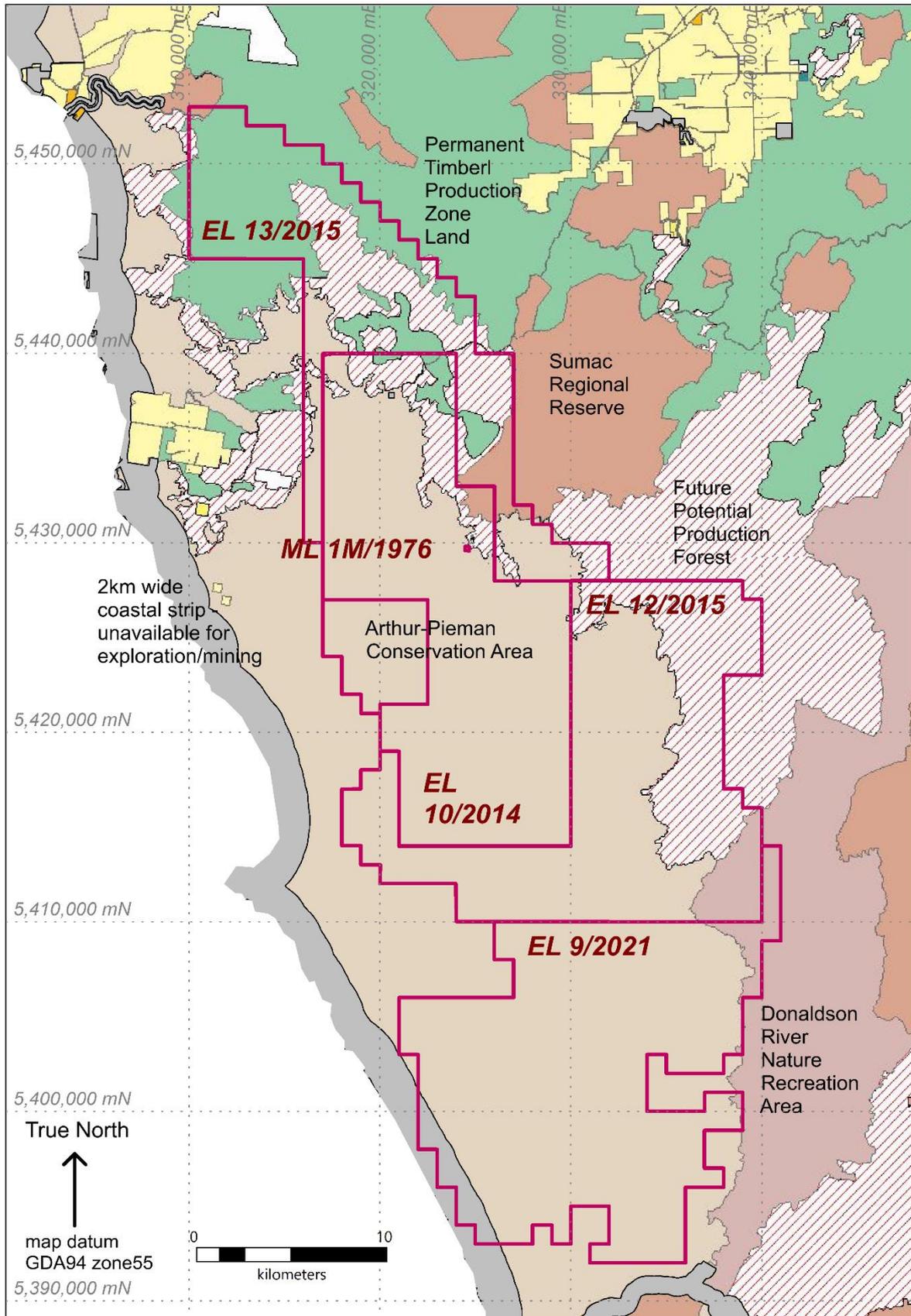


figure 1.1: Location of EL 13/2015 “Frankland River” within the Balfour Project Area.

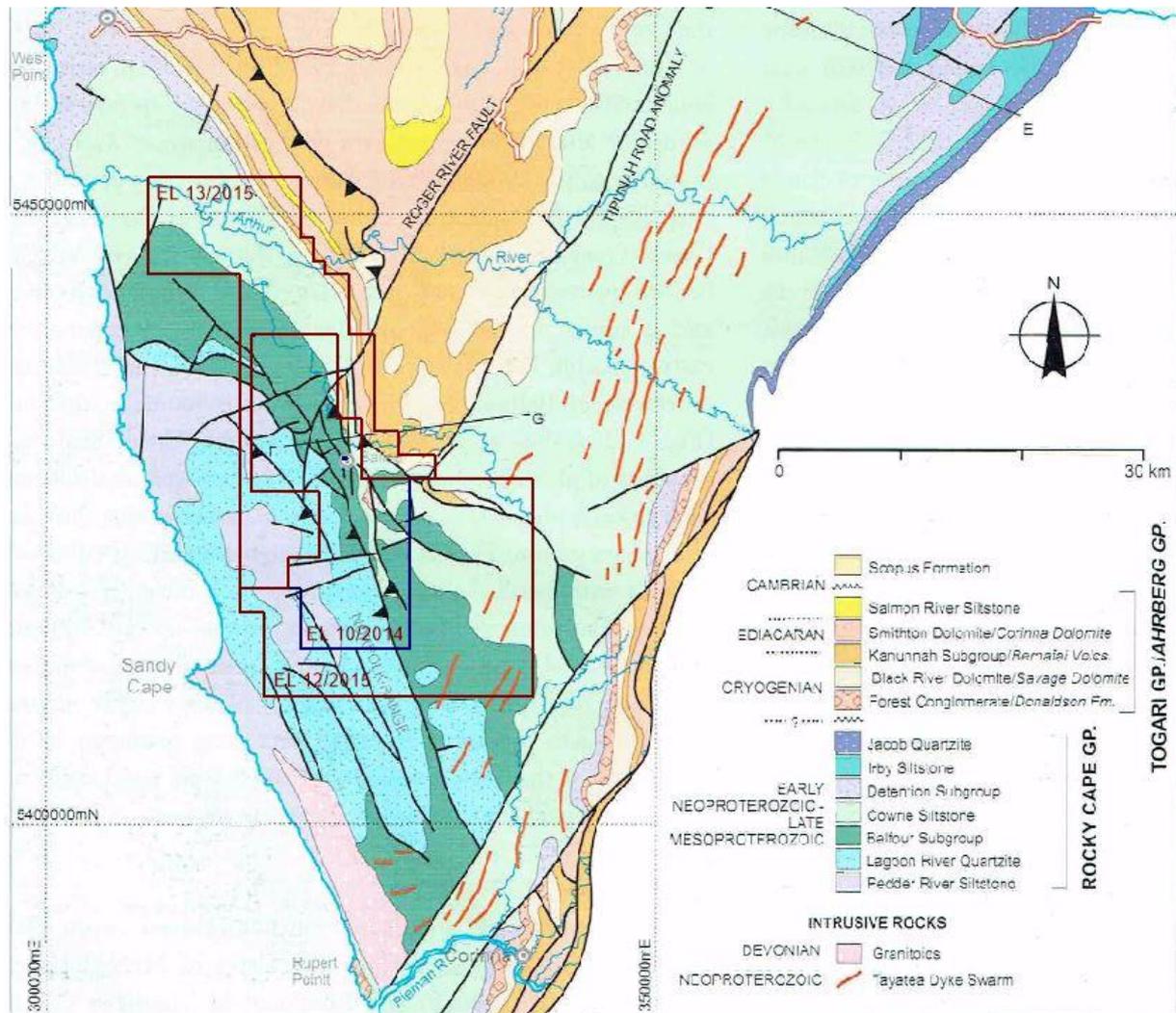


**Figure 1.2: Land Tenure showing Balfour Project Area tenements, including EL 13/2015, over the Land Tenure layer from The LISTmap (<https://maps.thelist.tas.gov.au/listmap/app/list/map>)**

## 1.5 Geology

The geology of EL 13/2015 consists of early Neoproterozoic-late Mesoproterozoic metasediments (and dolerite dykes) of the Rocky Cape Group, with a thin fault bound wedge of the disconformably/unconformably overlying Cryogenian Togari Group near to the northern boundary of the licence). In the southwest of the licence elevated aeolian sands and dunes obscure the underlying Proterozoic rocks. The Proterozoic geology is summarised neatly in figure 1.3.

Structurally the folded Proterozoic rocks are folded are transected by north-northwest trending west-southwest dipping faults which have been shown in a number of instances to be east verging thrusts. The fault which hosts the copper mineralisation at Balfour (on EL 10/2014) is an example of such a thrust.



**figure 1.3: Geology of EL 13/2015 (as originally granted) and associated D & B Mining Pty Ltd tenements (geology after figure 3.8 in Calver et. al. 2014).**

The Rocky Cape Group is a sequence of moderately folded silty to sandy shelf facies metasediments, intruded in part by north-northeast trending dolerite dykes.

The Togari Group is a sequence of shelf facies clastics and carbonates with intercalated rift tholeiites which unconformably or disconformably overlies the Rocky Cape Group.

The stratigraphy of both of these Groups is illustrated in figures 1.4 and 1.5.

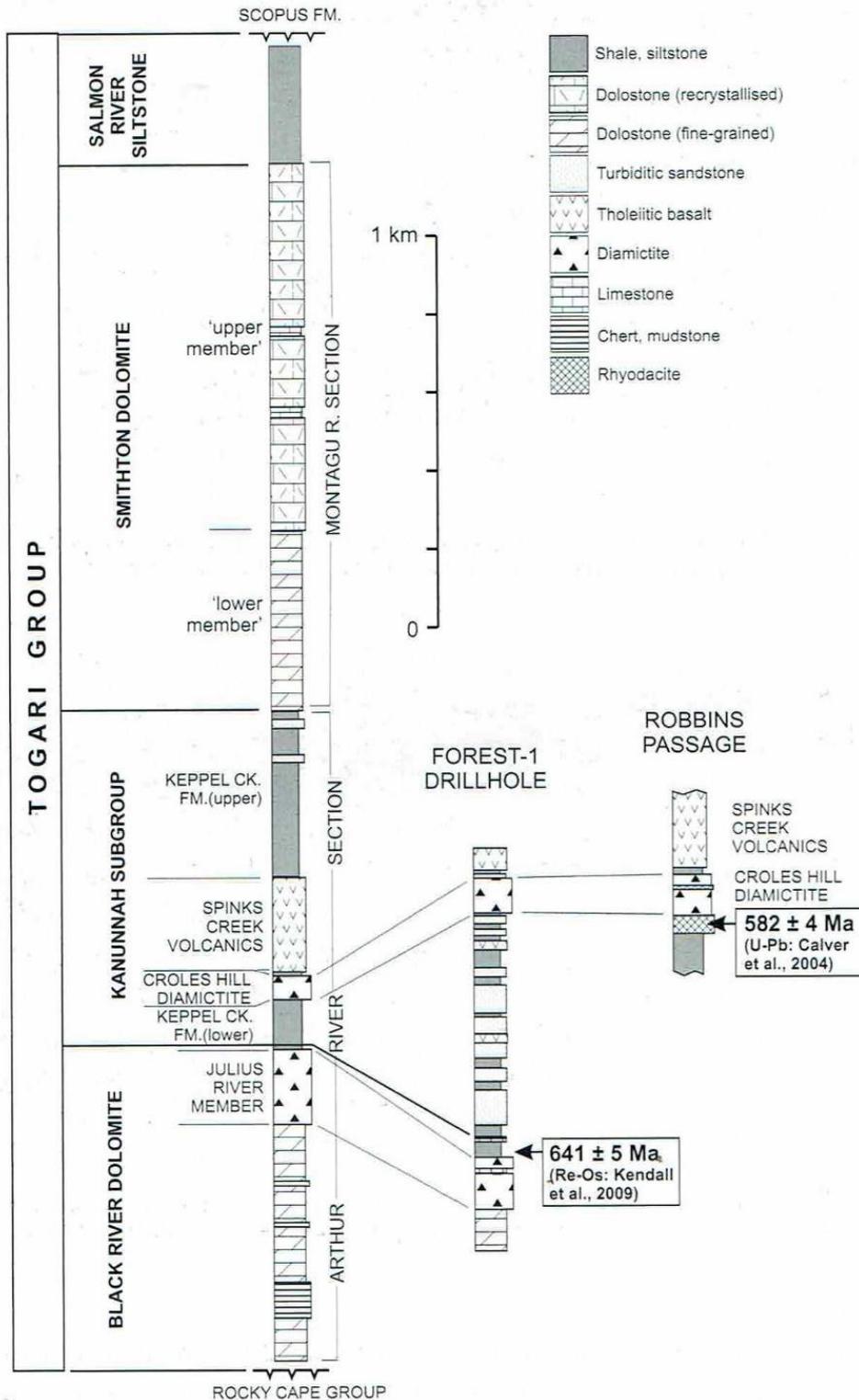
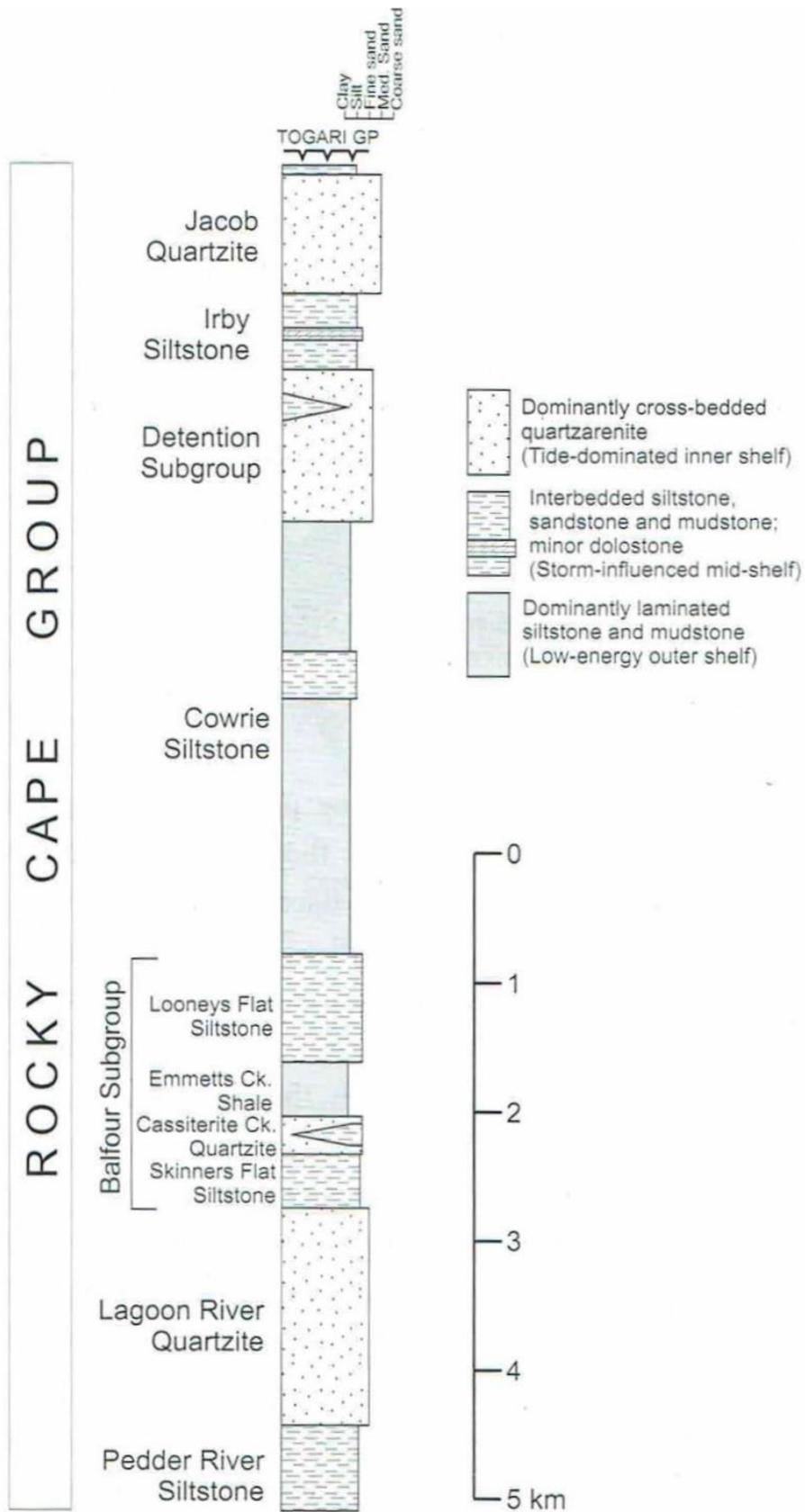


figure 1.4: Togari Group stratigraphic column (after figure 3.29 in Calver et. al. 2014). Note significantly different vertical scale to figure 1.5. The Togari Group is of the order of 3km thick whilst the Rocky Cape Group is of the order of 10km thick.



**figure 1.5: Rocky Cape Group stratigraphic column (after figure 3.7 in Calver et. al. 2014)**

Gravity data shows that the Middle Devonian Interview River Granite, which outcrops to the southwest of the tenements, also underlies the Balfour area to a depth <1km (as modelled).

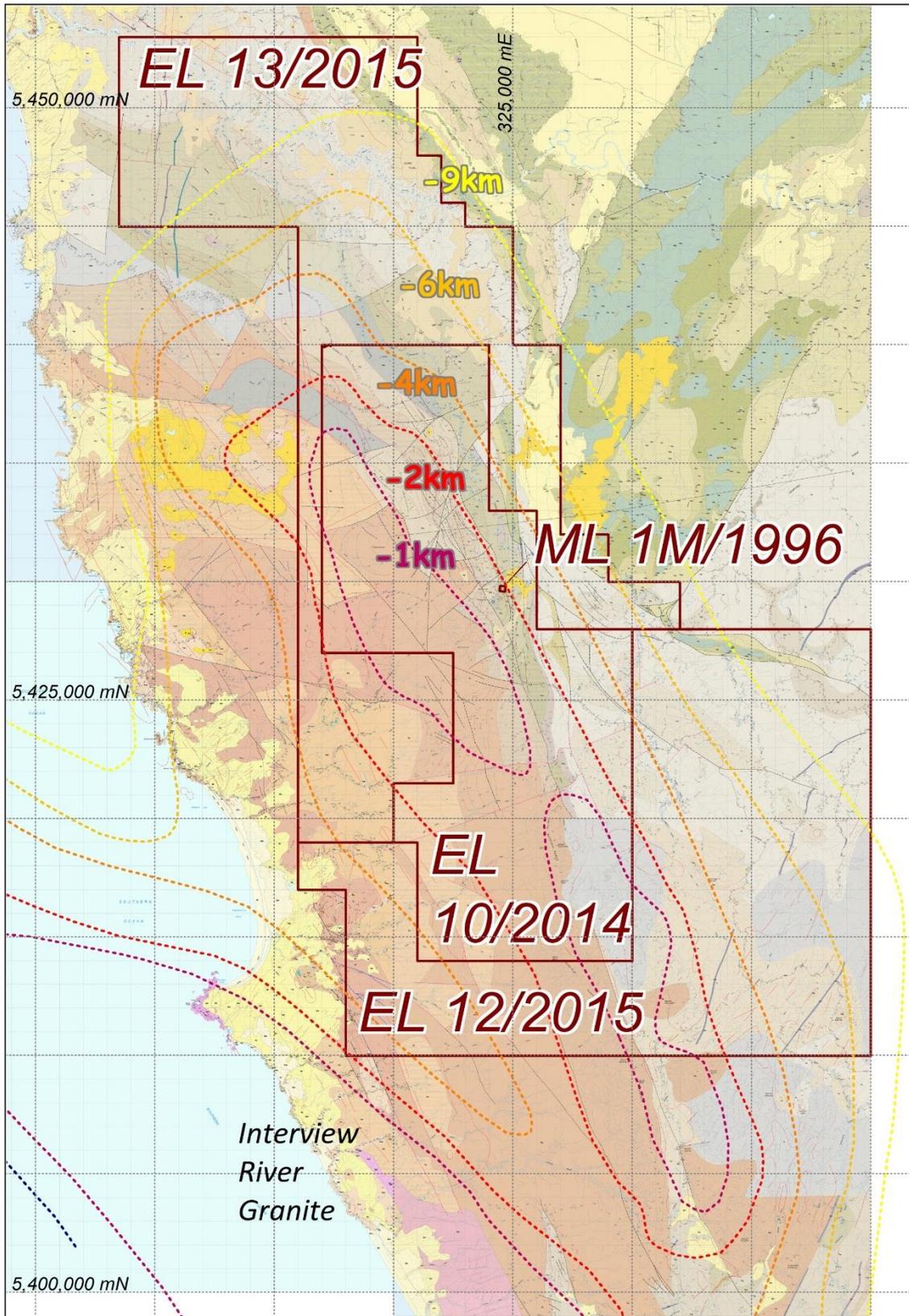


figure 1.6: Mineral Resources Tasmania 1:25,000 sheet series geology with modelled granite depth contours after Everard et. al. 2002.

In the northern part of EL 13/2015 the basement geology is obscured by a veneer of Tertiary gravels, whilst in the easternmost part of the tenement (southeast of the Roger River Fault) the basement is obscured by Quaternary alluvium and a small inlier of Tertiary basalt.

Taheri and Bottrill (2005), citing Reed in Everard *et. al.* (2007) summarise the structural history of the Balfour region as follows. "Two early phases of syn-depositional extension were followed by at least four compressional phases of deformation within the area. The first two phase of deformation (D1, D2) are possibly of Cambrian age whereas D3 and D4 are considered to be Devonian in age. D3 is the main deformation phase and is characterised mainly by northwest-trending folding, some cleavage development and major northeast-directed low and high angle thrusts, one of which hosts the copper mineralisation at Murrays Reward mine along the copper belt. East of Balfour east-northeast to northeast trending strike slip faults pre-date late northwest-trending reverse faults. One of these faults hosts vein style Sn-W mineralisation at Specimen Hill."

The Interview River Granite has intruded in the Middle Devonian and likely syn-D3.

## 2.0 Summary of Previous Work

### 2.1 Prior to Current Tenement

A detailed summary of previous work on the tenement was supplied in MacDonald (2020).

### 2.2 During Current Tenement - Zebs Minerals Pty Ltd (2014 – 2023)

There has been limited field work on the tenement. Most of the work was focused on planning and preparing for a VTEM™ survey which was shelved in favour of IP surveying.

Fieldwork to date has consisted of a limited amount of rock sampling in order to define the source of magnetic anomalies.

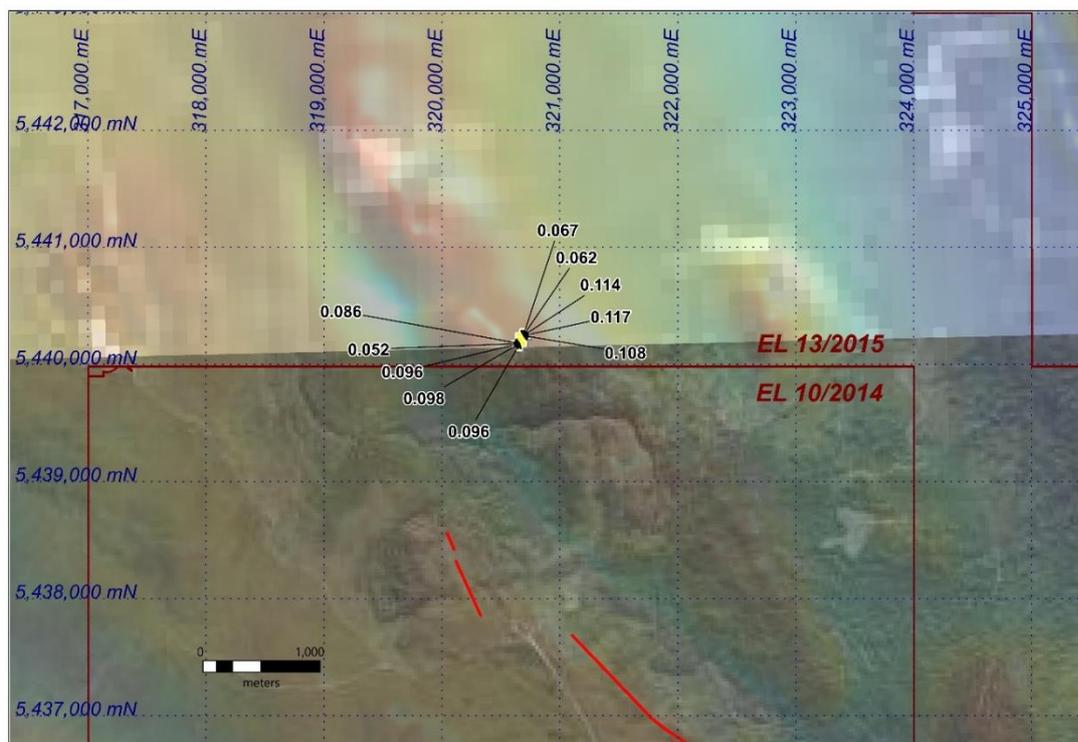
Rocks corresponding to a strong northwest linear magnetic high were mapped by CRAE as pyrrhotitic siltstone (Parkinson, 1993) and by MRT as the Looneys Flat Siltstone.

A logging track crosses the anomaly off the Frankland Road, west of the Frankland River bridge allowing ready access to outcrop along the roadside in order to assess the source of the anomalism.

5 rocks were collected from each of two locations within the bounds of the magnetics anomaly.

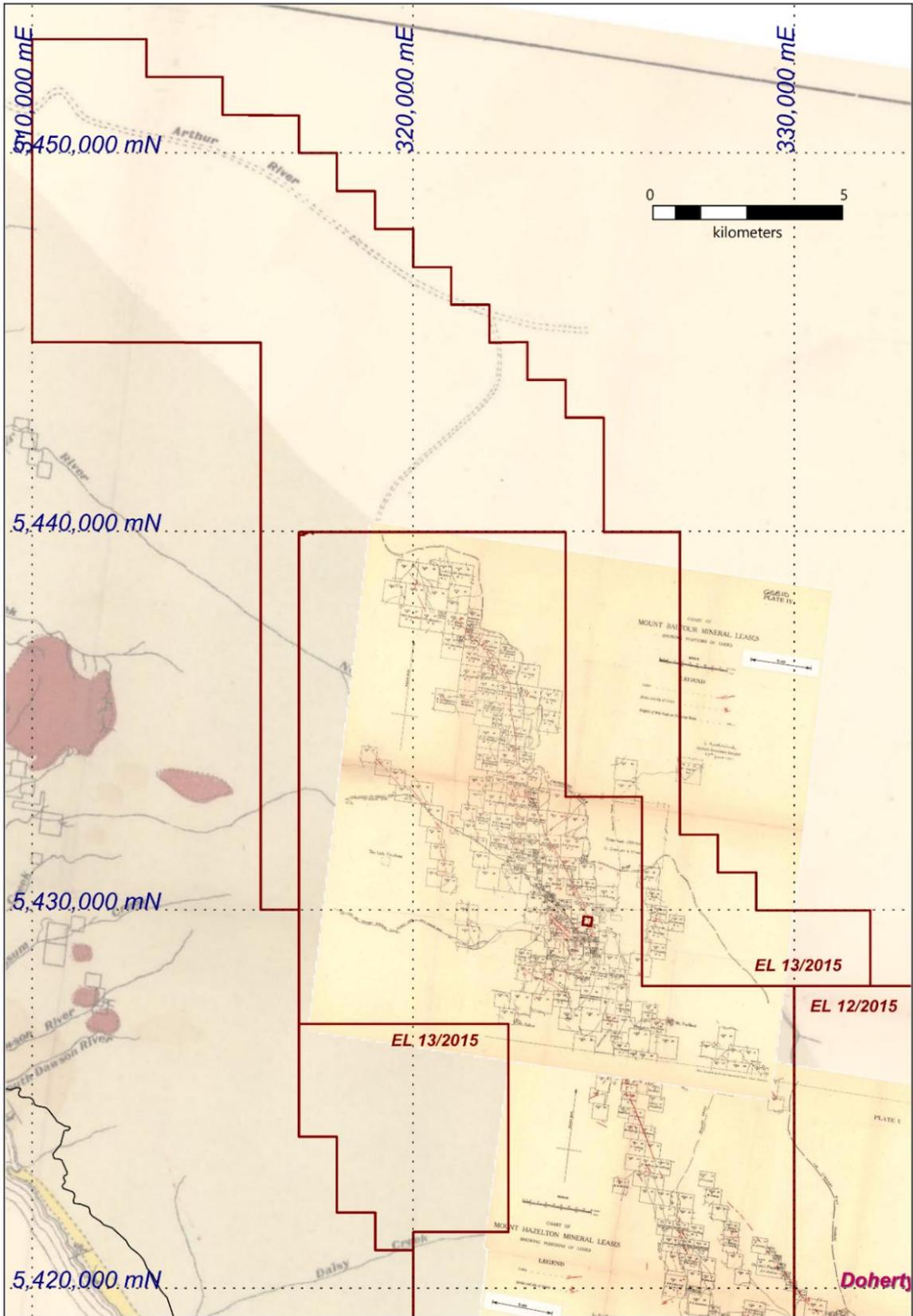
All rocks sampled are of finely very light grey quartz siltstones and finer grained sandstones with chloritic porphyroblasts.

Magnetic susceptibilities ranged from  $0.052 \times 10^{-3}$  to  $0.117 \times 10^{-3}$  SI units with a mean of  $0.090 \times 10^{-3}$  SI.

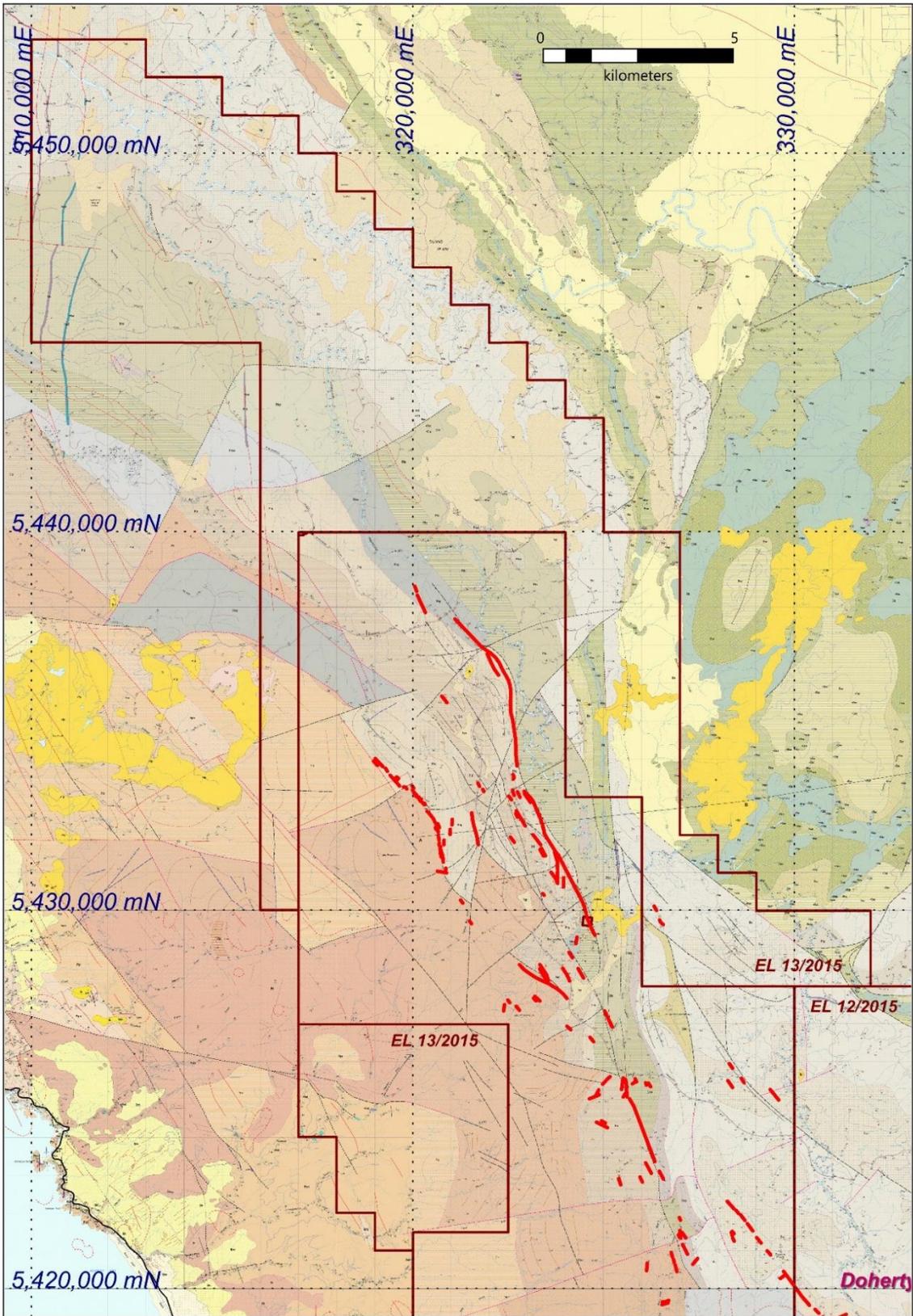


**Figure 2.1: Rock sampling locations with magnetic susceptibilities shown ( $\times 10^{-3}$  SI units) on TMI**

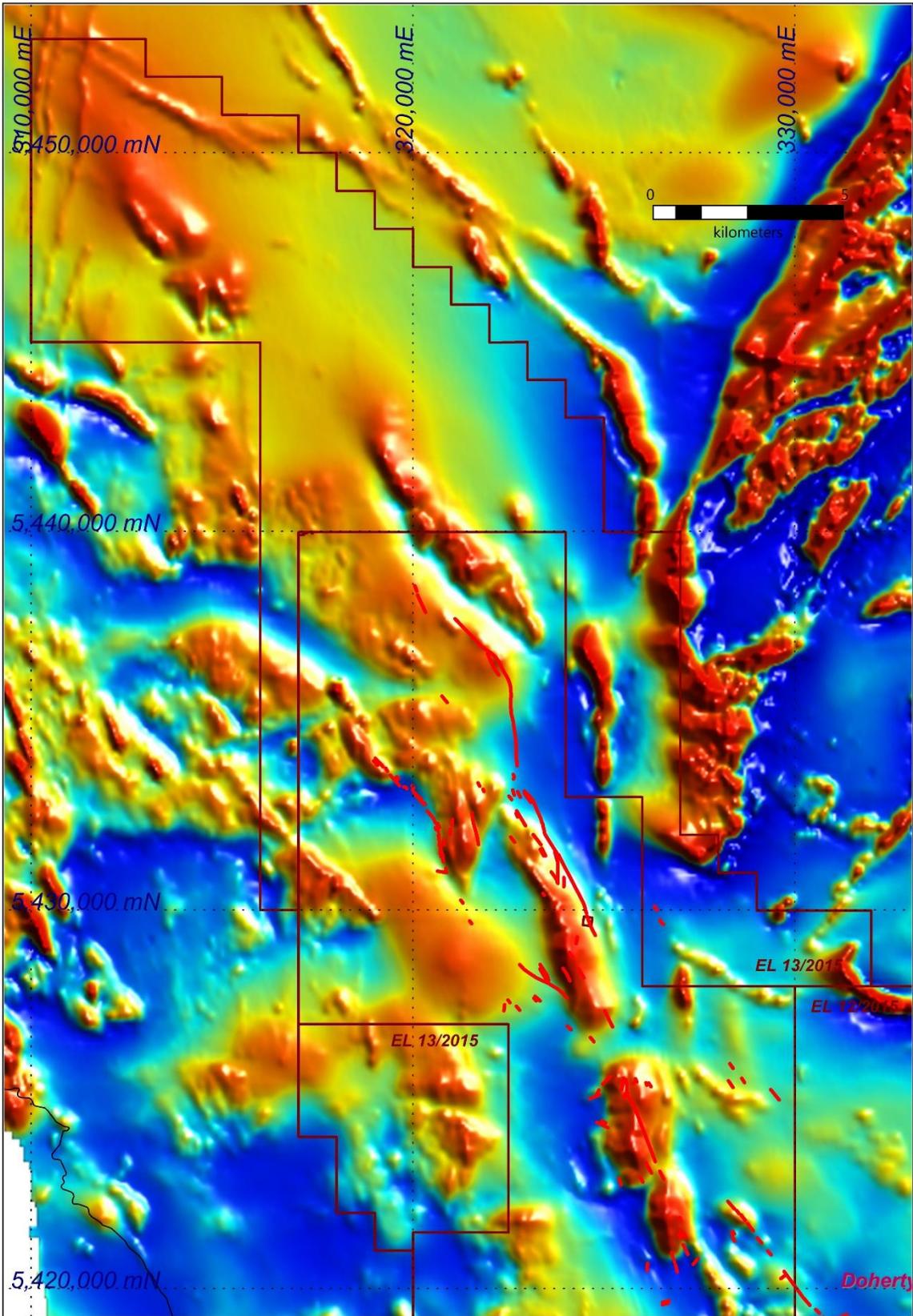
In 2022 D & B Mining Pty Ltd carried out a thorough review of historical exploration over the whole of the Balfour Project in conjunction with work on the other contiguous tenements which constitute the Balfour project, i.e. EL 10/2014, EL 12/2015, EP 9/2021 and ML 1M/1976. That work was included in appendix B in MacDonald (2022).



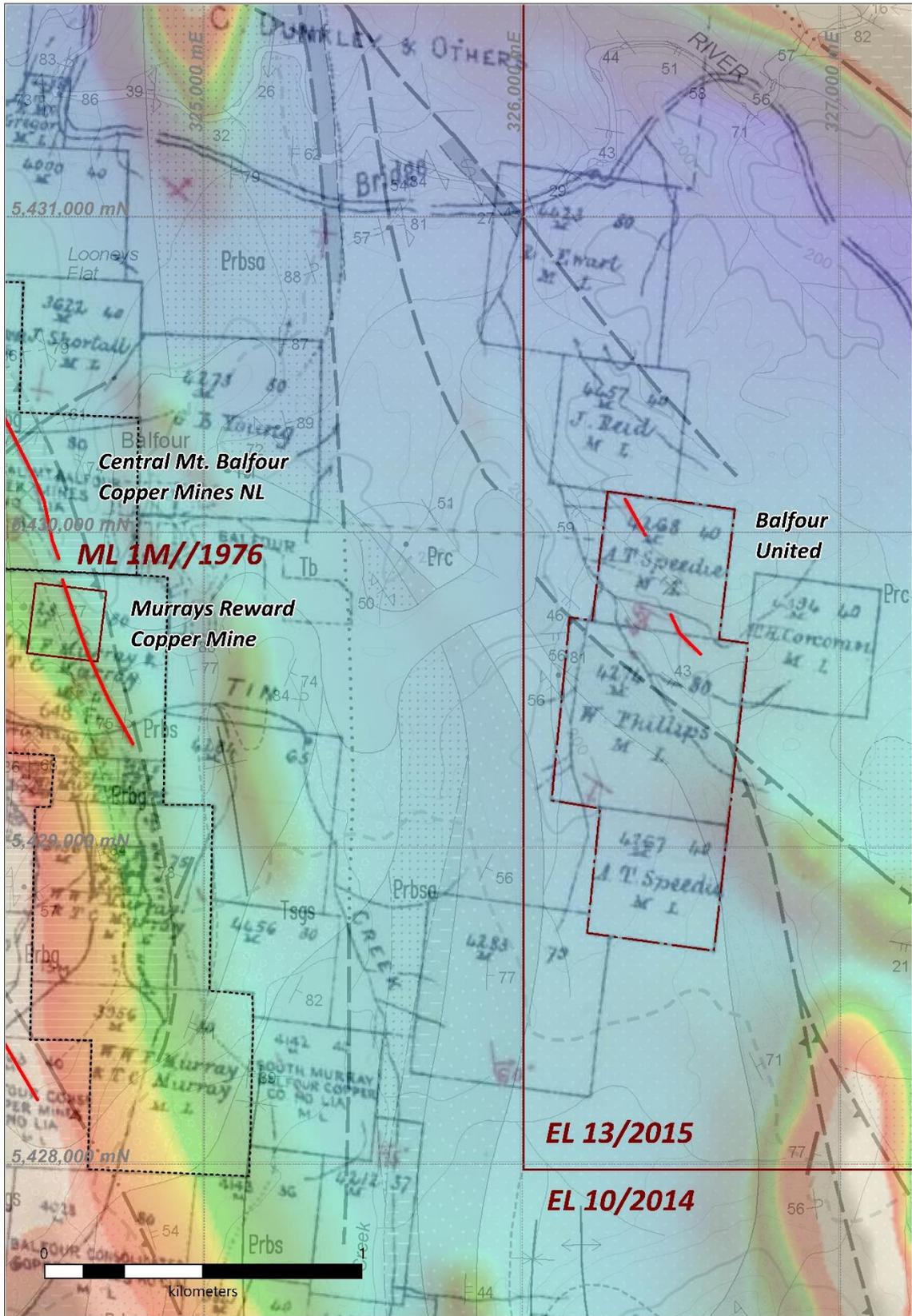
**Figure 2.2:** Tenement location of EL 13/2015 on a montage of Ward (1911) maps of the tenement position, and location of “lodes” as red lines. These red lines have been copied and superimposed on subsequent figures. Almost all workings lie outside of EL 13/2015 the exception being the Balfour United workings in the south-eastern corner of EL 13/2015.



**Figure 2.3:** Tenement location of EL 13/2015 on MRT's 1:25,000 maps of the tenement position, with Wards (1911) location of "lodes" i.e. quartz lodes with or without sulphide mineralisation as red lines. Note the broad correspondence between "lodes" and mapped faults.



**Figure 2.4:** Tenement location of EL 13/2015 on TMI RTP, with Wards (1911) location of “lodes” as red lines.



**Figure 2.5:** Balfour United workings) showing historical tenement boundaries, current tenement boundaries and red "lodes" from Ward (1911) which are quartz lodes +/- copper, on background of semi-transparent overlays of Ward (1911), 1:25,000 MRT geological mapping, and total magnetic intensity (2002 WTRMP survey).

### **3.0 Work During Current Period**

There has been no field work on the tenement during the reporting year with work prioritised for the other tenements.

3D modelling of gravity and magnetics was conducted by MRT geophysicists/geologists on the existing data from the Lagoon and Lily 1:25,000 mapsheets which cover parts of EL 13/2015 (and ELs 10/2014 & 12/2015).

Drilling elsewhere on the Balfour project has intersected copper mineralisation in Balfour Sub-group siltstones along with significant quantities of pyrite and pyrrhotite.

Additionally a further two drillholes were drilled into the Murrays Reward reef to obtain material for metallurgical testwork.

#### **4.0 Discussion of Results**

The Balfour Project Exploration Summary Report was included in last years annual report which was submitted a little later than the anniversary date.

The report discussed the potential for Rocky Cape Group rocks to host sedimentary hosted copper deposits interpreting the numerous historically known copper occurrences from the Clump south to Toner River and beyond as structurally hosted remobilised 'smoke'. No such evidence is found within the Rocky Cape Group rocks within the area of EL 13/2015.

A conceptual plan of favourable horizons shows the Looneys Flat Siltstone/Cowrie Siltstone contact to be a potential SEDEX horizon, however, there is only one small digging on this over the whole of the belt (at Balfour South on EL 10/2014). The basal Emmetts Creek Shale position does have workings along it south of the Clump but it is mapped as coincident with a thrust.

In spite of the incised nature of much of the country there is no evidence of any copper workings or prospects from previous exploration within EL 13/2015.

The report also discusses the linear trend of magnetic anomalies which extends along the Balfour copper belt. These have been shown to be due, in part at least, to pyrrhotite. Recent drilling at Toner River has intersected pyrrhotite rich rocks where the pyrrhotite and pyrite can be seen to occupy both diagenetic and structural sites suggesting both an authigenic and remobilised form. This work has downplayed the potential for these anomalies to reflect granite related tin/tungsten mineralisation at depth.

## **5.0 Conclusions and Recommendations**

The work to date has downgraded the potential for the tenement to host copper or tin/tungsten deposits and a recommendation is made to not renew the licence on its anniversary date of 14<sup>th</sup> November 2023.

## **6.0 Environment**

There has been no environmental impact to date.

## 7.0 Expenditure

	\$
Geology	12,000
Geochemistry	0
Geophysics	0
Remote Sensing	0
Drilling	0
Gridding	0
Land Access	7,350
Rehabilitation	0
Feasibility Studies	0
Other	11,700
Administration	3,105
<b>Total</b>	<b>34,155</b>

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