

**Lottah Mining Pty Ltd**  
**EL 25/2009 “Highclere”**  
**Report on Exploration for**  
**Relinquished Area**  
**May 2017 to May 2018**

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**Abstract**

The area covered by this report is to be relinquished.

Work has focussed on confirming that sinuous magnetic highs in the western part of the licence are due to thick accumulations of magnetic basalt which formed in topographic lows in the Tertiary.

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## **1.0 Introduction**

### **1.1 Location/Access/Land Usage**

EL 25/2009 “Highclere” is located in Tasmania’s northwest approximately 15 to 20km’s south of the port of Burnie. Access to the tenement is ideal with the bitumen Murchison Highway passing through the middle of the licence. Access within the licence is by a series of gravel roads which service farms nearer to the highway and provide access to forestry areas on the eastern and western margins of the licence.

The licence area is used for farming, predominantly grazing, and forestry.

### **1.2 Tenure**

Exploration Licence EL 25/2009 “Highclere” was granted to Blythe River Iron Pty Ltd in 2009. Blythe River Iron Pty Ltd was bought out by Forward Mining who in turn was bought by Lottah Mining Pty Ltd.

EL 25/2009 remains in the name of Blythe River Iron Pty Ltd but is owned and managed by Lottah Mining Pty Ltd.

Blythe River Iron Pty Ltd is relinquishing 14km<sup>2</sup> and seeking to retain the remaining 24km<sup>2</sup> as shown in figure 1.1.

### **1.3 Exploration Rationale**

Lottah Mining Pty Ltd has a JORC compliant magnetite iron resource at its Rogetta North project on ML 1996P/M to the southeast of EL 25/2009. Lottah Mining Pty Ltd also has a JORC compliant hematite iron resource deposit on EL6/2005 to the northeast of EL 25/2009.

Lottah Mining Pty Ltd is targeting further magnetite and/or hematite iron deposits to add to its resource inventory.

Lottah Mining Pty Ltd is also targeting any commodities of commercial interest including but not limited to W<sub>03</sub>, Sn, Bi, Mo, Cu, Pb, Zn, Au, Ag, Li, Ni, REE, wollastonite and facing stone.

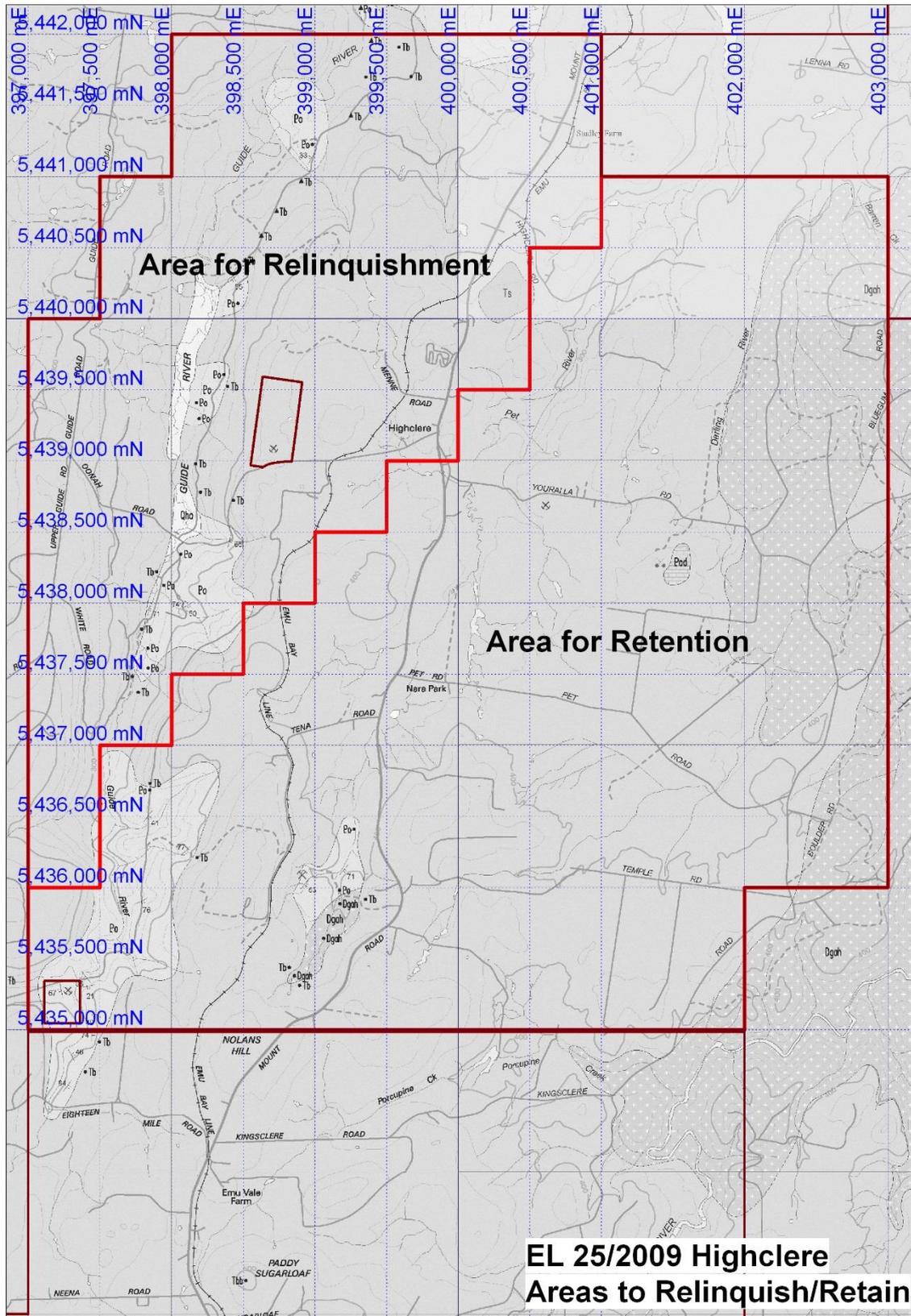


Figure 1.1: EL 25/2009 “Highclere” areas for relinquishment and retention.

## 1.4 Geology

Regionally the geology of the Rogetta Project area is dominated by a basement of Proterozoic metasediments (and minor mafic volcanics) of the Oonah/Burnie Formations unconformably overlain by a sequence of Cambro-Ordovician volcanics and sediments, both intruded by the Devonian Husetop Granite, all obscured by a veneer of Tertiary basalt.

Proterozoic rocks are the host to skarn mineralisation at Buckby's prospect within the tenement, as well as the Natone prospect further to the east. Some workers (Blake, 1928) also attribute the Highclere skarn host rocks to the Proterozoic, though more current interpretations see these rocks to be from the Cambro-Ordovician sequence. The deep weathering superimposed on texturally destructive skarn alteration must make any interpretation of these host rocks uncertain.

The basal unit of the Cambro-Ordovician sequence consists of the Mt Read Volcanics, correlated with the Tyndall Group. These are overlain by the Owen Group sediments.

The basal member of the Owen Group is a quartz pebble conglomerate with local additions of volcanoclastic detritus. The conglomerates are overlain by the Moina Sandstone which has a gradational contact with the overlying Gordon Group Limestone, becoming more calcareous towards the contact.

These calcareous upper Moina Sandstone rocks and the overlying Gordon Group limestones and dolomites are the host to skarn mineralisation at Kara to the south of the licence and most other skarns in the district.

These basement rocks were deformed in the Middle Tabberrabberan Orogeny under a largely east-west compressive stress regime. This resulted in the development of north to north-northeast striking F2 folds superimposed on much broader east-west F1 folding.

Late in the orogeny the I-type Husetop Granite was emplaced passively and underlies most of the Rogetta Project tenements.

Skarn mineralisation was introduced into calcareous rocks by fluids derived from this granite with rarer vein style mineralisation also associated with this intrusive.

In the Tertiary topographic lows were filled by basal sediments followed by thick Tertiary basalt flows which spilled over onto more undulating topography as a thin veneer.

Within EL 25/2009 the basement rocks are obscured for ~90% of the surface area by Tertiary basalt. The exceptions to this are the Proterozoic rocks exposed in a north-south trending series of windows in the Guide River valley near the western boundary of the licence, and the granite outcropping along the eastern boundary of the licence.

## **2.0 Review of Previous Exploration Work on the Area of EL 25/2009**

### **2.1 Exploration Prior to Current Tenement**

The existence of deposits of magnetite and hematite iron in the northern part of Tasmania has been known since the late 19<sup>th</sup> century.

Modern exploration commenced in the late 1950's with regional geophysical surveys (Keunecke, 1959).

The Tasmanian Mines department assessed the deposit for its iron ore potential in the early 1960's carrying out a ground magnetic survey followed by the drilling 5 (effectively 4 as hole 2B was drilled immediately adjacent to hole 2 in order to resample the upper 13.1m of hole 2 which had been lost) diamond drill holes for 126.8m at the Highclere Prospect in 1964 (Jack, 1965). The drill holes intersected nodules and lenses of hematite-magnetite mineralisation hosted in limonitic/goethitic clays. The Mines Department holes did not appear to extend to the granite basement.

Iron assays from the Mines Department holes were encouraging however the recoveries were poor suggesting some of the clay may have washed away, biasing the iron analyses.

The area of EL 25/2009 "Highclere" was further explored for its Sn and WO<sub>3</sub> potential by ANZECO in the 1970's (Brandt, 1973, 1974), Comalco in the late 1970's (Askins, 1978 and 1980) and Shell in the 1980's (Lawton, 1982). A focus of this work was the Highclere iron deposit.

ANZECO completed systematic grid based ground magnetics, and mapping surveys over the prospect and re-assayed the Mines Department core for Sn-WO<sub>3</sub> with only minor tungsten mineralisation observed (Brandt, 1974). Most of the drill core was re-logged as limonitic clay. A series of short auger holes were drilled (AH1 to AH25 and AH127 to AH133), most intersecting highly weathered granite with only 6 holes intersecting highly weathered calc-silicate skarn with minor hematite-magnetite mineralisation. The holes were assayed for WO<sub>3</sub> and Sn but not Fe. Minor localised Scheelite mineralisation was described at the prospect (Brandt, 1974).

They concluded that the deposit consists of small roof pendants of highly weathered calc-silicate skarn with minor magnetite mineralisation.

Comalco (Askins, 1978) assessed the potential of the northern part of the Highclere Iron deposit magnetic anomaly with ground based gravity, magnetics and IP. They also re-logged the Mines Department core noting the very low recoveries. They concluded that the discontinuous nature of the magnetic and chargeability - resistivity anomalies suggest there is very limited potential for significant mineralisation in the northern part of the Highclere Iron deposit.

Most of Comalco's work concentrated on Buckby's Prospect located several kilometres southwest of the Highclere Iron deposit. They completed a similar program of ground based magnetic, IP, soil sampling and geological mapping follow up by diamond drilling. The drill holes intersected a thick sequence of dolomitic limestone and calcareous sediments, variable metasomatised to diopside skarn with minor magnetite and pyrrhotite skarn. All holes ended in granite basement. No significant Sn-WO<sub>3</sub> or Fe mineralisation was observed.

Shell/Billiton re-assessed the magnetics of the district, targeting Kara style magnetite skarn mineralisation. They drilled several percussion holes into magnetic anomalies in basalt and one extra hole into the Highclere Iron deposit, HD1, for 102m. They concluded that the magnetic signature of the basalt cover obstructed the delineation of magnetite skarn and discontinued work in the district.

### **2.2 Exploration Work During Current Tenement**

Work in the current tenement has focussed on the area retained with no field work or data collected for the relinquished area.

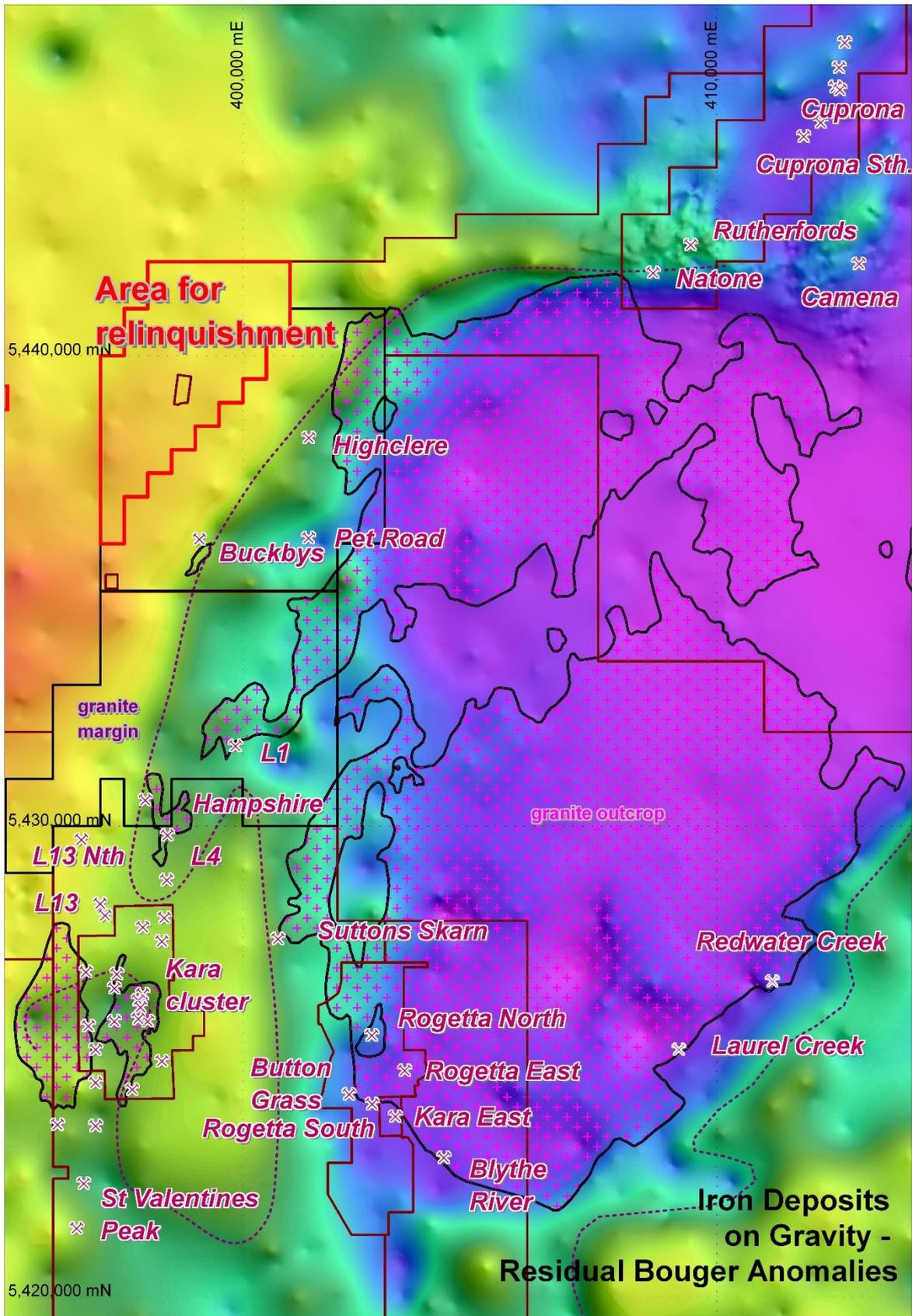
### **3.0 Exploration Completed May 2017 to May 2018**

Work on the relinquished portion of EL 25/2009 in the reporting year consisted solely of considering the source of sinuous magnetic highs in the western portion of the licence.

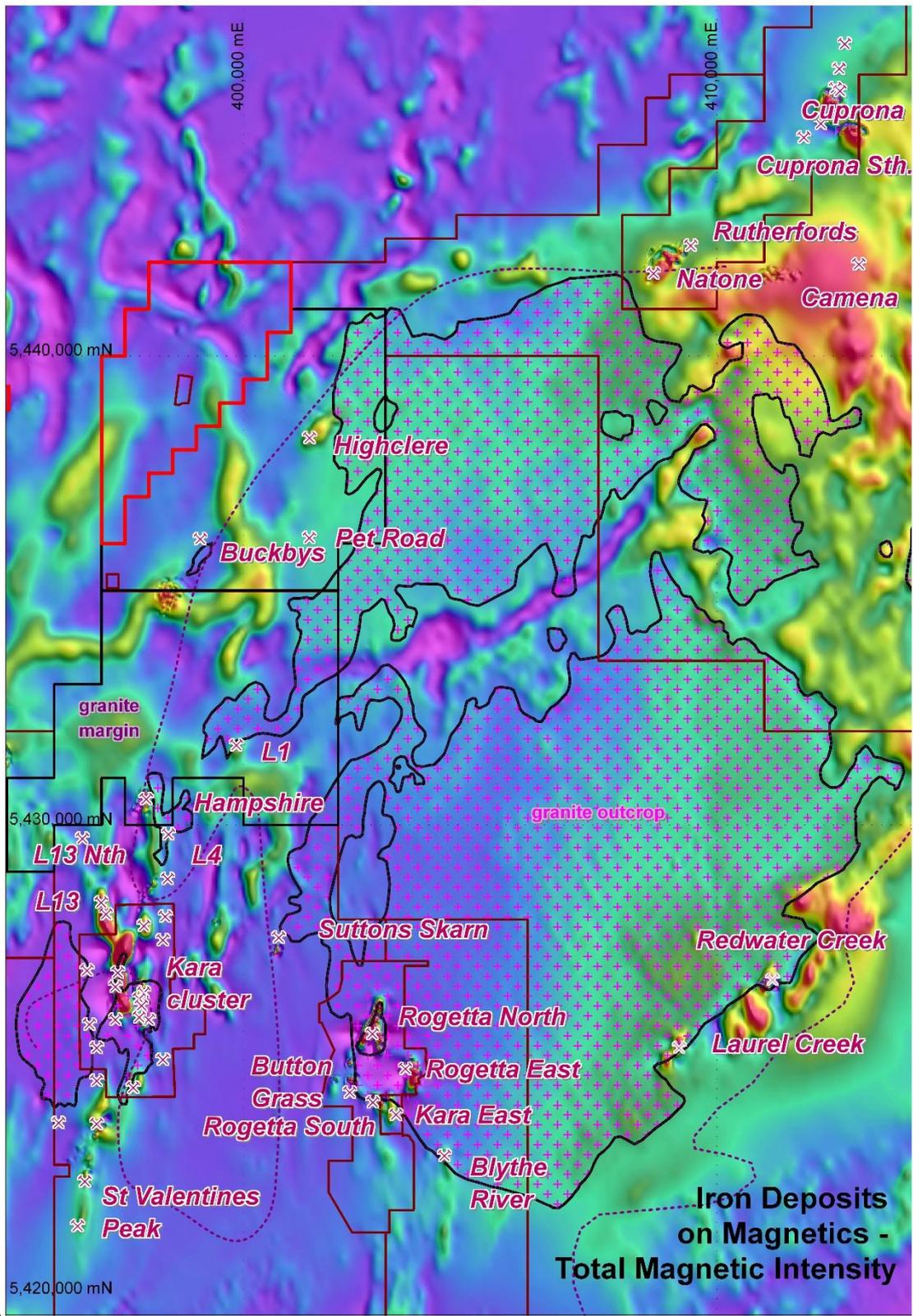
#### **4.0 Discussion of Results**

Appraisal of previous drilling of these sinuous magnetic highs at Nolans Hill (Kusnander *et. al.* 2009) on and just south of the southern margin of the licence as well as similar anomalies at Sea Slug (Kusnander *et. al.* 2009), Kingsclere (Lawton, 1982) and Cuprona (unpublished) amongst others) shows these anomalies to correlate with thick basalt intersections.

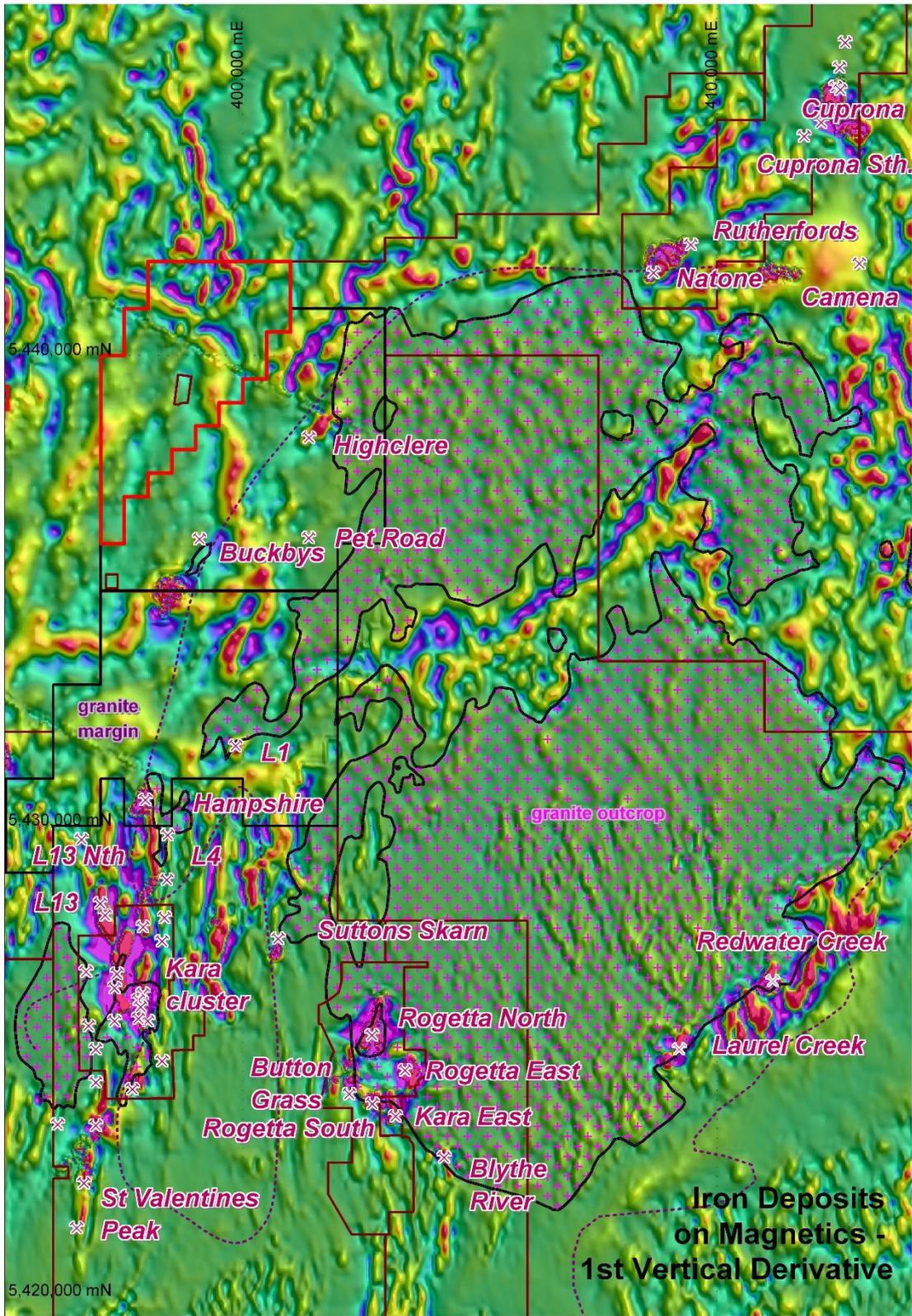
Further, the sinuous trails defined by these anomalies bear no relationship to the granite margin on or near to which all magnetite skarns occur (see figures 4.1, 4.2 and 4.3), nor to the overall structural grain of potential host rocks.



**Figure 4.1: Regional gravity image showing iron deposits and tenements. EL 25/2009 is the tenement upper left containing the Highclere, Pet Road and Buckby's Prospects. The area to be relinquished is shown in red outline.**



**Figure 4.2: Regional total magnetic intensity image showing iron deposits and tenements. EL 25/2009 is the tenement upper left containing the Highclere, Pet Road and Buckby's Prospects. The area to be relinquished is shown in red outline.**



**Figure 4.3: Regional 1<sup>st</sup> vertical derivative of magnetic intensity image showing iron deposits and tenements. EL 25/2009 is the tenement upper left containing the Highclere, Pet Road and Buckby's Prospects. The area to be relinquished is shown in red outline.**

## **5.0 Conclusions**

Magnetic anomalies in the western part of the licence are due to thick accumulations of magnetic basalt in which infilled topographic lows in the Tertiary.

## **6.0 Proposed Work**

It is proposed to relinquish the area covered by this report.

## **7.0 Environmental Management**

There are no outstanding environmental issues over the relinquished area from previous work. None of the work carried out in the 2017/18 reporting year has had any environmental impact.

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