

**SOUTHWELL RIVER  
(LAKE MACKINTOSH GROUP)  
TASMANIA  
EL24/2007**

**FINAL REPORT  
18<sup>TH</sup> NOVEMBER 2009 TO 18<sup>TH</sup> JUNE 2010**

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**Distribution:**

Mineral Resources Tasmania  
Bass Metals Ltd

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**Note: All figures and grids are according to the GDA94, Zone 55 datum unless otherwise stated**

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**ABSTRACT**

Bass Metals Ltd (BSM) commenced management of the Southwell Valley exploration licence (EL24/2007) on 18 November 2008. Work conducted on the licence for this final reporting period has included:

- 9.10 line-km's VTEM
- Review for relinquishment

## TABLE OF CONTENTS

	<b>Page</b>
<b>1.INTRODUCTION</b>	<b>4</b>
1.1 Location & Access	4
1.2 Geology Overview	4
1.3 Exploration Rationale:	7
<b>2. WORK COMPLETED</b>	<b>7</b>
2.1 Historical Mining	7
2.2 Exploration prior to current licence area	7
2.3 Exploration completed 18 <sup>th</sup> November 2008 to 17 <sup>th</sup> November 2009	9
2.4 Exploration completed 18 <sup>th</sup> November 2009 to 18 <sup>th</sup> June 2010	10
<b>3. ENVIRONMENT</b>	<b>13</b>
<b>4. EXPENDITURE</b>	<b>15</b>
<b>APPENDIX 1 VTEM REPORT &amp; DATA (DIGITAL COPY OF DATA ONLY)</b>	
<b>LIST OF FIGURES</b>	
Figure 1. Southwell River Exploration Licence (EL24/2007) location map	4
Figure 2. Schematic stratigraphic long-section of the Mt Charter-Hellyer area	5
Figure 3. Regional Geology showing Licence Area boundary	6
Figure 4. Fathom Anomaly	10
Figure 5. VTEM Image displaying tenement	11
Figure 6. Geological map of the Southwell Valley EL.	12
Figure 7. Environmental Activity Map	14
<b>LIST OF TABLES</b>	
Table 1 Historic Exploration	7
Table 2 Expenditure Table	15

# 1. INTRODUCTION

This report is a summary of the exploration activities conducted on the Southwell Valley exploration licence EL24/2007, for the final reporting period of 18<sup>th</sup> November 2009 to 18th June 2010. The licence covers a total area of 2 km<sup>2</sup>.

The licence is situated in the northwest corner of Tasmania

## 1.1 Location & Access

The tenement is located 13 km north-northeast of the township of Tullah, on the west coast of Tasmania (Figure 1). Access to the area is via the Cradle Mountain Development road and tracks which access the 220kv transmission lines which traverse the area. Access within the tenement is via a limited number of 4wd tracks and ATV-only tracks.

The licence area can be found on the Charter 1:25,000 topographic map sheet and the Sophia 1:100,000 LTIS map sheet.

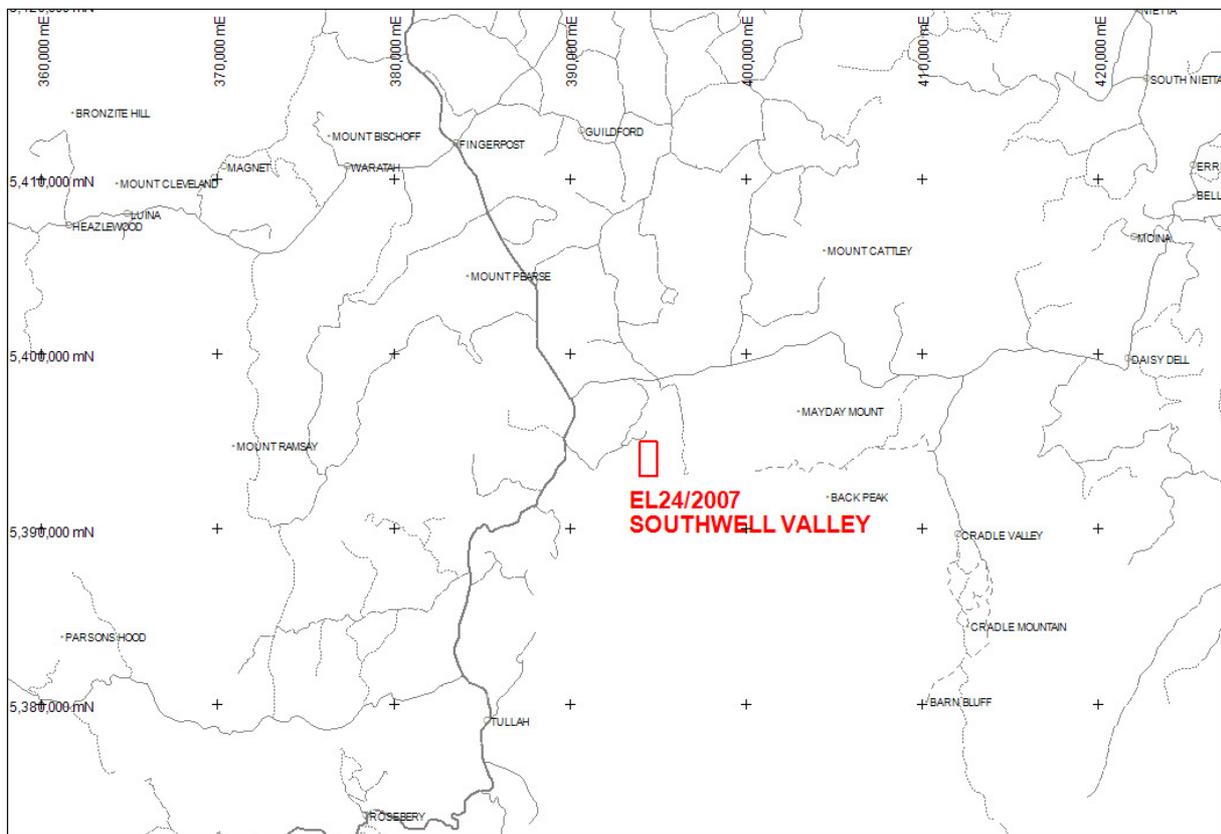


Figure 1. Southwell Valley Exploration Licence (EL24/2007) location map

## 1.2 Geology Overview

The base and precious metal deposits of the Hellyer-Que River-Mt Charter area lie above the main Central Volcanic Complex of the Mt Read Volcanics as it passes into a sequence of volcanics and sediments, which near Hellyer and Que River is called the Mt Charter Group. Within the Mt Charter Group is a volcanic package called the Que Hellyer Volcanics (QHV) comprising a group of andesitic to dacitic volcanics and sediments (Figure 2). Que River, Hellyer and Mt Charter are

hosted by the highly variable 'Mixed Sequence', sandwiched between basaltic to andesitic volcanics. Volcanic-related and marine sediments cover the volcanics.

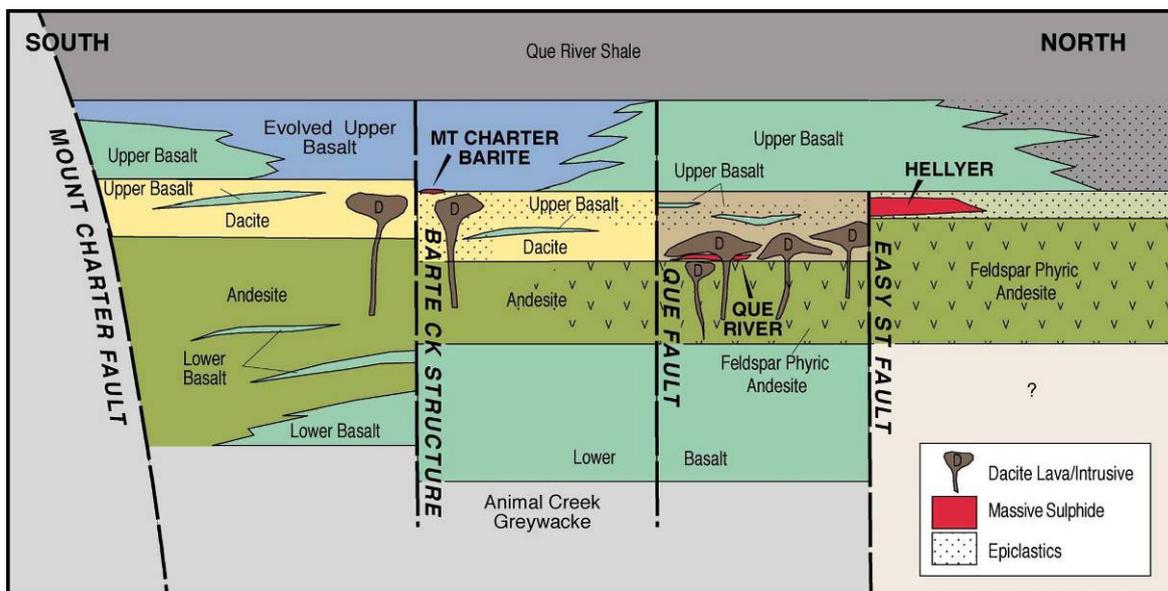


Figure 2. Schematic stratigraphic long-section of the Mt Charter - Hellyer area

The QHV is up to 1000m thick near Que and Hellyer, but wedges out to less than 50m to the northwest of Hellyer. The units of the QHV are summarized below:

- The Upper or Hellyer Basalt consists of massive to pillowed amygdaloidal basalt lava and volcanoclastic rocks.
- The Mixed Sequence host to the Que River, Hellyer and Mt Charter systems is comprised of epiclastics, dacitic lavas and breccias.
- The Feldspar Phyrlic Andesite, a porphyritic andesite lava which is the footwall unit to the Hellyer and Que River deposits and subsequently altered to Silica-Sericite-Pyrite mineralogy at these locations, which in turn is underlain by
- The Lower Basalt, a sequence of basaltic pillow lavas and volcanoclastics, which form the immediate footwall at Que River and Hellyer.

Overlying the QHV is the Que River Shale (Figure 2), which is in turn overlain by rhyolite, felsic volcanoclastics, greywacke and shale of the Southwell subgroup. The Southwell subgroup is overlain by the Mt Cripps subgroup (a correlate of the Tyndall beds at the Henty mine) which is a sequence of volcanoclastics, siltstones and conglomerates only outcropping along the eastern boundary of the Hellyer area tenements.

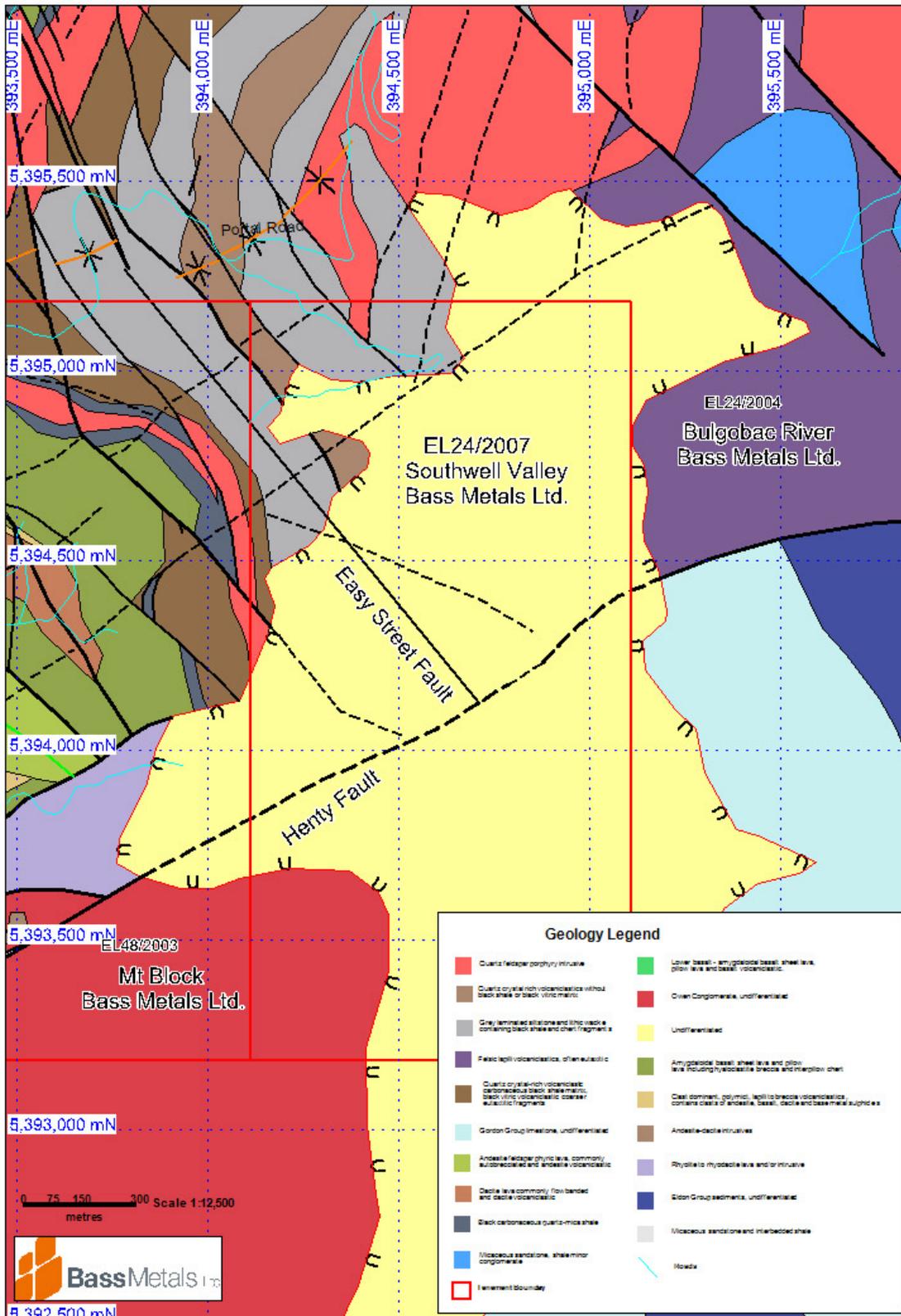


Figure 3. Regional Geology showing Licence Area boundary

### 1.3 Exploration Rationale

The tenement is underlain, at an approximate depth of between 100-300m, by the highly prospective Que-Hellyer Volcanics, and associated sequences of the Mount Read Volcanics being host to the Hellyer, Que River and Mt Charter VHMS bodies contained within mining leases adjacent to the Southwell River lease currently held by Bass Metals Ltd. The main reason for selecting this area was the intersection of the Easy Street Fault (inferred to be an active fault during Cambrian volcanism) and the Henty/Mt Cripps Fault (basin bounding fault during Cambrian volcanism). This intersection is interpreted to be a potential locus for mineralising fluids during VHMS activity in the Que-Hellyer basin.

## 2. WORK COMPLETED

### 2.1 Historic Mining

The earliest known exploration in the area was prospecting carried out around 1920 leading to the discovery of alluvial gold and boulders containing zinc and lead sulphides in a creek draining the area of Que River S lens.

Modern exploration of the Que Hellyer Volcanics (QHV) was carried out almost exclusively by Aberfoyle Resources Ltd (Aberfoyle). Only deep QHV beneath Southwell Subgroup cover, west of the Murchison Highway, have been explored by other companies (CSR, Placer, BHP, Pasminco).

### 2.2 Exploration Prior to Current Licence Area

The presence of high mineralisation in the area led to an extensive exploration program by Aberfoyle Resources over a 17 year period 1969 – 1985. Originally this licence was incorporated in EL2/70 the Mackintosh River licence which covered an area of 232km<sup>2</sup>. The exploration listed below relates to the work that Aberfoyle conducted over this entire area.

**Table 1. Historic Exploration**

Period	Work Completed
1969 - 1972	<p>Early regional exploration –</p> <ul style="list-style-type: none"> <li>• 1969/1970 - Geological mapping, geochemical sampling and the excavation of 4 trenches on the Back Peak grid. A total of 402 soil and channel samples were collected.</li> <li>• 1970/1971 - A stream sediment sampling program covering the area north of the national park boundary and all ground west of the mackintosh river gave 270 stream sediment samples, 695 soil samples and 6000 feet of ground magnetics.</li> <li>• 1971 – Cominco became involved in exploration management of the ground, initially in a consulting role.</li> <li>• 1971/72 – Regional stream sediment sampling was completed in the northern half of the licence totalling 1380 stream and soil samples analysed for Cu, Pb &amp; Zn.</li> <li>• 1972 – 400km airborne EM survey was flown with a 320m line spacing.</li> </ul>
1972 – 1974	<p>A/EM and anomaly follow-up</p> <ul style="list-style-type: none"> <li>• 1973 – a program was designed to follow-up A/EM anomalies on the ground. Black and white 1:250,000 photography was flown over the Mt.Read Dundas trough belt from Macquarie Harbour to the Hellyer Gorge.</li> <li>• 1973/74 – detailed gridding included 11.8line-km of grid, 7.4line-km of EM and 6.8line-km of magnetics.</li> <li>• 1974 – A 7 hole diamond drilling program was completed for 1,431.85m. On the adjacent Hatfield licence trenching, access, mapping and stream sediment sampling was completed.</li> </ul>

1974 – 1975	<p>Que River discovery and delineation</p> <ul style="list-style-type: none"> <li>• 1974 - Drilling continued at the Que River prospect, 18.4line-km of grid was cut and surveyed. 2269 'A' &amp; 'C' horizon soil samples were collected and analysed for Cu, Pb &amp; Zn. Water samples were analysed for Hg, Se, Cd, Cu, Pb, Zn and Sulphate. Geophysical exploration involved 2.5line-km IP, 8line-km SP, 17line-km of magnetic, 11.5line-km VHEM.</li> <li>• 1975 – A detailed A/EM survey was flown over an area within the western portion of the Mackintosh licence and the adjoining Hatfield licence. 11 anomalies were selected for follow-up. 7.5line-km of grid was cut and mapped and 750 soil samples were collected and analysed for Cu, Pb &amp; Zn. 11.5line-km of grid cutting gave 1135 soil samples and 154 stream sediment samples all analysed for Cu, Pb &amp; Zn.</li> </ul>
1975 – 1981	<p>IP/Soil geochem./mapping</p> <ul style="list-style-type: none"> <li>• 1975 – On the Mackintosh licence 19.9line-km of gridding and 22line-km of mapping gave 1680 soil samples for Cu, Pb &amp; Zn. 42 thin sections were prepared. Gridding and mapping of the adjacent Hatfield licence gave 1190 soil samples and 3 diamond holes for 494.3m.</li> <li>• 3 mineral leases each of 100Ha were granted over the Que River area and a total of 108 diamond drill holes for 25,504.65m had been completed.</li> <li>• 1976 – Gridding in the Mackintosh district involved a further 27.25 line-km, 1630 'C' horizon soil samples, and IP surveys were conducted over 8.6line-km of grid. 2 diamond drill holes were also completed for 350.5m. By 1977 the total gridded area covered 32km<sup>2</sup>.</li> <li>• 1977 – A further 47.1line-km of grid cutting and detailed mapping was undertaken, followed up with 35.6line-km of IP geophysics and 450m of trenching. 46 samples for whole rock silicates and rare earth elements were analysed.</li> <li>• 1978 – 2 diamond drill holes for 462.4m was completed at Hatfield. Aberfoyle conducted brought the new UTEM system into Australia from Canada and conducted 9line-km of survey near Mt Charter.</li> <li>• 1979 – Detailed petrology and geochemistry was performed on 143 rock samples from the Mackintosh-Hatfield area. Stream sampling, detailed mapping, a helicopter supported DIGHEM survey and soil sampling was undertaken on Mackintosh east by the Geopeko JV.</li> <li>• 1980/81 – 32line-km of gridding, detailed mapping and 3250 'C' horizon soil samples were collected.15.7line-km of 100m spaced dipole-dipole IP was completed.</li> <li>• 1981 – 3.75line-km of grid cutting, collection of 380 'C' horizon soil samples and 12.95line-km of dipole-dipole IP. 3 drill targets with coincident soil geochemistry and IP were defined in the Mackintosh West – Hatfield area. 1 diamond drill hole was completed for 156m on the Mackintosh East licence.</li> </ul>
1982 – 1983	<p>UTEM programme/Hellyer discovery</p> <ul style="list-style-type: none"> <li>• 1982 – 3 diamond drill holes were completed for 495.7m and completed with DHEM. No significant sulphides were intersected.</li> <li>• 1983 – UTEM survey, 1.3line-km of access track was constructed, 47.3line-km of new grid was cut and 17.3 of old grid was rehabilitated. New exposure was mapped with some revision of local geology.</li> <li>• 34 conductors were revealed in 10 zones on the Mackintosh-Hatfield property and warranted immediate drilling. 3 holes were drilled with the first hole making the discovery intersection of 24.4m of 0.3% Cu, 4.4% Pb, 12.6%Zn, 157g/t Ag, and 1.9g/t Au.</li> <li>• Trenching of anomalous zones between Que River and Hellyer and Mt Charter was undertaken and 12.25line-km was cut for UTEM.</li> </ul>
1983 – 1984	<p>Hellyer delineation</p> <ul style="list-style-type: none"> <li>• 1983 – A further 4,345.5m was drilled giving 12 holes at Que River and a Hellyer was tested by 3 holes for 823.9m.</li> </ul>

	<ul style="list-style-type: none"> <li>• 1984 – A UTEM programme involving 26line-km in the south of the licences was completed and 2.1km of trenching. Color aerial photography at 1:10,000 was flown over the property.</li> <li>• At Hellyer, ore resource delineation drilling involved a further 72 holes for 19,087.3m At Mt charter 6 diamond holes were completed for 1,410.9m and completed with DHEM. The portal access road was mapped and a costean was dug.</li> </ul>
1985 - 1986	<p>Target/stratigraphic drilling phase</p> <ul style="list-style-type: none"> <li>• 1985 - At Hellyer, 3 exploration holes were completed giving 1,385.2m. A resource was calculated 1.3% Cu, 7% Pb, 13% Zn, 160g/t Ag and 2.3g/t Au. A further 6 diamond drill holes were completed for 2,550.8m and completed with DHEM. 60line-km was cut and gridded for a UTEM survey.</li> <li>• 7 exploration diamond holes were drilled in the Mackintosh area for 2,573.8m with each hole being petrologically logged and read with DHEM.</li> <li>• 3.8km of access track was constructed to the southwell area with rock chip sampling and trenching continuing.</li> <li>• On the Mackintosh East licence, JV partner Cyprus minerals undertook 25line-km of EM.</li> </ul>

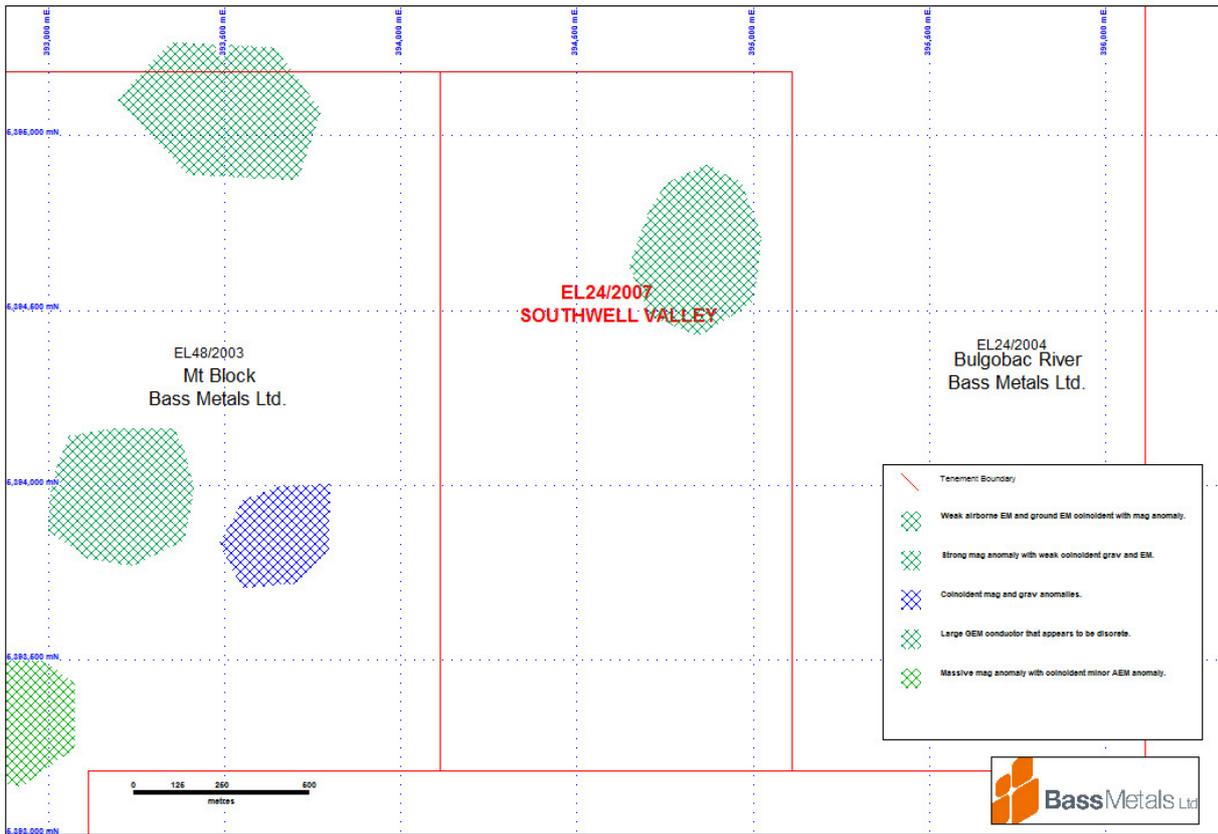
This tenement was Acquired by Bass Metals Ltd (formerly Resource Finance & Investments Limited) as part of the Hellyer package of tenements from Intec Hellyer Metals Pty Ltd in 2005. The 5 year exploration tenure of EL17/1999 held by Bass Metals Ltd expired on 30<sup>th</sup> March 2006 and was retained by previous owners due to its potential to supply limestone for use in the hydrometallurgical processing facility.

### **2.3 Exploration completed 18<sup>th</sup> November 2008 to 17<sup>th</sup> November 2009 (BSM)**

Fathom Geophysics (their principal consultant Dan Core was a Geoinformatics geophysicist) has reviewed the geophysical data over the Hellyer – Mt Charter Corridor. The goal of the geophysics was to generate drill targets and to provide recommendations for follow-up surveys. This was accomplished by examining the signature of known mineralisation in the geophysical data and locating similar signatures in the data. New information including the magnetic signature of Fossey was incorporated. This work has been done previously looking for large Hellyer size orebodies but has not been done for smaller Que River and Fossey size orebodies as has been undertaken by this study.

Targets were selected as areas of overlapping anomalies and these were rated as having a quality of high, medium or low. These rankings are just relative to each other. None of the targets are exceptionally high quality as geophysical targets go in general. None of the targets are obvious walk-up drill targets and would require at least additional modelling of the EM data prior to drilling. The targets also need to be reviewed in the context of any cultural artifacts that might affect the data.

A weak airborne EM & Ground EM coincident with a magnetic anomaly has been identified on the Southwell Valley tenement. (Figure 4. Fathom Anomaly) Recommendations looking forward would be to fly a detailed airborne EM survey using a system with a more powerful transmitter. The only airborne coverage over this area is by the Hummingbird method which would struggle to see a Hellyer-sized orebody at 100m depth.



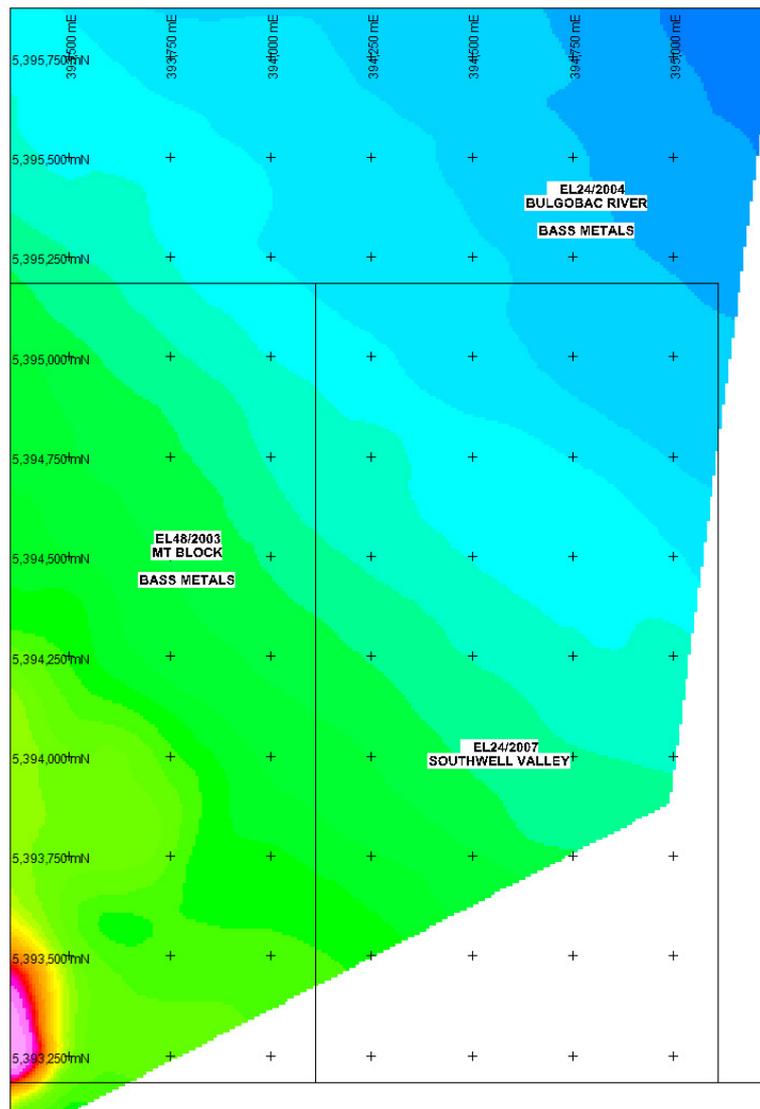
**Figure 4. Fathom Anomaly**

**2.4 Exploration completed 18<sup>th</sup> November 2009 to 18<sup>th</sup> June 2010 (BSM)**

**VTEM**

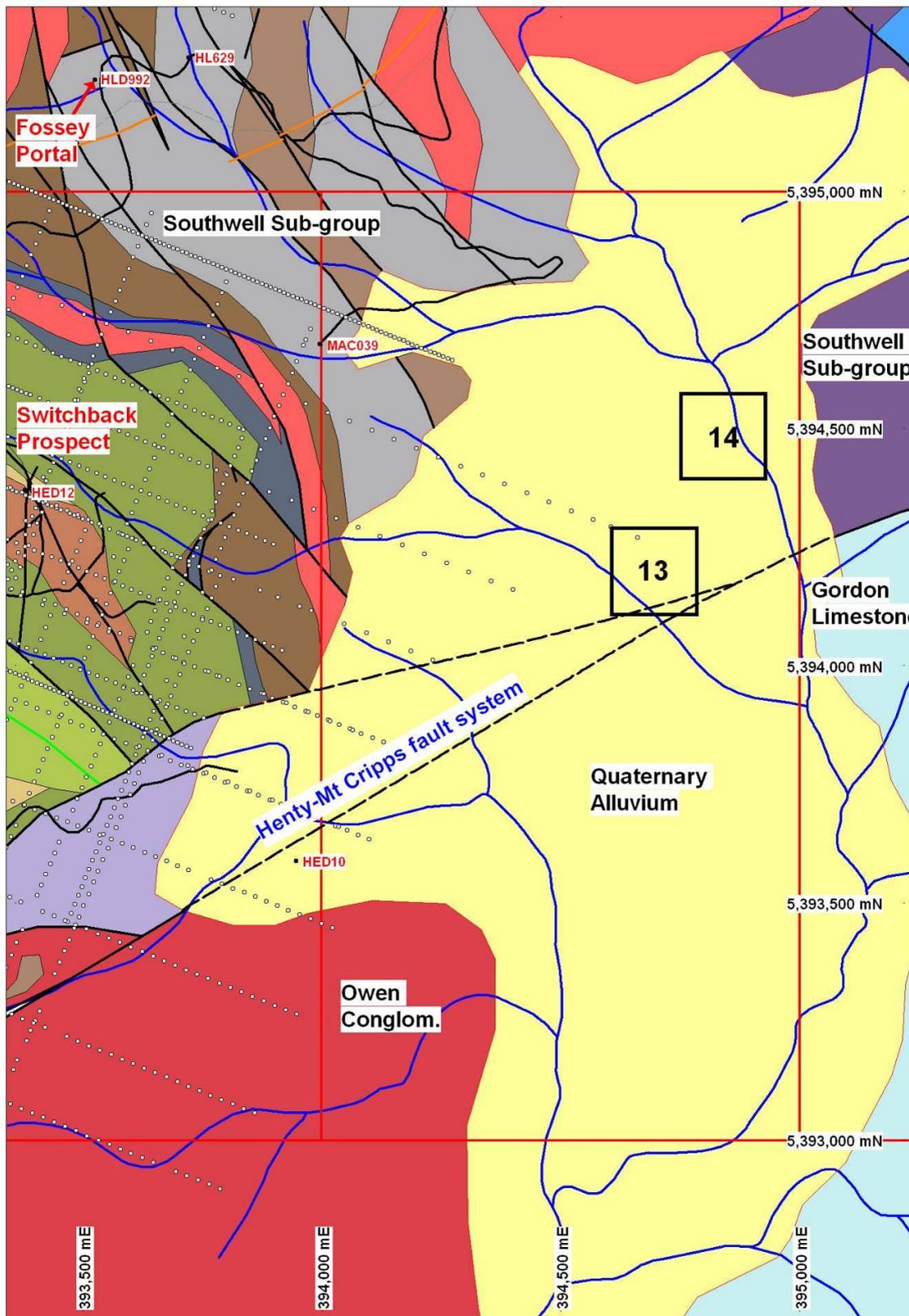
9.1 line-km were flown so as to cover the approximate area of intersection between the Easy St fault (and associated NW striking faults) and the Henty-Mt Cripps fault (this target area was the rationale for acquiring this ground). Refer to Appendix 1 for all data and report associated with the VTEM.

**Figure 5. VTEM Image displaying tenement boundary**



Two locations were analysed in detail (Figure 6) by Dr Jovan Silic but were downgraded as he interpreted them to be conductive responses associated with stratigraphy. These anomalies are located within the Quaternary alluvium and the response may be due to water saturation. The possibility of a bedrock conductor under the transported cover could be investigated given the proximity to the Henty-Mt Cripps fault. It was decided to fully relinquish this tenement due to insufficient targets identified to justify further work.

Figure 6. Geological map of the Swowell Valley EL. Anomaly points 13 and 14 are illustrated.



### **3. ENVIRONMENT**

The company has environmental policies in place that minimise the impact that exploration activities have on the environment. The policies include guidelines on how to minimise the impact on the environment during track-development and how to reduce the risk of spreading plant diseases and weeds as a result of day-to-day exploration tasks.

#### **Land Tenure**

The Southwell Exploration Licence comprises:

- Informal Reserve
- Nature Recreation Area
- State Forest

The Environmental Activity Map in Figure 7 shows the location of the licence relative to conservation areas.

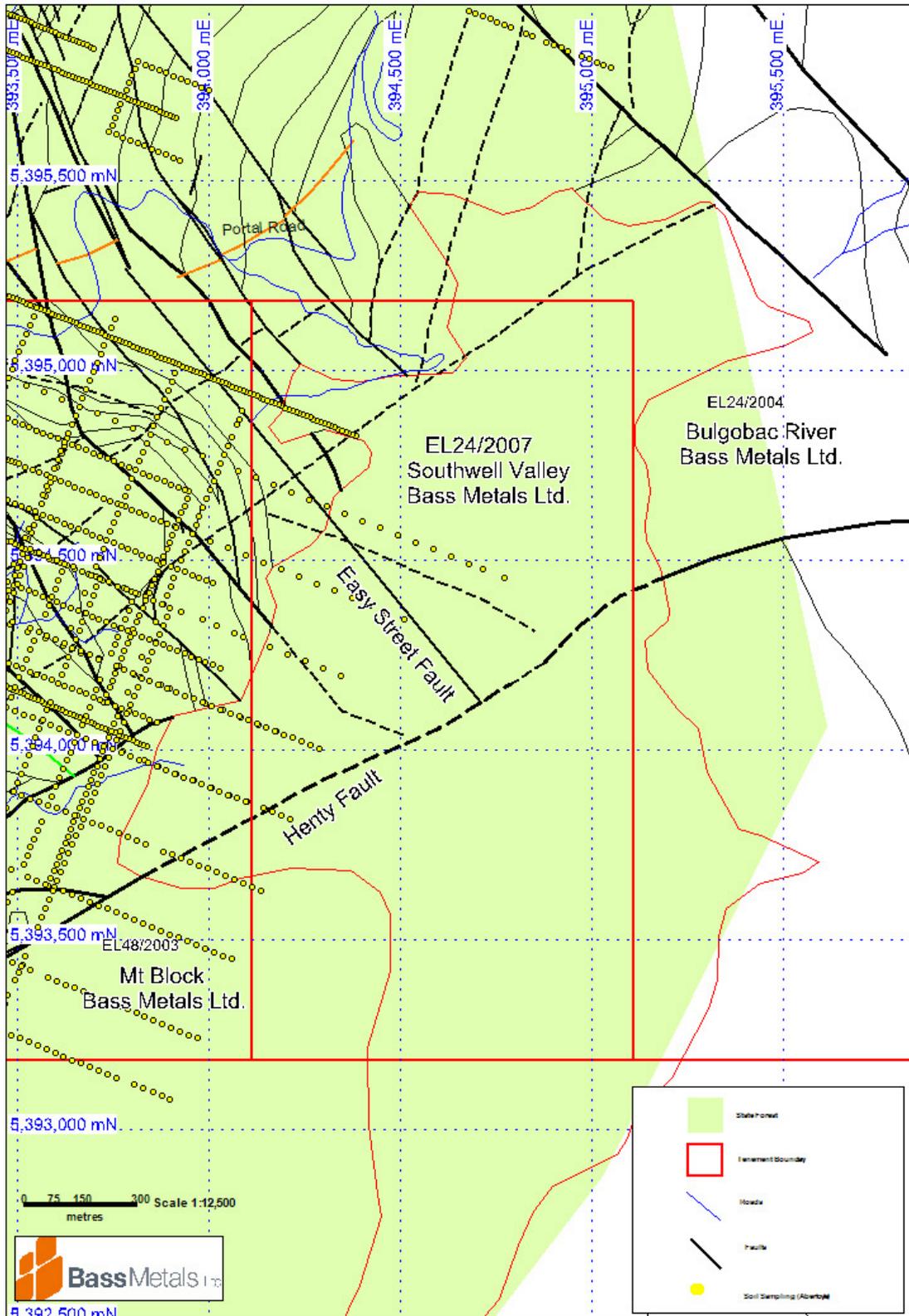


Figure 7. Environmental Activity Map displaying soil sampling grids undertaken by Aberfoyle

#### 4. EXPENDITURE

November 2009 - June 2010		
Geoscientific Costs	Geology	4,054.03
	Geochemistry	
	Geophysics	3,736.00
	Remote Sensing	
Drilling & Gridding Costs	Gridding	
	Drilling	
	Land Access Costs	
	Rehabilitation Costs	
	Feasibility Study Costs	
	Other Costs	19.96
	Admin Costs	
	<b>Total - eligible</b>	<b>\$7,809.99</b>

**Table 1. Expenditure 11th November 2009 to 18th June 2010**

\*Expenditure reported is up to and including 31<sup>st</sup> April 2010

The Southwell Valley tenement is part of the Lake Mackintosh Group. The total expenditure up to the 31<sup>st</sup> April 2010 for this group is \$2,951,675 against a required group expenditure of \$1,523,016

**APPENDIX 1**  
**VTEM REPORT & DATA**