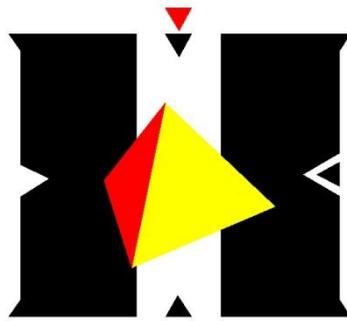


# EXPLORATION LICENCE 19/2010

## Lode Creek (Queensberry Mine), Tasmania

### FIRST ANNUAL PROGRESS REPORT

for the period between 9 November 2010 and 8 November 2011



Australian Hualong Pty Ltd

**Author:** Joe Xie

**Signed:** 

**Date:** Dec. 2012

**Distribution:** Australian Hualong Pty Ltd  
Mineral Resources Tasmania

*Co-ordinate system used in maps and diagrams within this report is MGA55 (GDA94), unless otherwise specified.*

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### **Abstract**

Exploration targets in the area are for both Devonian Pb-Zn vein style mineralisation of the type in the region and Cambrian Rosebery or Hellyer type, Zn-Pb-Cu-Au-rich VHMS mineralisation hosted by the Mount Read Volcanics (MRV).

The area of EL19/2010 is centred at historical Queensberry Mine, with limited but high grade Pb-Ag ore produced between 1891 and 1924. Objective of Australian Hualong's exploration is to assess extent of known mineralisation and potential mineralisation within Mt Read Volcanics with the tenement area.

Work carried out during first year of tenure has included previous exploration review, geological reconnaissance to locate old workings and ground EM geophysics (EH4) survey.

Two-line EH4 survey was conducted in order to assess Mt Read Volcanics and test extension of known mineralisation at Queensberry Mine. A total of six conductive anomaly zones were identified over these two survey lines. Further drilling test is recommended.

Expenditure for Year One of exploration is A\$76,476.

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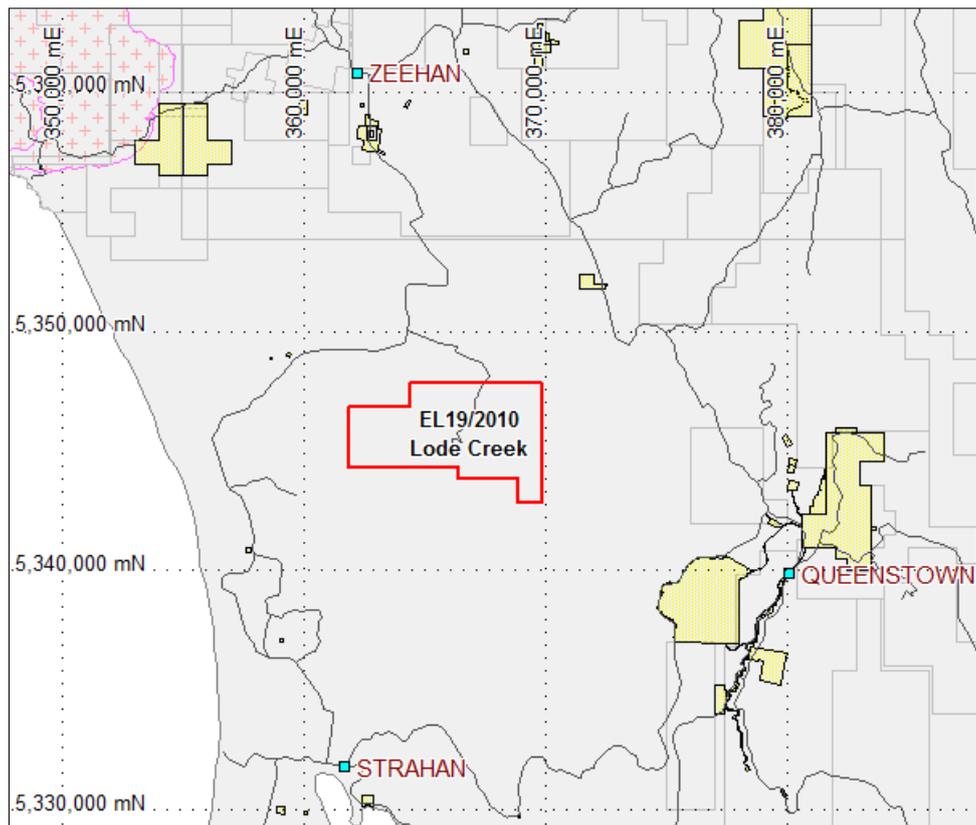
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# 1. Introduction

EL19/2010, Lode Creek, is located about 15km NW of Queenstown and also 15km SES of Zeehan, on the west coast of Tasmania (Figure 1). Historical Queensberry mine is located within this tenement. This tenement is found within Professor 1:25,000 map sheet, with an area of 28 sq. kms.



**Fig 1:** EL19/2010 Lode Creek, locality plan

Australian Hualong's main targets in EL19/2010 are Devonian Pb-Zn vein style mineralisation and Cambrian Rosebery or Hellyer type, Zn-Pb-Cu-Au-rich VHMS mineralisation hosted by the Mount Read Volcanics (MRV).

## 1.1 Attribution

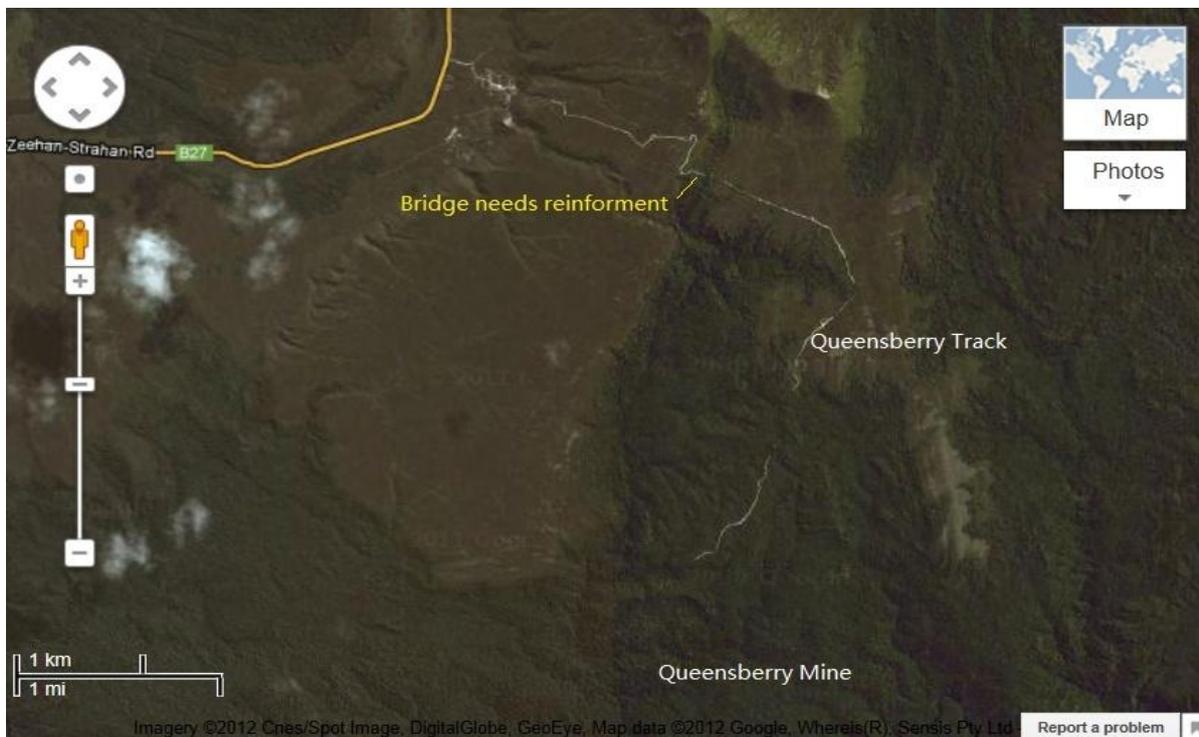
The following Yunnan Tin Group people were responsible for the work carried out with the Lode Creek tenement during the reporting period:

- Senior Geologist      Mr. Shen Silian
- Geologist              Mr. Yang Jun
- Senior Geologist      Mr. Chen Xinshou

- Senior Geologist      Mr. Jack Ma
- Graduate Geologist   Mr. Hu Mingjie
- Graduate Geologist   Mr. Zhou Ying
- Technician             Mr. Li Yue
- Interpreter              Mr. Tao Ruguang

## 1.2 Access

The only access to the tenement is approximate 9km Queensberry Track from Zeehan-Strahan Rd turn-off to Queensberry Mine site. The track was in fair condition which provided 4WD access for 2011 field work season. But fallen trees blocked a section of the track close to Queensberry Mine site in early 2012.



**Fig 2:** Access to Queensberry Mine site

## 1.3 Land Use

The land in EL 19/2010 area is within the Mt Dundas Regional Reserve and is available for mineral exploration under the Mineral Resources Development Act 1995.

## 2. Tenement Details

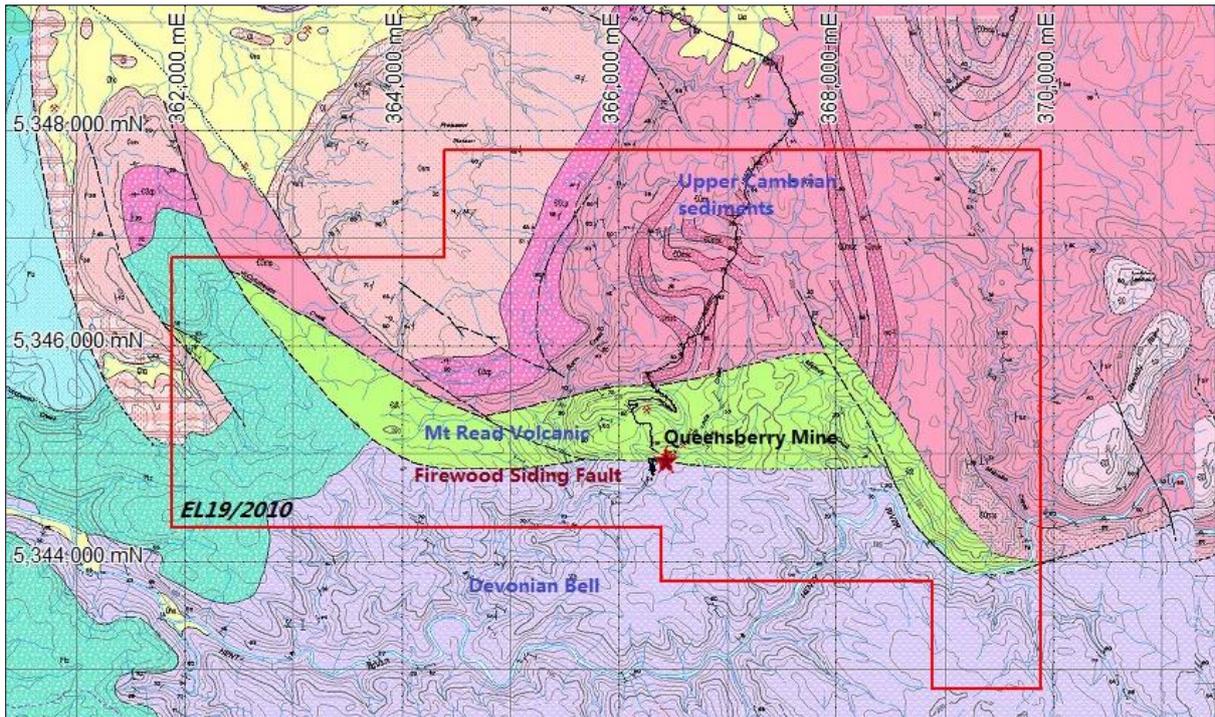
Exploration Release Area 798 was offered for tender by the Tasmanian Department of Mines, following relinquishment of EL04/2007 held by McDermott Mining. Australian Hualong Pty Ltd was successful in the subsequent tender process. The title was granted as EL19/2010 on 9th November 2010 for a period of five years.

## 3. Geology

Regions geology for EL19/2010 Lode Creek has been covered by the MRT's Strahan 1:50k Geological Sheet and explanatory notes (Baillie et al 1977 and 1985). Brown et al. (1995) and Selley et al. (1997) described and discussed regional correlations.

The geology of EL19/2010 Lode Creek is dominated by a major regional fault system, the Firewood Siding Fault (FSF). The FSF extends some 35 km from Queenstown to near Trial Harbour on the west coast. It has a general E-W to NNW trend and is offset by several NW to NNE faults, including the South Henty Fault. Stratigraphic and structural relationships indicate the FSF has had a prolonged history, with evidence of movements (McNeil 2002):

- Later than Jurassic, juxtaposing Permian sediments and Jurassic dolerite against Ordovician to Devonian sediments to the west of EL 11/2001 (Blissett and Guilline, 1962).
- In the Devonian, as indicated by the development of F3 structures adjacent to the FSF. Devonian movement on the FSF appears to be sinistral (Baillie and Williams, 1975; Selley and Meffre, 1997)
- In the Late Cambrian based thickness variations in Denison Group correlates to the north of the fault (Baillie, et al., 1985) and the effect of the fault on interpreted Cambrian folds (Selley and Meffre, 1997). Selley and Meffre (ibid) conclude that there is no structural or stratigraphic evidence that the FSF was active in the Middle Cambrian i.e., time of VHMS formation. However, the localisation, near Pearl Creek to the east of EL 11/2001, of "Middle Cambrian mafic volcanic units along the present trace of the FSF may provide evidence of an ancient syn-magmatic fracture system" (Selley and Meffre, 1997).



**Fig. 3:** Geology of Lode Creek area (1:25k MRT base geology)

The geology of EL 11/2001 can be subdivided into 3 lithological domains (McNeil 2002):

1. Correlates of the Devonian Bell, interbedded quartz sandstone and mudstones south of the Firewood Siding Fault.
2. A ~2.7 sq km fault bounded block of Mount Read Volcanic (Tyndall Group) correlates in the Firewood Siding Fault system.
3. A marine sedimentary sequence north of the Firewood Siding Fault, with fossils of Upper Cambrian age, which is correlated with the Denison Group.

Of these three, domain 2 is considered VHMS prospective. Lithologies from domain 2 have been described in some detail by Baillie et al (1985) and include siltstone, slate, lithicwacke (with a minor volcanogenic component) and volcanoclastics. The volcanoclastics are feldspar-quartz-phyric crystal-rich sandstones, shard-rich ashy siltstones and lesser coarse sandstones, with a volcanolithic component. Poor outcrop and complex structure have prevented the location or tracing of any marker horizons (Baillie et al., 1985).

## 4. Mineralization

McNeill & Skirka (2006) summarised the mineralisation in the area as below:

Known economic mineralisation on the tenement area is restricted to the Queensberry Mine, discovered in 1891 and worked prior to 1924, producing approximately 767t of Pb-Ag ore. More recently drilling (8 shallow holes) and surface sampling (Lennox, 1970) allowed the calculation of an 'inferred resource' of 28,300t @ 0.32% Cu, 11.53% Pb, 8.76% Zn and 52 g/t Ag (Green in Baillie et al., 1985). Only two Au assays of the ore are available and are in the range 0.2-0.3 g/t Au (Mathison, 1988). The geology of the Queensberry mine has been described in detail by Reid (1927), Forsythe (1968a), Lennox (1970) and Green (in Baillie et al., 1985). The deposit comprises 4 lodes (a fifth was known during initial mining but, has not been relocated in recent times) most of which have a northerly strike and west dip. Mineralogically the lodes comprise pyrite, arsenopyrite, sphalerite, chalcopyrite, galena, tetrahedrite and bournonite in a quartz-siderite gangue. Green (in Baillie et al., 1985) considered the mineralogy, coarse grain size, textures and paragenetic sequence of minerals was very similar to that of the Zeehan mineral field and concluded that the Queensberry Mine was a Devonian fissure fill deposit.

## 5. Review on Previous Exploration

The area of EL19/2010 has a prolonged mining history for base metals with the area of the Queensberry Mine held under a series of ML's from 1896 until 1994 (ML 27M/83) with the mining leases enclosed by a series of Special Prospectors Licences (McNeill 2002). Modern exploration commenced in the 1960's and is summarised in Table 1

**Table 1:** Previous Exploration in the area of EL19/2010 Lode Creek (after McNeill 2002)

Reporting Period /Tenement	Work Completed
1968 ML 11/12M66 SPL 25 (Forsythe, 1968a,b)	Queensberry Mine: 7 km of line cutting, mapping, rock-chip, soil and stream sediment sampling was completed. An intense Pb-Zn anomaly west of lodes creek was the main target worthy of follow-up. Regional: establishment of access tracks, reconnaissance mapping, rock-chip and stream sediment sampling. Further work recommended.
1970 ML 11/12M66 SPL 62 (Lennox, 1970)	Detailed investigations of the Queensberry Mine area: Approximately 3300m of trenching and side-cutting over areas of interest, detailed mapping and soil geochemistry and 8 DDH (640.1m total). Initial metallurgical test work was also completed.
1981-1982 ML 11/12M66 (Bendall, 1982)	Mapping and relocating old workings and drill holes; estimation of a resource.
1983-1984 EL 4/78 (Jones, 1984)	Regional stream sediment sampling located a significant anomaly on Malcolm Creek. Airborne magnetic anomalies were followed-up.
1985-1986 EL 10/85 (Bendall, 1986)	Regional scale mapping and track cutting for access; no further outcrops of Cambrian volcanoclastics located.
1987 EL 10/85 (Leaman, 1987)	Reviewed available regional geophysical datasets (magnetics and gravity) and concluded that the mineralisation has a subtle geophysical signature much larger than the known mineralisation. Concluded that prospective corridor within 1500m of FSF. Indicated magnetic anomalies A and B (Amoco's anomalies I and F/G) warranted some ground checking.
1987-1988 EL 4/78 (Mathison, 1988)	Review previous data and field visit to collect samples for Au analysis – best result 0.058 g/t from a dump sample near the main shaft. No further work recommended.
1989-1990 EL 34/88 (Anon, 1990)	An orientation gradient array IP survey was completed over a 300x200m area at Queensberry; results not reported in any detail.
1990-1998 EL 34/88 Kratochvil (1991)	No Field work. Kratochvil (1991) recommended stream sediment and other geochemical sampling at Queensberry to locate 'leakage' on major faults, but, this was not done as exploration rapidly focussed on the Gordon Limestone.
2001-2005 EL11/01 (McNeill & Skirka, 2006)	Pb-isotope analysis indicates that the Pb in the known mineralisation at Queensberry Mine has the target Cambrian (Rosebery) signature. Work included gridding (15.5 line km), surveying the grid with GPS, geological mapping, partial leach soil sampling (653 samples) and rock chip sampling (22 samples analysed). No significant results were produced.
2007-2009 EL4/07 (McDermott, 2009)	Rock chip sampling and an aeromagnetic survey were reported, however, no survey data were provided. Images of airborne geophysical surveys were included in the report. Two areas of interest were identified: along strike of the mineralisation and the other located outside western boundary of EL4/07.

## 6. Work Completed During First Year of Exploration

Work carried out during first year of tenure has included previous exploration review, geological excursions to locate old workings and ground EM geophysics (EH4) survey.

Field work was conducted during late 2010 and early 2011 of West Coast dry season. All work has concentrated over historical Queensberry Mine.

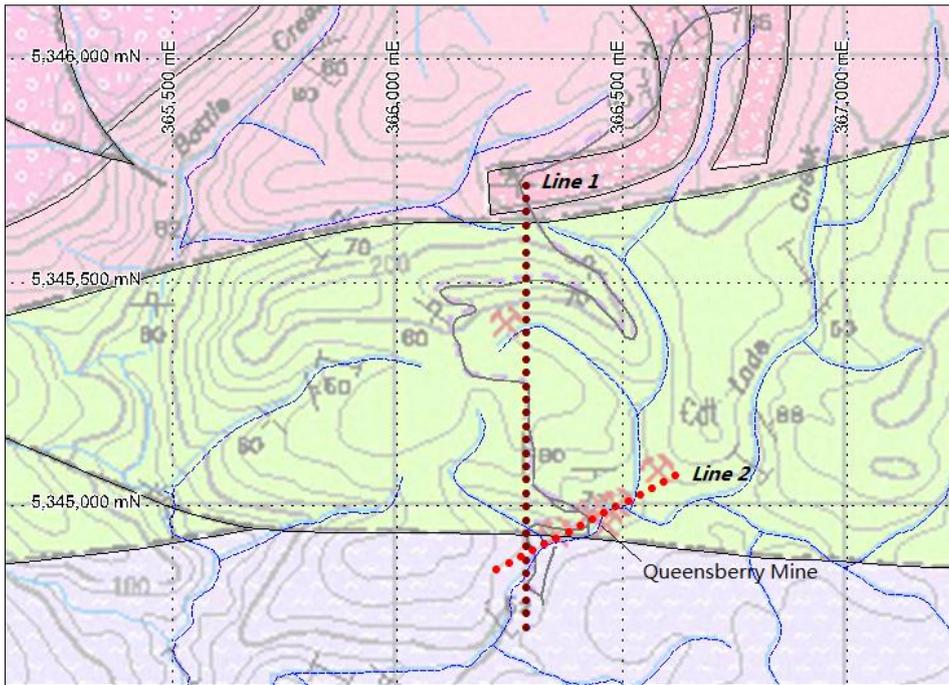
### 6.1 EH4 Geophysical Survey

The Stratagem EH4 system (Geometrics Stratagem model) uses the magnetotelluric method (MT) to measure subsurface conductivity. It provides additional high frequency signals in the range of 1kHz to 70kHz, where natural signals may be lacking. Frequencies as high as 100kHz or as low as 0.1Hz can also be used depending on the desired depth of investigation.

A total of 2 EH4 lines were completed as shown in Fig. 4. All EH4 survey station coordinates as well as resistivity reading data for survey Lines 1 and 2 are listed in Appendix 1. A team of six geophysicists and field technicians conducted the survey. Survey lines are marked by handheld GPS devices.

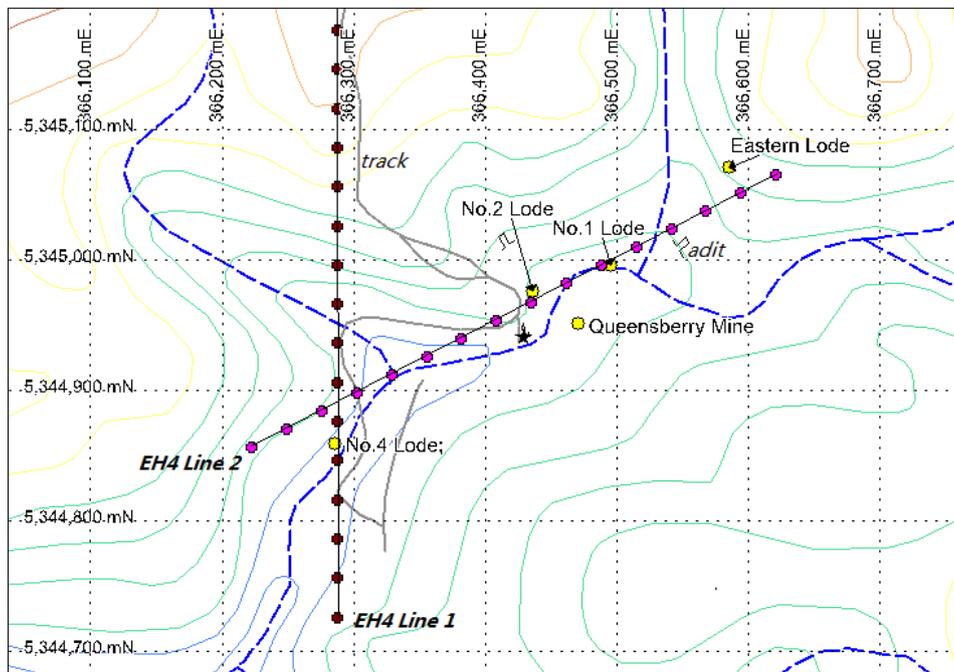
**Table 2.** Parameters of EH4 Survey Lines

Line No.	Start		End		Length (m)	Station Spacing-m	No. of Stations
	Easting	Northing	Easting	Northing			
1	366400	5345900	366400	5344910	992	30	34
2	366335	5345040	366733	5345249	450	30	16



**Fig. 4:** EH4 ground geophysics survey stations within EL19/2010

Survey Line 1 was designed to get a complete profile across Cambrian Mt Read Volcanics. It also traverses two known mineral occurrences with Lode 4 of Queensberry mine towards southern end of the line (refer also to Fig. 5), and Queensberry North prospect in the northern part of the line. Line 2 focuses on Queensberry Mine, covering all mineralised lodes.

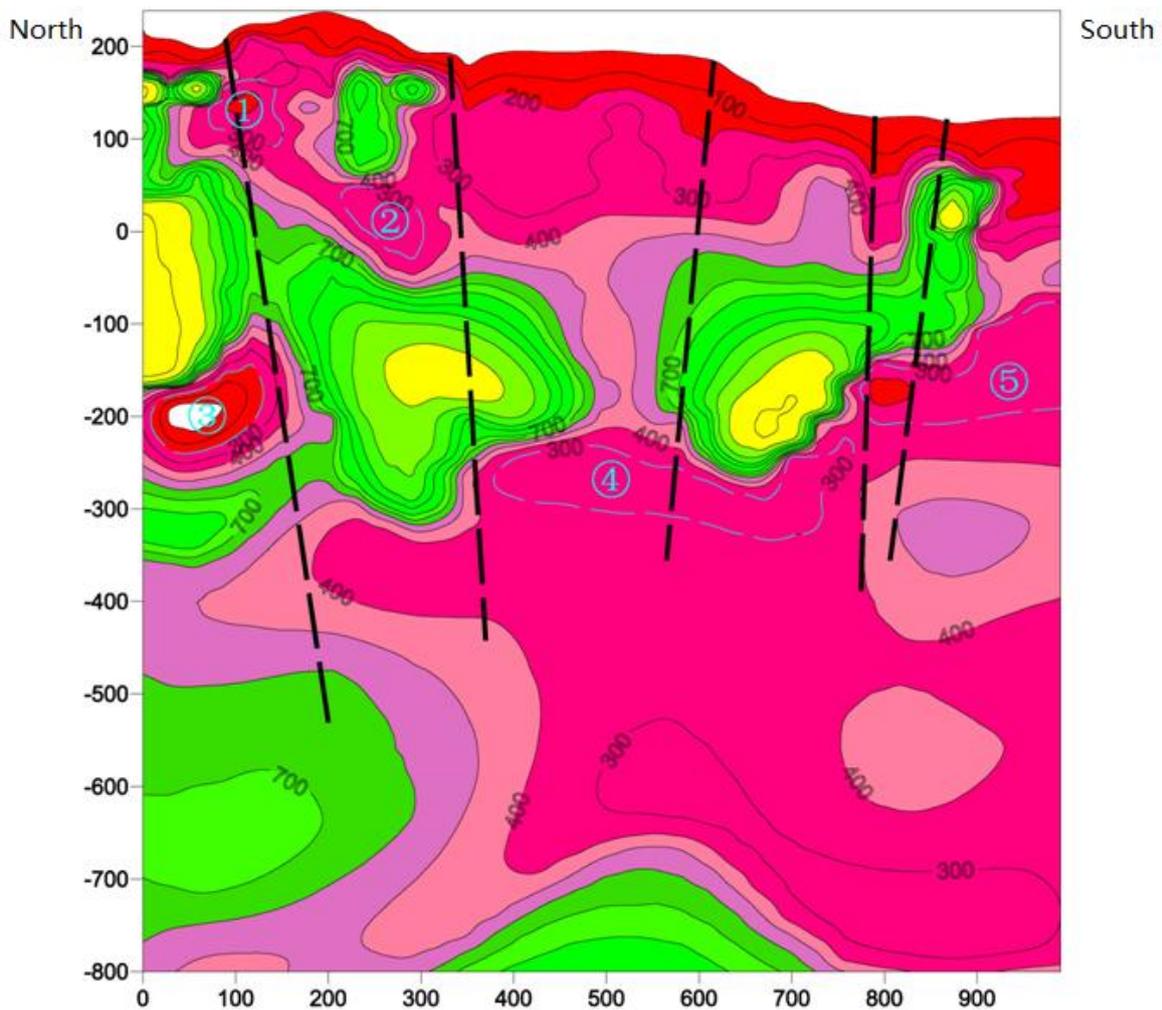


**Fig. 5:** EH4 survey lines around Queensberry lodes

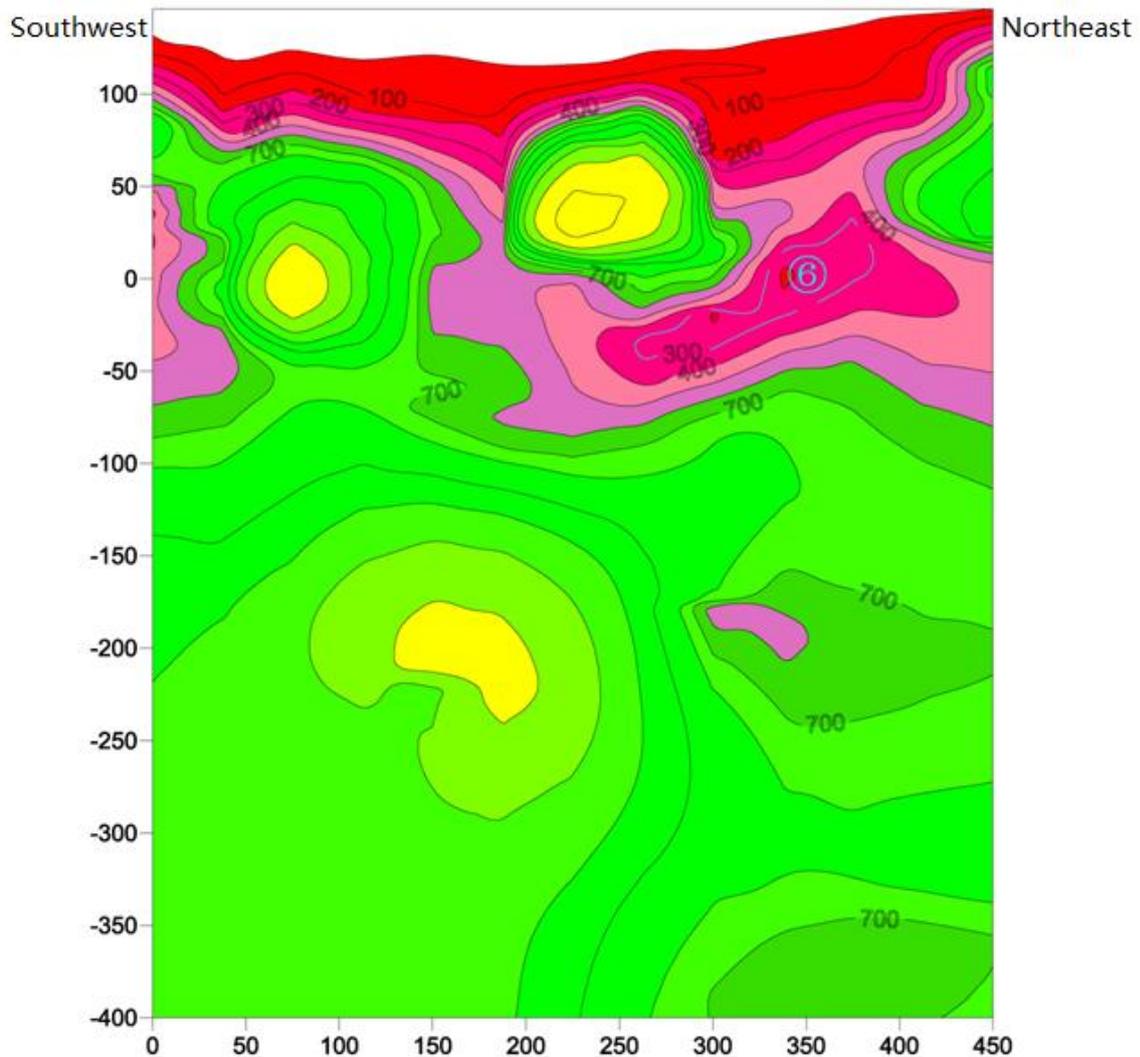
## 6.2 Results and Discussion

Interpretation of EH4 survey results (resistivity profiles below) has identified five anomaly zones on Line 1 and one zone on Line 2. These anomaly zones are numbered accordingly in resistivity profiles below.

All anomaly zones are low resistivity features and their geometries suggest flat-lying strata-bound bodies. Considering all these features are within Tyndall Group of Mt Read Volcanics, further test work is warranted to assess the potential for discovery of Rosebery type of mineralisation.



**Fig. 6:** Line 1 - EH4 resistivity profile and interpreted anomalies



**Fig. 7:** Line 2 - EH4 resistivity profile and interpreted anomalies

## 7. Work Planning for Year 2

A four diamond drilling program has been planned in Year 2 of the tenure, to following up EH4 geophysical geological targets and known mineralisation around Queensberry Mine. Other works planned include surface geological mapping and geochemistry.

**Table 3:** Planned Exploration for Year Two

Item	Details	Expenditure (\$)
Geological mapping and geochemistry	Niton soil and rock survey around Queensberry Mine and western part of the tenement area	10,000
Diamond drilling	Four diamond holes are planned for approximate a total of 1000m of drilling (incl. access cost).	300,000
<b>Total</b>		<b>A\$310,000</b>

## 8. Environment

Australian Hualong Pty Ltd has environmental policies in place to always ensure minimisation of the impact that exploration activities have on the environment. All vehicular travel within the tenement has been on the existing tracks.

## 9. Expenditure Statement

Expenditure for the period 9/11/2010 to 8/11/2011:

<b>Expenditure</b>	<b>\$</b>
Geology	11,373
Geochemistry	
Geophysics	53,965
Remote Sensing	
Gridding	
Drilling	
Land Access Costs	4,185
Rehabilitation Costs	
Feasibility Study Cost	
Other Cost	
Administration Cost	6,959
<b>TOTAL</b>	<b>\$76,476</b>

**Table 4:** EL19/2010 Expenditure for the first year of tenure

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