

## **Appendix 4**

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**Ochre Australia, 2003  
Investigation of geophysical and image data over the  
Zeehan field. Unpublished Report.**

# EARTHSEARCH

Confidential between you as a representative of ZZ and  
Ochre Australia Pty. Ltd. (TA EarthSearch)

## GIS

spatial data  
analysis

geological  
consulting

image  
processing

interactive  
maps

## Introduction

The following is a summary of findings resulting from a preliminary investigation of 20/2002, 30/2002 and 18/2002. *This investigation is regarded as cursory only* and is the first of four phases of investigation of geophysical and image data as well as company and map data.

The aim of this investigation was to highlight areas likely to be of greater importance for future exploration thus allowing the prioritization of ground held under license and facilitate decisions regarding future relinquishments. This investigation thus highlights only broad-scale features within selective data sets.

### Data used in this investigation included:

2000 WTRMP geophysical data including 200m line spacing (E-W flight lines) magnetic, radiometric and electromagnetic (EM) data. Radiometric and magnetic data cover all of the EL's of interest. EM data do not cover about 35% of the SE portion of EL20/2002.

Composite gravity data provided by MRT in a grid format. These data have been compiled from public and company data over time. The location of some ground stations is subject to confidentiality and has not been released by the Tasmanian Government. In general, the gravity data over this area of interest can be considered good.

1:25,000 geological maps from Mineral Resources Tasmanian were used to assess trends observed in image and geophysical data. Geological data are published as the 1:50,000 Zeehan map sheet.

MIRLOCH Mineral location data were used to assess the recorded location of known mineralization with linear and point features observed in image and geophysical data.

Topographic maps published by the Dept. Primary Industries, Water & Environment were used to check features observed in image and geophysical data with mapped cultural features such as roads, settlements, and industrial infrastructure.

Geological maps from selected TCR reports were used to check detailed geological mapping against features observed in image and geophysical data. Reports were downloaded from Mineral Resources Tasmania.

## Error and uncertainty

Geophysical and image data provided by the government are well located to within an estimated 100m of their true location. Georeferenced geological maps showed measurements in error of less than 100m compared with the same features provided in digital format by the Tasmanian Government. Mirloch data are of variable accuracy with errors of location exceeding 1km in rare instances. Most mineral occurrences are likely within 250m of their true location.

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## Processing

Target concepts were detailed by Paul Heath via facsimile (fax 1-12-2003) are shown below, together with interpreted features useful for targeting such deposits (using the data at hand).

Granite-related sediment-hosted Zn-Pb-Ag deposits	Linears Magnetic features on linears Conductive zones adjacent to linears Oonah Formation
Granite-related Ni-enrichment	UMC contacts Linears intersecting contacts Point magnetic features on or near linears (at surface or at depth)
Carbonate-hosted Pb-Zn-Ag	Linears intersecting carbonate-bearing sequences including correlates of the Gordon Group

Conceptual targets consistently related to linear geological features in plan and included stratigraphic contacts, faults or the surface trace of deformed stratigraphic packages.

Image data were processed to show linear features of any orientation without bias. This was done by highlighting the data using a noon sun angle thus highlight variations in image gradient without emphasizing a particular structural orientation.

Image data were combined into a GIS and linears drawn for each processed image. There is a higher confidence in linears that appear in more than one dataset. Areas of interest were also highlighted and included magnetic and radiometric features not easily explained using geological or topographic maps.

## Summary findings

The Zeehan mineral field lies at the intersection of a number of major structures trending broadly NW and NE, and to a lesser extent E.

Mineralisation coincides with radiometric anomalism in Oonah Formation rocks, although this might also in part be due to variation in vegetation and topography.

There is a belt of mineralization extending from just NW of Comstock towards Oceana that is characterized by SE-trending linears and a similarly trending conductive belt. Second order NE-trending linears also seem to have some correlation with the clustering of mineral deposits in the Comstock area (and SE).

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Oceana appears to lie at the southern end of a major NNW-trending structural corridor. Structures of similar orientation and magnitude extend from the SE corner of EL 20/2002. The ground between these linear belts coincides with thin-skinned thrusting at surface and it may be that the area around and to the east of Oceana represents a zone of transpression.

The highly magnetic Avebury deposit lies adjacent to an ENE-trending feature near the intersection with NW-trending linears. There do not appear to be any similar features within the area of interest of this investigation.

Areas for future investigation and that should be considered for priority are shown in red on the adjacent images. There are two broad regions:

- 1) The belt extending SE from and including Comstock down to and including Oceana, and including adjacent NE and N-trending linears. This belt also includes discrete magnetic features worthy of follow up.
- 2) A NE-trending belt extending from the southern parts of EL20/2002 and including the intersection of linear features with correlates of the Gordon Group.

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# Location & Licence Boundaries

## Legend

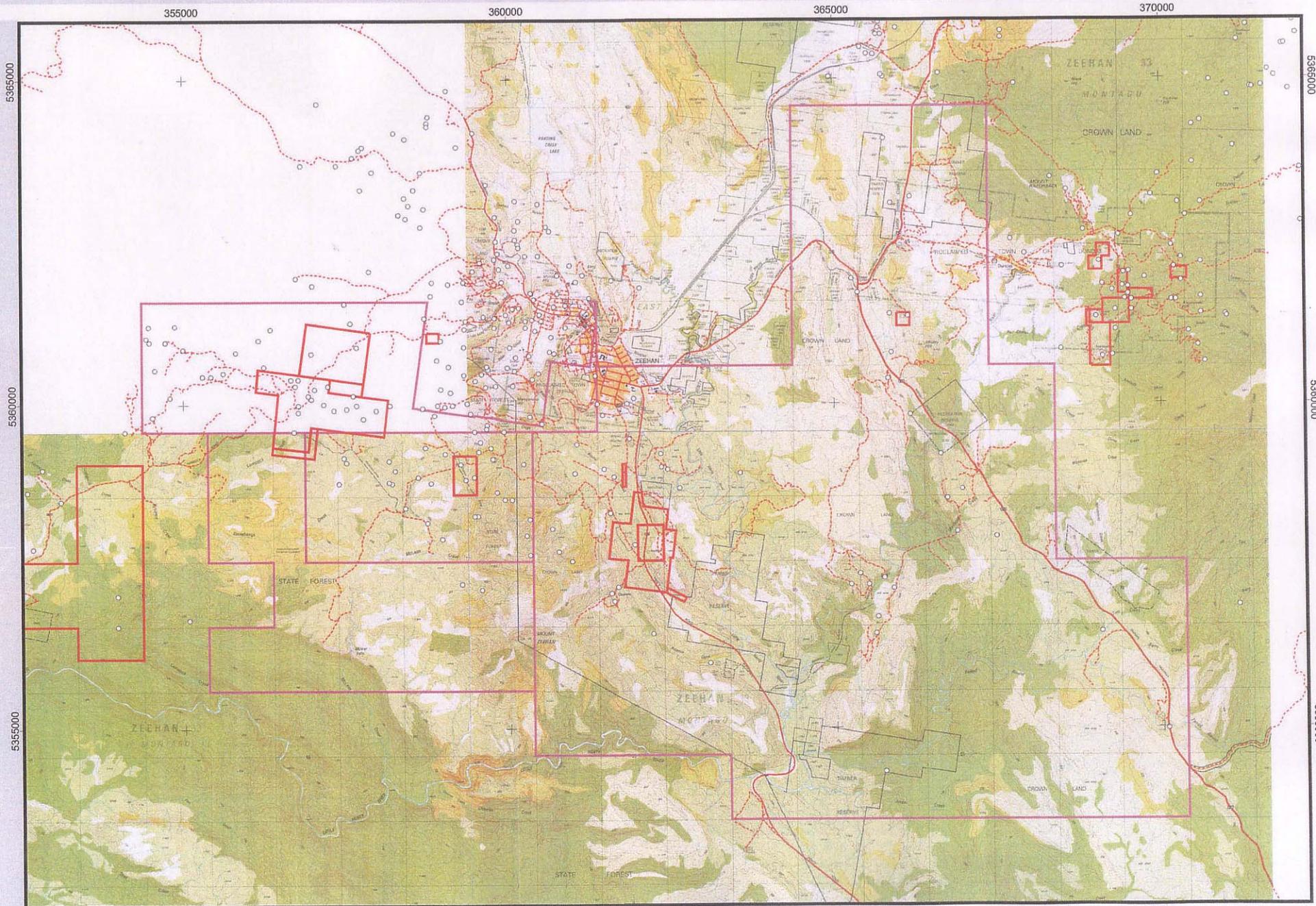
MIRLOCH mineral locations (All deposits except placer and VHMS)



ZZ EL's



ML's



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# Interpretation

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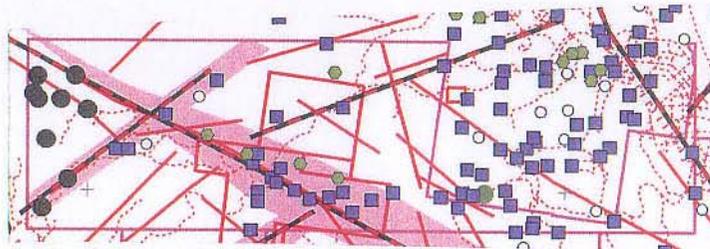
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## Legend

- MIRLOCH mineral locations (All deposits) ○
- Mirloch Fe ●
- Mirloch Ni ●
- Mirloch Ag, Zn, Pb ■
- Mirloch Cu ▲
- Identified linear —
- Priority linear —
- Priority target areas ■
- ZZ EL's □
- ML's □



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# 1VD WTRMP Aeromagnetics

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## Legend

High gradient



Low gradient

MIRLOCH mineral locations (All deposits)



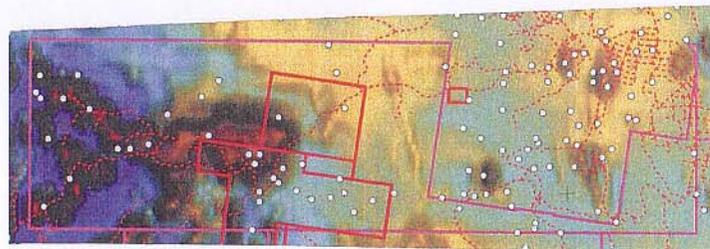
ZZ EL's



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# WTRMP Aeromagnetics - Total Magnetic Intensity

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## Legend

High TMI



Low TMI

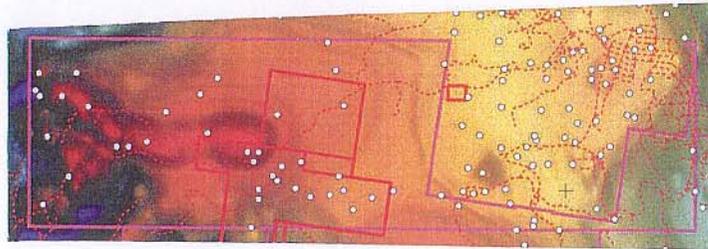
MIRLOCH mineral locations (All deposits)



ZZ EL's



ML's



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# WTRMP Radiometrics

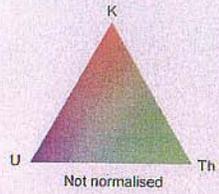
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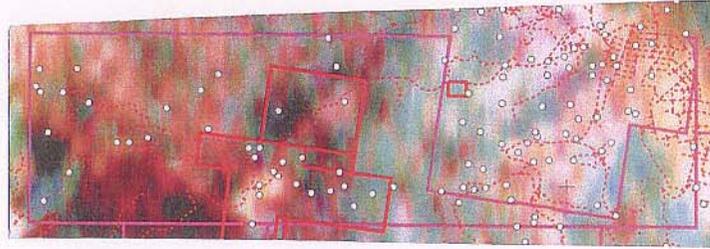
## Legend



MIRLOCH mineral locations (All deposits)

ZZ EL's

ML's



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# WTRMP Radiometrics - K

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## Legend

High K



Low K

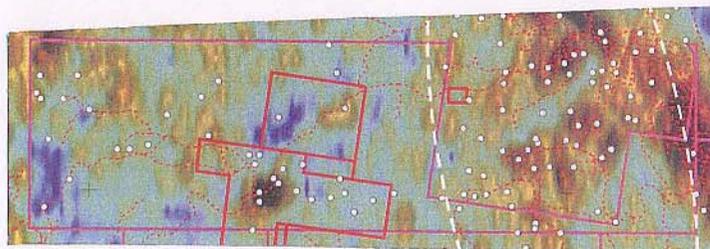
MIRLOCH mineral locations (All deposits)



ZZ EL's



ML's



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# EM Resistivity (Log\_cp880)

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## Legend

Resistive



Conductive

MIRLOCH mineral locations (All deposits)

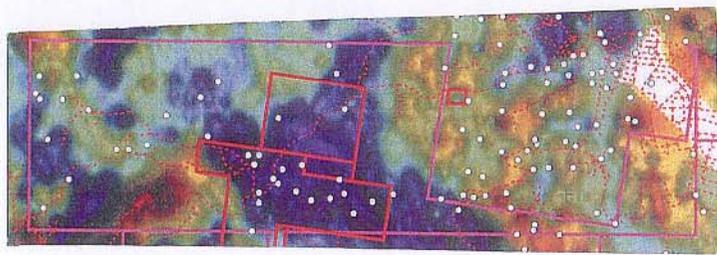
ZZ EL's



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