

ANNUAL REPORT  
FOR  
EXPLORATION LICENCE 22895,  
HUANDOT WEST, N.T.

24 APRIL 2002 TO 23 APRIL 2003

by

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## SUMMARY

EL22895 is located 2.5 kilometres SSW from the now defunct Woodcutters lead-zinc-silver open pit. The northern boundary of EL22895 borders the mine perimeter fence. The Huandot pit, the result of a 20000 tonne bulk magnesite sample extracted in the mid to late nineties, lies 100 metres east of the eastern boundary. The Huandot resource currently stands at 5M tonnes and is expected to increase with further drilling.

Magnetite is outcropping in the northern section of EL22895 and would require drilling to fully test the grade. The depth extent of the magnesite is believed to be at least 100 metres.

Base metals may occur within EL22895. The proximity to Woodcutters, the presence of a NNE trending anticline and the favourable Whites Formation-Coomalie Dolomite boundary encourage base metal exploration.

Gold deposits of the Sundance style may be concealed within the Coomalie Dolomite.

EL22895 was explored in the 2002-03 season with ground magnetics, Sirotem electromagnetics and radiometrics. A coincident magnetic and electromagnetic target has been identified at approximately 727750mE, 8561860mN (ADG84). The estimated depth to target is 70 metres.

Plans for the 2003-04 season include further Sirotem surveying at a higher resolution, EM-34 frequency domain electromagnetic surveying, a regional air photo interpretation and possible gravity surveying.

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# 1.0 INTRODUCTION

## 1.1 TITLES

Exploration Licence 22895 of 0.645 square kilometres was granted on 24 April 2002 for a period of six years.

EL22895 is a 300 metre by 2000 metre lease bounded by the four points shown in Table 1. It lies 1.5 kilometres west of the Stuart Highway and is accessed by turning north from the Batchelor Road via the entrance to Exotic Timbers of Australia Ltd.'s plantation. A key is available from ETA to unlock the gate across the Coomalie Creek. The freehold land owner is Savvas John Christodoulou who is often at his residence on the south side of Batchelor Road during the weekends. During the week he works at Savvas Motors, Daly Street, Darwin.

TABLE 1.1 EL22895 BOUNDARY POINTS

Corner Point	Latitude GDA94	Longitude GDA94
North west	12°59'50"	131°05'54"
North east	12°59'50"	131°06'05"
South east	13°00'55"	131°06'05"
South west	13°00'55"	131°05'54"

Figure 1 shows the location of EL22895 relative to the Pine Creek 1:250000 scale map sheet.

## 1.2 NEIGHBOURING EXPLORATION ACTIVITY

EL128 adjoins the eastern boundary of EL22895. Magnesium Developments Limited hold EL128 and mineral claim MC4493 which covers the Huandot magnesite deposit. Further drilling is planned in order to extend their current resource of 5M tonnes.

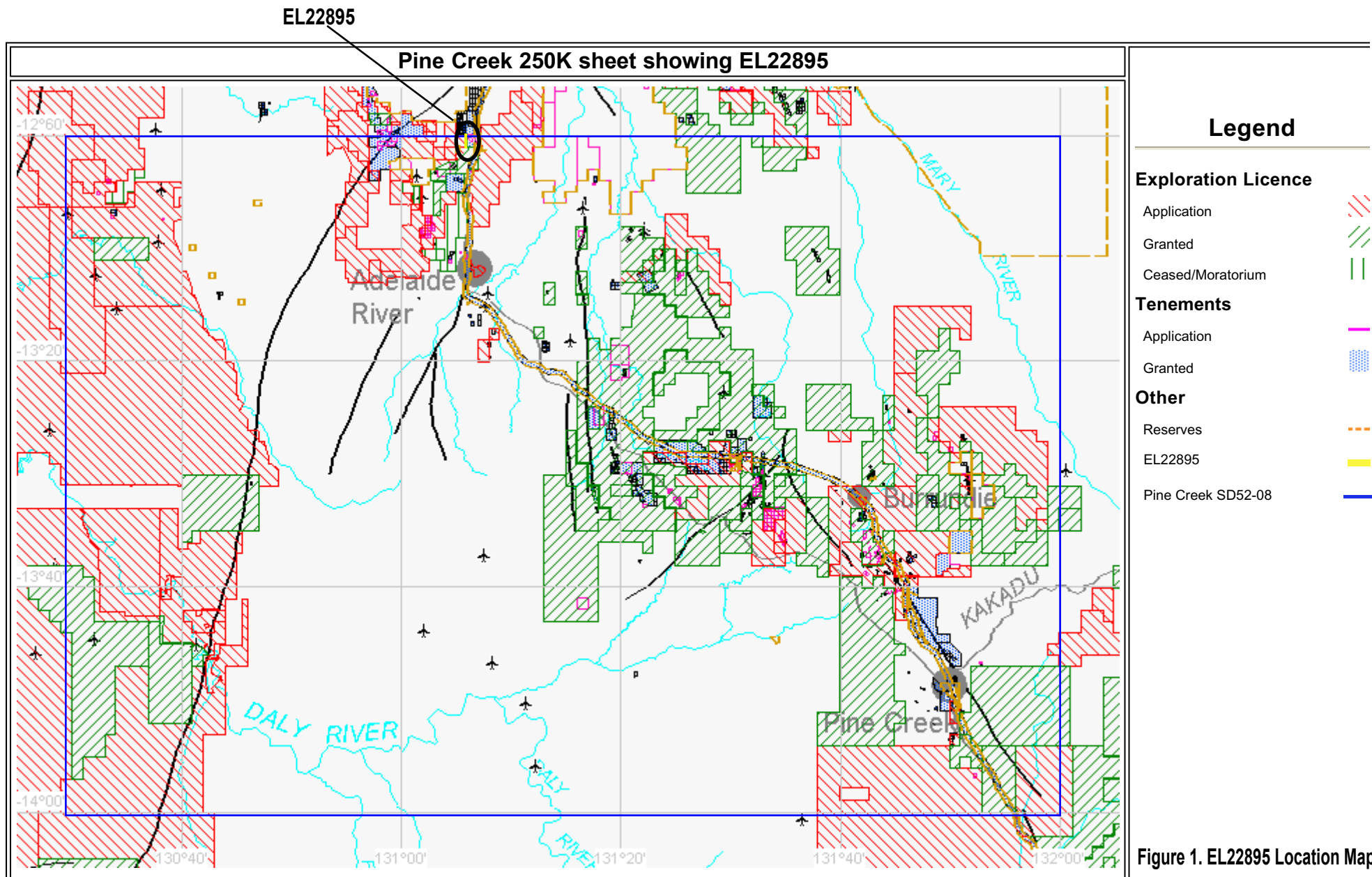
An extensive field of mineral leases exists to the north of EL22895 covering the area west of the Woodcutters mine. These are held by Newmont Australia. Figure 2

## 1.3 ARCHAEOLOGICAL SITES

Four sites of archaeological significance were noted by Bourke (2001) in a report for Exotic Timbers of Australia Limited (Table 1.2) Coomalie 2 is a quartz outcrop just inside the northern boundary of EL22895.

Archaeologists have defined the area with star pickets and care was taken to survey around the site. The following excerpt from Bourke's report identifies Coomalie 2 as a site of low significance.





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Datum : Lat/Long (AGD84)

not to scale

NOTE TO MAP USERS : Mining and Exploration Tenure depicted here are plotted from descriptions supplied by the holders and the Northern Territory takes no responsibility as to their accuracy.

The proposed development of this area is likely to destroy the remains of archaeological material in Coomalie Site 2. Given the disturbed condition and low diversity and density of artefacts, indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the Northern Territory Heritage Conservation Act 1991.**

TABLE 1.2 SUMMARY OF ARCHAEOLOGICAL SITES LOCATED WITHIN THE STUDY AREA

Site Name (Significance)	Grid Reference <sup>1</sup>	Site type	Site area m <sup>2</sup>	Average artefact density	Environmental context
Coomalie 1 (low)	728256E 8561190N	Stone artefact scatter	700	1/m <sup>2</sup>	Eucalypt woodland/
Coomalie 2 (low)	727767E 8562211N	Stone artefact scatter	630	6/m <sup>2</sup>	Eucalypt woodland slope
Coomalie 3 (moderate)	727534E 8561273N	Stone artefact scatter	200	7/m <sup>2</sup>	Crest of low hill
Coomalie 4 (low)	727956E 8560295N	Stone artefact scatter/ Historic	-	1/m <sup>2</sup>	Rocky ridge on hillslope

<sup>1</sup>Batchelor 1:50000 topographic mapsheet 5171-4.

## 2.0 GEOLOGY

### 2.1 REGIONAL GEOLOGY

The most prominent geological feature in the Batchelor area is the Rum Jungle Complex which lies approximately four kilometres to the west. These Archaean granitic rocks form the basement to Lower Proterozoic sedimentary rocks of the Pine Creek Geosyncline which are draped over the top. Minor pockets of Middle Proterozoic sandstone and karstic deposits lie unconformably over the Lower Proterozoic. Tertiary alluvials and laterites occur in low areas. Figure 2 is a scan of the regional geology of the Rum Jungle Mineral Field map (Lally) showing the Woodcutters area.

### 2.2 LOCAL GEOLOGY

The south of EL22895 contains Mount Charles which consists of quartz sandstones of the Crater Formation. The terrain is challenging by foot and impossible by car. A rough car size track was observed entering the licence from the south but was never investigated. Secondary manganese is observed on Crater Formation rocks adjacent to the southern tributary of the Left Branch of the Coomalie Creek.

The central area of the lease between the waterways includes scree from the Crater Formation in the west grading into dark soils derived from the Coomalie Dolomite in the east.

North of the Left Branch of the Coomalie Creek dolomitic soils persist for approximately 100 metres before gently rising to a dolomitic ridge with outcrops of magnesite and sandstone most likely derived from the Crater Formation. Remnants of a silicified cap are observed in the west. A soak is present about 200 metres north of the Coomalie Creek in the east of the lease. Quartzite outcrops are evident in the north. Figure 3 is an aerial photograph of the Woodcutters area showing the geological boundaries in yellow.

At Huandot 50° dips have been observed on the magnesite beds striking NW. In areas of EL22895 magnesite bedding is observed dipping at 80° along a 0° strike. Karsting has developed along NW synestral faults (Goulevitch).

## 3.0 GEOPHYSICS

### 3.1 LOCAL GRID

A local grid oriented 0° was surveyed from point 10000N 10000E established in the north eastern corner of the lease. The grid extended to 9700E on the western boundary and south to 8000N. This was for the purpose of the ground magnetic survey and consisted mostly of flagging tape and the occasional wooden peg along the 10000E baseline.

### 3.2 RADIOMETRICS

A radiometric survey using a Geometrics GR-310 gamma ray spectrometer was undertaken in the northern part of the licence to the north of the Coomalie Creek (Left Branch). No formal surveying procedures were observed other than reconnaissance wanderings over differing soil types. Therefore, there are no digital files associated with this survey. The *total count* results from the spectrometer survey showed the black soils adjacent to the Coomalie Creek to have a reading of 80 cps, the eroding ridge to the north of Coomalie Creek 50 cps and dolomitic soils near the soak 60 cps.

TABLE 2.1

RESULTS OF RADIOMETRIC SURVEY

Soil Type	Total Count (cps)
black soils adjacent to the Coomalie Creek	80
top of small ridge north of Coomalie Creek	50
dolomitic soils near soak	60

### 3.3 SIROTEM

A Sirotem III survey was performed on EL22895 in early October 2002 in the area north of the Coomalie Creek. The Sirotem was used in two configurations, a 100 m x 100 m single loop, and a 100m Tx loop and the RVR-1F in-loop. Stations were recorded every 50 metres along 100 metre spaced east-west lines.

The RVR-1F produced very noisy data compared to the single loop. The best decay from the single loop was to 28 channels although the tails were quite flat. It is unclear whether this is due to the resistivity of the magnesite or SPM effects.

Figure 6 shows apparent conductivity contours for various Sirotem channels. The conductive area defined by the Sirotem coincides with the NW structural trends and appears more persistent to the east. A discrete southern extension of the conductive trend is observed in channels 12, 18 and 22.

### 3.4 MAGNETICS

A ground magnetic survey was recorded on 15 August 2002 every 5 metres along 50 metre spaced east-west lines. Levelling was performed from a tie line measured every 50 metres along 9700E at the conclusion of the survey. The results were comparable to the low level detailed airborne magnetic survey flown by Aerodata Holdings Ltd. in 1990 which covers all of EL22895.

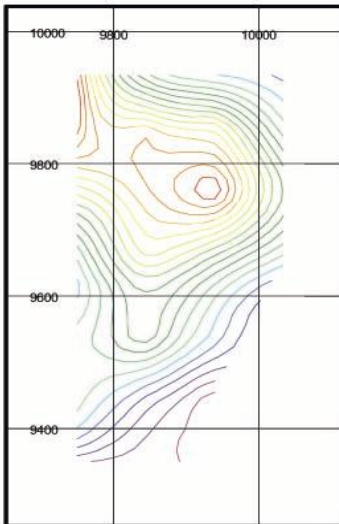
Figure 4 shows the total magnetic intensity (TMI) image from the Aerodata survey. The northern area of the EL22895 is shown in the south. Figure 5 shows the ground magnetic TMI image placed over the Aerodata survey.

The ground based survey emphasises the flatness in response adjacent to Coomalie Creek, whereas south of the creek produced noisy data. The north of EL22895 produced coherent data which highlighted the NW trend seen in the Sirotem data. To the south of this trend exists a number of high frequency anomalies both positively and negatively polarised which have an amplitude of several hundred nanoTeslas. These features can be observed in the profiled TMI results along lines 9450N to 9800N as shown in Figure 7. The effect of the steel fence can be seen at the western end of lines 9600N and 9750N.

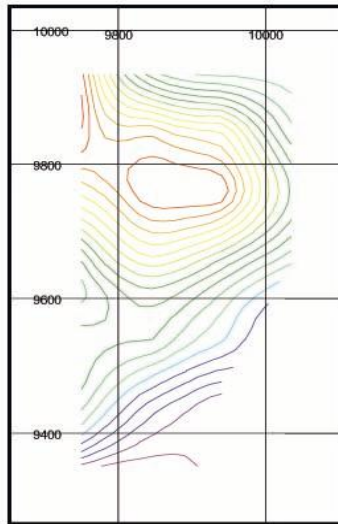
FIGURE 6. APPARENT CONDUCTIVITY CONTOURS FROM SIROTEM III

## Apparent Conductivity Contours

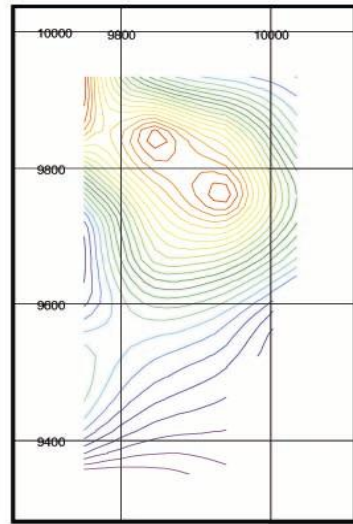
**Ch12 1.325ms**



**Ch14 2.025ms**

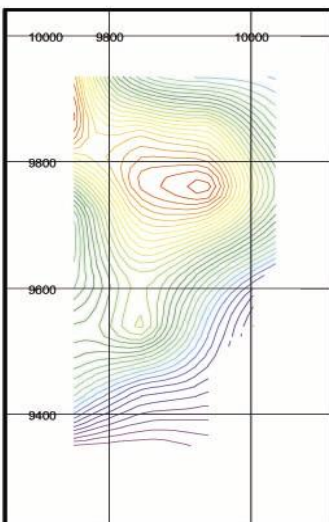


**Ch16 2.825ms**

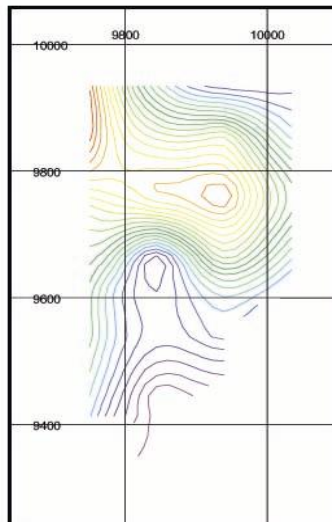


## Apparent Conductivity Contours

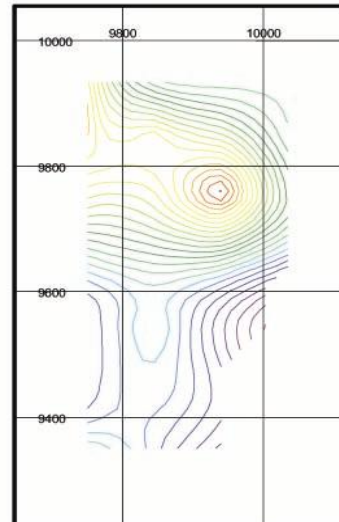
**Ch18 4.225ms**

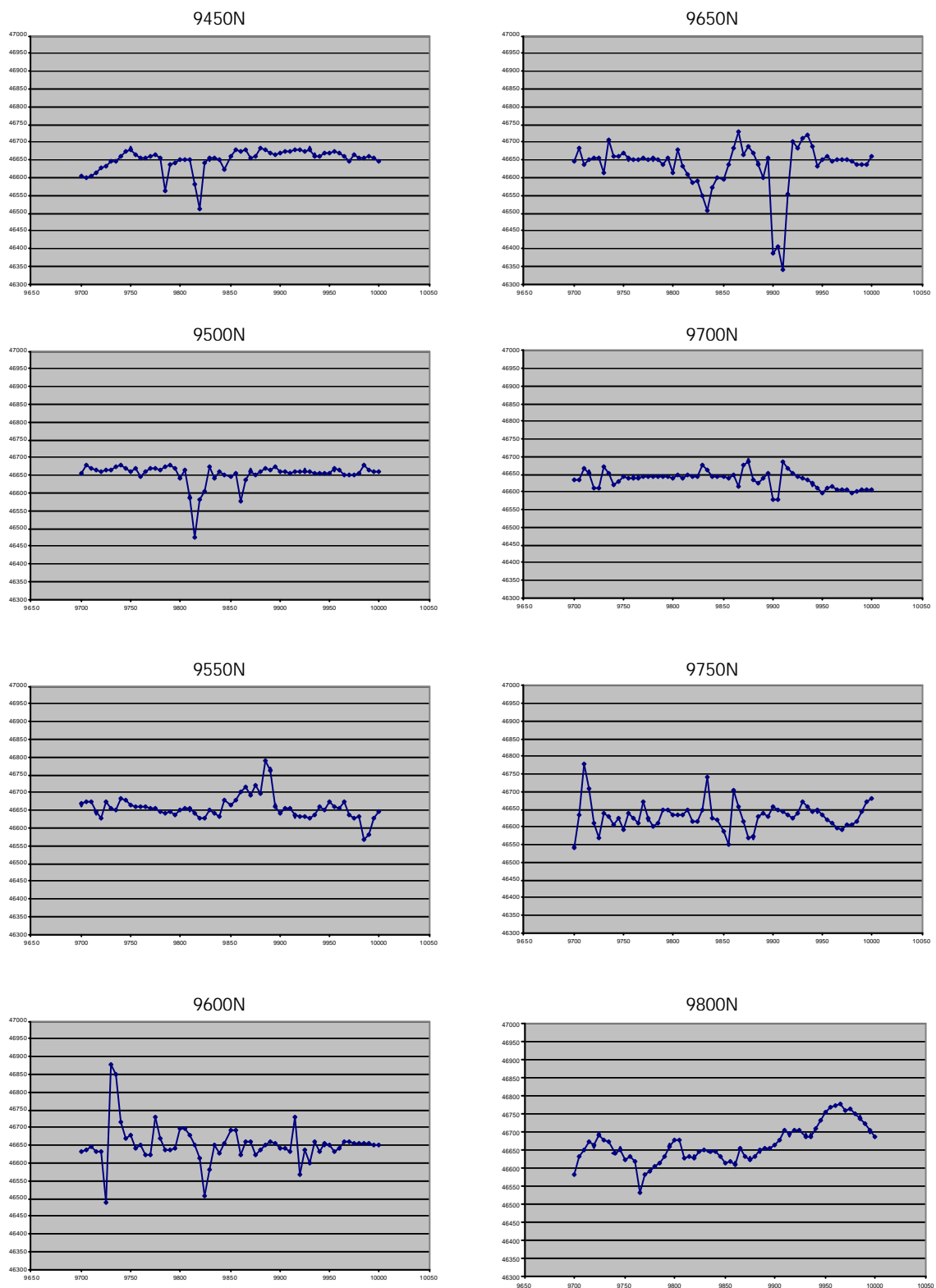


**Ch20 5.825ms**



**Ch22 8.625ms**





**FIGURE 7. TMI GROUND MAGNETIC PROFILES ALONG LOCAL GRID LINES 9450N TO 9800N  
VERTICAL GRADUATIONS ARE EVERY 50nT, HORIZONTAL GRADUATIONS EVERY 50M.**

## 4.0 DISCUSSION

The northern region of EL22895 has the greatest potential for hosting mineral deposits. The combination of a NW structure and a NNE dipping anticline (Figure 2) produce a favourable environment for the accumulation of mineralising fluids. Furthermore, this structural package is proximal to the Whites Formation - Coomalie Dolomite boundary which plays host to the majority of deposits in the Batchelor region.

A correlation exists between the conductivity peak as displayed in the Sirotem conductivity contours (Figure 6) and the magnetic anomaly at 9750N 9950E (Figure 5). From simple half wavelength rules it is estimated that the depth to the top of the magnetic source is 70 metres or less.

Sirotem interpretation is hindered by the lack of regional electromagnetic data and the small size of the survey area. Decays are short lived and exponential decay relationships are observed for very short periods. A greater resolution is required for future electromagnetic surveys.

High frequency magnetic features (Figure 7) measuring several hundred nanoTesla's can be traced over multiple lines. Apart from the steel fence at 9700E it is not expected that these anomalies are due to cultural features. Pyrrhotite accumulations have been noted in the region (Goulevitch) and may be responsible for some of the anomalies.

The low magnetic response in the vicinity of the Coomalie Creek may be due to the removal by the creek of a concealed laterite surface which is observed as a chattery response in the data south of the creek.

Magnesite outcrops suggest that it occurs extensively in the northern area of EL22895. Drilling is required to test the depth extent and grade.

## 5.0 RECOMMENDATIONS

- ? Further Sirotem III surveying at 50 m x 50 m loop size to achieve greater resolution.
- ? Surveying with the EM-34 conductivity meter to detect near surface conductors in both the vertical and horizontal modes.
- ? Air photo interpretation to identify the structural trends apparent in the geophysics
- ? Further study of the Woodcutters deposit is required to better understand the structural environment and the physical properties of base metal mineralization.

## 6.0 EXPENDITURE

Expenditure debited to EL22895 was :

Gridding	\$1500
Reporting	\$1500
Administration and Overheads	\$1020
Geophysics	\$5950
Transport	\$ 585
Licencing and Tenancy Fees	<u>\$ 608</u>
.	\$11163

## 7.0 REFERENCES

- Bourke, P.**, 2001, Archaeological Survey of Section 163 Hundred of Howard, Coomalie Region .
- Butler, I. K.**, 1994, Nicron Resources Ltd., Relinquishment Report for Year Four - Exploration Licence 4423, Woodcutters Area, N.T.
- Goulevitch, J.**, 2003, pers. comm.
- Lally, J. H.**, 2002, Rum Jungle Mineral Field 1:100000 map.
- Telford, W. M., Geldart, L. P. & Sheriff, R. E.**, 1990, Applied Geophysics, 2<sup>nd</sup> Ed.



FIGURE 2. BATCHELOR REGIONAL GEOLOGY SHOWING WOOD CUTTERS AREA (IN RED)

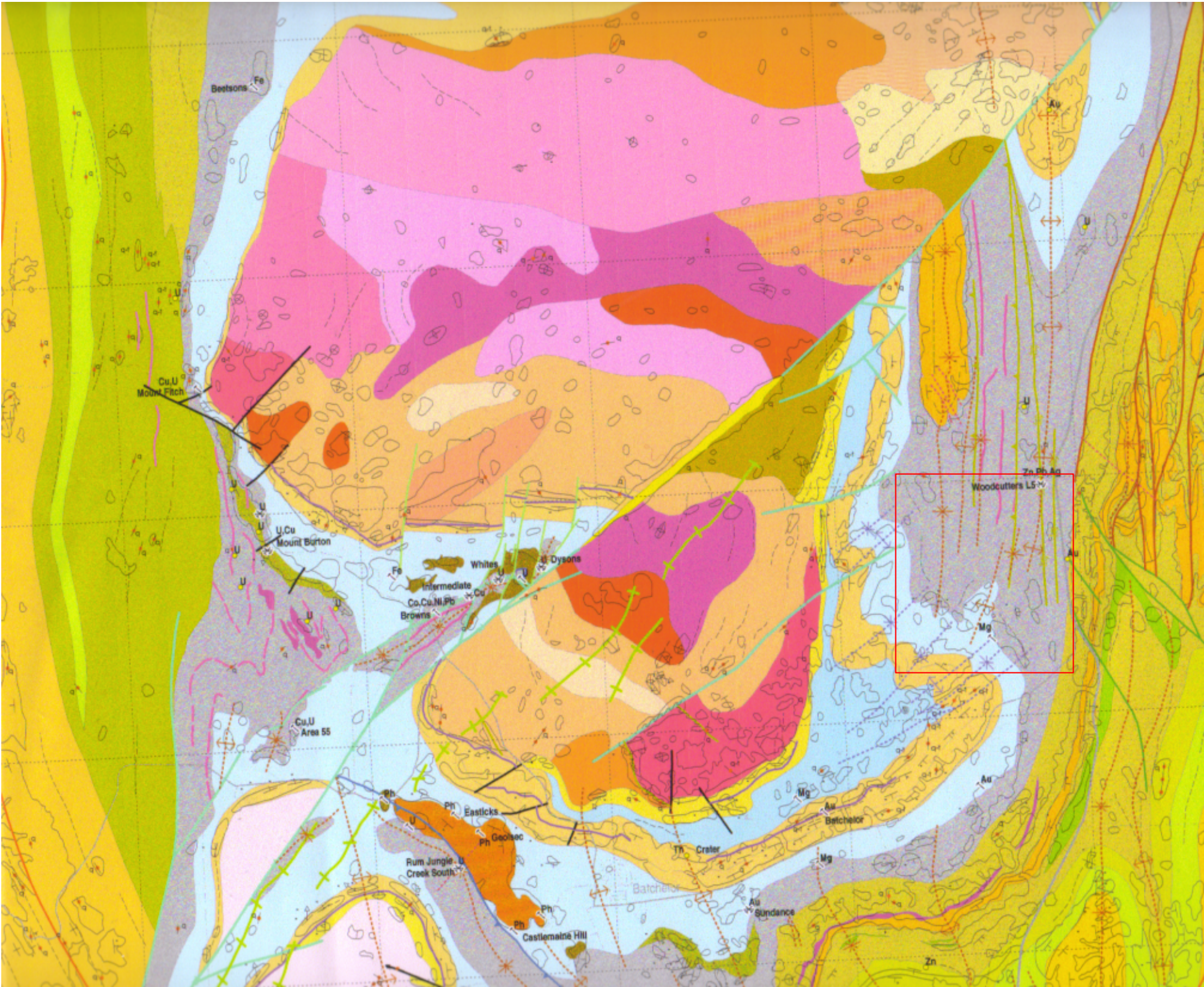




FIGURE 3. AERIAL PHOTOGRAPH OF WOODCUTTERS AREA  
 YELLOW DOTS ARE DRILL HOLES ENDING IN WHITES FORMATION  
 GREEN DOTS ARE DRILL HOLES ENDING IN COOMALIE DOLOMITE

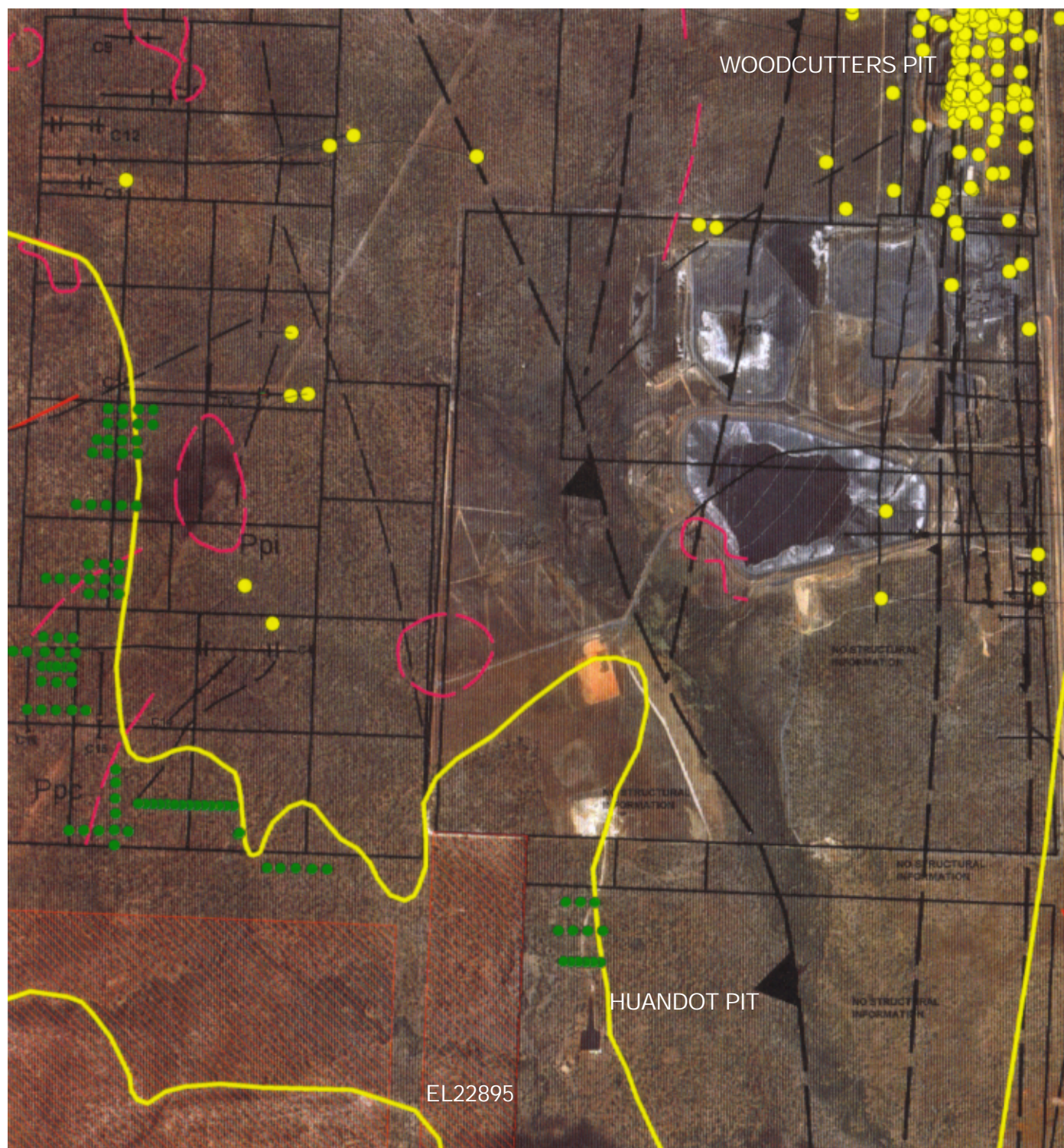




FIGURE 4. AERODATA TMI IMAGE, WOODCUTTERS AREA

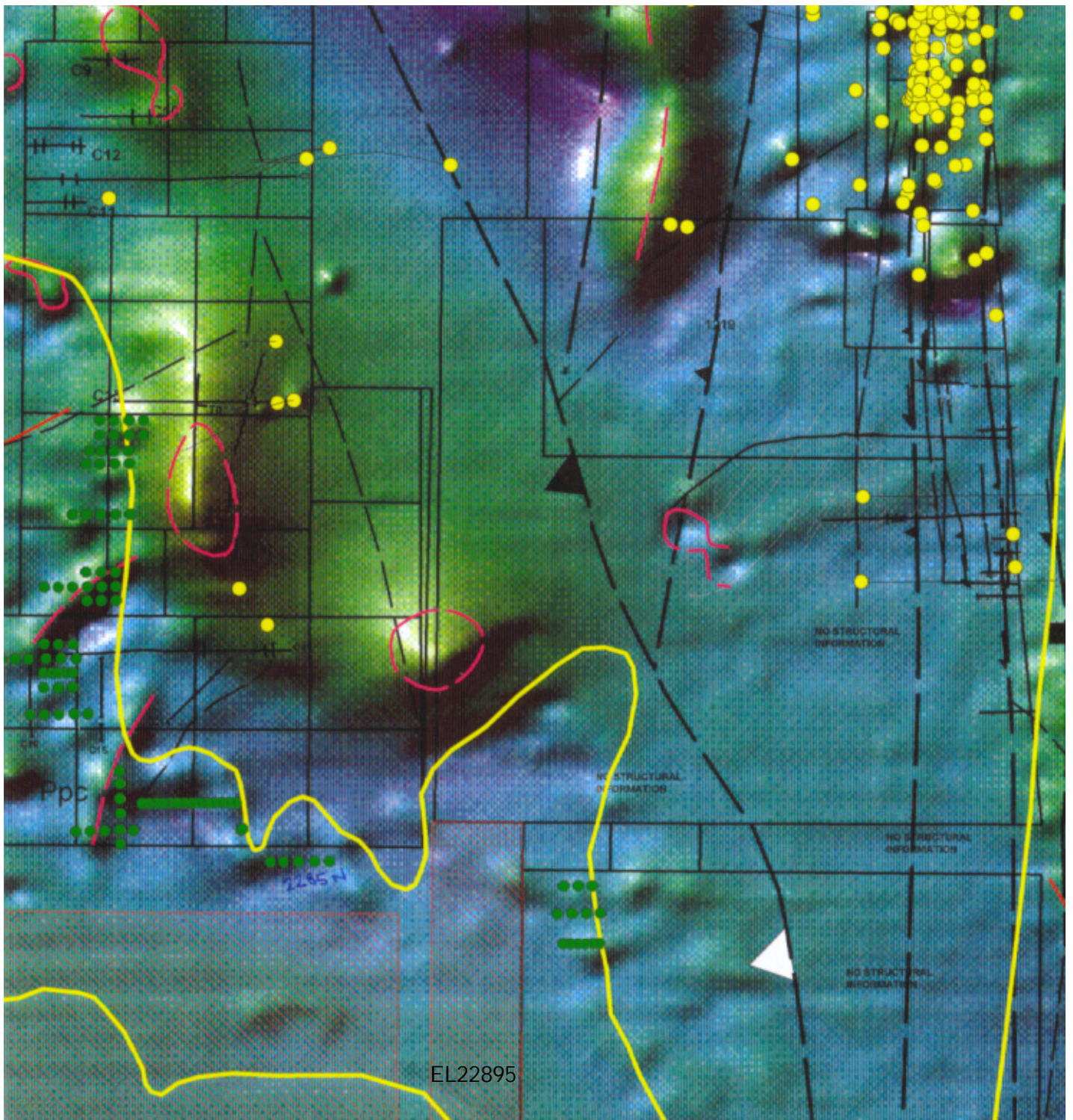




FIGURE 5. AERODATA TMI IMAGE WITH GROUND MAGNETIC SURVEY EL22895

