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GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LIMITED

MICROFILMED

FINAL REPORT ON EL 7/83 AND 8/83

MONTAGU

TASMANIA

DATA	A.C.	C.G.	E.C.	D.S.L.F.
				Registrar
D. DIR.	17 SEP 1984			E & IL
	DEPT. OF MINES			
REF. No.	9541/84			

J Pemberton
September, 1984

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1. INTRODUCTION

The area covered by EL's 7/83 and 8/83 was previously held by Geopeko as EL 25/80. As the work done in this area was continuous from the granting of EL 25/80 in February, 1981, this final report will encompass all work done by Geopeko from that date to the relinquishment date on the 14th of August, 1984. The area is referred to as Montagu for the sake of simplicity and covered an area of 605 sq km as EL 25/80 and 500 sq km as EL's 7/83 and 8/83. Montagu is in the far north west of Tasmania, centred on the Welcome and Montagu Rivers (see Fig. 1).

In the first year of tenure a literature search and aeromagnetic survey were completed. The aeromagnetic data was interpreted in a report to the Mines Department by Large, R.R., 1982.

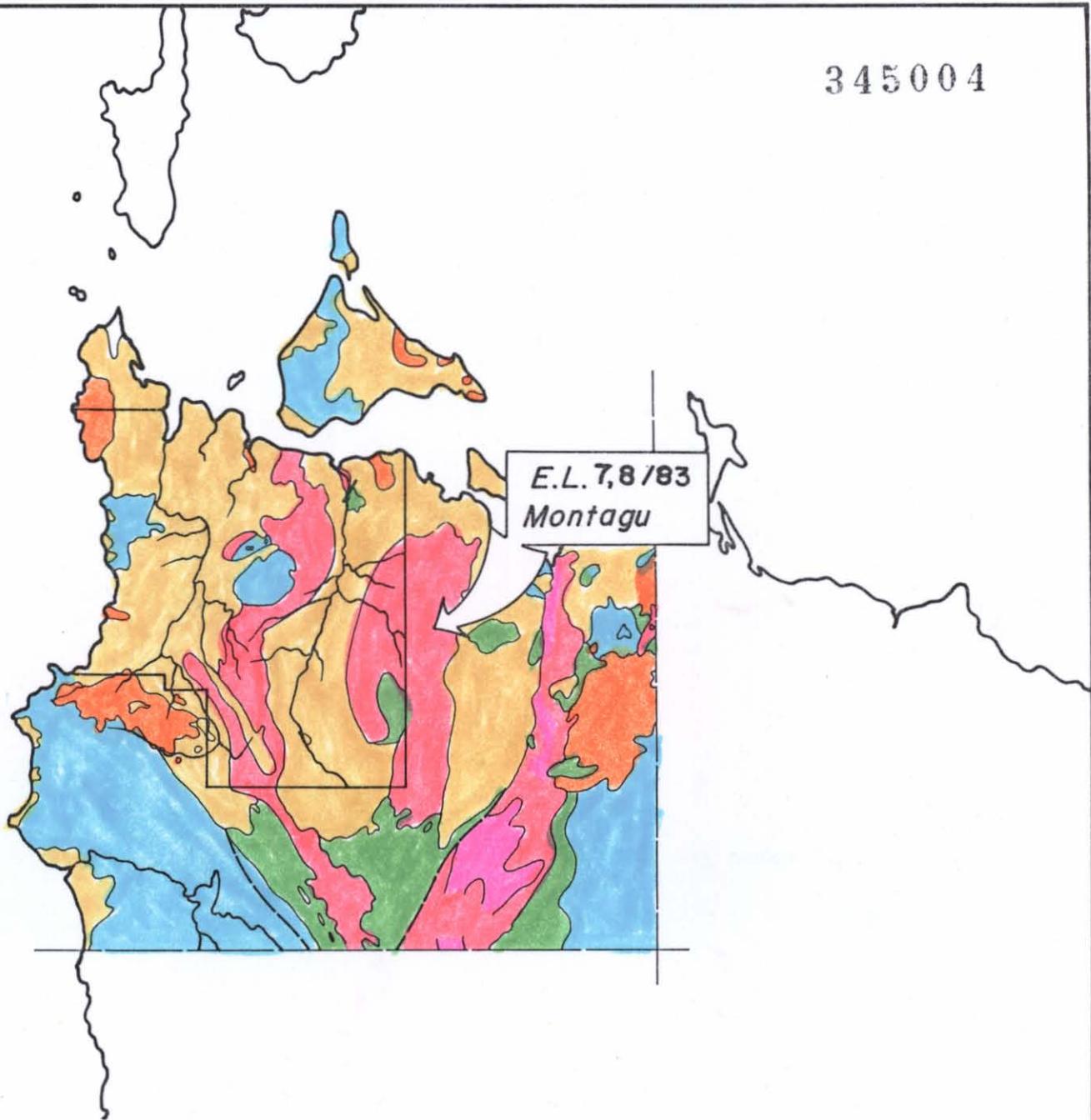
The 1982 field season saw the start of ground follow-up of the airborne anomalies and a series of geochemical traverses with a Jacro 200 auger rig mounted on a Muskeg Bombadier. Logging of the rock chips and the assay results were used to compile a geological and geochemical profile across the area. In conjunction with the aeromagnetics a geological map (see Plan 1 and 2) was compiled. The target sequence of lower Cambrian carbonates was explored in preference to the upper Cambrian sequences.

In 1983 work was concentrated on anomalies in the lower carbonates along Robbins Beach and in the AFH areas.

The closure of the Geopeko Devonport base has led to the decision to relinquish this ground.

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LEGEND

- QUATERNARY — Alluvium
- TERTIARY — Basalt
- CAMBRIAN — Basic-intermediate volcanics dominantly
- Unfossiliferous greywacke turbidite sequences
- Dolomite
- PRECAMBRIAN — Orthoquartzites

5 cm

FIGURE I.

0 10 20 30

Kilometres

SCALE 1:500 000

LOCALITY & REGIONAL GEOLOGY FOR E.L. ^{7/83}8/83

2. EXPLORATION PHILOSOPHY AND METHODS

The work done by Geopeko in the Montagu area was directed toward the lower Cambrian carbonate sequences. Exploration methods were aimed at discovering replacement deposits of the King Island, Renison Bell or Moina type.

The airborne magnetic data and limited outcrop information led to an interpretation of the Eo-Cambrian and Precambrian stratigraphy by Large, R.R., 1982, as being similar to that of King Island. In 1982 the ground follow up of the airborne magnetics and the geochemical traverses confirmed the interpreted stratigraphy of Large. An internal company report by Large has a comparison of the Dundas and Smithton Troughs and illustrates this interpretation.

The gravity interpretation of Leaman, D.E., 1980, suggests that the Three Hammock granite persists at shallow depth under this area. A combination of the Large/Pemberton stratigraphical interpretation with the possibility of a shallow granite makes this ground of high exploration potential. In combination with this geological modelling the area is historically underexplored because of the low relief, boggy conditions and younger cover.

Exploration methods adopted by Geopeko were facilitated by the availability of the Jacro rig mounted on a Muskeg Bombardier. Samples were taken at 100m or 200m intervals along tracks and across paddocks at right angles to the strike. Auger holes were generally deeper than 10m with some going over 20m in unconsolidated sands and gravels or sticky Cambrian basalt derived clays. This resulted in a number of holes not penetrating to bedrock. Rock chips were logged on site. In the 1982 season 345 samples were assayed by Analabs in Coee for Cu, Pb, Zn, Ag, Fe, As, Co, Ni, Ba, W and Sn. W and Sn analyses were done by XRF and the remainder by AAS. In the 1983 season 196 samples were collected and assayed for the same elements by ALS in Brisbane.

The airborne magnetic survey was completed by Austirex using a line spacing of 250m at a height of 120m. Ground magnetics was used routinely along the geochemical traverses as an aid to the interpretation of the geology. A total of 14 anomalies were followed up on the ground using a Geometrics 4816 and a Unimag on tape and and compass grids.

3. DISCUSSION OF RESULTS

In this section the results of the geological mapping, geochemical traverses and ground magnetic follow-up are discussed.

3.1 GEOLOGY

The stratigraphic column presented below was compiled from the logging of the auger rock chips and outcrop where found. A geological map was drawn up using this data and the airborne magnetics (see Plan 1).

STRATIGRAPHIC COLUMN FOR THE MONTAGU AREA

<u>UNIT</u>	<u>ROCK TYPE</u>	<u>THICKNESS</u>	<u>AGE</u>
1.	Sand, gravels and clay	15m	Recent
	----- UNCONFORMITY -----		
2.	Basalt and sediments	10-15m	Tertiary
	----- UNCONFORMITY -----		
3.	Conglomerate, greywacke	+800m	
	siltstone and mudstone		
4.	Dolomite, dolomitic siltstone	1000m	
	+ shale, chert + tuff		Cambrian
5.	Hematitic siltstone	300-500m	
6.	Basic lavas, tuffs + agglomerates	1000m	
7.	Hematitic silstones	500m	
8.	Silicified carbonates, <u>Cherts</u> + blackshales	500-1000m	EO Cambrian
	----- UNCONFORMITY -----		
9.	Quartzites + siltstones		Precambrian

A discussion of the geology of these units is presented in the 1982 Annual Report to the Mines Department (see Pemberton, J., 1983).

Structural deformation in the area is defined by north-south striking folds with a wavelength of 6km to 8km. Further deformation is defined by the formation of basin and dome structures which resulted in the outcrop of the Precambrian in the centre of the area. Faulting has been interpreted from the aeromagnetics with a major system cutting the southern end of the Precambrian domal structure.

3.2 GEOCHEMISTRY

In the 1982 field season a number of significant geochemical anomalies were obtained. These were:

- UNIT 10 - 340ppm Zn + 250ppm Ni in Wilson's Paddocks
- 220ppm Zn, 520ppm Ni, 75ppm As + 8% Fe in Pacey's Paddocks
- 435ppm Zn, 540ppm Ni + 65ppm As at the end of Granter's Road

- UNIT 7 - 690ppm Zn, 430ppm Ni + 23% Fe from Buckley's Road South
- UNIT 8 - 1000ppm Zn, 1400ppm Cu, 510ppm Ni + 490ppm As on Robbin's Beach. This was flanked by 525ppm Zn + 780ppm Cu on either side
- 550ppm Zn, 210ppm Cu + 80ppm Pb on 21 Mile Road
 - 450ppm Zn, 920ppm Cu, 24% Fe and 420ppm As on Redbank Road.

The main thrust of the 1983 season was to follow up those anomalies with close spaced infill augering. Robbins Beach was infilled at 50m spacing for a total of 57 samples covering the three geochemical anomalies in the lower carbonates. The results were not as encouraging as those of the 1982 sampling but did have a number of above background elements.

The lower carbonate was covered in detail along South Quartzite Road at 25m intervals for a total of 58 samples. Silicified carbonates and pyritic blackshales were augered but the results were disappointing with two samples giving above background results (140ppm Cu + 360ppm Zn).

On North Quartzite Road 10 samples were taken to cover a two point anomaly in the lower carbonates. A high of 400ppm Cu was obtained but this was isolated.

The Buckby Road South single point anomaly was covered with 80 samples which repeated the high Fe (38.7%) and Zn (420ppm). A similar pattern was obtained on Redbank Road with one of 8 samples giving high Fe 43.7% and 360ppm Zn.

A regional traverse across the middle of Woolnorth confirmed the presence of dolomitic sediments with only one highly anomalous Fe rich sample (20.1% Fe + 560ppm Zn).

From this follow up work it can be seen that the 1982 anomalies were repeated but not enlarged.

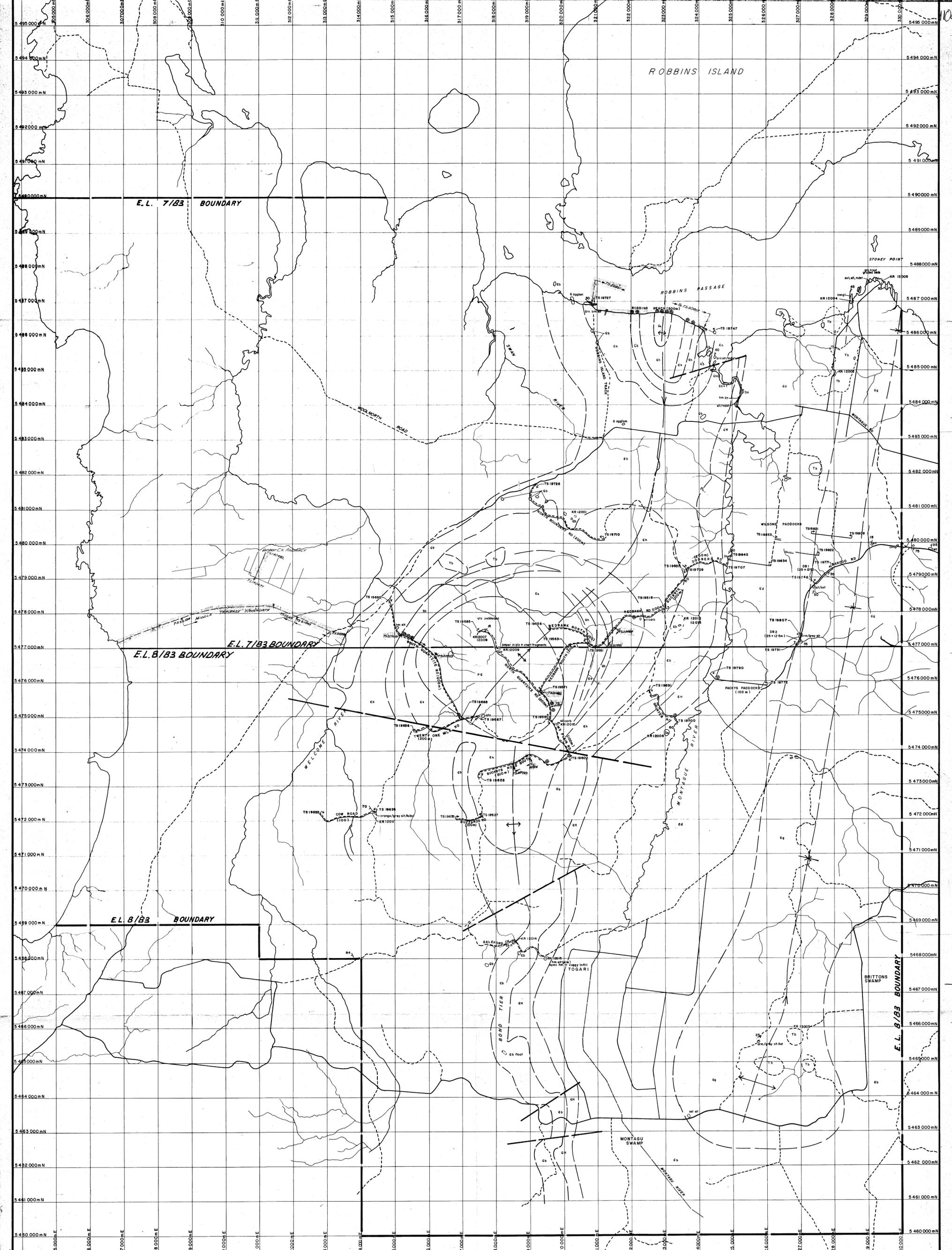
3.3 GEOPHYSICS

The majority of the airborne magnetic anomalies were followed up in 1982 and are reported in Pemberton, J., 1983. A total of 6 anomalies was attributed to Tertiary Basalt plugs while a further three resulted from Cambrian Basalt. Two linear anomalies striking north west were attributed to narrow dykes of basalt material. An unexplained anomaly (FJ) was located in the 1983 season and was of limited dimensions (40m x 50m) and magnitude (120nT). The Boggy Creek anomaly on Woolnorth was gridded in 1983 and the magnetics read. It was attributed to a formational source because of its broad and low magnitude signature. A similar magnetic pattern in the south west of the area was found during regional mapping to be a tuffaceous unit.

4. CONCLUSION

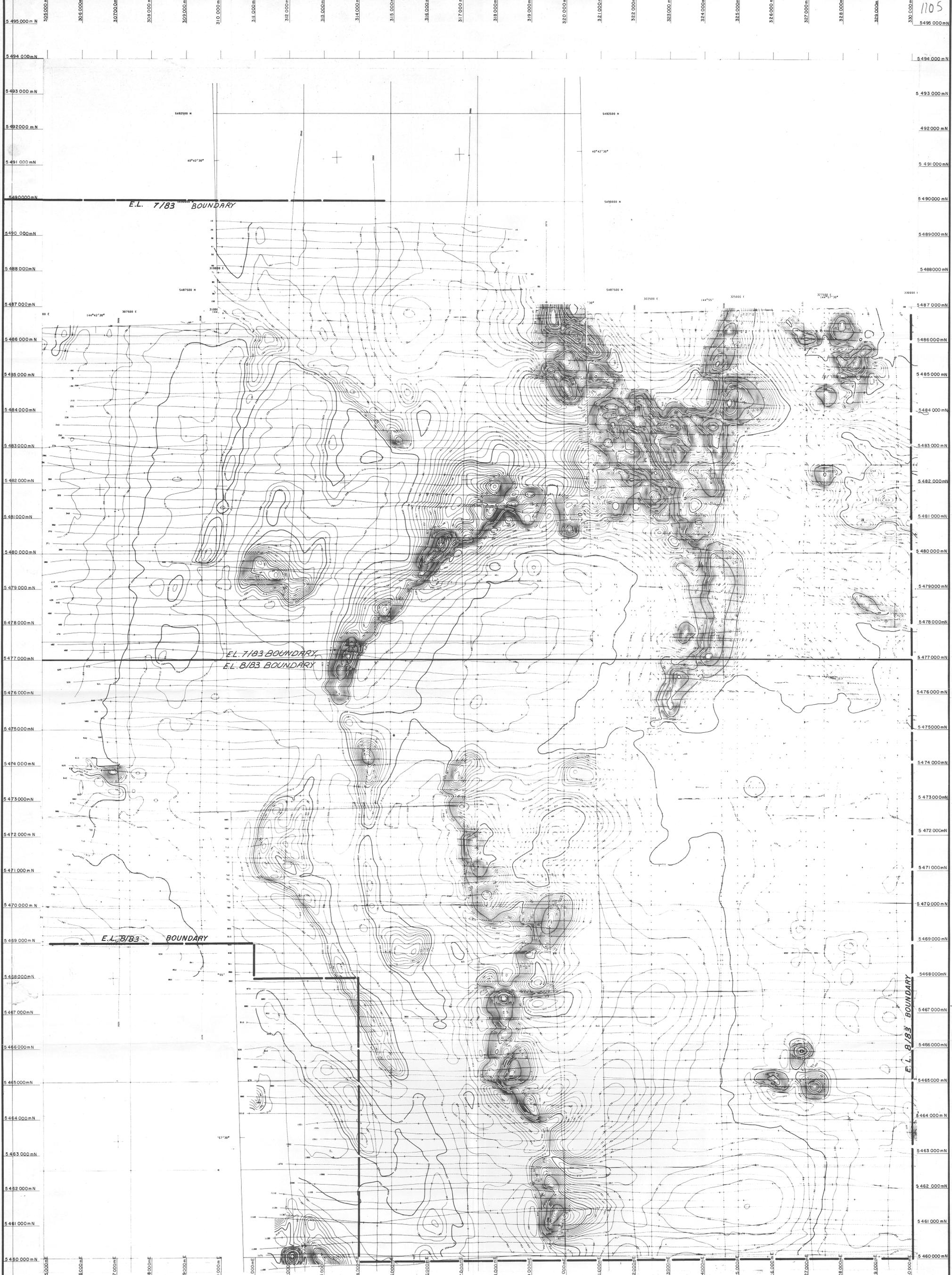
The work done by Geopeko over three field season with two on the ground confirmed the initial interpretation of Large. Lack of outcrop and younger cover did and will hamper further exploration of this area. Use of a model to target specific areas helped to concentrate the exploration effort. After the initial success of the geochemistry the follow up did not delineate an area for prospect development.

The demise of Geopeko in Tasmania brought this project to an end but it is hoped that further work here will result in success in what is perhaps Tasmania's most underexplored region.

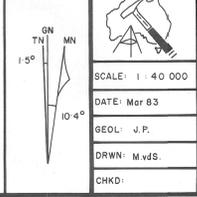


LEGEND		STRUCTURAL		GEOCHEMICAL TRAVERSES	
GEOLOGICAL INTERPRETATION Tertiary Basalt Cambrian: Conglomerate, Greywacke, Siltstone Dolomite, Shale, Chert, Tuff Hematitic Siltstone Eocambrian: Basalt, Agglomerate, Tuff Hematitic Siltstone Silicified Carbonate, Chert, Blackshale, Siltstone Precambrian: Quartzite and Siltstone		STRUCTURAL 80 DIP FAULT FOLD AXIS AND PLUNGE DIRECTION OUTCROP INTERPRETED		GEOCHEMICAL TRAVERSES TRaverse OF GEOCHEMICAL SAMPLING TS 19634 START AND FINISH SAMPLE NUMBERS TRACK ROAD NAME JACRO SAMPLE SPACING ANOMALOUS GEOCHEMICAL SOIL SAMPLE (SEE PLANS 5 TO 6)	

GEOPEKO 345011		PLAN 1
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD		TS 25/80-2
E.L. 7/B3, 8/B3 MONTAGUE, TASMANIA		
GEOLOGY		
WITH		
JACRO AUGER TRAVERSES		
SCALE: 1:40 000	DATE: NOV '82	1104
GEOLOGIST: J. Pemberton	DRAWN: J.P.M.	84-22.15
CHECKED:		



LEGEND



GEOPEKO		PLAN 2
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD		TS 25/80-3
E.L. 7/83 8/83 MONTAGUE, TASMANIA		1105
AIRBORNE GEOPHYSICS		
345012		
SCALE: 1 : 40 000 DATE: Mar 83 GEOL: J.P. DRWN: M.v.d.S. CHKD:		