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GEOPEKO - KING ISLAND

Report No. K.I. 83/1

MICROFILMED

Progress Report E.L. 39/80
Six Months to 15th June, 1983

S. Grieve Brown

002

LIST OF PLANS

KG 39/80 - 000	E.L. 39/80 Base plan showing Topography and Fauna Conservation Area.	Scale 1.40 000
KG 39/80 - 001	E.L. 39/80 Regional Geology Map showing preliminary Photolinear Study Results.	Scale 1.40 000
KG 39/80 - 002	E.L. 39/80 Outcrop Geology	Scale 1.40 000
KG 39/80 - 003A 003B	E.L. 39/80 Aeromagnetic Contours (1973 Survey)	Scale 1.25 000

003

INTRODUCTION

Exploration Licence 39/80, held by Warman Services Limited, was first granted in June 1981 in respect of an area of 105 square kilometers in the Reekara area of North Central King Island.

This licence covers the known area of occurrence of mineralised quartz tourmaline veins at Reekara and lies west of the Devonian-Carboniferous Mt. Council Granite. It has been conjectured that the area may, in part, be underlain at depth by a westward extension of this Devonian-Carboniferous granite.

The regional Geology of King Island is shown on Figure 2.

The Devonian-Carboniferous granites are, in the case of the Bold Head and Dolphin Mines, regarded as the source of the known tungsten mineralisation. The Mt. Council granite is also considered to have potential as a source of tungsten mineralisation.

Since no suitable calcsilicate rocks occur in the Mt. Council area, skarn deposits are not likely to be formed, and it is thought that what mineralisation did occur will be confined to the quartz vein type of deposit.

A potential, although low, for a low grade large tonnage vein swarm type deposit similar to that at Mt. Carbine in Far North Queensland is considered to exist.

Due to a combination of the prevailing economic conditions and lack of survey personnel caused by illness, progress on this project remained low until April when work on the levelling of the regional grid recommenced.

It is intended to significantly increase the work load on this Licence over the next twelve months, to the stage where a decision to retain or relinquish is possible. ||*

004

WORK CARRIED OUT November 1982 to May 1983

During the period to the end of March 1983 no physical work was undertaken on this project, due to the economic climate and the incapacitation of two of the survey section.

During the six (6) months to 15th June 1983 the work carried out has or will consist of:-

- 1) Compilation and reassessment of all previous available data on the area covered by the current licence - completed.
- 2) Transfer of all previous data to the 1.40 000 scale base map system - completed.
- 3) Levelling and tying in of the regional survey lines to the A.M.G. grid - in progress. Anticipated complete by 15th June.
- 4) Complete calculations of ground gravity and V.L.F. data once levelling results are available - anticipated complete by 15th June.

005

COMMENTS

A large amount of initial reconnaissance geology, areomagnetics data and geochemical data was obtained during the period in which a large portion of the area was held under Exploration Licence 4/68. The area covered by this licence is shown on Figure 1, which also shows the location of the current E.L. 39/80.

One of the basic problems with work in the Reekara area is the extremely limited outcrop available for mapping. Almost all "outcrop" geology shown on plan KG 39/80 - 00~~8~~² is infact localised material derived from dam or drainage channel construction.

There is, however, a large amount of semi-angular and angular barren white quartz apparent to the east of the old Reekara geochemical grid as well as along and to the north of the Mt. Council track.

The basic area of interest, around the old exploration shafts, mainly consists of mica schists and mica sillimanite schists, with some minor laterite and float quartz. The shafts themselves, and the associated drill holes, are recorded as encountering the same material with the addition of some units of garnet mica schist.

The shafts were sunk prior to 1950 to test the extent of some tin lodes discovered in the Reekara area. Access to Shaft A was obtained in 1951 and scheelite was recorded to occur in a tourmaline rich lode (Hughes 1951). In 1955 Hughes examined the recently dewatered C Shaft and the deepened and extended A Shaft.

Shaft C revealed only minor amounts of scheelite mineralisation while Shaft A and the short drives associated with it showed mineralised tourmaline veins. (Figure 3)

The mineralisation within the veins is irregular with the two samples taken by T.D. Hughes, 1955, being recorded as follows:-

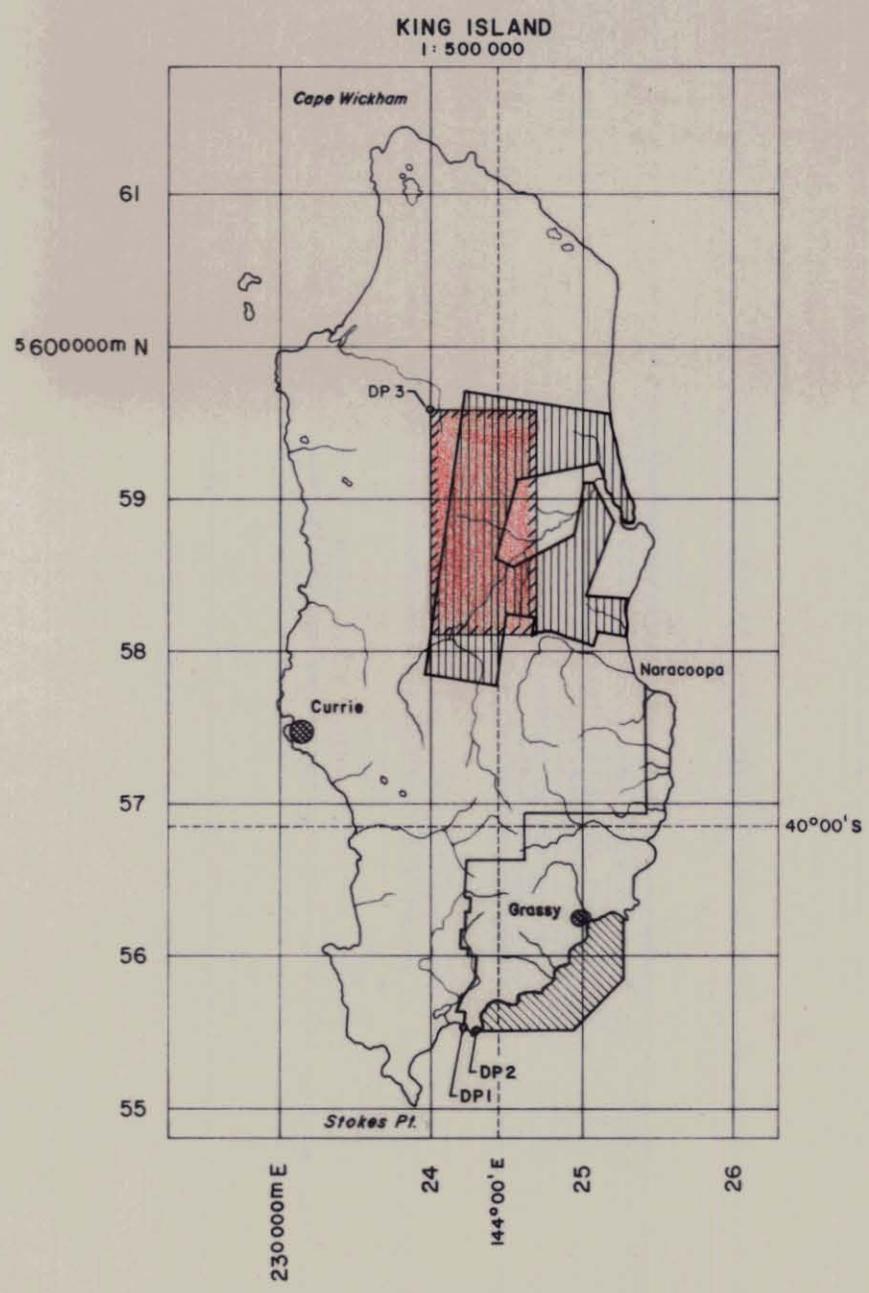
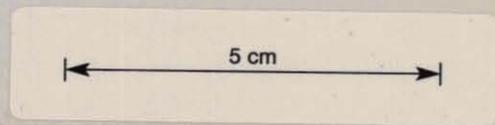
	<u>Width</u>	<u>% WO3</u>	<u>% Sn</u>
End of East Drive	27"	0.88	Trace
End of West Drive	15"	6.70	0.64

006

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FIGURE 1
COMPANY EXPLORATION LICENCES - KING ISLAND

-  E. L. 15/66
-  E. L. 21/78
-  E. L. 39/80
-  E. L. 4/68 [Expired] Approximate

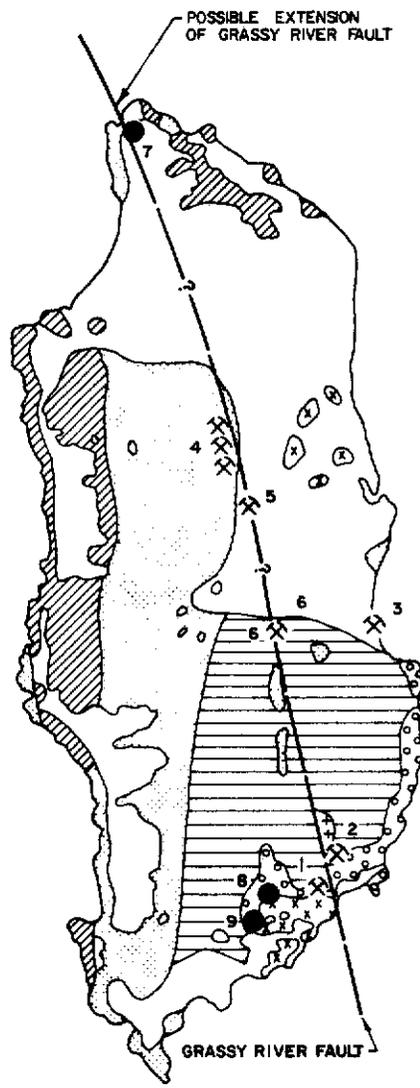


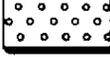
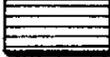
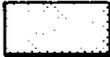
DATA POINTS (DP) CO-ORDINATES

DP1 - E. L. 15/66:	5 555 260m N
	241 330m E
DP2 - E. L. 21/78:	5 555 000m N
	242 000m E
DP3 - E. L. 39/80:	5 596 000m N
	240 000m E

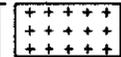
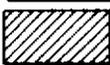
Australian Map Grid Zone 55 (AMG)

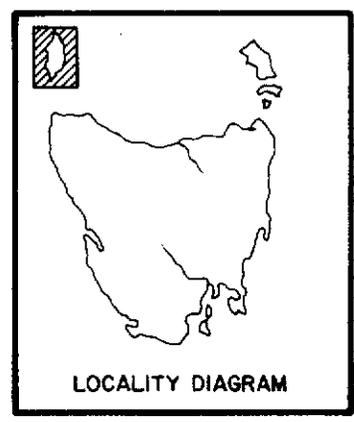
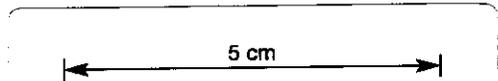
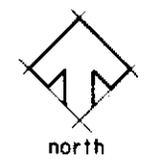
007



-  Holocene - Late Carboniferous
- CAMBRIAN**  Basaltic - sedimentary sequence
- PRECAMBRIAN**  Unmetamorphosed sandstone - mudstone
-  Metamorphosed quartzite - pelite sequences

1. DOLPHIN / N°1 OREBODY - W, Mo
2. BOLD HEAD - W, Mo
3. NARACOOPA - Beach Sands
4. REEKARA - W, Sn
5. HAWKES ALLUVIAL - Sn, W
6. FRASER RIVER - Au
7. VICTORIA COVE - W
8. LOOP ROAD - W, Mo
9. INVESTIGATOR 21 - W, Mo

- Igneous rocks**
- EARLY CARBONIFEROUS - LATE DEVONIAN**  Adamellite
 -  Granodiorite
 - PRECAMBRIAN**  Dominantly granite
 -  Mines or prospects
 -  Occurrence



KING ISLAND GEOLOGICAL MAP
FIGURE 2

576008

008

Such irregularity in the distribution of mineralisation is normal for vein type deposits and a very similar pattern is apparent at the Mt. Carbine deposit (Figure 5). The veins at Reekara consist apparently of two types, tourmaline and quartz tourmaline with the mineralisation apparently associated with the tourmaline rich areas.

Two diamond drill holes were drilled by K.I.S. (1947) Ltd., in 1954 to test the extent of mineralisation associated with the Shaft A area. The location of these holes is shown on Figure 3 and geological sections of them are shown on Figure 4.

Unfortunately the core from these holes is not available for examination nor has any geological log been located so that the size of core and the percentage recovery obtained is unknown. Given the notes on the cross-sections and the comments in the 1955 report by T.D. Hughes, it is considered highly likely that the overall recovery would be fairly low as both the quartz mica schists and the tourmaline lode are noted to be very soft and friable. It is therefore possible that the assay results, sample length unknown, reported on the cross-sections are not representative of the overall tungsten mineralisation in the area. It appears that tin was not analysed for during this programme even though tin mineralisation is present in the veins, as recorded in the shafts, and this area was, and is, thought to be the source area for the alluvial tin mined to the south by Hawkes Alluvial.

The overall minimum grade which would be required in diamond drill holes through a possibly economic deposit of the vein swarm type would have to be in the 0.05 - 0.10% WO₃ range. At Mt. Carbine the overall face grade of 'ore' mined is in the order of 0.07% WO₃. The average grade of the individual quartz veins is 1.7% WO₃ with the veins varying in width from about 2 cm up to 60 cm wide and showing discontinuity in all three dimensions (Figure 5).

During the period when King Island Scheelite (1947) Ltd., had an option agreement over E.L. 4/68, May 1969 to May 1971, considerable work was done in an attempt to define any areas of potential economic interest.

Five areas were outlined, three of which, The Reekara Area, The Western Alluvials and The Southern Area (Gresham 1970) lie within E.L. 39/80.

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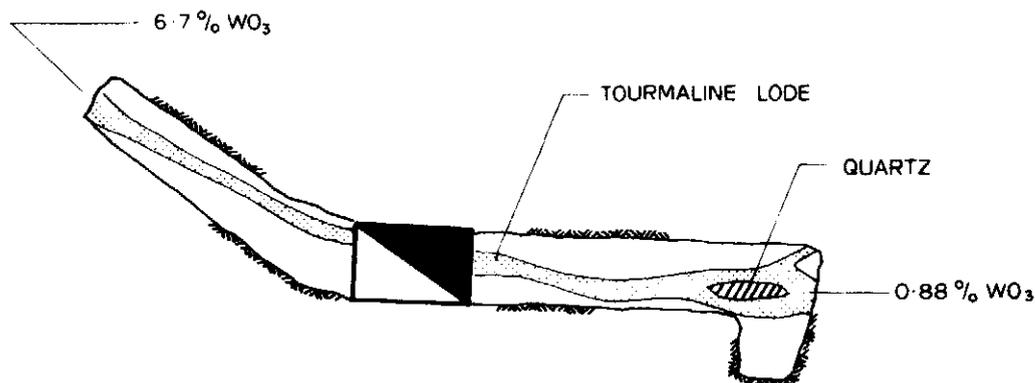


Diagram A

'A' SHAFT, 7m BELOW SURFACE

Scale 1:120

5 cm

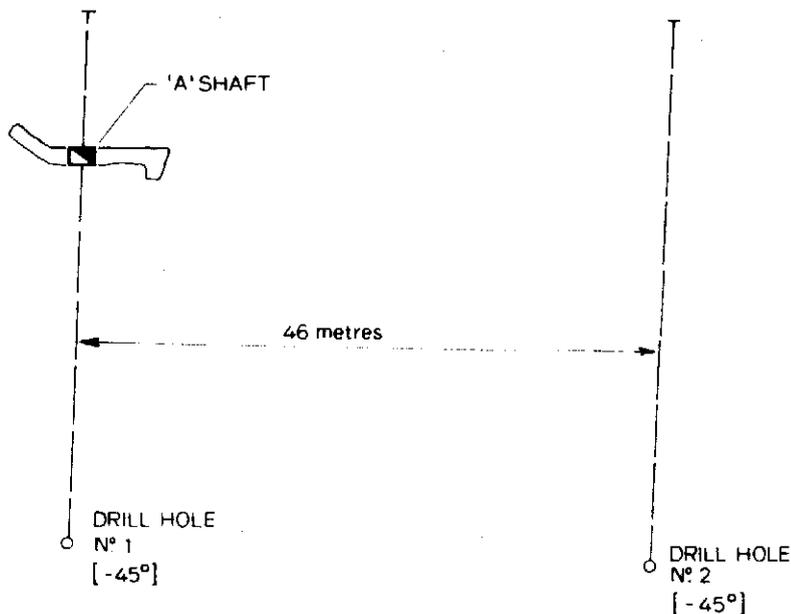


Diagram B

REF PLAN

NOTE

INFORMATION OBTAINED FROM MINES
DEPT. REPORT DATED 30th JUNE 1955
BY T.D HUGHES

GEOLOGY

SURVEY

PLANNING

ROCK MEC

GRADE CON

DRAFTING

TSS

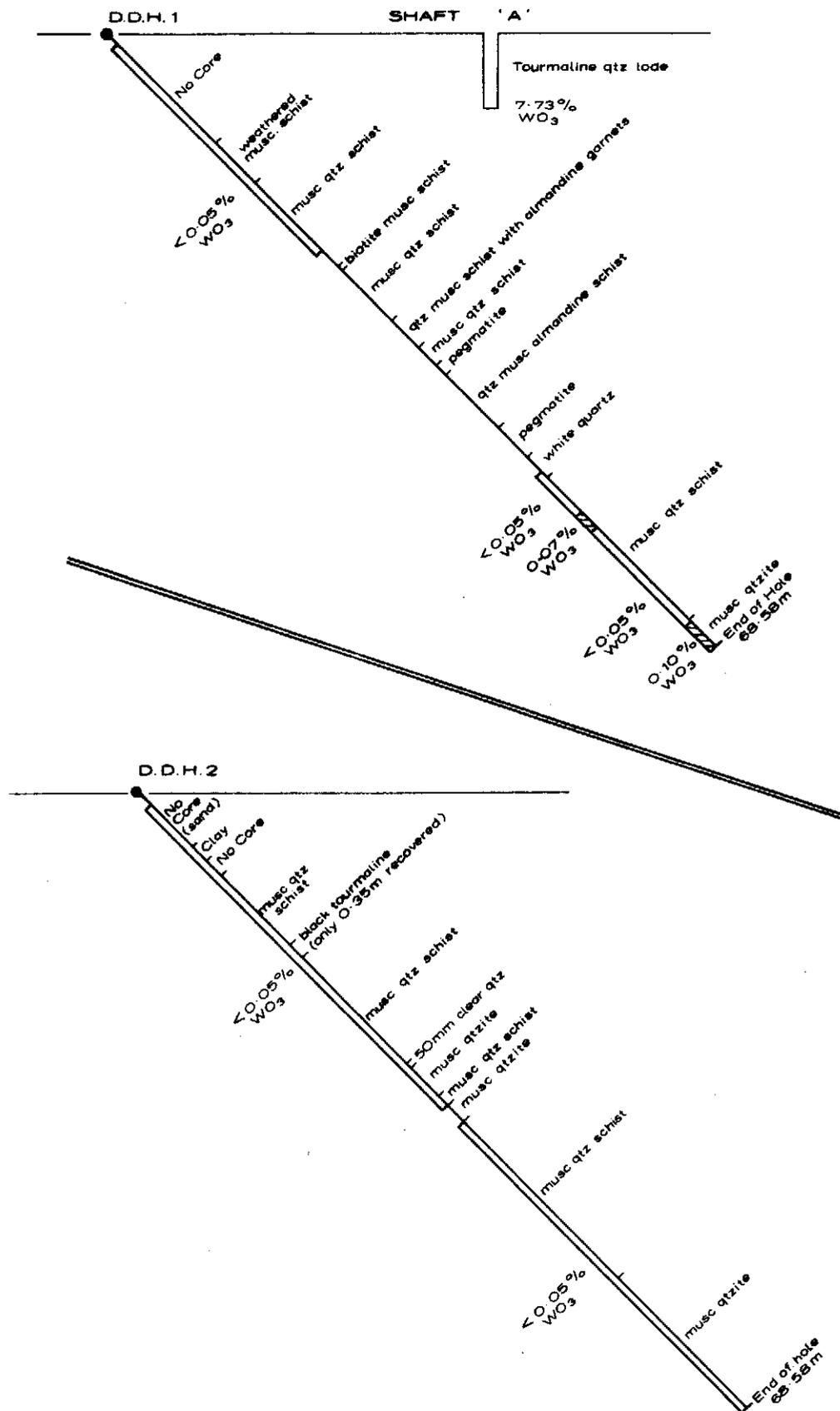
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KING ISLAND SCHEELITE
GRASSY KING ISLAND

FIG 3. E.L. 39/80
LOCATION PLAN
1954 Diamond Drill Holes

DRAWING NUMBER



<p>REF PLAN</p>	GEOLOGY			<p>1 : 500 SCALE</p>	
	SURVEY				
	PLANNING			<p>FIG. 4 EL 39 / 80 GEOLOGICAL SECTIONS 1954 DIAMOND DRILL HOLES</p>	
	ROCK MEC.				
	GRADE CON.				
	DRAFTING				
T.S.S.			DRAWING NUMBER		

010

576012

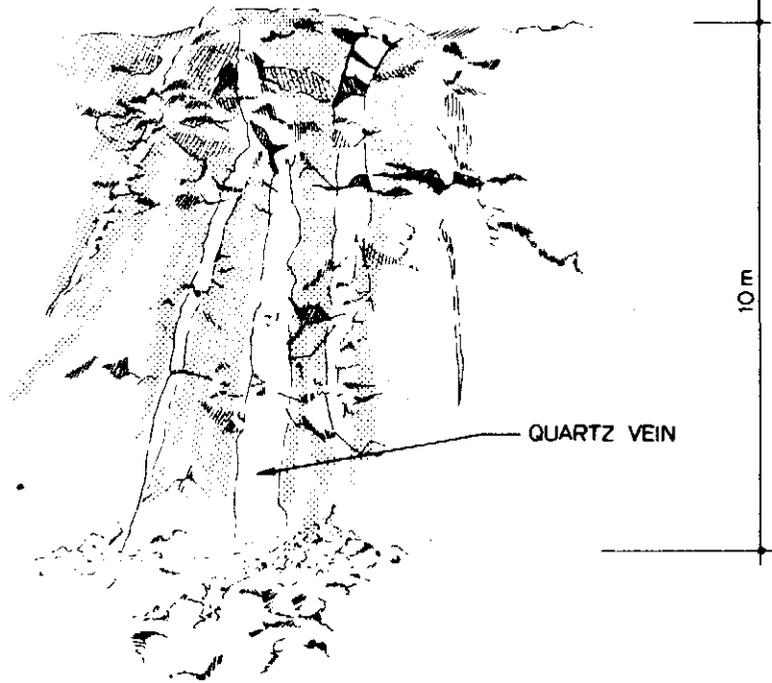


Diagram A

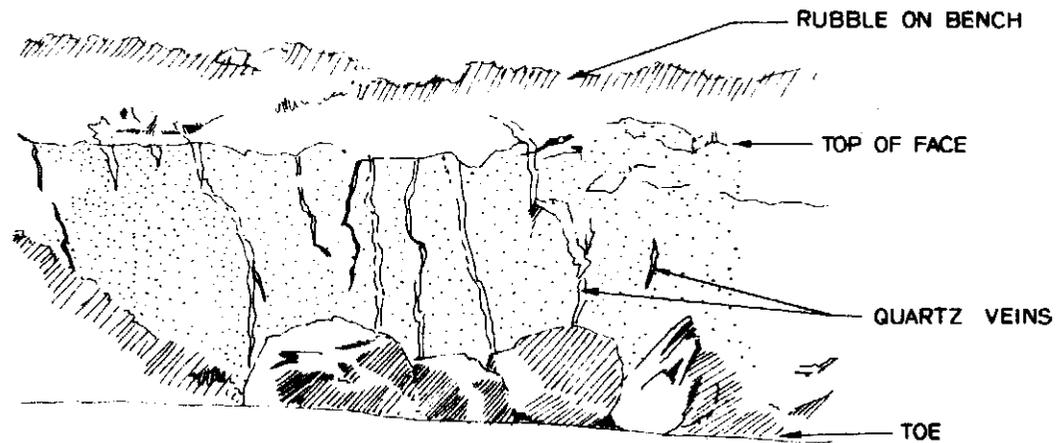


Diagram B

REF. PLAN

N.B. Traced from Photographs

5 cm

GEOLOGY

SURVEY

PLANNING

ROCK.MEC.

GRADE CON.

DRAFTING

T.S.S.

1:

SCALE



KING ISLAND SCHEELITE
GRASSY KING ISLAND

FIG 5. DIAGRAMS TO SHOW
VEIN DISTRIBUTION PATTERN
AT MT CARBINE
A Mine in far North Queensland.

DRAWING NUMBER

011

Results from the Western Alluvials Area, located south and west of the old Alluvial Tin Mine and the Southern Area were negative, and are basically irrelevant to the current exploration target.

The work at Reekara consisted of:-

- a) 131 scout hand auger holes at 50 metre intervals along roads and in the vicinity of the old tin workings (shafts).

These holes penetrated generally less than 0.8 metres, due to encountering either the water table or an ironstone layer. The fact that no anomalous results were obtained for any of the elements analysed Co, Cu, Ni, Pb, Cr, Zn, W, Sr, Ba, Mo, Sn is not considered to be overly detrimental to the potential of the area for this reason.

- b) A geophysical grid (Cottam 1971) covering some 1000 m x 1000 m with lines 50 m apart was pegged and self potential readings taken. No significant anomalies were found. Ground magnetic results over the same area also failed to detect any significant anomalies, although two small anomalies were detected.

Both these methods were basically aimed at detecting a massive sulphide body. The current search is for a vein swarm with probably only low sulphide content present in the veins. Such a deposit is considered difficult to detect with the above methods.

- c) Further Hand Augering (Cottam 1971) was carried out over 5 geophysical grid lines (100 holes) but again mainly failed to penetrate the ironpan layer. Analysis for Mo, W and Sn gave only one low (20 ppm) anomalous result for Tin. Further holes in this area were all below limit of detection.
- d) Hand Augering was carried out over the two magnetic anomalies, with 28 holes being drilled on one and 15 holes on the other. No significant results were obtained for Tungsten, Tin or Molybdenum.

012

In early 1973 Geopeko undertook to have the whole of King Island flown for an airborne magnetic and radiometric survey, however, due to tenure problems the majority of the area now covered by E.L. 39/80 was closed to the company and only portions of the northern and eastern sections were covered. The results of this survey, as shown on plan KG 39/80 - 004, did not show any significant anomalies other than that designated MA 3 which proved to be an olivine basalt plug.

Interest in the Reekara area lapsed until the potential of the area was re-considered in the light of the success achieved at the Mt. Carbine mine in operating an open cut on a low grade vein swarm deposit. Their success was due to the use of photometric sorting to upgrade the overall run of mine material at 0.07% WO₃ to a mill feed grade in excess of 1.0% WO₃.

It was considered that there was potential for such a deposit to occur at Reekara where the presence, if not the frequency, of mineralised quartz tourmaline veins was already known.

It was considered that the presence of the northern extension of the Grassy River Fault, together with the possibility of a subsurface extension of the Devonian-Carboniferous Mt. Council Granite under the area, would be required to satisfy the geological and structural conditions envisaged for the formation of a mineralised vein swarm deposit.

The current exploration work is designed to test the presence or absence of both the major structural shear (Grassy River Fault) and the underlying granite. In addition the number and frequency of the veins are to be tested by costeining. From this work it should be possible to evaluate the potential of this area for a Mt. Carbine type deposit.

013

FUTURE WORK PROGRAMME

During the next twelve months the following work programme is envisaged:-

- 1) Possible extension of the V.L.F. Survey north and south of the current zone of interest should the results of the current survey succeed in locating the major shears interpreted from the air photos.
- 2) Possible close spaced gravity work over the Reekara area should the current survey show the possibility of a sub-surface granite in the area.
- 3) Cut two coste^ans across the strike of the quartz veins at the old workings to test their number, size and mineralisation.
- 4) Diamond drilling would be carried out to test the down dip extension of the veins if the coste^an work showed that a potential for an economic deposit existed.

Two holes to 250 m are tentatively envisaged.

014

EXPENDITURE ON E.L. 39/80

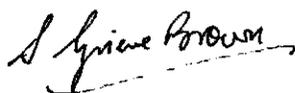
Six months to 15th June, 1983.

In the four months to 15th April only very minor expenditure has occurred. Work on the licence commenced in the second half of April and to the 1st May the estimated expenditure has been:-

Geology	\$	560
Survey	\$	490
Draughting	\$	90
Administration	\$	260
		<hr/>
		\$1 400
		<hr/>

It is currently planned to complete the survey pickup and tie in of the geophysical lines and compute the geophysical results before the 15th June.

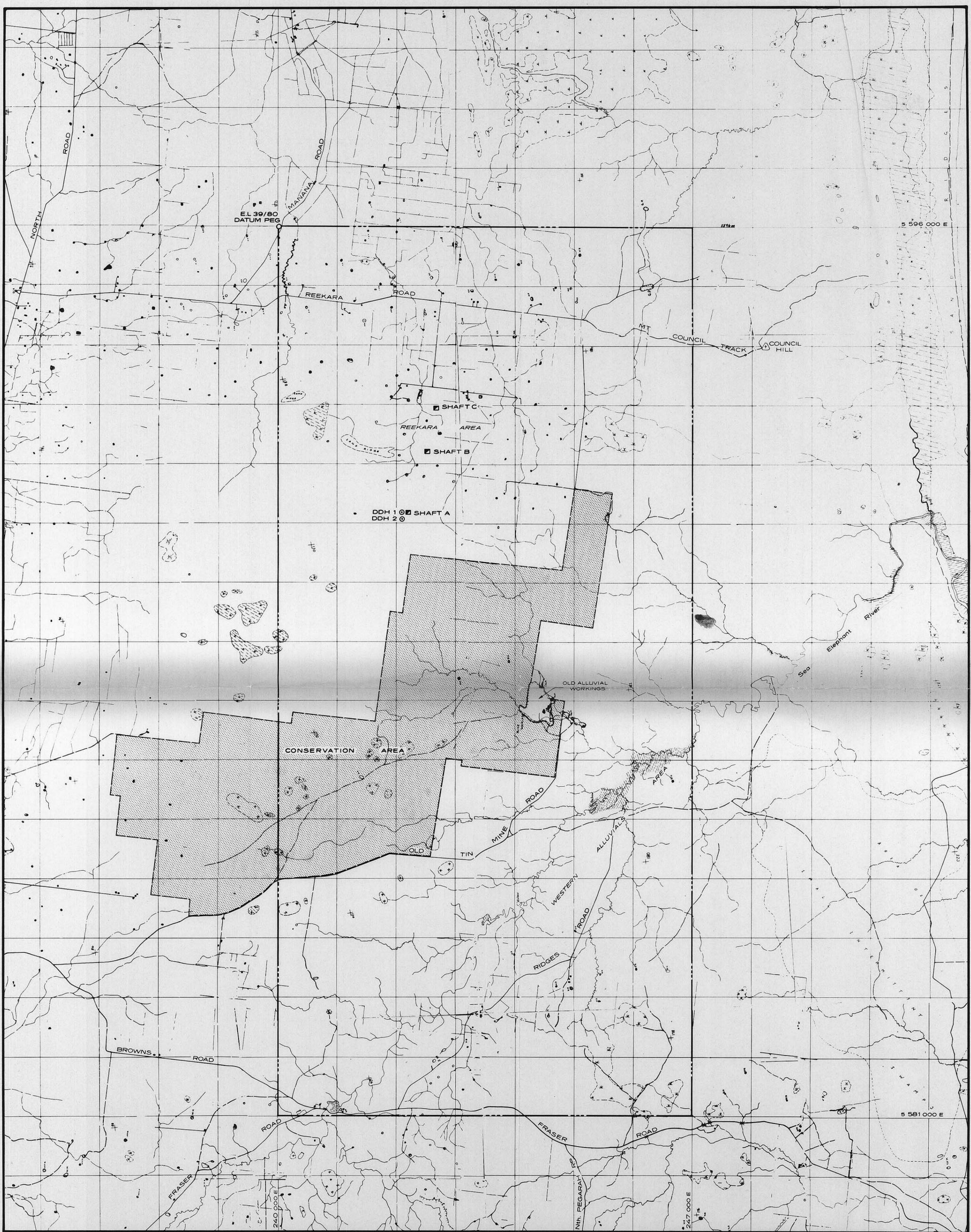
A total of \$7 500 has been estimated for this work together with the production of the geophysical report.



S. Grieve Brown
Supervising Geologist
KING ISLAND

BIBLIOGRAPHY

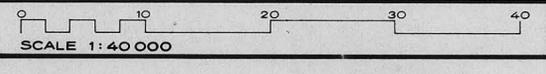
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- | | | |
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MAY 1983
Compiled at K.I.S

GEOPEKO

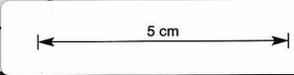
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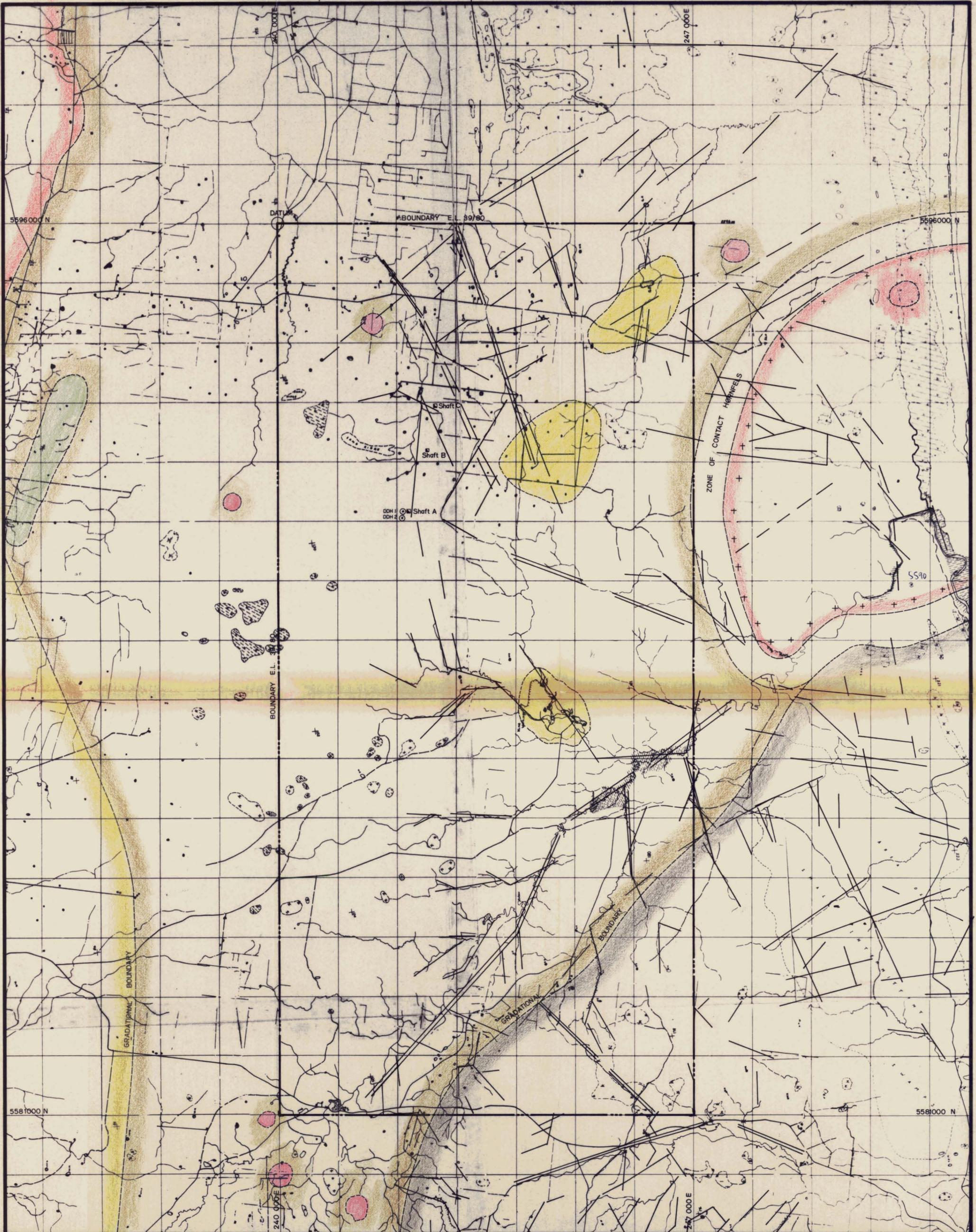
DWG N° 39/80-000

E.L. 39/80
BASE MAP

576018



83-1974



LEGEND:

	Basalt (Tertiary)		+ Old W/Sn exploration shafts
	Granite and Adamellite (Devonian)		○ Old Diamond drill holes
	Sandstones, Siltstones and Shales		
	Regional Metamorphosed Quartzites and Quartz muscovite staurolite schists		
	Regional Metamorphosed Quartzites and Quartz biotite andalusite schists		
	West Coast Granitic Complex		
	Basic dykes in Lower Proterozoic		
	Areas high in quartz float		

GEOLOGY

5 cm



DATE: 22-12-81
 DRAWN: C.W.
 GEOLOGY: S.G.B.
 CHECKED:

GEOPEKO

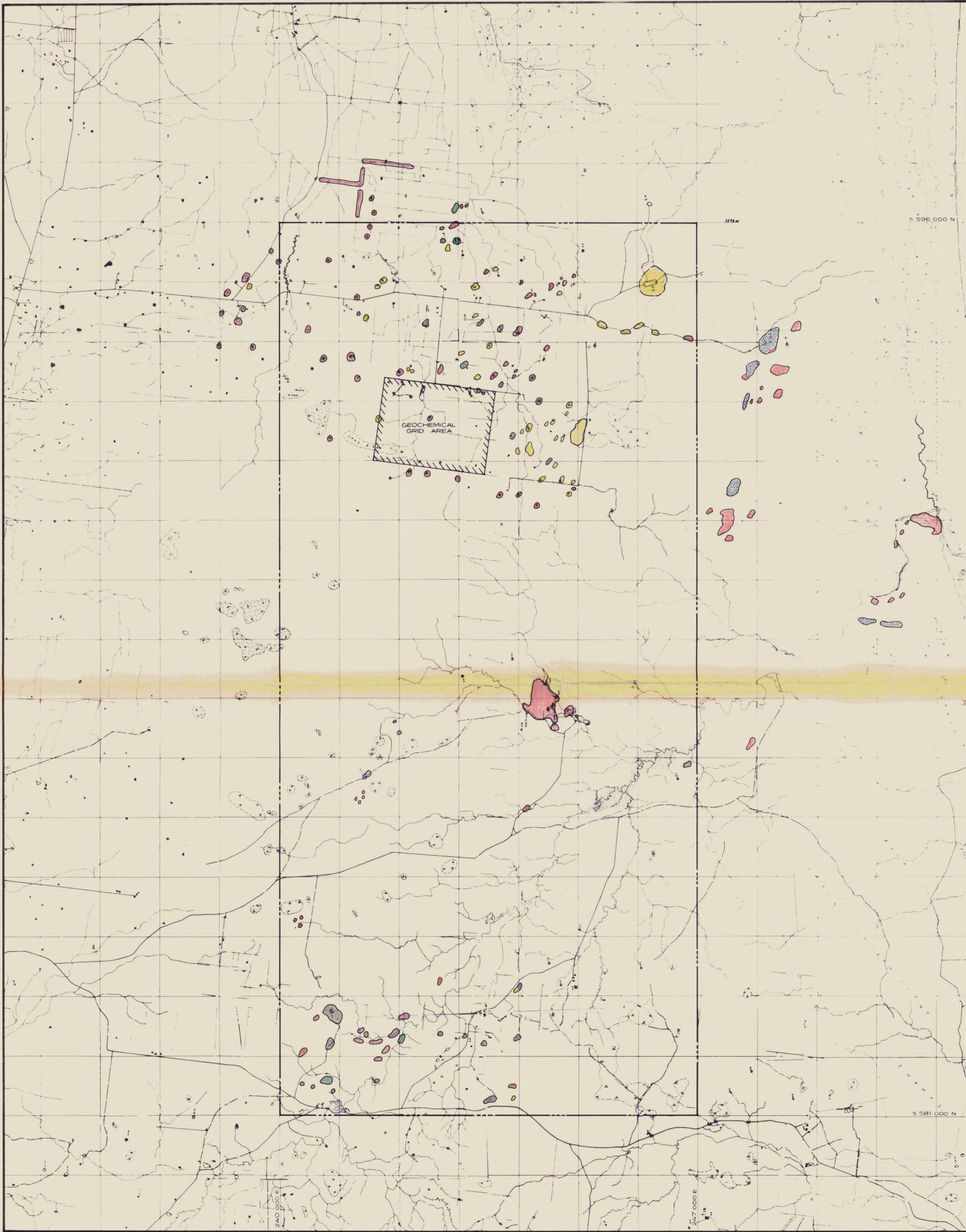
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DWG. No. KG 39/80 - 001

576019

E.L. 39/80
REGIONAL GEOLOGY MAP
 SHOWING PRELIMINARY PHOTOLINEAR STUDY RESULTS

83-1974



NOTE : GEOLOGY TAKEN FROM 1:12000 SCALE REGIONAL PLANS

LEGEND

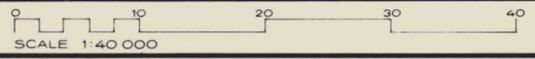
	SANDSTONE		QUARTZ		GRANITE
	LATERITE		BASIC DYKE		QUARTZITE
	SHALE		MICA SCHISTS		
	SPOTTED SHALE				



MAY 1983
Compiled at K.I.S.

GEOPEKO

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DWG N° 39/80-002

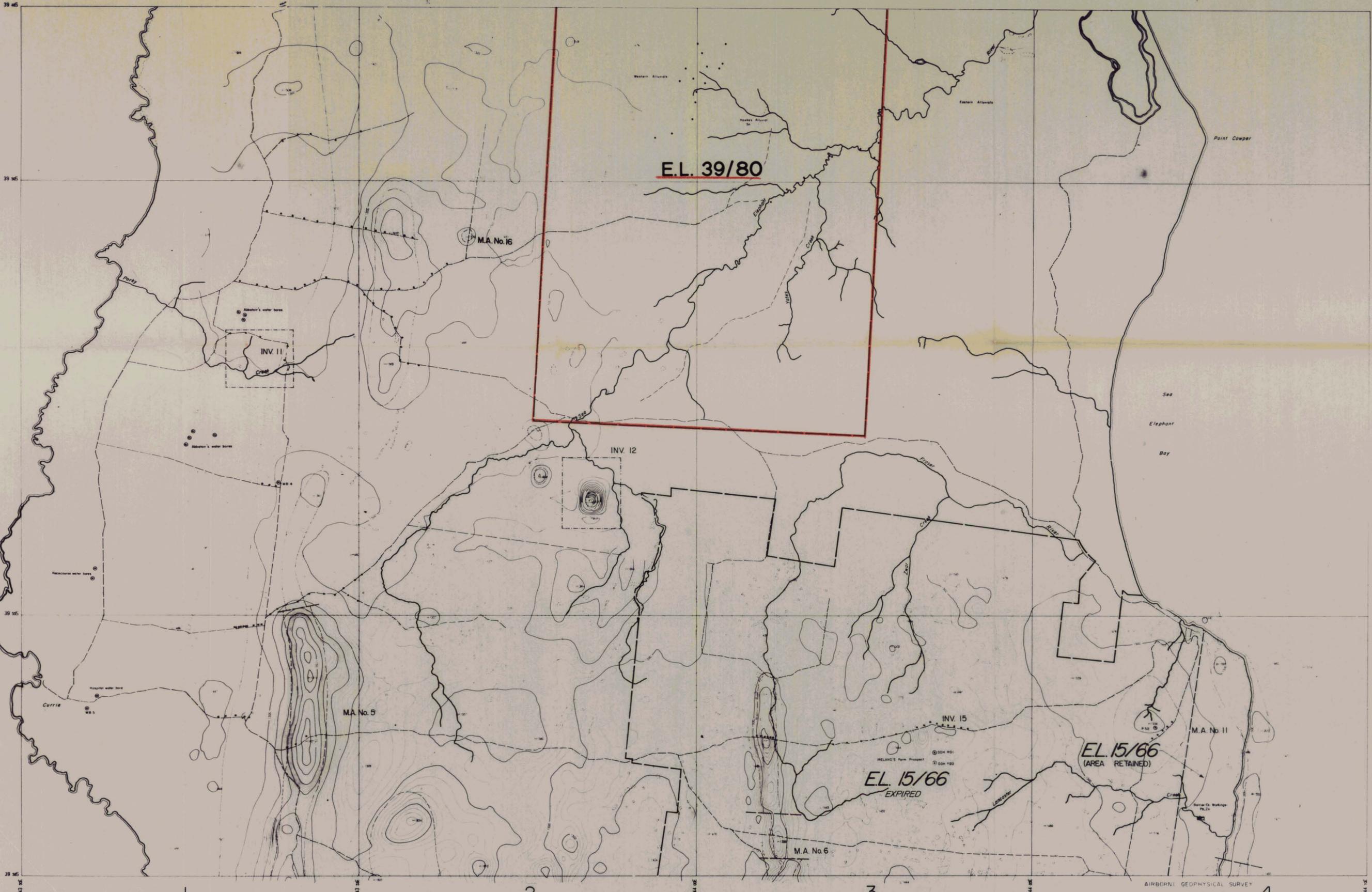
E.L. 39/80

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'OUTCROP' GEOLOGY

83-1974

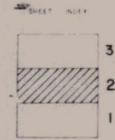
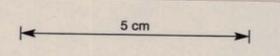




**MAGNETIC CONTOUR PLAN
SHOWING LOCATION OF AUGER DRILL HOLES**

- Percussion Drill Hole
- Gravel Hole
- Road
- E.L. Boundary
- - - - - Boundaries of areas covered by larger scale maps

FLIGHT ALTITUDE 90 METRES
 FLIGHT INTERVAL 200 METRES
 CONTOUR INTERVAL 5 GAUSS
 PROJECTION INTEGRATED CO-ORD. SYSTEM
 SURVEY AND COMPILED MARCH - MAY 1972
 PHOTOREDUCTION OF 1:25,000 PLANS



AIRBORNE GEOPHYSICAL SURVEY
 KING ISLAND
 TASMANIA
 GEOPEAK LIMITED
TOTAL MAGNETIC INTENSITY
 REGIONAL FIELD REMOVED
 SCALE 1:50,000

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