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GEOPEKO LIMITED

KING ISLAND

REPORT No. KI/74/4

FINAL REPORT ON THE MINERAL POTENTIAL

OF EXPLORATION LICENCE 18/72.

by

S. GRIEVE BROWN

KING ISLAND

JUNE, 1974.

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LIST OF PLANS

Map of King Island showing location of Exploration Licence 18/72. .

Map of Central King Island showing Aeromagnetic contours,
scale 1:25000

Map of Central King Island showing Radiometric contours,
scale 1:25000

Map of Southern King Island showing Aeromagnetic contours,
scale 1:25000

Map of Southern King Island showing Radiometric contours,
scale 1:25000

Ground Magnetic profile Magnetic Anomaly 5 scale 1:10000 .

Ground Magnetic profile Magnetic Anomaly 5A scale 1:10000 .

*Coloured geological map -
geological survey drafting room.*

INTRODUCTION

Exploration Licence 18/72 initially covered an area of 106 square miles in the west of King Island, but was reduced to a small, six square miles, area in December 1973.

This licence which expired on the 6th June 1973 covered an area previously held by the Company under E.L. 5/69, and was taken up again in June 1972 prior to the carrying out of an airborne geophysical survey in February 1973.

During the time the area was held under E.L. 5/69 the following exploration programme was conducted.

- Base map compilation from aerial photographs, scale 1:12000.
- Regional photo controlled geological mapping at an approximate scale of 1:12000.
- A regional geochemical sampling programme involving Gemco auger drilling to bedrock.
- Detailed hand and Gemco auger drilling in the Investigators 11 and 12 grids.

The results of this programme have been reported in 'Progress Report on E.L. 5/69' by P. Cottam, March 1972. It was concluded that geologically the environment was unfavourable for the occurrence of economic mineral deposits within the southern portion of E.L. 5/69 and that area was relinquished.

This report records the results of the exploration programme originating from the findings of the aeromagnetic survey.

The Exploration Licence was relinquished on the 8th June 1974.

SUMMARY

The aeromagnetic survey delineated four spot highs (magnetic anomaly No. 16 and a group of 3 at Investigator 12) and three distinct but broad linear anomalies trending approximately north - south. No meaningful results were obtained from the radiometrics.

Follow up ground magnetometer surveys were conducted over one spot high (magnetic anomaly 16) and one of the linear trends (magnetic anomaly 5/5A). However no auger drilling was considered necessary over these areas since magnetic anomaly 5 and Investigator 12 had been previously examined during the exploration of E.L. 5/69.

Evaluation of other magnetic anomalies (magnetic anomalies 2, 3, 4 and Investigator 12) with similar characteristics to magnetic anomaly 16 by auger drilling and percussion drilling showed that they are due to olivine basalt plugs exhibiting strong magnetic character. Auger drilling across the contacts of the basalt plugs have shown no anomalous geochemical trends indicative of introduced mineralization.

Examination of outcrops on the coastal section where the source rocks of magnetic anomaly 5/5A are exposed showed a regionally metamorphosed sequence of biotite mica schists and quartzites. Petrographic examination of samples obtained from previous auger drilling over the magnetic anomaly 5 area showed similar rock types with moderate magnetite content.

CONCLUSIONS

1. The mineral potential of E.L. 18/72, excluding the anomalous magnetic features, has been adequately evaluated when the area was held under E.L. 5/69 (Progress Report E.L. 5/69 by P. Cottam).
2. The circular, intense magnetic anomalies (No. 16 and Investigator 12) are considered to be due to an olivine basalt plug rich in magnetite similar to others (magnetic anomalies 2, 3, and 4) located in the north of the Island.
3. By comparison with the other magnetic anomalies whose sources were located and tested for mineralization it is reasonable to assume that the source of these anomalies will also be barren of introduced mineralization.
4. The broad linear trends apparent in the magnetic contour maps reflect the different metasediment units.
5. It is considered that the probable source of magnetic anomaly No. 17 is a series of basic dykes intruded into the metasediments.

RECOMMENDATIONS

It is recommended that no further work be carried out and that the Exploration Licence be allowed to expire.

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ACTION SHEET

E.L. 18/72 was relinquished on 8th June 1974.

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KING ISLAND

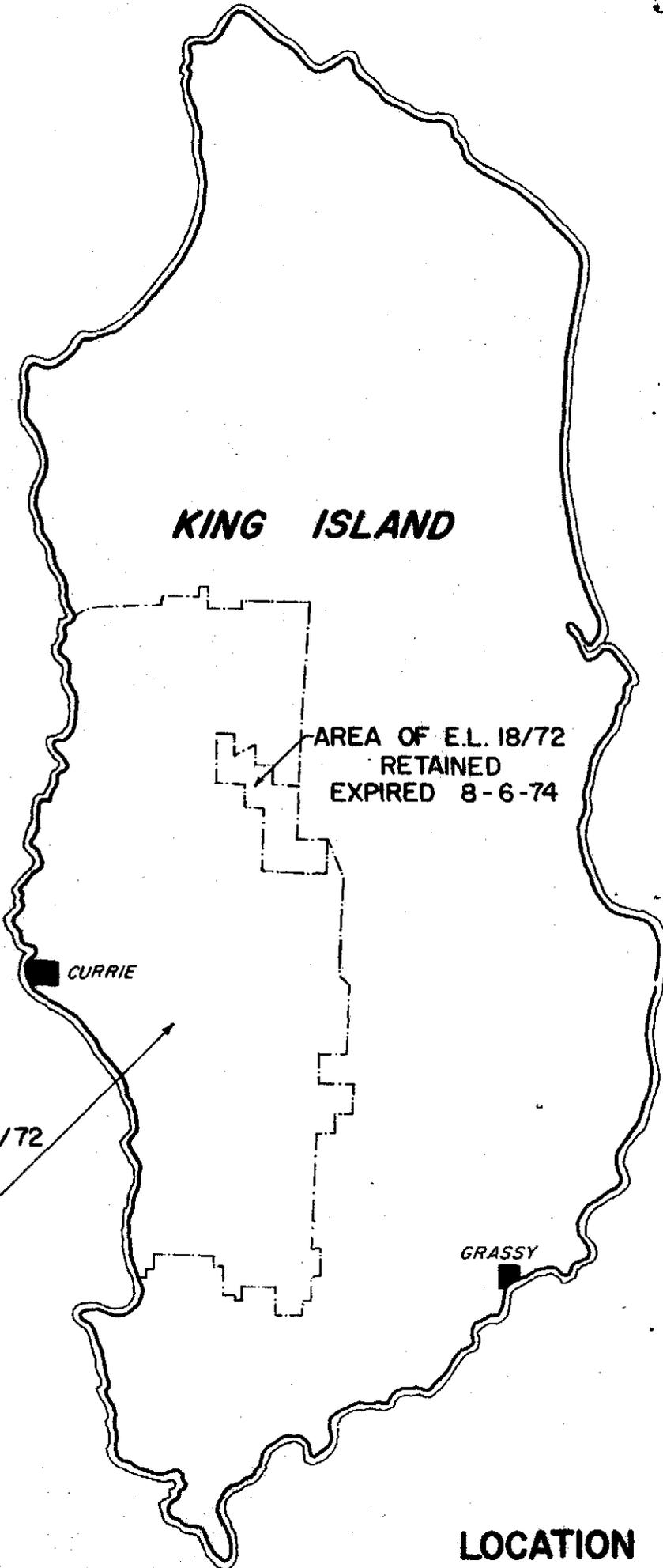
AREA OF E.L. 18/72
RETAINED
EXPIRED 8-6-74

CURRIE

AREA OF E.L. 18/72
RELINQUISHED
8-12-73

GRASSY

**LOCATION MAP
E.L. 18/72**



GEOPHYSICS

The major portion of this Exploration Licence was covered by the airborne magnetic and radiometric survey carried out over most of King Island in February 1973 by Canadian Aero Services on behalf of Geopeko Limited.

No meaningful results were obtained from the radiometric survey.

Four intense circular anomalies were located in the extreme east of the E.L. on the aeromagnetic results. Three of these lay within the area previously designated Investigator 12 where ground magnetic traverses and geological mapping over one of the anomalies had shown it to be due to an olivine basalt plug.

The other anomaly (No. 16) lay some distance to the north of this group and was accurately located by ground magnetometer traverses. The results of the ground magnetics showed the anomaly to be an intense magnetic high of circular shape similar to those at Investigator 12.

Three broad magnetic trends in the west of the E.L. are shown by the magnetics and two ground magnetometer traverses were carried out over the most intense of these (magnetic anomaly 5/5A). The results of the ground magnetics showed this anomaly to be due to a sill-like body striking north - south and dipping steeply to the west. This strike and dip would agree with that mapped on the west coast. The trend is considered to be due to a horizon of biotite mica schist containing magnetite.

The broad magnetic anomaly occurring in the north west of the E.L. (magnetic anomaly 17) is considered to have as its source a series of basic dykes which intrude the meta sediments in this area.

GEOLOGY

The geology within Exploration Licence 18/72 consists of West Coast Granite and meta sediments overlain in part by a thick deposit of recent sands and gravels. These rock types have been described previously (P. Cottam), and the only additional information obtained during the present programme is the broad variations in magnetic susceptibility in the meta sediments.

A series of water bores drilled within the licence area were logged and these confirmed the distribution of the major rock units, no mineralization was detected in any of these holes.

By comparison with the magnetic anomalies (No's 2, 3, 4) occurring elsewhere in the northern portion of the Island, and which have been identified as magnetite rich olivine basalt plugs, it is assumed that the source of the spot magnetic anomalies (No. 16 and Investigator 12) is also due to a similar plug of olivine basalt intruded into the meta sediments in the east of the licence area.

The broad magnetic anomaly (magnetic anomaly 17) lying in the north of the licence area is associated with, and most probably due to, a series of basic dykes which intrude the meta sediments in this area.

As previously stated (P. Cottam) it appears from the results of the exploration programmes to date that there is no real potential for the occurrence of economic mineralization within the licence area.

GEOPEKO LIMITED

S. Grieve Brown

S. Grieve Brown
GEOLOGIST.

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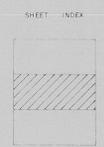
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FLIGHT ALTITUDE 92 METRES
 FLIGHT INTERVAL 44 KILOMETRES
 CONTOUR INTERVAL 5 GAMMAS
 CONTOUR INTERVAL 25 CPS
 PROJECTION INTEGRATED CO-DIG SYSTEM
 SURVEYED AND COMPILED MARCH - MAY 1973
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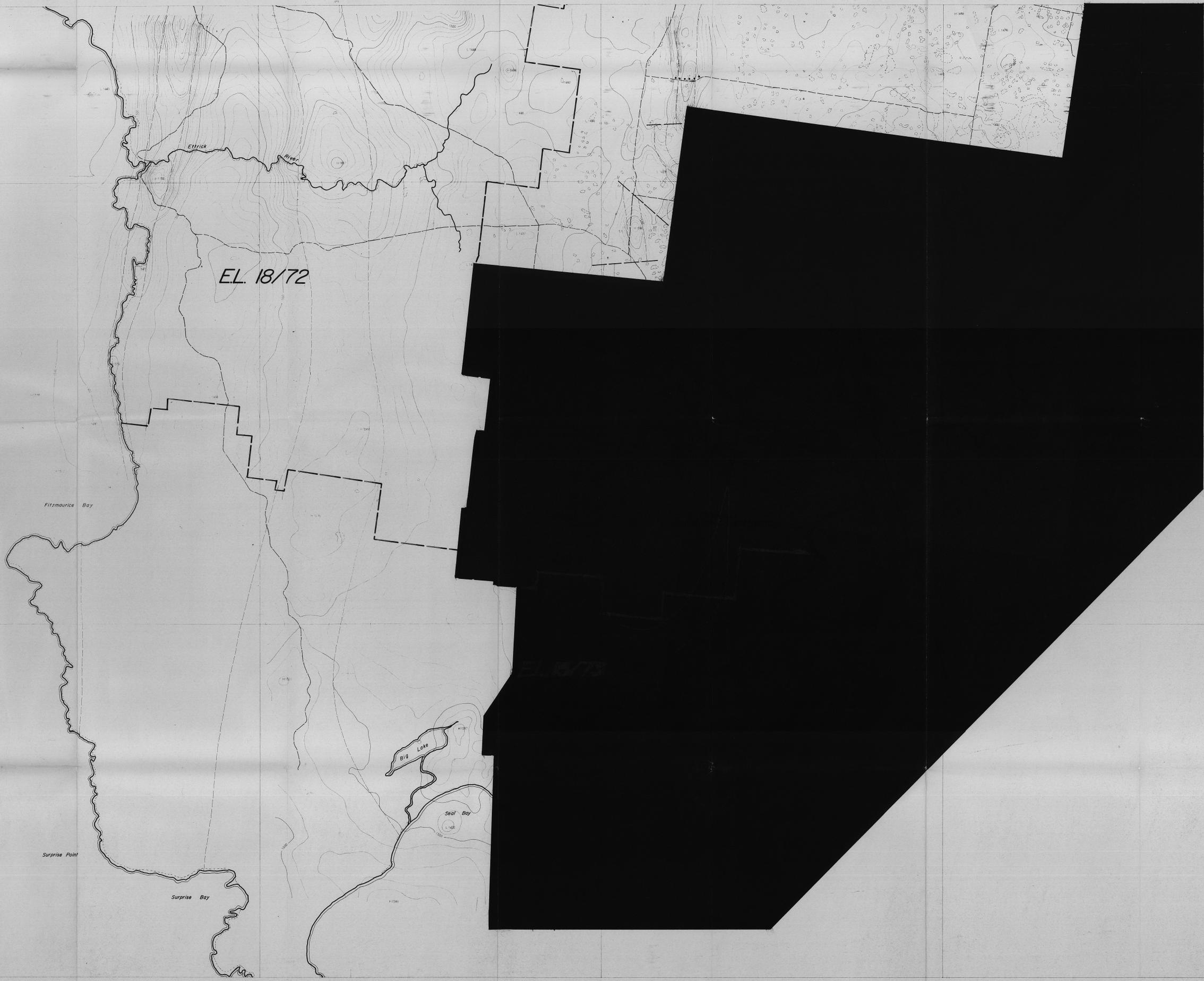
AIRBORNE GEOPHYSICAL SURVEY
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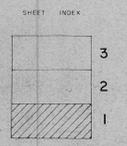
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MAGNETIC CONTOUR PLAN
SHOWING LOCATION OF AUGER DRILL HOLES

- Percussion Drill Holes
- Geop Hole
- Roads
- E.L. Boundary
- Boundaries of areas covered by large scale maps

FLIGHT ALTITUDE 92 METRES
FLIGHT INTERVAL 200 METRES
CONTOUR INTERVAL 25 METRES
CONTOUR INTERVAL 25 METRES
PROJECTION INTERGRATED CO-ORD SYSTEM
SURVEYED AND COMPILED MARCH - MAY 1978
A/C PROJECT NO. 7302



AIRBORNE GEOPHYSICAL SURVEY
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TOTAL MAGNETIC INTENSITY
REGIONAL FIELD REMOVED
SCALE 1:25,000



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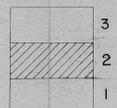
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MAGNETIC CONTOUR PLAN
SHOWING LOCATION OF AUGER DRILL HOLES

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

FLIGHT ALTITUDE 92 METRES
 FLIGHT INTERVAL 4 KILOMETRES
 CONTOUR INTERVAL 4 GAMMAS
 TOTAL MAGNETIC INTENSITY 25 CPS
 PROJECTION INTERGRATED OO-DRD SYSTEM
 SURVEYED AND COMPILED MARCH - MAY 1978
 ASC PROJECT NO. 7202



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AIRBORNE GEOPHYSICAL SURVEY
 KING ISLAND
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 GEOPEKO LIMITED
TOTAL MAGNETIC INTENSITY
 REGIONAL FIELD REMOVED
 SCALE 1:25,000

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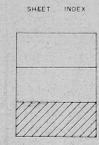
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FLIGHT ALTITUDE 90 METRES
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 CONTOUR INTERVAL 5 GAMMAS
 TOTAL MAGNETIC INTENSITY
 CONTOUR INTERVAL 25 CPS
 TOTAL COUNT
 PROJECTION INTEGRATED CO-ORD SYSTEM
 SURVEYED AND COMPILED MARCH - MAY 1973
 ASC PROJECT NO 7302



AIRBORNE GEOPHYSICAL SURVEY
 KING ISLAND
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 GEOPEKO LIMITED
 TOTAL COUNT

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SCALE 1:25,000



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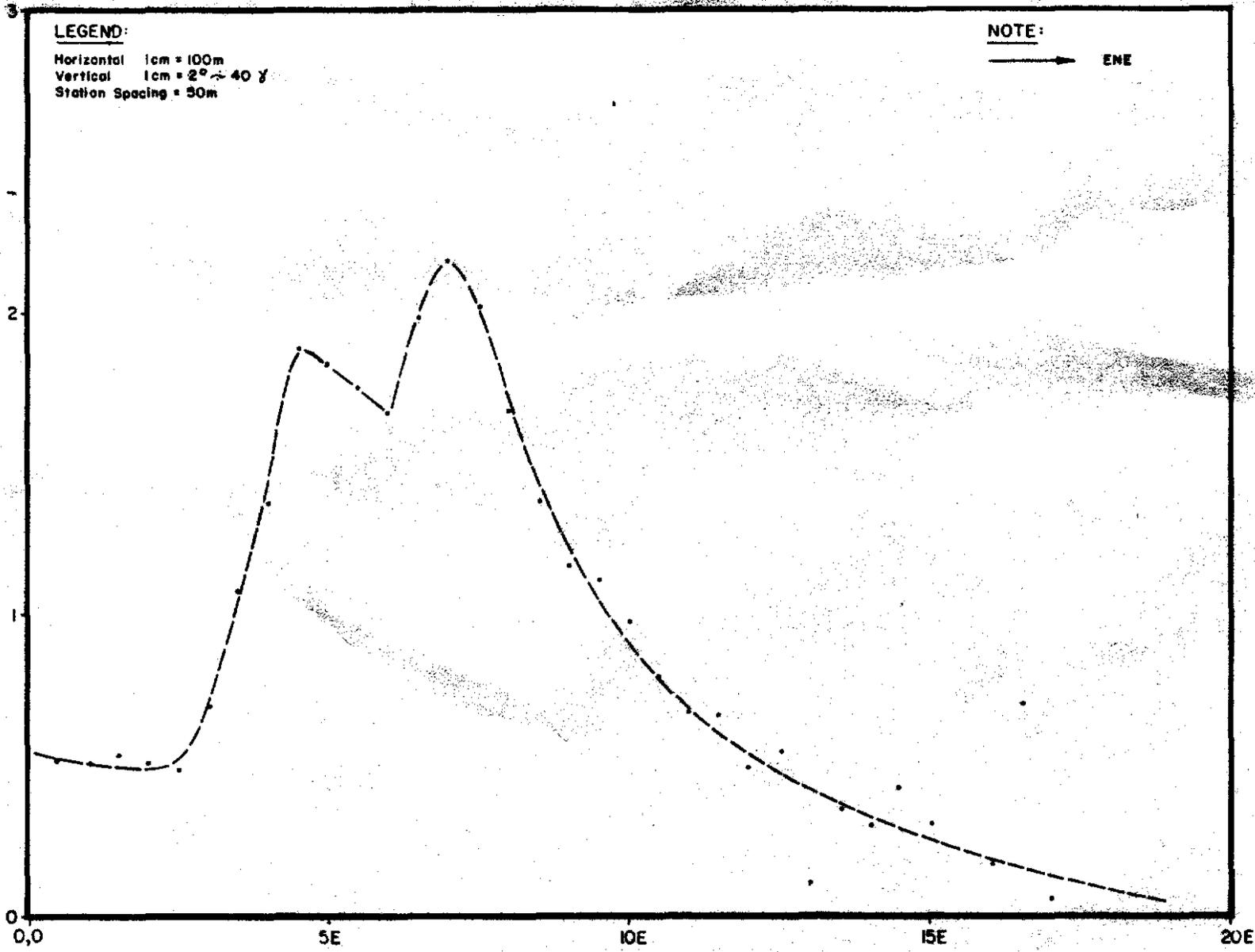
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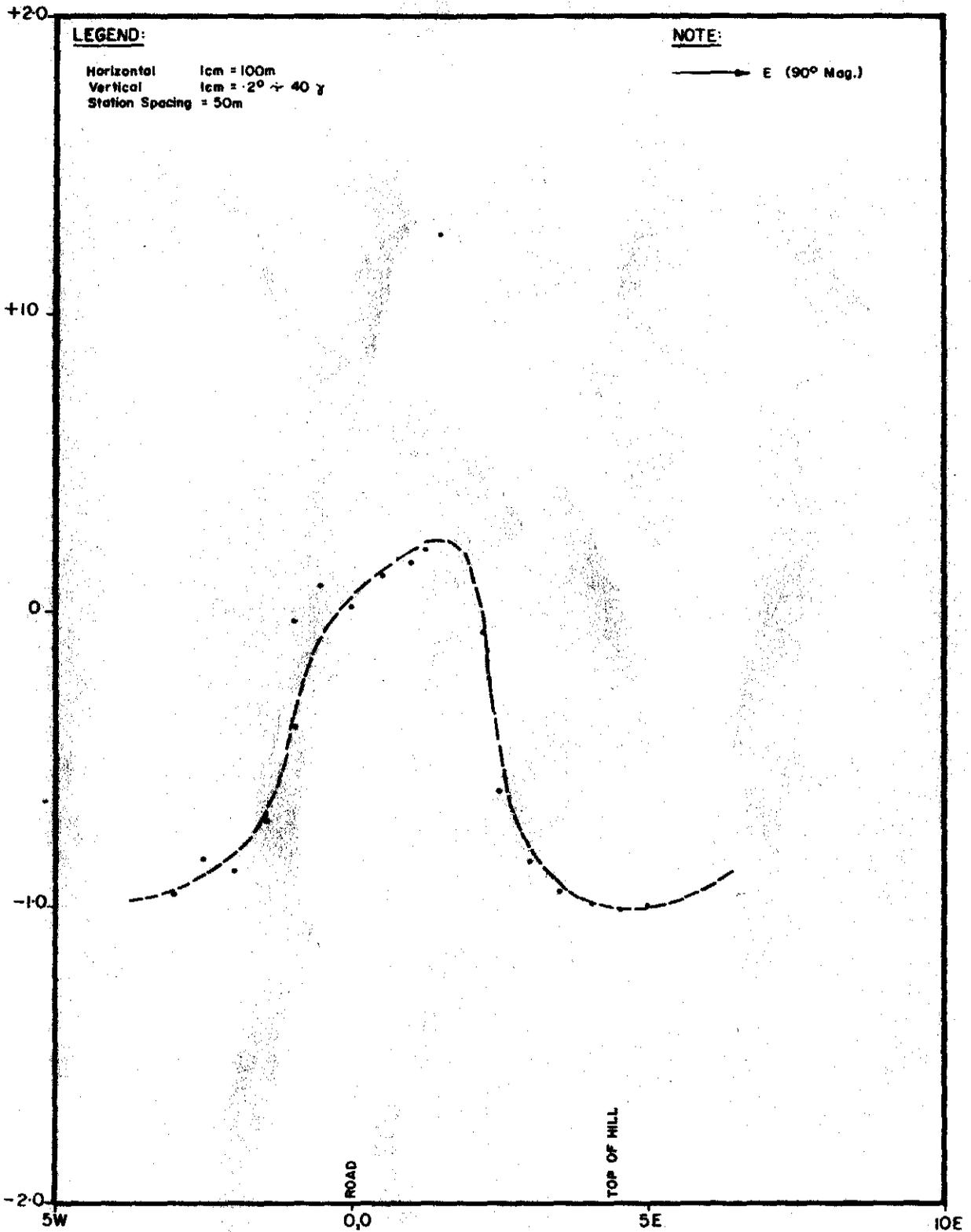
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**RECONNAISSANCE TRAVERSE
MAGNETIC ANOMALY 5**

5 cm



**RECONNAISSANCE TRAVERSE
 MAGNETIC ANOMALY 5A**

