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EL 468

JAMESTOWN

PROGRESS AND FINAL REPORTS TO LICENCE EXPIRY FOR THE PERIOD 25/4/79 TO 23/10/80

Submitted by
Jingellic Minerals NL
1981

Enquiries: Customer Services
Ground Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

PRIMARY INDUSTRIES AND RESOURCES SA

CONTENTS ENVELOPE. 3555.

TENEMENT E.L. 468.
TENEMENT HOLDER. JINGELLIC MINERALS N.L.

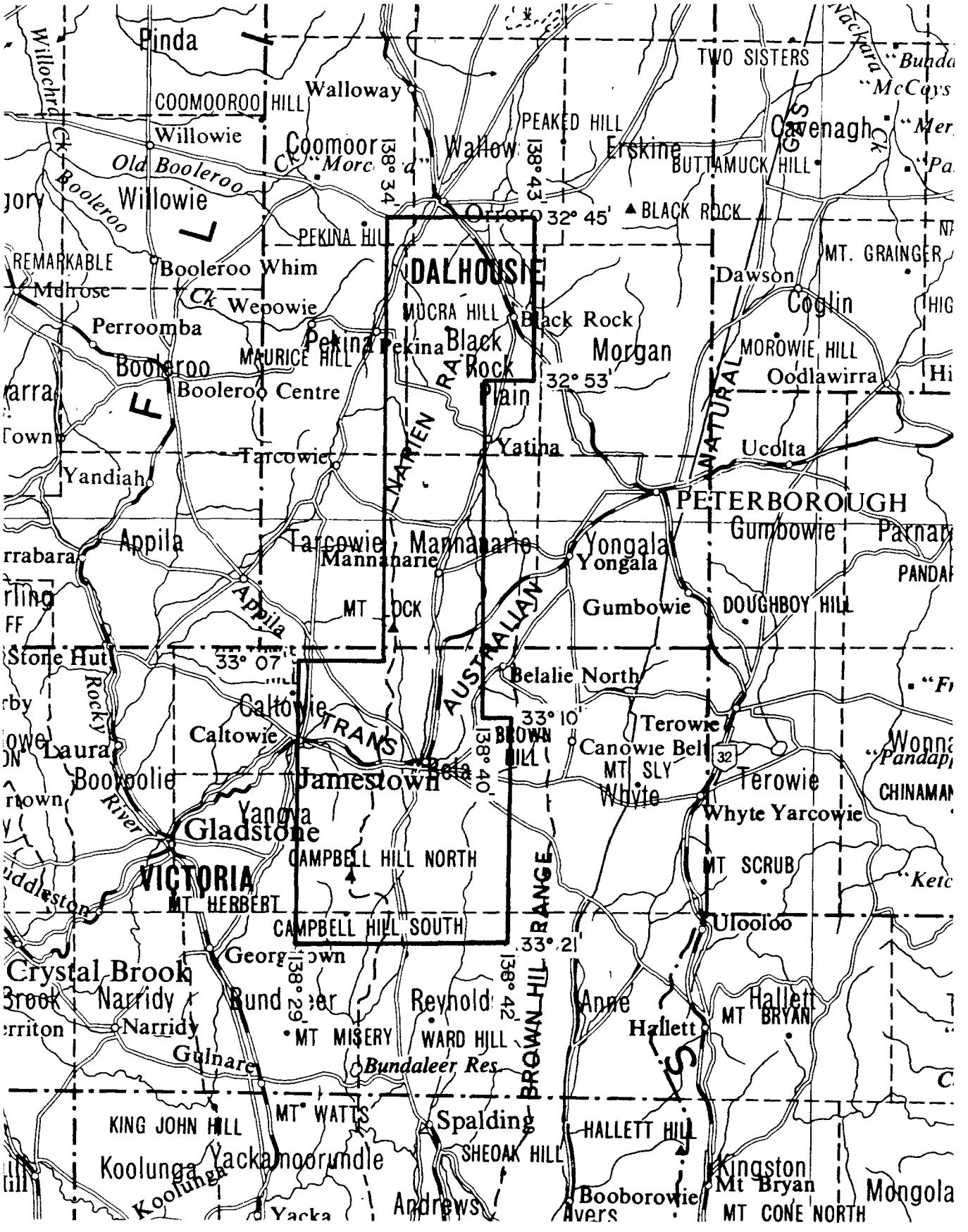
CONTENTS ENVELOPE 3555. 003

PLANS.

REPORT

PLANS

SCHEDULE A



SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

EXPIRED

APPLICANT: JINGELLIC MINERALS N.L.

DM: 637/78 AREA: 955 square kilometres

1:250000 PLANS: ORRORROO BURRA

LOCALITY: JAMESTOWN – BLACK ROCK AREA

DATE GRANTED: 25·4·79 DATE EXPIRED: ~~24·4·80~~ 24·10·80

EL No: 468

JINGELLIC MINERALS N.L.
2nd FLOOR, BANK OF NEW SOUTH WALES CHAMBERS
BRISBANE STREET, TAMWORTH 2340, N.S.W, AUSTRALIA

TELEGRAPHIC ADDRESS: JINMIN
TELEPHONE: (067) 66 2335

POSTAL ADDRESS:
P.O. BOX 267,
TAMWORTH 2340.
N.S.W., AUSTRALIA.

004

SBH:SC

15th October, 1979

Director General,
Department of Mines & Energy
South Australia,
P.O. Box 151,
EASTWOOD S.A. 5063

Dear Sir,

Re: Exploration Licence 468

I refer to your letter dated 9th October 1979 in relation to our Exploration Licence 468.

Geological Consultants Layton and Associates Pty. Ltd of Sydney have recommended to us a Preliminary Exploration Programme for EL 468 and this is expected to commence shortly, and will consist of the collection of geochemical samples from stream beds for the analysis of Nb, Ni, Cu, Co, Cr and Mg.

The results from this programme will be forwarded to you as soon as they are evaluated by our Consultants.

REPORT. The work therefore, carried out by Layton and Associates Pty. Ltd for the Quarter ended 24th July 1979 consisted of research that led up to their recommendations.

Yours faithfully,
JINGELLIC MINERALS N.L.

S.B. Hyman
DIRECTOR

RECEIVED
19 OCT 1979
DEPT. OF MINES AND ENERGY SECURITY
3555

JINGELLIC MINERALS N.L.
EXPLORATION LICENCE NO. 468.

JAMESTOWN AREA
SOUTH AUSTRALIA.

REPORT FOR THE PERIOD 25TH JULY TO 24TH OCTOBER 1979.

JINGELLIC MINERALS N.L.,
P.O. BOX 267,
TAMWORTH 2340,
N.S.W.

TELEPHONE: (067) 662335.

JINGELLIC MINERALS N.L.

EXPLORATION LICENCE NO. 468.

REPORT FOR THE PERIOD 25TH JULY TO 24TH OCTOBER 1979.

TECHNICAL PROGRAMME COMPLETED FOR THE SECOND QUARTER.

A lineament study, using I : I,000,000 scale has been completed over the Jamestown area. Full aerial photographic coverage of the region has been ordered.

TECHNICAL PROGRAMME PLANNED FOR THE THIRD QUARTER.

A detailed fracture analysis using I : 86,000 scale black and white aerial photographs will be undertaken. Conditions and circumstances permitting we will have a team in the field in December or early January.

PROGRAMME EXPENDITURE.

Expenditure for the second quarter has amounted to $I,000.

.....

FRACTURE STUDY

JAMESTOWN AREA

SOUTH AUSTRALIA

EL 468 F.1.

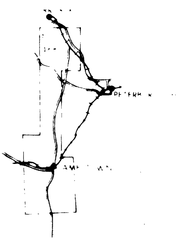
FOR

JINGELLIC MINERALS N.L.

BY

LAYTON AND ASSOCIATES PTY. LIMITED

1980



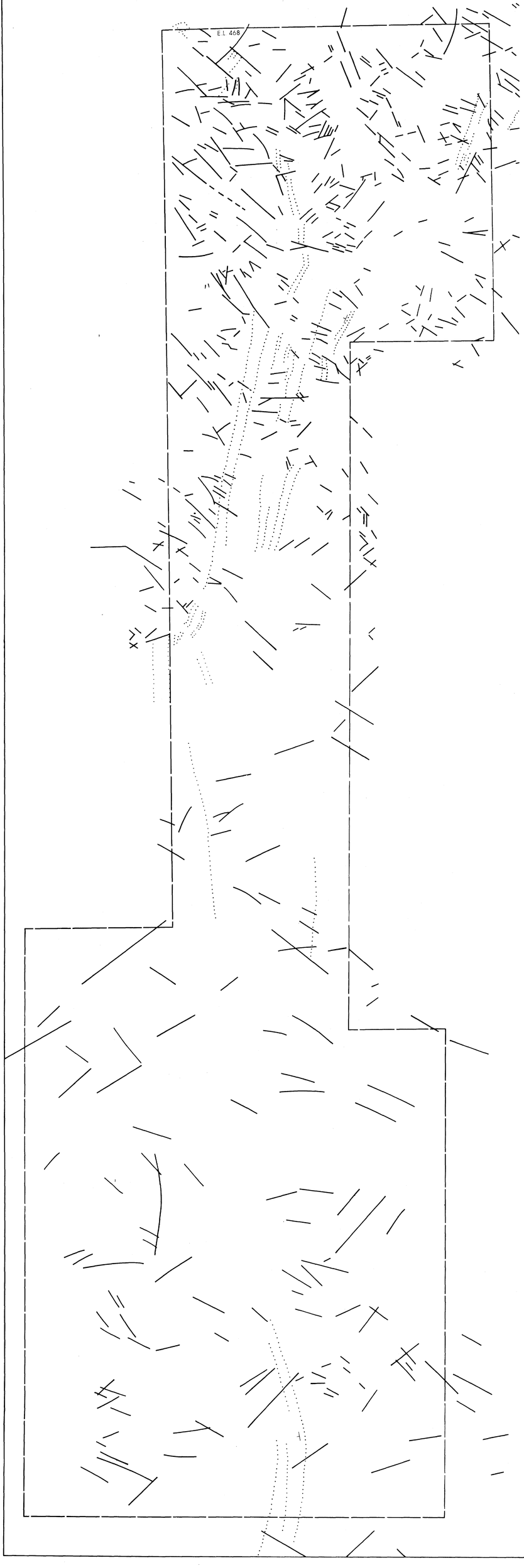
LAYTON AND ASSOCIATES PTY. LTD.

SYDNEY AUSTRALIA

E.L. 468 SOUTH AUSTRALIA

PHOTO-FRACTURE AND PHOTO-GEOLOGIC MAP

ENV 3555-6)



LAYTON AND ASSOCIATES PTY. LTD.

SYDNEY AUSTRALIA

E.L. 468 SOUTH AUSTRALIA

LANDSAT IMAGERY
LINEAMENT MAP

(ENV 3555-7)

F.3

JINGELLIC MINERALS N.L.
EXPLORATION LICENCE NO. 468.

JAMESTOWN AREA
SOUTH AUSTRALIA.

REPORT FOR THE PERIOD 25TH OCTOBER, 1979 TO 24TH JANUARY, 1980.

JINGELLIC MINERALS N.L.,
P.O. BOX 267,
TAMWORTH 2340,
N.S.W.

TELEPHONE: (067) 662335.

JINGELLIC MINERALS N.L.

EXPLORATION LICENCE NO. 468.

REPORT FOR THE PERIOD 25TH OCTOBER, 1979 TO 24TH JANUARY, 1980.

TECHNICAL PROGRAMME COMPLETED FOR THIRD QUARTER.

A detailed fracture analysis using black and white aerial photographs has been completed. Following this nine areas of lineament and/or fracture intersections were selected as potential targets for field exploration.

A field trip was undertaken in the latter half of January and some seventy (70) soil and stream sediment samples were taken.

These samples are at present being analysed for Tantalum, Chromium, Copper, Nickel, Niobium and Strontium .

A detailed report will be forthcoming as soon as the analytical results become available.

TECHNICAL PROGRAMME PLANNED FOR THE FOURTH QUARTER.

Depending on the results of the above-mentioned geochemical survey, a follow up programme of stream geochemistry will be undertaken. This will involve the sampling of Ist and possibly 2nd order stream junctions for the standard resistant kimberlite indicator minerals such as pyrope-garnet, chrome diopside and picro-ilmenite.

In addition to this, soil sample grids will be placed over stream sediment anomalies and fracture intersection targets. These will then be analysed for kimberlite indicator elements.

PROGRAMME EXPENDITURE.

Expenditure for the second quarter has amounted to$2,000.00

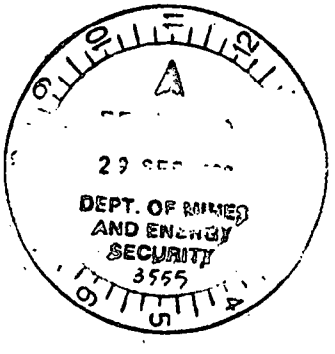
.....

JINGELLIC MINERALS N. L.

EXPLORATION LICENCE NO. 468.

JAMESTOWN AREA
SOUTH AUSTRALIA

REPORT FOR THE PERIOD 24TH APRIL TO THE 23RD OF ~~AUGUST~~ JULY ?, 1980.



JINGELLIC MINERALS N.L.,
P. O. BOX 267,
TAMWORTH, 2340,
N. S. W.

TELEPHONE: (067) 662-335

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1. INTRODUCTION

During this quarter another stage of field exploration was undertaken with the purpose of accurately defining the geographic locality of anomalies resulting from the last survey.

2. TECHNICAL PROGRAMME COMPLETED

During this period field investigations were carried out over areas which displayed geochemical anomalies.

Four areas - A,C,D and I - as outlined in our annual report, were examined using geophysical and geochemical methods. These areas are outlined in figure 1.

2.1 GEOPHYSICS

The first stage of the field programme involved the undertaking of a ground magnetometer survey. The survey was carried out using a proton precession magnetometer.

Magnetic readings were collected on a 100 metre grid and the results were contoured in the field. The purpose of this was to delineate areas suitable for geochemical follow up. Contoured magnetic maps are included in the appendix.

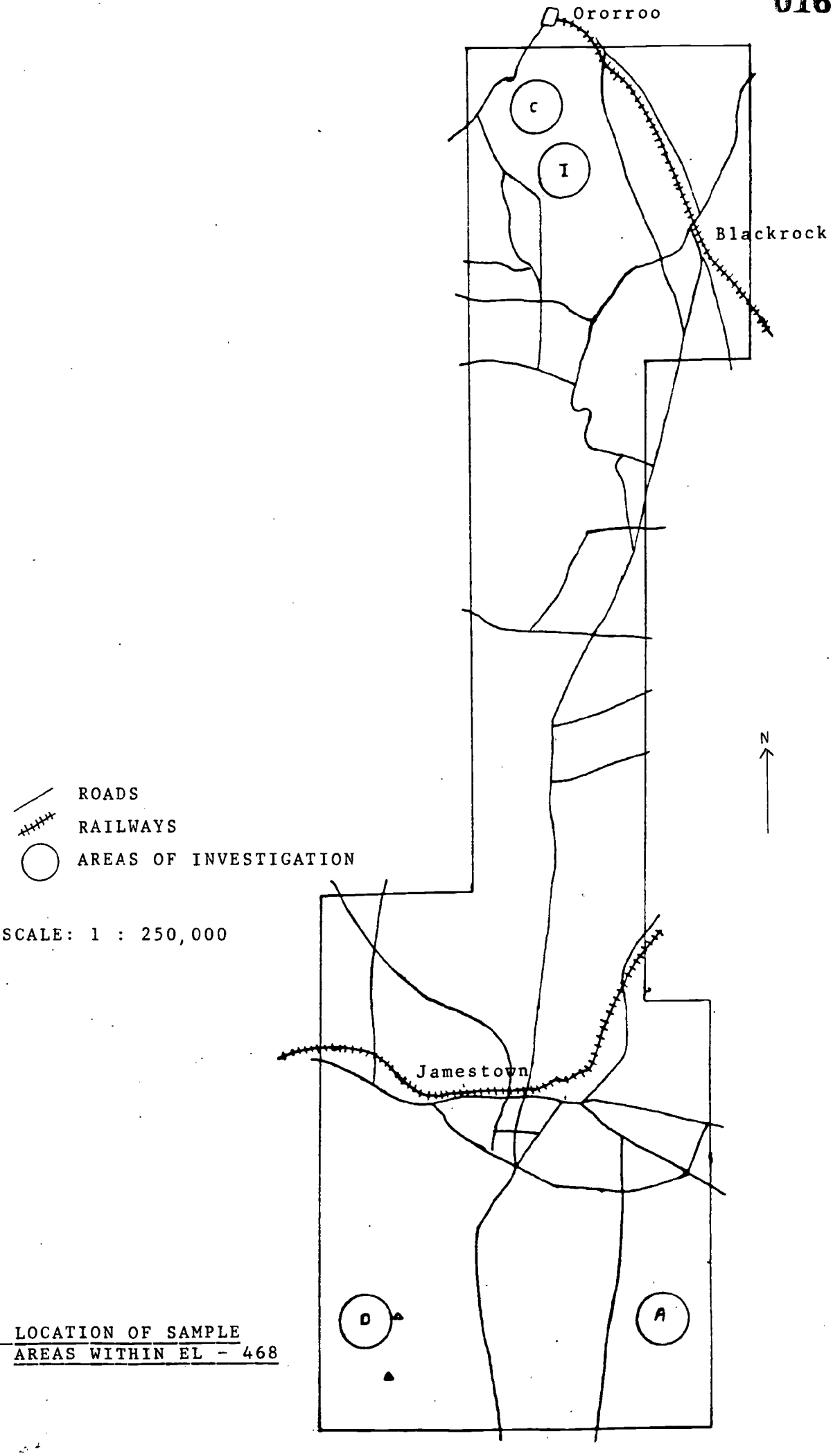


FIGURE 1: LOCATION OF SAMPLE AREAS WITHIN EL - 468

Within area A, three hundred and thirty-seven (337) readings were taken over an area of 3.2 square kilometres. The upper threshold of background values was 870 gammas. Three anomalies were delineated as a result of this survey.

Within area C, three hundred and seventy-two (372) readings were taken over an area of 3.8 square kilometres. The upper threshold of background values was 485 gammas. Two anomalies were delineated as a result of this survey.

Within area D, two hundred and fifty-eight (258) readings were taken over an area of 2.7 square kilometres. The upper threshold of background values was 920 gammas. Four anomalies were delineated as a result of this survey.

Within area I, three hundred and fifty-four (354) readings were taken over an area of 3.2 square kilometres. The upper threshold of background values was 460 gammas. Three anomalies were delineated as a result of this survey.

Magnetic anomalies within all the areas were either circular or elliptical in shape. Within area A the regional magnetic trend ranges from east-west in the south to north-east in the north. Areas C, D and I reflect a northerly trending regional magnetic pattern.

The anomalies, together with their coordinates and deviation from the magnetic background are detailed in Table 1.

AREA	ANOMALY NO.	COORDINATES OF ANOMALY CENTRE	MAGNETIC DEVIATION FROM BACKGROUND (GAMMAS)
A	1	12 N 2 W	+ 80
	2	3.5 N 8.5 W	+ 80
	3	3 N 4 W	+ 90
C	1	7 S 9 W	+ 25
	2	6.5 S 7 W	+ 25
D	1	4 N 4 E	+ 100
	2	00 N 7 E	+ 140
	3	2 S 4 E	+ 100
	4	5 S 2 E	+ 200
		7 S 4 E	+ 130
I	1	8 N 7 E	- 90
	2	6 S 4.5 W	+ 70
	3	6.5 S 8 E	+ 30

TABLE 1: DETAILS OF MAGNETIC ANOMALIES

2.2 GEOCHEMISTRY

Any magnetic anomalies encountered as a result of the geophysical survey underwent a geochemical soil sampling programme. Samples were collected on a 50 metre grid.

A total of 94 samples were collected and, of these, 60 samples have been submitted for analysis. A breakdown of the sampling programme has been detailed in Table 2.

AREA	ANOMALY NO.	TOTAL NUMBER OF SAMPLES COLLECTED	TOTAL NUMBER OF SAMPLES SUBMITTED FOR ANALYSIS
A	1	5	5
	2	9	9
	3	3	3
C	1	9	5
	2	9	1
D	1	3	-
	2	3	-
	3	9	9
	4	10	10
I	1	9	-
	2	9	9
	3	9	3

TABLE 2: DETAILS OF SAMPLES COLLECTED AND SUBMITTED FOR ANALYSIS

These samples are, at present, undergoing analysis for kimberlite indicator elements such as chromium, magnesium, cobalt , niobium and strontium. Analysis for copper is also being undertaken to ensure that any mineralization associated with basic igneous intrusions and diapirism is not overlooked.

Soil sample localities are illustrated on the magnetic intensity maps.

3. TECHNICAL PROGRAMME PLANNED

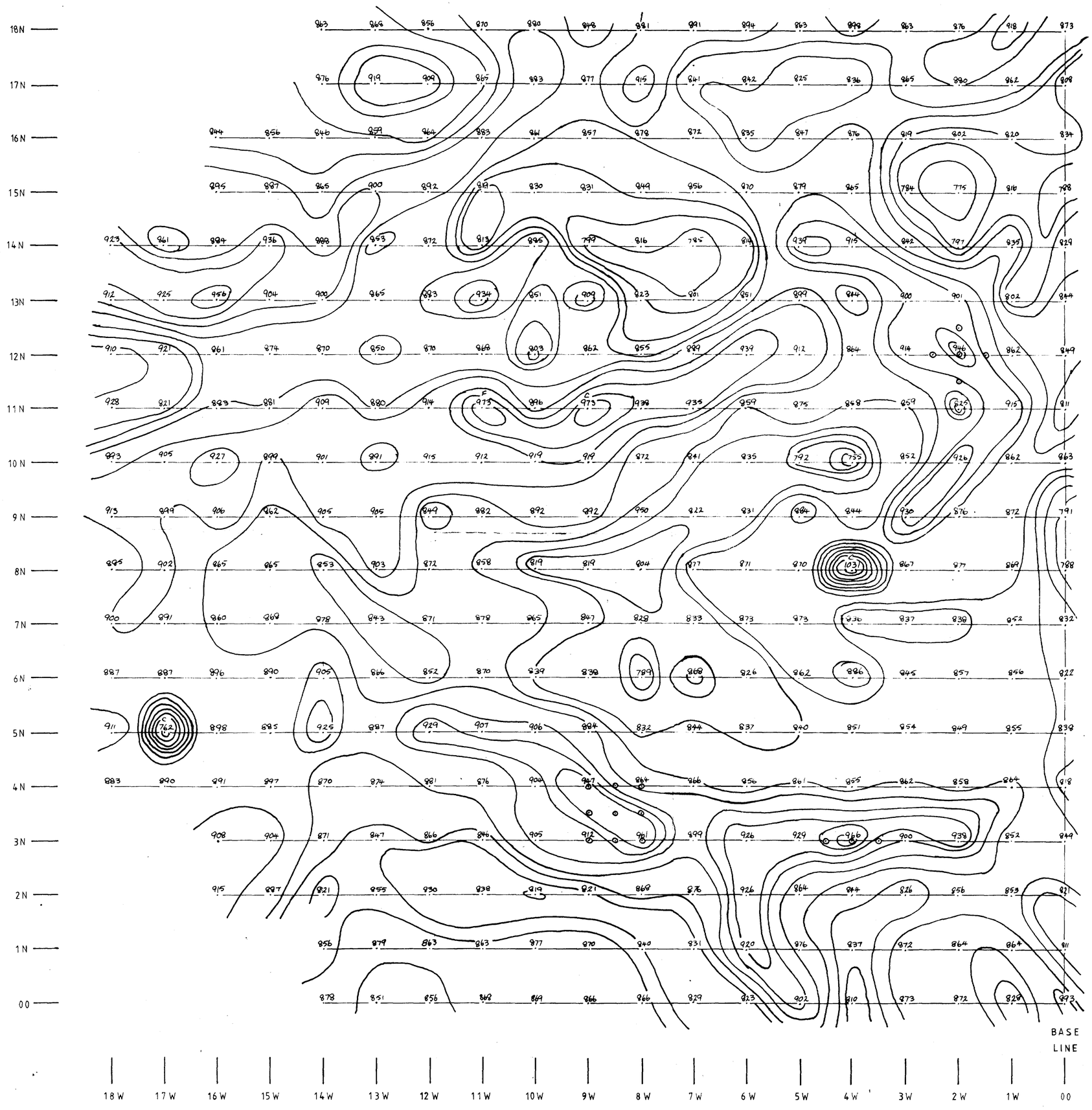
As soon as the geochemical results are available, the next stage will involve a comparison between the contoured geochemical and geophysical results. This method will, not only, more accurately define those localities which display the best potential for kimberlite and diapiric basic igneous intrusions, but also, determine the magnitude and extent of any subsequent stages of field exploration.

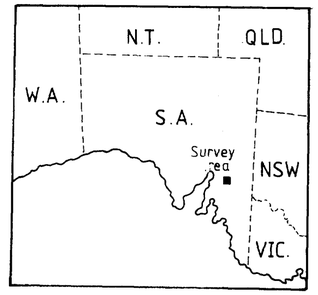
It is envisaged that, depending on the degree of correlation between the geophysical and geochemical anomalies, a drilling programme will be initiated to test these anomalies.

4. EXPENDITURE

1) CONSULTANT'S FEES AND EXPENSES
LAYTON AND ASSOCIATES PTY. LTD.

a) Geochemical and Geophysical Survey	$ 7,000.00
b) Mobilization/Demobilization	$ 500.00
c) Freight (Soil Samples)	$ 50.00
d) Presentation of Geophysical Results	$ 250.00
e) Interpretation of Geophysical Results	$ 250.00
f) Administration and Logistics	$ 250.00
	$ 8,300.00





Location Map

JINGELLIC MINERALS N.L.

E.L. 468 AREA - A

PETERBOROUGH, S.A.

MAGNETIC & SOIL SAMPLING
TOTAL MAGNETIC INTENSITY

MAGNETOMETER - PROTON PRECESSION

CONTOUR INTERVAL - 20 Gammas

SCALE 1 : 5,000

——— BASE LINE & TRAVERSES

⊙ SOIL SAMPLE POSITION

C READING IN OR NEAR CREEK

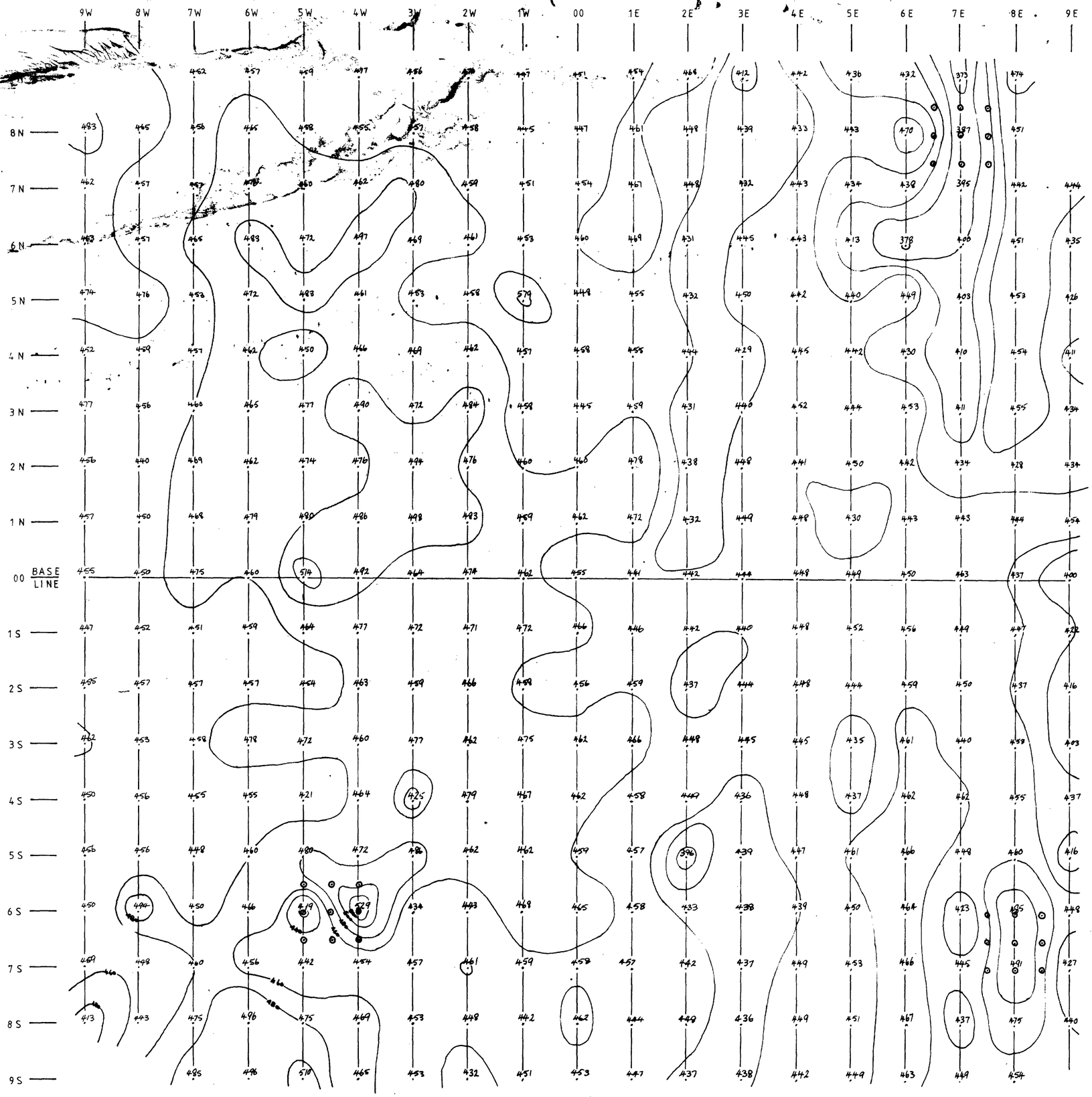
LAYTON GEOPHYSICAL INTERNATIONAL

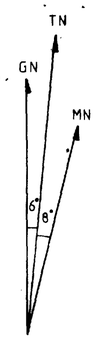
August 19

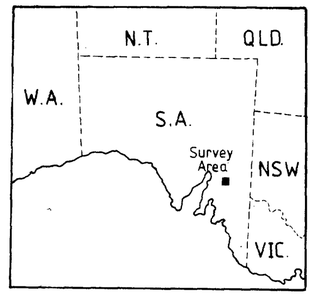
(ENV 3555-1)

EL-468 A

Ea.







Location Map

JINGELLIC MINERALS N.L.

E.L. 468 AREA - I

PETERBOROUGH, S.A.

MAGNETIC & SOIL SAMPLING TOTAL MAGNETIC INTENSITY

MAGNETOMETER - PROTON PRECESSION

CONTOUR INTERVAL - 20 Gammas

SCALE 1 : 5,000

——— BASE LINE & TRAVERSES

o SOIL SAMPLE POSITION

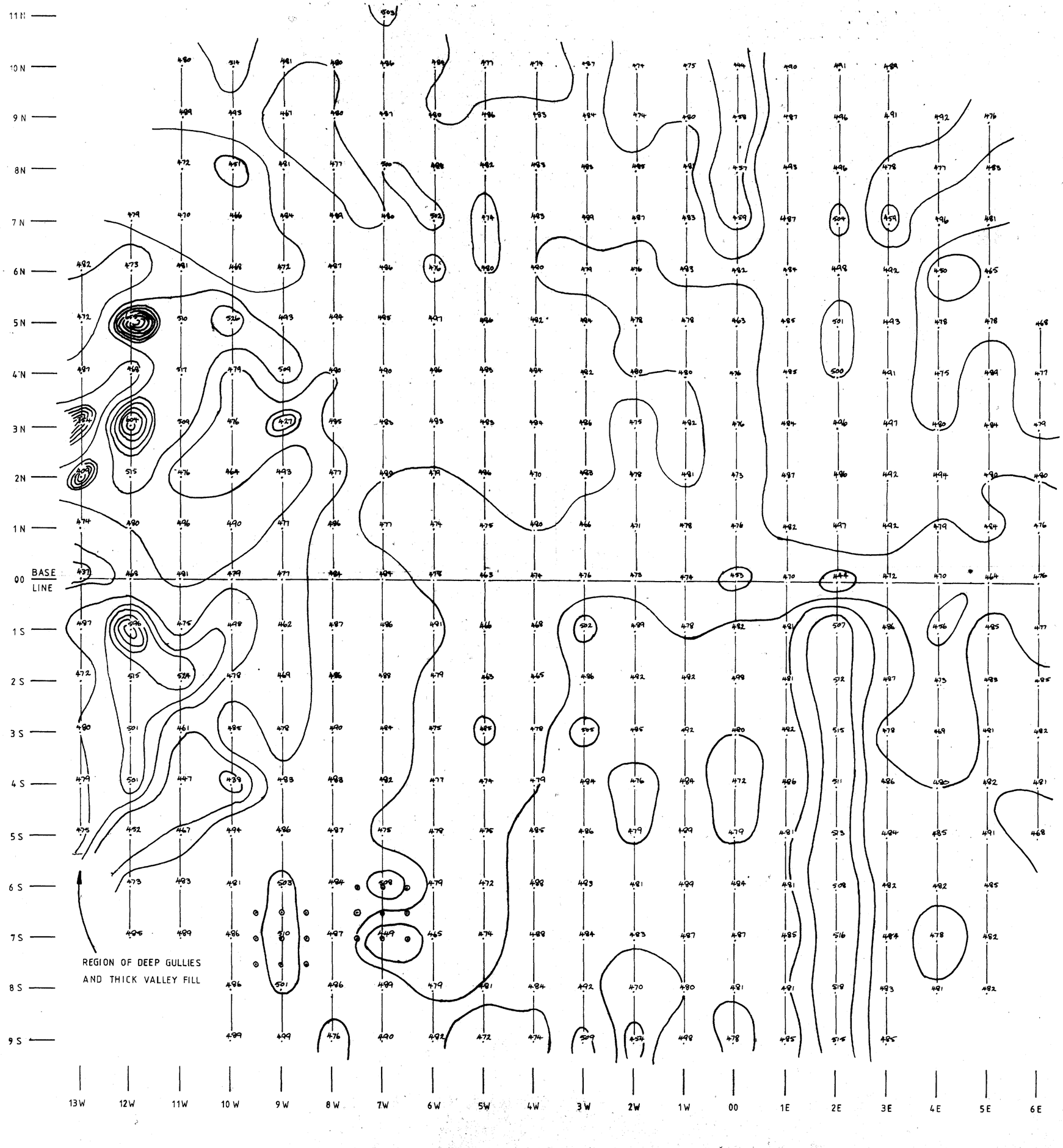
LAYTON GEOPHYSICAL INTERNATIONAL

August 1980

(EM. 355-2)

EL - 468 I

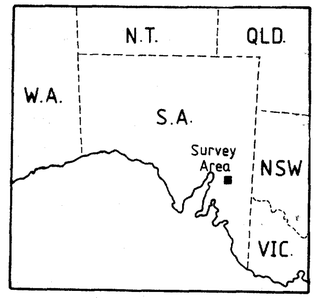
F.3.



TN & GN

MN

8°



Location Map

JINGELLIC MINERALS N.L.

E.L. 468 AREA - C

PETERBOROUGH, S.A.

MAGNETIC & SOIL SAMPLING
TOTAL MAGNETIC INTENSITY

MAGNETOMETER - PROTON PRECESSION

CONTOUR INTERVAL - 20 Gammas

SCALE 1 : 5000

——— BASE LINE & TRAVERSES

⊙ SOIL SAMPLE POSITION

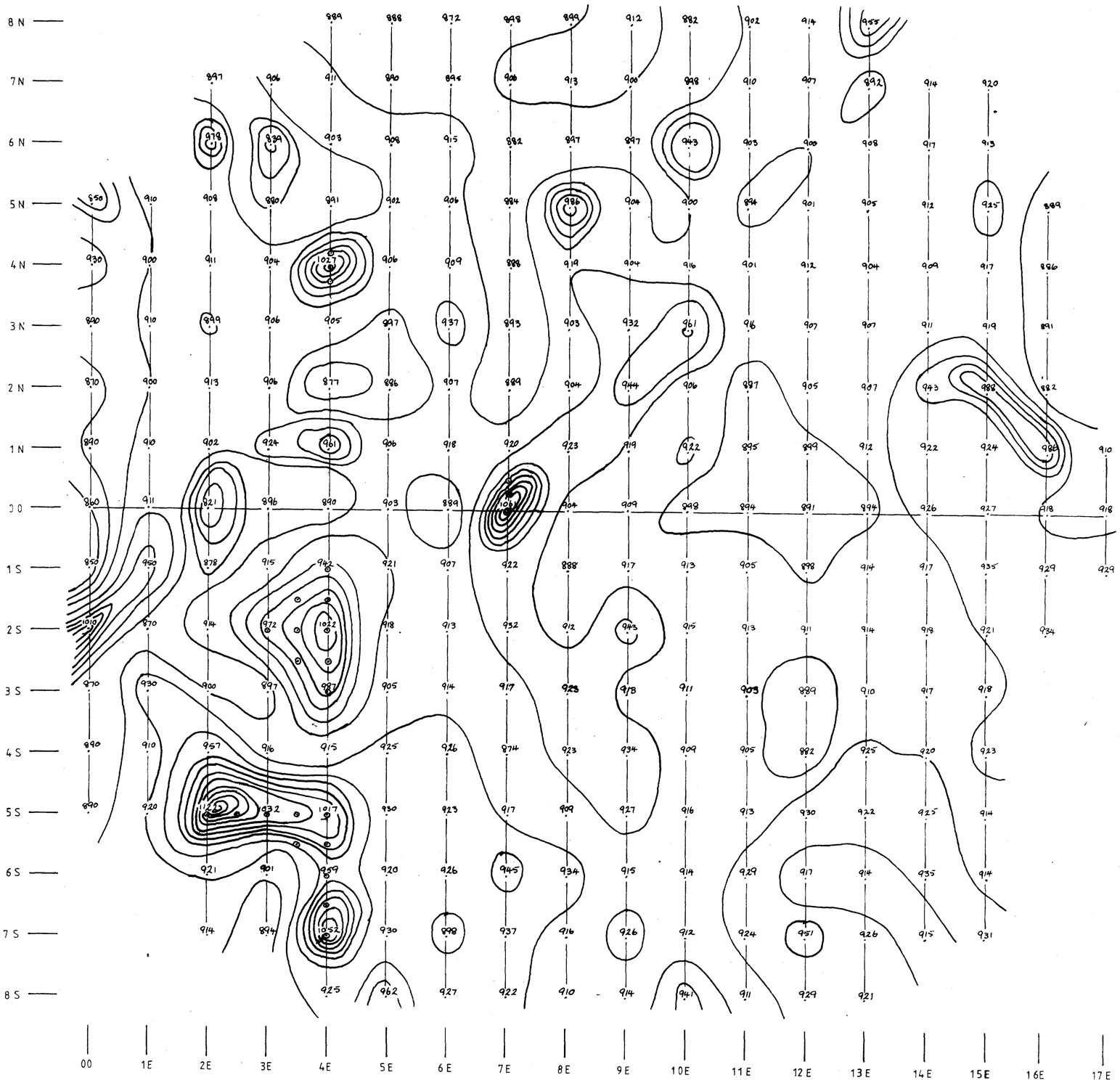
LAYTON GEOPHYSICAL INTERNATIONAL

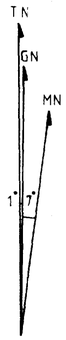
August 1980

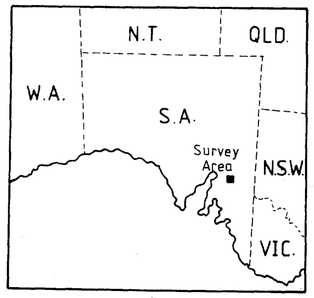
(EW 3555-3)

EL-468 C

F.4







Location Map

JINGELLIC MINERALS N.L.

E.L. 468 AREA - D

PETERBOROUGH, S.A.

MAGNETIC & SOIL SAMPLING
TOTAL MAGNETIC INTENSITY

MAGNETOMETER PROTON PRECESSION

CONTOUR INTERVAL - 20 Gammas

SCALE 1 : 5,000

——— BASE LINE & TRAVERSES

⊙ SOIL SAMPLE POSITION

LAYTON GEOPHYSICAL INTERNATIONAL

August 19[illegible]

(ENV. 3555-4)

F.S.

EL-468 D

022

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ENV-3555

W. Layton B.Sc., Ph.D., M.Aust.I.M.M.
B.K. Welch B.Sc., Ph.D., F.I.M.M., M.Aust.I.M.M.
P. Vela B.Sc., Ph.D., A.I.M.

Senior Consultants
A.J. Flavelle B.Sc., M.Aust.I.M.M.
P. Whincup B Sc., M.Aust I.M.M., F.G.S.
J.A. Richardson B.Sc., D.I.C., Ph.D.
E.P.D. O'Driscoll B.E., M.Sc.
R.A. Wells A.R.M.I.T. (Min. Eng.) M.Aust.I.M.M.
D.C. Hughes B.Sc. (Hons) M.Aust.I.M.M., A.I.M.E.

LAYTON & ASSOCIATES PTY. LTD.

92 Pitt Street
SYDNEY
New South Wales 2000

Telephone (02) 232 6144
Cables: TOPAZ

Brisbane, Perth, Canberra,
London

31st March 1981.

Mr. Grant
Department of Mines and Energy
191 Greenhill Road
Parkside, South Australia, 5063.

Dear Mr. Grant,

Please find enclosed a copy of our report in respect of Exploration Licence No. 468 and covering the period of extension (April to October, 1980).

On behalf of our clients, Jingellic Minerals, we offer our apologies for not submitting this report sooner. However, both Laytons and Jingellic were under the misapprehension that the other party had submitted the report. And, since receiving your letter (EL 468 TJI:ZV) additional factors, such as annual leave and severe manpower shortages, have intervened.

Yours sincerely,
LAYTON AND ASSOCIATES PTY. LTD.

M. Armstrong

M. Armstrong
MANAGER.

JINGELLIC MINERALS N. L.

EXPLORATION LICENCE NO. 468

JAMESTOWN AREA

SOUTH AUSTRALIA

FINAL REPORT

COVERING THE PERIOD 24TH APRIL TO 23RD OCTOBER, 1980.

JINGELLIC MINERALS N. L.
P. O. Box 267
TAMWORTH, 2340.
N. S. W.

TELEPHONE: (067) 66-2335

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1. INTRODUCTION

Layton and Associates were commissioned by Jingellic Minerals N. L. to undertake the exploration of their exploration licence in South Australia. Exploration Licence No. 468 (also known as the Jamestown area) is located approximately 20 kilometres west of Peterborough and is illustrated in figure 1.

The previous stage of exploration within the licence indicated four areas that warranted further investigation. These areas, referred to as A, C, D and I, are illustrated in figure 2.

The subsequent stage of exploration involved the use of geophysical and geochemical techniques and was undertaken with the purpose of defining the geographic locality and magnitude of anomalies resulting from the last survey.

The field work, involving a magnetic and soil sampling programme, was undertaken by Layton Geophysical International. Administration, processing and interpretation of results was undertaken by Layton and Associates.

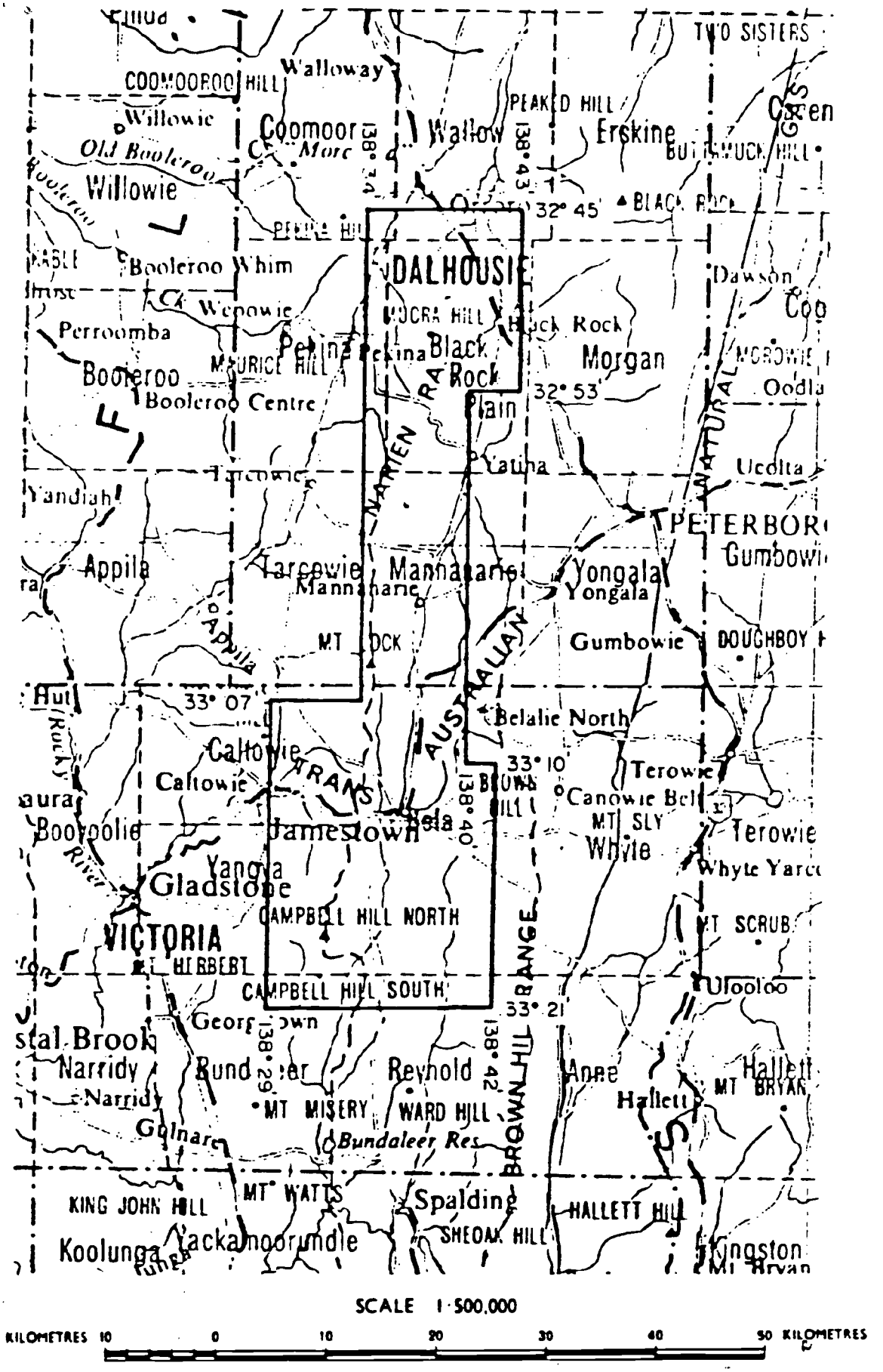

FIGURE 1: LOCALITY MAP -
EXPLORATION LICENCE No. 468

2. TECHNICAL PROGRAMME COMPLETED

Areas which displayed geochemical anomalies in the preliminary survey have been examined more closely using both geochemical and geophysical techniques.

Four areas - A, C, D and I - as outlined in our annual report, were examined.

2.1. GEOPHYSICS

The first stage of the field programme involved the undertaking of a ground magnetometer survey. The survey was carried out using a proton precession magnetometer.

Magnetic readings were collected on a 100-metre grid and the results were contoured in the field. The purpose of this was to delineate areas suitable for geochemical follow up.

The anomalies which became apparent, as a result of the survey, together with their coordinates and deviation from the magnetic background are detailed in table 1.

The contoured magnetic maps were submitted in the preceding quarterly report.

AREA	ANOMALY NO.	COORDINATES OF ANOMALY CENTRE	MAGNETIC DEVIATION FROM BACKGROUND (GAMMAS)
A	1	12 N 2 W	+ 80
	2	3.5 N 8.5 W	+ 80
	3	3 N 4 W	+ 90
C	1	7 S 9 W	+ 25
	2	6.5 S 7 W	+ 25
D	1	4 N 4 E	+ 100
	2	00 N 7 E	+ 140
	3	2 S 4 E	+ 100
	4	5 S 2 E	+ 200
		7 S 4 E	+ 130
I	1	8 N 7 E	- 90
	2	6 S 4.5 W	+ 70
	3	6.5 S 8 E	+ 30

TABLE 1: DETAILS OF MAGNETIC ANOMALIES

2.1.1. Area A

Within area A, three hundred and thirty-seven (337) readings were taken over an area of 3.2 square kilometres. The upper threshold of background values was 870 gammas. Three anomalies were delineated as a result of this survey.

This area possesses no intense magetic anomalies, deleting the ones due to creeks, on comparison with the background readings. No formal interpretation can be undertaken on this data due to the gradients of the anomalies being so small.

2.1.2. Area C

Within area C, three hundred and seventy-two (372) readings were taken over an area of 3.8 square kilometres. The upper threshold of background values was 485 gammas. Two anomalies were delineated as a result of this survey.

This area, as in the previous area, possesses no intense magnetic anomalies and the ones sampled had very low magnetic gradients.

There is an area of magnetic disturbance near the western boundary and this is a region of deep gullies

and thick valley fill. No sampling was undertaken in this magnetically disturbed area. Some of the contours in this area are parallel to the grid line (see line 2E). This is due to a disturbed reading on the base line traverse which has lifted the readings by approximately 20 gammas.

2.1.3. Area D

Within area D, two hundred and fifty-eight (258) readings were taken over an area of 2.7 square kilometres. The upper threshold of background values was 920 gammas. Four anomalies were delineated as a result of the survey.

The area has a number of intense magnetic highs which do not appear to be related to any surface noise. There are two single point anomalies which have been sampled.

The anomaly on line 5S appears to be a cylinder dipping to the east. The anomaly on line 7S appears to be a single point anomaly and could be a vertically dipping pipe. The anomaly on line 2S appears to be a deeper anomaly and is more plainer than the previous anomalies.

2.1.4. Area I

Within area I, three hundred and fifty-four (354) readings were taken over an area of 3.2 square kilometres. The upper threshold of background values was 460 gammas. Three anomalies were delineated as a result of the survey.

The anomaly on line 4W is of interest, as it appears to be a cylindrical body dipping steeply to the east-north-east with the body causing both the positive and the negative anomalies. The remaining anomalies in this area are relatively small.

2.2. GEOCHEMISTRY

Any magnetic anomalies encountered as a result of the geophysical survey underwent a geochemical soil sampling programme.

Within the Jamestown area a total of 94 samples were collected and, of these, 60 samples were submitted for analysis. A breakdown of the sampling programme is provided in table 2.

Where a magnetic anomaly deviated marginally from the background or assumed the form of a "single point" anomaly, no samples were submitted for analysis.

AREA	ANOMALY NO.	TOTAL NUMBER OF SAMPLES COLLECTED	TOTAL NUMBER OF SAMPLES SUBMITTED FOR ANALYSIS
A	1	5	5
	2	9	9
	3	3	3
C	1	9	5
	2	9	1
D	1	3	-
	2	3	-
	3	9	9
	4	10	10
I	1	9	-
	2	9	9
	3	9	9

TABLE 2: DETAILS OF SAMPLES COLLECTED AND SUBMITTED FOR ANALYSIS

Anomalies falling into this category include 468 D 1, 468 D 2 and 468 I 1. Single point anomalies are those anomalies which do not develop any above background values on adjoining grid lines.

A limited number of samples from 468 C 1 and 468 C 2 were submitted for analysis as they fell into the category of borderline.

These samples underwent analysis for kimberlite indicator elements such as chromium, magnesium, cobalt, niobium and strontium. Analyses for copper were also undertaken to ensure that any mineralization associated with basic igneous intrusions and diapirism was not overlooked.

The analytical results of the geochemical sampling programme have been detailed in appendix 1. The geochemical contour maps are illustrated in appendix 2.

All of the analytical results are in parts per million, except for magnesium which is expressed as a percentage.

2.2.1. Sample Treatment

The analysis of the samples was carried out by S.G.S. Australia Pty. Ltd.

The samples were first dried and sieved to minus 80 mesh. The initial method of digestion involved perchloric nitric acid. The samples were then dried and redigested with hydrochloric acid. The samples were then analysed for niobium and strontium by X-ray Fluorescence and for chromium, copper, magnesium and nickel by Atomic Absorption Spectroscopy.

The limits of detection are listed below -:

Atomic Absorption Spectroscopy - 2 parts per million

X-ray Fluorescence - 10 parts per million

2.2.2. Area A

Within zone 1 of area A, no anomalous values were apparent. The geochemical contours have produced circular to elliptical patterns surrounding the magnetic anomaly which is centred over 12N, 2W.

Chromium, nickel, magnesium, copper and strontium display an inverse relationship with the geophysical results - i.e. the point of highest magnetic intensity is coincidental with the lowest geochemical values. The highest niobium value (15 ppm) coincides with the area of greatest magnetic intensity.

No anomalous values were apparent within zone 2.

The magnetic anomaly produced a linear pattern trending north-west - south-east, centred over 4N, 9W through 3.5N, 8.5W to 3N, 8W. Two of the highest chromium values occur in conjunction with the magnetic anomaly centre. The highest nickel and magnesium values are also coincidental with the magnetic anomaly (at 4N, 9W). Copper reflects a similar pattern at 3N, 8W. Niobium displays an inverse relationship with the magnetic results and also a similar contour pattern.

None of the elements in zones 1 and 2 differ from background values to such an extent as to be regarded as anomalous. The values in zone 2 reflect regional trends.

No anomalous values were apparent in zone 3.

2.2.3. Area C

Within zone 1 of area C, two samples displayed anomalous magnesium and strontium values - samples 6.5S, 9.5W (1.46 % Mg) and 6.5S, 8.5W (140 ppm Sr). These samples, located in the north of the sample area, indicate the possible presence of a small basic intrusive or basalt flow.

The low values and limited range for nickel (19-25 ppm) and niobium (6-9 ppm) indicate that the

intrusive is not kimberlitic in nature. The zone usually displays a regional geochemical trend across the area. No relationship between the geophysical and geochemical contour pattern was apparent.

As zone 2 was representative of a single point anomaly only one sample was submitted for analysis. None of the values exceeded the upper threshold of background determined for the region.

2.2.4. Area D

No samples from the magnetic anomalies located at 4N, 4E (zone 1) and 00N, 7E (zone 2) were submitted for analysis. Both of these zones displayed only single point anomalies and hence represented areas which have not generated any vertical or depth component.

Within zone 3 the magnetic anomaly centre is located at 2S, 4E. There were no anomalous values revealed by the geochemical analyses. Chromium, nickel and copper displayed high values in the north-east sector of the grid. Magnesium and strontium revealed high values in the western sector of the grid. The geochemical and geophysical results indicate the possible presence of a small buried basalt flow.

Within zone 4 there are two localities of

highest magnetic intensity and these are situated at 5S, 2E and 7S, 4E. No anomalous values were revealed by the geochemical analyses. The magnetic anomaly situated at 5S, 2E displayed strontium, magnesium, chromium and niobium highs located east of the anomaly centre and nickel and copper highs situated on and east of the centre. The magnetic anomaly situated at 7S, 4E revealed geochemical highs for chromium, nickel, copper, niobium and magnesium. The magnetic data indicates that these localities represent pipes dipping to the east (5S, 2E) and vertically oriented (7S, 4E). The geochemical data indicates that they are probably basic igneous in composition, but the low values for chromium, nickel and niobium point to the fact that it is not kimberlitic in composition.

2.2.5. Area I

No samples from zone 1 were submitted for analysis as the anomaly displayed a negative sign without an accompanying positive anomaly.

Within zone 2, the magnetic anomaly was located at 6S, 4W. Chromium revealed a geochemical low, west of locality of highest magnetic intensity. Although a high value was located over the magnetic anomaly

centre, the highest result occurred toward the north-west. A similar pattern was displayed by the nickel results. However, the highest values occurred in the south-west corner. Magnesium, niobium and strontium values reflected a regional geochemical pattern only. Copper displayed an anomalous value centre over the magnetic anomaly. The geophysical and geochemical results indicate the possible presence of a basic igneous intrusion, but the non-anomalous values for chromium, nickel and niobium indicate that it is not kimberlitic in nature.

Within zone 3, the magnetic anomaly is situated in the centre of the geochemical grid and has a north-south orientation. Chromium displays a small anomalous value in the centre of the magnetic anomaly in conjunction with a westerly trending dispersion halo. Magnesium and strontium display anomalous values in the north-west sector of the sampling grid (i.e.6S, 7.5E). Copper, nickel and niobium values are not anomalous and reflect the regional geochemical trend. The anomalous magnesium and strontium values reflect the presence of a basic intrusive body or a basalt plug but the background values for nickel and niobium indicate that, if it is the former, it is not kimberlitic in nature.

3. CONCLUSIONS AND RECOMMENDATIONS

The areas displaying a correlation between the geophysical and geochemical anomalies are listed in table 3.

AREA	ZONE	MAGNETIC DEVIATION FROM BACKGROUND (GAMMAS)	ANOMALOUS ELEMENTS
468 C	1	+ 25	Mg, Sr
468 I	2	+ 70	Cu
468 I	3	+ 30	Cr, Mg, Sr

TABLE 3: CORRELATION BETWEEN GEOPHYSICAL AND GEOCHEMICAL ANOMALIES

As no multi-element anomalies, with particular reference to the elements chromium, nickel and niobium, were found associated with the magnetic anomalies, it must be concluded that there appears little likelihood of locating intrusions of kimberlitic affinity.

As no copper, magnesium and chromium multi-element anomalies occurred, it is also unlikely that any copper-rich basic breccia intrusions are located within the area.

The majority of the geophysical and geochemical anomalies located may be related to either small basic intrusions or localized tertiary flood basalts.

Although the only definitive means of determining subsurface lithologies is by drilling, the evidence to date suggests that a further stage of exploration is not warranted. The reasons behind this conclusion are as follows -

a) The small difference in magnitude between background and anomalous values. This is applicable to both the geochemical and geophysical surveys, on comparison with the figures outlined in the previous section. There were no localities within the areas examined where both the magnetic and geochemical data approached these limits simultaneously.

b) The lack of multi-element anomalies. The elements chromium, nickel and niobium were of particular interest with respect to kimberlite intrusions. Although a number of possible basic intrusions were located, the low values for the above elements indicated that kimberlites or rocks of kimberlitic affinity were not present. A similar situation is applicable to copper, chromium and magnesium multi-element anomalies with respect to basic breccias.

For the above reasons it is therefore recommended that the exploration licence be relinquished.

4. EXPENDITURE

Expenditure relating to Exploration Licence 468 for the six months period ended 23rd October, 1980, is as follows -:

1) Consultant's Fees & Expenses

Layton and Associates Pty. Ltd.

a) Geochemical & Geophysical Survey	$ 7,000.00
b) Mobilization/Demobilization	$ 500.00
c) Freight (Soil Samples)	$ 50.00
d) Report Writing	$ 1,000.00
e) Presentation of Geophysical Results	$ 250.00
f) Interpretation of Geophysical Results	$ 250.00
g) Geochemical Analyses	$ 728.60
h) Administration & Logistics	$ 250.00
i) Ancillary Expenses	$ 115.16
	$10,143.76

APPENDIX 1

GEOCHEMICAL RESULTS

SGS Australia Pty. Ltd.

NEW SOUTH WALES
74 McEvoy St., Alexandria, Sydney, N.S.W. 2015
Telephone 699 7625 Telex: SGSSYD AA22395

WESTERN AUSTRALIA
80 Railway Parade, Queens Park
Telephone 458 1421 Telex: SGSPTH AA92624

Layton & Associates Pty Limited,
92 Pitt Street,
SYDNEY. N.S.W. 2000

Our ref La 8525

September 11, 1980

Your ref

Date received 11-8-80

Date completed 10-9-80

Issued at SYDNEY

ANALYTICAL REPORT

	Sample Ref.	Zone		Cr	Cu	Ni	Nb	Mg%	Sr		
1	468D 1S 4E	3		140	25	21	12	0.51	45		
2	1.5S 3.5E			135	16	15	15	0.49	75		
3	1.5S 4E			140	28	20	9	0.45	50		
4	2S 3E			89	25	18	11	0.61	70		
5	2S 3.5E			116	20	14	9	0.47	55		
6	2S 4E			98	19	12	13	0.37	50		
7	2.5S 3.5E			100	16	11	11	0.31	50		
8	2.5S 4E			76	16	13	12	0.27	50		
9	3S 4E			69	21	16	14	0.36	60		
10	5S 2E	4		101	25	25	14	0.57	55		
11	5S 2.5E			107	24	21	14	0.51	60		
12	5S 3E			122	24	22	11	0.73	65		
13	5S 3.5E			108	28	29	13	0.60	90		
14	5S 4E			121	20	13	13	0.49	50		
15	5.5 3.5E			128	24	16	6	0.63	90		
16	5.5S 4E			87	18	10	13	0.39	50		
17	6S 4E	5		97	17	12	11	0.47	45		
18	6.5S 4E			135	28	29	10	0.76	70		
19	7S 4E			48	29	28	15	0.90	65		
20	468I 5.5S 5W	2		126	34	20	10	1.31	55		

All results in ppm except where noted

SGS Australia Pty. Ltd.

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WESTERN AUSTRALIA
80 Railway Parade, Queens Park
Telephone 458 1421 Telex: SGSPTH AA92624

Layton & Associates Pty Limited,

LA 8525

Our ref .....

Your ref .....

Date received .....

Date completed .....

Issued at .....

ANALYTICAL REPORT

	Sample Ref.		Zone		Cr	Cu	Ni	Nb	Mg %	Sr		
1	468I	5.5S 4.5W			106	29	19	5	1.32	75		
2		5.5S 4W			86	34	25	12	0.82	55		
3		6S 5W			110	17	15	11	1.03	55		
4		6S 4.5W			61	28	21	7	1.05	55		
5	468I	6S 4W	2		118	200	27	6	0.85	60		
6		6.5S 5W			88	38	32	8	0.99	60		
******												
7		6.5S 4W			101	37	22	10	1.55	75		
8		6S 7.5E	3		68	23	19	4	3.01	170		
9		6S 8E			108	17	15	10	1.58	50		
10		6S 8.5E			105	21	21	11	1.78	50		
11		6.5S 7.5E			113	26	15	9	1.39	45		
12		6.5S 8E			123	21	19	5	1.78	55		
13		6.5S 8.5E			104	22	21	10	1.76	45		
14		7S 7.5E			96	28	16	< 3	1.49	65		
15		7S 8E			67	19	13	9	1.98	80		
16		7S 8.5E			87	29	21	5	1.61	110		
17	468A	12.5N 2W	1		80	24	22	9	1.00	55		
18		12N 2.5W			76	22	19	12	0.81	5		
19		12N 2W			74	19	16	15	0.72	5		
20		12N 1.5W			88	22	15	13	0.73	55		

All results in ppm except where noted

****** 468I 6.5S 4.5W please turn to page No. 3

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SGS Australia Pty. Ltd.

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Layton & Associates Pty Limited

La 8525

Our ref .....

Your ref .....

Date received .....

Date completed .....

Issued at .....

ANALYTICAL REPORT

	Sample Ref.			Zone		Cr	Cu	Ni	Nb	Mg%	Sr		
1	468A	11.5N	2W			88	23	25	7	0.97	65		
2		4N	9W	2		98	20	21	12	0.85	45		
3		4N	8.5W			76	22	24	9	0.82	45		
4		4N	8W			76	16	18	11	0.54	40		
5		3.5N	9W			83	20	20	12	0.79	45		
6		3.5N	8.5W			65	20	17	7	0.72	45		
7		3.5N	8W			65	19	16	13	0.68	45		
8	468A	3N	9W	2		61	20	12	7	0.80	50		
9		3N	8.5W			72	22	16	11	0.81	50		
10		3N	8W			91	24	19	7	0.49	50		
11		3N	4.25W	3		73	25	16	10	0.46	50		
12		3N	4W			79	24	21	11	0.44	55		
13		3N	3.75W			86	25	17	10	0.52	55		
14	468C	6.5S	9.5W	1		96	26	24	9	1.46	75		
15		6.5S	8.5W			102	23	18	8	1.34	140		
16		7S	9W			97	24	19	6	1.25	120		
17		7.5S	9.5W			54	28	25	6	1.04	65		
18		7.5S	8.5W			66	23	21	7	1.01	90		
19		6.5S	7W	2		49	27	26	5	0.99	120		
20	******468I	6.5S	4.5W			109	46	31	11	0.81	60		

All results in ppm except where noted

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SGS Australia Pty. Ltd.

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Layton & Assoicates Pty Limited

La 8525

Our ref .....

Your ref .....

Date received .....

Date completed .....

Issued at .....

ANALYTICAL REPORT

	Sample Ref.	Zone		Cr	Cu	Ni	Nb	Mg%	Sr		
1	STANDARD				430	870					
2	BLANK				1	2					
3											
4											
5	CHECK SAMPLES										
6	4680 5S 2E	4		99	27	27		0.63			
7	468I 5.5S 5W	2		108	37	24		1.28			
8	468I 6S 7.5E	3		67	25	21		3.22			
9	468A 12N 2.5W	1		76	24	17		0.83			
10	468A 3.5N 8W	2		63	22	20		0.70			
11	468C 7.5S 9.5W	1		53	26	27		1.02			
12											
13											
14											
15											
16											
17											
18											
19											
20											

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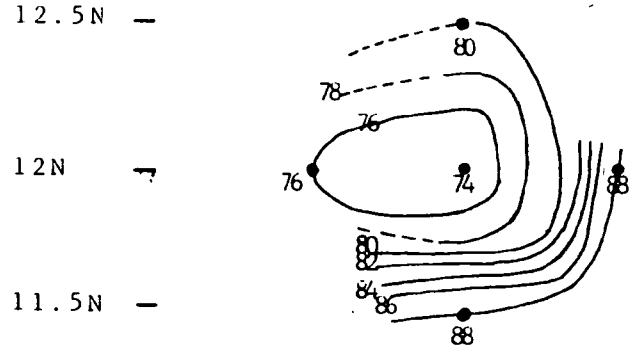
APPENDIX 2

GEOCHEMICAL CONTOUR MAPS

CHROMIUM



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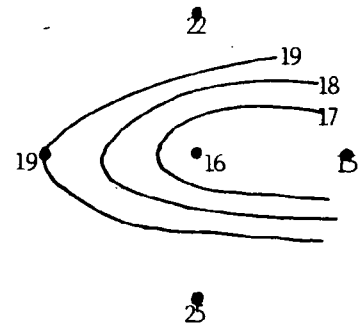

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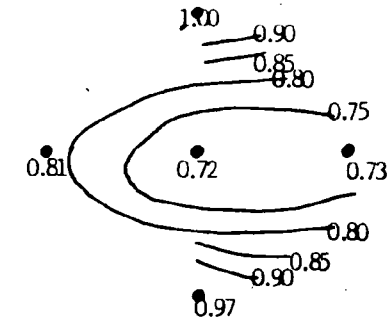

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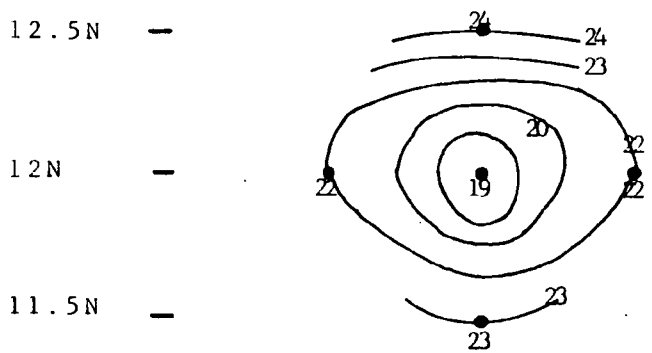

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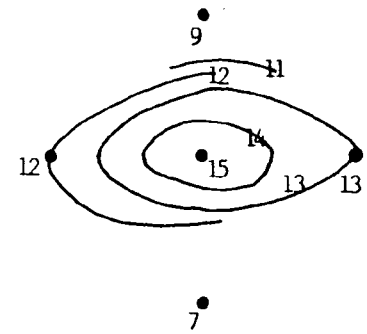

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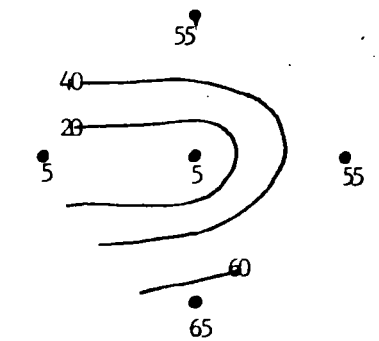
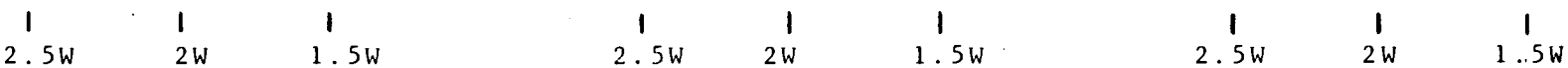
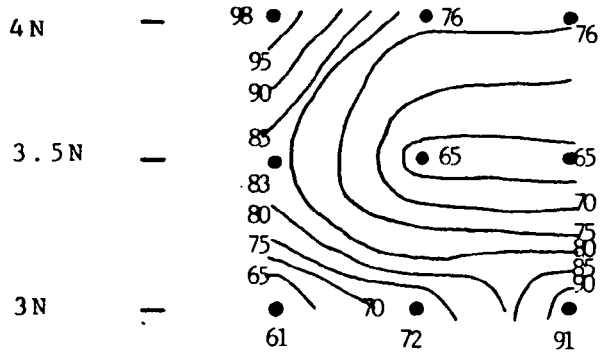




EL - 468 A
ZONE 1

CHROMIUM



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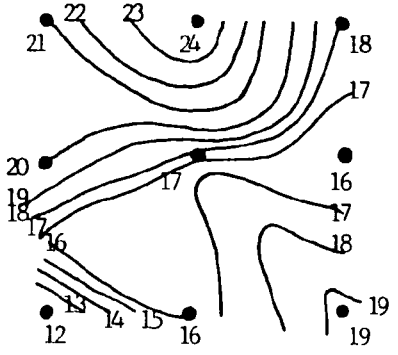

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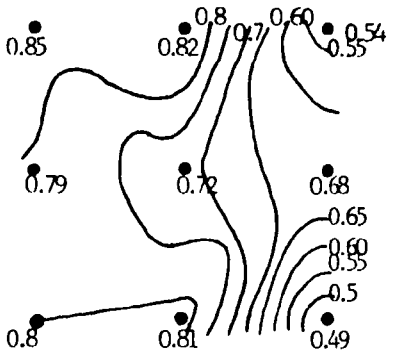

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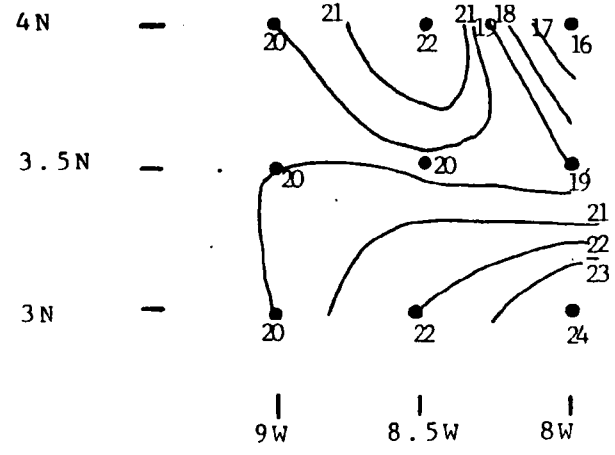

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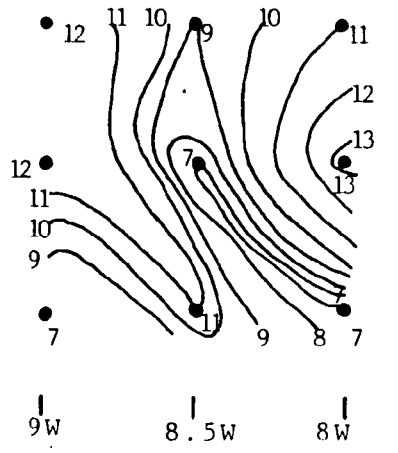

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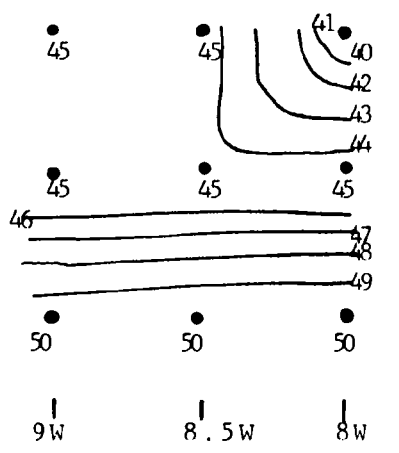

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ZONE 2

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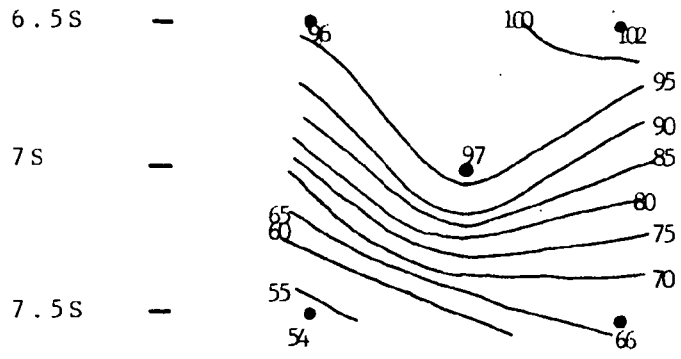

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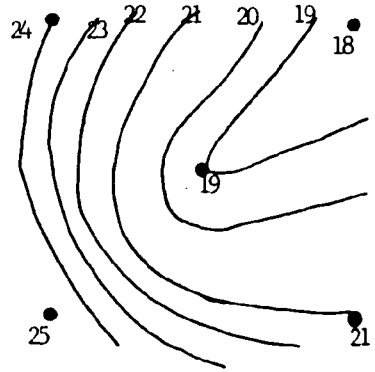

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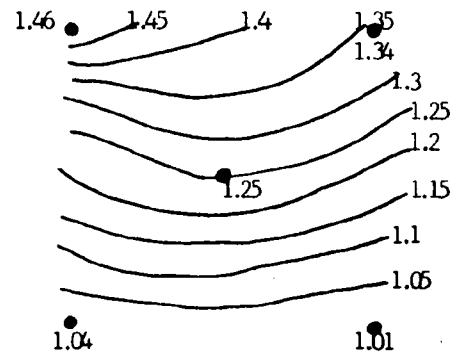

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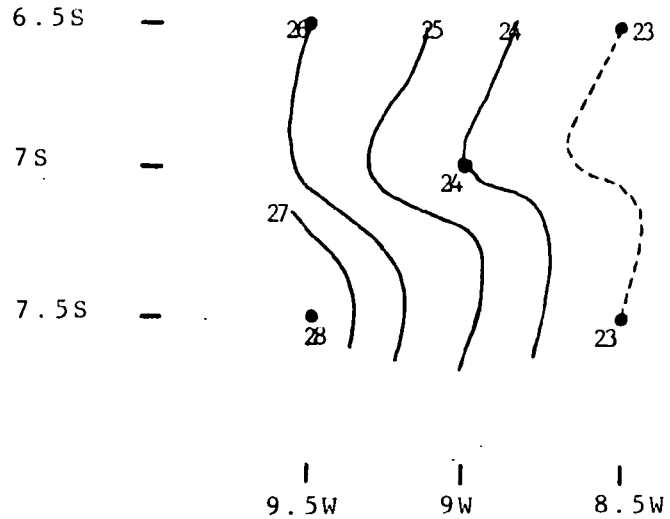

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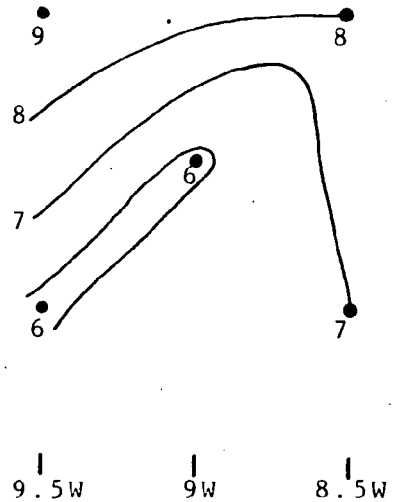

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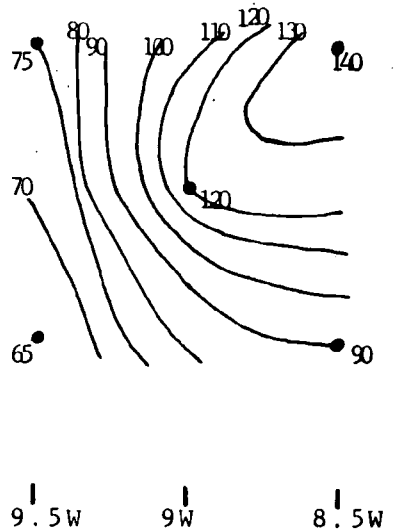
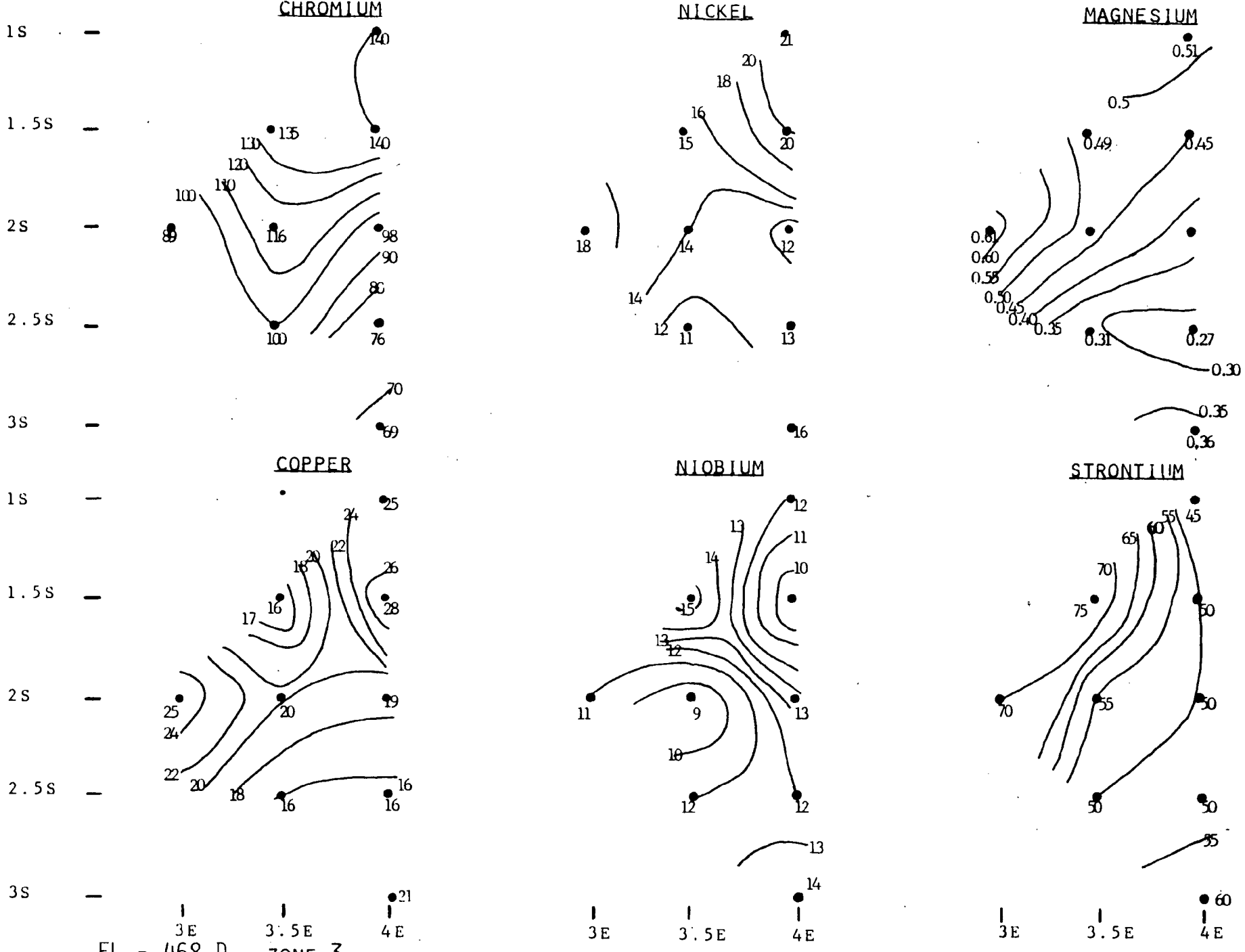


EL - 468 C
ZONE 1



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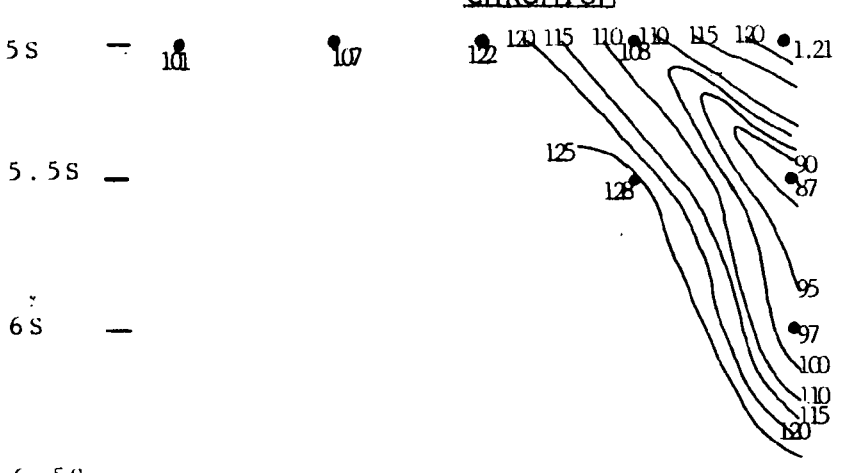

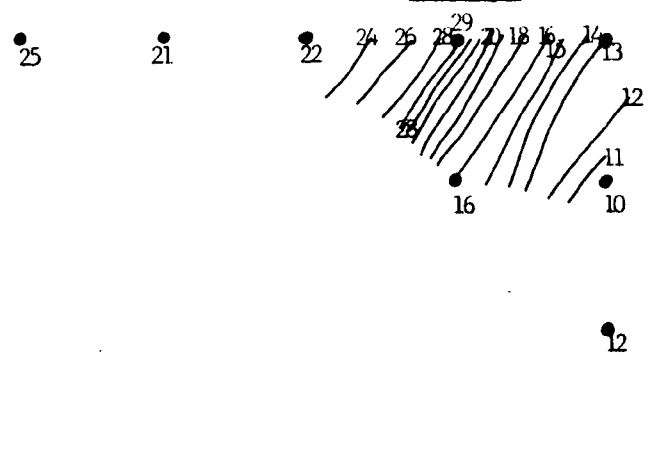

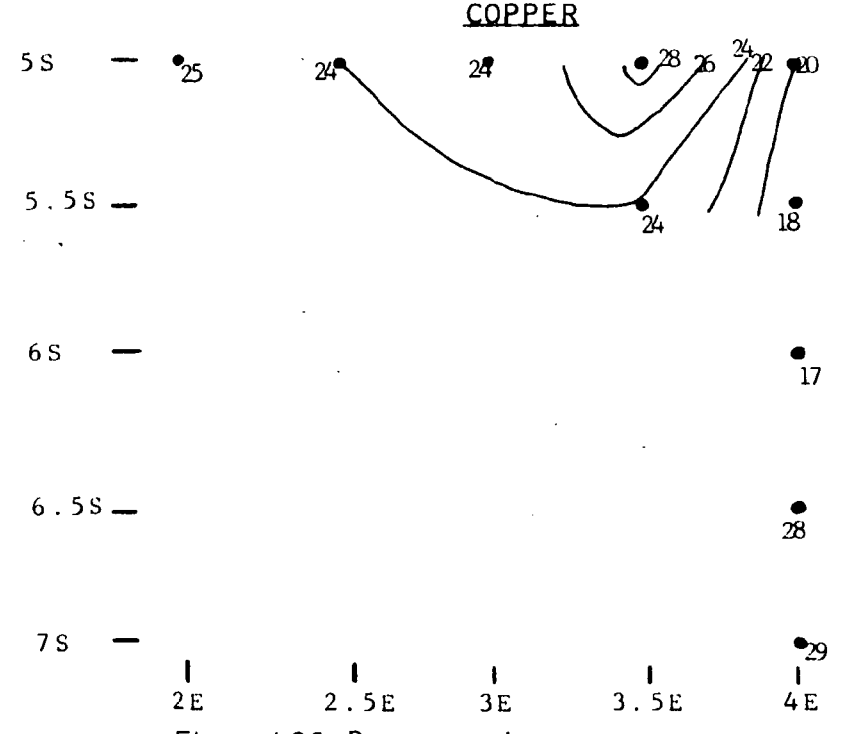

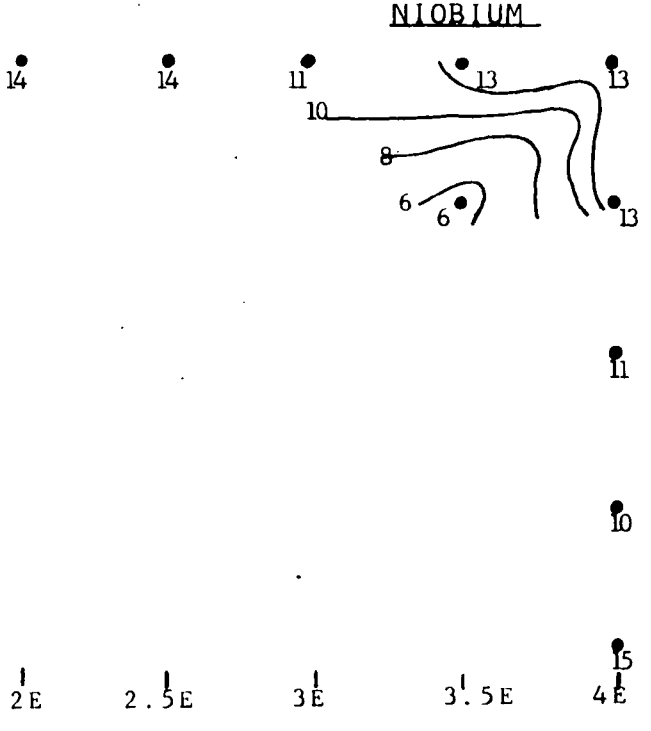

EL - 468 D, ZONE 4

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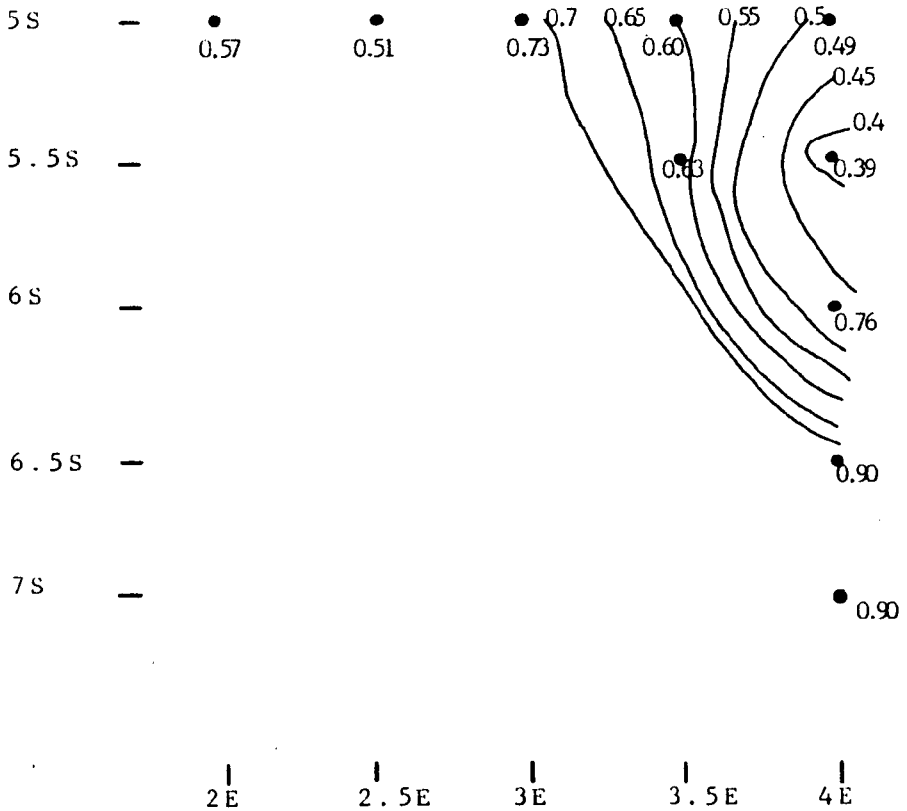
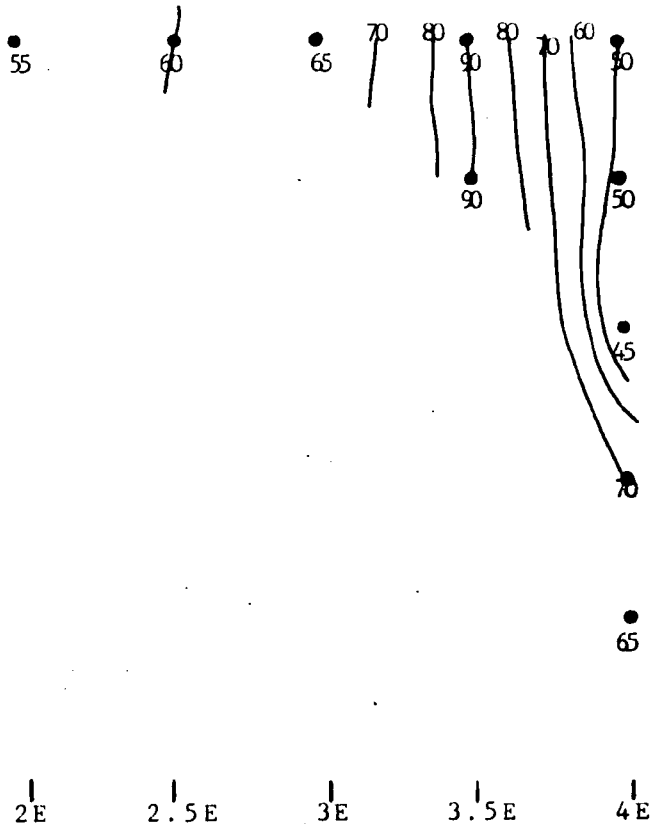
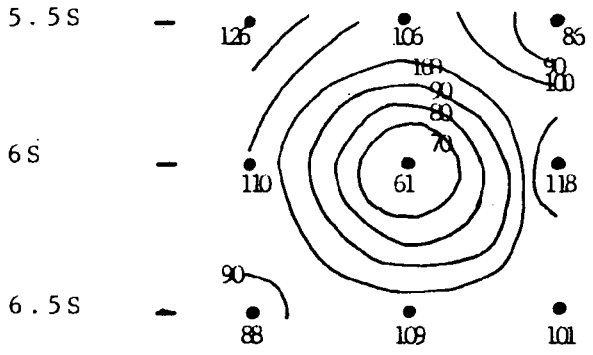


STRONTIUM



EL - 468 D
ZONE 4

CHROMIUM



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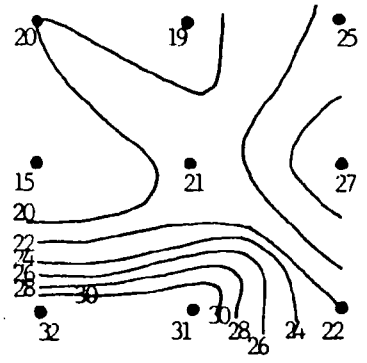
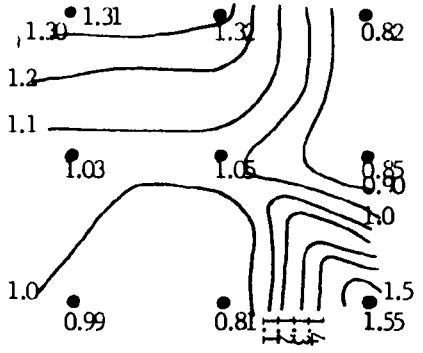


MAGNESIUM



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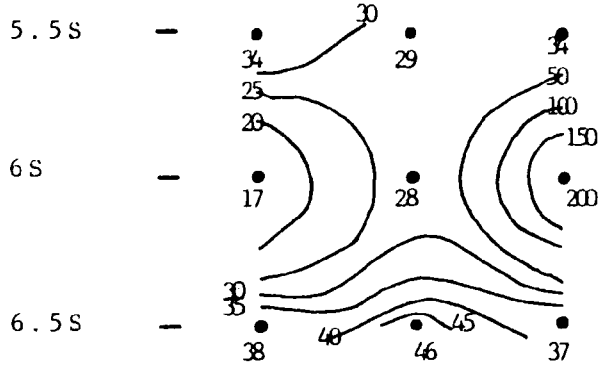

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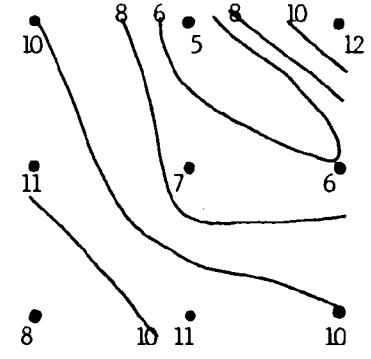

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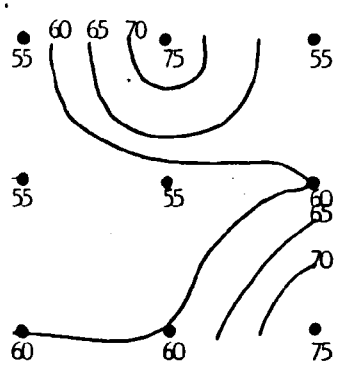


5W 4.5W 4W

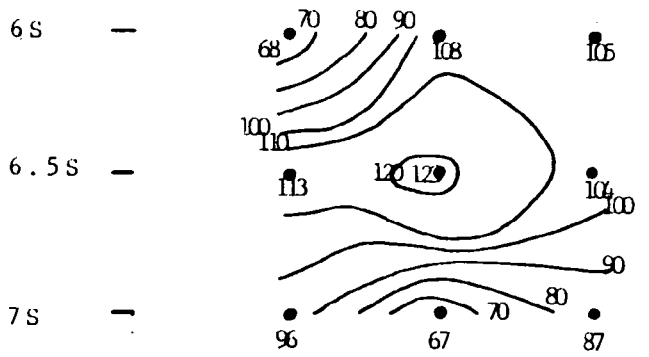
5W 4.5W 4W

5W 4.5W 4W

FL - 468 I

ZONE 2

CHROMIUM



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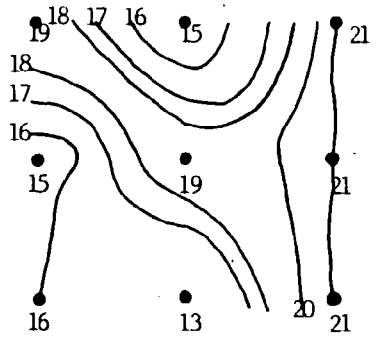

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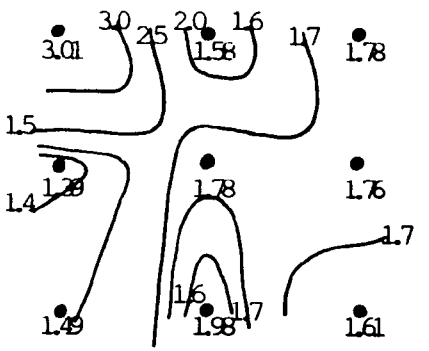

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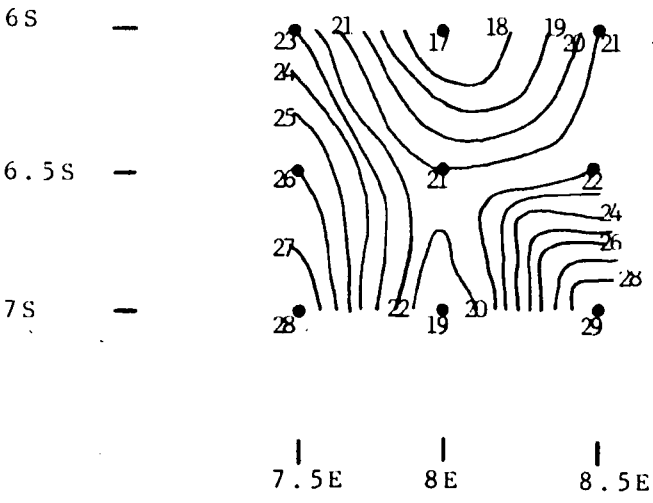

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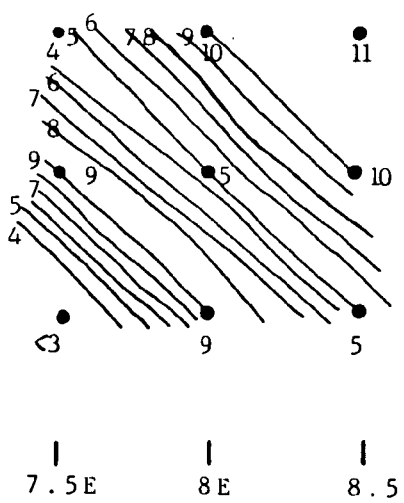

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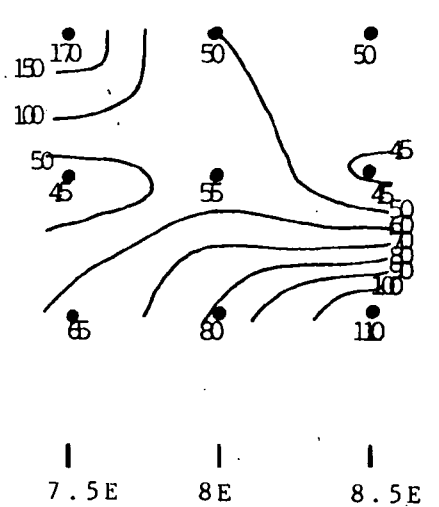


EL - 468 I

ZONE 3

EL - 468

JAMESTOWN AREA

ANNUAL REPORT

FOR THE PERIOD 25.4.79 to 24.4.80.

JINGELLIC MINERALS N.L.,
P.O. BOX 267,
TAMWORTH 2340,
N.S.W.

TELEPHONE: (067) 662335.

MARCH, 1980.

TABLE OF CONTENTS

LIST OF APPENDICES

1. TITLE

Exploration Licence No. 468 was granted to Jingellic Minerals N.L. The term of licence was one year covering the period 25.4.79 to 24.4.80.

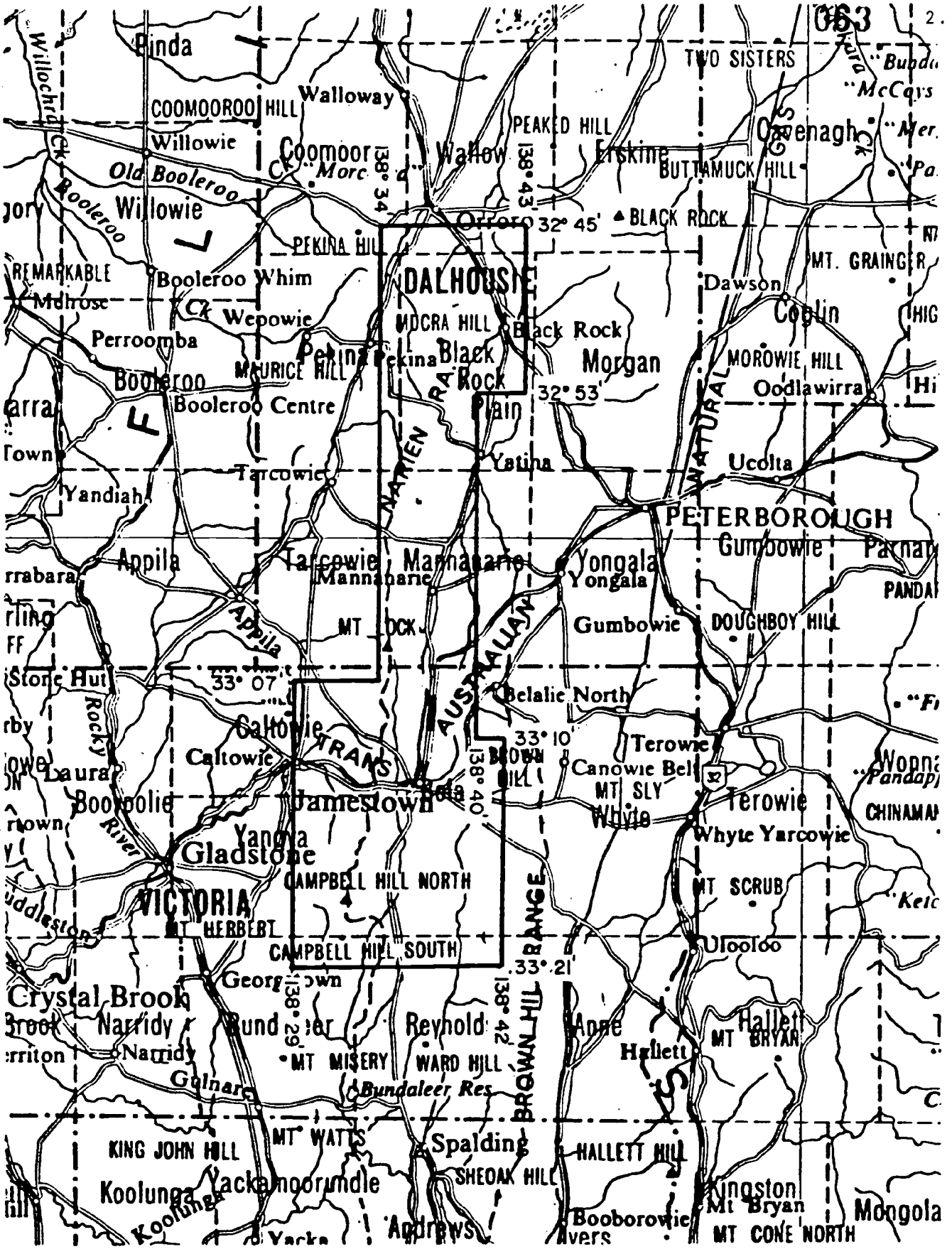
The region, known as the Jamestown area, is located west of Peterborough and covers an area of approximately 955 square kilometres. The area is located on the 1:250,000 Burra and Orroroo sheets and the boundaries are described as follows: -

> Commencing at a point being the intersection of latitude 32°45'S and longitude 138°34'E, thence east to longitude 138°43'E, south to latitude 32°53'S west to longitude 138°40'E, south to latitude 33°10'S, east to longitude 138°42'E, south to latitude 33°21'S, west to longitude 138°29'E, north to latitude 33°07'S, east to longitude 138°34'E and north to the point of commencement.

The area is illustrated in figure 1.

With regard to Schedule B, expenditure for the exploration licence is detailed in Appendix 1.

In respect of Schedule C, the licensee did



SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

APPLICANT: JINGELLIC MINERALS N.L.

DM: 637/78 AREA: 955 square kilometres

1:250000 PLANS: ORRORO BURRA

LOCALITY: JAMESTOWN – BLACK ROCK AREA

FIGURE 1A

DATE GRANTED: DATE EXPIRED: EL No:

not construct any major campsites or new tracks. Nor did they upgrade existing tracks or use declared equipment.

As much as possible, activity was restricted to existing or approved tracks. No 'Aboriginal and Historic Relics' sites or areas of archeological or anthropological importance were encountered or discovered during the exploration activities.

2. INTRODUCTION

Layton and Associates Pty. Ltd. were commissioned by Jingellic Minerals N.L. to undertake the exploration of Exploration Licence No. 468. The supervising geologist for the programme was Mr. M.F. Armstrong.

The purpose of the investigation was to evaluate the potential for deposits of diamonds and rare-earths and copper-uranium ore deposits.

Potential host sediments for diamond bearing kimberlite intrusions, carbonatites and intrusive copper-uranium breccias are the rocks of the Adelaide Geosyncline.

The first stage of exploration involved a detailed study of the 1:1,000,000 scale landsat imagery. This was complemented by a detailed fracture study using 1:80,000 scale black and white aerial photographs. Clusters of lineament and/or fracture intersection were selected as sites, around which field exploration activities could be concentrated. The results of this study indicated nine targets in the Jamestown area as sites suitable for follow up field investigation. The lineament and fracture study is illustrated in a separate folio to the report.

These targets were subsequently investigated in the field and a programme of soil and stream sediment geochemistry undertaken. A scintillometer survey was also conducted over each of the target areas.

A study of the South Australian Department of Mines' records was also conducted to determine the scope and extent of previous exploration within the area.

3. EXPLORATION OF EXPLORATION LICENCE NO. 468

3.1 EXPLORATION PHILOSOPHY

Although diamonds can occur in alluvial

gravels, their only primary source is kimberlites. It is this fact that forms the basis of the exploration programme.

Because of the relationship between the diamond stability field and the intrusives that contain them, diamondiferous kimberlites are restricted to stable cratons. A feature of the "old" stable cratons is that they display a "cool" geothermal gradient which results in the diamond stability being intersected at lower pressures and temperatures than experienced in areas of "hotter" geothermal gradients. For these reasons, the Adelaidean sediments of the Jamestown area were selected as favourable sites for kimberlite emplacement.

The South Australian kimberlites all lie on the onshore projection of the oceanic fracture zone which arises from sea floor spreading associated with the Antarctic Ridge.

This fits in with the hypothesis that the continental extensions of these transform faults are probably determined by structural weaknesses which existed in the continental crust prior to the break up of Gondwanaland.

The continental extensions of these transform faults display themselves either as lineament traces determined from the landsat imagery or as fracture traces determined from aerial photographs. These lineaments and fractures act as structural controls to the emplacement of kimberlite pipes and dykes. And, to carry this point further, zones or clusters of lineament and/or fracture intersection provides the best structurally controlled environment for the emplacement of these bodies.

These lineaments and fractures also act as structural controls to rocks of alkaline igneous association. Two types of deposits are associated with this -

a) Rare earths associated with carbonatite complexes and

b) Phalabowra type copper-uranium deposits associated with miascite, nepheline syenite, nephelinite and ijolite intrusives.

Copper deposits are also associated with diapirs within the Adelaide Geosyncline. There is evidence of re-entrant or depression facies that have developed in fault-controlled rift structures. These restricted basin environments are considered to have potential for "Red Sea" type metal bearing brine accumulations. The background

to this concept centres about evidence for the restricted distribution of evaporitic and tuffaceous material in the River Wakefield Group, north of Orroroo.

Thus, on the basis of the above synthesis of ore deposit genesis, the geochemical programme was designed around the detection of those elements enriched in the abovementioned intrusives.

3.2 ASSESSMENT OF THE GEOLOGICAL AND STRUCTURAL SETTING.

The area falls within the 1:250,000 scale Orroroo and Burra geological sheets.

The structural trend of the area gradually swings from north in the southern and central parts of the lease to north-north-east in the northern section. The rocks are folded into a series of greatly elongated basins and domes. The synclinal areas tend to be broad, whereas the intervening domes are tightly compressed. Because of this compression, faulting along the limbs or crests of the domes is likely. Structurally the rocks of the Jamestown area are part of the Adelaide Geosyncline which is considered to be an area of gentle platform downwarp adjacent to rising basement highs.

The oldest rocks are siltstones, dolomites and quartzites of the River Wakefield Group which crop out in an anticlinal core about 5 kilometres south of Black Rock. This group is believed to represent a deeper water facies, compared to succeeding units.

The overlying Burra Group, which also consists of siltstones, dolomites and quartzites, forms the core of each anticlinal structure. The main outcrop of the Group is located in the Narien Range, south of Orroroo. The basal member of the Group, the Rhynie Sandstone, crops out in the Narien Range, southwest of Black Rock. The group is Proterozoic in age and forms the limb of the synclinal structure, west of Black Rock. It also forms the core of the anticline, west of Jamestown. The sedimentary environment was largely lagoonal to shallow marine.

Overlying the Burra Group is the Appila Tillite, which is the basal member of the Umberatana Group. The most prominent outcrop is on the western flank of the Narien Range. The tillite consists of a massive boulder conglomerate with interbedded sandstones and siltstones. These tillitic sediments appear to have been largely deposited in shallow intra-continental seas.

The erratic boulders having been transported by ice floes from adjacent land masses.

The calcareous siltstones of the Tapley Hill Formation overlie the Appila Tillite. The basal unit of the formation comprises the Tindelpina Shale Member which consists of carbonaceous and pyritic shale. The sediments appear to have deposited in a shallow marine environment.

This is conformably overlain by the Tarcowie Siltstone, which forms the core of the syncline southwest of Orroroo and consists of siltstones with minor interbedded sandstones.

Both the Burra and Umberatana Groups were deformed during the late Cambrian to Early Ordovician Delamerian Orogeny.

The lineament study revealed two lineaments, trending northeast, and traversing the tenement in the vicinity of Jamestown. The remaining lineaments are located in the northern sector of the lease, but only marginally penetrate the boundary. They are oriented towards the NNE, NNW and E.

The predominant fractures in the southern

portion of the lease trend WNW, whereas in the northern sector, the trend is toward the NW. Fractures of secondary importance are oriented NE, ENE and E. A number of easterly trending fractures in the northern sector of the lease were found, on comparison with bedding traces, to represent faults. One, in particular, located approximately 3 kilometres northwest of Yatina, was discovered to have a dextral displacement of 300 metres.

Of the nine areas selected for geochemical sampling and illustrated on the sample locality map (Appendix 4), outcrop was observed in areas B, C and D. Floaters were observed in the remaining areas. A list of areas versus lithology is tabulated below -

AREA	LITHOLOGY
A	dark grey siltstone
B	dark grey siltstone and fine grained arenite
C	dark grey siltstone and fine grained arenite
D	dark grey shale and lithic arenite
E	dark grey siltstone and arenite with minor chert
F	dark grey siltstone and arenite with minor chert
G	dark grey siltstone and arenite with minor chert
H	dark grey siltstone
I	dark grey siltstone

3.3 GEOCHEMICAL PROGRAMME

3.3.1 INTRODUCTION

Nine areas were delineated from the lineament and fracture study. These sites were selected on the basis of their displaying the highest concentration of lineament and/or fracture intersection.

Seventy soil and stream sediment samples were collected from the sites indicated in Appendix 4.

Each site, delineated from the lineament and fracture analysis, was investigated by, firstly, encompassing it in a circle varying in radius from 1 to 2 kilometres. Each site was subdivided into quadrants and a composite sample, made up of 40 to 50 sub-samples, was taken.

Soil samples were taken over the areas of lineament and/or fracture intersection. Stream sediment samples were also collected from creeks draining the areas of investigation.

All soil samples were collected from the "B" soil horizon at a depth of 40 to 60 centimetres and were dry at the time of collection.

The assay results are detailed in Appendix 2 and a list of sample type versus sample number in Appendix 3.

3.3.2 SAMPLE TREATMENT

The analysis of the samples was carried out by S.G.S. Australia Pty. Ltd. in Sydney.

The samples were first dried and sieved to minus 80 mesh. The initial method of digestion involved perchloric nitric acid. The samples were then dried and redigested with hydrochloric acid. The samples were then analysed for niobium, strontium and tantalum by X-Ray Flourescence and for chromium, cobalt, copper and nickel by Atomic Absorption Spectroscopy.

The limits of detection are listed below -

Atomic Absorption Spectroscopy - 2 parts per million

X-Ray Flourescence - 10 parts per million

3.3.3 INTERPRETATION

For statistical reasons the results have been considered collectively as they are all underlain by similar lithologies and display similiar geomorphic characteristics. It is also noted that the frequency histogram of results usually plotted as a single population distribution. A list of upper threshold of background values for these areas is tabulated below -

ELEMENT	UPPER BACKGROUND THRESHOLD VALUE (ppm)
Cobalt	17
Copper	27
Chromium	15
Nickel	28
Tantalum	10
Niobium	14
Strontium	180

Area A is located in the south-east corner of the lease. Anomalous chromium values are associated with quadrants I and II.

Area B is located a few kilometres south of the township of Orroroo. One cobalt anomaly

was revealed in the composite sample taken from quadrant II.

Area C is located due south of area B. Within this area one nickel and four strontium values were found to be anomalous. These above background values are predominantly located in quadrants I and II and are associated with either soil samples over fracture intersections or stream sediment samples.

Area D is located in the south-west corner of the lease and revealed two anomalous chromium and one nickel value. The above background value for chromium occur in a composite soil sample in quadrant I and a fracture intersection sample in quadrant II. The nickel value is associated with a fracture intersection sample in quadrant I.

Areas E, F and G are located approximately halfway between the townships of Black Rock and Orroroo. Areas E and F revealed no anomalous values whereas area G displayed one

above background copper value in a stream sediment sample within quadrant I.

Areas H and I are located southwest of Black Rock. One anomalous nickel value was detected in quadrant I within area H. However, area I revealed one cobalt, three copper and one chromium anomalies. One above background copper and chromium value was associated with a stream sediment sample in quadrant II. The remaining copper anomalies were associated with composite samples in quadrants II and IV. The cobalt anomaly was associated with a stream sediment sample in quadrants II.

3.4 SCINTILLOMETER SURVEY

A regional scintillometer survey was conducted over the nine exploration sites within EL - 468. Between four and six traverses were conducted over each area.

No significant radiometric anomalies were encountered. Minor anomalies, covering 5 to 10 metres, occured and these were associated

with fracture and lineament localities.

4. RECOMMENDATIONS AND FUTURE WORK

Within Exploration Licence 468 the geochemical programme just completed indicates that there are four areas which warrant further investigation. The presence of anomalous kimberlite indicator elements in areas A, C, D and I justify further investigation.

In the southern sector of the lease, the southern portion of area A and the eastern portion of area D require further exploration. In the northern sector of the lease, the southern portions of areas C and I should be subjected to further stage of exploration activities.

Therefore it is recommended that a follow up programme of exploration be carried out within the exploration licence. There are two aspects to this phase -

a) The collection of soil samples on a 100 or 200 metre grid system. These will again be analysed for kimberlite and alkali intrusive indicator elements. The purpose of this is to provide a more accurate locality for anomalies encountered

in the previous investigation.

b) The collection of stream sediment samples which will undergo heavy media separation for kimberlite indicator minerals such as pyrope garnet, chrome diopside and picro-ilmenite.

APPENDIX 1.

EXPENDITURE FOR THE PERIOD
25.4.79 TO 24.4.80 -
EXPLORATION LICENCE NO. 468,
JAMESTOWN AREA.

EL - 468 — JAMESTOWN

EXPENDITURE FOR THE PERIOD 25.4.79 TO 24.4.80.

LAYTON AND ASSOCIATES PTY. LTD.

- FEES	$3,675.00	
- EXPENSES	$3,249.77	
	$6,924.77	$6,924.77

JINGELLIC MINERALS N.L.

	$1,553.70	$1,553.70
TOTAL EXPENDITURE		$8,478.47

APPENDIX 2.

ASSAY RESULTS.

SAMPLE REF.	Co	Cu	Cr	Ni	Ta	Nb	Sr
468 A 1	11	21	31	19	<10	12	45
A2	15	22	11	19	<10	12	45
A3	15	22	15	24	<10	7	50
A4	9	14	9	12	<10	9	50
A5	15	23	10	22	<10	11	45
468 A6	16	21	11	18	<10	11	45
A7	16	23	10	21	<10	7	40
A8	12	20	11	17	<10	11	45
B9	10	15	4	13	<10	13	50
468 B10	12	15	4	20	<10	12	50
B11	21	23	4	25	<10	9	65
B12	9	22	3	15	<10	8	85
B13	9	13	3	17	<10	13	60
B14	7	14	5	17	<10	9	85
B15	8	17	4	21	<10	6	90
B16	5	16	5	16	<10	9	150
468 B17	4	15	7	17	<10	10	60
C18	5	19	7	17	<10	6	110
C19	4	20	7	15	<10	7	180
C20	6	19	6	19	<10	7	270
468 C21	10	22	11	24	<10	10	160
C22	7	18	7	22	<10	4	210
C23	7	20	5	24	<10	8	160
C24	10	15	4	21	<10	5	200
C25	9	22	9	22	<10	11	95
468 C26	14	26	8	39	<10	6	110
D27	8	23	15	15	<10	11	55
D28	4	18	5	10	<10	10	60

SAMPLE REF.	Co	Cu	Cr	Ni	Ta	Nb	Sr
468 D29	9	19	5	81	<10	11	50
D30	4	15	4	7	<10	7	80
D31	7	13	4	9	<10	11	45
D32	5	25	5	9	<10	11	35
D33	10	17	5	11	<10	13	45
D34	9	14	4	7	<10	11	40
D35	7	15	15	10	<10	12	40
468 E36	9	20	4	17	<10	11	65
E37	8	19	11	14	<10	10	60
E38	10	21	4	15	<10	11	55
E39	9	19	4	14	<10	10	55
E40	10	23	4	15	<10	12	65
468 E41	13	25	9	19	<10	10	70
E42	9	21	3	13	<10	7	65
F43	12	26	5	18	<10	6	70
F44	8	24	6	16	<10	6	70
F45	10	24	3	14	<10	11	70
468 F 46	9	14	1	9	<10	13	35
F47	6	14	3	10	<10	12	120
F48	8	22	3	10	<10	9	160
G49	6	22	3	15	<10	13	55
G50	12	26	3	16	<10	12	55
468 G51	8	29	3	17	<10	11	100
G52	11	22	3	16	<10	13	55
G53	11	19	3	13	<10	8	50
H54	12	21	5	28	<10	10	120
H55	12	20	5	23	<10	8	130
468 H56	6	18	5	17	<10	9	140

SAMPLE REF.	Co	Cu	Cr	Ni	Ta	Nb	Sr
468 H57	9	20	4	25	<10	6	160
H58	12	20	4	24	<10	9	85
H59	12	20	5	24	<10	8	150
H60	12	21	6	25	<10	10	110
161	13	24	6	16	<10	9	60
162	12	18	4	25	<10	8	100
163	9	11	3	13	<10	8	45
164	11	29	2	14	<10	9	120
165	17	21	4	16	<10	14	65
166	14	37	24	20	<10	13	65
167	10	20	4	25	<10	7	130
168	14	31	12	20	<10	9	80
169	12	26	8	18	<10	9	75

APPENDIX 3.

CORRELATION OF SAMPLE NUMBER

AND SAMPLE TYPE.

JAMESTOWN AREA.

A R E A	SAMPLE NUMBER	SAMPLE TYPE
A	468 A I	Composite sample - quadrant I
	468 A 2	Stream sediment
	468 A 3	Composite sample - quadrant II
	468 A 4	Stream sediment sample
	468 A 5	Composite sample - quadrant III
	468 A 6	Soil sample
	468 A 7	Composite sample - quadrant IV
	468 A 8	Soil sample
B	468 B 9	Composite sample - quadrant I
	468 B I0	Soil sample
	468 B II	Composite sample - quadrant II
	468 B I2	Stream sediment
	468 B I3	Composite sample - quadrant III
	468 B I4	Stream sediment
	468 B I5	Soil sample
	468 B I6	Stream sediment
	468 B I7	Composite sample - quadrant IV
C	468 C I8	Composite sample - quadrant I
	468 C I9	Stream sediment
	468 C 20	Soil sample
	468 C 2I	Composite sample - quadrant II
	468 C 22	Stream sediment
	468 C 23	Composite sample - quadrant III
	468 C 24	Stream sediment
	468 C 25	Composite sample - quadrant IV
	468 C 26	Soil sample

AREA	SAMPLE NUMBER	SAMPLE TYPE
D	468 D 27	Composite sample - quadrant I
	468 D 28	Stream sediment
	468 D 29	Soil sample
	468 D 30	Composite sample - quadrant II
	468 D 3I	Stream sediment
	468 D 32	Composite sample - quadrant III
	468 D 33	Composite sample - quadrant IV
	468 D 34	Soil sample
	468 D 35	Soil sample
E	468 E 36	Composite sample - quadrant I
	468 E 37	Soil sample
	468 E 38	Composite sample - quadrant II
	468 E 39	Stream sediment
	468 E 40	Composite sample - quadrant III
	468 E 4I	Soil sample
	468 E 42	Composite sample - quadrant IV
F	468 F 43	Composite sample - sector I
	468 F 44	Soil sample
	468 F 45	Composite sample - sector II
	468 F 46	Soil sample
	468 F 47	Stream sediment
	468 F 48	Stream sediment

A R E A	SAMPLE NUMBER	SAMPLE TYPE
G	468 G 49	Composite sample - sector I
	468 G 50	Soil sample
	468 G 5I	Stream sediment
	468 G 52	Soil sample
	468 G 53	Composite sample - sector II
H	468 H 54	Composite sample - quadrant I
	468 H 55	Composite sample - quadrant II
	468 H 56	Soil sample
	468 H 57	Composite sample - quadrant III
	468 H 58	Soil sample
	468 H 59	Composite sample - quadrant IV
	468 H 60	Stream sediment
	468 H 6I	Soil sample
I	468 I 62	Composite sample - quadrant I
	468 I 63	Soil sample
	468 I 64	Composite sample - quadrant II
	468 I 65	Stream sediment
	468 I 66	Soil sample
	468 I 67	Composite sample - quadrant III
	468 I 68	Composite sample - quadrant IV
	468 I 69	Soil sample
	468 I 70	Stream sediment

LAYTON AND ASSOCIATES PTY. LTD.

SYDNEY AUSTRALIA

E.L. 468 SOUTH AUSTRALIA
BASE MAP

ENV. 3555-81

SCALE 1:81,300 APPROX

1 0 1 2 3 4 5

KILOMETRES

E.L.

JOB No : CS-128	CLIENT: JINGELLIC MINERALS N.L
DRAWN : CARTOSCOPE	DATE: FEB, 1980

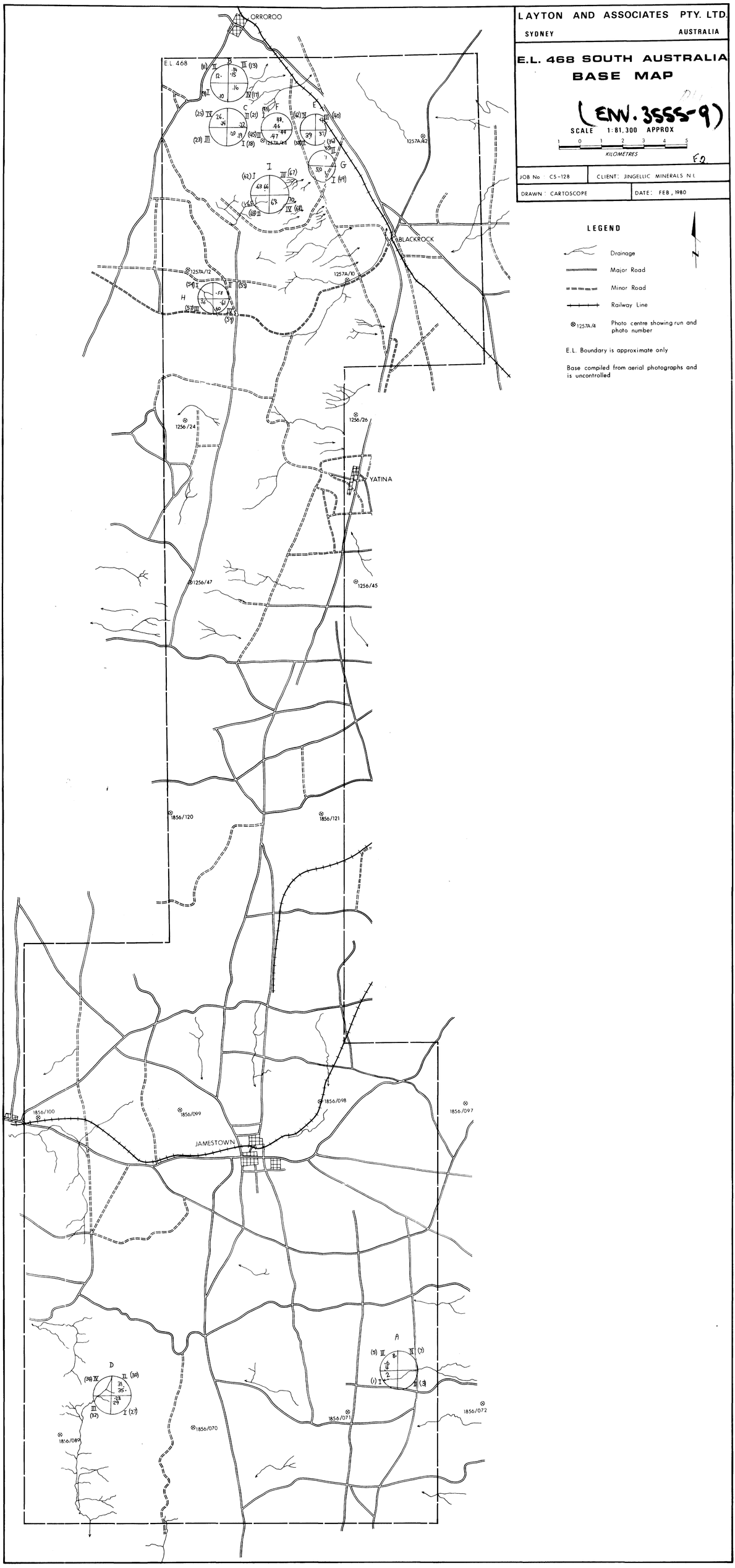
LEGEND

- Drainage
- Major Road
- Minor Road
- Railway Line
- ⊗1257A/4 Photo centre showing run and photo number

E.L. Boundary is approximate only

Base compiled from aerial photographs and is uncontrolled

N


ORROROO
E.L. 468
BLACKROCK
YATINA
JAMESTOWN
1257A/42
1257A/12
1257A/10
1256/24
1256/26
1256/47
1256/45
1856/120
1856/121
1856/100
1856/099
1856/098
1856/097
1856/089
1856/070
1856/071
1856/072
LAYTON AND ASSOCIATES PTY. LTD.
SYDNEY
AUSTRALIA
E.L. 468 SOUTH AUSTRALIA
BASE MAP
(ENV. 3555-9)
SCALE 1:81,300 APPROX
KILOMETRES
JOB No: CS-128
CLIENT: JINGELLIC MINERALS N.L.
DRAWN: CARTOSCOPE
DATE: FEB., 1980
LEGEND
Drainage
Major Road
Minor Road
Railway Line
1257A/4 Photo centre showing run and photo number
E.L. Boundary is approximate only
Base compiled from aerial photographs and is uncontrolled
N