

ANNUAL REPORT E.L. 4329

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26th August, 1983  
to  
25th August, 1984

**OPEN FILE**

|                     |                                     |
|---------------------|-------------------------------------|
| Licensee:           | Ashton Mining Limited               |
| Operator:           | Ashton Mining Limited               |
| Sheet<br>Reference: | Brunette Downs (SE 53-11) 1:250,000 |
| Submitted to:       | Department of Mines & Energy        |

ASHTON MINING LIMITED  
444 Queen Street  
Brisbane. 4000

September, 1984.

NORTHERN TERRITORY  
GEOLOGICAL SURVEY

*CR84/223A*

ABSTRACT

*During the period 26th August, 1983 to 25th August, 1984 Ashton Mining Limited as Manager of the A.D.E. Joint Venture carried out an exploration program in E.L. 4329 aimed at the location of kimberlite pipes.*

*Work undertaken included regional gravel sampling and airborne magnetics.*

*While no kimberlite pipes were located, several gravel samples were found to contain microdiamonds.*

## T A B L E   O F   C O N T E N T S

|      |                           |        | page |
|------|---------------------------|--------|------|
|      | ABSTRACT                  |        |      |
| 1.00 | INTRODUCTION              | ... .. | 1    |
| 2.00 | REGIONAL SAMPLING PROGRAM | ... .. | 2    |
|      | 2.10 Field Phase          |        | 2    |
|      | 2.20 Laboratory Phase     |        | 3    |
| 3.00 | AIRBORNE MAGNETIC SURVEY  | ... .. | 4    |
| 4.00 | FUTURE PROGRAMS           | ... .. | 5    |

## L I S T   O F   F I G U R E S

|    |   | opposite<br>page |
|----|---|------------------|
| 1. | Location Map                            | 1                |
| 2. | Airborne Magnetic Survey: Plan Location | 4                |

## L I S T   O F   A P P E N D I C E S

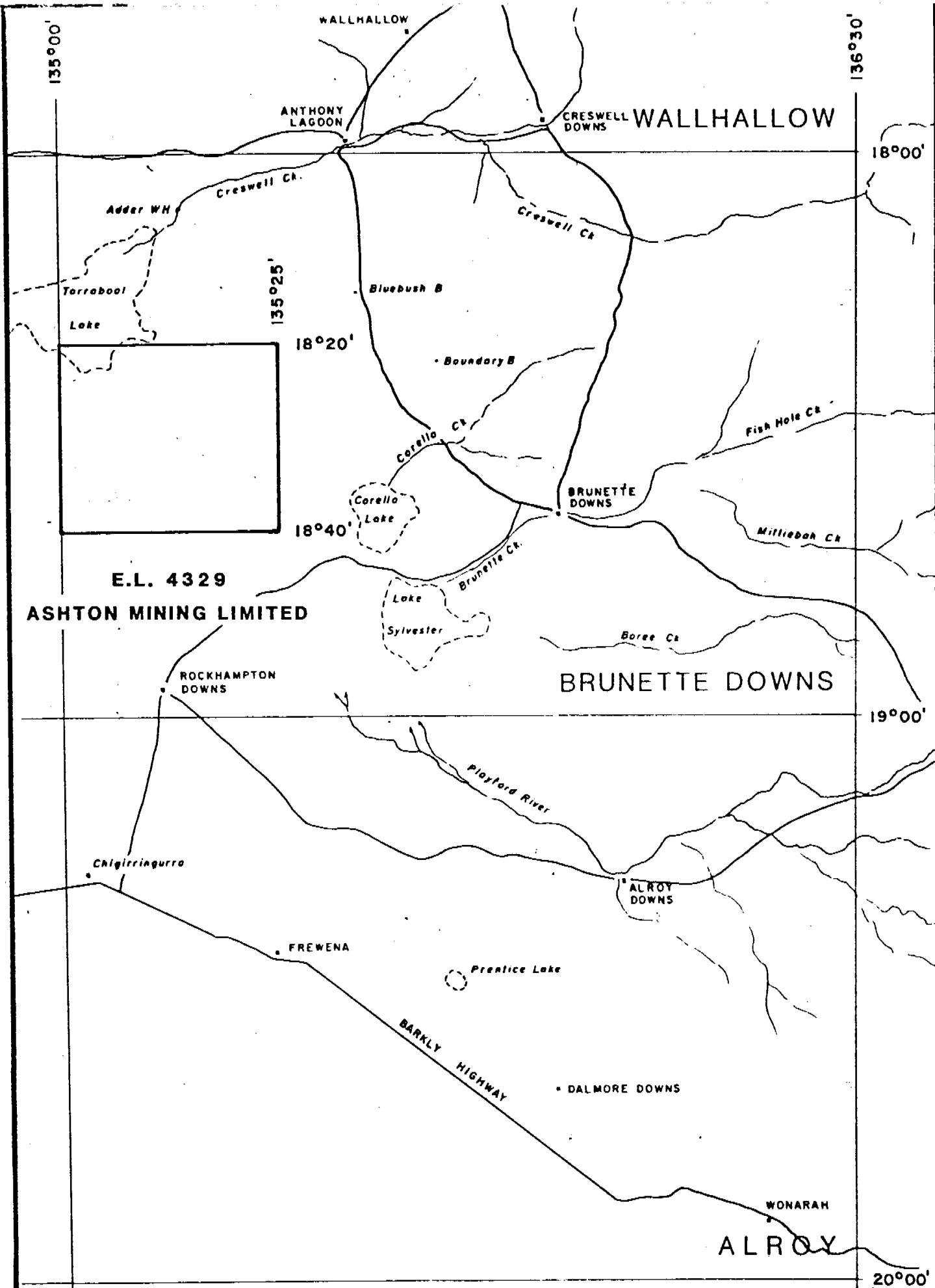
|    |                                    |
|----|------------------------------------|
| 1. | Results of Laboratory Examinations |
| 2. | Statement of Expenditure           |

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L I S T   O F   P L A N S

|    |                           | back pocket |
|----|---------------------------|-------------|
| 1. | Sample Locations          | "           |
| 2. | Magnetic Stacked Profiles | "           |
| 3. | Magnetic Stacked Profiles | "           |
| 4. | Flight Path Recovery      | "           |
| 5. | Flight Path Recovery      | "           |

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**FIGURE 1**  
**LOCATION MAP**

## 1.00 INTRODUCTION

Exploration Licence 4329 covers an area of 1,610 square kilometres (500 blocks) on the Brunette Downs 1:250,000 sheet.

The licence, which was granted to Ashton Mining Limited on 26th August, 1983, is subject to the A.D.E. Joint Venture Agreement between Ashton Mining Limited, A.O.G. Minerals Limited and Aberfoyle Exploration Pty. Ltd., concluded on 9th September, 1980. Ashton Mining Limited is the Manager of the Joint Venture.

During the first year of tenure of the licence, a program of regional gravel and loam sampling was undertaken. In addition an airborne magnetic survey was conducted over the extreme eastern portion of the licence area.

This report gives a summary of the work carried out in E.L. 4329 during the period 26th August, 1983 to 25th August, 1984.

A statement of expenditure covering this period is included in the report.

## 2.00 REGIONAL SAMPLING PROGRAM

### 2.10 Field Phase

Prior to the commencement of field work, gravel sample locations were plotted in the office on the Tarrabool and Rockhampton Downs 1:100,000 sheets so that sample sites tested the available drainage at intervals of eight kilometres. As there is a paucity of drainage in the region, this resulted in only 11 gravel samples being taken in E.L. 4329. An additional 20 loam samples were collected to help test the area.

During the field program, individual gravel sample sites were selected on the basis of the quality of the available heavy mineral traps in the vicinity of the preselected site, care being taken to sample the most suitable trap site. Helicopter was the most practical mode of transport as it had the advantage of ease of access and navigation and enabled the geologist to scan the area for suitable trap sites.

Once a suitable gravel sample site was located, approximately 40 kg of gravel were gathered, sieved and the minus 4mm fraction collected for laboratory examination. Generally the minus 4mm samples weighed 30 to 35 kg. The sample sites were accurately plotted in the field on a prepared 1:100,000 base plan. Within E.L. 4329 a total of 11 gravel samples were collected

corresponding to a gravel sample density of one sample per 147 square kilometres. Loam samples, which are surface scrap samples usually weighed 15 to 20 kg.

All sample locations are given on Plan 1.

#### 2.20 Laboratory Phase

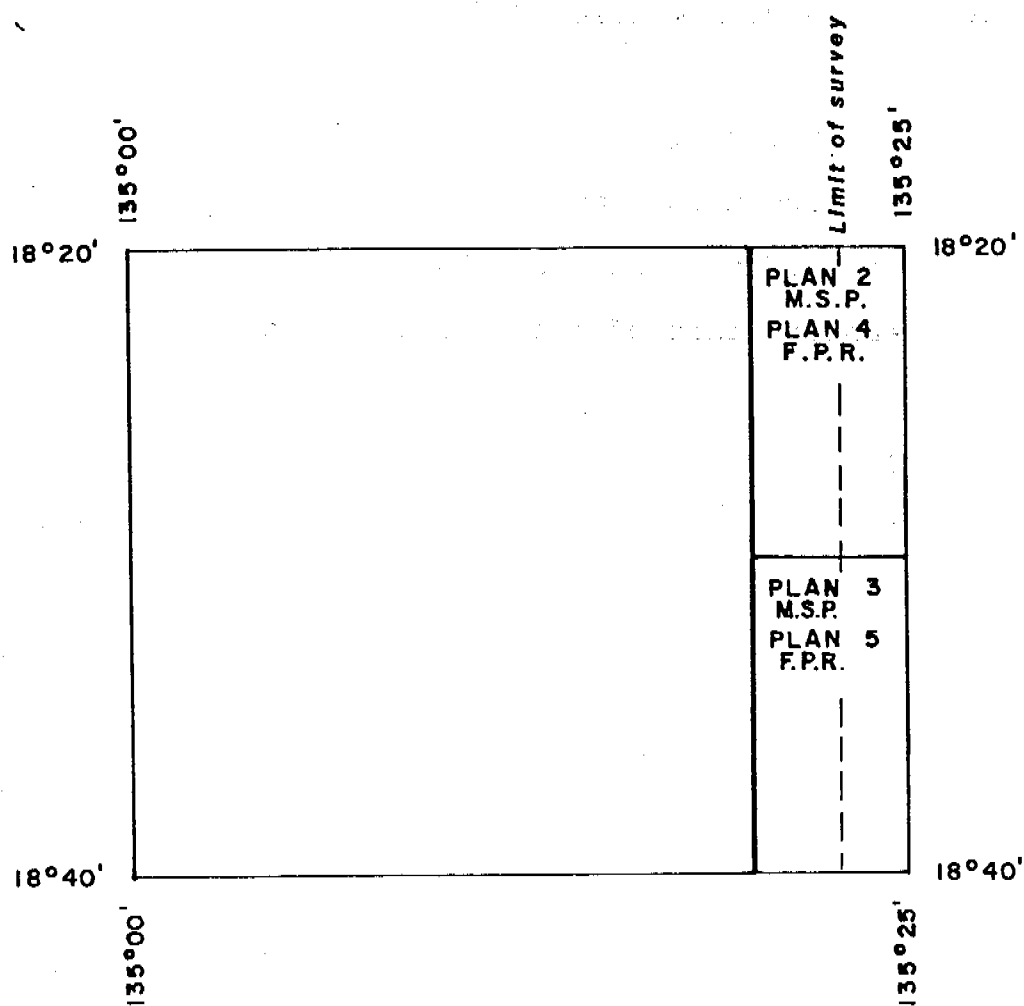
The samples were processed at the Ashton Mining Limited laboratory in Perth where they were concentrated by Wilfley Table and heavy liquid separation techniques.

The heavy liquid used was tetrabromoethane with a specific gravity of 2.96. The concentrates were then screened into various size fractions, further concentrated, where required, by magnetic and electrostatic separation techniques and a comprehensive grain by grain examination carried out on the minus 1.0mm plus 0.425mm fractions.

Of the 31 samples collected within the licence, 28 contained no detectable kimberlite indicator minerals. Each of the remaining three samples contained a microdiamond.

A complete listing of the laboratory results for all the samples is given in Appendix 1.

**E.L. 4329**  
**ASHTON MINING LIMITED**



MSP - MAGNETIC STACKED PROFILES

FPR - FLIGHT PATH RECOVERY

**FIGURE 2**  
**AIRBORNE MAGNETIC SURVEY**  
**PLAN LOCATION**

### 3.00 AIRBORNE MAGNETIC SURVEY

A fixed wing airborne magnetic survey was flown by Geometrics International Incorporation over an area of approximately 130 square kilometres in the eastern part of the licence (refer to Figure 2).

This work was carried out as part of a larger regional airborne magnetic program by the A.D.E. Joint Venture in the Brunette Downs area. Flight line spacing was 300 metres with lines oriented in a north-south direction. Additional survey specifications are listed in the legend to Plan 2.

Results within E.L. 4329 are presented as stacked profiles and flight path recovery plans (refer to Plans 2 and 5).

## 4.00 FUTURE PROGRAMS

Although only a small number of gravel samples were collected, three microdiamonds were recovered and the area therefore is regarded as of interest. Further follow-up sampling is planned. Once detailed interpretation of the magnetic data is completed and anomalies outlined, ground magnetic surveys will be undertaken over selected targets. At this stage it is also envisaged that an airborne multispectral scanner survey will be flown which will include the licence area.

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APPENDIX 1.

# RESULTS OF LABORATORY EXAMINATIONS

## REGIONAL GRAVEL SAMPLES EL 4329

The following fractions of each sample were studied:

|         |            |                 |
|---------|------------|-----------------|
| -1.0 mm | +0.8 mm;   | denoted by +0.8 |
| -0.8 mm | +0.5 mm;   | denoted by +0.5 |
| -0.5 mm | +0.425 mm; | denoted by +0.4 |

| Sample No | Results        | Comments   |
|-----------|----------------|--|
| BRU 304   | Nil            |  |
| BRU 305   | Nil            |  |
| BRU 306   | Nil            |  |
| BRU 307   | Nil            |  |
| BRU 310   | Nil            |  |
| BRU 311   | Nil            |  |
| BRU 312   | 1 -0.4 DIAMOND | 1 +0.2 x 0.2 x 0.1 STONE anhedral fragment of creamy-white turbid, poor quality material. Good 'sugary' lustre in some orientations. |
| BRU 314   | 1 -0.4 DIAMOND | 1 +0.15 x 0.15 x 0.1 STONE clear colourless fragment, all surfaces are cleavage or fracture surfaces, some frosted.                  |
| BRU 315   | Nil            |  |
| BRU 316   | Nil            |  |

| Sample No | Results        | Comments   |
|-----------|----------------|--|
| BRU 322   | 1 -0.4 DIAMOND | 1 +0.15 x 0.15 x 0.1 STONE pale pink anhedral, frosted surfaces, subtranslucent generally rounded shape, but not good quality, fractured whilst testing. |
| BRU 356   | Nil            |  |
| BRU 357   | Nil            |  |
| BRU 358   | Nil            |  |
| BRU 359   | Nil            |  |
| BRU 360   | Nil            |  |
| BRU 361   | Nil            |  |
| BRU 362   | Nil            |  |
| BRU 363   | Nil            |  |
| BRU 364   | Nil            |  |
| BRU 365   | Nil            |  |
| BRU 366   | Nil            |  |
| BRU 367   | Nil            |  |
| BRU 368   | Nil            |  |
| BRU 369   | Nil            |  |
| BRU 370   | Nil            |  |
| BRU 371   | Nil            |  |

| Sample No | Results | Comments |
|-----------|---------|----------|
| BRU 372   | Nil     |          |
| BRU 373   | Nil     |          |
| BRU 374   | Nil     |          |
| BRU 375   | Nil     |          |

APPENDIX 2.

A.D.E. JOINT VENTURE

EXPLORATION LICENCE NO. 4329

EXPENDITURE FOR THE YEAR ENDED 25.8.84

|                             | <u>£</u>             |
|-----------------------------|----------------------|
| Salaries                    | 3,968                |
| Field & Laboratory Expenses | 22,424               |
| Miscellaneous               | <u>4,368</u>         |
| Expenditure for year        | <u><u>30,760</u></u> |

Date Licence Granted: 26.8.83

135°00'

135°25'

18°20'

18°20'

EL 4329 : ASHTON

TARRABOOL

LAKE

BRU 368  
BRU 369  
BRU 370  
BRU 371

BRU 372  
BRU 373  
BRU 374  
BRU 375

BRU 316

BRU 314

BRU 315

BRU 311

BRU 310

BRU 312

BRU 308

BRU 305

BRU 307

BRU 304

BRU 364  
BRU 365  
BRU 366  
BRU 367

BRU 360  
BRU 361  
BRU 362  
BRU 363

BRU 322

BRU 356  
BRU 357  
BRU 358  
BRU 359

18°40'

18°40'

135°00'

135°25'

## SAMPLE SYMBOLS

• GRAVEL SAMPLE

+ LOAM SAMPLE

x ROCK SAMPLE

NORTHERN TERRITORY  
GEOLOGICAL SURVEY

CR84/223A

ASHTON MINING LIMITED

A.D.E. JOINT VENTURE

E.L. 4329  
SAMPLE LOCATIONS

PLAN 1

0 1 2 3 4 5 KM

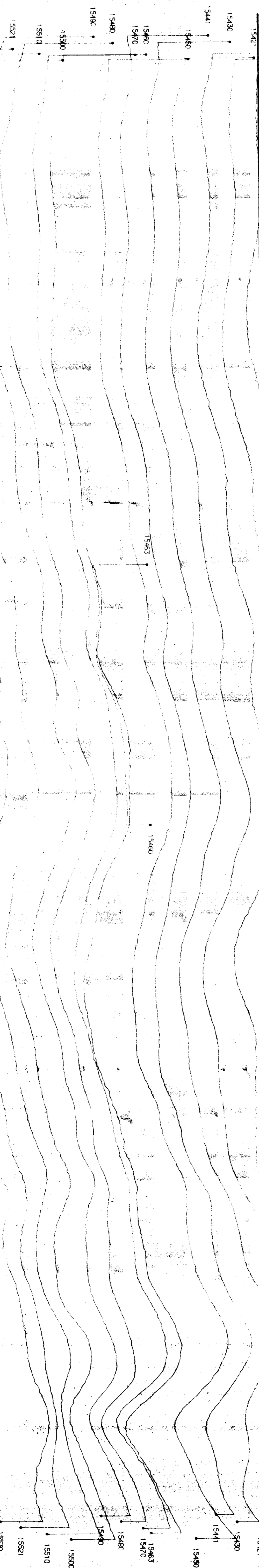
Scale 1:100 000

ASHTON MINING LIMITED Date SEPTEMBER 1984

135 20 0E

18 20 0S

54000E



135 20 0E

18 20 0S

750000E

750000E

## AIRCRAFT SURVEY SPECIFICATIONS

MAGNETOMETER : Geometrics G813 recording to 0.2 nT  
 DISTANCE : Geometrics PRD01 detector volume 1024 cu.in.  
 DATA RECORDING : Differential recording in J.K. TOTAL COUNT  
 RECORDING INTERVAL : Geometrics 1714  
 LIGHT PATH RECORD : Geometrics 35mm continuous tracking camera  
 MINIMAL TERRAIN CLEARANCE : Both detectors in aircraft at 80m  
 MINIMAL LINE SPACING : Traverse lines 300m, tie lines 5.0km  
 LIGHT LINE RECOVERY : Visually to 1/25th phot. enlargements

## MAGNETIC STACKED PROFILE


Grid notation refers to Australian Map Grid Zone 53  
 Magnetism : Levelled and diurnally corrected  
 IGRF (1980) : Removed, datum 200C added  
 Base value : 1800 nT  
 Vertical scale : 10 = 1 nT



0 1 2 km  
SCALE 1:25000

NORTHERN TERRITORY  
GEOLOGICAL SURVEY

CR84/223A


 Flown by GEOMETRICS INT. CORP.  
 Compiled by EXPLORATION COMPUTER SERVICES

ASHTON MINING LTD.

BRUNETTE DOWNS N.T.  
 EL. 4329 / PLAN 2  
 MAGNETIC STACKED PROFILES

DATE: SEPTEMBER 1984

135 20 0E

18 20 0S





135 20 E

540000E

135 30 E

18 30 05

## AIRBORNE SURVEY SPECIFICATIONS

ALTIMETER : Geometrics DB13 recording to 0.2 mT  
 ELECTRONIC : Geometrics GR800 detector volume 1024 counts  
 DATA RECORDING : Differential recording Th.U.K. TOTAL COUNT  
 RECORDING INTERVAL : Geometrics 67.4  
 tie lines at 0.40 sec tracklines 0.33 & 0.42sec  
 FLIGHT PATH RECORD : Geometrics 35mm continuous tracking camera  
 MINIMAL TERRAIN CLEARANCE : Data detection in aircraft at 80m  
 MINIMAL LINE SPACING : Reverse lines 1.0 sec 5.0Kw  
 FLIGHT LINE RECOVERY : Visually to 1:25000 photo enlargements

## FLIGHT PATH RECOVERY PLOT

Grid notation refers to Australian Map Grid Line 53  
 Magnetic : Levelled and digitally corrected  
 GRS 1980 : Removed, datum 2000 m added

PLEASE NOTE: Where a recovered trackline is plotted more than once, the position errors are a function of the errors in the original photograph.

0 1 2 Km  
SCALE 1:25000

NORTHERN TERRITORY  
GEOLOGICAL SURVEY

CR84/223A

Flown by GEOMETRIS INT. CORP.  
Compiled by EXPLORATION COMPUTER SERVICES

ASHTON MINING LTD.

BRUNETTE DOWNS N.T.  
E.L. 4329 / PLAN 5  
FLIGHT PATH RECOVERY

DATE: SEPTEMBER 1984