638001

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

MINERAL RESOURCES DIVISION

E.L. 37/82 LONGBACK

ANNUAL REPORT ON EXPLORATION ACTIVITY

APRIL 1988 – APRIL 1989

Report No. T240

K.J. Virgoe
I.J. Mathison
May 1989

CONTENTS

APPENDICES

PLANS

Plan No.	Scale	Area	Title
534-0002	1:2000	Eastside Grid	Sample Locations and numbers, Rock Chip Samples
534-0003	1:2000	Eastside Grid	Sample Locations and numbers - Soil Samples
534-0004	1:2000	Eastside Grid	Geochemistry - Cu
534-0005	1:2000	Eastside Grid	Geochemistry - As
534-0006	1:2000	Eastside Grid	Geochemistry - Au
534-0007	1:2000	Eastside Grid	Geology

FIGURES

Figure 1 - Location Plan

Figure 2 - Location Plan Southern half of EL.37/82

Figure 3 - Eastside Grid

Figure 4 - Longback & Regional Sampling

Figure 5 - Longback EL.37/82

1.0 INTRODUCTION

E.L. 37/82 comprises a 32.5 sq.km area of Proterozoic metasediments and metavolcanics south-west of the township of Savage River (Fig 1). At its southern end, between the Savage River and the road to Corinna, the E.L. encloses five mineral leases, 98M - 102M84, totalling 3.2 sq.km which cover the silica flour deposits currently being exploited by Monier.

On 30th June 1987 the Electrolytic Zinc Company of Australasia Limited and Savage River Resources Ltd, jointly farmed-in to the E.L. under the terms of the Longback Joint Venture Agreement. Since then E.Z.'s interest in the area has been transferred to Norgold Limited.

The following report summarises the exploration undertaken by Norgold from August - October 1988.

2.0 GEOLOGY AND EXPLORATION POTENTIAL

Norgold consider the area to have a potential for gold deposits hosted by dolomite adjacent to basic metavolcanics. This potential is discussed in more detail in the 1988 annual report (Taylor 1988).

3.0 PREVIOUS EXPLORATION

Exploration undertaken by Norgold from the inception of the Joint Venture until April 1988 is outlined in the "Annual Report on Exploration for the period 1.5.87 - 5.4.88" by S. Taylor.

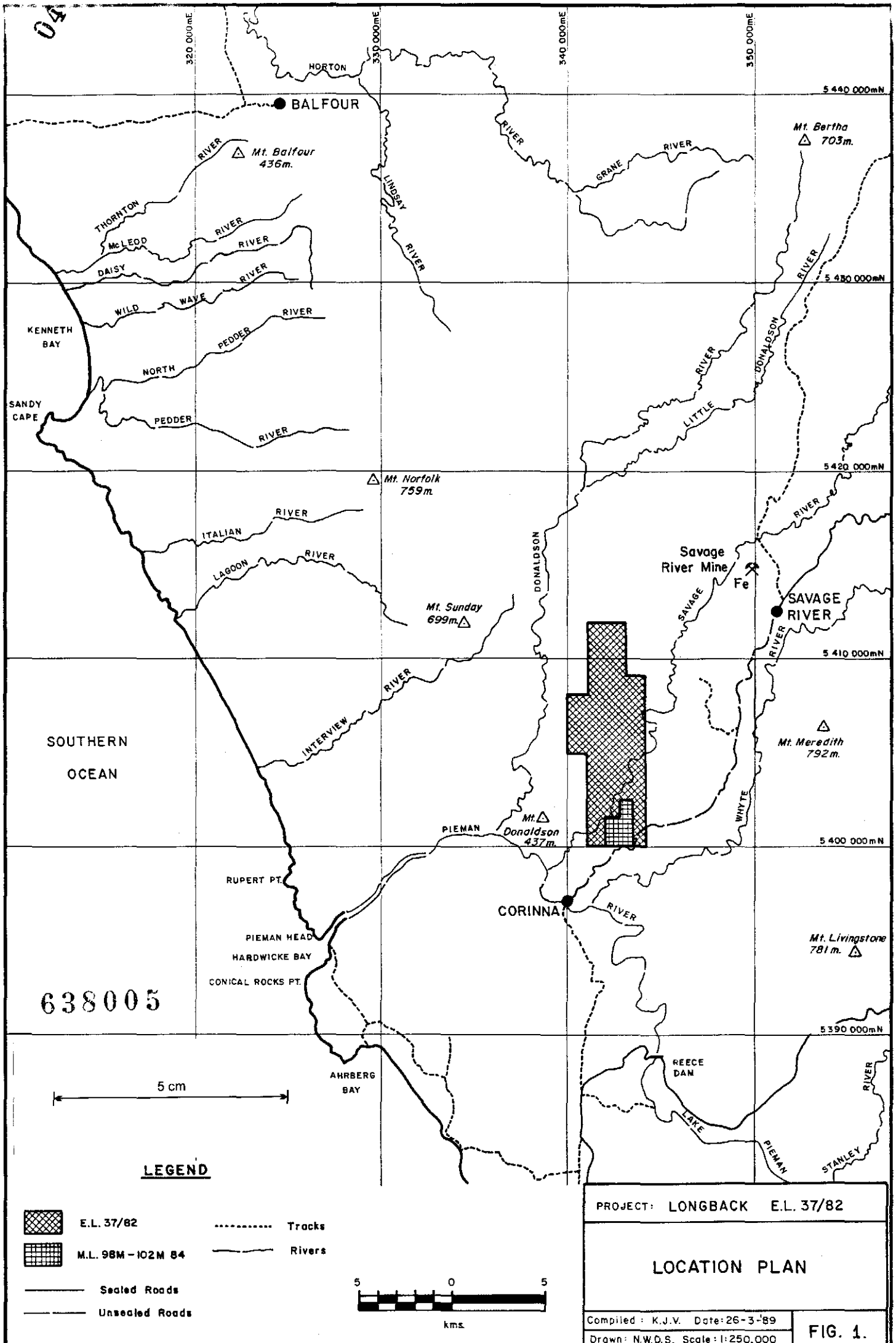
4.0 WORK COMPLETED

The exploration programme from August - October 1988 was targeted on the anomalous zones identified by ESSO's 1973 INPUT EM survey and subsequent work by two contract geologists, J.G. Purvis and P.A. Jones.

The anomalous zones were:

* INPUT Anomaly X6, on the contact between the Corinna Dolomite and Upper Volcanic sequence

* the crystalline gold at location P18 within the Savage Dolomite


320 000mE
330 000mE
340 000mE
350 000mE
5 440 000mN
5 430 000mN
5 420 000mN
5 410 000mN
5 400 000mN
5390 000mN
BALFOUR
HORTON
Mt. Balfour 436m.
Mt. Bertha 703m.
RIVER
THORNTON
McLEOD
DAISY
WILD WAVE
KENNETH BAY
SANDY CAPE
NORTH PEDDER
PEDDER
LINDSAY
GRANE
DONALDSON
LITTLE
Mt. Norfolk 759m.
ITALIAN
LAGOON
Mt. Sunday 699m.
Savage River Mine
Fe
SAVAGE RIVER
SAVAGE
INTERVIEW
SOUTHERN OCEAN
Mt. Meredith 792m.
WHYTE
PIEMAN
Mt. Donaldson 437m.
RUPERT PT.
CORINNA
PIEMAN HEAD
HARDWICKE BAY
CONICAL ROCKS PT.
Mt. Livingstone 781m.
638005
AHRBERG BAY
REECE DAM
LAKE PIEMAN
STANLEY
5 cm
LEGEND
E.L. 37/82
M.L. 98M-102M 84
Sealed Roads
Unsealed Roads
Tracks
Rivers
5 0 5
kms
PROJECT: LONGBACK E.L. 37/82
LOCATION PLAN
Compiled: K.J.V. Date: 26-3-'89
Drawn: N.W.D.S. Scale: 1:250,000
FIG. 1.

* the arsenic anomaly at location L23 within the Bernafai Volcanics, and

* the Cu, As,, Sb anomaly at P12 close to the Savage Dolomite - Bernafai Volcanics contact.

See Fig 2 for location of these areas.

4.1 INPUT ANOMALY X6 - EASTSIDE GRID

This area was covered by a grid consisting of a 900m N-S (AMG) baseline and 14 cross lines 600m long pegged at 20m slope corrected intervals and spaced 100m apart. See Fig 3.

Mapping the grid area mainly involved determining the exact position of the Corinna Dolomite - Upper Volcanic sequence contact. This was necessary to allow location of a possible gold mineralized zone associated with this lithological boundary. Sampling included rock chip sampling in places of outcrop and hand augered soil sampling. Approximately 80 rock chip and 120 soil samples were taken.

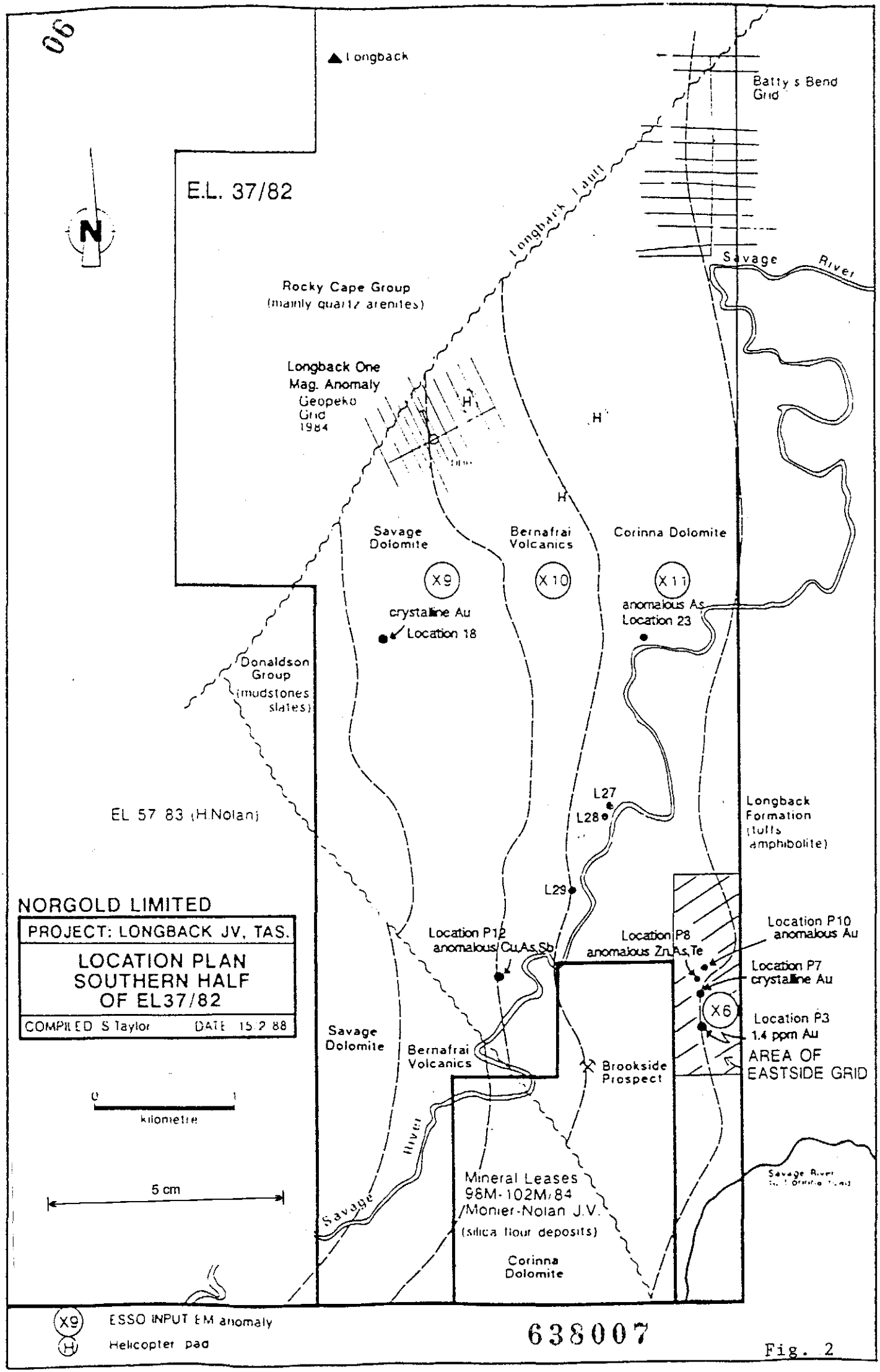
Stream sediment and panned concentrate samples were taken from 3 streams flowing westward into the Savage River, within a kilometre northward of the grid area. See Fig. 4.

4.2 ANOMALIES P18, L23 AND P12

The proposed programme for these areas was a more intensive sampling of the creeks associated with the anomalous locations. An access track was cut to P18 and another was cut in the direction of L23. Unfortunately, due to persistently rainy weather, these creeks were in flood and no sampling could be attempted. An effort was made to reach P12, however the access log across the Savage River was underwater and impassable.

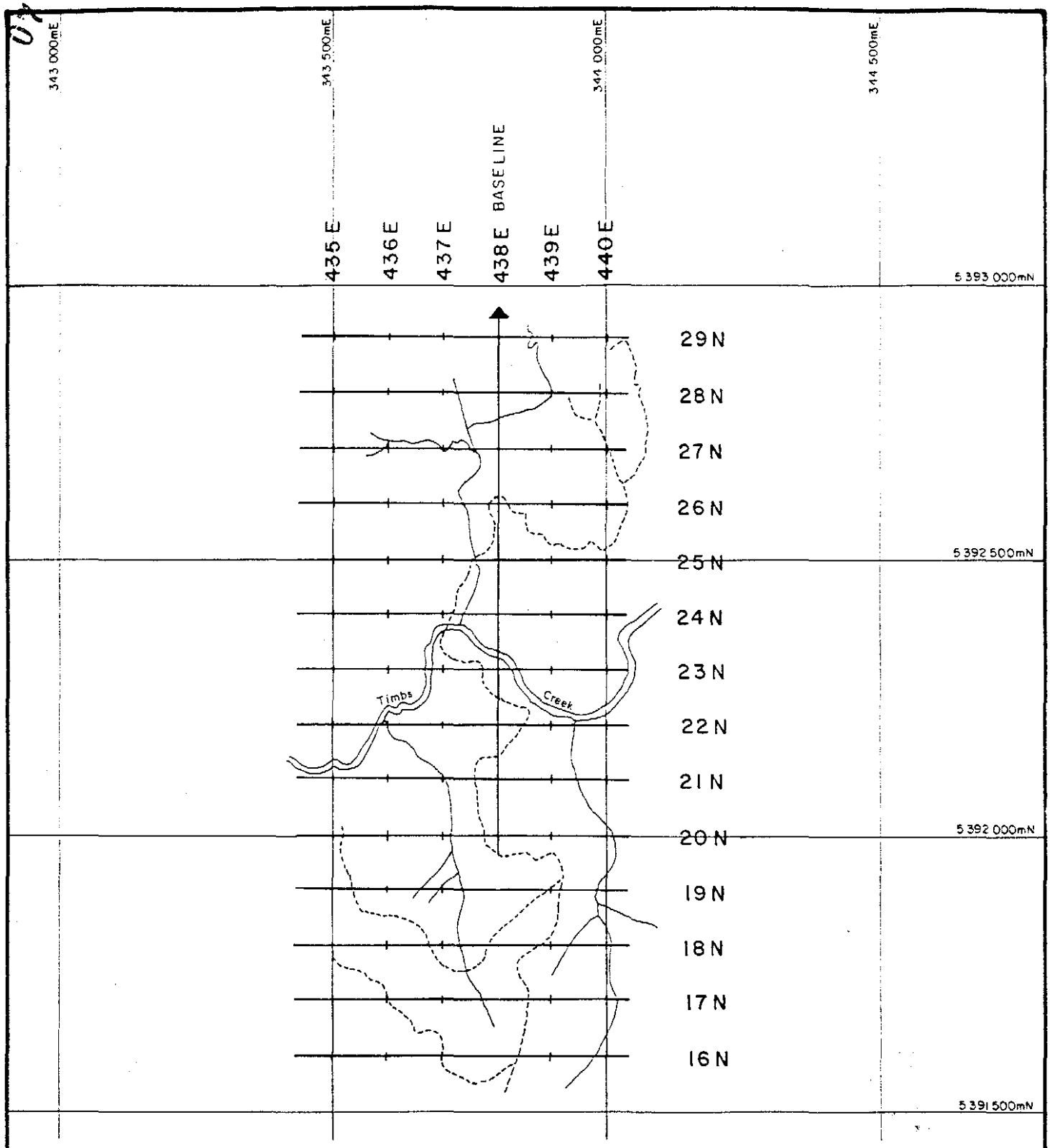
Instead, rock chip samples were taken along the logging road in places of outcrop, particularly near the West Brookside fault, and a panned concentrate was taken up stream from P12. See Fig. 4

Two trail bikes were hired to provide transport along the logging tracks on the northern side of the Savage River.


06
Longback
Batty's Bend Grid
E.L. 37/82
N
Longback Fault
Savage River
Rocky Cape Group
(mainly quartz arenites)
Longback One
Mag. Anomaly
Geopeko
Grid
1984
H
Savage Dolomite
Bernafrai Volcanics
Corinna Dolomite
X9
X10
X11
crystalline Au
Location 18
anomalous As
Location 23
Donaldson Group
(mudstones slates)
EL 57 83 (H.Nolan)
L27
L28
L29
Longback Formation
(tuffs amphibolite)
NORGOLD LIMITED
PROJECT: LONGBACK JV, TAS.
LOCATION PLAN
SOUTHERN HALF
OF EL37/82
COMPILED S Taylor
DATE 15.2.88
Location P12
anomalous Cu,As,Sb
Location P8
anomalous Zn,As,Te
Location P10
anomalous Au
Location P7
crystalline Au
X6
Location P3
1.4 ppm Au
AREA OF
EASTSIDE GRID
Brookside
Prospect
0
1
kilometre
5 cm
Mineral Leases
98M-102M/84
/Monier-Nolan J.V.
(silica flour deposits)
X9 ESSO INPUT EM anomaly
H Helicopter pad

638007

Fig. 2



5 cm

LEGEND

- Tracks.
- Timbs Creek.
- Small Creeks.

0 100 200 300 400 500
metres

PROJECT: LONGBACK E.L.37/82

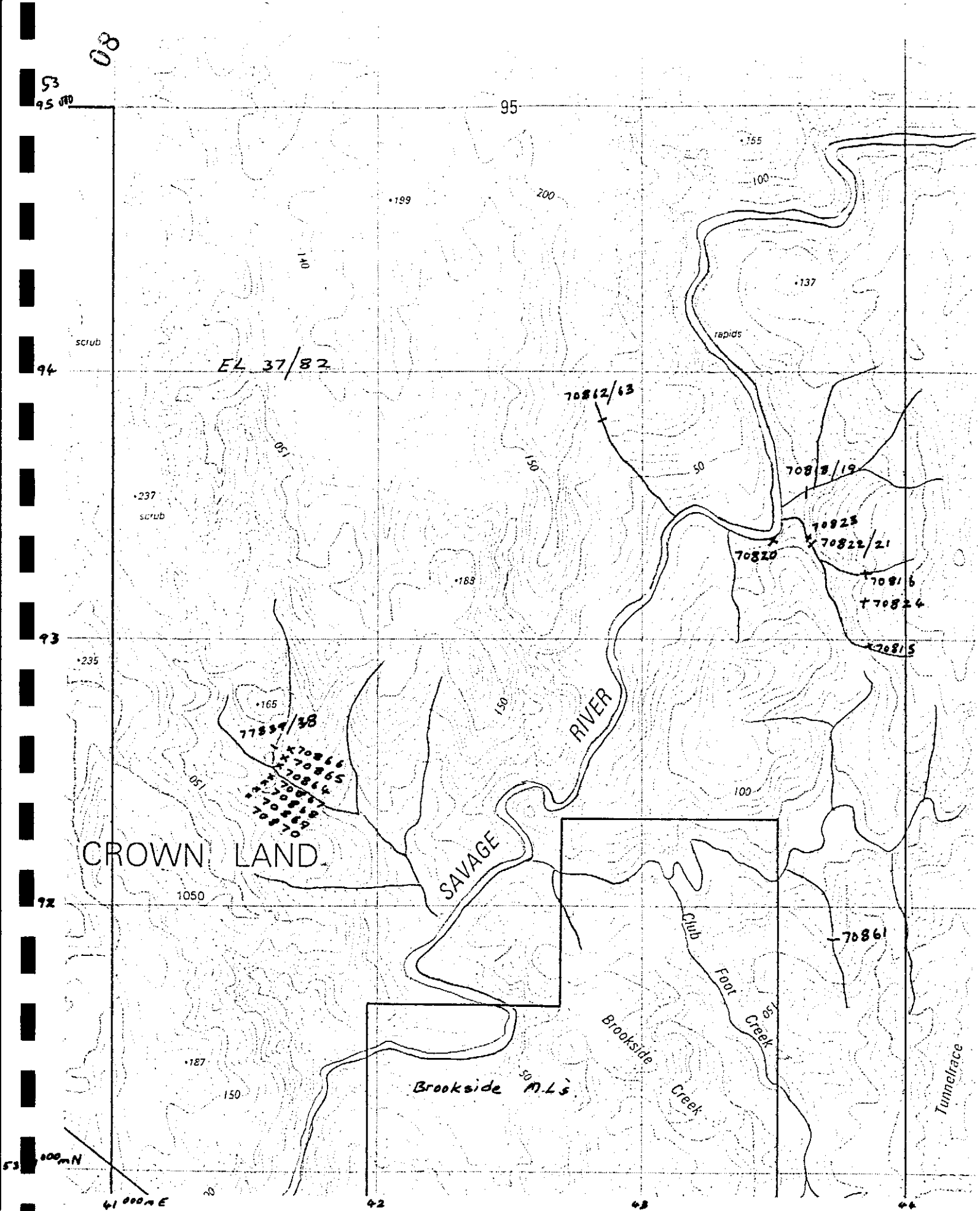
EASTSIDE GRID

Compiled: J.J.M/K.V. Date: 9-10-'88

Drawn: N.W.D.S. Scale: 1:10,000

Fig. 3

638008



× Rock chip sample

Pan con/stream sed sample.

Fig 4 - Longback - Regional Sample Locations

638009

Testing the power auger in alluvial gravels near Timbs Creek.

Anomalies P18, L23 and P12 were reached by crossing the Savage River using a flying fox.

4.3 GEOPHYSICS

The aero magnetic data over the area has been interpreted by Dr. D.E. Leaman in his report "EL 37/82 - the Longback, Tasmania, Review of Magnetic and Gravity Data". (See Appendix 1)

This report concentrates on the relationship between the structural elements and gold mineralisation in the region south of the Longback Fault.

4.4 MICROSCOPIC EXAMINATIONS

Two sets of panned concentrate samples totalling 14 samples were microscopically examined by Hugh Nolan, Cominex, to identify the grains of gold collected as either Tertiary alluvial gold or gold with a local hard rock source. One set of samples was collected during the May'87 - April '88 exploration programme by P.A. Jones, the details of which are included in this report. The other set of samples was collected by Norgold during the August - October 1988 programme.

4.5 SAMPLE PREPARATION AND ANALYTIC TECHNIQUE

Rock Chip Samples

Rock chip samples collected were from 1-4 kg in size collected as a series of 50-100g chips from different parts of an outcrop or from along a traverse interval. These samples were submitted to Analabs in Burnie for analysis. Here samples were dried, crushed and coarse pulverized before splitting for analysis. The assay split was fine pulverized and prepared and analysis as follows:

Elements	Preparation	Assay
Cu, Pb, Zn, Fe, Mn, Bi	Analabs 103:- total dissolution by nitric, hydrochloric and hydrofluoric acids	AAS
As	Analabs 114 Vapour generation	AAS
Au	Analabs 309 Fire Assay 30g	AAS finish

Soil Samples

These were collected by hand auger from the base of the soil horizon by augering until refusal. A 100-200g sample of the deepest soil and any associated chips of weathered ?bedrock was scraped off the cutting edge of the auger. These samples were submitted to Analabs where the whole sample was dried, crushed, pulverized and analysed for Cu, Pb, Zn, Fe, Mn, Bi, As and Au using the same techniques used for rock chips.

Panned Concentrates

Sediment collected from suitable trap sites was wet sieved to -4mm until a medium sized panning dish (38cm diameter) was 3/4 full of sediment. The collected sediment was then panned down to approximately 100g. Concentrates were briefly described in the field before submission to Hugh Nolan (Cominex) for further careful panning and microscopic classification of gold grains and associated heavy minerals.

5.0 RESULTS

5.1 INPUT ANOMALY X6 - EASTSIDE GRID

Overall the assay results were disappointing with no rock chip samples containing any gold over the detection limit of 0.008 ppm. Nine soil samples collected over dolomite contained detectable gold values with only one of these having an anomalous value of 0.005 ppm. This sample location lies within the Brookside Mining Lease.

The other 8 gold values ranging from 0.015 - 0.008ppm occur in dolomite no further than 100m west of the dolomite - volcanic contact and are associated with anomalous arsenic in places. Most of the other anomalous arsenic values occur within the volcanic unit also within 100m of the contact.

No significant results were obtained from the stream or panned concentrate samples.

5.2 ANOMALIES P18, L23 AND P12

No significant rock chip assay was received. The panned concentrate sample contained one grain of gold thought to be from a locally derived hard rock source.

5.3 GEOPHYSICS

After reviewing the regional gravity and magnetic data, Leaman concluded that primary gold occurrences are associated with the intersection of NNW - SSE trending faults and unit boundaries or E-W offsets. He recommends that attention be centred upon these areas in the form of further sampling and geological mapping. Leaman's report is included in Appendix 1.

5.4 MICROSCOPIC EXAMINATIONS

Microscopic inspection of the two sets of panned concentrates revealed that 4 of the samples contained gold grains from a local hard rock source. These samples are from location L27, L28 and L29 and from 750m upstream from P12. See Fig 3 and Appendix 2 - Cominex Reports.

6.0 GEOLOGY

6.1 INPUT ANOMALY X6 - Eastside Grid

The Eastside Grid lies south of the Longback Fault and covers part of the lithological contact between the Corinna Dolomite to the west and the overlying Upper Volcanic Sequence to the east.

The Corinna Dolomite occurs predominantly as large, vertical sided outcrops, and varies in colour from white through grey to black. In the northern part of the grid, the dolomite occurs as a massive unit with patchy recrystallisation and silicification, and minor quartz and carbonate veining. The dolomite is often intensely jointed and in places it appears as though block slippage to the northwest has occurred. In the southwest of the grid the dolomite tends to be argillaceous and laminated, with beds striking at 300 deg. (mag) and dipping SW.

Within the grid area the Upper Volcanic Sequence consists of pale to dark green phyllite with minor grey slate interbeds. The phyllite shows chloritic and sericitic alteration with minor carbonate veining, and is often decomposed and clayey. In the few places where bedding can be seen, the sequence strikes 330 - 340 deg (mag), dipping 60 deg southwest, in the east, and strikes 270 deg (mag) dipping steeply south, in the west. The phyllite is cut by at least 3 sets of cleavage, one at 0 - 30 deg (mag), one at 90 - 120 deg (mag) and the third being a crenulation cleavage. Variable dips have been measured on these cleavages. A 10m wide shear

zone of folded and/or intensely fractured rock runs through the phyllite roughly along grid line 43760E, however this does not appear to be associated with any mineralisation.

Near grid line 18N, on the contact between the dolomite - volcanic sequence, is an outcrop consisting of pale green to purple, fine grained arenite interbedded with banded pale green and white clays. This arenite contains disseminated minor marcasite, chalcopyrite and pyrite, however the assay results for this sample were disappointing.

Also within the grid area are iron stone deposits and lacy agate float, both previously associated with gold mineralisation. Further sampling of these rock types, yielded disappointing results. Refer to map AO-534-0007 for the Geology of the Eastside Grid.

7.0 DISCUSSION

The August - October 1988 exploration programme was based on 4 anomalous zones, originally identified by ESSO's 1973 Input EM survey and which warranted further investigation.

Unfortunately, due to inclement weather during the field work, only one anomalous zone, Anomaly X6 - Eastside Grid, was satisfactorily tested. Sampling of this area revealed a weakly anomalous gold and arsenic zone within 100m east and west of the Corinna Dolomite - Upper Volcanic Sequence contact.

Anomalies at P18 (Au), L23 (As) and P12 (Cu, As, Sb) have yet to be adequately explored. These areas should be intensively sampled and mapped, as originally planned for the 1988 programme.

David Leaman in his "Review of Magnetic and Gravity Data" points out the significance of the intersection of NNW-SSE trending features with lithological boundaries or E-W offsets. These areas also warrant further investigation.

Finally the fact that gold from a hard rock source can be panned from a number of different creeks within the area, demonstrates the prospectivity of this E.L. for economic gold mineralisation.

8.0 RECOMMENDED EXPLORATION PROGRAMME JUNE 1989 - JUNE 1990

Detailed investigation of the anomalous areas identified by the geophysical review and drainage sampling is recommended. Of particular interest are the grains of locally derived crystalline gold at locations L27, L28 and L29, as they suggest a hard rock gold source in the vicinity of the Bernafai Volcanics - Corinna Dolomite contact northwards along strike from H Nolan's Brookside Gold Deposit in the area of Mineral Leases 98M-102M/84. Also worthy of follow up is the area of anomalous Cu, As and Sb, with associated crystalline gold in the near vicinity, at location P12, which also occurs on a Bernafai Volcanics - Dolomite (Savage Dolomite) contact.

Further north, INPUT EM anomalies X9, X10 and X11 are recommended for follow up by consultant D Leaman as they appear to lie on a major E-W structural offset at around 5395000mN and contain occurrences of crystalline gold (Location 18) and anomalous As (Location 23). See Fig. 5.

These areas will be initially followed up by more detailed drainage sampling and reconnaissance style geological mapping and rock chip sampling. Any encouraging results will then be intensively investigated as follows:

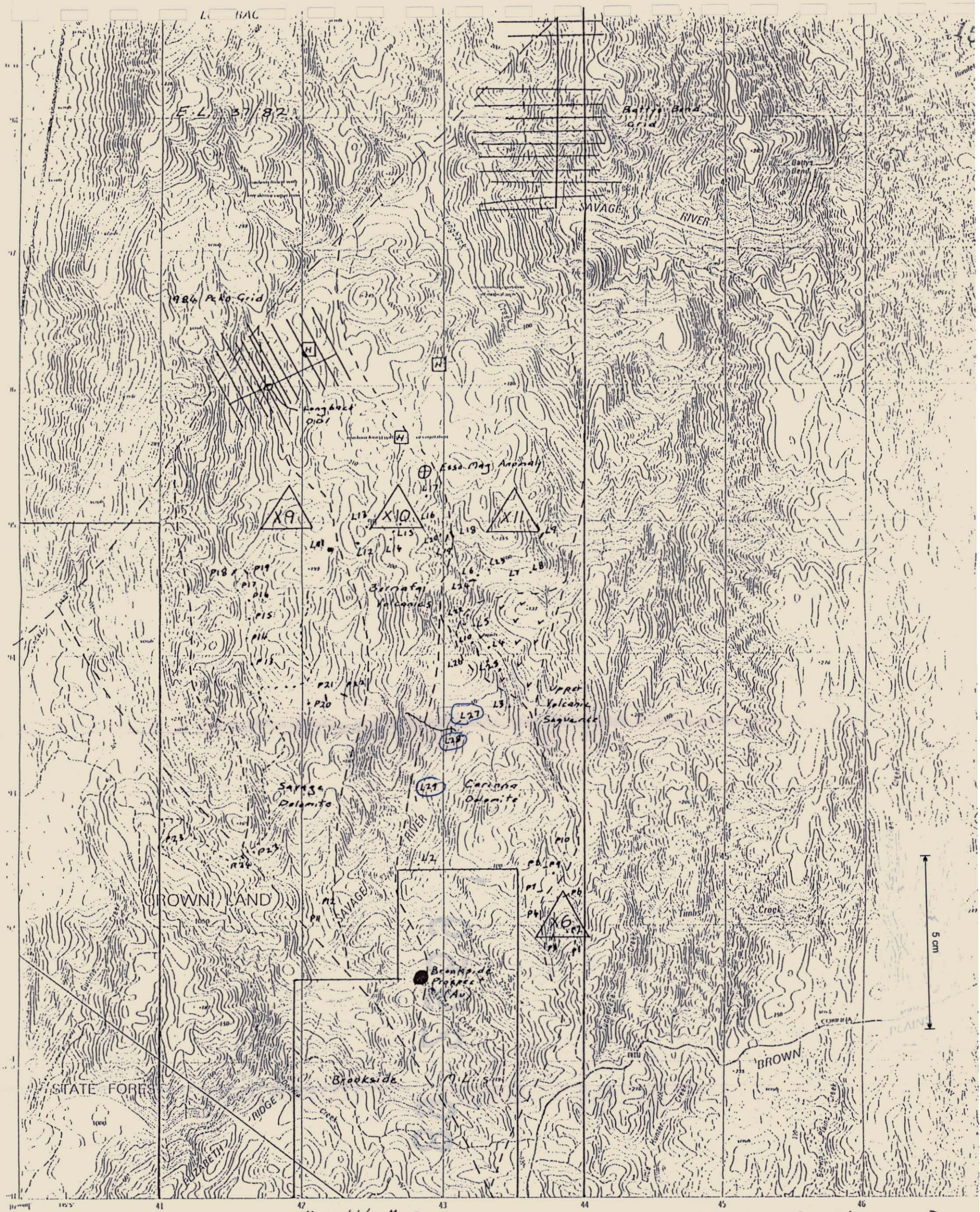
* cutting of access tracks and grids;
* detailed geological mapping and geochemical sampling (rock chip, soil or deep overburden) and ground magnetics surveys of gridded areas;
* geochemical analyses for Cu, Pb, Zn, Ag, As, Au;
* further geophysical work (IP,EM) to define drilling targets in areas of geochemical anomalism;
* drill testing.

Some consideration will also be given to investigating D Leaman's suggested zone of altered Bernafai Volcanics between the major E-W structural features at 5395000mN and 5396000mN by means of the exploration steps outlined above.

CITED REFERENCES

1. Taylor, S. 1988, EL.37/82 - Annual Report on Exploration for the period 1.5.87 - 5.4.88

Unpublished report for Norgold Limited



PRODUCTION: Mapping Division, Department of Lands, Parks and Wildlife, Hobart, 1987.
ACCURACY: Horizontal: Not less than 90% of points of well defined detail are within 12.5 metres of their true positions at map scale.
Vertical: Not less than 90% of elevations are within 5 metres of their true elevation. This accuracy may not be achieved in areas of dense vegetation.
RELIABILITY: The information content of this map has been determined from aerial photography taken in 1985 and verified by field inspection undertaken in 1986. It contains as far as possible, information appropriate to the scale, the geographical locality, and the general purpose of the map.
NOMENCLATURE: Place names have been approved by the Nomenclature Board of Tasmania.
PUBLIC RIGHT OF WAY: Roads on this map do not necessarily indicate a public right of way.
REVISION: A five yearly revision cycle is intended for this series. Users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart, Tasmania, 7001.
© TASMANIAN GOVERNMENT 1987

PROJECTION: Universal Transverse Mercator (UTM).
HORIZONTAL DATUM: Australian Geodetic Datum 1966.
VERTICAL DATUM: Australian Height Datum (Tasmania) excepting offshore islands whose datum is mean sea level.
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid, Zone 55 (Australian Map Grid), Australian National Spheroid. Grid values are shown in full at the south west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours.
WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966, increase the value of latitudes by 5.2", equivalent to 160 metres, and decrease the value of longitudes by 4.4", equivalent to 103 metres. To obtain heights increase satellite heights by 3 metres.
MAGNETIC VARIATION: True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1987 and moves easterly about 0.1° every two years.

↘ L29 stream Sed +/or pan con } P. Jon
• L21 Geological observ. +/or rock sample
• P8 G. Purvis sample
[H] helipad
x6 Esso EM Anomaly
vv Basic Volcanics

Longback EL 37/82 - Fig 5

6380172

APPENDIX 1

REVIEW OF MAGNETIC AND GRAVITY DATA

DR. D.E. LEAMAN

18

638019

LEAMAN GEOPHYSICS

Survey Review, Specification, Reduction, Interpretation
Wide Experience Most Methods
Specialties:- Gravity, Magnetics, Seismic Methods

Registered Office:
21 Romaly Ave, Dynnyrne, Tas 7005
All Correspondence to:
G.P.O. BOX 320 D, HOBART, TAS. 7001.
TELEPHONE: (002) 24 0319

EL 37/82 - THE LONGBACK, TASMANIA

REVIEW OF MAGNETIC AND GRAVITY DATA

by
Dr. D.E. Leaman

for
NORGOLD LIMITED

September 1988

LONGBACK

CONTENTS

FIGURES

SUMMARY

Regional aeromagnetic and gravity data in the region of EL 37/82, known as the Longback, north of Corinna in western Tasmania has been examined in detail.

The review has been directed toward identification of any factors which might relate to primary gold occurrences since crystalline gold has been recorded locally and clarification of the structural geology - in particular consideration of those features which might have controlled fluid movement.

Within the limitations imposed by the spacing of the regional data it is possible to infer that the known primary gold occurrences lie within a few hundred metres of intersections of established or inferred NNW-trending faults within dolomite units and E-W structures with limited surface expression. All anomalous mineralisation within the licence can be so accounted including the E-W-trending pyrrhotite system investigated for tin potential by Geopeko (Longback DDH 1).

Magnetic data also indicate that the Bernafai Volcanics consist of discrete magnetic units and dislocations of these can be recognised. Near 5395500 mN the entire unit appears to be altered. The units mapped as Bernafai and Upper Volcanics appear to be the same unit, simply limbs of a syncline north of Brookside.

Both magnetic and gravity analyses indicate that either the identification of two dolomite units is incorrect, that their properties are very distinct or that large parts of the succession are either overturned or overthrust north west of the Brookside Prospect. The geology is far from simple but the critical breaks and discontinuities can be identified. These should be sampled for mineralisation.

INTRODUCTION

EL 37/82 - The Longback, (Figure 1) - straddles the Savage River NE of Corinna in western Tasmania. Although held by Hugh Nolan, it has been subject to some joint venture agreements - in particular Geopeko and Norgold/Savage Resources.

Exploration by Geopeko included regional airphoto interpretation, some review of aeromagnetic data, ground magnetic follow-up, sampling and drilling all targetted on tin potential (Pemberton, 1984 a,b).
Norgold/Savage Resources - managed exploration directed at gold potential has included some detailed mapping and additional sampling (Taylor, 1988). The licence holder has contributed detailed description of gold content and character. Gold of "probable local derivation" has been identified at four sites (see Figure 2).

Figure 2 also in indicates a geological setting and implied stratigraphy younging from the Donaldson Group (see also Taylor, 1988). Where dips have been recorded, near the Longback grid and EM anomaly X6, all are between 50 and 70 degrees to the west. Consideration of Large (1987) and discussion with N. Turner following preliminary analysis indicates that the geology offered is both assumptive and presumptive north of the Brookside Prospect. There is no clear view, nor any assurance of separated volcanics or dolomite units north of site X6 or Brookside (N. Turner pers comm).

Although regional aeromagnetic data was considered by Geopeko (Pemberton, 1984a) and by Large (1987) all such treatments have been qualitative and cursory. Gravity data have not been reviewed previously.

This report details a careful review of extant magnetic data, reprocessed if necessary and synthesized with relevant geological or other geophysical data, undertaken to identify gold targets. The review has considered any signature characteristics decipherable with present information or exploration and any anomalous sources. An overview of the structural setting has also been attempted.

DATA USED

Geological information has been drawn from sources described in Taylor (1988), Large (1987) and some discussion with N. Turner of the Department of Mines.

The aeromagnetic survey used was acquired by the Mines Department in 1981 (refer Corbett et al, 1982; Leaman, 1986a). It is limited by line coverage (500 m spacing) but the sample spacing is of the order of 40 m at 150 m nominal clearance.

Gravity data have been extracted from the Tasgrav (Richardson and Leaman, 1987) and Mt Read Volcanics data bases. The coverage of older data is variable but the effective overall spacing of all data is about 1 km. There are gaps.

Discussion of these surveys has been framed as a detailed expansion of regional studies by Leaman (1986a, b; 1987; 1988 a, b).

METHODS

The magnetic data have been inspected in contour presentation, as by Geopeko and Large (1987), in light of the most recent geological compilation. All lines were then assessed individually for formation characteristics and the results compared or contrasted with previous observations or inferences. Particular correlations or patterns which could be related to potentially mineralised sites were emphasized. As the coarse line spacing precludes detailed or reliable derivative transformation by area methods each line between 5390 and 5397 000 mN was processed into first and second vertical derivatives and analytic signal. Subsequently all other lines were analysed in second vertical derivative format and the patterns re-assessed.

Anomaly character was then reviewed in terms of structural implications and some concepts, e.g., Large (1987), tested. Gravity data have been used to support the regional setting and confirm structural implications derived from magnetic studies.

DISCUSSION

Regional geophysical data have offered some tantalising suggestions about the Longback area and, although not specific, demand detailed review of the data set particular to EL 37/82. Figure 4 sketches major trends inferred in two previous compilations (Leaman, 1986a; 1987). The inset was derived from consideration of all information, including gravity data available in 1986, while the main part of the diagram was based on the data used here (also Figure 3). A systematic fracture or lineament pattern is implied with E-W, or nearly so, elements stressed. This stress was applied since the work cited has indicated, contrary to gross or obvious surface trends, that most mineralised sites in the region contained an impressed E-W component or could be related to such major lineaments identifiable in regional data.

More recent work commissioned for the Mt Read Volcanics Project has provided a total geological setting for the region (Leaman, 1988a, b). This work indicates that the Longback lies close to the margin of the Rocky Cape basement core and that major stratigraphic units onlap from the east. The Arthur Lineament zone marks the deep position of the basement margin on this hypothesis. That work also indicated that Devonian granites are not emplaced beneath EL 37/82 but the eastern face of the Pieman or Interview Pluton is only about 5 km removed from the pyrrhotite occurrences proven on Geopeko's Longback grid. It is possible that there are projections of this surface to the east (note negative residual in NW corner of Figure 17) but detailed review was not undertaken for the regional study (Leaman, 1988a) since the data has only recently been acquired and was beyond the scope of the present study. Even so, there are no grounds for rejection of any concept introducing fluids from the Pieman Granite not far removed to the west.

Too far for Pun skarn.

Too deep anyway.

Aeromagnetic profiles from the 1981 Mines Department survey are presented in Figures 5 to 9. The contour presentation is shown in Figure 3 at a scale of 1:63360. The profiles are offered in direct overprint format, rather than conventional stacked form, in order to stress base level relationships and amplitudes. The largest possible scales have been employed.

Figure 5 includes profiles at or south of the Brookside Prospect (lines 1850, 1860; see also Figure 2). All profiles consist of a large excursion near 344 000 mE and a long tail to the west. West of 340 500 the field is not anomalous; nor is it near 342 500 for all but line 1860. Each profile must be related to the others and to the total compilation (Figure 13). This shows that the narrowing wedge between the strong anomalies of the upper volcanic sequence and Arthur Lineament rocks and the Brookside area cuts out the shelf effect near 343 300 - as seen on lines

1840 to 1860. With the exception of the anomaly at 342 600 (line 1860) all other features lie SW of what I have termed the West Brookside Fault (to distinguish it from the smaller feature at the prospect).

Similar character is evident in Figure 6. The features west of the West Brookside Fault diminish in magnitude until lines 1890, 1901 and 1915 appear to show no effect at all. This is not the case (below). There is no magnetic source on these lines at shallow depth west of 342 500. The anomaly immediately north of Brookside is shown to extend northward with a slight migration west then east. It is not an isolated feature as implied in the contour presentation (Figure 3). It may be noted that small variations (less than 200 nT) on lines 1820 to 1915 are asymmetric west to east.
The recently discovered mafic lavas and tuffs within the Corinna Dolomite at 5393 500 mN appear to be reflected in the field and its offset eastward (see line 1890 at 343 000). Modelling shows that this is simply due to the synclinal limbs of a continuous slab of volcanics (note Figures 14 and 15). In this context the exposure is not something special or unanticipated and similar so-called occurrences of the "upper volcanics" are almost certainly of the same style but often closer to the Lineament rocks.

Figure 7 extends the pattern but the greater width of the fault wedge between the Savage Fault and the West Brookside Fault shows that most units are virtually non magnetic or that magnetic sources are deeply buried. Lines 1920 and 1930 show that the Brookside pattern terminates and lines 1930 and 1940 are virtually non anomalous geometric responses to units east of 344 000. As will be shown below, line 1960 is not abnormal; but line 1950 contains a marked isolated feature. This was termed Longback 1 by Geopeko and further explored (see below).

Figure 8 shows that the character of line 1960 is repeated. All lines now sample much of the Rocky Cape Group west of the Savage Fault and these rocks are only slightly magnetic and quite distinct from the rocks west of the West Brookside Fault and unlike units east of the Savage Fault anywhere. The materials east and west of the Brookside Faults are comparable (see also mapping inferences shown in Figure 2).

Figure 9 samples Rocky Cape Group and Lineament rocks only and the amplitude pattern is different. This is geology unlike anything SE of the Savage Fault.

Some of the features described above can be correlated with available geological mapping. Others are anomalous. The comments by Large (1987) concerning the magnetic responses of the dolomites and volcanics based on the contour maps are not wholly accurate — especially with respect to the Corinna Dolomite. Apart from the upper volcanics and rocks associated with the Arthur Lineament magnetic contrasts are relatively small. There

is, however, excellent general correlation with the Bernafai Volcanics and the mafic exposures within the syncline of Corinna Dolomite. Several other features occur within the area of Corinna Dolomite (see Figure 13).

In general terms the Bernafai Volcanics generate an effect of 100 to 250 nT. But this is not regular or continuous. Thus the "bulls-eye" of Longback 1 (line 1960) is not entirely anomalous. The lines which precede it are! The point effect of Longback 1 is located at the geometric termination of the volcanics and locally introduced pyrrhotite seems to have doubled the natural response. In this respect lines 1930 and 1940 are abnormal since these do not reflect the volcanic character at all and almost certainly indicate altered rock. I do not believe dthe observation of Input EM anomalies 9, 10 and 11 and the trend changes mapped to be either independent or fortuitous. This relationship is stressed in Figure 13 where E-W offsets are implied near 5395 000 mN and where the volcanics are made up of at least two magnetic units.

The E-W orientation of offsets shown in Figure 13 is, in my opinion, regionally critical. They were noted in coarser studies (Leaman, 1987). Furthermore, sites with anomalous Au, As are removed by less than one line spacing in all cases. Is it also accidental that pyrrhotite-bearing features within the Longback 1 anomaly also trend E-W? This is normal to the obvious grain (see also Pemberton, 1984a).

Some explanation of Figure 13 must be provided.
Comparison of Figure 13 and profiles (Figures 5 to 9) and map (Figure 3) suggests more detail than apparently justified. Figure 13 relies on the derivative profiles controlled by the basic profiles. Only three examples of the derivative profiles have been included in this report, for lines used as exemplary of the issues (Figures 10 to 12). The profiles of analytic signal and second derivative are the most useful; the first helps separate rock volume sources while the latter defines source positions and contrasts.
Analysis of this type resolves several of the ambiguities described above and enables, within the line spacing limits, definition of offsets. It reveals that the upper volcanics are compound and consist of discrete units where they merge with the responses of the Lineament rocks. The Bernafai Volcanics are also compound and discontinuous; the altered zone near Longback 1 being offset twice by about 500 m. It is also possible to infer the positions of the Savage and West Brookside Faults and the boundaries of the Donaldson Group as well as the volcanic units. Response positions are dotted in Figure 13. Boundary effects are subtle and only noted in second derivative presentation. Interpetation of unit continuity, broad spaced dots, between identified positions, close spaced dots, is somewhat limited by line spacing but many inductions are beyond debate.
Figure 13 offers some clarification of the geological

compilation. While precise identification and correlation of the magnetic units is debatable it is evident that future compilations and mapping must have regard to these conclusions. Of perhaps more interest are the features or trends noted within the dolomitic units. These may represent lithologic changes where the implied width exceeds 100 m (as in the Corinna Dolomite east of the Brookside Prospect) but faults are implied in other instances. The angular gold site P18 near South Longback Creek is clearly fault-related. The anomalous arsenic site 23 bears a similar relation and EM anomaly X6 and related gold occurrences may lie on the same feature. Modelling, however, shows X6 to be a special site (below).

Before considering these implied structures in more detail it is necessary to review all direct correlations.

How? What? Draw a section!

There is no direct response from the region of the Brookside Prospect. But nor is there response from volcanics present and this implies alteration. Available mapping, and structural inference (e.g., Large, 1987), implies Bernafai Volcanics beside and beneath the prospect. The absence of response is significant since the volcanics are exposed and the Geopeko Longback 5 anomaly to the north is related to them (see also Figure 13).

Site X6, and its anomalous gold occurrences, lies at the contact between (or anticlinal axis of) Bernafai Volcanics - folded around to form the so-called upper volcanics - and the rocks of the Lineament (Figure 14). This juxtaposition wholly accounts for the shoulder effect on lines 1840 to 1870 and this is probably repeated at a sinistral offset two kilometres further north (immediately south of X11). This explains the exposed mafics within the Corinna Dolomite which represent the tip of the concealed, folded volcanics.

The Brookside Prospect and X6 are separated by another feature - possibly a fault or fold axis within the Corinna Dolomite. This merges with the margin of, or, Bernafai Volcanics further north.

Location P12 is apparently non anomalous (line 1915) until seen in context. The main unit in the Bernafai Volcanics is offset at this northing and the unit contact shifted at P12. Note that the fold/fault contact bulge mapped near X6 also lies at this northing and the fault along the South Longback Creek (inferred) intersects the boundary nearby. An association of coincidences?

The Peko-drilled anomaly (Longback DDH1)(line 1950) falls within mapped volcanics with clear correlation between mapping and magnetics. As noted above the correlation is not anomalous but the magnitude of response is. Geopeko considered this as a tin target midway between the Meredith and Interview Granites. The site may be midway but there is no simple or close relationship with any Devonian Granite (Leaman, 1988a). See comments at start of discussion, above.

Reports in Pemberton (1984 a) ascribed the source of the anomaly to three E-W dykes dipping south. This fascinating orientation was not understood by Geopeko but three gross pyrrhotite concentrations were encountered in the drill hole (Pemberton, 1984 b) which was directed northward and away from the volcanics.
Detailed surface magnetics did not suggest a sizeable reduction in magnetic intensity to the south. The zone identified between E-W offsets (above, Figure 13) is certainly anomalous and the offsets have clearly controlled emplacement of sulphides.
The implied contrasts for the Longback anomaly are also odd. Horizon measurements from the core average 0.0006 cgs for the magnetic members and bulk out at less than 0.0004 cgs overall - values an order of magnitude less than the observed anomaly would require. Pemberton (1984 b) considered results similar to my estimates and concluded that the pyrrhotite encountered could not account for the anomaly, but that remanence might explain the difference. I believe his conclusion to be correct but do not think remanence to be the explanation. I suggest that the anomaly is due to the combined effects of volcanics and pyrrhotite and that the more magnetically significant volcanics were not included in the drill hole - largely due to its orientation.

Profile analysis, leading to the interim summation of Figure 13, can provide a clearer view of unit and lithologic distribution. Such analysis cannot assess the relative significance of the faults or other sources known or inferred.

Divergent profile styles were tested quantitatively. Some of the results are presented in Figures 14 and 15. Figure 14 (line 1860) offers a test of structural concepts at Brookside. Each test contained some common elements.
The strongly magnetic materials east of the EL have a contrast in excess of 0.004 cgs and dip steeply east. It is possible to generate west-dipping solutions for the first anomaly peak but these solutions cannot account for the multi-peak overall character. Effort was therefore directed toward test of proposals by Large (1987). Figure 14 shows that his concept of fractured synclines is essentially valid but that the unit scale and distribution of volcanic rocks is not wholly as mapped. The model is true to available dip information. It suggests that distinction between Savage and Corinna Dolomites and Bernafai and upper volcanics may be artificial. Critically, it establishes the scale and position of disruptions. Note the relationship between crystalline gold sites at Brookside and X6. Each involves major offsets. The pattern SW of the West Brookside Fault is different.

Does not account for dol at X6

Line 1890 (Figure 15) is representative of the problems and issues north of Brookside. All recovered dips are steep and westerly although facings are uncertain or unknown. Most recordings are west of 342 000 and east of 343 500 mE. Within these constraints an array of solutions has been tested. It is

not possible to accomodate a simple west-dipping solution and it appears likely that a small syncline continues north of Brookside. Its axis is broken. This solution implies that the recently mapped volcanics within the Corinna Dolomite south of EM site X11 is the east limb of the fold.

The concept for the block between the Brookside and West Brookside Faults, as defined in Figure 14, cannot continue. The W-dipping limb of the second fold is either absent, offset or very deep. The anomaly pattern indicates this limb may recur west of the inferred fault in South Longback Creek (about 342 000, Figure 15). The presence of this deep limb explains the broad spread of anomaly on all profiles to the north and the misfit between pure negative tails to the lineament responses. The deep limb becomes shallower northward. It must dip west and this poses severe problems for the presumed stratigraphy. Although the model does not present all the geological boundaries clearly it does imply that the section west of the inferred fault at 341 600 or even 342 500 at the western side of the volcanics (and may equate with an extension of the Brookside Fault) is overturned. This is based on the dip relationship and presumed stratigraphy which states that the Donaldson Group and Savage Dolomite are older units. How else could the volcanics underlie them? Are the inferred faults reverse or thrusts? Their position and orientation and relationships with better established boundaries would suggest not.

It should also be noted that the inferred unit boundaries SW of the West Brookside Fault do not correlate well with the magnetic data inferences (see Figure 13). The mapping compiled for Norgold is in error.

An alternative perspective may be gained from the regional gravity data. Although the available coverage is gappy and relatively coarse (min spacing 1 km) some patterns are evident (Figure 16). The Lineament zone is in three parts and marked by strong gradients. These are suggested by broken lines trending roughly NE-SW. The most northern of these is the Savage Fault. There are suggestions of E-W offsets, especially near 5395-5396 000 mN.

In order to clarify the gravity image a regional separation has been effected. This has been based on the crustal model for NW Tasmania devised by Leaman (1988 c) and the residual stresses the significance of the E-W feature noted above - near Longback DDH 1. The magnetic implications are confirmed and the E-W content of the local anomaly are related to a major crustal feature. The Input EM anomalies nearby are no accident. The residual pattern indicates some discrete blockiness in geology but the effect of the Lineament is paramount.

The gravity field required further clarification. First stage modelling was directed at explanation of the dominant effects

related to the Lineament. Once this could be explained, in a manner consistent with the magnetics, it was removed and the resultant anomaly is shown, for line 1890, in Figure 18. The possible solution is critical to ultimate appraisal of structure SE of the Savage Fault and NE of the West Brookside Fault and must be compared with the magnetics solution of Figure 15.

The models for line 1890 show that the only rocks of gravimetric consequence lie between the Savage Fault and the inferred faults west of the mapped Bernafai Volcanics. (Possibly to the extended position of the Brookside Fault). The Bernafai Volcanics are not of relevance, nor is the Corinna Dolomite. The model is imperfect and better fits are obtained by relating the eastern edge of the effect to the Savage Dolomite/Bernafai Volcanics boundary and dipping the Savage Fault to the west. The profile transects the West Brookside Fault and the small subsidiary gradient near the anomaly crest is presumably related.
The model does not distinguish Donaldson Group and a slab of generally west-dipping Savage Dolomite (out to the Savage Fault but not beyond) can explain the effect. The notch in the model west of 341 500 will accept, at comparable dip, the implied volcanic wedge from Figure 15.

? No Donaldson Gp SE Sav. Ft

The gravity model thus supports the implication of overturning and does so by demonstrating that no thick dolomite sequence underlies the volcanic members of the Brookside syncline (Figure 14). The Corinna Dolomite inferred there, in the fold core, is either the same unit as the dolomite above the volcanics in Figure 18 or the entire sequence is overturned between the Savage Fault and the Lineament. The simpler solution merely requires the Donaldson Group to be locally misidentified or to be overthrust. If the sequence is as inferred in all previous reports then the Savage Dolomite has not been exposed, if present at all, since it must underlie the entire section and thus not be resolved gravimetrically.

CONCLUSIONS

Review of regional gravity and magnetic data has confirmed the geological complexity of the Longback area and demonstrated that understanding is some way off. The review has, however, established some relationships of exploration significance and directed attention toward key aspects of the geology.

1. Sites with crystalline gold can be associated with faults, only one of which – the Brookside Fault – has been mapped conventionally with any confidence. Several structures of this type are concealed within the dolomite units.
   I predict that any primary gold occurrences will be concentrated near the intersections of these NNW-SSE trending features and unit boundaries or E-W offsets. No

known occurrence is more than 500 m from such a point but present data do not allow higher resolution of gradients or features.
Similar comments apply to other mineralisation.

2. E-W features are significant. The orientation of pyrrhotite rich features near 5396 000 mN is not accidental. Other units have been displaced up to 500 m at this northing. Comparable offsets occur one kilometre south and these have generated a set of Input EM anomalies.
The major E-W zone lies between 5395 and 5396 000 mN and is unambiguously observed in gravity data. The properties of the Bernafai Volcanics are altered in this zone.
A lesser feature of this type, or one more poorly defined by the available data, occurs near Brookside.

3. The geology, although complex and difficult to interpret and integrate, has been clarified a little by this review. Unit continuity and members can be assessed. It would appear that the so-called upper volcanics are in fact fold repeats of the Bernafai Volcanics in the area north of Brookside. It is also possible that there is no lower dolomite in the same area or, if there is, that it is nowhere exposed.
Given the available dip and facing information it seems likely that the Donaldson Group has been incorrectly identified or, if present, then it has been overthrust onto the Corinna or upper dolomite unit.
The prevalence of silicification and alteration within the Corinna Dolomite NE of Brookside can be directly related to the number of faults and cross-cutting features identified within the syncline.

RECOMMENDATIONS

1. Further sampling of the dolomite in the immediate vicinity of the inferred faults is suggested. Attempts should be made to sample near the E-W features. This has only been satisfactorily completed near X6 to date.

2. The zone of apparently altered but offset Bernafai Volcanics within the corridor at 5395-5396 000 mN should be explored for all metals. The targets may be in the adjacent dolomite.

3. Given the scale and nature of the responses and interpretation there may be little point in resolution of the stratigraphic issues. It may, however, be important to resolve the attitudes of some boundaries and inferred faults. Sampling traverses should give regard to observation of facing and dip directions. This information may well resolve the discussion about overthrusting of parts of the section and allow resolution of the stratigraphic question as well as separate fault styles.

REFERENCES

Corbett, K.D., Richardson, R.G., Collins, P.L.F., Green, G.R., and Brown, A.V., 1982. The 1981 West Coast Aeromagnetic Survey: summary of information and results. Unpub. Rep. Dep. Mines Tasm., 1982/39.

Large, R.R., 1987. An assessment of the data on the Brookside Gold Prospect, Corinna District, Tas. Report to Cominex, Nov. 1987.

Leaman, D.E., 1986 a. Interpretation and evaluation report. 1981 West Tasmania Aeromagnetic Survey. Mt Read Volcanics Project Report, Dep. Mines Tasm.

Leaman, D.E., 1986 b. Gravity interpretation west and north west Tasmania. Mt Read Volcanics Project Report, Dep. Mines Tasm.

Leaman, D.E., 1987. Mineralisation signature study: geophysics. Gravity and Magnetics. Mt Read Volcanics Project Report, Dep. Mines Tasm.

Leaman, D.E., 1988 a. Granites of W and NW Tasmania. Provisional Interpretation. Mt Read Volcanics Project Report, Dep. Mines Tasm.

Leaman, D.E., 1988 b. Regional evaluation W and NW Tasmania. Precambrian and Lower Palaeozoic structural relationships Mt Read Volcanics Project Report, Dep. Mines Tasm.

Leaman, D.E., 1988 c. Mantle88. Regional gravity field Tasmania. Mt Read Volcanics Project Report, Dep. Mines Tasm.

Pemberton, J., 1984 a. Progress report on Longback EL 37/82 Tas. Geopeko Report, March 1984.

Pemberton, J,, 1984 b. Progress report on Longback EL 37/82 Tas. Geopeko Report, May 1984.

Richardson, R.G., and Leaman, D.E., 1987. The Tasmanian Gravity data base. Unpub. Rep. Dep. Mines Tasm. 1987/2

Taylor, S., 1988. Annual report on Longback EL 37/82, Tas. Norgold Report, April, 1988.

32

638033

Report submitted on behalf of
Leaman Geophysics
by

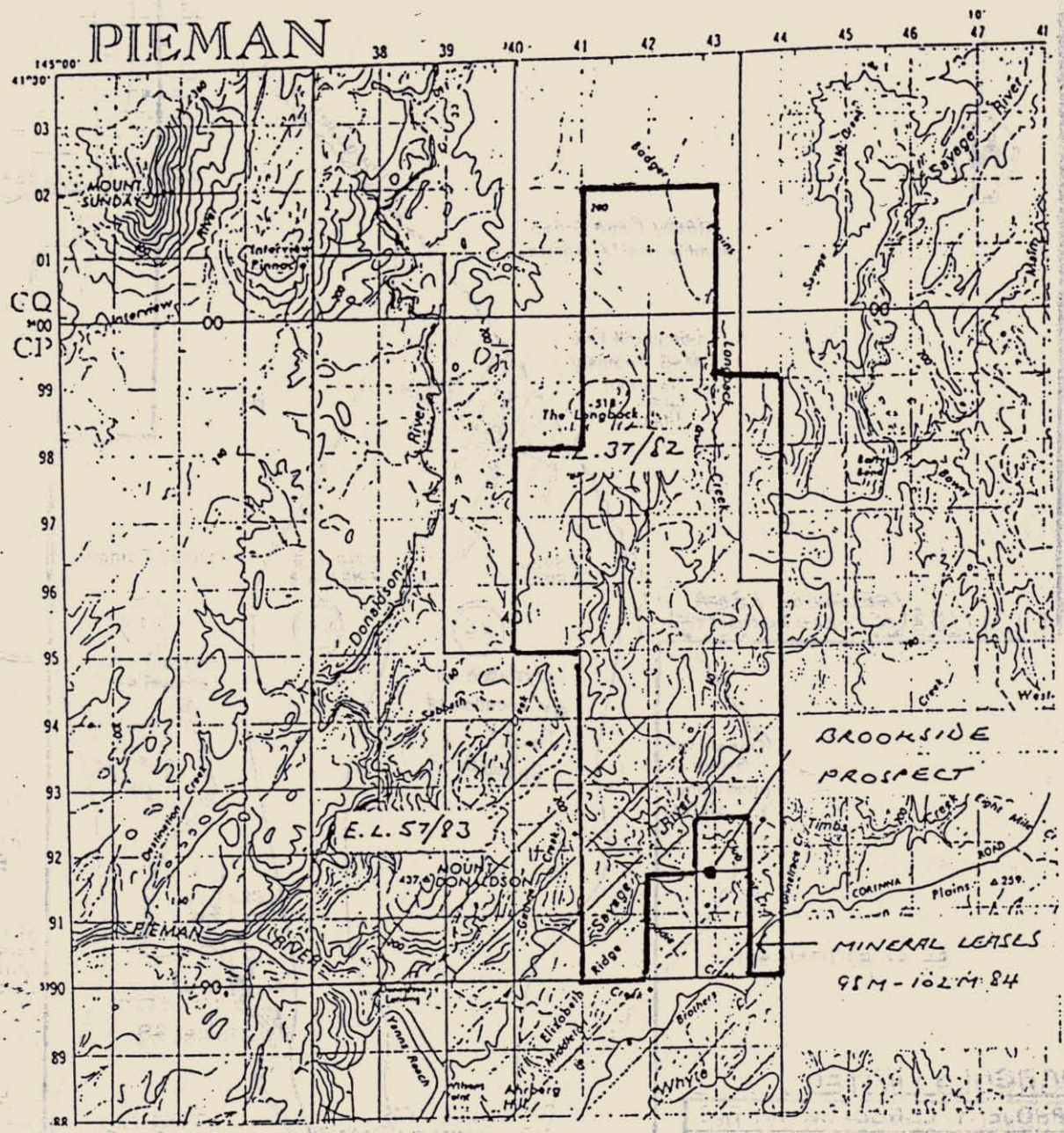
D. Leaman

Dr. D.E. Leaman, B.Sc., Ph.D
M.Aus.I.M.M., M.M.I.C.A

1/9/88

33

5 cm



EL 37/82 - The Longback

Schedule of Area of Renewal

Commencing at the southeast corner at grid co-ordinates 344000mE 5390000mN, thence
grid north to 344000mE 5399000mN, thence
grid west to 343000mE 5399000mN, thence
grid north to 343000mE 5402000mN, thence
grid west to 341000mE 5402000mN, thence
grid south to 341000mE 5398000mN, thence
grid west to 340000mE 5398000mN, thence
grid south to 340000mE 5395000mN, thence
grid east to 341000mE 5395000mN, thence
grid south to 341000mE 5390000mN, thence
grid east to the point of commencement.

FIGURE 1

638035

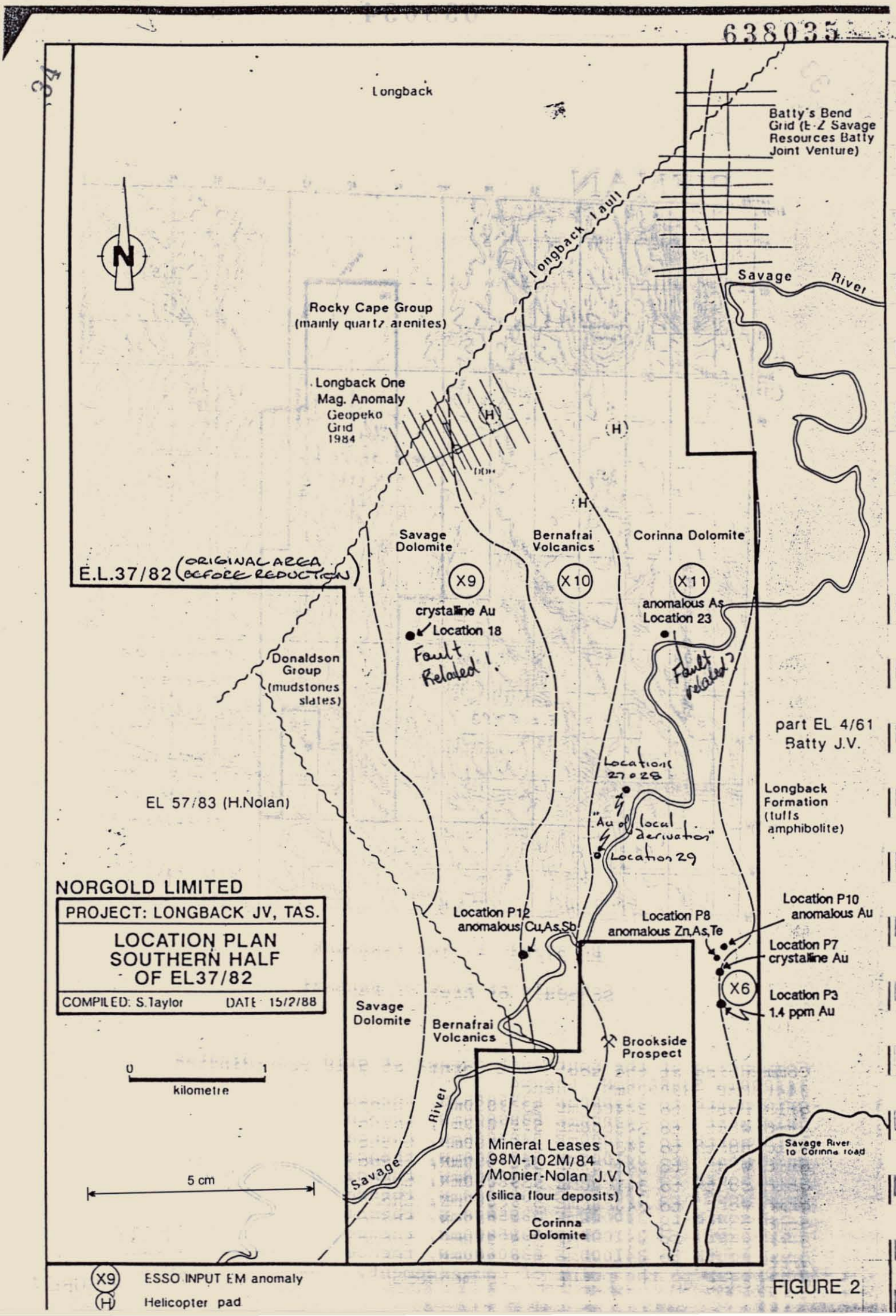
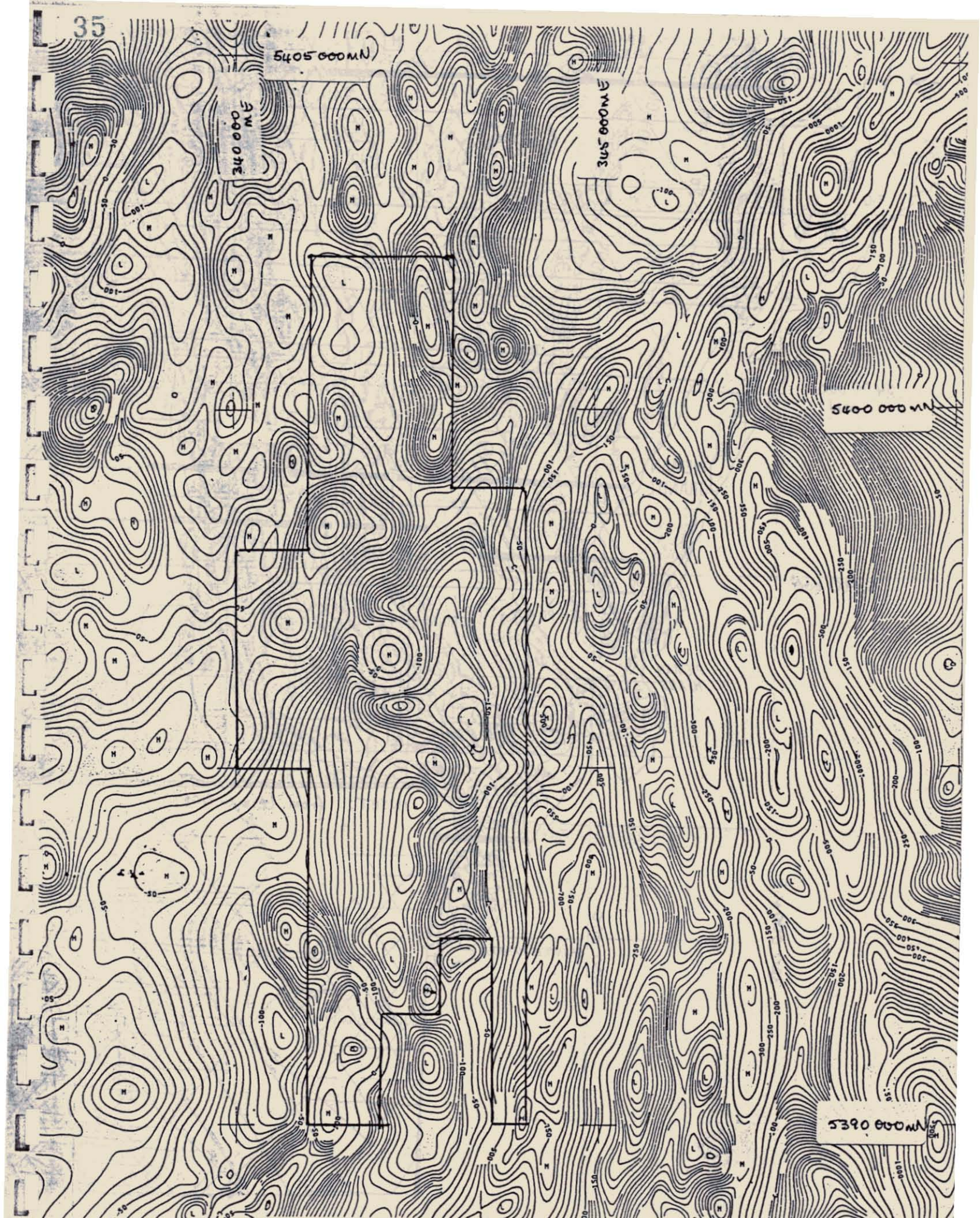
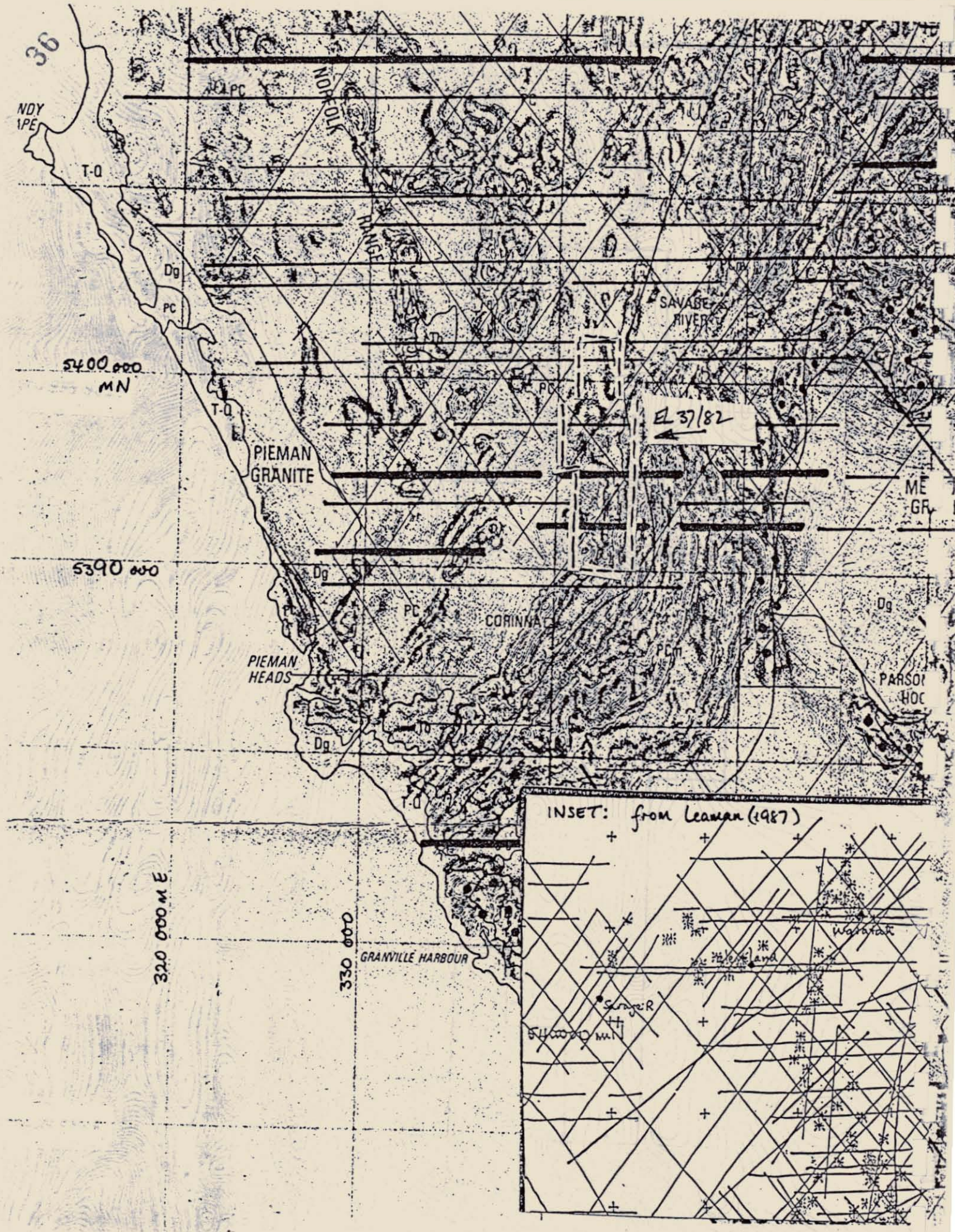


FIGURE 2



EL 37/82 LONGBACK MAGNETIC FIELD 1981 MINES DEPARTMENT FLY

638036 FIGURE 3



638037

REGIONAL TRENDS INFERRED FROM PREVIOUS STUDIES
(Leaman, 1986a, b; 1987)

FIGURE 4

37

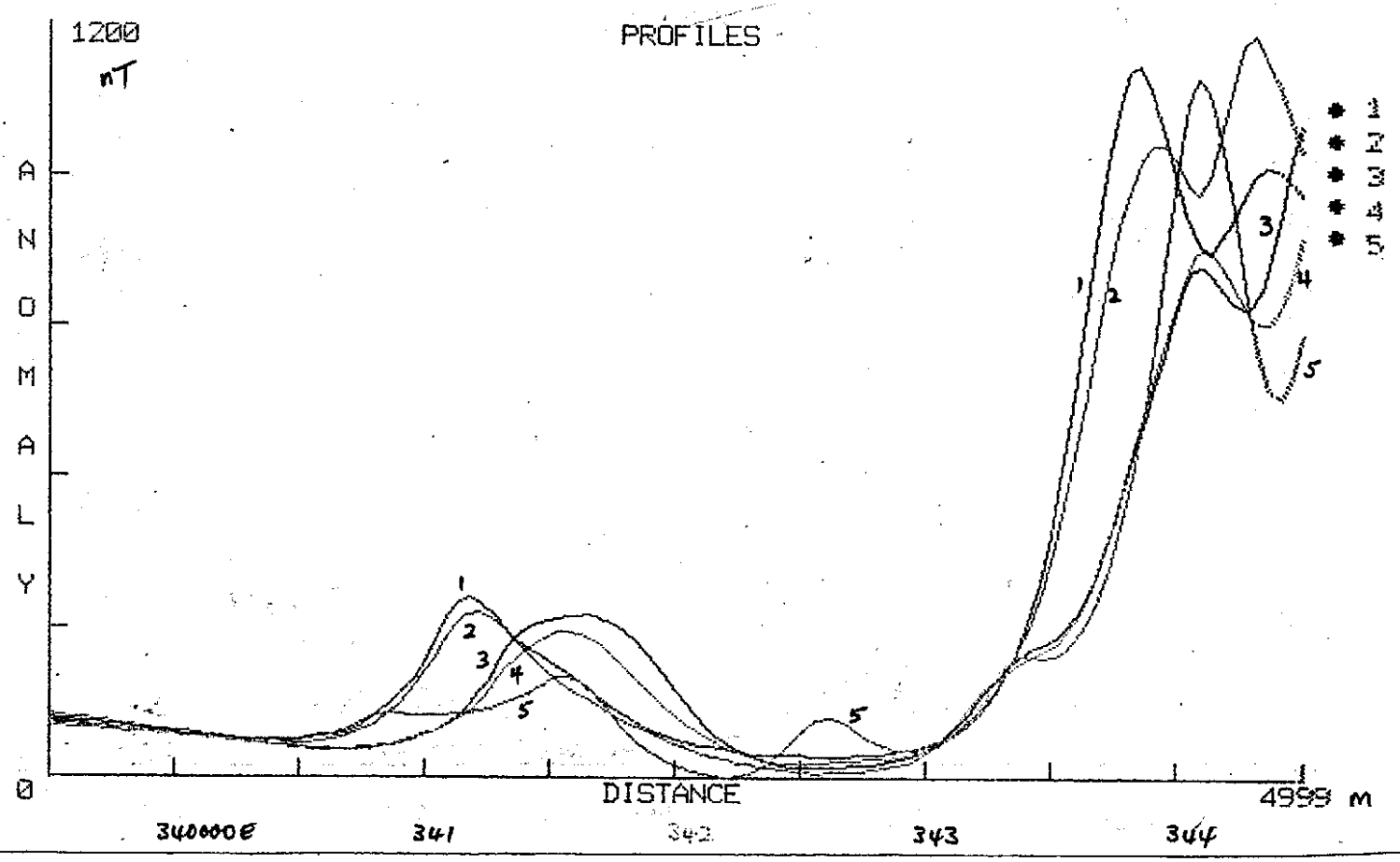
LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

638038

Nominal northing

1	B:M1820	LONGBACK PROJECT LINE 1820	5390 N
2	B:M1838	LONGBACK PROJECT LINE 1838	905
3	B:M1840	LONGBACK PROJECT LINE 1840	912
4	B:M1850	LONGBACK PROJECT LINE 1850	914
5	B:M1860	LONGBACK PROJECT LINE 1860	919

ZERO SHIFT : 151



EL 37/82 MAGNETIC PROFILES 5390-5392000 N FIGURE 5

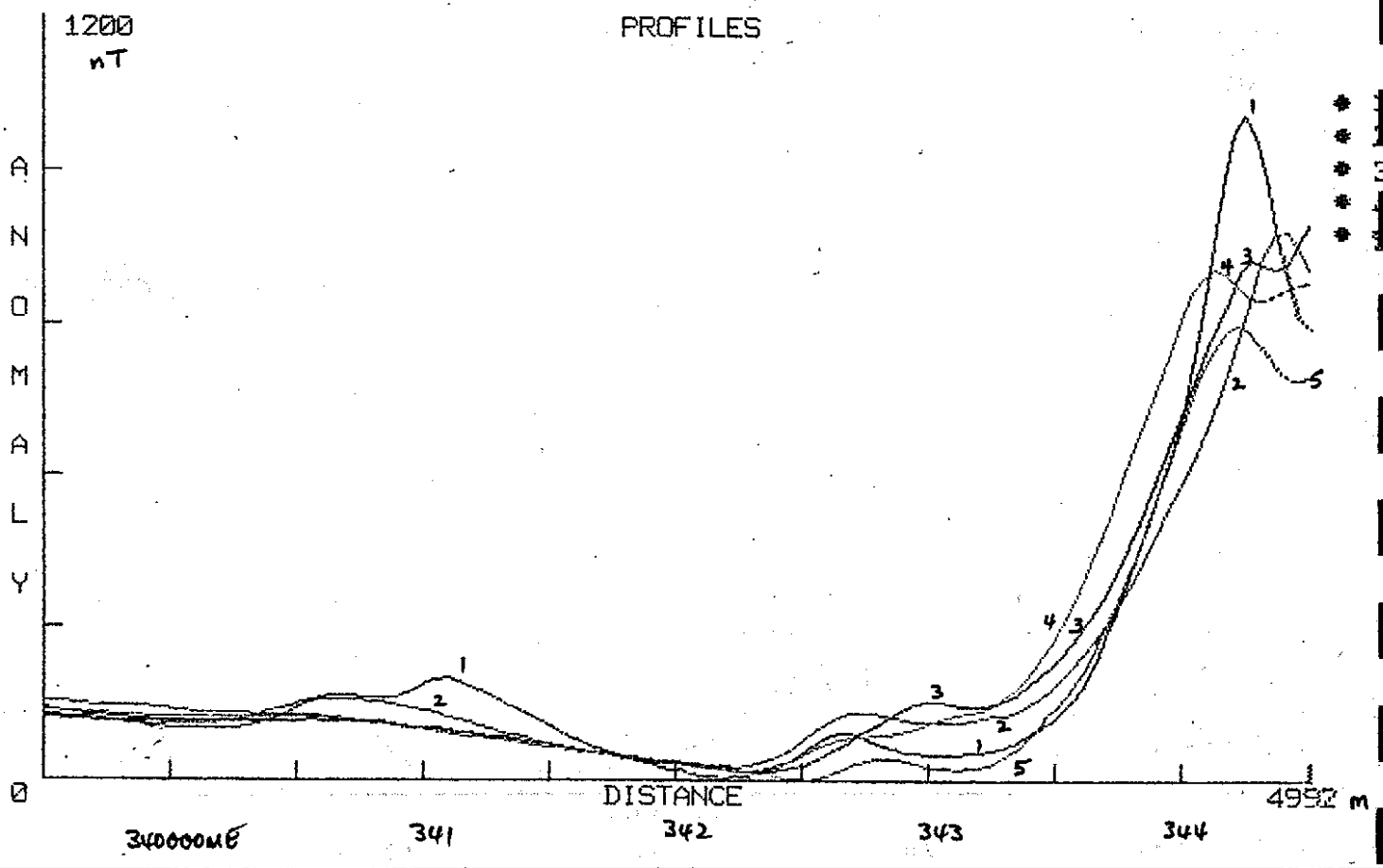
38

638039

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M1870	LONGBACK PROJECT LINE 1870	53925 N
2	B:M1880	LONGBACK PROJECT LINE 1880	93
3	B:M1890	LONGBACK PROJECT LINE 1890	935
4	B:M1901	LONGBACK PROJECT LINE 1901	94
5	B:M1915	LONGBACK PROJECT LINE 1915	945

ZERO SHIFT : 170



EL 37/82 MAGNETIC PROFILES 53925-53945000 N FIGURE 6

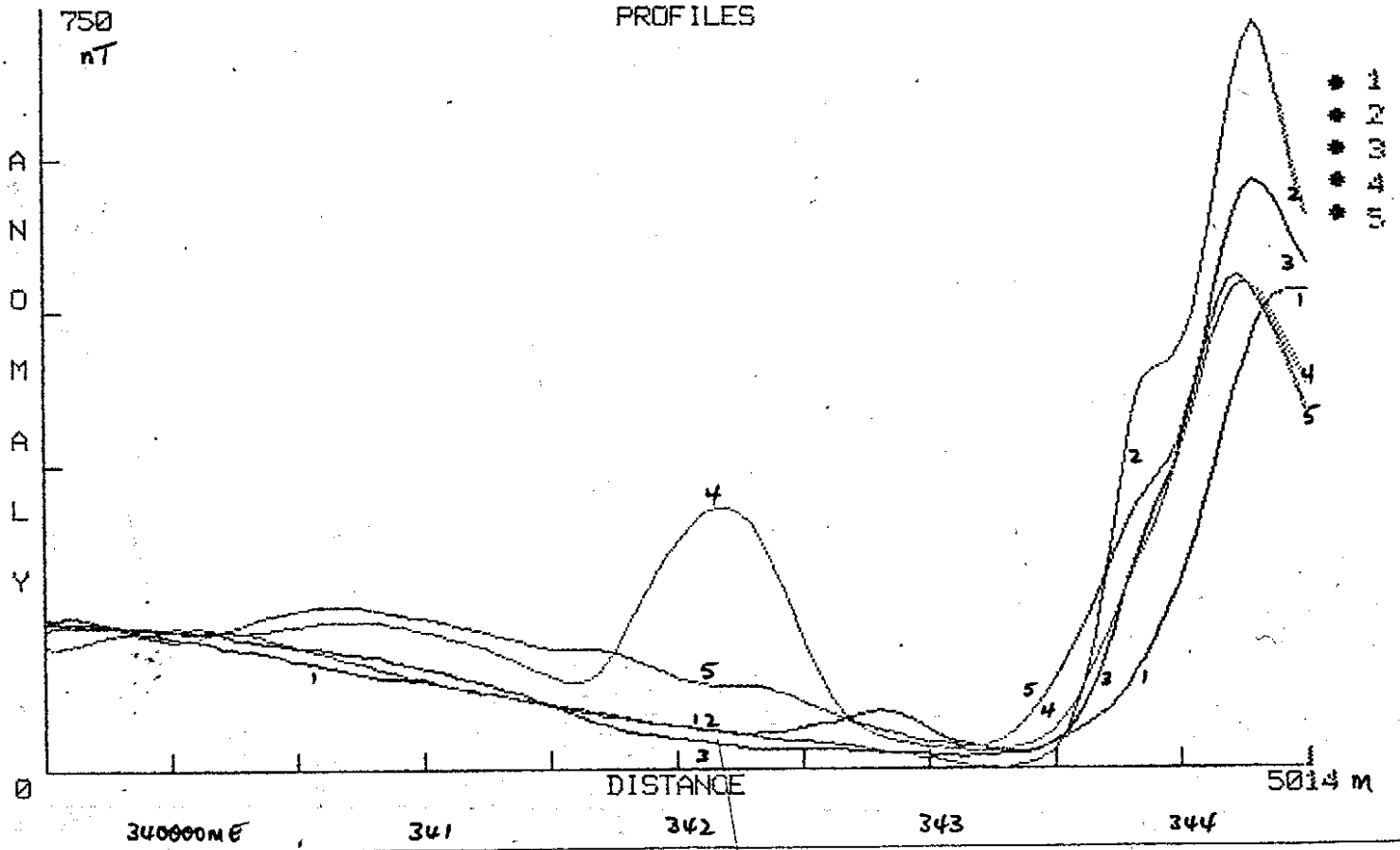
39

638040

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M1920	LONGBACK PROJECT LINE 1920	5395 N
2	B:M1930	LONGBACK PROJECT LINE 1930	955
3	B:M1940	LONGBACK PROJECT LINE 1940	96
4	B:M1950	LONGBACK PROJECT LINE 1950	966
5	B:M1960	LONGBACK PROJECT LINE 1960	971

ZERO SHIFT : 173



? Altered rock

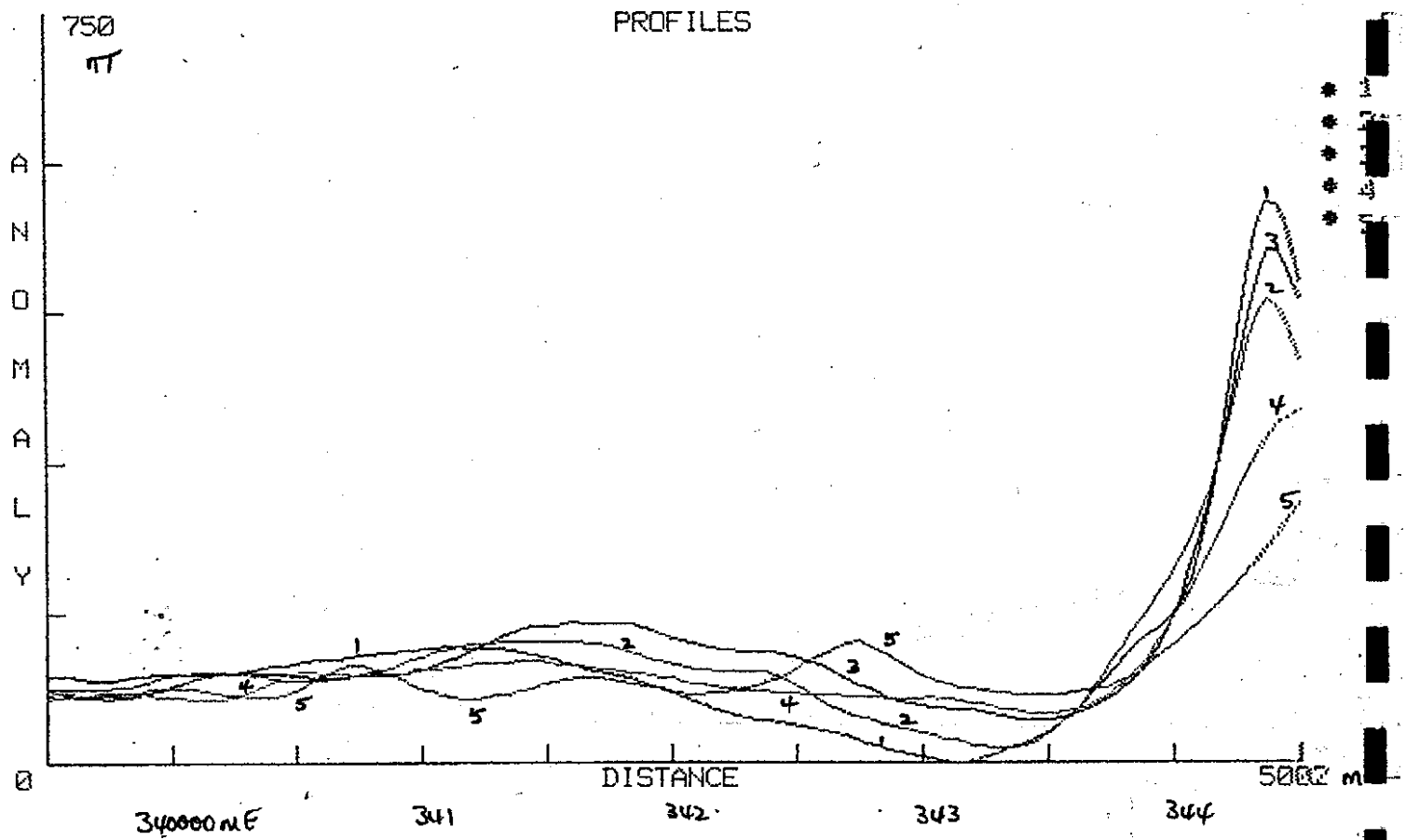
EL 37/82 MAGNETIC PROFILES 5395-5397000 N FIGURE 7

638641

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M1970	LONGBACK PROJECT LINE 1970	5397500 N
2	B:M1980	LONGBACK PROJECT LINE 1980	98
3	B:M1990	LONGBACK PROJECT LINE 1990	985
4	B:M2000	LONGBACK PROJECT LINE 2000	99
5	B:M2010	LONGBACK PROJECT LINE 2010	995

ZERO SHIFT : 145

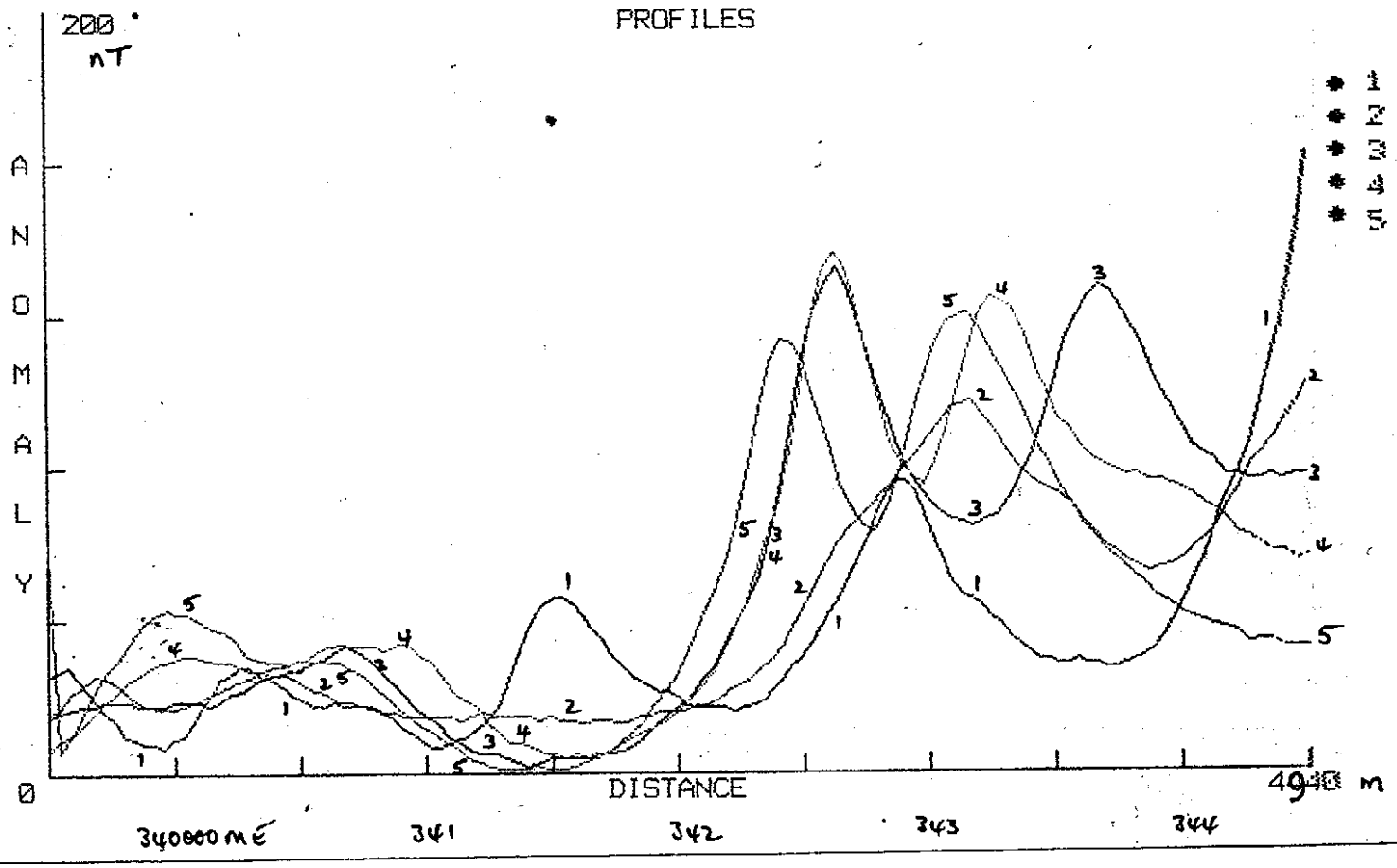


EL 37/82 MAGNETIC PROFILES 53975-5399500 N FIGURE 8

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M2021	LONGBACK PROJECT LINE 2021	5400 N
2	B:M2030	LONGBACK PROJECT LINE 2030	05
3	B:M2047	LONGBACK PROJECT LINE 2047	01
4	B:M2050	LONGBACK PROJECT LINE 2050	015
5	B:M2060	LONGBACK PROJECT LINE 2060	019

ZERO SHIFT : 98



EL 37/82 MAGNETIC PROFILES 5400-5402000 N FIGURE 9

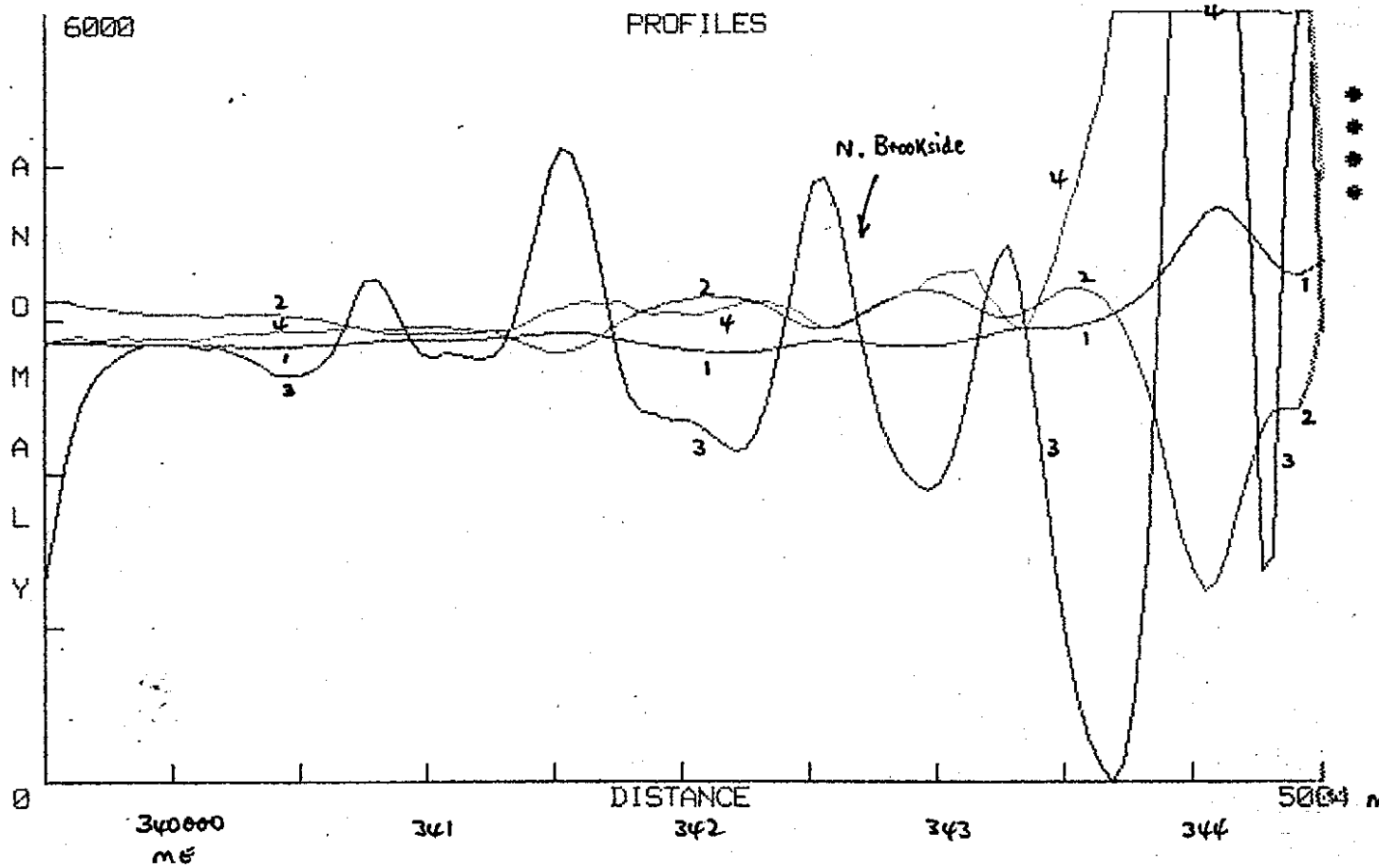
42

638043

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:N1860	LONGBACK PROJECT LINE 1860
2	B:VD11860	FIRST VERTICAL DERIVATIVE LONGBACK 1860
3	B:VD21860	SECOND VERTICAL DERIVATIVE LONGBACK 1860
4	B:AS1860	ANALYTIC SIGNAL LONGBACK 1860

ZERO SHIFT : 3494.693



EL 37/82 DERIVATIVE PROFILES LINE 1860 (ADJ BROOKSIDE)

FIGURE 10

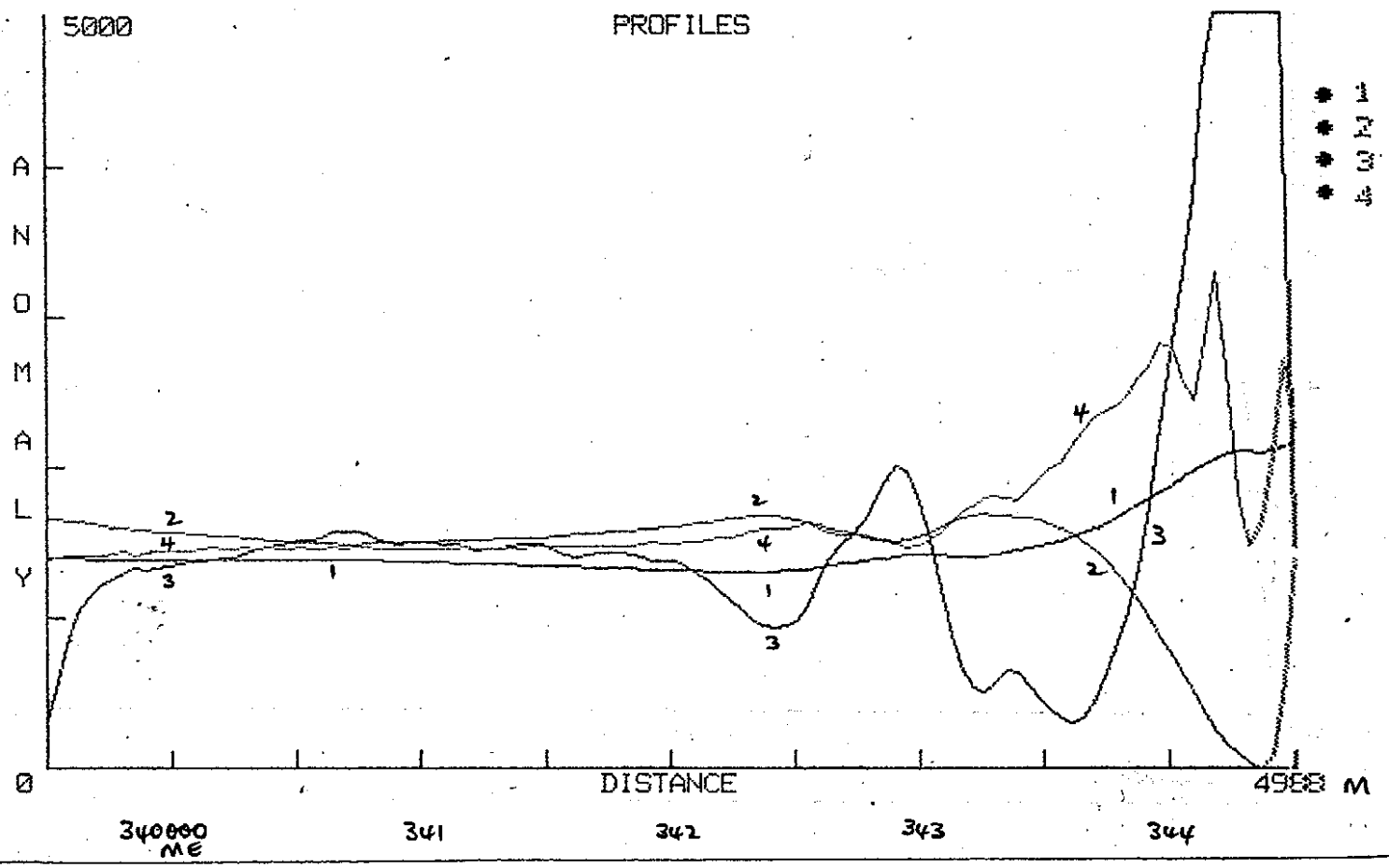
43

638044

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M1890	LONGBACK PROJECT LINE 1890
2	B:VD11890	FIRST VERTICAL DERIVATIVE LONGBACK 1890
3	B:VD21890	SECOND VERTICAL DERIVATIVE LONGBACK 1890
4	B:AS1890	ANALYTIC SIGNAL LONGBACK 1890

ZERO SHIFT : 1457.835

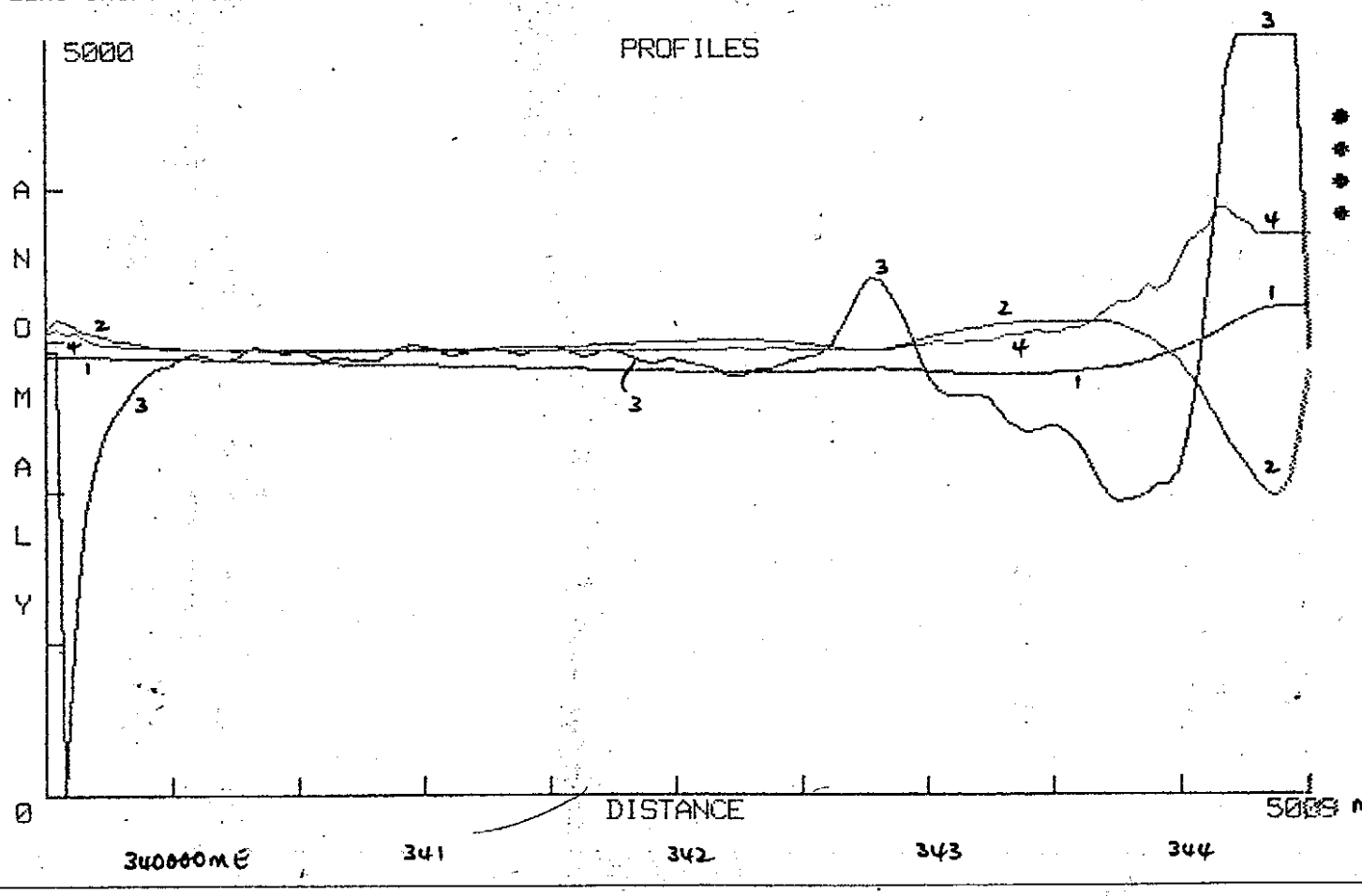


EL 37/82 DERIVATIVE PROFILES LINE 1890 FIGURE 11

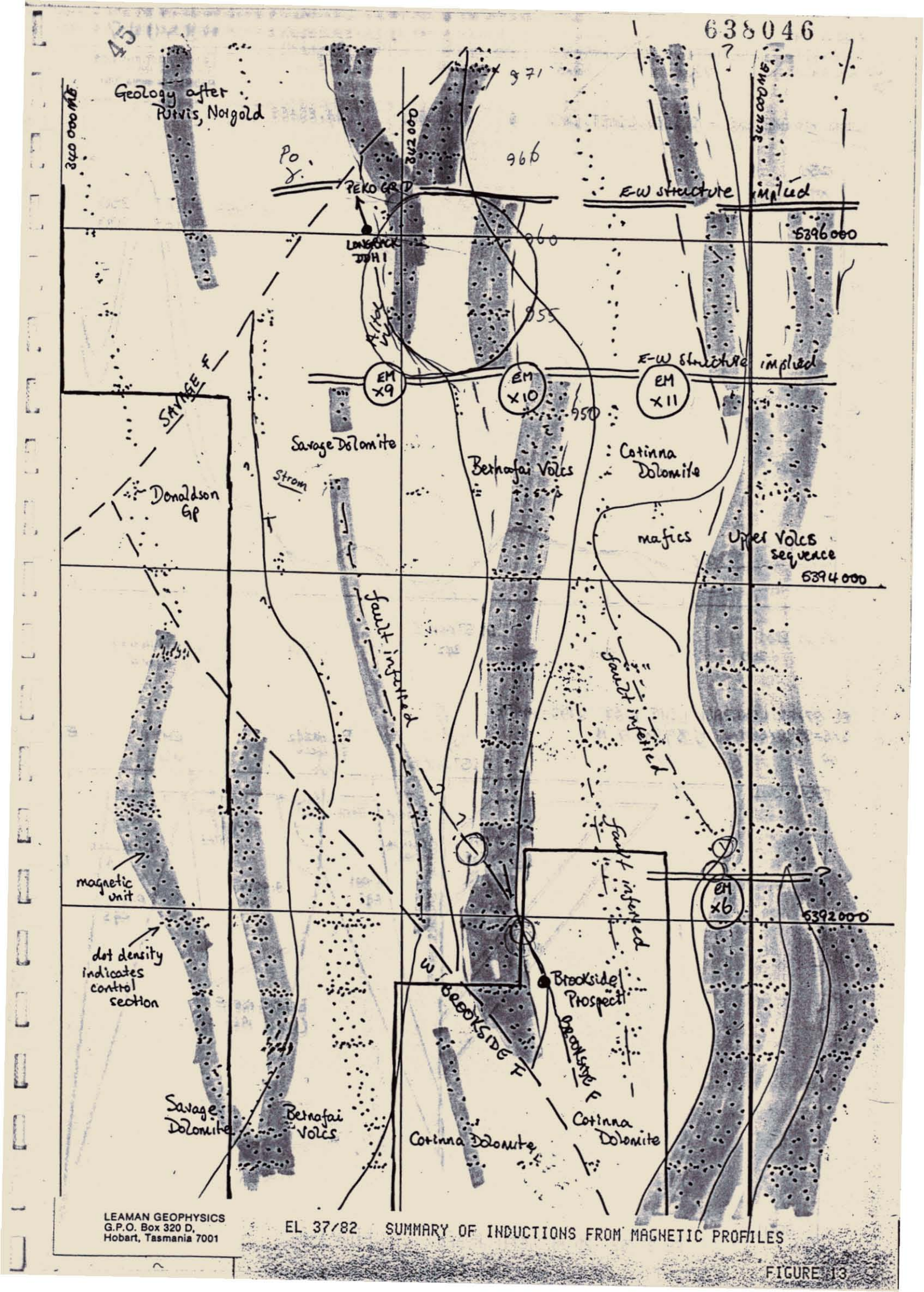
LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

1	B:M1920	LONGBACK PROJECT LINE 1920
2	B:VD11920	FIRST VERTICAL DERIVATIVE LONGBACK 1920
3	B:VD21920	SECOND VERTICAL DERIVATIVE LONGBACK 1920
4	B:AS1920	ANALYTIC SIGNAL LONGBACK 1920

ZERO SHIFT : 2923.757



EL 37/82 DERIVATIVE PROFILES LINE 1920 FIGURE 12

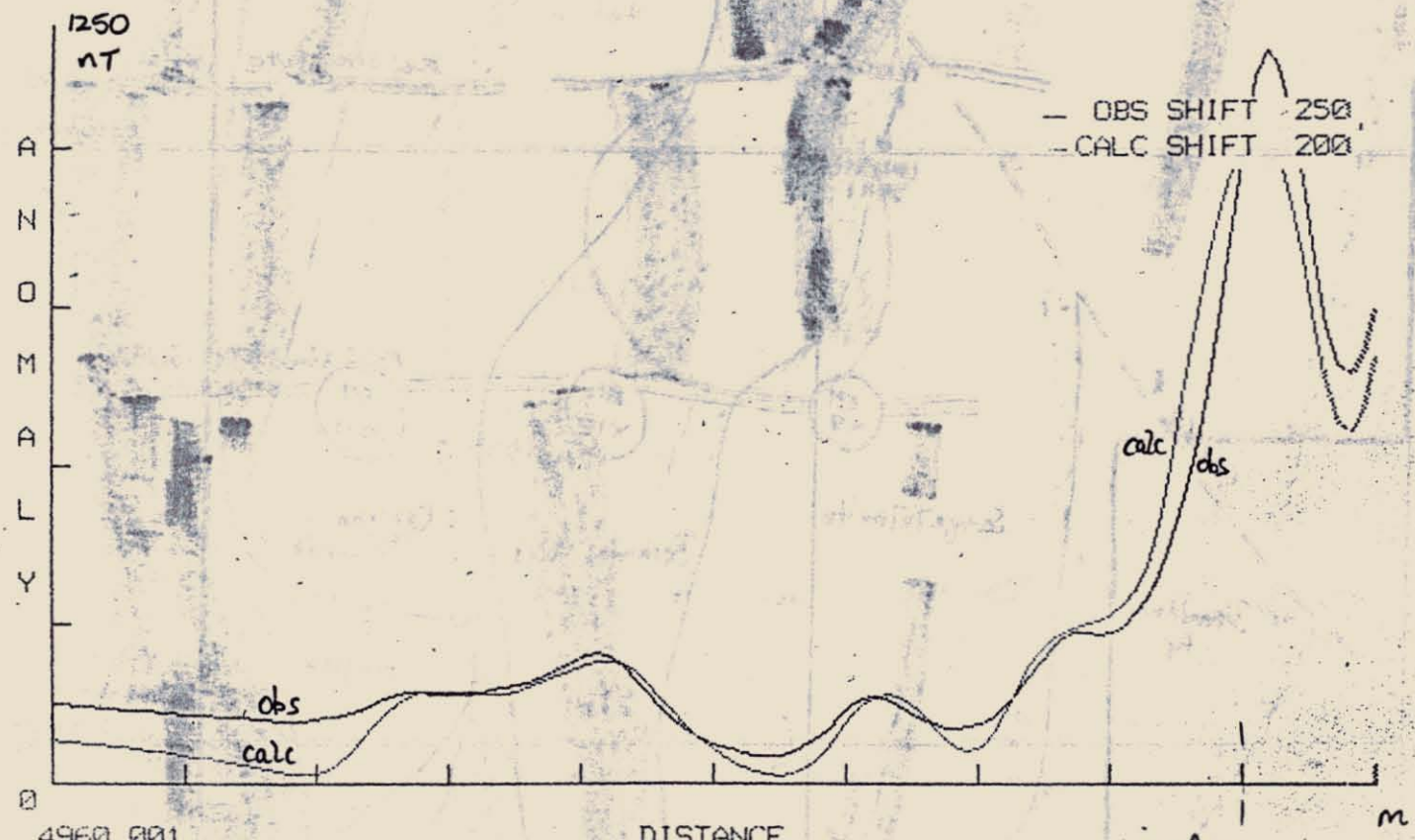

638046
45
Geology after Potvis, Norgold
340 000mE
342 000
344 000mE
971
966
960
955
950
PEKO GRID
LONGBACK DDH 1
E-W structure implied
E-W structure implied
6396 000
6394 000
6392 000
EM x9
EM x10
EM x11
EM x6
SAVAGE F
Savage Dolomite
Donaldson Gp
Strom
Betrafai Volcs
Cotinna Dolomite
mafics
Upper Volcs sequence
fault inferred
fault inferred
fault inferred
magnetic unit
dot density indicates control section
Brookside Prospect
BROOKSIDE F
Savage Dolomite
Betrafai Volcs
Cotinna Dolomite
Cotinna Dolomite
LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001
EL 37/82 SUMMARY OF INDUCTIONS FROM MAGNETIC PROFILES
FIGURE 13

FIELD DATA
INTENSITY	INCLINATION	DECLINATION	OBS LEVEL	LINE DIRECTION
62500.0	-72.0	13.0	0.0	90.0

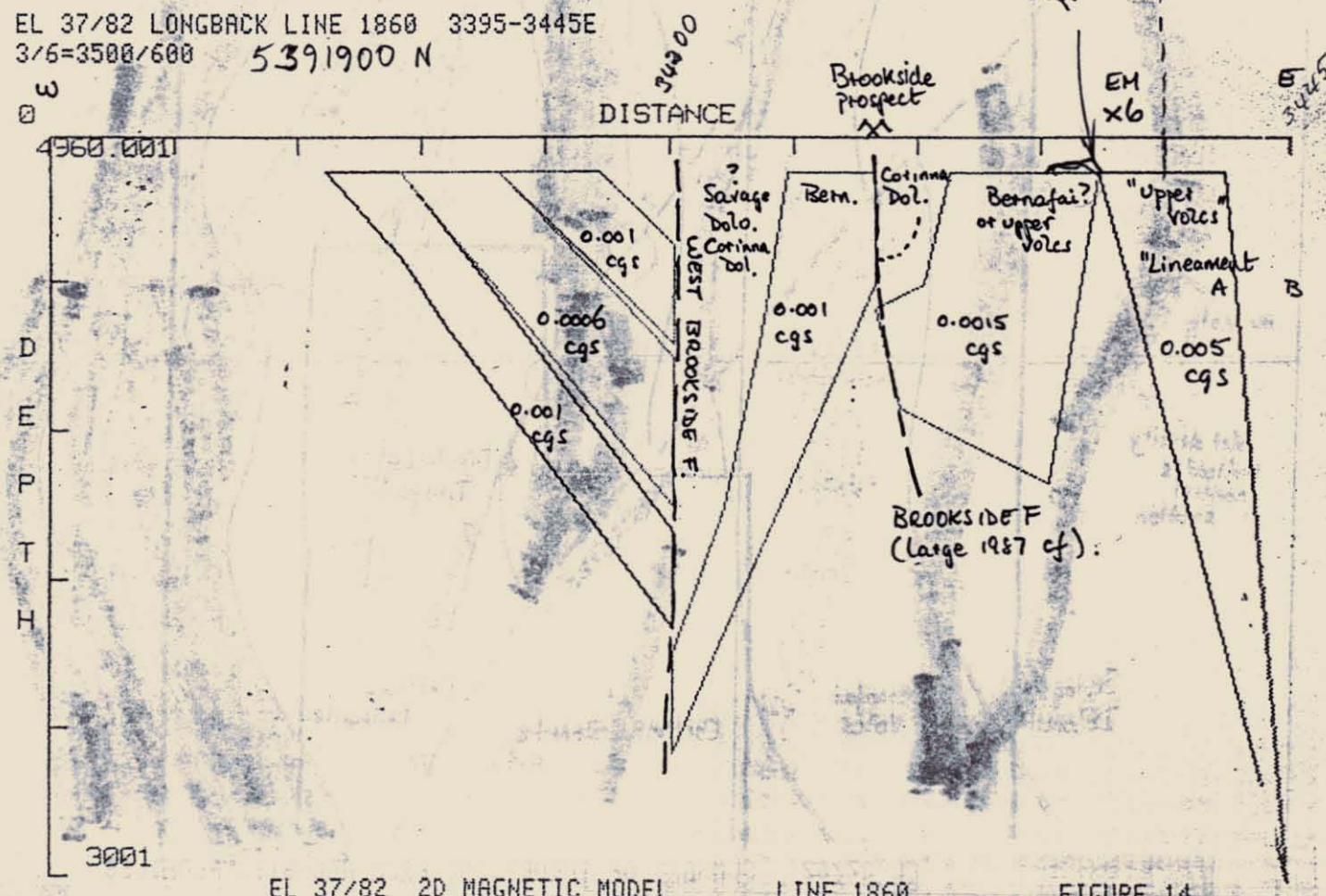
638047

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 4960.001 44.68469



EL 37/82 LONGBACK LINE 1860 3395-3445E
3/6=3500/600 5391900 N



EL 37/82 2D MAGNETIC MODEL LINE 1860 FIGURE 14

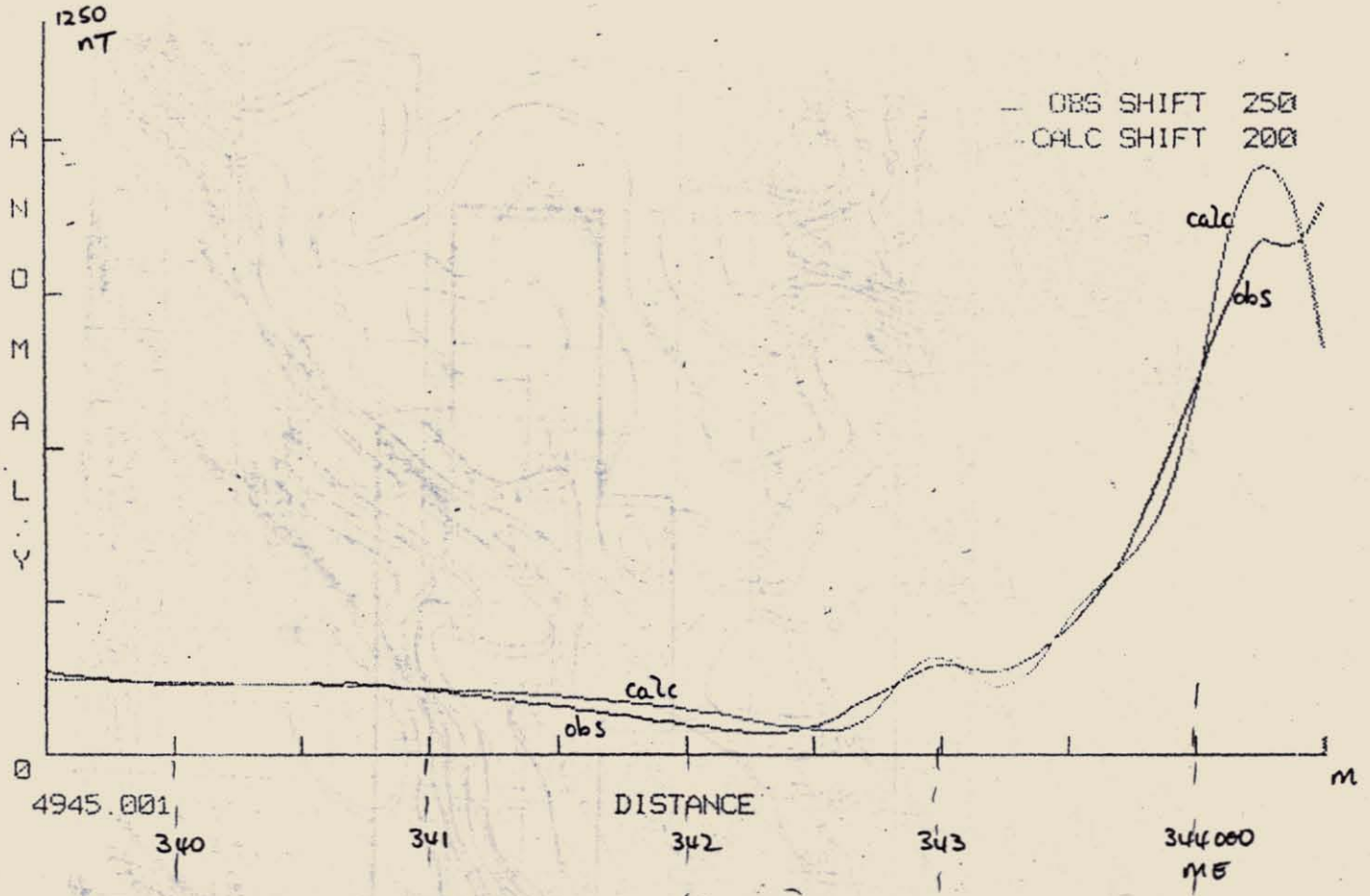
638048

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

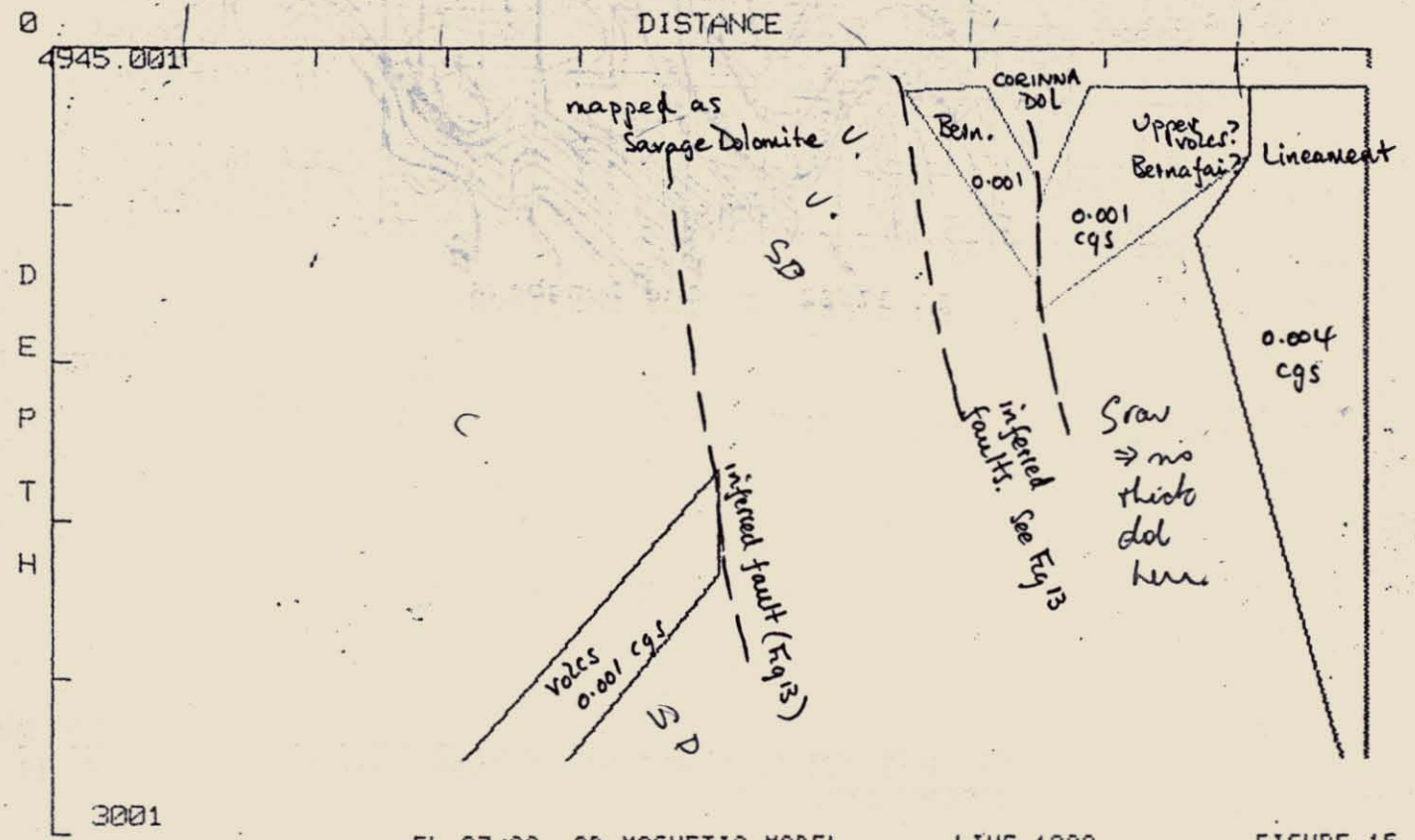
FIELD DATA

INTENSITY	INCLINATION	DECLINATION	OBS LEVEL	LINE DIRECTION
62500.0	-72.0	13.0	0.0	90.0

LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 4945.001 43.76107



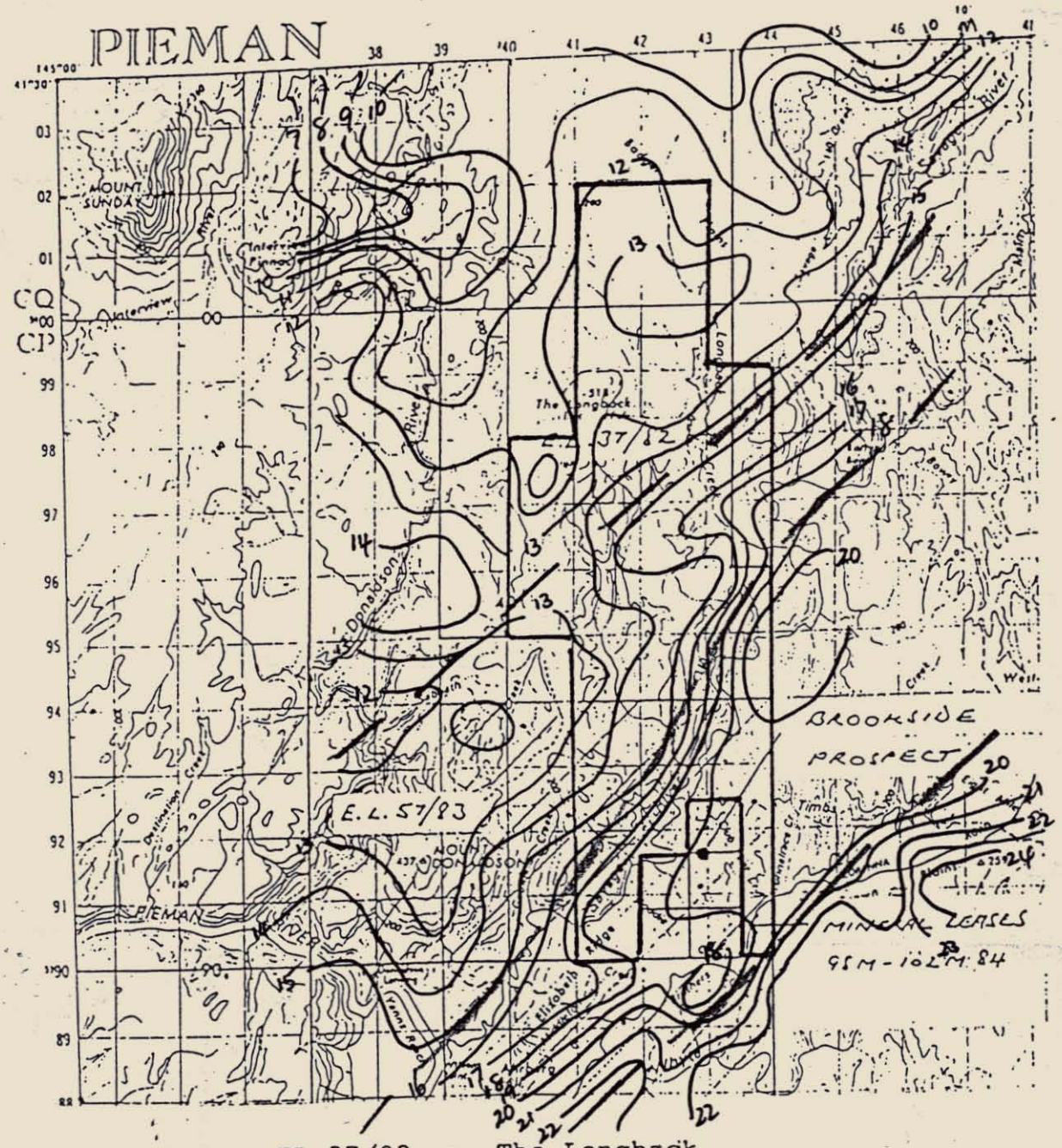
EL 37/82 LONGBACK LINE 1890 3395-3445E 5393500
ADJ 1 2 3 K4=004



EL 37/82 2D MAGNETIC MODEL LINE 1890 FIGURE 15

48

638049

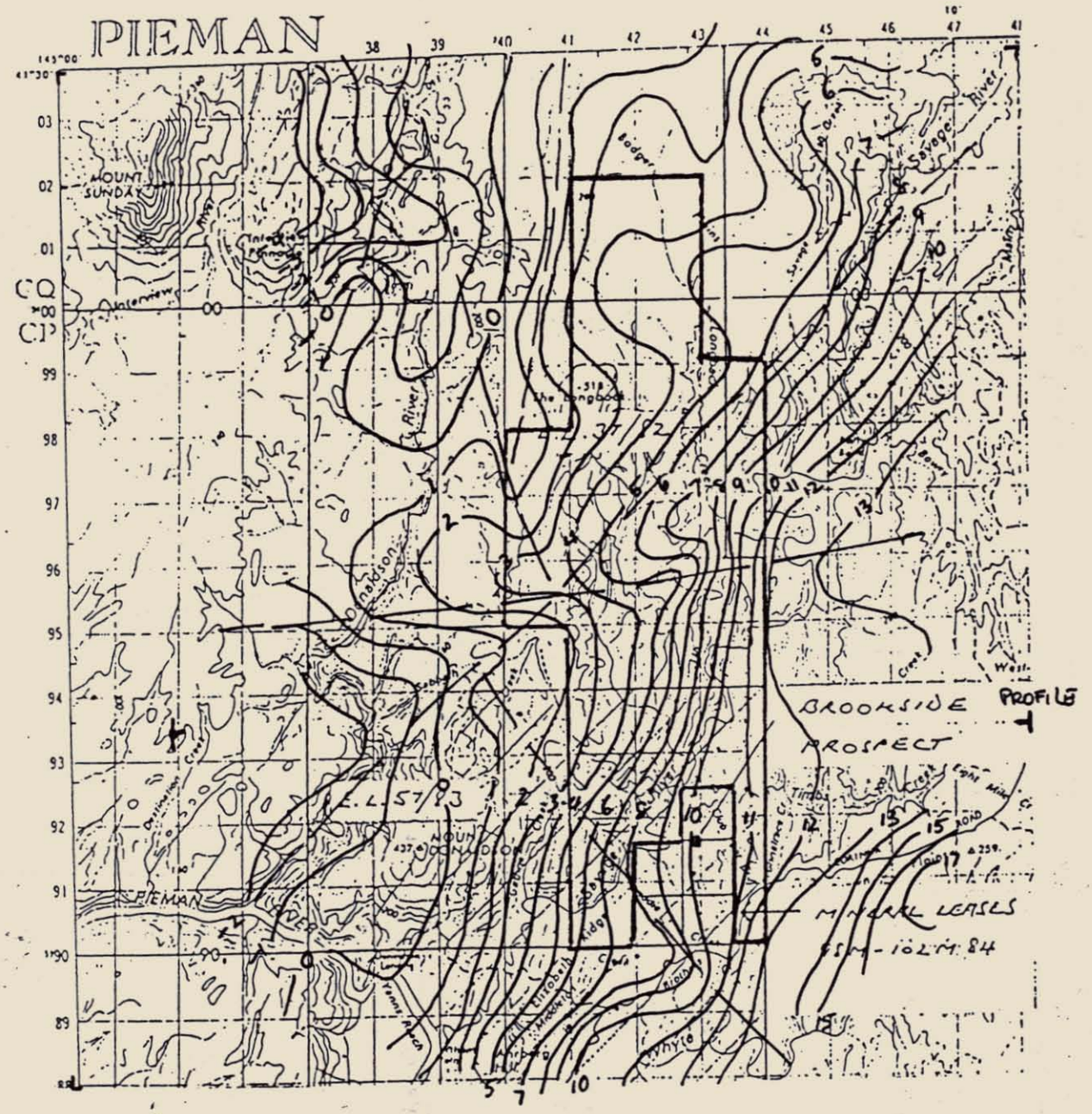


EL 37/82 - The Longback

CORINNA-SAVAGE RIVER REGION: BOUGUER ANOMALIES (TASGRAV DATA BASE)

FIGURE 16

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001



EL 37/82 - The Longback

5 cm

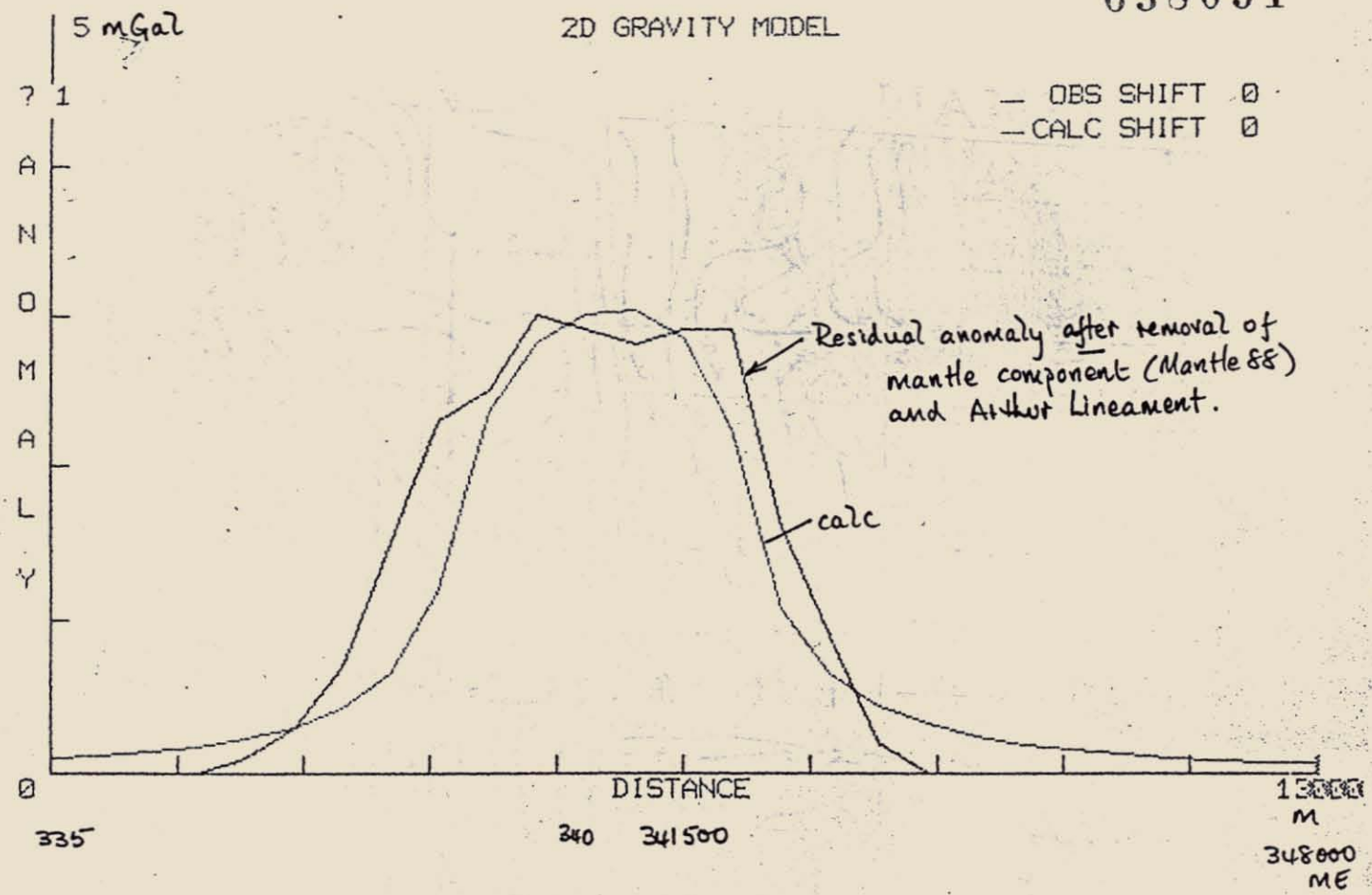
CORINNA-SAVAGE RIVER REGION: RESIDUAL BOUGUER ANOMALY FIGURE 17

EL 37/82 LONGBACK 53935N 335-348E RESIDUAL

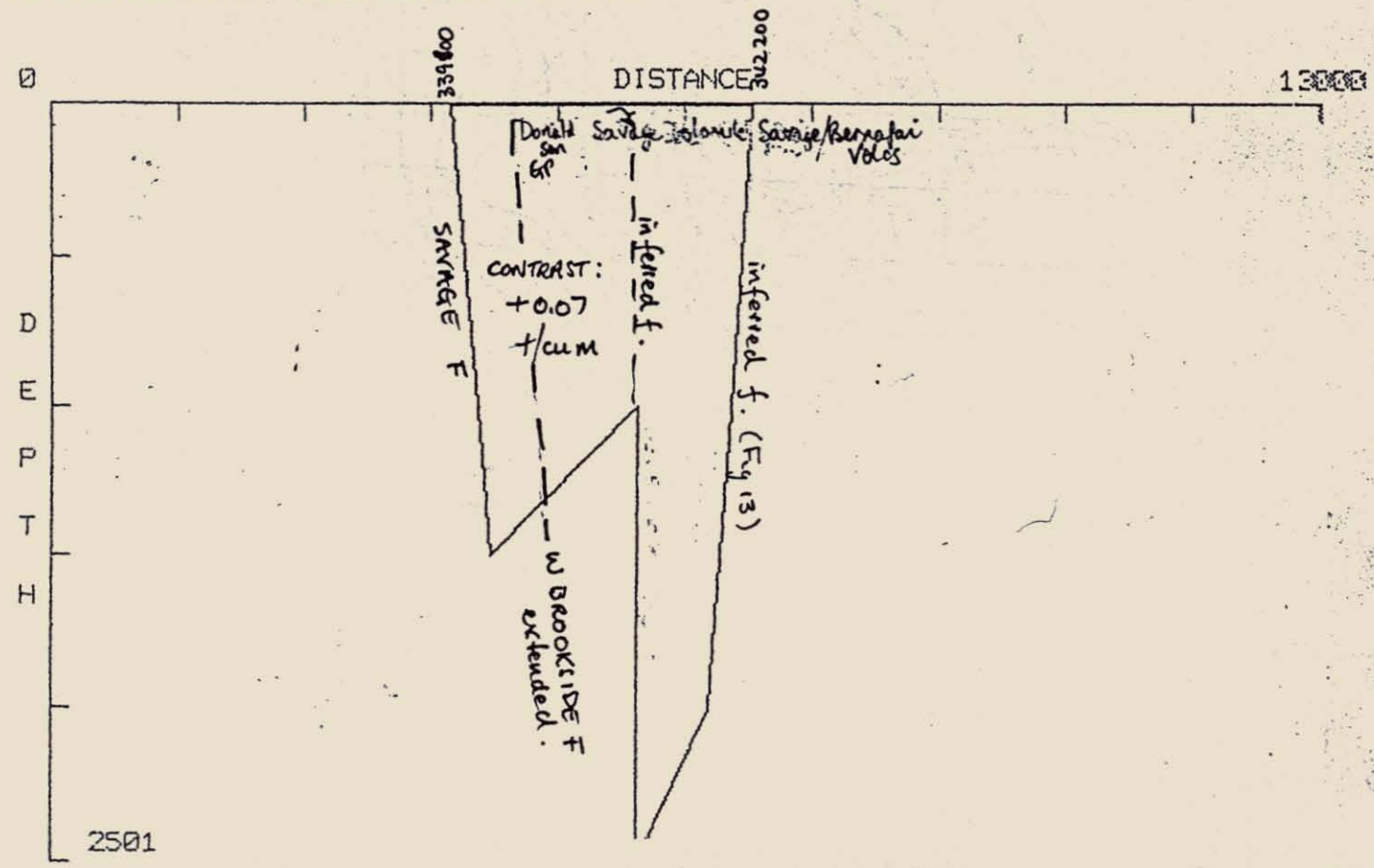
LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 13000 500

LEAMAN GEOPHYSICS
G.P.O. Box 320 D,
Hobart, Tasmania 7001

638051



EL 37/82 LONGBACK 53935N 335-348E RESIDUAL



EL37/82 2D GRAVITY MODEL LINE 1890 FIGURE 18

APPENDIX 2

COMINEX REPORTS MICROSCOPE EXAMINATION OF PANNED CONCENTRATE SAMPLES

52

638053

COMINEX

COH	MINERAL RESOURCES DIVISION	PJE
CBW		ST
KWG	REC'D 19 MAY 1988	MJH
OBS		TCB
	ANS'D	
EPL	CRJ JWW	

P.O. BOX 77, SORELL
TASMANIA 7172
AUSTRALIA
Telephone (002) 65 8291

5 May, 1988

TO: STEWART TAYLOR, NORGOLD
c.c. H. Shannon, Savage Resources

FROM: HUGH NOLAN, COMINEX

REF: LONGBACK E.L. 37/82 TAS.

MICROSCOPE EXAMINATION OF PANNED CONCENTRATE SAMPLES SUPPLIED BY PHIL JONES & ASSOCIATES

During the month of March, 1988 P.A. Jones & Associates carried out field reconnaissance in relation to E.M. anomalies x9, x 10, x 11. Nine panned concentrate samples were passed to me for the purpose of microscopic examination of any gold found to be present.

A blanket of Tertiary gravel occurs through-out the district resulting in most stream samples being dominated by a transported heavy mineral suite which contains minor gold and osmiridium.

The purpose of this inspection was to separate and study all grains of gold collected and identify any grain which differed in character from that carried in the Tertiary gravel.

INSPECTION PROCESS

All samples were dried and scanned in total. The samples, which averaged 60 grams were then panned down to a concentrate of 5 grams to permit a more detailed inspection of the heavy mineral suite. Following inspection the 5 gram concentrate was returned to the bulk sample.

Inspection was carried out using an Olympus 10-40 power zoom binocular microscope.

SAMPLE OBSERVATIONS

Sample numbers by P. A. Jones & Associates.

P.C. LOC. 9

No gold observed.

Minor hematite both specular and massive accompanied by green epidote(?) The concentrate is however dominated by magnetite and pyrite which I suspect to be tailings from the Savage River iron ore mine. An abundance of granular magnetite with pyrite occurs in the Savage River and in times of flood this material will contaminate tributories to a considerable elevation.

P.C. LOC. 18

No gold observed.

Concentrate typical of Tertiary gravel heavy mineral suite with the exception of one small grain of native copper.

P.C. LOC. 19

No gold observed.

Predominantly granular hematite, octahedral magnetite, calcite and epidote(?) with minor Tertiary gravel heavies.

P.C. LOC. 23

No gold observed.

The heavy mineral suite is typical of the Tertiary gravels with the exception of bismuth as small grains plus one larger fragment 3 x 2 mm of crystalline form which has adhering quartz of microcrystalline texture (as per silicified dolomite).

P.C. LOC. 24

No gold observed.

Predominantly granular magnetite and pyrite (suspect S.R.M. Contamination) Above average quantity of pale blue bypyramidal anatase crystals.

P.C. LOC. 26

No gold observed.

P.C. LOC. 26 (CONT)

Predominantly hematite both massive and specular with abundant yellow to green epidote (?) accompanied by octahedral magnetite.

P.C. LOC. 27

Fifteen fine grains of gold with form varying from sub-angular to flattened. All grains have surface irregularities and are pale in colour consistant with local primary source material. By colour comparison I would guess the silver content to be about 7%.

The concentrate consists of local hematite and magnetite and Tertiary gravel heavies in roughly equal proportion. Twelve grains of osmiridium also occur in the sample.

P.C. LOC. 28

One fine grain of gold similar to that found in sample 27.

Concentrate almost exclusively local hematite, magnetite and epidote (?) Very little Tertiary gravel heavy mineral.

P.C. LOC. 29

Five fine grains of gold all of which are flattened with surfaces more polished and of richer colour than sample 27. Their characteristics however are not consistent with the Tertiary lead material which suggests they may have originated from the same primary source as sample 27 but have travelled a greater distance from that source. By colour comparison I would guess the silver content at about 3 to 4 %.

The concentrate is predominantly Tertiary gravel heavies with minor local hematite.

638057

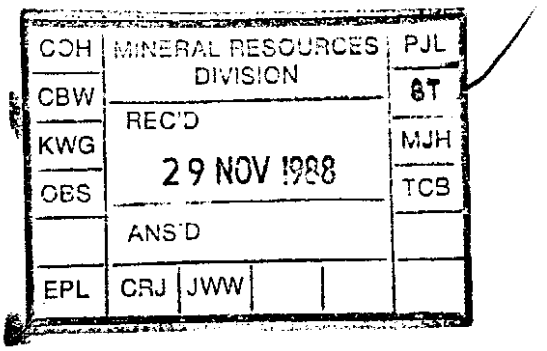
COMINEX

P.O. BOX 77, SORELL
TASMANIA 7172
AUSTRALIA
Telephone (002) 65 8291

TO: STEWART TAYLOR
NORGOLD

FROM: HUGH NOLAN
COMINEX

REF: LONGBACK E.L. 37/82 TAS



MICROSCOPE EXAMINATION OF PANNED CONCENTRATE SAMPLES SUPPLIED BY IAN MATHISON, NORGOLD

Five panned concentrate samples numbered 70818, 70822, 70861, 70862 and 77839 from various locations in the licence area were examined.

SAMPLE: 70818

No gold observed.

Predominantly local hematite in various forms with magnetite and green epidote. Abundant grains of mica-schist. Almost complete absence of Tertiary gravel heavies.

SAMPLE: 70822

No gold observed.

Predominantly fine silica sand accompanied by Tertiary gravel heavies. Minor hematite with green epidote. Very minor presence of free pyrite although several larger grains of pyritic mudstone occur in the sample.

SAMPLE: 70861

No gold observed.

Approximately half the sample comprised of Tertiary gravel heavies with the balance being local hematite, magnetite and green epidote. A surprisingly minor pyrite presence given the occurrance of pyrite siltstone (marcasite) in the vicinity of this sample site.

SAMPLE: 70862

No gold observed.

Predominantly local hematite in various forms, magnetite and green epidote. Minor pyrite and Tertiary gravel heavies.

SAMPLE: 77839

One microscopic grain of angular pale coloured gold. Not crystalline in form however would consider to be of local derivation.

Heavy mineral suite typically Tertiary gravel accompanied by local green epidote and micro crystalline silica.

H. D. NOLAN.

APPENDIX 3

SOIL SAMPLE LEDGERS

638060 59

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: .....Longback.....
LOCALITY: ...Savage..River...
GRID NAME: ....East..Side..Grid.
NOMINAL GRID AZIMUTH: .....

MATERIAL: ..Soil.C..Horizon...
SAMPLE METHOD: .Hand..Auger.....
SAMPLED BY: ..Bruce..Taylor.....
DATE: .30-8...-...27-9-88

SIZE FRACTION ANALYSED: ..-80#.....
ANALYSED BY: .ANALABS.....
METHOD: Cu, Pb, Zn, Fe, Mn A.A.S.
Au - Fire Assay

SAMPLE NUMBER	SAMPLE LOCATION DATA: GRID LINE NO.	GRID NORTHING	A.M.G. CO-ORDINATES: NORTHING	EASTING	DEPTH cm	SAMPLE COMPOSITION DATA: COLOUR	% Clay	% Silt	Rock Frags.	Organic	CONTAM.	Geology	METAL CONTENT (ppm unless specified): Cu	Pb	Zn	Ag	Au	Fe	Mn	Bi	As
707 01	4380E	19·80			60	gn/or/brn	10	90					80	20	180		<0.005	6·95	815	<10	2
707 02		20·00			70	gn/rd/brn	10	90													
707 03		20·20			85	gn/rd/brn	10	90													
707 04		20·40			120	blgn/or	40	60													
707 05		20·60			75	gn or brn	40	60													
707 06		20·80			100	orbrn		80		10											
707 07		21·00			80	gn/or/brn	20	60													
707 08		21·20			70	gn/or/brn	20	60													
707 09		21·60			75	orbrn		80	<5	5											
707 10		21·80			110	orbrn		80	<5	10											
707 10		22·00			120	orbrn		90	10	5											

638061 60

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: Longback
LOCALITY: Savage River
GRID NAME: East Side Grid
NOMINAL GRID AZIMUTH:

MATERIAL: Soil C Horizon
SAMPLE METHOD: Hand Auger
SAMPLED BY: Bruce Taylor
DATE: 30/8 - 27/9/88

SIZE FRACTION ANALYSED: -80#
ANALYSED BY: ANALABS
METHOD: Cu, Pb, Zn, Fe, Mn A.A.S.
Au - Fire Assay

SAMPLE NUMBER	SAMPLE LOCATION DATA				SAMPLE COMPOSITION DATA						Geology	METAL CONTENT (ppm unless specified)								
	GRID LINE NO. / N	GRID EASTING	A.M.G. CO-ORDINATES NORTHING	A.M.G. CO-ORDINATES EASTING	DEPTH	COLOUR	% Clay	% Silt	Rock Frags.	Organic	CONTAM.		Cu	Pb	Zn	Ag	Au	Fe	Mn	
707120			22.00	43780	100	orbn	80	10	5											
707130			22.00	43760	65	rdbn	60	20	✓	✓										
707140			22.00	43750	75	gnrdbn	60	30	✓	✓										
707150			22.00	43718	30	gy	60	20	10											
707160			22.00	43690	50	bn	50	20	20											
707170			22.00	43680	75	orbn	70	10	30											
707180			22.00	43660	60	orbn	70	20	10											
707190			22.00	43645	85	orbn	30	10	50											
707200			22.00	43550	80	orbn	70	20	✓	✓										
707211			22.00	43522	50	orbn	50	30	✓	✓										
707222			22.00	43500	50	dkbn	50	20	<5											
707233			22.00	43480	90	khbn	60	30	✓	✓										
707244			22.00	43450	90	khbn	60	30	✓	✓										
707255			22.00	43440	60	khor/gy	20	50	30											
707266			22.00	43820	120	orgn	80	20	✓	✓										
707277			22.00	43838	60	rdbn	90	10	✓	✓										
707288			22.00	43857	70	rdbn	90	10	✓	✓										
707299			22.00	43880	70	orrdgn	70	30	✓	✓										
707344			22.00	43970	75	orbn	50	50	✓	✓										
707355			22.05	44010	65	khblgn	30	70	✓	✓										
707377			23.00	43772	100	drbn	90	10	✓	✓										
707388			23.00	43740	120	orbn	60	40												
707399			23.00	43658	120	khkli	kl	90	✓	✓										
707410			23.00	43582	100	orgnywgy	90	20	✓	✓										
707421			23.00	43560	90	orbn	90	20	✓	✓										
707432			23.00	43537	80	gygblk	80	.	✓											
707443			23.00	43522	90	orwtwt	30	70												
707444			23.00	43500	110	orbn	80	20	✓	✓										
707451			23.00	43478	120	khkli	40	60												
707466			23.00	43460	100	blgngykl	10	90	✓	✓										
707477			23.00	43440	85	bn	kl	0	90	✓	✓									

638062

61

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: ....Longback.....
LOCALITY: ....Savage River....
GRID NAME: ....Eastside Grid....
NOMINAL GRID AZIMUTH: .....

MATERIAL: ....Soil & Horizon.
SAMPLE METHOD: ....Hand Auger....
SAMPLED BY: ....Bruce Taylor....
DATE: ....30/8....27/9/88..

SIZE FRACTION ANALYSED: ..-80#.....
ANALYSED BY: ANALABS
METHOD: Cu, Pb, Zn, Fe, Mn A.A.S.
Au - Fire Assay

SAMPLE NUMBER	SAMPLE LOCATION DATA: GRID LINE NO.	GRID EASTING	A.M.G. CO-ORDINATES: NORTHING	EASTING	DEPTH	SAMPLE COMPOSITION DATA: COLOUR	% Clay	% Silt	Rock Frags.	Organic	CONTAM.	Geology	METAL CONTENT (ppm unless specified): Cu	Pb	Zn	Ag	Au	Fe	Mn
70750			23·00	43895	60	rd/bn/gn	30	70	✓✓										
70751			23·00	43920	75	or/bn	90	10											
70752			23·00	43950	60	rd/or/bn	40	90	✓✓										
70754			23·00	43980	65	or/bn/gn	20	80	✓✓										
70755			23·00	44010	60	rd/bn/gn	60	40	✓✓										
70757			24·00	43824	100	kh/ki	40	40	<5										
70758			24·00	43843	70	kh/ki/or	40	40	✓✓										
70759			24·00	43858	80	kh/ki/or	60	30	✓✓										
70760			24·00	43880	100	bn	60		✓✓										
70761			24·00	43908	120	bn/or/bn	70		✓✓										
70762			24·00	43920	70	vry/or/gy	<10		✓										
70763			24·00	43938	65	gy/bn	30												
70764			24·00	43961	95	kh/ki/gn	60	40	✓✓										
70765			24·00	43979	70	kh/ki/gn	60	30	✓✓										
70766			24·00	44000	100	kh/ki/bk	70	30	✓✓										
70768			24·00	43575	120	or/bn	60	40	✓✓										
70769			24·00	43545	70	kh/ki	50	50											
70770			24·00	43505	80	or/bn	40	60	✓✓										
70771			25·00	43903	80	kh/ki	40		40										
70772			25·00	43920	100	or/bn/kh	60	40	✓✓										
70773			25·00	43941	70	kh/ki/gy	10	80	✓✓										
70774			25·00	43957	70	gn/kh/bn	10	90	✓✓										
70775			25·00	43980	90	gn/bl/gy	<10	90	✓✓										
70776			26·00	43960	100	kh/lt gn	<10	90	✓✓										
70777			26·00	43980	90	kh/ki	<10	90	✓✓										
70778			26·00	43945	120	kh/ki	50	50	✓✓										
70779			18·02	43760	60	or/bn	70	30	✓✓										
70780			18·00	43740	60	or/bn	70	30	✓✓										
70785			24·00	43843	80	bn/bk	✓		✓✓										
70786			24·00	43858	120	or/bn			10										
70787			24·00	43908	130	pl/gy/yl	60		30										

638063 62

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: ...Longback.....
LOCALITY: ...Savage..River...
GRID NAME: ...EastSide Grid....
NOMINAL GRID AZIMUTH: .....

MATERIAL: ...Soil. C. Horizon.
SAMPLE METHOD: ...Hand..Auger...
SAMPLED BY: ....Bruce..Taylor...
DATE: ...3a/8...-...27/9/88

SIZE FRACTION ANALYSED: ...-80#.....
ANALYSED BY: .....ANALABS.....
METHOD: Cu, Pb, Zn, Fe, Mn A.A.S.
Au - Fire Assay

SAMPLE NUMBER	SAMPLE LOCATION DATA				SAMPLE COMPOSITION DATA							METAL CONTENT (ppm unless specified)						
	GRID LINE NO. N	GRID EASTING	A.M.G. CO-ORDINATES NORTHING	EASTING	DEPTH	COLOUR	Clay %	Silt %	Rock Frags.	Organic	CONTAM.	Geology	Cu	Pb	Zn	Ag	Au	Fe	Mn
707888			18·00	438402	50	rdbn	20	80	✓✓										
707890			19·00	435538	50	rdbn	40	40	✓✓										
707891			19·00	435800	80	dkgy	30		50										
707892			19·00	436118	50	wtcrm			✓✓										
707894			19·00	437000	100	orbn	70	30	✓✓										
707895			19·04	437400	100	orbn/gn	50	50	✓✓										
707896			19·00	437600	100	orbn	70	30	✓✓										
707898			19·00	438000	90	orbncm	70	30	.										
707899			20·00	437600	70	orbn/gn	20	80	✓✓										
708000			20·00	437300	100	orbn/gn	70	30											
778011			19·95	437000	120	rdbn	40	40	✓✓										
778012			20·00	436611	120	wtgycm	90	10											
778013			20·15	436400	70	gycm	90	10	✓✓										
778014			20·00	436200	130	kh/cm/gn	40		✓✓										
778015			20·04	436000	100	fwncrm			✓✓										
778016			21·00	435822	110	rdbn			✓✓										
778017			21·00	436000	120	kh	80		20										
778018			21·00	436211	60	blgn/cm	80												
778019			21·00	436400	80	blgy	50		✓✓										
778110			21·00	436600	120	bn/cr/bl	80		✓✓										
778111			21·00	436800	80	orbn	50		40										
778113			21·00	437222	130	dkgybn	40		✓✓										
778114			21·00	437400	130	orbn kh	70		✓✓										
778115			21·00	437650	130	bn	80		✓✓										
778117			16·00	437000	130	orbn	80		✓✓										
778118			15·95	436800	100	rdbn	<10												
778120			16·00	436450	130	crm	90												
778121			17·00	436800	120	khkibn	10		✓✓										
778122			17·00	437000	120	orbn	90		<10										
778125			17·00	437600	100	orbn	<10												

638064 63

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: Longback
LOCALITY: Savage River
GRID NAME: Eastside Grid
NOMINAL GRID AZIMUTH:

MATERIAL: Soil. C. Horizon
SAMPLE METHOD: Hand Auger
SAMPLED BY: Bruce Taylor
DATE: 30/8 - 27/9/88

SIZE FRACTION ANALYSED: -80#
ANALYSED BY: ANALABS
METHOD: Cu, Pb, Zn, Fe, Mn A.A.S.
Au - Fire Assay

SAMPLE NUMBER	SAMPLE LOCATION DATA				SAMPLE COMPOSITION DATA							METAL CONTENT (ppm unless specified)						
	GRID LINE NO. / GRID EASTING	A.M.G. CO-ORDINATES NORTHING	A.M.G. CO-ORDINATES EASTING	DEPTH	COLOUR	Clay %	Silt %	Rock Frags.	Organic	CONTAM.	Geology	Cu	Pb	Zn	Ag	Au	Fe	Mn
77826		17·00	43780	100	or rd bn	10		✓	✓									
77827		17·00	43800	110	or bn	60		✓	✓									
77828		17·00	43820		kh bn/cm	<10		✓	✓									
77829		17·00	43840	80	kh gn		99	✓	✓									
77830		26·80	44070	90	gn or rd		99	✓	✓									
77831		26·75	44020	100	or bn			✓	✓									
77832		27·00	43975	90	gn gy			✓	✓									
77833		27·90	43982	100	or bn	90		10										
77834		28·00	43960	90	rd bn	80		10										
77835		28·00	44010	70	or bn/cm	70		30										

APPENDIX 4

ROCK CHIP LEDGERS

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: K.V. DATE: 9-10/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70801	25	43840 - 43860	RC	Dolomite, pale grey + white, recrystallised, red-brown Fe staining in places						
70802	25	43820 - 43840	"	Dolomite, white, grey, black, siliceous in places, recrystallised, intense micro jointing						
70803	25	43860 - 43880	"	Dolomite grey + white "spotted", siliceous, argillaceous, 2m wide cave nearby						
70804	21	43920	"	Phyllite green sericitic, Fe stained in places, weathered to fawn clay						
70805	22	43960	"	phyllite, weathered to fawn clay, in creek						
70806	26	43880 - 43900	"	Dolomite, pale grey, dark grey, some areas with a brownish tinge, siliceous, fg						
70807	25·8	43885		Dolomite, pale + dark grey, fg, siliceous, argillaceous, 1m qzt vein, a slump block? at 310°/55/S"						
70808	26	43755	"	Fawn mudstone, banded + Fe stained conglomerate, siliceous, float in a pit on a ck bank						
70809	27	43900 - 43920	"	Dolomite, pale + dk grey, siliceous, fg, 1m wide qzt vein, v. close to being o/c						
70810	27	43920 - 43940	"	Dolomite, pale + dk grey, patchy silicification, recrystallised						

Smith Print Ph.. 441822

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: KV, Mat DATE: 10-22/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	Thin or Polished Section: By	Thin or Polished Section: Reference	Thin or Polished Section: Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70811	27	43720-43740	RC	Dolomite, pale grey, fg, subcrop, partly decomposed						
70812	27N	43740-43760	"	Dolomite, pale grey, partly decomposed, Fe stained, near o/c						
70813	20	43725	"	Ironstone, banded, orange-brown, siliceous in places, vein of hematite/magnetite, not o/c						
70814	19	43977	"	Phyllite, dark grey, micaceous, decomposed to fawn clay in places						
70815	30·35	43800	"	Dolomite, fg, pale grey, Fe stained, float + o/c sampled						
70816	33·02	43800	"	Phyllite, slate (green, grey) + Basic						
			float in ck	Volcanic (Fe stained + green), one rock alternatn of brown + green bands						
70817	36	43800	RC	Siltstone, green, conchoidal fracture, little cleavage, some coarser bands (fg ss)						
70818	5393566	343680	R.C.	Fine gravel + sand, of silty green rock, black sericulite tail, past trap site behind log + among boulders, no dol or qzt, S River contam						
70819	as above		S.S.	Sand, lineated dk green phyllite, grey slate, khaki siltstone 2m wide stream						
70820	5393380	343530	RC	Dolomite, pale grey, fg, recrystallised in places, cliff in S. River						

Smith Print Ph. 441822

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: KV, Mat DATE: 22 - 24/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section T or P	Thin or Polished Section By	Thin or Polished Section Reference	Thin or Polished Section Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70821	593400	343630	SS	Fragments + sand grains of green phyllite, quartz + some dd, a med tree site						
70822	as above		RC	Grains of qzt, tail of black hematite						
70823	as above		RC	Dolomite, siliceous, veined with scalloped quartz, subcrop						
70824	32.00	43800	"	Phyllite, mini fold nose with bedding laminat^s, + thin Fe stained qzt veins + pods, float						
70825	18.1	44000	"	Siltstone, med green - khaki, little cleavage, Mn + Fe staining						
70826	16	43958	"	Phyllite - siltstone, Fe stained, khaki - green, cleavage strike at 350° m						
70827	17	44002	"	Siltstone, med green, some Fe + Mn staining, v. poor cleavage						
70828	25.4	43810	"	Dolomite, pale - dk grey, fg, recrystallised in places, Fe + Mn stained, near vertical cave						
70829	27.62	43800	"	Dolomite, fg, pale grey with dk grey + pink altered areas, siliceous, Fe stained, Carbonate veining						
70830	27.62	43805	"	Ironstone above dolomite in a creek						

Smith Print Ph. 441622

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: KV DATE: 24-25/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	Thin or Polished Section: By	Thin or Polished Section: Reference	Thin or Polished Section: Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70831	21.95	43905	RC	Dolomite, siliceous, recrystallised, pale grey + dk grey "spotted" + patchy						
70832	22.3	43930	"	Phyllite, dk green, chloritic, clay in places, micaceous, intensely cleaved strike 5°m						
70833	22.1	43939	"	Phyllite, dk green, chloritic, micaceous, sheen, strong cleavage, strike 0-340°m						
70834	16	43846.25	"	Phyllite, clayey to bright green + sericitic, decomposed in places						
70835	16.35 - 16.45	43846	"	Phyllite, clayey, dk green chloritic, 2 cleavages 350/50°/E, strike of 95°m						
70836	16.45	43846	"	Phyllite, dk green with irregular carbonate veining,						
70837	16.50 - 16.70	43846	"	Phyllite						
70838	17.2 - 17.4	43850	"	Phyllite, dk + light green, slaty, hard + dk grey, clays in places, 2 cleavages						
70839	21.40	43800	"	Phyllite - slate, green + grey, some carbonate veining						
70840	21.0	43770	"	2 pale green fg ss boulders, rounded, 10% arsenopyrite, some sphalerite + chalcopyrite/pyrite, rim of Fe staining						

Smith Print Ph., 441822

638070

69

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: KV DATE: 25-27/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section T or P	Thin or Polished Section By	Thin or Polished Section Reference	Thin or Polished Section Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70841	20·05 – 20·20	43750	RC	Phyllite, chlorite, dk green grey, fractured, clayey, some pink clayey alteration, cleavage st 250°m						
70842	20·0 – 19·80	43790	"	Phyllite, dk green, chloritic, some pale green clay areas, cleavage 35/65/SE						
70843	20	44003	"	Phyllite, dk + pale green laminations, 3 cleavages (1 cavitation with 1-2cm wide folds), Fe staining						
70844	20	44000 – 43997	"	Phyllite, variety of greens, kink folded like above, laminated, bedding 285/60/SW						
70845	15·80	43760 – 43780	"	Phyllite, pale green – grey clays, Fe staining						
70846	15·70	43740 – 43760		Phyllite, dk + bright green, chloritic, clayey + carbonate veined in places, brittle in places also						
70847	17·80	43505 – 43490	RC soil	Dolomite, pale grey floury deco dol, banded dk + light grey dol fg.						
70848	18·35	43515	" "	Dolomite, laminated dk + light grey, fg, recrystallised, siliceous, grey dol floury soil						
70849	18·10	43605	RC	Siltstone, med green, weakly cleaved, Fe stone sampled, 1cm wide qzt vein						
70850	19·80	43515	"	Phyllite, dk green chloritic, carbonate + qzt veining, Fe stained, deco						

Smith Print Ph.. 441822

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: KV DATE: 27-28/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section T or P	Thin or Polished Section By	Thin or Polished Section Reference	Thin or Polished Section Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70851	19	43560	RC	Dolomite, black, dk + pale grey, recrystallised, siliceous						
70852	18·50	43635	soil	Dolomite, black, grey, white + pale green, qzt veins km, decomposed + floury						
70853	17·60	43740 - 43760	RC	Phyllite, khaki + pale green, clayey + decomposed, Fe stained, near dol contact						
70854	18·20	43760 - 43770	"	Phyllite, dk green grey - pale green + clayey - Fe stained + crumbling, qzt vein, cleav at 20° m						
70855	18·20	43770 - 43790	"	Phyllite, pale green - grey green, shear zone, distorted beds, Fe staining, qzt vein,						
70856	19·80	43830 - 43850	"	Phyllite, deco + crumbling, Fe + Mn stained, qzt vein sampled also						
70857	21·10	43810 - 43830	"	Phyllite to slate, dk green grey, with deco + pale green areas, qzt vein						
70858	27·7	43840	"	Ironstone on dolomite in a creek						
70859	28·8 - 28·95	44025	"	Phyllite, med green, clayey + deco + Fe stained in most places, 2 cleavages						
70860	27·80	44050 - 44060	"	Phyllite, bright to pale green, deco to clays in most places, Fe + Mn stained						

Smith Print Ph. 441822

638072 71

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Long back LOCALITY: Savage River
COLLECTED BY: K. V. DATE: 10 - 12/10/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70861	18·30	43720	PC	Gravel - sand in pan, phyllite float dom, a little quartz + dol, tail of black sand, good site						
70862	5393800	342875	RC	Gravel, sand, river pebbles (phyllite) tail of dark grains, mainly quartz float, good-med trace site						
70863	as	above	SS	Gravel, coarse sand, rock frags of quartz + volcanics, behind a log						
70864	5390525	341625 - 341645	RC	Slate, olive green, grey, black, white laminated beds, clayey in places, some fg ss, folded + tightly, Mn + Fe stain						
70865	5390575	341645 - 341665	"	Sandstone, pale yellow-green, fg, mildly cleaved, tightly folded, quartz vein sampled, Fe stain						
70866	5390650	341665 - 341685	"	fg SS - Siltstone, khaki brown - green, weak cleavage, v. clayey, Fe + Mn stain, folded, some dk grey - black beds						
70867	5390500	341625 - 341605	"	Phyllite - Slate, grey, black, khaki brown, clayey, well cleaved, qzt vein, also v. hard grey-black rock						
70868	5390475	341605 - 341585	"	Dolomite?, black, massive, v. hard, fractured, within clayey - deco green brown grey phyllite, qzt vein, Fe stain						

Smith Print Ph.. 41822

638073 72

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Longback LOCALITY: Savage River
COLLECTED BY: KV DATE: 12/10/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70869	5390425	341585- 341565	RC	Siliceous cherty rock, hard, red-brown + ironstained frags within grey yellowish clayey phyllite						
70870	5390400	341565- 341545	"	sandstone, completely Fe stained, fg, clays in places, deco, dead roots in places, slump?						
70871	5390390	341545 341535	"	Dolomite, white, grey, black, brecciated + patchy, very siliceous, fg, agate quartz in dol						
70872			"	resampling of 70840.						

Smith Print Ph.. 441822

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: A.T. DATE: 6-9/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70730	22·10	43900	RC	Phyllite, light green + khaki, dull lustre, cleavage strike 30° m						
70731	22	43916	RC	Phyllite, green blue with qzt veins, pearly lustre, cleavage strike 30° m						
70732	22	43930	"	Phyllite, blue green, qzt veins, weathered to fawn clay, cleavage st 25° m						
70733	22·10	43940	"	Phyllite, green, junction of streams						
70736	22	44040	"	Phyllite, green blue, some qzt veining						
70748	23	43840	"	Phyllite, green, cleavage strike 40°,						
70749	23	43870	"	Phyllite, green, qzt veining + some Fe staining, maybe float						
70750	23	43990	"	Phyllite, green, dk green chloritic wisps, qzt vein 1cm wide on surface, weathering to fawn clay						
70756	23	44070	"	Phyllite, blue green - red brown, near water race						
70757	24·50	44040	"	Phyllite, light + dark green, layered? Fe + Mn stained, cleavage st 10° m						

Smith Print Ph.: 441822

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside Grid LOCALITY: Savage River
COLLECTED BY: G.T. DATE: 11 - 26/9/88

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	Thin or Polished Section: By	Thin or Polished Section: Reference	Thin or Polished Section: Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
70781	18	43730	RC	Dolomite						
70782	18	43710	"	Dolomite						
70783	18	43680	"	Dolomite, some quartz veining						
70784	17.95	43780	"	Phyllite, blue green						
70789	18.50	43780	"	Phyllite, green with quartz veining, parts very Fe stained						
70793	18.80	43660	"	Dolomite						
70797	19.10	43780	"	Phyllite, decomposed to red + fawn clay, some green phyllite with 1m wide qzt vein						
77812	21	43703	"	Ironstone, Mn stained, some parts turned to cream + orange Fe rich clays						
77816	15.80	43720	"	Phyllite, weathered to clays, Fe + Mn stained						
77819	15.95	43680	"	Dolomite, Fe + Mn staining, maybe float?						

Smith Print Ph.: 441622

638076

75

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Eastside C-id LOCALITY: Savage River
COLLECTED BY: B.T. DATE: 26-

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	Thin or Polished Section: By	Thin or Polished Section: Reference	Thin or Polished Section: Rock-type (Microscopic)	Metal Content (p.p.m. unless specified)
77823	17	43720	RC	Dolomite, heavily Fe stained						
77824	17	43740	"	Dolomite, as above						
77836	254	43800	"	Dolomite (marl)						

Smith Print Ph.. 441822

APPENDIX 5

ASSAY RESULTS

638078

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
FAX: 004 31 8890

ANALYTICAL REPORT No. 27.1.08.05770

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Mineral Resources Division
Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

ORDER No.	PROJECT
900905 MRD	Longback

DATE RECEIVED	RESULTS REQUIRED
11/10/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	20/10/88	1	113

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	SO	Prep: 006,010,012,013,016						Cu,Pb,Zn,Fe,Mn,Bi/103		
	Various	SO							As/114		
	Various	SO							Au,AuChk/309		

RESULTS TO

Mineral Resources Division
Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

638079

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05770	20/10/88	900905 MRD	1 OF 5

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70701	80	20	180	6.95	815	<10	2	<0.008	
2	70702	85	15	215	10.05	535	<10	1	<0.008	
3	70703	60	15	185	11.50	315	<10	2	<0.008	
4	70704	65	25	65	10.35	100	<10	4	<0.008	
5	70705	130	20	75	11.50	125	10	38	<0.008	
6	70706	45	10	60	6.50	175	<10	12	<0.008	
7	70707	140	10	130	8.60	650	<10	7	<0.008	
8	70708	75	25	105	8.85	430	<10	6	<0.008	
9	70709	45	20	80	8.60	295	<10	9	<0.008	
10	70710	35	10	70	7.00	345	<10	10	<0.008	
11	70711	60	5	55	8.05	105	<10	8	<0.008	
12	70712	50	15	75	7.95	165	<10	11	<0.008	
13	70713	110	25	100	9.70	310	<10	12	<0.008	
14	70714	105	25	85	9.85	360	<10	13	<0.008	
15	70715	10	5	25	1.05	35	<10	4	<0.008	
16	70716	10	15	30	3.10	45	<10	8	<0.008	
17	70717	10	35	35	3.30	50	<10	6	<0.008	
18	70718	65	<5	55	5.65	125	<10	7	<0.008	
19	70719	25	15	30	1.85	80	<10	3	<0.008	
20	70720	70	5	100	10.20	395	<10	21	<0.008	
21	70721	60	5	75	9.65	175	<10	30	<0.008	
22	70722	60	15	65	8.75	195	<10	53	<0.008	
23	70723	65	30	55	6.90	75	<10	100	<0.008	
24	70724	25	10	35	4.50	150	<10	34	<0.008	
25	70725	130	15	70	5.50	9750	<10	71	0.055	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

638080

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05770	20/10/88	900905 MRD	2 OF 5

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70726	80	15	95	14.00	570	<10	13	<0.008	
2	70727	90	10	60	11.50	210	<10	12	<0.008	
3	70728	140	<5	75	11.50	245	<10	10	<0.008	
4	70729	325	5	100	14.50	385	<10	9	<0.008	
5	70734	110	<5	120	9.65	190	<10	9	<0.008	
6	70735	95	15	95	10.20	1100	<10	14	<0.008	
7	70737	60	10	60	8.55	155	<10	11	<0.008	
8	70738	135	10	90	7.45	610	<10	10	<0.008	
9	70739	35	<5	45	1.80	140	<10	4	<0.008	
10	70740	25	55	35	3.00	70	<10	16	<0.008	
11	70741	15	45	35	2.90	35	<10	12	<0.008	
12	70742	10	45	35	2.20	30	<10	16	<0.008	
13	70743	10	5	40	7.15	35	<10	11	<0.008	
14	70744	15	10	30	4.70	70	<10	14	<0.008	
15	70745	85	15	50	9.90	105	<10	IS	IS	
16	70746	55	<5	155	9.80	470	<10	8	<0.008	
17	70747	60	<5	140	8.65	490	<10	22	<0.008	
18	70750	35	<5	85	7.75	220	<10	6	<0.008	
19	70751	70	<5	60	8.60	90	<10	4	<0.008	
20	70752	340	10	165	12.50	1300	<10	4	<0.008	
21	70754	160	<5	100	8.90	1250	<10	10	<0.008	
22	70755	140	<5	145	9.30	2400	<10	9	<0.008	
23	70757	80	20	80	6.55	375	<10	7	<0.008	
24	70758	50	80	95	7.85	390	<10	21	<0.008	
25	70759	25	25	65	5.35	135	<10	2	<0.008	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

80

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

638081

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05770	20/10/88	900905 MRD	3 OF 5

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70760	25	40	50	4.05	60	<10	4	<0.008	
2	70761	20	110	50	3.35	40	<10	3	<0.008	
3	70762	15	220	65	8650.0	20	<10	2	0.012	
4	70763	100	110	85	9350.0	25	<10	2	<0.008	
5	70764	20	50	95	5.05	<5	<10	3	<0.008	
6	70765	30	25	140	9.00	485	<10	2	<0.008	
7	70766	115	20	130	10.35	3150	<10	3	<0.008	
8	70768	20	60	70	7.65	235	<10	10	<0.008	
9	70769	20	25	50	3.90	195	<10	9	0.010	
10	70770	90	25	60	12.50	30	<10	75	<0.008	
11	70771	<5	10	30	1.95	25	<10	2	<0.008	
12	70772	35	30	120	9.10	245	<10	6	<0.008	
13	70773	45	20	155	9.80	465	<10	2	<0.008	
14	70774	25	20	135	6.60	415	<10	1	<0.008	
15	70775	110	20	190	13.50	520	<10	2	<0.008	
16	70776	30	20	170	9.40	585	<10	3	<0.008	
17	70777	20	20	180	8.10	700	<10	2	<0.008	
18	70778	25	25	95	8.10	120	<10	4	<0.008	
19	70779	130	20	140	11.50	225	<10	5	<0.008	
20	70780	210	20	180	9.65	390	<10	8	<0.008	
21	70785	550	100	670	17.00	30500	<10	80	<0.008	
22	70786	25	60	115	7.40	260	<10	13	<0.008	
23	70787	20	220	65	4.25	170	<10	5	0.009	
24	70788	165	15	100	11.50	575	<10	22	<0.008	
25	70790	40	20	45	4.75	165	<10	11	<0.008	

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

81

638082

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05770	20/10/88	900905 MRD	4 OF 5

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70791	10	5	15	0.35	20	<10	<1	<0.008	
2	70792	10	<5	20	0.26	15	10	<1	<0.008	
3	70794	275	<5	130	11.50	1600	<10	5	<0.008	
4	70795	110	15	70	8.95	135	<10	12	<0.008	
5	70796	285	10	70	16.50	245	<10	15	0.008	
6	70798	130	<5	60	12.50	135	<10	7	<0.008	
7	70799	45	<5	125	6.85	390	<10	5	<0.008	
8	70800	95	10	115	10.20	220	<10	18	<0.008	
9	77801	145	40	155	14.00	2650	<10	17	0.009	
10	77802	15	30	100	1.00	745	<10	5	0.012	
11	77803	20	30	115	1.75	130	<10	4	<0.008	
12	77804	20	25	50	2.40	120	<10	2	<0.008	
13	77805	15	10	35	1.40	45	<10	3	<0.008	
14	77806	80	30	65	7.55	470	<10	20	<0.008	
15	77807	30	45	60	3.85	195	<10	7	<0.008	
16	77808	190	150	115	1.25	25	<10	8	0.013	
17	77809	25	20	40	1.20	15	<10	9	<0.008	
18	77810	25	40	50	4.05	65	<10	7	<0.008	
19	77811	50	55	90	4.55	145	<10	5	<0.008	
20	77813	160	55	260	6.10	3200	<10	11	<0.008	
21	77814	160	35	195	12.00	110	<10	22	<0.008	
22	77815	105	10	320	16.00	255	<10	30	<0.008	
23	77817	140	5	380	13.00	265	<10	4	<0.008	
24	77818	120	15	190	28.50	2300	<10	<1	<0.008	
25	77820	20	<5	60	3.00	40	<10	<1	<0.008	

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

82

638083

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05770	20/10/88	900905 MRD	5 OF 5

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	77821	15	45	35	1.55	115	<10	<1	0.015	
2	77822	85	25	75	11.00	140	<10	4	<0.008	
3	77825	265	<5	85	11.50	660	<10	4	<0.008	
4	77826	200	<5	140	12.00	8600	<10	1	<0.008	
5	77827	110	<5	75	11.50	1100	<10	4	<0.008	
6	77828	230	15	70	20.00	180	<10	65	<0.008	
7	77829	30	15	70	8.35	75	<10	5	<0.008	
8	77830	50	<5	45	11.50	70	<10	<1	<0.008	
9	77831	15	20	20	3.55	20	<10	<1	<0.008	
10	77832	15	<5	120	7.70	510	<10	<1	<0.008	
11	77833	120	30	225	7.80	235	<10	7	<0.008	
12	77834	40	20	55	6.50	165	<10	4	<0.008	
13	77835	80	35	50	6.85	40	<10	10	<0.008	
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.05	5	10	1	0.008	
24	UNITS	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	
25	METHOD	103	103	103	103	103	103	114	309	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

638084

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 52 Murray Road, Welshpool, W.A. 6106 Telex AA92560
FAX: 004 31 8890

ANALYTICAL REPORT No. 27.1.08.05765

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

ORDER No.	PROJECT
900906	Longback

DATE RECEIVED	RESULTS REQUIRED
10/10/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	24/10/88	1	80

REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RO	Prep: 006,010,011,012,013,016						Cu,Pb,Zn,Fe,Mn,Bi/103		
	Various	RO							As/114		
	Various	RO							Au,AuChk/309		

RESULTS TO

Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
Whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
Rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
Soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
Pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
Stream sediment	SS					fluorescence	FLUOR
Heavy mineral	HM					Inductively coupled plasma	ICP

AUTHORISED OFFICER

84

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

638085

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05765	24/10/88	900906	1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70730	195	35	235	11.50	1950	<10	2	<0.008	
2	70731	95	25	180	10.20	1000	<10	2	<0.008	
3	70732	90	40	165	9.60	1200	<10	19	<0.008	
4	70733	145	15	150	11.00	2450	<10	4	<0.008	
5	70736	65	15	125	11.00	485	<10	11	<0.008	
6	70748	50	20	165	10.50	540	<10	3	<0.008	
7	70749	40	20	140	7.65	450	<10	<1	<0.008	
8	70753	115	45	225	10.50	1000	<10	20	<0.008	
9	70756	130	20	95	7.15	1000	<10	4	<0.008	
10	70767	145	25	120	9.15	1900	<10	<1	<0.008	
11	70781	10	30	35	0.30	250	<10	<1	<0.008	
12	70782	<5	20	30	0.15	100	<10	1	<0.008	
13	70783	10	25	45	0.23	170	10	<1	<0.008	
14	70784	35	20	125	7.35	425	<10	1	<0.008	
15	70789	220	25	90	10.00	645	<10	10	<0.008	
16	70793	10	20	40	0.28	170	<10	1	<0.008	
17	70797	110	30	115	9.10	440	<10	8	<0.008	
18	70801	5	45	60	0.23	175	<10	2	<0.008	
19	70802	5	40	70	0.23	155	<10	<1	<0.008	
20	70803	10	20	40	0.23	70	<10	1	<0.008	
21	70804	720	30	180	12.00	1200	<10	3	<0.008	
22	70805	595	15	195	12.50	160	<10	1	<0.008	
23	70806	5	30	30	0.16	100	<10	<1	<0.008	
24	70807	10	40	45	0.17	175	<10	<1	<0.008	
25	70808	40	120	1300	11.00	23500	<10	12	<0.008	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

85

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

638086

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05765	24/10/88	900906	2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70809	5	35	35	0.15	210	<10	<1	<0.008	
2	70810	<5	40	40	0.09	110	<10	<1	<0.008	
3	70811	<5	45	50	0.16	155	<10	<1	<0.008	
4	70812	5	45	65	0.36	640	<10	1	<0.008	
5	70813	125	40	810	23.50	13500	<10	90	<0.008	
6	70814	60	20	35	3.15	65	<10	12	<0.008	
7	70815	5	25	50	0.34	210	<10	1	<0.008	
8	70816	75	20	165	8.15	1550	<10	3	<0.008	
9	70817	190	25	330	9.14	585	<10	4	<0.008	
10	70820	<5	30	45	0.16	85	<10	<1	<0.008	
11	70823	10	5	25	0.63	95	10	<1	<0.008	
12	70824	80	20	155	6.15	750	<10	2	<0.008	
13	70825	1650	30	155	11.50	4600	<10	1	<0.008	
14	70826	105	35	120	9.25	1650	<10	2	<0.008	
15	70827	150	30	115	13.00	2600	<10	11	<0.008	
16	70828	5	35	40	0.24	165	<10	1	<0.008	
17	70829	5	50	95	0.39	470	<10	<1	<0.008	
18	70830	15	30	45	14.50	2300	<10	12	<0.008	
19	70831	<5	30	35	0.17	55	<10	<1	<0.008	
20	70832	55	25	165	8.75	765	<10	2	<0.008	
21	70833	35	20	175	8.40	665	<10	2	<0.008	
22	70834	135	30	130	10.00	1400	<10	<1	<0.008	
23	70835	35	20	80	6.25	495	<10	<1	<0.008	
24	70836	15	20	65	4.95	385	<10	<1	<0.008	
25	70837	45	20	70	7.30	530	<10	<1	<0.008	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

86

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

638087

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05765	24/10/88	900906	3 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70838	90	25	70	8.10	330	<10	2	<0.008	
2	70839	105	33	160	6.60	1000	<10	3	<0.008	
3	70840	35	20	125	7.55	30	<10	12	<0.008	
4	70841	70	35	155	8.45	570	<10	3	<0.008	
5	70842	35	30	160	9.05	1300	<10	2	<0.008	
6	70843	50	25	220	10.50	755	<10	37	<0.008	
7	70844	40	20	130	9.00	880	<10	26	<0.008	
8	70845	80	35	105	6.95	325	<10	24	0.008	
9	70846	105	30	130	9.00	780	<10	13	<0.008	
10	70847	<5	15	25	0.74	50	<10	5	<0.008	
11	70848	<5	90	25	0.31	30	<10	3	<0.008	
12	70849	15	50	120	7.75	315	<10	4	<0.008	
13	70850	70	30	95	4.15	370	<10	4	<0.008	
14	70851	<5	10	25	0.30	30	<10	<1	<0.008	
15	70852	15	95	90	1.30	130	<10	1	<0.008	
16	70853	40	35	200	10.50	250	<10	3	<0.008	
17	70854	75	25	170	8.35	425	<10	3	<0.008	
18	70855	55	30	160	7.00	580	<10	2	<0.008	
19	70856	135	35	130	9.55	725	<10	10	<0.008	
20	70857	75	20	170	10.30	550	<10	8	<0.008	
21	70858	35	35	95	26.50	3000	<10	16	<0.008	
22	70859	60	30	180	13.00	260	<10	4	<0.008	
23	70860	95	30	65	14.00	355	<10	2	<0.008	
24	77812	175	100	140	10.00	1250	<10	12	<0.008	
25	77816	570	25	95	10.50	2050	<10	<1	<0.008	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

87

638088

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05765	24/10/88	900906	4 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	77819	35	30	50	10.40	880	<10	3	<0.008	
2	77823	20	40	65	6.55	250	<10	5	<0.008	
3	77824	115	70	170	36.00	1850	<10	8	<0.008	
4	77836	10	40	30	1.65	135	<10	2	<0.008	
5	77837	50	245	135	2.05	70	<10	3	<0.008	
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.05	5	10	1	0.008	
24	UNITS	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	
25	METHOD	103	103	103	103	103	103	114	309	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

638089

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92560
FAX: 004 31 8890

ANALYTICAL REPORT No. 27.1.06.05813

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Mineral Resources Division
Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

ORDER No.	PROJECT
900909	LONGBACK

DATE RECEIVED	RESULTS REQUIRED
01/11/88	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	10/11/88	1	9

STATE OF SAMPLES REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	70864/72	RC	Prep: 006,010,011,012,013,016						Cu,Pb,Zn,Fe,Mn,Bi/103		
	70864/72	RC							As/114,Au/309		

RESULTS TO

Mineral Resources Division
Electrolytic Zinc Co. of Aust.
P.O. Box 21
Rosebery
Tasmania 7470

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
ole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
t core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
p	PU	HF mixture	A6	ignition	IG	titration	TTN
ter	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
vy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

638090

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

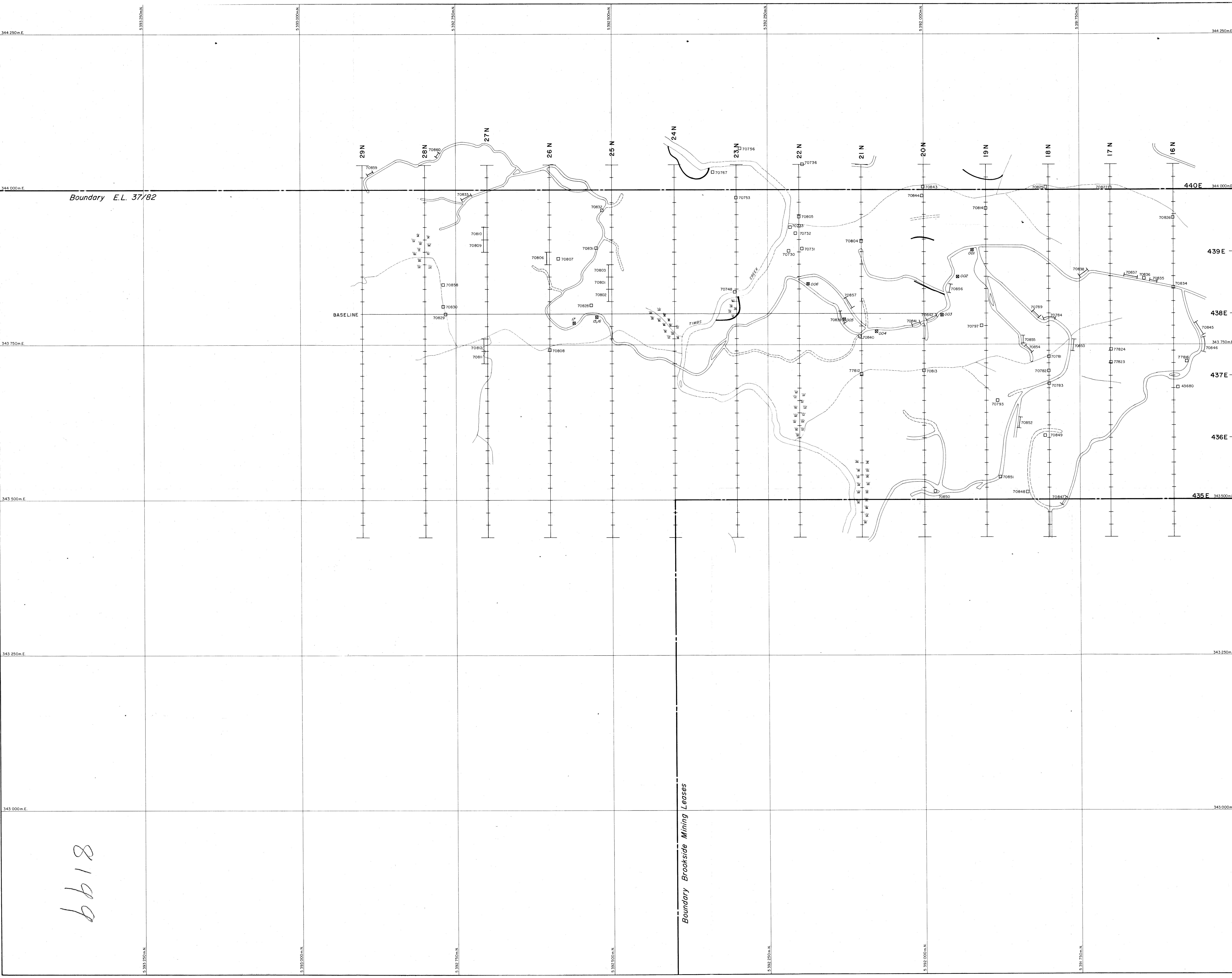
SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	27.1.08.05813	10/11/88	900909	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Fe	Mn	Bi	As	Au	
1	70864	<5	55	95	6700	80	<10	<1	<0.008	
2	70865	<5	50	75	12100	50	<10	<1	<0.008	
3	70866	<5	40	55	6750	30	<10	<1	<0.008	
4	70867	<5	30	35	4000	40	<10	<1	<0.008	
5	70868	<5	55	55	4000	60	<10	<1	<0.008	
6	70869	15	225	100	4750	85	<10	<1	0.010	
7	70870	25	30	45	4300	65	<10	1	<0.008	
8	70871	<5	70	35	1550	80	<10	<1	<0.008	
9	70872	40	25	170	87000	50	<10	21	<0.008	
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	50	5	10	1	0.008	
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
25	METHOD	103	103	103	103	103	103	114	309	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

APPENDIX B



LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.
- ☐ 70732 Spot Rock Chip Sample.
- ⊠ *003*
- ├─┤ 70857 Interval Rock Chip Sample.

89-2959

SCALE

0 20 40 60 80 100 120 140 160 180 200

metres

638092

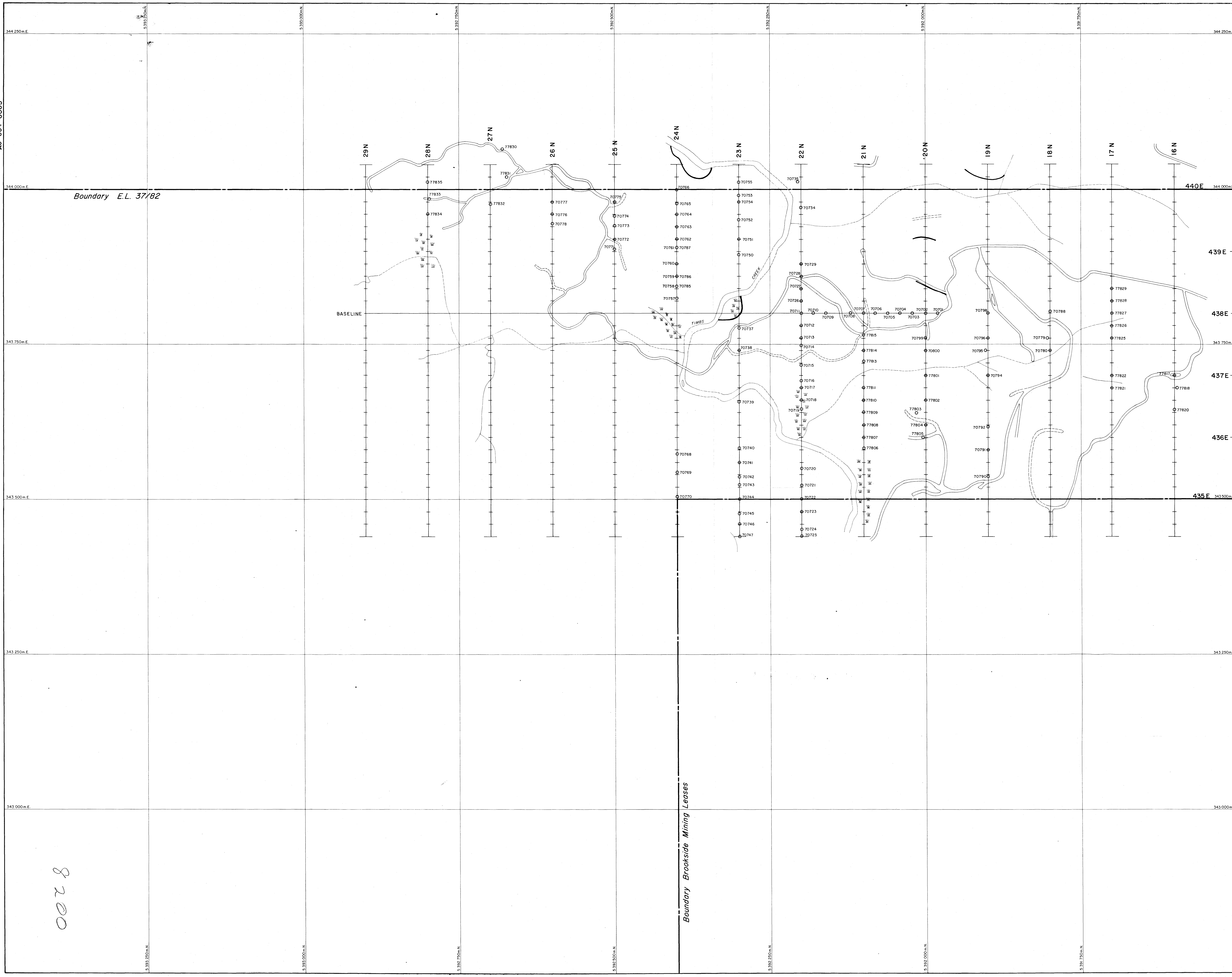
ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: **LONGBACK** E.L. 37/82

SAMPLE LOCATIONS AND NUMBERS ROCK CHIP SAMPLES

Compiled: I.MAT./K.V.	Date: 22-10-'88	Scale: 1:2000
AMG:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No: 8199	PLAN NO: A0-534-0002

8199



LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.
- O 70704 Soil Sample.

89-2959

5 cm

SCALE

0 20 40 60 80 100 120 140 160 180 200 metres

638093

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: LONGBACK E.L. 37/82

SAMPLE LOCATIONS AND NUMBERS SOIL SAMPLES

Compiled: I.MAT./K.V.	Date: 23-10-'88	Scale: 1:2000
AMG:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No: 8200	PLAN NO: A0-534-0003

8200

AO-534-0004

5393 250m.N. 5391 000m.N. 5392 750m.N. 5392 500m.N. 5392 250m.N. 5392 000m.N. 5391 750m.N.

344 250m.E. 344 000m.E. 343 750m.E. 343 500m.E. 343 250m.E. 343 000m.E.

29N 28N 27N 26N 25N 24N 23N 22N 21N 20N 19N 18N 17N 16N

440E 439E 438E 437E 436E 435E

Boundary E.L. 37/82

BASELINE

CREEK

TIMBS

Boundary Brookside Mining Leases

LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.

- Rock Chip Sample and assay.
- Soil Sample and assay.
- X = Below level of detection.

89-2959

5 cm

N

1:250000 SHEET

SCALE

0 20 40 60 80 100 120 140 160 180 200 metres

EZ

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: LONGBACK E.L. 37/82

GEOCHEMISTRY

638094 Cu

Compiled: I.MAT./K.V.	Date: 29-10-88	Scale: 1:2000
A.M.G.:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No:	PLAN NO:

8201 AO-534-0004

1028

AO-534-0005

5,393,250m.N. 5,393,000m.N. 5,392,750m.N. 5,392,500m.N. 5,392,250m.N. 5,392,000m.N. 5,391,750m.N.

344 250m.E.

344 000m.E.

343 750m.E.

343 500m.E.

343 250m.E.

343 000m.E.

Boundary E.L. 37/82

29 N 28 N 27 N 26 N 25 N 24 N 23 N 22 N 21 N 20 N 19 N 18 N 17 N 16 N

440E 439E 438E 437E 436E 435E

BASELINE

CREEK

TIMBS

Boundary Brookside Mining Leases

LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.

- □ Rock Chip Sample and assay.
- ○ Soil Sample and assay.
- X = Below level of detection.

89-2959

5 cm

N

1:250000 SHEET

SCALE

0 20 40 60 80 100 120 140 160 180 200 metres

EZ

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: LONGBACK E.L. 37/82

GEOCHEMISTRY

638095 As

Compiled: I.MAT/K.V.	Date: 29-10-'88	Scale: 1:2000
A.M.G.:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No:	PLAN NO: AO-534-0005

8202

8202

A0-534-0006

5,393,250mN. 5,393,000mN. 5,392,750mN. 5,392,500mN. 5,392,250mN. 5,392,000mN. 5,391,750mN.

344,250m.E.

344,000m.E.

343,750m.E.

343,500m.E.

343,250m.E.

343,000m.E.

Boundary E.L. 37/82

29 N 28 N 27 N 26 N 25 N 24 N 23 N 22 N 21 N 20 N 19 N 18 N 17 N 16 N

440E 439E 438E 437E 436E 435E

BASELINE

CREEK

TIMBS

0·012 0·009 0·010 0·055 0·008 0·009 0·012 0·013 0·008 0·015

I.S.

Boundary Brookside Mining Leases

LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.
- □ Rock Chip Sample and assay.
- ○ Soil Sample and assay.
- X+ Below level of detection.
- I.S.+ Insufficient sample.

89-2959

5 cm

N

1:250000 SHEET

SCALE

0 20 40 60 80 100 120 140 160 180 200 metres

EZ

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: LONGBACK E.L. 37/82		
GEOCHEMISTRY 628096 Au		
Compiled: I.MAT/K.V.	Date: 29-10-88	Scale: 1:2000
A.M.G.:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No:	PLAN NO: A0-534-0006

8203

8203

Boundary E.L. 37/82

Boundary Brookside Mining Leases

BASELINE

CONTACT

CREEK

TIMBS

29 N 28 N 27 N 26 N 25 N 24N 23 N 22 N 21 N 20N 19 N 18 N 17 N 16 N

344 250m E — 344 000m E — 343 750m E — 343 500m E — 343 250m E — 343 000m E

5 393 250m N — 5 393 000m N — 5 392 750m N — 5 392 500m N — 5 392 250m N — 5 392 000m N — 5 391 750m N

440E — 439 E — 438E — 437E — 436E — 435 E

LEGEND

TOPOGRAPHY

- Water race.
- Track.
- Old track.
- Creek.
- Extrapolated creek position.
- Small creek.
- Extrapolated small creek position.
- Swampy areas.

GEOLOGY

COLOURS

ple	pale
dk	dark
pk	pink
ol	olive
gn	green
bl	blue
bk	black
wh	white

MINERALOGY

qt	quartz
cb	carbonate
c'd	chloritised
s'd	sericitised
Fe	iron oxide
Mn	manganese
si	siliceous
Aspy	arsenopyrite
py	pyrite
cp	chalcopyrite

LITHOLOGY

d	dolomite
p	phyllite
p-slate	phyllite-slate
Fe stain	iron stone
Sar	arenite

STRUCTURAL and TEXTURAL SYMBOLS

lam	laminated
vn	vein
jtd	jointed
bx	brecciated
stn	stain
deco	decomposed
froc	fractured
recry	recrystallised
mic	micaceous
banded	banded
cloyey	clayey
silty	silty
floury	floury
fg	fine grained

STRUCTURAL SYMBOLS

- outcrop limit
- subcrop
- bedding
- cleavage
- lithological contact
- lithological contact, approx.

89-2959

5 cm

N

1:250000 SHEET

SCALE

0 20 40 60 80 100 120 140 160 180 200 metres

638097

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: LONGBACK E.L. 37/82

GEOLOGY

Compiled: K.J.V.	Date: 18-3-'89	Scale: 1:2000
AMG:	Latitude:	Longitude:
Drawn: N.W.D.S.	File No:	PLAN NO:

8204 A0-534-0007

8204