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96-3877

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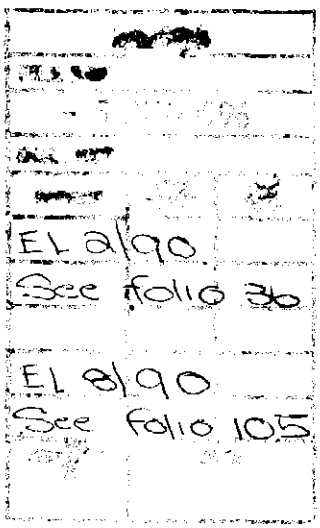
ANNUAL REPORT 1996 EL 2/90 BOCO
& 8/90 NORTH PINNACLES - PASMINCO
DIBBEN S M

PASMINCO EXPLORATION

COMBINED
BOCO EL 2/90 & NORTH PINNACLES EL 8/90

ANNUAL REPORT FOR THE PERIOD
ENDING APRIL 1996



AUTHOR: SM Dibben

DATE: May 1996

REPORT No.: TA-22

SUBMITTED TO: Regional Exploration Manager - Tasmania

DISTRIBUTION: Mineral Resources Tasmania - [redacted]

Pasminco Exploration - Burnie
- Melbourne
- Rosebery

SUBMITTED BY:

ACCEPTED BY:

BURNIE
May
1996

CONTENTS

LIST OF FIGURES

SUMMARY

Exploration Licences 2/90 and 8/90, located 17km north of Rosebery, cover a total area of 26km^2 which has been actively explored for polymetallic base metal sulphide mineralisation by Pasminco Exploration.

Expenditure on EL 2/90 and 8/90 during the twelve months to 31st March 1996 was $23 844, bringing the total expenditure on the licence pair since inception to $796 130. The annual expenditure has facilitated the following exploration activities:

- 1600m of ground magnetics and 1600m of ground IP in the southeast of EL 2/90
- geological mapping of the grid lines cut for the ground magnetic/IP survey
- geological mapping of the southern part of the Emu Bay Railway cutting within EL 2/90
- a geological interpretation of the regional aeromagnetic and gravity data

Results of exploration activities over the reporting year failed to upgrade the prospectivity of both EL 2/90 and 8/90.

1 INTRODUCTION

This report documents work undertaken on Exploration Licences 2/90 Boco and 8/90 North Pinnacles in Western Tasmania, covering the period 1st May 1995 to 30th April 1996.

The two licences reported here are held under the same terms and conditions by Pasminco Exploration, a division of Pasminco Australia Limited. The licences form one geographically and geologically coherent block, and as such an amalgamated report is the most effective method of data presentation and technical discussion. The licence renewal dates have been synchronized (8 June 1993), however budgets and expenditure on the licences remains separate, in accord with an agreement approved by the Department of Mines on 11 May 1992.

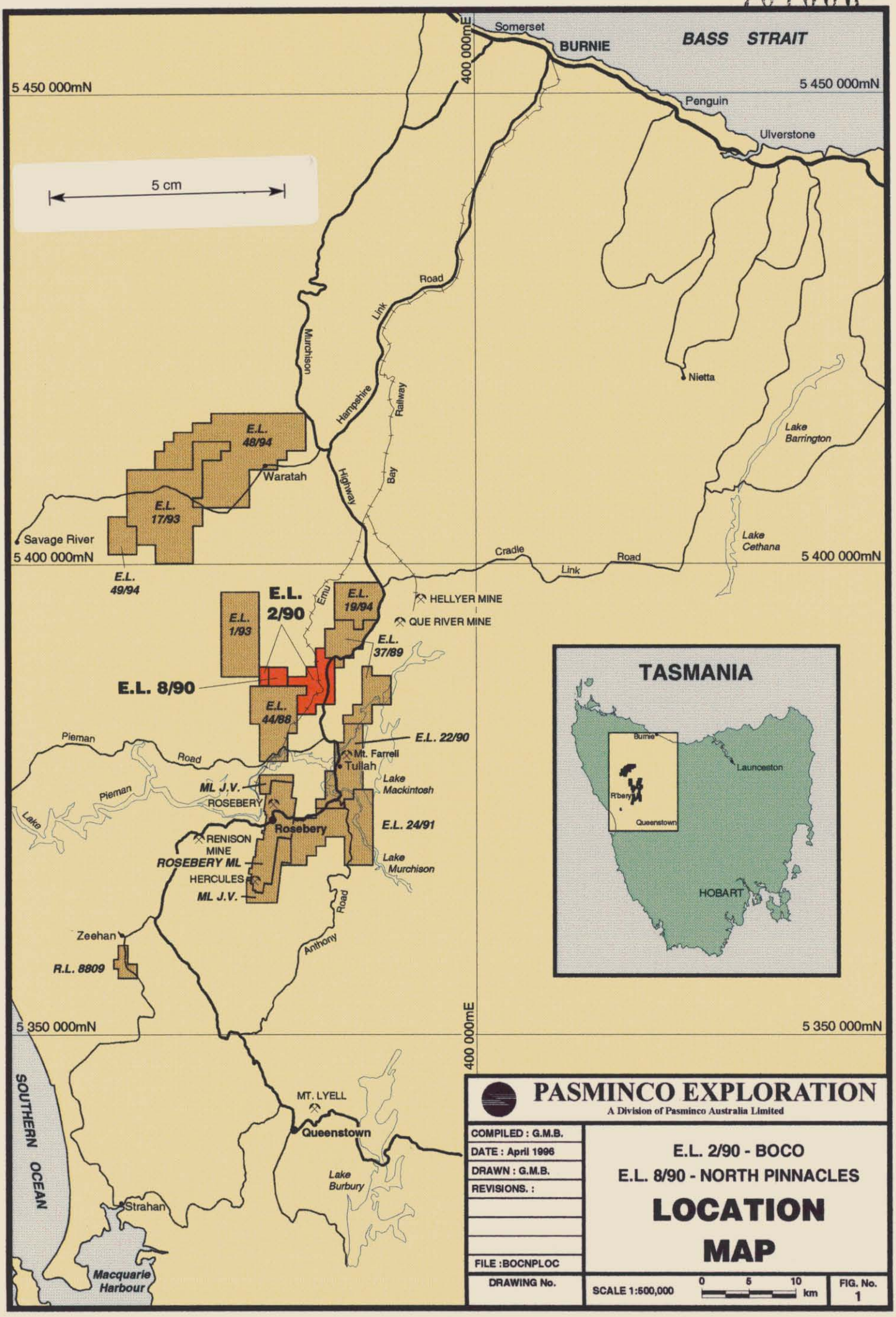
EL 2/90 (22km^2) and EL 8/90 (4km^2) jointly cover 26km^2 of the Cambrian Mt Read Volcanics and are centred 17km NNE of Rosebery and 16km SW of the Hellyer Mine on Tasmania's West Coast (Figure 1). The principal target of exploration on the licences is a volcanic hosted auriferous base metal massive sulphide body, similar to those at Rosebery and Hercules.

The EL's include old workings at Boco Creek (Samuel Smith's Lode), with the Silver Falls Pb workings occurring immediately outside the licences' western boundary. Advanced exploration throughout the past 20 years, principally over the North Pinnacles, Silver Falls and Boco Siding Prospects, (Figure 2) has left a legacy of good access tracks and grid lines on the southern half of the licences, with access in the east and northeast along the Murchison Highway and Emu Bay Railway.

This report documents exploration conducted on the Boco and North Pinnacles tenements from May 1,1995 to April 30, 1996. During this period exploration activities have included:

- 1600m of ground magnetics and 1600m of ground IP in the southeast of EL 2/90
- geological mapping of the grid lines cut for the Ground magnetic/IP survey
- geological mapping of the southern part of the Emu Bay Railway cutting within EL 2/90
- a geological interpretation of the regional aeromagnetic and gravity data

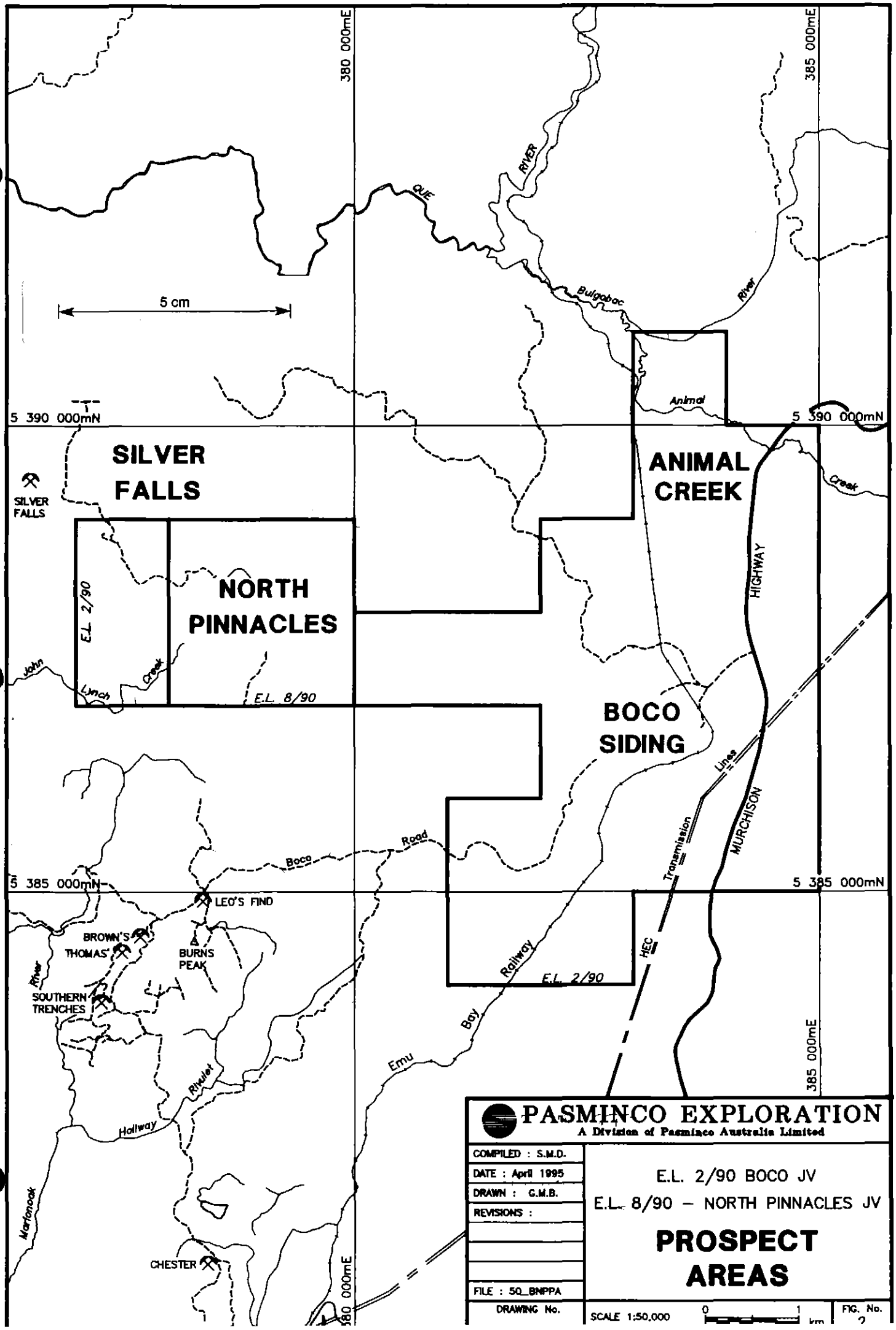
701006



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : G.M.B.	E.L. 2/90 - BOCO E.L. 8/90 - NORTH PINNACLES **LOCATION MAP**
DATE : April 1996	
DRAWN : G.M.B.	
REVISIONS. :	
FILE : BOCNPLOC	
DRAWING No.	SCALE 1:500,000 (0 5 10 km)
	FIG. No. 1

701007



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : S.M.D.	E.L. 2/90 BOCO JV
DATE : April 1995	E.L. 8/90 – NORTH PINNACLES JV
DRAWN : G.M.B.	**PROSPECT AREAS**
REVISIONS :	
FILE : 50_BNPPA	
DRAWING No.	SCALE 1:50,000 0 1 km
	FIG. No. 2

2 TENURE

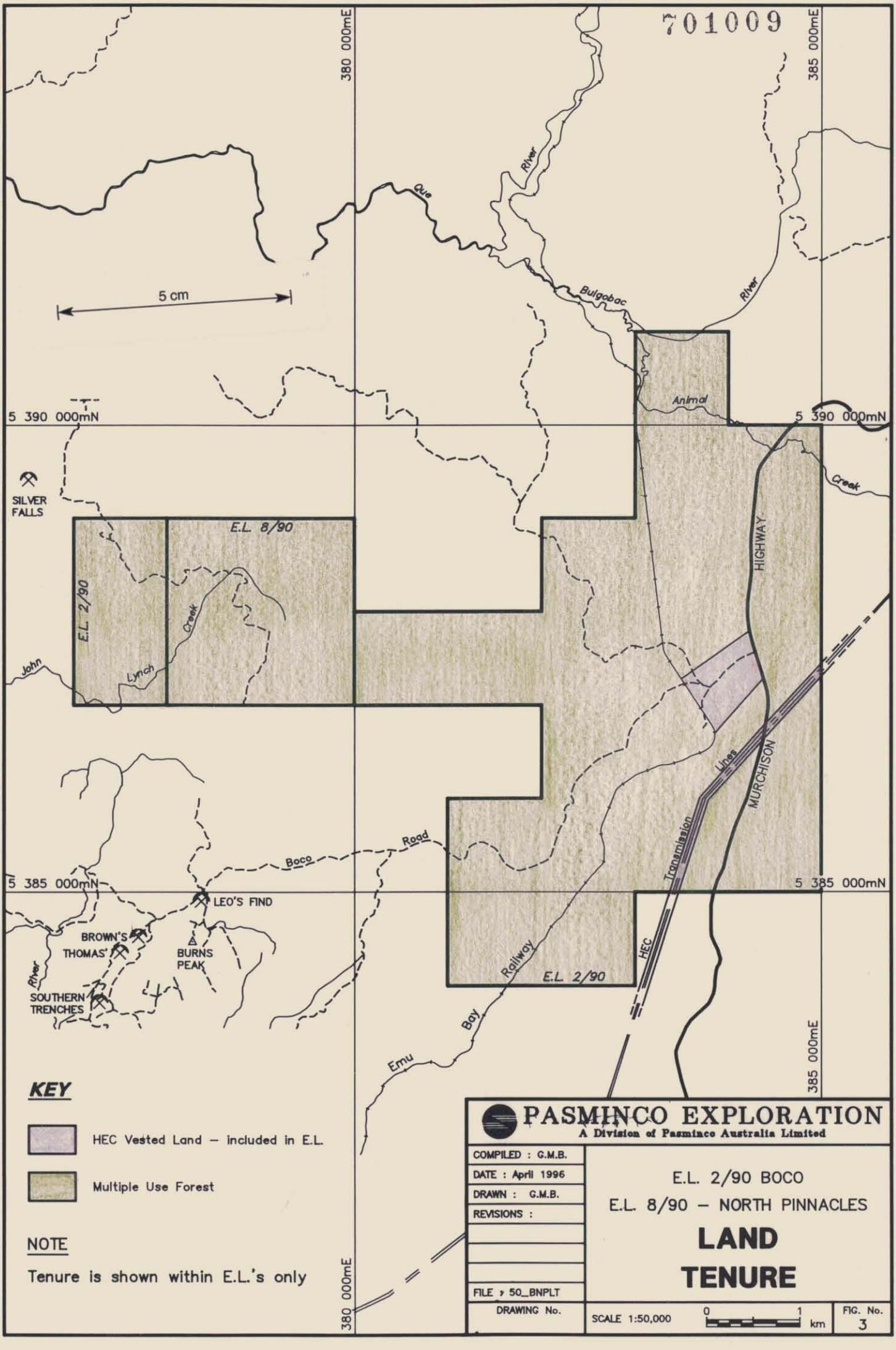
Exploration Licence 2/90 (Boco) of 55km^2 was granted to The Shell Company of Australia Limited on 20 April 1990 for a period of 10 years, renewable every 12 months. This followed Shell's successful tender through the Tasmanian Department of Mines tender system.

Billiton Australia (Billiton), the metals division of The Shell Company of Australia, were sole managers and operators of EL 2/90 from the date of inception until 12 October 1990 when a heads of agreement to form a joint venture between The Shell Company of Australia Limited and Pasminco Australia Limited (Pasminco) was signed. This Joint Venture applied to both EL 2/90 and EL 8/90 (North Pinnacles). The JV agreement allowed Pasminco to earn a 60% interest in the two licences by spending a combined total of $500,000 over 4 years from the date of inception of the Joint Venture.

The Joint Venture agreement between Pasminco and the Shell Company of Australia Limited was terminated during the 1994/95 working year. Since then EL 2/90 and EL 8/90 have been fully owned and managed by Pasminco.

Under current Department of Mines regulations, EL 2/90 was subject to a compulsory 50% reduction in April 1995. The tenement area was reduced from 55km^2 to 22km^2. Tenement EL 8/90, although due for compulsory reduction at this same time, was exempt as any reduction in the 4km^2 size would result in an unworkable exploration area (Saxon, 1995a). Both EL 2/90 and EL 8/90 are now at the end of the sixth year of tenure.

Land covered by tenements EL 2/90 and EL 8/90 are unallocated Crown Land designated as Multiple Use Forest Land (Figure 3).


701009
380 000mE
385 000mE
5 390 000mN
5 385 000mN
5 cm
Que River
Bulgabac River
Animal Creek
SILVER FALLS
E.L. 8/90
E.L. 2/90
John Lynch Creek
HIGHWAY
MURCHISON
Transmission Lines
HEC
Railway
Boco Road
LEO'S FIND
BROWN'S
THOMAS'
BURNS PEAK
SOUTHERN TRENCHES
River
Emu Bay
KEY
HEC Vested Land – included in E.L.
Multiple Use Forest
NOTE
Tenure is shown within E.L.'s only
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : April 1996
DRAWN : G.M.B.
REVISIONS :
FILE : 50_BNPLT
DRAWING No.
E.L. 2/90 BOCO
E.L. 8/90 – NORTH PINNACLES
LAND TENURE
SCALE 1:50,000
0 1 km
FIG. No. 3

3 REGIONAL GEOLOGY

The following summary is extracted from Saxon (1995b).
ELs 2/90 and 8/90 are located within the Dundas Trough of western Tasmania. The target sequence is the Middle Cambrian Mt Read Volcanics.

Basement in western Tasmania is Precambrian age, comprising predominantly greenschist facies meta-sediments with minor basalts and dolerites. Higher grade amphibolite and eclogite facies are also present within the Precambrian. This Precambrian basement is exposed to the west of the two exploration licences (Figure 4).

Cambrian volcanism and sedimentation developed on this continental crust, and is subdivided into the Eo-Cambrian tholeiitic Crimson Creek Formation (CCF) and the mid to late Cambrian Dundas Group and predominantly calc-alkaline Mt Read Volcanics (MRV).

The CCF was deposited in shallow but rapidly subsiding basins (Brown, 1986 and Haines, 1991). The CCF consists of basaltic lavas and volcaniclastics, turbidites, carbonates, chert and minor evaporites. The formation is exposed west of the licences.

Ultramafic cumulates and volcanic equivalents were thrust onto the CCF in the mid Cambrian (Crawford and Berry 1991). These rocks generate strong magnetic anomalies and outcrop within the Huskisson Syncline, to the west of the licences (Figure 4). The ultramafics are interpreted at depth between North Pinnacles and Silver Falls by Leaman (1992).

The MRV form a 200km long by 20km wide north-south trending belt along the eastern side of the Dundas Trough, adjacent to and in some areas on lapping and intruding the Precambrian basement. The volcanics include intermediate to felsic lavas, subvolcanic porphyries and granites, volcaniclastics and basement-derived sedimentary rocks. The MRV host five economically significant volcanic hosted massive sulphide deposits.

In the two exploration licences, equivalents of the MRV underlie the entire licence, and vary from massive felsic lavas, volcaniclastics and subvolcanic intrusives in the southeast, to mixed provenance fine to coarse grained sediments in the north and northwest.

A package of sediments which possibly postdates the MRV occurs in the western sector of the licence footwall to the Rosebery Fault. These carbonate siltstones, wackes and polymict conglomerates have been recently temporally correlated via fossil evidence with the Owen Conglomerate. Gradationally overlying this sequence are quartz muscovite sandstone and conglomerate largely derived from Precambrian metasediments, but with some material from felsic volcanics and ultramafics.

Regional structures associated with the MRV are the Rosebery Fault, splays of which extend into the Silver Falls area, and the Henty Fault which is located 5km east of the licence.

Cambrian volcanism and sedimentation was followed by predominantly basement derived late Cambrian to Devonian age sedimentation, which includes siliclastic conglomerate, sandstone and limestone. None of these sequences occur within the licence.

At least two phases of regional compression were associated with the mid Devonian Tabberabberan Orogeny (Keele, 1991). The development of folding, cleavage and regional thrusts in lower Paleozoic rocks were associated with this event. Fold trends in the licences are N to NE.

Deformation was followed by the extensive intrusion of Devonian to Carboniferous granitoids. The Meredith Granite and it's associated metamorphic aureole outcrop west of the B-NP licences (Brown 1986). The Meredith Granite dominates the regional gravity in the licence area. The Devonian granites are associated with carbonate replacement Sn mineralisation at Renison Bell and Mount Bischoff, and the Pb Zn Ag

vein deposits of Zeehan and possibly the Tullah Fields.

After substantial erosion of this terrane extensive Tertiary flood basalts and sub-volcanic sediments were deposited. Remnants of the basalt flows are preserved to the north of the licences.

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PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED : P.G.R.	E.L. 2/90 - BOCO
DATE : April 1996	E.L. 8/90 - NORTH PINNACLES
DRAWN :	**REGIONAL GEOLOGY**
REVISIONS	FROM MAP 6 OF THE
	MT. READ VOLCANICS PROJECT
FILE :	
DRAWING No.	SCALE 0 2 4 km
	FIG. No. 4

5 cm

ACKNOWLEDGMENT

Mt. Read Volcanics Project adopted from Map 6 - Geological Compilation Map of the Mt. Read Volcanics & Associated Rocks, from Hellyer to South Darwin Peak.

K.D. Corbett B Sc (HON) PhD and A.W. McNeill B Sc (HON) 1988.

E.L. 8/90

E.L. 2/90

MT. READ VOLCANICS

NORTH AND WEST OF HENTY FAULT

DUNDAS GROUP AND CORRELATES

- Quartz-feldspar porphyry, mostly intrusive
- Mostly sedimentary rocks – greywacke, siltstone, conglomerate
- Interbedded tuffs and sedimentary rocks
- Quartzwacke-slate-siltstone units, e.g. Stitt Quartzite
- Mostly felsic volcanics – mainly tuffs
- Mixed felsic and mafic volcanics and epiclastic breccias, Que-Hellyer area
- Basaltic to andesitic volcanics

CENTRAL VOLCANIC COMPLEX

- Mainly feldspar-phyric volcanics — dacite, rhyolite, minor andesite (Ccv)
- Felsic porphyry, mainly intrusive
- Mainly pyroclastic rocks
- Sedimentary rocks, mainly shale and sandstone
- Andesitic volcanics

CAMBRIAN INTRUSIVE ROCKS

- Granite
- Felsic porphyry
- Gabbro
- Ultramafic rocks & serpentinite

SOUTH AND EAST OF HENTY FAULT

TYNDALL GROUP AND CORRELATES

- Mainly sed. rocks, incl Farrell Slates
- Mainly quartz-feldspar-phyric volcanic and volcaniclastic rocks (Ct)
- Mainly volcaniclastic congl. and sandstone
- Sticht Range Beds – sandstone, siltstone, siliciclastic conglomerate

PRECAMBRIAN

- Quartzite-slate sequences — correlates of Oonah Formation
- Metamorphosed sequences of Tyennan Region. Major lithological boundary trends shown

QUATERNARY	Q	Glacial deposits, alluvium, etc.
TERTIARY	Tb	Basalt
	Ts	Sediments – gravel, sand, clays
JURASSIC	Jd	Dolerite
PERMIAN – CARBONIFEROUS	P	Undifferentiated
DEVONIAN	Dd	Dolerite
	Dg	Granite
DEVONIAN – SILURIAN	Db	Bell Shale
	Df	Florence Sandstone
	S	Silurian
ORDOVICIAN	Ogl	GORDON GROUP limestone
EARLY ORDOVICIAN – LATE CAMBRIAN	COou	Upper sandstone sequence including Pioneer Beds (COou)
	COo	Undifferentiated conglomerate and sandstone (COo)
	COon	Newton Creek Sandstone (COon) – interbedded sandstone siltstone and conglomerate with marine fossils

4 PREVIOUS EXPLORATION

Previous exploration on what is now EL2/90 and EL8/90 has been summarised by Kirsner (1992).

Work undertaken since the granting of EL2/90 and 8/90 has included:

- photogrammetry
- compilation of drilling data
- high resolution helicopter-borne magnetic and radiometric surveys
- semi-regional gravity survey and interpretation
- regional geological mapping
- grid based geological mapping, soil sampling, IP
- diamond drilling
- down hole geophysics

This activity is fully reported in previous annual reports (Saxon, 1995b).

5 WORK UNDERTAKEN 1st May 1995 - 30th April 1996

Below is a summary of exploration activities conducted on EL 2/90 and EL 8/90 during the reporting year:

5.1 Ground Magnetic and IP Survey

As part of a larger survey approximately 1600m of Ground magnetic and IP data was collected from EL 2/90. The magnetic survey took the form of three 200m-spaced lines (1200E, 1400E and 1600E) orientated at 345° magnetic (Figure 5). Magnetic readings were taken at 1 second intervals using a GSM-19F Overhauser Magnetometer with control pegs located every 25m. This data is plotted on the three profiles Figures 6-8.

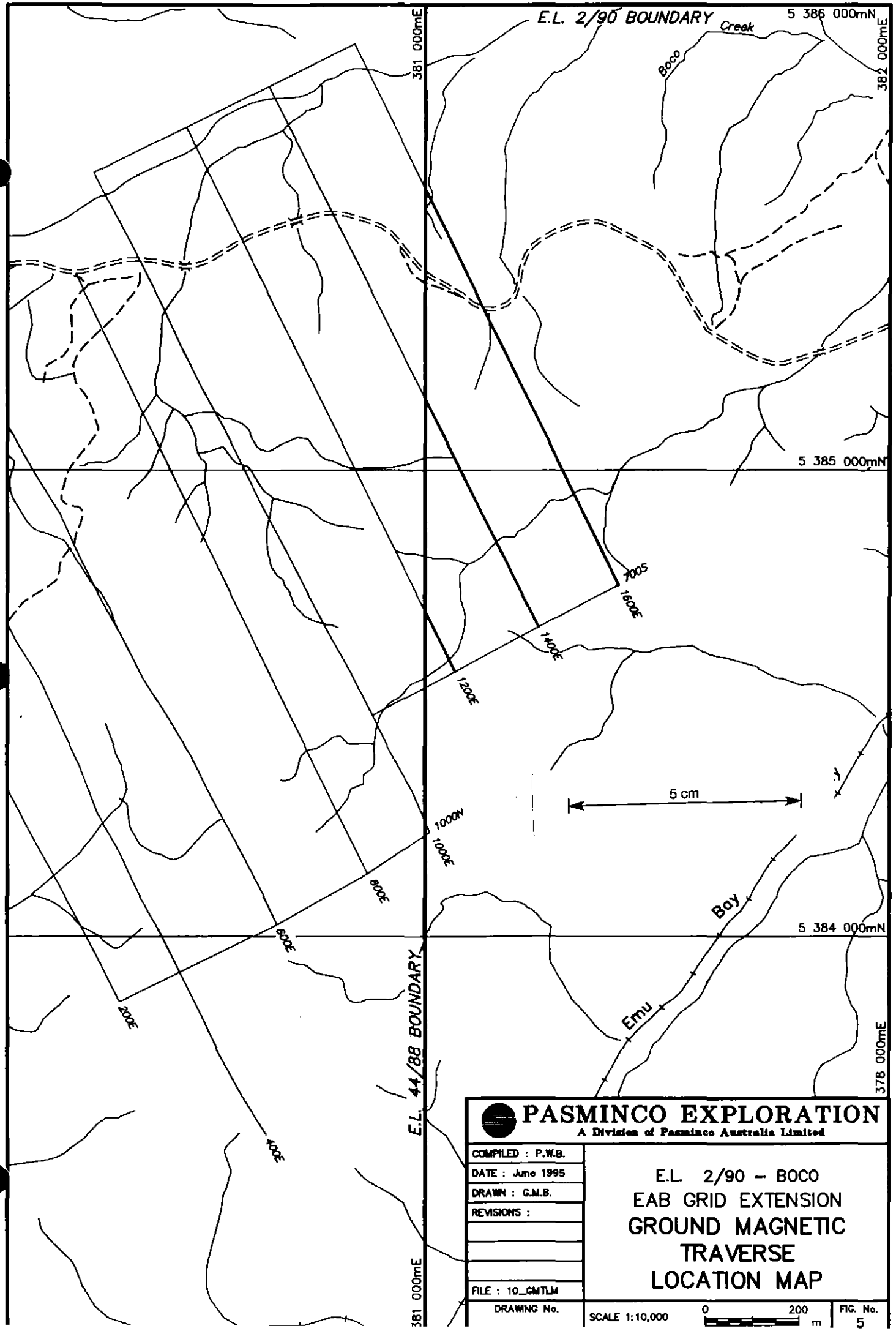
IP readings were also collected on 200m lines, however, data taken along 1200E does not fall within the EL boundary. A 50m dipole-dipole array was used, collecting data to n=4. A Elrec-6 receiver and Huntec Lopo (low power) portable transmitter were used for the survey. The IP data is plotted on pseudo sections 1400E and 1600E (Figures 9 and 10) and the contoured data is illustrated on Figures 9a and 10a.

5.2 Geology

Grid lines cut for the Ground magnetic/IP survey and the southern section of the Emu Bay Railway cutting were mapped by MS Saxon during the reporting year. Enclosed is a portion of the regional base sheet 5B (Figure 11) which illustrates all outcrop mapping conducted in the southern portion of EL 2/90.

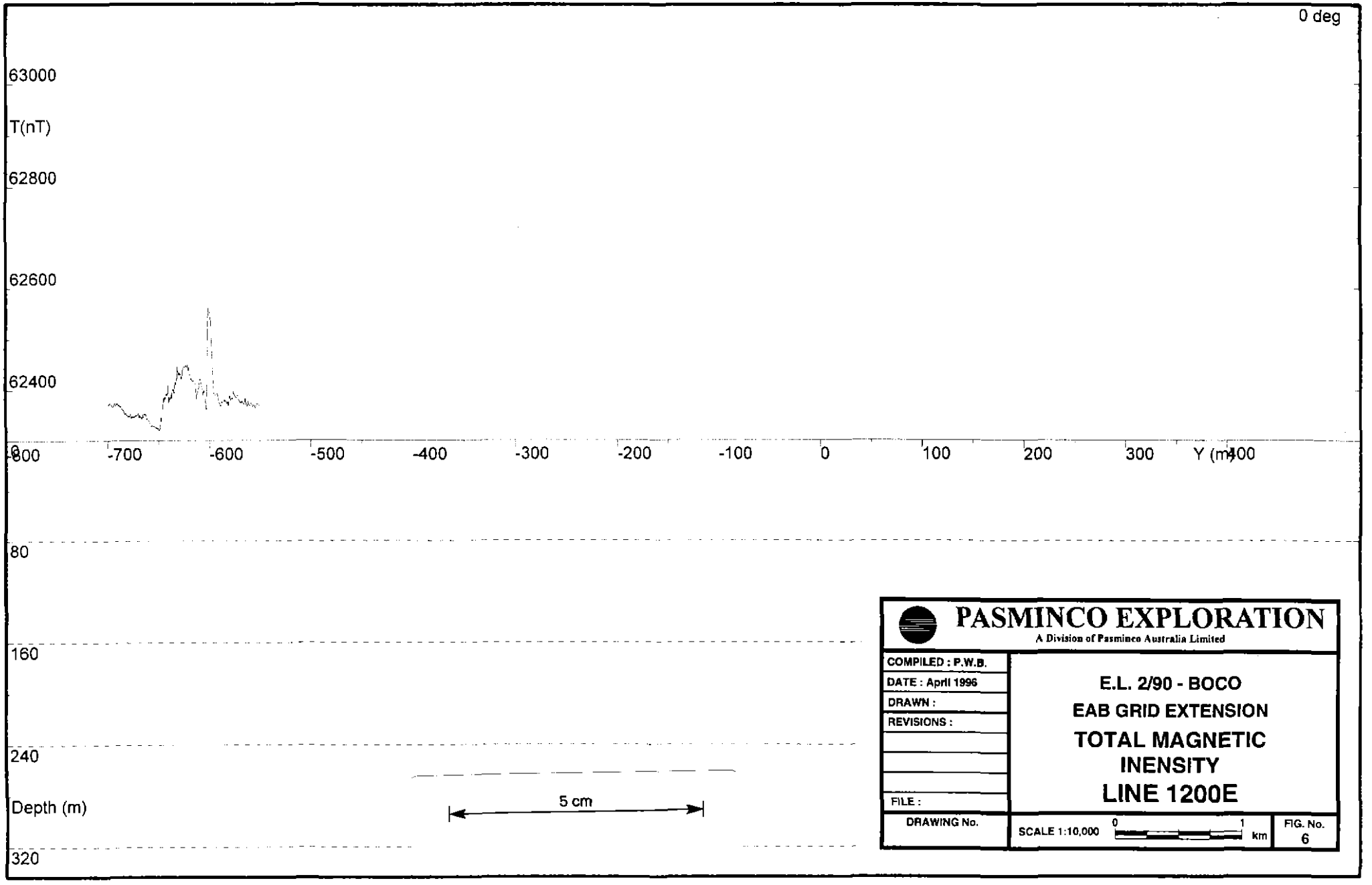
5.3 Aeromagnetic and Gravity Re-interpretation

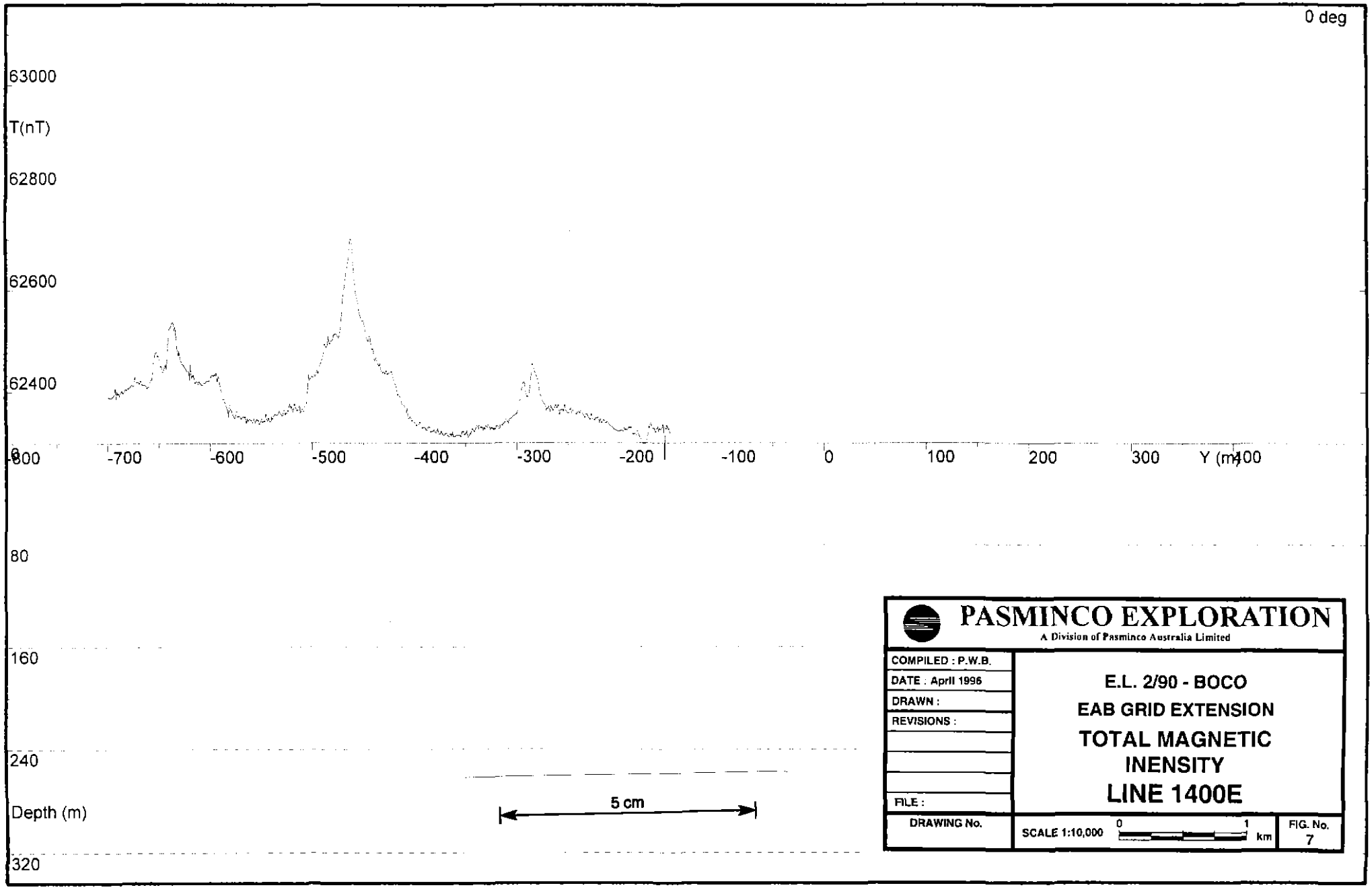
As a base for further regional targeting a 1:25 000 scale interpretation of the current aeromagnetic and gravity data was completed by MS Saxon (Figures 12 and 13). Definition of regional targets is still in progress.



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

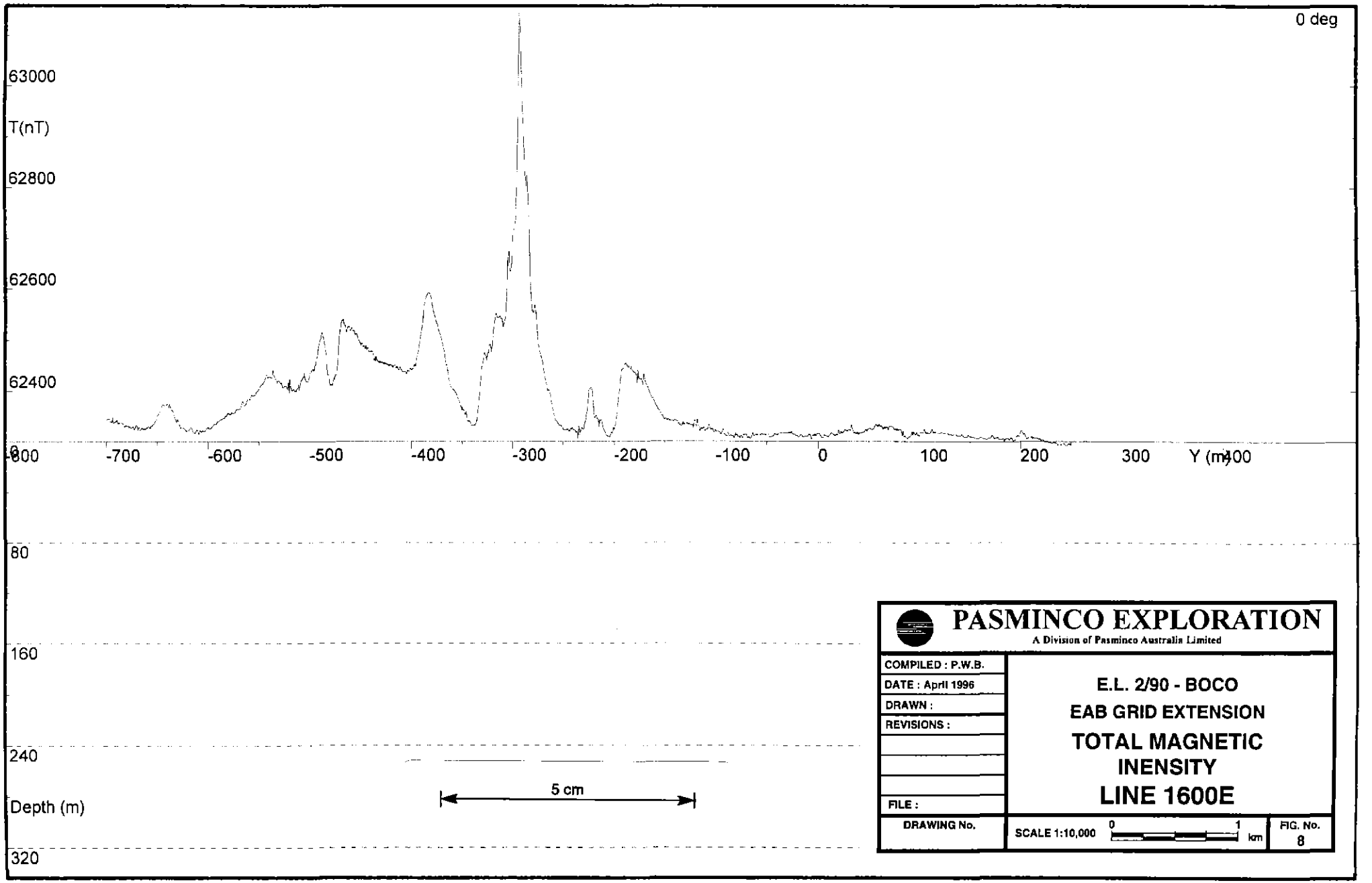
COMPILED : P.W.B.	E.L. 2/90 – BOCO
DATE : June 1995	EAB GRID EXTENSION
DRAWN : G.M.B.	GROUND MAGNETIC
REVISIONS :	TRAVERSE
	LOCATION MAP
FILE : 10_GMTLM	
DRAWING No.	SCALE 1:10,000 0 200 m
	FIG. No. 5


0 deg
63000
T(nT)
62800
62600
62400
-800
-700
-600
-500
-400
-300
-200
-100
0
100
200
300
400
Y (m)
80
160
240
Depth (m)
320
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : P.W.B.
DATE : April 1996
DRAWN :
REVISIONS :
FILE :
DRAWING No.
E.L. 2/90 - BOCO
EAB GRID EXTENSION
TOTAL MAGNETIC INENSITY
LINE 1200E
SCALE 1:10,000
0
1
km
FIG. No.
6



PASMINCO EXPLORATION A Division of Pasminco Australia Limited		
COMPILED : P.W.B.	E.L. 2/90 - BOCO EAB GRID EXTENSION TOTAL MAGNETIC INENSITY LINE 1400E	
DATE : April 1996		
DRAWN :		
REVISIONS :		
FILE :		
DRAWING No.	SCALE 1:10,000 0 1 km	FIG. No. 7

701018


0 deg
63000
T(nT)
62800
62600
62400
-800
-700
-600
-500
-400
-300
-200
-100
0
100
200
300
400
Y (m)
80
160
240
Depth (m)
320
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : P.W.B.
DATE : April 1996
DRAWN :
REVISIONS :
FILE :
DRAWING No.
E.L. 2/90 - BOCO
EAB GRID EXTENSION
TOTAL MAGNETIC INENSITY
LINE 1600E
SCALE 1:10,000
0
1
km
FIG. No.
8

701019

6 EXPENDITURE SUMMARY EL 2/90 AND EL 8/90

Expenditure for all exploration completed from 1st May 1995 to 30th April 1996 on EL's 2/90 and 8/90 is $17 556 and $6 288, respectively. This brings the total expenditure on the two tenements since their inception in 1990 to $613 604 and $182 526, respectively.

A summary of the 1995-96 expenditure statement is presented below.

	EL 2/90	**EL 8/90**
Personnel	8 740	3 781
Travel & Accommodation	732	138
Geological Contractors	0	0
Geophysical Surveys & Consultants	1 580	
Other Consultants	92	22
Drilling & Storage	219	44
Stores & Supplies	608	217
Vehicles Plant & Equipment	674	252
Tenement Costs	961	421
Computing	471	172
Office Running Costs	1 883	669
Administration	1 596	572
Total	**$17 556**	**$6 288**

7 CONCLUSIONS AND RECOMMENDATIONS

Exploration activities on the current target areas have failed to locate significant mineralisation at shallow depths within the Boco and North Pinnacles tenements. A re-assessment of all past exploration data is recommended and any subsequent untested target areas be rigorously explored during the 1996-97 reporting year.

8 REFERENCES

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Saxon, M.S., 1995b. Boco EL 2/90 and North Pinnacles EL 8/90. Annual Report, April 1994 - April 1995. Pasminco Exploration Report No. T95-3.

9 KEY WORDS AND LOCATION

LEAD, ZINC, GOLD, SEDIMENTS, ACID VOLCANIC, RHYOLITE, IP, GROUND MAGNETICS, AEROMAGNETICS, GRAVITY, SILVER FALLS, ROSEBERY, EMU BAY RAILWAY.

BOCO, NORTH PINNACLES, SK55-3

701024

377 500mE

380 000mE

382 500mE

385 000mE

E.L. 8/90

E.L. 1/93

E.L. 2/90

E.L. 2/90

E.L. 44/88

Sawmill Creek

Lynch Creek

John

Higgins Ck

5 387 500mN

5 385 000mN

5 382 500mN

5 cm

660m BURNS PEAK

CONE HILL

Rivulet

Halfway

EMU

BAY Creek

Bloco

BOCO SHEARZONE

RAILWAY

Tramway Creek

MURCHISON

LEGEND

Magnetic linears

Magnetic high (shallow source)

Magnetic high trend

Magnetic low

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : M.S.S.	E.L. 2/90 – BOCO
DATE : Nov., 1995	E.L. 8/90 – NORTH PINNACLES
DRAWN : G.M.B.	**MAGNETIC INTERPRETATION**
REVISIONS :	
FILE : 25_BNPMG	
DRAWING No.	SCALE 1:25,000 (0 – 500 m) FIG. No. 12

701025

E.L. 8/90

E.L. 1/93

E.L. 2/90

E.L. 2/90

E.L. 44/88

377 500mE

380 000mE

382 500mE

385 000mE

5 387 500mN

5 385 000mN

5 382 500mN

5 cm

Lynch Creek

John

Sawmill Creek

Higgins Ck

660m BURNS PEAK

CONE HILL

Rhulet

Holloway

EMU

Boco

BAY Creek

RAILWAY

Tramway Creek

MURCHISON

LEGEND

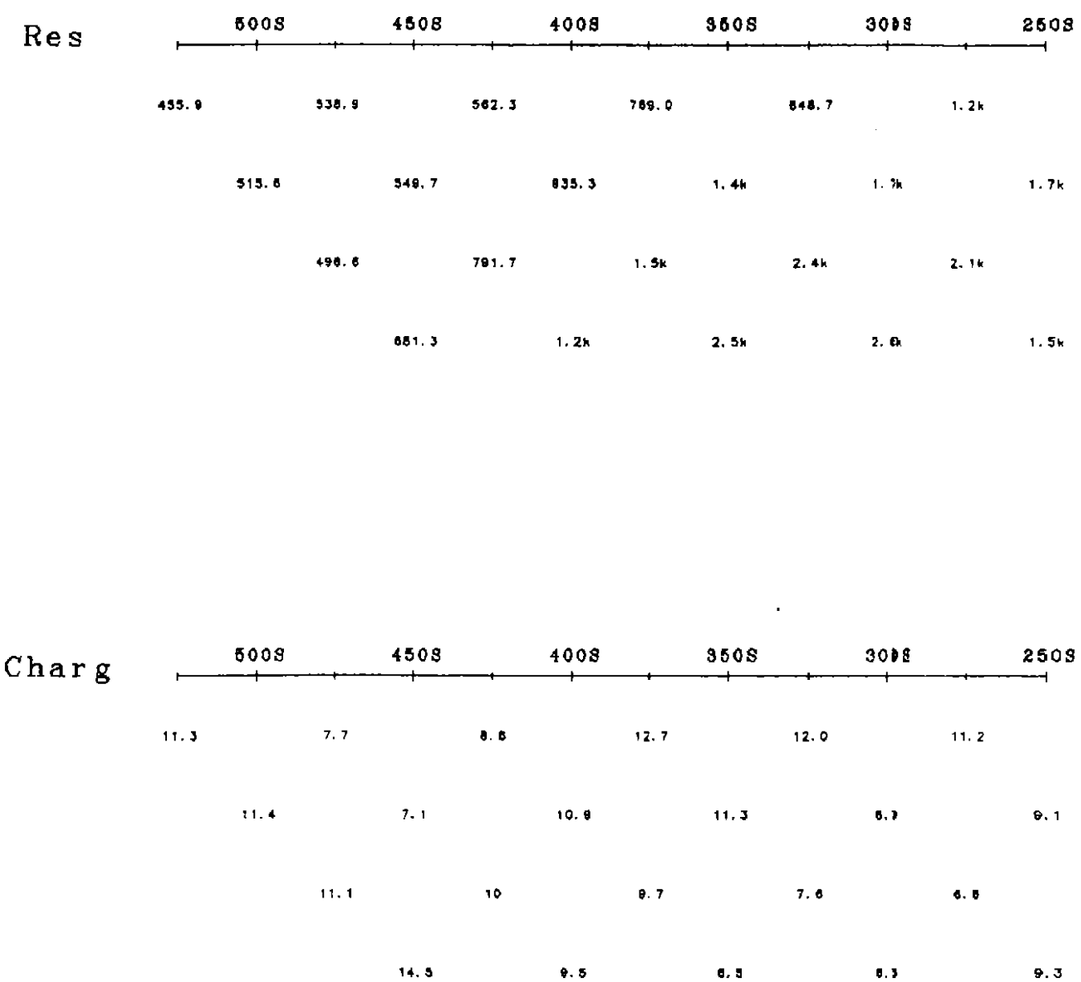
1st order gravity linears

2nd order gravity linears

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : M.S.S.	E.L. 2/90 – BOCO
DATE : Nov., 1995	E.L. 8/90 – NORTH PINNACLES
DRAWN : G.M.B.	**GRAVITY INTERPRETATION**
REVISIONS :	
FILE : 25_BNPGR	
DRAWING No.	SCALE 1:25,000 (0 – 500 m) FIG. No. 13

701026



Pasminco Exploration Ltd

Boco EL 2/90
EAB extension grid

Survey Parameters

50m Dipole-Dipole
n = 1 to 4
Receiver: ELREC-6
Transmitter: LOPO
0.25 Hz
08-12-96

Line Line 1400E

Figure 9

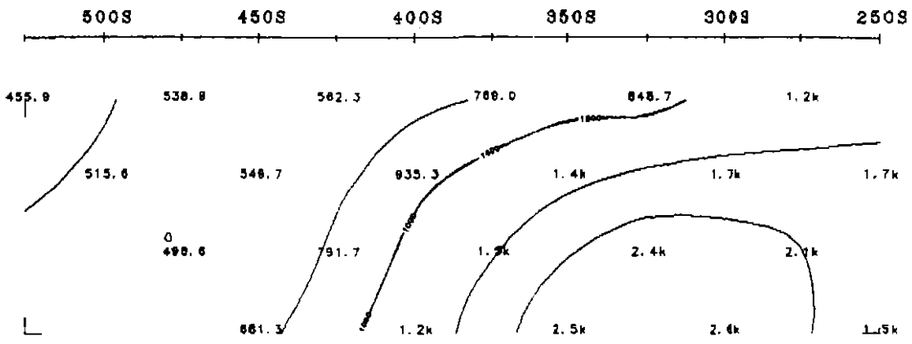
0 20 40 60 80

Scale 1 : 2000

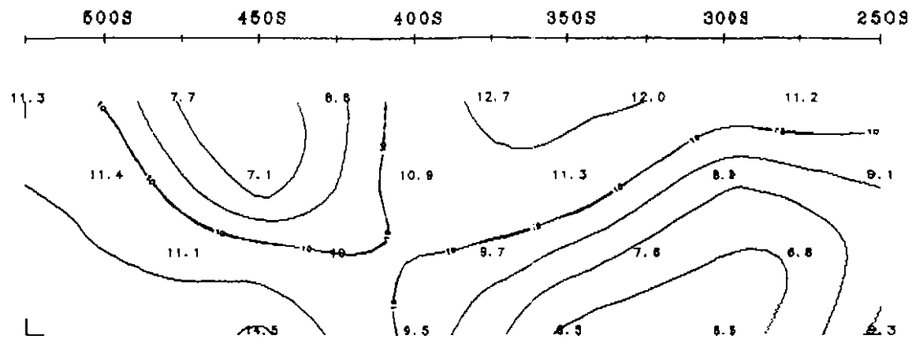
IP & Resistivity Survey

701027

Res



Charg



Pasminco Exploration Ltd

Boco EL 2/90
EAB extension grid

Survey Parameters

50m Dipole-Dipole
n = 1 to 4
Receiver: ELREC-6
Transmitter: LOPO
0.25 Hz
08-12-96

5 cm

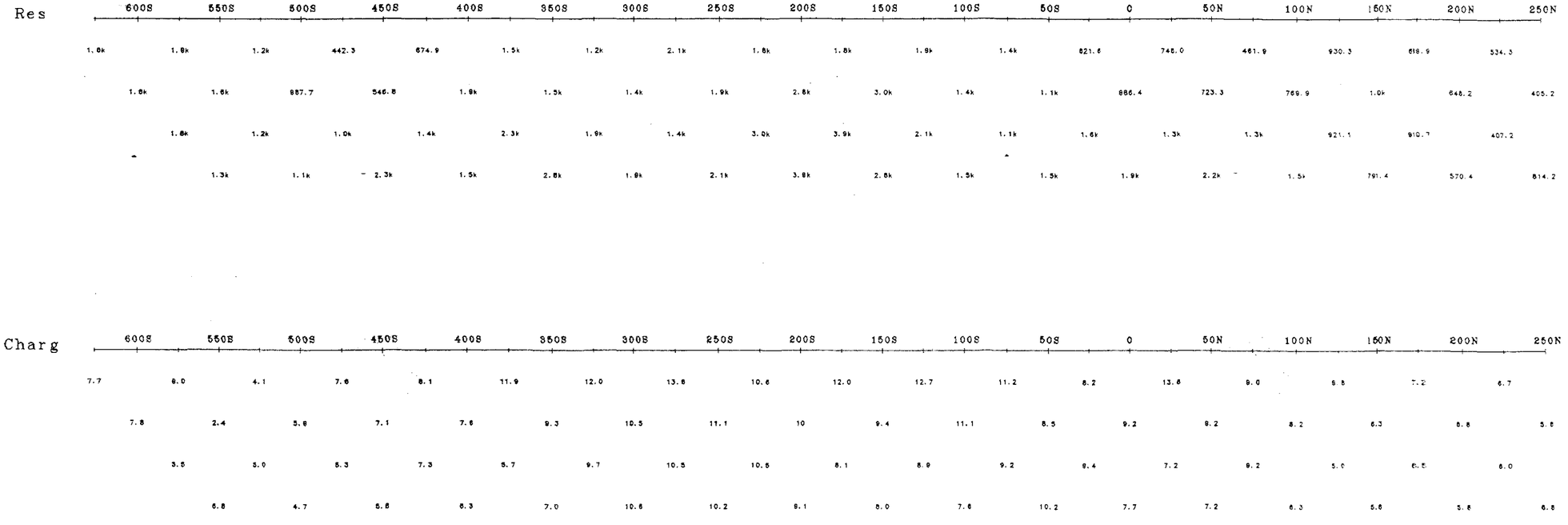
Line Line 1400E

Figure 9a

0 20 40 60 80

Scale 1 : 2000

IP & Resistivity Survey



Pasminco Exploration Ltd

Boco EL 2/90
EAB extension grid

Survey Parameters

50m Dipole-Dipole
n = 1 to 4
Receiver: ELREC-6
Transmitter: LOPO
0.25 Hz
08-12-95

5cm

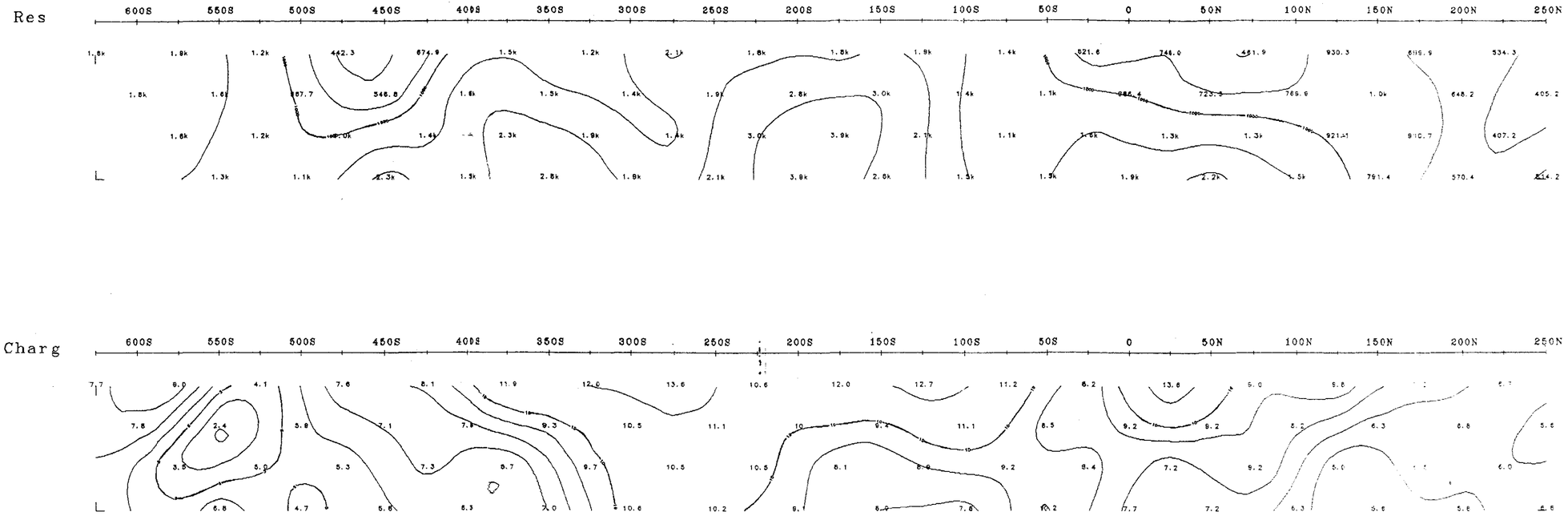
Line Line 1600E

Figure 10

0 20 40 60 80

Scale 1 : 2000

IP & Resistivity Survey



Pasminco Exploration Ltd

Boco EL 2/90
EAB extension grid

Survey Parameters

50m Dipole-Dipole
n = 1 to 4
Receiver: ELREC-6
Transmitter: LOPO
0.25 Hz
06-12-95

5cm

Line Line 1600E

Figure 10a

0 20 40 60 80

Scale 1 : 2000

IP & Resistivity Survey

APPENDIX 1

Review of North Pinnacles EL 8/90
by T Morris

REVIEW OF NORTH PINNACLES EL 8/90

A review of North Pinnacles EL 8/90 was conducted from the 2nd to the 12th of January 1996, by Tobi Morris. The review included an assessment of previous work on the lease, a review of diamond drill core and a brief field mapping exercise.

The aim of the review was to assess the potential for further exploration within the lease area.

Historic Data: Exploration within EL8/90 has been conducted by several companies over a period from 1975 to the present.

Period:	Company:	Activity:	Reference:
1975		Regional airborne EM survey	Hanson 1977 (BO2)
1977	EZ	Regional mapping	Hanson 1977 (BO2)
1978	EZ	Geological mapping	Mill 1978 (BO5)
1979	EZ	Grid cutting. Soil sampling. IP survey	Mill 1979 (BO8)
1980	EZ	DDH NPP 213, 214, 215. Geochemical sampling. Grid cutting. IP survey	Mollison 1980 (BO12)
1981	EZ	Cu-Pb-Zn stream sampling.	Mill 1981 (BO16)
1984	EZ	DDH NPP 213-214 assayed for Au.	Sainty 1984

Period:	Company:	Activity:	Reference:
1987	Pancon	EM37 survey. Rock chip sampling.	Wilson 1987 Arias 1987 (BO31,30)
1987	Pancon	Geochemical compilation.	Taylor 1987 (BO32)
1988	EZ	Rock chip sampling. Grid cutting.	Taylor 1988 (BO33)
1989	Geopeko	DDH NPD 004. Wacker sampling. DHEM of NPD 004.	Mathison 1989 (BO36) Bishop 1989 (BO35)
1990	Billiton	Lithogeochemical sampling.	Randell 1991 (BO38)
1992	Pasminco	Regional mapping and gravity.	Leaman 1992 Kirsner 1992 (BO41, 42)
1993	Pasminco	Geological mapping	Poltock 1993 (BO43)
1994	Pasminco	DDH NPD5. Digitized summary of soil sampling	Poltock 1994 (BO44)
1995	Pasminco	Rock chip sampling. Gravity report.	Saxon 1995 (BO45)
1995	Pasminco	DHEM of NPD5. Interpretive geological map.	Saxon 1995 b (BO46)

The previous work to date has identified a coincident geochemical and geophysical anomaly within the Pinnacles Rhyolite. The anomalous region is to the east side of the anticlinal axis and has strike length of approximately 400 m. Several other less prominent geochemical anomalies occur within the lease.

Local Geology: EL 8/90 encompasses a north trending anticlinal structure. The stratigraphy consists of two formations, the Pinnacles Rhyolite unconformably underlying the White Spur Formation. The Pinnacles Rhyolite comprises of a predominantly massive porphyritic lava with variable occurrences of hyaloclastic and hydrothermal breccias. Minor volcaniclastic sediments also occur. The White Spur Formation is a sequence of volcaniclastic sediments ranging from immature coarse sandstone to shales and siltstones.

Drill Core: Diamond drill holes NPP 215, NPD 004 and NPD 5 were examined to investigate the style and extent of Pb-Zn-Au mineralisation within the anomalous region. The bulk of the core examined was Pinnacles Rhyolite which is a grey to green feldspar and quartz phyric acid lava. The most prominent texture through the core is breccia. The brecciation ranges in appearance from 0.5 to 1 cm clasts brittley fractured into a close fit jigsaw pattern, to much larger and clasts with more diffuse boundaries showing less jigsaw fit. The breccias are interpreted to be hyaloclastic and hydrothermal breccias.

Alteration of the host Pinnacles Rhyolite includes silicification and irregular, disseminated pyrite veining. The moderate to fine grained pyrite is also associated with minor sphalerite and galena. Regions of the core show minor to moderate sericitisation. Grey/green, possibly chloritic material is also present. Quartz and carbonate filled fractures occur irregularly through the core. Alteration extends into the overlying White Spur Formation in the form of irregular, disseminated, moderately coarse pyrite.

Pb-Zn and Au mineralisation occur within the Pinnacles Rhyolite. Mineralisation occurs within a hydrothermal alteration system. Figure 2 summarises the best grades assayed from core within EL8/90.

Drill Hole	Meters @	%Pb	%Zn	g/t Au
NPD 004	9 m	0.67	0.3	0.05
NPP 215	20.3 m	0.2	0.49	0.23

The highest grades of Au are interpreted to be associated with minor Pb-Zn mineralisation within a hydrothermal breccia. The extent and orientation of the alteration system and the mineralisation is undetermined due mainly to the lack of outcrop and the possibility that the alteration body has been deformed by later fracturing or shearing. Several fracture zones with probable shear movement exist in the core and outcropping rhyolite within the lease is also fractured.

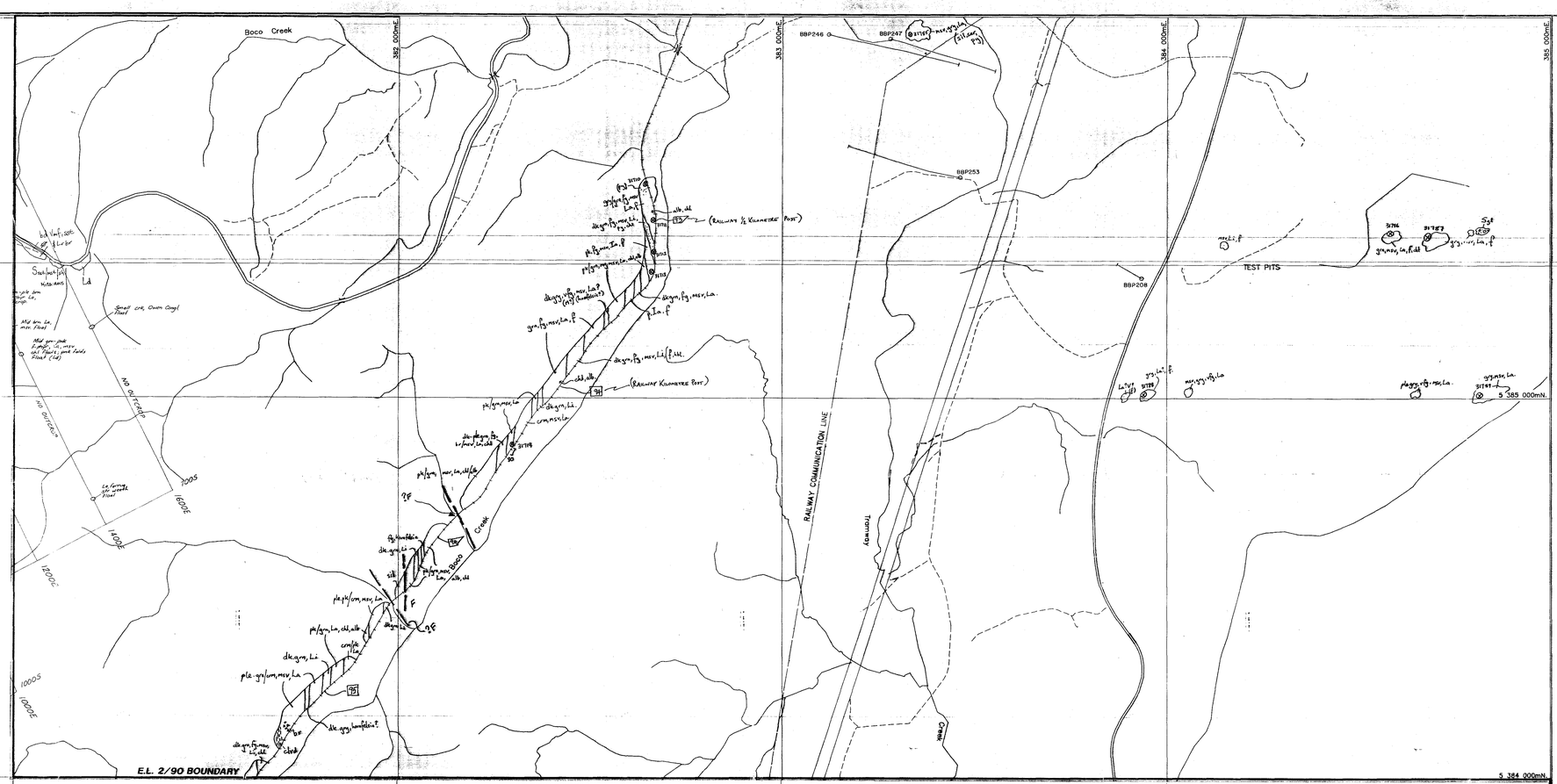
Field Mapping: A brief field mapping exercise was intended to ascertain the lateral extent of the mineralised alteration system. Outcrop was limited in the areas of interest, particularly to the south of the anomalous region.

Little insight into the extent of the mineralised zone was gained from field mapping, however it is more likely that the mineralisation is restricted along strike to less than 100 m.

Conclusions/Recommendation: A small hydrothermal alteration system associated with minor mineralisation exists within the Pinnacles Rhyolite. Hydrothermal brecciation and fracturing are associated with a long history of hydrothermal fluid flow. These conditions typically have associated slightly elevated Au values and are more prevalent in low permeability host rocks such as lavas, as exists in EL 8/90.

The extent of the alteration both laterally and at depth is unclear. The most encouraging assay results have come from near surface and it is likely that little further mineralisation occurs at depth. Due to the limit of outcrop, the lateral extent of the mineralised zone is unknown. Previously identified targets located within North Pinnacles EL 8/90 have been investigated with diamond drilling. The likelihood of a mineralised intersection in these exploratory holes is however low due to the fracture control on the system.

Further exploration at North Pinnacles should try to identify the nature of the controlling fracture system and the extent of the alteration zone. Limited information exists to the south of the target region at North Pinnacles. Any extensive mineralisation would be likely to strike in this direction and further work is recommended to be concentrated in this area.



LEGEND

1. General Form

Colour, grain size, overall texture, Rock Type, constituents & textutres, alteration, mineralisation.

Descriptors and Rock Types to be separated by comma or slash. Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.

2. Rock Types

Lavas L

a	(1) acid
i	(46) intermediate
b	(49) basaltic
r	(9) rhyolitic
d	(21) dacitic
n	(48) andesitic

Intrusives I

a	(12) acid
i	(46) intermediate
b	(48) basic
fel	felsic
p	porphyritic
g	granitic
peg	pegmatitic

Volcaniclastics V

pm	(7) pumiceous mass flow
q	(32) quartz phyric mass flow
sst	(26) sandstone

Sediments S

sh	(35) shale
l	(36) slate incl. black slate
sil	(38) siltstone
sst	(39) sandstone
tb	turbidite
w	(39) wacke
conq	(28) conglomerate
b	breccia
cht	(34) chert
lst	(60) limestone
dol	(28) dolomite
q	(29) quartzite
Fe	iron formation
gl	(4) glacial deposits
fg	fluvioglacial deposits
alv	(4) alluvial deposits
mst	(38) mudstone

Metamorphic Rocks M
Colours should be hatched

sht	(38) schist
sp	(28) semi-pelite
ps	(28) psammite
amph	(49) amphibolite
gran	granulite
sk	skarn
mb	(65) marble
m	mylonite

Unassigned U — Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:

ple	pale	bl	blue
dk	dark	wht	white
clr	clear	yel	yellow
or	orange	ol	olive
blk	black	grn	green
pk	pink	ppl	purple
rd	red	crm	cream
brn	brown		

Grainsize:

fg	fine grained
mg	medium grained
cg	coarse grained
vcg	very coarse grained

Overall Texture:

aug	augen
p	porphyritic
fol	foliated
dvd	devoved
msv	massive
blk	blocky
bd	bedded
lam	laminated
xbd	cross bedded
xlam	cross laminated
br	brecciated
fb	flow banded
fb	flow brecciated
ufs	upwards fining sequence

Constituents & Internal Textures:

f	felspar
q	quartz
l	lithic
pm	pumice
styl	stylolites
wp	wisps
ves	vesicles
sph	spherulites
lph	lithophysae

Alteration:

alb	albitised
ca	carbonate alteration
chl	chloritised
ser	sericited
kao	kaolinised
ep	epidotised
sil	silicified.

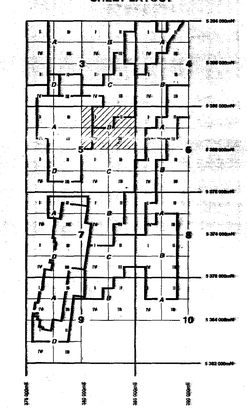
Mineralisation:

diss	disseminated
str	stringer
msv	massive
goe	gossan
bx	boxwork
py	pyrite
po	pyrrhotite
asp	arsenopyrite
gn	galena
sp	sphalerite
mag	magnetite
hm	haematite

4. Mapping Symbols

- Strike and Dip of Strata
- Strike and dip of inverted strata
- Strike and dip of cleavage or foliation
- Plunge of lineation
- Geological boundary position accurate
- Geological boundary position approximate
- Mine
- Abandoned prospect or mine
- Costean or trench
- Diamond drill hole, including projection
- Unconformity
- Fault
- Thrust Fault
- Plunging antiform
- Plunging synform

SHEET LAYOUT



96-3877

ANNUAL REPORT 1996 EL 2/90 BOCO & 5/90 NORTH PINNACLES - PASMINCO
DIBEEN S M

GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

701035

5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : L.W.R.	E.L. 2/90 - BOCO JV
DATE : Oct., 1991	E.L. 44/88 - BURNS PEAK JV
DRAWN :	**OUTCROP GEOLOGY**
REFERENCE :	
REVISIONS :	
" L.W.R. - 1992	
M.S.S. Feb. 1995.	
DRAWING No. SHEET 5B	SCALE 1:5000 (0 100 200 METRES)
	FIG. No. 11