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				Registrar
Received - 1 FEB 1984				E & IL
DEPT. OF MINES				
REP. No. 1050/84				

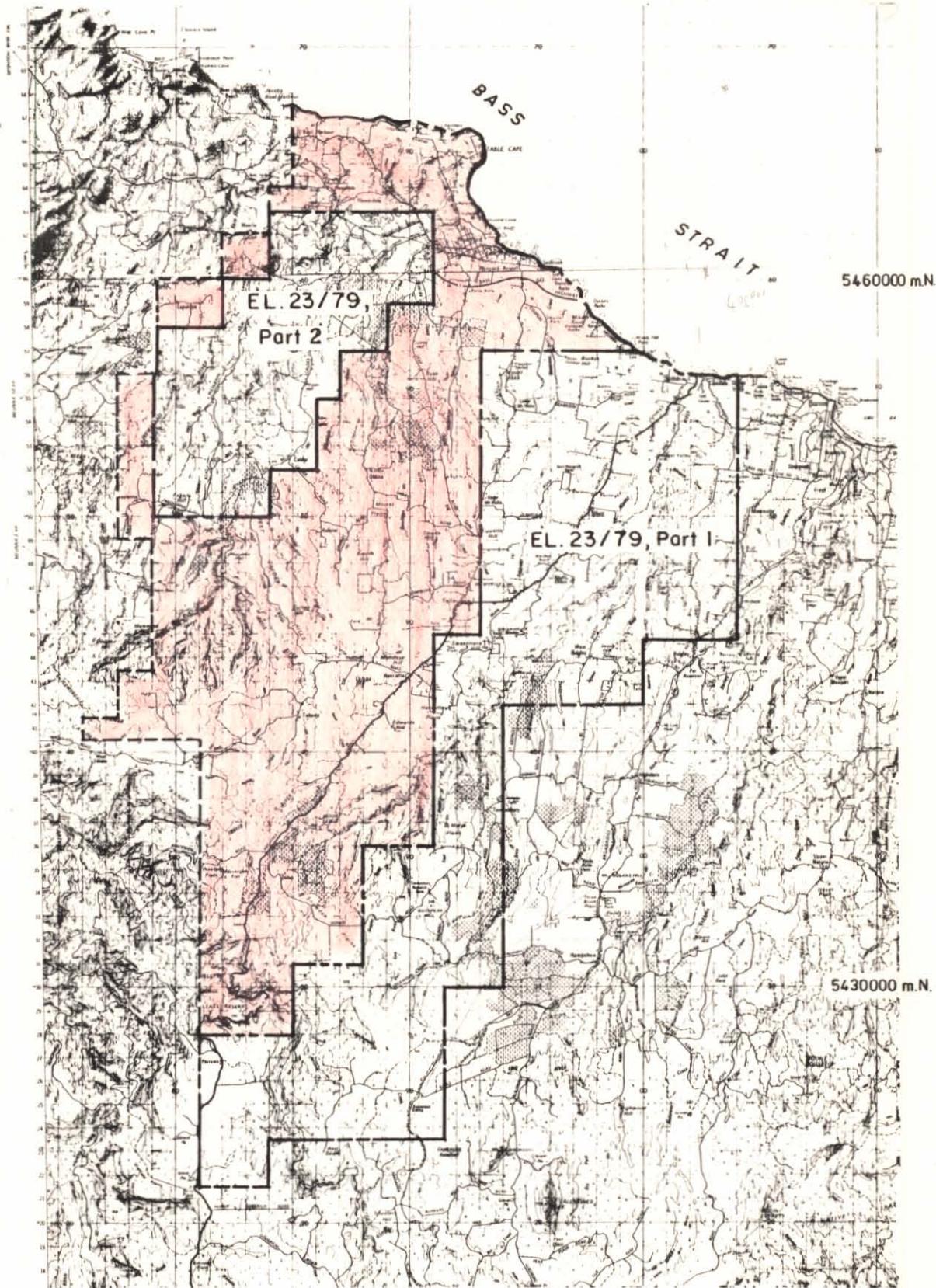
EXPLORATION LICENCE 23/79

WYNYARD, TASMANIA

REPORT FOR THE AREA RELINQUISHED 1ST DECEMBER, 1983.

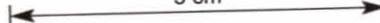
OPEN FILE

003



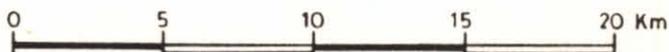
 Portion relinquished

5 cm



Scale 1:250,000.

0 5 10 15 20 Km



This map photo copied from reduction of
1:100,000 Sheets : Table Cape, Hellyer

Centre Melbourne	THE BROKEN HILL PROPRIETARY CO. LTD. E.L.23/79, WYNYARD, TAS. LOCATION MAP.	Project N ^o .
Date 24-2-82 10-8-79		Drawing N ^o A4-1995

WYNYARD, TASMANIAREPORT FOR THE AREA RELINQUISHED 1ST DECEMBER, 19831. GENERAL

Exploration Licence 23/79 of 715 square kilometres was granted to The Broken Hill Proprietary Company Limited on 14th December, 1979. The Licence area was reduced to 372 square kilometres on 1st December, 1983 and this report covers the area relinquished at that time.

Regionally the principal target was a massive sulphide hosted tin deposit of the Renison type. Work done in the relinquished portion of the licence area was restricted to aeromagnetic coverage and very limited geochemical sampling. The area is poorly prospective. In addition to the Tertiary basalt cover large areas also have a thick underlying sequence of Permian sediments, as well as local Jurassic dolerites. The prospective Cambrian and Precambrian lithologies are deeply buried.

2. GEOLOGY

Within the licence area extensive flows of Tertiary basalt and Permian sediments overlie a basement consisting largely of Precambrian and Cambrian rocks which form a major structural extension of sequences in the Mt. Bischoff, Cleveland area to the south west.

The oldest rocks present are the Precambrian Keith Metamorphics which occur in a belt 8-15 km wide trending north east from Savage River to Wynyard. Rocks in this belt include pelitic schist, quartzite and minor amphibolite. Younger Precambrian rocks of the Burnie Quartzite and Slate Formation flank the Keith Metamorphics in the lower Cam River. Dolomite has not been recorded in the Precambrian rocks of the Wynyard area.

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Cambrian sediments are exposed in a large window in Tertiary basalt, in the Hellyer River upstream from the Murchison Highway crossing. Lithologies present include red-brown lithicwacke, red shale and pyrite-bearing chert.

Ordovician sediments have not been located within the licence area. They flank a major anticline at Companion Hill to the east of the southern portion of E.L. 23/79

Permian sediments, up to 300 metres thick, consist of a basal tillite unit, siltstone with thin oil shale and coal horizons, and sandstone.

Jurassic dolerite is exposed in the central part of the licence area where it invades both tillite and siltstone.

Tertiary rocks include basalt of highly variable thickness (locally believed to be up to 350 metres), as well as marine sediments, lacustrine clays, sands and gravels up to 60 m in thickness.

3 WORK PROGRAMME

The following is a summary of work carried out:

1. Literature survey and review of data.
2. Preliminary photogeological study and interpretation of Landsat image.
3. Reconnaissance geological mapping at 1:50,000 scale, with continuous updating as exploration proceeded.
4. Test Dighem II airborne EM survey.
5. High-resolution aeromagnetic survey covering the total licence area, with eastwest lines spaced at 250 metres and a mean sensor terrain clearance of 90 metres.
6. Stream sediment and pan-concentrate geochemical sampling over areas of basement exposure.

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4. GEOPHYSICS

4.1 Aeromagnetics

Initially all available aeromagnetic data in the form of contour maps of total field intensity was compiled. In some instances trends due to major structures in basement rocks can be traced beneath the basalt and sedimentary rock cover.

A detailed aeromagnetic survey covering the entire licence area, with east-west lines spaced at 250 metres and a mean sensor terrain clearance of 90 metres, was flown in January, 1982. Coverage relevant to this report appears in Figure 3.

4.2 Dighem II EM

Four test lines of Dighem II were flown in the southern part of the licence area in early 1981. The location of the lines is shown on Figure 2.

Dighem II is a helicopter borne, frequency EM system which measures the In phase and Quadrature EM response in both a coaxial (standard) and coplanar (whaletail) pair of coils mounted in a 9 metre boom. The boom is towed at a nominal height of 36 metres at a speed of around 120 km/hr. At total field magnetometer is also carried with the system, the sensor being suspended at a height of around 50 metres.

Profiles of the measured data plus Dighem's computer generated interpretation functions are presented in Appendix 1.

5. GEOCHEMISTRY

Figures 4 and 5 show stream sediment and pan concentrate sample locations within the relinquished area. Tin results are also plotted for the pan concentrates.

007

In all a total of ten stream sediment samples (either -40 or -80#) and twelve pan concentrates were collected. Results appear in Appendix 2. The sieved samples are not anomalous but some of the pan concentrates contain tin.

There are various possible sources for the tin being detected in Seabrook Creek (Sample No 110P) and the Hellyer River tributary (144P), viz. Tertiary sediments, Permian tillite and Basement exposures. It is considered probable that most of the tin is being derived from Tertiary sediments. If this is true large parts of the area sampled will thus be naturally contaminated and this greatly curtails effective anomaly recognition within the prospective Precambrian and Cambrian sediments.

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APPENDIX 1

DIGHEM II EM PROFILES

000 Profiles shown on the following pages contain information as outlined below:

<u>Channel Number</u>	<u>Parameter</u>	<u>Scale units/mm</u>	<u>Noise</u>
20	Magnetics	10 nT	2 nT
21	Altitude	3 m	2 m
22	Standard coil-pair inphase	1 ppm	1-2 ppm
23	Standard coil-pair quadrature	1 ppm	1-2 ppm
24	Whaletail coil-pair inphase	1 ppm	1-2 ppm
25	Whaletail coil-pair quadrature	1 ppm	1-2 ppm
28	Ambient noise monitor (standard receiver)	1 ppm	1-2 ppm
29	Ambient noise monitor (whailtail receiver)	1 ppm	1-2 ppm
33	Difference function inphase	1 ppm	1-2 ppm
34	Difference function quadrature	1 ppm	1-2 ppm
35	First anomaly recognition fuction	1 ppm	1-2 ppm
37	Conductance	1 mho	
40	Log resistivity	.03 decade	
41	Apparent depth to conductive half space	3 m	

Note: Each set of profiles has been reduced to A4 format for this report and the 1 cm squares of the original appear as approximately half centimetre square on the copy.

WYNHARD. DITCHER PRESS



LINE 601

LINE 601

FIG. 4a
468010

011



Fig. 4c

012

3-4



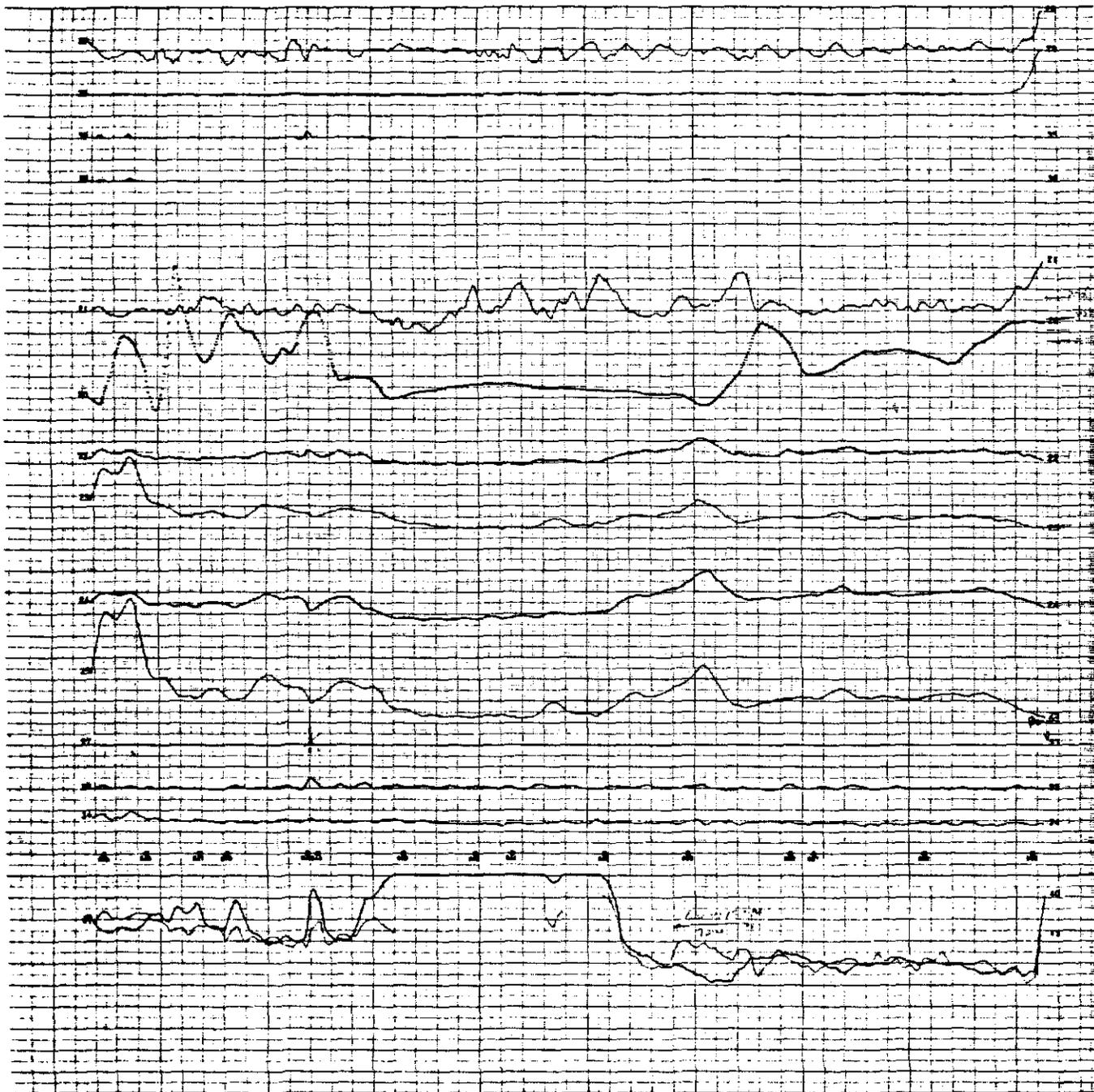
LINE 803

LINE 803

FIG. 4c
468012

Fig 4 d.

013



LINE -804

LINE -804

FIG. 4 d
468013

APPENDIX 2

STREAM SEDIMENT AND PAN CONCENTRATE SAMPLE RESULTS

CONSULTING CHEMISTS & ANALYSTS

OFFICE & LABORATORY

44 Balaclava Street
 WOOLLOONGABBA Q 4102
 PH (07) 391 6799
 A/H 353 2830
 TELEX ALSEV 42344

LABORATORY REPORT



Batch No.: B126 Client: BHP COMPANY LIMITED, Area Contact: DR. R. HINE
 Address: P.O. BOX 559 Address: G.P.O. BOX 1140 L,
 CAMBERWELL HOBART TAS 7001
 Date Received 17/02/81
 Date Completed 04/03/81 VIC
 Order No.: T640/000635 Sample Type: S.SED/ROCK/SOIL No. of Samples: 37

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	As	Mo	Sn	W	Ni	ELEMENTS
	m	m	m	m	b	m	m	m	m	m	UNITS
	1	1	1	1	120-A	5-B	2	XRF-1A	XRF-1A	1	METHODS
HEL 1 ✓	30	35	100	2	170	9	<2	<5	<10	80	
HEL 2 ✓	25	30	85	1	10	7	<2	<5	<10	70	
HEL 3 ✓	20	35	105	1	10	4	<2	<5	<10	70	

UNITS LEGEND ----- m - Parts per million b - Parts per billion % - percent
 g - Grams a - Absorbance



Signature: _____

AUSTRALIAN LABORATORY SERVICES PTY. LTD.
CONSULTING CHEMISTS & ANALYSTS

PAGE 1 OF 2



LABORATORY REPORT

OFFICE & LABORATORY
44 Balaclava Street
WOOLLOONGABBA Q 4102
PH (07) 391 6799
A/H 353 2830
TELEX ALSEV 42344

Batch No.: B126-1 Client: BHP COMPANY LIMITED, Area Contact: DR. R. HINE
Address: P.O. BOX 559 Address: G.P.O. BOX 1140 L,
CAMBERWELL HOBART TAS 7001
VIC
Date Received 17/02/81
Date Completed 04/03/81
Order No.: T640/000635 Sample Type: S.SED/ROCK/SOIL No. of Samples: 37

SAMPLE NO.	Sb	Co	Cr	Ba	Sr	ELEMENTS
	M	M	M	M	M	UNITS
	g	1	1	XRF-1A	XRF-1A	METHODS
HEL 1	25	30	100	420	100	
HEL 2	25	5	95	430	65	
HEL 3	20	40	115	320	120	

UNITS LEGEND ----- m - Parts per million b - Parts per billion % - percent
g - Grams a - Absorbance



This laboratory is recognised by
the National Association of Testing
Agencies (NATA) under licence
No. 1234567890. All tests
performed in accordance with
AS/NZS 17011:1995.

Signature: *[Handwritten Signature]*

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468016

ANALYSIS RESULTS

017

	Sn	W	Cu	Pb	Zn
WYN 60 ✓	-	-	5	35	5
WYN 61 ✓	-	-	5	25	-
WYN 62 ✓	-	-	10	40	10
WYN 63 ✓	-	-	5	20	-
WYN 64 ✓	-	-	15	45	5

All results in ppm

Size Fraction: - 80#

Analyses by Analabs, Burnie

Methods:

Sn, W by XRF
Cu, Pb, Zn by AAS Code 101

018

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

14.4 08 1740

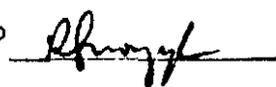
29.12.82

006627

1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn					
1									
2									
3									
4									
5	T64/78	37	6	144					
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

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 

019

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

14.4 08 1740 B

4.1.83

006627

3 OF 3

TUBE No.	SAMPLE No.	Sn	W							
1										
2										
3										
4										
5	T64/78	7	X							
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	3	10							
24	DIGESTION									
25	METHOD	402	401							

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

Rhugh

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468020

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

14.4 88 1796

25.1.83

6610

1 of 2

TUBE No.	SAMPLE No.	Cu	Pb	Zn					
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15	164-109	28	25	93					
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

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



021

ANALABS

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468021

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

14.4 08 1796B

28.1.88

6610

1 OF 1

TUBE No.	SAMPLE No.	Sn	W						
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15	164-169	7	X						
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	3	10						
24	DIGESTION								
25	METHOD	402	401						

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

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022

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ANALYTICAL DATA

u

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		14.4 08 1795			28.1.83		6609		1 OF 1	
TUBE No.	SAMPLE No.	Sn	N	wt(g)						
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14	164-110P	300	X	51.87						
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	3	10							
24	DIGESTION									
25	METHOD	402	401							

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

Alroy

023

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX		REPORT NUMBER		REPORT DATE		CLIENT ORDER No.		PAGE	
123		1014 111 1111		24/11/88		000011		1 of 1	
TUBE No.	SAMPLE No.	Wt (gms)	Size	R					
1									
2	150F	38.00	3						
3	151F	17.50	3						
4	152F	16.50	5						
5	153F	15.00	3						
6	154F	20.00	2						
7	155F	25.00	2						
8	156F	5.00	2						
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION		3	10					
24	DIGESTION								
25	METHOD		402	401					

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

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024

ANALABS

468024

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

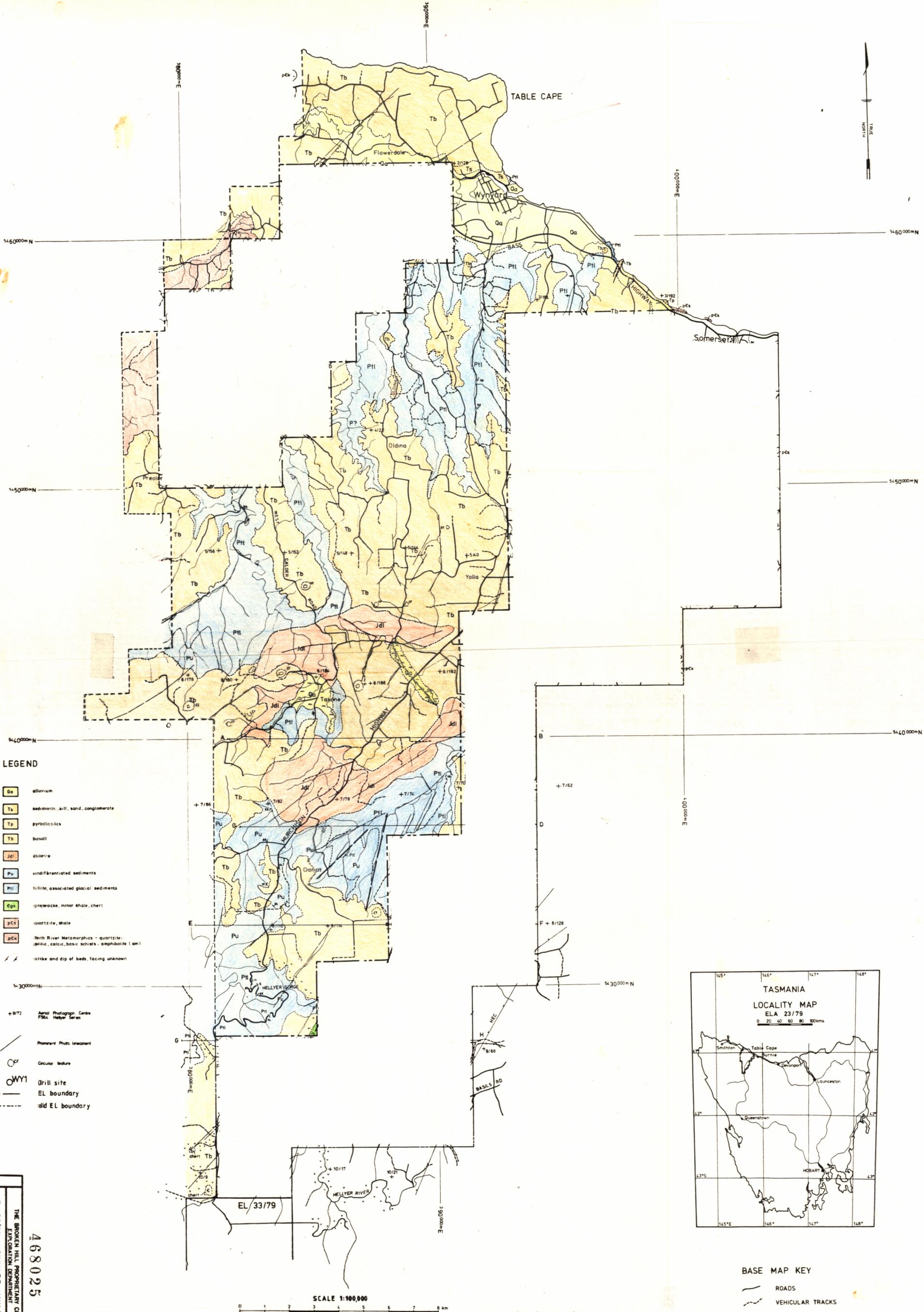
PAGE

64		1474 00 1901			5.4.65		805620		1 OF 1	
TUBE No.	SAMPLE No.	Weight	Sm	W						
1	148F	70.65	18	14						
2	144F	50.04	407	10						
3										
4										
5										
6	148F	60.75	10	10						
7	148F	105.28	N	25						
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		3	10						
24	DIGESTION									
25	METHOD		402	401						

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

P. D. ...



LEGEND

- QUATERNARY
 - Qa alluvium
 - Ts sediments, silt, sand, conglomerate
 - TERTIARY
 - Tp pyroclastics
 - Tb basalt
 - JURASSIC
 - Jdl dolerite
 - PERMIAN
 - Pu undifferentiated sediments
 - PH hills, associated glacial sediments
 - CAMBRIAN
 - Egs greywacke, minor shale, chert
 - PRECAMBRIAN
 - pCs quartzite, shale
 - pCk North River Metamorphics - quartzite, gneiss, calcic, basic schists, amphibolite (am)
- / / strike and dip of beds, facing unknown
 + 9172 Aerial Photograph Centre
 FSA Hellyer Series
 ————— Permanent Photo Lineament
 ○ Circular feature
 ○ WY1 Drill site
 - - - - - EL boundary
 - - - - - old EL boundary

5430000m N

+ 9172

Permanent Photo Lineament

Circular feature

Drill site

EL boundary

old EL boundary

5430000m N

Revisions

NO.	DATE	BY	REVISION
1	1/1/79	R.H.	Issue
2	1/1/79	R.H.	Issue
3	1/1/79	R.H.	Issue

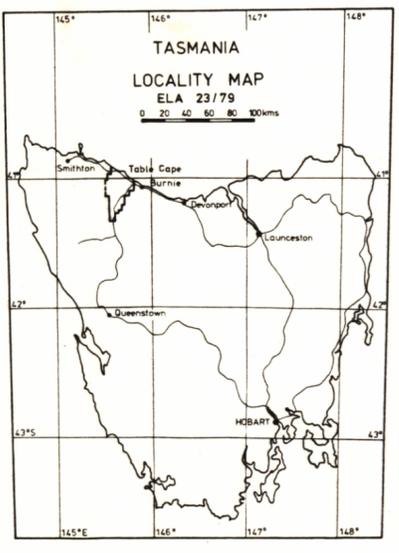
THE BROKEN HILL PROPRIETARY CO. LTD.
 EXPLORATION DEPARTMENT
EL 23/79 WYNWARD, NW TAS
GEOLOGY
468025 025

5 cm

SCALE 1:100,000



Geology - R. Hine, R. Lockwood, A. Djakic with compilation from Tas Mines Dept 1:63,360 Burnie sheet and unpublished maps (Hellyer area) by P. Williams & P. Lennox

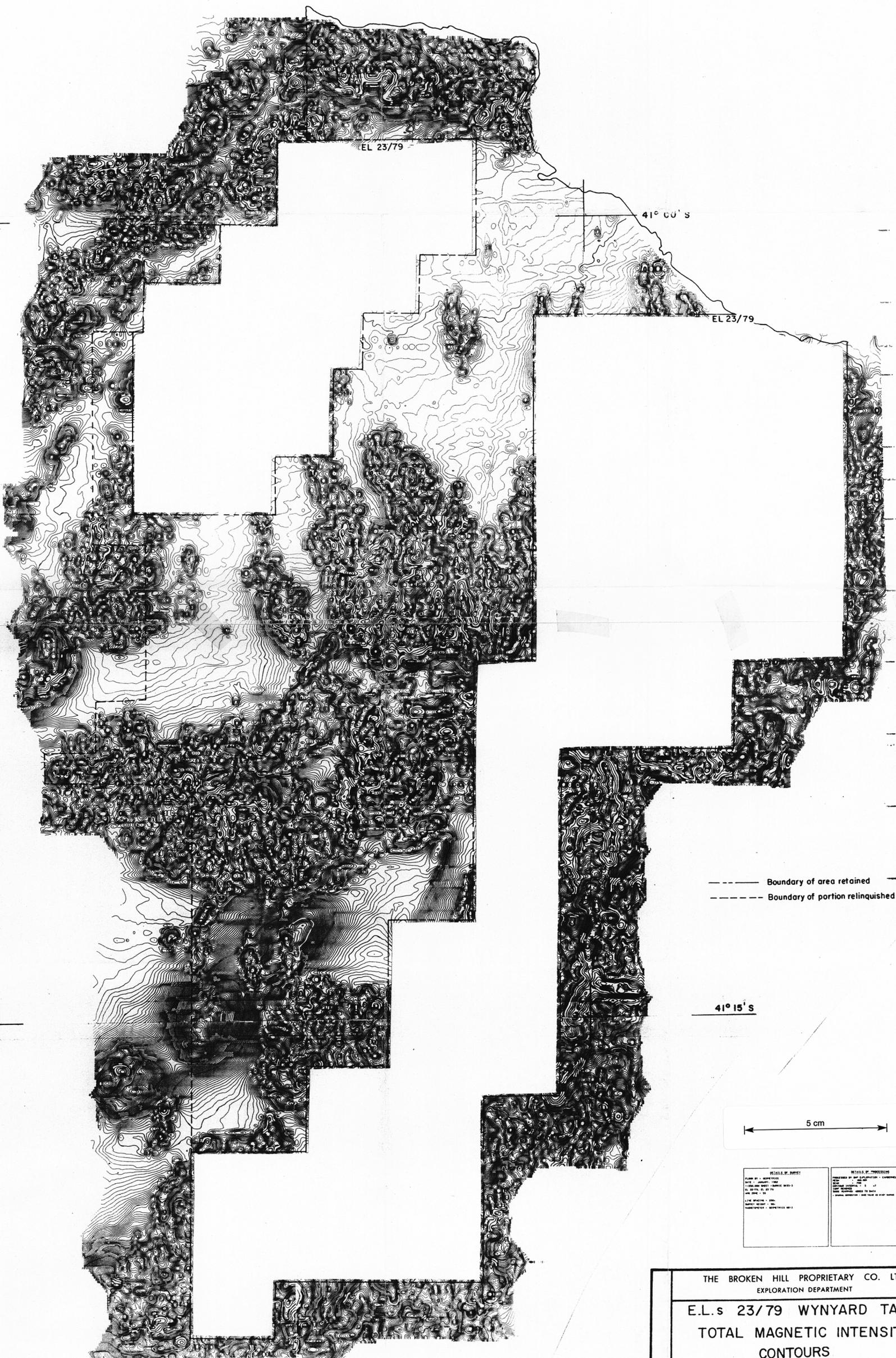


BASE MAP KEY

- ROADS
- VEHICULAR TRACKS
- STREAMS

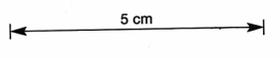
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145° 45' E

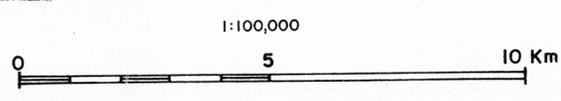


----- Boundary of area retained
----- Boundary of portion relinquished

41° 15' S

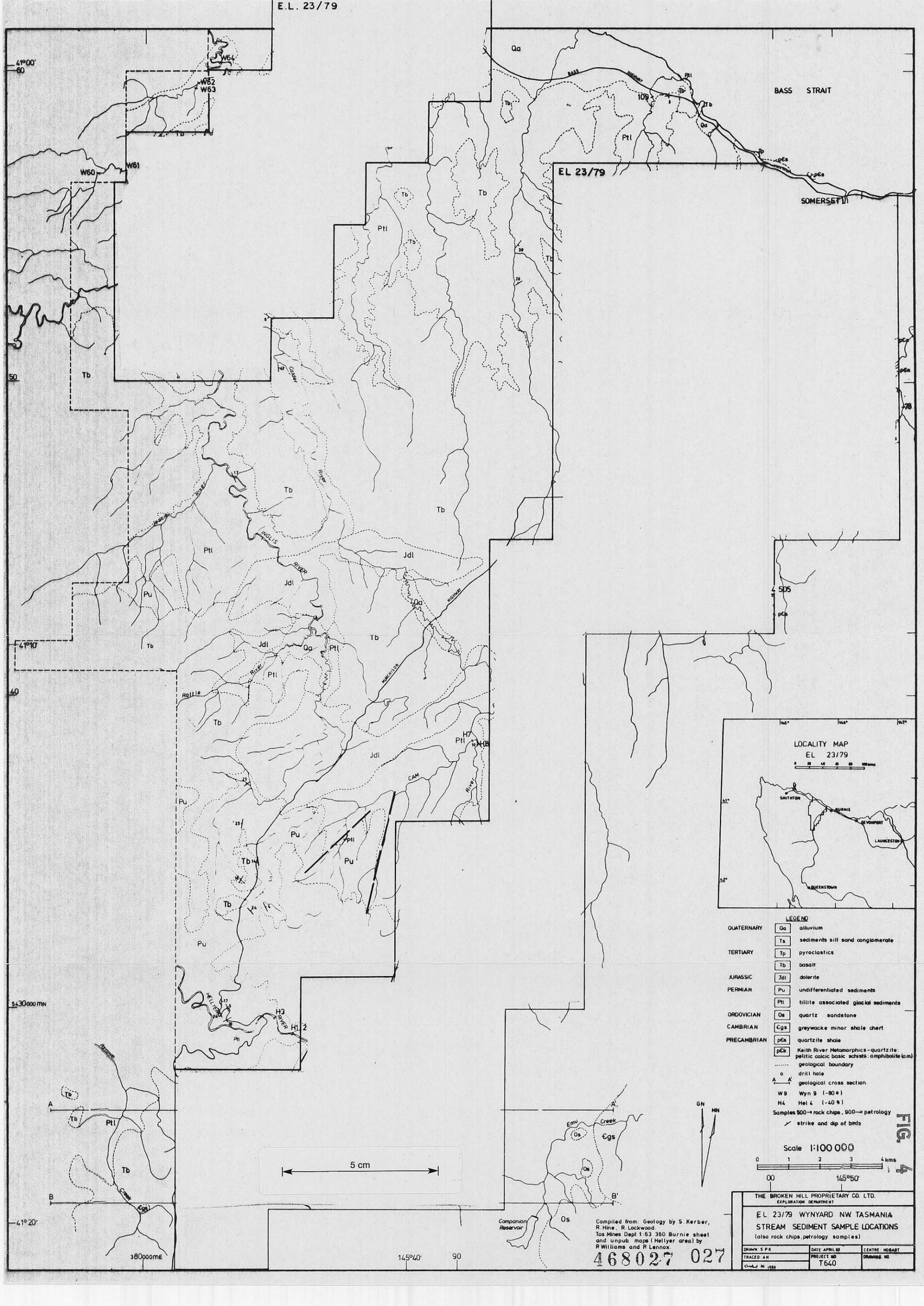


<small>DETAILS OF SURVEY</small> PLAN BY: M. J. BERRY DATE: JANUARY 1966 PROJECT NO.: 468026 SHEET NO.: 026 SCALE: 1:100,000 MAGNETIC INTENSITY MEASUREMENTS BY: M. J. BERRY DATE: JANUARY 1966	<small>DETAILS OF CORRECTIONS</small> CHECKED BY: M. J. BERRY DATE: JANUARY 1966 PROJECT NO.: 468026 SHEET NO.: 026 SCALE: 1:100,000 MAGNETIC INTENSITY MEASUREMENTS BY: M. J. BERRY DATE: JANUARY 1966
--	--



THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT		
E.L.s 23/79 WYNYARD TAS TOTAL MAGNETIC INTENSITY CONTOURS		
Drawn:	Date:	Centre: MELB.
Traced:	Project No.:	Drawing No.:
Checked:		G. 5261

468026 026



BASS STRAIT

SOMERSET

EL 23/79

LOCALITY MAP
EL 23/79

0 20 40 60 80 100 kms

LEGEND

- QUATERNARY Qa alluvium
- Ts sediments silt sand conglomerate
- TERTIARY Tp pyroclastics
- Tb basalt
- JURASSIC Jdl dolerite
- PERMIAN Pu undifferentiated sediments
- Ptl tillite associated glacial sediments
- ORDOVICIAN Os quartz sandstone
- CAMBRIAN Cgs greywacke minor shale chert
- PRECAMBRIAN pCa quartzite shale
- pEk Keith River Metamorphics-quartzite:
pelitic calcic basic schists amphibolite lam.

- o geological boundary
- o drill hole
- A-A geological cross section
- W9 Wyn 9 (-80#)
- H4 Hel 4 (-40#)
- Samples 500- rock chips, 900- petrology
- strike and dip of beds

Scale 1:100 000

0 1 2 3 4 kms
00 145°50'

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EXPLORATION DEPARTMENT

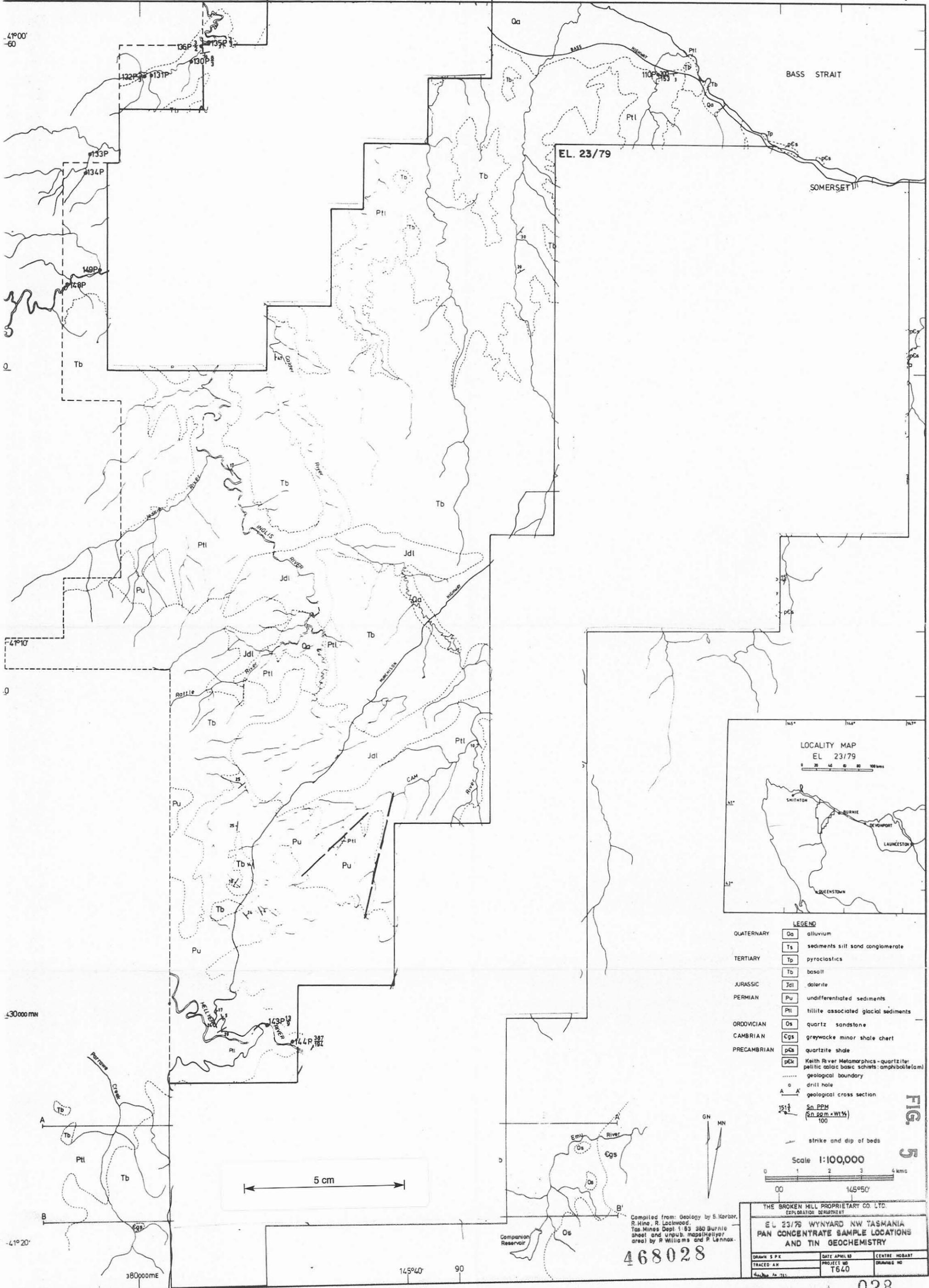
EL 23/79 WYNYARD NW TASMANIA
STREAM SEDIMENT SAMPLE LOCATIONS
(also rock chips, petrology samples)

DRAWN S.P.K.	DATE APRIL 63	CENTRE NOBART
TRACED A.H.	PROJECT NO T640	DRAWING NO
CHECKED M. 1964		

Compiled from: Geology by S. Kerber, R. Hine, R. Lockwood.
Tas. Mines Dept. 1:63 350 Burnie sheet and unpub. maps (Hellyer area) by R. Williams and R. Lennox.
468027 027

FIG. 4

EL. 23/79



BASS STRAIT

SOMERSET

EL. 23/79

LOCALITY MAP
EL. 23/79

0 20 40 60 80 100 kms

LEGEND

- QUATERNARY Qa alluvium
- Ts sediments silt sand conglomerate
- TERTIARY Tp pyroclastics
- Tb basalt
- JURASSIC Jdl dolerite
- PERMIAN Pu undifferentiated sediments
- Ptl tillite associated glacial sediments
- ORDOVICIAN Os quartz sandstone
- CAMBRIAN Cgs greywacke minor shale chert
- PRECAMBRIAN pCs quartzite shale
- pCk Keith River Metamorphics - quartziferous pelitic aulac basic schists amphibolite/am
- geological boundary
- o drill hole
- A-A' geological cross section
- 151° 30' S₀ P₁₀₀ M (S₀ P₁₀₀ × W₁₀₀) / 100
- strike and dip of beds

Scale 1:100,000

0 1 2 3 4 kms

145°50'

THE BROKEN HILL PROPRIETARY CO. LTD.
EXPLORATION DEPARTMENT

EL. 23/79 WYNYARD NW TASMANIA
PAN CONCENTRATE SAMPLE LOCATIONS
AND TIN GEOCHEMISTRY

DRAWN S.P.K. DATE APRIL 83 CENTRE HOBBART

TRACED A.K. PROJECT NO. T640 DRAWING NO.

468028

FIG. 5

028