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of M	A.O.	C.G.	E.O.	D.S.M.E
Received				25 FEB 1982
Answered				
DEPT. OF MINES				Registrar
REF. No.				E & IL

MICROFILMED

EXPLORATION LICENCE 33/79

WARATAH AREA, TASMANIA

Progress Report to 14th January, 1982

Including Report for the Six
Months Ended 14th January, 1982.

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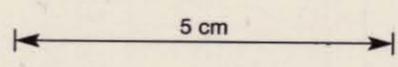
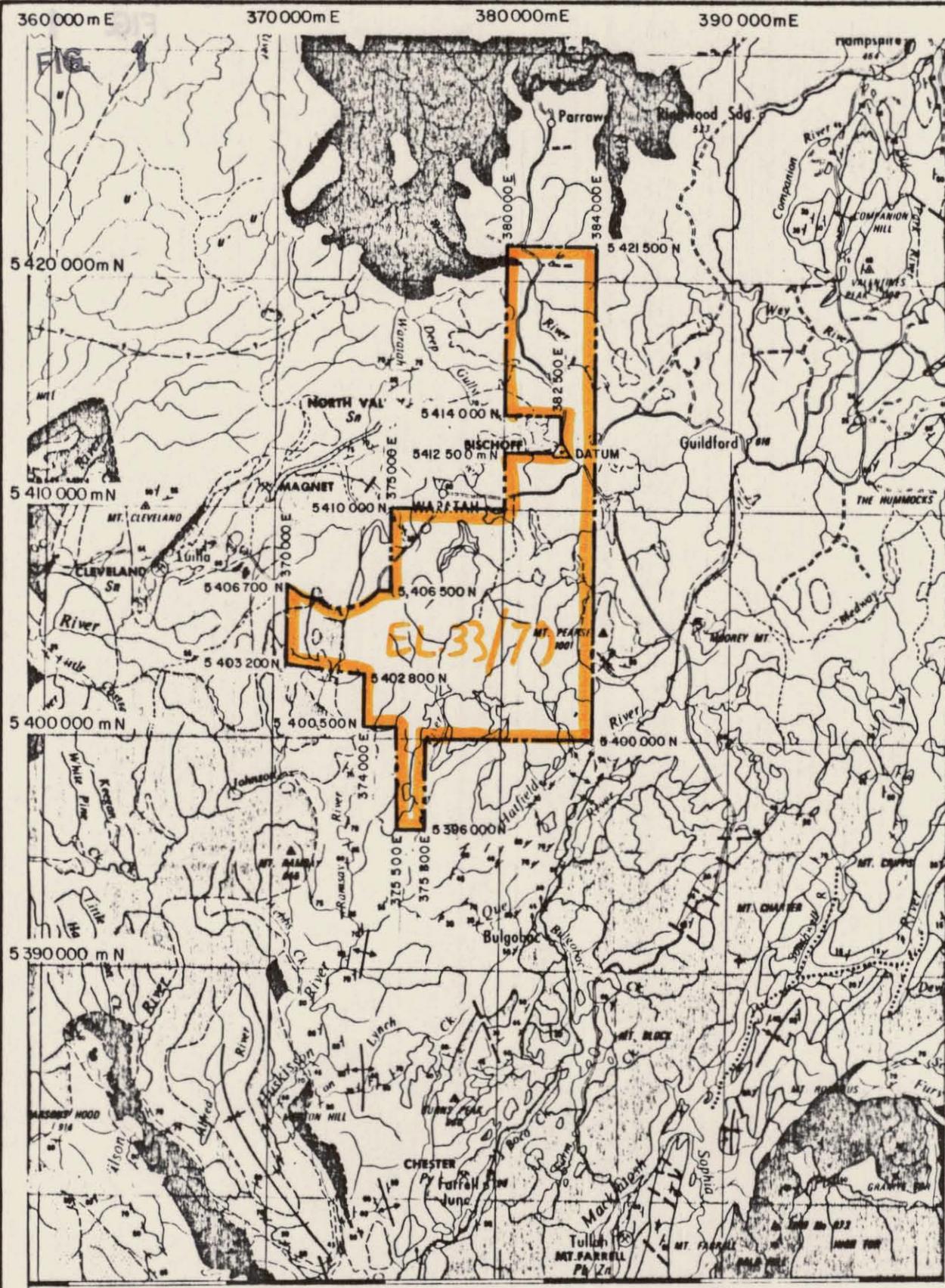
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Scale 1:250 000

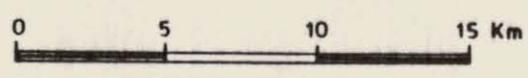


Photo copied from Geological Survey of Tasmania;
Burnie, 1:250 000 Geological sheet.

Centre Melbourne	THE BROKEN HILL PROPRIETARY CO. LTD.	Project No.
Date 12-2-82	LOCATION MAP E.L. 33/79 WARATAH, TASMANIA	Drawing No A4-2020/2

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1. GENERAL

Exploration Licence 33/79 of 150 square kilometres was initially granted to The Broken Hill Proprietary Company Limited on the 11th January, 1980. The area under licence lies within a mineralized belt which includes the Mt Bischoff, Cleveland and Magnet mines, as well as covering the northern extension of a sequence of sediments which include the host rocks for mineralization at Renison Bell and Mt Lindsay (see Fig's 1, 2).

2. EXPLORATION PHILOSOPHY AND METHOD

The principal target in the area is a massive sulphide or skarn hosted tin-tungsten deposit. Suitable host rocks for these styles of mineralization are known to extend beneath the blanket of Tertiary basalt which covers most of the licence area.

In the past, the basalt cover has prevented a concerted exploration effort and it was only in the period 1977 to 1979 that the area was first explored by modern techniques.

The basis for exploring the area lies principally with the generation of drill targets by geophysical methods. Consideration has also been given to the use of:

- a) geological methods - structure and lithology in surrounding terrain;

- b) remote sensing and photogeological methods;

- c) geochemical methods - including spring water sampling, humus and seepage sampling.

3. SUMMARY OF WORK COMPLETED

- a) Literature review and compilation of existing data;
- b) Geological mapping at 1:50,000 scale;
- c) Orientation stream sampling and pan concentrate sampling programme;
- d) I.P. profiling and depth sounding in the Reservoir grid area;
- e) Dighem II helicopter-borne EM test survey consisting of 50 line kilometres over five east-west and two north-south lines;
- f) Rock chip sampling of basalts for geochemical analysis and magnetic susceptibility measurements;
- g) Twenty line kilometres of grid cutting and surveying;
- h) Soil sampling at 100m intervals on cut lines;
- i) Ground magnetic survey on cut lines at 10 metre intervals and modelling of anomalies;
- j) Interpretation of Landsat satellite image at 1:250,000 scale;
- k) Aeromagnetic survey.

4. SUMMARY OF WORK IN PROGRESS

- a) Geochemical sampling for orientation purposes including seepage and humus sampling;
- b) Access track construction to drillhole sites;
- c) Soil sampling on tracks and crosslines in granite terrain in the western part of the licence area.

5. RESULTS

5.1 Previous Exploration

In 1965, Aero Service Ltd (for Aberfoyle) flew magnetics over part of the licence area. The survey was conducted with a fluxgate magnetometer on lines with a 400 yard spacing at a terrain clearance varying between 300 and 1,200 feet. The variation in topography had an adverse influence on the interpretation of the results, although the more subdued topography in the area of immediate interest may have offset the effect. The northern and easternmost parts of the licence area were not covered by this survey.

In 1979 Pennzoil completed a programme of Rapid Reconnaissance M.I.P. over two grid areas within their EL, which were selected by extrapolation of porphyry dyke and structural trends at Mt Bischoff. Some apparent R.R.M.I.P. anomalies were located but were not considered worthy of drill testing.

No exploration drilling has been carried out in the licence area, although three holes were drilled in the basalt by North Prospecting in the Guildford area. The deepest of these (150m) failed to penetrate to bedrock. Eight holes were drilled by the Mines Department in the period 1966 to 1972 to test the down dip extension of Fook's Lode which dips below the basalt to the north of Waratah township. Dolomite and dolomitic conglomerates with mineralized veins were recorded in the basement sequence which was overlain by basalt varying from less than 5 metres to 50 metres in thickness.

5.2 Physiography

A relatively flat, basalt capped plateau varying in height from around 600 to 640m above sea level forms the principal topographic feature of the area. The margins of the plateau are deeply incised to 400 to 500m above sea level near the north western and southern boundaries of the licence area. Mt Pearce (1000m) rises sharply out of the basalt plain near the south-eastern portion of the licence area.

5.3 Access and Vegetation

Excellent access is afforded by highways and major roads, although some of the flat lying land is marshy. Vegetation includes button grass, open and dense Myrtle and eucalypt forest.

5.4 Geology

The area is almost entirely covered by Tertiary basalt with minor basal and interflow sediments. The basement rocks, as inferred from outcrops in surrounding areas, range in age from Precambrian to Devonian.

The Precambrian rocks consist of slate, quartzite and minor dolomite which form an ENE trending anticlinorium at Mt Bischoff. The dolomite hosts the Sn-sulphide replacement body at the Mt Bischoff mine.

The Cambrian rocks consist predominantly of greywacke, siltstone and mudstone with minor dolomite and dolomitic conglomerate. Basic volcanics, ultrabasic intrusives, chert and conglomerate are present in the Cambrian sequence to the NW of the area. In general, the Cambrian rocks have been folded about NE to ENE trending axes.

Resistant Ordovician quartz sandstones crop out in the hinge of a large NE plunging syncline at Mt Pearse.

The intrusive rocks present are of Devonian age and include the Meredith Granite which crops out 9km south-west of Waratah. Related acid porphyries form an intrusive complex at Mt Bischoff, and are the presumed source of tin mineralization within the district.

Permian sediments underlie basalt some 6km to the north of the licence area but are not present beneath the basalt at Waratah.

The average thickness of the basalt as determined by Pennzoil from topographic maps and the few available drill logs would appear to be between 70 and 100m plus. More recent information from our ground magnetic surveying south and west of Waratah and from the drilling at Fook's Lode suggests that the pre-basalt topography was rugged and that basalt thicknesses are likely to vary considerably.

5.5 Geochemistry

a) Stream and pan concentrate sampling.

Stream sampling and pan concentrate sampling were carried out between March and June 1980 for orientation purposes. Thirteen stream samples were collected from creeks in the southern part of the area where basement rocks have been exposed by dissection of the basalt plateau. No significant anomalies were recorded. Samples collected from streams draining the northern edge of the plateau (W3-S6) were anomalous with respect to Pb, Zn, Ag and As, however, the anomaly is apparently due to contamination by mine tailings used as road fill in the area. Results are presented in Appendix 1. Tin values in the fifteen pan concentrate samples collected across the area ranged from less than 5 to 10 ppm where basalt was the main rock contributing to the sediment. One result of 1.15%Sn in a concentrate from a stream draining basalt sediments and possibly granite in the Wombat Flat area was recorded and has been the subject of follow-up in the current field season.

b) Rock Chip Sampling.

Fifty rock chip samples of relatively fresh basalt were collected for trace element analysis and magnetic susceptibility measurements. Background levels for tin and base metals in rock were established and no significant anomalies were detected. Tin in basalts ranged from less than 5 to 20 ppm

(one result). Two granitic intrusive rocks (WA 12, 13) from the western part of the licence area were analysed and returned low, anomalous values for Sn, Mo and As.

5.6 Petrology

Petrological reports including descriptions of four granitic rocks from the Wombat Flat area and one of a conglomerate in the basement sequence in the Hatfield Road area are attached (Appendix 2). The presence of carbonate in the matrix and clasts in the conglomerate has been confirmed.

5.7 Geophysics

During the period, a re-interpretation of the data from the aeromagnetic survey flown for the Aberfoyle Tin Development Partnership in 1965 was completed. This work led to the establishment of two grid areas (the Reservoir and Wombat grids) south of Waratah where ground magnetic traverses were completed. The Reservoir grid (Fig 4) covers a magnetic low (basement high?) which trends south easterly from Mt Bischoff. A large circular feature centred south of the Bischoff Reservoir has also been recognised on aerial photographs in this area.

The Wombat Grid covers a northward trending group of magnetic anomalies extending along the eastern limb of the Huskisson Syncline. The basalt cover in this area is apparently thin enough to allow the regional magnetic trend to emerge. Basement rocks in this area are probably within one kilometre of the contact with an intrusion forming part of the Meredith Granite Complex. Ground magnetic profiles have been included in Appendix 3.

A brief report by Dighem Limited on the results ^{of} the test survey carried out in 1980 is also included in Appendix 3. The test results did not justify the necessary expenditure to fly the entire licence area with E.M., and a low level, high resolution fixed wing airborne magnetic survey was planned. Flying for this survey was completed in mid January, 1982.

6. WORK PROPOSED

- a) Stratigraphic drilling in the Bischoff Reservoir and Wombat Flat areas;
- b) Water sampling and further seepage sampling;
- c) Processing and interpretation of airborne magnetic survey results.

APPENDIX 1

Geochemical Results

REGION.....**1.1.12**

PROJECT No.....**T650**

THE BROKEN HILL PROPRIETARY CO. LTD.

1 2 3			4 5 6 7 8 9			10 11 12 13		
8 4 2						0		

PUNCH IN EVERY CARD

ANALYSIS

14	SAMPLE NUMBER			Ni			Co																																								
				25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
0	ALPHA PREFIX	NUMERICAL VALUE		ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS			ANALYSIS																			
2	W	1		25			10																																								
2	"	2		55			30																																								
2	"	3		110			60																																								
2	"	4		60			30																																								
2	"	5		60			50																																								
2	"	6		60			30																																								
2	"	7		165			55																																								
2	"	8		270			100																																								
2	"	9		70			25																																								
2	"	10		25			10																																								
2	"	11		30			30																																								
2	"	12		30			30																																								
2	"	13		60			35																																								

DATE ANALYSED
 Day Month Year
 16 10 17

PLACE ANALYSED
 21 22 23 24 25 26 27 28 29

PPM - M 30
 WT % - W

SAMPLING METHOD

1	2	3
31	32	33

SAMPLE PREPARATION

1	2
34	35

ANALYSIS SCHEME

36	37
----	----

FRACTION SCHEME

Form No. 473

SHEET No. 42679

010
828011

REGION NW TAS
 PROJECT No. T650
 LINE/ZONE

THE BROKEN HILL PROPRIETARY CO. LTD.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
8	3	5									1	0	2

PUNCH IN EVERY CARD

GENERAL SAMPLE DESCRIPTION

SAMPLE NUMBER			EASTING				NORTHING				REDUCED LEVEL OF SAMPLE	FOR CHANNEL SAMPLES Etc.				Information Available	Duplicate samples	ROCK TYPE	Sample Type	SAMPLE DESCRIPTION																													
ALPHA PREFIX	NUMERICAL VALUE		LONGITUDE				LATITUDE					ORIENTATION		SAMPLE LENGTH																																			
	MIN	SEC	MIN	SEC	MIN	SEC	BEARING	DEP.	BEARING	DEP.																																							
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61			
WPC		1																																															Pan concentrate sample
		2																																															
		3																																															
		4																																															
		5																																															
		6																																															
		7																																															
		8																																															
		9																																															
		10																																															
		11																																															
		12																																															
		13																																															
		14																																															
		15																																															

REMARKS - Washed areas - ferrirete in WPC 8
- det. gls in WPC 9

Date 25/7/80

Logged or sampled by R. HINE

011
828012

REGION.....

PROJECT No.....

THE BROKEN HILL PROPRIETARY CO. LTD.

1	2	3	4	5	6	7	8	9	10	11	12	13
8	4	2										0

PUNCH IN EVERY CARD

ANALYSIS

SAMPLE NUMBER		Sn	Method of Analysis	W	Method of Analysis	Cu	Method of Analysis	Pb	Method of Analysis	Zn	Method of Analysis	Ag	Method of Analysis	Mo	Method of Analysis	As	Method of Analysis
ALPHA PREFIX	NUMERICAL VALUE	ANALYSIS		ANALYSIS		ANALYSIS		ANALYSIS		ANALYSIS		ANALYSIS		ANALYSIS		ANALYSIS	
WA	12	<5		<10		40		20		40		1		10		2	
WA	13	55		<10		30		20		5		1		2		1400	
		* Ni 5.5 ; Co 10, <5 for samples 12, 13 respectively.															

DATE ANALYSED
 Day Month Year
 15 18 17

PLACE ANALYSED
 21 22 23 24 25 26 27 28 29
 ALS

PPM - M
 WT % - W

SAMPLING METHOD

1	2	3
31	32	33

SAMPLE PREPARATION

1	2
34	35

ANALYSIS SCHEME

36	37
----	----

FRACTION SCHEME

015

828016



PH (07) 391 4000
 A/H 395 8724
 TELEX ALBU 43344

Batch No.: F127 Client: BHP COMPANY LIMITED, Area Contact: DR. RICK NINE,
 Date Received 17/06/80 Address: P.O. BOX 559 CAMBERWELL VIC Address: G.P.O. BOX 1148 L. HOBART, TAS. 7001,
 Date Completed 09/07/80

Order No.: T650 / T610 Sample Type: ROCK, ~~BASE~~ BASALT SAMPLES No. of Samples: 30

SAMPLE NO.	Cu	Pb	Zn	Ni	Co	Cr	As	Sr	Rb	Ba	
	u	u	u	u	u	u	u	u	u	u	
	1	1	1	1	1	1	5-B	XRF 1A	XRF 1A	XRF 1A	
WBA 1	50	20	85	200	50	30		5	15	400	.03
WBA 2	55	15	90	190	50	25		10	15	400	.03
WBA 3	55	15	90	200	55	30		10	15	400	.03
WBA 4	45	10	60	110	40	20		5	5	265	.01
WBA 5	45	15	60	100	35	15		5	5	265	.01
WBA 6	40	10	65	140	40	25		5	10	300	.02
WBA 7	50	15	90	190	55	25		5	10	450	.02
WBA 8	35	10	60	180	40	20		10	10	330	.03
WBA 9	40	15	70	105	45	20		5	25	330	.02
WBA 10	35	10	60	90	35	20		5	20	305	.04
WBA 11	55	15	85	200	50	30		10	15	340	.01
WBA 12	35	15	65	160	45	30		20	10	280	.03
WBA 13	60	15	65	160	40	10		5	5	225	.02
WBA 14	30	10	50	65	30	20		10	15	275	.05
WBA 15	40	15	80	150	50	20		5	15	345	.04
WBA 16	30	10	65	160	45	50		5	15	285	.06
WBA 17	50	15	80	160	50	30		5	10	300	.03
WBA 18	40	15	60	145	40	40		5	15	260	.03
WBA 19	40	15	60	140	40	30		5	15	270	.05
WBA 20	35	15	75	175	50	50		5	15	320	.04
WBA 21	50	15	85	165	50	30		5	15	265	.05
WBA 22	45	15	55	90	30	10		5	10	260	.03
WBA 23	55	20	70	180	45	60		5	15	260	.05
WBA 24	60	20	90	180	60	40		5	10	390	.02
WBA 25	55	20	145 ^a	190	75	40		5	10	300	.03
WBA 26	30	15	75	120	45	25		5	15	315	.02
WBA 27	25	20	65	100	35	25		5	5	300	.02
WBA 28	40	20	80	140	40	25		5	10	400	.02
WBA 29	40	15	80	150	45	30		5	20	280	.07
WBA 30	30	15	70	85	35	20		5	10	295	.01

UNITS LEGEND ----- a - Parts per million b - Parts per billion % - percent

010
280
1

L. G. M. H. I. N. T. R. E. P. O. R. T.

A/H 358 0724
 TEL. 21 020 42344

Batch No.: F127 Client: BHP COMPANY LIMITED, Area Contact: DR. RICK NINE,
 Address: P.O. BOX 559 Address: G.P.O. BOX 1140 L,
 CAMBERWELL HOBART, TAS, 7001.
 Date Received: 17/06/80
 Date Completed: 09/07/80 VIC
 Order No.: T650 / T610 Sample Type: ROCK, SOIL No. of Samples: 18

SAMPLE NO.	Cu	Pb	Zn	Ni	Co	Cr	As	Sr	Rb	Sr
	M	M	M	M	M	M	M	M	M	M
	1	1	1	1	1	1	5-B	XRF 1A	XRF 1A	XRF 1A
WBA 31	40	15	40	80	20	10	<5	10	285	0
WBA 32	60	10	35	90	20	20	<5	20	200	0
WBA 33	50	10	90	180	50	20	<5	<5	320	0
WBA 34	50	15	50	135	35	30	10	10	210	0
WBA 35	45	10	40	80	25	20	<5	15	205	0
WBA 36	45	15	40	120	30	30	<5	10	245	0
WBA 37	40	15	50	130	30	25	<5	10	275	0
WBA 38	35	10	30	50	20	15	5	10	220	0
WBA 39	30	15	70	50	30	30	5	20	370	0
WBA 40	70	15	85	230	55	40	<5	15	455	0
WBA 41	50	20	80	190	50	50	<5	15	310	0
WBA 42	15	15	70	30	35	5	10	20	345	0
WBA 43	60	20	95	210	60	40	<5	15	250	0
WBA 44	50	15	40	110	25	10	10	10	245	0
WBA 45	60	15	85	160	45	20	<5	10	290	0
WBA 46	50	15	70	170	40	20	<5	5	280	0
WBA 47	45	15	65	105	35	20	10	10	<5	0
WBA 48	45	15	65	100	40	15	<5	15	240	0
WBA 49	55	20	110	145	55	50	<5	35	245	0

828018

APPENDIX 2

Petrological Reports

019

828020

THE MELBOURNE
RESEARCH
LABORATORIES

245-273 Wellington Road
Clayton, Victoria 3168
P.O. Box 284, Clayton
Telephone 580-7005

Memo to: Dr. A. Goode, Camberwell

Date 23rd December, 198

Our Ref: M'OR/EH

Your Ref:

Subject: E1/15 - PETROLOGY OF A CONGLOMERATE AND SUSPECTED
SKARN FROM WARATAH, TASMANIA

File: M563

Date:

PREAMBLE: These rocks were from the Waratah Area in Tasmania. There were two samples, the first being a conglomerate MRL 12538 and the second being a large clast from the conglomerate MRL 12539. It was thought that the clast represented a skarn.

MRL 12538 - Conglomerate.

This conglomerate is composed of a mixture of pebble to sand size clasts from sedimentary calcite pisolites with sedimentary nuclei and chloritised volcanic fragments. The grains are rounded to sub angular. Occasional quartz - epidote - martite clasts are evident, showing a relict allotriomorphic granular texture. These represent altered epidotized plutonic rocks and not skarns. The matrix that binds the clasts together is an iron stained clay. Typical skarn mineralogy was not observed in any of the clasts.

It would be worth noting that some of the clasts i.e., the pisolites have undergone a number of stages of deposition and transportation. The first stage involved the grains in the nuclei being weathered out, transported and deposited into their original sedimentary environment. This may have been a river or other terrestrial environment. This deposit was then eroded and transported into a lagoonal environment where the calcium carbonate was precipitated onto the fragments forming the pisolites. These were then retransported and mixed with the volcanic clasts and deposited quickly as a conglomerate.

MRL 12539 - Altered vesicular basalt (clast from MRL 12538)

This rock does not appear to be a skarn type of rock, but a volcanic rock that has undergone some secondary phase of alteration. It has undergone chloritization and the vesicles have become filled with carbonate and epidote. Other minerals include quartz and plagioclase (appears as laths). Mineralisation is absent.

for 

MARTIN O'ROURKE

Vacation Student Geologist

- cc. Mr J Harms - Camberwell
- Mrs D Jenkinson - Camberwell
- Mr R Hine - Hobart

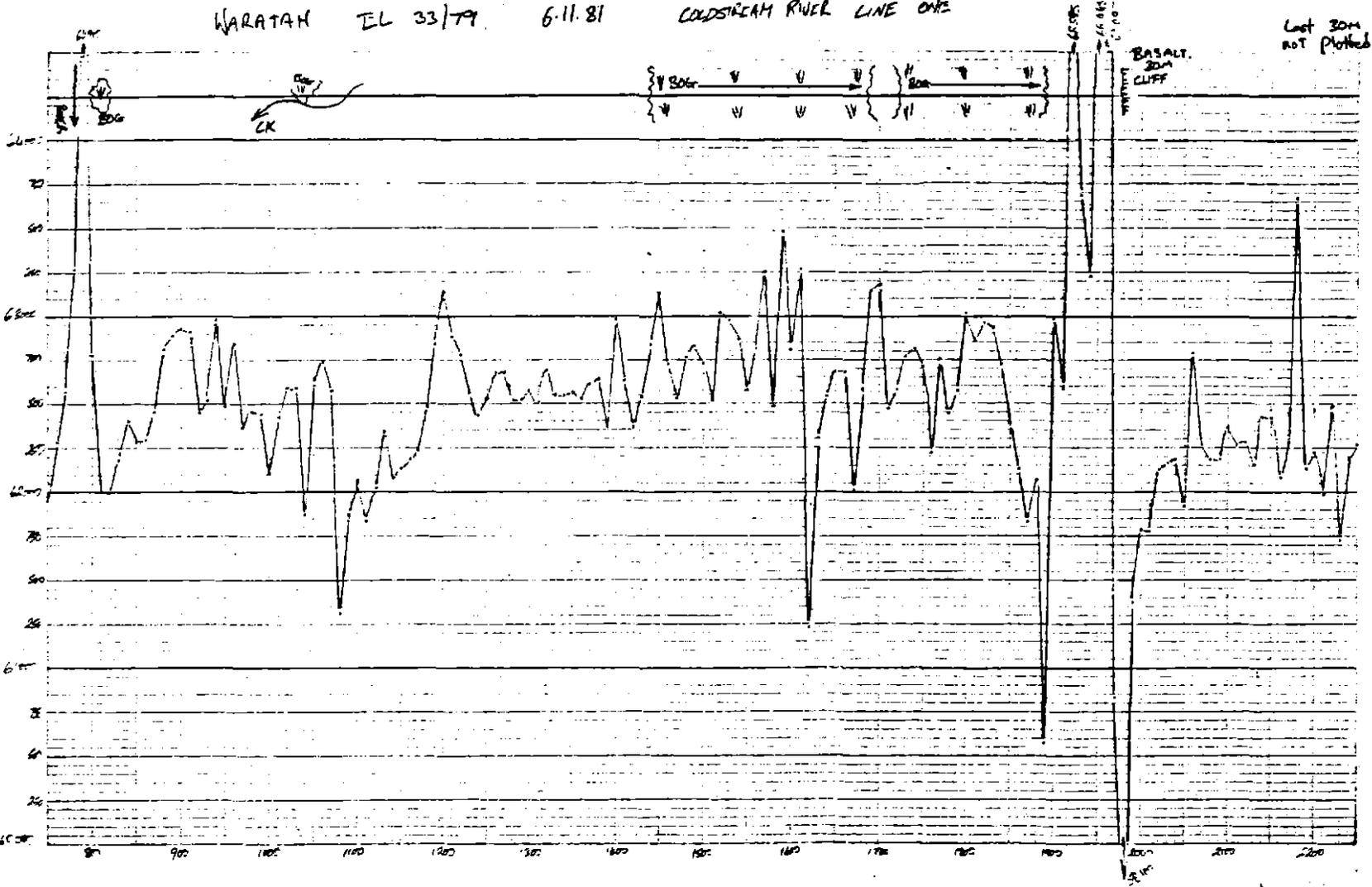
	<i>Classification - Composition</i>	<i>Fabric</i>	<i>Accessories</i>	<i>Comments</i>
MER 1 (MRL 11783)	<i>Biotite Micro-adamellite. Sparse orthoclase and oligoclase phenocrysts in groundmass of oligoclase laths, interstitial orthoclase, quartz, disseminated biotite flakes.</i>	<i>Granitic to weakly aplitic. Locally micrographic (granophyric). Phenocrysts to 2mm. Groundmass mean 100 u.</i>	<i>Weak but pervasive sericitisation oligoclase. Weak chloritisation biotite. Trace apatite.</i>	<i>Close compositional similarity with GOR 2, but distinctly finer-grained. Minor or marginal intrusive.</i>
MER 2 (MRL 11784)	<i>Biotite Micro-adamellite. Weakly sericitised oligoclase laths, anhedral quartz and orthoclase in near-equant proportions, disseminated biotite flakes.</i>	<i>Near-identical with MER 1, but non-porphyrific and slightly coarser-grained (mean 200u).</i>	<i>Minor traces apatite. Minor chlorite (after biotite).</i>	<i>Very similar and closely related to MER 1. Similarities with some of the minor Devonian intrusives of N.W. Tasmania (e.g. Pine Hill Porphyry).</i>
MER 3 (MRL 11785)	<i>Biotite Adamellite. Sericite-stained oligoclase, quartz and orthoclase in near-equant proportions. Disseminated biotite flakes.</i>	<i>Prismatic plagioclase, anhedral quartz, orthoclase. "Granitic", mean 750 u. Sparse feldspar phenocrysts (to 3.5mm).</i>	<i>Minor traces apatite (primary), chlorite (after biotite).</i>	<i>Closely related to MER 1, MER 2, but coarser-grained. These rocks are relatively biotitic but presumably also related to GOR 2.</i>
MER 4 (MRL 11786)	<i>Hornblende-Biotite Adamellite. Disseminated phenocrysts of orthoclase, oligoclase in groundmass of orthoclase, quartz, variably sericitised oligoclase, disseminated biotite flakes, minor green hornblende.</i>	<i>Phenocrysts to 1cm+. Granitic-textured groundmass (mean 1mm).</i>	<i>Minor apatite, minor trace magnetite. Traces chlorite (after biotite).</i>	<i>Locally micrographic. Closely related to MER 1, 2 and 3, but coarser-grained. Biotite tends to form clots enclosing minor hornblende.</i>

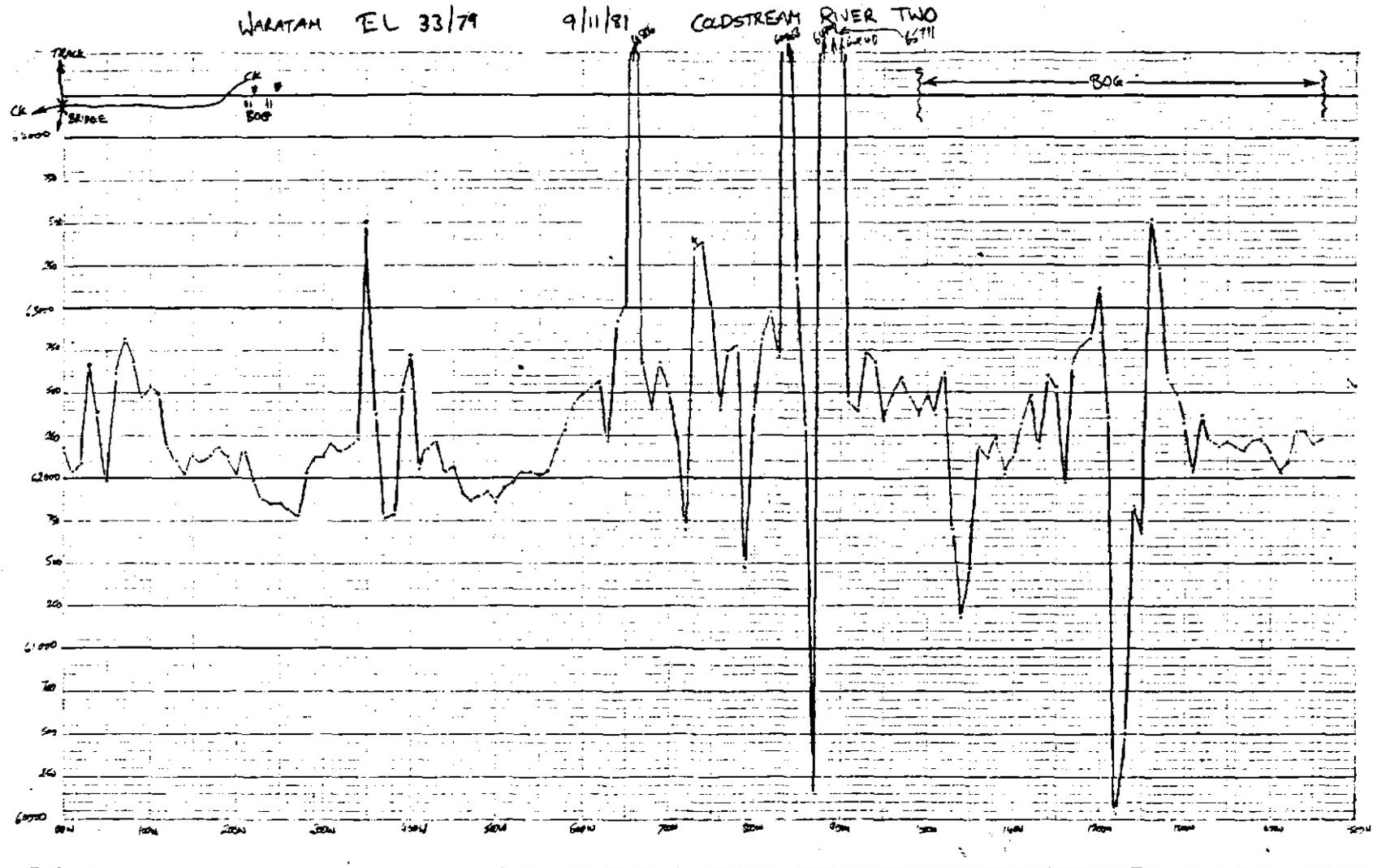
APPENDIX 3

Ground Magnetic Profiles

Dighem Report

WARATAH EL 33/79 6.11.81 COLDSTREAM RIVER LINE ONE



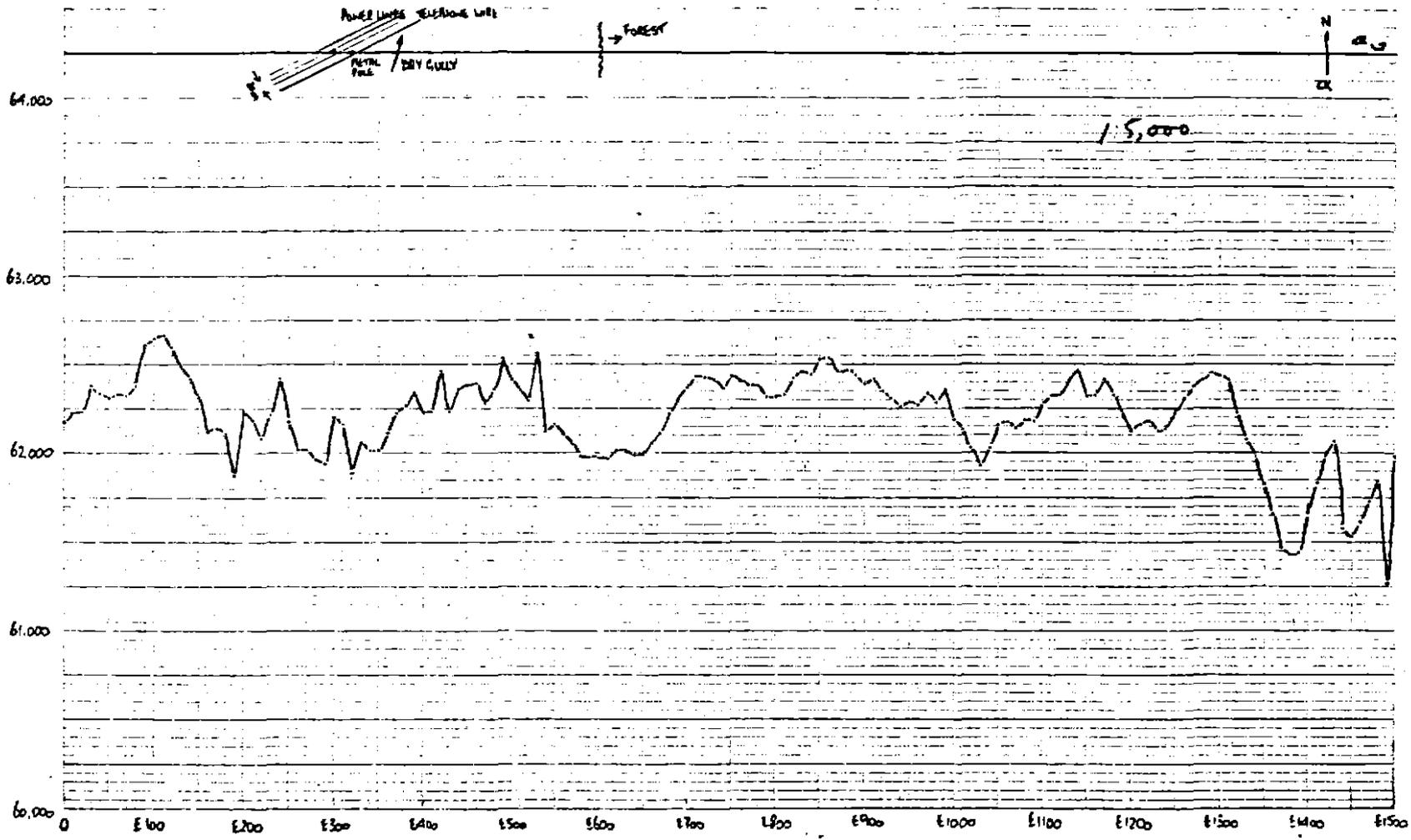


5 cm

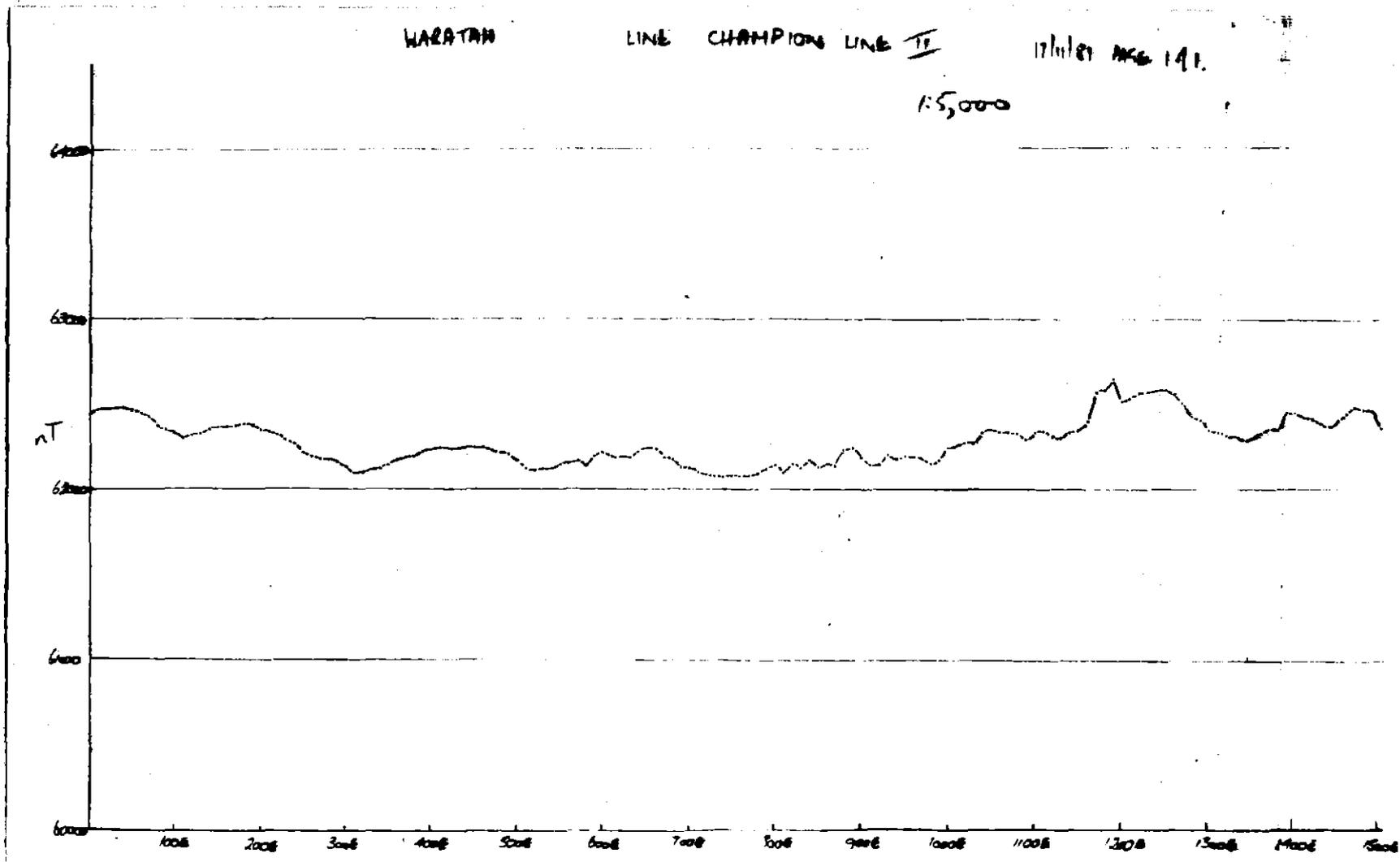
WARATAH

CHAMPION PROSPECT LINE ONE

2-11-81



WARATAN LINE CHAMPION LINE IF 17/10/61 MKS 141.
15,000



5 cm

026

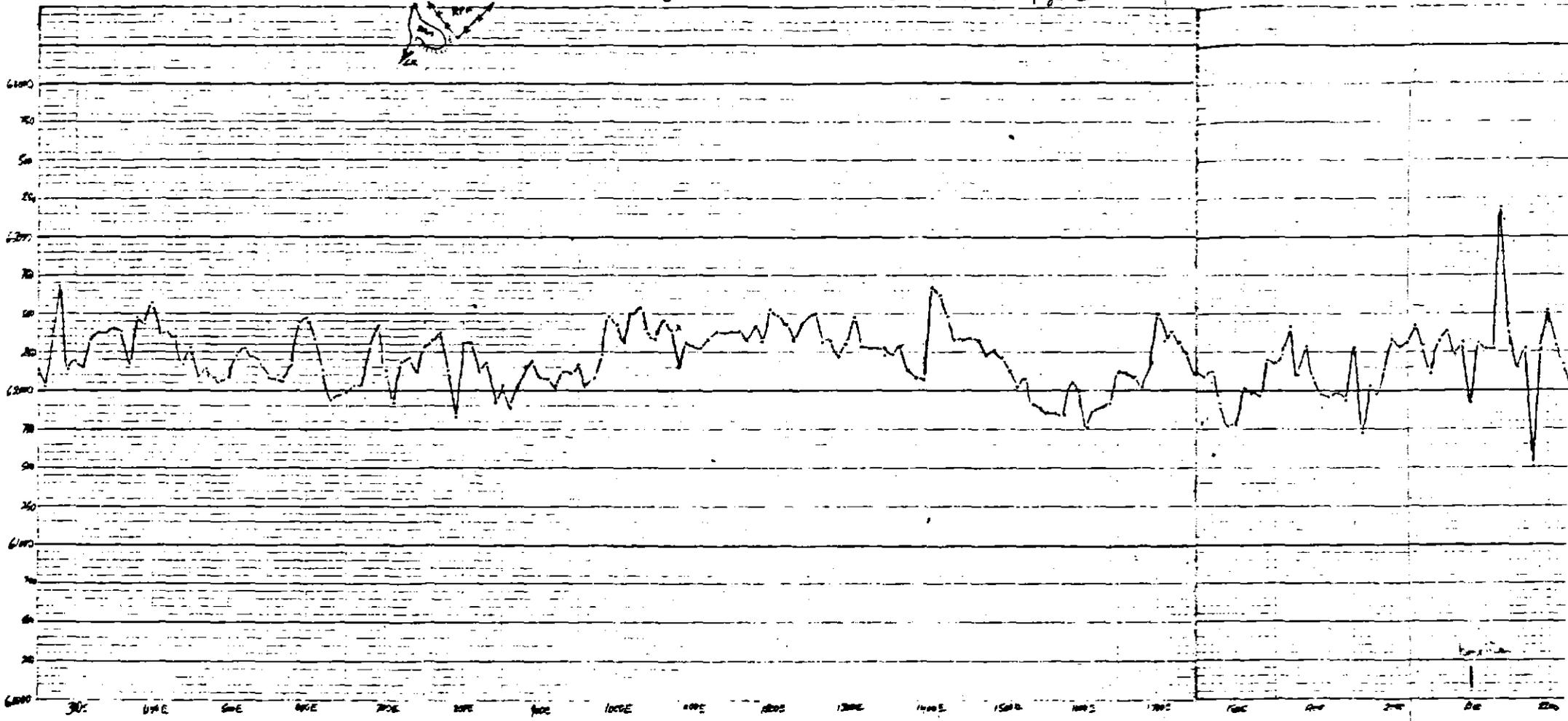
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WARATAH AREA 1 ROOM

Page 1 of 2

Continued on Page 2

WARATAH AREA 1



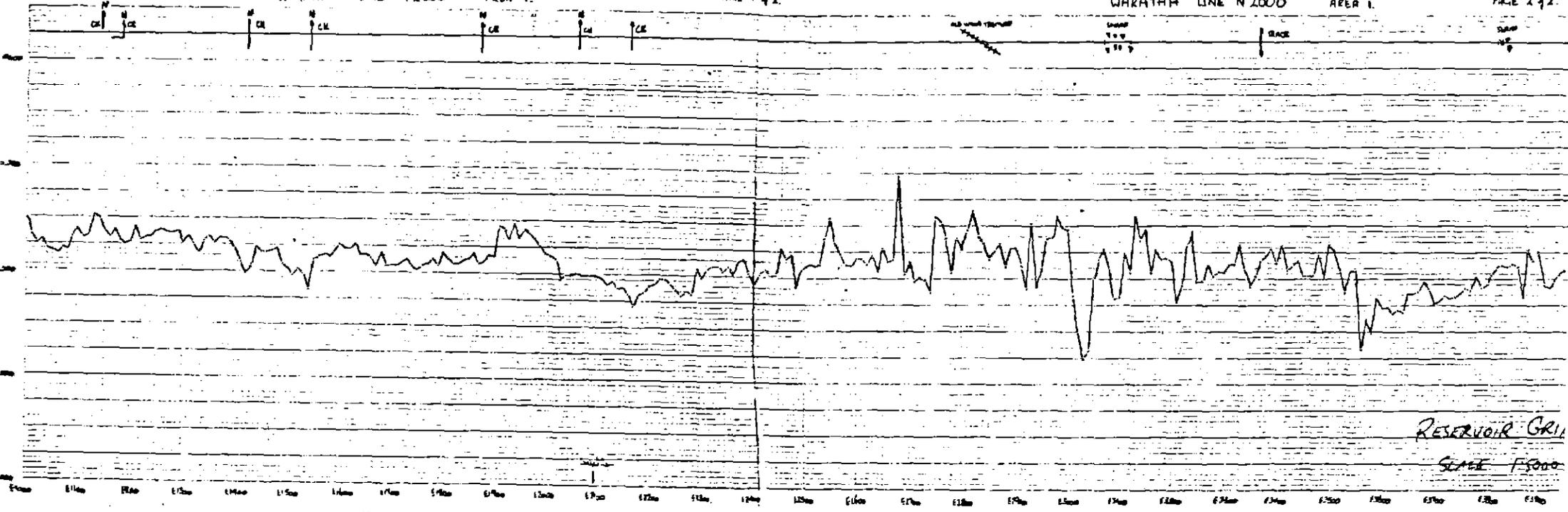
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WARATAH LINE N 2000 AREA 1.

PAGE 1 of 2

WARATAH LINE N 2000 AREA 1.

PAGE 2 of 2

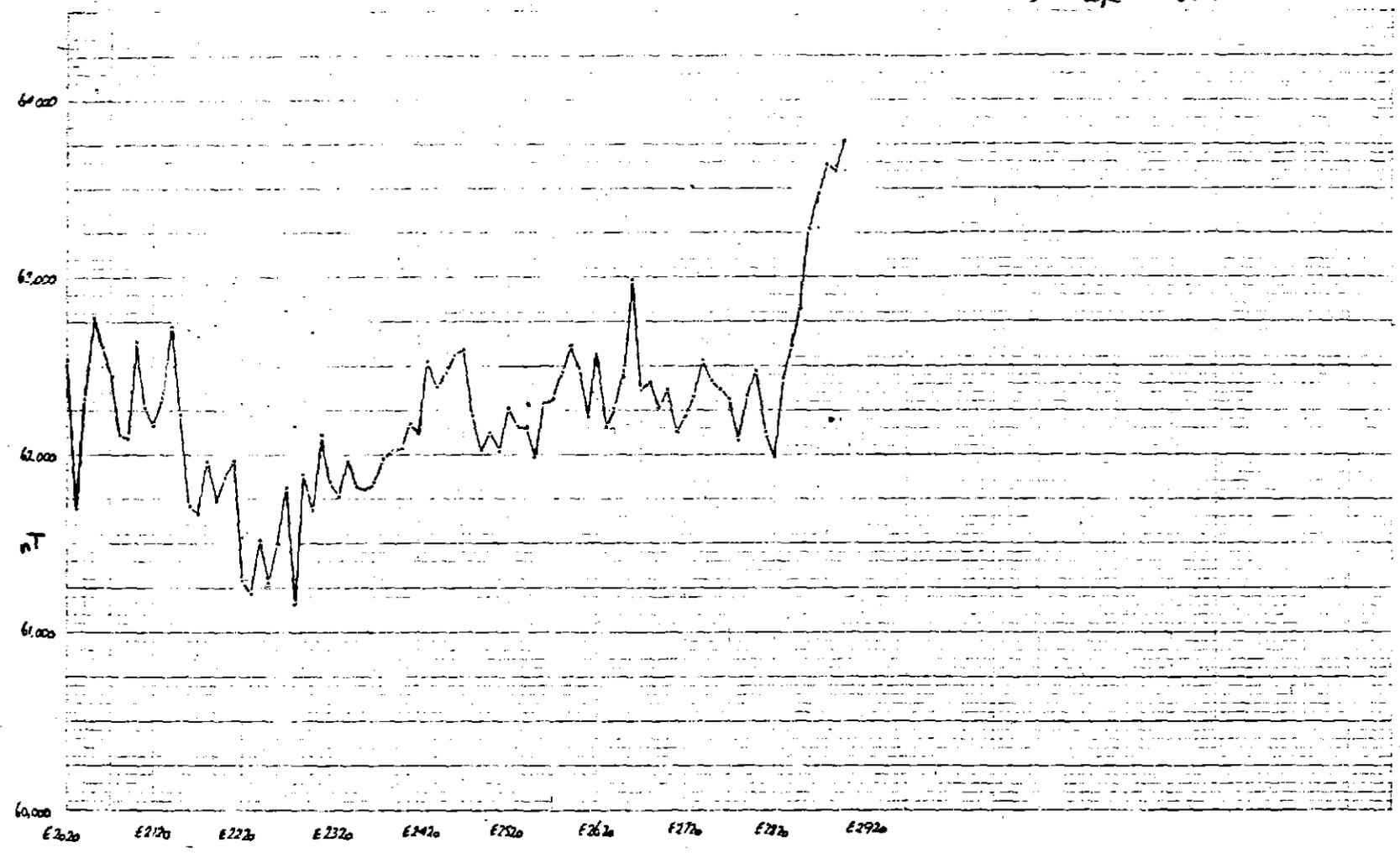


RESERVOIR GRILL

SCALE 1:5000

5 cm

WARATAH LINE 3430 N. AREA 1 (RESERVOIR GRID) Page 1 of 1



828031

WARATAH

RW PROSPECT

3-11-81

15005

Page 1 of 2

WARATAH

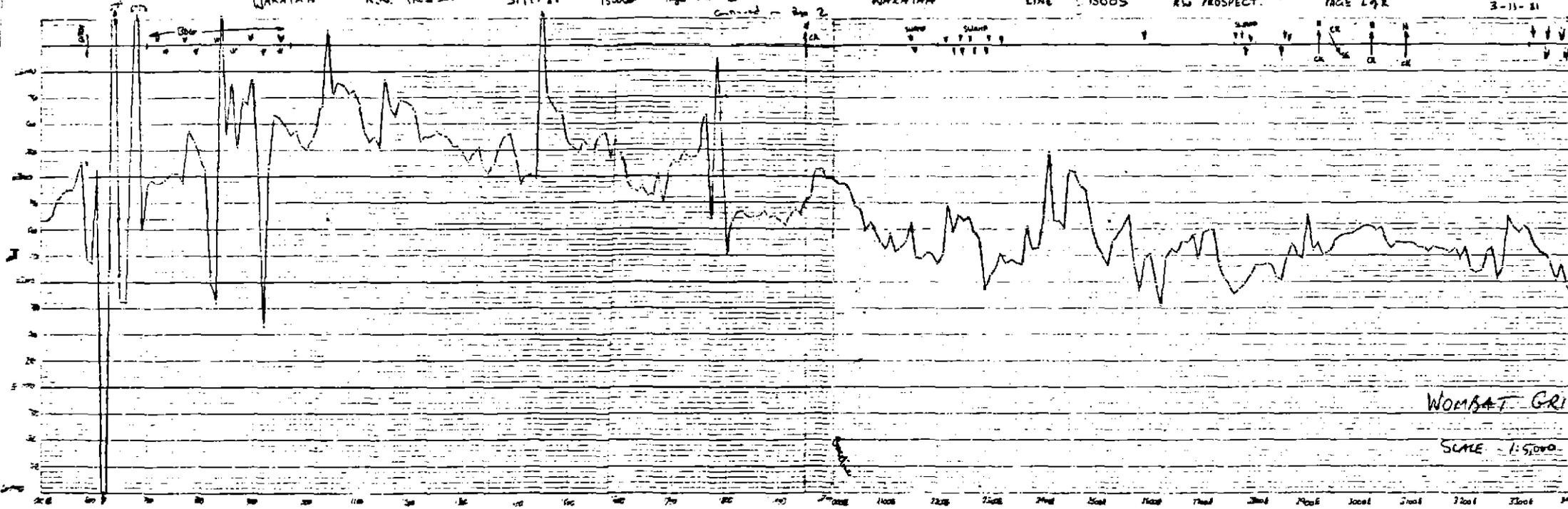
LINE

15005

RW PROSPECT

PAGE 1 of 2

3-11-81

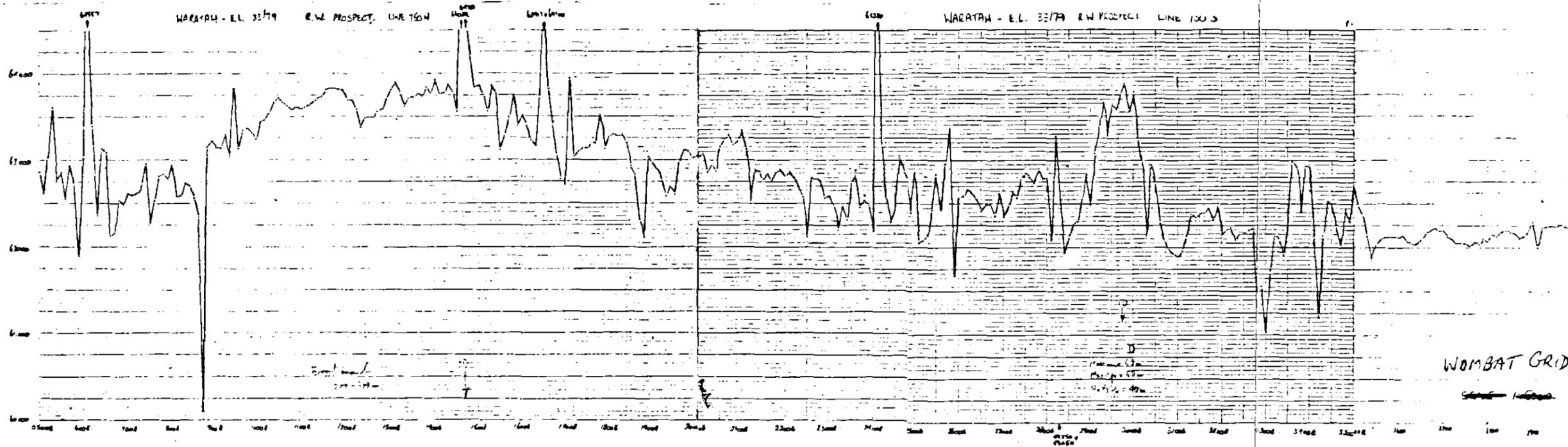


WOMBAT GRI

SCALE 1:5000

5 cm

080



032

REPORT NO. 303/B

828033

DIGHEM^{II} SURVEY

IN

TASMANIA

FOR

THE BROKEN HILL PROPRIETARY COMPANY LIMITED

BY

DIGHEM LIMITED

TORONTO, ONTARIO

JUNE 26, 1980

D.C. FRASER
PRESIDENT

Z. DVORAK
GEOPHYSICIST

LOCATION MAP

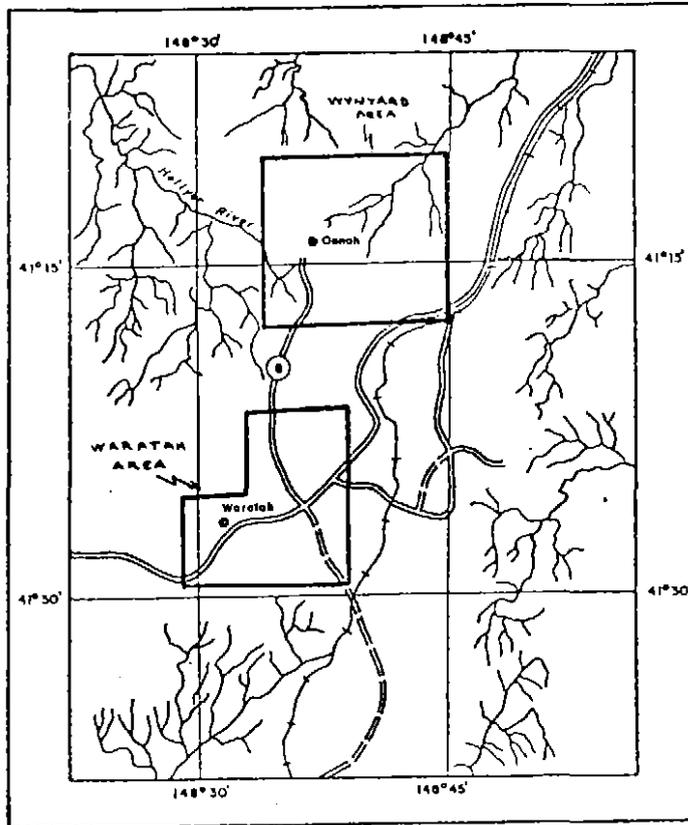


Figure 1c. Wynyard and Waratah

5 cm

Waratah Areas

The Waratah area survey comprises two north-south lines about 3½ km apart, and five east-west lines separated by about 1½ to 3½ km. Maps were not produced but the digital profiles were plotted.

Resistivities in this survey area vary between 30 and 500 ohm-m, reflecting mostly variations in the locally conductive overburden. Due to dense tree cover, the area has similar altitude problems as the Wynyard area with regard to the depth channel 41.

The majority of the EM responses reflect surficial or cultural sources. Those which appear to indicate bedrock conductors are listed below: anomalies 611D, 611F and possibly 613F. Consideration should be given to a low resistivity zone located between fiducials 1055 and 1056 on line 616

03 AREA G BHP WARATAH APR/80

LINE & ANOMALY	STANDARD COIL		WHALETAIL COIL		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* FEET	COND MHOS	DEPTH FEET	RESIS OHM-M	DEPTH FEET
611B	0	46	5	11	2	0	1	0	511	0
611D	4	4	1	2	4	114	1	456	107	279
611E	2	8	4	17	2	43	1	219	281	66
611F	2	1	3	2	14	228	3	692	27	565
611G	4	17	9	32	2	13	1	157	163	35
612C	6	6	0	0	5	0	2	84	59	0
613B	33	0	2	0	55	116	74	360	1	354
613F	7	2	2	1	30	236	6	625	7	536
613G	3	1	3	2	13	124	3	561	24	441
613I	22	0	2	3	14	0	42	296	1	280
613K	4	1	2	2	24	152	4	590	14	478
614A	2	3	4	6	4	72	1	390	123	209
616B	27	25	2	2	11	19	3	236	20	157
616D	24	8	2	6	24	51	6	316	5	250
617B	35	0	3	0	13	0	85	268	1	264
617E	18	5	1	0	17	0	8	313	3	251

* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART
OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT
LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS.

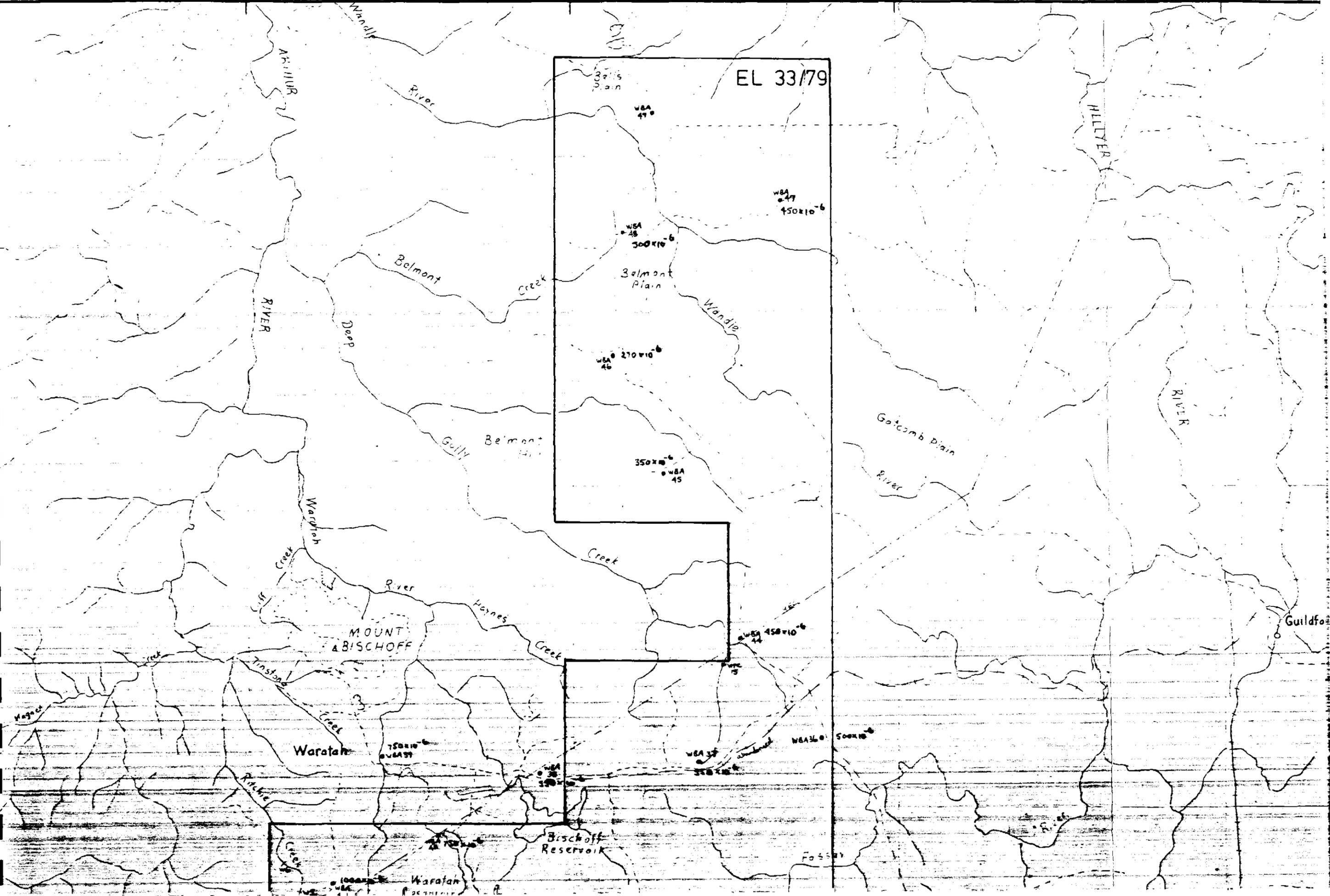
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Sources Consulted

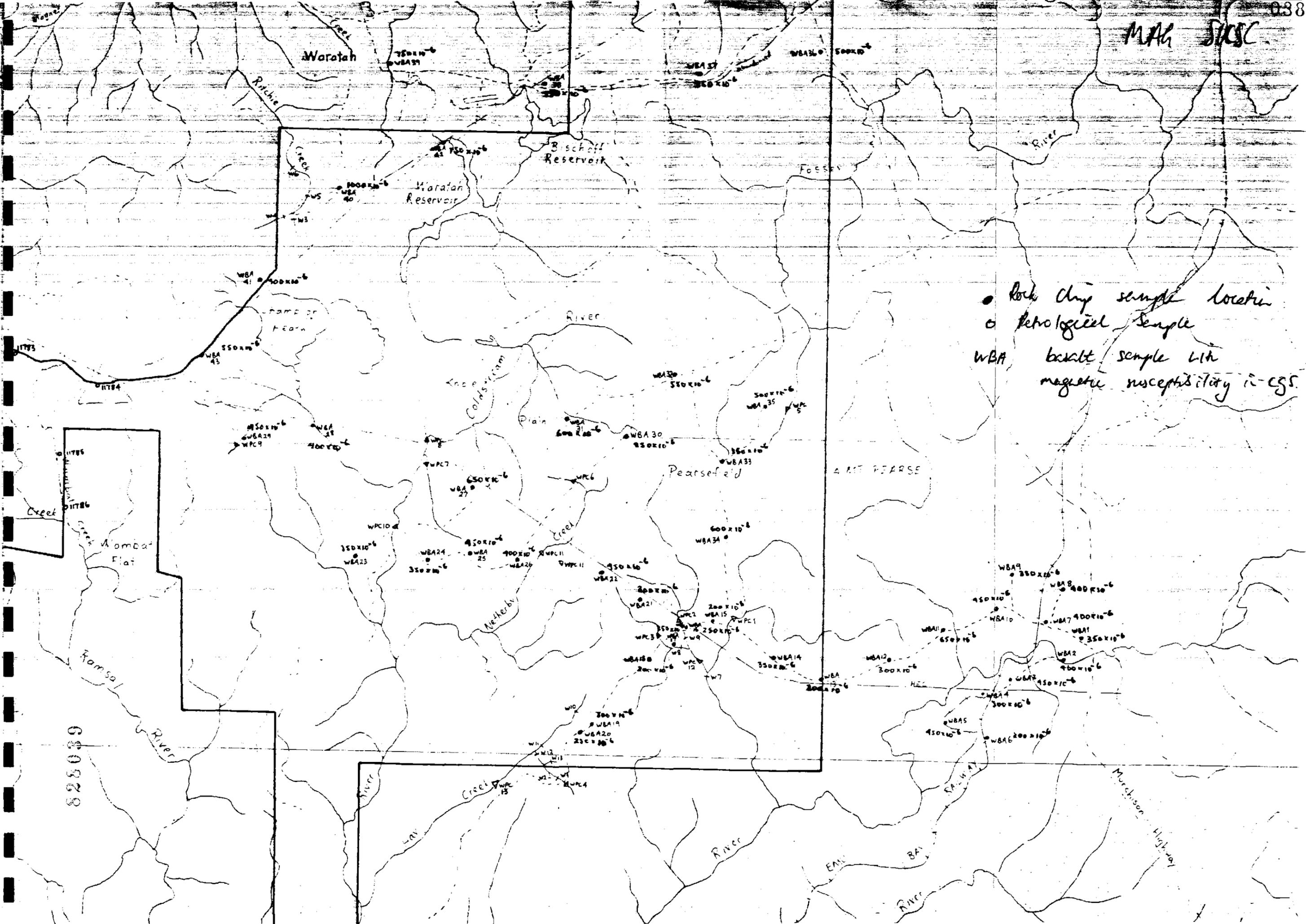
Chapman, J., 1979: Report on Exploration Progress Period Ending April 1979, Mt Pearse EL 10/77. Pennzoil Aust. Ltd. Tas. Mines Department Open File Report, 1979.

Groves, D.I. et al, 1972: A Century of Tin Mining at Mt Bischoff 1871-1971. Tasmania Department of Mines Geological Survey, Bulletin No. 54, 310p.

Zarzavatjian, P.A., 1965: Interpretation Report of Airborne Magnetometer Survey over the Waratah-Zeehan Area, North-West Tasmania for Aberfoyle Tin Development Partnership. (Aero Service Ltd). Tas. Mines Department Open File Report.



MAG 5155C



● Rock chip sample location
 ○ Petrological sample
 WBA basalt sample with magnetic susceptibility μ -cgs.

825039

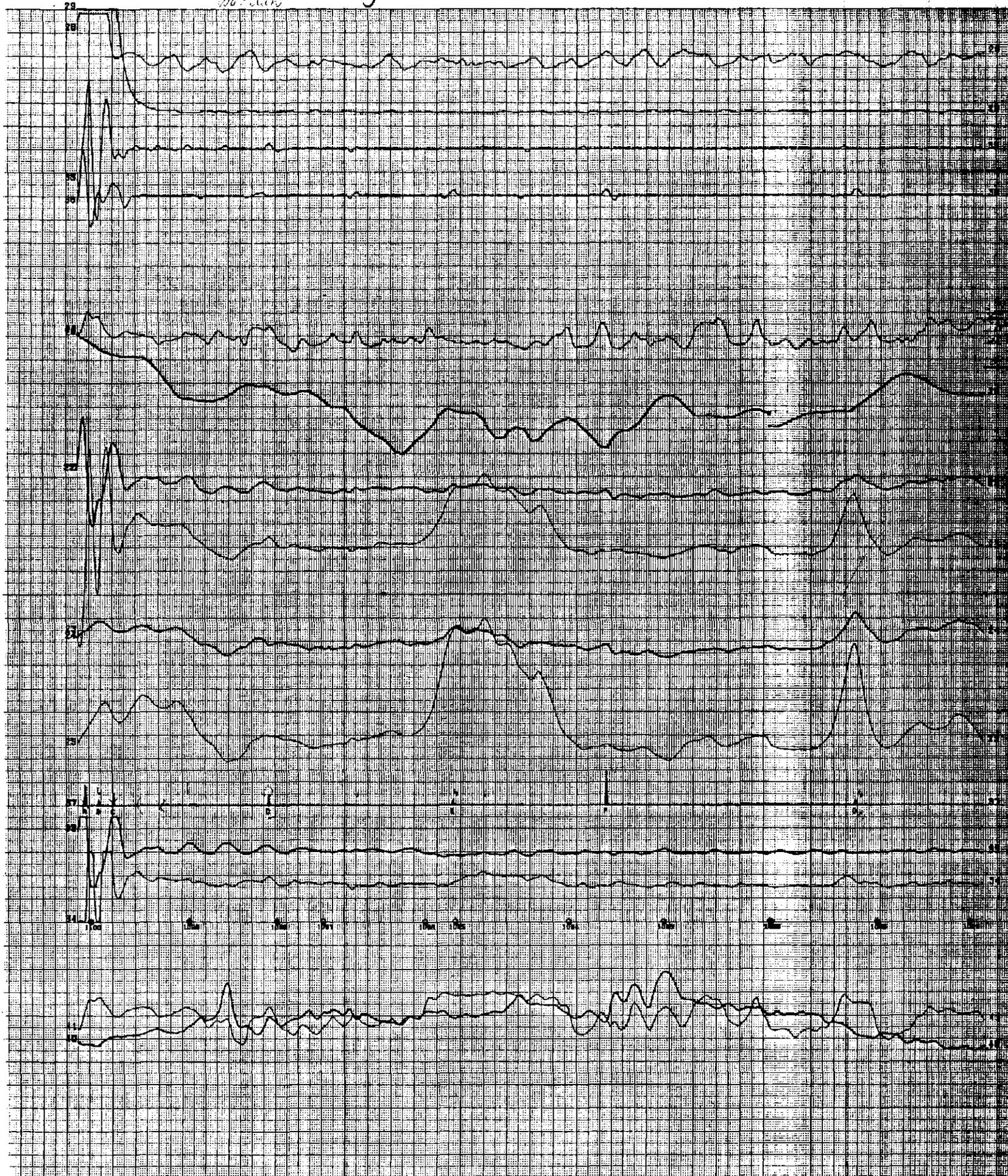
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7

828040

W. L. W. Dighem

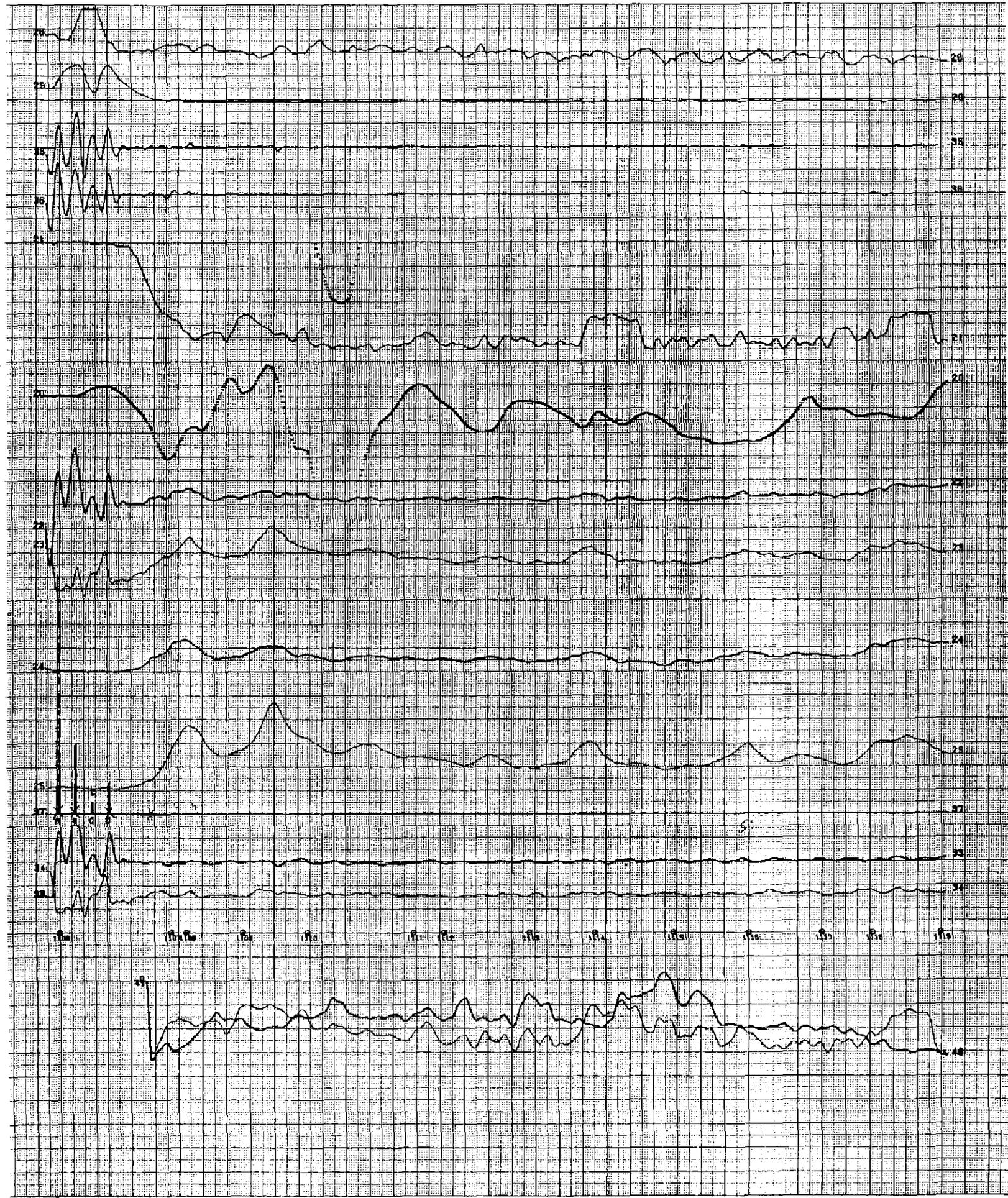
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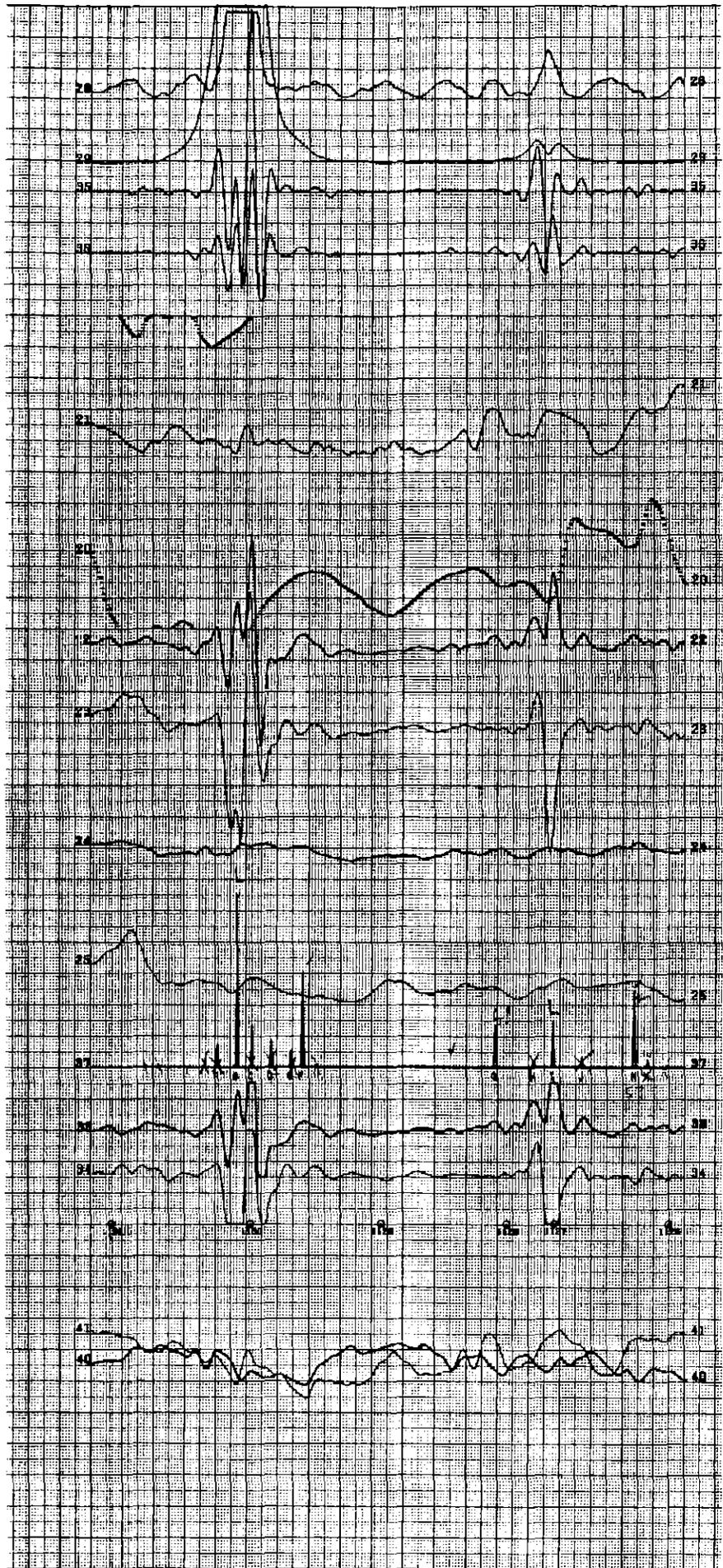


LINE 612

LINE 612

041

828042



LINE -613

LINE -613

042

828043

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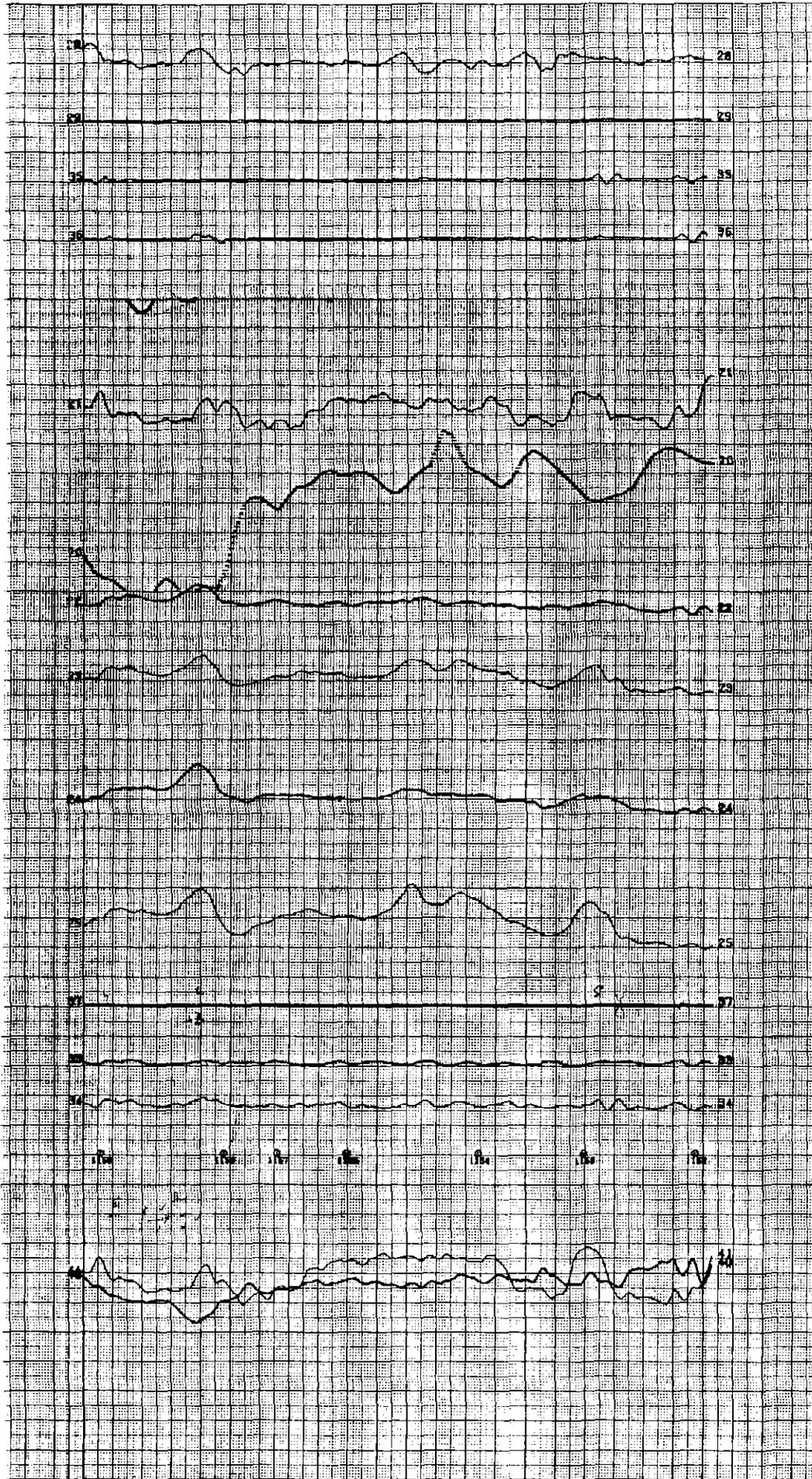


LINE 614

LINE 614

043

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LINE -615

LINE -615

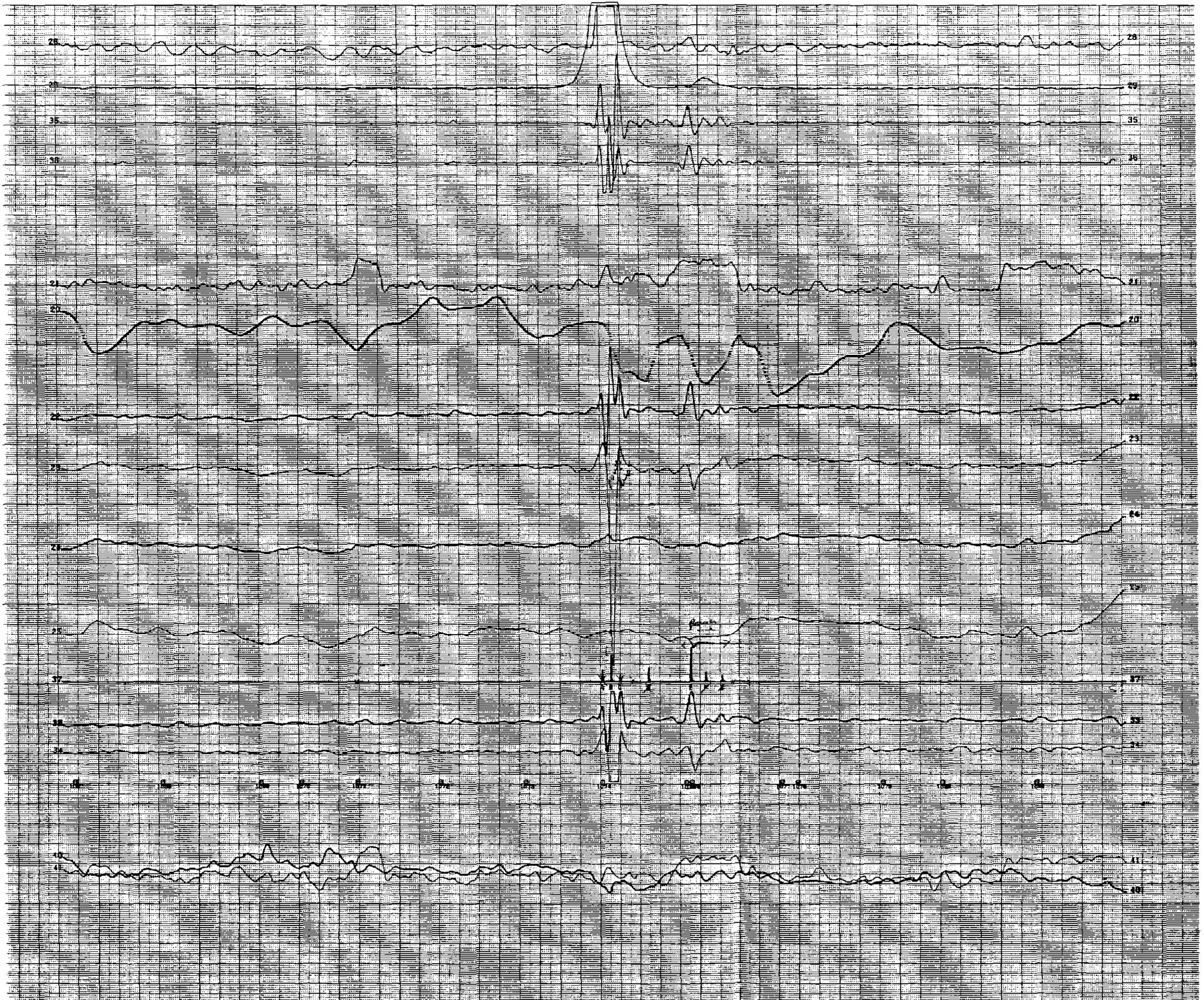


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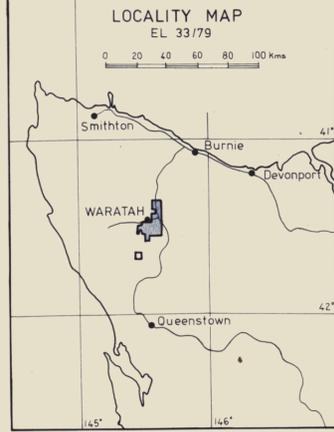
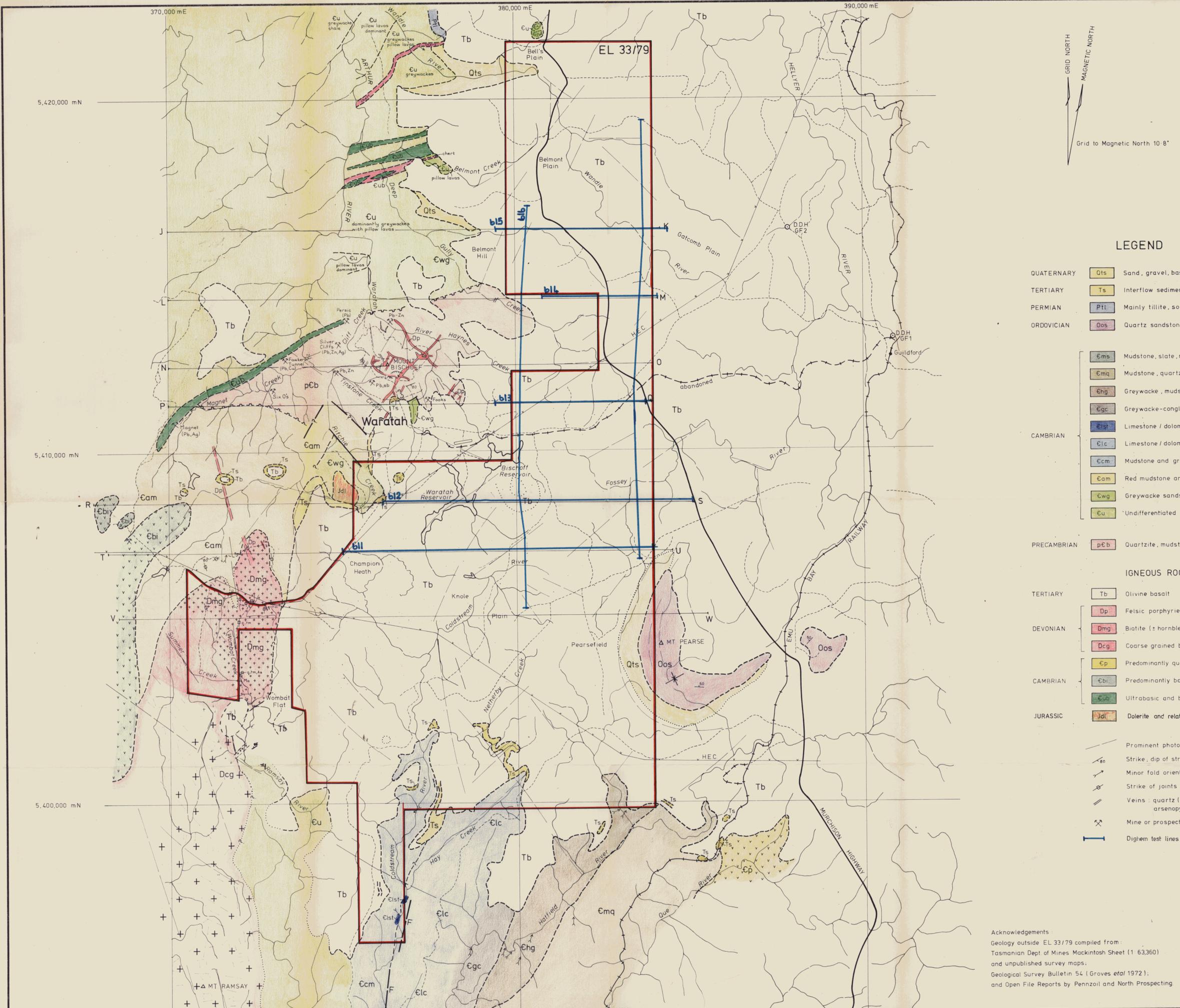
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LINE 617

LINE 617



GRID NORTH
MAGNETIC NORTH
Grid to Magnetic North 10° 8'

LEGEND

- QUATERNARY Qts Sand, gravel, basalt talus
- TERTIARY Ts Interflow sediments, silcrete, laterite
- PERMIAN Ptl Mainly tillite, some varves and related sediments
- ORDOVICIAN Oos Quartz sandstone - correlate of Owen Conglomerate

- εms Mudstone, slate, minor sandstone
- εmq Mudstone, quartzite, greywacke
- εhg Greywacke, mudstone (Hatfield River)
- εgc Greywacke-conglomerate, sandstone, mudstone
- εlg Limestone / dolomite
- εlc Limestone / dolomitic conglomerate, interbedded greywacke / mudstone
- εcm Mudstone and greywacke sequence (Coldstream River)
- εam Red mudstone and sandstone (Arthur River)
- εwg Greywacke sandstone and mudstone (Waratah River)
- εu Undifferentiated

- PRECAMBRIAN pεb Quartzite, mudstone, minor dolomite (Mt. Bischoff)

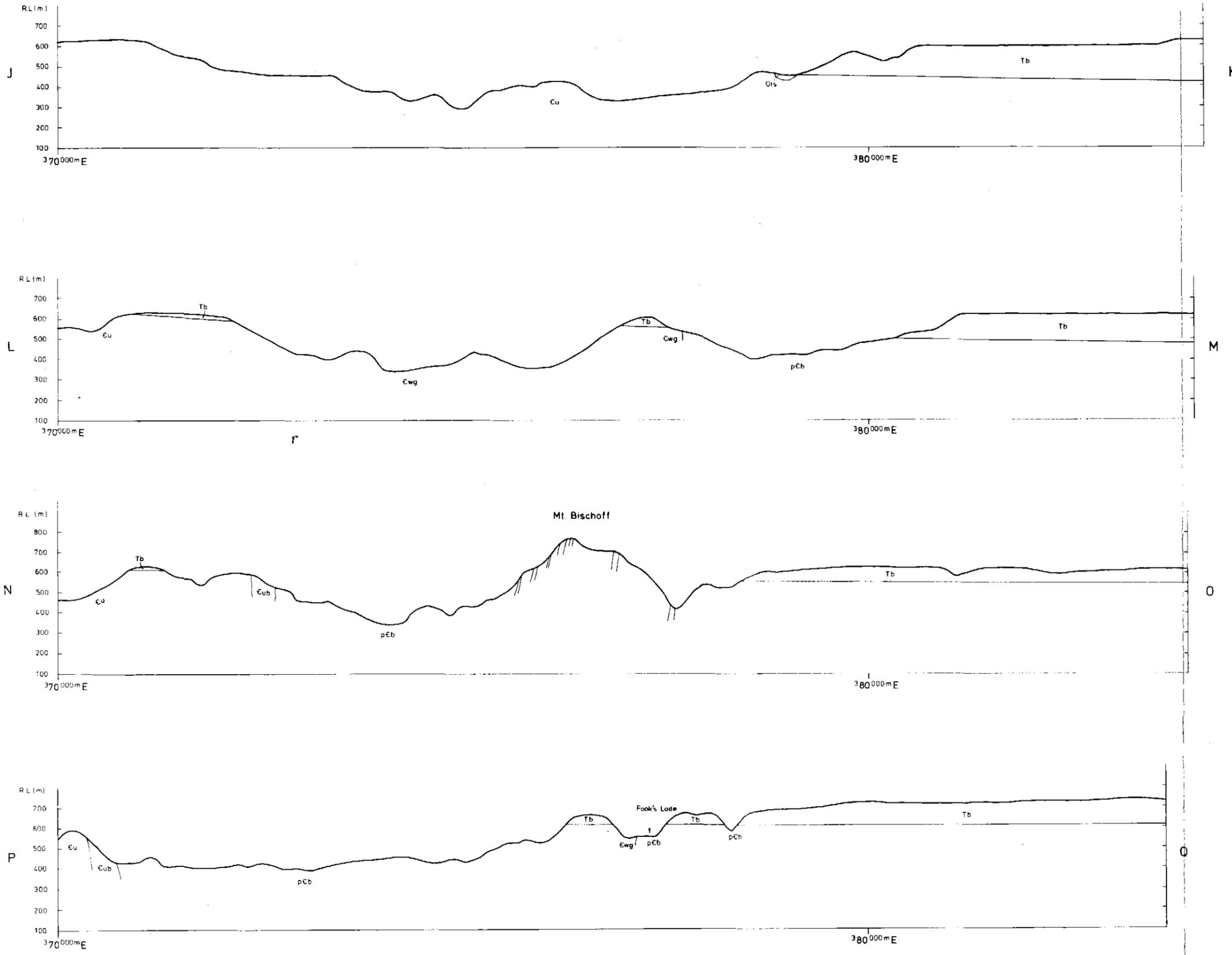
- IGNEOUS ROCKS
- TERTIARY Tb Olivine basalt
- Dp Felsic porphyries
- DEVONIAN Dmg Biotite (± hornblende) microadamellite and porphyritic microadamellite
- Dcg Coarse grained biotite adamellite
- εp Predominantly quartz-feldspar porphyries
- CAMBRIAN εbi Predominantly basic lavas
- εub Ultrabasic and basic rocks
- JURASSIC Jdl Dolerite and related rock types

- Prominent photo lineaments
- Strike, dip of strata
- Minor fold orientation
- Strike of joints
- Veins: quartz (q), tourmalite (tm), arsenopyrite (As), molybdenite
- Mine or prospect
- Dighem test lines

SCALE 1:50,000
0 1 2 3 4 5 kms
Australian Metric Grid

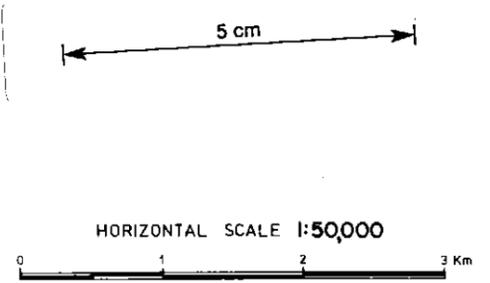
Acknowledgements
Geology outside EL 33/79 compiled from:
Tasmanian Dept of Mines Mackintosh Sheet (1 63360)
and unpublished survey maps.
Geological Survey Bulletin 54 (Groves *et al* 1972);
and Open File Reports by Pennzill and North Prospecting

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WARATAH EL 33/79		
GEOLOGY 2713		
Drawn: R.HINE	Date: 12-11-80	Centre: HOBART
Traced: J.E.H.	Project No: T 650	Drawing No: A1-33/79-1
Checked:		



LEGEND

QUATERNARY	Ois	Sand, gravel, basalt talus
CAMBRIAN	Ewg	Greywacke sandstone and mudstone (Waratah River)
	Cu	Undifferentiated
PRECAMBRIAN	pEb	Quartzite, mudstone, minor dolomite (Mt. Bischoff)
IGNEOUS ROCKS		
TERTIARY	Tb	Olivine basalt
DEVONIAN	Dp	Felsic porphyries
CAMBRIAN	Eub	Ultrabasic and basic rocks



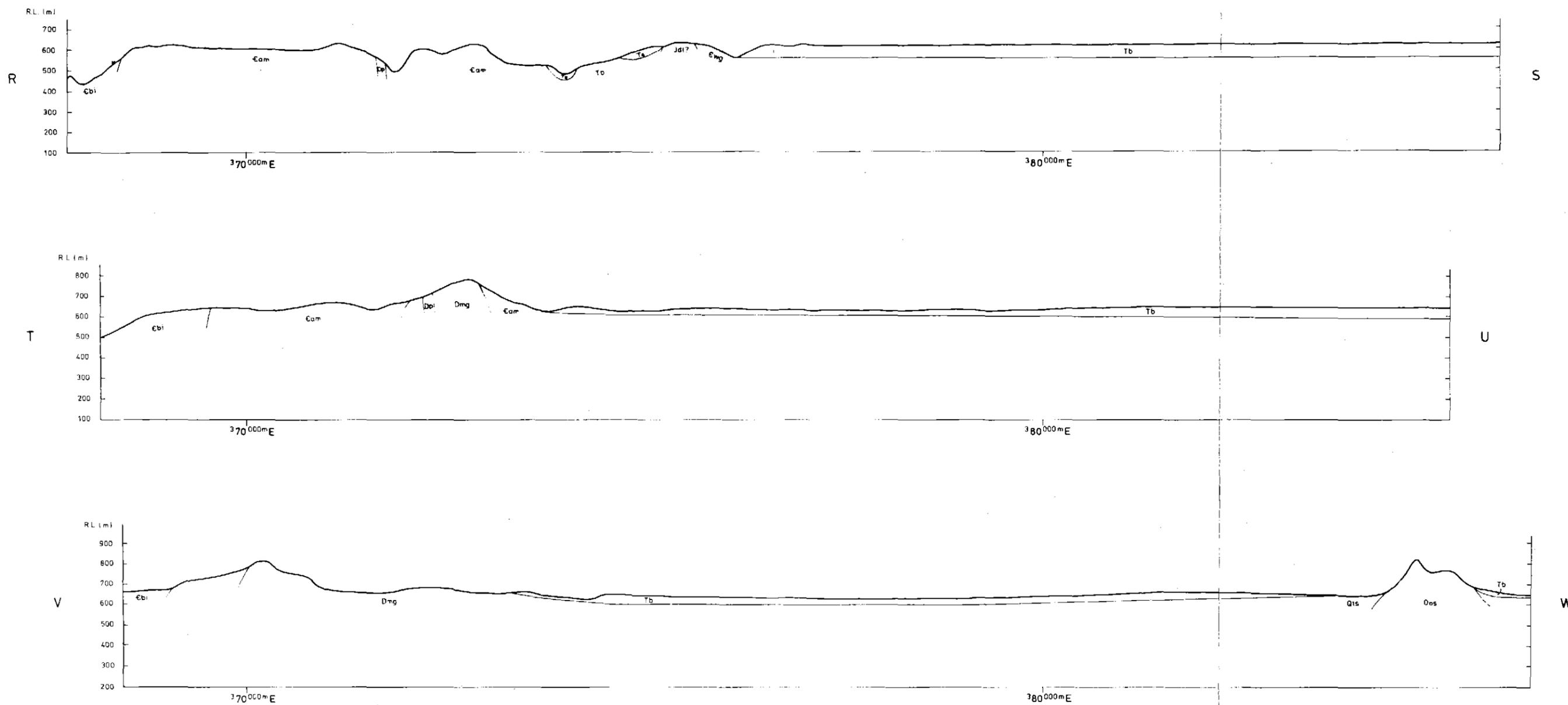
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VERTICAL SCALE 1:20,000

82-1702

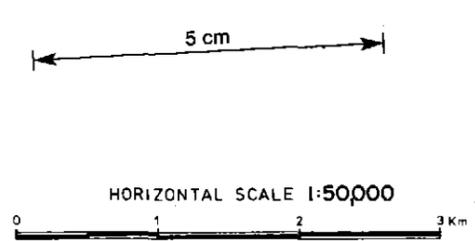
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Traced: J.E.H.	Project No:	Drawing No:
Checked:	T 650	A1-33/79-3

2714



LEGEND

QUATERNARY	Qts	Sand, gravel, basalt tuffs
TERTIARY	Ts	Interflow sediments, siltstone, laterite
ORDOVICIAN	Oos	Quartz sandstone - correlate of Owen Conglomerate
CAMBRIAN	Cam	Red mudstone and sandstone (Arthur River)
	Cwg	Greywacke sandstone and mudstone (Waratah River)
IGNEOUS ROCKS		
TERTIARY	Tb	Olivine basalt
DEVONIAN	Dp	Felsic porphyries
	Dmg	Biotite (± hornblende) microadamellite and porphyritic microadamellite
CAMBRIAN	Cbi	Predominantly basic lavas



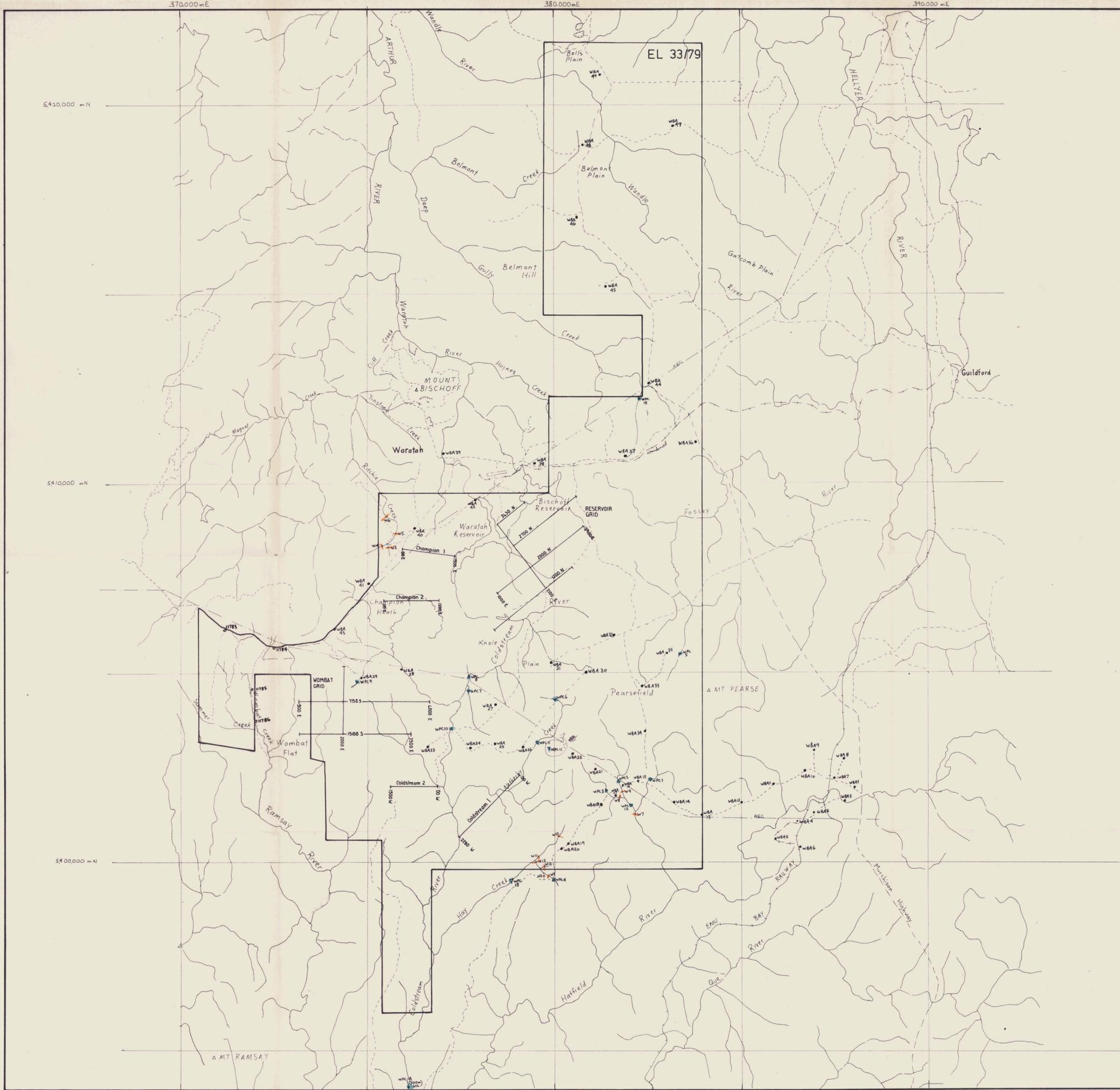
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HORIZONTAL SCALE 1:50,000

2715

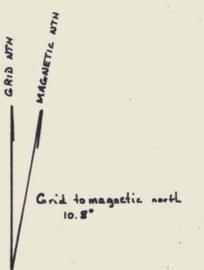
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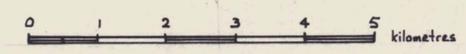


Explanation

- Rock chip sample location
- Petrological sample location (MEL No's)
- ✕ Stream sample location - 80 mesh
- ★ Pan concentrate sample location



SCALE 1:50,000



Australian Metric Grid



Fig. No.
To accompany
Dated

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EXPLORATION DEPARTMENT 82-1702			
WARATAH EL 33/79			
GEOCHEMICAL SAMPLE			
LOCATIONS 2716			
Drawn: R. H. ...	Date:	Project No:	Centre: Hobart
Traced:		T650	Drawing No: A1-33/79-2
Checked:			
O.I.C.:			