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ABERFOYLE EXPLORATION PTY. LTD.
MEREDITH GRANITE PROJECT
PROGRESS REPORT FOR THE SIX MONTHS
ENDING OCTOBER 20, 1980.

R.M. Joyce,
Geologist.

November 1980.

002

050002

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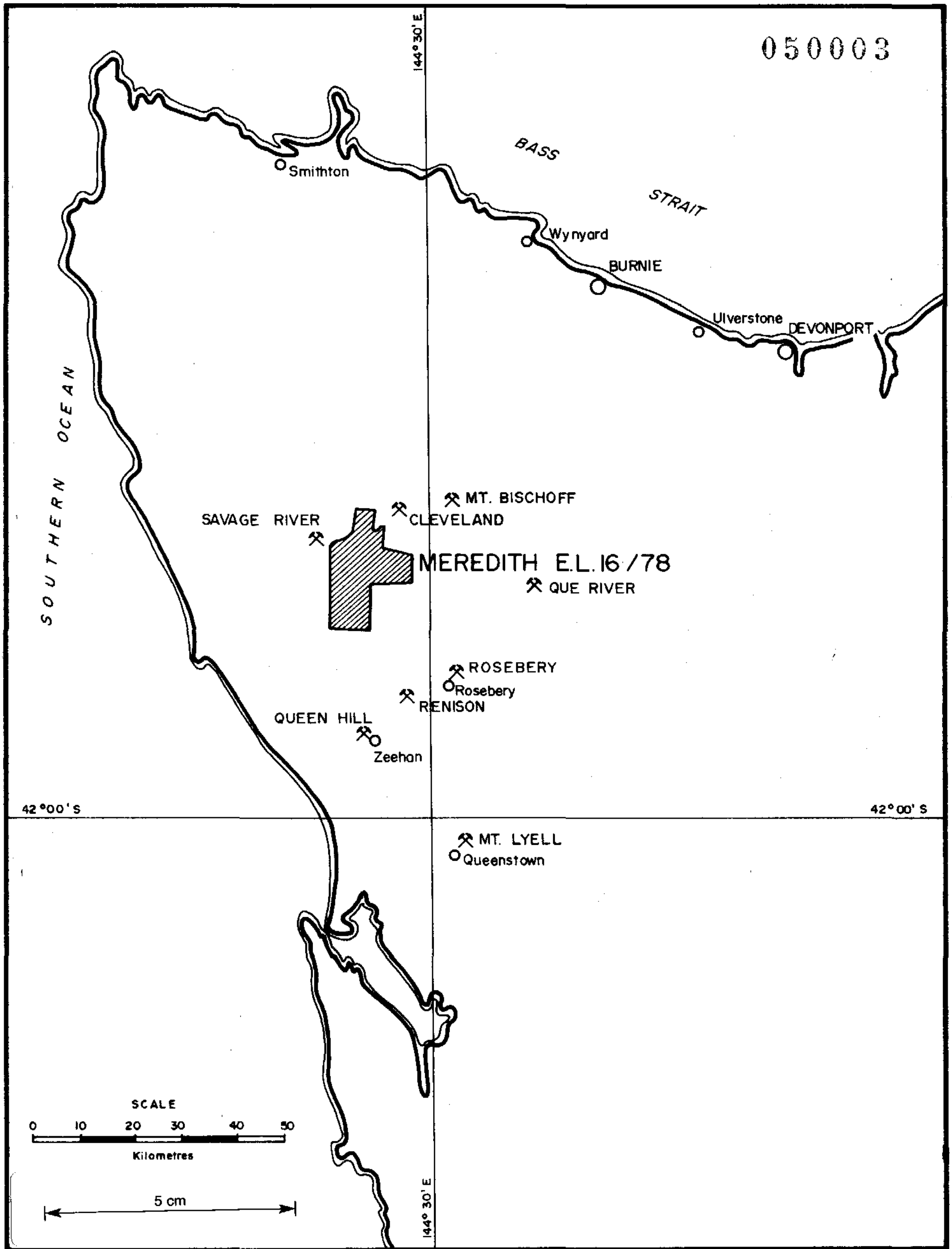
APPENDICES

PLATES

001

050003



Aberfoyle Exploration Pty Ltd

Drawn: R.J.E.	NORTH WEST TASMANIA	Location code:
Traced:	MEREDITH E.L. 16/78	Date: September, 1979
Checked:	Locality Map	Scale: 1 : 1,000,000
Revised by: Date:		Plate Nº Mer. 12

INTRODUCTION

The Meredith Granite E.L. 16/78 was pegged in 1978 over vacant ground adjoining the south-west side of the Cleveland Exploration Licence in North West Tasmania (Plate MER. 12).

Comstaff Pty. Ltd. under E.L. 1/68 were the first to use modern exploration techniques in an area which had been prospected for hard rock and alluvial tin deposits for decades. Both Comstaff and ANZECO (E.L. 11/75) undertook regional stream sediment sampling programmes covering both areas within the Meredith Granite, and the northern contact rocks.

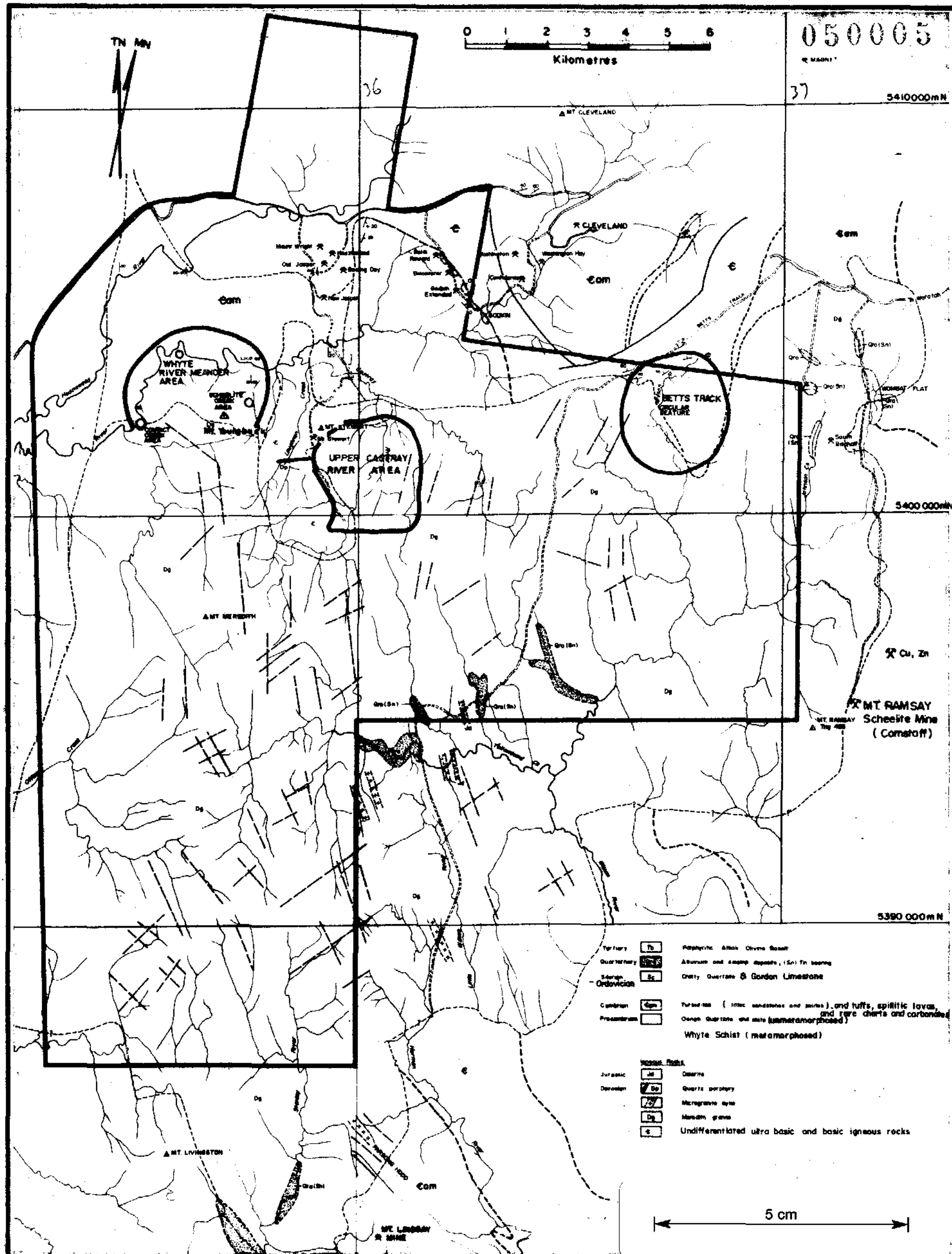
Aberfoyle commenced exploration of the E.L. in the summer of 1978-79 with a reconnaissance mapping and stream sediment sampling programme.

GENERAL GEOLOGICAL SETTING (Plate MER. 11)

The licence includes most of the outcrop extent of the Meredith Granite and its northern contacts. The Meredith Granite is an Upper Devonian (K/AR;350 my, Rb/Sr 353 ± 7 my) intrusive, closely related in both age and composition to the Housetop, Pieman, Granite Tor and Heemskirk granites in Western Tasmania.

Work by Aberfoyle has been concentrated on the northern margins of the intrusive, where porphyritic granite variants are common. Variations in these porphyritic marginal phases are common, usually involving relative phenocryst abundance and/or the abundance of biotite as a groundmass constituent. Other variations include grain size, and changes in the relative abundance of plagioclase, cordierite and tourmaline.

To the west the granite intrudes quartzites, quartz-muscovite schists, and carbonaceous black shales of the Precambrian Whyte Schist complex.



Aberfoyle Exploration Pty Ltd

Drawn: Adapted from Groves, 1962-7	NORTH WEST TASMANIA	Location code:
Traced: R.J.E.	MEREDITH E.L. 16/78	Date: September, 1979
Checked:	Geological Summary Map	Scale: 1: 125,000
Revised by: Date:		Plate Nº Mer. 11

004

To the north-east pyroxenites, peridotites, serpentinites, altered basic volcanics and tuffs and undifferentiated igneous rocks of the Cambrian Heazlewood complex and similar mafic-ultramafic ophiolite suites outcrop.

In the north-west sediments of probable Cambrian age appear to correlate with the Crimson Creek formation. In general these sediments appear to be a sequence of turbiditic volcolithic sandstones, siltstones and shales with rare conglomerate and chert. Although not yet mapped it is possible that carbonate horizons occur within the sequence.

Ordovician-Silurian sediments are also in contact with the granite to the north, and apparently uncomformably overly the Cambrian sequence. Silurian quartzites constitute the bulk of these younger sediments but stylolitic limestone, perhaps related to the Ordovician Gordon Limestone has been mapped in the Castray River and mineralised limestones occur to the north-east (Godkin).

SUMMARY OF WORK TO DATE

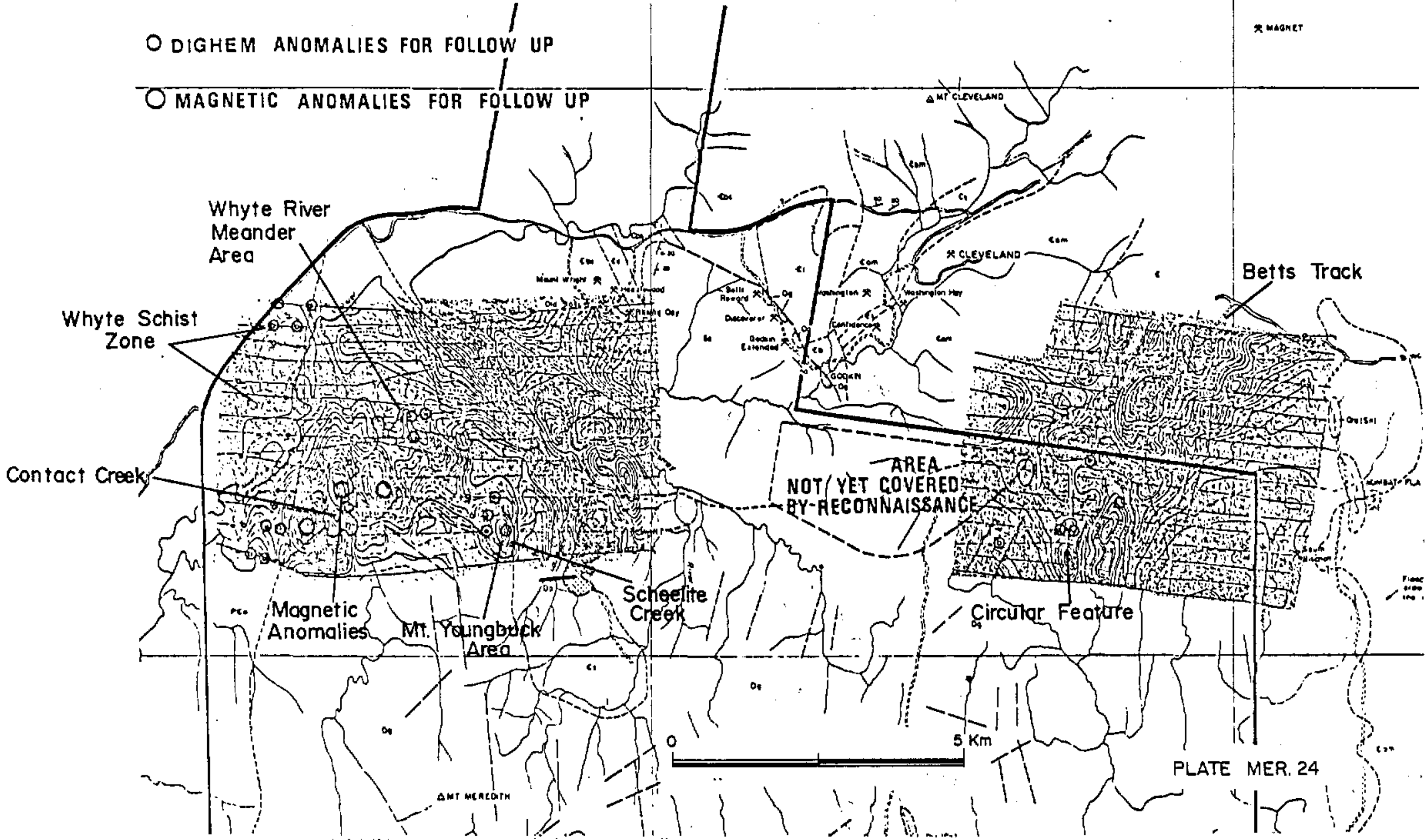
Previous work in the area by Aberfoyle has largely involved reconnaissance mapping and stream sediment sampling.

Following initial reconnaissance work in the summer of 1978/79, three distinct areas with potential for Sn, W mineralisation were outlined;

1. Betts Track Area
2. Upper Castray River Area
3. Contact Creek/Scheelite Creek Area.

Work in the early parts of the 1979/80 summer season were devoted to more detailed examination of anomalies generated by the initial survey and is described in the latter part of this report.

MEREDITH E.L.16/78 DIGHEM COVERAGE



5 cm

0500007

Work to October 20, 1980

The results of a DIGHEM survey flown over 2 areas within the licence provided further targets for follow-up, and work in the latter parts of the 1979/80 season principally involved examination of the most prospective EM anomaly, (Mt. Youngbuck).

DIGHEM SURVEY

In late January 1980, a helicopter borne EM system - DIGHEM - was utilised. Two large areas on the northern contact of the Meredith Granite were flown, the Bett's Track (Circular Feature) area, and the Contact Creek/Scheelite Creek area. (Plate MER. 24).

The following is a summary of the major anomalies detected by the survey, complete results are appended (Appendix 1).

Betts Track Area-Circular Feature

Model: Blind breccia of Ardlethan style, sulphide replacement deposits or skarns.

DIGHEM Anomalies for Follow-up

Anomaly 15A

Location: 1 km WSW of Circular Feature.

- 1 line anomaly.
- Medium EM conductor.
- At the edge of medium resisitivity low, therefore possibly at a geological contact or edge of swamp.
- No magnetic expression.

The body appears to be steeply dipping, approximately 10 m wide. Possibly underlain by sedimentary raft in granite.

Anomaly 14A

Location: Centre of Circular Feature.

- 1 line possible anomaly, weak EM conductor (may be spurious).
- No resisitivity calculated.
- No magnetic expression.
- No data on width or dip.
- Weak soil geochemistry up to 44 ppm Sn.
- Geological anomaly viz. Circular Feature.

Note: Correlation with ground magnetics suggest anomaly may be at granite/ultramafic contact.

Anomaly 14A East

Location: 250 m east of 14A.

- 1 line possible anomaly.
- Very weak EM conductor.
- No resisitivity calculated.
- Weak magnetic anomaly (Circular Feature Anomaly).
- No data on width or dip.
- Near Granite-ultramafic contact.
- Weak soil geochemistry up to 60 ppm Sn.

East of Circular Feature, Ultramafic Zone (Serpentinites)

Model: Ultramafics host for skarn mineralisation, or Razorback style mineralisation (carbonate filled shear zone).

Magnetics are strong over a 500 metre width and a magnetite body (i.e. skarn) could exist. (There is an indication of two separate magnetite rich bodies side by side. Soil geochemistry is weak, maximum 24 ppm Sn. Background 4 ppm). However rock chip geochemistry gave up to 2100 ppm Sn. There is a linear ground magnetic trend. (Photo anomaly). Area requires mapping and rock chip sampling.

DIGHEM Anomalies for Follow-up

Anomaly 12A

Location: Within magnetic anomaly described above.

- 1 line possible anomaly.
- Very weak EM conductor.
- No resisitivity calculated.
- Part of strong magnetic anomaly, could be spurious.
- Within ultramafic unit.

Anomaly 10A

Location: 1 km north of the Circular Feature, possibly underlain by Cambrian sediments.

- 1 line possible anomaly.
- Strong EM conductor but could be spurious (caused by uneven distribution of magnetite).
- No resisitivity calculated.
- No magnetic anomaly.
- Possibly underlain by Cambrian sediments.

Contact Creek/Scheelite Creek Area

Whyte Schist Zone

Model: Tin stockwork zones and volcanogenic sulphides associated with basic volcanics.

Wide belt of low resisitivity appears to depict a geologic unit. (Low stream sediment geochemical response). Numerous EM conductors appear to define a geologic unit.

Note: Steep relief may be causing coupling, hence an exaggerated estimate of depth and width of source.

EM anomalies very near contact of Whyte Schist and Cambrian sediments. Previous mapping shows carbonaceous black slates, mica schists and quartzites.

DIGHEM Anomalies for Follow-up

Anomalies 101A and 102A

Location: 1 km west of Contact Creek.

- Two line anomaly.
- Possible thin weak EM conduct.
- Weak resisitivity anomaly.
- No magnetic anomaly.
- Underlain by Whyte Schist.

Anomalies 101B and 102B

Location: 800 m west of Contact Creek.

- Four line anomaly.
- Strong, thick EM conductor.
- Strong resisitivity low.
- No magnetic response.
- Probably formational, underlain by carbonaceous slates?

Anomalies 113B and 114A

Location: Near Corinna Highway.

- Three line anomaly.
- Strong EM conductor.
- Strong resisitivity low.
- No magnetic response.
- Possibly carbonaceous shale.

Anomaly 114B

Location: Near Corinna Highway.

- 1 line anomaly.
- Moderate EM conductor.
- 30 gamma magnetic anomaly.
- Strong low resisitivity.
- Appears to be thin, steeply dipping.
- Near Whyte Schist/Cambrian sediment contact.

Magnetic Anomalies on Northern Granite Contact (Skarn Horizons?)

Anomalies 102 - 103, 104W and 104E

Situated W, NW and N of Contact Creek in Cambrian sediments adjacent to granite. May be the expression of a wide contact metasomatic aurole but skarn horizons are possible.

Follow-up magnetic 104W, the anomaly most likely to be narrow and outcropping i.e. magnetite skarn.

Whyte River Meander Area

Model: Possibility of skarn or sulphide replacement deposit in Cambrian sediments.

Anomalies 107E and 108E

Location: Whyte River meander area.

- High Sn stream sediment anomaly.
- Unit of medium resisitivity, (possibly alluvial cover).
- Coincident 100 gamma magnetic anomaly (underlain by basic volcanics).
- 1000 gamma ground magnetic anomaly perhaps related.

Heazlewood Ultramafic Zone

Anomalies 102G and 103E

Location: Mt. Stewart Mine area.

- Two line anomaly.
- Very low order EM conductor.
- Apparently depicts known mineralised shear zone.

Mt. Youngbuck Area

Immediately west of Scheelite Creek. Underlain by Crimson Creek Formation? sediments and tuffs.

Anomalies 102D, E, 103C, D, 104C, D

- 2 or possibly 3 line anomaly.
- Series of very strong EM conductors.
- Apparently associated with air magnetic anomaly.
- Geochemical anomaly - visible scheelite in adjacent creek.

DIGHEM FOLLOW-UP

Contact Creek/Scheelite Creek Area

Based on analysis of the DIGHEM analogue data attempts were made to follow up two anomalies in the latter part of the 1979/80 season:

Whyte River Meander Area

A weak EM anomaly in the vicinity of a small creek with established Sn anomalies in stream sediment and base of slope soils was followed up with ground EM traverses.

The traverses failed to locate the anomaly, but subsequent ground magnetometer surveys delineated a large (1000 gamma) magnetic anomaly at the base of the creek. The base of the creek appears to be a broad alluvial flat subject to periodic inundation by Whyte River floodwaters and the high geochemistry may be due to contamination. Further ground magnetics and detailed mapping and rock chip sampling are intended.

Ground magnetic profiles and a plan showing the reconnaissance grid are given in Appendix 6.

MEREDITH E.L. 16/78
Mt Youngbuck Grid Area

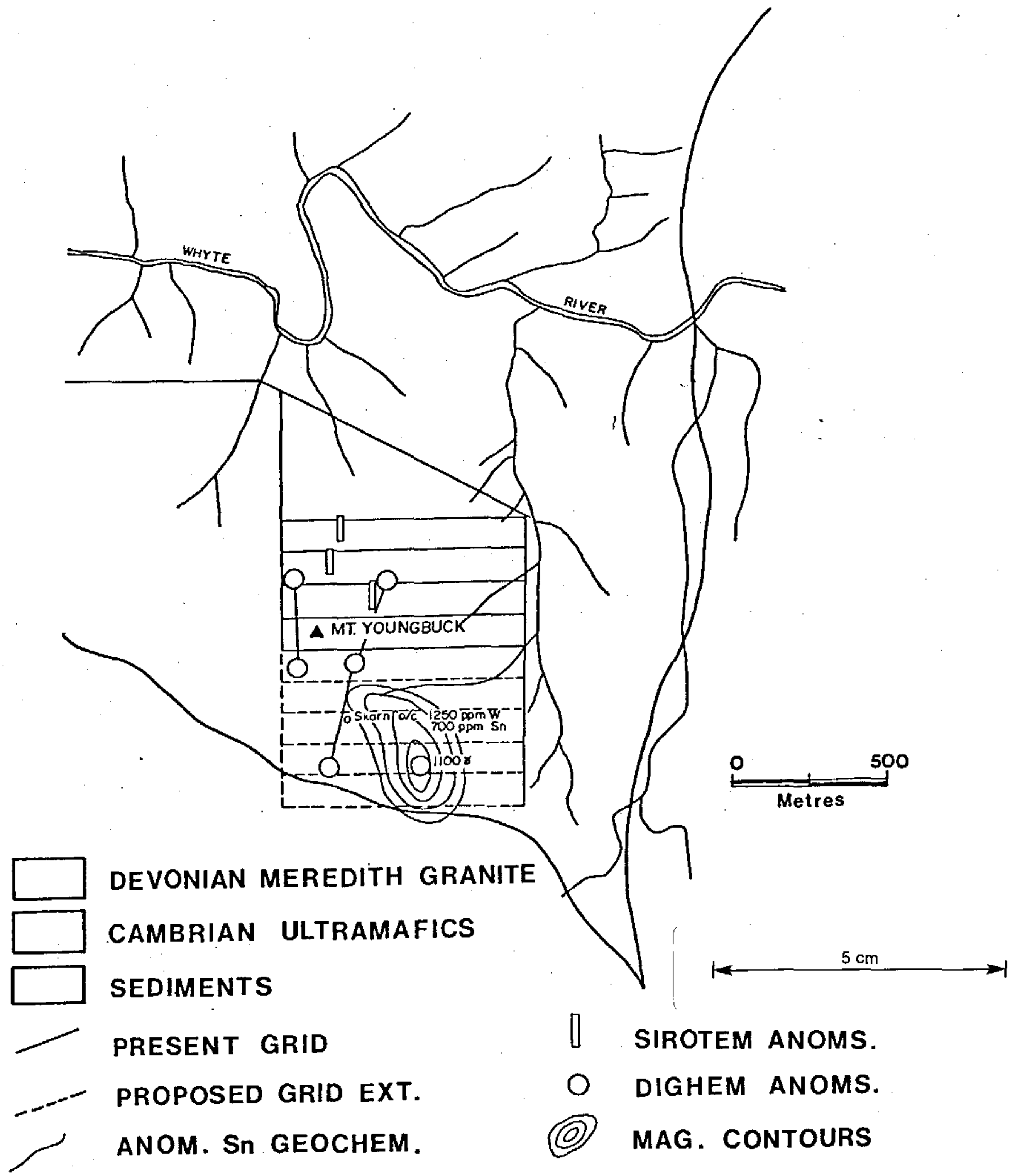


Plate No. MER. 23

Mt. Youngbuck

A reconnaissance ground EM traverse located the strong DIGHEM conductor in the vicinity of Scheelite Creek.

The anomaly was found to occur within Cambrian sediments over the eastern slopes of a steep sided, heavily timbered peak on the northern end of the Meredith Range, (Mt. Youngbuck). A 5 x 750 m line grid was established and grid geological mapping, 10 m spaced soil sampling and ground magnetics completed. (Plates MER. 20 and Appendix 2).

Geological mapping revealed that the anomaly occurs within a sequence of massive purple and green volcolithic sandstones (or tuffs?) and interbedded shales and siltstones. Rare black carbonaceous shale was encountered, (Plate MER.

A ground EM system (SIROTEM), was used to locate and assess the DIGHEM anomaly..

SIROTEM SURVEY (MT. YOUNGBUCK ANOMALY)

This survey was implemented to locate and define the sources of DIGHEM anomalies 102D, 103D and 104D.

The results showed the following: (Appendix 3)

(i) Anomalies from lines 30200N to 30000N are regarded as being due to a highly conductive sheet (conducting thickness approximately 100 mhos.), the assymmetry of the response suggesting a westerly dip. A strike length of approximately 200 metres is indicated.

DIGHEM anomalies 103D and 104D were considered to correspond with the SIROTEM anomaly above, whilst DIGHEM anomalies 103C and 104C are thought to be part of the same conductive sheet. The total airborne EM anomaly (DIGHEM) shows as a broad resisitivity low on the resisitivity map, suggesting that the conductive sheet extends from the top of Mt. Youngbuck to bottom.

(ii) Line 29900N has no significant anomalies.

(iii) The SIROTEM response on Line 29800N could be explained by the presence of a low resisitivity rock unit (approximately 5 ohm metres), which the EM system has "seen" as being approximately flat lying, perhaps due to its "wrapping" around the top of the mountain. There is no apparent connection with the northern anomalies. This response probably correspondes to DIGHEM anomaly 102D.

The absence of encouraging geochemical response in the vicinity of these EM anomalies suggests that carbonaceous black shales may be the anomaly source. However, ground magnetic anomalies appear to coincide with the SIROTEM anomalies and further follow-up ground magnetics are planned.

SCHEELITE CREEK

A magnetite-hastingsite-scheelite skarn ½ km south of Mt. Youngbuck is the probable source of scheelite observed in panned concentrates in Scheelite Creek. (Plate MER. 23).

The skarn outcrops on a saddle, 200 - 300 m from the granite contact, and in close proximity to float evidence of a minor aplitic intrusion.

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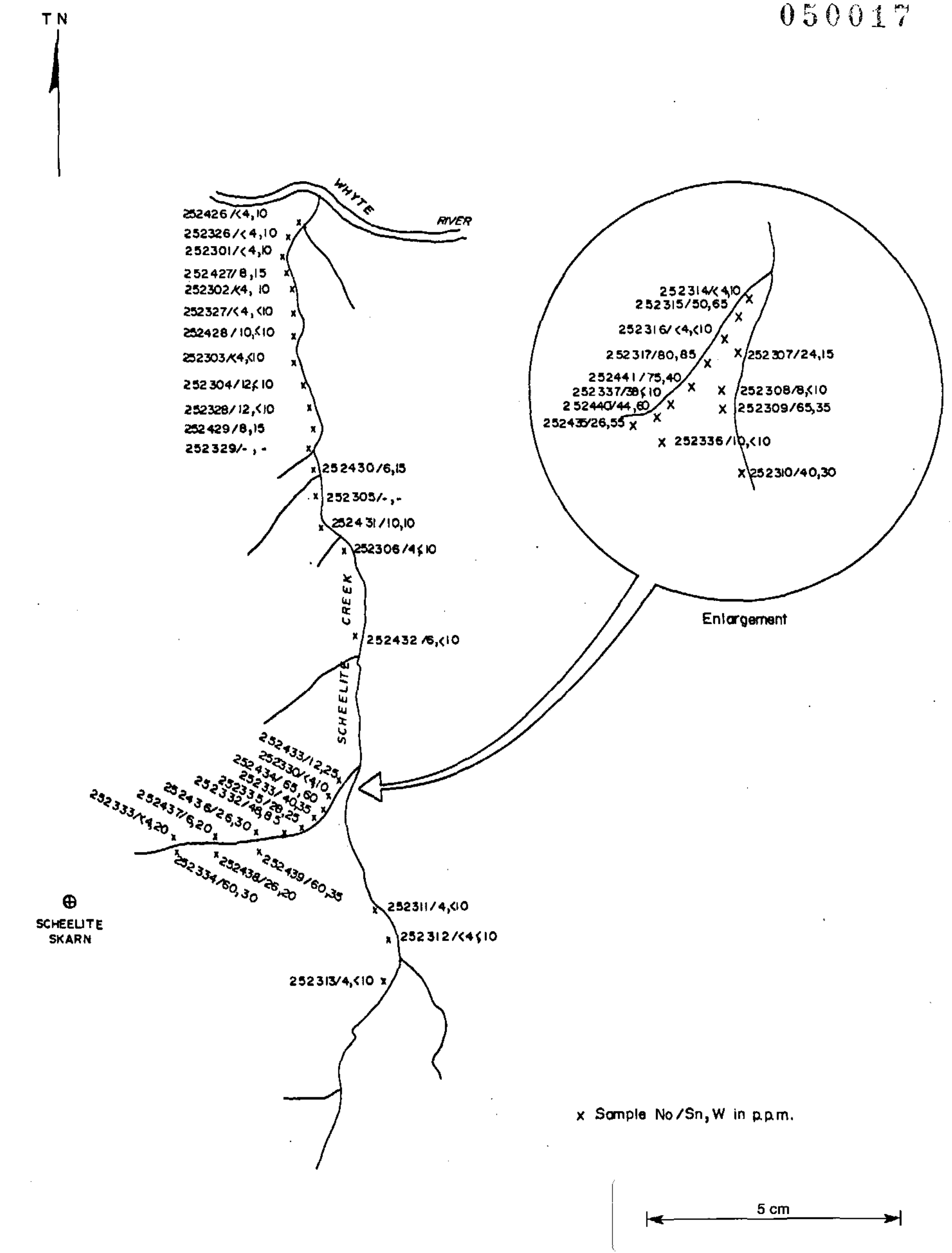


Aberfoyle Exploration Pty Ltd

Drawn: R.M.J	NORTH WEST TASMANIA	Location code:
Traced: J.L.R.	MEREDITH E.L.16/78 SCHEELITE CREEK	Date: Nov. 1980
Checked:		Scale: 1:10,000
	BASE OF SLOPE SOIL SAMPLING	MER 31

The skarn contains approximately 50% crudely banded magnetite and 50% greenish hastingsite. Trace scheelite, flourite and cassiterite are present. (Appendix 4).

Preliminary samples give assays of Sn 700 ppm, W 1250 ppm.

Base of slope soil sampling was performed in a tributary of Scheelite Creek which drains the saddle on which the skarn outcrops. The results show clear anomalies in Sn and W, (maximum Sn 80, W 85 ppm), which are far above background levels (Sn <4 ppm, W <10 ppm). (Plate MER. 21).

The skarn appears to be the source of a coincident EM and magnetic anomaly detected by DIGHEM. DIGHEM magnetic data shows a possible strike length of 100 - 200 m.

Stream sediment sampling of Scheelite Creek was performed as a check of the results of heavy concentrate sampling, which detected anomalous W, as scheelite. The results of the conventional sampling were disappointing, with Sn and W values being uniformly low.

BETTS TRACK AREA

After initial investigations of the circular air photograph anomaly high Sn geochemistry in rock chip samples from a ridge of silicified, magnetite-rich ultramafic rocks 1 km east of the Circular Feature prompted follow-up in this area.

A grid of five 200 metre spaced crosslines, each 400 metres long, extending and incorporating part of the Circular Feature grid, was established. Soil sampling and ground magnetics were implemented at 20 m spacings, and random rock chip sampling performed. Geological mapping of the grid is still required. (Plate MER. 19).

Grid magnetics show an approximately linear anomaly due mainly to outcropping disseminated magnetite. This anomaly appears to coincide with an air photo lineament. (Appendix 5).

Further rock chip sampling resulted in several more encouraging results (up to 2100 ppm Sn), (Plates MER. 16-367/4000 and 16-367/4025), however grid soil sampling proved a disappointing tool, as even samples taken in the immediate vicinity of anomalous rock chip samples were barely above background (maximum 24 ppm).

CONCLUSIONS

Mt. Youngbuck

1. A large EM anomaly due to a thin, steeply dipping conductor occurs within a sequence of volcolithic sandstones, siltstones and shales on the eastern slopes of Mt. Youngbuck.

2. 10 m spaced soil samples, and rock chip samples fail to detect significant geochemical anomalies.

3. Ground magnetic data suggests a magnetic anomaly possibly coincident with the EM anomaly.

Betts Track Area

1. High Sn rock chip samples from the linear feature area (1 km east of Circular Feature) are patchy in distribution and C Horizon soil sampling failed to detect significant amounts of Sn.

2. An approximately linear magnetic anomaly (due to surficial magnetite?) occurs in the area of high Sn geochemistry and appears to coincide with a distinct photo lineament.

Scheelite Creek Area

1. The source of scheelite in Scheelite Creek appears to be a magnetite-hastingsite skarn ½ km south of Mt. Youngbuck.

2. Considerable further work is required before conclusions regarding the size of the skarn can be drawn.

Whyte River Meander Area

1. Anomalous Sn geochemistry, in a small tributary of the Whyte, initially tentatively prescribed to contamination from the Whyte River, may be associated with a magnetic anomaly.

PROPOSED WORK

1. Betts Track Area

Bedrock sampling and detailed mapping of the granites associated with the Circular Feature is proposed as a tool for determining possible drill targets.

Follow-up of DIGHEM anomalies in this area will constitute a major part of the 1980/81 seasons work. A ground EM system will be used to locate the anomalies aided by gridding, soil sampling, magnetics and mapping.

Detailed mapping of the grid over the linear feature (east of the Circular Feature), and rock chip sampling, will be performed before initiating further work.

2. Contact Creek/Scheelite Creek/Mt. Youngbuck Area

In the Mt. Youngbuck area, further ground magnetic traverses are planned to test the apparent coincident magnetic and EM anomalies.

Grid extensions of a further 5 x 750 m lines are planned south of the existing grid. These extensions are planned to cover the magnetite skarn, and 10 m spaced soil sampling, ground magnetics and geological mapping will be completed.

In the Whyte River meander area, ground magnetometer traverses are planned to test a large magnetic anomaly at the base of a small tributary to the Whyte River. Geological evaluation and rock chip sampling of the area is planned.

Several DIGHEM anomalies in both the Contact Creek and Betts Track areas require follow-up with ground EM equipment and once located, will be gridded, soil sampled, mapped and covered by ground magnetics.

3. Reconnaissance Stream Sediment and Mapping

Several areas along the northern contact of the Meredith Granite have not yet been covered by regional reconnaissance stream sediment sampling. Included in this category is an area west of the Circular Feature, where a continuation of Cleveland Mine stratigraphy is possible.

If time permits, it is proposed to enter these areas to complete reconnaissance mapping and stream sediment sampling.

FINANCE

In the six months ending October 20, 1980 the following expenditures were incurred:

Salaries and Wages	$ 8,963
Petrology	348
Contract Geophysics	6,393
Assays	3,462
Materials	1,116
Accommodation	1,620
Vehicles	592
Communication	427
Tenure	496
Sundries	139
	23,556
Overhead @ 15%	3,534
	27,090

REFERENCES

Young, C.H. 1978 Property Generation Report for the Meredith Granite Area. Internal Report Aberfoyle Exploration.

Young, C.H. 1979 Aberfoyle Exploration Pty. Ltd. Meredith Granite Project. Report for the six months ending October 20, 1979.

Joyce, R.M. 1980 Aberfoyle Exploration Pty. Ltd. Meredith Granite Project. Progress Report for the six months ending April 20, 1980.

SIGNED: ______________________

R.M. Joyce,
Geologist.

ENDORSED: C.H. Young

C.H. Young,
District Manager.

APPENDIX 1

DIGHEM Data.

(Plans attached at rear).

REPORT NO. 307

023

050024

DIGHEM[II] SURVEY

IN

WESTERN

~~EASTERN~~ TASMANIA

FOR

ABERFOYLE EXPLORATION PTY. LTD.

BY

DIGHEM LIMITED

TORONTO, ONTARIO
MAY 30, 1980

D.C. FRASER
PRESIDENT

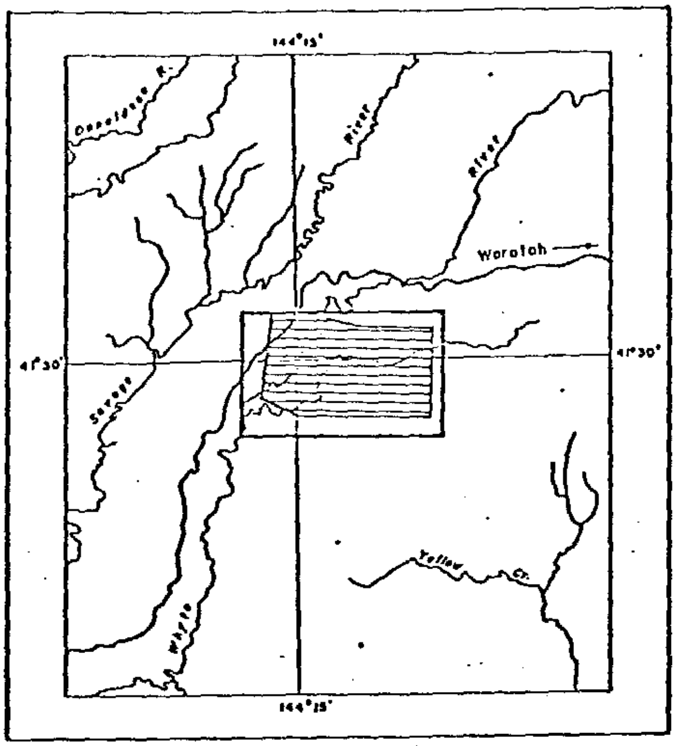
Z. DVORAK
GEOPHYSICIST

SUMMARY

DIGHEM^{II} airborne electromagnetic/resistivity/magnetic surveys totalling 173 line-km were flown in February and March, 1980, for Aberfoyle Exploration Pty. Ltd., over two areas in Tasmania.

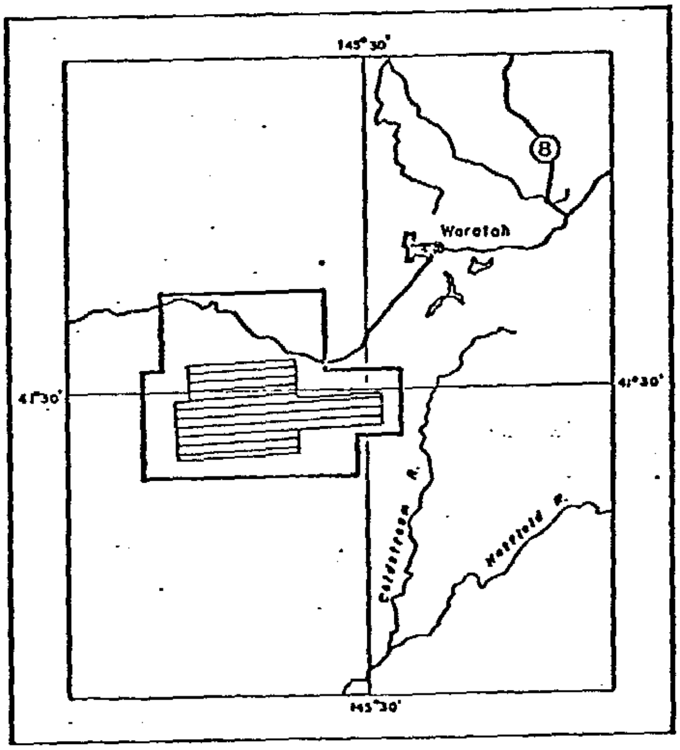
The geologic environment within the survey areas varied from resistive to highly conductive. Several targets were located in the Contact Creek area which appear to warrant ground follow-up exploration. The Circular Feature area yielded only a few EM anomalies which may have sources in the bedrock.

LOCATION MAP



1. Contact Creek

LOCATION MAP



2. Circular Feature

Figure 1. The Survey Areas

5 cm

CONDUCTORS IN THE SURVEY AREA

The electromagnetic maps show the locations of conductors and their interpreted conductance (i.e., conductivity-thickness product) and depth. Their strike direction and length are also shown when the anomalies can be correlated from line to line. When studying the EM maps for followup planning, consult the anomaly listings appended to this report to ensure that none of the conductors are overlooked.

The EM maps indicate which anomalies are believed to be caused by cultural and surficial sources. Generally, such anomalies are not commented on below, as the discussions are directed to identifying bedrock conductors.

The apparent depth parameter (channel 41) usually aids in distinguishing between conductive overburden and broad bedrock conductors. The depth parameter is computed as the height of the EM bird above the conductor, less bird altitude. The dense tree cover caused the altimeter readings to be inaccurate. Consequently, the depth parameter did not contribute reliably to the interpretation.

Sheet 1, Contact Creek

The area of sheet 1 comprises 82 line-km of survey. Resistivities vary from in excess of 1000 ohm-m to less than 3 ohm-m. The area is quite active magnetically. The enhanced magnetic map shows a number of features which are not evident on the standard total field magnetic map.

Group 1

The EM anomalies of this grouping reflect a long conductive zone which is generally non-magnetic. However, magnetic activity occurs locally within the zone, and one isolated EM anomaly (114B*) has a direct magnetic correlation of 30 gammas as can best be seen on the enhanced magnetic map. The conductive zone is quite broad and, therefore, is better defined on the resistivity map than on the EM map. A locally thick conductive section occurs at 103A.

Group 2 and 3

A number of weak responses occurs within these two groupings. The conductivity distributions are better defined on the resistivity map.

*This designation refers to anomaly B on line 114

Group 4

A very attractive conductive target is contained within Group 4. The conductor appears to consist of a broad mass of conductive material which is locally magnetic (102E) and has locally thick sections (104D). The resistivity map and both magnetic maps suggest that group 3 could represent a weak extension of group 4.

The northeast quadrant of the resistivity map illustrates that this portion of the survey area comprises widespread but weakly conductive materials. The difference channels (33, 34) show that some heterogeneity occurs within this area, i.e., the conductive material is not uniformly flat-lying conductive overburden. Thus, 109E and 114G are believed to be bedrock conductors. Much of the conductivity, however, probably reflects conductive surface material.

Sheet 2, Circular Feature

The area of sheet 2 consists of 90 line-km of survey. Resistivities are generally in excess of 1000 ohm-m, with the lowest values of about 20 ohm-m occurring in the eastern section. The area is quite active magnetically, but there appears to be no direct correlation between magnetic highs and resistivity lows.

The EM anomalies to the east (e.g., 8B-13xF, 12C, 12D, etc.), and the associated resistivity low, represent bedrock conductors. This is indicated by the large depth estimates of channel 41.

The areally large resistivity low to the west may be caused by surficial conductivity. The depth estimates of channel 41 are slightly positive, suggesting a bedrock source, but heavy tree cover could have produced this result.

The anomaly of 15A probably has a bedrock source. The resistivity map shows that this conductor extends southwards to the survey boundary.

Sheet 3, St. Dizier

The area of sheet 3 comprises 161 line-km of survey. The resistivity of the geologic environment is typically higher than 700 ohm-m, but values as low as 10 ohm-m occur due to locally conductive bedrock and overburden features. The area is active magnetically. The concentration of magnetite at the southwest end of lines 226 to 229 and 231 has produced a prominent, unusual magnetic anomaly of a dipolar character.

Respectfully submitted,

DIGHEM LIMITED

D.C. Fraser

President

Z. Dvorak

Geophysicist

~~Sixteen~~ 8 map sheets accompany this report: (8 ONLY SUPPLIED WITH REPORT)

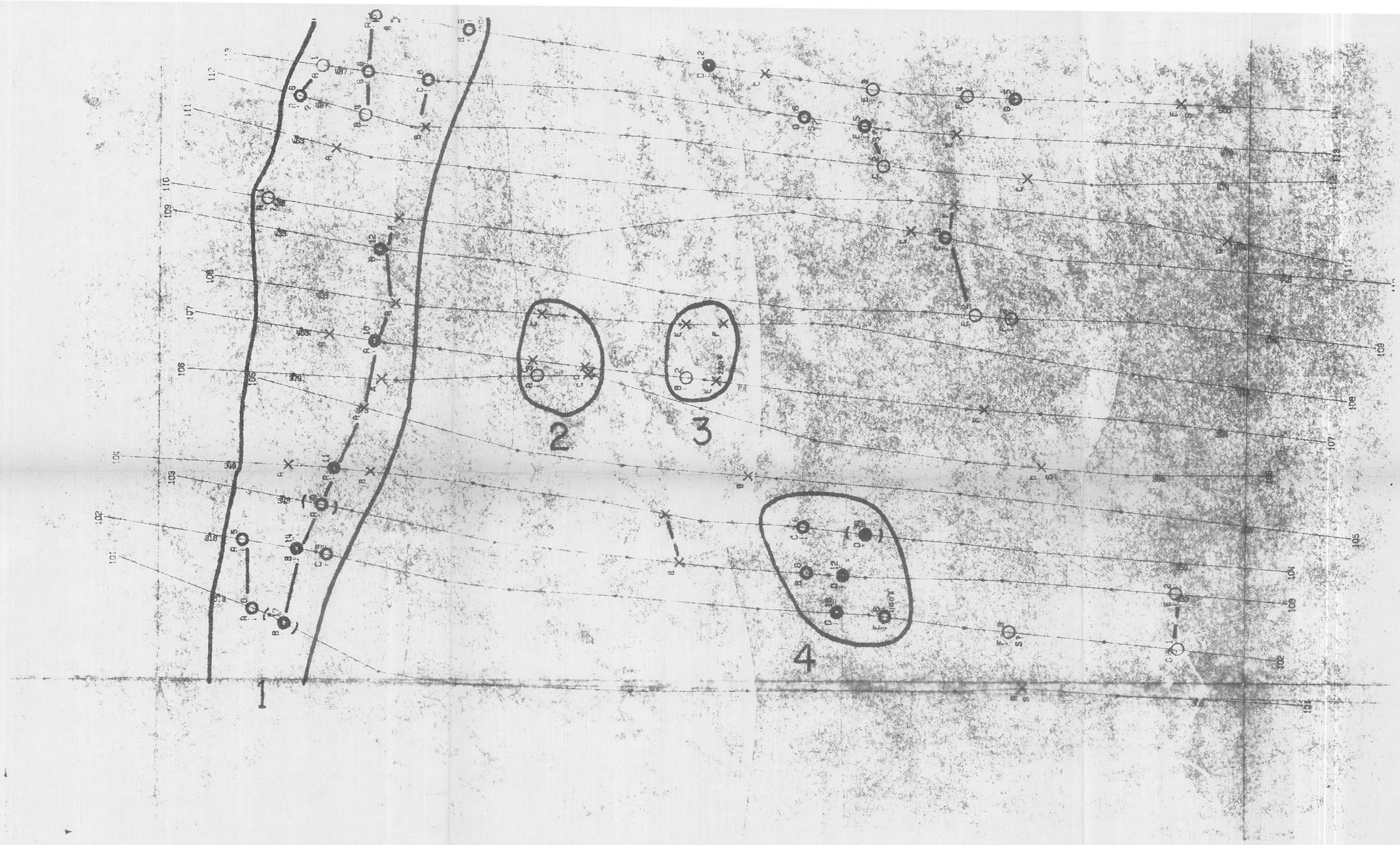
Electromagnetics	2 ~~4~~ map sheets
Resistivity	2 ~~4~~ map sheets
Magnetics	2 ~~4~~ map sheets
Enhanced magnetics	2 ~~4~~ map sheets

307-1 ABERFOYLE TASMANIA APR/80

	STANDARD COIL		WHALETAIL COIL		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
LINE & ANOMALY	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* FEET	COND MHOS	DEPTH FEET	RESIS OHM-M	DEPTH FEET
101A	3	2	0	1	6	227	1	676	90	504
101B	11	8	17	8	17	111	4	375	12	292
102A	3	4	3	3	5	172	1	518	84	357
102B	11	7	13	10	14	173	3	440	16	351
102C	6	7	11	8	9	153	2	429	36	323
102D	17	18	46	30	16	137	4	328	12	258
102E	1	5	0	3	6	185	1	381	805	86
102F	3	5	2	5	3	93	1	377	167	193
102G	2	8	3	11	1	45	1	233	337	68
103A	12	14	22	21	9	64	2	273	27	180
103B	3	4	13	11	8	108	2	395	42	281
103D	14	14	23	18	12	131	3	347	20	265
103E	0	0	0	2	2	220	1	779	1034	0
104A	5	4	7	5	11	124	2	457	29	342
104C	1	3	9	6	6	204	1	532	76	379
104D	42	29	84	31	34	83	7	251	3	205
106A	3	5	3	5	3	156	1	432	165	251
107A	5	4	7	5	10	134	2	464	33	346
107B	1	5	4	5	2	141	1	418	226	228
109B	5	2	4	5	12	132	3	505	26	387
109E	3	11	6	15	2	84	1	271	181	130
109F	2	6	3	4	2	172	1	437	208	255
110A	1	6	1	4	1	94	1	340	568	106
110C	2	2	3	2	8	179	2	610	55	457
112A	3	3	0	1	6	84	1	489	92	320
112B	2	4	3	3	4	174	1	503	138	314
112C	1	11	7	20	2	88	1	246	258	105
113A	0	5	1	2	1	9	1	375	1034	0
113B	8	11	9	14	6	113	2	336	52	215
113C	4	3	4	4	8	176	2	521	48	391
113D	3	1	0	2	6	138	1	599	78	429
113E	3	3	2	3	5	234	1	589	94	419
114A	6	9	5	8	5	87	1	330	79	188
114B	4	4	5	3	9	115	2	464	40	337
114D	5	2	0	0	12	128	3	590	17	476
114E	3	3	2	5	3	185	1	493	156	303
114F	3	3	5	8	4	122	1	421	101	255
114G	8	16	20	33	5	55	1	225	60	115

307-2 ABERFOYLE TASMANIA APR/80

LINE & ANOMALY	STANDARD COIL REAL PPM	STANDARD COIL QUAD PPM	WHALETAIL COIL REAL PPM	WHALETAIL COIL QUAD PPM	VERTICAL DIKE COND MHOS	VERTICAL DIKE DEPTH* FEET	HORIZONTAL SHEET COND MHOS	HORIZONTAL SHEET DEPTH FEET	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH FEET
1B	5	4	0	2	6	191	2	553	71	405
2A	0	2	1	2	1	11	1	563	1034	0
2B	1	2	0	1	2	287	1	745	1016	231
3A	3	3	1	0	4	197	2	681	73	517
6A	2	3	1	4	2	116	1	443	219	232
8B	6	6	6	12	5	124	1	383	65	246
10A	1	0	2	0	39	380	1	771	82	592
10C	2	5	8	8	5	145	1	428	78	278
10D	3	9	5	15	2	78	1	278	187	132
11A	5	3	9	6	15	174	3	506	17	406
12A	0	6	0	10	2	148	1	295	1034	0
12C	3	12	4	22	1	91	1	242	259	104
12D	8	15	24	39	6	104	2	276	49	169
12E	9	6	19	14	14	125	3	383	16	296
13A	1	5	1	9	1	73	1	281	536	82
14A	3	1	0	0	16	261	2	696	58	531
14C	0	7	0	12	1	84	1	247	1034	0
15A	3	2	3	7	5	90	1	421	92	255
16A	0	5	0	5	1	108	1	344	1034	0



DIGHEM II SURVEY

CONTACT CREEK AREA, TASMANIA

ELECTROMAGNETICS

FOR

ABERFOYLE EXPLORATION PTY. LTD.

5 cm

REGISTERED PROFESSIONAL ENGINEER
D.C. FRASER

050034

80-1476

2907

ANOMALY GRADE	EM GRADE SYMBOL	MHO RANGE
6	●	≥ 100
5	✸	50 — 99
4	●	20 — 49
3	◉	10 — 19
2	○	5 — 9
1	○	≤ 4
	×	Possible conductor

DIGHEM anomalies are divided into six grades of conductivity – thickness product. This product in mhos is the reciprocal of resistance in ohms. The mho is a measure of conductance, and is a geologic parameter. Most swamps yield Grade 1 anomalies but highly conducting clays can give Grade 2 anomalies. The multi - coil anomaly shapes often allow surface conductors to be recognized, and these are indicated by the letter S on this map. The remaining Grade 1 and 2 anomalies could be weak bedrock conductors. The higher grades indicate increasingly higher conductances. Examples: The ore bodies of the Magusi River camp yield Grade 4 anomalies, while Mattabi and Whistle give Grade 5. Graphite and sulphides can span all grades but, in this survey area, field work may show that the different grades indicate different types of conductors.

identifier → c 38 ← mho value

Depth is greater than
. 50 feet
: 100 feet
⁝ 150 feet
⁞ 200 feet

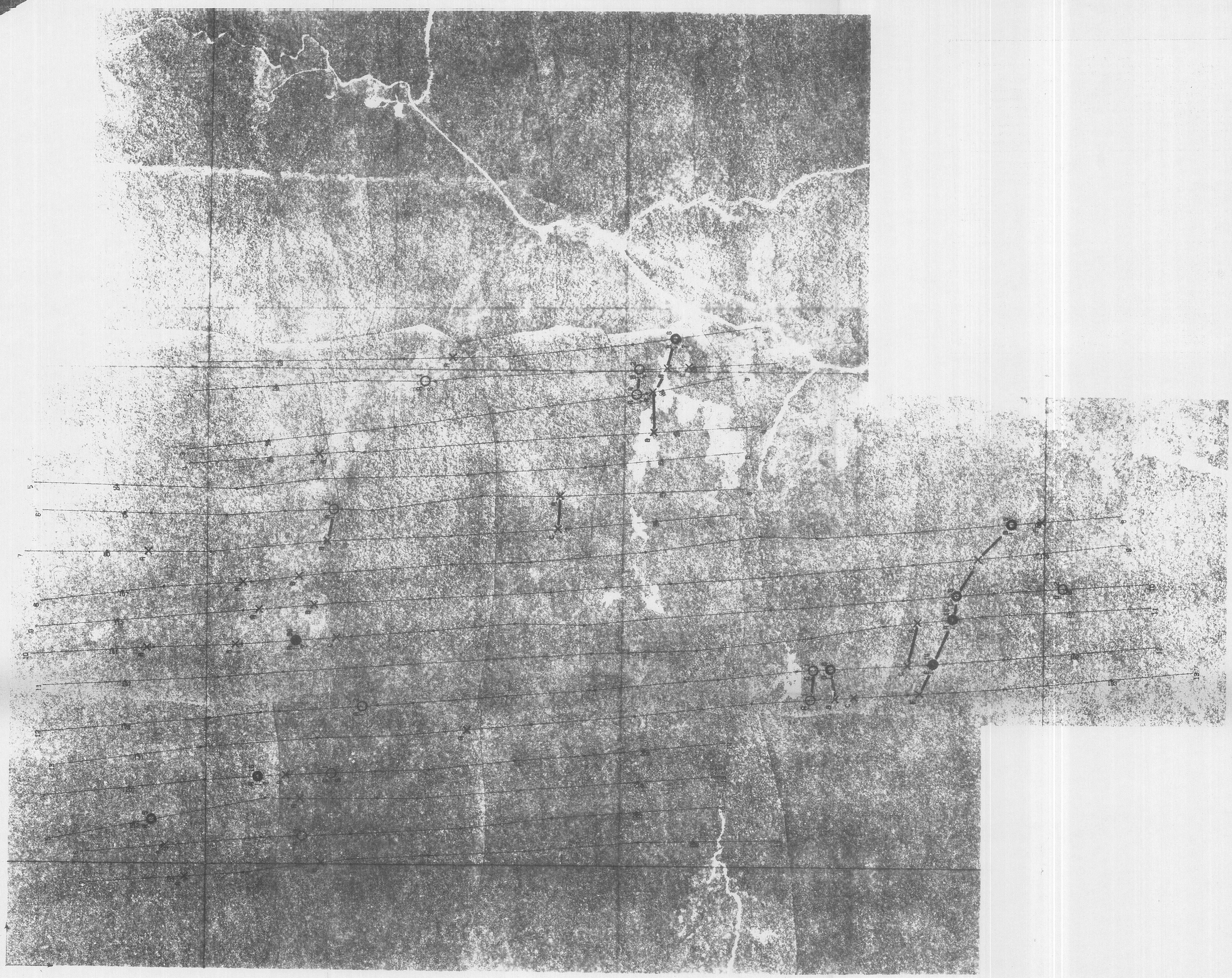
Inphase and Quadrature of standard coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

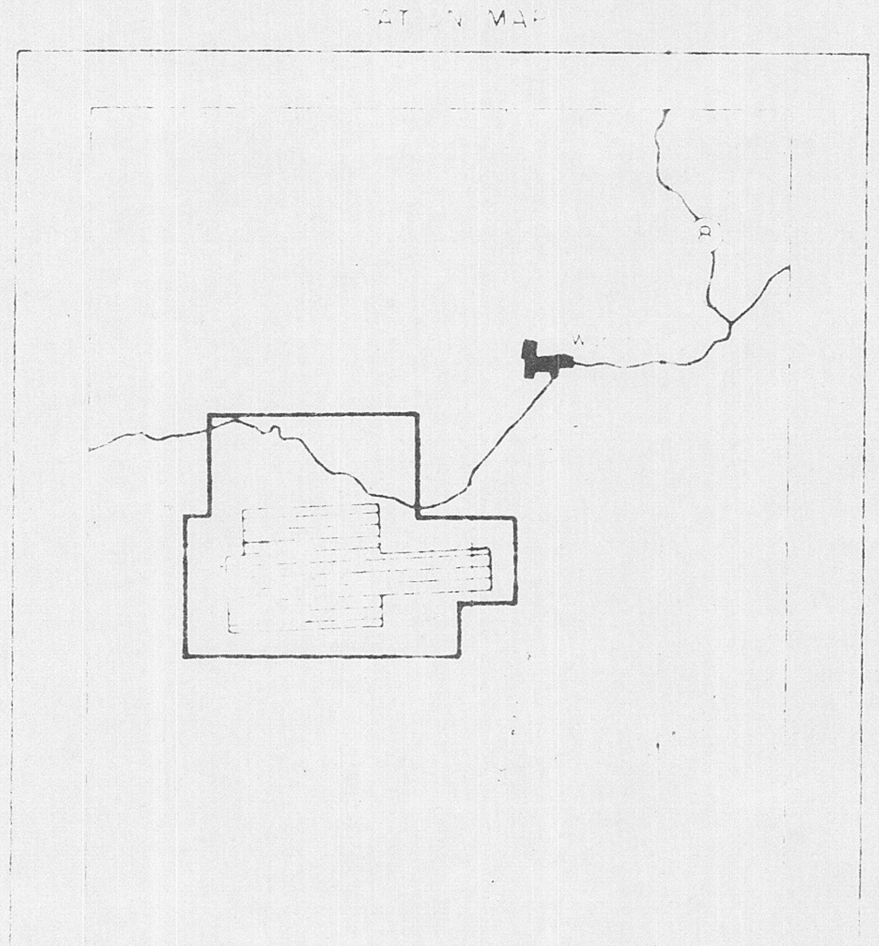
Refer to list of anomalies in survey report for the actual ppm values for all coils, and for conductor depths.

The actual mho value is plotted beside the EM grade symbol. The letter is the anomaly identifier. The horizontal rows of dots indicate anomaly amplitude on the flight record, and the vertical column gives the estimated depth. This 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 conductive overburden effects.

—	Conductor axis
S	Probable surface response
S?	Possible surface response
L	Probable line (power, telephone, pipe, or fence)
L?	Possible line
?	Questionable anomaly
◯	Apparent thickness > 0 m
>	Dip
100γ	Direct magnetic correlation of 100 gammas

DIGHEM maps are designed to provide a correct impression of conductor quality by means of the conductance grade symbols. The symbols can stand alone with geology when planning a followup program. The actual mho values are plotted for those who wish quantitative data. The anomaly ppm and depth are indicated by inconspicuous dots which should not distract from the conductor patterns, while being helpful to those who wish this information. The map provides an interpretation of all conductors in terms of length, strike direction, conductance and depth. The accuracy is comparable to an interpretation from a ground EM survey having the same line spacing.





DIGHEM II SURVEY

CIRCULAR FEATURE AREA, TASMANIA

ELECTROMAGNETICS

FOR

ABERFOYLE EXPLORATION PTY LTD

5 cm

SCALE 20,000

REGISTERED PROFESSIONAL ENGINEER
D.C. FRASER
PROVINCE OF ONTARIO

050035

80-1476

2911

ANOMALY GRADE	EM GRADE SYMBOL	MHO RANGE
6	●	≥ 100
5	✹	50 — 99
4	●	20 — 49
3	◉	10 — 19
2	○	5 — 9
1	○	≤ 4
	×	Possible conductor

DIGHEM anomalies are divided into six grades of conductivity – thickness product. This product in mhos is the reciprocal of resistance in ohms. The mho is a measure of conductance, and is a geologic parameter. Most swamps yield Grade 1 anomalies but highly conducting clays can give Grade 2 anomalies. The multi-coil anomaly shapes often allow surface conductors to be recognized, and these are indicated by the letter S on this map. The remaining Grade 1 and 2 anomalies could be weak bedrock conductors. The higher grades indicate increasingly higher conductances. Examples: The ore bodies of the Magusi River camp yield Grade 4 anomalies, while Mattabi and Whistle give Grade 5. Graphite and sulphides can span all grades but, in this survey area, field work may show that the different grades indicate different types of conductors.

identifier → c 38 ← mho value

Depth is greater than
. 50 feet
: 100 feet
⁝ 150 feet
⁞ 200 feet

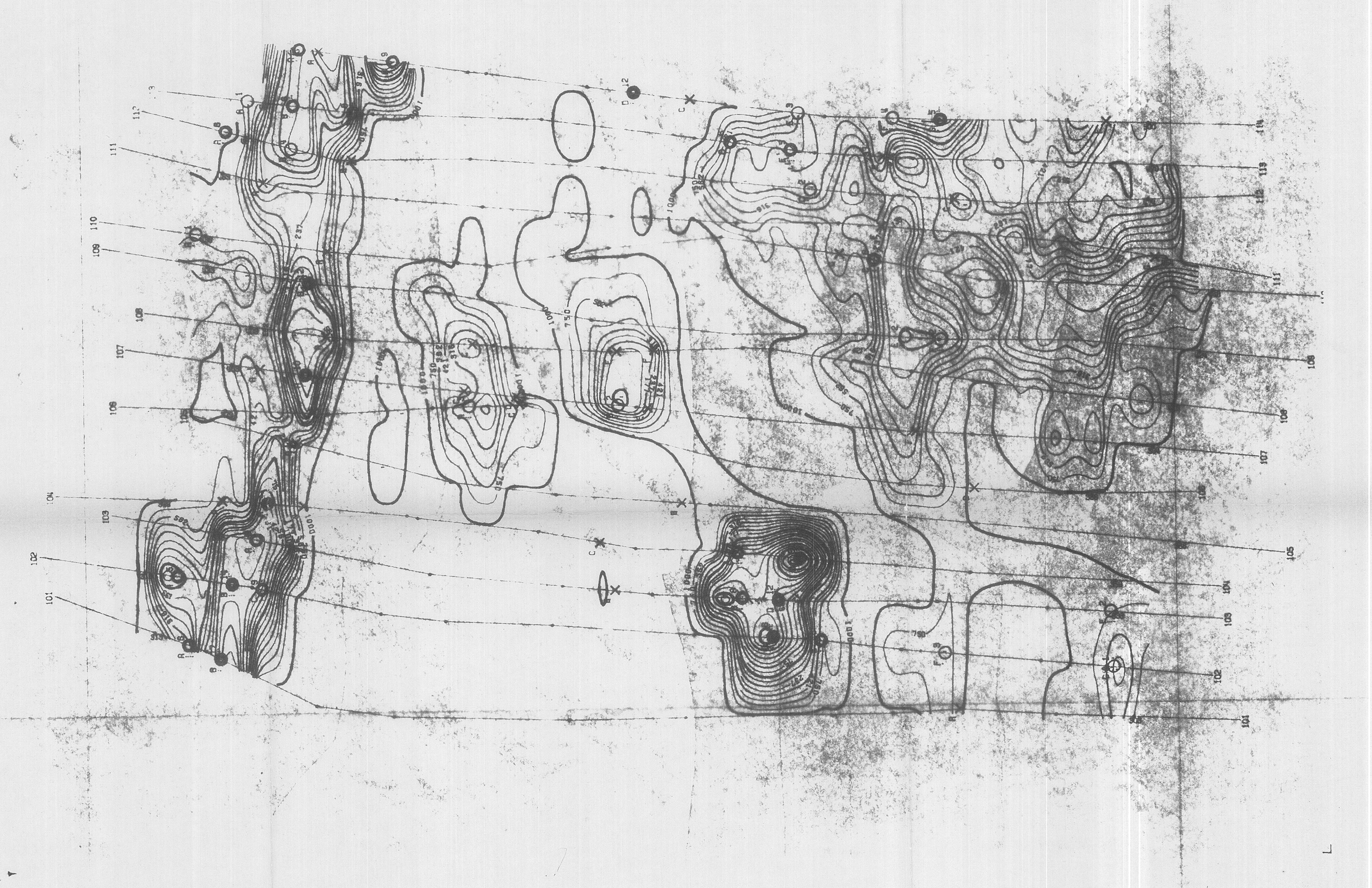
Inphase and Quadrature of standard coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

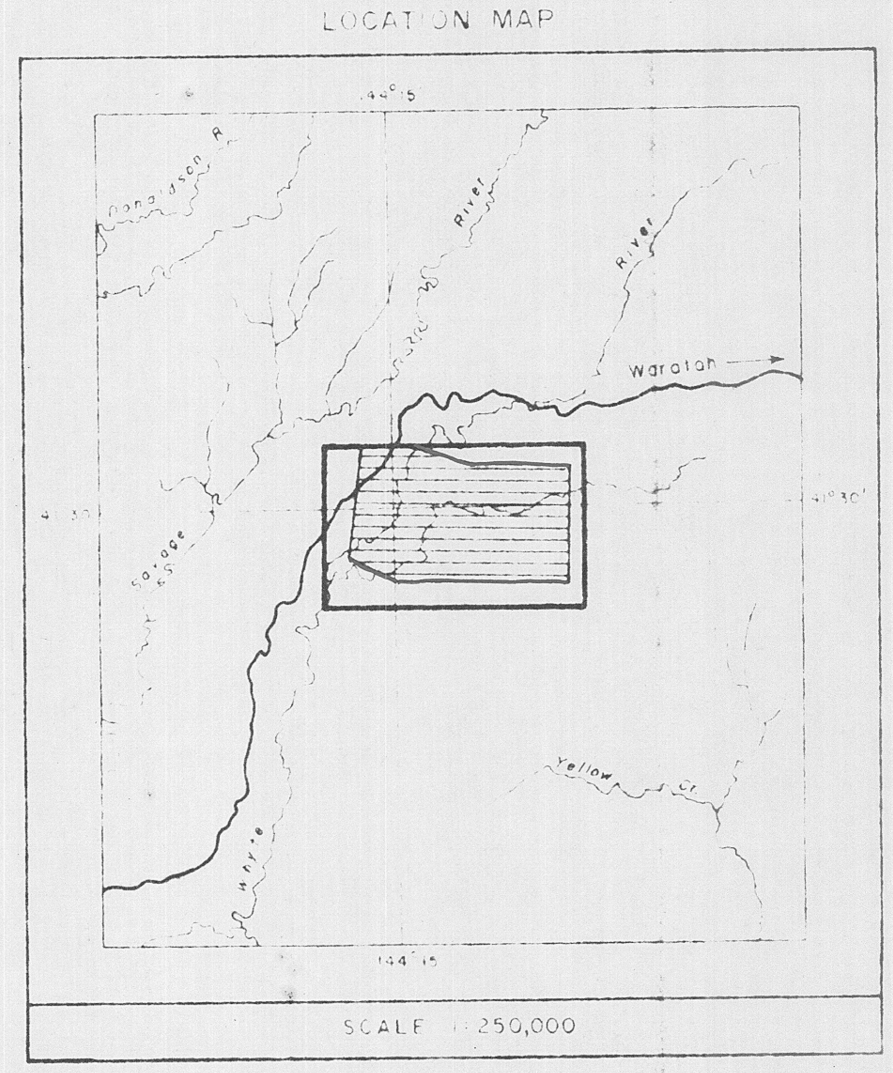
Refer to list of anomalies in survey report for the actual ppm values for all coils, and for conductor depths.

The actual mho value is plotted beside the EM grade symbol. The letter is the anomaly identifier. The horizontal rows of dots indicate anomaly amplitude on the flight record, and the vertical column gives the estimated depth. This 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 conductive overburden effects.

▬	Conductor axis
S	Probable surface response
S?	Possible surface response
L	Probable line (power, telephone, pipe, or fence)
L?	Possible line
?	Questionable anomaly
◯	Apparent thickness > 10 m
>	Dip
100γ	Direct magnetic correlation of 100 gammas

DIGHEM maps are designed to provide a correct impression of conductor quality by means of the conductance grade symbols. The symbols can stand alone with geology when planning a followup program. The actual mho values are plotted for those who wish quantitative data. The anomaly ppm and depth are indicated by inconspicuous dots which should not distract from the conductor patterns, while being helpful to those who wish this information. The map provides an interpretation of all conductors in terms of length, strike direction, conductance and depth. The accuracy is comparable to an interpretation from a ground EM survey having the same line spacing.





DIGHEM[II] SURVEY

CONTACT CREEK AREA, TASMANIA

RESISTIVITY

FOR 050036

ABERFOYLE EXPLORATION PTY. LTD.

REGISTERED PROFESSIONAL ENGINEER
D. C. FRASER
PROVINCE OF ONTARIO

5 cm

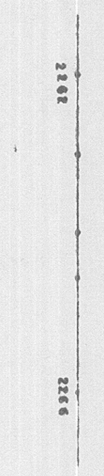
SCALE 1:20,000

0 1 2 Kilometres

1/2 0 1/2 1 Miles

Flight line

Fiducials and numbers



LEGEND

Contours in ohm - m at eight intervals per decade

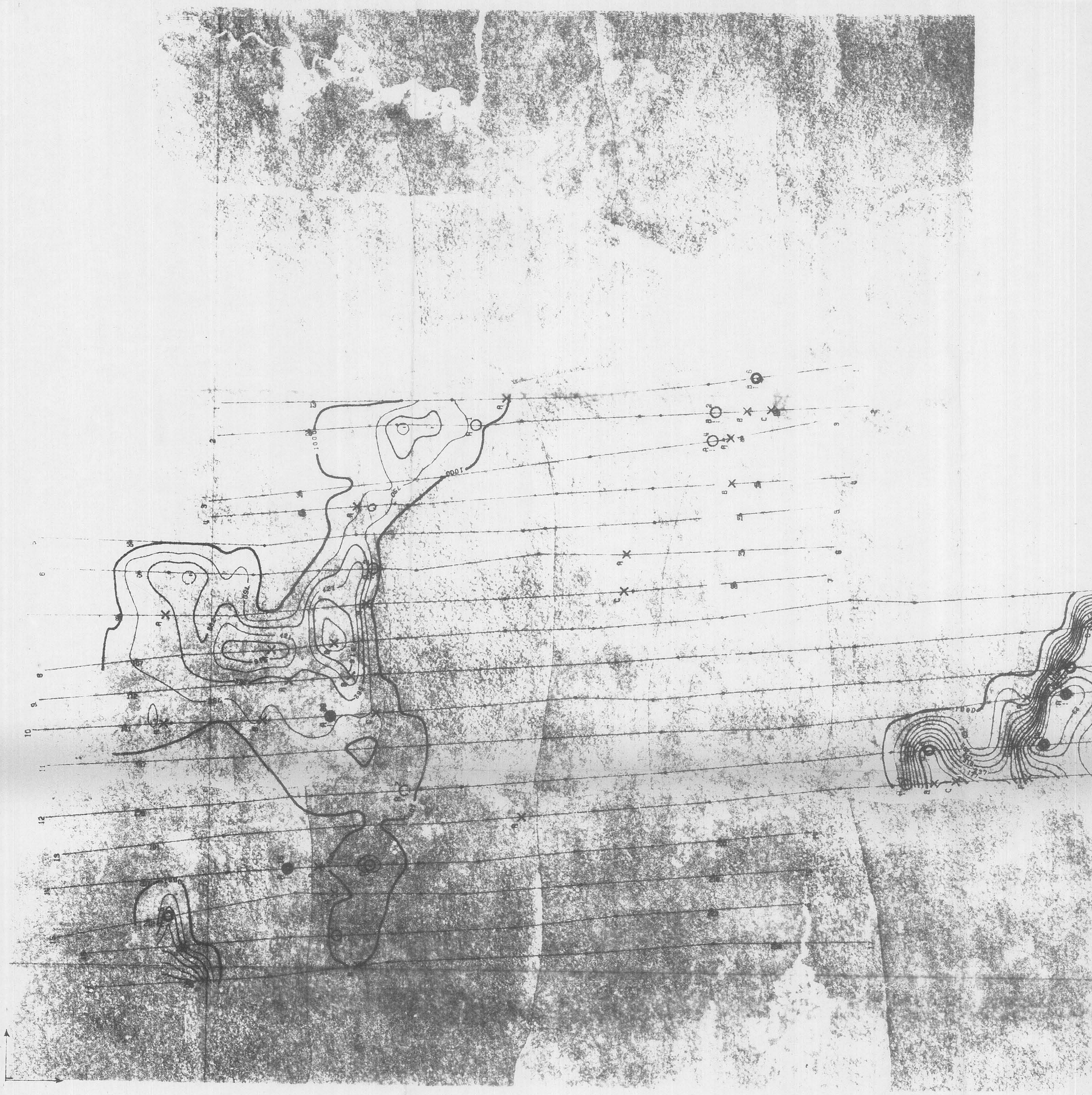
100
75
56
42
31
23
17
13
10

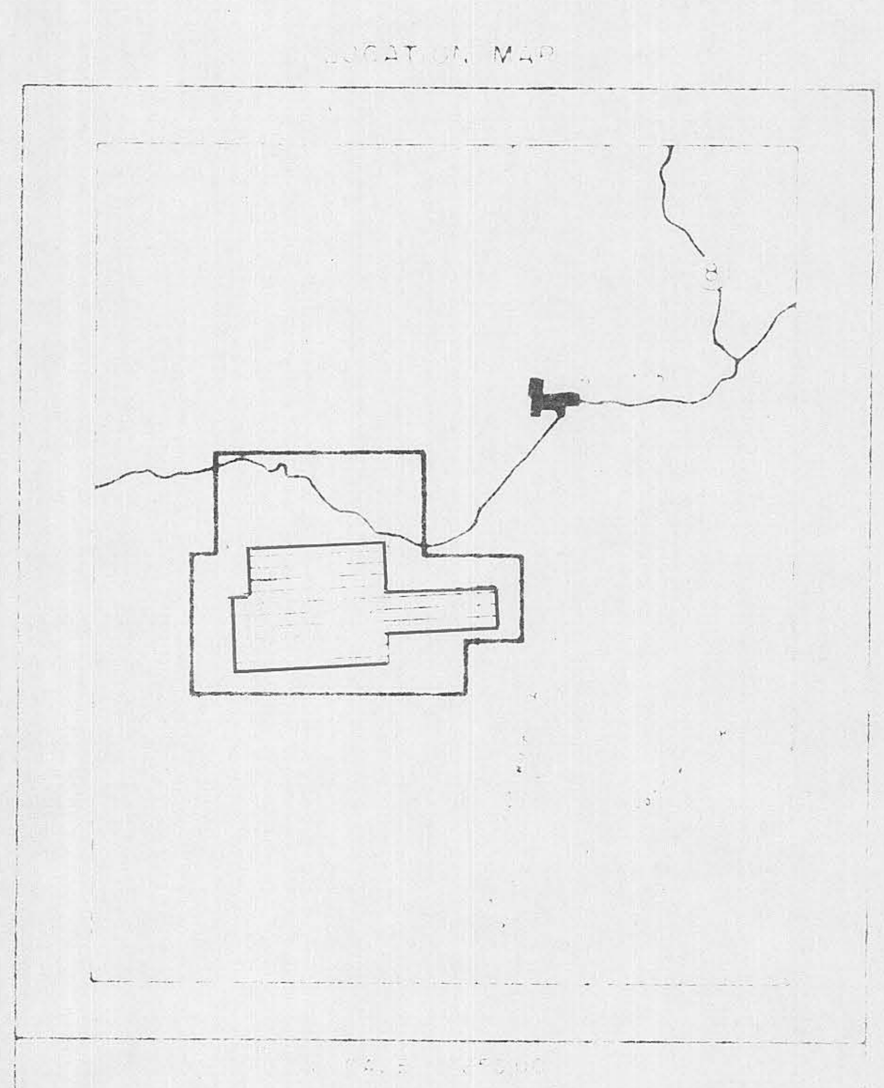
Note

The numbers face in the direction of increasing value

80-1476

2910





DIGHEM II SURVEY

CIRCULAR FEATURE AREA, TASMANIA

RESISTIVITY

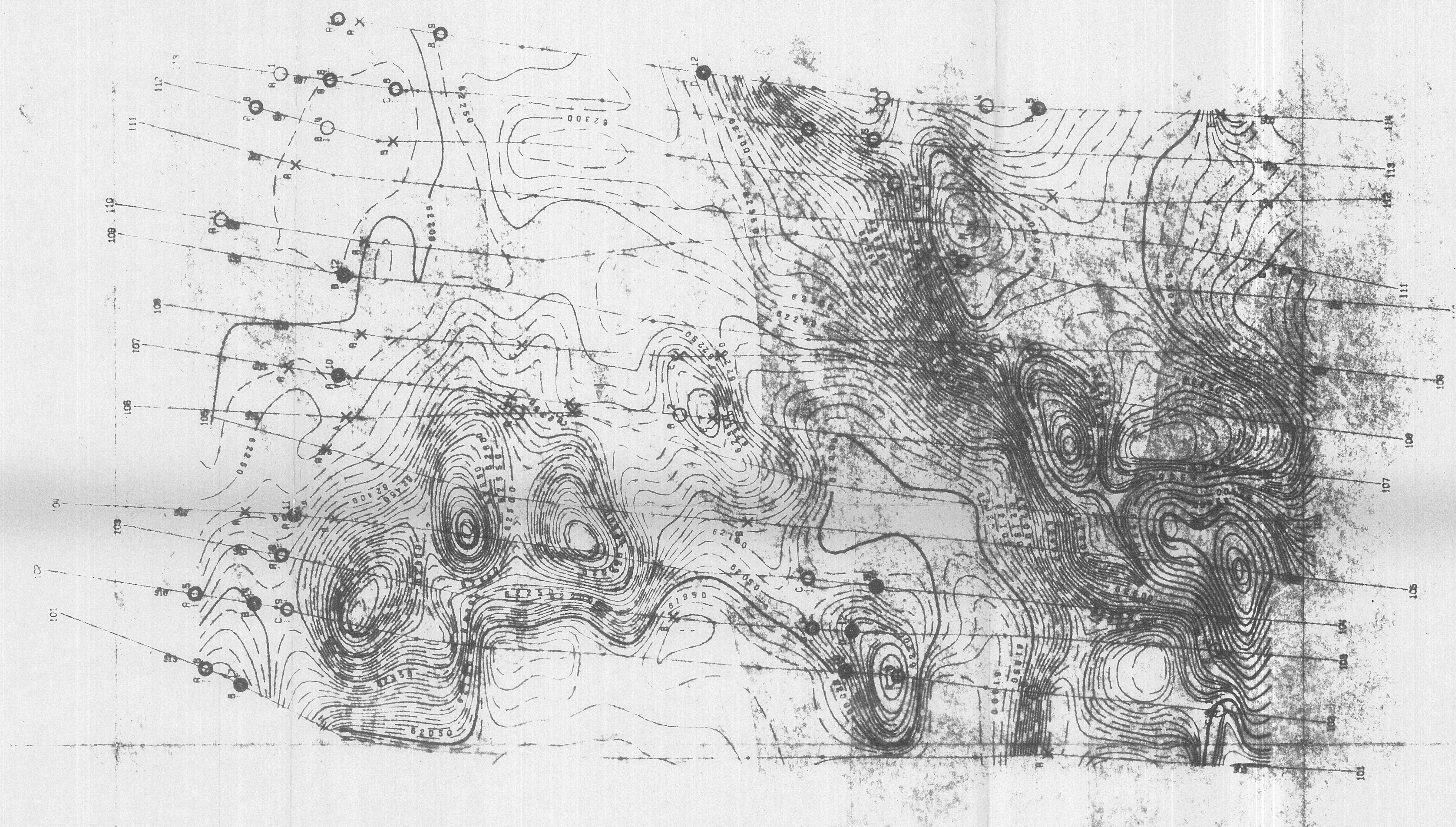
FOR 050037

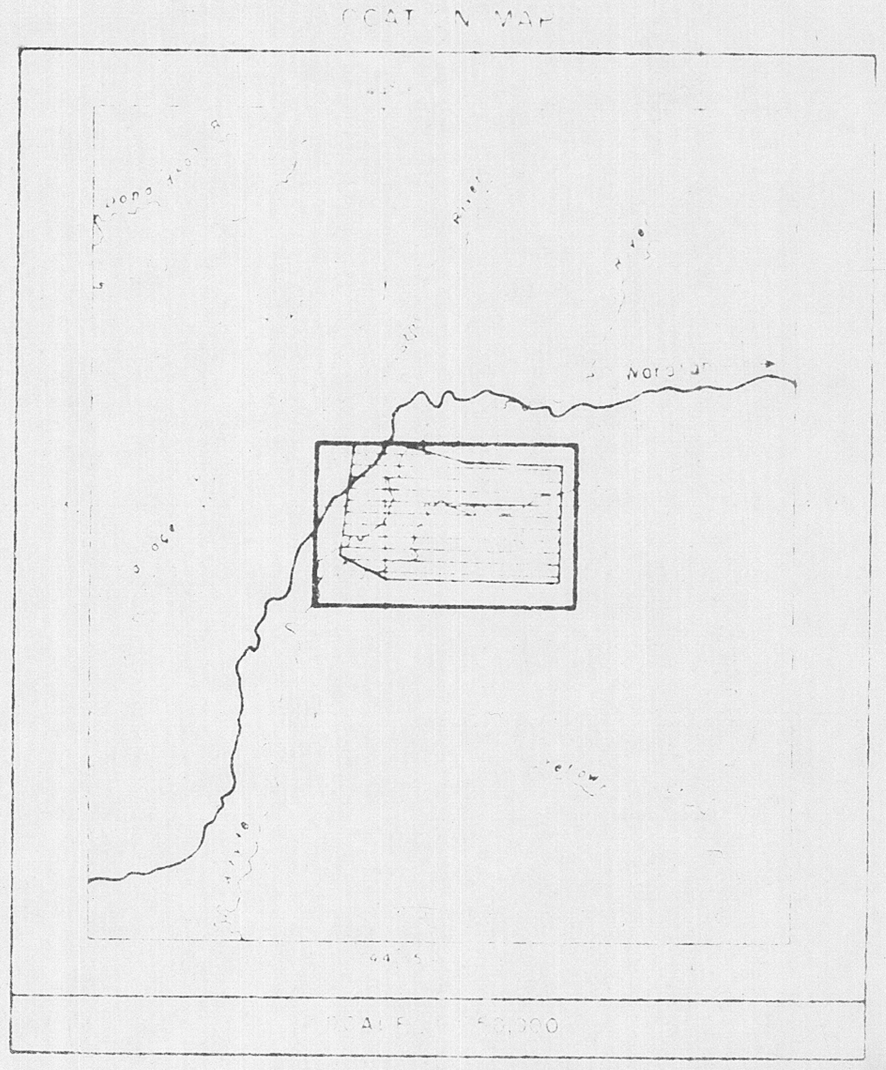
ABERFOYLE EXPLORATION PTY LTD

REGISTERED PROFESSIONAL ENGINEER
D. C. FRASER
PROVINCE OF ONTARIO

80-1476

2914





DIGHEM II SURVEY

CONTACT CREEK AREA, TASMANIA

MAGNETICS

FOR

050038

ABERFOYLE EXPLORATION PTY. LTD.

5 cm

SCALE 1:20,000

Kilometres

Miles

80-1476

2903

Flight line

Fiducials and numbers

ISOMAGNETIC LINES

(total field)

1000 gammas

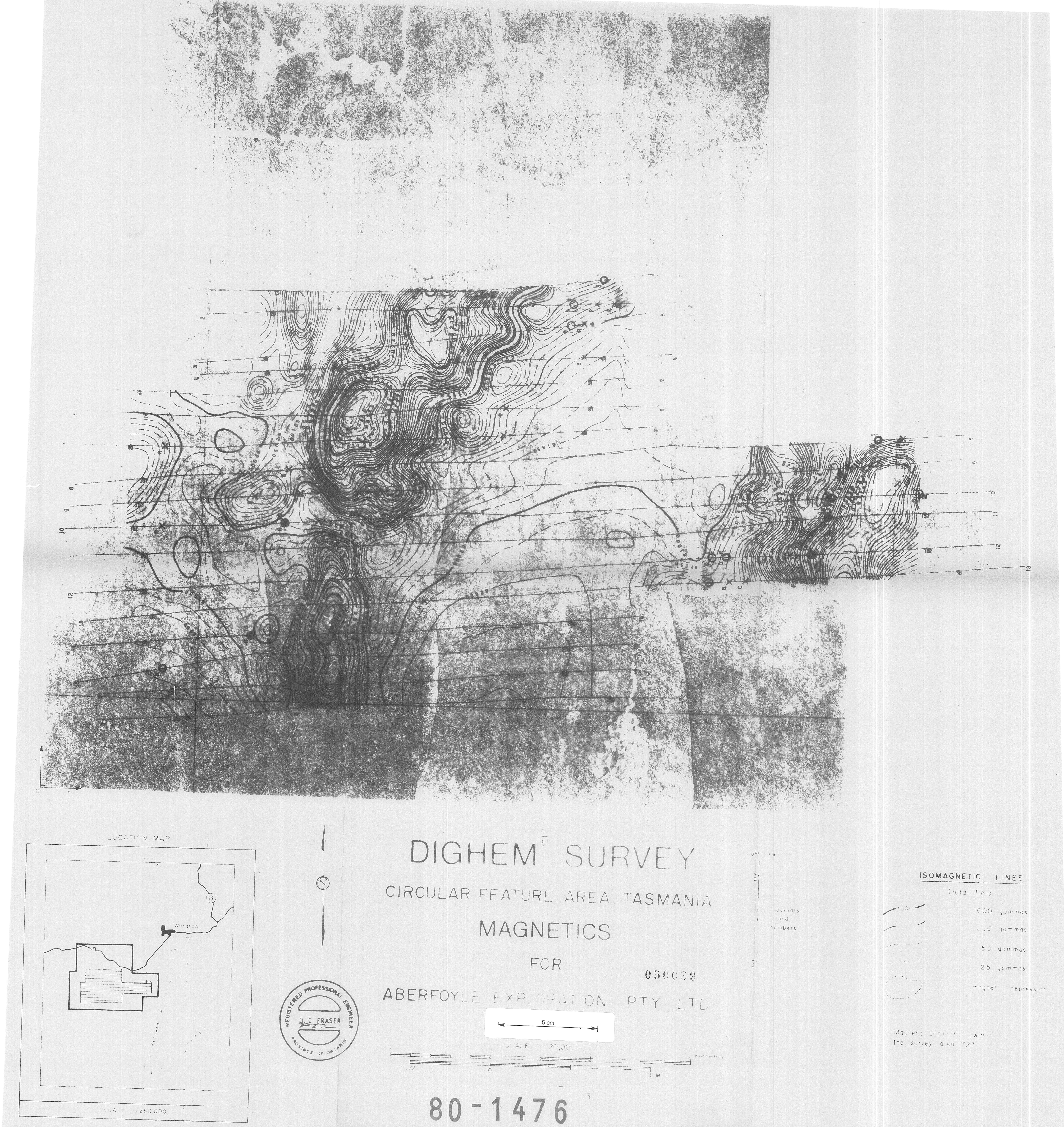
200 gammas

50 gammas

25 gammas

magnetic depression

Magnetic Inclination within the survey area 72°



DIGHEM[II] SURVEY

CIRCULAR FEATURE AREA, TASMANIA

MAGNETICS

FOR

ABERFOYLE EXPLORATION PTY LTD

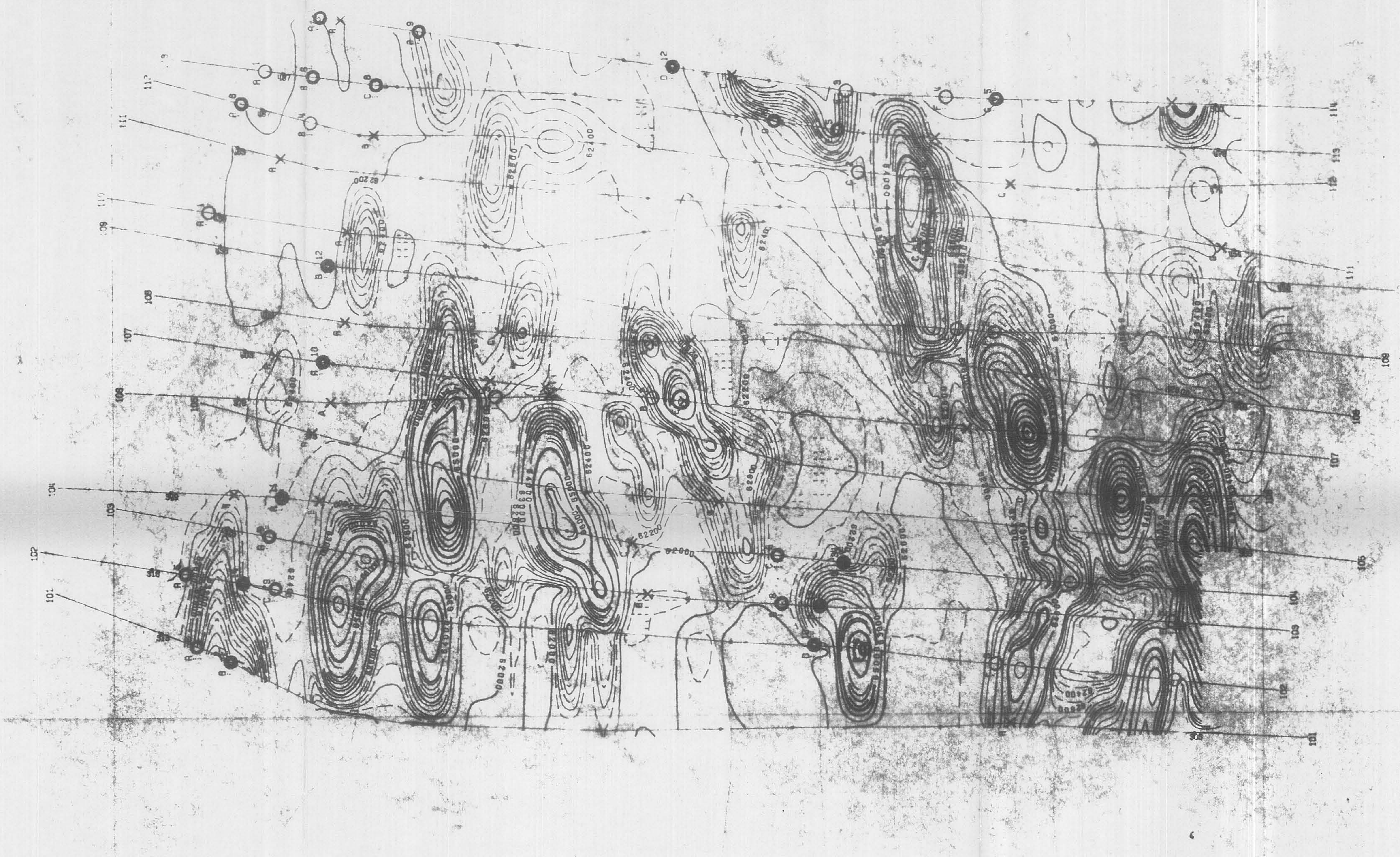
050039

REGISTERED PROFESSIONAL ENGINEER D.C. FRASER PROVINCE OF ONTARIO

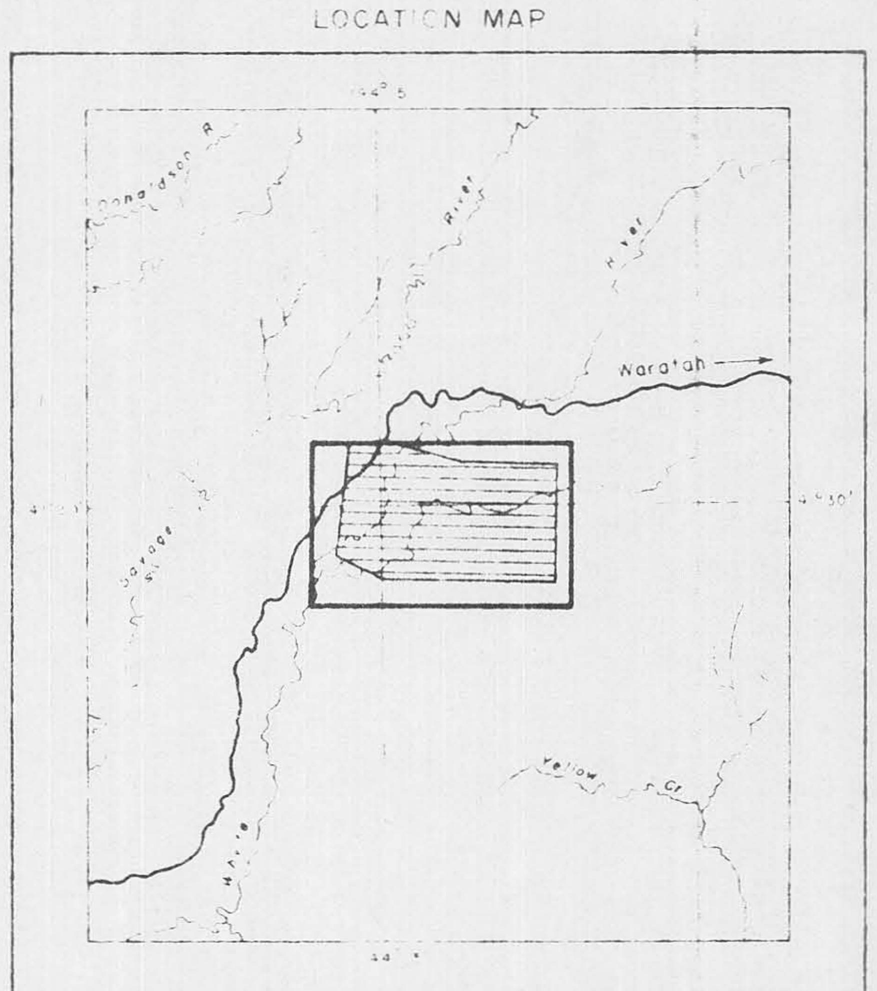
SCALE 1:20,000

80-1476

2912



LOCATION MAP



SCALE 1:250,000

DIGHEM^{II} SURVEY

CONTACT CREEK AREA, TASMANIA

ENHANCED MAGNETICS

FOR

050040

ABERFOYLE EXPLORATION PTY. LTD.

REGISTERED PROFESSIONAL ENGINEER
D. C. FRASER
PROVINCE OF ONTARIO

5 cm

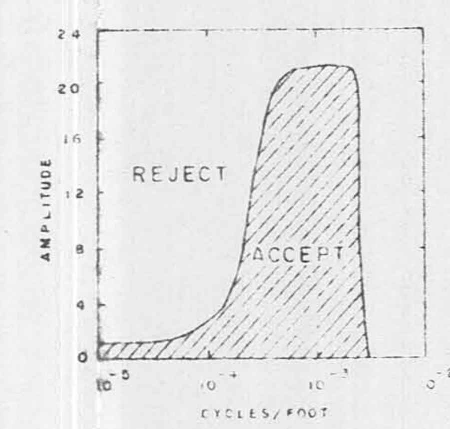
SCALE 1:20,000

1/2 0 1/2 Miles; 1 0 1 2 Kilometres

80-1476 2909

Flight line

Fiducials and numbers



Frequency response of magnetic operator

ISOMAGNETIC LINES

(enhanced field)

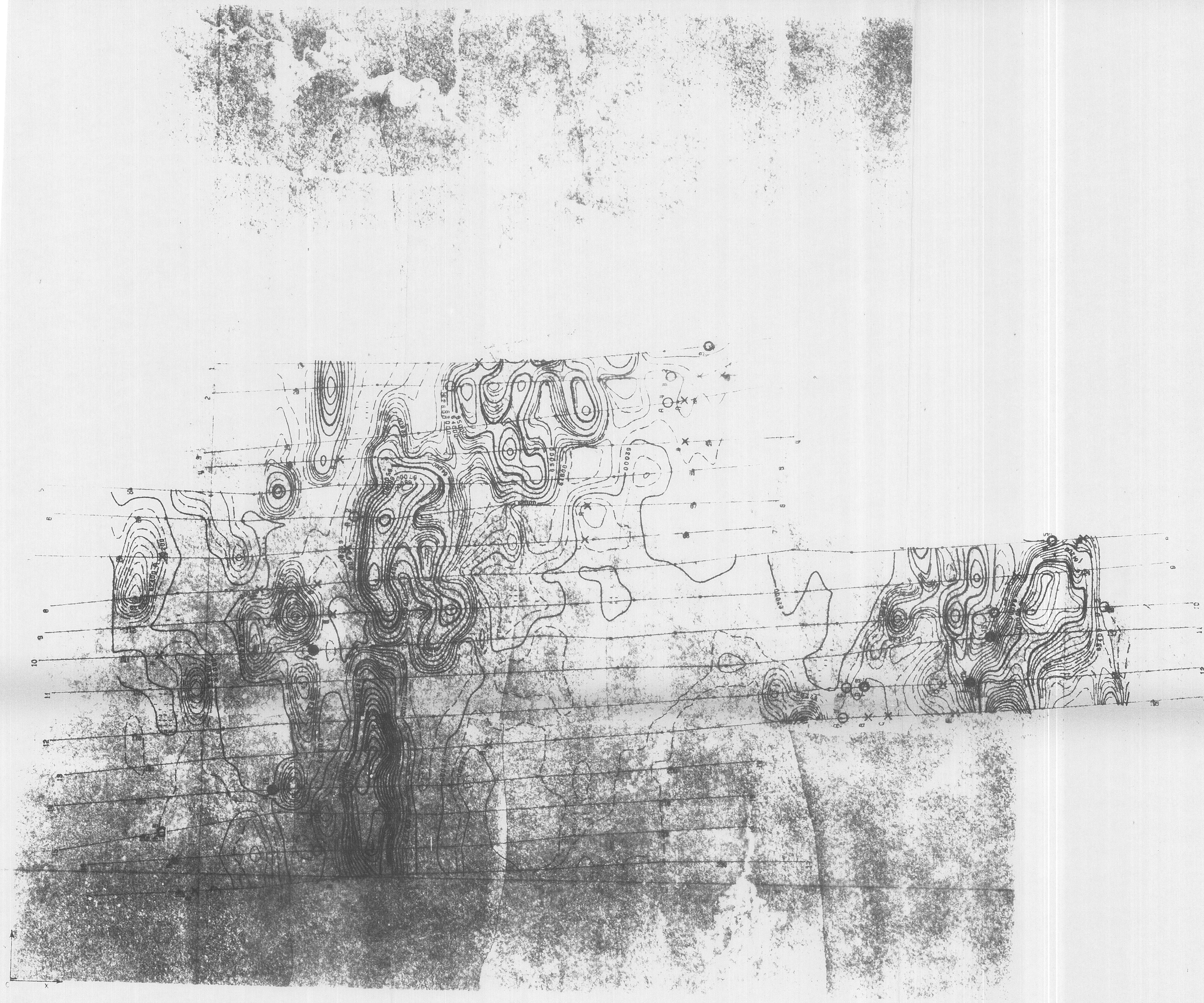
5000 gammas

1000 gammas

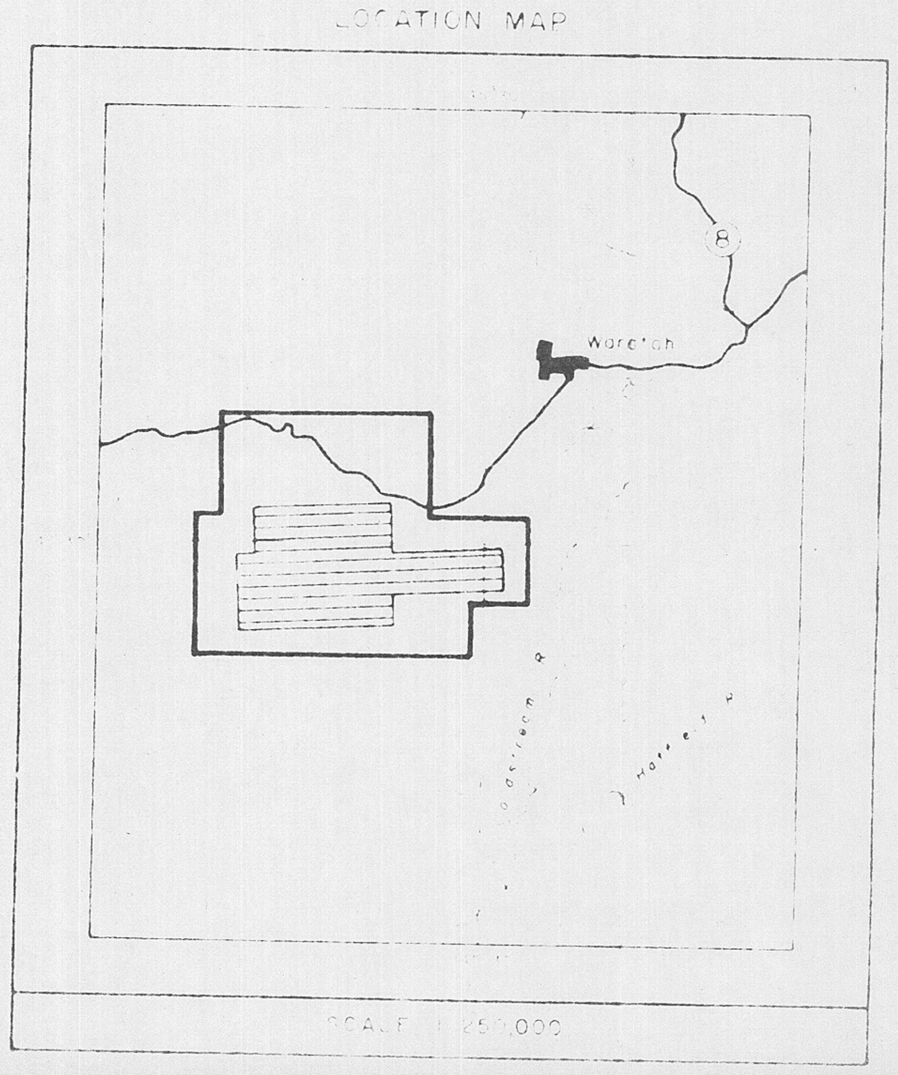
200 gammas

100 gammas

magnetic depression



LOCATION MAP



DIGHEM SURVEY

CIRCULAR FEATURE AREA TASMANIA

ENHANCED MAGNETICS

FOR 050041

ABERFOYLE EXPLORATION PTY LTD

REGISTERED PROFESSIONAL ENGINEER
D.C. FRASER
PROVINCE OF ONTARIO

SCALE 1:20,000

80-1476 I

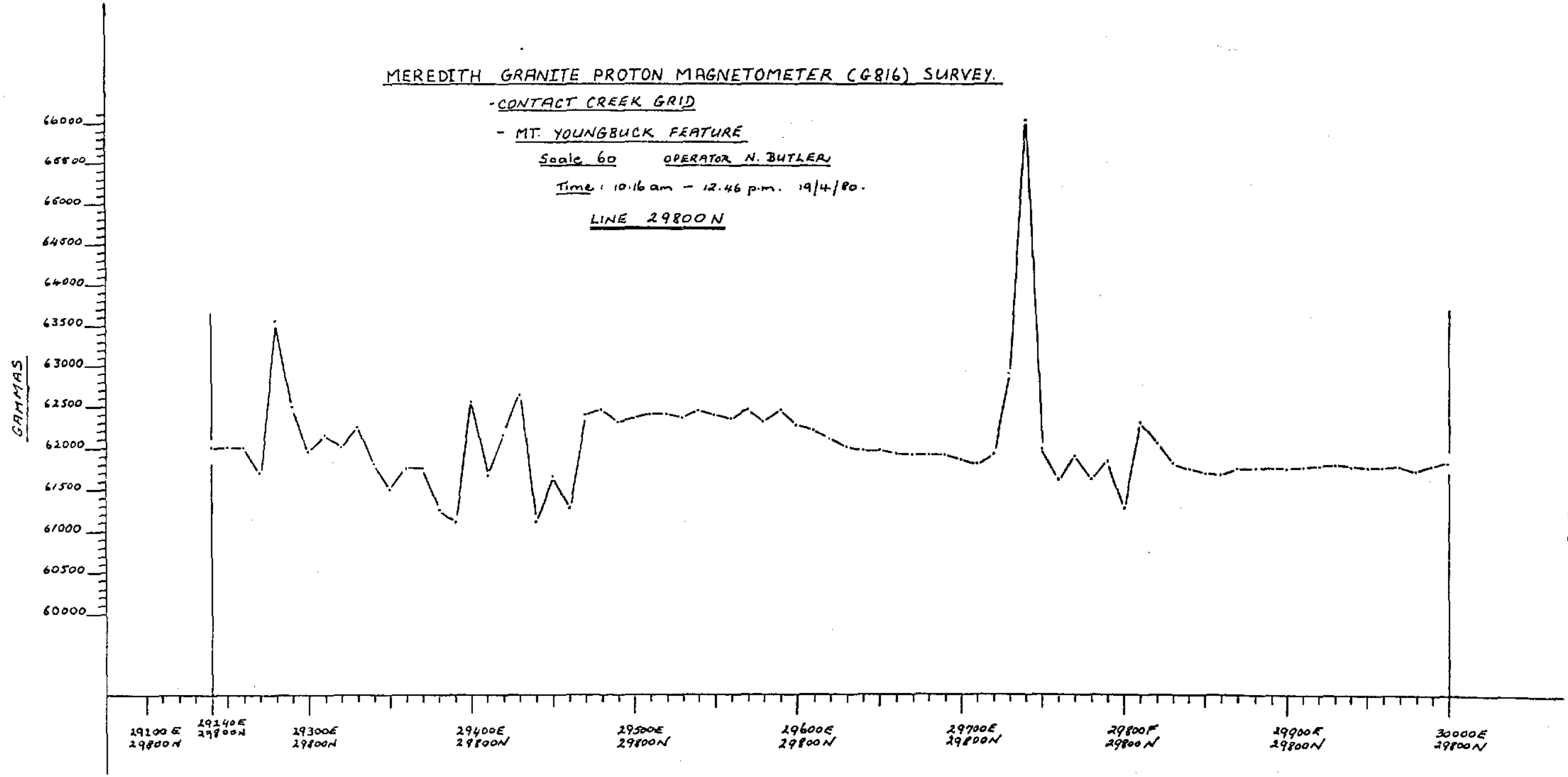
2913

033

050042

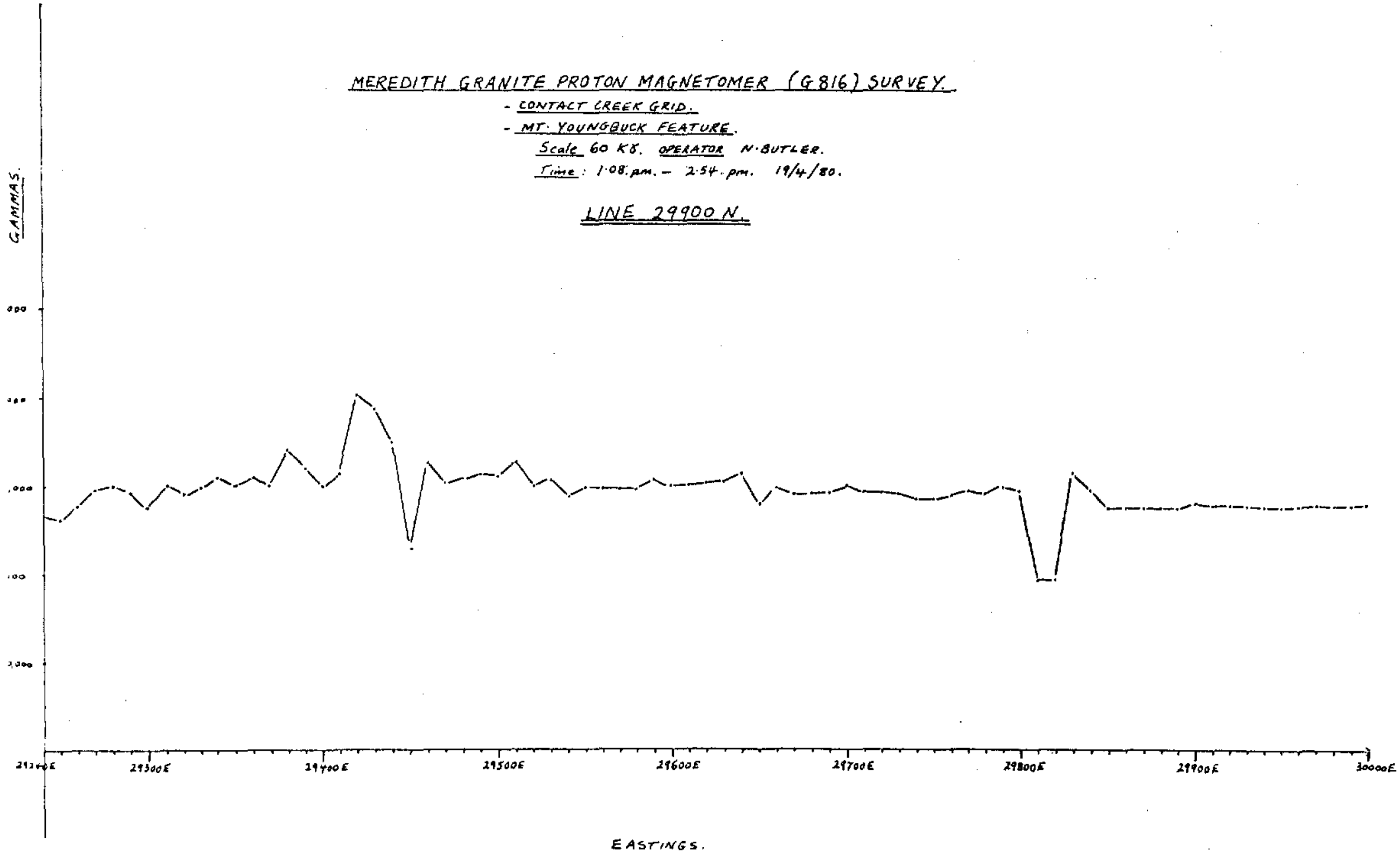
APPENDIX 2

Mt. Youngbuck Graphical Interpretation
of Ground Magnetic Data.


MEREDITH GRANITE PROTON MAGNETOMETER (G816) SURVEY.
- CONTACT CREEK GRID
- MT. YOUNGBUCK FEATURE
Scale 60
OPERATOR N. BUTLER
Time: 10.16 am – 12.46 p.m. 19/4/80.
LINE 29800 N
GAMMAS
66000
65500
66000
64500
64000
63500
63000
62500
62000
61500
61000
60500
60000
29100E 29800N
29140E 29800N
29300E 29800N
29400E 29800N
29500E 29800N
29600E 29800N
29700E 29800N
29800E 29800N
29900E 29800N
30000E 29800N

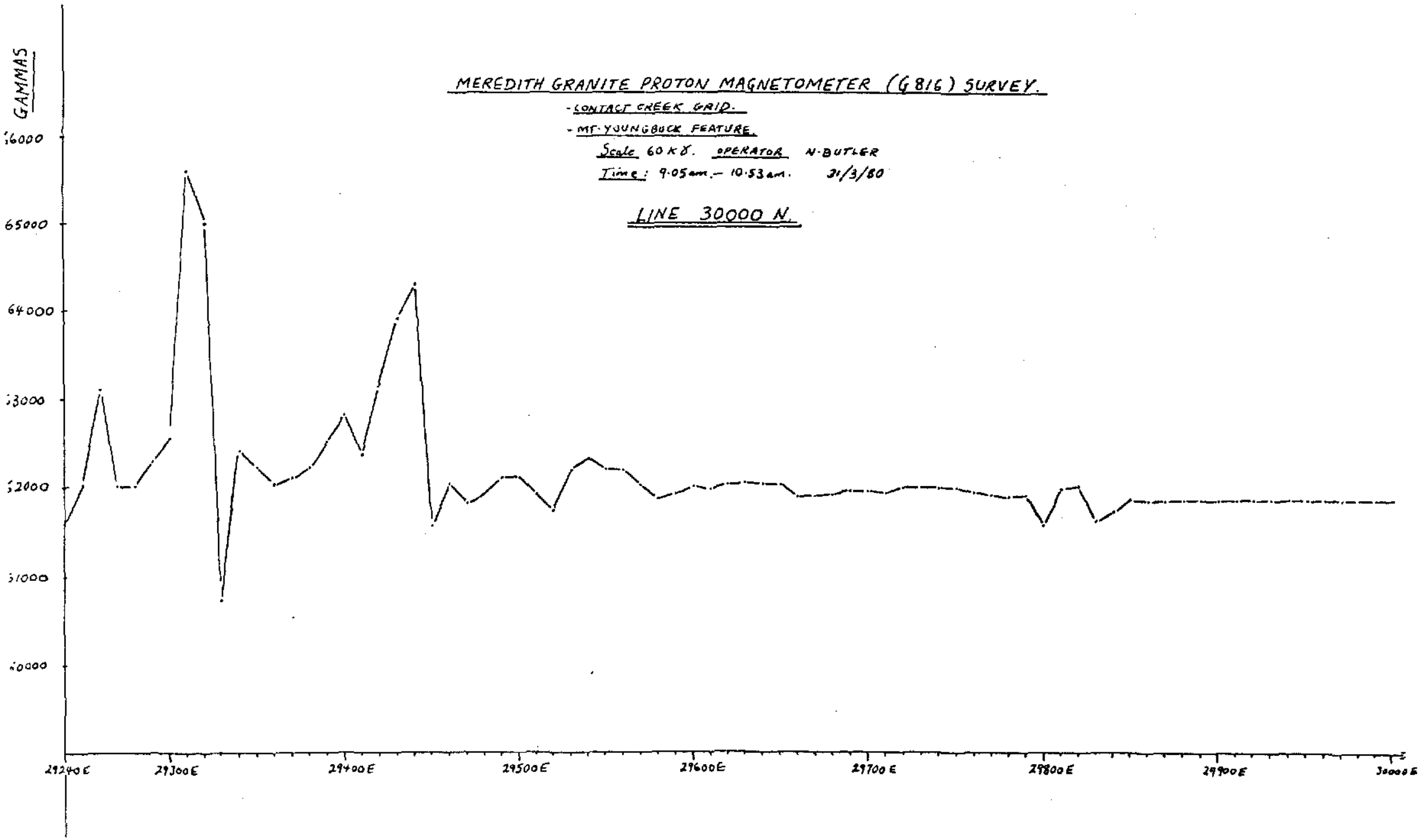
05004 3

5 cm


MEREDITH GRANITE PROTON MAGNETOMER (G816) SURVEY.
- CONTACT CREEK GRID.
- MT. YOUNGBUCK FEATURE.
Scale 60 Kγ. OPERATOR N. BUTLER.
Time: 1·08 pm. – 2·54 pm. 19/4/80.
LINE 29900 N.
GAMMAS.
29300E
29400E
29500E
29600E
29700E
29800E
29900E
30000E
EASTINGS.

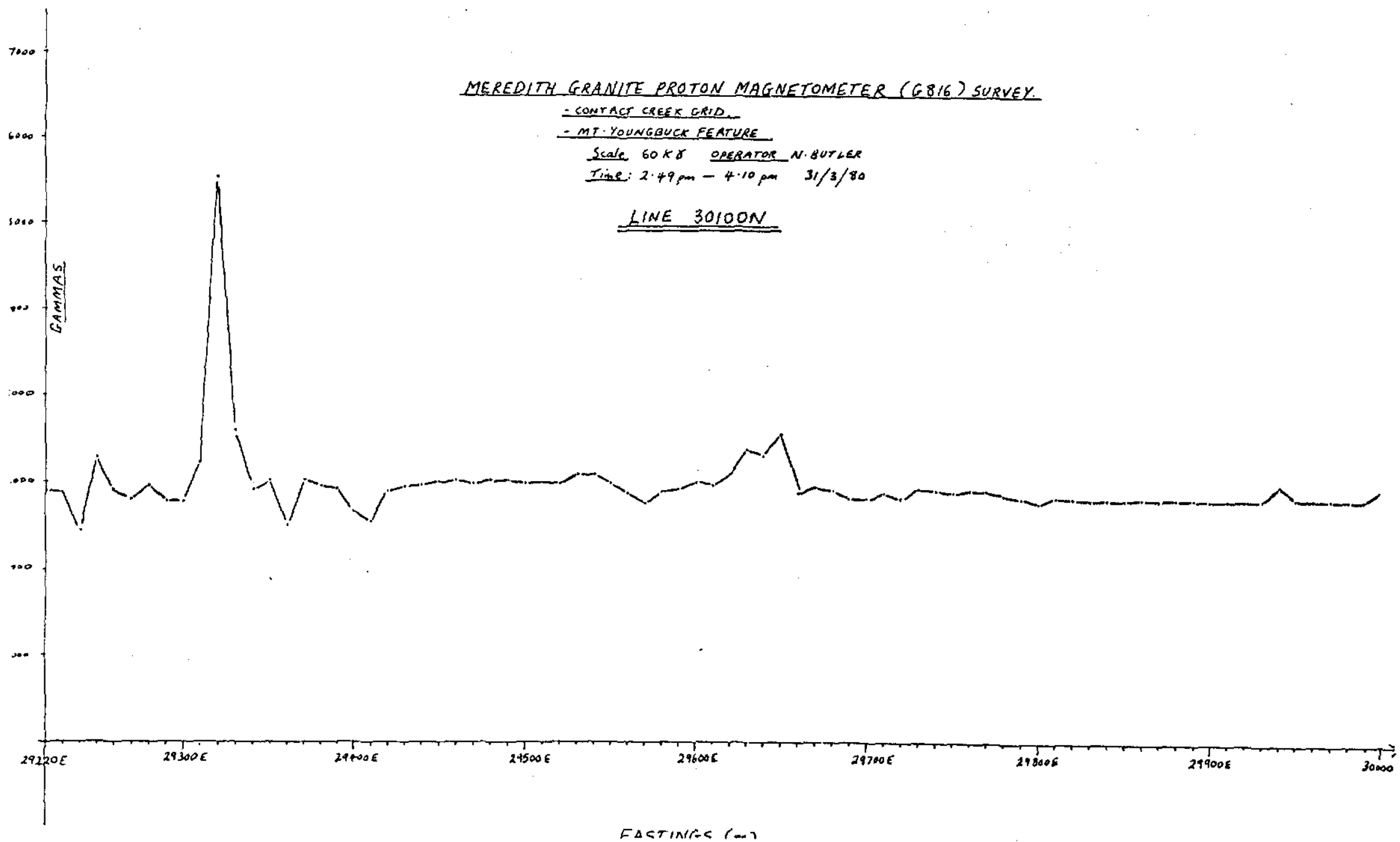
050044

5 cm


MEREDITH GRANITE PROTON MAGNETOMETER (G816) SURVEY.
- CONTACT CREEK GRID.
- MT YOUNGBUCK FEATURE.
Scale 60Kγ. OPERATOR N·BUTLER
Time: 9·05am.– 10·53am. 21/3/80
LINE 30000 N.
GAMMAS
65000
64000
29240E
29300E
29400E
29500E
29600E
29700E
29800E
29900E
30000E

5 cm

037



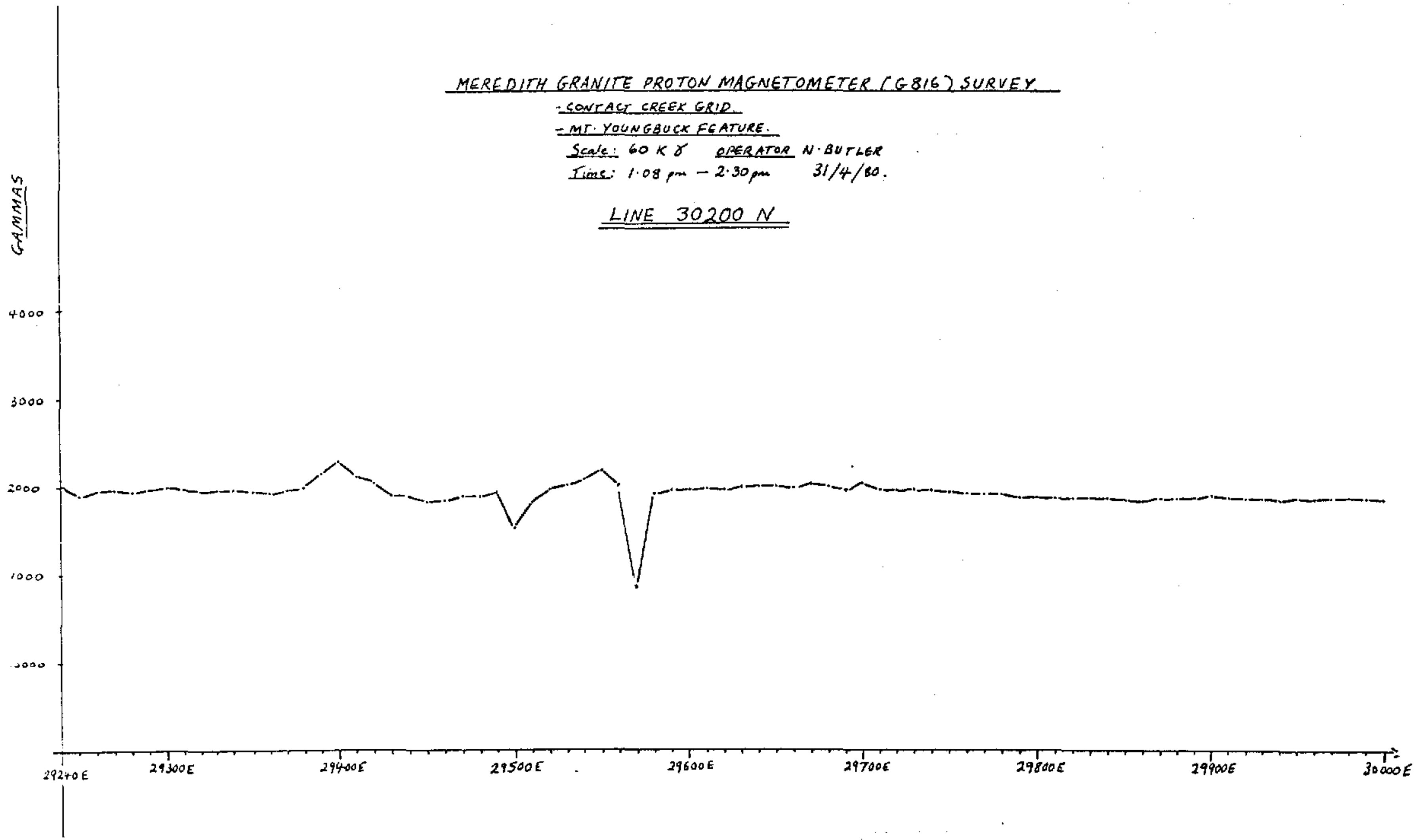
050046

5 cm

038

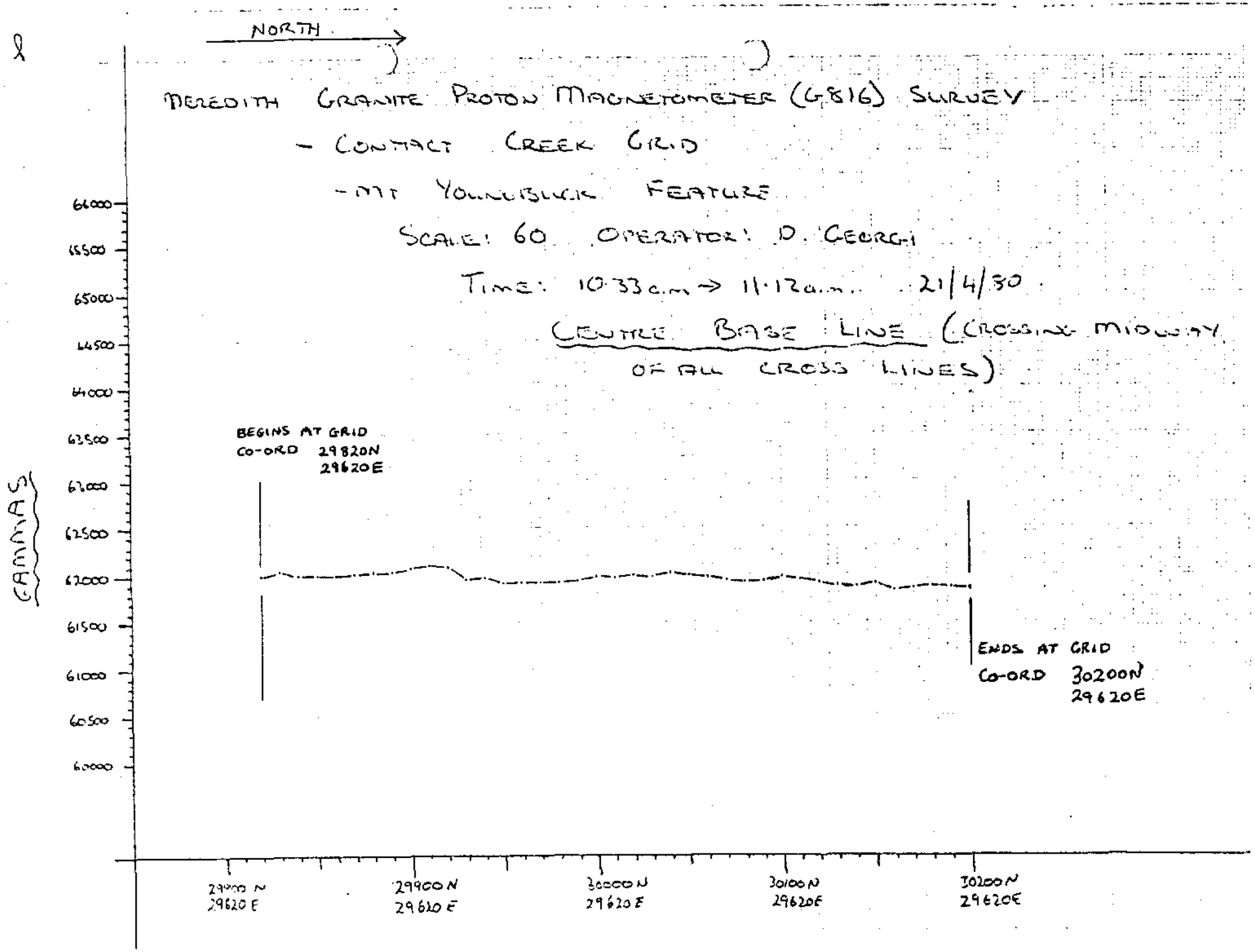
MEREDITH GRANITE PROTON MAGNETOMETER (G816) SURVEY
- CONTACT CREEK GRID.
- MT. YOUNGBUCK FEATURE.
Scale: 60 K γ OPERATOR N. BUTLER
Time: 1·08 pm – 2·30 pm 31/4/80.

LINE 30200 N



5 cm

050047

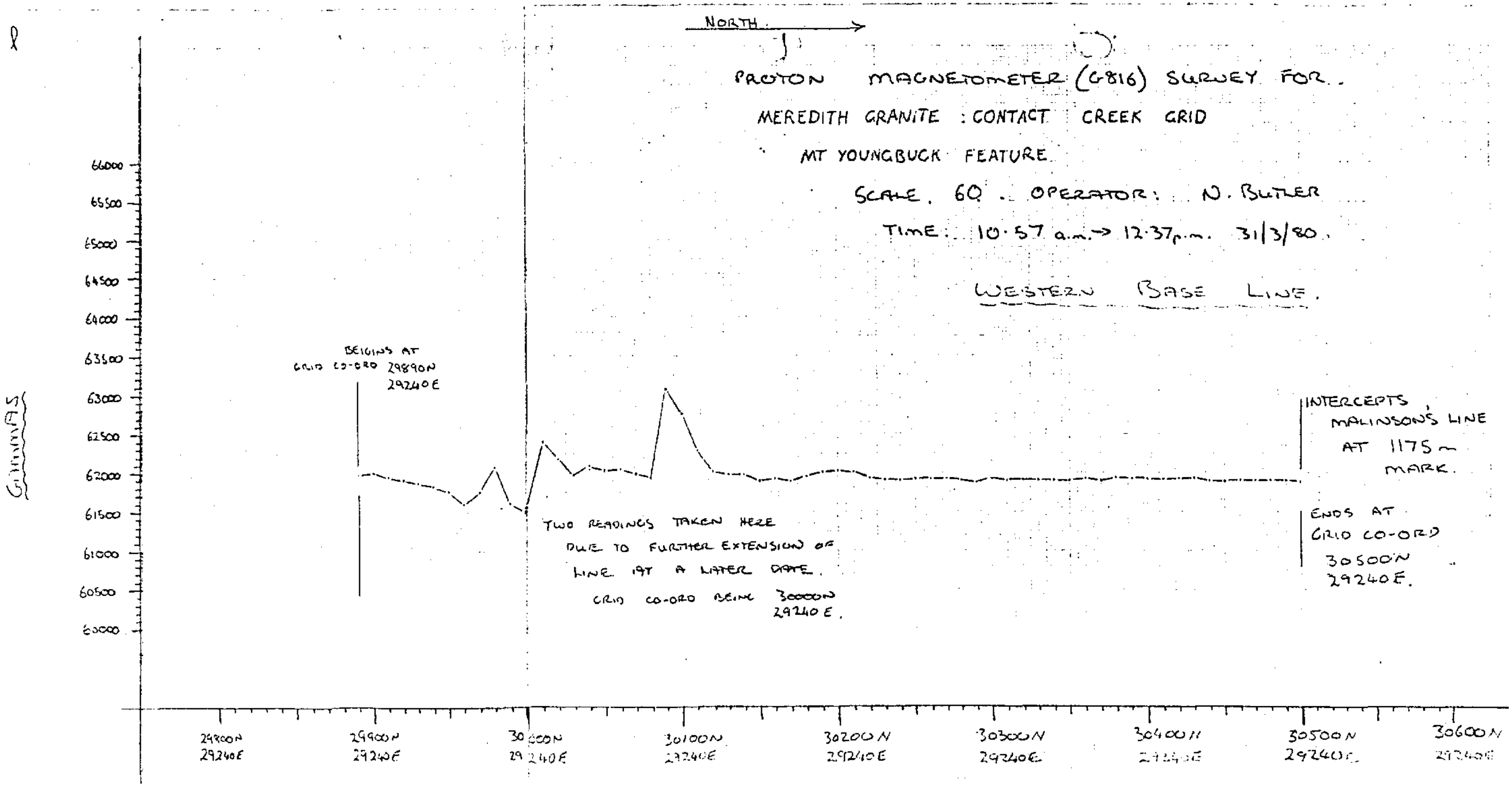

NORTH
MEREDITH GRANITE PROTON MAGNETOMETER (G816) SURVEY
- CONTACT CREEK GRID
- MT YOUNGBLOCK FEATURE
SCALE: 60 OPERATOR: D. GEORGI
TIME: 10.33 a.m → 11.12 a.m. 21/4/80
CENTRE BASE LINE (CROSSING MIDWAY OF ALL CROSS LINES)
BEGINS AT GRID CO-ORD 29820N 29620E
ENDS AT GRID CO-ORD 30200N 29620E
GAMMAS
66000
65500
65000
64500
64000
63500
63000
62500
62000
61500
61000
60500
60000
29800 N 29620 E
29900 N 29620 E
30000 N 29620 E
30100 N 29620 E
30200 N 29620 E

00050

5 cm

040

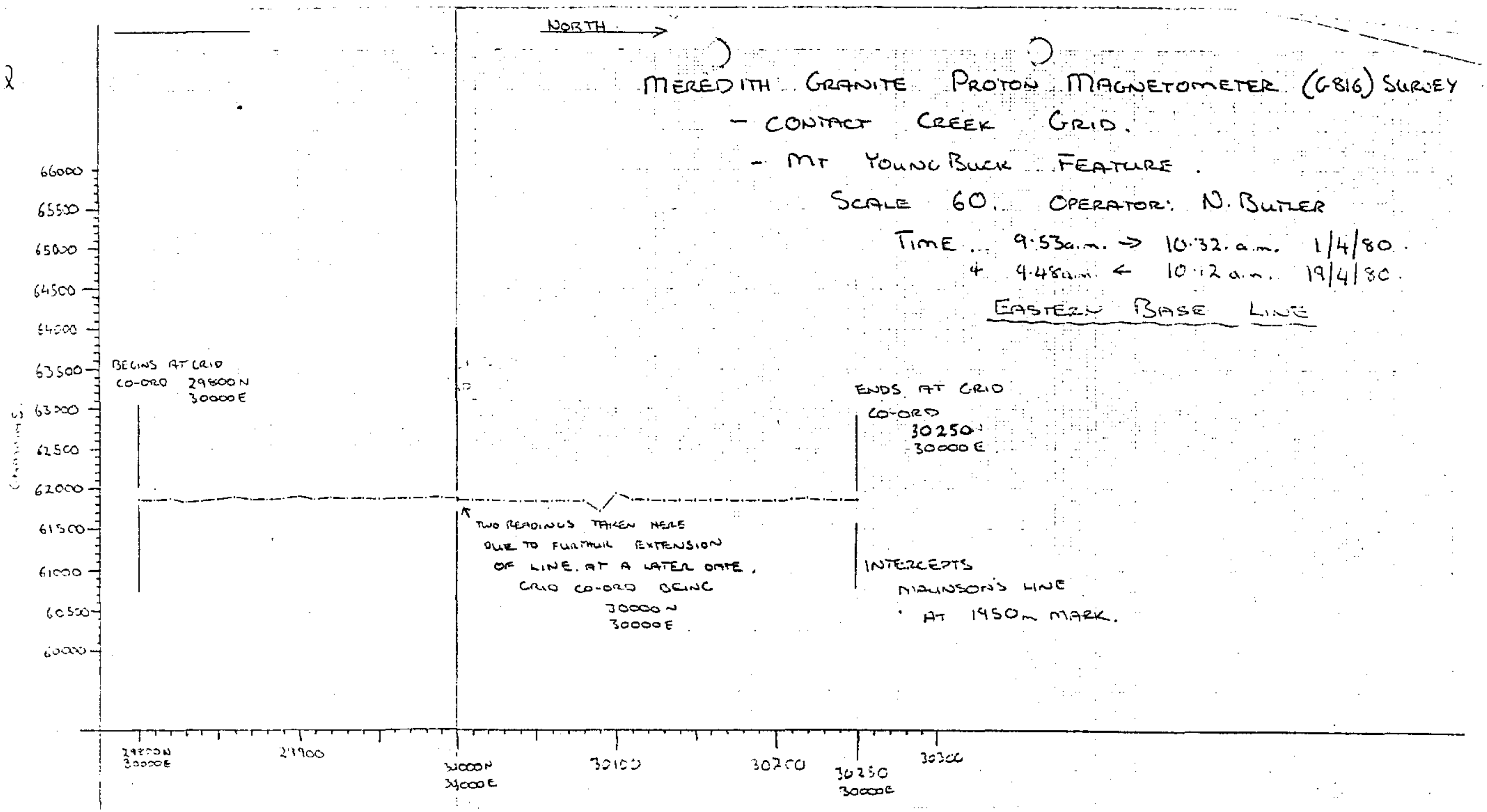
050049



5 cm

041

050050



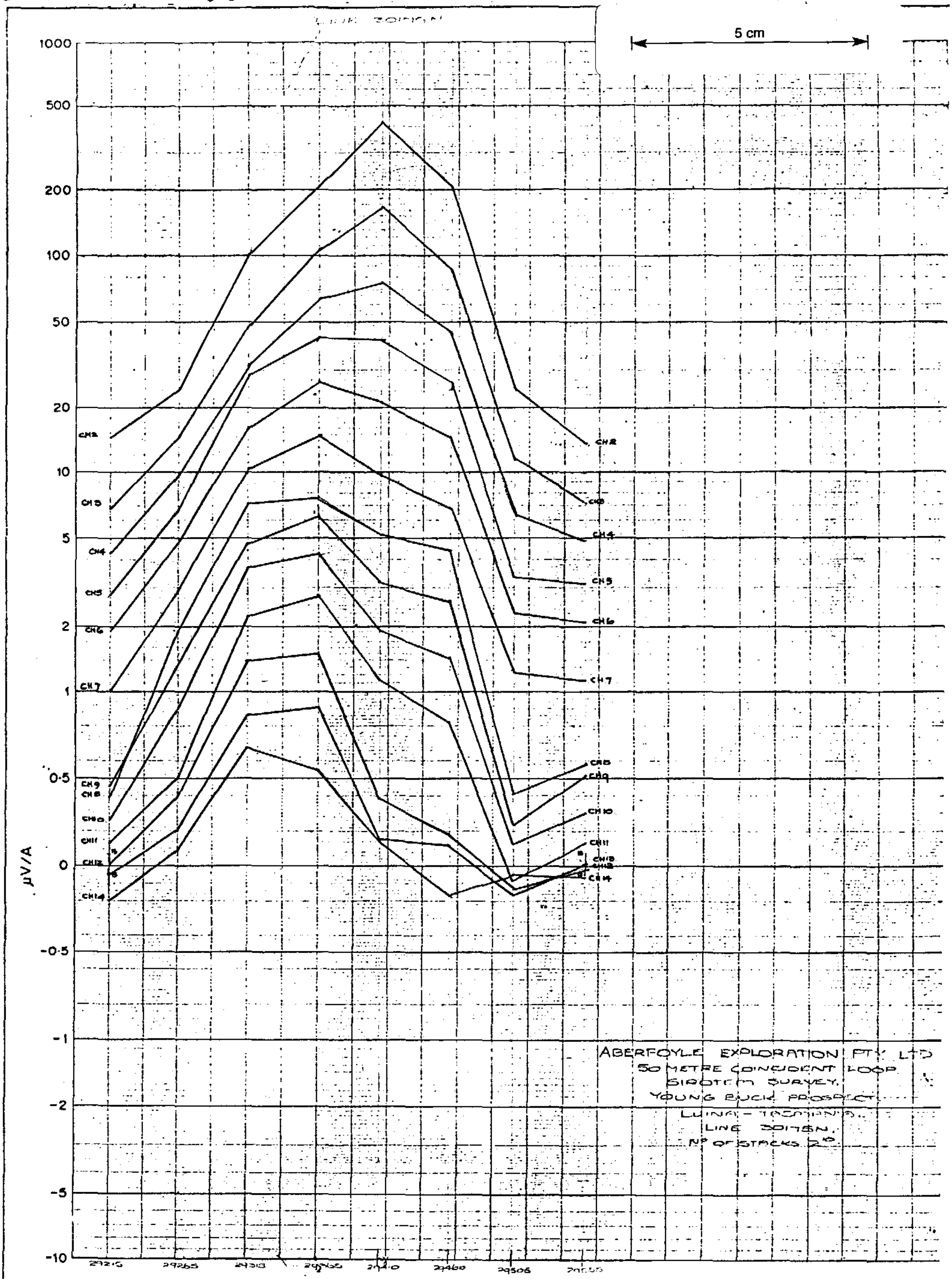
5 cm

APPENDIX 3

Mt. Youngbuck Grid

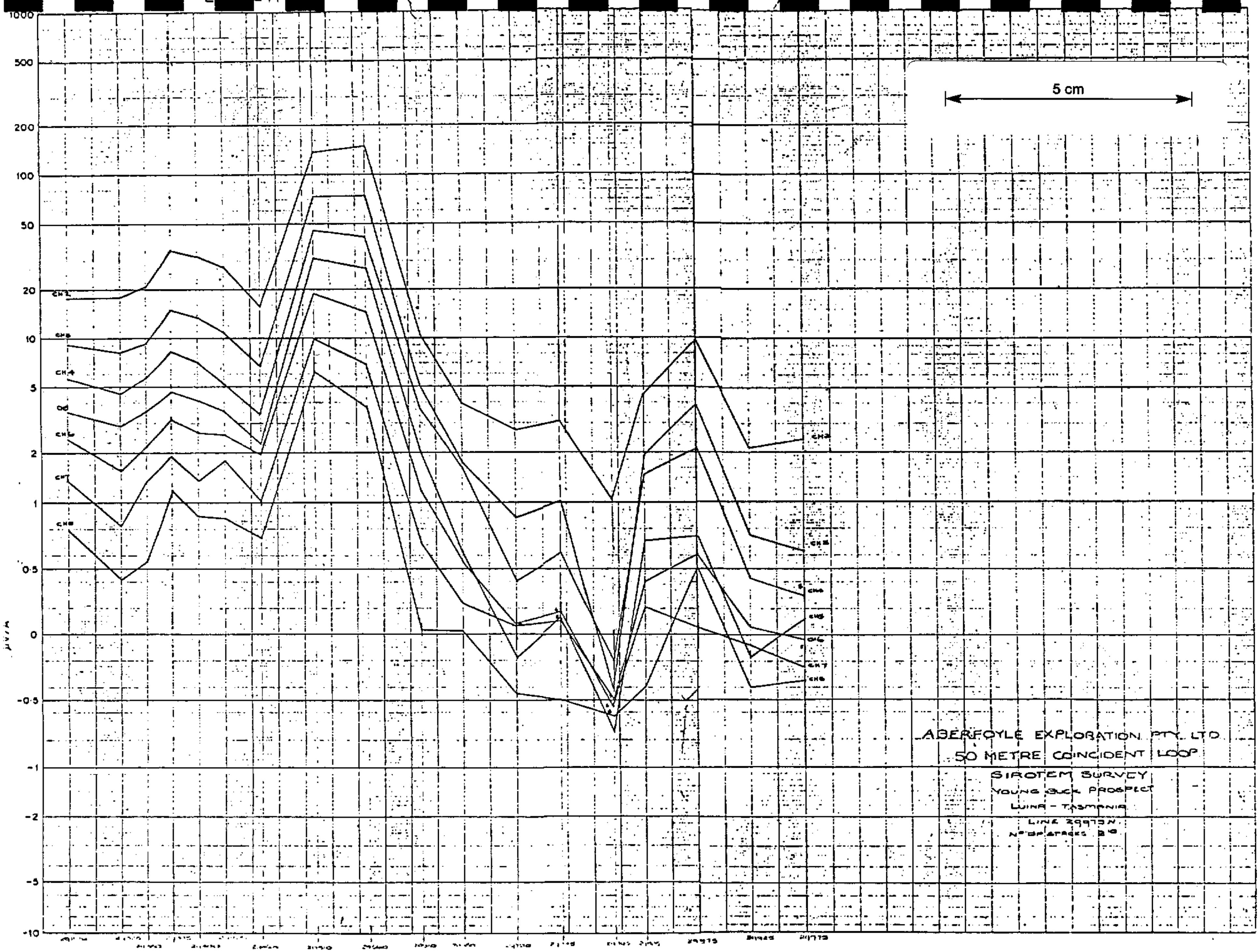
SIROTEM Data.

050052



SIROTEM SURVEY

044



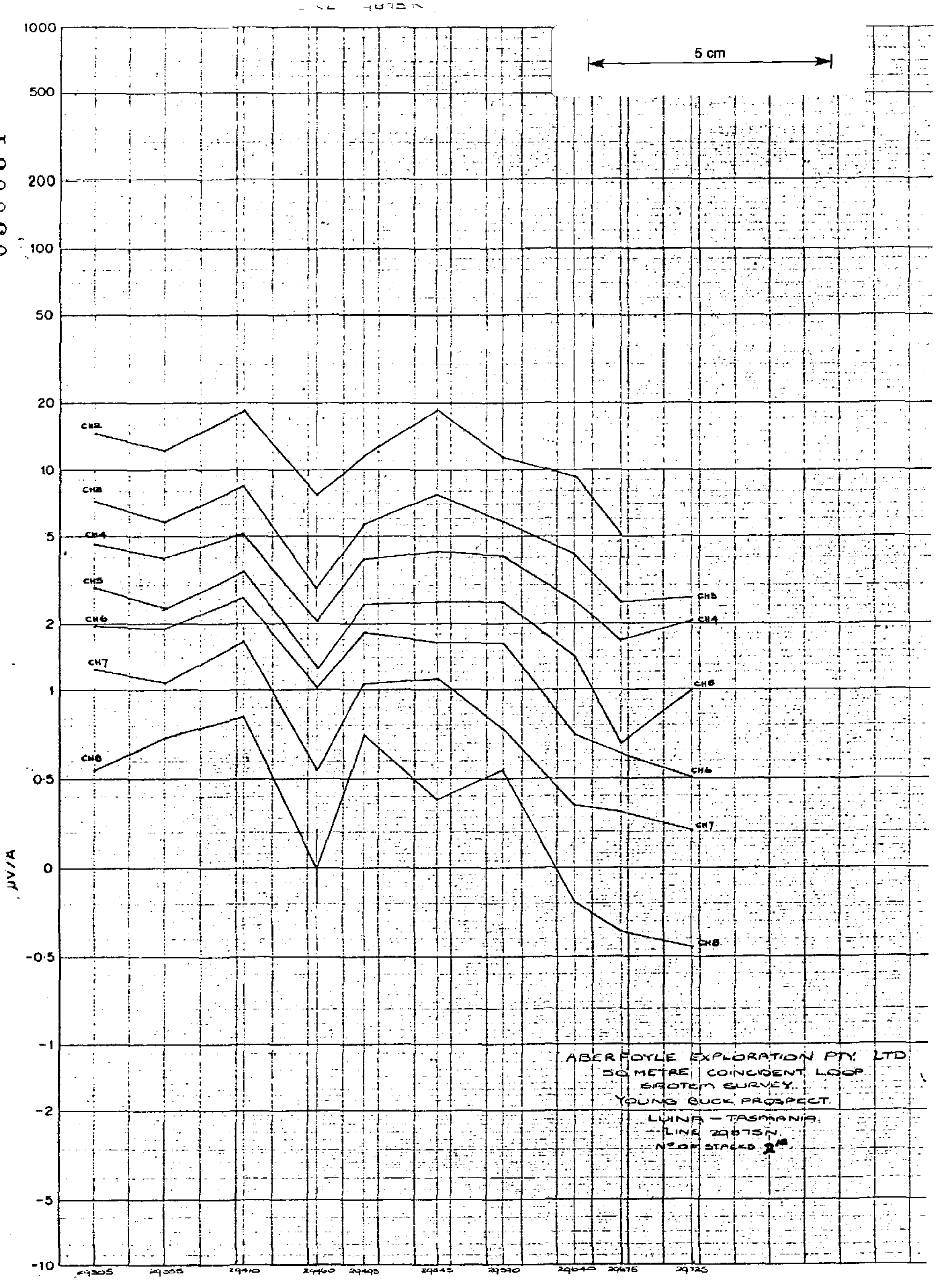
050053

SIROTEM SURVEY SIROTEM SURVEY

GEOEX

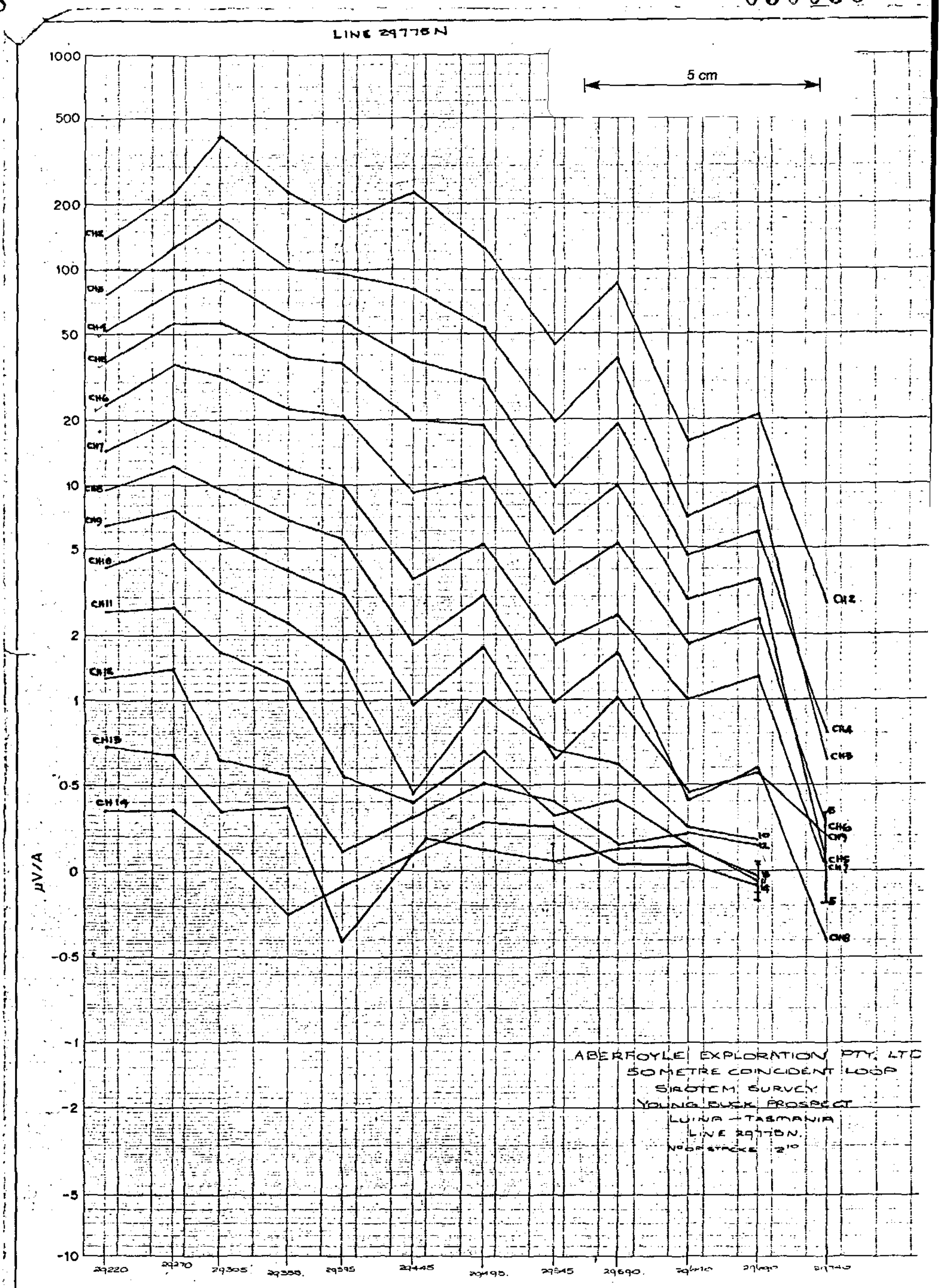
045

050054

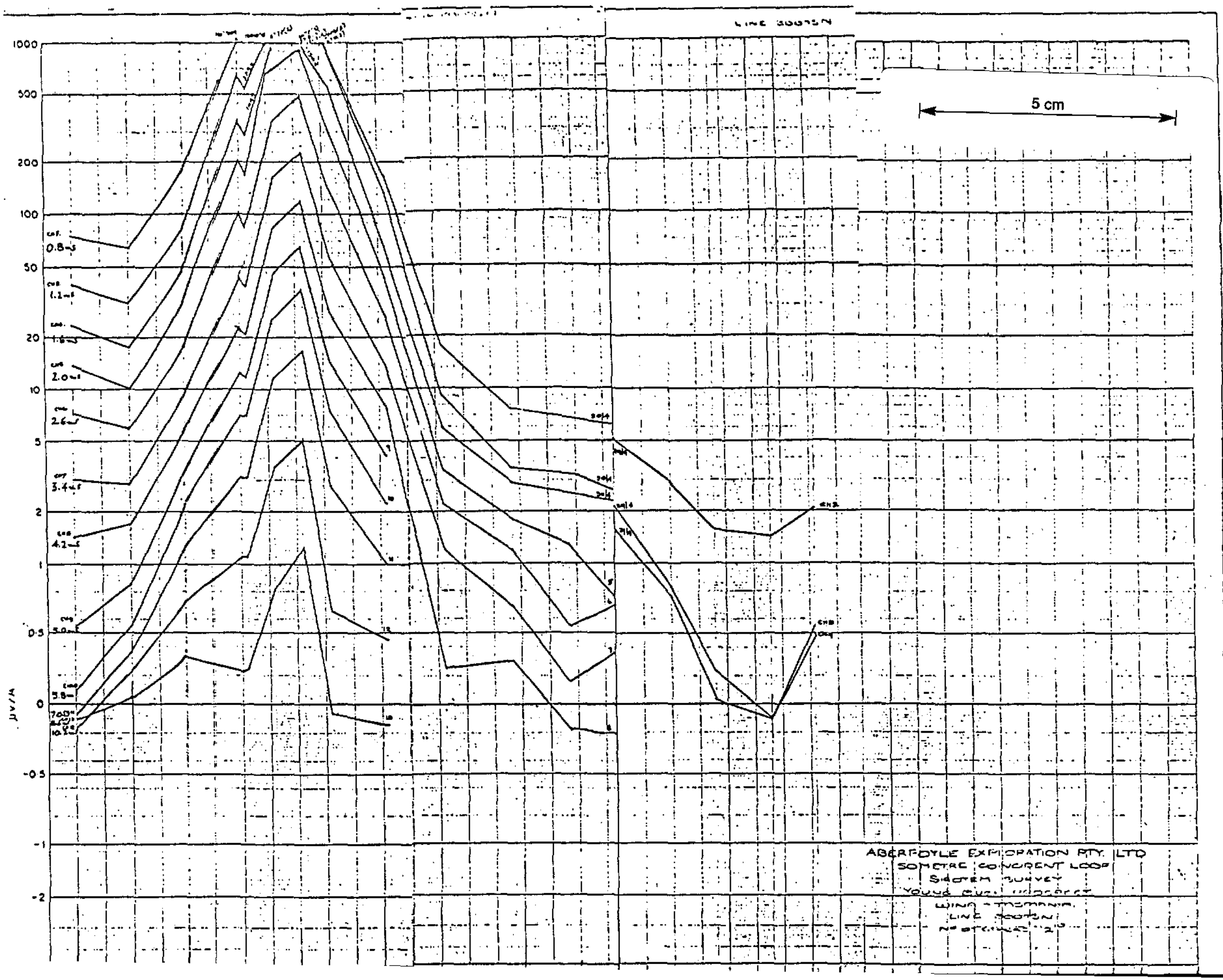


SIROTEM SURVEY

GEOEX PTY. LTD.



SIROTEM SURVEY



5 cm
ABERFOYLE EXPLORATION PTY. LTD
50 METRE CONCURRENT LOOP
SIROTEM SURVEY

050056

APPENDIX 4

Petrological Reports by D. Cowan B.Sc.

(Refer to Plates MER. 16-367/4025
MER. 16-367/4000
MER. 22
for Sample Locations and Assay Results).

REPORT CMS 80/5/44

Petrological Descriptions

250 931B (T.S. 31956) K-stain negative.
This is a hastingsite-magnetite rock with disseminated fluorite and traces of scheelite; the rock can be categorised as a skarn and is very similar to the hastingsitic skarns at Mount Lindesay.

Main constituents are fine- to medium-grained, granular to ragged, subprismatic hastingsite (mean 100μ) and subordinate, disseminated to semi-massive magnetite (mean 300-400μ) which is concentrated into crude, discontinuous lenses. Frequent small patches (generally 100-400μ, max. 1 mm) of fluorite occur interstitially to hastingsite and are weakly clouded with hastingsite micro-inclusions. Small, an- to subhedral grains (max. 250μ) of scheelite are thinly disseminated throughout the hastingsite aggregates. Accessories include fine flaky opaques (hematite-martite in part, possible minor traces wolframite), rare apatite, sphene, patches of sideritic carbonate and patchy phlogopite.

Phlogopite developes as a late fine-grained alteration of hastingsite. These replacements are semi-pseudomorphous with an irregular distribution. Minor limonite occurs as microcolloform films healing late discontinuous microfractures, locally as a marginal replacement of magnetite and rarely as boxworks (to 500μ) after pyrrhotite.

The sectioned area is devoid of detectable cassiterite, but assay for Sn (in addition to W) would be warranted.

253 815 (T.S. 31957) K-stain negative.
This is a uralitised and incipiently stressed microgabbro.

The rock consists essentially of saussurite-stained, albite-pseudomorphed, subprismatic plagioclase and slightly subordinate, uralitised, intergranular, lath-like to weakly ophitic pyroxene. The plagioclase is recognisable as labradorite from rare, weakly saussuritised relics. Mean (primary) grainsize is about 750μ and the relict fabric is doleritic.

Accessories comprise thinly disseminated, fine-grained magnetite, occasional small clots of phlogopite, rare oxidised pyrite grains and traces of chlorite. The uralitic amphibole is a mid-green actinolite, locally phlogopitised and subsequently incipiently chloritised.

Sericite and ultrafine zoisitic epidote are the main saussurite components. Incipient, discontinuous albite-veining is evident and predates the late incipient stress. There is no detectable scheelite.

253 866 (T.S. 31953) K-stain negative.
This is an extensively prehnitised anorthite-diopside rock. The relict assemblage indicates high-grade contact-metamorphic/metasomatic alteration. The primary rock type is obscure, although there is vague evidence of an altered basic mode of origin.

Much of the rock consists of granular to subradiating, medium-grained prehnite. This was introduced, partly in veins, but elsewhere is metasomatic and replaces finer-grained granular to microgranular anorthite with subordinate, similarly-textured diopside-hedenbergite. Anorthite appears to represent recrystallized primary plagioclase. Diopside is vaguely pseudomorphous in disseminated patches with lath-like shapes (mean 750μ), but elsewhere is more or less massive with a crudely banded distribution interspersed with anorthite-diopside aggregates.

Sporadic, crudely vein-like magnetite aggregates predate the prehnitisation and are generally associated with the more massive diopside aggregates. Cloudyclots of sphene are moreor less evenly disseminated throughout with vaguely pseudomorphous shapes (?after Ti-magnetite, ilmenite), which tend to confirm the altered basic igneous interpretation. Prehnite veins are locally selvedged with diopside-replacive Fe-Mg chlorite.

The assemblage anorthite-diopside is consistent with pyroxene-hornfels facies contact-metamorphism, and prehnite is distinctly retrograde to this assemblage. This rock conceivably represents a higher-grade contact-altered variant of 253815. There is no detectable Sn-W mineralisation.

D. Cowan, B. Sc.

REPORT CMS 80/5/29

Petrological Descriptions

250 938A (T.S. 31877) K-stain positive.
This is a metasomatically-altered, labile, sandy-textured sediment with little to choose between a subaqueous tuff and a tuffaceous greywacke (or reworked tuff). The distinction is tenuous and rather academic.

The framework is weakly bedded and poorly sorted in the silt to fine sand range, with sporadic, medium sand-sized "megaclasts". Grain-shapes are angular to subangular with a dimensional orientation and subtle variations in sizing defining bedding. Crypto - to micro-crystalline and subvitric felsic-intermediate ("trachytic") lava clasts are the main clastic component, with relatively minor (15-25 %) alkali feldspar grains (largel-y sanidine-anorthoclase). Accessories include leucoxenic semi-opaques, thinly disseminated chert fragments and extremely rare, fine silt-sized quartz. The matrix (approx. 20-25 %) is altered and poorly resolved.

The rock is pervaded by extremely fine-grained tremolite and sub-ordinate ultrafine cloudy diopside. Associated phases are prehnite and epidote which is extremely fine-grained, cloudy, and poorly resolved. Fine to ultrafine pyrrhotite is disseminated throughout and may have replaced syngenetic pyrite. Alteration is of marginal contact-metamorphic/metasomatic character.

250 941 (T.S. 31878) K-stain positive.
This is a thoroughly phlogopitised, crypto- to microcrystalline feldspathic rock with a flow-breccia-like fabric; At first inspection, it has the appearance of a felsic pitchstone flow-breccia. Finer details, however, are indicative of a slumped pelitic ash. Thus, there are similarities with 250952 (below).

Texturally, the rock consists of angular to subround, poorly sorted clasts (100 μ - 2 cm) in a fragmented, streaky to contorted, laminated matrix. Optically, clasts are essentially similar to the matrix consisting of variably phlogopite-stained, crypto- to microcrystalline alkali feldspar (confirmed by staining).

Splintery to angular, silt- to fine sand-sized clastic quartz grains are thinly disseminated throughout. Vague relict, shard-like micro-textures persist in places, although the bulk of the rock is micro-texturally featureless. Sparse, thin, discontinuous lenses have distinctly silty clastic fabrics. However, the interpretation as a pelitic tuff is partly by analogy to similar (but less altered) rocks from other situations.

Phlogopite is weakly titaniferous and incipiently orientated (the cleavage postdates brecciation and is consistent with load or burial metamorphic conditions). Diopside, tremolite and prehnite are accessory alteration phases, preferentially replacing various clasts and lenses. Minor traces of pyrrhotite complete the contact metamorphic/metesomatic assemblage.

250 946 (T.S. 31879) K-stain positive.
This metasomatised labile psammopelite is very similar to 250938A. In comparison, it is finer-grained, better sorted (in the coarse silt to finer sand range, mean about 50μ with a narrow range) and only incipiently bedded. Recognisable clastic material is similar to the extent that no special comment is warranted. As previously (i.e. 250938A), the fabric is consistent with subaqueous deposition and the rock is distinctly tuffaceous with felsic intermediate (trachytic) affinities. The relatively marked sorting, in this case, suggests at least minor reworking and, on this basis, it is best classified as a tuffaceous greywacke.

Alteration is relatively marked, with pervasive fine to ultrafine tremolite. This phase has replaced the original matrix, progressively replaces the clastic lava clasts and alkali feldspar grains, and occurs in sporadic, discontinuous veinlets with accessory quartz and disseminated pyrite. Fine to ultrafine pyrite is also conspicuous throughout the tremolitised host rock, where it appears to represent a late replacement of pyrrhotite.

250 952 (T.S. 31880) K-stain positive.
This is a spotted hornfels and represents a marginally contact-metamorphosed psammopelite.

Relict bedding laminations persist on a sub- to millimetric scale, with marked evidence of slumping in sporadic lenses and irregular rafts of sandy silty shale and argillaceous silty fine sandstone in a mildly contorted, laminated pelitic matrix. This matrix component is pervasively phlogopitised and is stained throuhgout with abundant microscopic (mean 75μ) porphyroblasts of cordierite. VAgue, relict microscale, shard-like microtextures and fine clastic opaques are semi-pervasive and are indicative of a pelitic ash.

In contrast, the sandy slump lenses and rafts contain conspicuous angular to subangular clastic quartz. Poorly defined (silicified, phlogopitised) angular lava clasts, opaques, and (?mildly abraded) shards are accessory components along with angular feldspar grains (phlogopitised). Textures here are consistent with a tuffaceous psammite, perhaps grading into subaqueous tuff of rhyolitic affinities

Phlogopite is a reddish, titaniferous variety and is of metasomatic character. A very incipient slaty cleavage is essentially concordant with the mildly contorted bedding laminations. Evidently, phlogopite replaced a pre-existing, weakly orientated mica (?sericite). No more than load- or burial-metamorphic conditions are inferred with subsequent contact-hornfelsing/metasomatism. Minor traces of pyrrhotite are present.

250 956B (T.S. 31881) K-stain virtually negative.
This rock is a pervasively tremolitised, extensively fractured and incipiently sheared labile pelite. It is distinctly turbiditic (tuffaceous greywacke), but otherwise similar to 250946, which is more massive in comparison.

The rock grades from siltstone to silty shale and is finely laminated on a sub- to millimetric scale with individual bands often graded. Relict clastic particles show angular to subangular shapes and can be identified as crypto- to microcrystalline, felsic intermediate lava clasts with relatively minor alkali feldspar despite essentially pervasive tremolitisation. The matrix is similarly tremolitised and its original nature is obscure. A few bands are selectively replaced by pale phlogopite with accessory tremolite.

Intersectingtremolite-phlogopite (± quartz, traces of pyrrhotite, sphene) healed fractures are common with small displacements. Thus, the rock grades into a healed breccia. Deformation is of brittle style. The incipient cleavage is reflecting in a weak re-orientation of tremolite and postdates fracturing.

203 945 (T.S. 31882) K-stain negative.
This is a pervasively tremolitised labile pelite, considered as a tuffaceous greywacke, if only by analogy with 250956B, etc. Alteration is marked to the extent that much primary detail has been obliterated and the clastic components are obscured.

The relict fabric is faintly laminated and incipiently graded, with respect to the distribution of tremolitised, silt- to fine sand-sized, clastic angular to subangular particles. These comprise from around 5-40 % of the rock. The pelitic matrix is represented by ultrafine subacicular tremolite with a weak but penetrative preferred orientation. This appears to be largly inherited from a pre-existing incipient slaty cleavage. However, weak post-alteration shearing is evident in sporadic, weakly stressed tremolite veinlets and associated discontinuous quartz-tremolite veins (to 2 mm wide) with conpsicuous disseminations of dark red (high Fe-) sphalerite and traces of pyrrhotite.

253 821 (T.S. 31883) K-stain negative.
This is a metasomatically altered microgranodiorite and can thus be contrasted with the associated metasediments.

The rock is even-grained (mean 350μ) and essentially granitic-textured. Main constituents are plagioclase (oligoclase), slightly subordinate quartz and altered ferromags (biotite and hornblende on basis of semi-pseudomorphed shapes). Accessories are fine-grained magnetite and thinly disseminated zircon. K-feldspar is absent and the rock could thus be termed a microtrondhjemite.

Alteration is fairly marked with oligoclase pervasively sericite-stained and the primary ferromags completely replaced by secondary pale green tremolite-actinolite. Sparse tremolite veinlets are present. This is a prograde (e.g. biotite replaced by amphibole) metasomatic style of alteration analogous to that in the sediments.

The fabric is indicative of a minor intrusive. This rock presumably intrudes the sediments, but predates a younger intrusive and related contact-metasomatism.

253 822 (T.S. 31884) K-stain negative.
In common with 253821, this specimen represents an altered medium-grained intrusive, in this case of dioritic composition. The two rocks are probably closely related in that 253821 may represent a felsic differentiate of an intermediate intrusive facies.

This rock consists largely of weakly saussurite-stained andesine laths (mean 300μ). Subordinate primary ferromags are represented by vaguely pseudomorphous aggregates of diopside-hedenbergite with accessory titaniferous phlogopite, tremolite-actinolite and traces of sphene. Minor primary opaques are replaced by sphene. Interstices consist of granular andesine.

Late prehnite veins occur sporadically. These range up to 5 mm in width and have semi-continuous replacement selvedges of varying width in which feldspar is completely replaced and diopside and tremolite partly replaced by prehnite. The rock, as a whole, is incipiently stressed.

253 851 (T.S. 31885) K-stain negative.
This rock appears closely related to 253821 and 253822, but is distinctly coarser-grained. Primary composition is partly obscure, but the relict fabric is gabbroic and sparse relics of plagioclase can be determined as labradorite. On this basis, the rock is an altered gabbro.

Main constituents are thoroughly saussuritised, subprismatic plagioclase (mean 2 mm) and subordinate, extensively altered pyroxene. This can be identified as a colourless augite, virtually completely pseudomorphed by pale green diopside-hedenbergite and subsequently extensively replaced by tremolite. Minor accessory magnetite and serpentinised olivine complete the relict primary assemblage.

Saussurite, in this rock, consists largely of tremolite with closely intergrown prehnite. Pyroxene-replacive tremolite is partly altered to late-stage talc. Rare, microscopic veinlets of prehnite are present, but this rock is essentially unstressed.

237 712A (T.S. 31886) K-stain positive.
This is an extensively phlogopitised lithic tuff of felsic intermediate affinities, but with a minor rhyolitic component. The rockis very poorly sorted, suggesting a subaerial or shallow subaqueous depositional environment in relatively close proximity to the source (in comparison with the associated tuffaceous greywackes/reworked tuffs).

The framework is weakly bedded and essentially randomly sized in the silt to grit range. The major component is angular to irregular lava clasts, typically with random to weakly subtrachytic alkali feldspar microlaths and microlites and a weakly devitrified felsic groundmass. Subordinate to minor, silt- to medium sand-sized, angular alkali feldspar grains (albite, minor sanidine-anorthoclase) are accompanied by accessory quartz and thinly disseminated shards. Thus, the rock can be classified as a lithic-crystal tuff with a minor vitric component. The bulk of clasts are of trachytic affinities, but there are a few siliceous felsitic (devitrified, rhyolitic) types.

The framework is variably phlogopitised,and extremely fine titaniferous phlogopite pervades the matrix. Minor prehnite is present and a few clasts are weakly impregnated with pyrrhotite. This rock lacks a slaty cleavage and is essentially unstressed.

237 712B (T.S. 31887) K-stain positive.
This rock is very similar to 237712A and is similarly classified as a lithic-crystal tuff. The fabric is consistent with a shallow subaqueous mode of deposition, and there is evidence of incipient reworking in sporadic rounded lava clasts and mineral grains. In comparison with the previous specimen, this rock is finer-grained, although still very poorly sorted, slightly more bedded and is relatively deficient in clastic feldspar, although quartz (and rhyolitic debris) is slightly more abundant.

Alteration is analogous to that in 237712A but, in this case, titaniferous phlogopite is accompanied by subordinate tremolite-actinolite and fine-grained pyrrhotite is relatively conspicuous. Overall, a slightly higher grade of metasomatism is evident. As previously, this rock lacks a slaty cleavage and is essentially unstressed.

237 712C (T.S. 31888) K-stain positive.
This is a contorted carbonaceous labile pelite, considered as a pelitic ash, although much of the finer detail has been obliterated by alteration.

The sectioned area exhibits streaky to lenticular, submillimetric-scale bedding laminations, variably contorted, disharmonically microfolded, and rafted by a semi-plastic phase of deformation. The nett fabric approaches that of a soft-pebble conglomerate and this is considered due to slumping.

Clastic components are very poorly resolved apart from thinly disseminated, silt- to fine sand-sized, angular to subangular alkali feldspar particles, poorly defined felsic lava clasts and rare quartz grains. However, the streaky microfabric is strongly reminiscent of shards. These are clearly recognisable in places and reasonably inferred elsewhere. Sorting is relatively marked (e.g. in comparison with 237712A and B), and a relatively distal subaqueous mode of deposition appears likely.

Mineralogically, the rock consists largely of extremely fine-grained chlorite, which appears to have developed as a late replacement of tremolite on the basis of patchy relics. Much of the chlorite is semi-opaque and more or less amorphous. Carbonaceous matter is more or less pervasive, but is not particularly abundant. Fine to ultrafine Fe-sulphide (largely pyritised pyrrhotite) is disseminated throughout. A very weak slaty cleavage postdates, and appears retrograde (chloritisation), with respect to the tremolitisation.

237 708 (T.S. 31889) K-stain negative.
This is a moderately stressed orthoquartzite.

The relict framework is poorly sorted in the fine to medium sand range, with sporadic coarse sand- to grit-sized megaclasts, and is very weakly bedded. The main clastic component is angular to subrounded quartz (70-75 %). Chert-metaquartzite fragments are disseminated throughout. Accessories include silicified felsite fragments (devitrified rhyolitic lava), fragments of vein-quartz and a sparse heavy mineral assemblage (leucoxenic semi-opaques, rare oxidised opaques, tourmaline).

The matrix (approx. 30 % of area sectioned) consists of overgrowth and intergranular quartz with disseminated patches of kaolin (possibly degraded sericite, extensively leached). Stress is reflected in strained extinction and incipient microfracturing. There is no real evidence of regional metamorphism, but orthoquartzites are not very responsive to the low-grade effects evident elsewhere in this suite.

237 706 (T.S. 31890) K-stain negative.
This is a thoroughly altered and somewhat weathered igneous rock with relict textures suggestive of a fine- to medium-grained quartz feldspar porphyry. Vague micrographic textures persist in places and these are consistent with a minor intrusive or a chilled marginal facies.

The rock consists largely of stressed, fine-grained quartz and partly degraded/ferruginised chlorite. Both of these phases appear of late secondary (weathering) origin, and chlorite may be secondary after alteration phlogopite or biotite. Quartz, in part, pseudomorphs random to (locally) subradiating feldspar laths and phenocrysts. Stressed relict quartz of phenocrystal character (mean 250 μ) is disseminated throughout, along with partly oxidised accessory magnetite and leucoxenised opaques.

At least two phases of microfracturing are evident, the earlier healed with quartz veinlets and the second probably a response to weathering.

236 345A (T.S. 31891) K-stain positive.
This is a metasomatically altered lithic tuff with close affinities to 237712A and 237712B. An alkali feldspar crystal component is present, but in no more than minor accessory proportions. In comparison, this rock is essentially unbedded and is relatively strongly altered.

The framework consists essentially of grit- to medium sand-sized angular lava clasts, closely analogous to those in the previous specimens. The original matrix is obscure due to pervasive replacement by fine-grained, random tremolite-actinolite. This phase also pervades the lava clasts. Titaniferous phlogopite is a minor accessory alteration phase, and fine-grained Fe-sulphide (degraded pyrrhotite (?marcasite)) is disseminated throughout. The rock has been very incipiently stressed, but lacks a slaty cleavage.

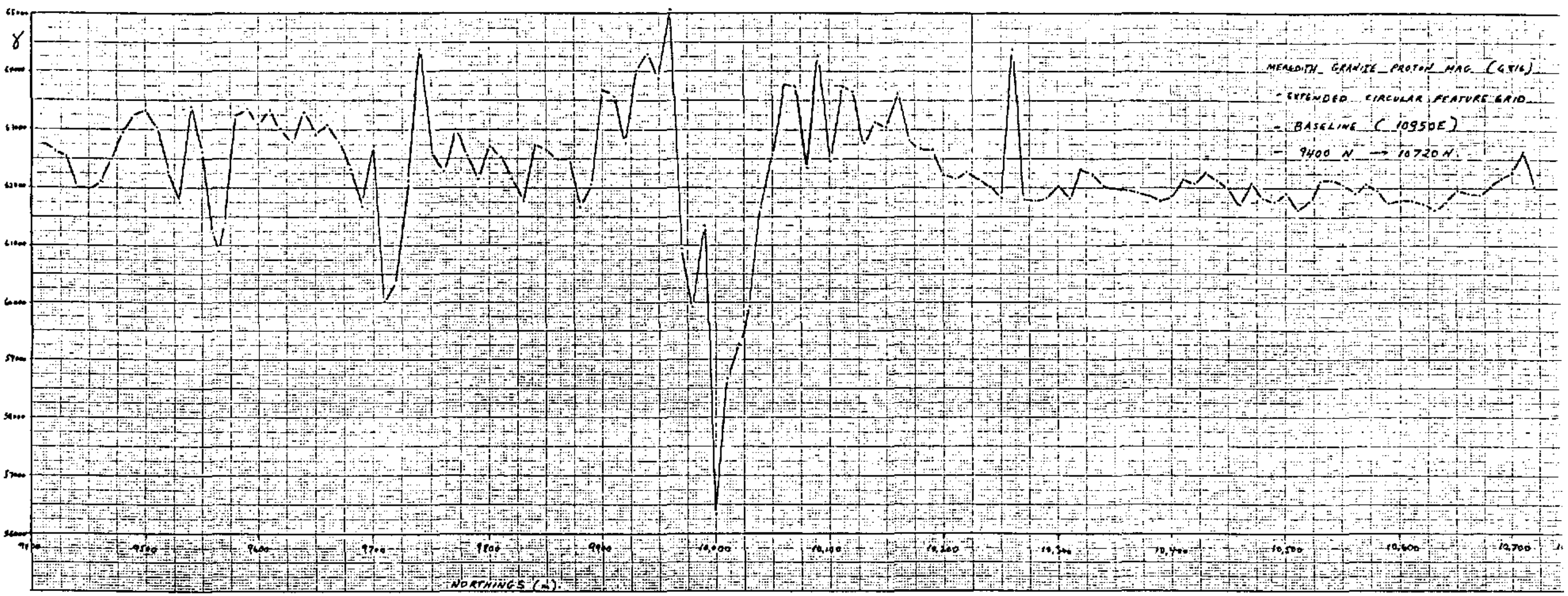
A shallow, subaqueous mode of deposition seems likely, but subaerial deposition cannot be ruled out. Problematically, the finer details have been obliterated. The framework components are similar to those in 250938A, etc., which may represent finer, more distal, partly reworked equivalents of these coarser sediments.

D. Cowan, B. Sc.

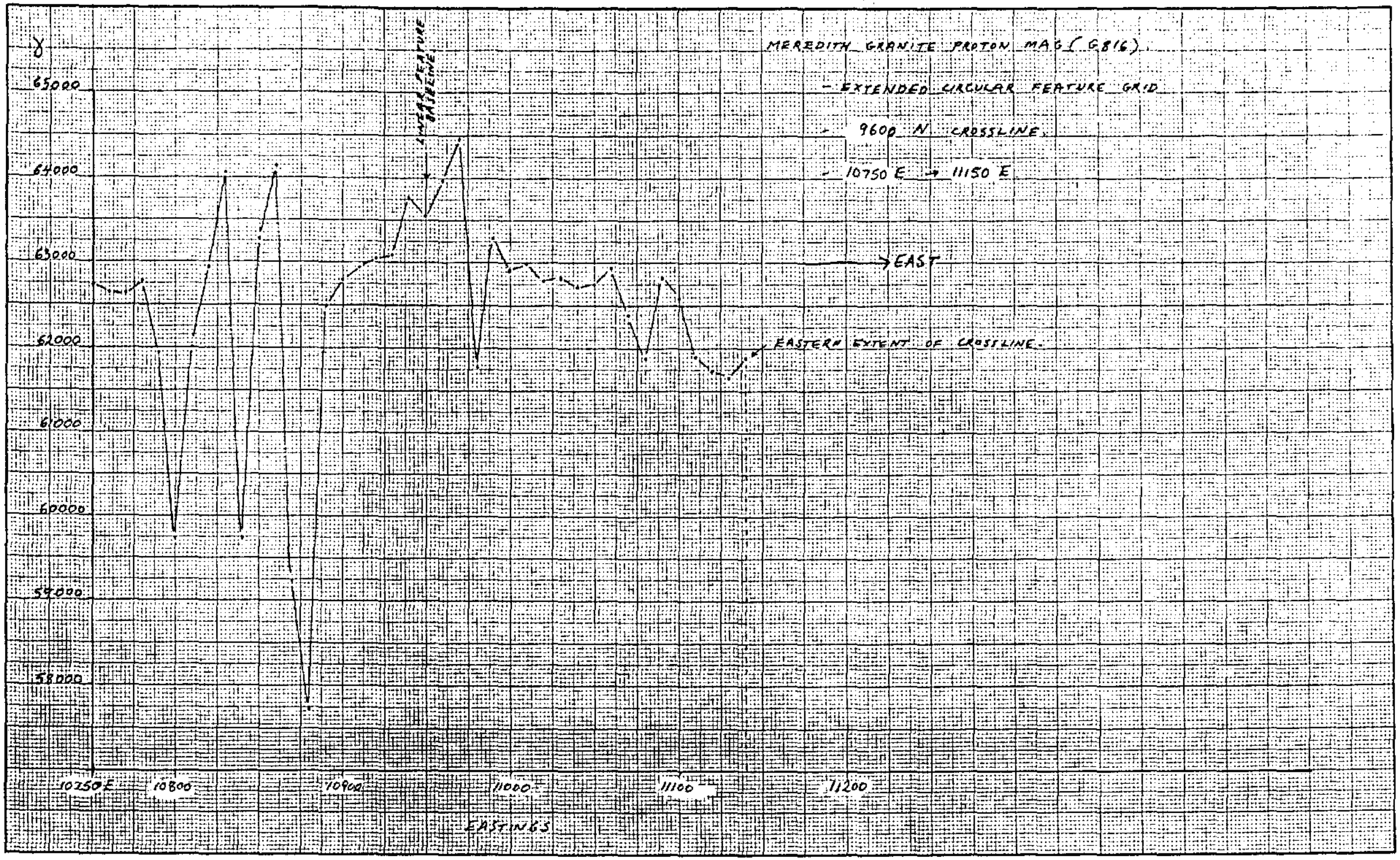
APPENDIX 5

Circular Feature Grid Ground Magnetic

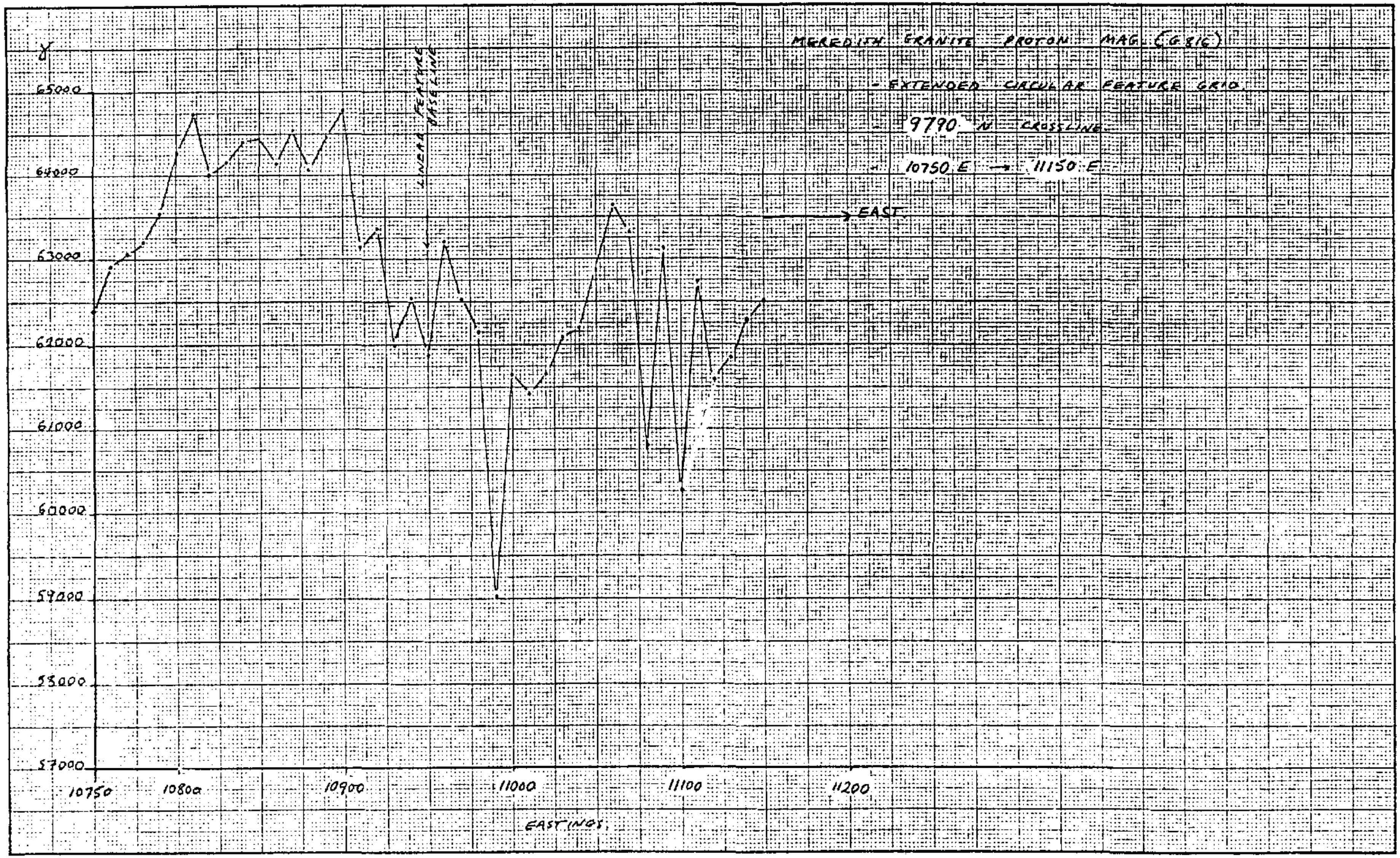
Profiles.


MEREDITH GRANITE PROTON MAG (G816)
EXTENDED CIRCULAR FEATURE GRID
BASELINE (10950E)
9400 N → 10720 N.
γ
9500
9600
9700
9800
9900
10,000
10,100
10,200
10,300
10,400
10,500
10,600
10,700
NORTHINGS (m).

5 cm

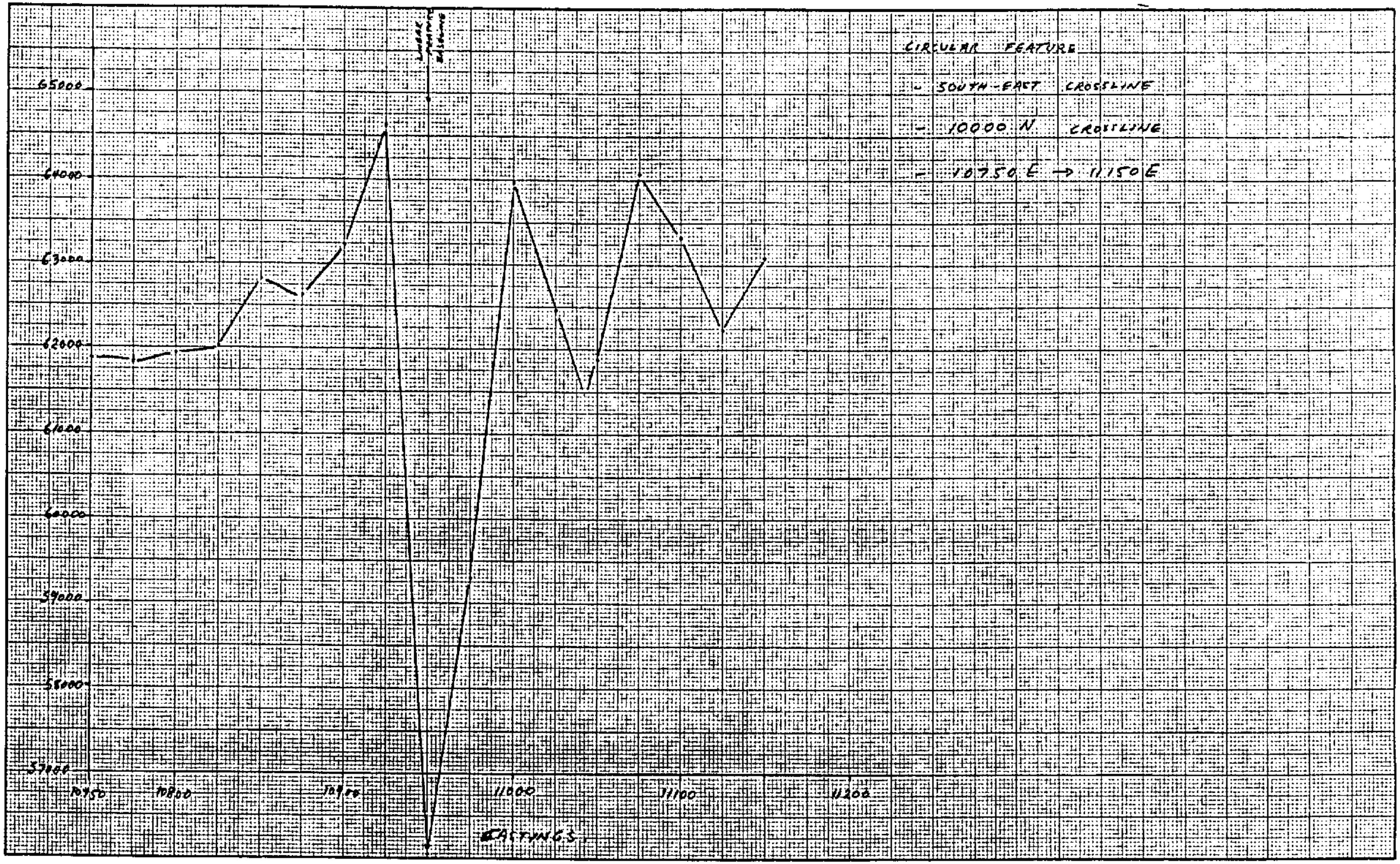

γ
65000
64000
63000
62000
61000
60000
59000
58000
10750 E
10800
10900
11000
11100
11200
EASTINGS
LINEAR FEATURE BASELINE
MEREDITH GRANITE PROTON MAG (G816).
- EXTENDED CIRCULAR FEATURE GRID
- 9600 N CROSSLINE.
- 10750 E → 11150 E
→ EAST
EASTERN EXTENT OF CROSSLINE.

5 cm


MEREDITH GRANITE PROTON MAG. (G 816)
- EXTENDED CIRCULAR FEATURE GRID.
- 9790 N CROSSLINE.
- 10750 E → 11150 E
→ EAST
LINEAR FEATURE BASE LINE
γ
65000
64000
63000
62000
61000
60000
59000
58000
57000
10750
10800
10900
11000
11100
11200
EASTINGS.
5 cm

061

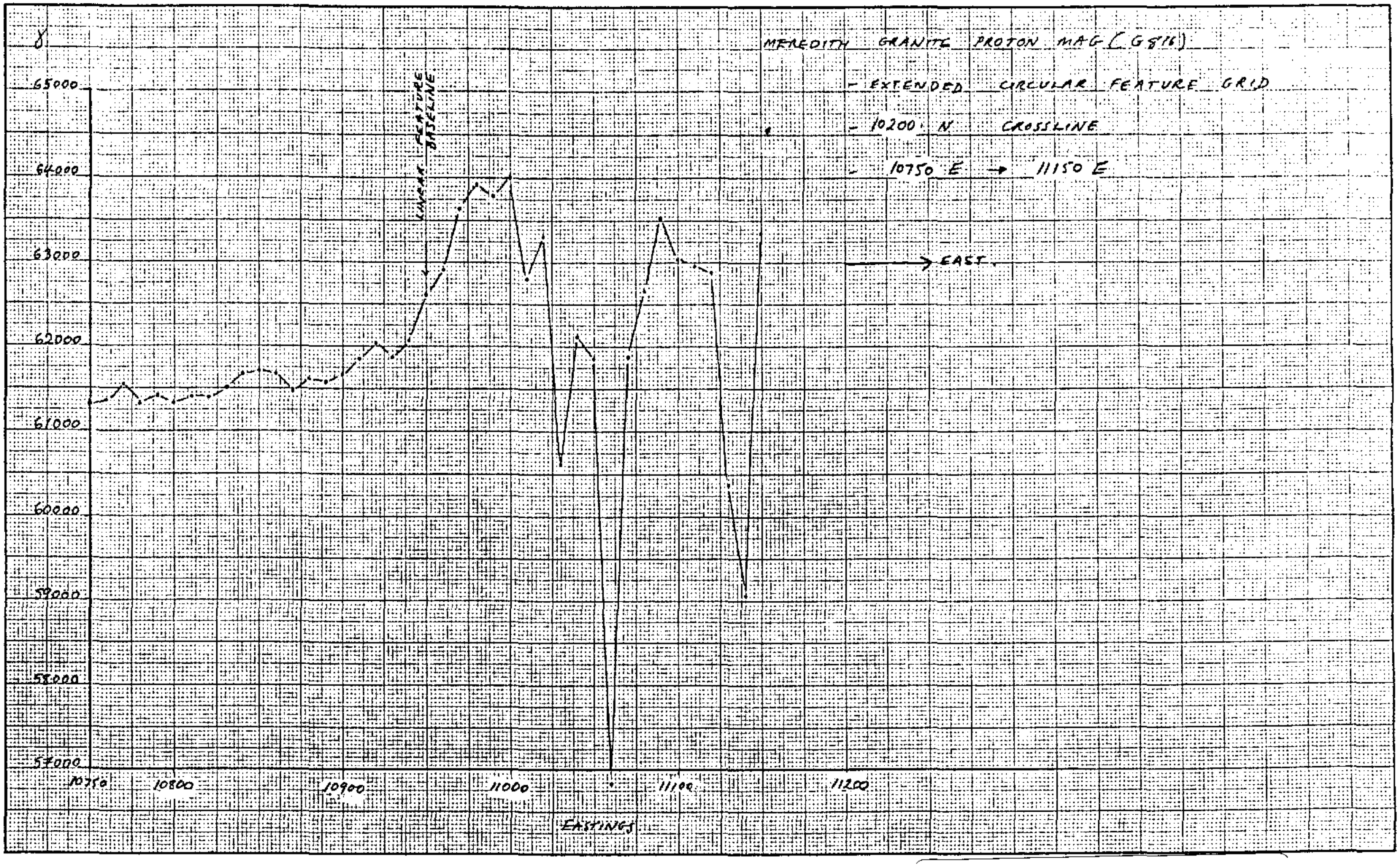
050070



CIRCULAR FEATURE
- SOUTH-EAST CROSSLINE
- 10000 N CROSSLINE
- 10750 E → 11150 E
65000
64000
63000
62000
61000
60000
59000
58000
57000
10750
10800
10900
11000
11100
11200
EASTINGS

5 cm

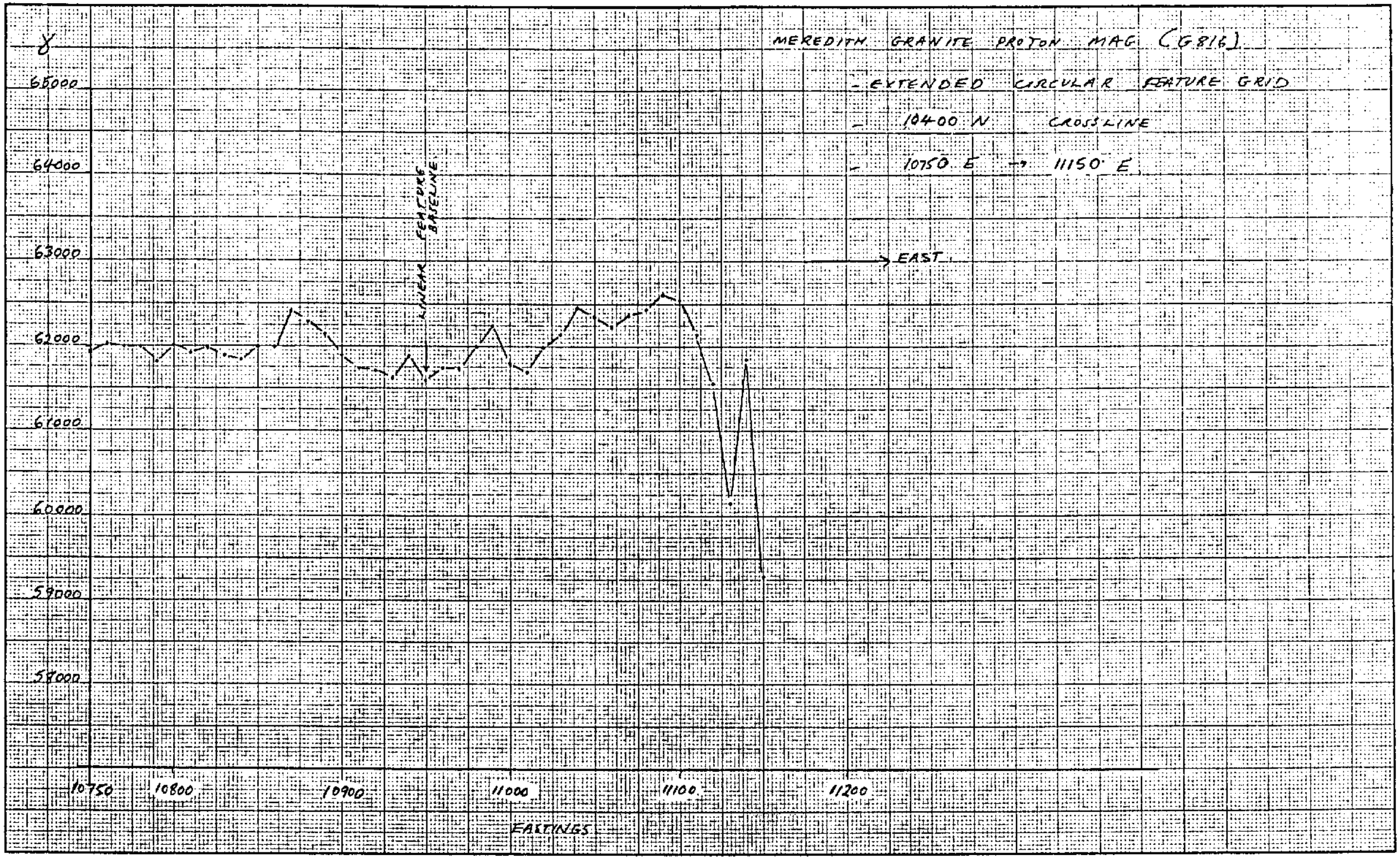
063



5 cm

050072

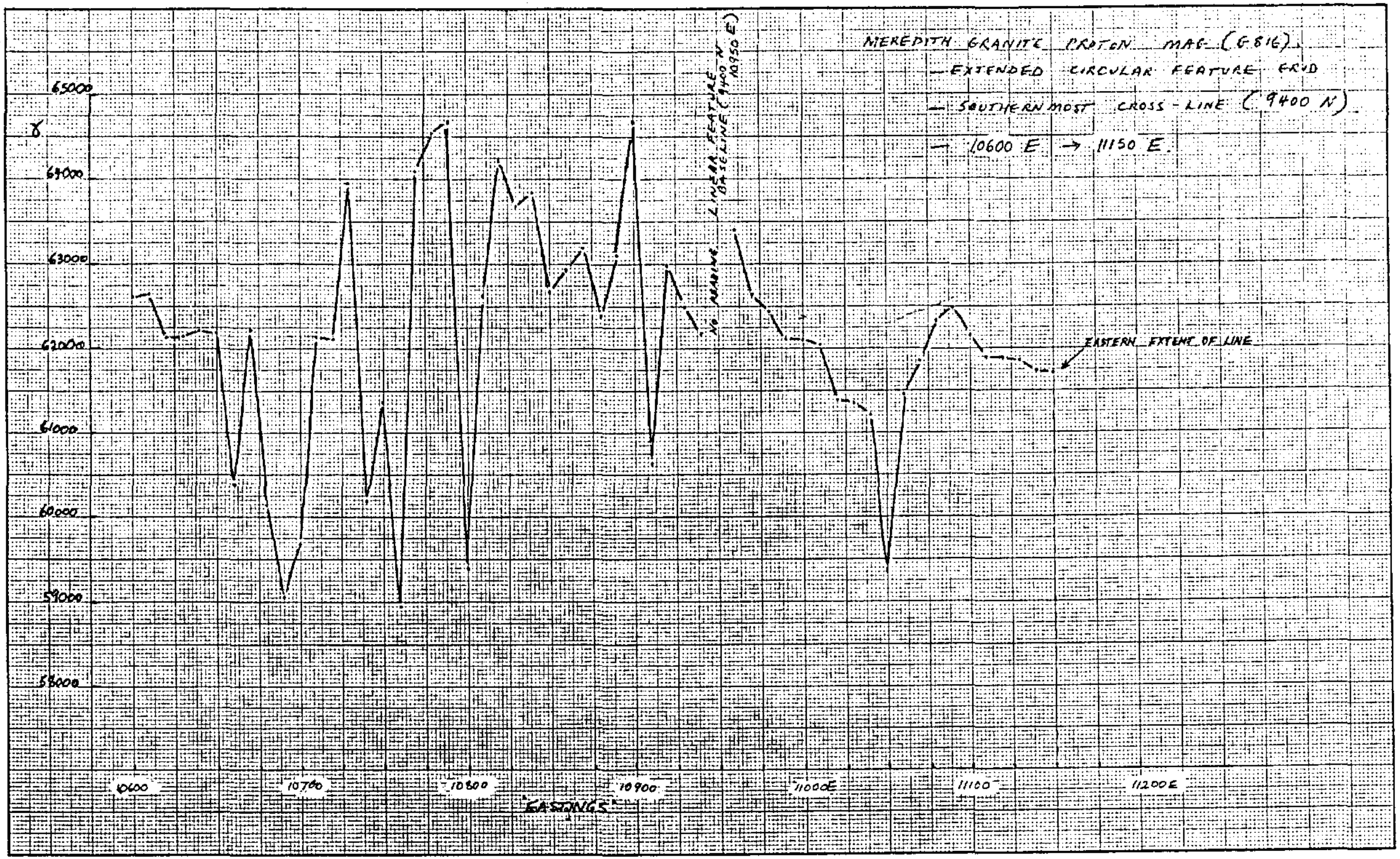
064



5 cm

050073

5 cm


MEREDITH GRANITE PROTON MAG (G 816)
— EXTENDED CIRCULAR FEATURE GRID
— SOUTHERNMOST CROSS-LINE (9400 N)
— 10600 E → 11150 E
γ
65000
64000
63000
62000
61000
60000
59000
58000
NO READING
LINEAR FEATURE
BASELINE (9400 N 10950 E)
EASTERN EXTENT OF LINE
10600
10700
10800
10900
11000E
11100
11200E
"EASTINGS"

066

050075

APPENDIX 6

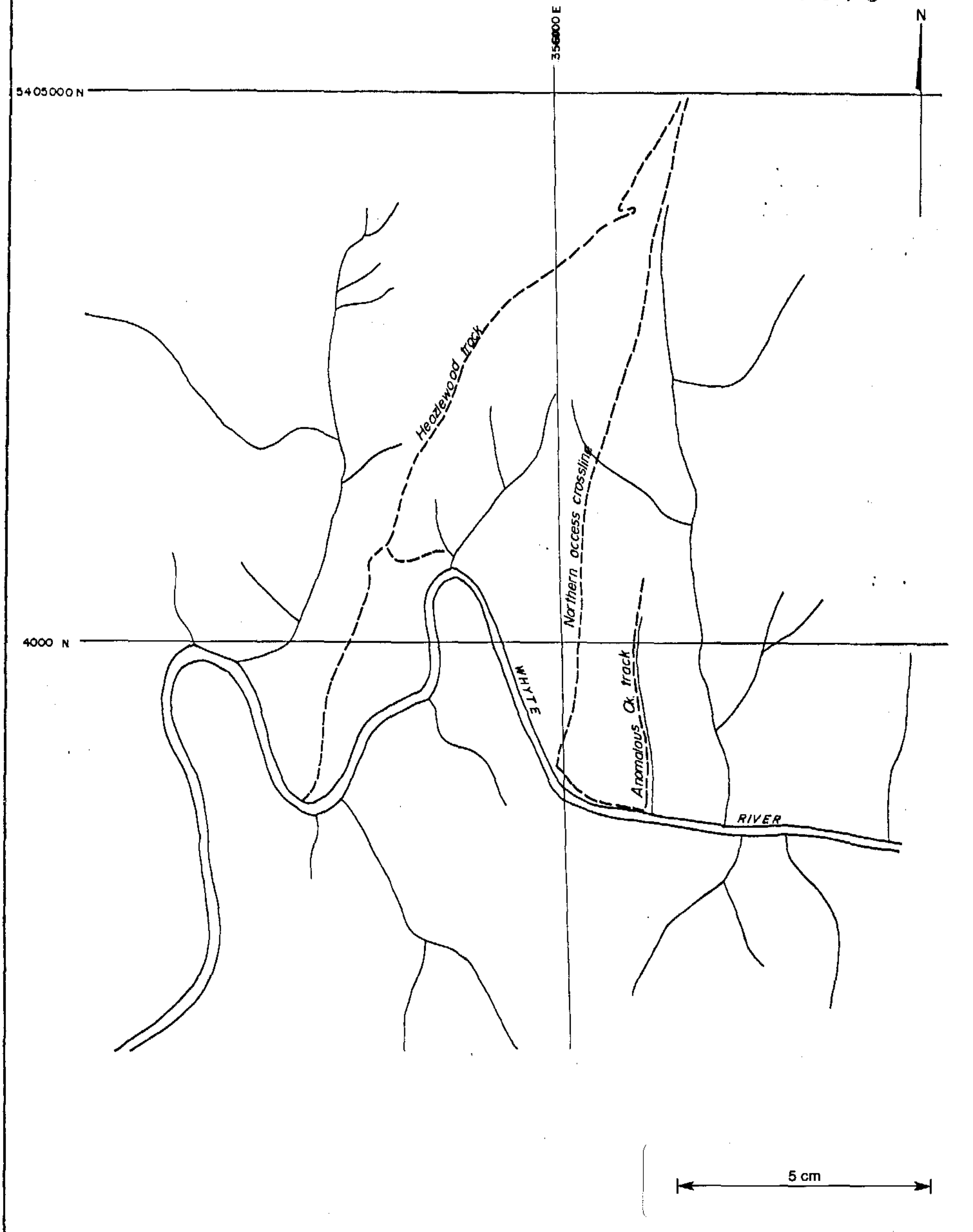
Whyte River Meander Area.

Location Plan and Ground Magnetic Profiles.

Mer 25

067

050076



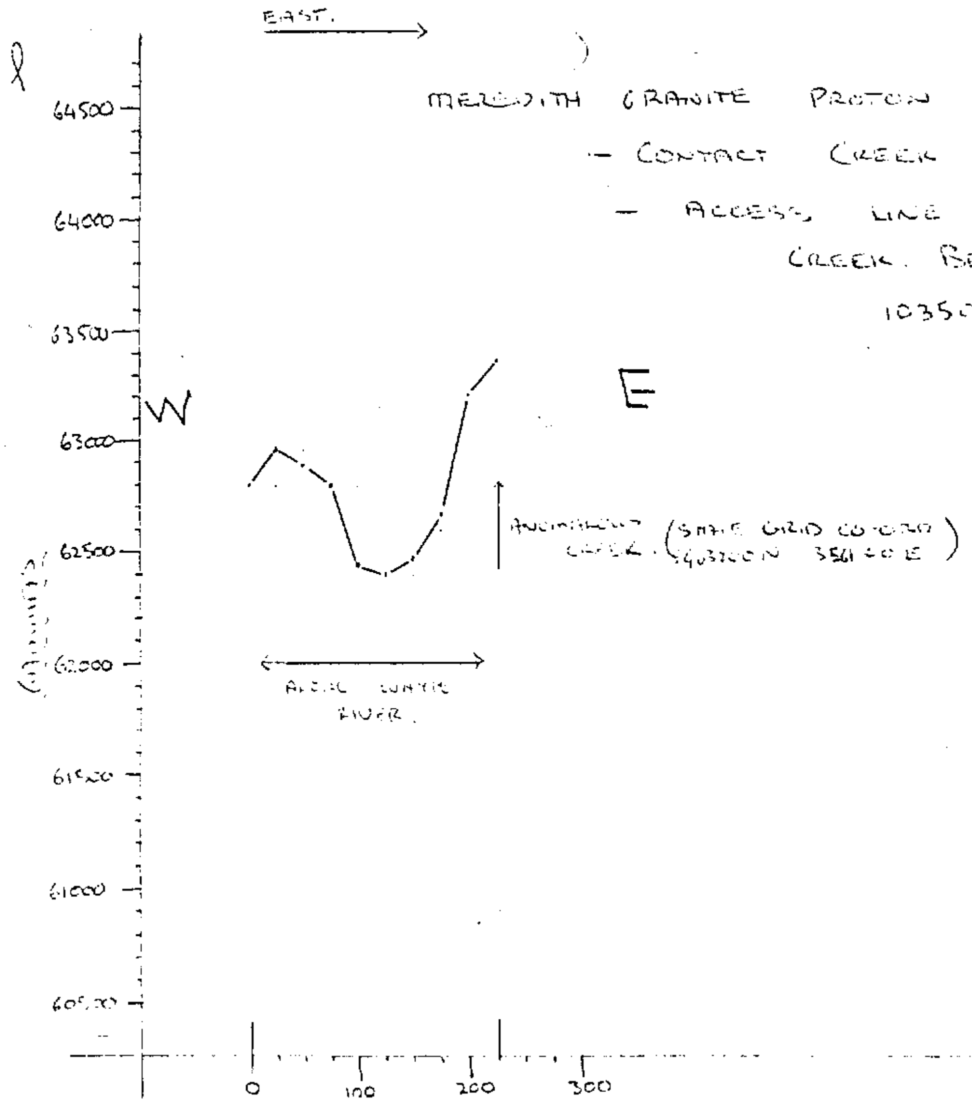
Aberfoyle Exploration Pty Ltd

Drawn:	NORTH WEST TASMANIA	Location code:
Traced: J.L.R.	MEREDITH E.L. 16/78	Date: Dec. 1980
Checked:	WHYTE RIVER - MEANDER AREA	Scale: 1:10,000
	LOCALITY PLAN	Pl. No. MER 25

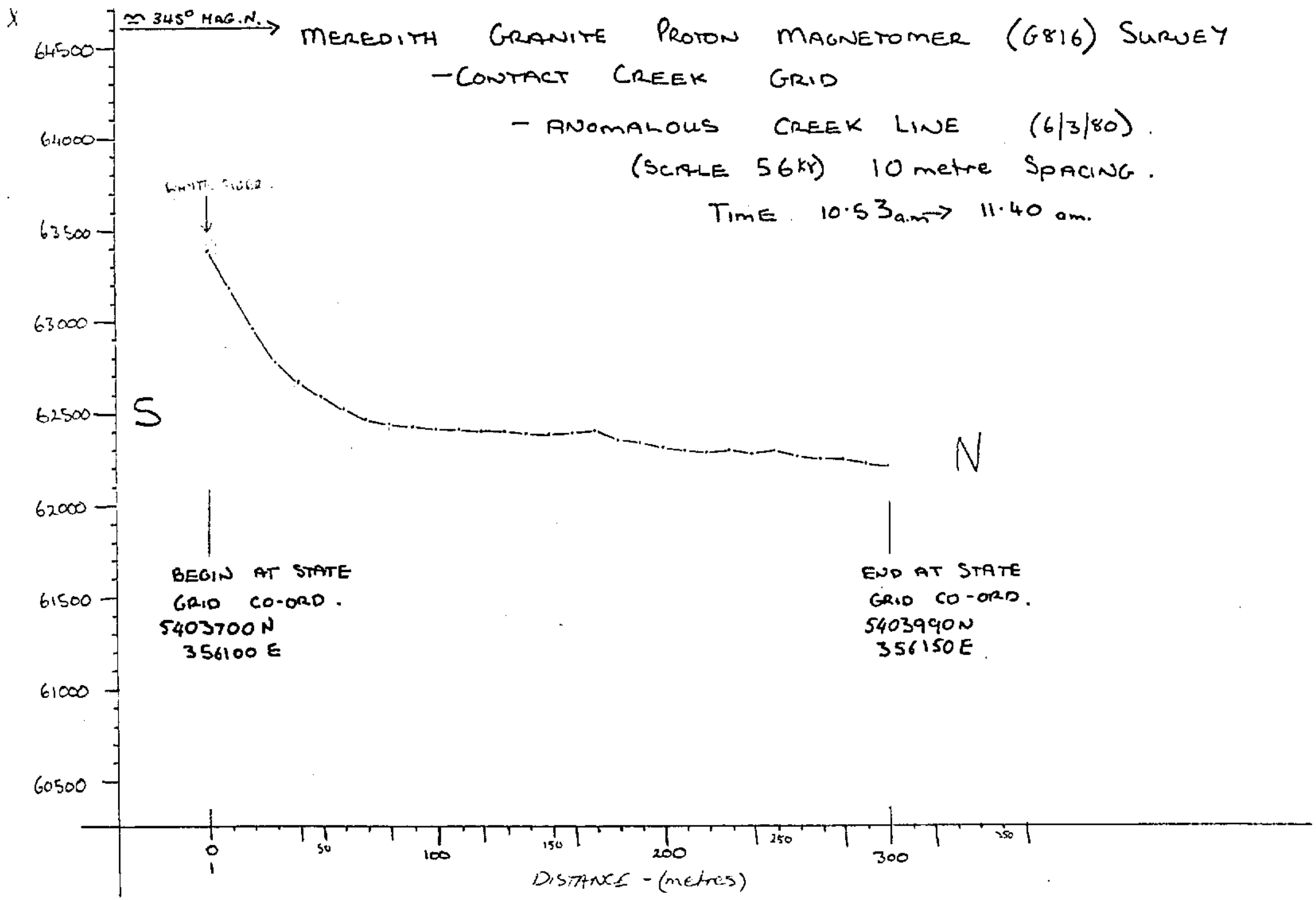
MEREDITH GRANITE PROTON MAGNETOMETER (G816) SURVEY.

- CONTACT CREEK GRID
- ACCESS LINE ALONG WHYTE TO ANOMALOUS CREEK. BEGINNING AT LOCAL GRID CO-ORD 10350N 10400E (POINT H). (SCALE 60) HEADING EAST. 25m SPACING.

TIME. 3:18pm → 3:35pm 5/3/86.



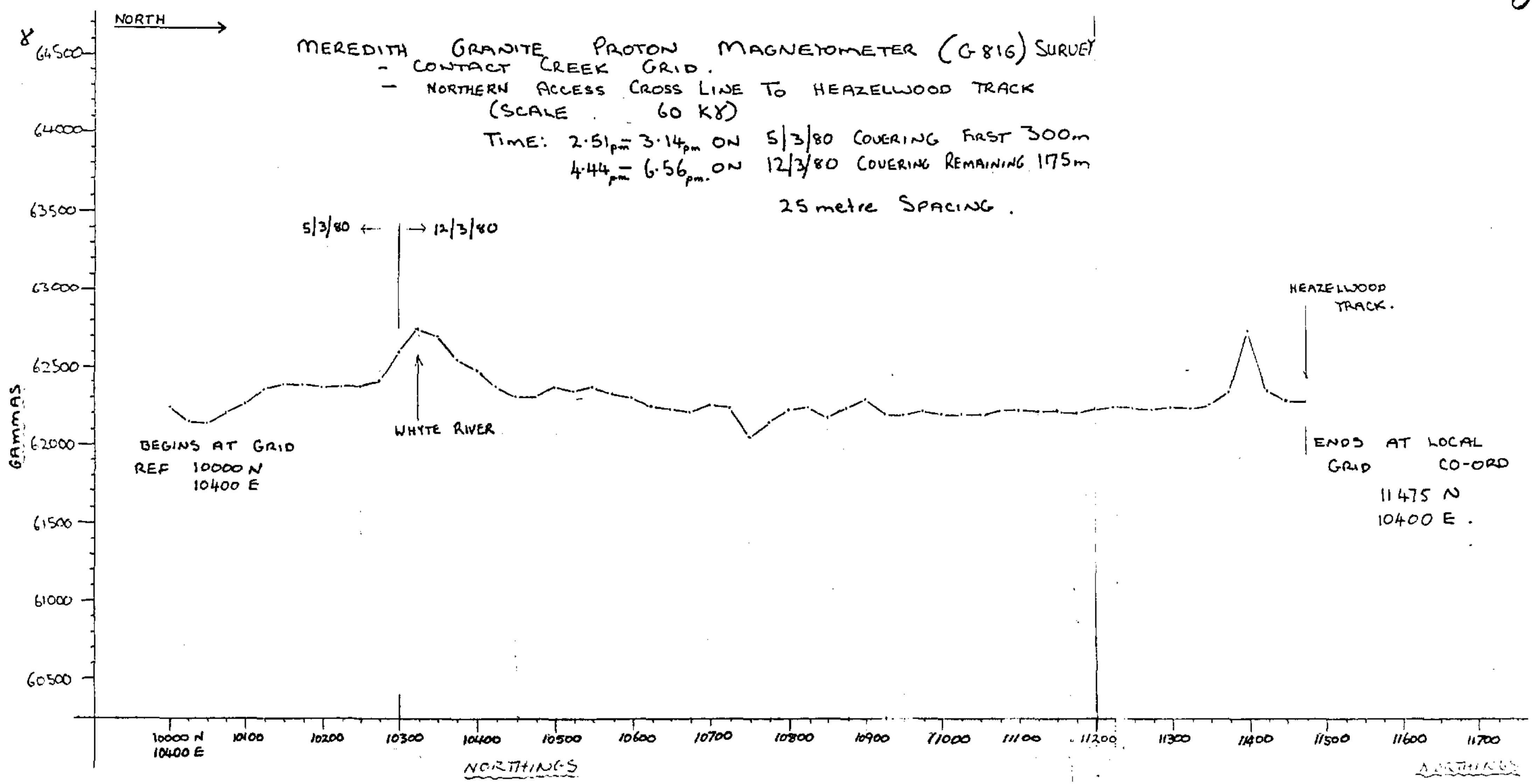
5 cm



≃ 345° MAG. N.
MEREDITH GRANITE PROTON MAGNETOMER (G816) SURVEY
– CONTACT CREEK GRID
– ANOMALOUS CREEK LINE (6/3/80).
(SCALE 56KY) 10 metre SPACING.
TIME 10·53 a.m. → 11·40 am.
X
64500
64000
63500
63000
62500
62000
61500
61000
60500
S
N
BEGIN AT STATE
GRID CO-ORD.
5403700 N
356100 E
END AT STATE
GRID CO-ORD.
5403990 N
356150 E
0
50
100
150
200
250
300
350
DISTANCE – (metres)

5 cm

050078


NORTH
MEREDITH GRANITE PROTON MAGNETOMETER (G 816) SURVEY
- CONTACT CREEK GRID.
- NORTHERN ACCESS CROSS LINE TO HEAZELWOOD TRACK
(SCALE 60 Kγ)
TIME: 2·51pm – 3·14pm ON 5/3/80 COVERING FIRST 300m
4·44pm – 6·56pm ON 12/3/80 COVERING REMAINING 175m
25 metre SPACING.
5/3/80 ← → 12/3/80
HEAZELWOOD TRACK.
WHYTE RIVER
BEGINS AT GRID REF 10000 N 10400 E
ENDS AT LOCAL GRID CO-ORD 11475 N 10400 E.
γ
64500
64000
63500
63000
62500
62000
61500
61000
60500
GAMMAS
10000 N 10400 E
10100
10200
10300
10400
10500
10600
10700
10800
10900
11000
11100
11200
11300
11400
11500
11600
11700
NORTHINGS
5 cm

050080

Aberfoyle 1978-79 ● Sample location, number and assay results, W, Sn, Cu, Pb, Zn (Mo, As) in p p m

Aberfoyle 1979-80 ▲

Base sheet enlarged from 1 31 680 Tasmanian Lands Dept Topo

Northern section enlarged from 50 000 Tasmanian Lands Dept Topo

STATE GN MN

Magnetic north correct 1978

347/405	355/405	363/405
347/400	**355/400**	363/400
347/395	355/395	363/395

Index to adjoining sheets

Aberfoyle Exploration Pty Ltd

Geology	80-1476 NORTH WEST TASMANIA DUNDAS TROUGH	Location code 2900
Drawn R J E		Date August, 1979
Traced JJB	MEREDITH E L 16/78	Scale 1 10,000
Checked	STREAM SEDIMENT SAMPLING	Plate Nº
Revised by R J E Date 17/6/80	LOCATIONS & ASSAY RESULTS	MER 9/355/400

Geological Legend

QUATERNARY	3	Qa	Alluvium
	8	DQ	Dolerite Talus
TERTIARY	51	Tb	Basalt
	27	Tc	Conglomerate & grit
	71	Tg	Gravels
	34	Ts	Sand silt clay & limestone
DEVONIAN	14	Dg	Meredith Granite / Adamellite
SILURIAN	18	Sc	Crotty Quartzite
ORDOVICIAN	26	Og	Gordon Limestone
	65	Om	Moina Sandstone
CAMBRIAN (64)	39	Dol	Dolerite sill
	47	Vb	Basic Volcanic probably lavas
	24	Vt	Basic Tuffs and tuffaceous greywacke
	68	mss/ba/slt	Black biotite hornfelsed (micaceous) sandstones and siltstones (commonly volcolithic)
	25	Cst	Cherty siltstone (Pelitic ash)
	57	sh	Black grey purple brown shales
	36	ch	Chert undifferentiated
	33	dom	Dolomite
	46	um	Rocks of ultrabasic affinity includes serpentinite pyroxenite gabbro dolerite both coarse & fine grained occasionally amygdaloidal probably related to Heazelwood River Complex
	44	ub	Basic lavas
PRE CAMBRIAN	58	Puo	Oonah Quartzite and Slate
	70	Swc	WHYTE SCHIST Foliated interbedded and massive quartzite sericite schist black shale quartz schist
	43	Apb	Amphibolite

GENERAL ABBREVIATIONS

MINERAL

Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Po	Pyrrhotite
S	Siderite
Mag	Magnetite
Ma	Marcasite
Ar	Arsenopyrite
Stn	Stannite
musc	muscovite
graph	graphite
lim	limonite
hem	hematite
tm -	tourmaline
K spar	K feldspar
fd -	feldspar
bi	biotite
plag	plagioclase
serp	serpentine
chi	chiastolite
calc	calcareous
q	quartz
cord -	cordierite
chlor -	chlorite
trem	tremolite
diop	diopside
pyrox	pyroxene
carb	carbonate
dom	dolomite
Fl	fluorite
Am	amphibole

TEXTURE

xeno	xenocrysts
mic	micaceous
sacch	saccharoidal
tuff	tuffaceous
homog	homogenous
porph	porphyry
phen	phenocrysts
brec	breccia
rx	recrystallised
dissem	disseminated
interb -	interbedded
nod	nodules
frag	fragments
alt	altered
lam	laminated
abund	abundant
weath	weathered
undiff	undifferentiated
fg	fine grained
mg	medium grained
cg	coarse grained
st	staining

STRUCTURE

fol	foliation / foliated
ax pl -	axial plane
cr cl -	crenulated cleavage
vert	vertical
f a	fold axis
80→63°M	dip / dip direction magnetic

Folding

Fo	F1 fold deforming bedding plane
Fo²	F2 fold deforming bedding plane

Deformation history

So	bedding
S1	first deformation
S2 -	second deformation

Lineations

L1	lineation produced by S1
L2	lineation produced by S2

ROCK TYPES

Sediments

sst	sandstone
qtz	quartzite
sh	shale
sl	slate
slt	siltstone
[illegible] -	argillite
ch	chert
lst	limestone
dom -	dolomite
gw -	greywacke
cong	conglomerate
ms	mudstone

Igneous

Vt	tuff
Vb -	lavas
Va	agglomerate
um/ub -	rocks of ultrabasic affinity
dol	dolerite
A	adamellite
G -	granite
serp	serpentinite

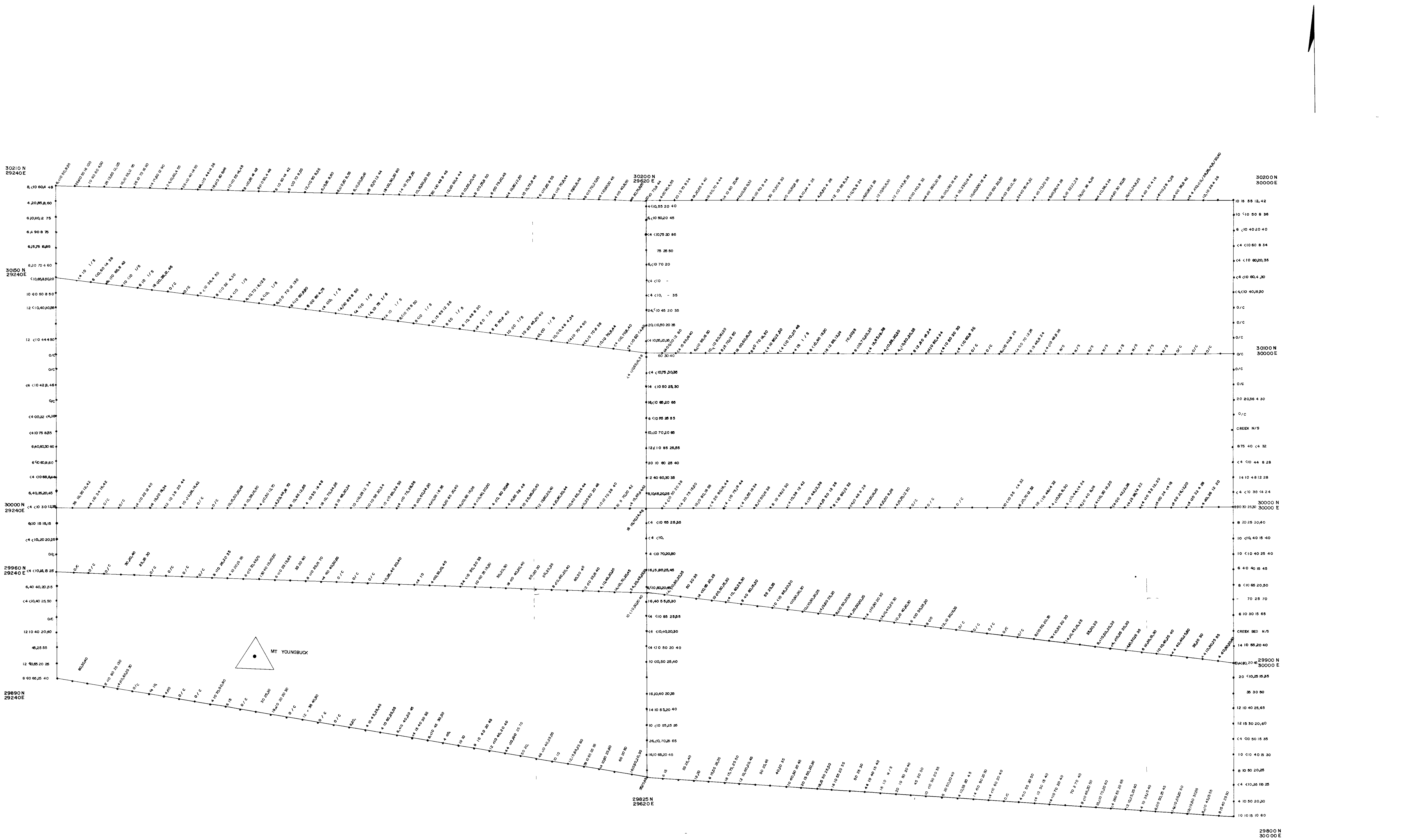
GENERAL SYMBOLS

0 2	Outcrop boundary
	Float
0 4	Contact known
	Contact interpreted
	Contact inferred
F 70°	Fault definite (known dip)
F	Fault inferred
	Bedding strike & dip
	Schistosity with dip
	Joint with dip
	Minor folding showing plunge & trend
	Fold axis showing plunge & trend
DDH	Diamond drill hole with projected trace of hole (collar location accurate)
DDH	Diamond drill hole with projected trace of hole (collar location not accurate)
PD	Percussion drill hole
	Shaft
	Trig station
	Lease corner peg
	Building
	Costean or trench
	Pit
	Dump
	Scarp cliff or breakaway
	River or creek
	Railway or tram track
	Adit
2200	Topographic contours & interval
	Cleared area
	Swamp
	Alluvial deposits
	Track
	Road (unsealed)
	Highway (sealed)
EL 47/71	Licence boundary & number
	Dam on stream
T/S	Thin section
	Mine

050081

Aberfoyle Exploration Pty Ltd

Geology CHY, RMJ	NORTH WEST TASMANIA 80 1476	Date August, 1980
Drawn RJE	MEREDITH LICENCE 16/78	Scale
Traced	GEOLOGICAL LEGEND 2901	Plate MER 18



050082

LEGEND

- • Soil Sample location and assay results Sn, W, Cu Pb Zn in ppm
- o/c outcrop
- N/S No sample
- I/S Insufficient sample

Aberfoyle Exploration Pty Ltd

Geology		NORTH WEST TASMANIA	Location code
Drawn	N R B	MEREDITH EL16/78	Date Sept 1980
Traced	J L R	Mt Youngbuck Grid	Scale 1:1 000
Checked		SOIL GEOCHEMISTRY	Plate Nº MER 19
Revised by	Date		

2902

LEGEND

- ● Soil Sample location and assay results Sn W Cu, Pb, Zn in p p m
- N/S No Sample

050083

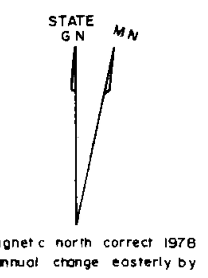
5 cm

Aberfoyle Exploration Pty Ltd

Geology	NORTH WEST TASMANIA 80-476	Location code
Drawn N R B	MEREDITH EL 16/78 2903	Date Oct 1980
Traced J L R	CIRCULAR FEATURE GRID	Scale 1 2500
Checked	SOIL GEOCHEMISTRY	Plate Nº MER 20
Revised by Date		

For Geology Legend See Plate MER 18

x 237988/ Rock chip sample locations and numbers, W, Sn, Cu, Pb, Zn in ppm
NA Not Assayed



5 cm

363/4050	367/4050	371/4050
363/4025	367/4025	371/4025
363/4000	367/4000	371/4000

Index to adjoining sheets

Aberfoyle Exploration Pty Ltd

Geology RMJ	NORTH WEST TASMANIA 80-1476		Location code
Drawn RMJ	MEREDITH EL 16/78	2904	Date August, 1980
Traced RJE	Surface Geology		Scale 1:5000
Checked			Plate No
Revised by / Date			MER 16/367/4025

For Geology Legend See Plate MER 18

x 237988/ Rock chip sample locations and numbers, W Sn, Cu Pb, Zn in ppm
NA Not Assayed

STATE GN MN

Magnetic north correct 1978 annual change easterly by 04

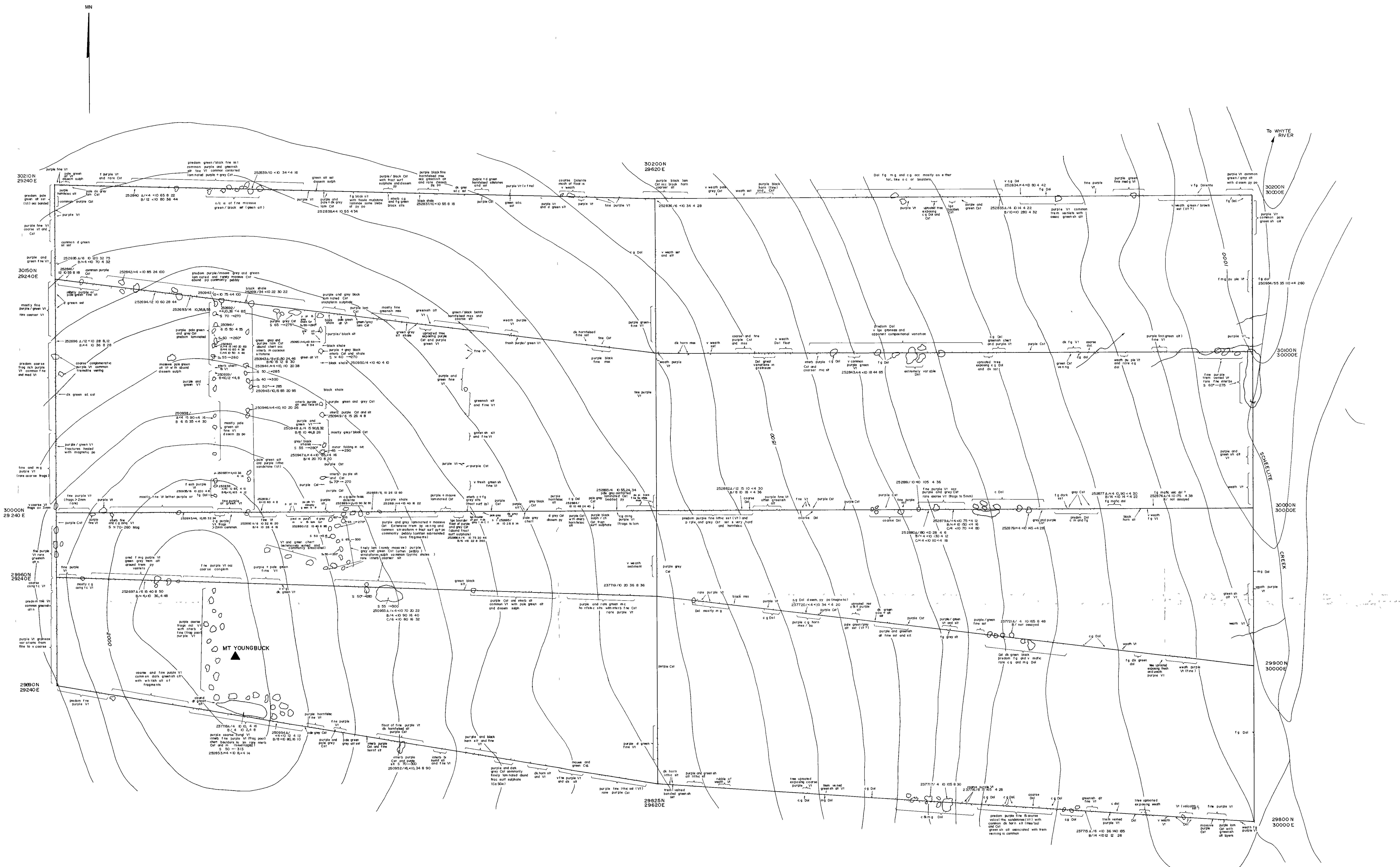
5 cm

363/4025	367/4025	371/4025
363/4000	367/4000	371/4000
363/3995	363/3995	371/3995

Index to adjoining sheets

Aberfoyle Exploration Pty Ltd

Geology	R M J	NORTH WEST TASMANIA 80447b	Location code
Drawn	R M J	MEREDITH E L 16/78	Date August, 1980
Traced	R J E	Surface Geology 2905	Scale 1 5000
Checked			Plate Nº MER 16/367/4000
Revised by	Date		



237715 / Rock chip sample location and assay results in ppm Sn, W, Cu, Pb, Zn

Contour Interval 50

FOR GEOLOGY LEGEND REFER PLATE MER 18

5 cm

050086

Aberfoyle Exploration Pty Ltd

Geology R M J	NORTH WEST TASMANIA 80-476	Location code	
Drawn R M J	MEREDITH E L 16/78 2906	Date	NOV 1980
Traced R J E	MT YOUNGBUCK GRID	Scale	1 1000
Checked	Outcrop Geology	Plate No	MER 22
Revised by Date			