

000

250001

*Done*

**MICROFILMED**

ANNUAL REPORT  
EXPLORATION LICENCE 15/73  
HATFIELD  
Tasmania.  
For 12 months ending June 1, 1978.

78-1276

**OPEN FILE**

C.H. YOUNG.  
JUNE 1978.

001

TABLE OF CONTENTS

250002

	<u>Page No.</u>
SUMMARY	1
INTRODUCTION	1
SURVEY	3
GEOLOGY	3
TRENCHING	5
GEOPHYSICS	7
SOIL GEOCHEMISTRY	8
ROCK GEOCHEMISTRY	9
CONCLUSION	9
FINANCE	10
REFERENCE	11

APPENDICES

- APPENDIX A - I.P. Profiles.
- APPENDIX B - Soil Geochemical computer data.

LIST OF PLATES

		<u>Scale</u>
Figure 1 (In text)	Geology of North West Tasmania. Plate No. DT. 80.	1:250,000
Figure 2 (in text)	Mackintosh West/Hatfield Licence Areas Grid and Soil Geochemical coverage 1977 Plate No. MAC 63.	1:50,000
Figure 3	Que River Regional Geology-Summary Map Plate No. MAC 53.	1:50,000
Figure 4	Mt.Charter Area - Summary Plan Plate No. HT 25.	1:2,500
Figure 5	Mt.Charter Section 4700N Plate No. HAT 27.	1:2,500

002

250003

LIST OF PLATES CONTD.

		<u>Scale</u>
Figure 6	Mt. Charter Section 5200N Plate No. HAT 28.	1:2,500
Figure 7 - 17	Hatfield E.L. 15/73 Costean Plan and Section Plates No. HT 23.	1:250
Figure 18	Mt. Charter area. Trench Plan. Plate No. HT 24.	1:250
Figure 19 (in text)	Mackintosh West/Hatfield Licence Area I.P. coverage 1977-78 Plate No. MAC 62.	1:50,000
Figure 20	Mt. Charter area. Summary of Geochemistry and Geophysics Plate No. HT 26.	1:2,500
Figure 21 (in text)	Mackintosh West/Hatfield Licence Area. Geochemical Summary Plan. Plate No. QR 100.	1:50,000

003

SUMMARY

This report details exploration work conducted over the Hatfield Licence during the period June 2nd 1977 to June 1st, 1978.

The exploration programme included: detailed and regional geological mapping, soil geochemical sampling with computer analysis of geochemical data, the commencement of a whole rock geochemical sampling programme, I.P. geophysics and trenching.

From the "Old Mill Site" area and extending south to the Mt.Charter area, some 3.5 km south-west of the Que River Zn-Pb deposit, I.P. geophysics was used extensively as follow up of both geological and geochemical targets.

At Mt.Charter three bulldozer trenches were completed in the vicinity of a barite rich ferruginous gossan and two drill holes are proposed to test the mineralised dacite sequence in this vicinity.

Coincident soil-geochemical and I.P. anomalies were delineated as follow-up of a stream sediment anomaly near the Murchison Highway at 4400N. The area is underlain by black shales and sandstones and no further work is proposed.

An Honours student from Monash University Melbourne has completed a thesis titled, "The Geology of the Que River Area, West Tasmania". Primary hornblende in the hangingwall andesites near Que River is noted. This may help to distinguish footwall-hangingwall positions in the andesite sequence.

INTRODUCTION

Hatfield River Exploration Licence 15/73 was transferred from Cominco Exploration Pty.Ltd. to Abminco N.L. early in 1978. Work is managed by Abminco N.L. Exploration Division. Licence expiry date is 26/6/78 and the licence may be renewed at six monthly intervals. E.L. 15/73 is partly over the private land of Associated Forest Holdings Pty.Ltd. A.F.H. have a timber concession covering E.L. 15/73.

During the 1977-78 summer season a detailed exploration programme, involving

004

250005

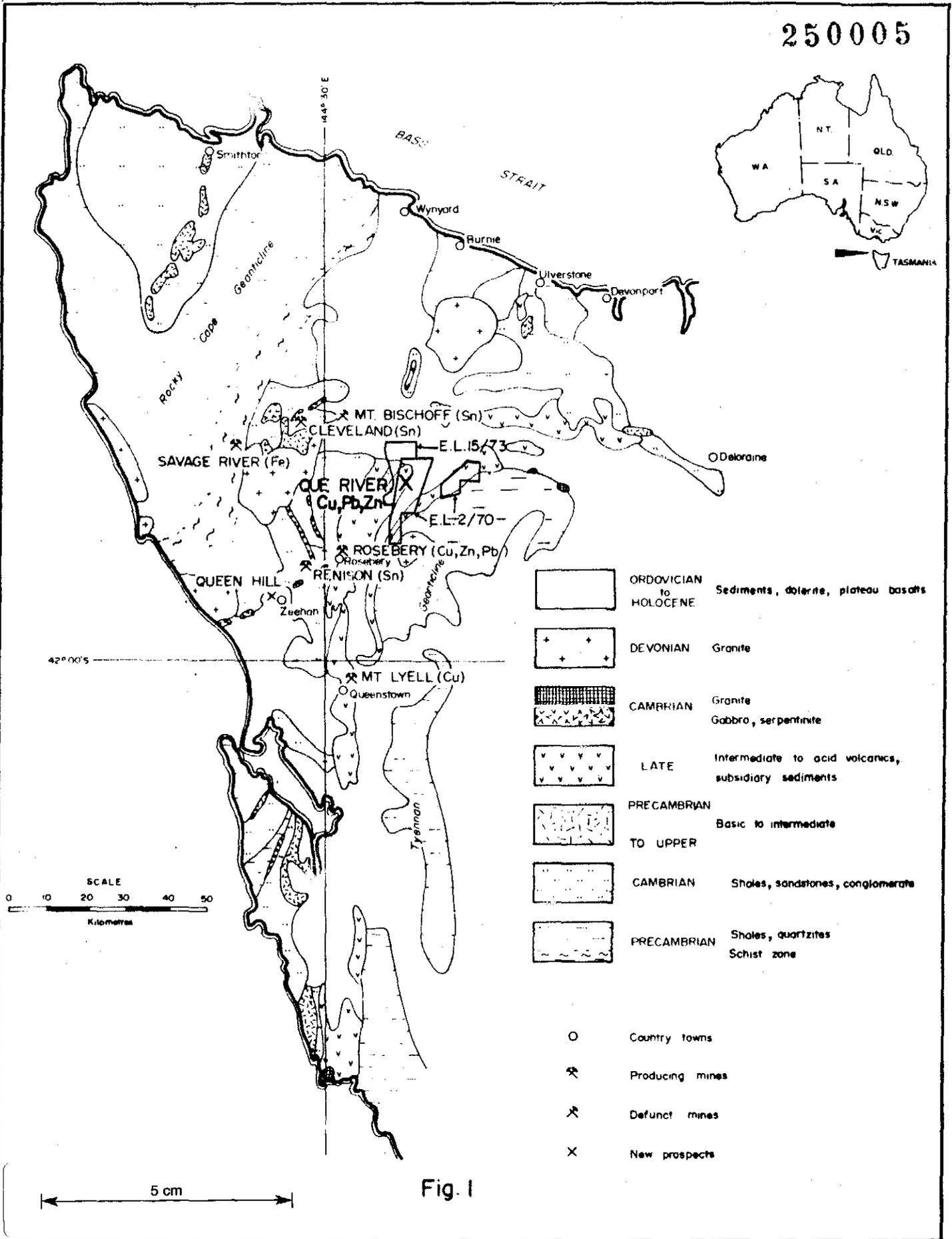
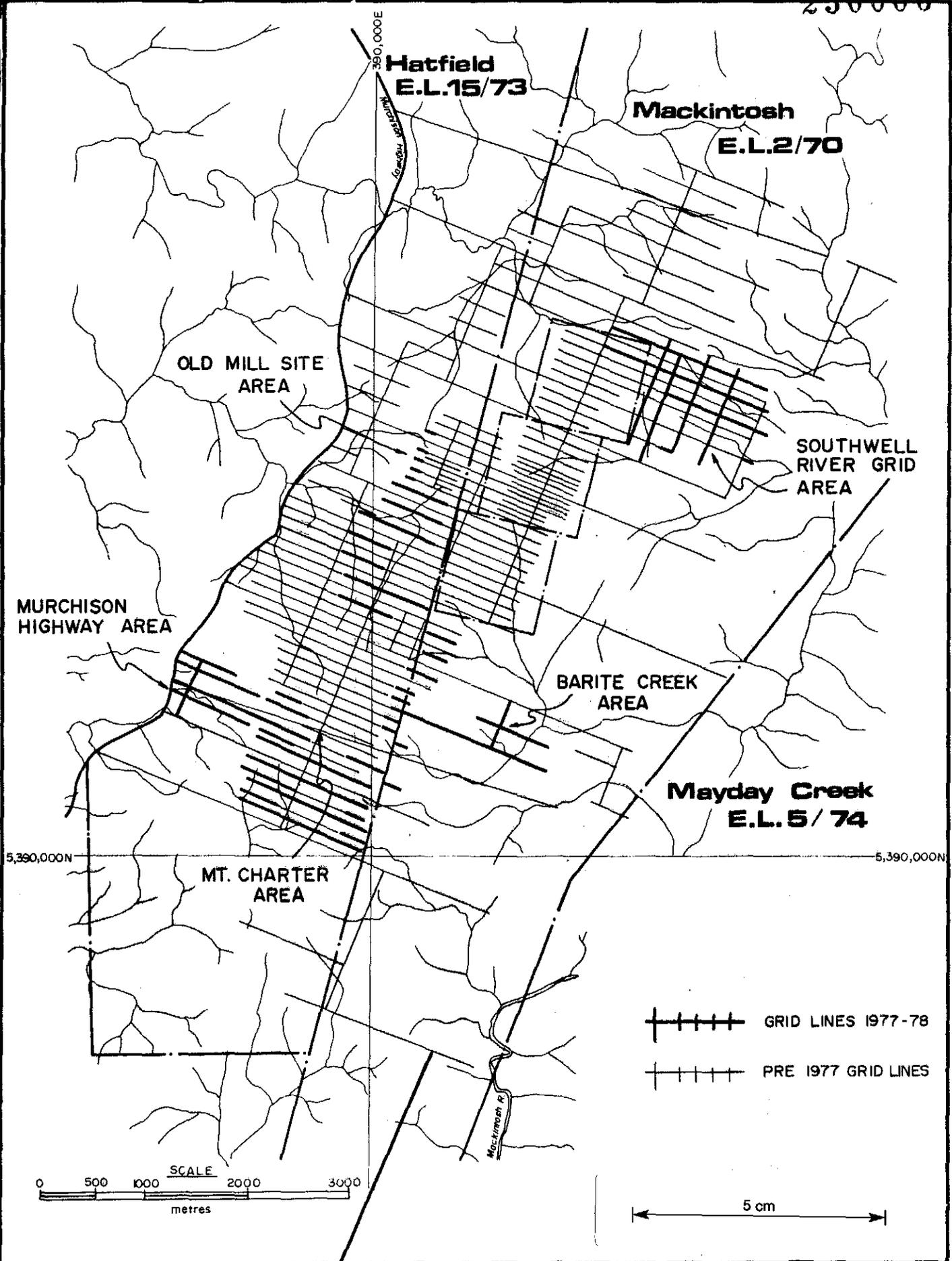


Fig. 1

**Abminco Exploration**

Drawn:	<b>GEOLOGY</b> OF <b>NORTH WEST TASMANIA</b> (after Williams 1976, Gee 1977.)	Location code:
Traced: A.E.R.		Date: June 1978
Checked:		Scale: 1:1,250,000 approx
Revised by:      Date:		Plate N <sup>o</sup> : DT 80



**Abminco Exploration**

FIG. 2.

Drawn	C.H.Y.	<b>NORTH WEST TASMANIA</b> <b>Mackintosh West/ Hatfield Licence Areas</b> <b>GRID &amp; SOIL GEOCHEM. COVERAGE 1977-78</b>	Location code	
Traced	R.J.E.		Date	June, 1978
Checked			Scale	1 : 50,000
Revised by	Date		Plate No	Moc. 63

C-horizon soil geochemistry followed by a "blanket" dipole-dipole I.P. geophysical survey, was completed over a belt of dacitic stratigraphy extending from the "Old Mill Site" area to about 1 km south of Mt.Charter, a distance totalling some 4 km. Four of the areas recommended in the 1977 annual report occur within the surveyed area. These are soil geochemical anomalies No. 5 and Nos. 8,9 and 10 (Plate QR 100). No new major soil geochemical anomalies were delineated, however the extra sampling more clearly outlined existing anomalies and aided drill target selection. The I.P. survey gave the best response of 8%-10% percentage frequency effect near Mt.Charter on line 4700N in the vicinity of the western contact of the mineralised dacite sequence. Weak anomalies were also delineated between 4000N and 5700N.

Assay results are now available for the six bulldozer trenches completed in the later part of the 1976-77 year. The I.P. survey mentioned above was extended to the east in the vicinity of 5600N to cover the area about the trench with the highest metal values.

At Mt.Charter a barite-rich ferruginous gossan was exposed at 4625N on the access track to drill hole MC 1. Three bulldozer trenches were completed to investigate the stratigraphy along strike. On line 4650N nearly massive barite was exposed over widths of 10 m and 12 m respectively. One drill hole is proposed to test beneath a coincident soil geochemical and I.P. anomaly near the barite lenses. A second hole is proposed to test beneath a coincident soil geochemical and I.P. anomaly situated at about the same stratigraphic position as the barite lenses but located some 500m to the north.

Follow-up of a stream sediment anomaly for zinc near the Murchison Highway at 4400N was accomplished by gridding, C-horizon soil geochemistry and dipole-dipole I.P. geophysics. Coincident zinc geochemical and weak I.P. anomalies were recorded in an area underlain by black shales and sandstones. No further work is proposed in this area.

Computer analysis of a greater part of the C-horizon soil geochemical data for the Hatfield Licence was completed. Cumulative frequency percent values for Cu, Pb and Zn were determined and a frequency histogram plot was prepared.

As part of a world-wide study on stratiform Cu-Pb-Zn deposits, the Federal Institute for Geosciences and Natural Resources in Hannover, Germany, has

007

started a research programme in Australia in which it is hoped to evaluate parameters for a genetic approach to mineral exploration. In the Que River and Mackintosh area a programme of whole rock and trace element analysis of core and surface samples has commenced. It is hoped the programme will eventually aid in the detection of blind ore bodies.

SURVEY

Gridding along cut lines at 50m intervals has been an on-going programme since the granting of the Hatfield licence.

During the past year compass and chain survey with clinometer control for slope corrections was used to extend earlier gridding. A total of 19,170 metres of gridding was accomplished, details are given below and summarised on Plate. Mac. 63 (In text).

1. In the block of ground between the "Old Mill Site" and Mt. Charter 15,370 metres of cross lines.
2. In the vicinity of 4400N near the Murchison Highway a base line of 600 metres at 2800E and 3200 metres of cross line.

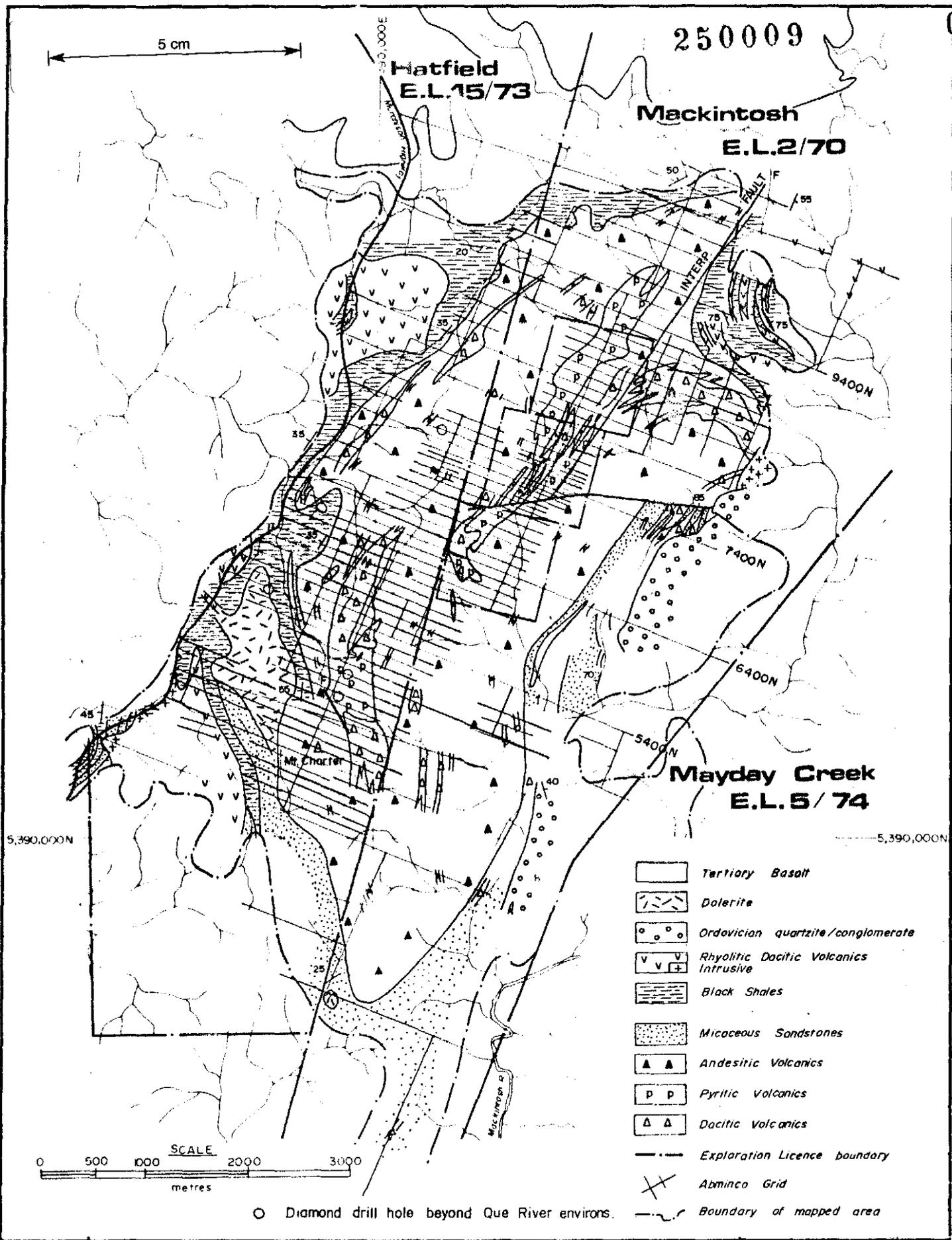
The re-establishment of some 1,800 metres of grid was required after the H.E.C. cleared the forest for a transmission line and cut a swath some 100 metres wide diagonally through the major part of the grid.

GEOLOGY

Grid mapping was plotted at 1:2500 scale and compiled at 1:10,000 and 1:50,000 scale. Hand specimens were systematically collected.

In the block of ground extending from the "Old Mill Site" south to the Mt. Charter area some 15,000 metres of grid mapping remains to be completed on a number of fill-in lines and line extensions. The essential geology is, however, understood. (Plate MAC 53 in text).

The mineralised sequence in the Mt. Charter area is about 300m thick and consists of a "core" of porphyritic dacite flanked on both sides, that is north and south, by dacitic lavas and pyroclastics. To the south dacitic rocks have been mapped for 500 metres and to the north for 2000 metres to near the "Old Mill Site



**Abminco Exploration**

FIG. 3

Drawn	C.H.Y.
Traced	R.J.E.
Checked	
Revised by	Date

**NORTH WEST TASMANIA  
QUE RIVER REGIONAL GEOLOGY  
SUMMARY MAP**

Location code	
Date	June, 1977
Scale	1: 50,000
Plate No	MOC.53

Dips are to the west at  $70^{\circ}$ - $80^{\circ}$  and the dacite sequence trends northerly. At 4650N, 4250E a fault striking  $275^{\circ}$  has offset the sequence about 100m to the south-east. Andesite occurs on both sides of the dacite sequence in a similar stratigraphic association as the andesite at Que River mine. (Plate HT 25).

In his thesis, titled "The Geology of the Que River area West Tasmania", submitted in 1977 in part fulfilment of Bachelor Science (Hons.) Degree at Monash University, A. Bold states that the texture of the "Western" andesites (hangingwall andesites) is similar to that of the "Eastern" andesites (footwall andesites) but "their mineralogy differs in that primary hornblende is present in some samples", that is, in the hangingwall andesites. Further work of this nature may help to confirm footwall-hangingwall positions of the andesite surrounding the dacitic sequence in the Mt. Charter area.

At 4650N, near the western flank of the Mt. Charter mineralised porphyritic dacite, trenching has exposed massive pyritic barite over widths of 10 metres and 12 metres wide respectively.

One drill hole is proposed to test beneath a coincident soil geochemical and I.P. geophysical anomaly on line 4700N near the barite exposure (Plate HT 27). Whilst the geology is most attractive, surface anomalies are not of the same magnitude as at Que River. If massive sulphides are present they are probably located at depth. The presence of significant barite-pyrite mineralisation at 4650N could represent the barite-rich mineralisation normally located lateral to massive sulphides. The drill hole is therefore designed to test the down plunge extension of the barite rich horizon.

A second drill hole is proposed to test beneath a coincident soil geochemical and I.P. geophysical anomaly on line 5200N, situated at about the same stratigraphic position as the barite lenses (Plate HT 28). The magnitude of the anomalies is not as intense as those over ore at Que River, however barren dacites mapped in the area about 5200N, 3950E may mask the geochemical and geophysical response of massive sulphides at depth.

Geological mapping was completed over the small grid established as follow-up of a zinc stream sediment anomaly in the vicinity of 4400N immediately east of the Murchison Highway. The area is underlain by black shale and micaceous sandstones of the Que River Beds and includes intercalations of rhyolite.

The shale is laminated, typically weathering to a light grey colour. Individual laminae consist of variable concentrations of clays, ultrafine sericite and relatively minor quartz and feldspar silt with some chlorite.

The micaceous sandstones are fairly homogeneous, vague bedding is indicated by fairly regular but very slight variations in the size of detrital quartz grains. Subangular to subrounded quartz grains, around 0.15 mm, detrital muscovite and detrital "argillite grains" form loosely packed aggregates within an argillaceous clay-sericite matrix.

The rhyolite is commonly pinkish brown to green brown in colour and consists of plagioclase phenocrysts (0.2 to 2 mm), occasionally extensively sericitised and corroded, and quartz phenocrysts (0.5 to 0.8mm) randomly dispersed through a diffuse groundmass of quartz and feldspar. Outlines of irregular spherulitic and variolitic textures suggest volcanic glass was present prior to devitrification.

The shale-sandstone-rhyolite sequence occurs stratigraphically above the essentially andesitic pile which contains the Que River Mine sequence. The possibility of a stratiform massive sulphide deposit occurring in this stratigraphic position is considered low and no further work is proposed.

#### TRENCHING

Assay results are now available (Plate HT 23) for the six bulldozer trenches completed in the later part of the 1976-77 year and reported in the 1977 annual report.

In trench 5600N, in andesite, Pb and Zn values average 2970 ppm and 914 ppm respectively over 25 metres. The andesite in the Que River region has a high background for Pb and Zn and in many instances disseminations and aggregates of galena and sphalerite in small (<1 cm) quartz-carbonate filled fractures give rise to significant geochemical anomalies. This occurs in the above trench.

A barren dacite unit some 15 metres wide, exposed in the "Old Mill Site" trench (7200N), was considered a favourable target. However no anomalies were detected when this area was surveyed by I.P. geophysics.

In the Mt. Chart area three trenches (Plate HT 24) were completed as follows:-

Northing	Easting	Length	Av. Depth	Comment
4750N	4175E-4210E	35m	1.5m	Scree cover up to 2.5m thick prevented excavation to bedrock.
4700N	4175E-4235E	60m	1.1m	Deeply weathered dacitic pyroclastics in contact with andesite..
4650N	4225E-4275E	50m	0.3m	Massive pyritic barite exposed in widths of 10 and 12 metres respectively.

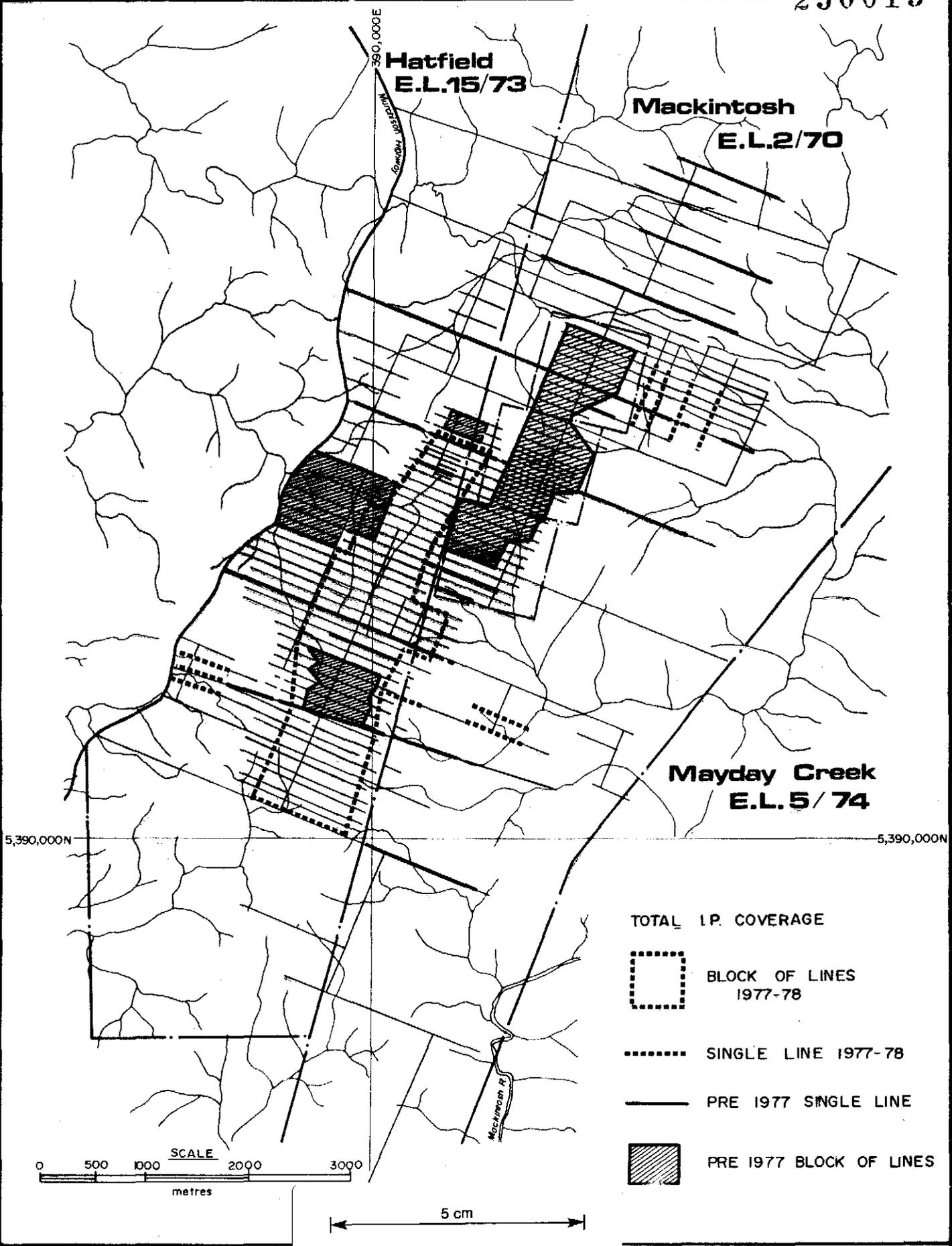
The access track to drill hole MC 1 was also excavated to bedrock (Plate HT24). Massive ferruginous (pyritic) barite was exposed over intervals of up to 4 metres.



Massive pyritic barite, 4650N trench.

012

250013



- TOTAL I.P. COVERAGE
-  BLOCK OF LINES 1977-78
-  SINGLE LINE 1977-78
-  PRE 1977 SINGLE LINE
-  PRE 1977 BLOCK OF LINES

 **Abminco Exploration**

FIG. 19.

Drawn	CH.Y.
Traced	R.J.E.
Checked	
Revised by	Date

NORTH WEST TASMANIA  
 Mackintosh West/ Hatfield Licence Areas  
 I.P. COVERAGE 1977-1978

Location code	
Date	June, 1978
Scale	1 : 50, 000
Plate No	Mac 62

013

The trenches were sampled over 5 metre intervals and up to 54.7% barium was recorded. The best base metal values were Cu 195 ppm, Pb 1050 ppm and Zn 1040 ppm.

In the dacitic volcanics foliation trends due north thus the outcrop pattern exposed in the trenches suggests a fault offset to the south-east of approximately 100 metres.

#### GEOPHYSICS

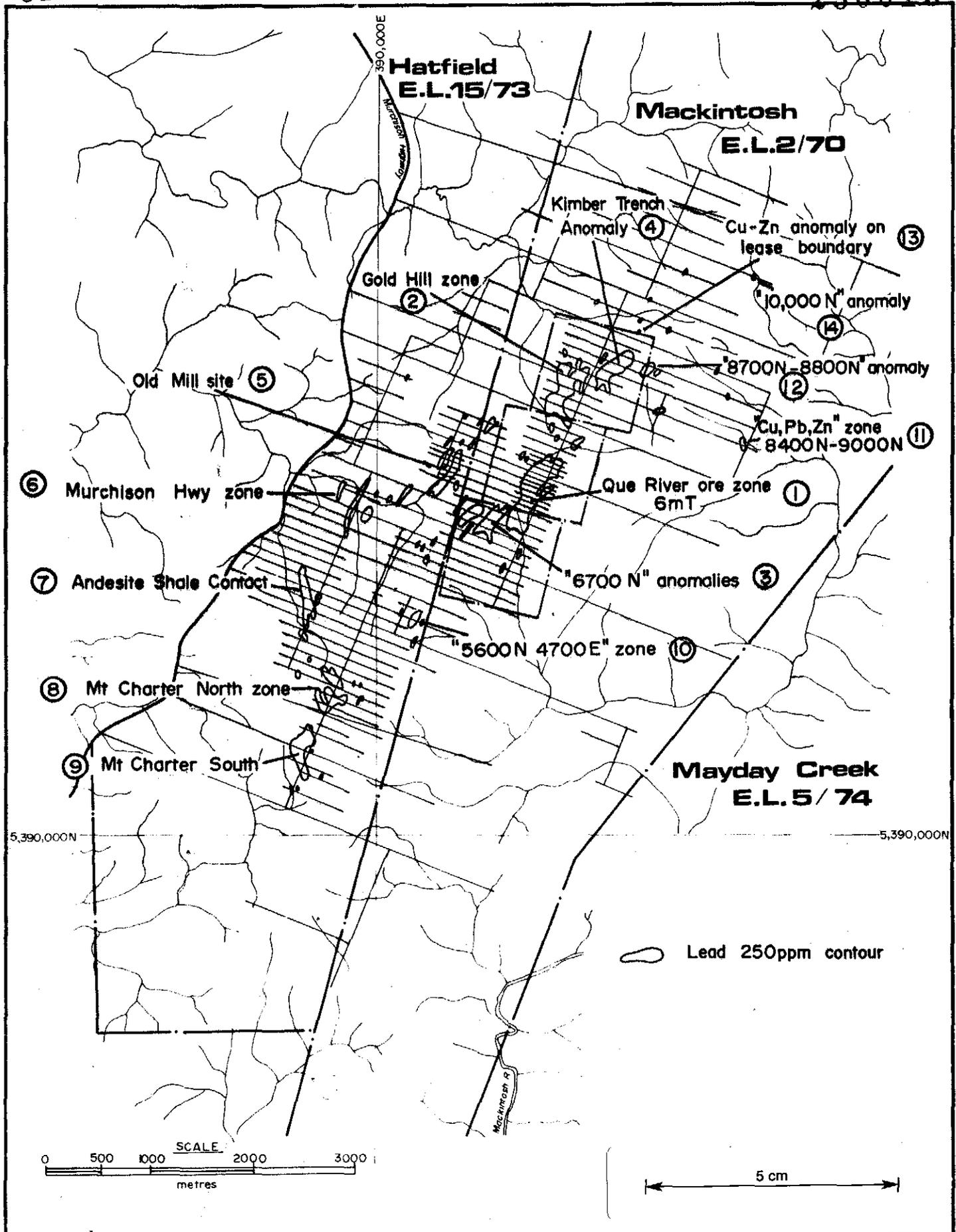
A summary plan, Plate MAC 62 in text, outlines the total area now covered by I.P. traverses.

In the past year, 32,100 metres of 50 metre dipole-dipole I.P. and 800 metres of 100 metre dipole-dipole I.P. traversing were completed. The results obtained re-defined the loci of some previously obtained 25 metre dipole-dipole frequency effect anomalies but did not detect any new anomalies of an amplitude similar to those previously recorded at Que River. I.P. profiles are appended (A).

A major I.P. survey, involving 31,700 metres of traversing was completed over the belt of dacitic stratigraphy extending from the "Old Mill Site" area at 7500N to about 1 km south of Mt. Charter at 3500N and included the geochemically anomalous andesite exposed by trenching at 5600N. (Plate HT 26).

Previously, dacitic stratigraphy was exposed in the "Old Mill Site" area when a soil geochemical anomaly was investigated by trenching and the Mt. Charter area had been partially tested by 25 metre and 100 metre dipole-dipole I.P. traverses. Two diamond drill holes, completed in 1976, had delineated a sequence of pyritic porphyritic dacites and pyritic dacitic pyroclastics with minor base metal sulphide and barite veining and confirmed a belt of stratigraphy prospective for Que River type massive sulphides.

The "blanket" I.P. survey gave very weak frequency effect anomalies over the "Old Mill Site" area and the trench at 5600N. In the Mt. Charter area weak anomalies were recorded between 4000N and 5700N the best response was 8%-10% frequency effect on line 4700N in the vicinity of the upper contact of the mineralised dacite sequence with overlying andesite. At 5200N, within the mineralised dacite sequence, an anomaly of 6%-7% frequency effect was recorded.



**Abminco Exploration**

FIG. 20.

Drawn CHY  
 Traced RKY  
 Checked  
 Revised by Date

Mackintosh West / Hatfield Licence Areas  
**GEOCHEMICAL SUMMARY PLAN**

Location code  
 Date June 1977  
 Scale 1:50,000  
 Plate No QR 100

It is proposed to test both the above anomalies by drilling.

One line of 100 metre dipole-dipole I.P. was completed on 5900N to check the possible depth extent of an anomaly detected by the 50 metre dipole-dipole survey. A very weak (2%) frequency effect anomaly was recorded and is considered to be a contact effect between andesite and the weakly mineralised dacite sequence.

In the Murchison Highway area three I.P. traverses were completed on lines 4300N, 4400N and 4500N. Weak frequency effect anomalies were recorded in this area, underlain by black shales and sandstones.

#### SOIL GEOCHEMISTRY

Soil sampling along all cut grid lines is a prime technique in the exploration of the Hatfield licence area. The grid summary plan (Plate MAC 63 in text) illustrates the total area, and the area covered during the past year by grid lines and hence by soil geochemistry.

In the past year all soil samples were collected by hand auger at 10 metre intervals in the "Old Mill Site" - Mt. Charter area and at 20 metre intervals in the Murchison Highway area at 4400N. Where possible, the C-horizon was taken. Sample analysis was for Cu, Pb, Zn by atomic absorption spectroscopy of the minus 80 mesh fraction. No first order anomalies were outlined.

The relative immobility, and hence discrimination of lead with respect to zinc and copper is well illustrated over the Que River ore zone. A summary plan (Plate QR 100 in text) showing lead geochemistry illustrates the anomalies detected in the licence area.

Computer analysis of a greater part of the C-horizon soil geochemical data for the Hatfield licence was completed. Cumulative frequency values for Cu, Pb and Zn were determined and a frequency histogram plot was prepared. Analysis of the soil sample data included samples from both the Hatfield and Mackintosh licence areas (Appendix B). The data was combined because the boundary between the two licences virtually bisects a single project area.

Threshold values for Cu, Pb, Zn for each rock group as discussed in the 1977 Annual Report have not yet been prepared as the programme was delayed pending

the completion of this year's soil sampling programme. It is anticipated that the above computations will soon be complete.

ROCK GEOCHEMISTRY

As part of a world wide study on stratiform copper, lead and zinc deposits the Federal Institute for Geosciences and Natural Resources in Hannover, Germany, has started a research programme in Australia in which it is hoped to evaluate parameters for a genetic approach to mineral exploration. In the Que River and Hatfield area a programme of whole-rock and trace element analysis of core and surface samples was commenced.

To date 20 surface samples have been analysed for the major elements:

SiO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, MgO, CaO, Na<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O and P<sub>2</sub>O<sub>5</sub>.

The following trace elements have also been determined; Ba, Ce, Co, Cr, Ca, Hg, La, Mn, Nb, Ni, Pb, Rb, Sc, Sr, Th, V, Y, Zn, Zr.

In May 1978 a further 26 surface samples were dispatched to Germany for analysis.

An interpretation of the data is not yet available.

It is hoped the programme will eventually aid in the detection of blind ore bodies.

CONCLUSION

Subsequent to airborne E.M. surveys and stream sediment sampling, geological mapping, soil geochemical sampling and I.P. geophysics have featured as prime techniques in the exploration of the Hatfield licence area.

In the Mt. Charter area within the mineralised dacite sequence, a coincident soil geochemical and I.P. anomaly was recorded on line 4700N near an exposure of massive pyritic barite. At 5200N a weak coincident soil geochemical and I.P. anomaly within the same sequence was recorded. It is proposed to test both the above areas by drilling.

First derivative exploration of the attractive volcanic stratigraphy within the Hatfield licence, that is detailed surface exploration using the techniques mentioned above, is now near completion. No coincident first order soil geochemical and I.P. targets of a magnitude similar to that at Que River were detected.

Soil geochemistry is a reliable technique for the detection of near surface base metal sulphides. The technique is, however, relatively indiscriminate in that high order anomalies occur over both ore and trace disseminated mineralisation. For instance, the andesite in the Que River region has a high background for Pb and Zn and in many instances disseminations and aggregates of galena and sphalerite in small quartz-carbonate filled fractures give rise to significant geochemical anomalies. Geophysical techniques can be used to filter the geochemical data.

However, if a blind ore deposit, say below about 100 metres is sought conventional geophysical techniques would also have difficulty in detecting massive sulphides. As well, the relative immobility of lead is such that only low order soil anomalies might be formed from an ore deposit at depth.

Second derivative methods, such as a programme involving whole-rock and trace element geochemical zoning studies designed to locate blind ore deposits, are now in progress.

Soil geochemical data assessment by computer processing to allow rapid geographical identification of anomalous values and improved statistical treatment of data has begun and it is anticipated that final computations and interpretation will soon be complete.

EXPENDITURE

Expenditure for the 12 months ending June 6, 1978:

Geology	18,339
Survey	12,234
Geophysics	17,386
Geochemistry	9,963
Trenching	4,151
Diamond Drilling	596
Tenure	272
Sundries	2,890
	<hr/>
	65,831
	<hr/>

REFERENCE

Young C.H.

Annual Report.  
Young C.H.  
Exploration Licence 15/73  
Hatfield, Tasmania.  
For 12 months ending June 1, 1977.

Signed by:

C.H. Young

C.H. Young  
Project Geologist

Endorsed by

K.R. Yates

K.R. Yates  
Chief Geologist

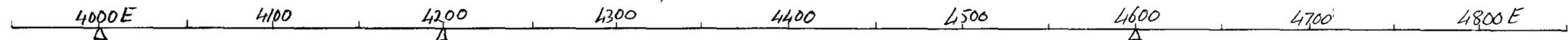
APPENDIX A

I.P. PROFILES

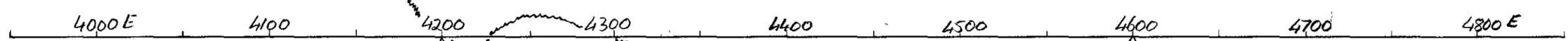
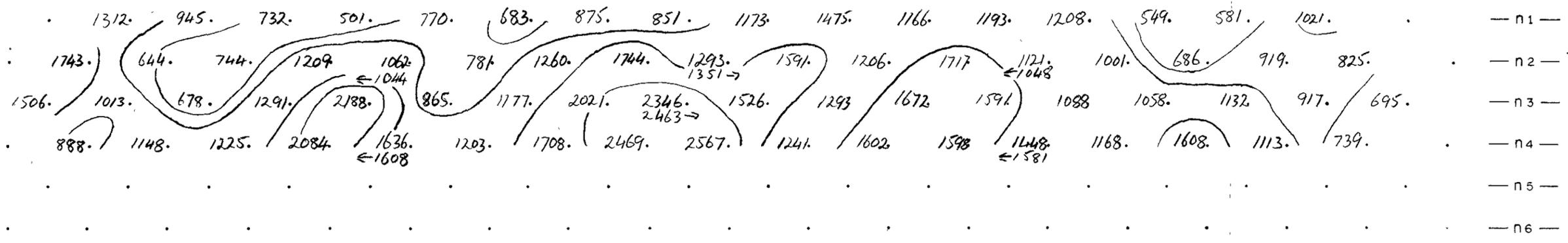
Lines 3500N to 7300N incl.

4300N,

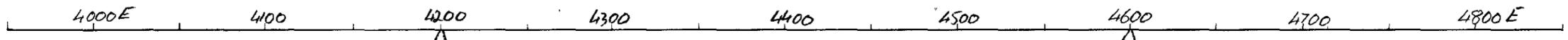
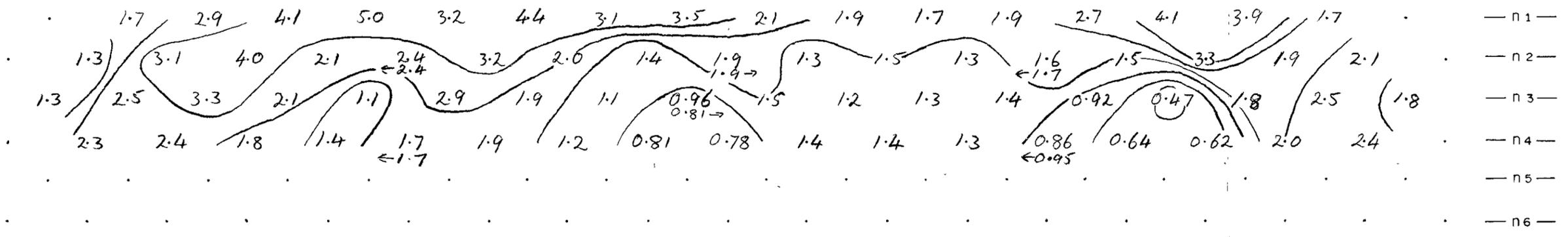
Mt. Charter (approx. 4400N, 4500N,  
further west near Murchison  
Highway).



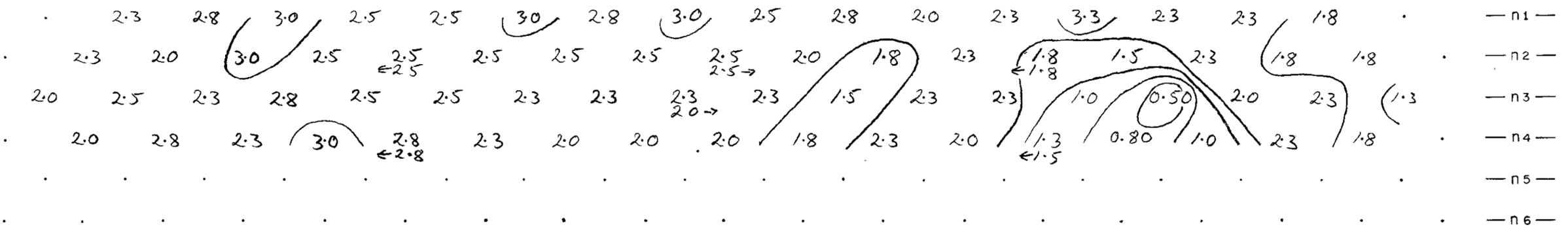
RESISTIVITY (OHM METRES)



METAL FACTOR



FREQUENCY EFFECT (%)



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATFIELD

LINE NO. 3500 N

SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3 / 2.5 Hz

ELECTRODES SINGLE ALFOIL

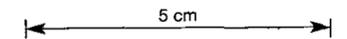
TRANSMITTER SERIAL NUMBER Tx 123

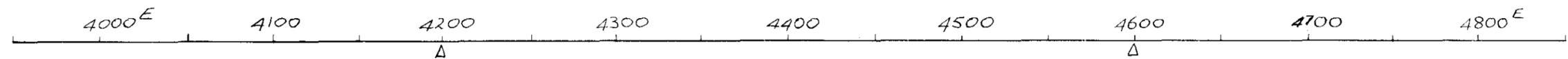
RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 13<sup>th</sup> + 14<sup>th</sup> FEB. 1978

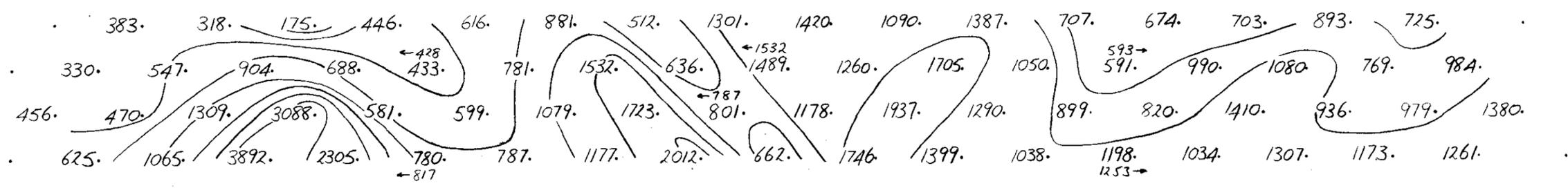
CREW LEADER G.M.

250021

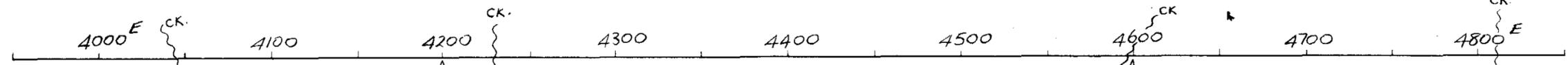




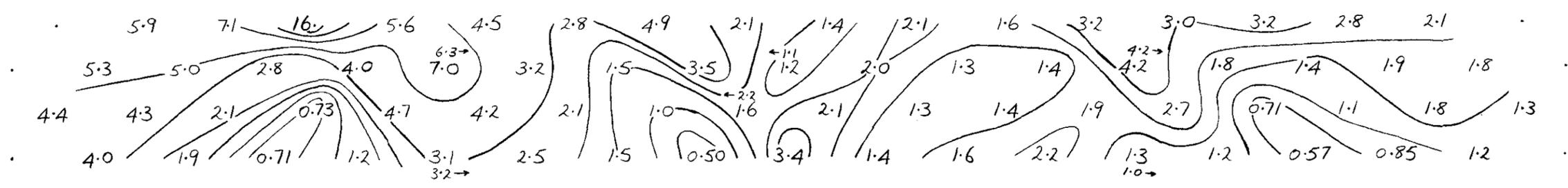
RESISTIVITY (OHM METRES)



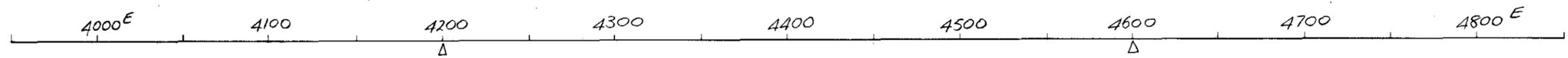
- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



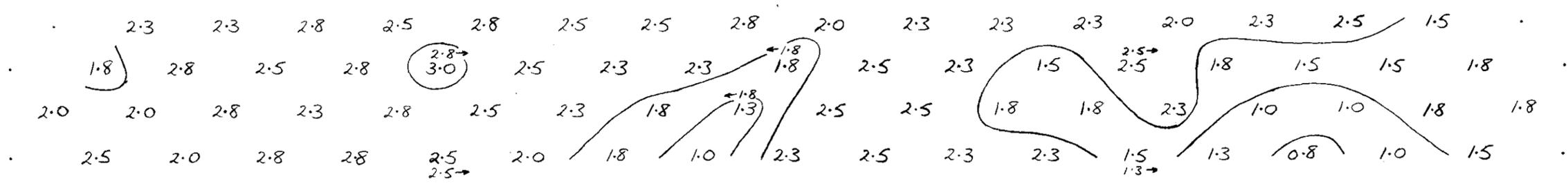
METAL FACTOR



- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



FREQUENCY EFFECT (%)



- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —

# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATFIELD

LINE NO 3600<sup>N</sup>

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5 Hz

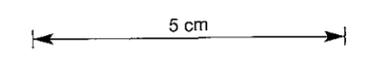
ELECTRODES SINGLE ALFOIL

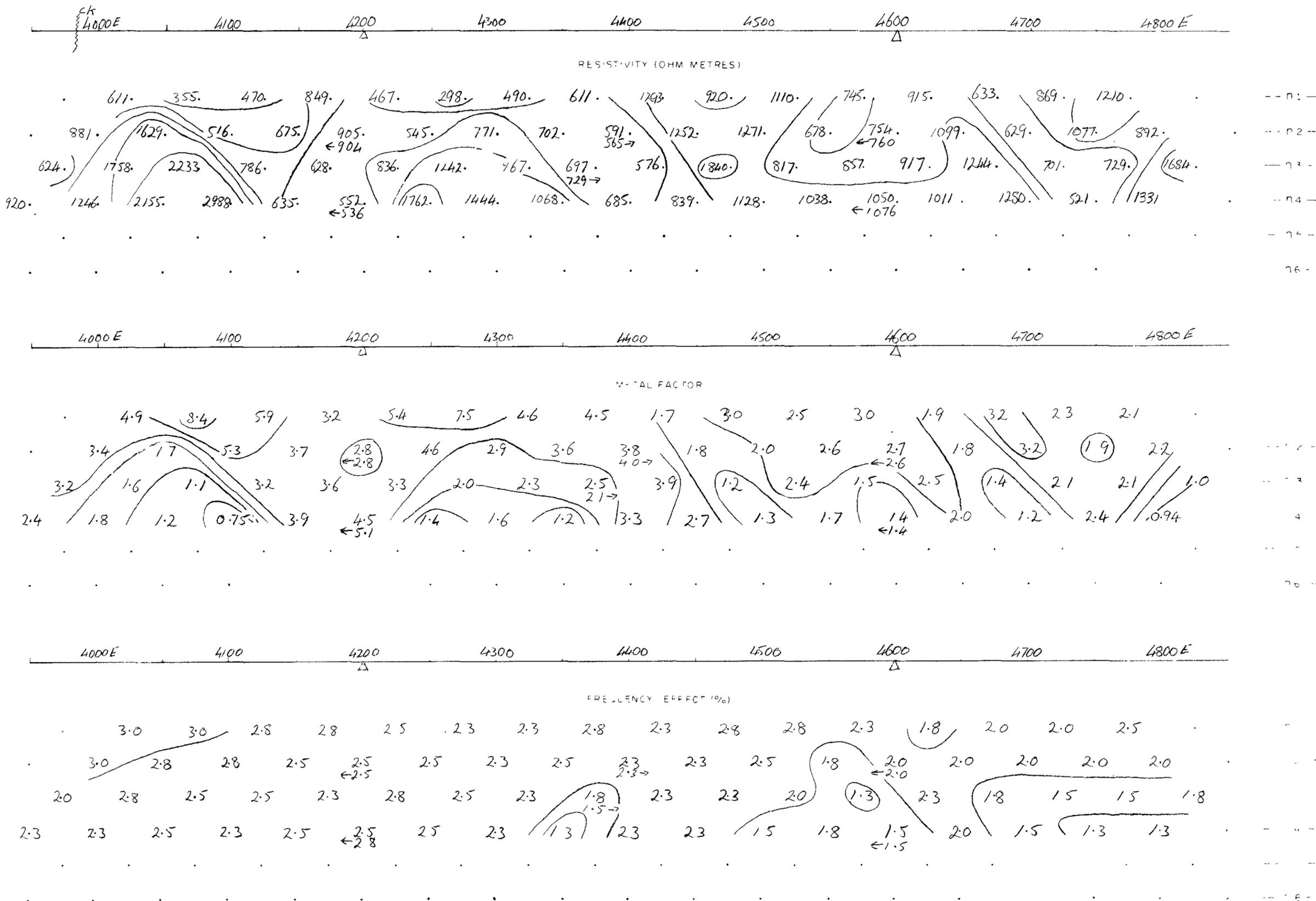
TRANSMITTER SERIAL NUMBER Tx 123

RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 13<sup>TH</sup> + 14<sup>TH</sup> FEB., 1978

CREW LEADER J.M.



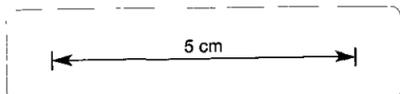


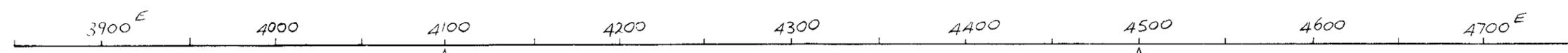
# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT *ABMINCO*  
 AREA *HATFIELD*  
 LINE NO *3700 N*

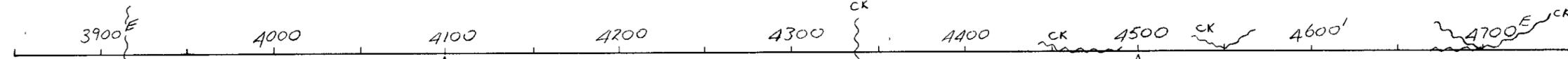
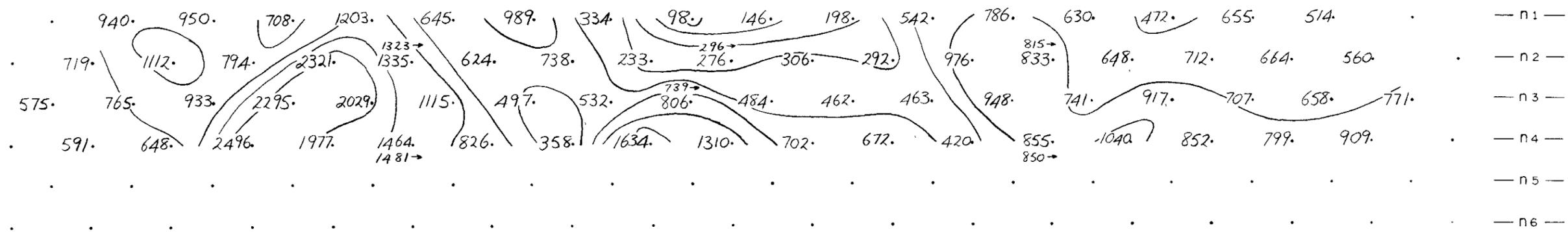
### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL *50m*  
 FREQUENCIES *0.3/2.5 Hz*  
 ELECTRODES *SINGLE ALFOIL*  
 TRANSMITTER SERIAL NUMBER *Tx 123*  
 RECEIVER SERIAL NUMBER *Rx 225*  
 DATE OF SURVEY *13<sup>th</sup>-15<sup>th</sup> FEB, 1978*  
 CREW LEADER *G.M.*

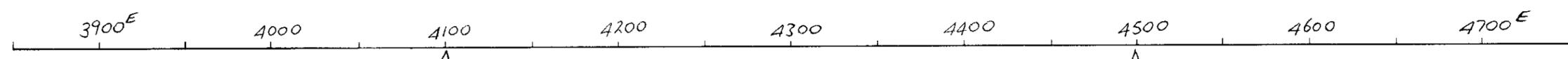
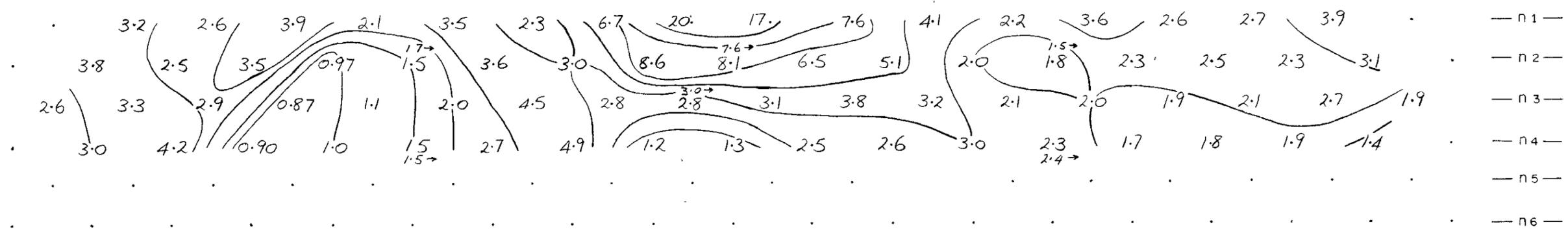




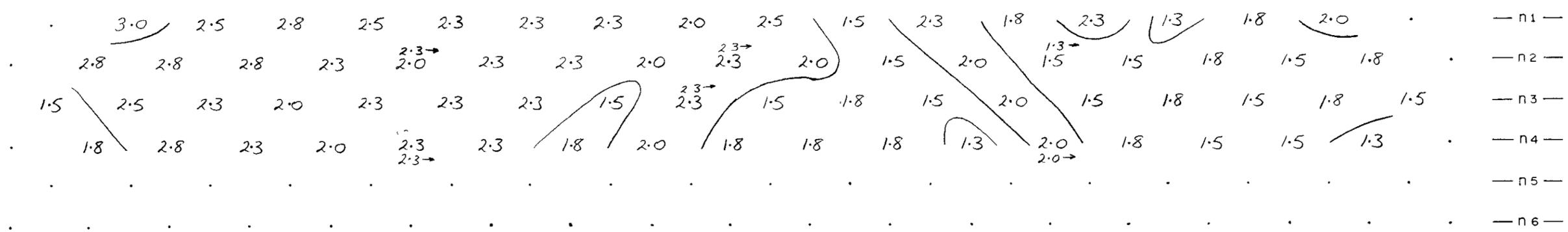
RESISTIVITY (OHM METRES)



METAL FACTOR



FREQUENCY EFFECT (%)

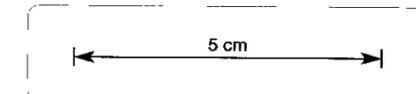


# INDUCED POLARISATION AND RESISTIVITY SURVEY

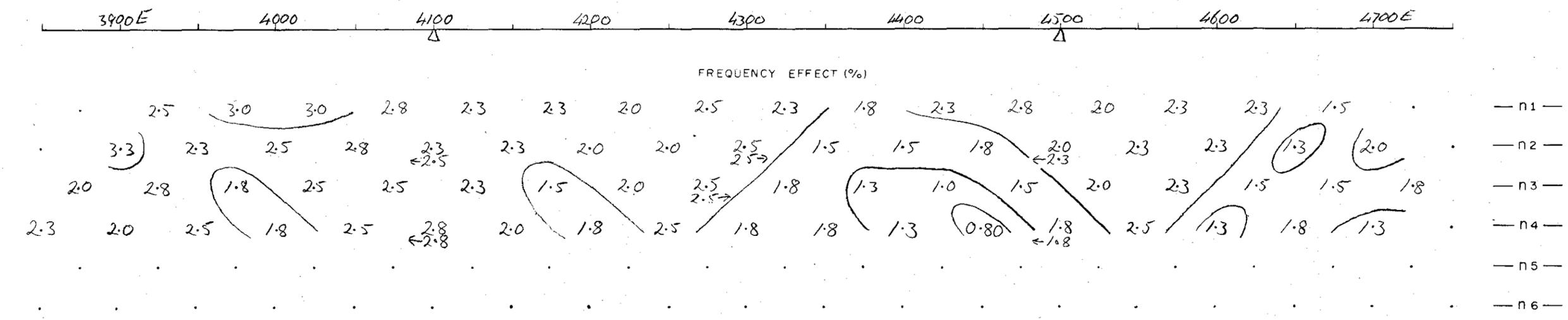
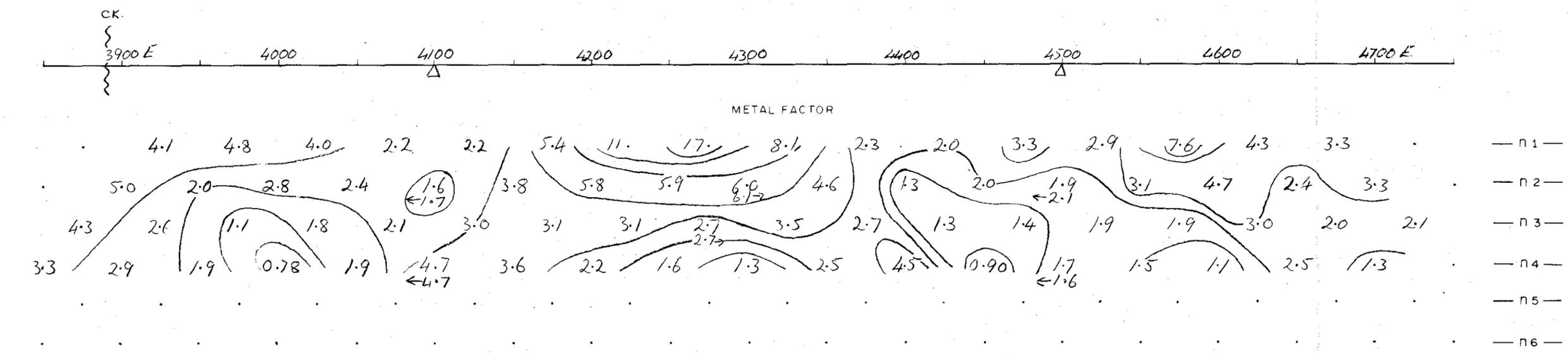
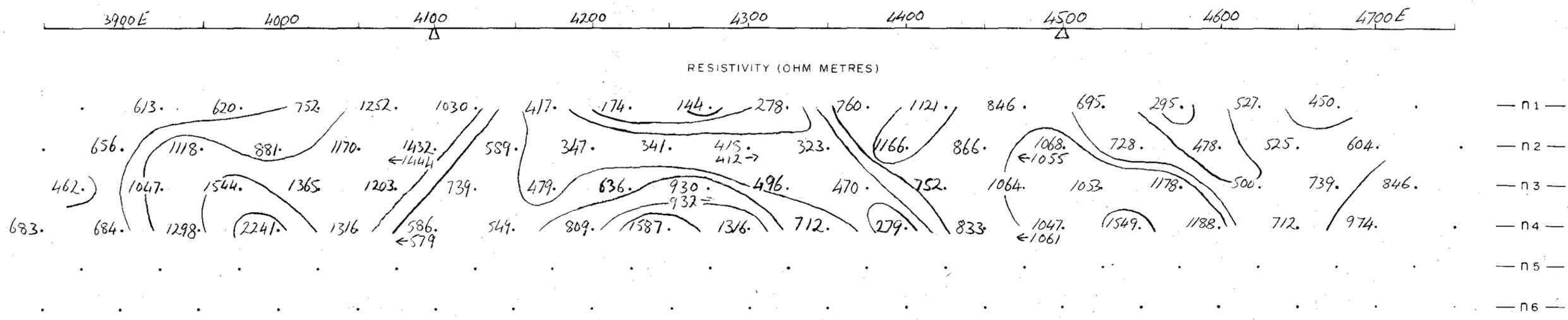
CLIENT *ABMINCO*  
AREA *HATFIELD*  
LINE NO *3800<sup>N</sup>*

## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL *50m*  
FREQUENCIES *0.3/2.5 Hz*  
ELECTRODES *SINGLE ALFOIL*  
TRANSMITTER SERIAL NUMBER *Tx 123*  
RECEIVER SERIAL NUMBER *Rx 225*  
DATE OF SURVEY *12<sup>TH</sup> + 15<sup>TH</sup> FEB, 1978*  
CREW LEADER *J.M.*



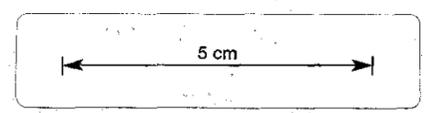
GEOEX PTY LTD ADELAIDE, SOUTH AUSTRALIA

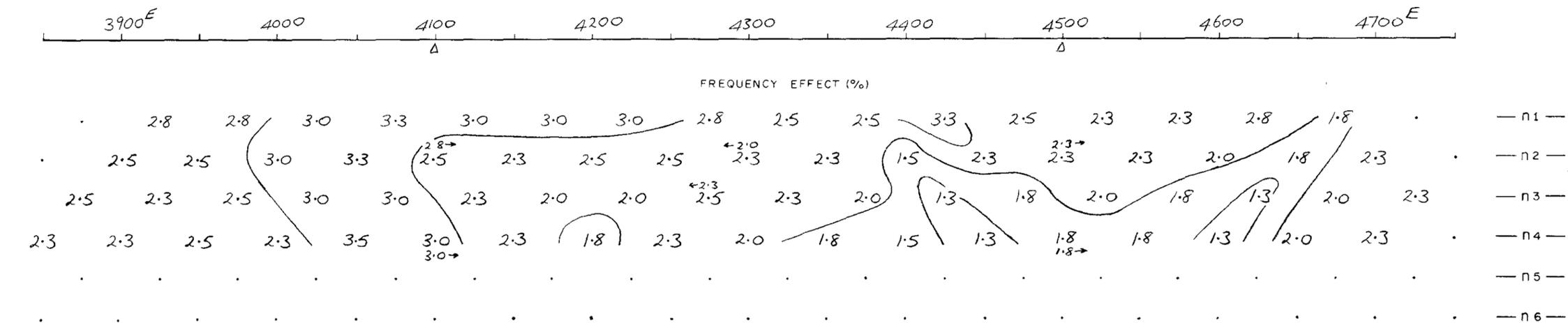
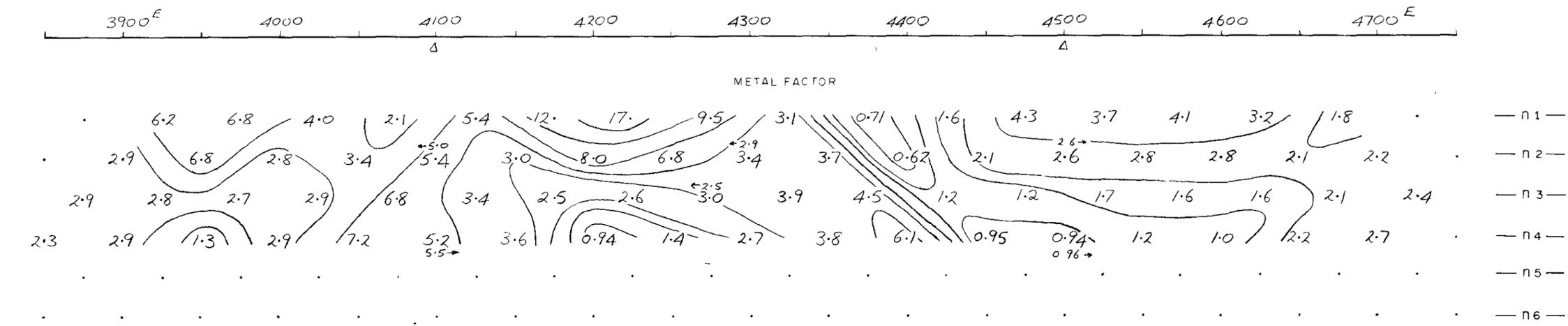
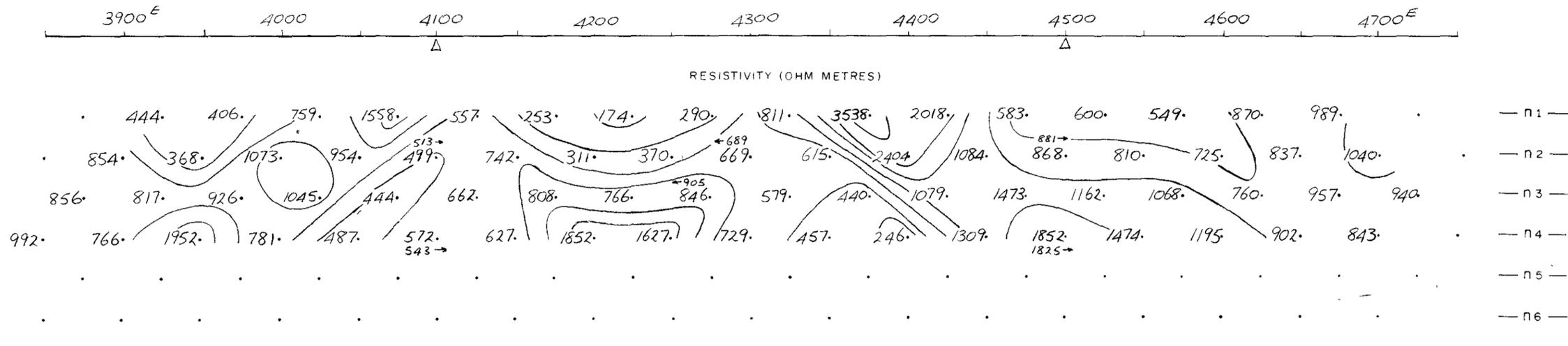


# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
 AREA HATFIELD  
 LINE NO 3900N

SURVEY SPECIFICATIONS  
 ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER TX 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 11<sup>th</sup> + 16<sup>th</sup> FEB 1978  
 CREW LEADER G.M.



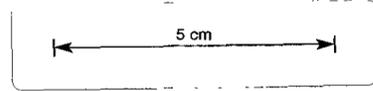


# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
 AREA HATFIELD  
 LINE NO 4000<sup>N</sup>

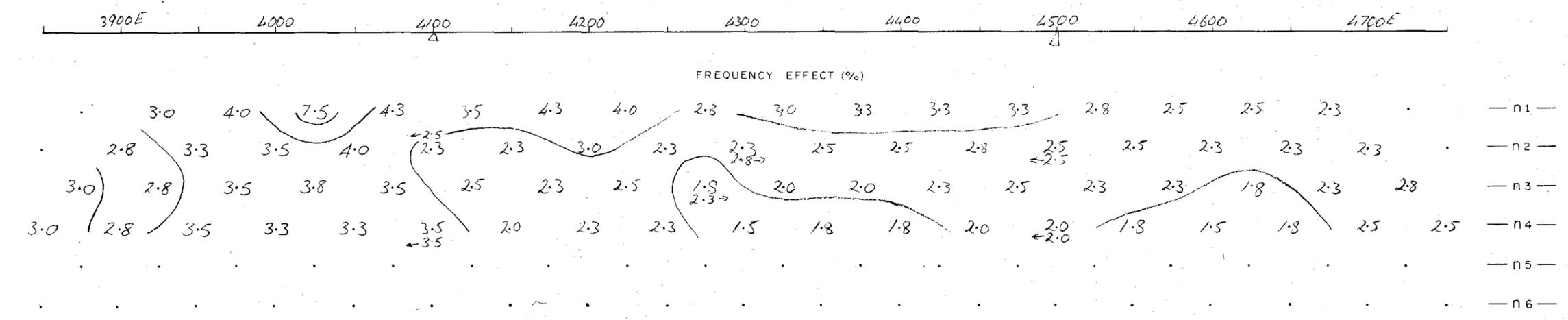
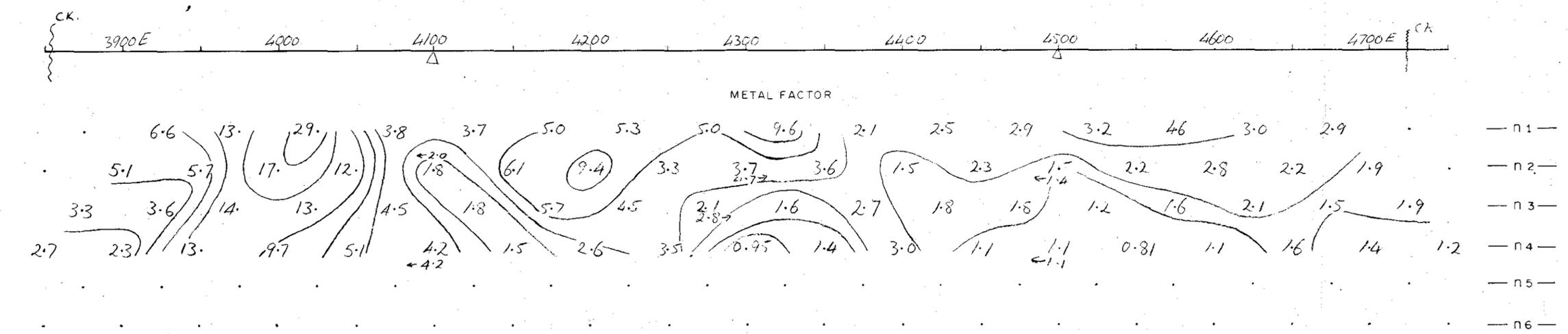
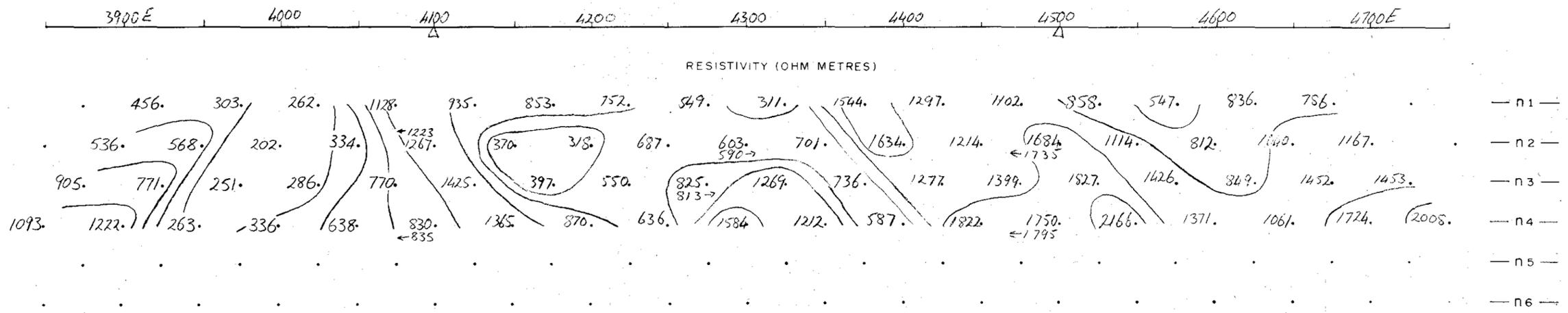
### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER  
 SERIAL NUMBER Tx 123  
 RECEIVER  
 SERIAL NUMBER Rx 225  
 DATE OF SURVEY 10<sup>th</sup> + 16<sup>th</sup> FEB., 1978  
 CREW LEADER J.M.



GEOEX PTY LTD ADELAIDE, SOUTH AUSTRALIA

APPROVED	PROJECT	DWG N°
----------	---------	--------



# INDUCED POLARISATION AND RESISTIVITY SURVEY

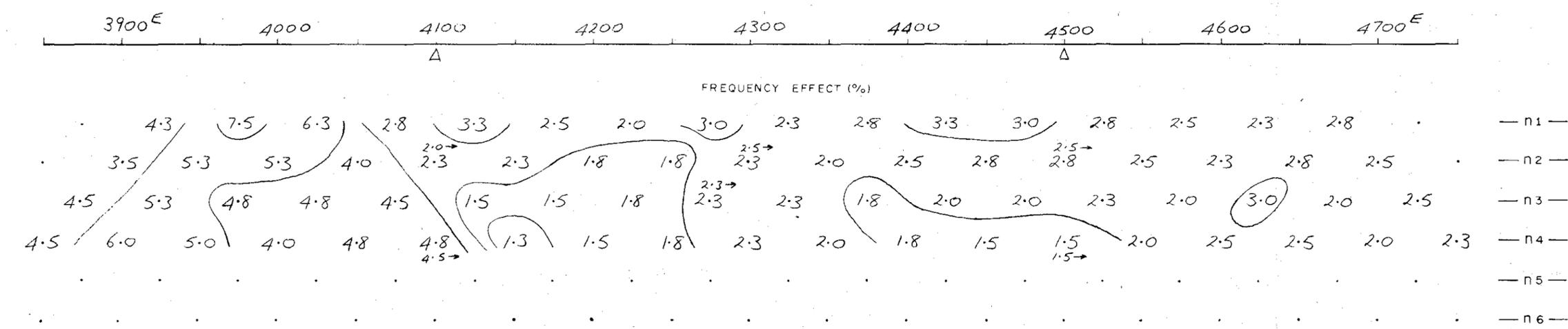
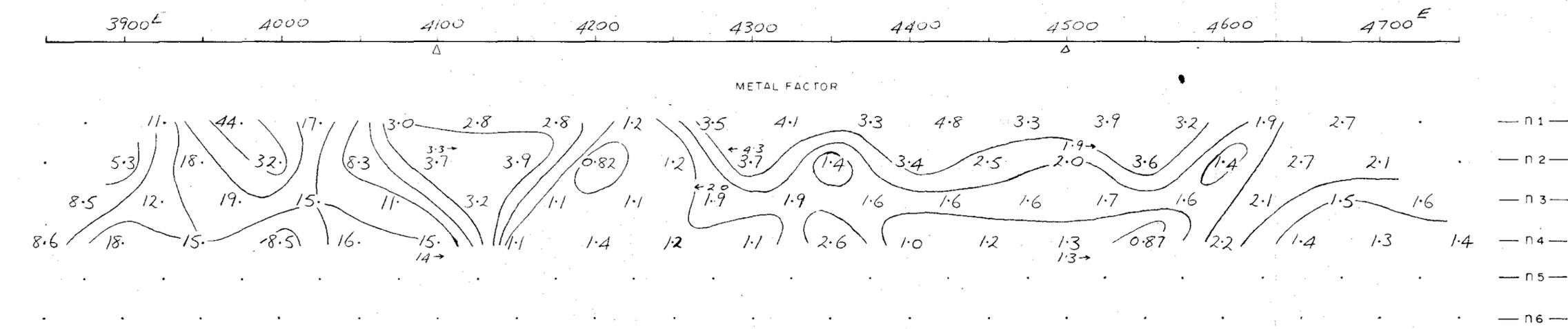
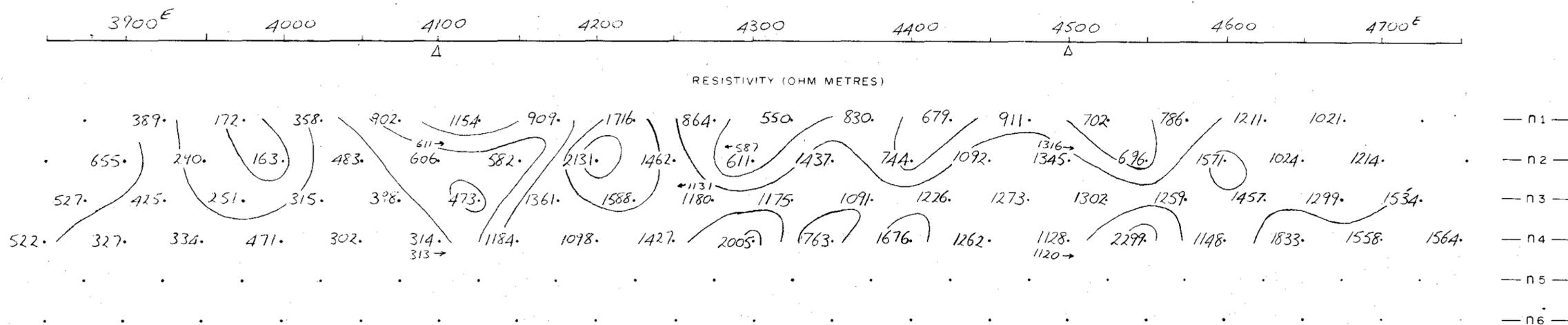
CLIENT ABMINCO  
 AREA HATFIELD  
 LINE NO 4100N

SURVEY SPECIFICATIONS  
 ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER TX 123  
 RECEIVER SERIAL NUMBER RX 225  
 DATE OF SURVEY 10<sup>th</sup> - 16<sup>th</sup> FEB 1978  
 CREW LEADER G. III



GEOEX PTY LTD. ADELAIDE, SOUTH AUSTRALIA

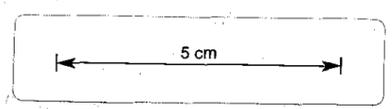
APPROVED: PROJECT: DWG. NO:



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
 AREA HATFIELD  
 LINE NO 4200<sup>N</sup>

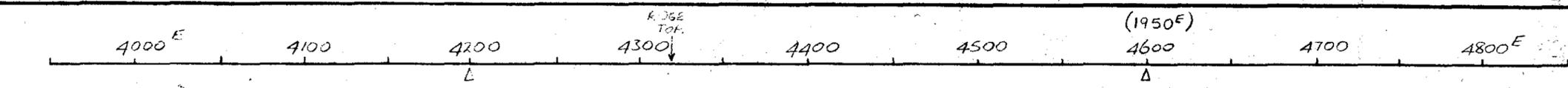
SURVEY SPECIFICATIONS  
 ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3 / 2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 8<sup>TH</sup> & 17<sup>TH</sup> FEB, 1978  
 CREW LEADER J.M.



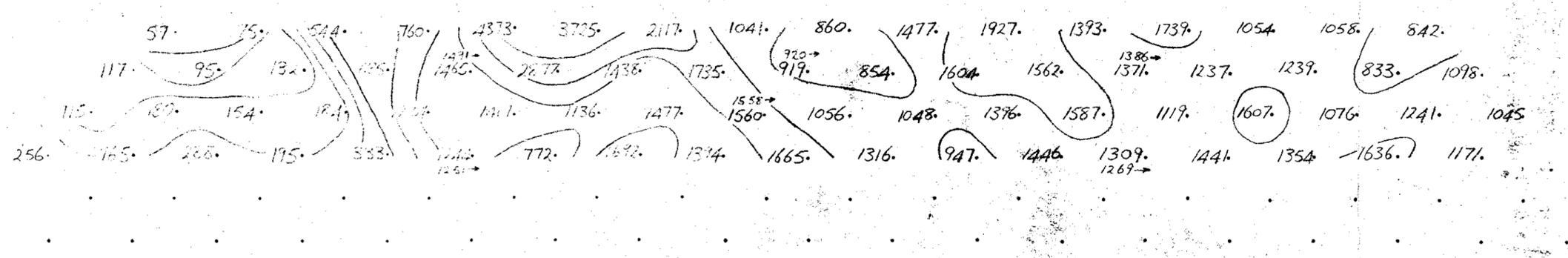
GEOEX PTY LTD ADELAIDE, SOUTH AUSTRALIA

APPROVED: \_\_\_\_\_ PROJECT: \_\_\_\_\_ DWG. NO: \_\_\_\_\_

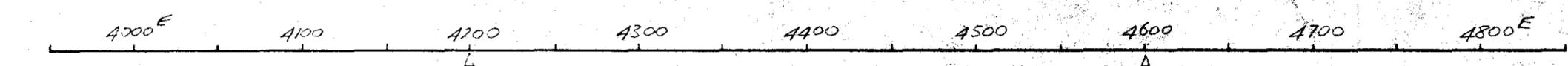




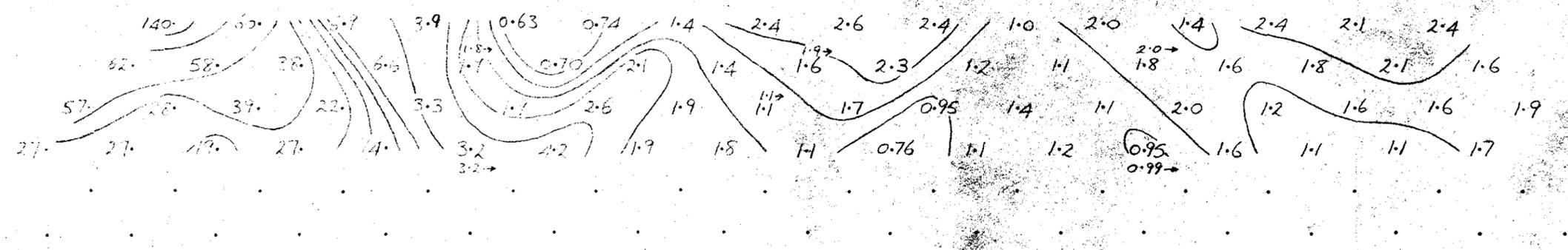
RESISTIVITY (OHM METRES)



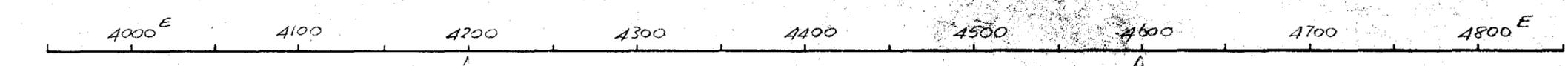
- n1 -
- n2 -
- n3 -
- n4 -
- n5 -
- n6 -



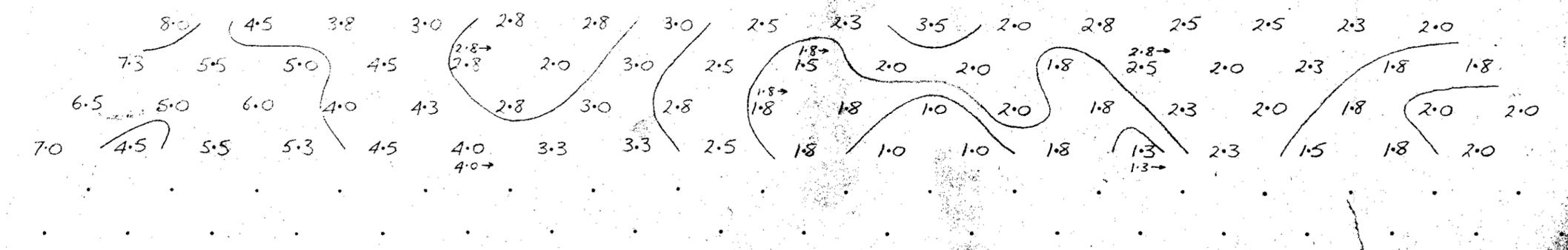
METAL FACTOR



- n1 -
- n2 -
- n3 -
- n4 -
- n5 -
- n6 -

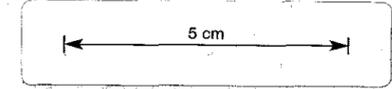


FREQUENCY EFFECT (%)



- n1 -
- n2 -
- n3 -
- n4 -
- n5 -
- n6 -

# INDUCED POLARISATION AND RESISTIVITY SURVEY



CLIENT ABMINCO  
 AREA HATFIELD

LINE NO 4400<sup>N</sup> (MT. CHARTER)

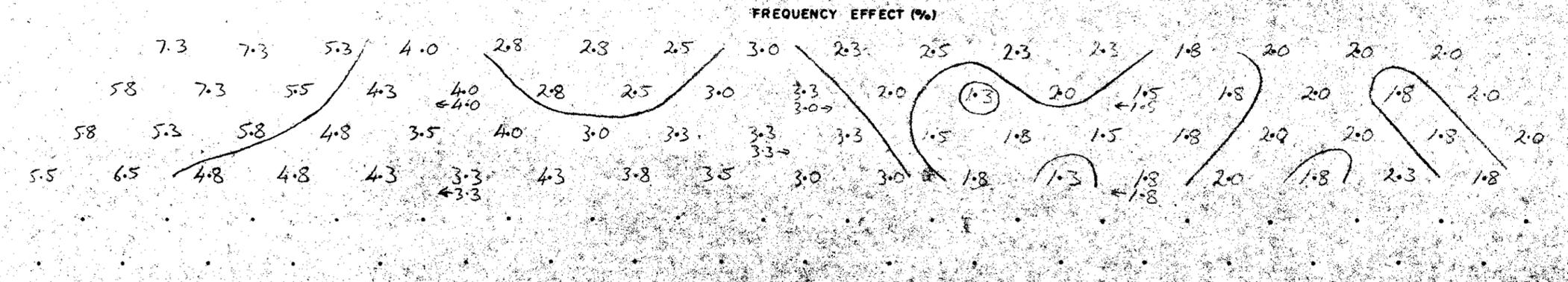
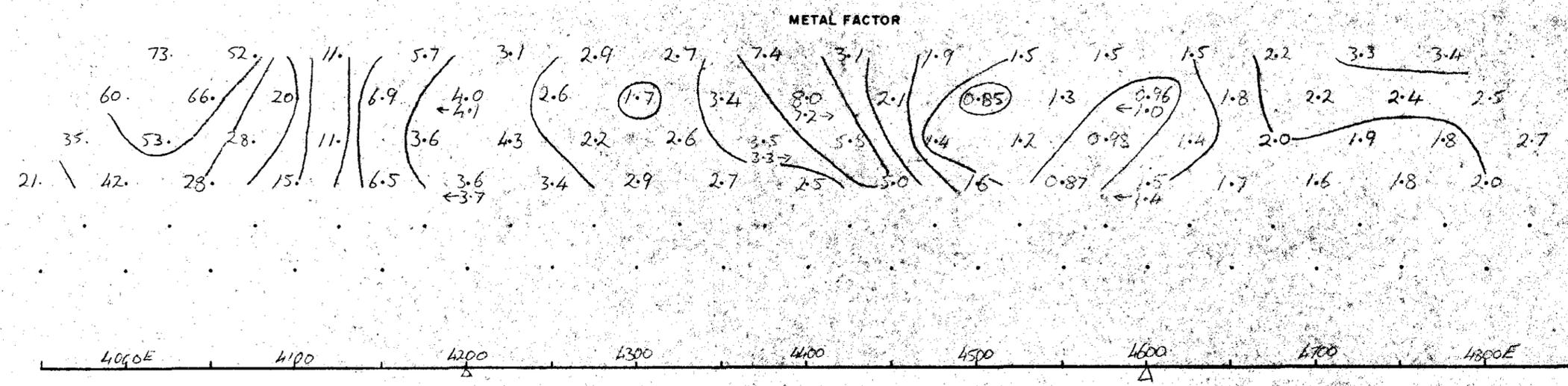
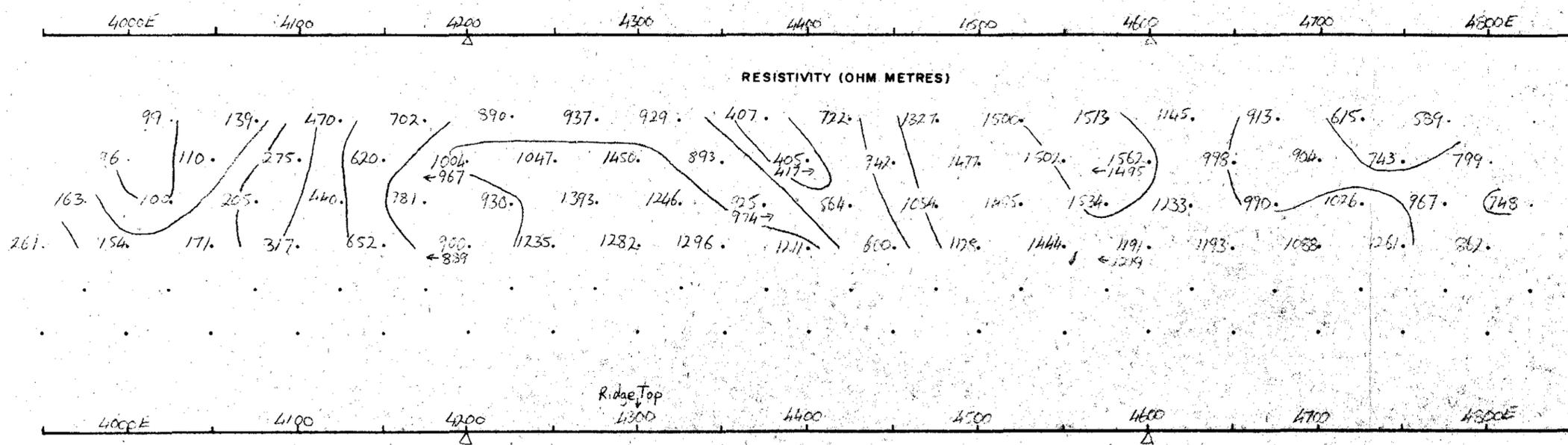
## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5Hz  
 ELECTRODES SINGLE FLFOIL  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 7<sup>TH</sup> + 18<sup>TH</sup> FEB, 1978  
 PLOTTED BY JM

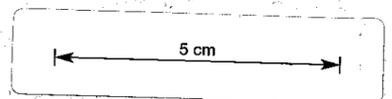
INTERPRETATION .....  
 FINAL CHECK .....  
 DISTRIBUTED .....

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWS: NY



- n1 -
- n2 -
- n3 -
- n4 -
- n5 -
- n6 -



# INDUCED POLARISATION AND RESISTIVITY SURVEY

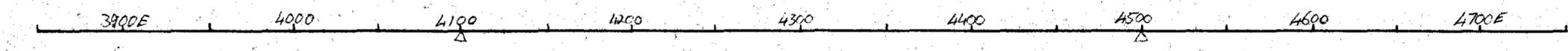
CLIENT ADAMCO  
 AREA HATFIELD

LINE NO 4500N

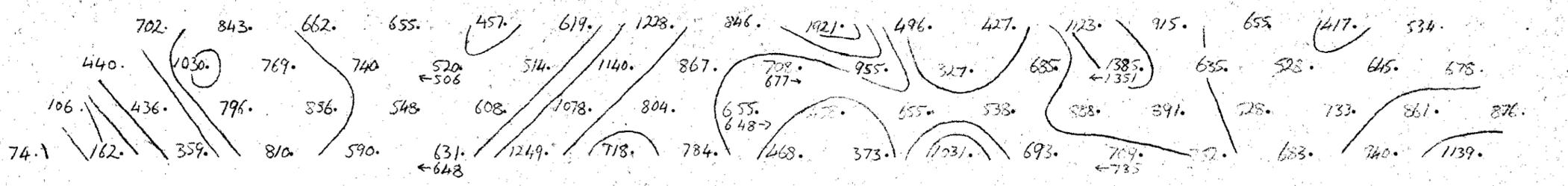
**SURVEY SPECIFICATIONS**

ELECTRODE INTERVAL	50m
FREQUENCIES	0.3/2.5 Hz
ELECTRODES	SINGLE AIRFOIL
TRANSMITTER SERIAL NUMBER	Tx 123
RECEIVER SERIAL NUMBER	Rx 275
DATE OF SURVEY	8 <sup>th</sup> + 18 <sup>th</sup> Feb, 1978
PLOTTED BY	M.H.
INTERPRETATION	
FINAL CHECK	
DISTRIBUTED	
GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA	

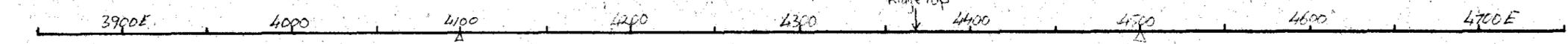




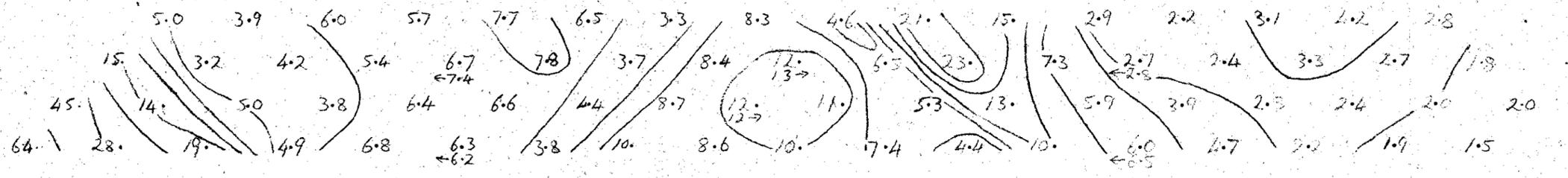
RESISTIVITY (OHM METRES)



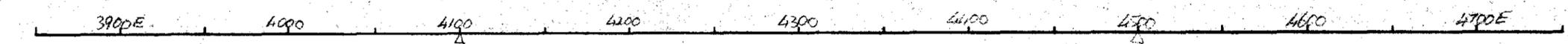
n1  
n2  
n3  
n4  
n5  
n6



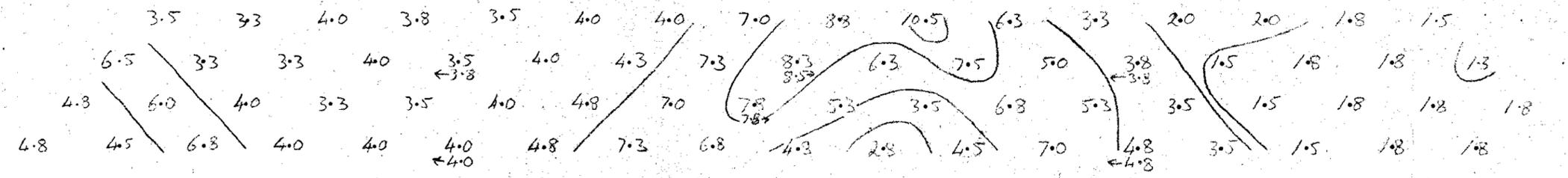
METAL FACTOR



n1  
n2  
n3  
n4  
n5  
n6



FREQUENCY EFFECT (%)



n1  
n2  
n3  
n4  
n5  
n6

# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

LINE NO 4700N

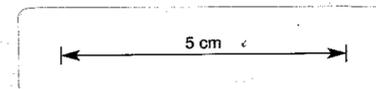
## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 5<sup>th</sup> 19<sup>th</sup> FEB, 1978  
 PLOTTED BY M.H.

INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWS. NY



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HOTFIELD

LINE NO A800<sup>N</sup>

## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5Hz

ELECTRODES SINGLE ALFOIL

TRANSMITTER SERIAL NUMBER Tx. 123

RECEIVER SERIAL NUMBER Rx. 225

DATE OF SURVEY 19<sup>TH</sup> FEB. 1978

PLOTTED BY J.M.

INTERPRETATION

FINAL CHECK

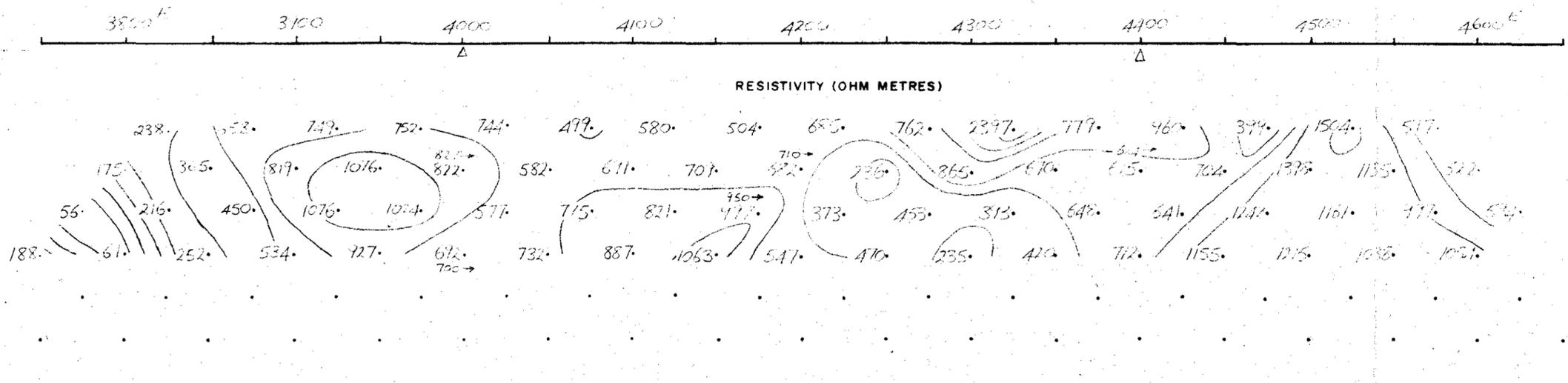
DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

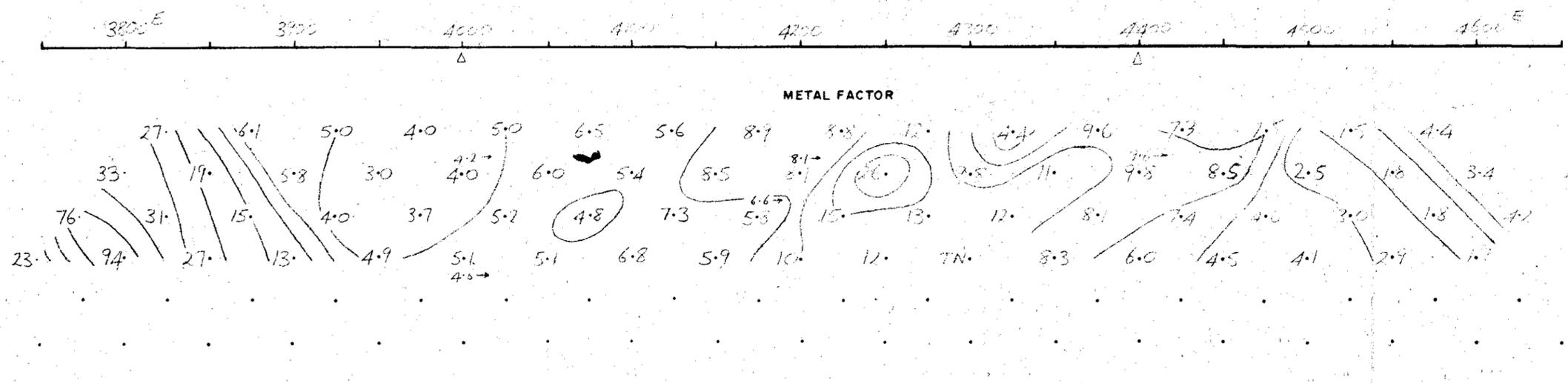
APPROVED: PROJECT: DWS. NY

- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —
- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —
- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —

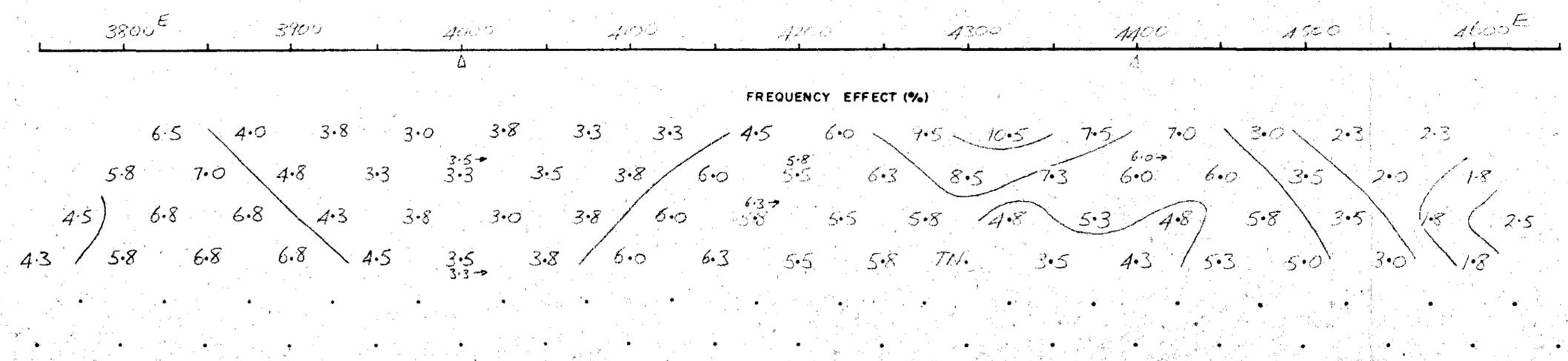
RESISTIVITY (OHM METRES)



METAL FACTOR



FREQUENCY EFFECT (%)

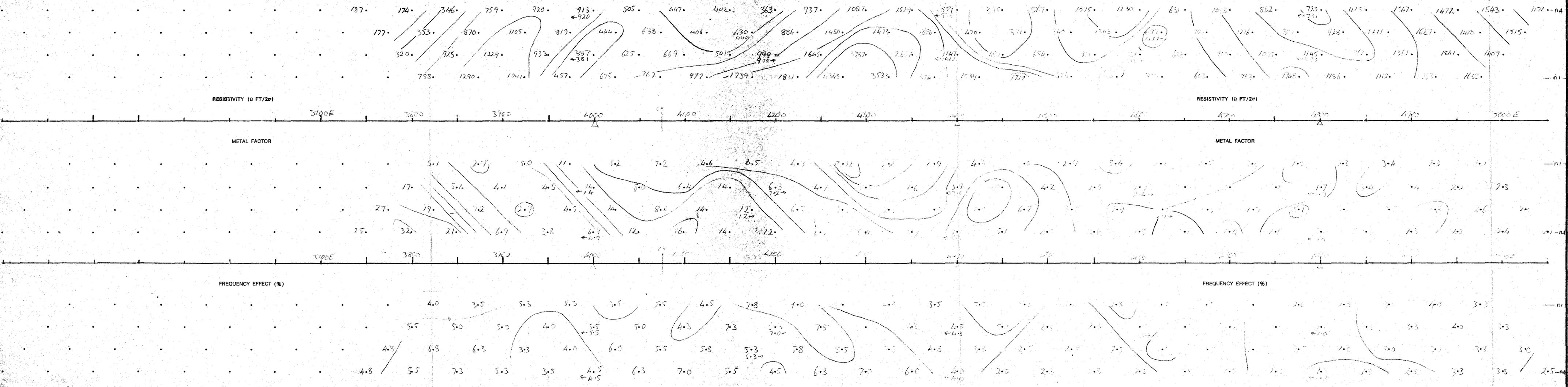
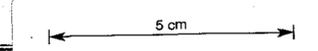




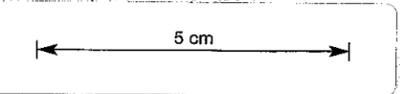
**McPHAR GEOPHYSICS PTY. LTD.**  
**I.P. SURVEY**

CLIENT ARMANCE  
 AREA HATFIELD  
 LINE 4900N  
 SPREAD 50m  
 FREQUENCIES 6.3/125 Hz  
 ELECTRODES SURFACE ALPINE  
 Tx SERIAL No. 11123  
 Rx SERIAL No. K1225  
 DATE OF SURVEY 3<sup>rd</sup> to 14<sup>th</sup> FEB, 1978  
 PLOTTED BY W.L.T.  
 FIELD CHECK W.L.T.

INTERPRETATION \_\_\_\_\_  
 FINAL CHECK \_\_\_\_\_  
 DISTRIBUTED \_\_\_\_\_



PTY. LTD.



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATFIELD

LINE NO 5000 N

## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5 Hz

ELECTRODES SINGLE ALFOIL

TRANSMITTER SERIAL NUMBER Tx 123

RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 3<sup>RD</sup> 20<sup>TH</sup> FEB, 1978

PLOTTED BY J.M.

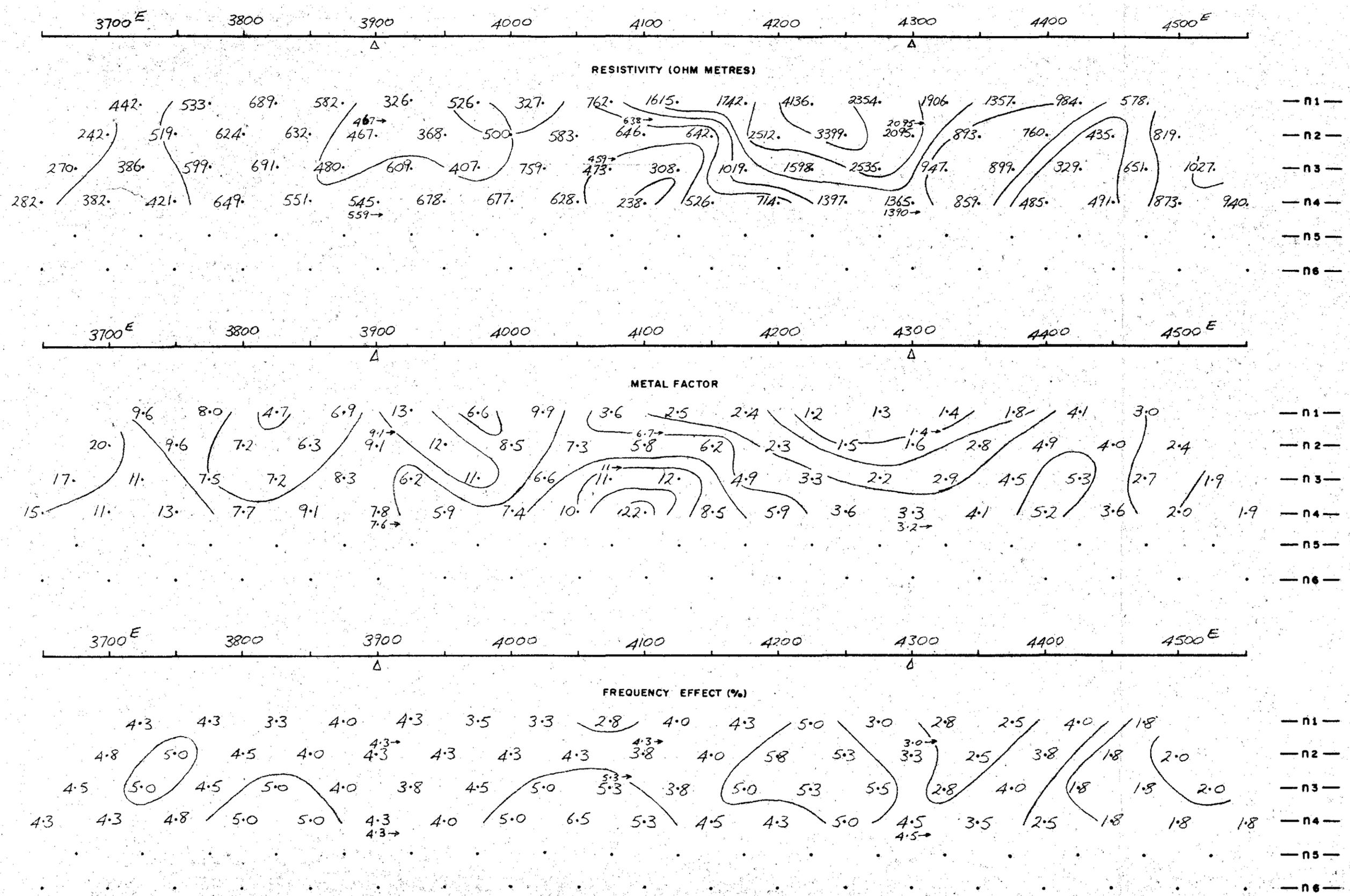
INTERPRETATION .....

FINAL CHECK .....

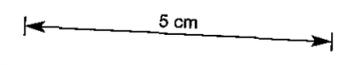
DISTRIBUTED .....

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWB. NY



PTY. LTD.



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATFIELD

LINE NO 5100N

## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5 Hz

ELECTRODES SAME ALFOIL

TRANSMITTER SERIAL NUMBER TX. 123

RECEIVER SERIAL NUMBER RX. 225

DATE OF SURVEY 21 FEB. 1978

PLOTTED BY M.H.

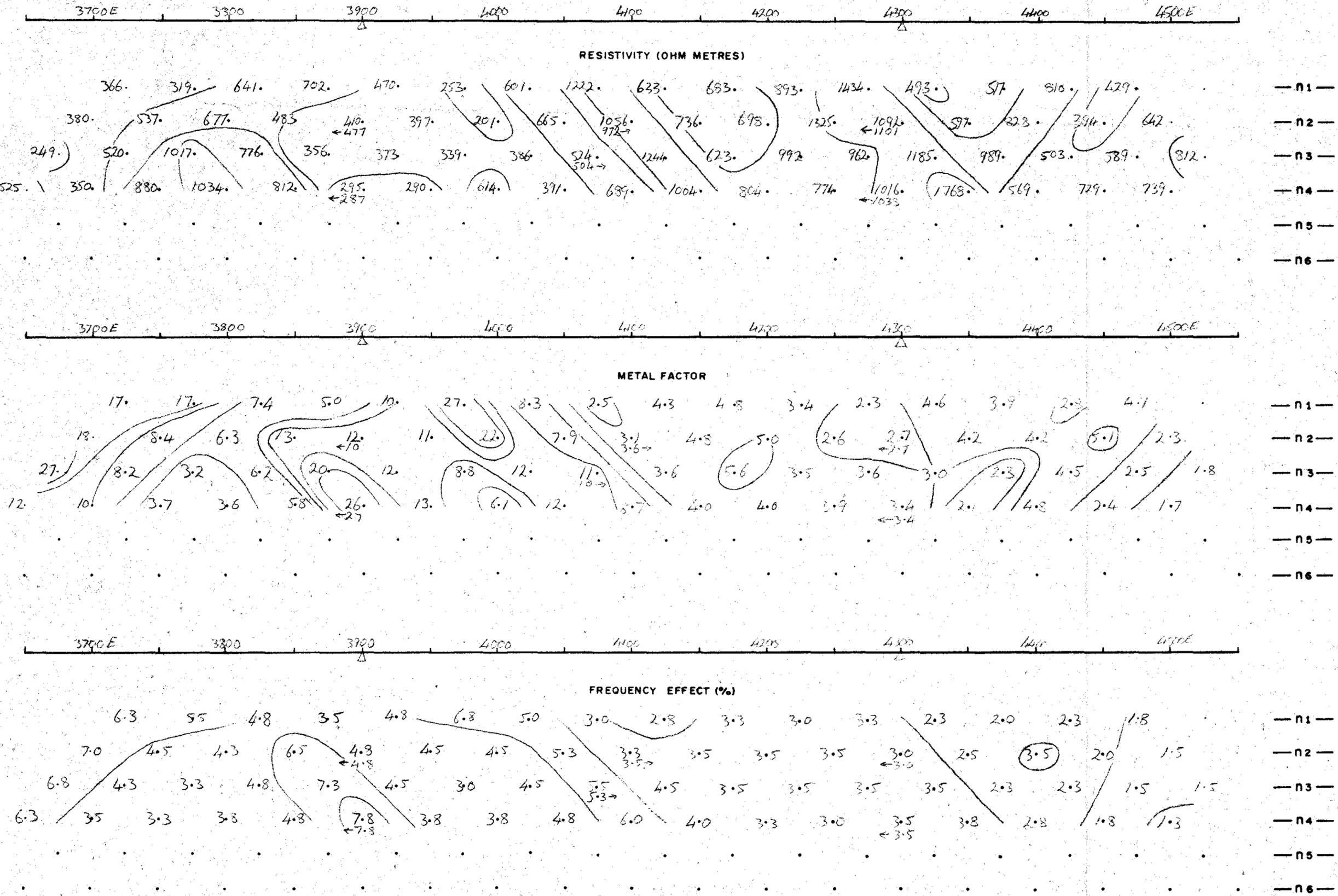
INTERPRETATION

FINAL CHECK

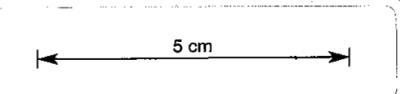
DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. NO:



PTY. LTD.



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATTFIELD

LINE NO 5200<sup>N</sup>

## SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5Hz  
 ELECTRODES SINGLE PIPER  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 2<sup>ND</sup> & 21<sup>ST</sup> FEB, 1978

PLOTTED BY G.M.

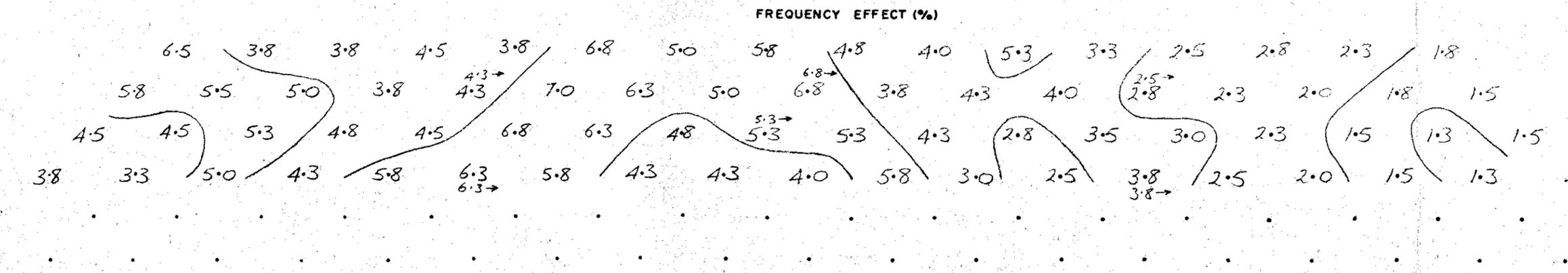
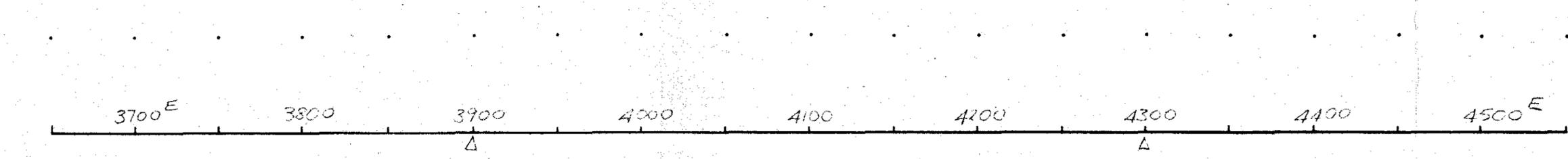
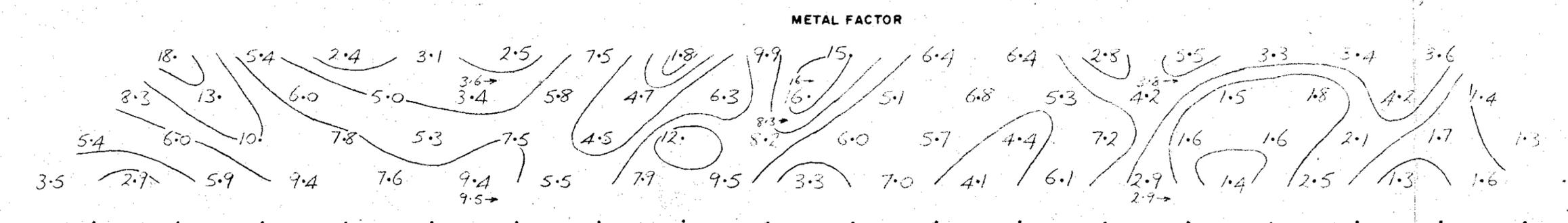
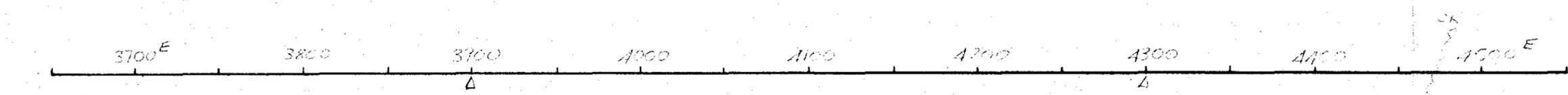
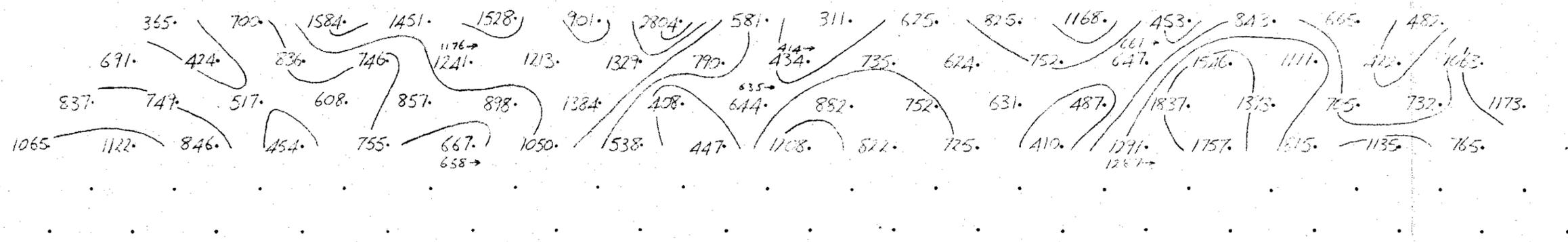
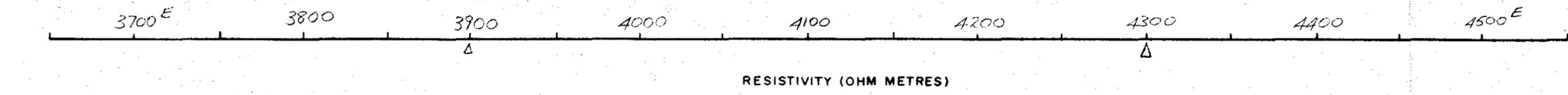
INTERPRETATION

FINAL CHECK

DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. NY



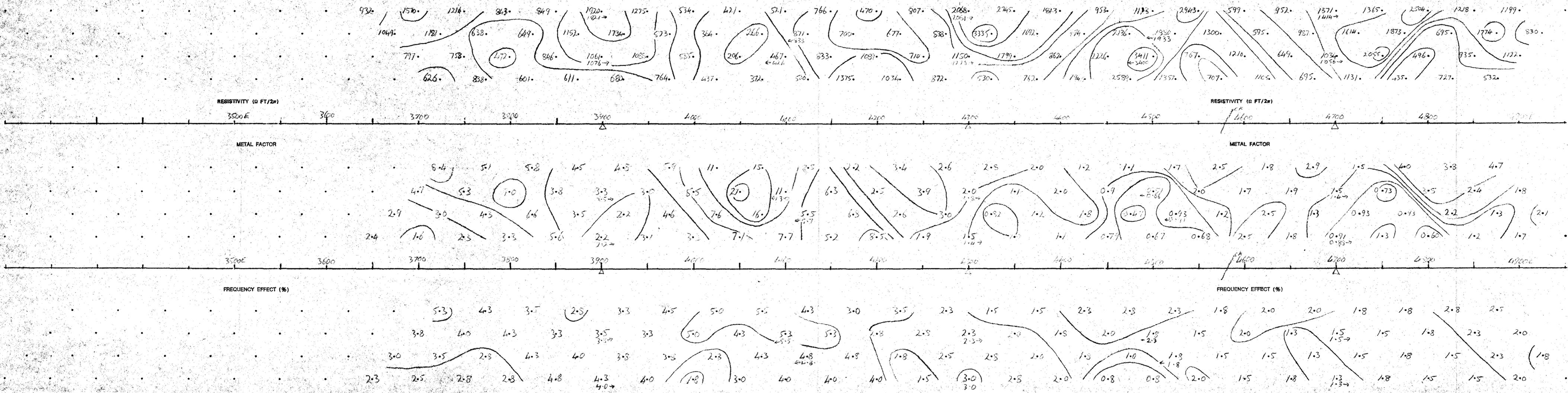
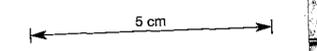
— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

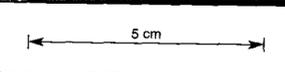


**McPHAR GEOPHYSICS PTY. LTD.**  
**I.P. SURVEY**

CLIENT ABMILCO  
 AREA HATFIELD  
 LINE 530011  
 SPREAD 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE HALF CELL  
 Tx SERIAL No. Tx 123  
 Rx SERIAL No. Rx 225  
 DATE OF SURVEY 26<sup>th</sup> JAN / FEB / 77  
 PLOTTED BY MH  
 FIELD CHECK \_\_\_\_\_

INTERPRETATION \_\_\_\_\_  
 FINAL CHECK \_\_\_\_\_  
 DISTRIBUTED \_\_\_\_\_





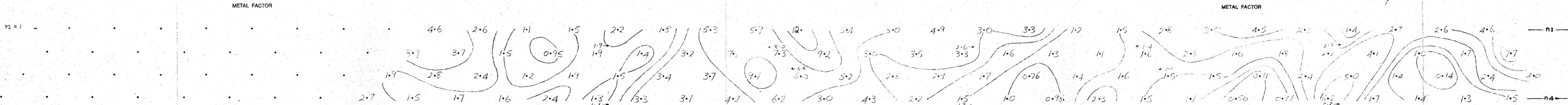
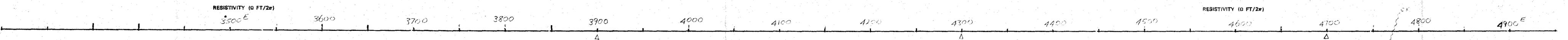
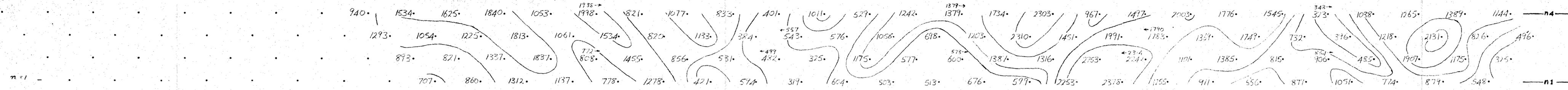
250040



### McPHAR GEOPHYSICS PTY. LTD. I.P. SURVEY

CLIENT ARMINGCO  
 AREA HATTFIELD  
 LINE 5400 N  
 SPREAD 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE PIPER  
 Tx SERIAL No. Tx 123  
 Rx SERIAL No. Rx 225  
 DATE OF SURVEY 25<sup>th</sup>, 27<sup>th</sup> JAN + 1<sup>st</sup> FEB, 1978  
 PLOTTED BY J.M.  
 FIELD CHECK \_\_\_\_\_

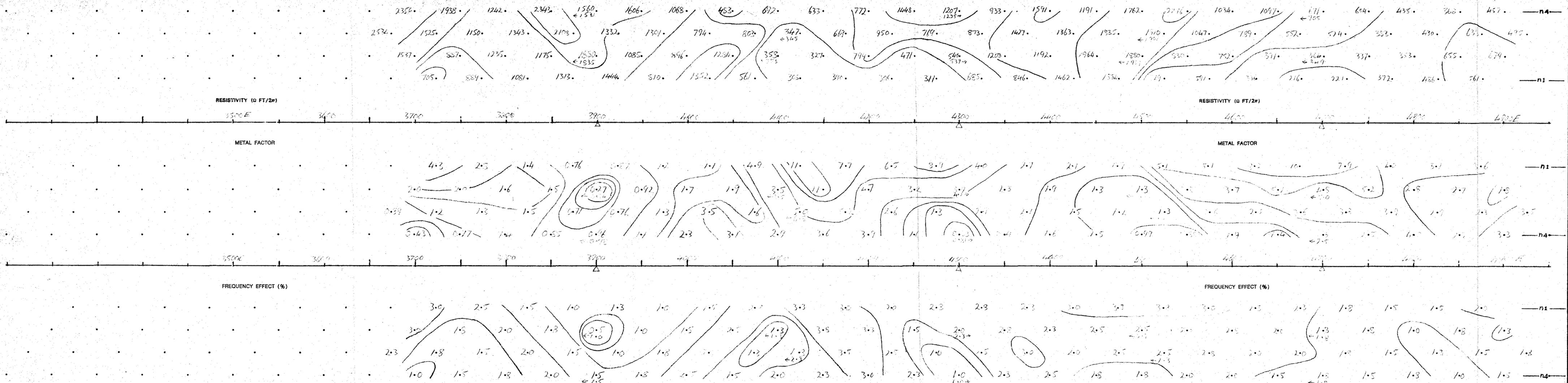
INTERPRETATION \_\_\_\_\_  
 FINAL CHECK \_\_\_\_\_  
 DISTRIBUTED \_\_\_\_\_





**McPHAR GEOPHYSICS PTY. LTD.**  
**I.P. SURVEY**

CLIENT ARMANDO  
 AREA HATFIELD  
 LINE 5500N  
 SPREAD 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 Tx SERIAL No. Tx 123  
 Rx SERIAL No. Rx 225  
 DATE OF SURVEY 25<sup>th</sup> 27<sup>th</sup> 28<sup>th</sup> 31<sup>st</sup> / 78  
 PLOTTED BY MLH  
 FIELD CHECK J.L.



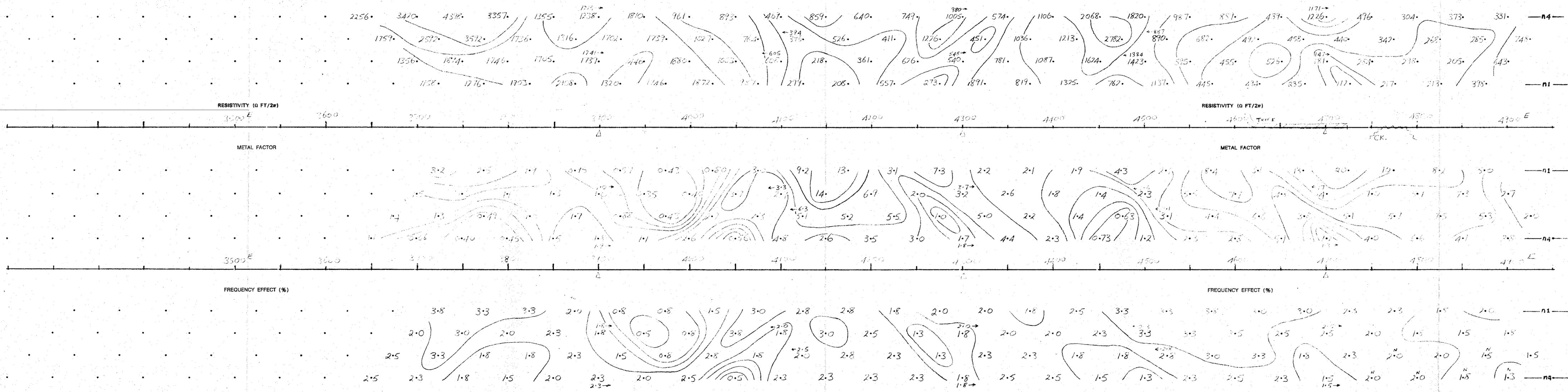
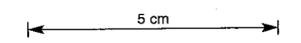
INTERPRETATION \_\_\_\_\_  
 FINAL CHECK \_\_\_\_\_  
 DISTRIBUTED \_\_\_\_\_



**McPHAR GEOPHYSICS PTY. LTD.**  
**I.P. SURVEY**

CLIENT ABMINCO  
 AREA HATFIELD  
 LINE 5600 N  
 SPREAD 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE PLEIOL  
 Tx SERIAL No. Tx 123  
 Rx SERIAL No. Rx 275  
 DATE OF SURVEY 27<sup>th</sup>, 28<sup>th</sup>, 30<sup>th</sup> JAN, 1978  
 PLOTTED BY JML  
 FIELD CHECK

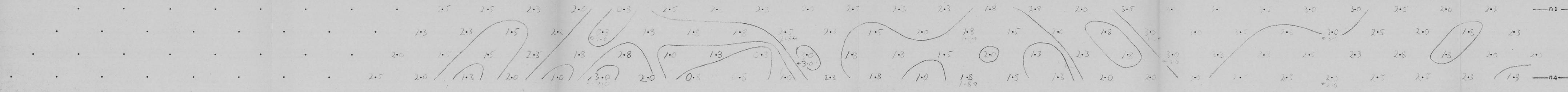
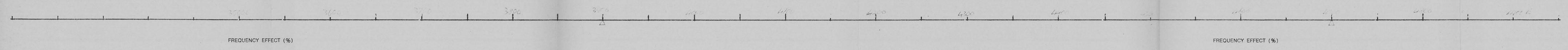
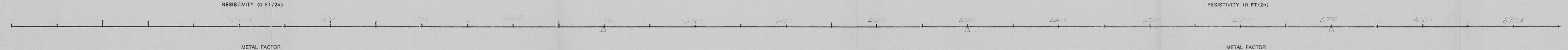
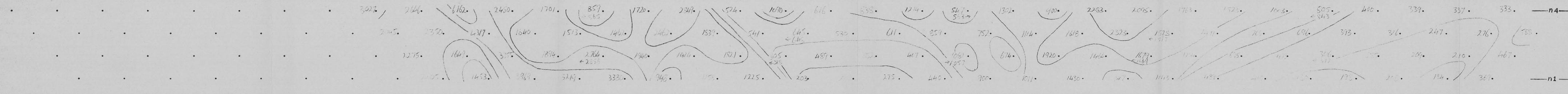
INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED



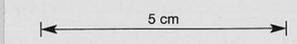


**McPHAR GEOPHYSICS PTY. LTD.**  
**I.P. SURVEY**

CLIENT: ARMY  
 AREA: PHILFIELD  
 LINE: 5700N  
 SPREAD: 70m  
 FREQUENCIES: 20, 100 Hz  
 ELECTRODES: 100m 441514  
 Tx SERIAL No.: TX 113  
 Rx SERIAL No.: RX 225  
 DATE OF SURVEY: 22<sup>nd</sup> 30<sup>th</sup> 11/78  
 PLOTTED BY: MLM  
 FIELD CHECK: G.M.



INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED





# McPHAR GEOPHYSICS PTY. LTD.

## I.P. SURVEY

CLIENT ABMINCO EXPLORATION

AREA HATFIELD

LINE 5800 N

SPREAD 50m

FREQUENCIES 0.3/2.5 Hz

ELECTRODES SINGLE FILFOIL

Tx SERIAL No. Tx 123

Rx SERIAL No. Rx 124

DATE OF SURVEY 22<sup>nd</sup> 29<sup>th</sup> JAN, 1978

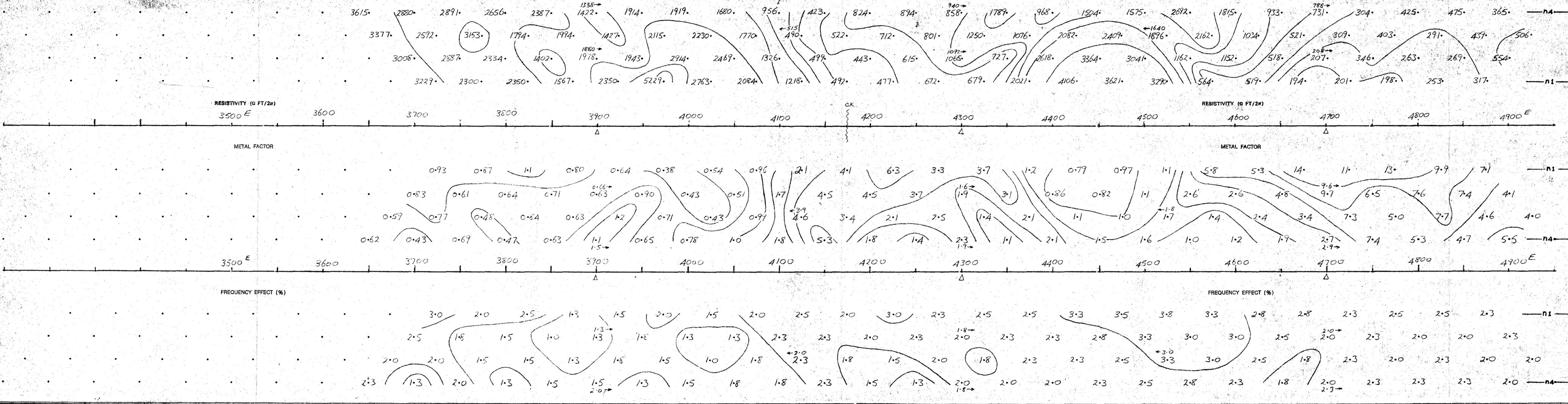
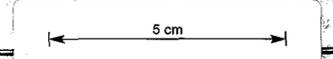
PLOTTED BY J.M.

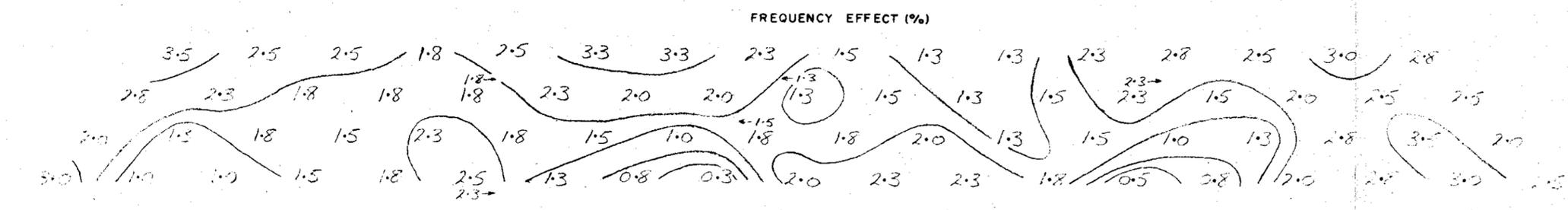
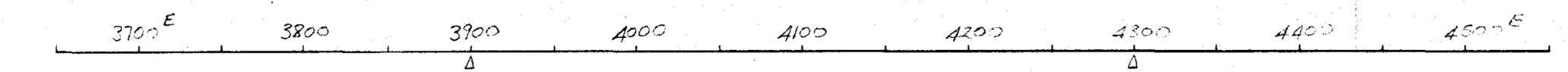
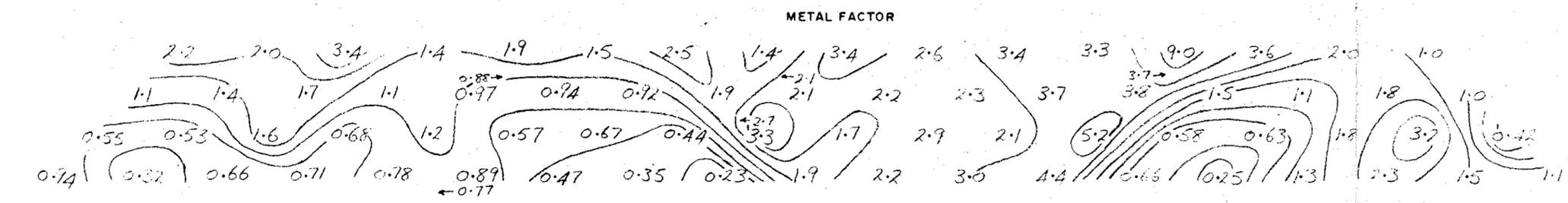
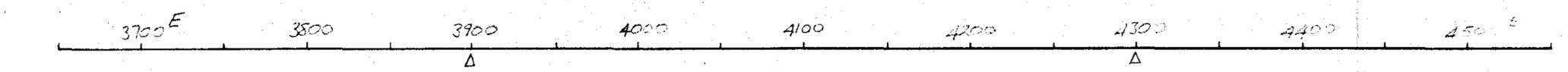
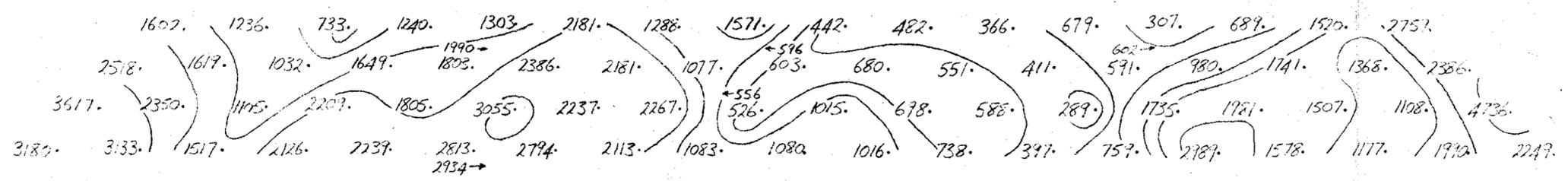
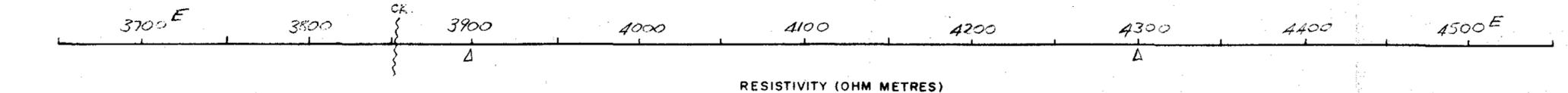
FIELD CHECK

INTERPRETATION

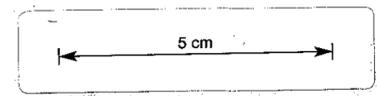
FINAL CHECK

DISTRIBUTED





- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT P.B.M.H.C.O.  
 AREA HATFIELD

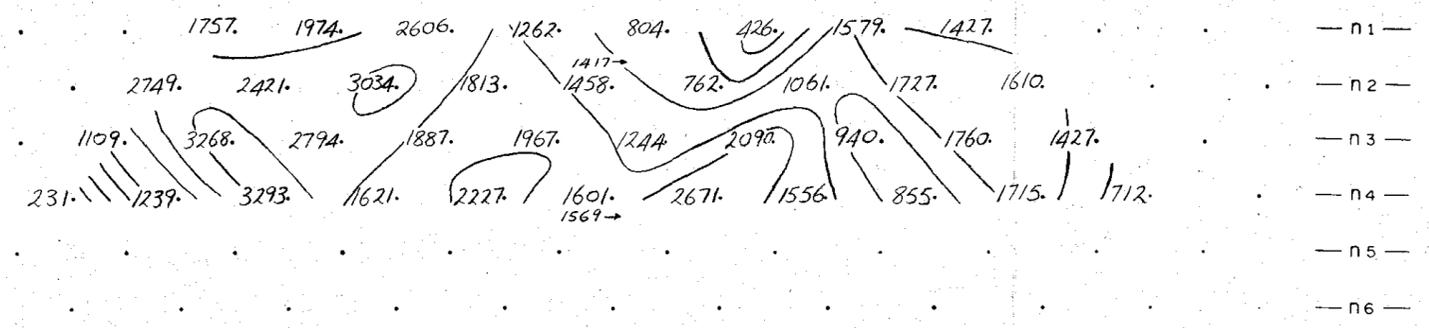
LINE NO 590011

SURVEY SPECIFICATIONS	
ELECTRODE INTERVAL	<u>50m</u>
FREQUENCIES	<u>0.3/2.5/10</u>
ELECTRODES	<u>SINGLE HALF</u>
TRANSMITTER SERIAL NUMBER	<u>TX 112</u>
RECEIVER SERIAL NUMBER	<u>111</u>
DATE OF SURVEY	<u>13.1.78</u>
PLOTTED BY	<u>J.S.</u>
INTERPRETATION	
FINAL CHECK	
DISTRIBUTED	
GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA	

APPROVED: PROJECT: DWG. N1

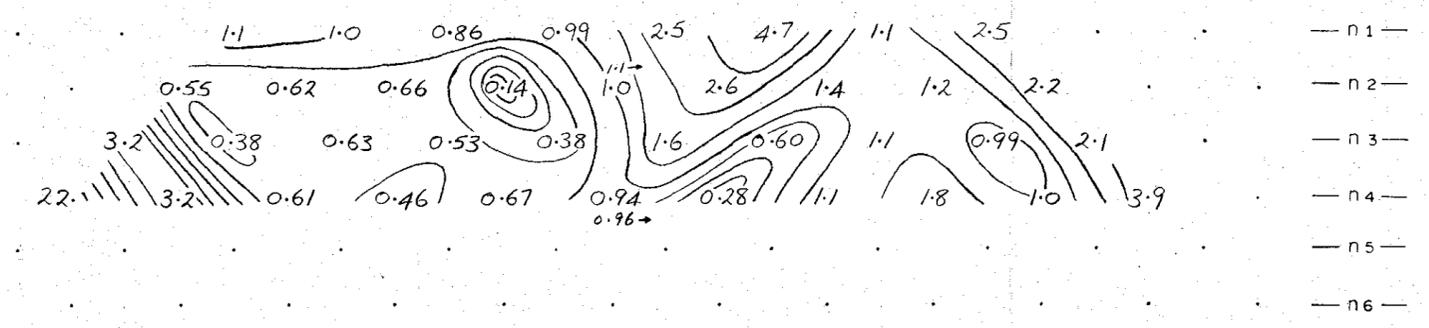
3300<sup>E</sup> 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

RESISTIVITY (OHM METRES)



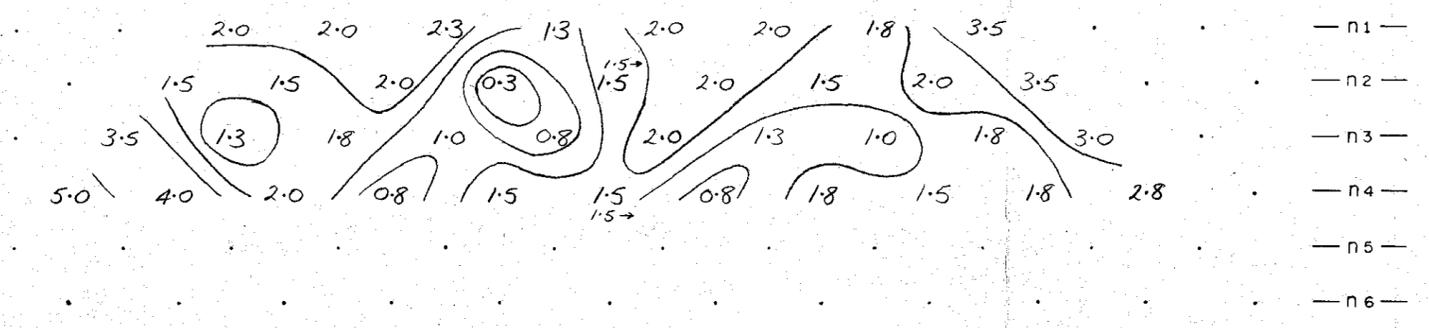
3300<sup>E</sup> 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

METAL FACTOR



3300<sup>E</sup> 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

FREQUENCY EFFECT (%)



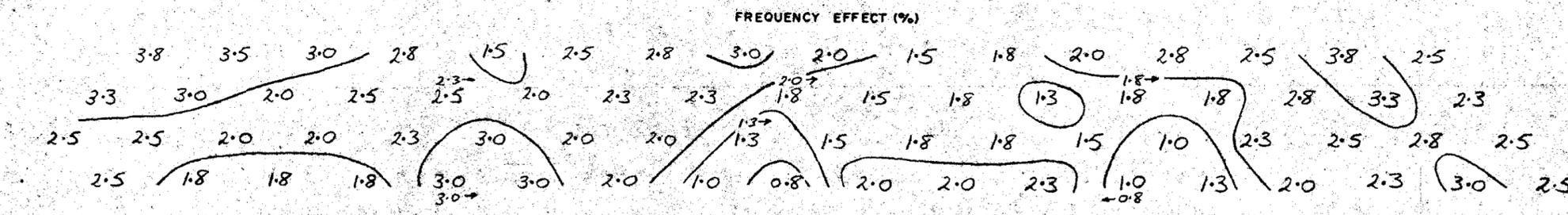
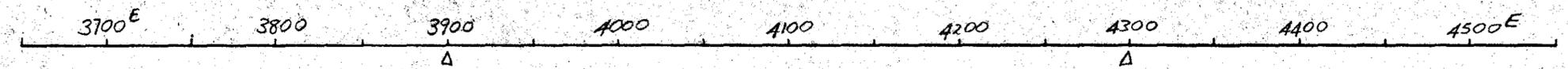
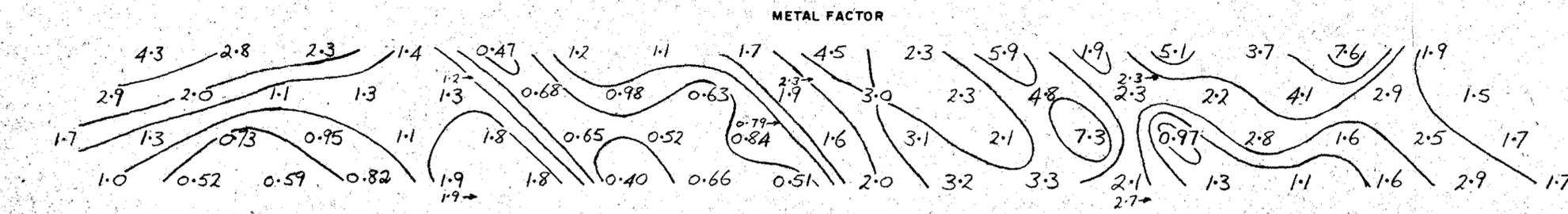
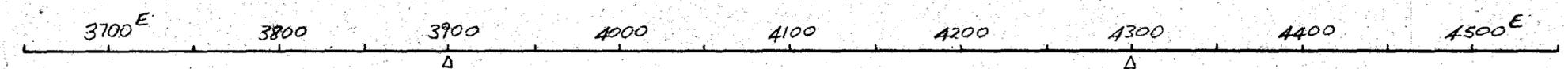
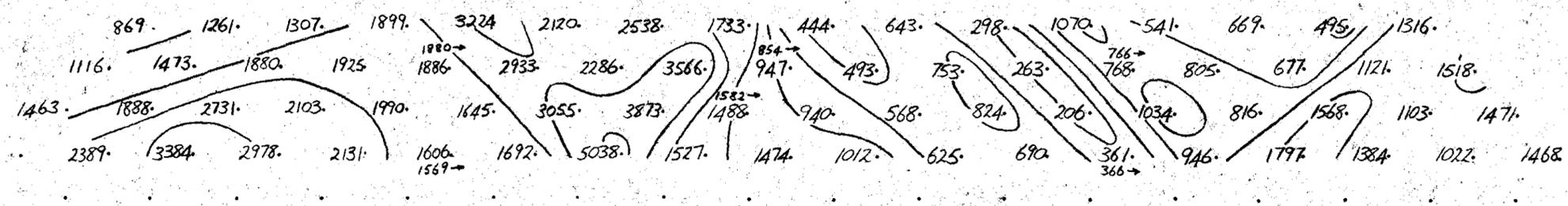
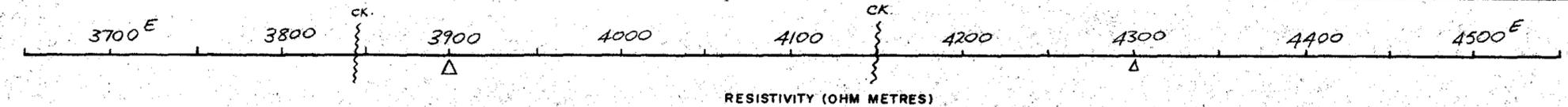
# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
 AREA HATFIELD  
 LINE NO 5900<sup>N</sup>

SURVEY SPECIFICATIONS  
 ELECTRODE INTERVAL 100 m.  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER  
 SERIAL NUMBER Tx 123  
 RECEIVER  
 SERIAL NUMBER Rx 225  
 DATE OF SURVEY 22<sup>ND</sup> FEB., 1978  
 CREW LEADER J.M.

GEOEX PTY LTD ADELAIDE, SOUTH AUSTRALIA

APPROVED: \_\_\_\_\_ PROJECT: \_\_\_\_\_ DWG. N<sup>o</sup>: \_\_\_\_\_



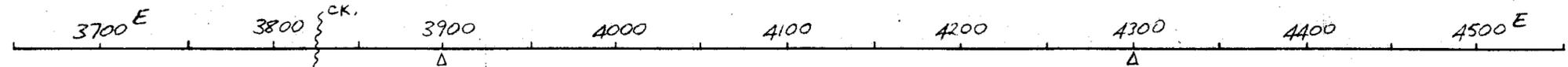
# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT FBMINCO

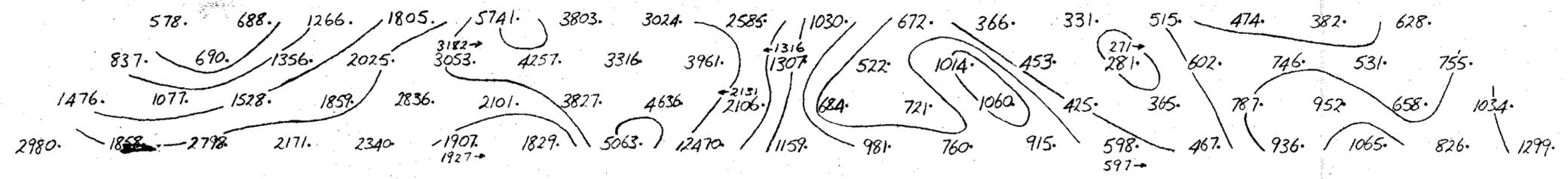
AREA HATFIELD

LINE NO 6000 N

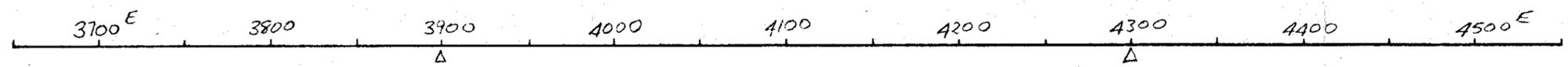
SURVEY SPECIFICATIONS	
ELECTRODE INTERVAL	50m
FREQUENCIES	0.3/2.5Hz
ELECTRODES	SINGLE PIPER
TRANSMITTER SERIAL NUMBER	Tx 123
RECEIVER SERIAL NUMBER	Rx 225
DATE OF SURVEY	17 <sup>th</sup> + 19 <sup>th</sup> JAN, 1978
PLOTTED BY	<u>J.M.</u>
INTERPRETATION	
FINAL CHECK	
DISTRIBUTED	
GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA	



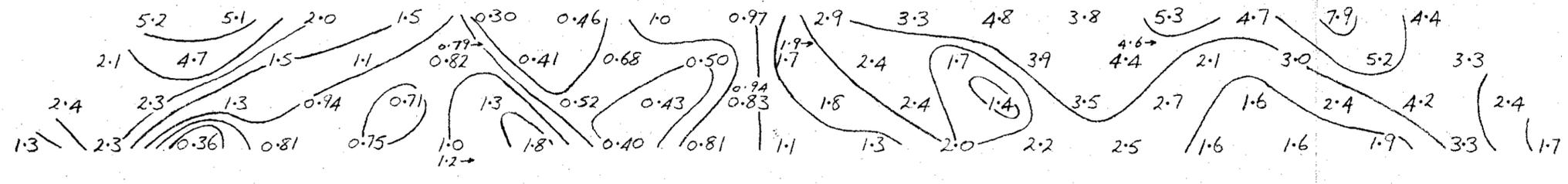
RESISTIVITY (OHM METRES)



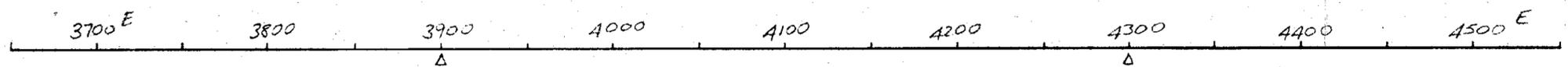
- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



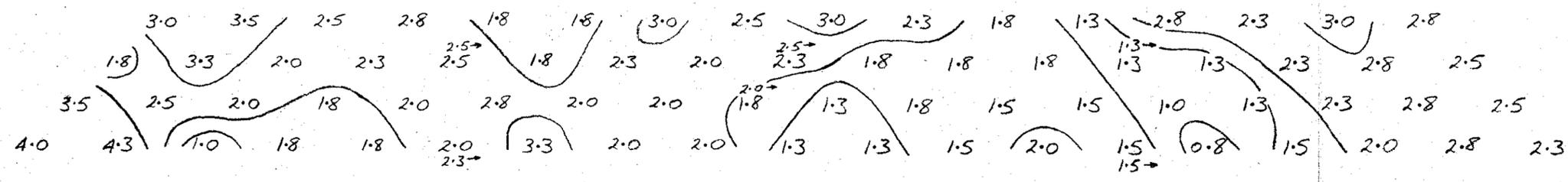
METAL FACTOR



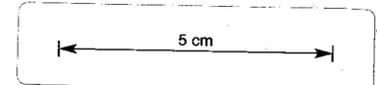
- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



FREQUENCY EFFECT (%)



- n1 —
- n2 —
- n3 —
- n4 —
- n5 —
- n6 —



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO

AREA HATFIELD

LINE NO 6100<sup>N</sup>

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50 m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 17<sup>th</sup> & 19<sup>th</sup> JAN, 1978

PLOTTED BY G.M.

INTERPRETATION

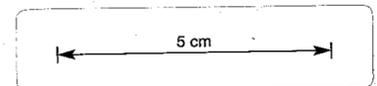
FINAL CHECK

DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. NO:

PTY. LTD.



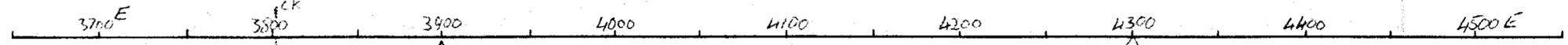
# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

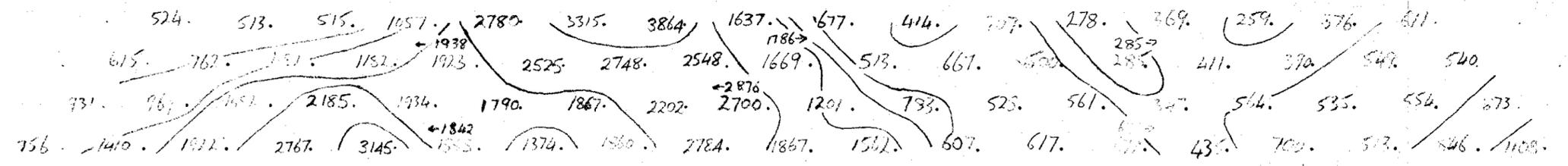
LINE NO 6200N

### SURVEY SPECIFICATIONS

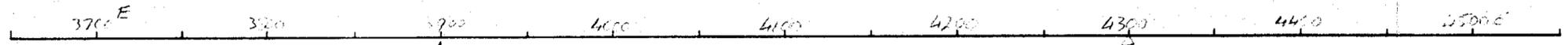
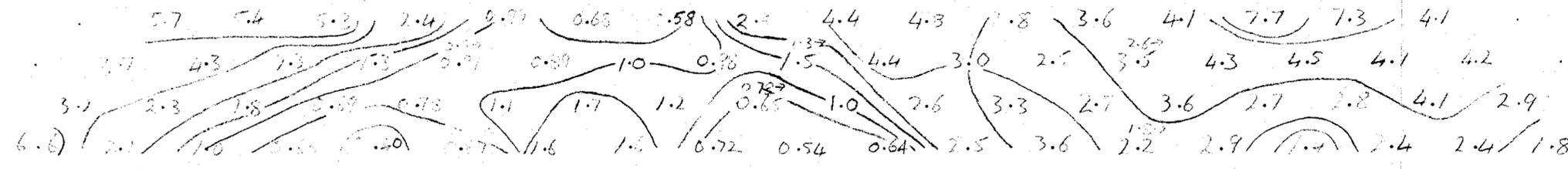
ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/245  
 ELECTRODES Single Half cell  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 17<sup>th</sup> 29<sup>th</sup> / 1/76  
 PLOTTED BY M.H.  
 INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED  
 GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA



RESISTIVITY (OHM METRES)



METAL FACTOR



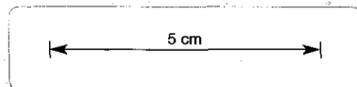
FREQUENCY EFFECT (%)



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

APPROVED: PROJECT: DWG. NY

PTY. LTD.



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ADMIRCO  
AREA HATFIELD

LINE NO 6300N

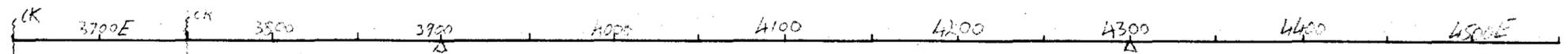
### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50 m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES single Alfoil  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 226  
 DATE OF SURVEY 17<sup>th</sup> Feb / 1/78  
 PLOTTED BY M.H.

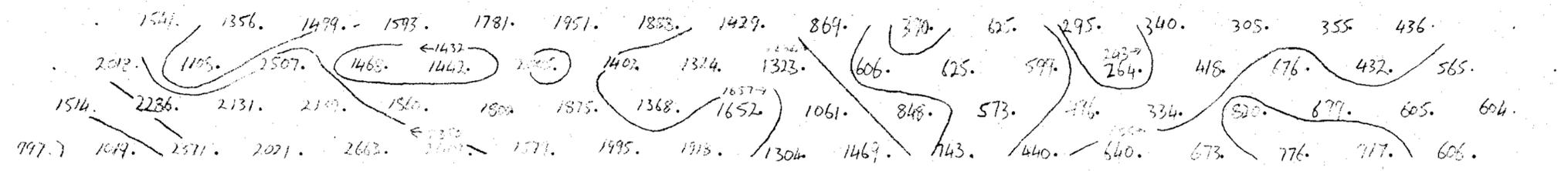
INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

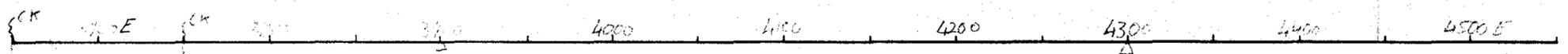
APPROVED: PROJECT: DWG. NO:



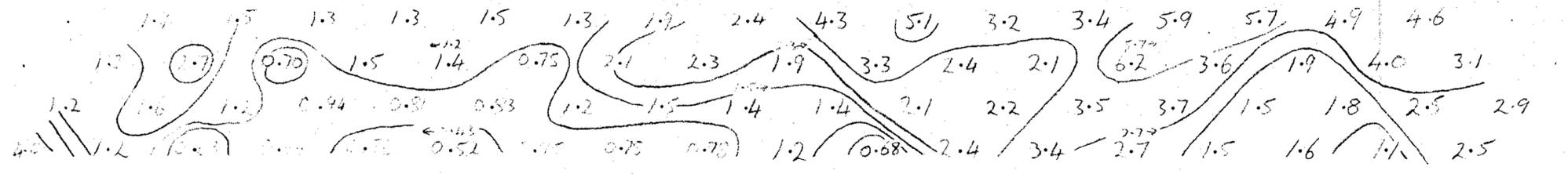
RESISTIVITY (OHM METRES)



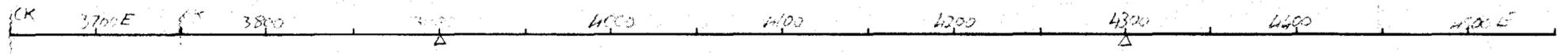
n1  
n2  
n3  
n4  
n5  
n6



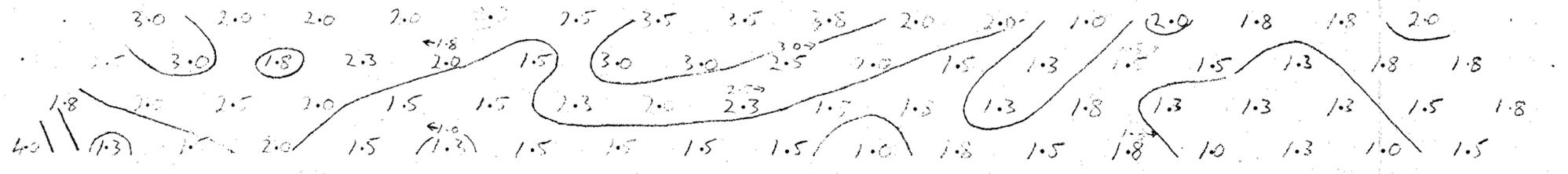
METAL FACTOR



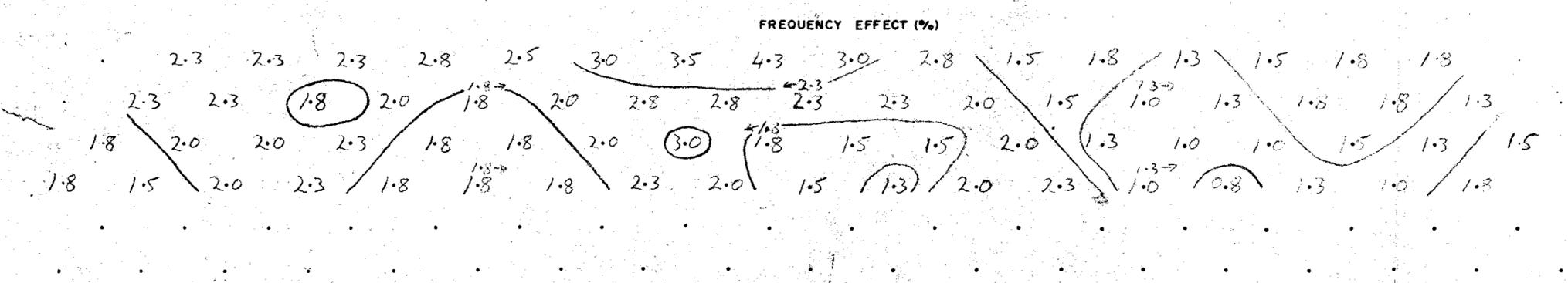
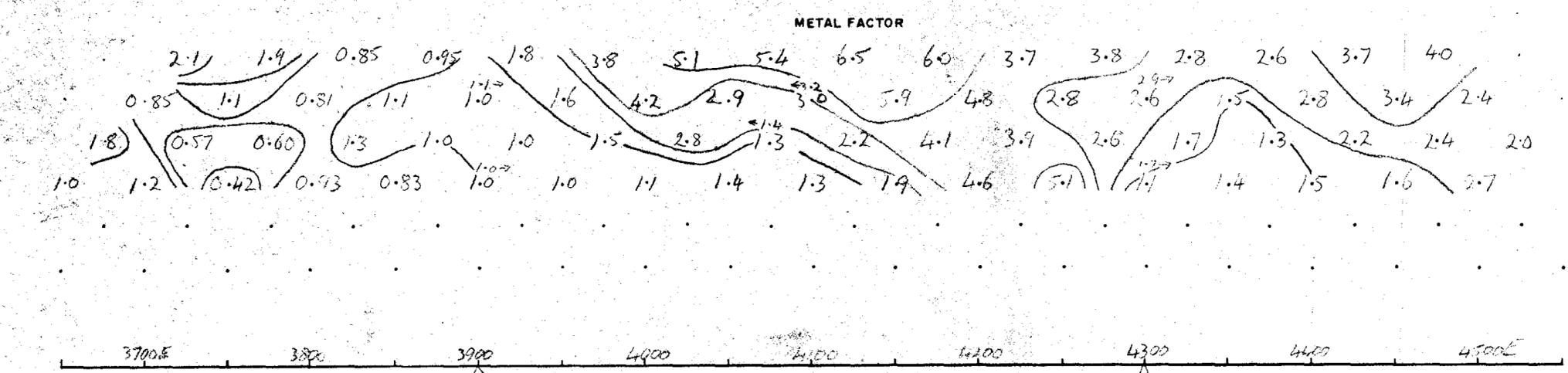
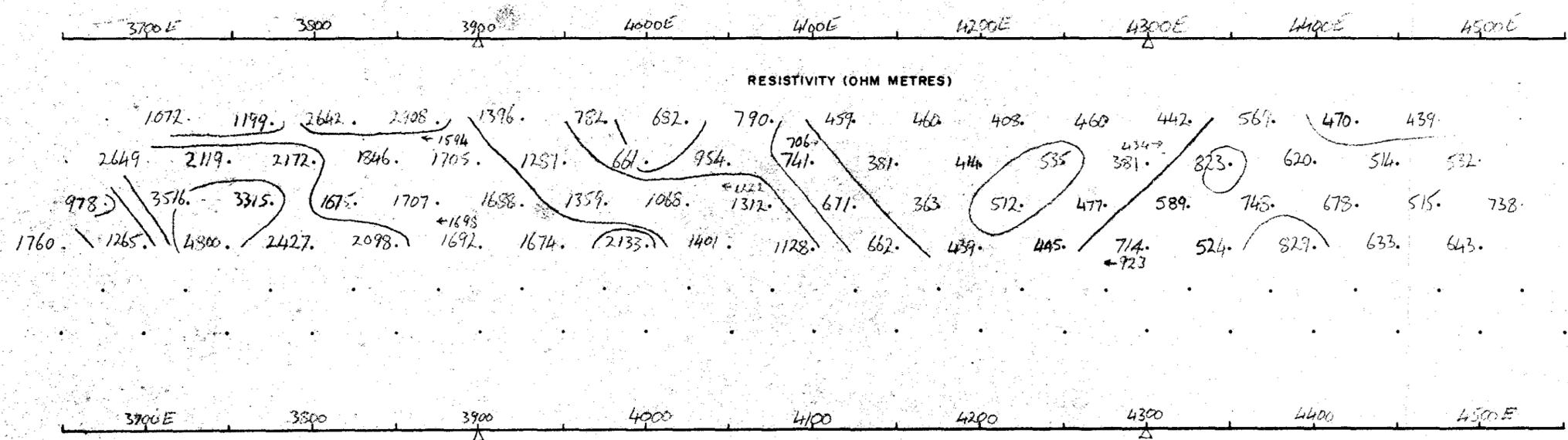
n1  
n2  
n3  
n4  
n5  
n6



FREQUENCY EFFECT (%)



n1  
n2  
n3  
n4  
n5  
n6



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ADMINCO  
 AREA HATFIELD

LINE NO 6400 N

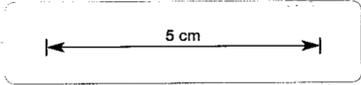
**SURVEY SPECIFICATIONS**

ELECTRODE INTERVAL 5.0m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE HALF  
 TRANSMITTER SERIAL NUMBER TX. 123  
 RECEIVER SERIAL NUMBER RX. 225  
 DATE OF SURVEY 15.2.78  
 PLOTTED BY M.H.

INTERPRETATION .....  
 FINAL CHECK .....  
 DISTRIBUTED .....

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: \_\_\_\_\_ PROJECT: \_\_\_\_\_ DWS. NY



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

LINE NO 650<sup>N</sup>

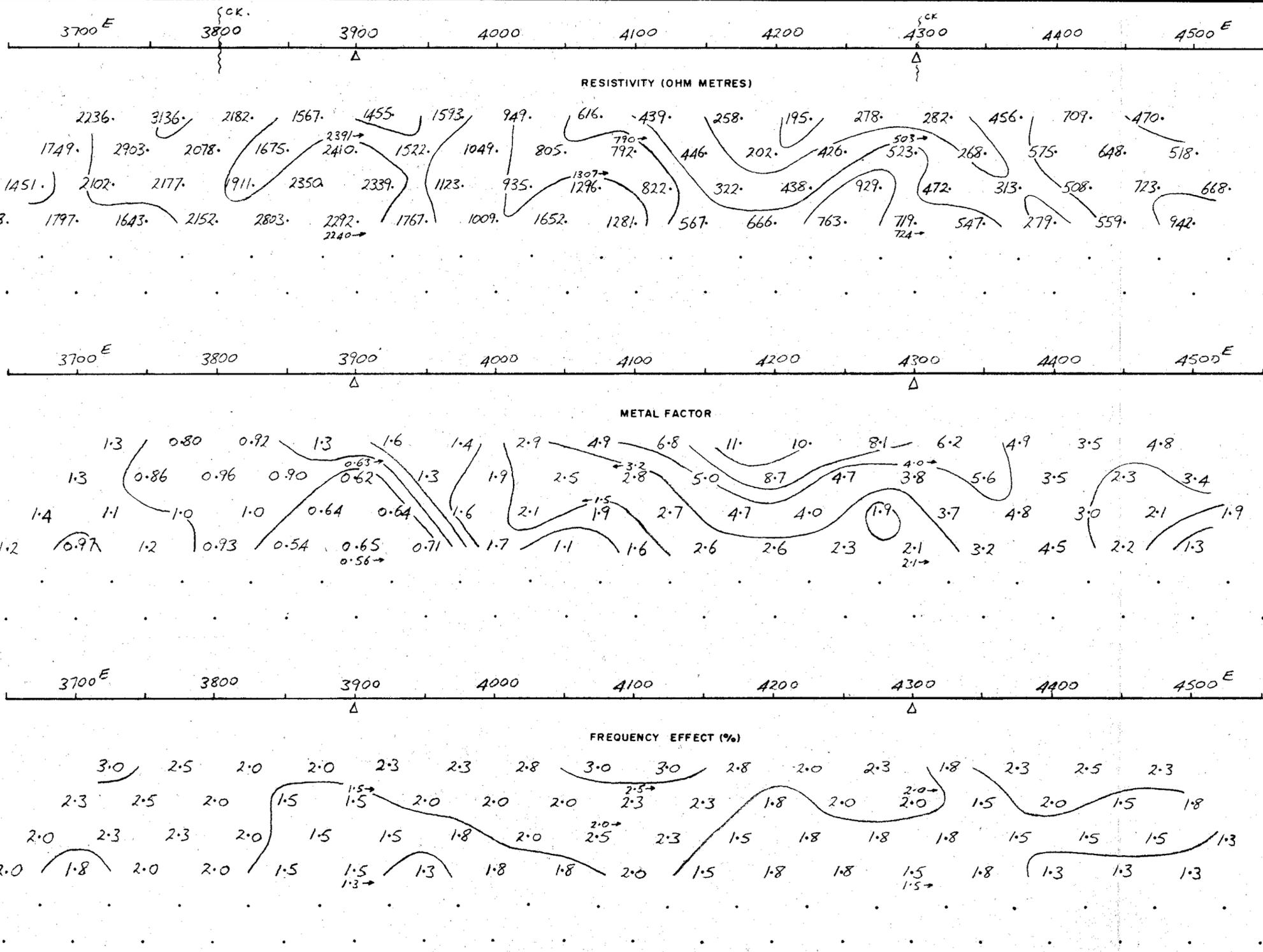
## SURVEY SPECIFICATIONS

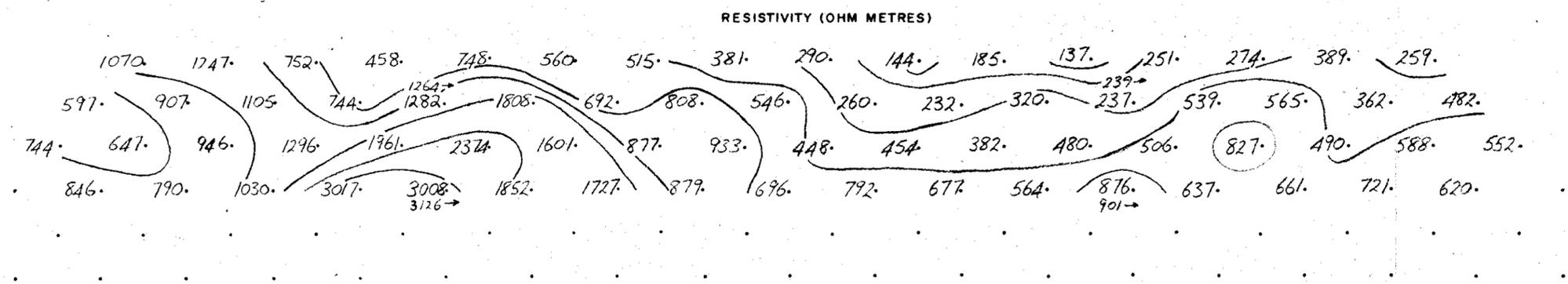
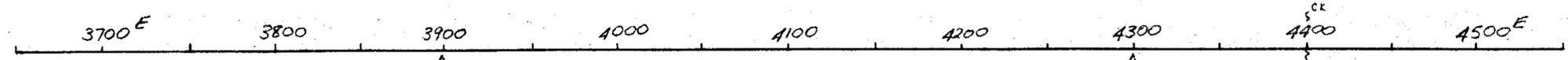
ELECTRODE INTERVAL 50m  
FREQUENCIES 0.3/2.5 Hz  
ELECTRODES SINGLE ALFOIL  
TRANSMITTER SERIAL NUMBER Tx 123  
RECEIVER SERIAL NUMBER Rx 225  
DATE OF SURVEY 15<sup>TH</sup> 21<sup>ST</sup> JAN, 1978  
PLOTTED BY J.M.

INTERPRETATION  
FINAL CHECK  
DISTRIBUTED

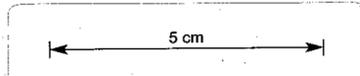
GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. NO:





— n1 —  
— n2 —  
— n3 —  
— n4 —  
— n5 —  
— n6 —



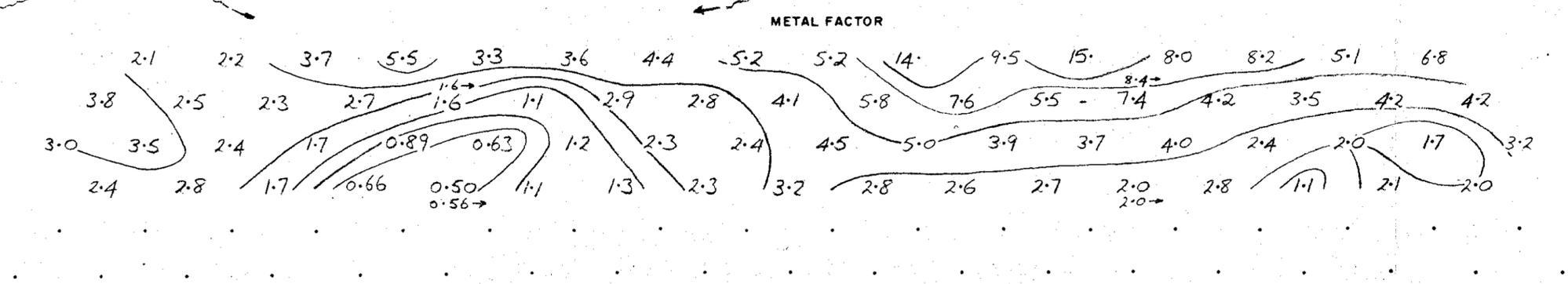
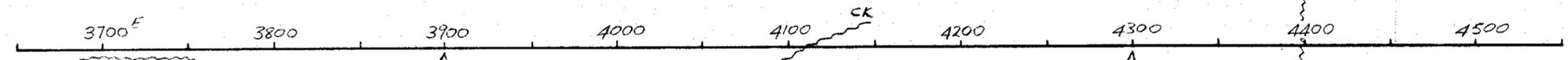
## INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

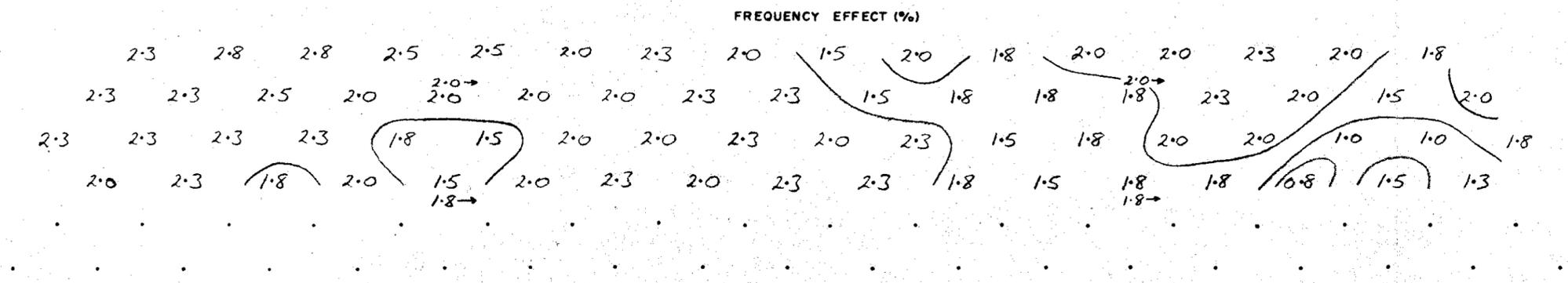
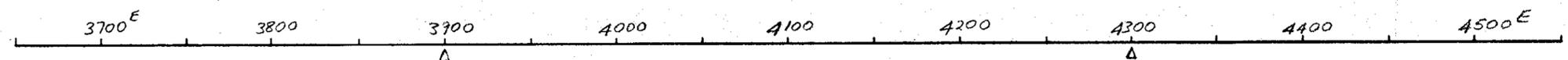
LINE NO 6600N

### SURVEY SPECIFICATIONS

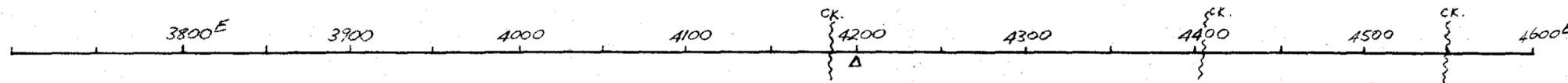
ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER Tx. 123  
 RECEIVER SERIAL NUMBER Rx. 225  
 DATE OF SURVEY 14<sup>TH</sup> + 22<sup>ND</sup> JAN, 1978  
 PLOTTED BY J.M.  
 INTERPRETATION .....  
 FINAL CHECK .....  
 DISTRIBUTED .....  
 GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA



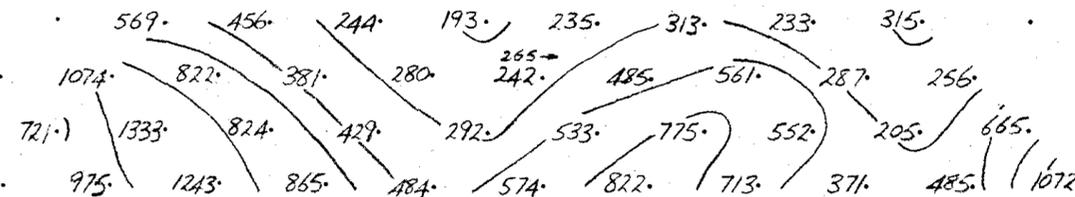
— n1 —  
— n2 —  
— n3 —  
— n4 —  
— n5 —  
— n6 —



— n1 —  
— n2 —  
— n3 —  
— n4 —  
— n5 —  
— n6 —



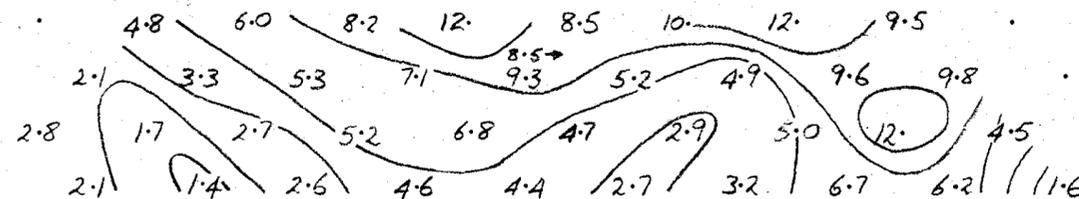
RESISTIVITY (OHM METRES)



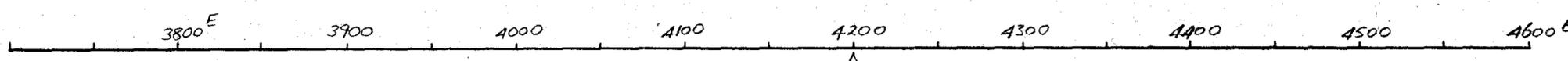
— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —



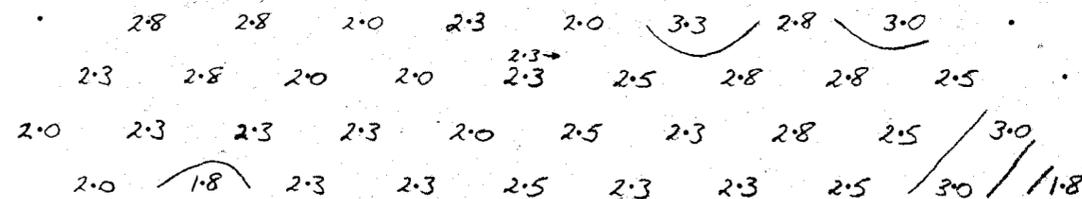
METAL FACTOR



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

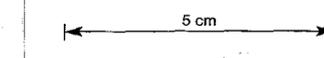


FREQUENCY EFFECT (%)



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

# INDUCED POLARISATION AND RESISTIVITY SURVEY



CLIENT ABMINCO

AREA HATFIELD

LINE NO 6700 N

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5 Hz

ELECTRODES SINGLE ALFOK

TRANSMITTER SERIAL NUMBER Tx 123

RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 14-1-78

PLOTTED BY J.M.

INTERPRETATION

FINAL CHECK

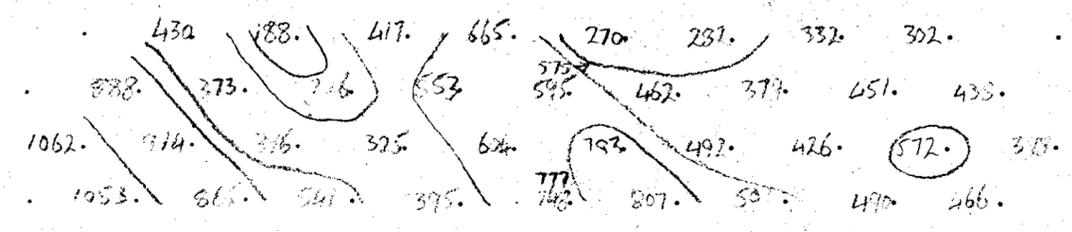
DISTRIBUTED

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. N1

3900 4000 4100 4200 4300 4400 4500 4600 E

RESISTIVITY (OHM METRES)



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

INDUCED POLARISATION  
 AND RESISTIVITY  
 SURVEY

CLIENT ABMINCO  
 AREA HATFIELD

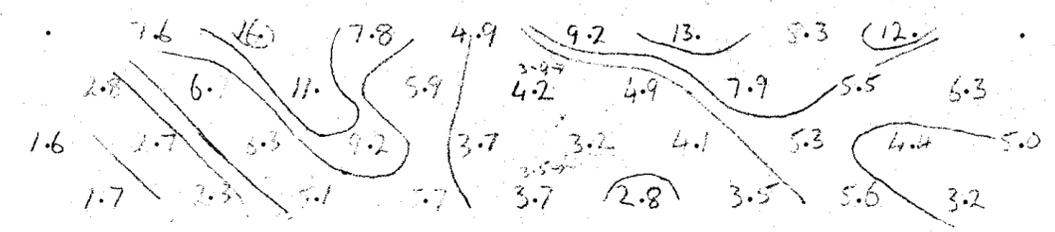
LINE NO 6800N

SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE ALFOIL  
 TRANSMITTER SERIAL NUMBER TX 123  
 RECEIVER SERIAL NUMBER RX 225  
 DATE OF SURVEY 14/1/78  
 PLOTTED BY M. H.  
 INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED  
 GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

3900 4000 4100 4200 4300 4400 4500 4600 E

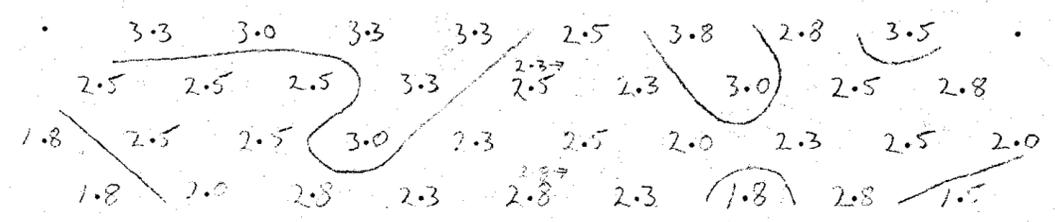
METAL FACTOR



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

3900 4000 4100 4200 4300 4400 4500 4600 E

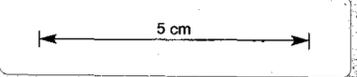
FREQUENCY EFFECT (%)



— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

APPROVED: PROJECT: SWG. 87

PTY. LTD.



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA MATFIELD

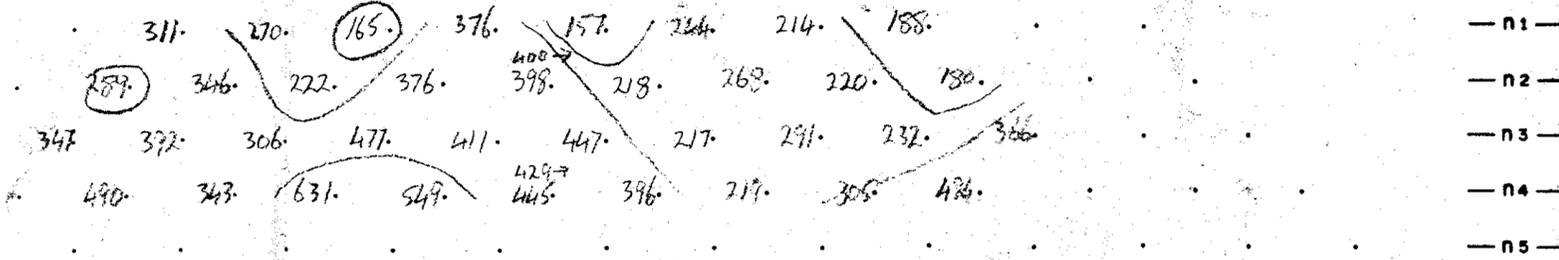
LINE NO 6900N

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50M  
 FREQUENCIES 0-3/2.5 Hz  
 ELECTRODES SINGLE ALPINE  
 TRANSMITTER SERIAL NUMBER TX.123  
 RECEIVER SERIAL NUMBER RX.225  
 DATE OF SURVEY 13/1/78  
 PLOTTED BY M.H.  
 INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED  
 GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

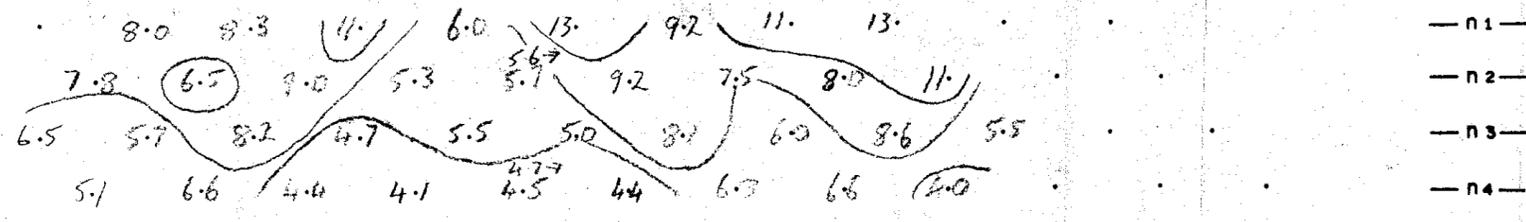
4000 4100 4200 4300 4400 4500 4600 4700E

### RESISTIVITY (OHM METRES)



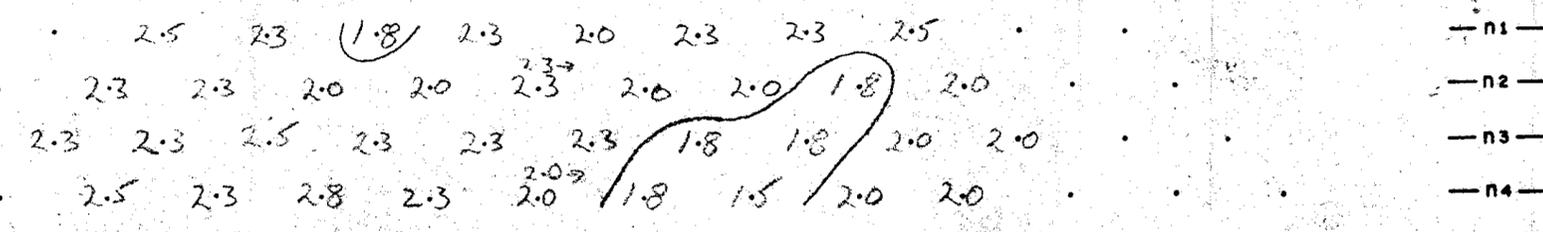
4000 4100 4200 4300 4400 4500 4600 4700E

### METAL FACTOR



4000 4100 4200 4300 4400 4500 4600 4700E

### FREQUENCY EFFECT (%)



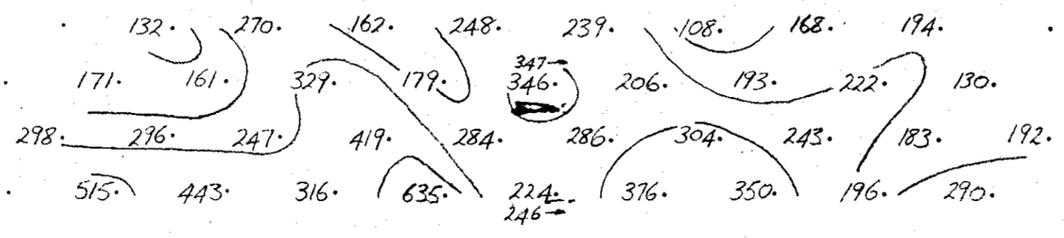
— n1 —  
 — n2 —  
 — n3 —  
 — n4 —  
 — n5 —  
 — n6 —

APPROVED: PROJECT: DWS. NY

PTY. LTD.

3900<sup>E</sup> 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

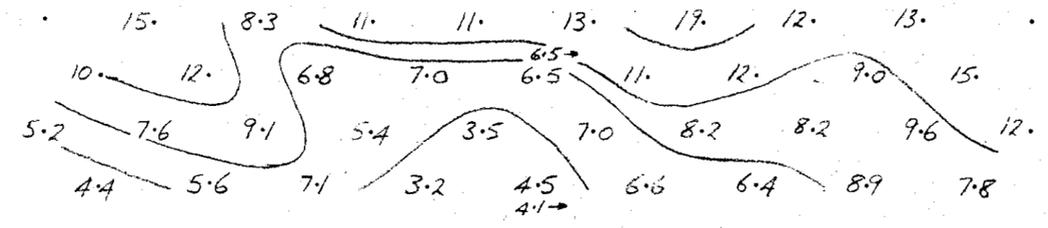
RESISTIVITY (OHM METRES)



n1  
n2  
n3  
n4  
n5  
n6

3900<sup>E</sup> 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

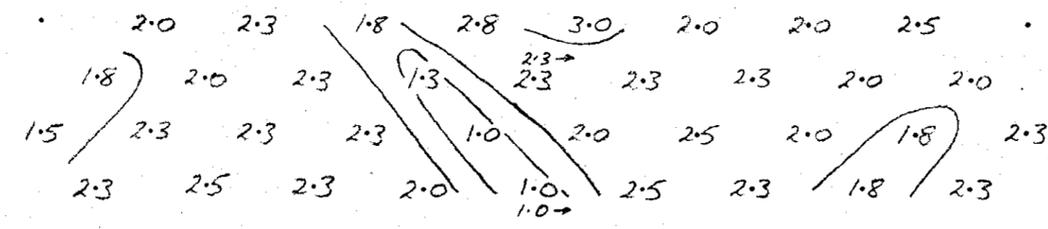
METAL FACTOR



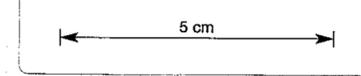
n1  
n2  
n3  
n4  
n5  
n6

3900<sup>E</sup> 4000 4100 4200 4300 4400 4500 4600 4700<sup>E</sup>

FREQUENCY EFFECT (%)



n1  
n2  
n3  
n4  
n5  
n6



# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

LINE NO. 7000<sup>N</sup>

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50M

FREQUENCIES 0.3/2.5HZ

ELECTRODES SINGLE ALFOIL

TRANSMITTER SERIAL NUMBER Tx 123

RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 13-1-78

PLOTTED BY J.M.

INTERPRETATION .....

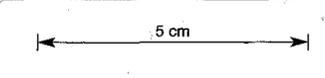
FINAL CHECK .....

DISTRIBUTED .....

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: \_\_\_\_\_ PROJECT: \_\_\_\_\_ DWG. NO. \_\_\_\_\_

PTY. LTD.



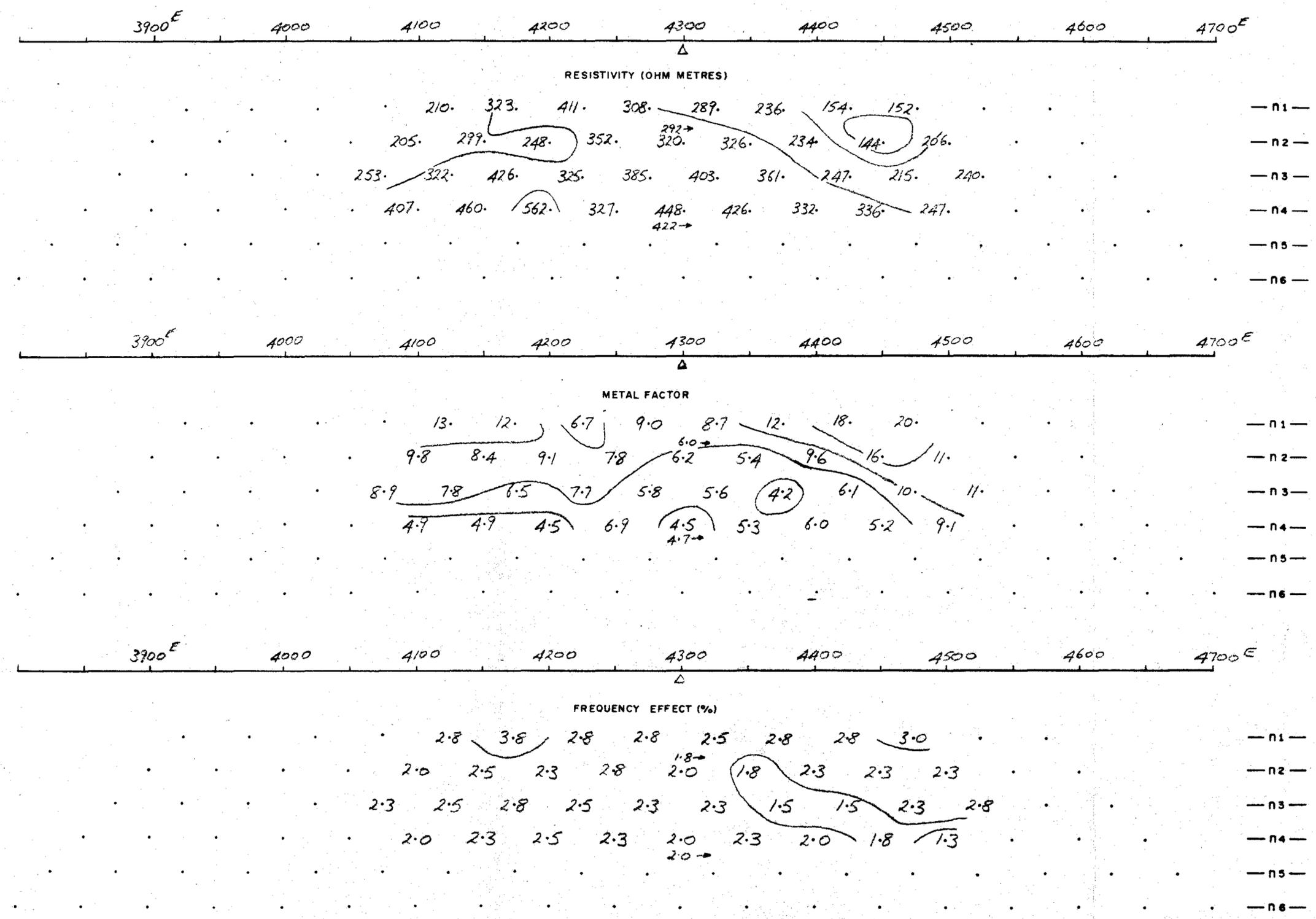
# INDUCED POLARISATION AND RESISTIVITY SURVEY

CLIENT ABMINCO  
AREA HATFIELD

LINE NO 7100 N

### SURVEY SPECIFICATIONS

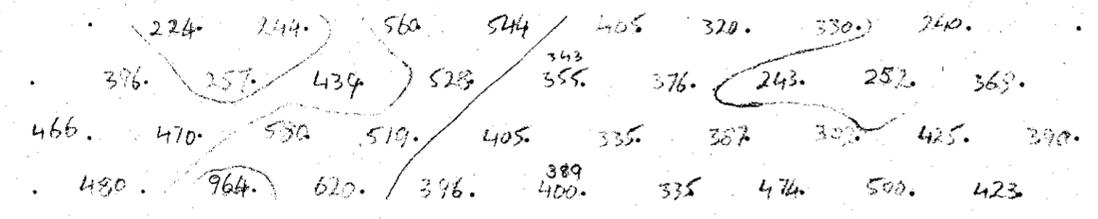
ELECTRODE INTERVAL 50 m  
 FREQUENCIES 0.3/2.5 Hz  
 ELECTRODES SINGLE PIPED  
 TRANSMITTER SERIAL NUMBER Tx 123  
 RECEIVER SERIAL NUMBER Rx 225  
 DATE OF SURVEY 11-1-78  
 PLOTTED BY J.M.  
 INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED  
 GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA



APPROVED: PROJECT: DWG. NY

3900 4000 4100 4200 4300 4400 4500 4600 4700 E

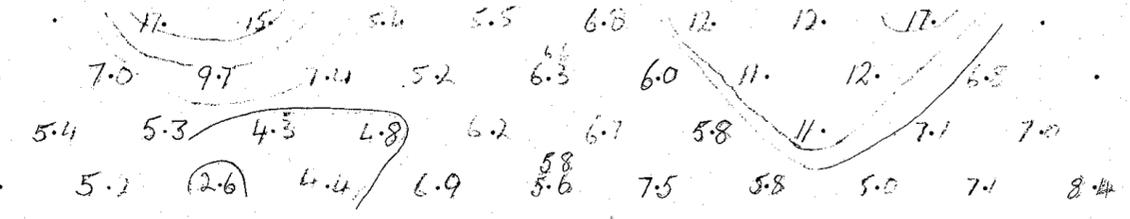
RESISTIVITY (OHM METRES)



n1  
n2  
n3  
n4  
n5  
n6

3900 4000 4100 4200 4300 4400 4500 4600 4700 E

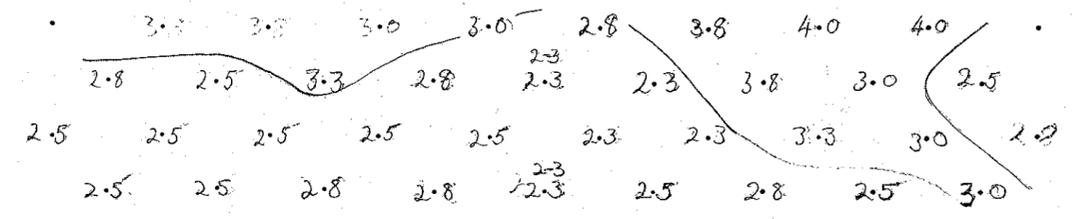
METAL FACTOR



n1  
n2  
n3  
n4  
n5  
n6

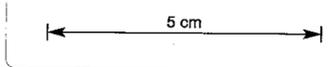
3900 4000 4100 4200 4300 4400 4500 4600 4700 E

FREQUENCY EFFECT (%)



n1  
n2  
n3  
n4  
n5  
n6

# INDUCED POLARISATION AND RESISTIVITY SURVEY



CLIENT ABMINCO  
AREA HATFIELD

LINE NO 7200W

### SURVEY SPECIFICATIONS

ELECTRODE INTERVAL 50m  
 FREQUENCIES 9.3/25 Hz  
 ELECTRODES SINGLE HALF  
 TRANSMITTER SERIAL NUMBER 123  
 RECEIVER SERIAL NUMBER 225  
 DATE OF SURVEY 11/1/78  
 PLOTTED BY M. HURDLE  
 INTERPRETATION  
 FINAL CHECK  
 DISTRIBUTED

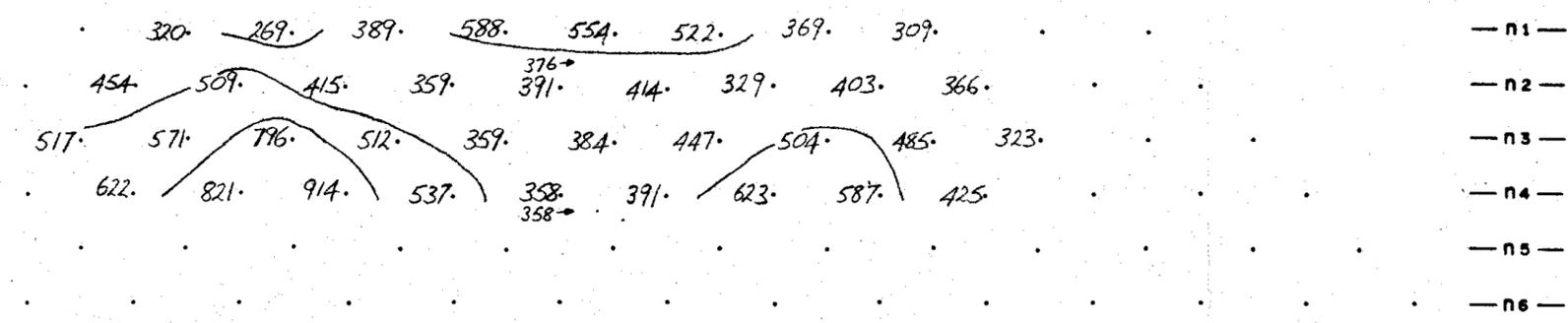
GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWG. BY

PTY. LTD.

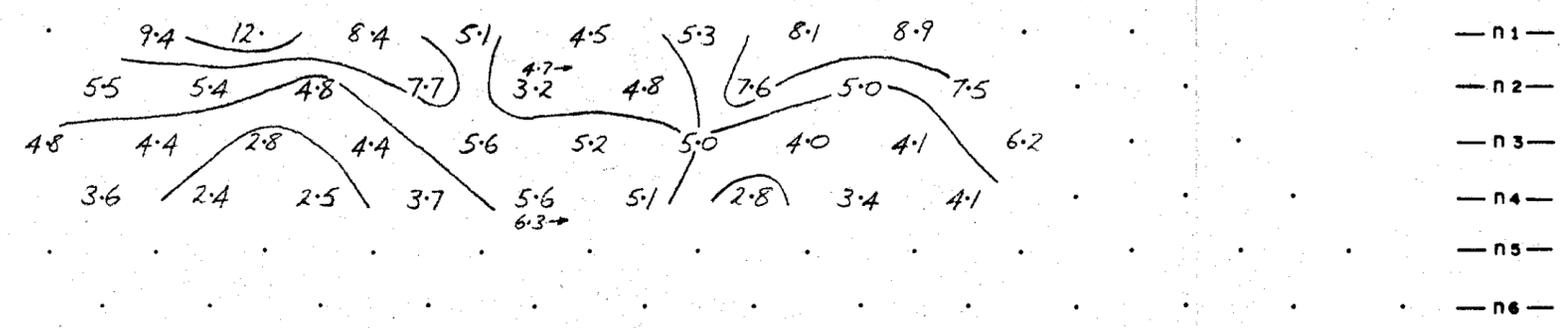
3900 4000 4100 4200 4300 4400 4500 4600 4700 E

RESISTIVITY (OHM METRES)



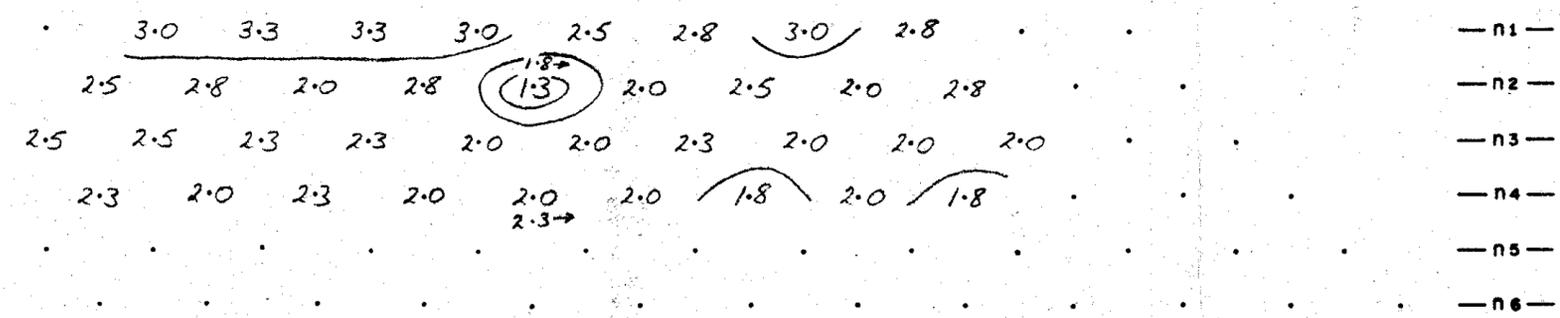
3900 E 4000 4100 4200 4300 4400 4500 4600 4700 E

METAL FACTOR

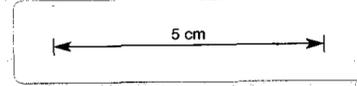


3900 E 4000 4100 4200 4300 4400 4500 4600 4700 E

FREQUENCY EFFECT (%)



# INDUCED POLARISATION AND RESISTIVITY SURVEY



CLIENT ABMINCO  
AREA HATFIELD

LINE NO 7300 N

**SURVEY SPECIFICATIONS**

ELECTRODE INTERVAL 50m

FREQUENCIES 0.3/2.5 Hz

ELECTRODES SINGLE ALFOIL

TRANSMITTER SERIAL NUMBER Tx 123

RECEIVER SERIAL NUMBER Rx 225

DATE OF SURVEY 10<sup>TH</sup> JAN, 1978

PLOTTED BY G.M.

INTERPRETATION .....

FINAL CHECK .....

DISTRIBUTED .....

GEOEX PTY. LTD. ADELAIDE, SOUTH AUSTRALIA

APPROVED: PROJECT: DWS. NT

APPENDIX B

SOIL GEOCHEMICAL COMPUTER  
DATA

022

250062

MACKINTOSH/HATFIELD SOIL GEOCHEMISTRY

NUMBER OF VARIABLES:- 3

COLUMNS USED

4 5 6

DETECTION (OR LOWER) LIMITS OF VARIABLES

0 0 0

UPPER LIMITS OF VARIABLES

20000 20000 20000

MACKINTOSH/HATFIELD SOIL GEOCHEMISTRY

NUMBER OF VARIABLES:- 3

COLUMNS USED

4 5 6

DETECTION (OR LOWER) LIMITS OF VARIABLES

2 20 2

UPPER LIMITS OF VARIABLES

20000 20000 20000

CASSETTE 1

FILES USED:- 1 TO 30

CASSETTE 2

FILES USED:- 1 TO 30

CASSETTE 3

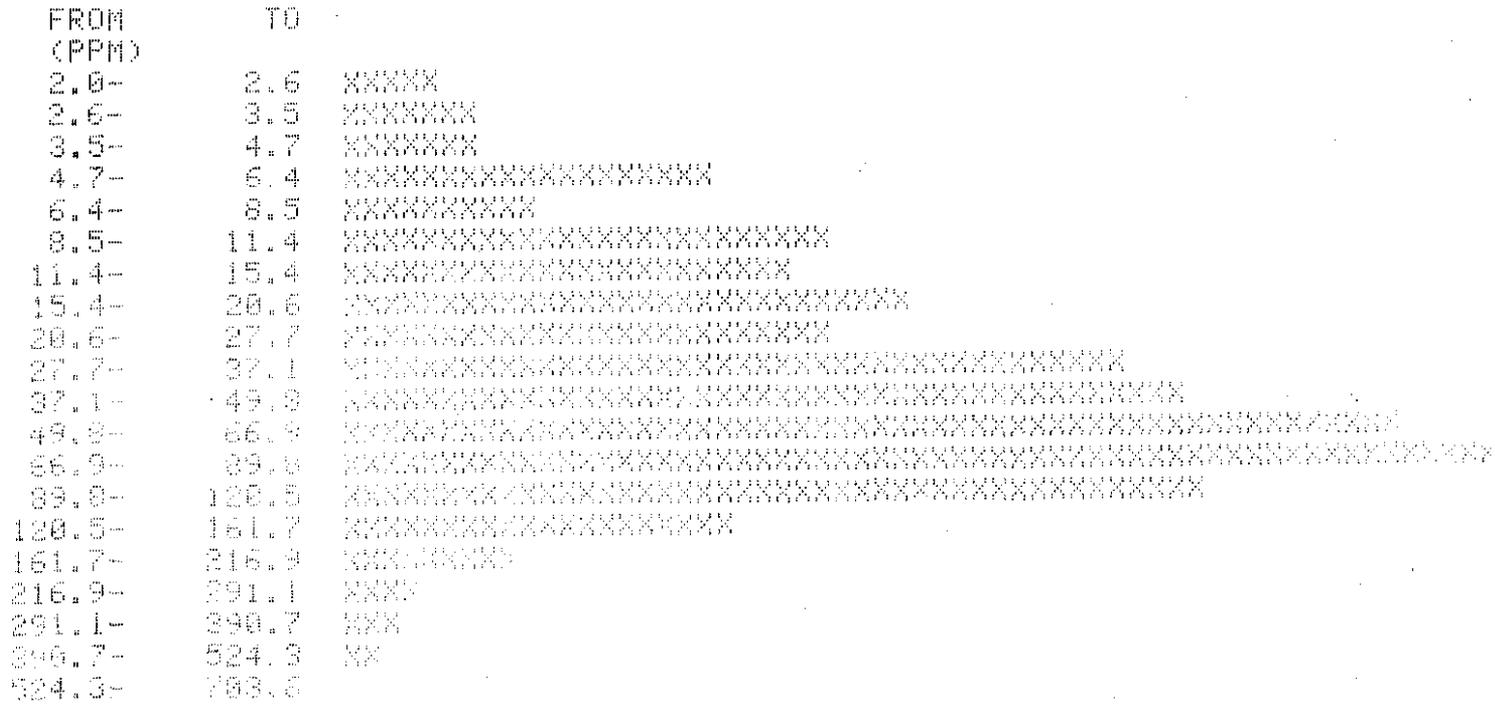
FILES USED:- 1 TO 18

MACKINTOSH/HATFIELD SOIL GEOCHEMISTRY

UPPER  
 NUMBER OF SAMPLES= 3733  
 MAXIMUM VALUE= 700  
 MINIMUM VALUE= 2  
 ARITHMETIC MEAN= 60  
 VARIANCE=1 4233.27  
 STANDARD DEVIATION= 65.06  
 NUMBER OF SAMPLES BELOW DETECTION LIMIT= 90  
 PERCENTAGE SAMPLES BELOW DETECTION LIMIT= 0.02  
 NUMBER OF SAMPLES NOT ANALYSED= 77  
 NUMBER OF SAMPLES ABOVE POP'N LIMIT= 0  
 LOGARITHMIC INTERVAL= 0.29

CLASS INTERVAL	FREQ	FREQ%	CU. FREQ
FROM TO (PPM)	FREQ	FREQ%	CU. FREQ
2.0- 2.6	51	1.37	51
2.6- 3.5	62	1.66	113
3.5- 4.7	69	1.85	182
4.7- 6.4	172	4.61	354
6.4- 8.5	95	2.54	449
8.5- 11.4	219	5.87	668
11.4- 15.4	205	5.49	873
15.4- 20.6	256	6.86	1129
20.6- 27.7	225	6.03	1354
27.7- 37.1	352	9.43	1706
37.1- 49.8	379	10.15	2085
49.8- 66.9	476	12.75	2561
66.9- 89.8	521	13.96	3082
89.8- 120.5	390	10.45	3472
120.5- 161.7	175	4.69	3647
161.7- 216.9	79	2.12	3726
216.9- 291.1	36	0.96	3762
291.1- 390.7	27	0.72	3789
390.7- 524.3	22	0.59	3811
524.3- 700.6	7	0.19	3818

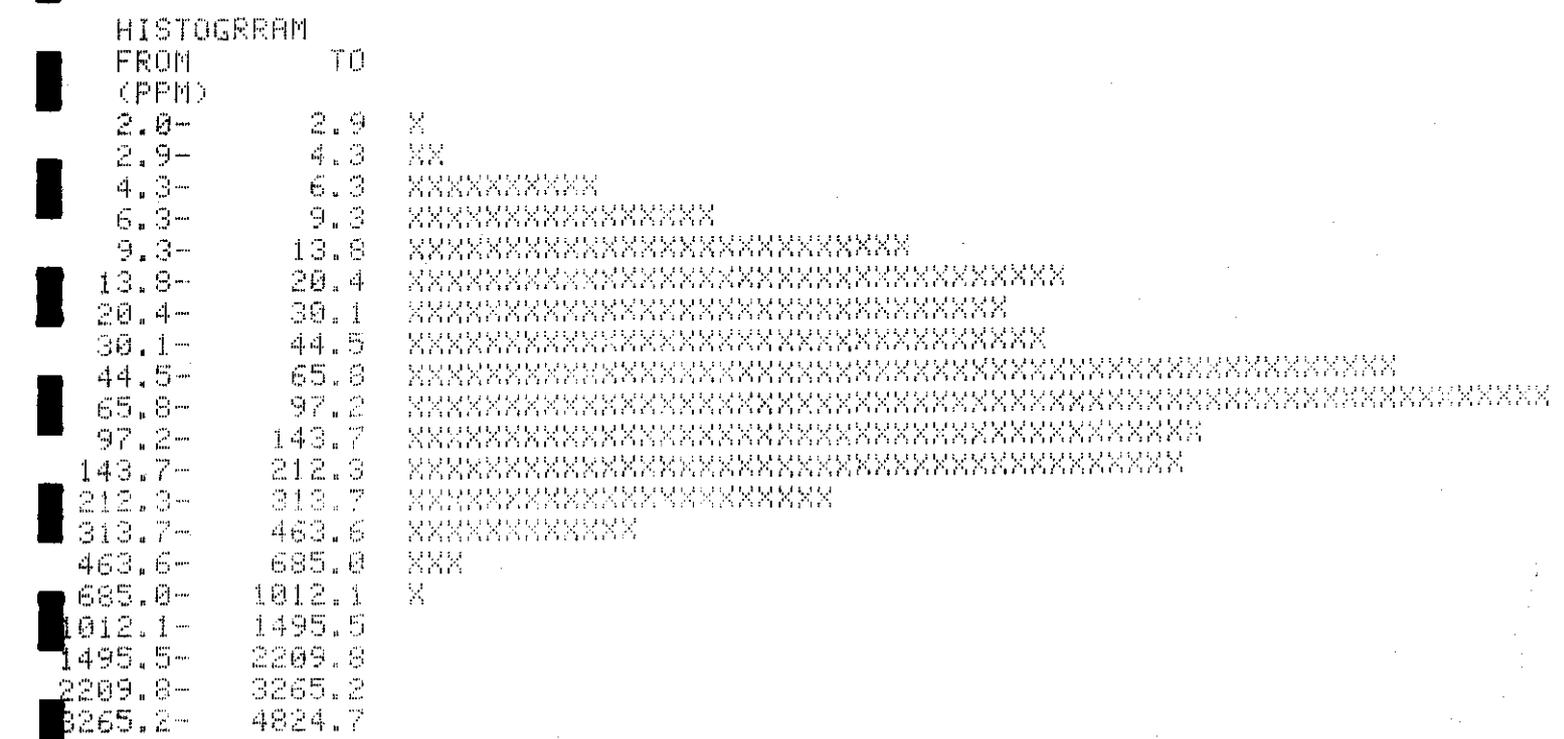
HISTOGRAM

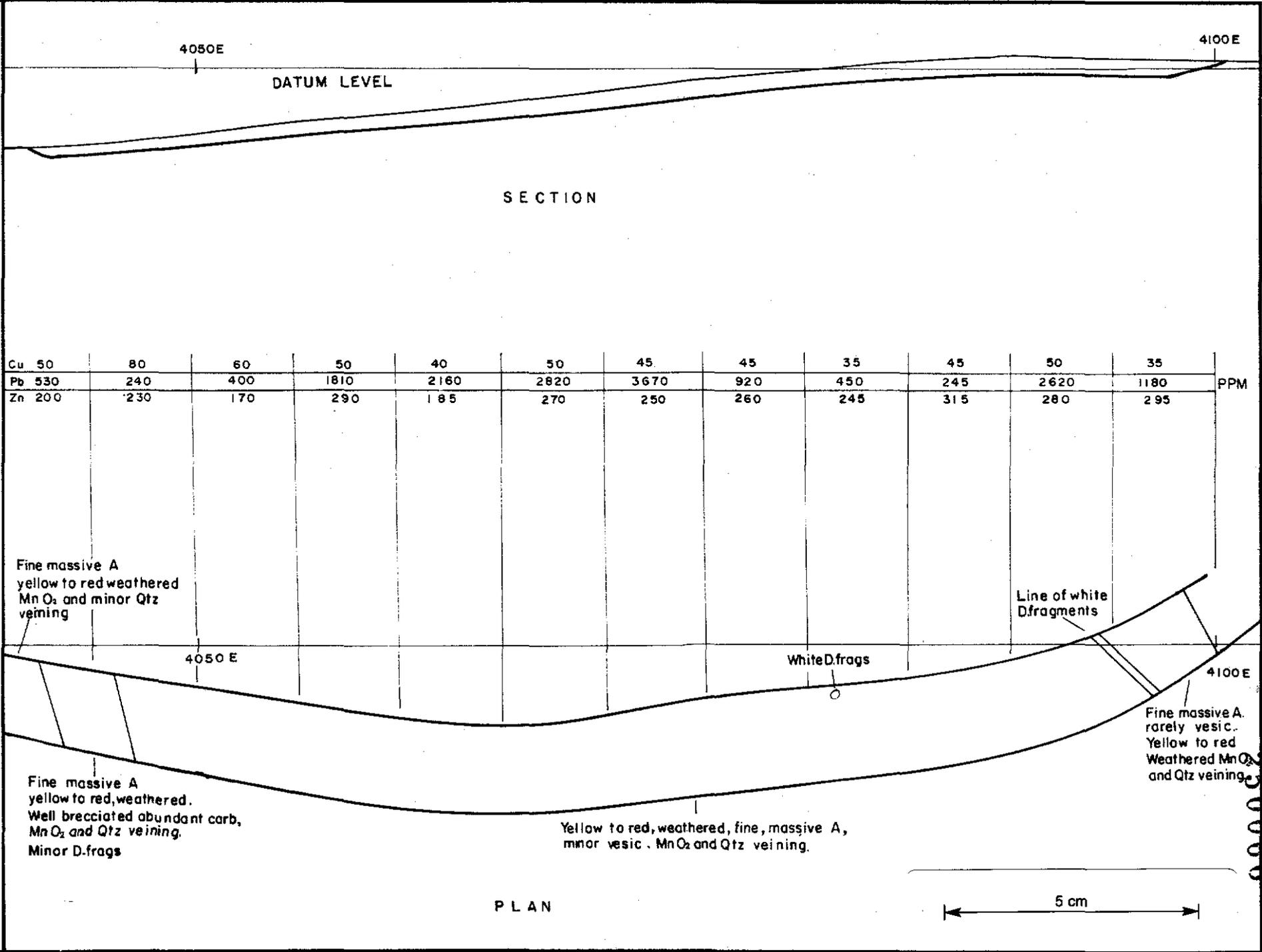




ZINC  
 NUMBER OF SAMPLES= 3820  
 MAXIMUM VALUE= 4800  
 MINIMUM VALUE= 2  
 ARITHMETIC MEAN= 97  
 VARIANCE= 20734.14  
 STANDARD DEVIATION= 143.99  
 NUMBER OF SAMPLES BELOW DETECTION LIMIT= 54  
 PERCENTAGE SAMPLES BELOW DETECTION LIMIT= 0.01  
 NUMBER OF SAMPLES NOT ANALYSED= 26  
 NUMBER OF SAMPLES ABOVE POP'N LIMIT= 0  
 LOGARITHMIC INTERVAL= 0.39

CLASS INTERVAL	FREQ	FREQ%	CU.FREQ
FROM TO (PPM)	FREQ	FREQ%	CU.FREQ
2.0- 2.9	10	0.26	10
2.9- 4.3	20	0.52	30
4.3- 6.3	105	2.75	135
6.3- 9.3	159	4.16	294
9.3- 13.8	266	6.96	560
13.8- 20.4	337	8.82	897
20.4- 30.1	314	8.22	1211
30.1- 44.5	332	8.69	1543
44.5- 65.8	514	13.46	2057
65.8- 97.2	594	15.55	2651
97.2- 143.7	400	10.68	3059
143.7- 212.3	405	10.60	3464
212.3- 313.7	213	5.71	3682
313.7- 463.6	126	3.30	3808
463.6- 685.0	39	1.02	3847
685.0- 1012.1	16	0.42	3863
1012.1- 1495.5	3	0.08	3866
1495.5- 2209.8	2	0.05	3868
2209.8- 3265.2	0	0.00	3868
3265.2- 4824.7	1	0.03	3869





Cu	50	80	60	50	40	50	45	45	35	45	50	35	PPM
Pb	530	240	400	1810	2160	2820	3670	920	450	245	2620	1180	
Zn	200	230	170	290	185	270	250	260	245	315	280	295	

**Abminco Exploration**

Drawn: GOB  
 Traced: JD  
 Checked:  
 Revised by: Date:

NORTH WEST TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 4000N  
 PLAN and SECTION

Location code:  
 Date: JUL Y 1977  
 Scale: 1:250  
 Plate No HT 23/4000N

FIG. 7

P L A N

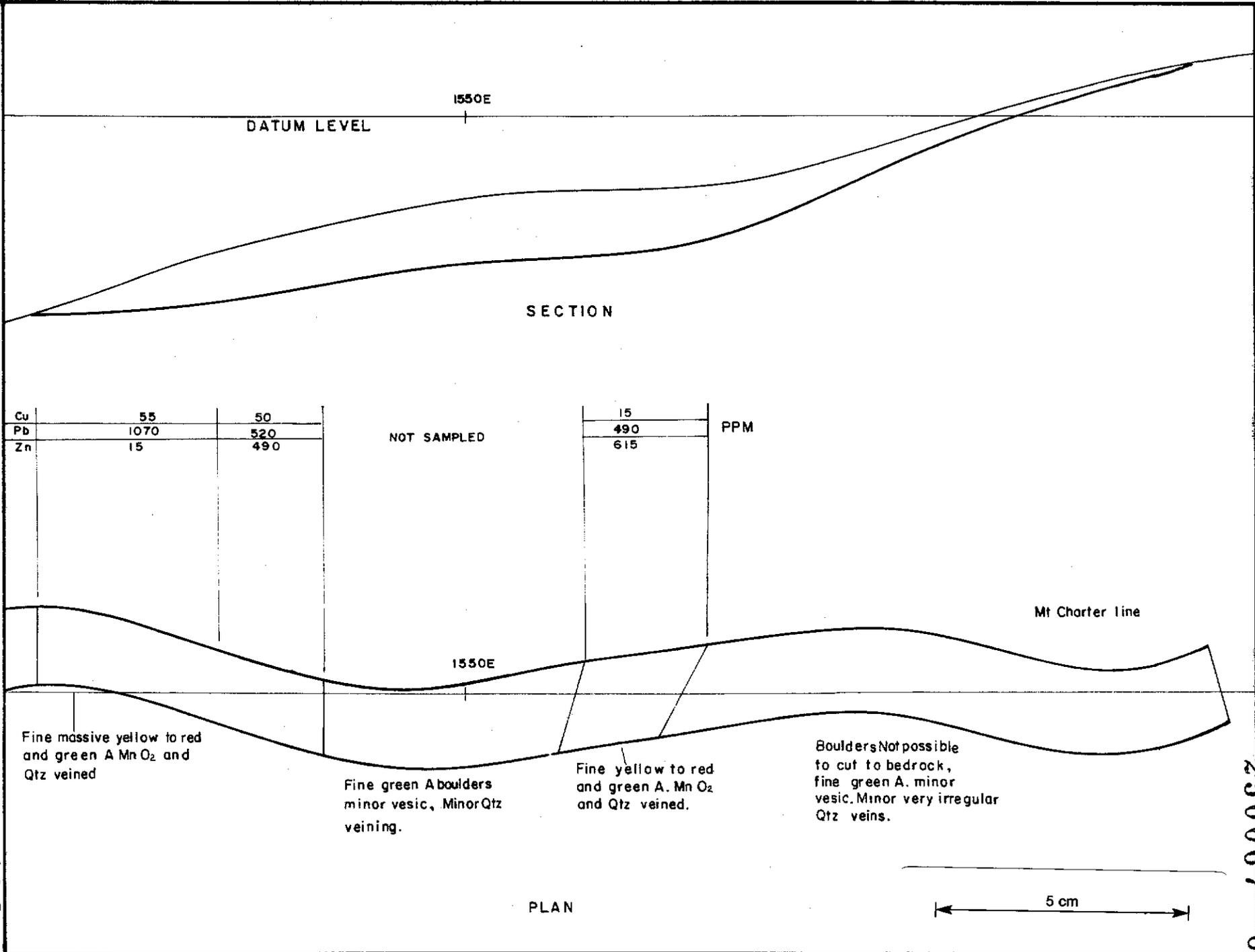
5 cm

Drawn: GOB  
 Traced: JD  
 Checked:  
 Revised by: Date

**Abminco Exploration**

NORTH WEST TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line Mt Charter (4400N)  
 PLAN and SECTION

Location code:  
 Date: JULY 1977  
 Scale: 1:250  
 Plate No: H T 23 / 4400N



250067 035

DATUM LEVEL

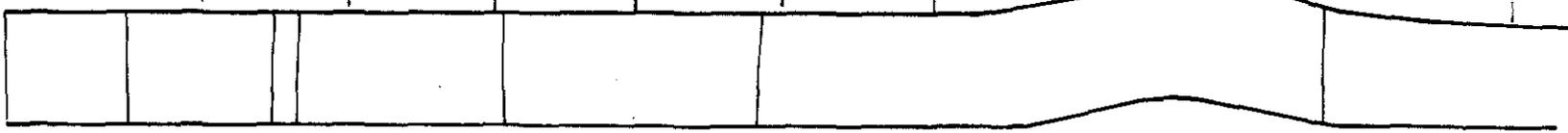
3550 E

SECTION

Cu	35	25	65	55	85	65	60	45	35
Pb	245	475	560	620	800	1320	1080	800	
Zn	210	315	405	535	570	600	1400	550	390

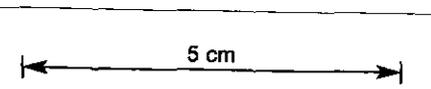
3550E

5400 N



soil  
 white, heavily iron oxide veined? sh.  
 iron oxide  
 yellow to green Afdxlt, moderate to heavy carb. veining.  
 yellow to green Afdxlt, minor carb. veining.  
 fine, yellow Afdxlt, minor carbonate veining.

PLAN



**Abminco Exploration**

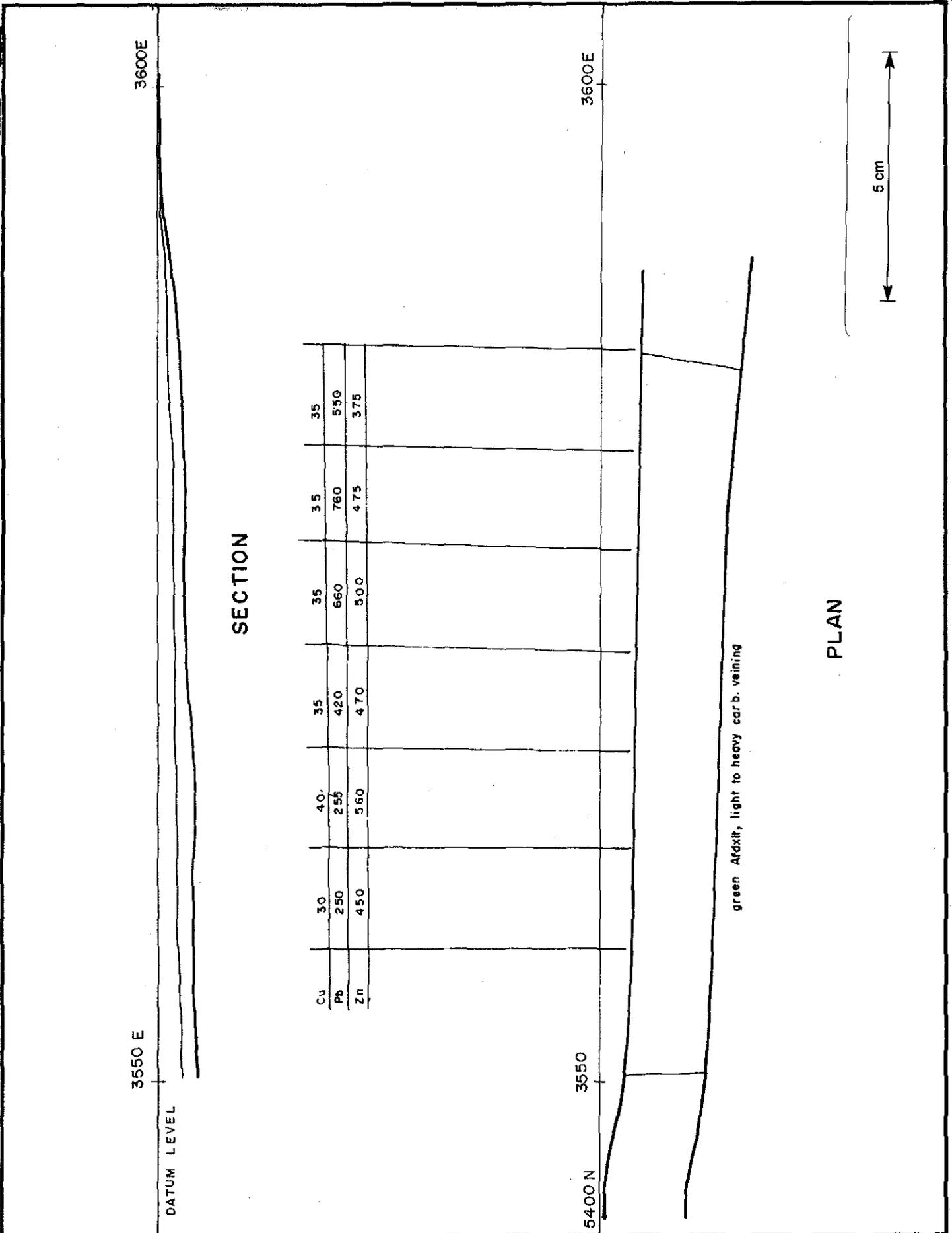
FIG. 9.

Drawn: G.O.B.  
 Traced: A.E.R.  
 Checked:  
 Revised by: Date:

NORTH WESTERN TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 5400 N  
 PLAN and SECTION

Location code:  
 Date: JULY 1977  
 Scale: 1: 250  
 Plate No Hat 23/5400ND

250068 034



**Abminco Exploration**

FIG. 10

Drawn: G.O.B.  
 Traced: A.E.R.  
 Checked:  
 Revised by: \_\_\_\_\_ Date: \_\_\_\_\_

NORTH WESTERN TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 5400 N  
 PLAN and SECTION

Location code:  
 Date: July 1977  
 Scale: 1:250  
 Plate No. Hat 23/5400 Nb

Drawn: G.O.B.  
 Traced: A.E.R.  
 Checked:  
 Revised by: Date:

NORTH WEST TASMANIA  
 HATFIELD E.L. 15/73  
 Costean Line 5600N  
 PLAN and SECTION

Location code:  
 Date: August 1977  
 Scale: 1:250  
 Plate No Ht 23/5600N d

**Abminco Exploration**

FIG. 11

Uniform 1 in 5 slope, 0.7 metres deep

SECTION

Cu	45	50	52	40	40	40	40	40	40	70	PPM.
Pb	45	170	556	540	670	600	510	305	690	340	
Zn	242	312	460	430	760	880	820	790	820	960	

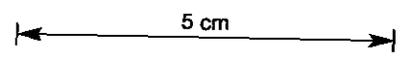
DATUM LEVEL

4650E

Fine yellow to red and green A.  
 Minor Alt Mn oxide veined.

Yellow to red and minor green Alt.  
 Some agglomerate and lava Vesic A  
 fragments. Mn oxide and minor  
 carbonate veining

PLAN



250070  
033

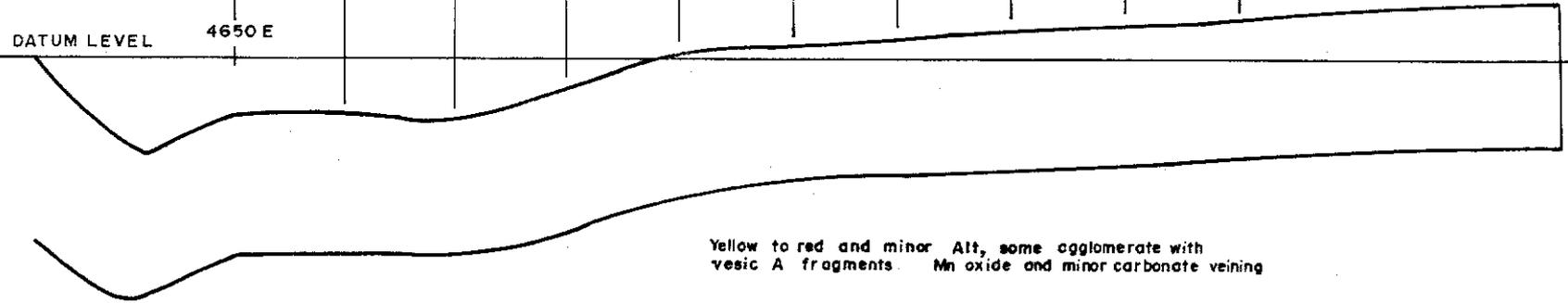
250071

Uniform 1 in 5 slope, 0.7metres deep

SECTION

3	45	60	55	60	75	55	60	75	66
P	2460	3190	3300	2460	1650	680	470	1200	600
2	760	750	1200	900	520	480	330	395	515

DATUM LEVEL 4650 E 4700 E



Yellow to red and minor Alt, some agglomerate with vesic A fragments. Mn oxide and minor carbonate veining

PLAN

5 cm

Abminco Exploration

FIG. 12

Drawn: G.O.B.  
 Traced: A.E.R.  
 Checked:  
 Revised by: Date:

NORTH WESTERN TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 5600N  
 PLAN and SECTION

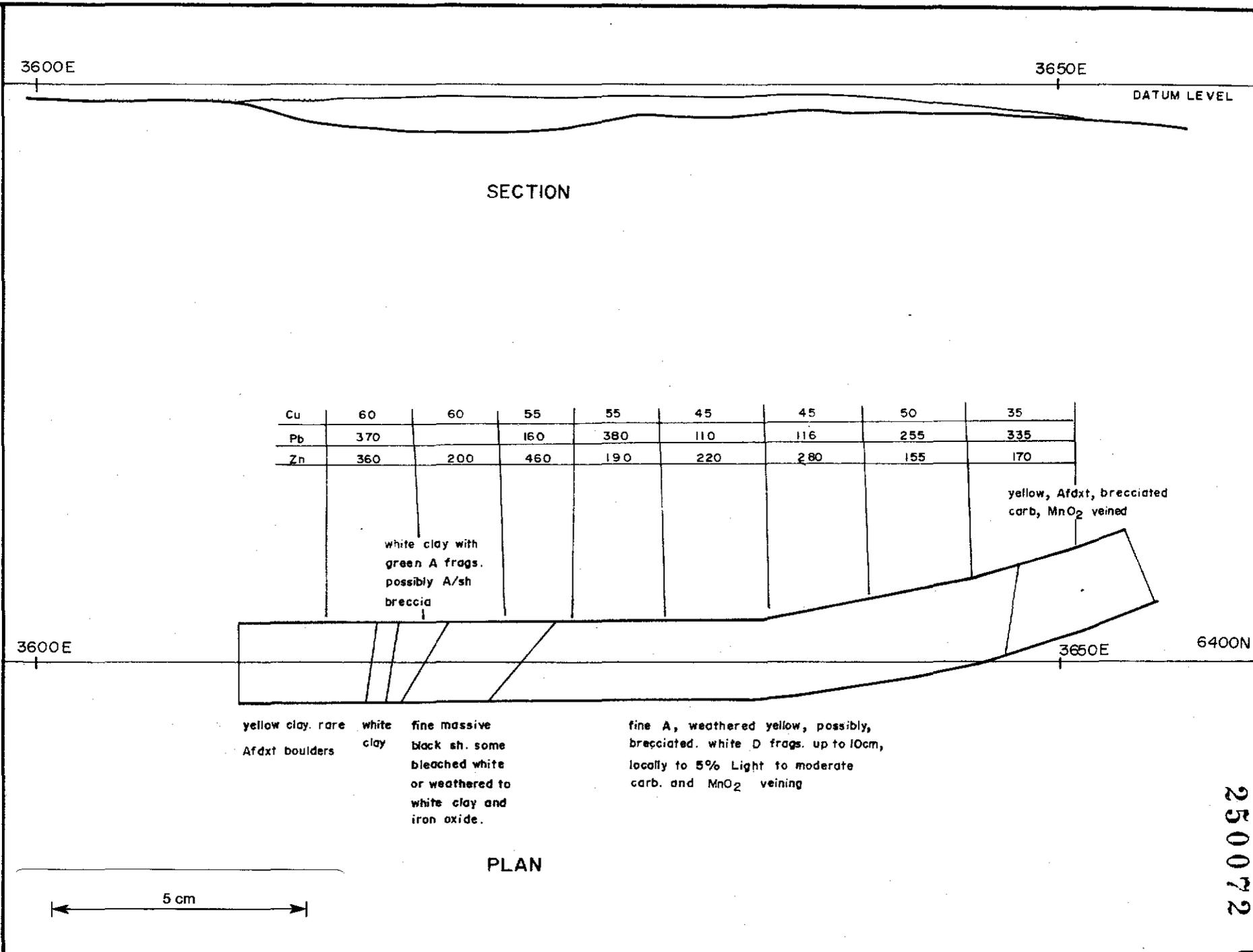
Location code:  
 Date: August 1977  
 Scale: 1:250  
 Plate No Ht 23/5600NB

Drawn: GOB.  
 Traced: A.E.R.  
 Checked:  
 Revised by: Date:

**Abminco Exploration**

NORTH WESTERN TASMANIA  
**HATFIELD EL.15/73**  
 Costean Line 6400 N  
**PLAN and SECTION**

Location code:  
 Date: July 1977  
 Scale: 1 : 250  
 Plate No: Hat 23/6400N



250072 032

Drawn: G.O.B.  
 Traced: A.E.R.  
 Checked:

**Abminco Exploration**

NORTH WESTERN TASMANIA  
**HATFIELD E.L.15/73**  
 Costean Line 6600 N  
**PLAN and SECTION**

Location code:  
 Date: July 1977  
 Scale: 1 : 250  
 Plate No Hdt 23/6600N

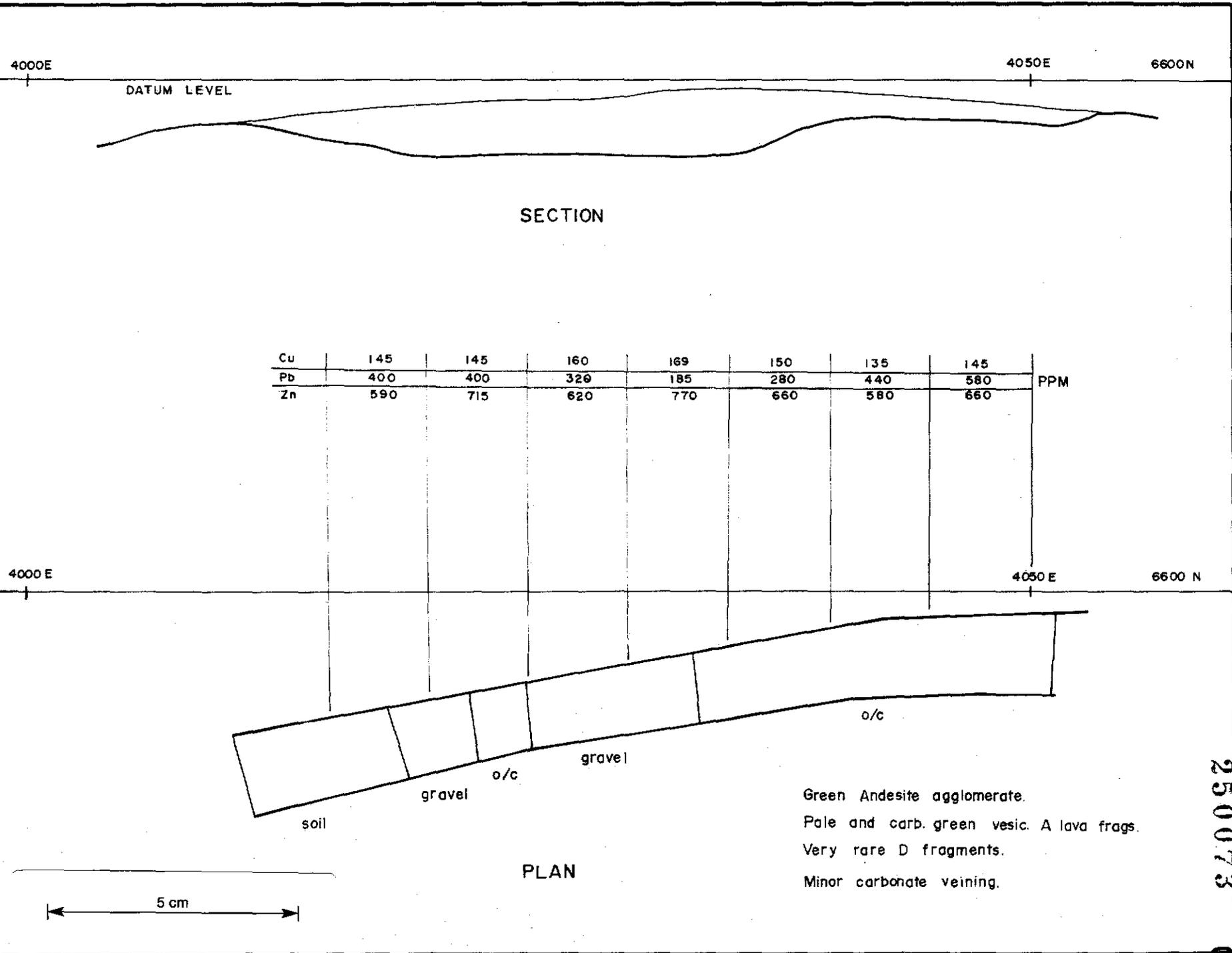


FIG. 14

250073 031

Drawn: GOB  
 Traced: JD  
 Checked:  
 Revised by: Date

**Abminco Exploration**

NORTH WEST TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 7200N  
 PLAN and SECTION

Location code:  
 Date: JULY 1977  
 Scale: 1:250  
 Plate No HT 23/7200N

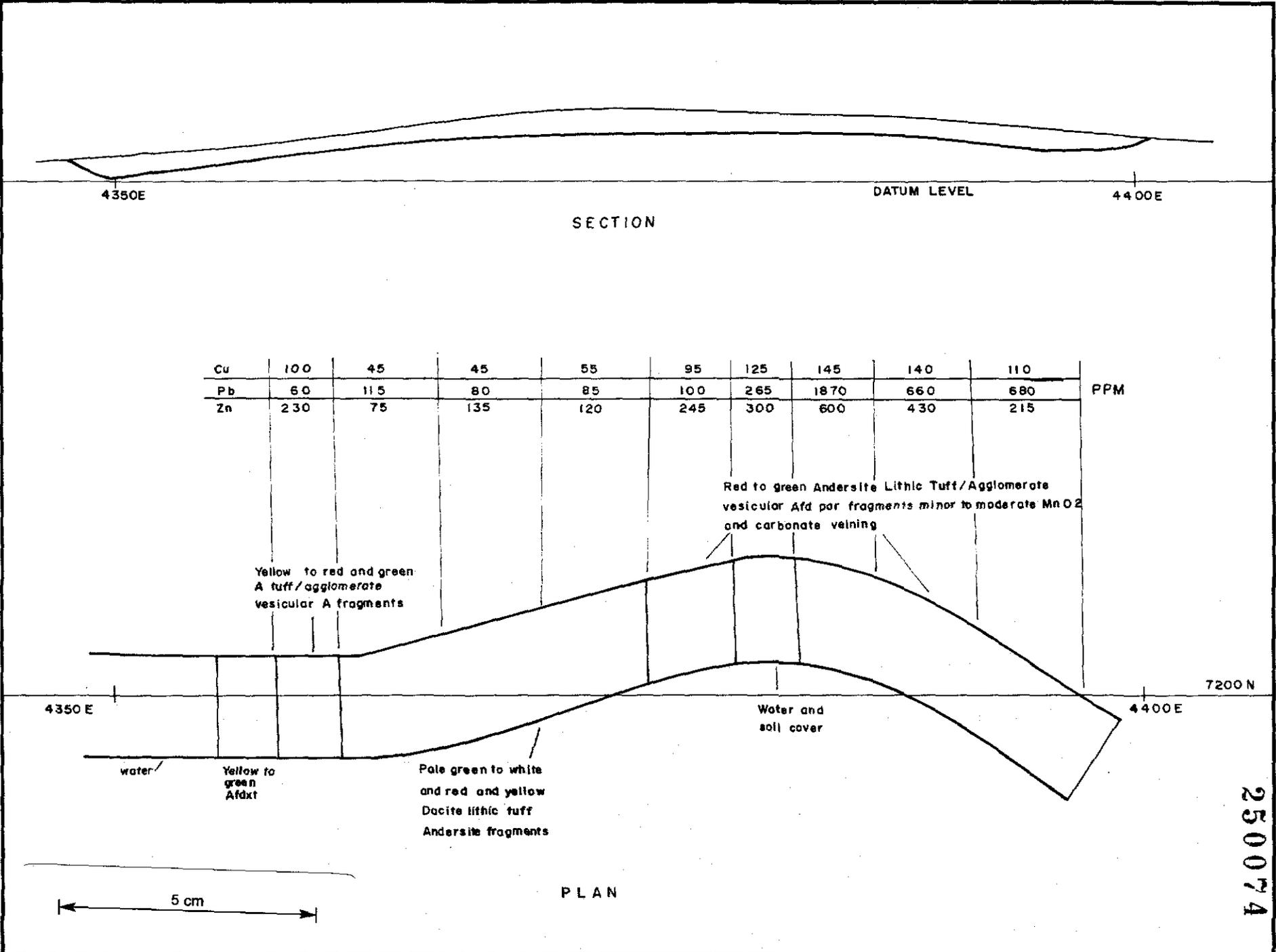


FIG. 15

250074

250075

3850E

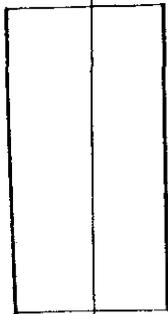
3800E

3850E

CREEK

SECTION

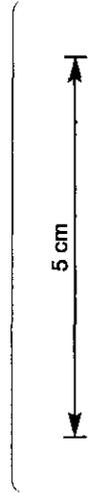
PLAN



Massive black shale

Soil

3800E



5 cm

FIG. 16

 **Abminco Exploration**

Drawn:	G.O.B.
Traced:	A.E.R.
Checked:	
Revised by:	Date:

NORTH WESTERN TASMANIA  
 HATFIELD E.L.15/73  
 Costean Line 8400N  
 PLAN and SECTION

Location code:	
Date:	August 1977
Scale:	1 : 2 50
Plate No	Ht 23/8400No

250076 026

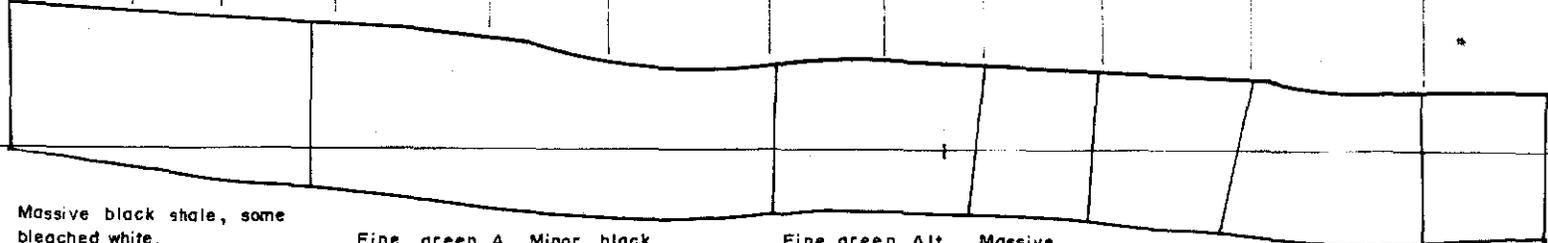
DATUM LEVEL

3900E

5 cm

SECTION

Cu	90	110	120	130	130	135	120	55	40	40	50	PPM
Pb	45	35	30	30	35	30	65	135	50	40	35	
Zn	25	30	55	75	60	80	20	25	30	55	60	



Massive black shale, some bleached white.

Fine green A Minor black shale fragments.

Fine green Alt with bsh frags. to 10cm

Massive black shale

Black shale Breccia or agglomerate Carbonate veined

Carbonate veined Brecciated vesicular Andesite lava

Soil

3900E

PLAN

Creek

FIG. 17.

**Abminco Exploration**

NORTH WESTERN TASMANIA  
 HATFIELD E.L. 15/73  
 Costean Line 8400N  
 PLAN and SECTION

Drawn: G.O.B.

Traced: A.E.R.

Checked

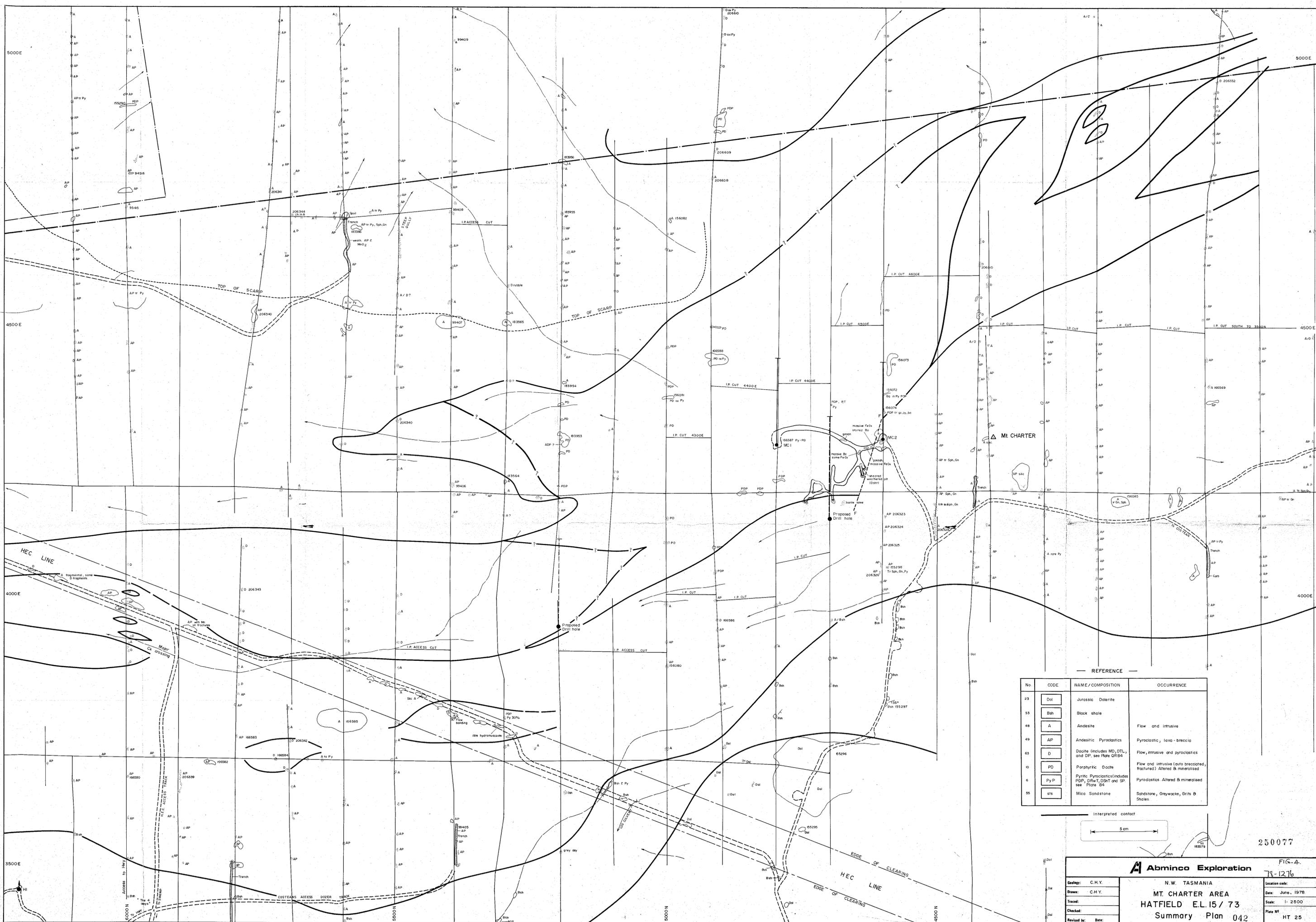
Revised by \_\_\_\_\_ Date \_\_\_\_\_

Location code:

Date: August 1977

Scale: 1:250

Plate No Ht 23/8400Nb



REFERENCE

No.	CODE	NAME/COMPOSITION	OCCURRENCE
23	Dol	Jurassic Dolerite	
53	Bsh	Block shale	
48	A	Andesite	Flow and intrusive
49	AP	Andesitic Pyroclastics	Pyroclastic, lava-breccia
63	D	Dacite (includes MD, DTL, and DP. see Plate OR 84)	Flow, intrusive and pyroclastics
10	PD	Porphyritic Dacite	Flow and intrusive (auto brecciated, fractured) Altered & mineralised
6	PyP	Pyrite Pyroclastics (includes PDP, DPW, DSPT and SP. see Plate 84)	Pyroclastics. Altered & mineralised
55	sts	Mica Sandstone	Sandstone, Greywacke, Grits & Shales.



250077

FIG. 4.  
78-1276

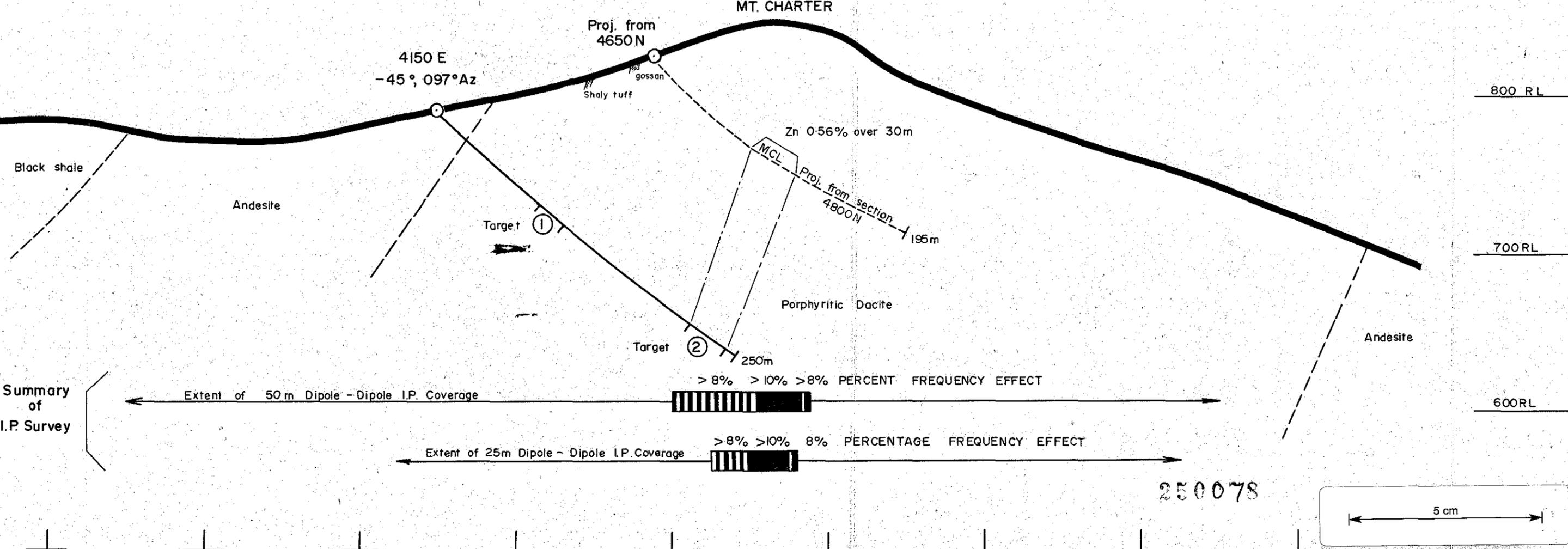
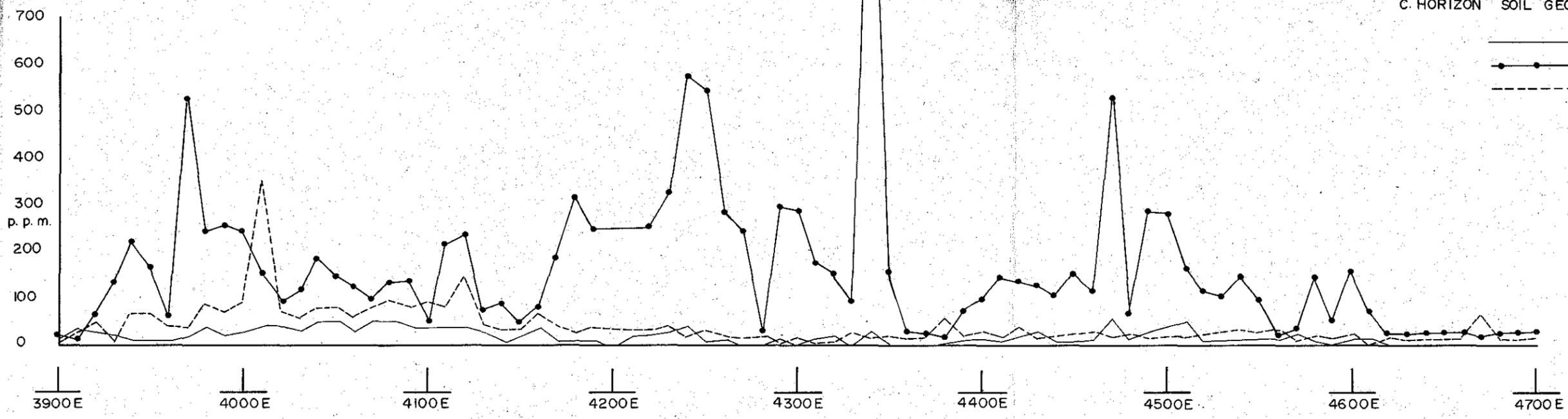
Location code: HT 25

Date: June, 1978  
Scale: 1: 2500  
Plan No:

**Abminco Exploration**

N.W. TASMANIA  
**MT. CHARTER AREA**  
**HATFIELD E.L. 15/ 73**  
**Summary Plan 042**

Geology:	C.H.Y.
Drawn:	C.H.Y.
Traced:	
Checked:	
Revised by:	Date:



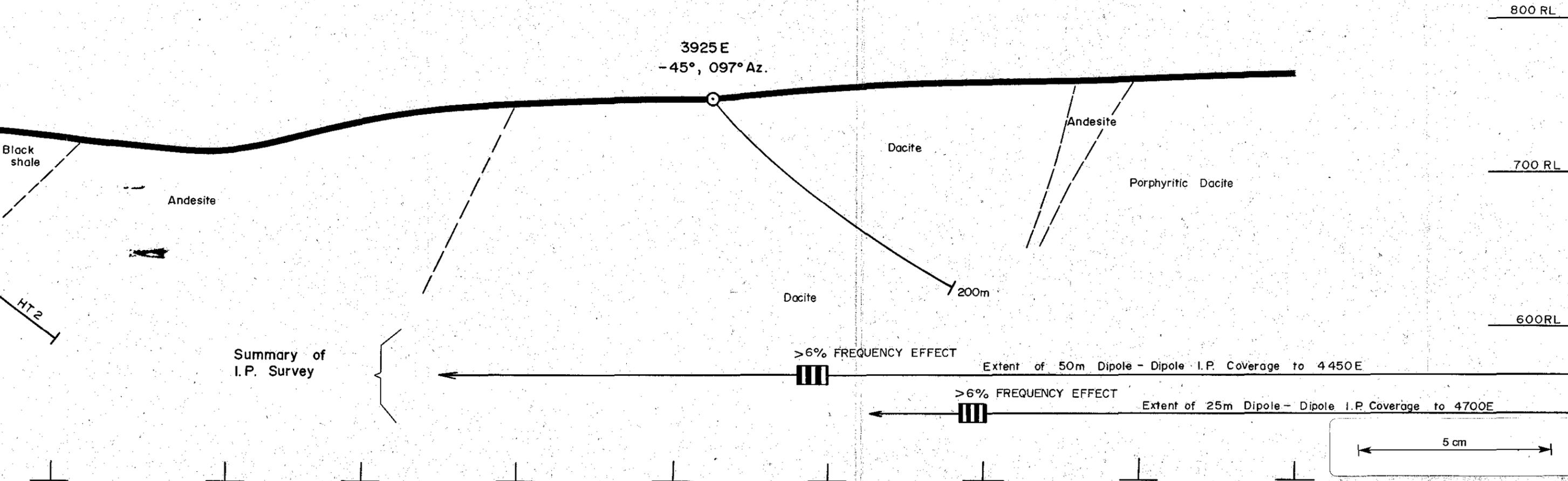
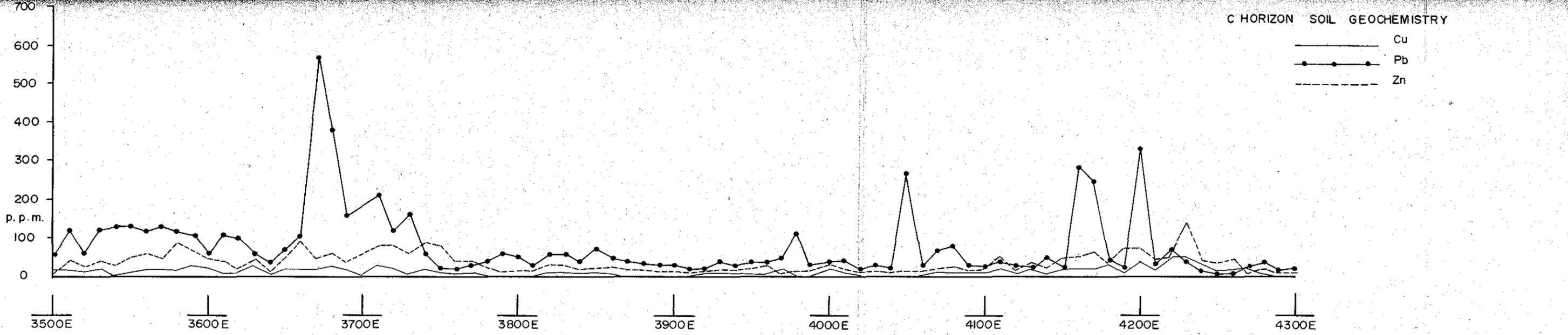
250078

FIG. 5.

78-1276

**Abminco Exploration**

Geology: C.H.Y.	N.W. TASMANIA 044	Location code:
Drawn: C.H.Y.	HATFIELD E.L. 15/73	Date: June, 1978
Traced: R.J.E.	<b>Mt. Charter - Section 4700 N</b>	Scale: 1:2500
Checked:	PROPOSED DRILL HOLE	Plate No Hat 27
Revised by:    Date:		



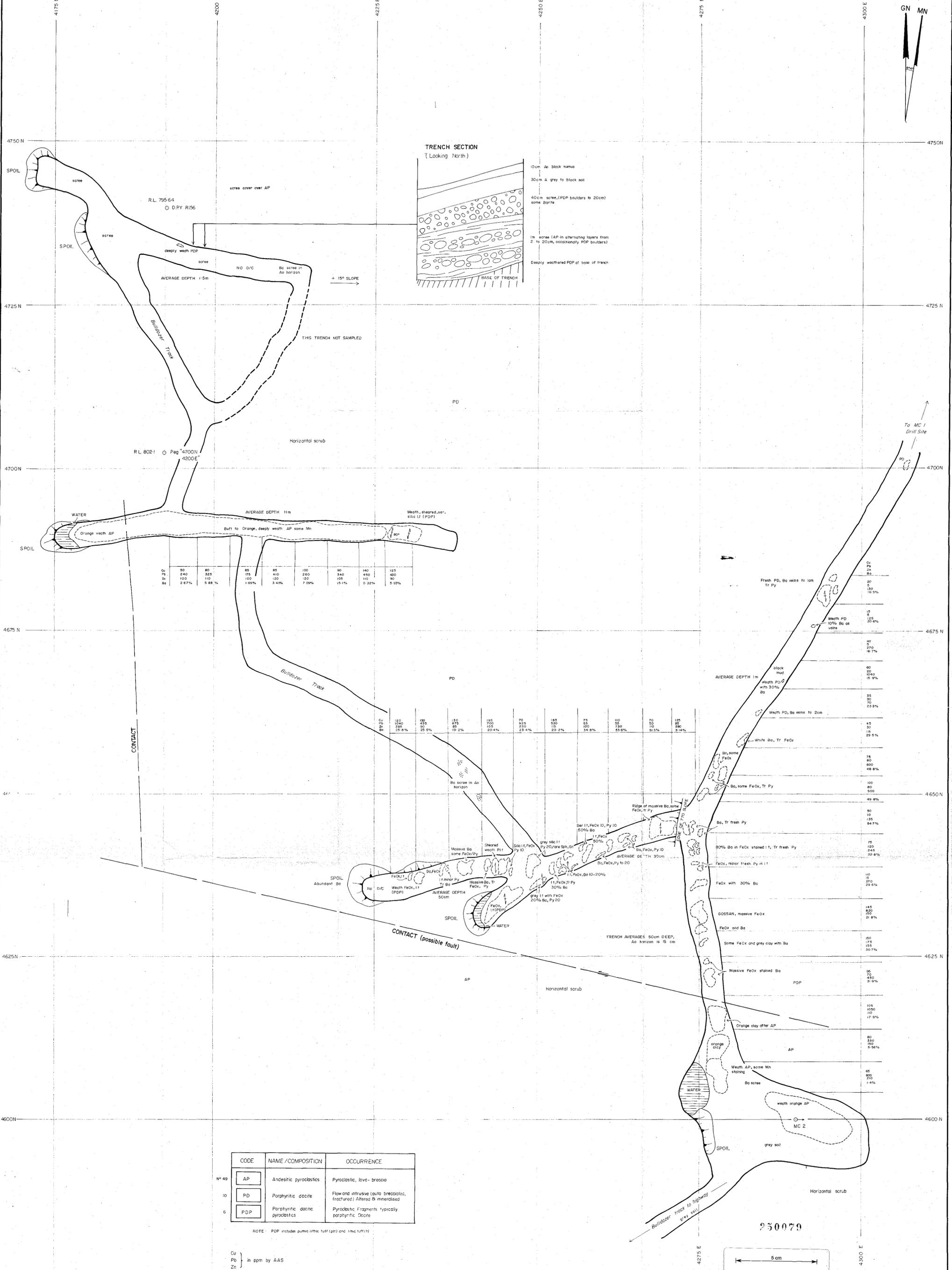
250078A

FIG. 6.

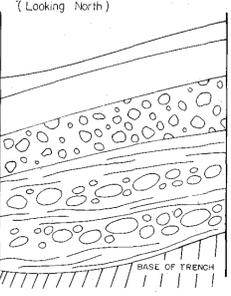
78-1276

**Abminco Exploration**

Geology: C.H.Y.	N.W. TASMANIA	Location code:
Drawn: C.H.Y.	HATFIELD EL.15/73 045	Date: June, 1978
Traced: R.J.E.	<b>Mt. Charter - Section 5200N</b>	Scale: 1: 2500
Checked:	PROPOSED DRILL HOLE	Plate No: Hat 28
Revised by:      Date:		



**TRENCH SECTION**  
(Looking North)



- 10cm Ao block humus
- 30cm A grey to black soil
- 40cm scree (PDP boulders to 20cm) some Barite
- 1m scree (AP in alternating layers from 2 to 20cm, occasionally PDP boulders)
- Deeply weathered PDP at base of trench

	80	80	65	85	100	90	140	125
Cu	240	325	275	410	260	340	450	430
Pb	100	110	100	120	120	105	110	90
Zn	2.67%	5.88%	1.69%	3.44%	7.09%	15.1%	0.32%	5.93%

	120	150	180	195	70	185	75	110	70	185
Cu	1040	435	625	700	90	500	500	750	10	850
Pb	285	10	10	10	10	10	10	10	10	10
Zn	12.8%	2.6%	19.2%	20.4%	23.4%	23.2%	34.8%	23.8%	9.3%	3.4%

	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Cu	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Pb	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Zn	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Fe	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

CODE	NAME / COMPOSITION	OCCURRENCE
AP	Andesitic pyroclastics	Pyroclastic, lava- breccia
PD	Porphyritic dacite	Flow and intrusive (auto brecciated, fractured) Altered & mineralised
PDP	Porphyritic dacitic pyroclastics	Pyroclastic Fragments typically porphyritic Dacite

NOTE: PDP includes pumice (with tuff) and tuff (with PDP)

Cu } in ppm by AAS  
Pb }  
Zn }

250079

5 cm

<b>Abminco Exploration</b>		FIG. 18.
NORTH WEST TASMANIA		78-1276
HATFIELD E.L. 15/73		Location code:
Mt. Charter Area		Date: MAY 1978
TRENCH PLAN		Scale: 1:250
041		Plate No
Revised by: Date:		HAT 24

5000E

5000E

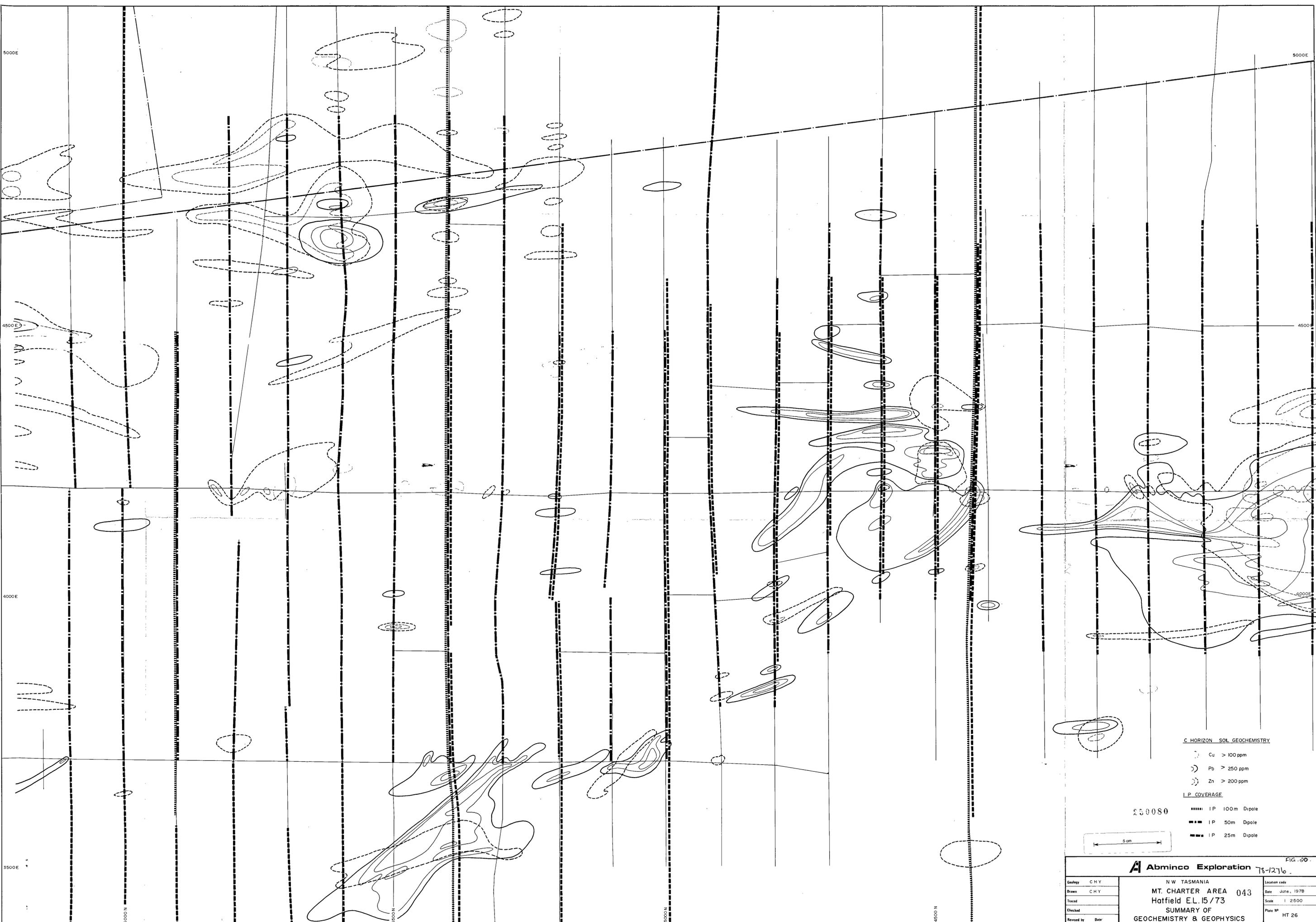
4500E

4500E

4000E

4000E

3500E



C HORIZON SOL GEOCHEMISTRY

- Cu > 100 ppm
- ◐ Pb > 250 ppm
- ◑ Zn > 200 ppm

I.P. COVERAGE

- ..... IP 100m Dipole
- IP 50m Dipole
- IP 25m Dipole

250080



Abminco Exploration 78-1276

Geology	CHY	NW TASMANIA	Location code
Drawn	CHY	MT. CHARTER AREA 043	Date June, 1978
Traced		Hatfield E.L. 15/73	Scale 1:2500
Checked		SUMMARY OF	Plate No HT 26
Revised by	Date	GEOCHEMISTRY & GEOPHYSICS	

FIG. 00.