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A REPORT ON
GRADIENT ARRAY ELECTRICAL INDUCED POLARIZATION
AND TOTAL MAGNETIC FIELD SURVEYS
OVER THE GOWRIE PARK GRID
ON BEHALF OF
C.R.A. EXPLORATION PTY. LIMITED

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INTRODUCTION

At the request of Mr. M. Kirton, Senior Geophysicist Eastern Division, and Mr. G. Purvis, Project Geologist for Northern Tasmania, Scintrex Pty. Ltd. undertook geophysical surveys over the Gowrie Park grid near Gowrie Park, Northern Tasmania on behalf of C.R.A. Exploration Pty. Limited. These surveys were undertaken in conjunction with similar surveys performed by Scintrex Pty. Ltd. and by C.R.A. Exploration over the East and West Cethana grids to the immediate west of Gowrie Park grid.

The first phase of the work consisted of reconnaissance gradient array electrical induced polarization and total magnetic field surveys over the whole of the reconnaissance grid. A 20 metre potential dipole employing a three slice decay form for the chargeability observations was employed by a two operator crew consisting of Mr. G. Street B.Sc., and Mr. B. Ekstrom on about 13 production days between 13th July and 31st July, 1977 during which the 18.6 kilometres of EIP and magnetics were surveyed.

The second phase consisted of about 11½ kilometres of detailed

gradient EIP run at 10 metre potential dipoles using all six decay slices on both the original and intermediate spaced lines in areas which had shown anomalous chargeability on the reconnaissance grid. These surveys were conducted on about 8¼ double operator production days between the 2nd and 10th September, 1977. In all over 1300 individual EIP stations were observed over this period.

SURVEY EQUIPMENT

The energising unit for the induced polarization survey consisted of a Scintrex 10/15KW induced polarization transmitter powered by a Volkswagen industrial motor. The resultant primary *(apparent resistivity)* and secondary *(induced polarization)* potential fields were observed using Scintrex IPR-8 induced polarization receivers. The magnetic field was observed using two proton precession magnetometers, one positioned and read at a base station, and a second instrument on line.

DESCRIPTION OF THE PARAMETERS OBSERVED AND PRESENTED

These are discussed in report TAS-043/045 but are repeated again here for completeness, and refer to the detailed surveys only. These basic observations of resistivity, chargeability and decay form were made in as much detail as practicable in order to differentiate apparently like zones within areas of higher chargeability located on the reconnaissance survey.

The parameters were as follows.....

1. a potential dipole of 10 metres was used.
2. a two second energisation was used.
3. all six decay slices were measured at each station.

From the above, the following parameters were calculated and plotted on the data profiles at the scales given.

M_3 the third decay slice at a scale of 1 centimetre = 2 millivolts/volt

ρa the apparent resistivity expressed in ohm-metres on a 10 centimetre log cycle.

$M_3/\rho a$ the chargeability/resistivity ratio (or "metal factor"). This parameter was multiplied by a factor of 1000 for plotting purposes and the scale employed was 1 centimetre = 2 units.

ΔM the rate of decay $|M_6| - |M_1|$ at the scale of 1 centimetre = 1 millivolt/volt

$\Delta M/M_3$ the decay rate *normalised* for the absolute magnitude of the induced polarization response. (For the purposes of presentation this ratio was multiplied by a factor of 100.) The scale used was 1 centimetre = 2 units.

Some comments are warranted on the geological significance of the more complex parameters in order that their significance can be readily appreciated.

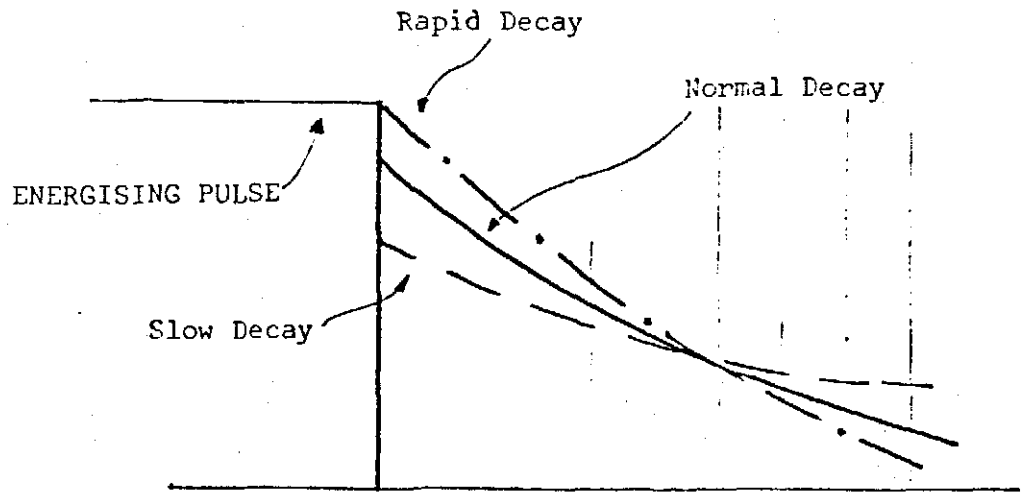
Firstly..... the chargeability/resistivity ratio, or metal factor, $M_3/\rho a$. This parameter emphasises those zones which are both *chargeable* and *less resistive* than background. This parameter is an attempt to adjust the chargeability which is always proportional to the *total effective surface area* of the chargeable material for the *lessening* of chargeability which occurs when sulphide grains become electrically connected, which necessarily would reduce their chargeability. Put in another way, this is an attempt to emphasise *"massive"* mineralisation as opposed to *disseminated* mineralisation. In the author's opinion this is *not* a very meaningful parameter, but it *is* worth considering in a case such as Gowrie Park where *differences* are required to be emphasised.

Secondly..... the rate of decay ΔM. Some six slices under the decay curve were analysed. Some additional explanation is necessary in respect of this data. Each of the six slices is *normalised* to take account of the "normal" decay form. This is done within the IPR-8 itself. Thus, if the decay form *is* normal, all six slices will be equal, i.e. $M_1 = M_2 = M_3 = M_4 = M_5 = M_6$. For abnormally slow decay forms, $M_1 < M_2 < M_3 < M_4 < M_5 < M_6$, and for abnormally fast decay forms, $M_1 > M_2 > M_3 > M_4 > M_5 > M_6$. This is diagramatically shown in Figure 1. It follows that ΔM will be *POSITIVE* for slow decay rates and *NEGATIVE* for fast decay rates.

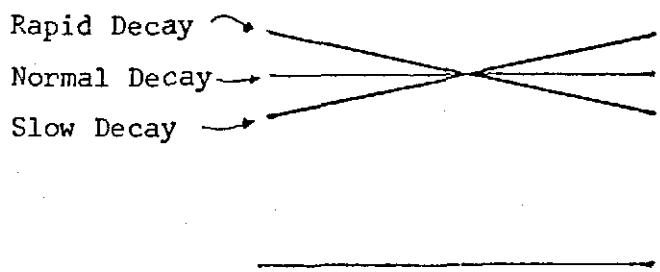
The geological meaning of decay rates is as follows: The decay rate is determined predominantly by the grain size of the causative

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I(a) Actual Decay



I(b) Decay as read in IPR-8
after normalisation

Decay Slice M_1 M_2 M_3 M_4 M_5 M_6

FIGURE I

Actual (a) and normalised (b) decay form as read and processed by Scintrex IPR-8

mineralisation. Slow decay rates are caused by "large" effective grain size, while fast decays are due to fine grain size mineral assemblages. While the grain size is not the sole determinant, in our experience it is the dominant one.

Thirdly..... the decay rate ΔM itself cannot be assessed, as the *magnitude* of the chargeability itself must be considered. Therefore in an attempt to adjust for the size of the induced polarization responses, a parameter entitled normalised decay rate, ΔMn, is defined as follows:

$$\Delta Mn = \frac{\Delta M}{M_3} = \frac{M_6 - M_1}{M_3}$$

Consideration of the parameter, ΔMn, in conjunction with the chargeability M_3, will indicate those zones which have "massive", but in this case, non-electrically continuous sulphide mineralisation The signature should be large positive ΔMn together with anomalous M_3 *and* preferably *lower than background* (but not necessarily low) apparent resistivity. It is perhaps significant that just such conditions were recorded over the intersected mineralisation in DDH-CC5, line 21750E, 020S-030S on the East Cethana grid.

PRESENTATION OF DATA

The data profiles for both the reconnaissance and detailed work are presented on individual sheets and are at the scales given in the section "Description of the Parameters Observed and Presented"

The three contour interpretation plans of chargeability, resistivity and total magnetic field are at the scale of 1:2500, as is the physical property interpretation map. (Plates 1 to 4 respectively)

DISCUSSION OF RESULTS

Reconnaissance Survey

The reconnaissance phase covered the sections of lines listed below.

22600E	3800S	- 2400S
100E	1475S	- 100N
300E	1350S	- 200N
500E	1300S	- 200N
700E	1400S	- 200N
900E	1400S	- 200N
1100E	1500S	- 300N
1300E	1600S	- 400N
1500E	1700S	- 00
1700E	1800S	- 00
1900E	2070S	- 00

From a study of the above data it is readily apparent that the background chargeability in the area was a low 4 to 8 millivolts/volt, which is similar to the backgrounds defined in the East Cethana area immediately to the west. This low background level was recorded throughout the grid area and is characteristic of a low mafic mineral content within the rocks. The background decay rates are normal to

fast, indicating an inefficient and/or fine grained source .

While the background resistivities vary from 500 to 5000 ohm-metres, they show an increase from north to south, with a pronounced change at about the stations listed below.

100E at 525S
300E at 275S
500E at 175S
700E at 100S
900E at 100S
1100E at 375S
1300E at 600S(?)
1500E at 700S
1700E at 700S
1900E at 850S

To the south of the above boundary the resistivities are *about* the 3000 ohm-metres level, while to the north the background varies about the 500 to 600 ohm-metres level. This transition must represent a major change in rock type.

It is perhaps significant that the background chargeability remains low over the lowest resistivity section (on the northern section of all lines) and shows no material chargeability anomalies. This section therefore is not considered to have any potential for sulphide mineralisation.

The northern flanks of all lines are marked by local increases in total magnetic field of 200 to 400 gamma. (For an interpretation of these features see the magnetic contour map). In most cases the increased magnetic field is accompanied by a material reduction in the apparent resistivity over *at least* a portion of its width. Thus the weakly conductive magnetite source is less resistive than the enclosing rocks for the most part. There is never any material increase in the low chargeability background, thus the source rock unit has quite a distinctive signature.

To the south of the magnetic features described above, the magnetic field shows a steady increase to the south after reaching a distinct broad low on each line, the approximate centre of which is....

22600E	at	2580S
100E	at	200S
300E	at	130S
500E	at	190S
700E	at	260S
900E	at	300S
1100E	at	560S
1300E	at	700S
1500E	at	1000S
1700E	at	1150S
1900E	at	900S

However, the boundary does not form a clear cut line as the contour

interpretation shows.

In the vicinity of the chargeability zones which was the loci for the detailed EIP gradient work described below, the chargeability responses overall are accompanied by a local reduction in the high resistivity background, and are accompanied by local "noise" in the magnetic field showing that the sulphide (or/and graphite?) source is accompanied by localised weak magnetite also.

Detailed Survey

From the reconnaissance survey briefly described above, areas of higher chargeability were selcted for detailed work by Mr. M. Kirton as follows:

22300E	3675S - 3200S	East Cethana Grid	
22400E	3650S - 3200S	East Cethana Grid	
22600E	3530S - 3050S	East Cethana/Gowrie Park Grid	
100E	1160S - 650S	Gowrie Park Grid	
200E	1100S - 500S	" " "	
300E	1150S - 550S	" " "	
500E	1050S - 540S	" " "	
700E	1200S - 500S	" " "	(Duplication)
800E	1200S - 500S	" " "	
900E	1100S - 600S	" " "	
1000E	1200S - 700S	" " "	
1100E	1510S - 800S	" " "	

1200E	1600S - 900S	Gowrie Park Grid
1300E	1575S - 1050S	" " "
1500E	1710S - 1300S	" " "
1600E	1830S - 1300S	" " "
1700E	1810S - 1300S	" " "
1800E	2050S - 1400S	" " "
1900E	2075S - 1550S	" " "

A detailed discussion of each line follows.

A theoretical "geophysical baseline" has been marked on each profile by a solid triangle and annotated "GB". This is a line drawn at right angles to the surveyed lines to enable an easy interline correlation to be made between lines which do not form a symmetrical grid. (See Plate 2 resistivity for position of the theoretical baseline)

EAST CETHANA GRID

Line 22300E (Geophysical Baseline at 3288S) ..... A broad chargeability high of up to 26 millivolts/volt was recorded between 3380S and 3550S. Within this zone a number of distinct peaks were noted as follows:

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
3525S	26 mv/V	2400 Ωm (Relative high)	+6	11.2	20 metres
3480S	27 mv/V	2400 Ωm (Relative high)	+7.4	14.6	25 metres

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
3445S	25 mv/V	2400 Ωm (Relative high)	+10	10.8	25 metres.

The source of all the above responses is considered to be disseminated chargeable material of coarse grain size within a host which is resistive relative to the enclosing material. This zone appears to correlate to the west with that recorded between 3362S and 3590S.

Line 22400E (Geophysical Baseline at 3292S) ..... Higher than background chargeabilities were recorded between 3300S and 3610S on this line. It is not possible to correlate any individual responses between this line and the lines to the immediate east and west.

The most significant chargeability response was a high of over 32 millivolts/volt at 3545S which shows normal decay forms and is flanked by above 16 millivolts/volt chargeabilities between about 3480S and 3590S. While the resistivities show a decline to about 2100 ohm-metres from over 3200 ohm-metres to the north and south, the interpreted source is finely disseminated sulphide material from within a resistive host.

Other responses recorded are not considered to be significant.

Line 22600E (Geophysical Baseline at 3120S) ..... A broad dome of induced polarization from a low 4 millivolts/volt base at 3540S

and 3050S reaching over 16 millivolts/volt between 3150S and 3390S was recorded.

As the chargeabilities over this zone come from resistivities above 2000 ohm-metres for the most part, the source is considered always to be disseminated or electrically discontinuous material, if "massive within a resistive host. With the notable exceptions of the anomalies listed below, the background chargeabilities are caused by a finely disseminated source for the most part.

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
3365S	23 mv/V	2700 Ωm (Average)	+2	6.9	25 metres
3335S	21 mv/V	2600 Ωm (Average)	+8	7.9	20 metres
3290S	21 mv/V	1800 Ωm (Average)	+2	≈11.5	20 metres
3255S	19 mv/V	2000 Ωm (Average)	+10	8.6	10 metres
3235S	24 mv/V	3000 Ωm (Average)	+5	9.1	10 metres

None of the above anomalies are considered as possible drilling targets.

GOWRIE PARK GRID

Line 100E (Geophysical Baseline at 805S) ..... A zone of higher than the low (6 millivolts/volt) background chargeability was

recorded between 725S and 1000S and is difficult to correlate with the higher chargeabilities which occur along strike to the east and west.

The most significant response from within this zone was a 26 millivolts/volt anomaly centred at 920S which is coincident with *higher* resistivities than background of 2800 ohm-metres and *slow* decay forms. The finely disseminated sulphide source within a resistive host is not considered of interest.

There are no other significant responses except perhaps the sharp anomaly of 20 millivolts/volt at 725S against the low 1 millivolts/volt background seen immediately to the north. This is the first major event moving from north to south and it *may* be correlated with the "discovery" anomaly on line 21750E on the East Cethana grid.

Line 200E (Geophysical Baseline at 705S).....Locally anomalous peaks of the order of 20 millivolts/volt against a 14 millivolts/volt local background were noted at 875S-780S, 765S and 725S. All are accompanied by slow decay forms and occur within high 2000 ohm-metres resistivities. As such they are interpreted to be coarsely disseminated sulphides (and/or graphite) within a resistive host.

Line 300E (Geophysical Baseline at 700S) ..... A series of local peaks which rise to 16 to 20 millivolts/volt against the anomalously low

8 millivolts/volt background are all associated with high 2600 to 3000 ohm-metres resistivities, and as such are interpreted as being due to wholly disseminated sources within a resistive host. Within these zones there are no responses which are considered of primary or even secondary interest.

The events on this line cannot be correlated either to the east or west.

Line 500E (Geophysical Baseline at 700S) ..... Broadly higher chargeability of ± 16 millivolts/volt were recorded above the 10 millivolts/volt background between 600S and 925S. All these response: occur within rocks having resistivities of between 2600 and 3100 ohm-metres. Therefore the source of the chargeability is interprete as being of a disseminated form within a resistive host.

None of the individual peaks within this zone is considered to be significant with the possible exception of that recorded at 725S which shows 20 millivolts/volt associated with slow (ΔMn = 8) decay form *but* within 3000 ohm-metres resistivities. The data on this line cannot be related either to the east or west in detail.

Line 700E (Geophysical Baseline at 840S) NOTE: This line was surveyed TWICE once from each of the adjacent currnet dipoles ..... In detail the two surveyed profiles show variation in amplitude, and form, but in general there is excellent correspondence.

The most significant response was recorded centred at about 895S. At this point a 30 millivolts/volt anomaly which shows a slow (ΔMn = +6) decay form was recorded coincident with a material 65% drop in apparent resistivity to about 1300 ohm-metres. This anomaly is considered significant and should be followed up as a target of primary interest to secondary interest. While it cannot be traced west, it *may* correlate with a smaller but nevertheless significant response at 925S on line 800E.

A distinct twin response of about 22 and 20 millivolts/volt was recorded at 785S and 800S respectively from a source which is more resistive than the enclosing material (3800 ohm-metres). The decay form is normal to slow. The interpreted source is disseminated sulphides of normal to coarse grain size within a resistive medium at a maximum depth of 25 metres. The resistive nature of the source, however, detracts from its possible economic interest.

An unusual response of over 30 millivolts/volt was located at 525S from within a *slight* (20%) fall in apparent resistivity to 2500 ohm-metres. The source is obviously narrow, and has a maximum depth of less than 10 metres. The decay form is normal, however, the decay forms within the low 8 millivolts/volt backgrounds to north and south are very fast by comparison (ΔMn = -8). This response is considered to be too small to be of economic interest.

An induced polarization response of 24 millivolts/volt was recorded

between 1080S and 1115S. The anomaly appears of much greater significance on the western current dipole than on the eastern current dipole. However, the high 2000 to 4000 ohm-metres resistivities and faster decay rates than for the background reduce its possible merit, although it can be traced east to cross line 800E at about 1100S (see below.)

Line 800E (Geophysical Baseline at 850S) ..... A substantial 38 millivolts/volt response centred at 1095S is associated with resistivities which *fall* to about 2000 ohm-metres on the northern flank of this response from 3000 to 4500 ohm-metres to the immediate north and south. This response is associated with slow decay forms of $\Delta Mn = +8$ over the response. To the east it is related to 1165S/900E and to the west to 1095S/700E. This response is considered of secondary or perhaps primary interest.

At 925S a 28 millivolts/volt response is associated with high resistivities of about 3000 ohm-metres from material having a normal decay form. This response is probably related to the material response of 32 millivolts/volt at 900S on line 700E, and perhaps a 26 millivolts/volt response on line 900E at 995S which can be traced for at least a further 300 metres east. This response is of tertiary interest.

Two significant and related responses are considered to be of interest. The details are as follows.....

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
825S	28 mv/V	2000 Ωm(15%) (Relative low)	+6	12.2	25 metres
785S	22 mv/V	1700 Ωm(20%) (Relative low)	+8	11.1	20 metres

The response at 825S is considered of secondary interest. The more northerly response is also worthy of some further attention.

Line 900E (Geophysical Baseline at 945S) ..... A series of moderate chargeability highs of about 24 millivolts/volt were located within a distinct zone between 875S and 1010S. This probably correlates with the high described above between 770S and 930S on line 800E and the series of material highs on line 1000E between 960S and 1130S.

The details are as follows....

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
995S	27 mv/V	2000 Ωm (Average)	+4	9.1	25 metres
945S	26 mv/V	2000 Ωm (Average)	-1	12.5	25 metres
905S	26 mv/V	2600 Ωm (Relative high)	+8	13.2	20 metres

None of the above chargeability anomalies are considered to be of prime interest.

A sharp 24 millivolts/volt response centred at 705S and associated with a 40% fall in apparent resistivity to 1500 ohm-metres was observed to have a slow normalised decay form of +8. The maximum depth to this narrow source is considered to be less than the potential dipole spacing used, namely, 20 metres.

Line 1000E (Geophysical Baseline at 1027S) ..... There are three chargeability maxima above 20 millivolts/volt between 1010S and 1130S whose details are set down below. These responses are considere to be related to a similar anomaly seen on line 1100E between 1070S and 1210S.

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
*1115S	36 mv/V	2000 Ωm (Average)	+3	18.4	25 metres
1075S	24 mv/V	2600 Ωm (Relative high)	-8	9.5	20 metres
*1025S	40 mv/V	1500 Ωm(50%) (Relative low)	+2	20.5	25 metres

In spite of the normal decay forms, two of the anomalies above are considered to be of possible secondary interest. The anomaly at 1115S is related to a similar response of 32 millivolts/volt on line 1100E which is also considered to be of secondary interest.

Line 1100E (Geophysical Baseline at 1077S) ..... The most significant feature of a series of chargeability highs between 14 and 22 millivolts/volt *above* the 10 millivolts/volt background, was located

between 1062S and 1210S. This zone can be related to broadly similar zones on line 1000E between 1010S and 1130S, and on line 1200E between 1170S and 1355S. In detail this zone is as follows....

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
*1195S	33 mv/V	2000 Ωm(45%) (Relative low)	+9	15.6	25 metres
*1165S	24 mv/V	1500 Ωm(55%) (Relative low)	+9	10.3	25 metres
1145S	25 mv/V	3200 Ωm (Average)	+8	7.9	15 metres
1085S	25 mv/V	2500 Ωm (15%) (Relative low)	+10	10.4	20 metres

The first two responses listed above are considered of secondary interest.

A rapid rise in apparent resistivity from 5000 ohm-metres to over 20,000 ohm-metres at 1500S is considered to be the boundary between the volcanogenic sequence to the north and the resistive Rowland Conglomerate. To the immediate north of the resistivity change referred to above, a 20 millivolts/volt chargeability response centred at 1485S was observed. This anomaly can be related to similar responses to the east, however, to the west, the lines do not traverse sufficiently far south to encounter the contact. The source is interpreted as being disseminated sulphide (or graphite) of normal to fine grain size within a very resistive host rock at a maximum depth from surface of 25 metres.

Line 1200E (Geophysical Baseline at 1180S) ..... The general profile form of the chargeability observed on this line is similar to that seen on line 1100E to the west and line 1300E to the east.

High chargeability of above 18 millivolts/volt was recorded between 1162S and 1350S. The source has a very sharp contact with the enclosing rocks, and is at a shallow depth (less than 10 metres) below surface. This zone is equivalent *overall* to that recorded on line 1100E between 1062S and 1210S but shows marked variation from it in *detail* which also holds true for line 1300E to the east. In detail, significant peaks within this zone were recorded as follows

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
1345S	26 mv/V	2600 Ωm (Relative high)	+8	9.3	10 metres
1325S*	26 mv/V	2000 Ωm (Relative low)	+8	11.4	10 metres
1255S*	26 mv/V	1300 Ωm(70%) (Relative low)	+6	16.4	10 metres
1225S	28 mv/V	2800 Ωm (Relative high)	+8	14.3	15 metres
1175S	20 mv/V	2800 Ωm (Relative high)	+6	7.2	25 metres

The positive ΔMn values infer a coarser than average grain size for the source material, while the generally high resistivities infer little interconnection between sulphide grains. Those anomalies which on a basis of comparison with the East Cethana Discovery area are considered of secondary interest, are shown with an asterisk.

A second group of anomalous chargeability responses was noted between 1150S and 1035S which is correlated with a similar group on line 1100E between 920S and 1015S, and, in much reduced importance, on line 1300E between 1100S and 1210S.

Three distinct peaks representing three distinct sources were noted as follows.....

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
*1125S	21 mv/V	1300 Ωm (45%) (Relative low)	+4	16	25 metres
1195S	20 mv/V	2400 Ωm (Relative high)	+7	8	10 metres
1062S	20 mv/V	2000 Ωm (Average)	+7	11	30 metres

Of these the response at 1125S is of possible secondary interest.

On the extreme southern end of the line, the chargeabilities rise from the 10 millivolts/volt background to over 19 millivolts/volt between 1525S and the end of the line at 1600S. The source is disseminated material of normal to fine grain size as shown by ΔMn values of +2 to -8. Of note in this vicinity is the rapid rise in apparent resistivity from about 4000 ohm-metres to in excess of 30,000 ohm-metres at 1580S. This certainly marks the position of the contact with the resistive Rowland Conglomerate unit on this line.

Line 1300E (Geophysical Baseline at 1228S) ..... Overall the profile

form on this line can be related to the lines both to the east and west within the most important unit between 1230S and 1425S (which broadly correlates with 1165S-1355S on line 1200E and 1440S-1625S on line 1500E), and has a number of chargeability maxima as follows..

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
1235S	20 mv/V	1800 Ωm (Relative low)	+4	12	25 metres
1255S	26 mv/V	3200 Ωm (Relative high)	+6	8	25 metres
1275-1350S	20/26mv/V	2000±Ωm (Average)	+ 5	12	10 metres
1370S	23 mv/V	2000 Ωm (Relative low)	+7	12	10 metres
*1412S	35 mv/V	2500 Ωm(20%) (Relative low)	+4→11 (S→N)	11	30 metres

All the above responses are considered to be due to disseminated chargeable material from within a host which shows little *material* reduction in chargeability, and none are suggested as follow-up targets.

A rise in chargeability within 3000 to 7000 ohm-metre resistivities was again noted on the southern flanks of this line at about 1530S. However, the very rapid rise in resistivity seen on the previous line was not encountered so it is assumed that the Rowland Conglomerate contact has not been crossed. The source of the chargeability response is considered to be fine to average grained chargeable material within a resistive host, and as such of little potential economic interest.

Line 1500E (Geophysical Baseline at 1420S) ..... The main zone of interest consists of 5 chargeability maxima between 1445S and 1625S which show extremely sharp contrasts with the enclosing rock units. To the south, unlike lines to the west (but often seen to the east) the contact is also seen as a rapid and substantial change in resistivity with the higher resistivities being to the south. Therefore a major change in rock type also occurs on the southern margin of this chargeability high. The detailed analysis is as follows....

Station	M_3	Resistivity	ΔMn	$M_3/\rho a$	Depth
**1615S	29 mv/V	1600 Ωm(75%) (Relative low)	+6	18	20 metres
1585S	30 mv/V	2000 Ωm (Average)	+9	14	15 metres
1555S	24 mv/V	2200 Ωm (Average)	+10	15	20 metres
*?1485S	24 mv/V	1300 Ωm(55%) (Relative low)	+10	18	20 metres
1455S	24 mv/V	3000 Ωm (Average +)	+8	8	30 metres

Of the above responses, that seen at 1615S is of secondary and possibly primary interest as it shows slow decay forms, relatively low resistivity and moderate chargeability. The response at 1485S is of possible secondary interest also.

Line 1600E (Geophysical Baseline at 1525S) .....The higher chargeability between 1525S and 1730S can be related to 1445S and 1625S on line 1500E, while the two moderate responses between 1470S and 1510S are

probably represented by a much smaller response between 1362S and 1410S on line 1500E. The profile form on line 1700E, however, does not permit a clear cut correlation with this line, although the major responses on 1700E between 1625S and 1710S and between 1500S and 1560S may be correlated to lesser responses on this (1600E) line between 1675S and 1730S and between 1470S and 1510S respectively.

The chargeability is greater than twice the 8± millivolts/volt background between 1562S and 1730S, and all through this zone decay forms are slow (ΔMn = +6). Within this broad zone the depth to source is interpreted as being less than 10 to 20 metres, and there are no specific zones of interest.

Line 1700E (Geophysical Baseline at 1520S) ..... On this line the most significant chargeability anomaly on the Gowrie Park grid was recorded from a chargeable source between 1645S and 1705S which is accompanied by a significant fall in resistivity to 600 ohm-metres at 1685S accompanied by the highest, 50 millivolts/volt, chargeabiliti The slow decay forms recorded between 1662S and 1695S infer a coarse effective grain size over this section. The maximum depth to source at 1685S is 30 metres and that to the secondary source at 1655S, the same. This anomaly is of prime interest and should be carefully followed up.

The above response is considered to correlate with much reduced responses to both east and west. Eventhough the magnitude of the

response is lower, the *form* is the same, and the resistivity also shows a significant fall.

A second lesser response of 18 to 25 millivolts/volt was located between 1500S and 1555S from within a host which shows no material contrast with the 2000 ohm-metres background resistivities. The decay form over the major peak of 24 millivolts/volt at 1525S is markedly slow at 13, showing the source to be coarsely disseminated. This anomaly has no clear correlative to either the east or west.

Line 1800E (Geophysical Baseline at 1618S) ..... From the low background of 4 to 6 millivolts/volt, two distinct 20 millivolts/volt anomalous zones were recorded. That between 1770S and 1815S is related to the major zone of interest at 1685S on line 1700E and is discussed in detail above. A second anomaly between 1675S and 1705S and accompanied by lower 1300 ohm-metre resistivities, and a *fast* decay form, is interpreted as originating from a finely disseminated source within a host which is relatively less resistive (50%) than the enclosing material.

A sharp change in resistivity from a high 5000± ohm-metres to a high 15,000 ohm-metres takes place at 2000S. It is considered that this point represents the contact with the resistive Rowland Conglomerate. To the immediate north of the contact, chargeabilities are a relatively high 18± millivolts/volt to as far north as 1962S. The source is interpreted as being disseminated sulphides (or

graphite). To the immediate south of the contact, the chargeability increases to a high 31 millivolts/volt at 2045S. The source must be disseminated chargeable material within an extremely resistive host which the decay form infers to be of fine grain. At this stage this anomaly is not considered of major interest.

Line 1900E (Geophysical Baseline at 1630S) .....Only minor 6 to 8 millivolts/volt above background responses were noted centred at 1625S and 1775S in the centre section of the line. Neither are considered of major interest.

At about 2025S a sharp change in resistivity was noted, with over 14,000 ohm-metres recorded at 2062S as against 4000 ohm-metres between 2025S and 1940S. This sharp change probably represents the position of the Rowland Conglomerate contact on this line.

Chargeabilities rise steadily from a low 10 millivolts/volt background at 1950S to over 30 millivolts/volt at 2062S within the higher chargeabilities of the supposed Rowland Conglomerate. The source is interpreted as being disseminated sulphide of normal to fine grain size within an extremely resistive host, and as such is not of economic interest at this stage of our understanding of ore bearing deposits in the region.

PHYSICAL PROPERTY MAPS

The data for these maps is drawn from all three surveys TAS-043, 045 and 049, and where necessary the East Cethana plates have been revised. Each physical property is discussed separately.

The Gowrie Park grid can be differentiated via its three physical properties into three main zones (see Plate 4) which must represent three different rock groups, and presumably therefore three different environments. Each of these regions is discussed by physical property below.

Total Magnetic Field Data

The data was acquired using one proton precession magnetometer at a base station read approximately every 5 minutes with one unit on line. The on-line data was corrected by the base station, and in general the resultant data is considered to have a relative accuracy between stations within the grid area of ±2½ gamma.

The data is displayed on Gowrie Park Report plate 3, and on East Cethana Report plate 3. The data is contoured at a 10 gamma contour interval. It is noteworthy that this data was acquired (i.e. Gowrie Park) in one day.

The magnetic data clearly shows three distinct broad zones to be present within the grid area.

The Central Zone is marked by a low magnetic relief generally within 62,100 ±50 gamma. This zone is about 400 to 500 metres wide and is centred at 2800S (±250 metres) on line 22600E, at 550S (±250 metres) on line 900E, and at 1020S (±200 metres) on line 1900E. On the northern margin of this zone, a series of lows were noted at about 100E/200S, 500E/180S and 1100E/550S. These locations must mark a distinct magnetite poor rock unit.

The Northern Zone consists of a series of magnetic highs trending grid north/south ±30°, which rise above the base level by 300 to 650 gamma. The maximum strike length of these distinctive features is 300 metres. Unlike those from the southern zone they are generall a broad (80 metres ±20 metres) feature. It is not clear whether these magnetite *richer* units represent lenses within a magnetite *poorer* sequence, or whether they represent faulting and/or folding of more lenticular bodies, or in fact a combination of both. The author favours a combination of both (See plate 4).

The Southern Zone The background to the south of the central zone is about 200 gamma higher than the central and northern zones, and superimposed on this background higher magnetic fields of up to 200 gamma were noted from narrow (25 metres ±) zones having strike lengths of less than 100 metres to over 600 metres. While both the northern and southern zones show higher magnetic field over lensoidal bodies, their nature is quite different, and therefore the causative rock units must also show material differences. In

the case of the southern zone, the magnetic data infers greater continuity along strike and less disturbance by faulting and folding.

The Resistivity Data

The resistivity contour map is shown on Plate 2 of the Gowrie Park report and Plate 2 (revised) of the East Cethana report. The *Central (magnetic) Zone* referred to above is characterised by resistivities in the range 2000 ±1000 ohm-metres, which show broad variation and slow changes. The *Northern Zone* shows much lower resistivities from 300 to 1500 ohm-metres with the "average" being about 1000 ohm-metres. In general local *increases* in magnetic field coincide with *lower* apparent resistivities. (This is in contrast to the southern zone where the reverse is the general rule - see below). On the whole, the interpreted strike direction and displacements are similar for both the magnetic and resistivity features. *The Southern Zone* is characterised by higher apparent resistivities which vary about the 3000 to 5000 ohm-metres range. The *relative* resistivity lows can be traced over hundreds of metres and they tend to bear no relationship to the magnetic data other than in strike direction. The magnetic features do tend, however, to have higher apparent resistivities associated with them.

On the extreme south of lines 1100E, 1200E and 1300E, and lines 1800E and 1900E, a very sharp increase in apparent resistivity probably marks the edge of the Rowland Conglomerate unit.

The Chargeability Data

The *Northern* and *Central Zones* are characterised by low chargeability background of 10 millivolts/volt ±2½ millivolts/volt over about 80% of the area. Also anomalous responses with respect to background are rare in these zones, there being only three significant responses above background (1100E at 110S and 330S, and 700E at 520S).

The bulk of the chargeability responses occur within the central section of the *Southern Zone* superimposed on a background of 15 ±2½ millivolts/volt. This anomalous zone runs the entire length of the area surveyed, and is always flanked by much lower backgrounds (10 ±2½ millivolts/volt). The bulk of the chargeability anomalies located, occur within a narrow, 200 metres wide belt. (Shown by dotted lines on Plate 4). These responses are "narrow" and generally cannot be traced for distances greater than 150 to 200 metres, probably because of lensing in and out along strike. Generally they are associated with lower than background resistivity, but are never conductive as such. Rarely is there any association with higher magnetite concentration. It is noteworthy that "dislocations" interpreted from the apparent resistivity and magnetic data also terminate the chargeability features. Therefore their strike length, at least in part, is determined by faulting.

To the south of the above zone which contains the bulk of the chargeability anomalies located on this survey, lie two responses which appear isolated from it. The first was seen on lines 700E and

800E at about 1090S and 1100S respectively, while the second was seen on line 300E at 1200S. Both these zones are not considered to be the same stratigraphic horizon as the main East Cethana discovery zone.

PHYSICAL PROPERTY INTERPRETATION PLAN

Plate 4 displays the major physical property units mapped in the present survey together with interpretations of their possible relationship. In general all show a grid north-south strike (±30°) with apparent *dislocations* which run about grid north-north-west/ south-south-east. These *dislocations* appear to displace all three physical property units, but are most apparent in the magnetic field data. They probably represent faults (or perhaps flexures) for the most part. However it is difficult to resolve such features from the normal *lensing in* and *lensing out* seen in such volcanogenic sequences.

It is concluded that the physical property map represents some function of the geological units below, and as such must represent the strike and form of the underlying rock units. Each of the individual physical property units should be able to be correlated with geological units from the very limited outcrop available, and extrapolation therefrom to elsewhere in the area.

CONCLUSIONS

1 - The reconnaissance gradient array was able to efficiently cut down the area of interest to 10% to 15% of the grid area surveyed, while the detailed survey was able to efficiently differentiate the chargeable zone in detail.

2 - The detailed survey was particularly effecient in this case with 1300 separate IP stations being read by two operators in 8¼ days.

3 - The detailed surveys showed the majority of induced polarization responses to lie in background or in lower than background apparent resistivities. However, none of the zones located can be considered to be truly conductive. It should be noted that in pyrite-galena-sphalerite Koroko type deposits *lean* in chalco-pyrite (and pyrrhotite) the situation is entirely normal, and thus those anomalies showing a *decrease* in apparent resistivity over the chargeable zones *and* a slow decay rate, are considered to be of particular interest.

4 - The anomalous responses located can rarely be traced over more than 150 metres. This is considered to be due to both "lensing in" or lensing out" along strike, and the inferred termination of anomalous responses by dislocations primarily judged to be present from the magnetic field and resistivity data.

5 - In detail the significant induced polarization responses worthy of further comment are considered to be:

a..... A 30 millivolts/volt induced polarization response centred at 895S on line 700E over a significant reduction in resistivity to 1350 ohm-metres as against 3000 to 4000 ohm-metres to the immediate north and south, is considered to be of *primary to secondary interest.* The maximum depth to source is of the order of 25 metres. The decay form is *slow* on the southern flanks of the anomaly, and *faster* on the northern flank of the anomaly, showing coarsening of grain size from north to south. (This feature is seen on both profiles).

Careful consideration should be given to investigating this response on this line.

b..... A 36 millivolts/volt response from a relatively resistive 2000 ohm-metres source within 1000 ohm-metres background and showing slow decay forms of ΔMn = +8 at 1095S on line 800E is interpreted as having a maximum depth of 25 metres. This anomaly *may* extend both east and west, and is considered to be of *secondary interest.* (Low geochemistry - pyritic rocks on surface

c..... A 28 millivolts/volt response at 825S on line 800E associated with slow (ΔMn = +6) decay forms and a 30% fall in apparent resistivity to ~~900~~ 2000 ohm-metres is considered to be

of *secondary interest*.

d..... Two substantial anomalies of 36 millivolts/volt and 32 millivolts/volt at 1115S/1000E and 1195S/1100E accompanied by a reduction in apparent resistivity, and, in the case of the response on line 1100E, slow decay forms, are considered to be of *secondary to primary interest*.

e..... A 40 millivolts/volt chargeability anomaly coincident with a material fall in the high 3000 ohm-metres background resistivities to 1500 ohm-metres has a slightly slower than normal decay form and is considered of *secondary interest*. This anomaly is located at 1025S on line 1000E.

f..... On line 1200E a 26 millivolts/volt response showing a slow decay form at 1325S is considered of tertiary to secondary interest, while a similar chargeability response of 26 millivolts/volt also showing a slow decay form but with a material reduction (70%) in apparent resistivity to 1300 ohm-metres at 1255S, is considered of secondary or *perhaps* primary interest.

g..... On line 1300E a 35 millivolts/volt response from a source with a slow (ΔMn = +4 → +11) decay but with a small, 20% decline in apparent resistivity to 2500 ohm-metres was located at 1412S. This response is considered of secondary to tertiary interest.

h..... An anomaly of *secondary to primary* interest was located on line 1500E at 1615S where a 29 millivolts/volt response is coincident with a 75% fall in apparent resistivity to 1600 ohm-metres, while the decay form is seen to be slow (ΔMn = +6)

i..... A response of lower magnitude (24 millivolts/volt) also on line 1500E at 1485S is of tertiary interest due to its slow (ΔMn = +10) decay forms, and a coincident fall in the apparent resistivities to 1300 ohm-metres. The maximum depth is 20 metres.

j..... The major response recorded in the area was located on line 1700E centred at 1685S . At this point the chargeability rises to over 50 millivolts/volt, has a slow decay rate (ΔMn = +6), and is accompanied by the lowest resistivities in the zone (600 ohm-metres). This anomaly is of prime interest on this line as a target of possible economic interest as it has all three attributes required. The merit will of course depend ultimately on the accompanying geochemical response and the geological setting.

While no major response was located either to the east or west, significant anomalies were located which correlate with this zone. The details of this correlation is as follows:

Line	Station	Centres Major(Minor)	M_3	ρa absolute (% drop
1600E	1675-1730S	1685S(1645S)	22 mv/V	2500 50%
1700E	1710-1640S	1665S(1645S)	50 (28)mv/V	600 60% (14(
1800E	1770-1815S	1805S(1775S)	20 (20)mv/V	1250(1400)50(5

k..... Material chargeability responses on the southern flank of lines 1800E and 1900E are coincident with increases in apparent resistivity to 5000 - 10000 ohm-metres from backgrounds of 2500 to 3000 ohm-metres to the immediate north. The decay form is slightly faster than normal (ΔMn = -2 to -8). The interpreted source is fined grained disseminated chargeable material within a highly resistive source. The character of this response is not one associated with volcanogenic deposits, therefore strong supporting data from geochemistry or geology would be required to up grade the potential of this anomalous zone.

6 - In general the form of these chargeability anomalies infers a sharp contact between the causative source and the enclosing rocks, and also that the maximum depths to source are 15 to 30 metres.

7 - It is important that as the detailed geological significance of the various distinct anomaly forms differentiated on this survey is not known, the drilling programme which is contemplated should at least in part be designed to clearly gauge the meaning

of these differences.

8 - With respect to the physical property contour maps and interpretation plan, this data has shown a number of quite distinct physical property units to be present which are dislocated along *grid* north-north-west/south-south-east trends. The interpretation plan is considered to represent a *"caricature"* of the underlying geology which will allow the definition of rock units to be effectively made on the limited outcrop available as well as some assessment of the structure of the area.

The author looks forward to discussing this data with C.R.A. Exploration Pty. Limited in the near future.

Respectfully submitted on behalf of:

SCINTREX PTY. LTD.

A.W. HOWLAND-ROSE, MSc, DIC, AMAusIMM, FGS.

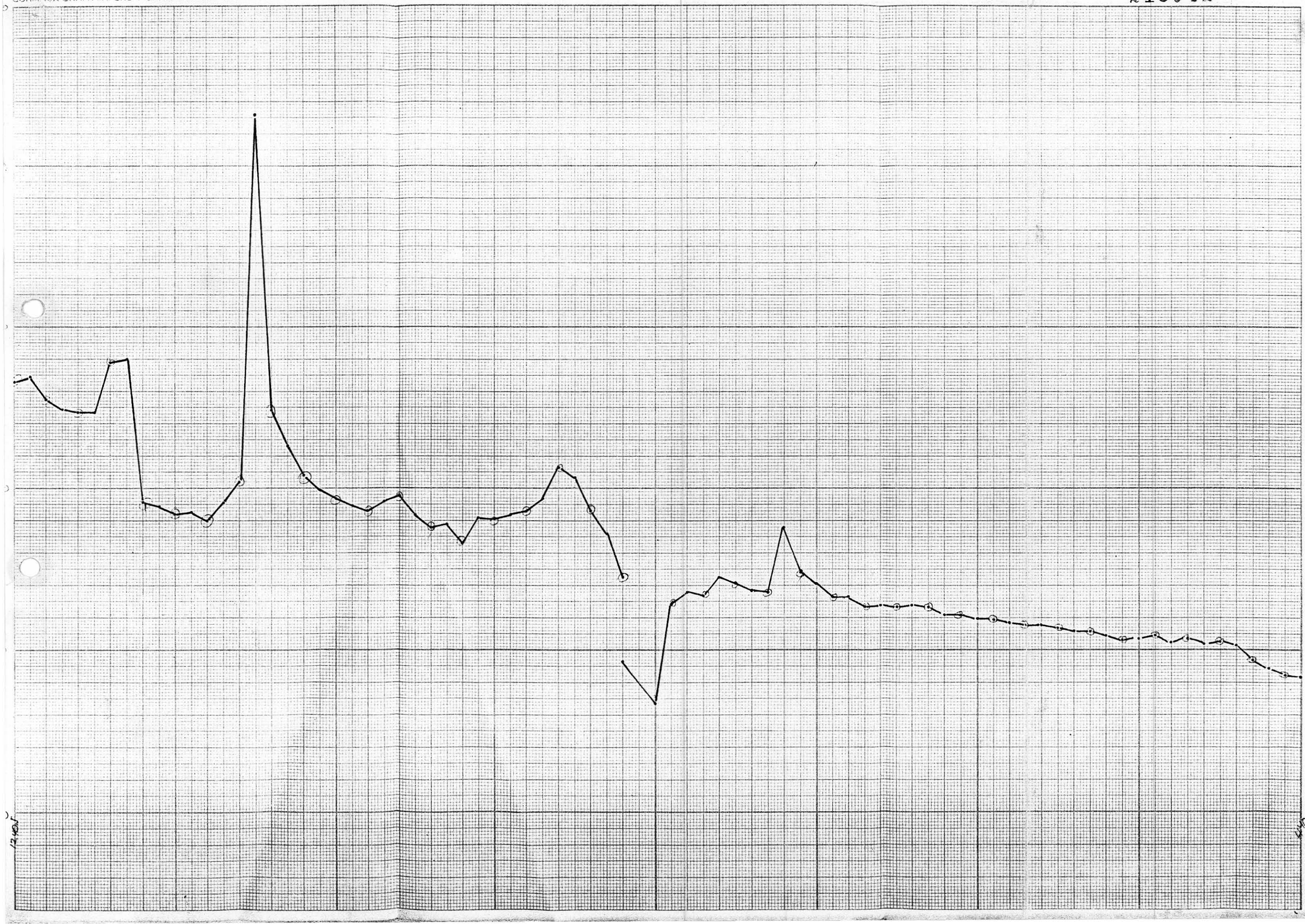
GEOPHYSICIST

041

GORMACK GRAPH PAPERS : CHRISTCHURCH N.Z. C102X 40 cm x 28 cm x 1 mm

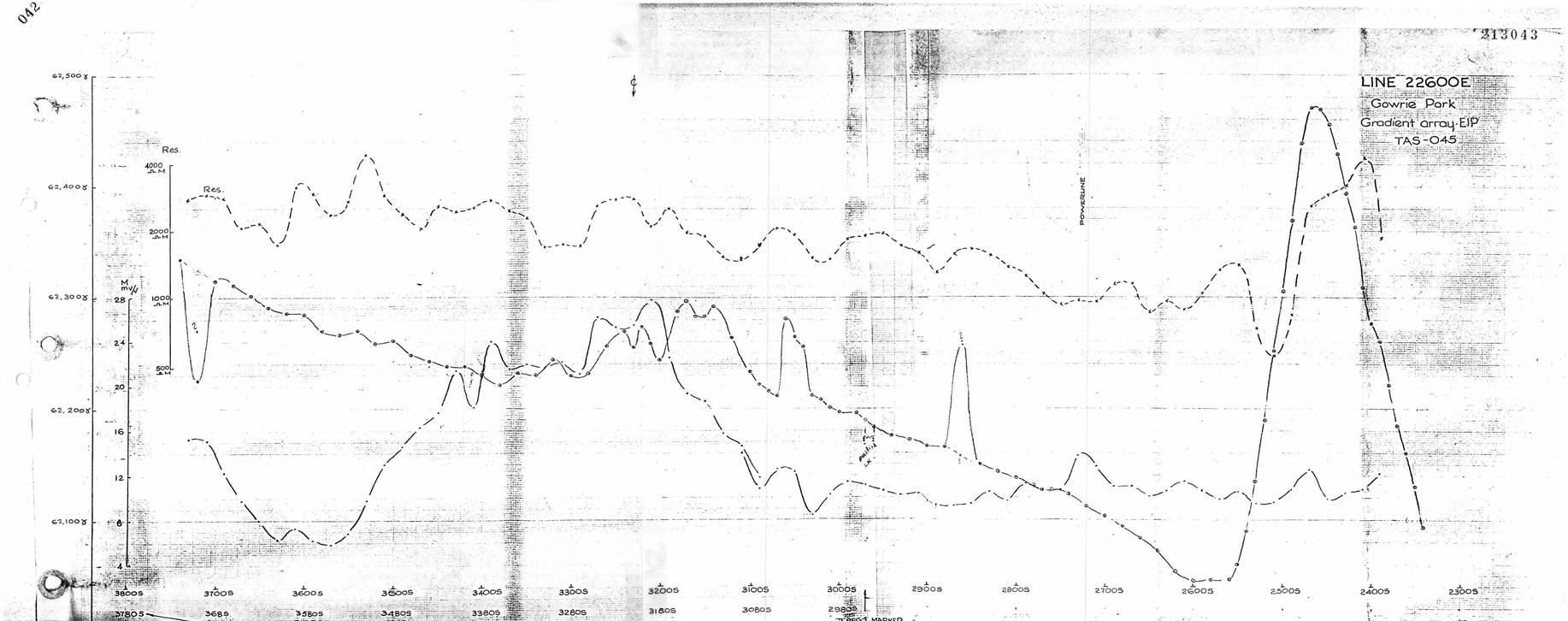
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213042

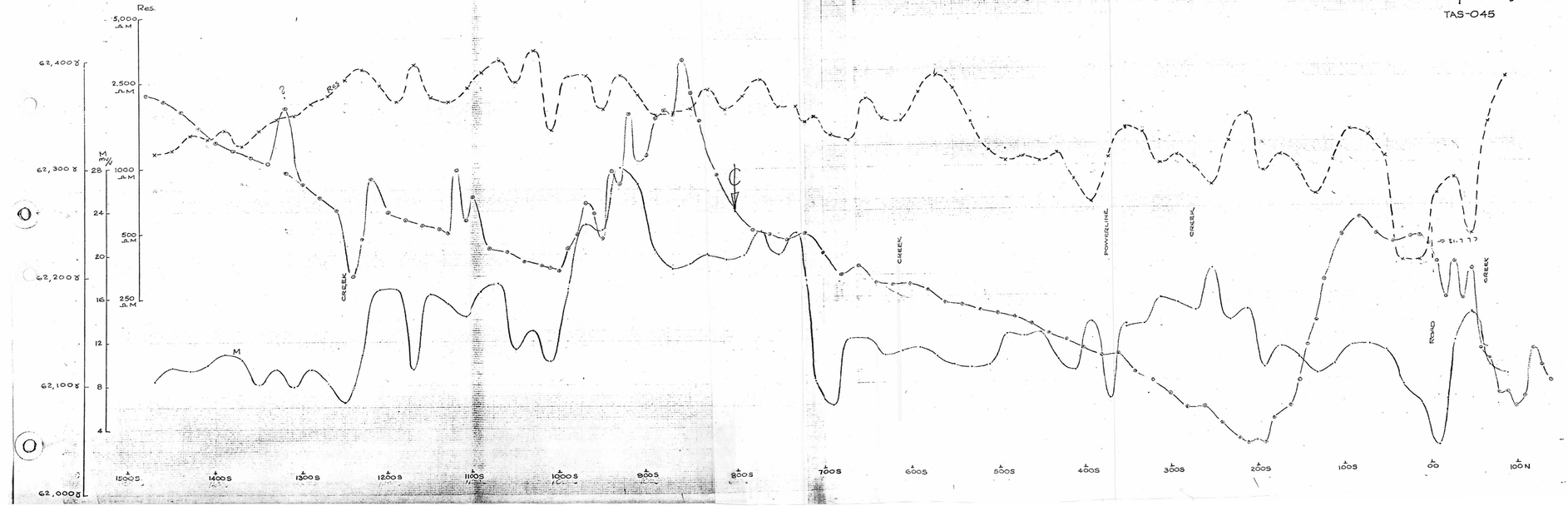


042

213043


LINE 22600E
Gowrie Park
Gradient Array EIP
TAS-045
Res.
4000 Ω.M
2000 Ω.M
1000 Ω.M
500 Ω.M
M mV/V
28
24
20
16
12
8
4
Res.
G2,500 Ω
G2,400 Ω
G2,300 Ω
G2,200 Ω
G2,100 Ω
3800S
3780S
3700S
3680
3600S
3580S
3500S
3480S
3400S
3380S
3300S
3280S
3200S
3180S
3100S
3080S
3000S
2980S
2900S
2800S
2700S
2600S
2500S
2400S
2300S
2 PEGS MARKED
2860S
BOUNDARY LINE

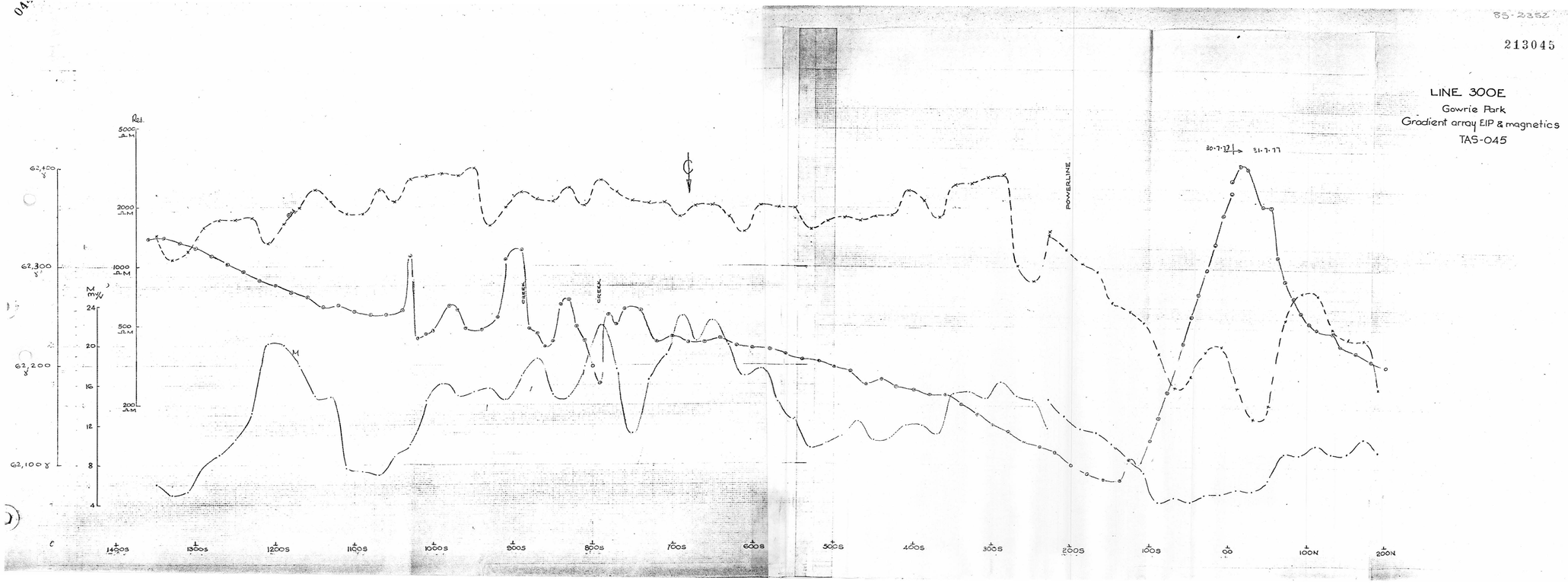
LINE 100E
Gowrie Park
Gradient array EIP & magnetics
TAS-045



85-2352

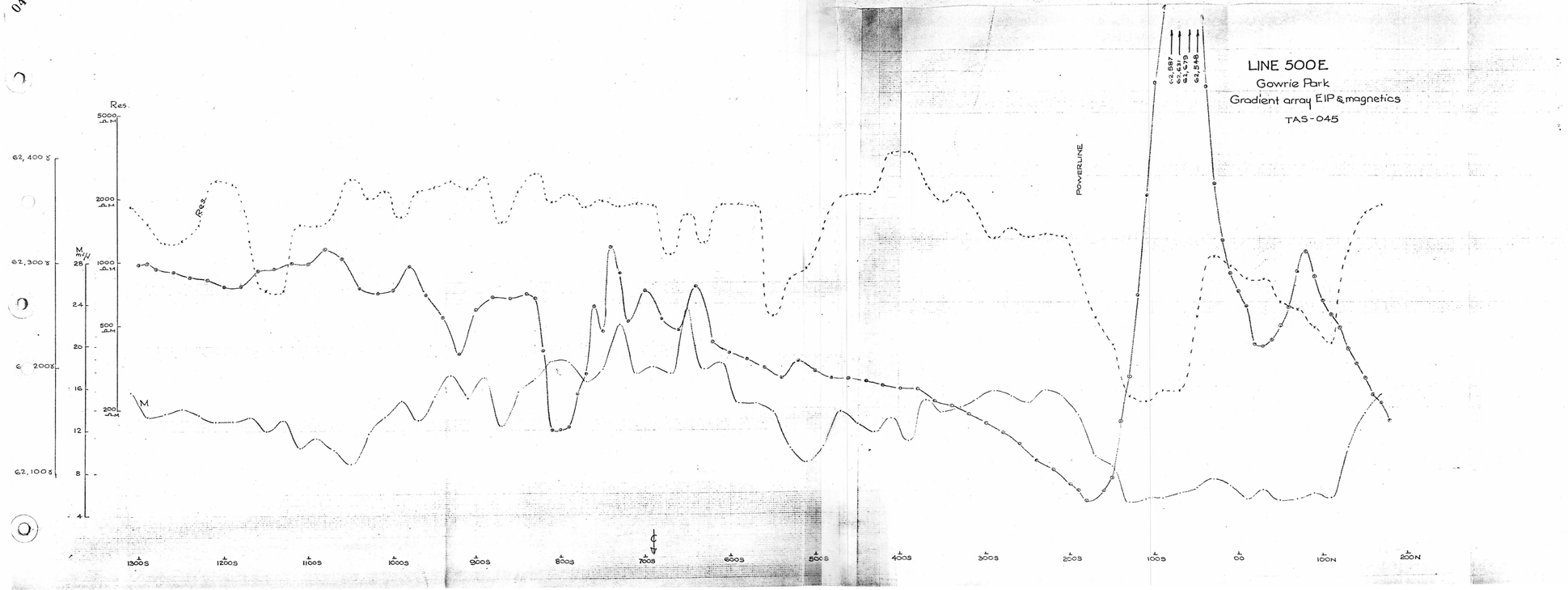
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LINE 300E
Gowrie Park
Gradient array EIP & magnetics
TAS-045



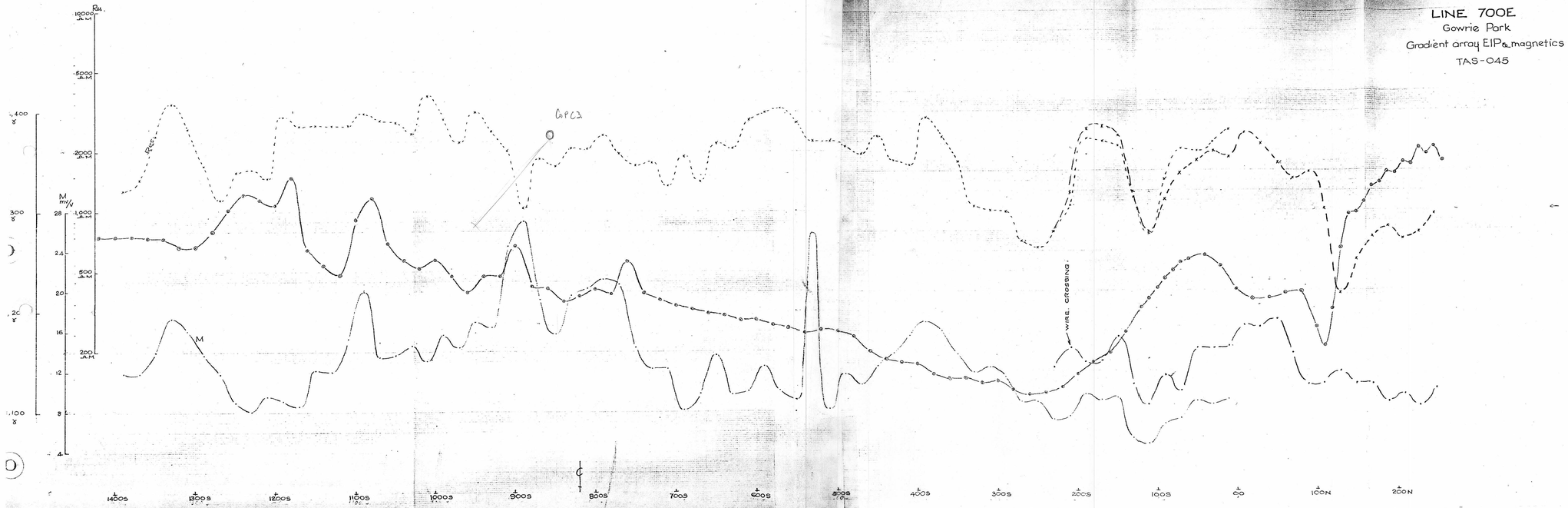
045

213046


LINE 500E
Gowrie Park
Gradient array E.I.P & magnetics
TAS-045
Res.
5000 Ω-M
2000 Ω-M
1000 Ω-M
500 Ω-M
200 Ω-M
M
m/v
28
24
20
16
12
8
4
62,400 S
62,300 S
62,200 S
62,100 S
Res
M
POWERLINE
62,587
62,521
62,479
62,548
1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
00
100N
200N

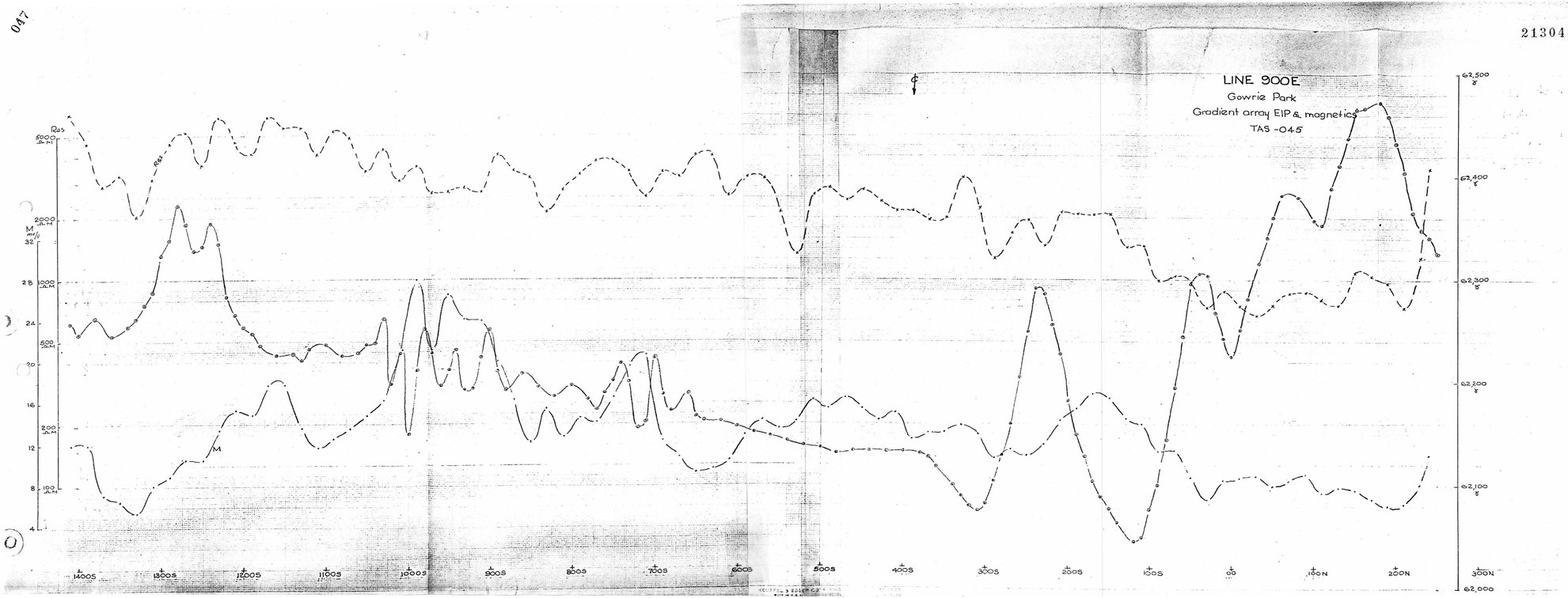
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LINE 700E
Gowrie Park
Gradient array EIP & magnetics
TAS-045



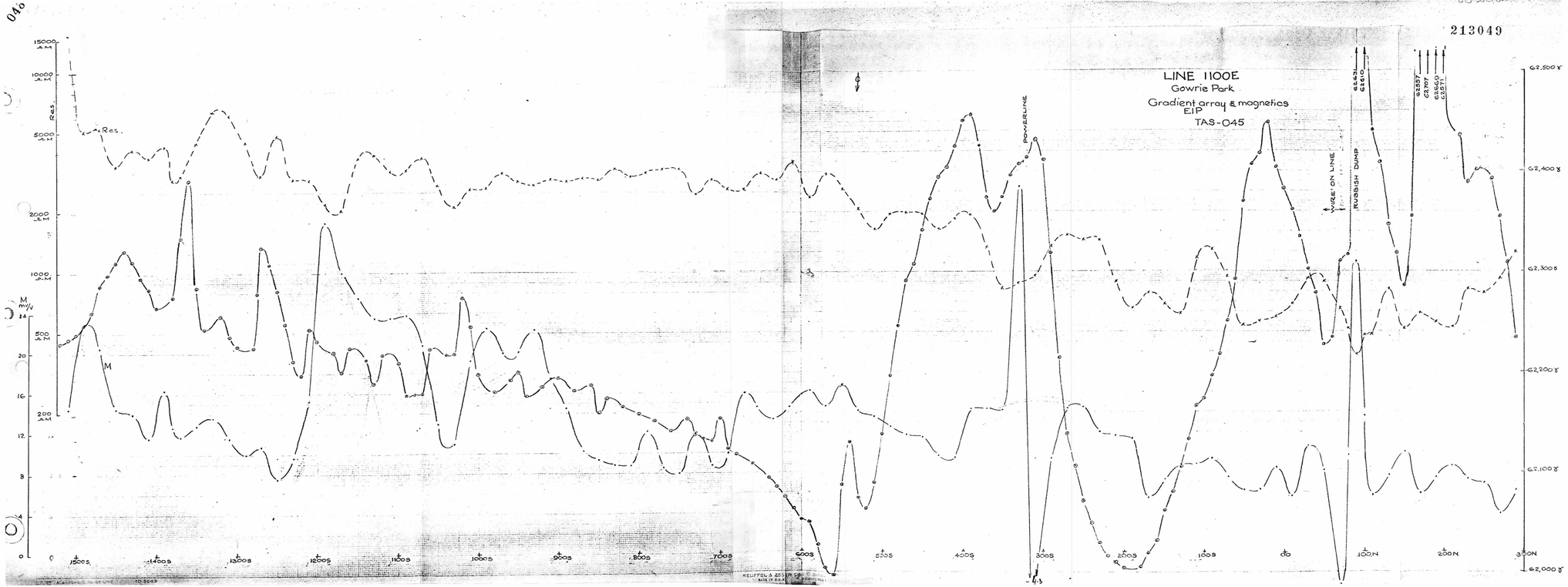
047

213048


LINE 900E
Gowrie Park
Gradient array EIP & magnetics
TAS -045
Ras
M
1400S
1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
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100N
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62,100
62,000

046

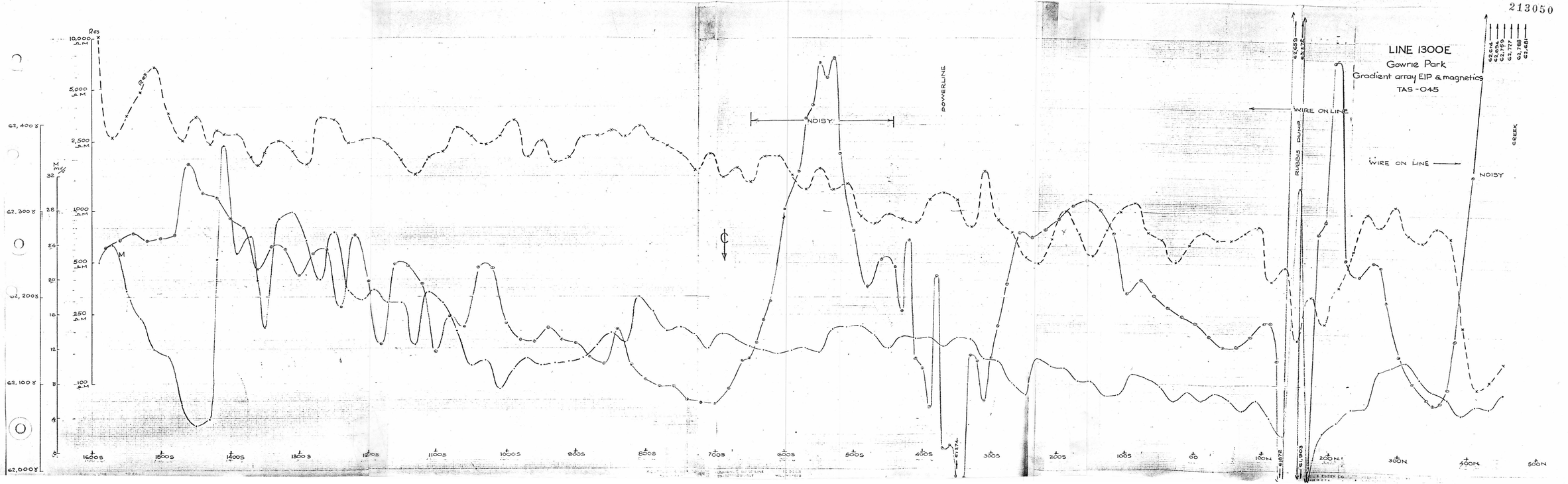
213049


LINE 1100E
Gowrie Park
Gradient array & magnetics
EIP
TAS-045
Res.
M
POWERLINE
WIRE ON LINE
RUBBISH DUMP
62431
62410
62357
62300
62459
62371
15000 Ω M
10000 Ω M
5000 Ω M
2000 Ω M
1000 Ω M
500 Ω M
200 Ω M
M m/v
1500S
1400S
1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
0
100N
200N
300N
62,500 γ
62,400 γ
62,300 γ
62,200 γ
62,100 γ
62,000 γ

049

85-2352

213050



85-2552.

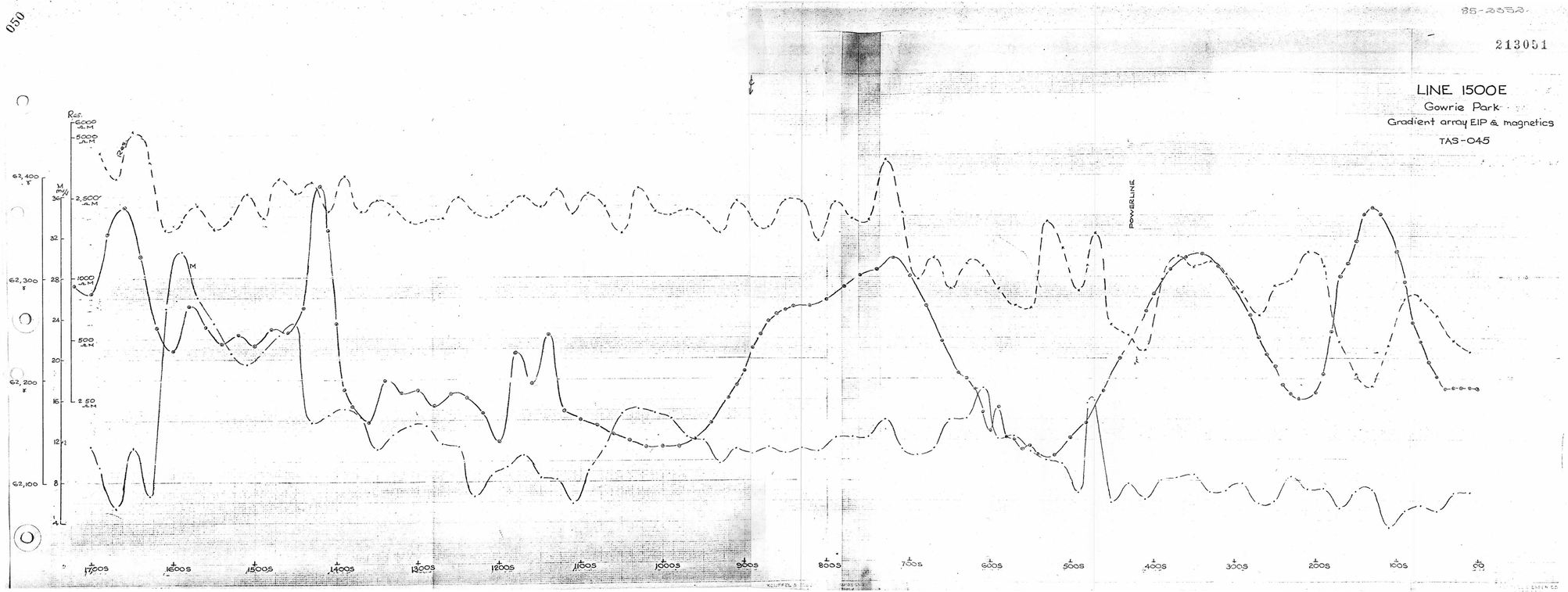
213051

LINE 1500E

Gowrie Park

Gradient array EIP & magnetics

TAS-045



051

213052

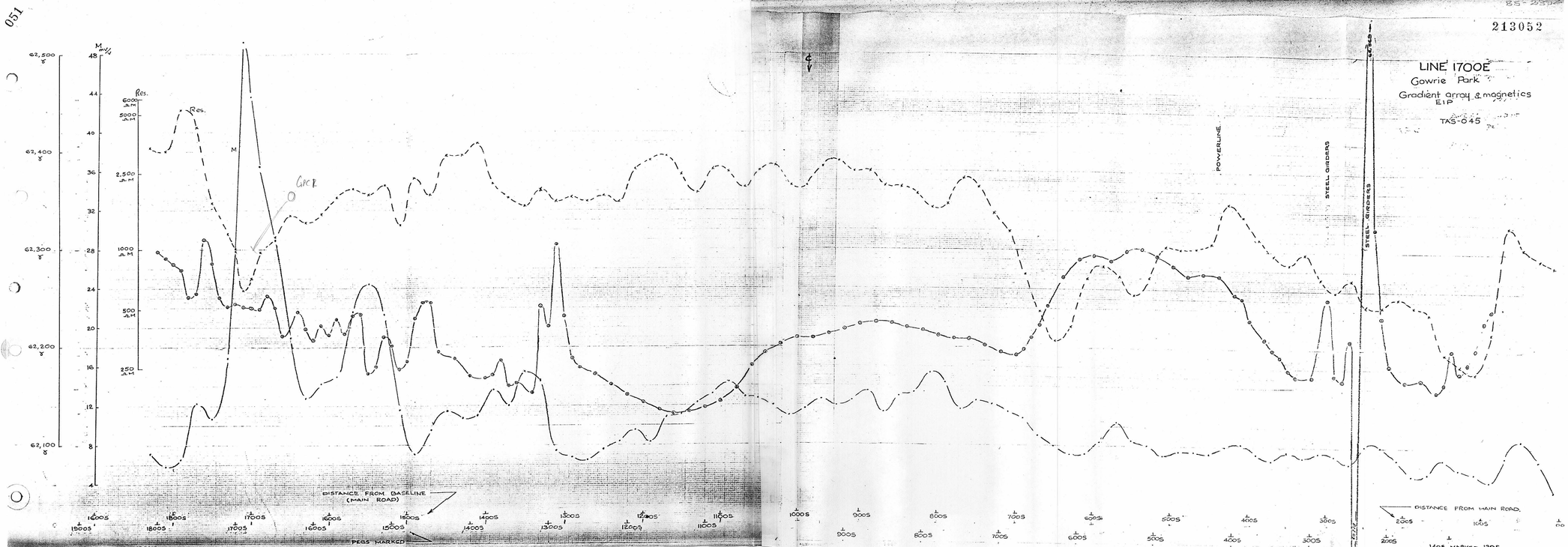
LINE 1700E

Gowrie Park

Gradient array & magnetics

E1P

TAS-645



052

55-2352

213053

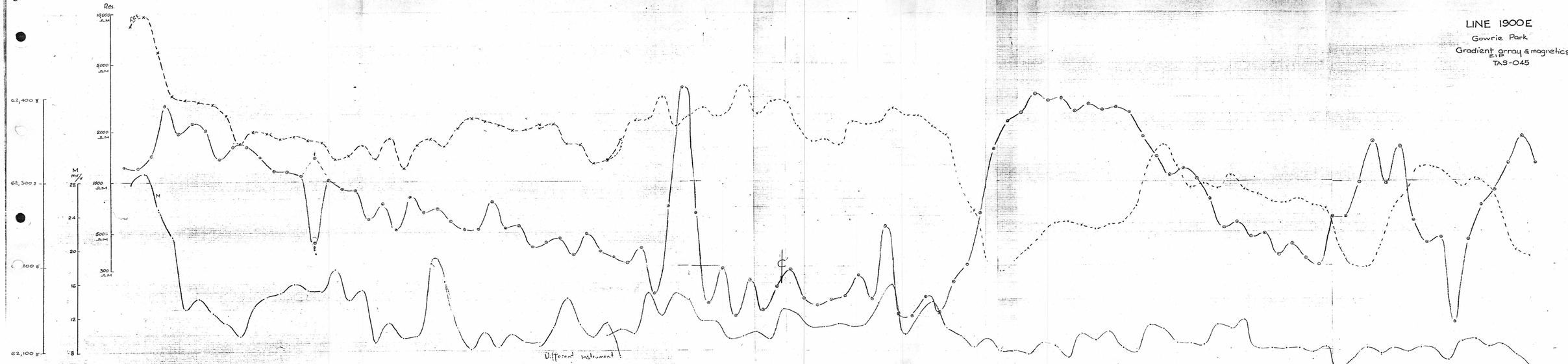
LINE 1900E

Gowrie Park

Gradient array & magnetics

E1B

TAS-045



053

85-2352

213054

LINE 2300E

East Cethana Grid

Gradient Array EIP

TAS-049

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

ρa Ωm

M_3 mV/V

ΔM

GB

3700S 3600S 3500S 3400S 3300S 3200S

KE 10 X 10 TO THE CENTIMETER 359 X 359 CM • KEUFFEL & ESSER CO. MADE IN U.S.A. 47 1512

85-2852

054

213055 LINE 22400E

East Cethona Grid

Gradient Array EIP

TAS-049

M3/ρa ×1000

ΔM/M3 ×100

M3 mv/V

ρa Ωm

ΔM

M3

ρa

GB

3600S 3500S 3400S 3300S 3200S

85-2352

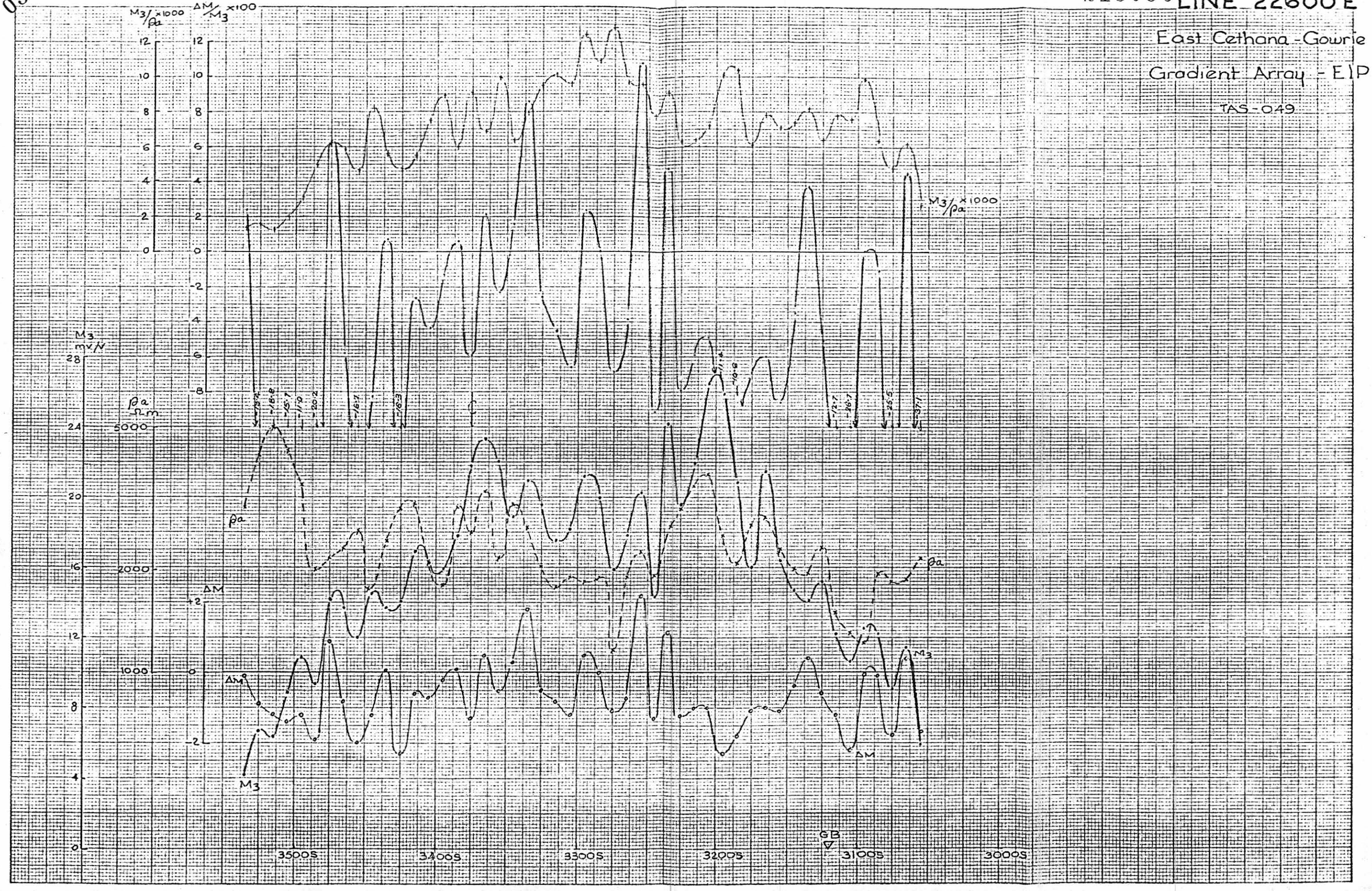
055

213056 LINE 22600E

East Cethana - Gowrie Pk

Gradient Array - EIP

TAS-049



056

213057 85-23852

LINE 100E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho a \times 1000$ $\Delta M/M_3 \times 100$

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

ρa

M_3

ΔM

GB

1100S 1000S 900S 800S 700S 600S

KEUFFEL & ESSER CO. MADE IN U.S.A. 50 X 38 CM. • DIAGONAL • 10 X 10 TO THE CENTIMETER VIEW CA

85-2852

057

213058

LINE 200E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

ρa

ΔM

M_3

5000

2000

1000

+2

0

-2

11005

10005

9005

8005

7005

6005

5005

GB
Y

KEUFFEL & ESSER CO.
50 X 50 CM. • 4 YEARWEB®
IN U.S.A.
MADE IN U.S.A.

85-20852

058

213059

LINE 300E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/_{Pa} \times 1000$

$\Delta M/M_3 \times 100$

M_3 mV/V

Pa Ωm

M3

ΔM

Pa

GB

1100S

1000S

900S

800S

700S

600S

500S

KEUFFEL & ESSER CO.
5B X 28 CM. • VERWENDEN SIE
10 X 10 TO THE CENTIMETER
MADE IN U.S.A.
4 7121

85-2852

059

213060

LINE 500E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

M_3 mv/v

ρa ohm-m

AM

M3

C

GB

1000S 900S 800S 700S 600S 500S

KEUFFEL & ESSER CO. MADE IN U.S.A.
359 X 28 CM. • ARGUSEIN®
10 X 10 TO THE CENTIMETER
47 1321

85-2352

060

213061

LINE 700E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M3/\rho a \times 1000$

$\Delta M/M3 \times 100$

$M3$ mv/v

ρa Ω-m

ΔM

$M3$

ρa

ΔM

$M3/\rho a \times 1000$

$\Delta M/M3 \times 100$

ρa

$M3$

ΔM

CB

1200S 1100S 1000S 900S 800S 700S 600S 500S

KEUFFEL & ESSER CO.
MADE IN U.S.A.
10 X 10 TO THE CENTIMETER
5B X 5B CM. • 1/16 INCH
K&E 1251 47

85-2352

213062

061

LINE 700E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M3/\rho a \times 1000$

$\Delta M/M3 \times 100$

ρa

$M3$

ΔM

GB

1200S 1100S 1000S 900S 800S 700S 600S 500S

KEUFFEL & ESSER CO.
50 X 50 CM. • VERVIELFÄLTIGT
IN U.S.A. FOR THE GEOLOGICAL SURVEY

85-2552

062

213063

LINE 800E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M3/\rho a \times 1000$

$\Delta M/M3 \times 100$

ρa

ΔM

$M3$

GB V

12500S 11000S 10000S 9000S 8000S 7000S 6000S 5000S

KEUFFEL & ESSER CO.
52 X 28 CM. • MADE IN U.S.A.
10 X 10 TO THE CENTIMETER
4 1 2 1 7

85-2352.

213064

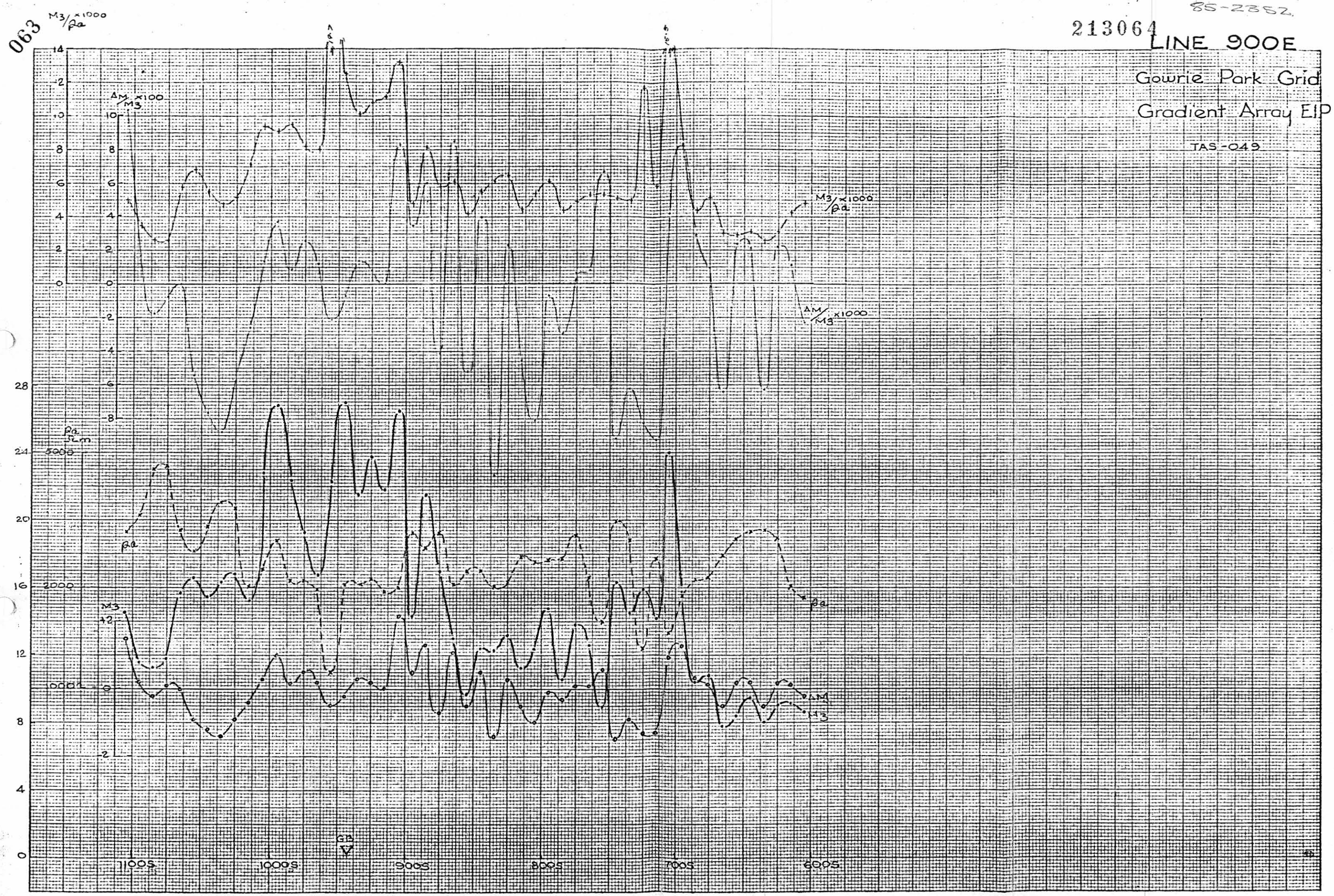
LINE 900E

Gowrie Park Grid

Gradient Array EIP

TAS-049

063



KEUFFEL & ESSER CO.
58 X 38 CM. • VELLUM
10 X 10 TO THE CENTIMETRE
MADE IN U.S.A.
KE
7151 4

85-2562

213065

LINE 1000E

Gowrie Park Grid

Gradient Array EIP

TAS-049

064

M3/ x1000 /Pa

ΔM/M3 x100

M3/ x1000 /Pa

ΔM/M3 x100

Pa

Pa

M3

ΔM

M3

ΔM

GR

12005

11005

10005

9005

8005

7005

KEUFFEL & ESSER CO.
88 X 88 CM. • VERSUCHER®
10 X 10 TO THE CENTIMETER
MADE IN U.S.A.

85-2352

065

213066 LINE 1100E

Gowrie Park

Gradient Arra

EIP

TAS-049

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

M_3 mV/V

ρa Ω-m

ΔM

GB

1500S 1400S 1300S 1200S 1100S 1000S 900S 200S

KEUFFEL & ESSER CO.
88 X 25 CM. • VARIFLEX®
MADE IN U.S.A.
KE
10 X 10 TO THE CENTIMETER

066

213067

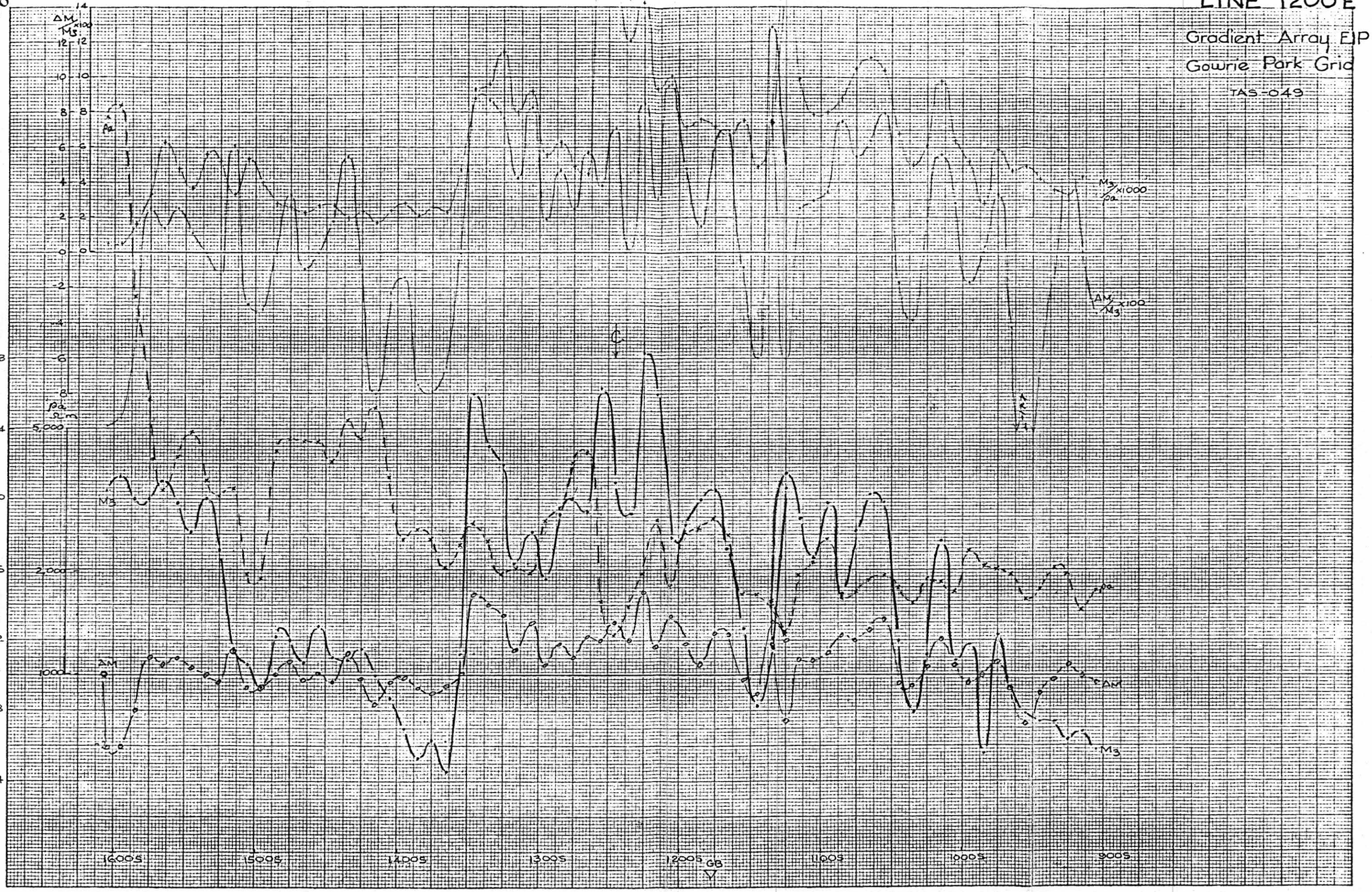
85-2352

LINE 1200E

Gradient Array EIP

Gowrie Park Grid

TAS-049



85-2352

067

213068

LINE 1300E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho_a \times 1000$

$\Delta M/M_3 \times 100$

ρ_a Ωm

ρ_a

M_3

ΔM

1600S 1500S 1400S 1300S GB 1200S 1100S 1000S

KE 10 TO THE CENTIMETRE 47 1517
KEUFFEL & ESSER CO. MADE IN U.S.A.

068

85-2352

213069 LINE 1500E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho a \times 1000$

$\Delta M/M_3 \times 100$

M_3 mv/v

ρa

ΔM

M_3

1700S 1600S 1500S GB 1400S 1300S

KEUFFEL & ESSER CO.

069

213070

85-2352.

LINE 1600E

Gourrie Park Grid

Gradient Array EIP

TAS-049



85-2352.

213071

070

LINE 1700E

Gowrie Park Grid

Gradient Array EIP

TAS-049

M_3 mV/V

$M_3/\rho_a \times 1000$

$\Delta M/M_3 \times 100$

ρ_a

ΔM

1800S 1700S 1600S 1500S 1400S 1300S

GB

KEUFFEL & ESSER CO. MADE IN U.S.A. 10 X 10 TO THE CENTIMETER 5 SQ. X 5 SQ. CM. • LITHO IN U.S.A. ®KEUFFEL & ESSER CO.

85-2352

071

213072

LINE 1800 E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$M_3/\rho_a \times 1000$

$\Delta M/M_3 \times 100$

ρ_a Ω.M

M_3 mV/V

ΔM

GB

2000S 1900S 1800S 1700S 1600S 1500S 1400S

KEUFFEL & ESSER CO. MADE IN U.S.A. 25 X 25 CM. • 1 MM/CM ©Keuffel & Esser Co.

85-2352

213073

072

LINE 1900 E

Gowrie Park Grid

Gradient Array EIP

TAS-049

$\frac{\Delta M}{M_3} \times 100$

$M_3/\rho_a \times 1000$

$M_3/\rho_a \times 1000$

ρ_a

M_3

$\frac{\Delta M}{M_3} \times 100$

ρ_a

ΔM

ΔM

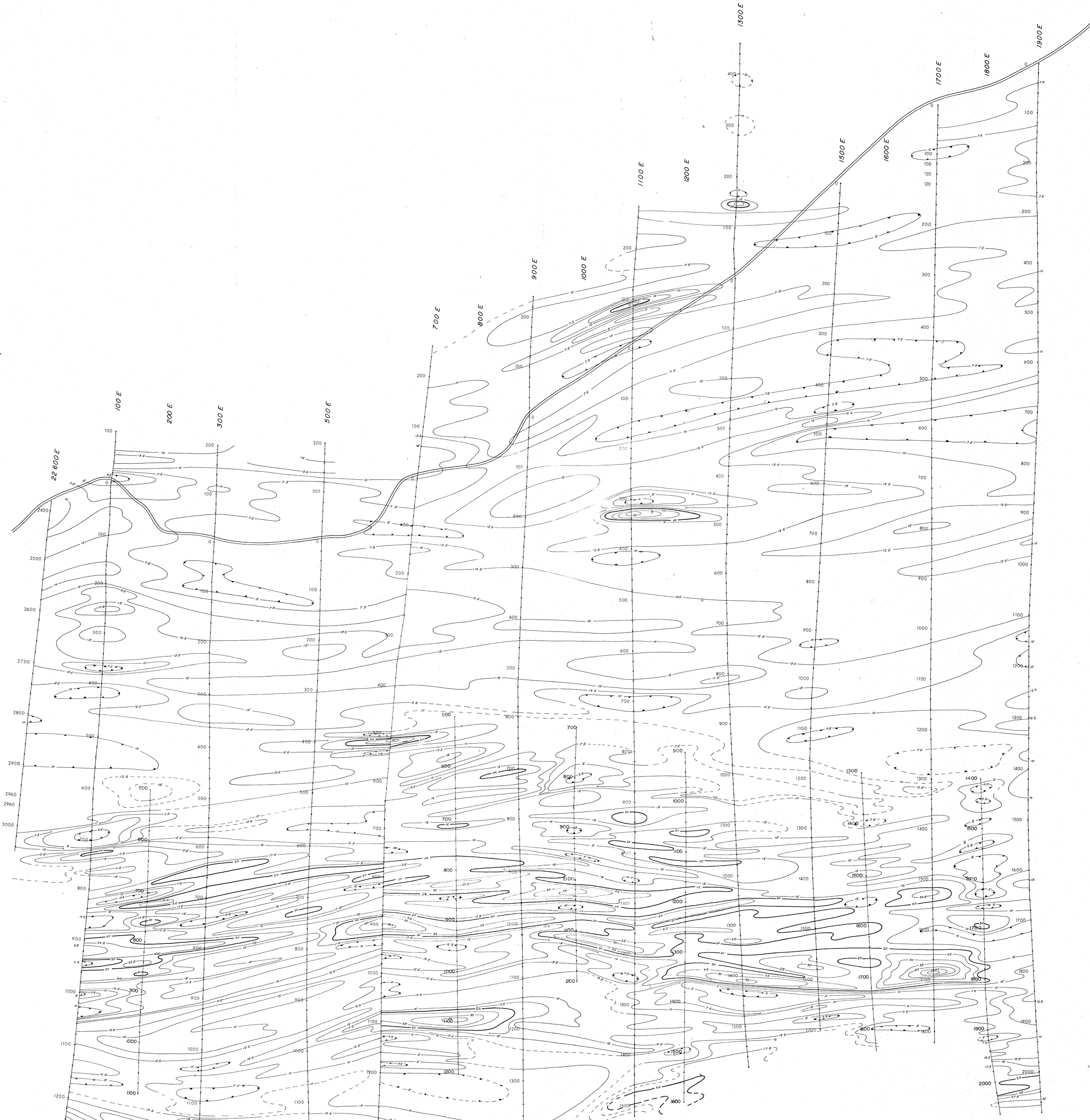
M_3

$\frac{\Delta M}{M_3}$

ρ_a

21005 20005 19005 18005 17005 16005 15005

KEUFFEL & ESSER CO. MADE IN U.S.A.



C.R.A. EXPLORATION PTY. LIMITED

GOWRIE PARK

NORTHWEST TASMANIA

GRADIENT ARRAY E.I.P SURVEY

CHARGEABILITY CONTOUR PLAN

SURVEYED & COMPILED BY

SCINTREX

JULY / SEPTEMBER 1977

SCALE 1:2500 (approx.)

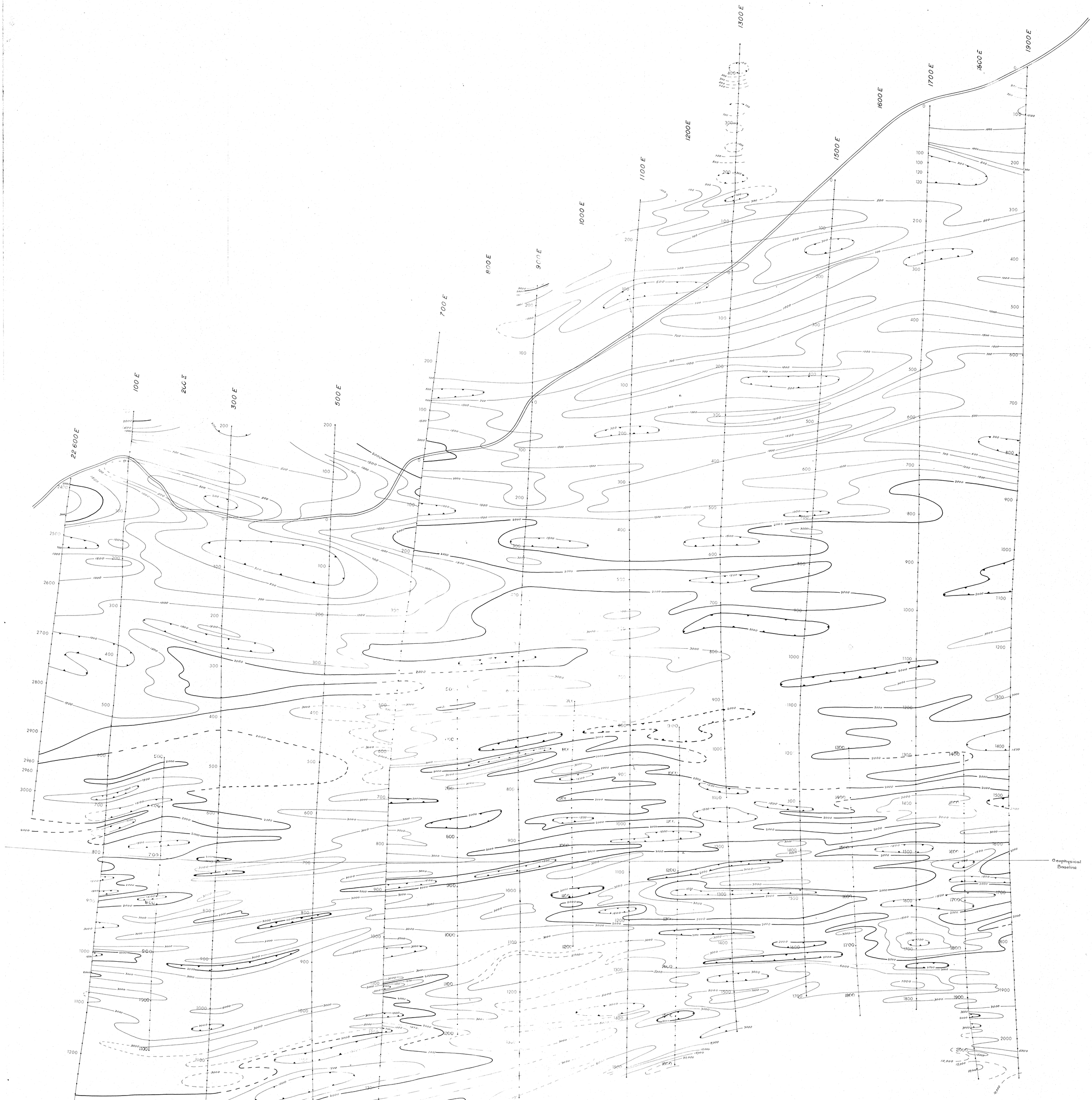
100m 0 100 200 400 500m

5 cm

213074

JOB Nº TAS-045/049 Sheet 1 of 1 868 PLATE 1.

85 2852



C.R.A. EXPLORATION PTY. LIMITED

GOWRIE PARK

NORTHWEST TASMANIA

GRADIENT ARRAY I.P. SURVEY

RESISTIVITY CONTOUR PLAN

SURVEYED & COMPILED BY

SCINTREX

JULY/SEPTEMBER 1977

SCALE 1:2500 (approx.)

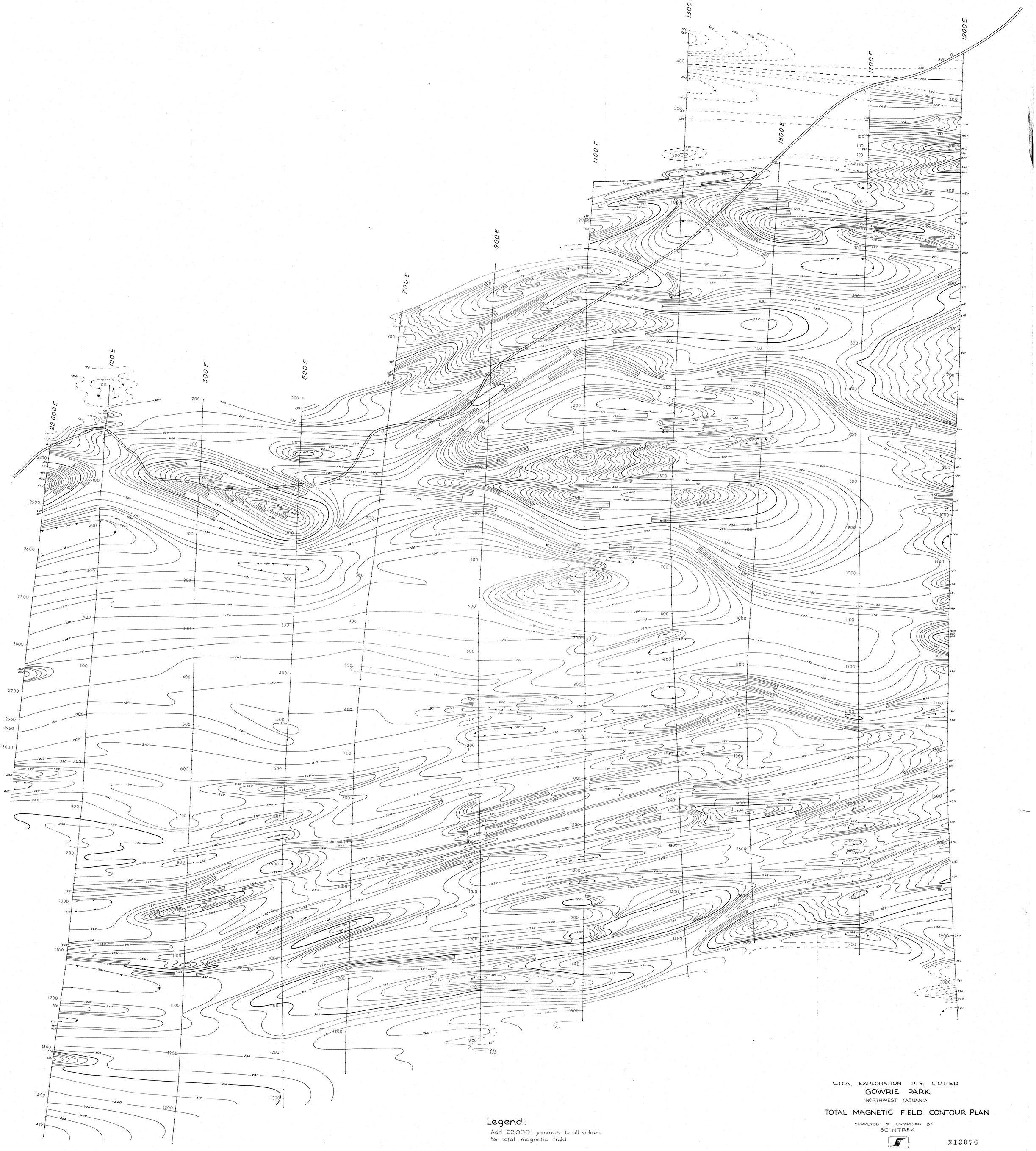
100m 0 100 200 400 500m

213075

5 cm

JOB Nº TAS-045/049 SHEET 1 of 1 869 PLATE 2

85-2352.



Legend:

Add 62,000 gammas to all values for total magnetic field.

C.R.A. EXPLORATION PTY. LIMITED

GOWRIE PARK

NORTHWEST TASMANIA

TOTAL MAGNETIC FIELD CONTOUR PLAN

SURVEYED & COMPILED BY
SCINTREX

213076

100m 0 100 200 400 500m

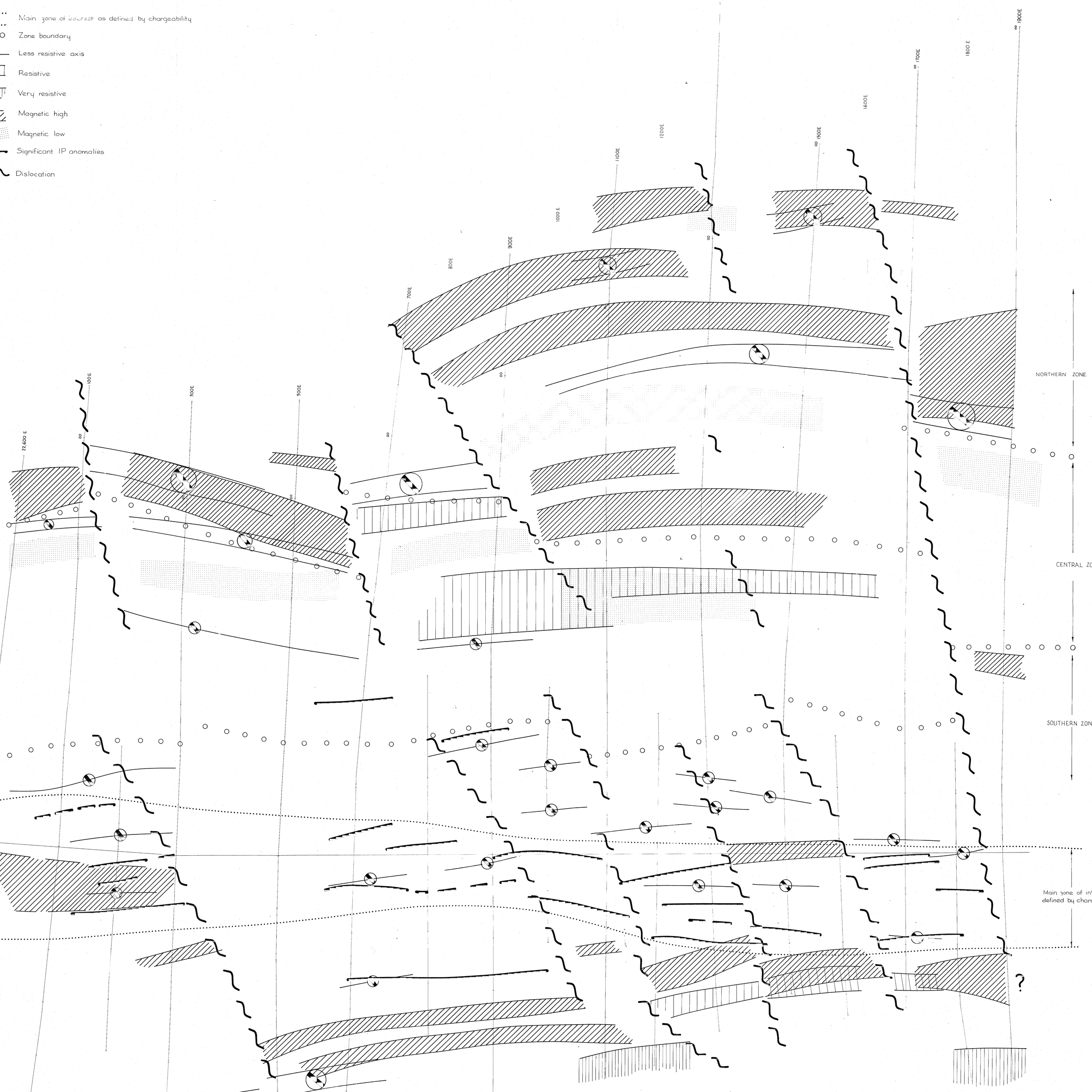
SCALE 1:2500 (approx)

5 cm

JOB N° TAS 045/049 SHEET 1 of 1 870 PLATE 3

Legend

- Main zone of interest as defined by chargeability
- Zone boundary
- Less resistive axis
- Resistive
- Very resistive
- Magnetic high
- Magnetic low
- Significant IP anomalies
- Dislocation



C.R.A. EXPLORATION PTY. LIMITED

GOWRIE PARK

NORTHWEST TASMANIA

INTERPRETATION DIAGRAM

SURVEYED & COMPILED BY

SCINTREX

JULY / SEPTEMBER 1977

SCALE 1:2500 (approx.)

100m 0 100 200 400 500m

213077

5 cm

JOB Nº TAS-045/049 871 Sheet 1 of 1 PLATE 4.