RGC EXPLORATION PTY. LIMITED
(on behalf of Renison Ltd)

021001

EXPLORATION LICENCE NO.'S 12/90 AND 15/90

("Waratah")

PARTIAL RELINQUISHMENT REPORT JUNE 1993

Volume 1 of 1

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SUMMARY

E.L.'s 12/90 and 15/90 were acquired by RGC Exploration in 1990 as part of a search for carbonate-replacement, pyrrhotite-hosted tin mineralisation. A gravity survey was carried out to define the shape of the buried portions of the Meredith granite. The existing aeromagnetic data was imaged and re-interpreted to try to identify significant structures and discreet magnetic anomalies. The existing stream sediment geochemistry database was re-examined to look at the distribution of tin and base metals around the margins of the granite. As a result of this work, two blocks are being retained for further work, one from Deep Gully Creek to the northern tip of the granite and the other in the Whyte River area. The remaining portions of the E.L.'s, on the eastern side of the granite are being relinquished.

1. INTRODUCTION

E.L.'s 12/90 and 15/90 are held by Renison Limited and explored by RGC Exploration, both wholly owned subsidiaries of RGC Limited. E.L. 12/90 was granted in 1990 as a result of a successful tender application. E.L. 15/90 was also applied for, and granted, covering an area adjoining E.L. 12/90. These areas were acquired because of their potential to contain further carbonate replacement tin deposits of the type found at Mount Bischoff and Luina.

Leaman and Richardson (1989) highlighted the potential of this area by demonstrating the relationship between the shape of buried granite bodies and the associated mineralisation, in particular the north-east trending ridge of granite beneath Mount Bischoff. Carbonate units are known to occur within the Oonah Formation and in the Crimson Creek Formation. Gordon Limestone also occurs in proximity to the Meredith Granite. Up to 1993, exploration has concentrated mainly on the northern edge of the granite.

2. LAND TENURE

In March 1990, Renison Limited tendered for ETA 160 "Mt Ramsay" and E.T.A. 161 "Waratah". The tender application was successful and E.L. 12/90 with an area of 149 km^2 was granted on 6/7/90. A further 183 km^2 was also applied for and this area was granted as E.L. 15/90 on 6/7/90. In June 1992 E.L. 12/90 was reduced to 111 km^2 and E.L. 15/90 was reduced to 36 km^2. E.L. 12/90 includes the township of Waratah. Excluded from E.L. 12/90 is R.L. 8807 which covers 4 km^2 around Mount Bischoff and several small M.L.s over alluvial deposits on the Waratah River and near the margins of the Meredith Granite. These M.L.'s are:

19m/72	Campelane Nominees Pty. Ltd.	Waratah River
4W/71	Campelane Nominees Pty. Ltd.	
3W/72	Campelane Nominees Pty. Ltd.	
4W/72	Campelane Nominees Pty. Ltd.	
1W/73	Campelane Nominees Pty. Ltd.	
1W/73	Campelane Nominees Pty. Ltd.	
11M/77	A. Sporer	Wombat Flat
14M/77	A. Sporer	Wombat Flat
44M/90	A. Sporer	Wombat Flat
5M/75	Seaborn Pty. Ltd.	Wombat Flat
82M/77	M.G. Glozier	below Waratah Falls

As of 6/6/93 E.L. 15/90 will be reduced to 2 km^2 and E.L. 12/90 reduced to 64 km^2.

3. GEOLOGY

Oonah Formation

Within the exploration area, there are two blocks of Oonah Formation, one surrounding Mt Bischoff and the other in the Ramsay-Coldstream area. Drilling through Tertiary basalt suggests that these two blocks are continuous beneath the basalt cover. The Proterozoic Oonah Formation contains pale grey quartz sandstones, generally finer-bedded pale grey siltstones, dark grey shales, dolomites and minor mafic lavas and volcaniclastics.

The Oonah has been divided into upper and lower successions on the basis of lithology. The Lower Oonah is dominated by micaceous quartz sandstones and siltstone with minor interbedded phyllitic mudstone. The Upper Oonah has a greater abundance of mudstone and shales, with dolomite, mafic volcanics and relatively minor sandstone.

The Oonah Formation in the Ramsay block can be divided into three zones. The central zone is dominated by quartz sandstone in beds 10 to 50cm thick. On lithological criteria, this is correlated with the Lower Oonah. In the western zone there are thinly bedded calcareous siltstones and shales. In the eastern zone there are also siltstones, shales and dolomite. Although these two zones are correlated with the Upper Oonah, no mafic rocks have been noted in this area. The Upper Oonah rocks tend to be finer grained and thinner bedded than those of the Lower Oonah. They are less competent and more ductile and are often strongly deformed, with abundant parasitic and short wavelength folds.

Around Mt Bischoff, a similar association is observed. Dolomite occurs with shale and siltstone rather than in sandstone-dominated successions. As well as at Mount Bischoff, dolomite has been mapped at Deep Gully Creek and on the northern side of the Waratah River.

Crimson Creek Formation

The Crimson Creek Formation occurs along the eastern side of the Meredith Granite, around the Cleveland mine area and north of Mount Bischoff. The sequence is composed largely of basaltic volcaniclastic turbidites and finely bedded siltstone and mudstone. Basalts and chert are quite common in the northern areas. Thin carbonate horizons occur within the Crimson Creek Formation but rarely outcrop. Chemically, the basalts are tholeiitic in character (Brown, 1986). Due to the basaltic component within the sediments, the Crimson Creek rocks are usually deeply weathered and outcrop is generally poor.

Ordovician - Devonian Sediments

A sequence of Ordovician to Devonian sediments unconformably overlies Cambrian mafic to ultramafic rocks within the Huskisson Syncline and in a smaller syncline north of the Meredith Granite between Mt Stewart and Heazlewood. These sediments belong to the Gordon Limestone - Eldon Group sequence and are part of the same sequence that occurs near Zeehan, Queenstown and in the King River Valley. The Gordon Limestone occurs at the base of the sequence and may have a thickness of up to 500m. It generally does not outcrop. Alluvium filled valleys tend to develop above the limestone. The Gordon Limestone is overlain by the Crotty Sandstone, a white, friable quartz rich sandstone, up to 400m thick. This sandstone unit tends to outcrop as resistant ridges. The Crotty Sandstone is overlain by calcareous laminated siltstone and mudstone, the Amber Slate. This also tends to be a poorly outcropping unit. Successive units include the Keel Sandstone, the Austral Creek Siltstone, the Florence Sandstone and the Bell

Shale. In the Whyte River area, only that part of the sequence from the Gordon Limestone to the Amber Slate has been mapped. The Crotty Sandstone forms a prominent ridge around the edge of the syncline, but the rest of the sequence is poorly exposed, most of it covered by alluvium.

Meredith Granite

The Meredith Granite has been radiometrically dated at 356 Ma (with revised decay constants). Texturally it is quite variable. Around the north-eastern tip and eastern margin, the granite is porphyritic close to the contact, with feldspar phenocrysts up to 25mm long and quartz phenocrysts up to 8mm. Moving away from the contacts towards the centre of the granite, the rock becomes less porphyritic and more equigranular. It is biotite-bearing throughout. Along the northern margin, south of the Whyte River, coarse-granted equigranular biotite granite occurs right up to the contact. Zones of greisenisation and concentrations of tourmaline veining are conspicuous close to the margins of the granite but are relatively scarce towards the interior. Quartz feldspar porphyry dykes related to the Meredith granite occur at Mount Bischoff and at Deep Gully Creek.

Tertiary Basalt

An extensive basalt plateau covers the area east and south of Waratah with erosional remnants to the west. Individual flows range from less than 1m to greater than 10m thick. Fluvial and lacustrine sediments occur between the basalt flows. The sediments range from mud to gravel and are often poorly consolidated. The Tertiary cover is up to 300m thick.

4. WORK COMPLETED

Within the area to be relinquished, RGC have image-processed and re-interpreted the Mines Department 1981 aero-magnetic survey, carried out a gravity survey and carried out limited reconnaissance mapping, rock chip sampling and stream sediment sampling.

When E.L.'s 12/90 and 15/90 were first acquired, RGC considered flying a new aero-magnetic survey, primarily to detect magnetic anomalies associated with massive pyrrhotite-hosted mineralisation. However, when the existing 1981 survey data was examined it was considered that the response from a massive pyrrhotite body would be swamped by the magnetic aureole surrounding the Meredith Granite, or that similar mineralisation beneath the Tertiary basalt would be masked by the magnetic character of the basalt. It was decided to have the existing survey data image processed by Geoimage and interpreted by Wyatt and Associates. The results of this work are presented in Appendix 1.

The existing gravity data base for the Waratah-Ramsay area was acquired as part of the Mount Read Volcanics Project (Leaman and Richardson, 1989). This survey shows a clear relationship between the form of the granite surface and the distribution of the associated mineralisation. For this reason it was decided to carry out a more detailed gravity survey to better define the shape of buried granite ridges extending from the Meredith pluton. Mackie Martin Pty Ltd measured 337 gravity stations. These were added to the existing data base and the information was processed and interpreted by David Leaman. Results of this work are given in Appendix 2.

During the 25 year period that Comstaff held E.L. 5/63 close-spaced stream sediment samples were collected from most of the creeks in the area. The results of this program were re-examined by RGC. Most of the drainages near the edge of the Meredith granite have relatively high tin levels, sourced from the numerous small greisen systems occurring within the granite. This type of tin swamps the geochemical signature of the area and it may be impossible to distinguish geochemically, carbonate replacement style tin mineralisation from greisen related tin within the stream sediments. Of the drainages remote from the granite contact, only one was noticeably anomalous in tin. This creek drained into Wombat Flat from the east. The creek was re-sampled, confirming the existence of the anomaly. The source of the tin in this creek was identified as probable greisen-related tin, reworked from Tertiary sediments beneath Tertiary basalt.

5. CONCLUSIONS

The initial work carried out on E.L.'s 12/90 and 15/90, particularly the gravity survey and the re-interrogation of the aeromagnetic and stream sediment data, was designed to identify the most prospective portions of the

E.L.'s to focus further work on particular prospects. The areas being relinquished are not considered to be unprospective, but rather are areas where it is difficult to identify specific prospects. Some of the difficulties are:

(i) the highly magnetic aureole of the Meredith granite is likely to swamp a magnetic anomaly associated with pyrrhotite mineralisation

(ii) much of the area is covered by Tertiary basalt which precludes any effective exploration at reasonable costs

(iii) the stream sediment geochemistry is swamped by tin from sub-economic greisens in the granite

(iv) although the gravity interpretation indicates that the eastern side of the Meredith plunges steeply, the gravity station spacing is too coarse to detect small cupolas like the one beneath the Cleveland Mine.

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APPENDIX 1

INTERPRETATION OF REGIONAL AEROMAGNETIC DATA FROM THE WARATAH-MT RAMSAY AREA, TASMANIA. WYATT AND ASSOCIATES

Interpretation of Regional Aeromagnetic data from the Waratah - Mt Ramsay area, Tasmania

E.L.'s 12/90, 15/90
BURNIE SK 55-3

for

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Summary

The area is part of the Tasmanian Department of Mines' 500 metre line spaced aeromagnetic survey of the west coast of Tasmania. The data were acquired using a fixed wing aircraft with a proton precession magnetometer. Navigation was achieved using aerial photography. The mean sensor height was 135 metres above ground level, but varied between 80 and 500 metres.

The regional aeromagnetic data clearly demonstrate the differing magnetic characteristics of the major rock types in the area. The Meredith Granite is non-magnetic but gives rise to a metamorphic halo with characteristics determined by the nature of the country rocks. Small isolated anomalies within the granite may indicate skarns. The Tertiary basalts form complex anomalous zones which mask the weaker anomalies from underlying Palaeozoic rocks. However, some of the stronger anomalies due to Palaeozoic sources can be delineated within the complex zones.

Strong anomalies are associated with volcanic units within the Crimson Creek Formation and with ultramafic units. The potential for recognising structures controlling mineralisation and smaller anomalies due to possible mineralisation is dependent on acquiring more detailed data which is more amenable to filtering and detailed modelling techniques.

A review of the previous use of other geophysical techniques in the area is considered necessary: to determine the response of the known ore bodies to various methods; to delineate areas which have been adequately tested; and then to define the areas with the most potential for exploration and the most promising techniques to use.

The discrete magnetic anomalies within and adjacent to the margins of the Meredith Granite should be investigated as primary targets for skarn and pyrrhotite bodies. High resolution ground magnetics (and possibly other techniques) with detailed computer modelling is necessary to define targets for testing by drilling. Previous detailed geophysics, geology, and drilling should be taken into account before further work is undertaken on any magnetic anomalies. A review on the application of various geophysical techniques to the area is recommended.

The survey data have limitations which can be attributed to the data acquisition phase. The area should be reflown with high resolution equipment and 100 to 150 metre line spacing. The steep topography of about half of the area warrants the consideration of the use of helicopter rather than fixed wing aircraft. Consideration should also be given to acquiring EM as well as magnetic data.

A detailed survey using state-of-the-art technology could be expected to provide more detailed information regarding: the definition of smaller amplitude targets within generally non-magnetic rock units; the resolution of any small anomalies adjacent to large amplitude anomalies over ultramafics; the resolution of units within the Crimson Creek Formation; the definition of faults and other structures; the thickness of Tertiary basalt; the location of any windows of relatively thin basalt cover; and the structure and composition of the basement beneath the basalts.

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Note: The following maps have also been generated but are *not* included with this report.

Residual magnetic intensity contours (5 nT interval) 1:100,000 scale

Laminated magnetics image - vertical derivative with AGC greyscale 1:100,000 scale

Flight path 1:100,000 scale

Laminated stacked profile plots at 1:100,000 scale, second horizontal difference bipole

1 Introduction

The area is part of the Tasmanian Department of Mines' regional aeromagnetic survey of the west coast of Tasmania. This survey was flown in May of 1981 by Geoex Pty. Limited, with east west flight lines nominally 500 metres apart and a mean sensor height of 135 metres above ground level. The data were acquired using a Cessna A185E fixed wing aircraft with a Sonotek magnetometer. The resolution was 0.1 nanoTesla (nT), accuracy 0.5 nT, and sample interval 0.8 second (40 metres). Navigation was achieved using aerial photography and flight path recovery using 16 mm ground tracking camera.

This interpretation is part of an exploration effort which aims to discover Renison-style pyrrhotite-rich replacement tin mineralisation. The aim is to locate major structures which act as conduits for the mineralising solutions that are known to have emanated from the Meredith Granite. Of interest is where these structures intersect stratigraphic carbonate horizons that act as hosts for the tin mineralisation. Deposits of this type in the area are the Cleveland Tin deposit at Luina and the Mt Bischoff deposit at Waratah. Carbonate horizons would be expected in the Precambrian Oonah Formation, the Cambrian Crimson Creek Formation, and the Ordovician Gordon Limestone. Some Cambrian carbonate alteration may occur adjacent to the ultramafics. Magnetite-bearing skarns are also known to occur in the area.

1.1 Topography

The EL's comprise about equal areas of plateau (between about 560 and 660 metres above height datum) and fairly rugged dissected terrain down to 150 metres metres above height datum.

Mt Ramsay (855 metres), Wombat Hill (850 metres) and Mt Pearse (1001 metres, just off the eastern edge of EL 15/90) rise above the plateau. The dissected areas include parts of Deep Gully Creek, Waratah River, Magnet Creek, Ritchie Creek, and Arthur River around Mt Bischoff (784 metres) in the north of EL 12/90; and the Ramsay, Coldstream, Hatfield, Wilson, Que, and Huskisson Rivers and their tributaries in the south of EL 15/90.

The plateau area comprises mainly outcrop of Meredith Granite (in the west, and an extensive area of Tertiary basalt.

2 Geology

Table 1 Stratigraphic Table - (after Brown, 1984)

Permian-Carboniferous		
	Pt	tillite
-------- landscape unconformity --------------------		
Silurian-Devonian		
Eldon Group	S-Du	
------------- disconformity ----------------		
Ordovician		
Gordon Limestone	Ogl	limestone
Owen Formation	Os	conglomerate, sandstone, siltstone
------------- disconformity ----------------		
Cambrian		
Dundas Group	€d	
Huskisson Group	€h	
Rosebery Group	€r	
------------- erosional break ----------------		
eoCambrian		
Crimson Creek Form.	€cc	with lava flows (€ccb)
Success Creek Group	€sc	
-------- landscape unconformity --------------------		
Precambrian		
Oonah Formation	Ꝑo	

Igneous Rocks

Tertiary	Tb	basalt
Jurassic	Jdl	dolerite (intrusive sills)
Devonian	Dg	granitoids
Cambrian		
Mt Read Volcanics	€mrv	pyroclastic and epiclastic acid to intermediate volcanics
	€bm	low-titanium tholeiite
	€ba	high-magnesian andesite and associated coarse-grained pyroxenite
EoCambrian		
	€s	serpentinised ultramafic-mafic rocks

The outcrop limits of both Tertiary basalt and Meredith Granite, as mapped by Brown (1984) are shown on Plate 16.

Burrett and Martin (1989) should be consulted for general description of the geology and mineral deposits of the area, as well as a comprehensive list of references.

Leaman and Richardson (1989) have analysed regional gravity data over the Meredith Granite using 2-dimensional modelling along five profiles which cross the pluton. Their provisional interpretation indicates that the granite pluton has steep edges on the west and much of the northwest and southeast, but shelves to the northeast (beneath Cleveland, Magnet, and Bischoff mines). A northeast trending zone in the southeast of EL 15/90 has also been indicated as a zone with "complex alternative structures possible".

3 Magnetic Interpretation

3.1 Data Processing and Presentation

The original data were gridded (125 * 125 metre cells) and 5 nT contours were produced at 1:50,000 scale. Unfortunately, the use of a fixed wing aircraft over the rugged terrain produced large variations in ground clearance, particularly between adjacent lines flown on reciprocal headings. This resulted in marked "herring-bone" patterns on the quieter parts of the contour maps and ruled out the possibility of using a finer contour interval to display more detail.

More recently, RGC Exploration has used several other techniques to enhance the processing and presentation of the data.

In 1990, Geoimage Pty Limited used image processing techniques and presented the data as greyscale and coloured images of: residual magnetics; vertical derivative (VD); and VD with automatic gain control (AGC). Directional filters were also applied to the VD with AGC data sets (Walker, 1990). The locations of Mt Bischoff and Cleveland tin mines are shown on the images as 'MB' and 'CL' respectively.

In 1990, Surtec Pty Limited reprocessed the data and produced flight path map and second horizontal difference bipole stacked profiles at 1:50,000 scale.

The vertical derivative and horizontal difference operators are high pass filters and both effectively reduce the effect of the levelling problems in the data and allow the delineation of lower amplitude, short wavelength anomalies.

The magnetic data are shown as Plates 1 to 14. Additional displays of images exist as 35 mm photographic slides. The contour map is most useful for accurate positioning of all anomalies and other interpreted features. Profiles generated for modelling from the digital data provide the best display of the relative amplitudes of anomalies and anomaly shape for matching computer generated models. The other images have been filtered to enhance various trends and spectral characteristics, particularly short wavelength features which may be related to faulting.

3.2 Magnetic Characteristics of Mapped Units

The Eldon Group coincides with regions of extensive magnetic gradients in the far west and the southwest of the area. In the far west, the gradient probably reflects the geometry of underlying Cambrian rocks which outcrop further to the southwest. In the southwest, the gradient is due to Cambrian outcrop to the east and west. There are several smaller anomalies within the outcrop in the southwest. Most of these are adjacent to the margin of the Meredith Granite and are recommended for further investigation.

Gordon Limestone crops out in the west of the area, between Eldon Group and Cambrian rocks. The limestone itself is completely non-magnetic and is coincident with gradients due to the Cambrian rocks. A couple of anomalies are adjacent to the margin of the Meredith Granite and are recommended for further investigation.

The Owen Formation crops out at Mt Pearse in the far east of the area. It appears on the magnetic contours as a relative low, due to the window in the surrounding (magnetic) Tertiary basalt.

Rocks of the Dundas Group and its correlates crop out in a north-northeast trending belt in the southeast of the area. The more northwesterly, undifferentiated part is magnetically quiet with only a couple of fairly small anomalies, up to a few tens of nT in amplitude, which occur on a line subparallel to strike and topography.

The Huskisson Group (a correlate of the Dundas Group) contains a zone with northeast trending linear anomalies up to 150 nT in amplitude. This zone presumably reflects the presence of volcanic units within the Huskisson Group, or possibly within underlying Mt Read Volcanics. An anomaly due to a reversely magnetised source occurs at 5397000 mN, 383000 mE (just outside EL 15/90). This is similar to some anomalies over the Tertiary basalts and possibly indicates an unmapped basalt outlier. If this is not the case, it should be further investigated to determine the source.

The Crimson Creek Formation crops out in a north-south zone through the centre of the area and in an extensive area including the northwest part of the area. The Formation is generally quite magnetic, especially those areas mapped as dominantly basalt flows. The magnetic data indicate that the basalts are more extensive than indicated by mapping. The higher amplitude anomalies also indicate where the Formation extends beneath the westernmost area of Tertiary basalt cover. The acquisition of more detailed aeromagnetic data over the Crimson Creek Formation would allow much better resolution of magnetic units within the Formation and the direct detection of any anomalies due to pyrrhotite associated with mineralisation.

The Oonah Formation and its correlates crop out in the south of the area, between outcrop of Dundas Group and Crimson Creek Formation. The only magnetic anomalies (in the northeast) have amplitudes of a couple of hundred nT and indicate that the Tertiary basalts probably extend further than mapped. Ground checking is required to verify this assumption.

Oonah Formation also occurs around Mt Bischoff. The only detected magnetic anomaly is the 300 nT anomaly over Mt Bischoff.

Tertiary basalt covers an extensive area in the northeast, and also occurs as other smaller outliers. The magnetic field over these outcrops is characterised by complex, short wavelength anomalies with amplitudes of a few hundred nT. Some of the anomalies are negative, indicating reverse magnetisation in some flows.

While it is possible to delineate the anomaly due to a major magnetic unit within the Crimson Creek Formation where it lies beneath the basalt because of its high amplitude (about 1000 nT), the direct detection of magnetic anomalies associated with mineralisation beneath the basalt cover is not very likely.

The basalt surface is relatively flat, so the main factor determining the anomaly shape will be the depth of weathering and the configuration of the lower surface of the flows, the pre-basalt topography. Better quality magnetic data could be used to determine the thickness of basalt and in particular, any windows of relatively thin basalt cover.

The Meredith Granite has an extensive outcrop area in the west. The granite is not magnetic. There are quite a few anomalies adjacent to the margins of the pluton which are recommended for further investigation. A couple of isolated anomalies within the granite are probably due to skarns or unmapped outliers of Tertiary basalt. These are also recommended for further investigation.

Porphyry dykes at Mt Bischoff are also associated with the Meredith Granite. An unusual shaped anomaly over Mt Bischoff is probably partly due to equipment and buildings associated with the mine, but modelling studies indicate that the bulk of the anomaly is due to a quite extensive source with significant depth extent (see Figure 2).

Cambrian gabbros crop out northwest of the EL's and coincide with part of some significant magnetic anomalies. The magnetic data suggest that the gabbros may be much more extensive in the subsurface than mapped on the surface.

The Mt Read Volcanics crop out extensively to the southeast of the EL's and contain some magnetic anomalies with amplitudes up to several tens of nT.

Cambrian massive ultramafic cumulates occur to the north of the EL's (north of Mt Bischoff). These outcrops appear to be magnetic but their effects are not easily distinguished from the adjacent Tertiary basalt.

Other Cambrian and eoCambrian rocks occur near the northwest boundary of EL 12/90. The magnetic response of these is variable. The low-titanium tholeiite is generally non magnetic to the west of Mt Bischoff, but strongly magnetic west of Luina (around Heazlewood). High-magnesian andesite and associated coarse-grained pyroxenite shows a complex pattern in the west of EL 12/90, with anomalies of a few tens of nT.

The derivative maps (Plates 5 and 13) show different character over some of the rock units, generally due to the effect of the automatic gain control (AGC) filter amplifying noise over essentially non-magnetic rocks. The most marked zones occur over the Meredith Granite, Eldon Group, Dundas Group, and part of the Oonah Formation (outside the EL's, 12 km north-northwest from Luina).

Plate 16 shows the position of magnetic sources and contacts as interpreted from the magnetic contour map and the second horizontal difference profiles. The delineated areas correspond to the surface projections of the sources of the magnetic anomalies. The second horizontal difference profiles (Plate 13) have an inherent bias against east-west features because of the use of a high pass filter along the lines only, and the stacked profile display. However, given that very few of the geological features trend east-west and that the contours provide additional information, the bias does not detract significantly from the interpretation. The areas of highest second horizontal difference correspond well with the interpretation of source positions from the contours. Some of the areas delineated in Plate 16 show the extra detail that can be extracted by the use of appropriate filtering and presentation techniques.

3.3 Lineaments and Structure

Several magnetic lineaments have been interpreted from a study of all available data displays, particularly the images of vertical derivative with automatic gain and with shading applied from various directions (Plates 9 to 12). These lineaments have generally been defined by steeper gradients or by colinear anomalies or truncations of anomalies. The lineaments are shown on Plate 16 and are generally considered to be indications of faults or, in some cases, of units within the stratigraphy. In the northeast of the area, where the magnetic field is dominated by the effect of Tertiary basalts, only the strongest lineaments have been delineated.

A few strong anomalies trend northeast in a line from Mt Ramsay to just north of Mt Pearse. These are parallel to linear anomalies over the Huskisson Group and may also reflect units within the Palaeozoic basement. An alternative explanation is that they reflect greater thickness of basalt within older river valleys.

The majority of the interpreted lineaments trend northwest to north-northwest, with most of the remainder trending north-northeast. In the western part of the Meredith Granite (outside the EL's) two lineaments extend through the granite at 350° and 355°. The most dominant lineaments are one which passes through Mt Bischoff and another which truncates most of the Meredith Granite.

The large north-south anomalies over Crimson Creek Formation are interpreted to indicate dyke-like bodies which dip away from the Meredith Granite at its margin (Figures 4 to 7). More detailed analysis of these anomalies, along with gravity anomalies, may allow definition of the subsurface shape of the granite.

The delineation of structure would be much easier and more reliable with a more detailed data set.

3.4 Modelling

Most of the more prominent anomalies have been computer modelled to provide a better appreciation of the shape and nature of their sources. It is stressed that the models are not unique, and that various simplifying assumptions have been made in terms of the geometries of the bodies employed in the models. More detailed airborne or ground magnetic readings and modelling studies would be required before drill targets could be defined.

Remanent magnetisation has not been taken into account in the interpretations, except in the case of some Tertiary basalt flows which are reversely magnetised (see Figures 7 and 8).

The characteristics of all bodies used in the modelled profiles are listed in Tables 2, 3, and 4. Units on all profile plots are kilometres and nanoTeslas, with arbitrary origins. Remanence has not been included in any of the models because of lack of adequate control. The earth's main field has been taken as 62535 nT amplitude, inclination -71.8°, and declination 12.8°.

Data from ten flight lines have been quantitatively interpreted using a 3-dimensional modelling package (Almond, 1990). These lines were chosen to demonstrate the effects of most interpreted magnetic sources in the survey area.

Data on these lines were reprocessed by digitising ground elevation and adding this to the recorded aircraft ground clearance. The modelled anomalies can then be computed at their true locations in space. The ground elevation lies between 150 and 1000 metres above sea level. The nominal sensor height was 135 metres above ground level, but actually varied from less than 75 metres to more than 500 metres above ground level. Differences in aircraft elevation on reciprocal headings are responsible for some "herring-boning" on the contour presentations.

The results of the profile modelling studies are presented as Plate 14 and Figures 1 to 10. Each of the figures comprises a profile showing the observed and computed total magnetic fields and a cross section showing all bodies used for the model on that profile. The modelled profiles are oriented 'looking North'. The observations are shown as '+' symbols, the height of the observations as the lower solid line, and the computed magnetic anomaly field as the upper solid line. The scales of the ten figures are all identical to give a better appreciation of anomaly amplitudes and body dimensions.

The initial positions of the bodies and their strike and strike length were determined by examination of the contour map (Plate 15) and the second horizontal difference map (Plate 13). Plate 14 is a plan view showing the surface projections of the limits of each body, and the location of each ninth data point along the ten modelled lines. The observation points are shown as '+' symbols.

The calculated field for each profile generally only includes the effects of those bodies which are intersected by the profile, with the following exceptions. Body 1 was not used for line 2320. Body 15 and 18 were not used for lines 2170 or 2140. Body 23 was not used in lines 2170 or 2220. Body 26 was not used for line 2220. Body 32 was not used for line 1990. Bodies 47 and 48 were used for line 1880. Body 42 was used for line 1837.

In each profile, a (separate and arbitrary) linear regional has been removed from the observed field. The magnetic field in the area shows a strong east-west gradient, with the measured field being about 200 nT higher in the east than in the west. This may reflect the presence and thickening of Tertiary basalt to the east or may be due to another deeper source.

Tables 2, 3, and 4 list the parameters used to define each of the bodies used for all models. Xr, Yr, and Depth refer to the "reference point" of each body. For the ellipsoid bodies, the reference point is the top of the body. For the tabular prisms, the reference point is at the centre of the upper surface of the body. For the 3-D bodies, the cross-section is defined by several pairs of coordinates whose location is given relative to the reference point (corner 1) which is taken to be the local origin. All distances are kilometres. Susceptibility is in SI units. The susceptibilities assigned to the bodies is generally about 0.01 for the Tertiary basalt sheets and between 0.03 and 0.05 for the ultramafic bodies.

It should be noted that the interpretation of any particular body is not unique. In particular, an approximately inverse relationship exists between the susceptibility and size of the body.

Little reliance should be placed on those parts of the modelled bodies at depths of greater than a few hundred metres below the aircraft.

It should be noted that body 35 is only half the width on line 1970 that it is on line 1990. Body 9 corresponds to Mt Bischoff.

Body 38 has been assigned a negative susceptibility to denote reversed direction of magnetisation.

Attempts have been made in a few cases to model the general effects of the basalt, but these should be considered as demonstrations of some of the possible effects of edges and windows of sheets rather than a rigorous attempt to match the observed field. Bodies 4, 5, 10, 11, 12, 27, 28, 29, and 38 on Figures 1, 2, 5, 6, 7, and 8 were designed to show the shapes and amplitudes of anomalies over basalt sheets of varying shape, attitude and thickness.

Table 2 Modelled Body Characteristics - Tabular Prisms

No	Xr (east)	Yr (north)	depth	strike (deg)	dip (deg)	susc (SI)	width	breadth	height
1	374.011	5414.500	-0.250	30	115	0.017	0.60	5.0	1.0
2	377.188	5415.537	-0.543	315	90	0.010	2.30	3.0	0.8
3	377.829	5414.765	-0.543	340	90	0.030	0.60	1.3	0.6
4	380.490	5415.000	-0.633	20	90	0.010	1.10	3.5	0.25
5	385.500	5417.972	-0.678	0	90	0.015	8.00	9.0	0.6
6	370.306	5411.265	-0.498	30	110	0.010	0.30	2.8	0.7
7	371.432	5412.313	-0.543	70	90	0.010	0.50	3.0	0.7
8	372.328	5413.009	-0.543	320	90	0.010	0.50	1.4	0.6
13	367.800	5409.832	-0.500	30	120	0.015	0.30	1.5	2.0
14	368.847	5409.988	-0.707	10	110	0.015	0.30	1.0	2.0
15	369.481	5407.972	-0.500	5	130	0.035	0.50	3.7	2.0
16	370.589	5409.988	-0.550	95	120	0.035	0.70	1.3	2.0
17	371.640	5409.212	-0.424	95	120	0.035	0.70	3.7	2.0
18	373.381	5408.050	0.200	355	35	0.040	0.50	4.0	4.0
19	374.193	5410.220	-0.509	340	90	0.020	0.50	2.0	2.0
20	374.915	5408.980	-0.537	0	90	0.020	0.30	3.0	2.0
21	376.187	5409.987	-0.594	5	90	0.015	1.00	2.0	2.0
38	379.867	5397.830	-0.500	35	90	-0.020	1.20	0.9	0.2
43	375.480	5390.790	-0.100	35	60	0.010	0.60	5.0	1.5
44	380.001	5393.073	-0.400	37	90	0.010	0.15	10.0	2.0
45	380.001	5392.373	-0.400	37	90	0.010	0.15	10.0	2.0
46	380.001	5391.673	-0.400	37	90	0.010	0.15	10.0	2.0

All distances are in kilometres.
Depths are positive down, relative to mean sea level (negative depths are above sea level).

Table 3 Modelled Body Characteristics - Ellipsoids

No	Xr (east)	Yr (north)	depth	strike (deg)	dip (deg)	susc (SI)	a	b	c	plunge (deg)
33	368.293	5397.094	-0.464	15	105	0.017	0.75	0.40	0.10	0
34	369.446	5397.113	-0.520	0	80	0.060	0.15	0.10	0.50	0
39	366.151	5392.768	-0.170	-90	90	0.027	0.30	0.45	0.40	-20
40	367.175	5392.769	-0.368	-90	90	0.020	0.15	0.30	0.20	-20
41	369.243	5392.535	-0.204	-90	90	0.030	0.60	0.80	0.70	0

a, b, c are the ellipsoid axis lengths.
All distances are in kilometres.
Depths are positive down, relative to mean sea level (negative depths are above sea level).

Table 4 Modelled Body Characteristics - 3-Dimensional prisms

No	Xr (east)	Yr (north)	depth	strike (deg)	susc (SI)	length	coordinates of corners (X on first line, Y on second line)							
9	376.484	5412.201	-0.633	0	0.010	1.8	0.0	1.928	3.085	-2.769	-0.280			
							0.0	0.724	4.433	4.478	0.045			
10	379.850	5413.001	-0.678	0	0.010	3.0	0.0	1.648	1.332	-1.613	-1.683			
							0.0	0.090	0.407	0.452	0.090			
11	382.233	5412.989	-0.633	0	0.010	3.0	0.0	0.280	0.070	-0.245	-0.561			
							0.0	0.000	0.317	0.317	0.000			
12	385.187	5412.975	-0.701	0	0.010	3.0	0.0	2.830	2.865	0.516	-2.007	-2.148		
							0.0	0.023	0.384	0.701	0.430	0.023		
22	362.852	5406.211	-0.396	0	0.010	5.0	0.0	0.351	0.701	0.942	-0.329			
							0.0	-0.042	0.141	1.371	1.173			
23	365.556	5406.935	-0.400	30	0.030	7.0	0.0	0.439	1.318	1.784	1.942	-0.237		
							0.0	-0.194	-0.307	-0.240	1.927	1.927		
24	368.285	5406.140	-0.650	10	0.010	5.0	0.0	0.351	0.500	0.419	-0.100			
							0.0	-0.042	0.141	1.173	1.173			
25	369.738	5406.077	-0.650	30	0.035	5.5	0.0	0.803	0.992	-0.274	-1.230			
							0.0	-0.113	0.000	5.456	5.400			
26	373.024	5406.778	-0.537	345	0.035	5.0	0.0	0.306	0.786	1.335	3.906	2.557		
							0.0	-0.254	-0.170	0.057	6.587	6.530		
27	382.224	5405.616	-0.622	30	0.010	3.8	0.0	1.059	0.819	-0.251				
							0.0	0.000	0.452	0.396				
28	384.984	5405.923	-0.622	10	0.020	2.5	0.0	0.694	1.196	0.158				
							0.0	0.000	0.452	0.452				
29	386.210	5406.235	-0.707	0	0.020	5.0	0.0	1.000	0.904	0.028				
							0.0	0.000	0.396	0.396				
30	368.329	5402.507	-0.664	355	0.050	2.5	0.0	0.219	0.382	-0.317				
							0.0	-0.014	0.452	0.481				
31	371.865	5402.497	-0.664	0	0.010	4.0	0.0	21.141	21.229	2.180	1.818	1.150	0.712	-0.055
							0.0	-0.071	0.269	0.325	0.212	0.184	0.325	0.325
32	372.564	5402.111	-0.339	20	0.040	5.5	0.0	0.409	1.033	1.371	4.000	2.650		
							0.0	-0.141	-0.113	0.000	6.757	6.700		
35	373.001	5397.466	-0.548	0	0.045	4.5	0.0	0.300	-0.100	-0.400	4.500			
							0.0	3.000	3.000	0.000				
36	373.730	5397.499	-0.448	0	0.015	5.0	0.0	20.001	20.002	-0.301				
							0.0	0.003	0.601	0.598				
37	375.650	5397.849	-0.400	340	0.030	5.0	0.0	0.300	-0.150	-0.450				
							0.0	1.500	1.500	0.000				
42	372.201	5394.001	-0.430	355	0.042	4.0	0.0	0.500	0.600	-0.500	-0.500	-0.230		
							0.0	0.270	6.000	6.000	0.210	0.000		
47	371.850	5389.998	0.250	355	0.040	5.0	0.0	0.400	-0.100	-1.050	-0.600	-0.200		
							0.0	0.283	5.000	5.000	0.300	0.000		
48	372.850	5390.100	0.226	355	0.040	4.0	0.0	0.150	-0.350	-0.950	-0.450	-0.262		
							0.0	0.283	5.000	5.000	0.226	0.007		

All distances are in kilometres.
Depths are positive down, relative to mean sea level (negative depths are above sea level).

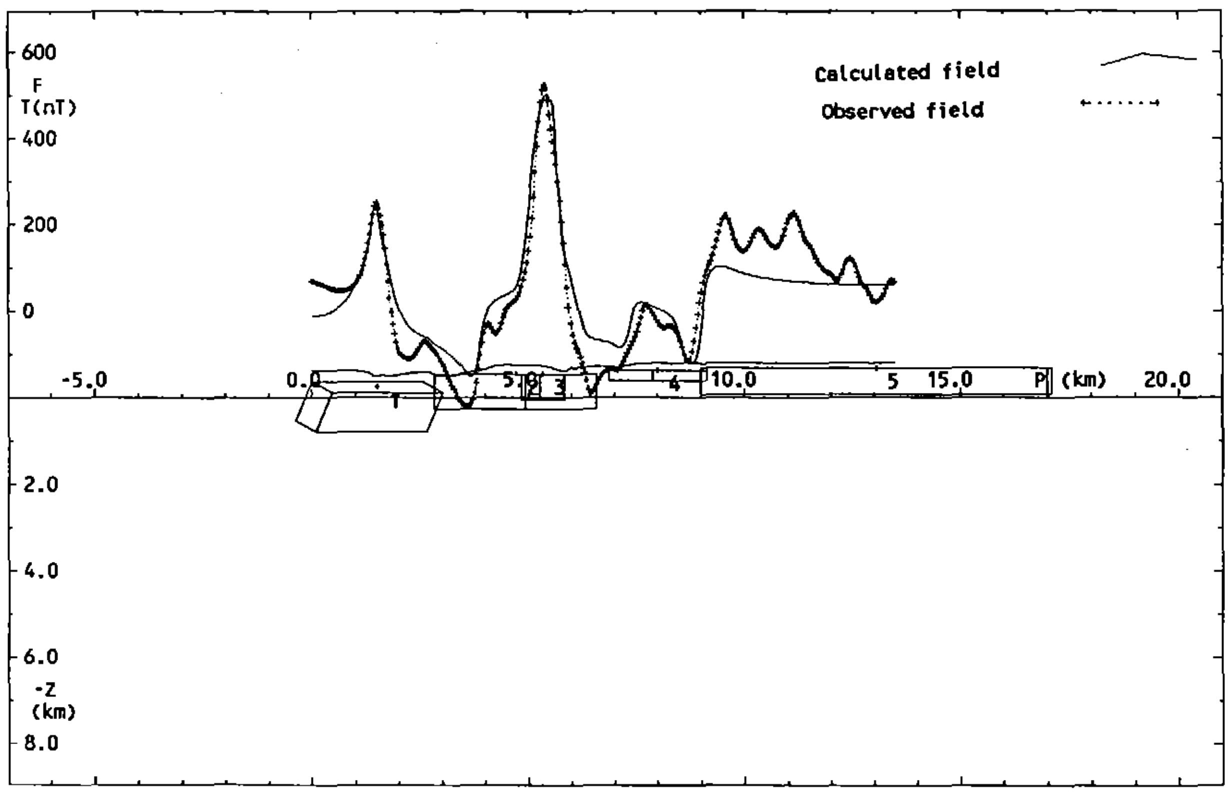

Figure 1 Magnetic profile, line 2320, 5415000 mN

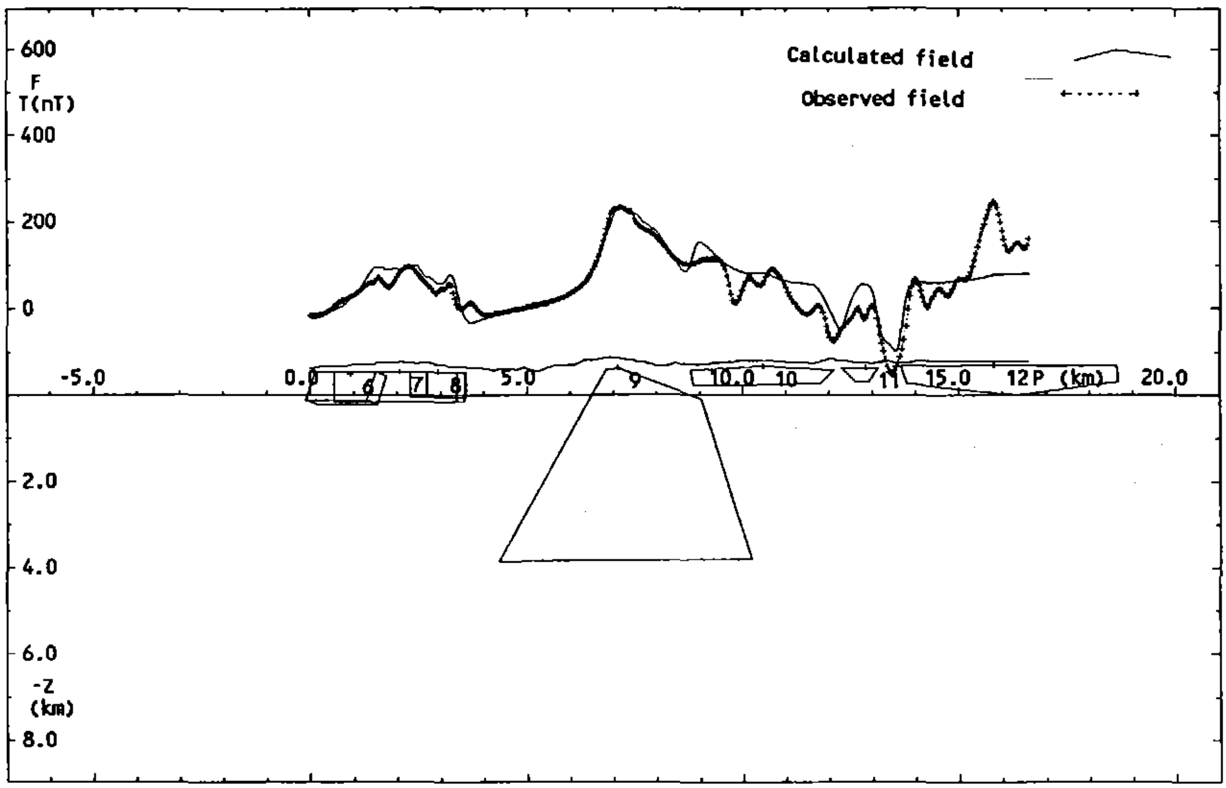

Figure 2 Magnetic profile, line 2270, 5412500 mN

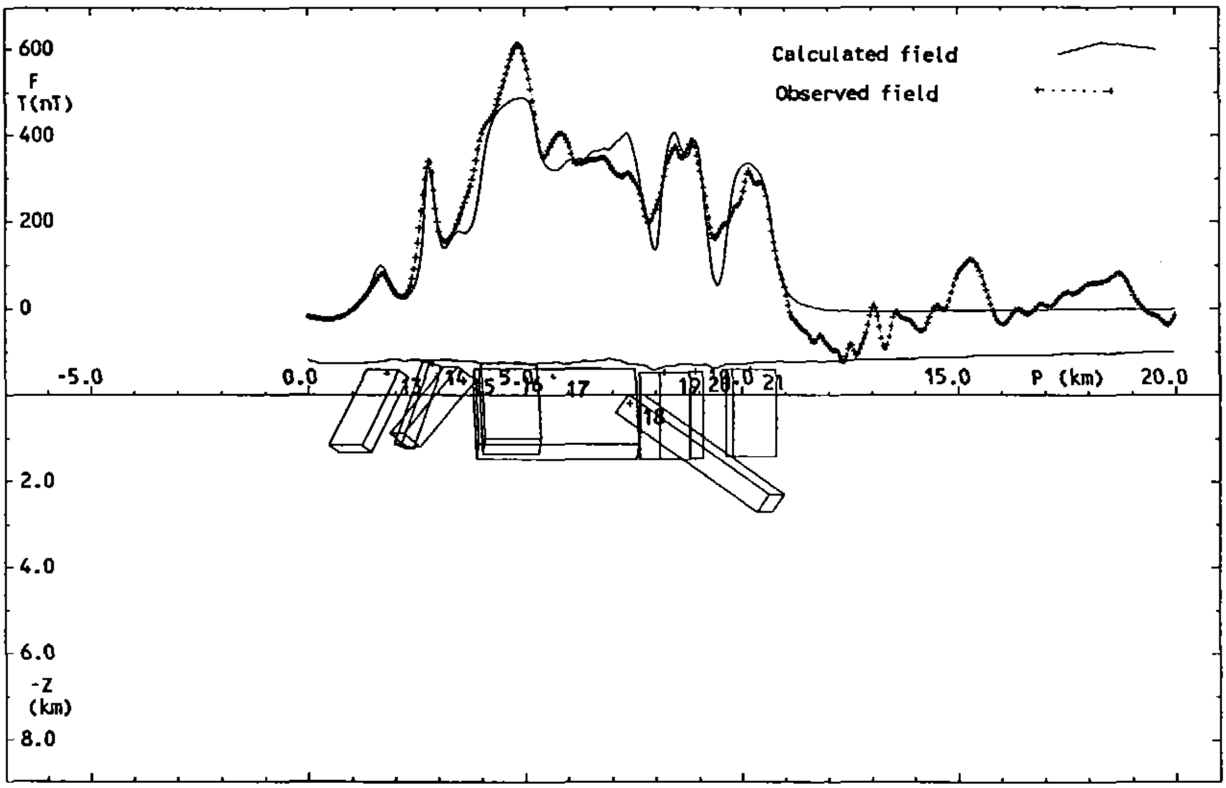

Figure 3 Magnetic profile, line 2220, 5409800 mN

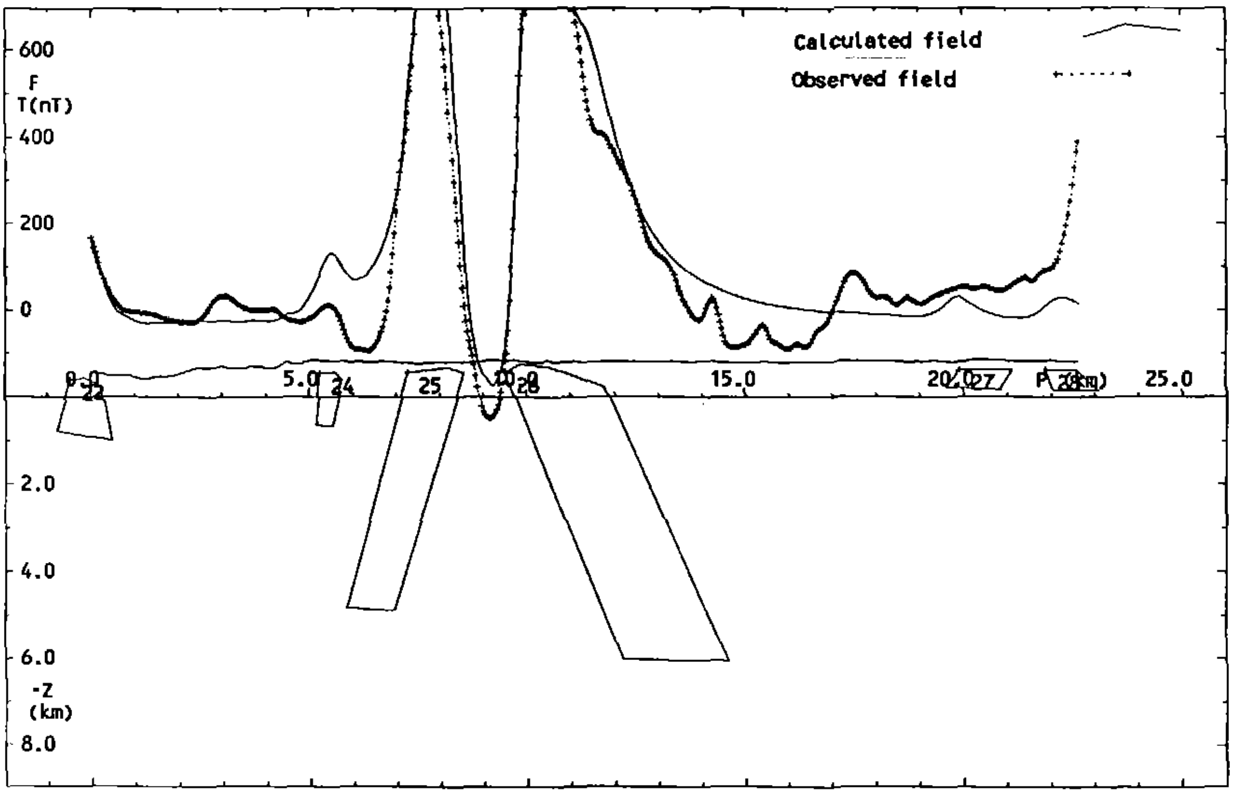

Figure 4 Magnetic profile, line 2170, 5407500 mN

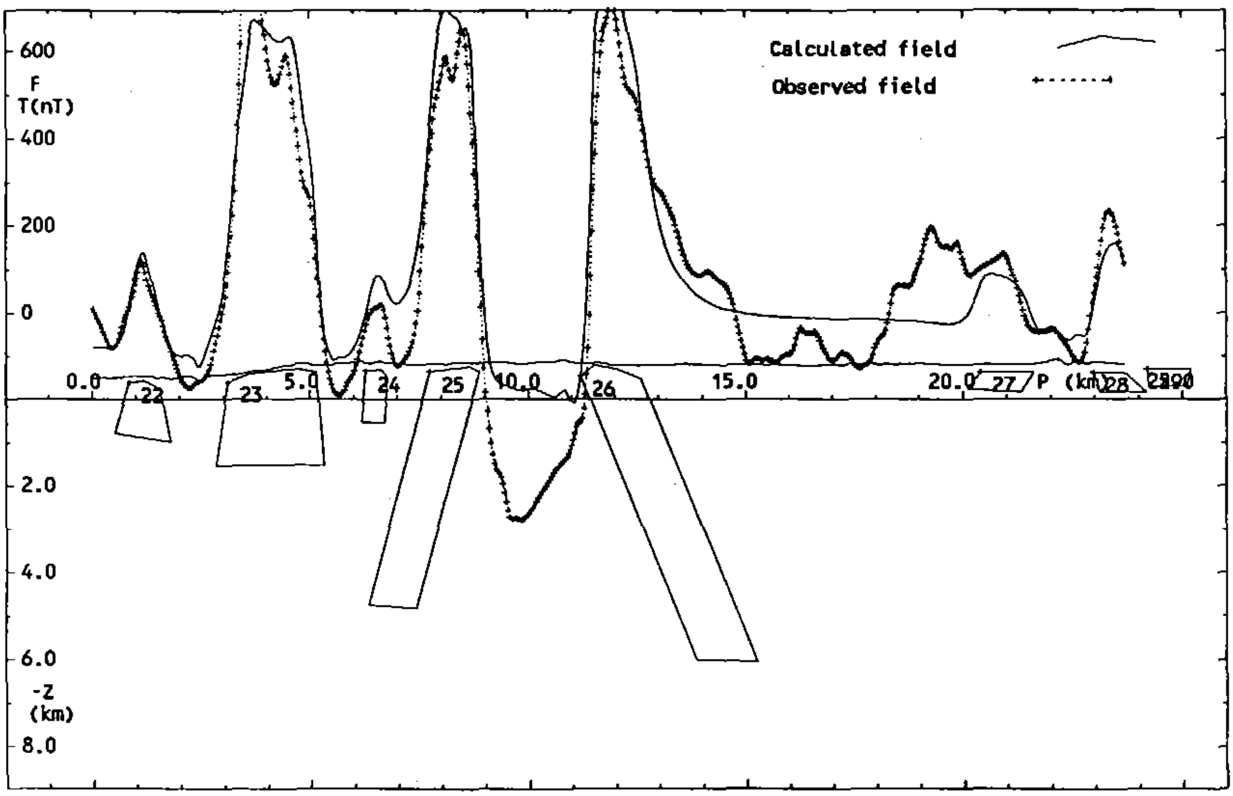

Figure 5 Magnetic profile, line 2140, 5406000 mN

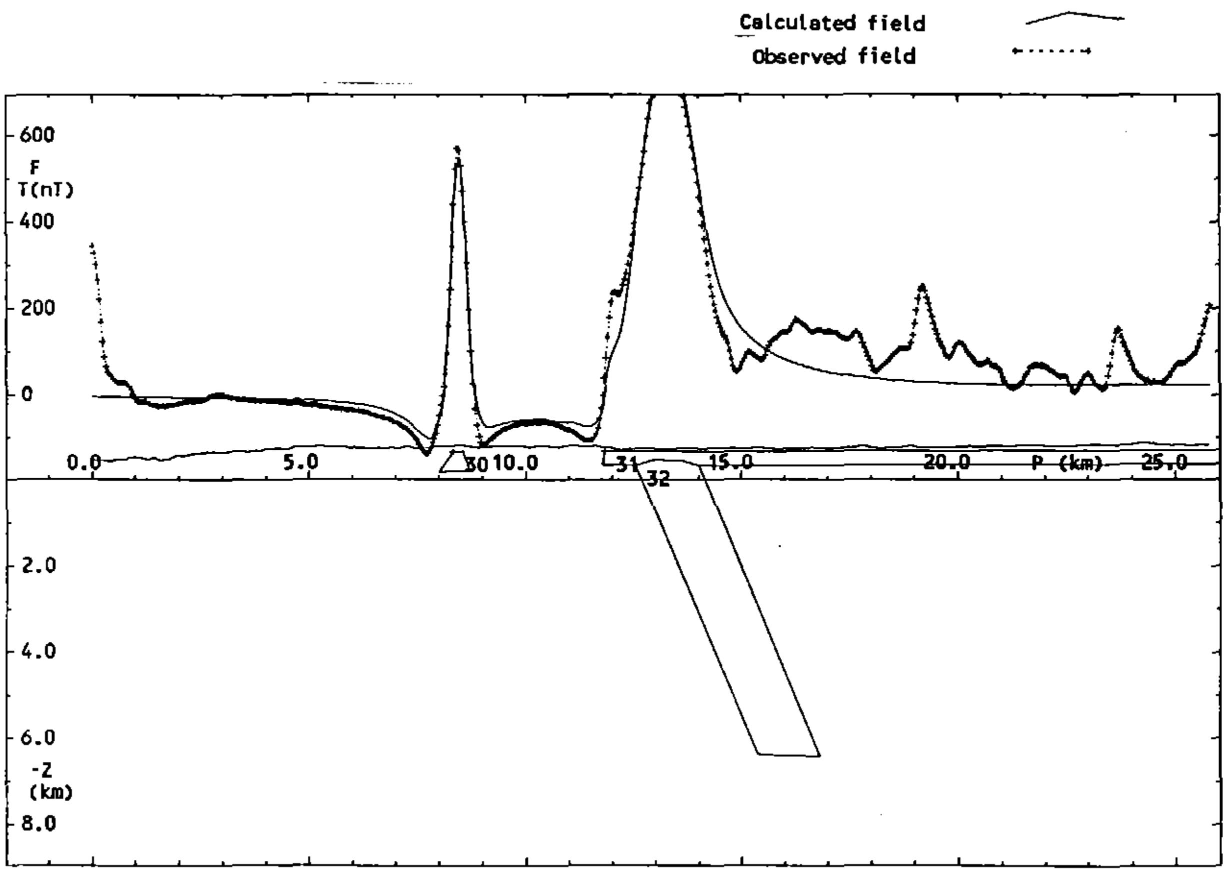

Figure 6 Magnetic profile, line 2071, 5402500 mN

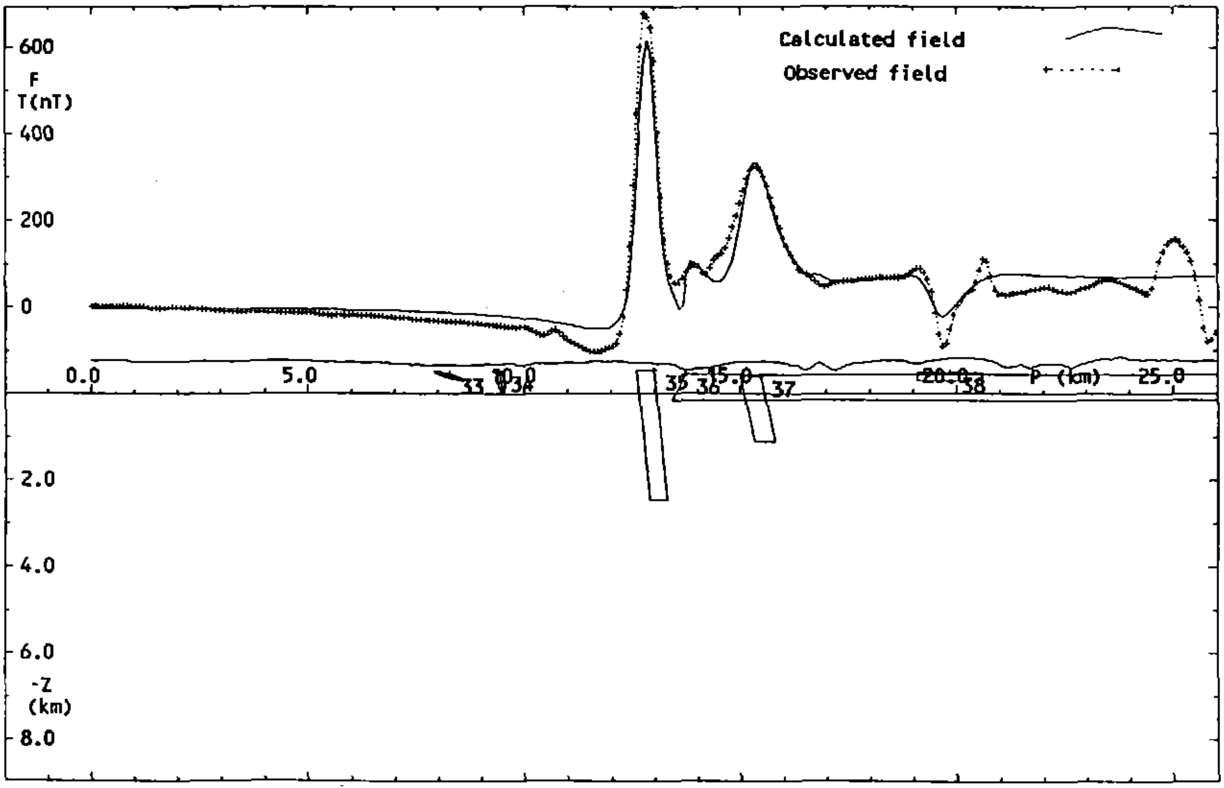

Figure 7 Magnetic profile, line 1990, 5398500 mN

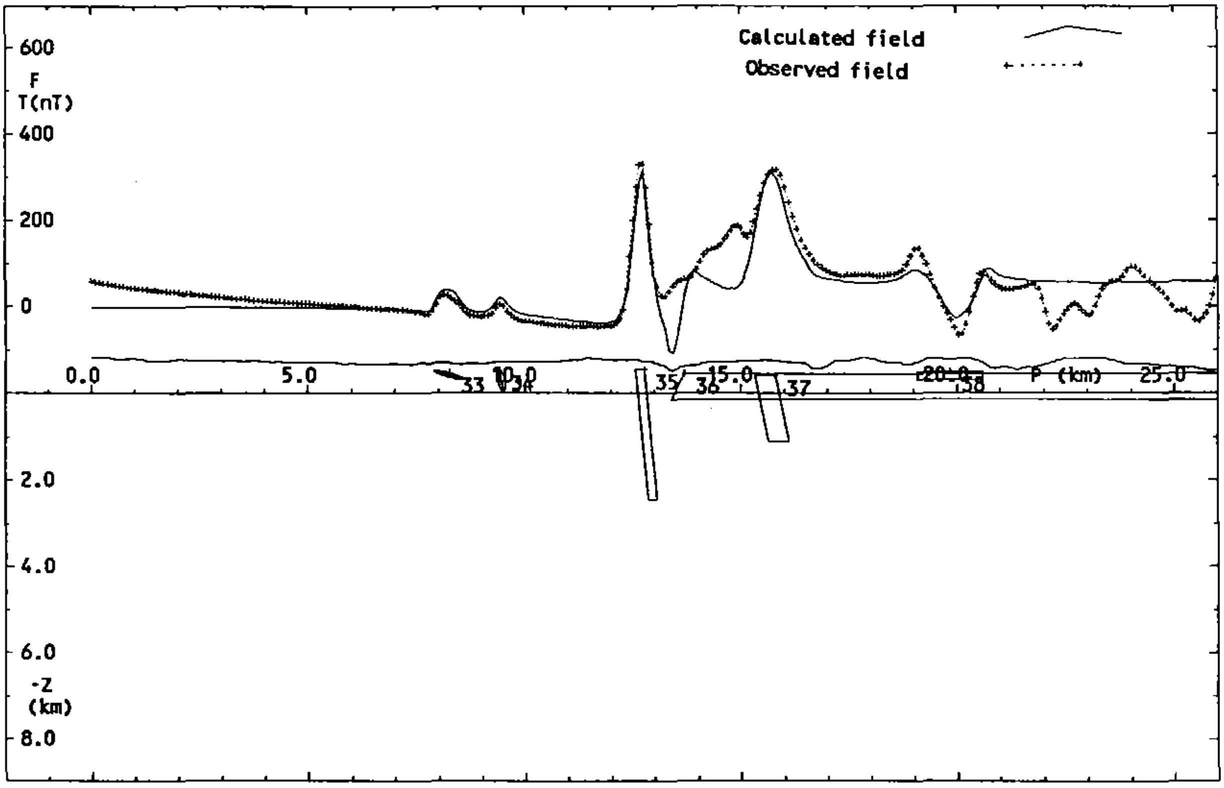

Figure 8 Magnetic profile, line 1970, 5397500 mN

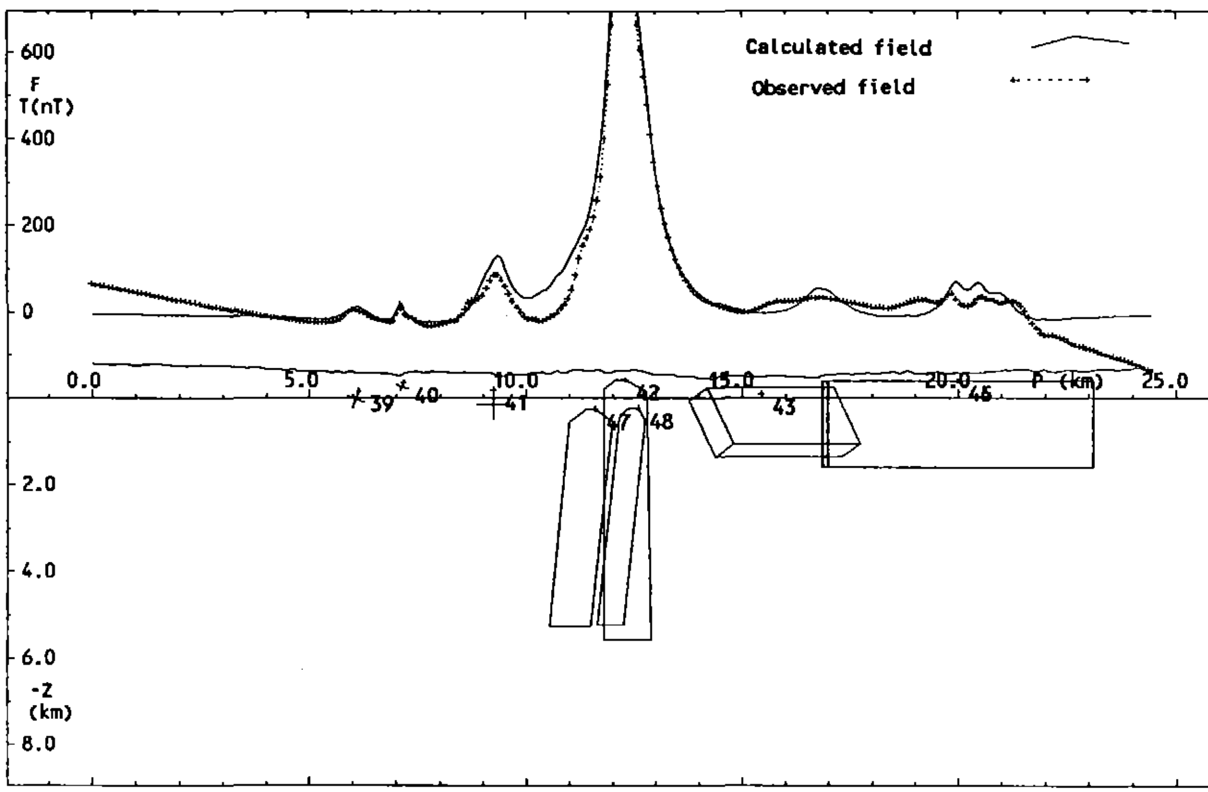

Figure 9 Magnetic profile, line 1880, 5393000 mN

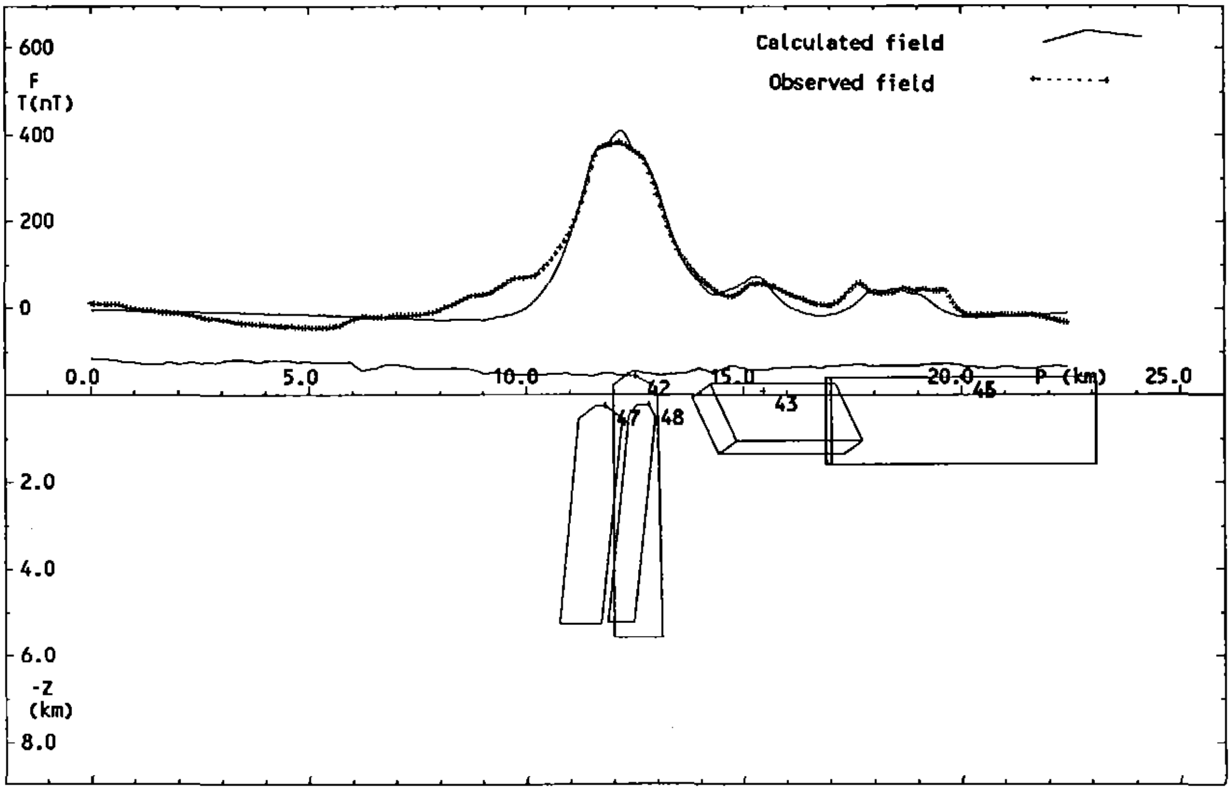

Figure 10 Magnetic profile, line 1837, 5390500 mN

4 Conclusions

The regional aeromagnetic data clearly demonstrates the differing magnetic characteristics of the major rock types in the area. The granite is non-magnetic but gives rise to a metamorphic halo with characteristics determined by the nature of the country rocks. Small isolated anomalies within the granite may indicate skarns. The Tertiary basalts form complex anomalous zones which mask the weaker anomalies from underlying Palaeozoic rocks. However, some of the stronger anomalies due to Palaeozoic sources can be delineated within the complex zones.

Strong anomalies are associated with volcanic units within the Crimson Creek Formation and with ultramafic units. The potential for recognising structures controlling mineralisation and smaller anomalies due to possible mineralisation is dependent on acquiring more detailed data which is more amenable to filtering and detailed modelling techniques.

The acquisition of high resolution ground magnetic data (and possibly data using other techniques) with detailed computer modelling is necessary to define targets for testing by drilling. Any ground magnetic surveys should be designed with lines perpendicular to strike (if practicable) and extending beyond the anomaly far enough to allow accurate definition of the background field, and with sufficient lines to define the strike and anomaly maximum. It is recommended that ground magnetic surveys be conducted along lines spaced 50 metres apart with readings spaced no more than 5 metres apart.

The survey data have limitations which can be attributed to the data acquisition phase. In steep terrain, it is impossible to maintain comparable elevation while flying adjacent flight lines on reciprocal headings with a fixed wing aircraft. The sensor height actually varied from less than 75 metres to greater than 500 metres above ground level. The data were acquired on lines 500 metres apart, with sample spacing about 40 metres and accuracy 0.5 nT.

This interpretation has not included a review of the previous use of other geophysical techniques in the area. Such a review is considered necessary: to determine the response of the known ore bodies to various methods; to delineate areas which have been adequately tested; and then to define the areas with the most potential for exploration and the most promising techniques to use.

In particular, it is suggested that detailed airborne magnetic surveying would assist greatly in definition of pyrrhotite, skarns, or mafic units which may be associated with tin mineralisation. A much more detailed interpretation of the structure would be possible with higher resolution data.

The use of a helicopter as survey platform allows the variations in ground clearance to be very significantly less than with a fixed wing aircraft. In this area, a flight line spacing of 100 to 150 metres is considered to be optimum, with recording of both radar and barometric altitude mandatory. Current alkali vapour magnetometers are capable of providing data with sample interval 5 metres, and resolution 0.01 nT.

The usefulness of detailed airborne electromagnetic surveying over prospective rock units should be evaluated in terms of discovering additional ore bodies or any of the other styles of mineralisation which are present within the area.

The upper surface of the Tertiary basalt is relatively flat, so the main factor determining the anomaly shape will be the depth of weathering and the configuration of the lower surface of the flows, the pre-basalt topography. Better quality magnetic data could be used to estimate the thickness of basalt and in particular, to determine the location of any windows of relatively thin basalt cover. It is also possible that additional information regarding the structure of the pre-basalt basement rocks could be obtained using appropriate filtering techniques on high quality data.

5 Recommendations

1 The discrete magnetic anomalies within and adjacent to the margins of the Meredith Granite should be investigated as primary targets for skarn and pyrrhotite bodies.

2 Previous detailed geophysics, geology, and drilling should be taken into account before further work is undertaken on any particular magnetic anomalies. A review of the application of various geophysical techniques to the area is recommended.

3 The area should be reflown with high resolution equipment and 100 to 150 metre line spacing. The steep topography of about half of the area may warrant the use of helicopter rather than fixed wing aircraft. Consideration should also be given to acquiring EM as well as magnetic data.

4 High resolution ground magnetics (and possibly other techniques) with detailed computer modelling is necessary to define targets for testing by drilling.

6 References

Brown, A.V., 1984, Geological compilation of the Zeehan-Waratah area, Dundas Trough. 1:100000 scale. Geological Survey of Tasmania.

Burrett, C.F. and Martin, E.L. (editors), 1989, Geology and Mineral Resources of Tasmania. Special Publication Geological Society of Australia 15.

Leaman, D.E., and Richardson, R.G., 1989, The granites of north-west Tasmania - a geophysical interpretation. Bulletin geological Survey of Tasmania 66.

Walker, R.N., 1990, Processing of Magnetics for the West-Coast Survey, Tasmanian Department of Mines. Unpublished report by GeoImage Pty Limited for RGC Exploration Pty Limited.

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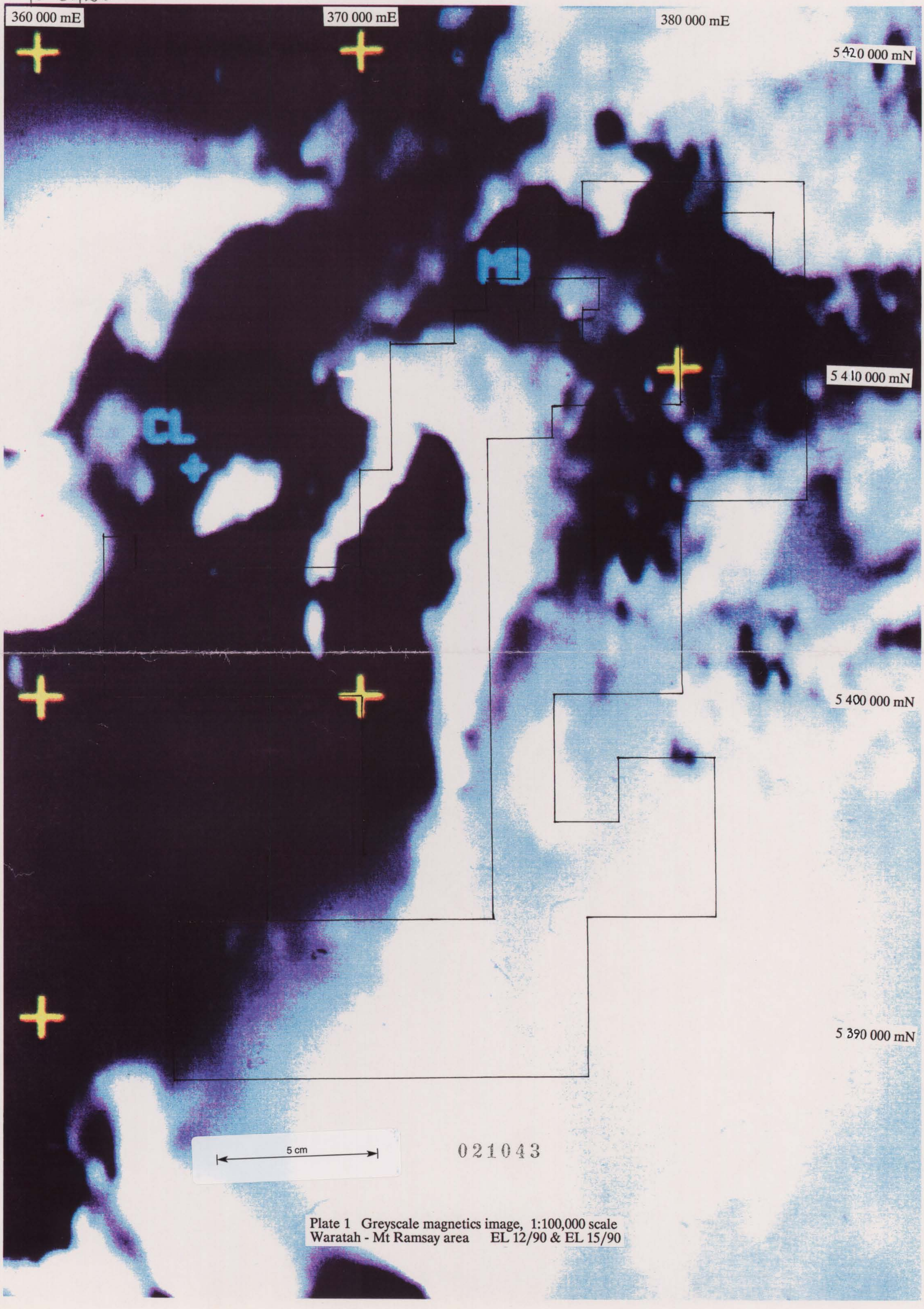

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Plate 1 Greyscale magnetics image, 1:100,000 scale
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

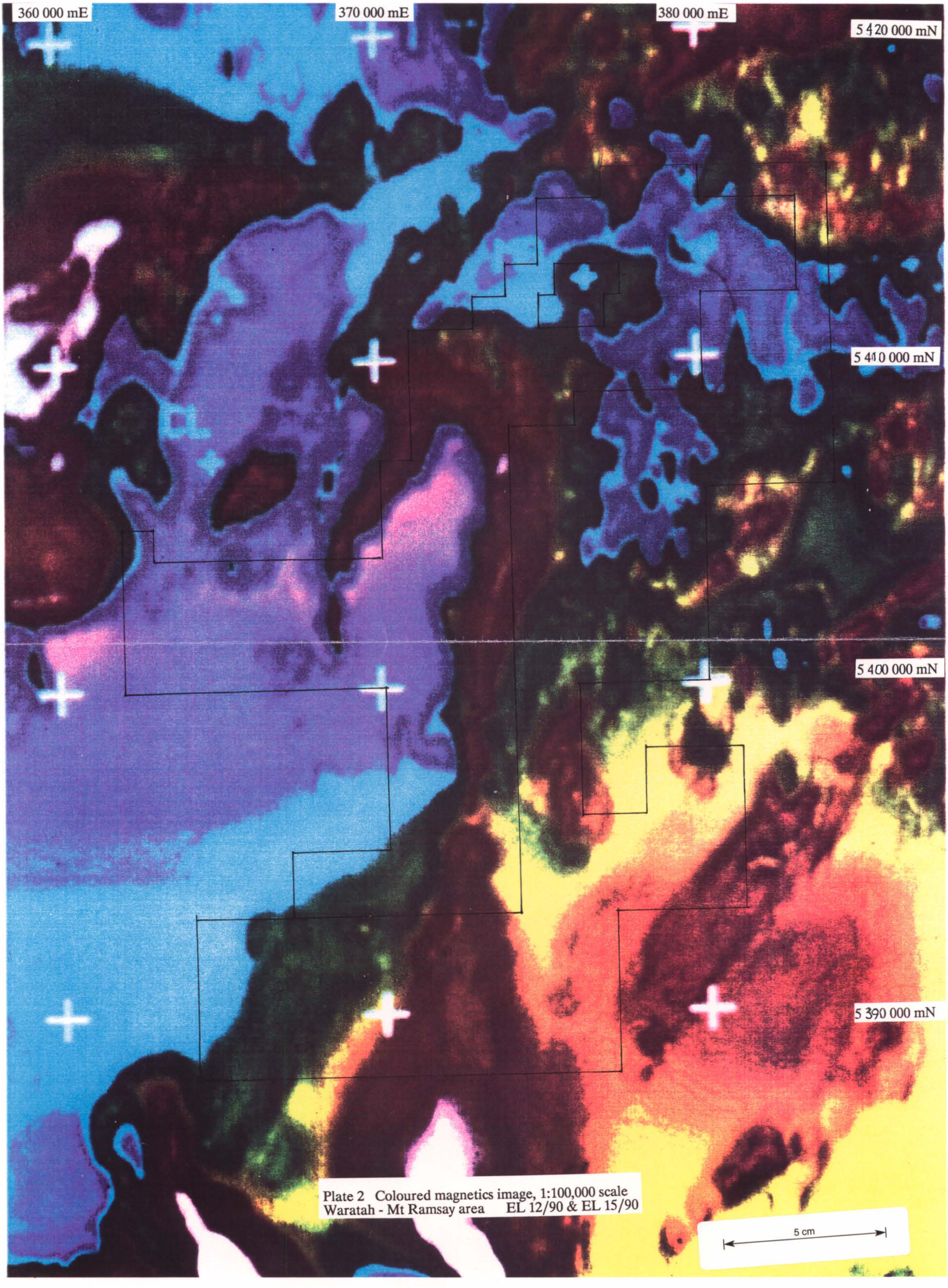

Plate 2 Coloured magnetics image, 1:100,000 scale
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

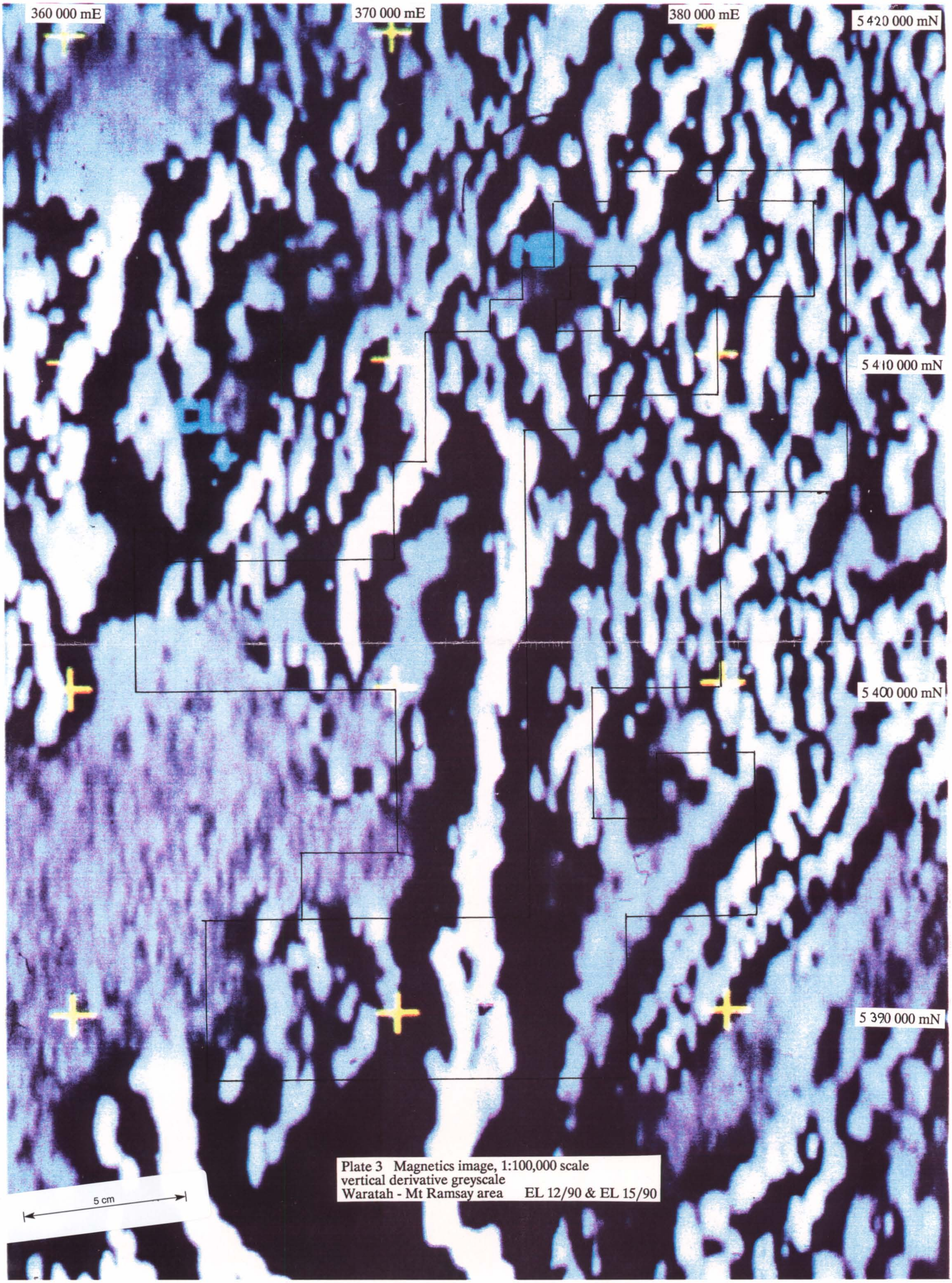

Plate 3 Magnetics image, 1:100,000 scale
vertical derivative greyscale
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

021045

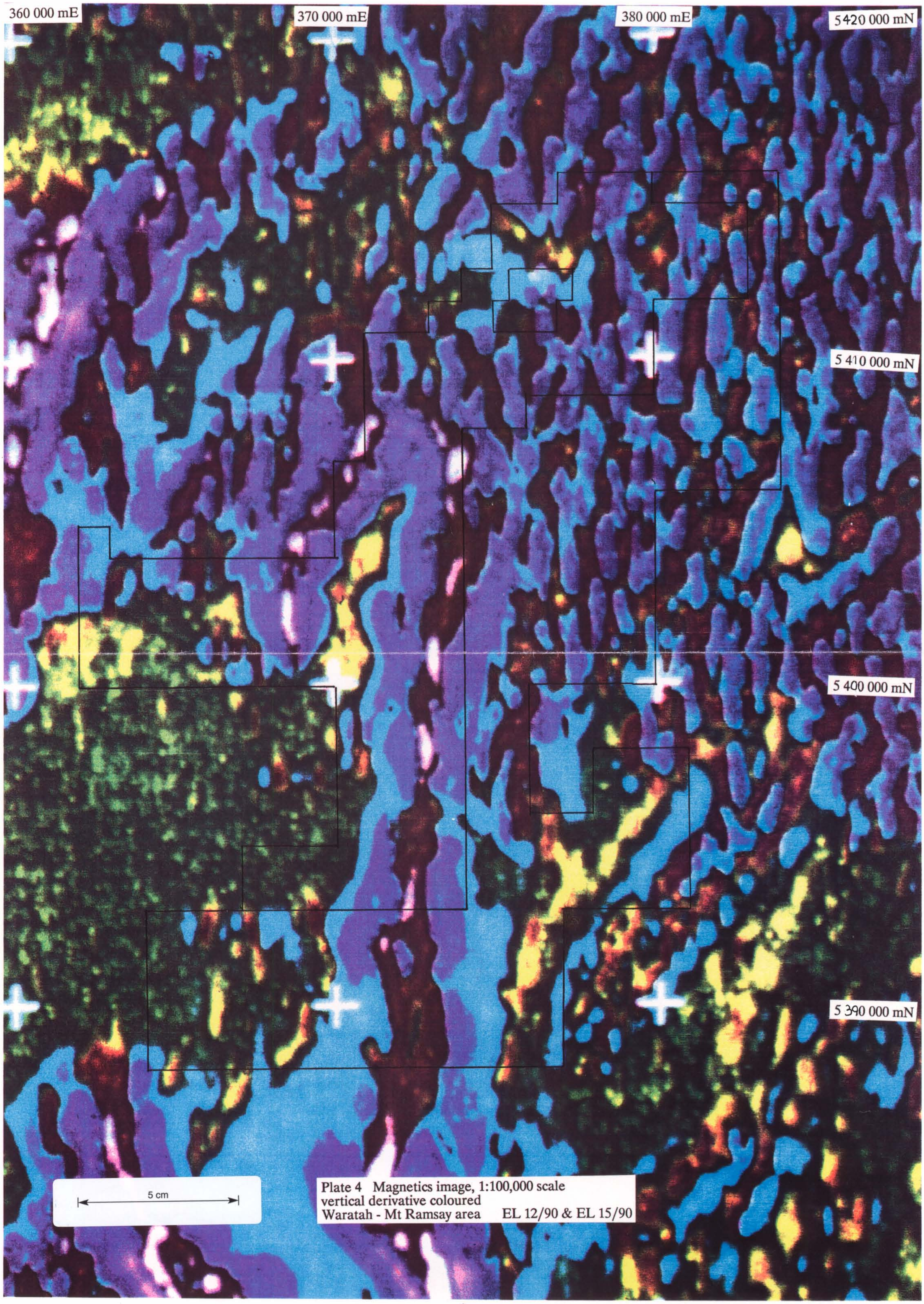

Plate 4 Magnetics image, 1:100,000 scale
vertical derivative coloured
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

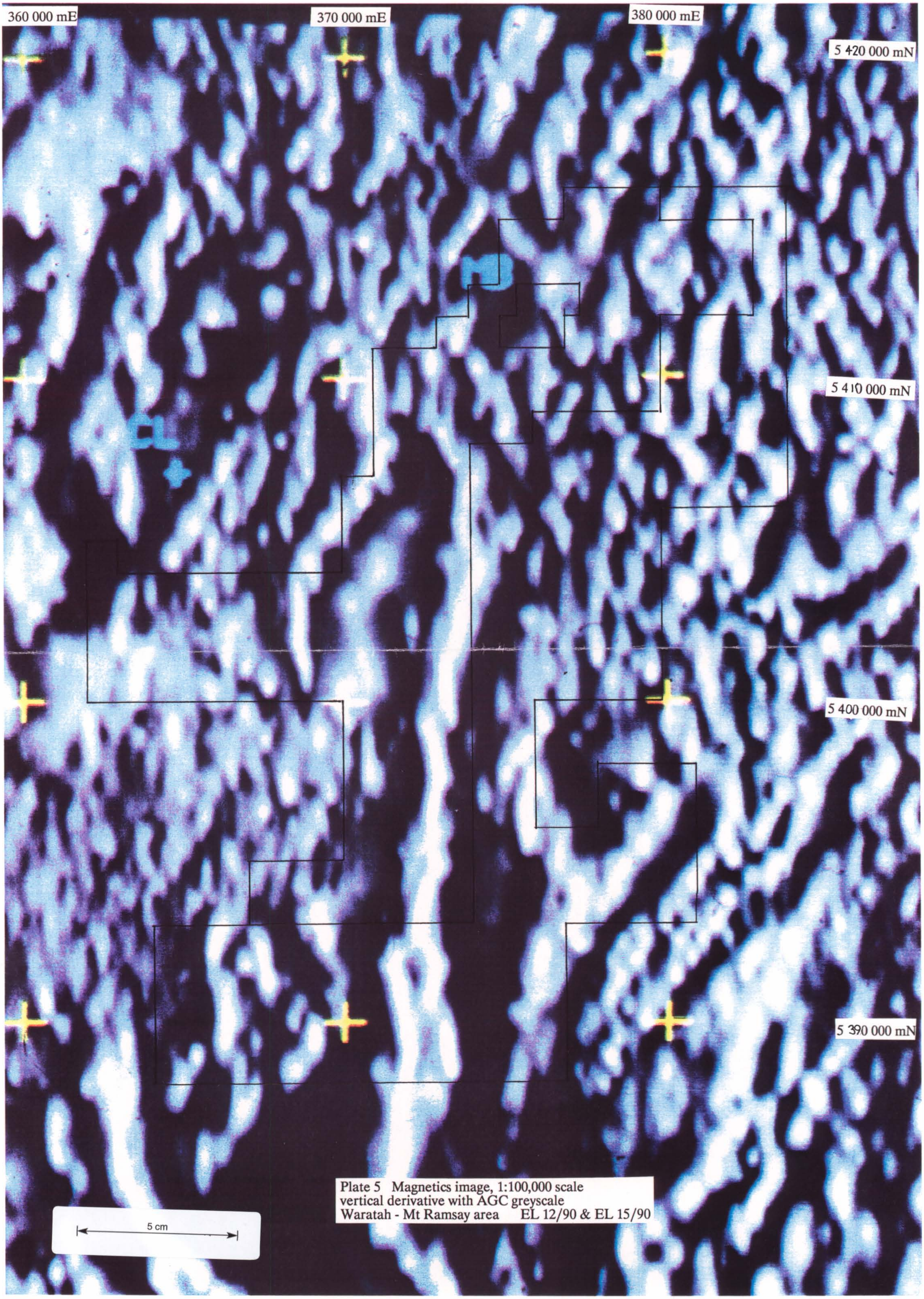

Plate 5 Magnetics image, 1:100,000 scale
vertical derivative with AGC greyscale
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

021047

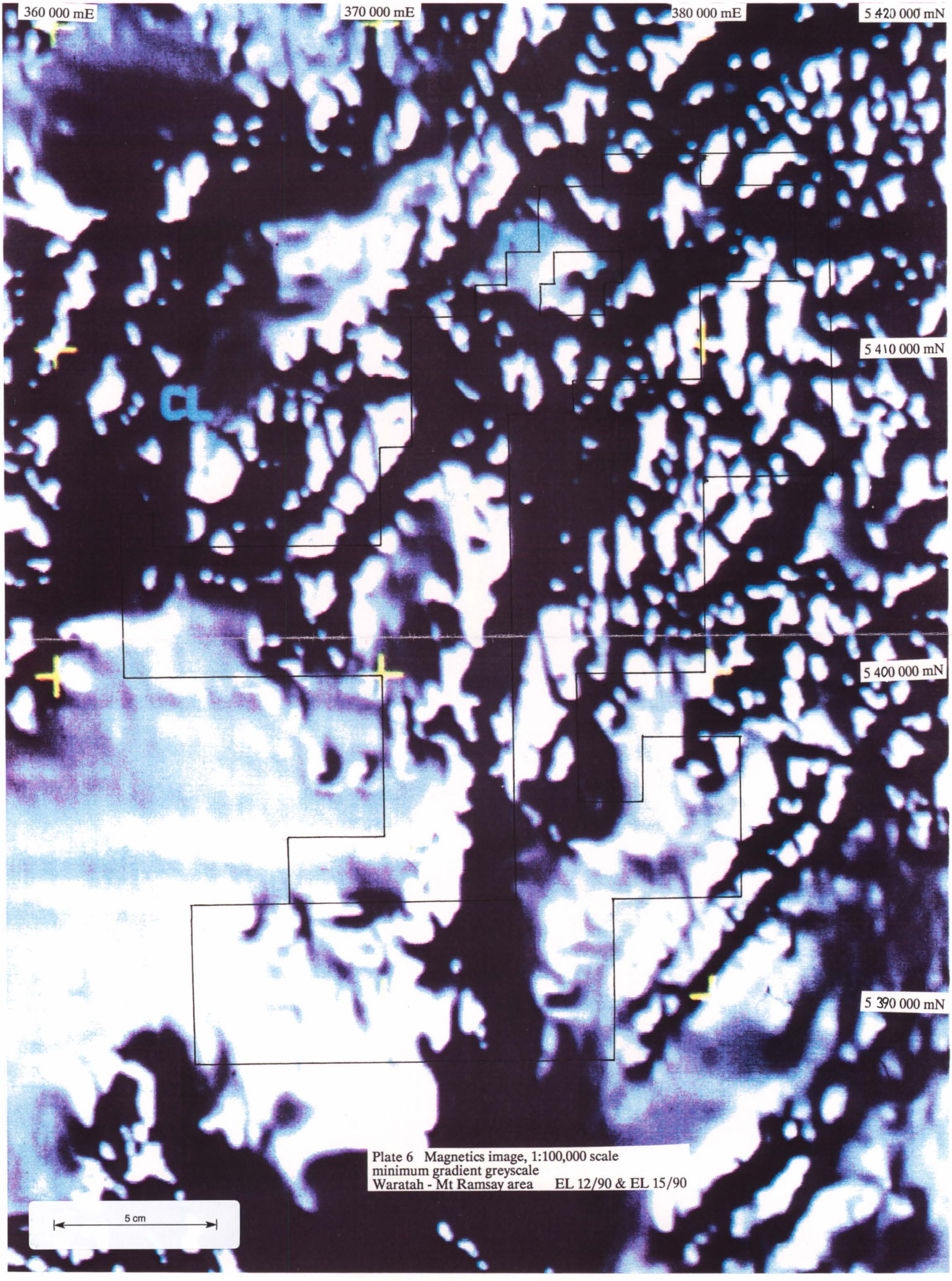

Plate 6 Magnetics image, 1:100,000 scale
minimum gradient greyscale
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

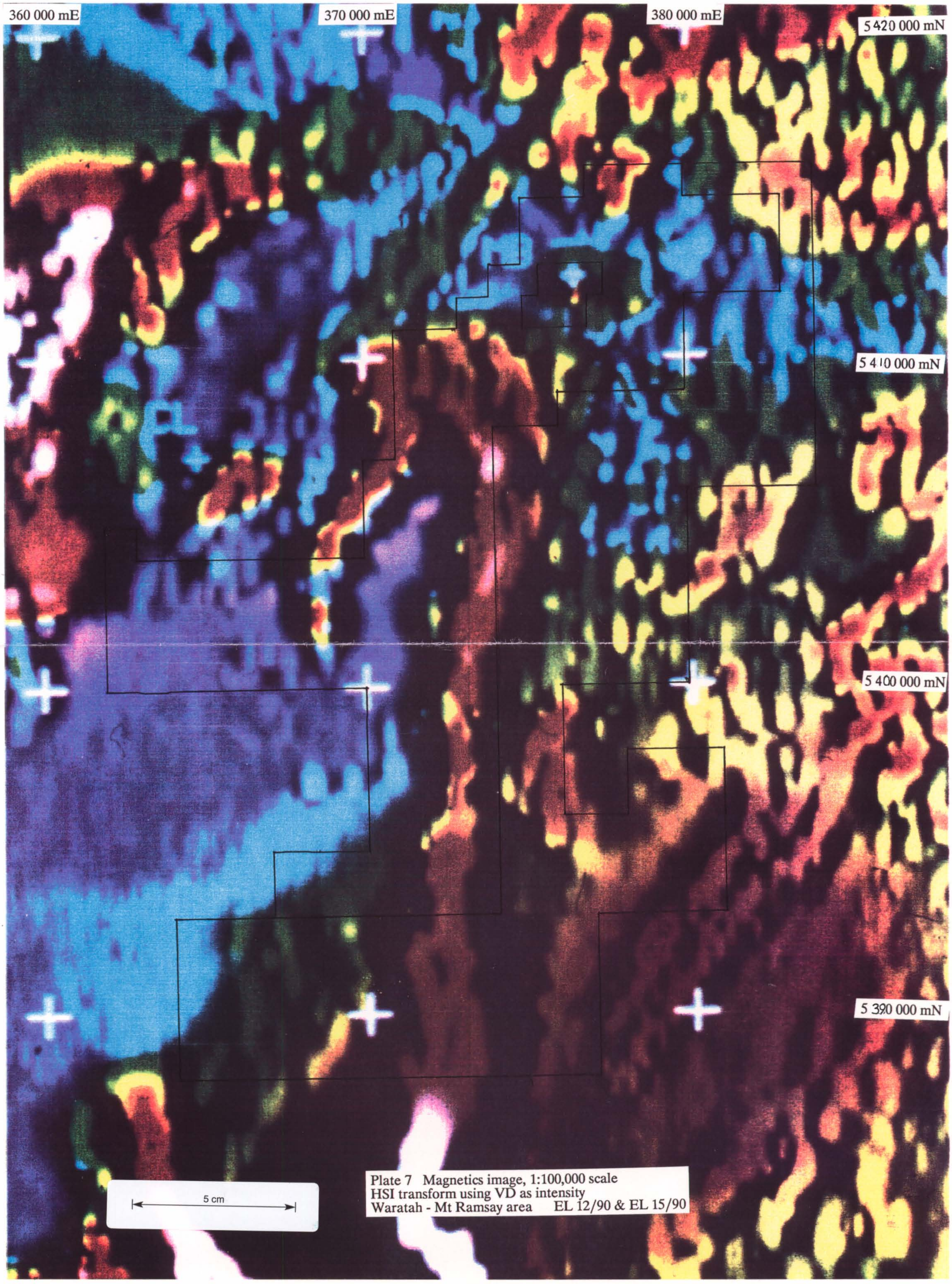

Plate 7 Magnetics image, 1:100,000 scale
HSI transform using VD as intensity
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

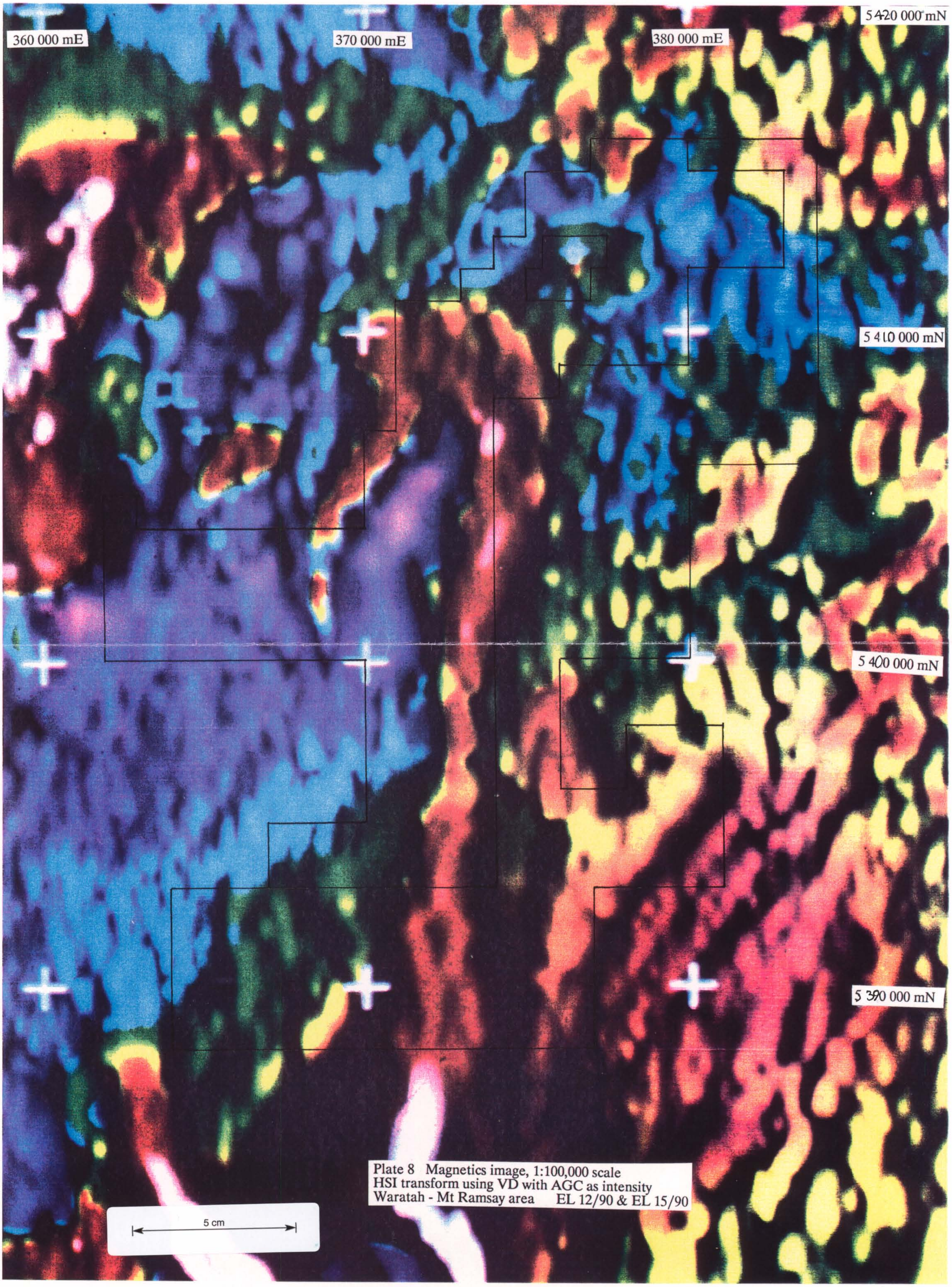

Plate 8 Magnetics image, 1:100,000 scale
HSI transform using VD with AGC as intensity
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

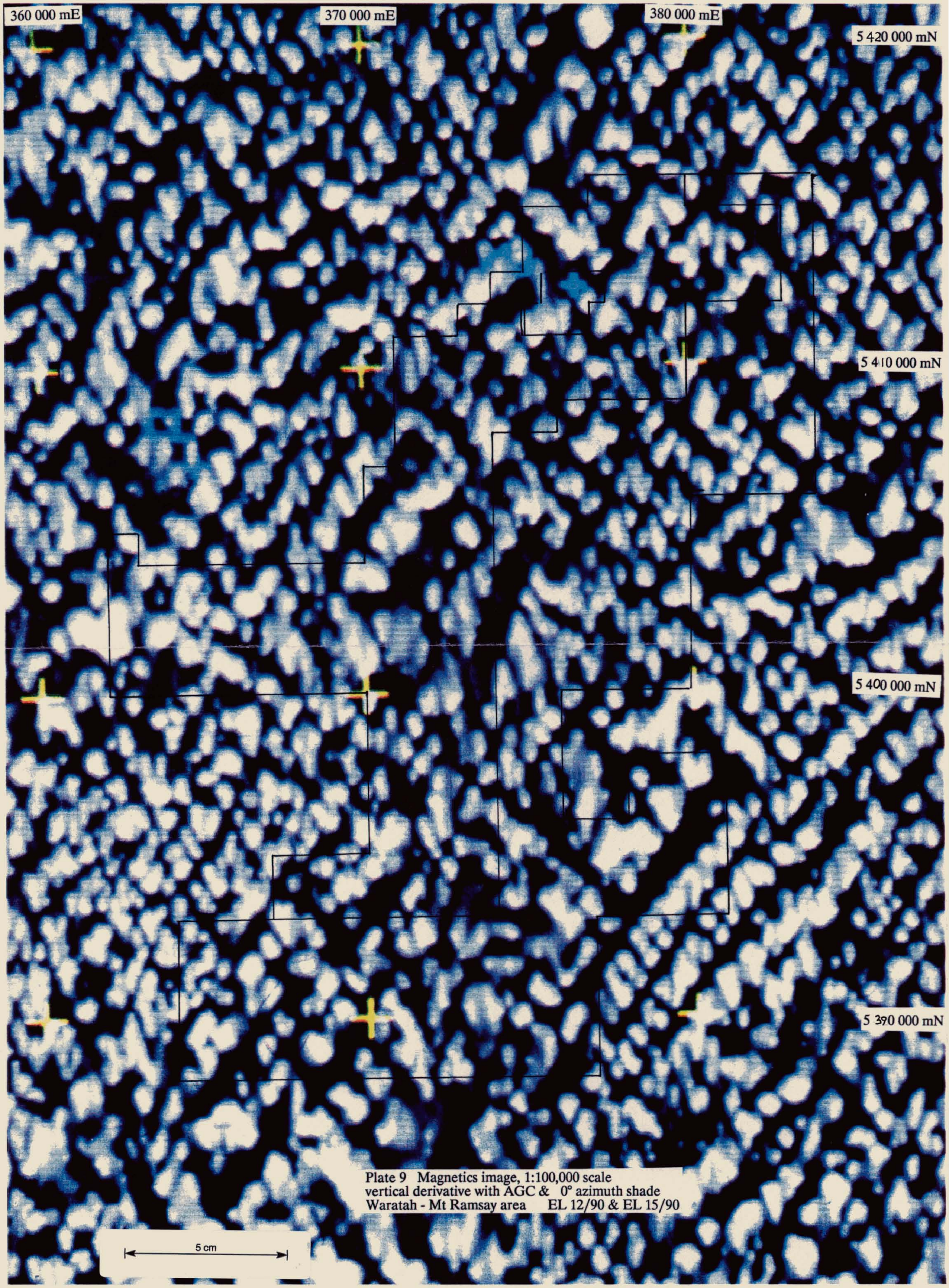

Plate 9 Magnetics image, 1:100,000 scale
vertical derivative with AGC & 0° azimuth shade
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

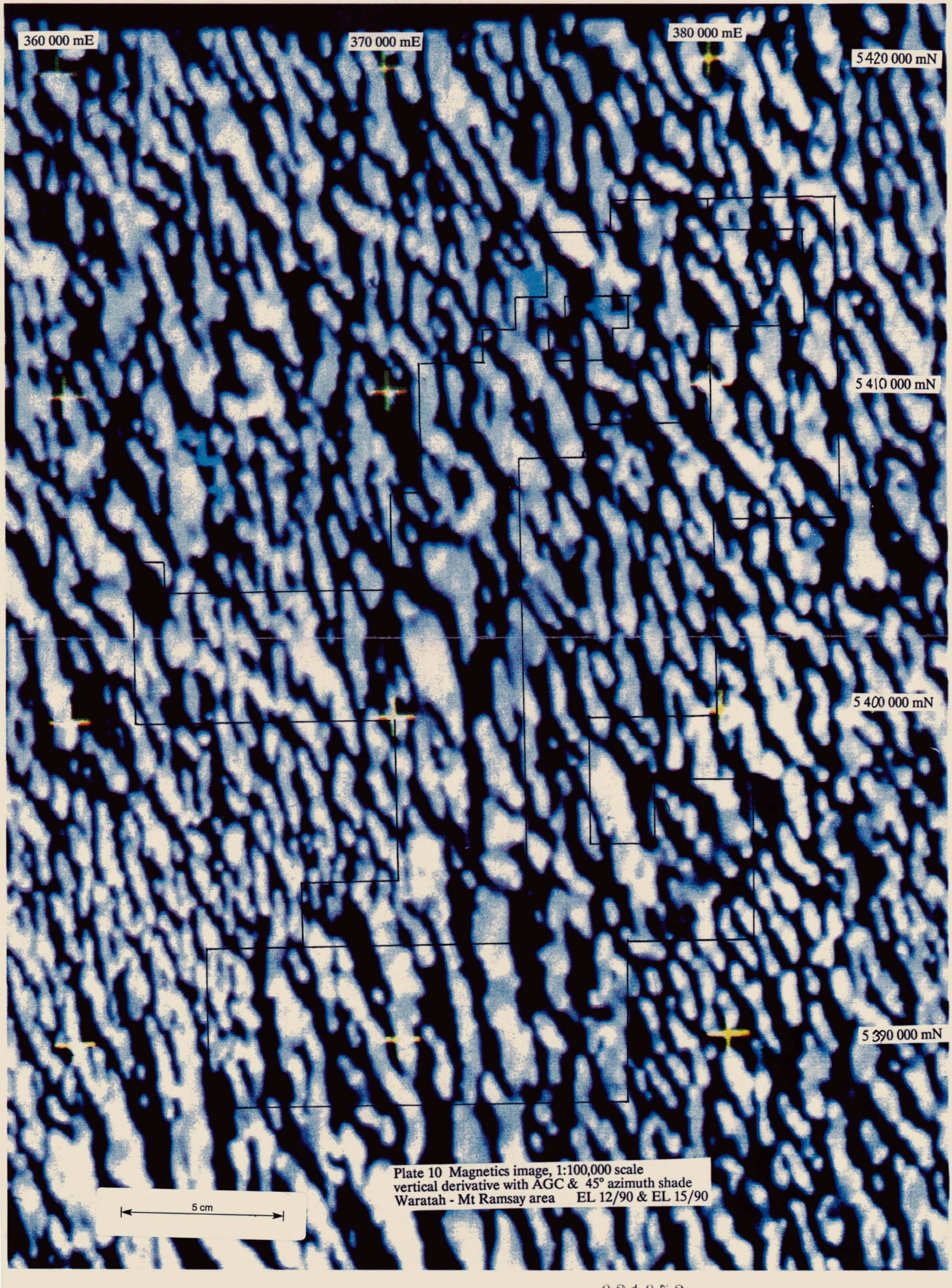

Plate 10 Magnetics image, 1:100,000 scale
vertical derivative with AGC & 45° azimuth shade
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

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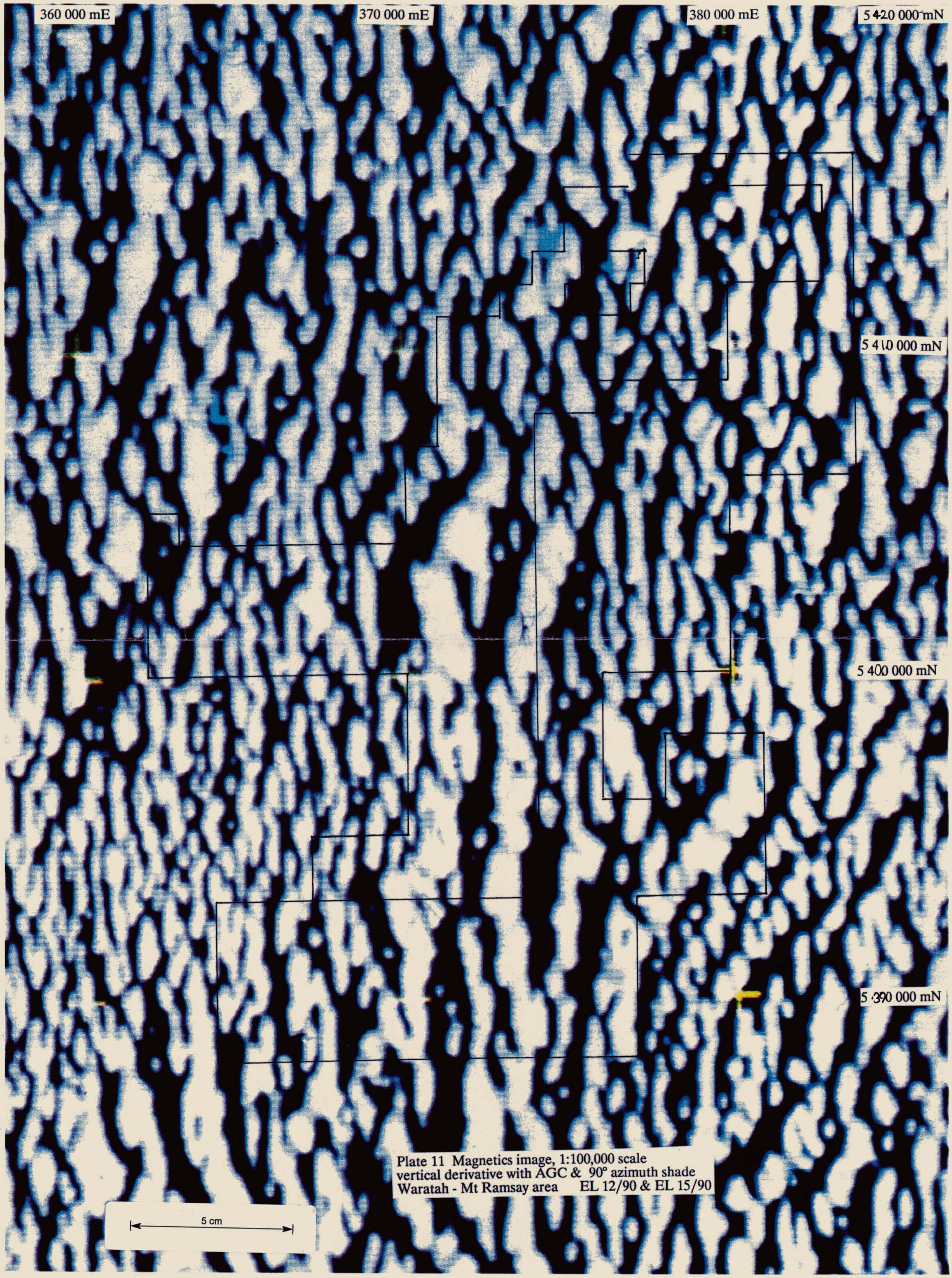

Plate 11 Magnetics image, 1:100,000 scale
vertical derivative with AGC & 90° azimuth shade
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

021053

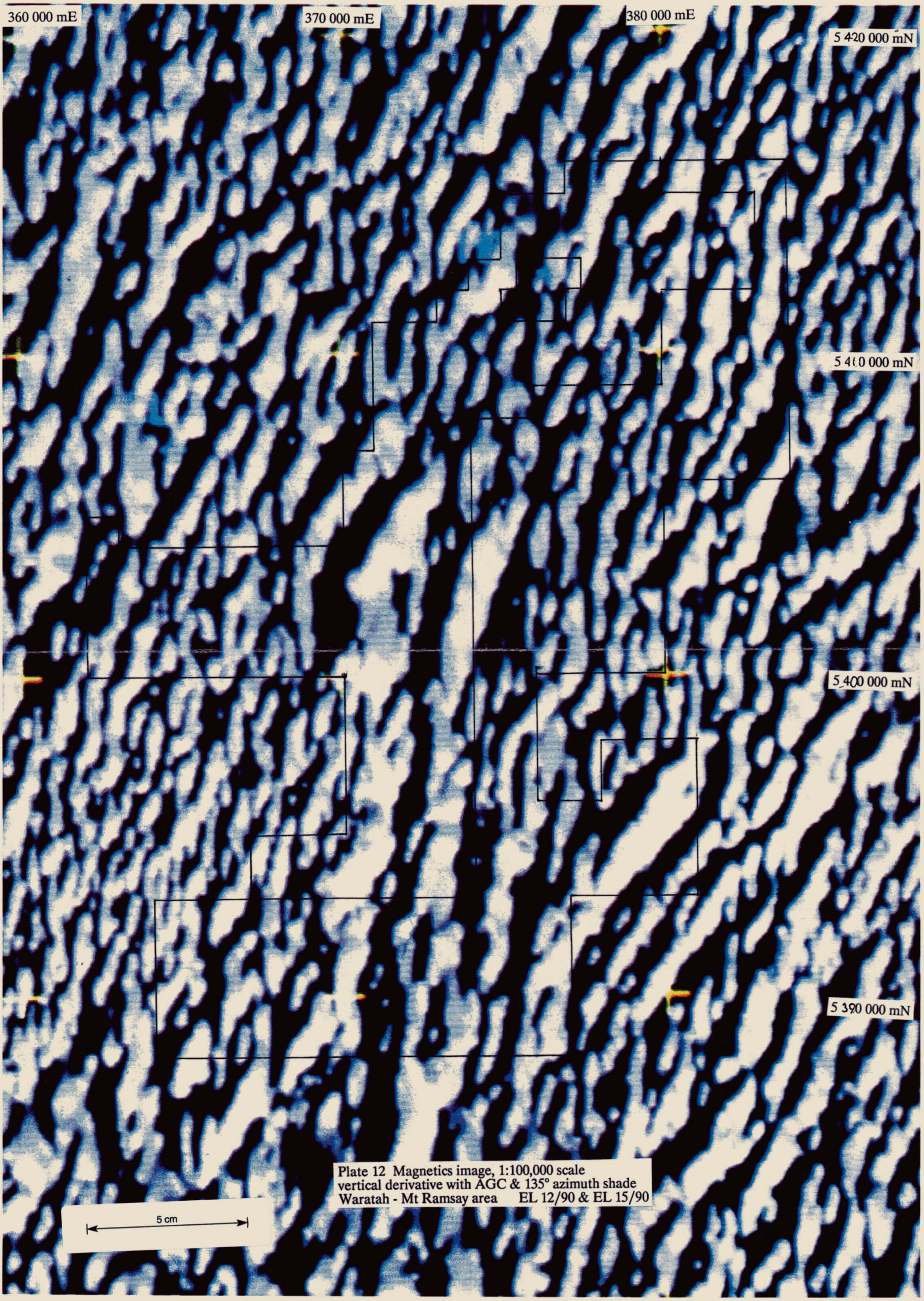

Plate 12 Magnetics image, 1:100,000 scale
vertical derivative with AGC & 135° azimuth shade
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

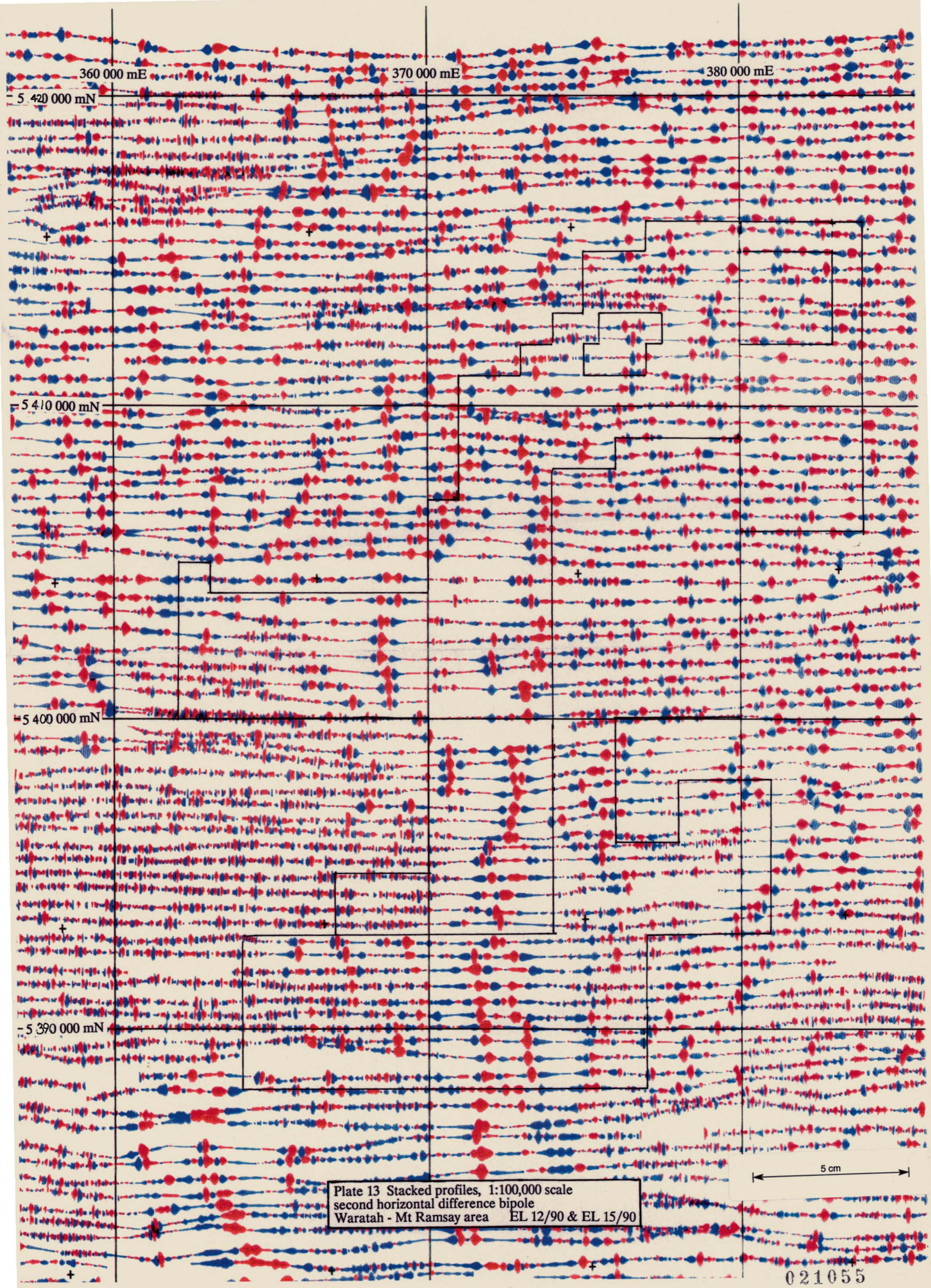

Plate 13 Stacked profiles, 1:100,000 scale
second horizontal difference bipole
Waratah - Mt Ramsay area EL 12/90 & EL 15/90

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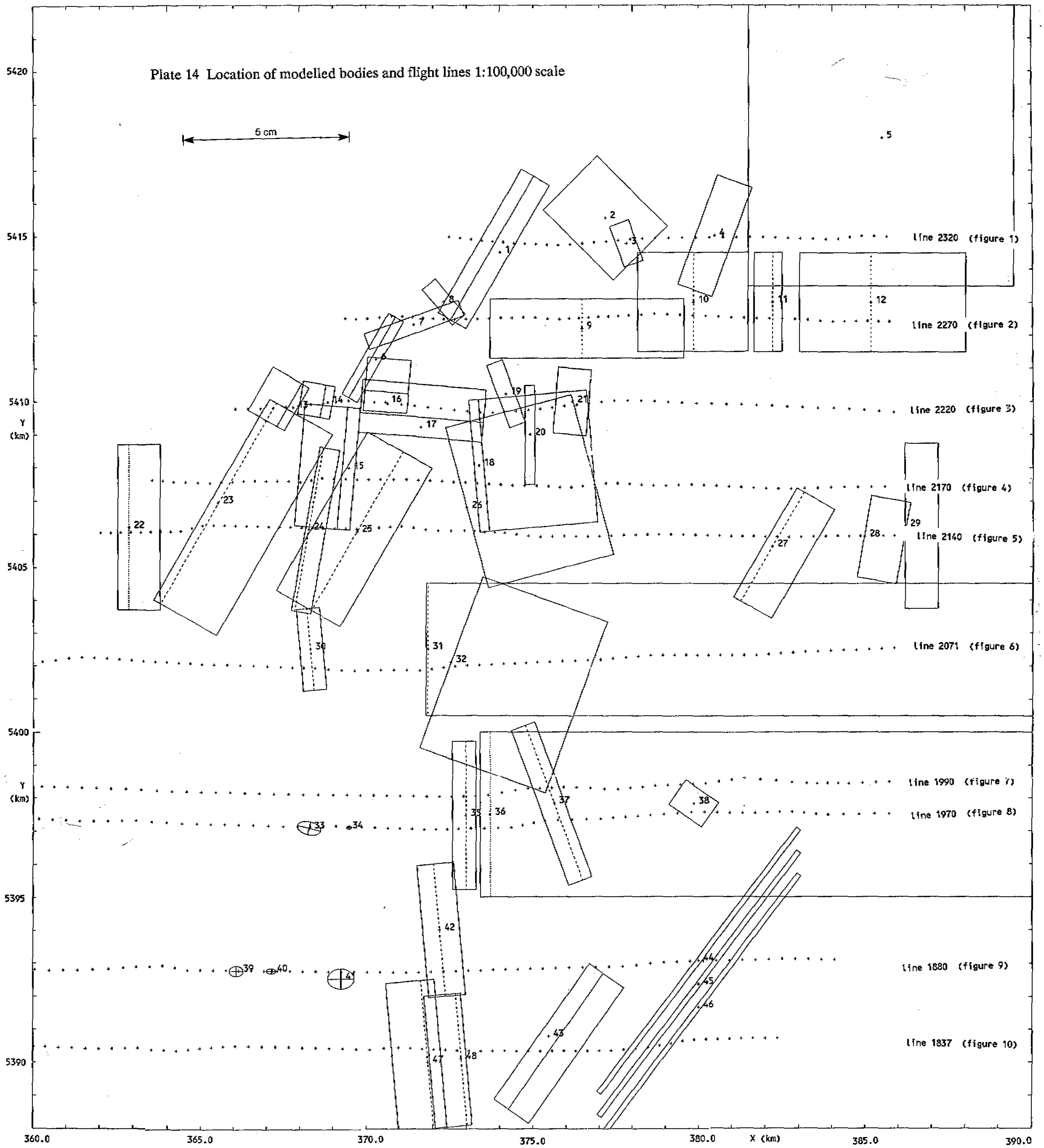
Plate 14 Location of modelled bodies and flight lines 1:100,000 scale



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APPENDIX 2

An Interpretation Form of Meredith Granite, Waratah Area, Dr. D.E. Leaman

021058

LEAMAN GEOPHYSICS
Survey Review, Specification, Reduction, Interpretation
Gravity, Magnetic and Seismic Methods
Structure and Prospect Evaluation

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AN INTERPRETATION FORM OF MEREDITH GRANITE

WARATAH AREA
EL 12/90 AND 15/90

for
RGC Exploration Pty Limited

by
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MEREDITH

CONTENTS

FIGURES

(All figures follow the text)

MAPS

(Maps are included in separate pockets)

SUMMARY

Review of extant gravity data, supplemented by a new infill survey, in the Waratah area has enabled considerable refinement of previous models and concepts of the form of the Meredith Granite in the region north and east of its principal exposure south west of Waratah.

This interpretation, although limited by assumptions concerning the bulk properties of the intruded rocks and the scale and nature of the disruption of the sequences about the intrusion, has defined several definite elements of the granite form.

There is a clear correlation between granite form and many observed fault, fold and trend patterns across the licence areas. It may be inferred that the granite has been affected by, and modified high level manifestations of, pre-existing fractures.

There is also a positive association with known mineralisation, particular forms of the granite and those structures which presented primary controls on intrusion. Few of these are obvious in surface mapping which may not distinguish them due to existence of other faults, or due to their modification upon intrusion or deformation.

The association between granite form and mineralisation is of two types.
Small prospects or mines may be related indirectly to the granite by significant structures. The Magnet mineralisation is of this type; the structural link being the intrusion-fault which has plumbed a fluid source beneath.
Other sites, including Cleveland and Mt Bischoff, are more directly associated with the primary granite fracture system developed during intrusion. Prospects of this type are associated with projections of the wall forms.
Both associations can only be appreciated or recognised after basic interpretation of the form of the granite.
Due to the form of the Meredith Granite the potential for other sites is generally limited to an area about the northern extemity of the pluton.

The interpretation also indicates some depth limitation of potential hosts and deposits. Modelling and profile analysis has shown that a variable density contrast profile is required between the granite and the intruded rocks. This may mean local siliceous cappings but the general implication is for termination of Dundas Group, Oonah, Crimson Creek and Success Creek Formations at an average depth of about 1500 m - where such a volume is available above the granite - and that the root of the granite is emplaced in predominantly siliceous basement.

The present work provides a guide for further exploration.
It has also identified anomalous structures and sequences within the Cambrian rocks to the east of the granite and further work, using both gravity and magnetic data, is recommended in order to satisfactorily define principal relationships.

INTRODUCTION

ELs 12/90 and 15/90, titled Waratah, extend south from Waratah and Mt Bischoff in north western Tasmania (see Figure 1).

This area contains a number of small prospects and a few significant deposits; base metals at Magnet, tin at Cleveland and Mt Bischoff.

In order to understand the relationships between these deposits and the Devonian Meredith Granite, exposed several kilometres southwest of Waratah, gravity data have been reviewed and interpreted.

Previous interpretations of more regional and indicative nature have been reported which demonstrate the efficacy of this approach. These were summarised in Chapter 15 of Leaman & Richardson (1989a). Figure 2 presents the net conclusion of this previous work which shows that the granite was inferred to shelve shallowly north toward Waratah. Many contacts were thought to dip very steeply.
This diagram suggests the general relationship between mineralisation and granite shelf but does not provide any specific guidance for prospect or EL evaluation.
It was based on simplified analysis of the regional data base current in 1987.

This report examines the gravity data within the Waratah - Mt Ramsay - Guildford area in order to provide a more refined and specific description.

The gravity data used were obtained from the state gravity data base (TASGRAV) maintained by the Department of Mineral Resources and Energy. This data was supplemented by infill surveys undertaken by RGC Exploration. Map 1 presents a compilation of this data for the area centred on the licences. All Bouguer reductions include a 22 km terrain correction and use of crustal density 2.67 gm/cc. The nominal station spacing is about 700-900 m although some large gaps are present. All station locations are shown in Maps 1 and 2.

The present report describes preliminary analysis of this data using three dimensional methods applied to residual profiles generated after removal of the deep crustal and oceanic components as defined by Leaman & Richardson (1989b). This presentation provides a normal relativity of response patterns free of regional gradient distortions.

Interpretation has been halted at the point at which the general form of the granite has been defined (as requested) and any secondary issues, such as anomalous elements of the Cambrian succession, have only been treated in detail sufficient to ensure that the granite interpretation is sound. There is scope for much further analysis of these issues.

GRAVITY SURVEY

The extant Tasmanian gravity data base for the Waratah - Guildford - Ramsay area consisted of stations approximately 1 km apart. These had been acquired during a late phase of the Mt Read Volcanics Project by the Department of Mines and given a first interpretation by Leaman and Richardson (1989a).

The coverage was adequate to define the gross extent of the Meredith Granite and suggest elements of its form. It was not sufficient for any specific exploration or evaluation of moderate areas. An infill survey with a nominal spacing of 500 m was proposed in the area surveyed by the Department for those areas in which the gravity field appeared depressed and for which shallow granite might be an explanation. Such sites occur in the basalt-covered area south of Waratah.
Much of the Mt Ramsay - Cleveland area, and especially the region north of the Luina road west of Waratah, had never been surveyed previously. Terrain, budget and objectives led to survey design compromises such that reasonable areal definition was obtained. All availabe access, foot and vehicle, was used to obtain on-line spacings of about 500 m even though large gaps in coverage remain. Some lines were cut in areas where no access was available. The ultimate coverage was determined by available access and gridding. Map 1 indicates the final status of coverage. A large gap in coverage north of Luina has not been significantly reduced due to limited access and its location beyond the present licence areas.

The survey was undertaken by Mackie Martin Pty Ltd (Bettina Townrow observer) during November and December 1990 to specifications compatible with the Mt Read coverage. It was linked to state datum at Waratah and Que River. All stations were corrected for instrumental drift (and tide) and referred to an internal tie network. Reproducibility of observed gravity is of the order of 0.03 mGal.
All elevations were determined barometrically using survey spot points for control. Elevations are considered reproducible and reliable within 2 to 3 m generally although several spot ties were made within the practical limit of 1 m.
All stations were terrain corrected to a radius of 22 km. Corrections range up to 3 mGal and may have an error of 5% due to uncertainties about precise location within the terrain and limited local descriptions about the station. Most corrections were, however, less than 0.5 mGal.

The data have been contoured using a 1 mGal interval due to these limitations.

Data was reduced using the 1930 ellipsoid compatibly with the Tasmanian data base with a Bouguer density of 2.67 gm/cc.

A tabulation of the infill survey is given in the Appendix.

INTERPRETATION

ROCKS AND ROCK PROPERTIES

No specific study of rock properties has been undertaken in order to provide the present interpretation. All work has been referenced against the geological maps of Groves et al (1972) and Corbett and McNeill (1988) pending preparation of original maps by RGC exploration (in progress at time of writing).

Late Precambrian rocks of the Oonah Formation are exposed within the area. These include carbonates and various other sediments but are intensely deformed and faulted. Leaman (1986, 1990) has argued that the fault-bounded blocks of Oonah Formation represent pop-up blocks dislocated from thrust slices. Dundas Group and various lower Cambrian rock suites are exposed across the bulk of the area studied. These units are intensely faulted and contain numberous slices of mafic and ultramafic rocks. Several deformed lower Cambrian thrust sheets have been inferred (e.g. Figure 10).
Leaman (1986), and Berry and Crawford (1988), have suggested major thrusts within this association of structures. Eastward translation of the Oonah Formation across a large part of the Lower Palaeozoic sections was implied by Leaman (1986). Similar displacements are implied within the Cambrian rocks. East facing structures are impressed upon these and the most notable is the Rosebery Fault.
The resultant pattern is structurally complex and not yet adequately mapped or defined.

The Meredith Granite has intruded this complex structural regime.

Nominal rock properties based on general experience of the exposed materials have been employed but tested against the controls afforded by the magnitude of anomalies across the granite itself.
Many figures (e.g., 11, 20 and 21) provide examples of these tests to suggest that the appropriate bulk contrast between granite and country rock - as a package - does not exceed 0.12 gm/cc.
Since the bulk density of the granite is of the order of 2.61 to 2.63 gm/cc then the implied bulk density of the intruded rocks is about 2.75 gm/cc. This is consistent with sample determinations obtained during the Mt Read Volcanics Project for both Oonah Formation and most Cambrian rocks (excluding mafics).
Ordovician, Silurian and Devonian rocks are also variable but generally much less dense and have little bulk occurrence within the Waratah area. Siliceous rocks may have densities of 2.5-2.55 gm/cc while carbonates may be 2.74-2.84 gm/cc. Siliceous Tyennan-style Precambrian rocks have bulk densities of the order of 2.67 gm/cc.
Modelling of the marked regional negative Bouguer anomaly due to the granite has shown, however, that the maximum contrast cannot be applied to the entire intrusion implying that there are significant density variations within either granite or country rocks at high levels or that the contrast between granite and intruded rocks decreases with depth. High level variations in intruded rocks are to be expected in this area but the second observation suggests a predominantly siliceous section at depths greater than about 2000 m.

FEATURES OF GRAVITY FIELD

Maps 1 and 2 present the gravity field; Map 1 shows the observed Bouguer anomalies and Map 2 residual anomalies after removal of crustal effects using the method of Leaman & Richardson (1989b). Figure 3 presents the residual anomalies and compares them with the magnetic field. All discussion is based on the residuals.

The gravity field is variable in intensity across the entire area but the dominant anomaly is associated with the exposure of the Meredith Granite. A strong negative gradient is associated with the outcrop limits.

Other large anomalies, usually positive, are not completely defined being beyond the objectives of this project.. They include the effect of the Heazlewood ultramafic complex, the southern extension of the Burnie Formation north of Waratah, and a belt of positive anomalies extending north east of Pinnacles. Other variations in the field are much subtler.

Review of the available geological compilations and correlations with the gravity field shows that many secondary gradients observed within the principal anomalies rarely reflect mapped patterns - in terms of orientation and nominal position. There is also no distinguishable interference due to the blanket of Tertiary sediment or basalt. The gravity field, as displayed in Figure 3, is applicable to the rocks beneath this cover. In particular to many of the rocks beneath the exposed sequences as well. This is an essential corollary to the limited correlation between mapped features and anomaly patterns. Relatively thin coverings, either as units or structures, are implied throughout the area, much as suggested by Leaman (1986). The additional definition afforded by the upgraded coverage leaves little doubt on this point.

Figure 4 presents a basic trend compilation using available geophysical data; geological data is too restricted to be reliable. Dominant trends are NE-SW, NW-SE although elements of near east-west and north-south trends are also visible. The irregular distribution of data suggests that all these orientations are real and not artifacts of coverage.

Figure 3C shows that the positive anomaly belt north of Pinnacles correlates directly with a magnetic feature. Surface mapping of this area indicates Cambrian sediments (correlates of the Stitt Quartzite?) and the geophysical response is not consistent with either the implied mapping or the correlation. Many such couplings can be identified but the generally low detail of extant geological mapping limits evaluation. The association of mineralisation with the feature described above suggests that is may well be prospective and worthy of inspection. Such anomalies, generated within the sedimentary succession (?), are not treated in detail in this report due to the prescribed emphasis on the form of the Meredith Granite.

METHODS

An array of observed profiles was established based on Map 2. These profiles were designed to provide a representative sampling of semi-regional anomaly forms. The nominal line spacing was about 5 km and may be contrasted with the nominal station spacing of 0.5 km. The particular location of the test profiles reflects the actual station coverage in order to minimise interpolations - especially north of Luina.
This report represents a preliminary interpretation which is also an order of magnitude upgrade of previous interpretations. It is not an overinterpretation of the data available.

The "observed" profile used as reference in all model calculations is the residual derivation and thus excludes long wavelength effects such as the response due to the continental margin and continental thickening. The effects of other regional granites remain and have been modelled along with the particular object of study. In this study the crustal formulation of Leaman and Richardson (1989b) was used to create the residual responses from the observed data and the primary model of the other granites of NW Tasmania given by Leaman and Richardson (1989a) was used to estimate the contributions of other granites. The other granites are sufficiently distant that any inadequacies in this component are not significant. The observed profile may be used for direct comparison with model calculations.

The analysis has been directed at primary review of granite form only.

Some N-S and E-W profiles were then modelled using simple two dimensional methods in order to scale the general relief of the granite and estimate the order of the density contrast applicable. This was achieved by extending some lines eastward but many lines close to the boundaries of the main anomaly (due to granite) cannot be modelled using 2D methods. These simple methods were also used to test whether the density contrast applied over considerable depths, say greater than 3 km, and whether it was possible to model viably using the granite density alone as a bulk reference.

Those profiles referred to in this text are located in Figure 5.

Figures 6, 7, 8 and 9 exemplify typical 2D models. These suggest that a variable contrast must be applied against the granite, with depth, since the Cambrian sequence appears less than 2 km thick.

Initial 3D tests confirmed that a bulk contrast of about +0.12 gm/cc cannot be used across the entire depth range of the granite. The particular requirement of contrast varies little for each line, the nature of surface rocks and structures or the orientation of the profile. These tests showed that no

single contrast can be employed but that the minimum contrast required is about +0.05 gm/cc. These indications are consistent with intrusion into a predominantly siliceous sequence.
It was found that the effective contrast pattern for the intrusion was about 0.12 gm/cc from 1000 to 2000 m reducing rapidly to 0.05 gm/cc at 3000 to 3500 m. There is no suggestion in this area that any spiky crests of the granite contain granite which is more siliceous and of lower density than the bulk of the body. This would suggest that a substantial part of the body has been unroofed. The density contrast pattern suggests that the Cambrian-Oonah Precambrian sequence is not much thicker than 2000 m and that the bulk of the intruded rocks is composed of Tyennan type Precambrian rocks.

Since the form of the granite is irregular and generally offers angular projections to the north three dimensional methods must be employed to generate reliable proportions for the form of the granitic mass. Two dimensional methods are quite unreliable for many profiles. The information derived from 2D tests and previous work was used to produce an initial 3D model which was passed through six iterations to produce the solution offered in this report.

Each profile was examined after each iteration and tested for consistency in both body geometry and curve fit parameters. The latter provide a crucial test of model and assumptions and must be consistent for all lines of the array. The difference between the zero shift and the observed and calculated difference is a measure of this and has been found to be about 5.0 mGal for this data set in the form used and using the variable density contrast profile defined above. The deviation for best fits is about 0.5 mGal which approximates the noise level in the data.
Note that a residual data set should yield a near zero difference, not 5.0 mGal, and would if the density contrasts were referred to the Bouguer density; viz -.06 gm/cc for granite and +0.07 mGal for other formations and the granite and all other units are properly depth scaled. The fit depends on a balance of negative effects due to granite - the root depth assumed becomes critical in this - and positive effects due to other formations. A consistent root of 9 km has been used since this element is the least sensitive and important to the study..

DISCUSSION

Fifteen profiles of the profile array established to evaluate the gravity field and define the form of the Meredith Granite in this area are shown in Figures 6 to 25. All granite profiles shown represent the current status of the 3D model. Further refinement of this model (Map 3) is not justified until some control is established within the study area, or the contrast assumptions can be significantly revised.

Each profile has been discussed separately in order to indicate the nature of the conflicts, issues and targets implied in different parts of the structure.

No attempt has been made to include geological details in each section due to the uncertainties in extant mapping. Figure 10C, however, suggests the general relationships which can be inferred from application of both gravity and magnetic data sets. Extension of these concepts requires concurrent magnetic modelling to the entire area. This has been beyond the scope of the present study which has been directed toward definition of the form of the Meredith Granite and which has only considered other elements of the geology, in gross terms, in order to assess implications for the granite model. There is clearly scope for comprehensive analysis of the structural setting.

The 2D models of the granite presented in Figures 6, 7 and 9 indicate that the Meredith Granite is largely unroofed and that its walls dip steeply. These models also show that the Cambrian sequences, or Oonah Formation, are relatively thin. Local anomalous sequences are also evident. These are clearly evident in Figure 9. The source appears to lie either in the thin sequence above the Rosebery Fault, or within the thickened overthrust section beneath it.
Figure 8 examines the possible contribution due to the Heazlewood mafic complex. It assumes that granite does not contribute significantly to the profile (contrast Figure 19) and shows that such sources may be significant and may counterweight negative effects due to granite.
Only 3D modelling and comprehensive interrelationships between profiles can resolve many aspects of such problems. Some ambiguity must remain until all geological units are treated in the detail applied to the granite.

The section line (line 7) used for research in NW Tasmania by the Geology Department of the University of Tasmania has been modelled and evaluated in order to gain a better idea of unit relationships and their influence on granite response.
Figures 10A and B provide concordant gravity and magnetic evaluations. These complex models are consistent with current geological knowledge. The natural scale, labelled section shown in Figure 10C transforms these models into a true section. This solution should not be accepted outright; it is simply a solution which explains the two fields and is consistent with current control information. It includes assumptions about the continuity of Crimson Creek Formation, for example, which may not be valid. All such presumptions are secondary and the style and implications of the section are probably valid.

The 2D analysis demonstrates that it is not possible, in this area, to simply treat the granite in isolation and refer it against relatively uniform or thick materials. The 3D models have, therefore, included gross assessment of both Cambrian rocks to the east of the granite, and mafics and Burnie Formation to the north and west.

Refer to Figure 5 for the location of all lines.

Line 1 (Figures 11, 12).
This section samples the eastern part of the intrusion. The model accounts for the general character of the profile but the imperfections evident at the northern end of the profile are partly due to limited data control and partly to the gross mass balance between Burnie Formation and the granite. This is illustrated in Figure 12 where the primary components of the calculated resultant are displayed separately. It is evident that it would be possible to counter some variation in the granite form by some variation in the Burnie Formation - although there are limitations. The outer limit of the granite wall cannot be shifted any great distance, however.
The steep-sided nature of the granite is clearly evident. The Magnet mineralisation can be linked to possible wall fractures.

Line 2 (Figure 13)
This profile samples the Cambrian rocks east of the granite, which due to its very steep eastern face, barely appears in this section. The principal elements in the fit are the thickness of Burnie Formation in the north and the extent of denser Dundas Group locally. The spiky zone with an amplitude of about 4 mGal represents the belt of anomalous units. But all are far in the roof of the granite.

Line 3 (Figure 14)
This section passes through the Waratah area and Mt Bischoff is barely off line. It shows, more clearly than line 2, the relative responses of the granite and Burnie Formation (to the north) and their mass balance which yields a smooth integration, and the influence of the anomalous units in the Dundas(?) Group to the south. The deviation is due to these units and not any variation in form of the granite.
The Bischoff mineralisation is clearly associated with the fracture system and pinnacles on the margin of the intrusion. The general asymmetry of the granite roof may also prove of interest within the basalt covered areas.

Line 4 (Figure 15)
This profile illustrates the very steep margin of the granite. The fit is imperfect due to non inclusion of any concept for the anomalous belt within the Dundas(?) Group and the detailed nature of the exposed granite. The presence of dense units off section nearby also affect the end of the profile.
Corbett & McNeill (1988) indicate two granite outcrops far removed from the main exposure at the northing of this line. These are clearly no part of the Meredith Granite and may not be in situ - if properly located.

Line 5 (Figure 16)
This line is similar to line 4 in all characteristics except the clear accounting of the form of the profile at its western end due to sampling and presence of more granite. The anomalous zone within the Cambrian rocks to the east is much more limited.

Line 6 (Figure 17)
The profile also samples the tip of the granite in the Waratah area. The Magnet Mine is virtually on profile and Mt Bischoff is a little distance from it. There are obvious associations between mineralised sites and the margins of the intrusion. The Magnet dyke, and the associated fracture system, may also be related.
The western end of the profile is not well fitted indicating the presence of more mafic material than included.

Line 8 (Figure 18)
This profiles examines the structure near Cleveland. The observed field is not well defined in this region. Nor have the regional assumptions related to the Heazlewood Complex been adequate. No further refinements are justified until more data is available. The shape of the granite is not absolutely determined in the Cleveland area due to the possible, uncontrolled, mass trade offs. It does suggest that granite is not far away and that the controlling fracture systems related to the granite margin have been important.

Line 9 (Figure 19)
The shape of this profile disguises the effect of the granite pillar due to the balance between mafics to the west and Burnie Formation to the north. The overall relationships, extracted only by 3D methods, are evident. The association between the margins of the intrusion and the mineralisation north of Magnet and at Mt Bischoff is unambiguously anticipated.

Line 10 (Figure 20)
The profile and its implications are similar to those described for line 5.

Line 11 (Figure 21)
This line conceals some of the ambiguities present in the present interpretation. It is not evident by inspection how far the mass balance between granite and Burnie Formation in the the north allows a shift of the interpreted granite margin. The dip in observed profile at 29 km could be argued as being due to a further granite spine. Such a spine would then require the main granite wall to be at least 5 km further north than shown in the figure. This is not sustainable three dimensionally and the anomaly dip is probably due to Tertiary elements.
The positive change at 27 km and the steepened gradient to the south can be related directly to the granite margin even though concealed by Tertiary cover. It is possible that the model shown places the granite margin 2 km too far north. The model is a compromise given present control. The position of the margin can be further evaluated only after consideration of anomalies sourced in the country or roof rocks and these details have been beyond the scope of the present project.

Line 12 (Figure 22)
This line samples the eastern wall of the Meredith Granite and the glancing orientation has produced the high relief nature of the model shown. The distribution of the Burnie Formation, in

the north, has been inadequately treated but the model does account for the eastern edge of the pluton.

Line 13 (Figure 23)
Granite is not significant along the profile which essentially samples the anomalous belt within the Dundas Group. This profile clearly suggests the scale of responses due to these materials. The mineralisation at Silver Falls is off line and appears marginal to one of the dense sources. The pattern is not dissimilar to that at Hellyer and is worthy of verification. The match for Burnie Formation at the northern end of the profile is adequate.

Line 14 (Figure 24)
This section also samples the Cleveland area. Although the problems of data coverage (see line 9) remain the model and control is better at the orientation of this line and it is possible to establish a clear structural correlation between the mineralisation and the granite.

Line 15 (Figure 25)
This profile re-inforces the suggestion of a relationship between the location of the Magnet dyke and mineralisation and the granite margin. The mismatch near the crest of the granite may imply that the model in bulk terms is too shallow in this area.

It should be recognised that the current model solution and interpretation of the Meredith Granite as presented in Map 3 and Figure 26 has incorporated some mass balance assumptions, has ignored some contributing details (as within the Cambrian succession) and is only defined where model profiles have been sampled and examined. Most of those profiles are included in this report and it is clear that some large gaps do exist between them. The shape of the gravity field and the effects and requirements of 3D forms and models, however, do minimise the possibilities and the deficiencies are not considered large.
The model is generally untested and uncontrolled at this date.

The model establishes the very steep contact zones along the eastern face of the Meredith Granite. Any ribbing present is minimal and restricted to fracture corners. The shape of the granite is clearly defined in regional stress terms by the extensive lineaments in both gravity and magnetic data sets (Figure 4) which are simply extensions of the granite corner orientations. Intrusion of the granite has almost certainly been controlled by pre-existing features, few of which are unambiguously exposed, but which dominate the upper crust.

The granite shelves northward with some crestal pinnacles. Mineralisation between Luina and Waratah is associated with these pinnacles, or extensions of the fracture systems which define the margin of the pluton. The pluton is more extensive to the north west and may extend more than 10 km NW of Waratah. It is, however, largely unroofed to the south of Cleveland.

There is some scope for further exploration in this region although much of the granite-bearing zone is beyond the present ELs, good data coverage and firm geological knowledge.

The basalt-covered area SE of Waratah may also disguise granite related mineralisation (near 374 000 mE, 5404 and 5407 000 mN). More detailed review of these areas is necessary.

The association between trends and granite form is illustrated in Figure 27 and the inferred zones of prospective interest for granite-related mineralisation are shown in Figure 28.

The surveys have also drawn attention to the positive anomalies within the Cambrian rocks. These may have exploration significance given the lack of current knowledge and the presence of base metal mineralisation within the zone. Evaluation of these materials is suggested grossly in Figure 10C but has been generally beyond the scope of the present interpretation. Possible links and correlation with Que- Hellyer mineralisation may be inferred but there is need for more analysis and ground checking of rock units.
Figure 28 also outlines the anomalous zones within the intruded Cambrian rocks which may carry other mineralisation styles.

CONCLUSIONS AND RECOMMENDATIONS

The present interpretation of gravity data in the Waratah - Guildford - Mt Ramsay area has established that the Meredith Granite is mostly unroofed with steeply dipping margins to east and south. The roof of the granite plunges shallowly northward beneath Waratah and it is in the area between Luina, north Bischoff and south Waratah that some potential exists for granite-related or controlled mineralisation at shallow depths. The known mineralisation at Cleveland, Magnet and Mt Bischoff has been explained by the interpreted granite forms. Some other sites exist within the region.

There seems limited potential for large deposits along the eastern face of the granite due to its sheer form. The fractures which impinge on this may be important, however, in transferring fluids. Many of these lateral and transverse structures appear to be large and are not generally to be inferred from current mapping. Many clearly pre date the granite and have controlled its emplacement. Many may also have influenced other types of mineralisation.

Attention has been drawn to the anomalous zones within the Cambrian(?) rocks adjacent to the granite although the present evaluation has not reviewed them in detail. At least one of these zones is mineralised. The data available (gravity and magnetic) are able to contribute to appraisal and definition of these zones.

The present work has been restricted to primary appraisal of the Meredith Granite and has considered incidental issues only in so far as this allows some estimation of the reliability of the granite model. Many assumptions are implicit although it is believed that the general form reported is sound. Depth estimates must be treated as estimates pending control and revision. Any secondary revision must incorporate refined judgments about other rock sources (ultramafics, Burnie Formation, anomalous Cambrian) and cannot be justified until this is possible. Improved base mapping may well provide such control.

The principal recommendations relate to features east of the granite. The gross trends identified by the survey and their implication for non granite mineral styles must be evaluated. The extant gravity and magnetic data are able to support any structural evaluation of these features.
The general form of the interpreted granite around Waratah is sufficient to guide exploration. In the basalt-covered area south of Waratah, near the granite rib at 375 000 mE, 5404 000 mN, further gravity analysis should not be undertaken without control afforded by use of the magnetic data. The latter can provide estimates of basalt thickness.

The interpretation also suggests that the Late Precambrian and Early Cambrian rocks of the area are stratigraphic or structural veneers little more than 2 km thick.

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APPENDIX

TABLE OF REDUCED GRAVITY DATA
Survey code 9049

The table lists all data acquired by RGC Exploration during 1990 in the Waratah area.
The reduction density used was 2.67 gm/cc.

The table lists the station number (with year and survey code)
position (easting, northing, elevation)
gravity (observed, theoretical)
terrain correction
Bouguer anomaly

Observed gravity is based on state datum tie points and the theoretical gravity is based on the 1930 ellipsoid.

RGC Exploration - Waratah Area Gravity Data

Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.9900	376720.0	410500.0	612.00	980.178698	980.309596	0.53	-9.97
9049.9901	381980.0	415750.0	610.00	980.187758	980.305434	0.13	2.46
9049.9902	373800.0	405860.0	657.00	980.172837	980.313296	0.22	-10.99
9049.9903	379560.0	403580.0	640.00	980.176180	980.315214	0.16	-12.97
9049.9904	368900.0	407800.0	631.00	980.177862	980.311662	0.58	-9.08
9049.1001	376320.0	412500.0	785.00	980.138480	980.307978	4.44	-10.62
9049.1002	374180.0	405450.0	615.00	980.180991	980.313632	0.12	-11.53
9049.1003	374590.0	405050.0	609.00	980.181215	980.313960	0.10	-12.84
9049.1004	375360.0	405000.0	611.00	980.180920	980.314012	0.12	-12.77
9049.1005	376660.0	404780.0	619.00	980.177791	980.314207	0.16	-14.48
9049.1006	377530.0	404370.0	599.00	980.182061	980.314550	0.20	-14.45
9049.1007	378230.0	404300.0	634.00	980.175447	980.314616	0.15	-14.29
9049.1008	379070.0	403820.0	657.00	980.171594	980.315014	0.16	-14.01
9049.1009	371060.0	405460.0	681.00	980.161168	980.313580	0.47	-17.97
9049.1010	371590.0	405060.0	656.00	980.165448	980.313910	0.30	-19.11
9049.1011	370940.0	404820.0	671.00	980.162095	980.314094	0.36	-19.63
9049.1012	370920.0	404040.0	661.00	980.163756	980.314723	0.18	-20.75
9049.1013	371110.0	403720.0	642.00	980.167293	980.314983	0.15	-21.24
9049.1014	373260.0	405780.0	662.00	980.170819	980.313353	0.21	-12.09
9049.1015	370040.0	406830.0	635.00	980.177465	980.312460	0.19	-9.88
9049.1016	371190.0	407000.0	669.00	980.171349	980.312340	0.25	-9.13
9049.1017	371690.0	407090.0	662.00	980.169821	980.312275	0.31	-11.91
9049.1018	373020.0	406650.0	698.00	980.163970	980.312648	0.53	-10.83
9049.1019	372980.0	407180.0	712.00	980.161198	980.312220	0.68	-10.27
9049.1020	372350.0	407330.0	702.00	980.162421	980.312090	0.73	-10.83
9049.1021	371430.0	407440.0	642.00	980.178443	980.311989	0.33	-6.92
9049.1022	371710.0	407920.0	638.00	980.179085	980.311606	0.48	-6.53
9049.1023	371000.0	406350.0	683.00	980.165999	980.312861	0.23	-12.26
9049.1024	381250.0	416410.0	609.00	980.187065	980.304893	0.17	2.15
9049.1025	380400.0	417050.0	601.00	980.189532	980.304366	0.32	3.72
9049.1026	379770.0	416900.0	607.00	980.187534	980.304478	0.41	2.88
9049.1027	379210.0	416630.0	588.00	980.190368	980.304688	0.71	2.06
9049.1028	378310.0	416720.0	545.00	980.199194	980.304604	0.92	2.72
9049.1029	377440.0	416900.0	485.00	980.206991	980.304447	0.83	-1.22
9049.1030	377080.0	417210.0	451.00	980.218549	980.304192	0.86	3.94
9049.1031	376910.0	417980.0	390.00	980.231319	980.303569	1.07	5.54
9049.1032	376380.0	418420.0	310.00	980.245150	980.303207	0.97	3.89
9049.1033	375840.0	418430.0	295.00	980.247769	980.303192	0.86	3.47
9049.1034	375430.0	417970.0	300.00	980.245537	980.303557	0.70	1.69
9049.1035	375610.0	417340.0	310.00	980.243600	980.304067	0.77	1.28
9049.1036	375340.0	416680.0	318.00	980.241542	980.304595	1.10	0.60
9049.1037	374430.0	417450.0	400.00	980.226549	980.303962	1.61	2.88
9049.1038	373800.0	416530.0	415.00	980.223430	980.304695	1.69	2.06
9049.1039	374410.0	416610.0	381.00	980.229658	980.304639	1.57	1.54
9049.1040	374900.0	417070.0	322.00	980.242021	980.304275	1.42	2.51
9049.1041	375000.0	417880.0	295.00	980.247881	980.303623	0.86	3.15
9049.1042	382570.0	414900.0	623.00	980.184599	980.306127	0.11	1.14
9049.1043	380930.0	415120.0	609.00	980.183804	980.305928	0.31	-2.01
9049.1044	380910.0	415570.0	601.00	980.186964	980.305565	0.34	-0.03
9049.1045	380960.0	414640.0	599.00	980.184538	980.306316	0.48	-3.46
9049.1046	381210.0	414470.0	609.00	980.184956	980.306456	0.50	-1.19
9049.1047	381520.0	415270.0	612.00	980.185628	980.305815	0.24	0.45
9049.1048	376925.0	409625.0	603.00	980.182275	980.310304	0.32	-9.08
9049.1049	376620.0	409150.0	610.00	980.180043	980.310683	0.23	-10.41
9049.1050	376030.0	408410.0	609.00	980.181541	980.311271	0.25	-9.67
9049.1051	375580.0	408960.0	564.00	980.191570	980.310822	0.72	-7.58
9049.1052	375270.0	409640.0	533.00	980.195688	980.310269	1.69	-8.04

RGC Exploration - Waratah Area Gravity Data

Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.1053	374570.0	410180.0	508.00	980.200366	980.309824	0.92	-8.60
9049.1054	374430.0	410620.0	485.00	980.203169	980.309467	0.81	-10.08
9049.1055	373930.0	411000.0	467.00	980.207348	980.309154	0.66	-9.28
9049.1056	374830.0	407310.0	621.00	980.179228	980.312142	0.30	-10.45
9049.1057	374410.0	407550.0	636.00	980.176150	980.311942	0.56	-10.11
9049.1058	373980.0	407820.0	615.00	980.179493	980.311718	1.07	-10.17
9049.1059	376900.0	411580.0	588.00	980.186179	980.308728	0.98	-5.89
9049.1060	377340.0	411890.0	506.00	980.201069	980.308484	1.31	-6.56
9049.1061	377540.0	411760.0	473.00	980.208010	980.308591	1.11	-6.42
9049.1062	375860.0	404410.0	617.00	980.180777	980.314494	0.16	-12.18
9049.1063	376160.0	403910.0	608.00	980.182092	980.314902	0.18	-13.02
9049.1064	376440.0	403400.0	611.00	980.181185	980.315317	0.20	-13.73
9049.1065	374380.0	404450.0	619.00	980.181256	980.314441	0.10	-11.31
9049.1066	373670.0	403930.0	621.00	980.182459	980.314851	0.12	-10.10
9049.1067	373000.0	403450.0	606.00	980.183050	980.315228	0.13	-12.83
9049.1068	380340.0	415600.0	603.00	980.190582	980.305534	0.61	4.28
9049.1069	380410.0	415180.0	605.00	980.189491	980.305873	0.97	3.61
9049.1070	381690.0	414780.0	625.00	980.184324	980.306213	0.29	1.36
9049.1071	372190.0	405500.0	683.00	980.160556	980.313564	0.17	-18.47
9049.1072	371950.0	404960.0	662.00	980.164225	980.313996	0.22	-19.32
9049.1073	371890.0	404530.0	616.00	980.172491	980.314342	0.19	-20.48
9049.1074	371960.0	404020.0	601.00	980.175844	980.314754	0.18	-20.50
9049.1075	372060.0	403570.0	575.00	980.182989	980.315118	0.17	-18.84
9049.1076	372310.0	403020.0	565.00	980.186169	980.315565	0.18	-18.07
9049.1077	372020.0	402590.0	623.00	980.175905	980.315908	0.26	-17.18
9049.1078	371690.0	402050.0	623.00	980.174448	980.316338	0.29	-19.04
9049.1079	371660.0	401590.0	595.00	980.180359	980.316709	0.28	-19.02
9049.1080	371480.0	401270.0	615.00	980.175396	980.316964	0.26	-20.32
9049.1081	371100.0	401600.0	618.00	980.174692	980.316693	0.21	-20.21
9049.1082	371170.0	400410.0	625.00	980.174274	980.317654	0.26	-20.16
9049.1083	372025.0	400400.0	630.00	980.173663	980.317674	0.28	-19.79
9049.1084	372290.0	399920.0	600.00	980.182744	980.318065	0.26	-17.03
9049.1085	371730.0	399230.0	580.00	980.181613	980.318613	0.42	-22.48
9049.1086	371720.0	398820.0	576.00	980.182683	980.318944	0.50	-22.45
9049.1087	371810.0	398390.0	581.00	980.182357	980.319292	0.61	-22.03
9049.1088	372070.0	398060.0	585.00	980.183998	980.319562	0.74	-19.74
9049.1089	372260.0	397490.0	599.00	980.183559	980.320024	0.79	-17.84
9049.1090	372360.0	396730.0	624.00	980.178647	980.320639	0.97	-18.26
9049.1091	372270.0	395720.0	688.00	980.162513	980.321452	2.81	-20.78
9049.1092	371950.0	394800.0	565.00	980.194842	980.322190	1.97	-14.23
9049.1093	371780.0	395050.0	651.00	980.173235	980.321985	2.13	-18.55
9049.1094	372330.0	394850.0	620.00	980.181236	980.322155	2.72	-16.23
9049.1095	372320.0	394340.0	618.00	980.182438	980.322566	2.67	-15.88
9049.1096	372380.0	393850.0	604.00	980.187758	980.322962	2.99	-13.39
9049.1097	373510.0	390170.0	160.00	980.286896	980.325947	1.28	-6.30
9049.1098	374140.0	390200.0	252.00	980.269070	980.325932	1.65	-5.64
9049.1099	374580.0	390920.0	245.00	980.268367	980.325357	0.95	-7.85
9049.1100	374520.0	390360.0	283.00	980.259286	980.325808	1.36	-9.50
9049.1101	375060.0	390660.0	294.00	980.261773	980.325574	1.51	-4.46
9049.1102	375890.0	391250.0	381.00	980.241582	980.325109	0.99	-7.59
9049.1103	376580.0	391780.0	433.00	980.230300	980.324691	1.01	-8.20
9049.1104	375430.0	391560.0	245.00	980.269733	980.324853	1.27	-5.66
9049.1105	375760.0	392470.0	225.00	980.271975	980.324123	1.39	-6.50
9049.1106	376600.0	393040.0	402.00	980.234346	980.323675	2.66	-7.59
9049.1107	369150.0	408950.0	624.00	980.180206	980.310738	0.62	-7.15
9049.1108	369560.0	409060.0	614.00	980.183029	980.310655	0.59	-6.25
9049.1109	370140.0	409080.0	616.00	980.183101	980.310648	0.52	-5.84

RGC Exploration - Waratah Area Gravity Data

Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.1110	370600.0	409170.0	585.00	980.189807	980.310582	0.95	-4.74
9049.1111	370840.0	409000.0	589.00	980.189562	980.310722	1.10	-4.19
9049.1112	371000.0	409220.0	587.00	980.188421	980.310547	0.98	-5.67
9049.1113	371470.0	409380.0	631.00	980.174815	980.310425	3.17	-8.30
9049.1114	371880.0	409580.0	575.00	980.189858	980.310270	1.73	-5.57
9049.1115	372290.0	409810.0	600.00	980.181817	980.310090	1.68	-8.56
9049.1116	372820.0	409640.0	615.00	980.174978	980.310235	2.45	-11.82
9049.1117	373300.0	409470.0	560.00	980.187004	980.310379	1.79	-11.42
9049.1118	379370.0	403290.0	644.00	980.175477	980.315445	0.17	-13.10
9049.1119	378660.0	402880.0	652.00	980.173673	980.315766	0.21	-13.62
9049.1120	377650.0	403000.0	626.00	980.177006	980.315656	0.24	-15.26
9049.1121	377230.0	403460.0	596.00	980.182989	980.315279	0.23	-14.81
9049.1122	376740.0	402960.0	609.00	980.181439	980.315676	0.22	-14.21
9049.1123	377850.0	403440.0	633.00	980.174590	980.315304	0.22	-15.96
9049.1124	378410.0	403730.0	652.00	980.171777	980.315078	0.19	-14.84
9049.1125	380240.0	404290.0	641.00	980.175630	980.314651	0.17	-12.75
9049.1126	380700.0	405240.0	647.00	980.173959	980.313891	0.14	-12.51
9049.1127	380970.0	405580.0	652.00	980.173102	980.313620	0.13	-12.12
9049.1128	381360.0	405170.0	660.00	980.172644	980.313956	0.16	-11.31
9049.1129	381340.0	404650.0	654.00	980.174020	980.314375	0.15	-11.54
9049.1130	381560.0	405920.0	663.00	980.170677	980.313354	0.13	-12.11
9049.1131	381690.0	405360.0	663.00	980.172318	980.313807	0.13	-10.93
9049.1132	382030.0	404830.0	660.00	980.173959	980.314239	0.14	-10.30
9049.1133	381920.0	406060.0	661.00	980.171839	980.313246	0.12	-11.25
9049.1134	382300.0	406520.0	649.00	980.173836	980.312880	0.10	-11.27
9049.1135	381740.0	407790.0	642.00	980.175895	980.311848	0.09	-9.56
9049.1136	383770.0	408780.0	636.00	980.175620	980.311077	0.08	-10.26
9049.1137	383520.0	408310.0	628.00	980.177587	980.311452	0.08	-10.24
9049.1138	378790.0	404170.0	657.00	980.171584	980.314728	0.15	-13.74
9049.1139	378980.0	404600.0	644.00	980.172185	980.314384	0.16	-15.35
9049.1140	379000.0	405250.0	634.00	980.175518	980.313860	0.15	-13.47
9049.1141	379390.0	406330.0	622.00	980.178096	980.312994	0.13	-12.40
9049.1142	379500.0	407520.0	623.00	980.179370	980.312036	0.09	-10.01
9049.1143	380710.0	408080.0	638.00	980.176150	980.311601	0.09	-9.85
9049.1144	380070.0	408350.0	638.00	980.176710	980.311375	0.10	-9.05
9049.1145	379370.0	408670.0	621.00	980.179666	980.311107	0.10	-9.17
9049.1146	378480.0	410570.0	618.00	980.179136	980.309563	0.32	-8.53
9049.1147	379700.0	410440.0	631.00	980.176547	980.309685	0.19	-8.81
9049.1148	380480.0	410500.0	629.00	980.178025	980.309647	0.11	-7.77
9049.1149	381580.0	410640.0	639.00	980.176843	980.309549	0.11	-6.89
9049.1150	382330.0	409720.0	632.00	980.177944	980.310300	0.10	-7.92
9049.1151	381850.0	409250.0	633.00	980.177628	980.310673	0.08	-8.44
9049.1152	382980.0	409630.0	625.00	980.178484	980.310381	0.09	-8.85
9049.1153	378060.0	409650.0	605.00	980.181205	980.310299	0.15	-9.92
9049.1154	378190.0	409340.0	606.00	980.181592	980.310551	0.12	-9.62
9049.1155	378240.0	408690.0	605.00	980.181868	980.311076	0.11	-10.08
9049.1156	377390.0	408060.0	607.00	980.181358	980.311572	0.13	-10.67
9049.1157	377360.0	407680.0	607.00	980.181144	980.311878	0.11	-11.21
9049.1158	377810.0	408120.0	608.00	980.181144	980.311530	0.10	-10.68
9049.1159	378800.0	408210.0	609.00	980.180950	980.311471	0.10	-10.61
9049.1160	378770.0	408800.0	608.00	980.181164	980.310994	0.11	-10.11
9049.1161	376540.0	411920.0	620.00	980.178891	980.308449	1.31	-6.28
9049.1162	376630.0	402880.0	609.00	980.182255	980.315739	0.16	-13.52
9049.1163	376450.0	402300.0	605.00	980.183784	980.316204	0.18	-13.22
9049.1164	376160.0	401590.0	616.00	980.181674	980.316772	0.19	-13.72
9049.1165	375740.0	401350.0	608.00	980.183366	980.316960	0.22	-13.76
9049.1166	375680.0	401100.0	620.00	980.181113	980.317161	0.28	-13.80

RGC Exploration - Waratah Area Gravity Data

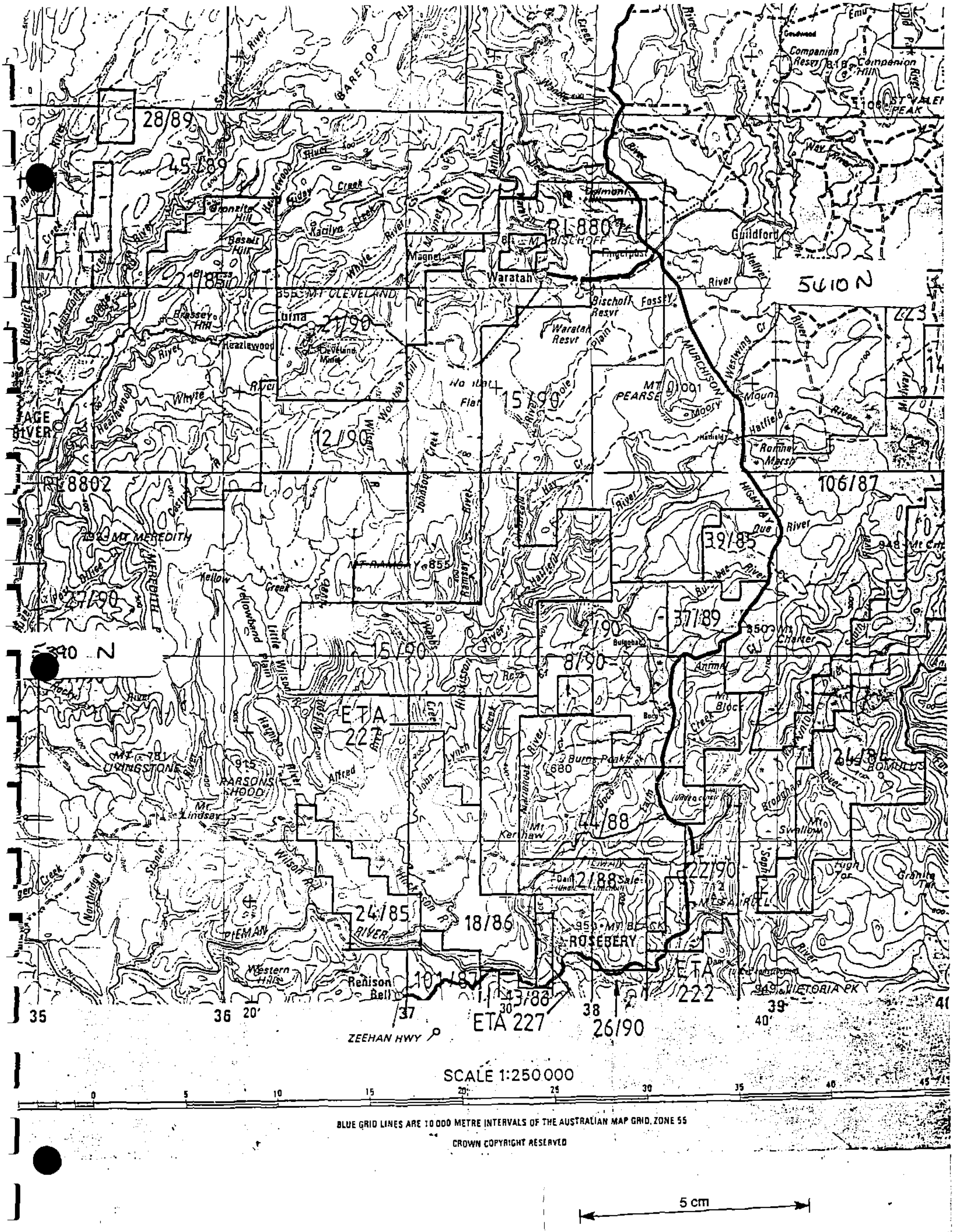
Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.1167	375330.0	400800.0	603.00	980.184966	980.317398	0.30	-13.51
9049.1168	375140.0	400130.0	603.00	980.183896	980.317936	0.41	-15.00
9049.1169	375190.0	399610.0	604.00	980.185037	980.318356	0.78	-13.72
9049.1170	375700.0	399000.0	577.00	980.193252	980.318855	1.15	-10.94
9049.1171	375800.0	398450.0	609.00	980.188115	980.319300	1.43	-9.95
9049.1172	375760.0	397880.0	607.00	980.189297	980.319759	2.10	-8.95
9049.1173	375730.0	397200.0	598.00	980.190653	980.320307	1.75	-10.26
9049.1174	375460.0	396650.0	596.00	980.190622	980.320747	1.99	-10.89
9049.1175	375840.0	393200.0	200.00	980.271516	980.323535	1.41	-11.27
9049.1176	376040.0	393600.0	215.00	980.272046	980.323215	1.72	-7.16
9049.1177	375660.0	393400.0	210.00	980.272739	980.323371	1.92	-7.41
9049.1178	375270.0	394400.0	388.00	980.234795	980.322559	1.88	-9.56
9049.1179	374800.0	394500.0	398.00	980.231900	980.322472	2.23	-10.05
9049.1180	374260.0	394280.0	240.00	980.260937	980.322642	2.73	-11.77
9049.1181	375220.0	395360.0	510.00	980.209957	980.321784	2.63	-8.87
9049.1182	376560.0	393680.0	230.00	980.265207	980.323158	1.33	-11.38
9049.1183	377380.0	394140.0	311.00	980.248309	980.322798	2.15	-11.16
9049.1184	377610.0	394520.0	342.00	980.242082	980.322495	2.40	-10.74
9049.1185	377800.0	395320.0	407.00	980.230076	980.321852	2.18	-9.54
9049.1186	377930.0	395700.0	428.00	980.224959	980.321547	1.87	-10.53
9049.1187	377900.0	396050.0	463.00	980.218365	980.321265	2.03	-9.79
9049.1188	377760.0	396450.0	499.00	980.212821	980.320940	1.59	-8.37
9049.1189	377900.0	397200.0	567.00	980.197043	980.320337	1.32	-10.43
9049.1190	378290.0	397750.0	601.00	980.187544	980.319899	1.21	-12.91
9049.1191	378510.0	398450.0	611.00	980.185190	980.319337	0.77	-13.18
9049.1192	378710.0	398850.0	605.00	980.186637	980.319017	0.56	-12.80
9049.1193	379400.0	399430.0	603.00	980.188798	980.318559	0.42	-10.72
9049.1194	380290.0	403040.0	648.00	980.177200	980.315659	0.18	-10.80
9049.1195	380990.0	402440.0	651.00	980.177872	980.316153	0.20	-10.01
9049.1196	381240.0	401420.0	652.00	980.178504	980.316979	0.31	-9.90
9049.1197	380660.0	400410.0	641.00	980.181990	980.317785	0.33	-9.36
9049.1198	379870.0	399920.0	607.00	980.189522	980.318170	0.35	-8.89
9049.1199	379450.0	406970.0	632.00	980.175854	980.312479	0.09	-12.20
9049.1200	378600.0	406690.0	622.00	980.177220	980.312693	0.09	-13.02
9049.1201	378240.0	406400.0	621.00	980.176710	980.312922	0.12	-13.92
9049.1202	378310.0	406660.0	640.00	980.173062	980.312714	0.13	-13.62
9049.1203	378100.0	406130.0	627.00	980.176170	980.313138	0.13	-13.49
9049.1204	377620.0	406140.0	621.00	980.178219	980.313123	0.15	-12.59
9049.1205	377130.0	406130.0	616.00	980.179564	980.313125	0.14	-12.24
9049.1206	376420.0	406170.0	622.00	980.179075	980.313083	0.13	-11.51
9049.1207	381110.0	406590.0	651.00	980.173541	980.312808	0.11	-11.09
9049.1208	381060.0	407330.0	649.00	980.175049	980.312210	0.10	-9.38
9049.1209	376470.0	411490.0	602.00	980.181164	980.308794	1.41	-7.79
9049.1210	376050.0	411540.0	520.00	980.195188	980.308748	1.53	-9.74
9049.1211	375620.0	411810.0	440.00	980.210497	980.308525	1.39	-10.08
9049.1212	375150.0	412070.0	391.00	980.222218	980.308308	1.15	-8.03
9049.1213	374730.0	412290.0	371.00	980.226794	980.308125	1.75	-6.60
9049.1214	373950.0	412130.0	377.00	980.226233	980.308243	2.02	-5.83
9049.1215	373570.0	411960.0	375.00	980.227018	980.308375	1.51	-6.08
9049.1216	375910.0	412400.0	602.00	980.179982	980.308053	1.69	-7.95
9049.1217	375570.0	412960.0	527.00	980.196045	980.307597	1.29	-6.59
9049.1218	375750.0	413470.0	431.00	980.214115	980.307188	1.83	-6.46
9049.1219	375840.0	413930.0	336.00	980.235814	980.306819	1.57	-3.34
9049.1220	375900.0	414700.0	327.00	980.238148	980.306199	1.26	-2.47
9049.1221	375680.0	415390.0	316.00	980.242500	980.305640	1.22	0.24
9049.1222	376260.0	413500.0	358.00	980.228343	980.307171	1.46	-6.95
9049.1223	369000.0	408470.0	621.00	980.181643	980.311123	0.61	-6.70

RGC Exploration - Waratah Area Gravity Data

Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.1224	369070.0	409530.0	649.00	980.175885	980.310269	0.73	-5.98
9049.1225	370000.0	410300.0	585.00	980.189552	980.309662	1.05	-3.98
9049.1226	370530.0	411050.0	432.00	980.217754	980.309065	2.37	-3.96
9049.1227	370820.0	411310.0	420.00	980.219578	980.308860	2.45	-4.21
9049.1228	371900.0	411410.0	388.00	980.223971	980.308795	1.75	-6.75
9049.1229	372620.0	411950.0	435.00	980.214095	980.308370	1.47	-7.23
9049.1230	372610.0	412420.0	540.00	980.192916	980.307991	1.42	-7.43
9049.1231	369480.0	407170.0	648.00	980.176690	980.312178	0.20	-7.81
9049.1232	368470.0	408040.0	601.00	980.183763	980.311462	0.77	-8.70
9049.1233	367860.0	408190.0	517.00	980.202353	980.311332	0.92	-6.35
9049.1234	366940.0	408390.0	425.00	980.222503	980.311157	1.12	-3.93
9049.1235	366170.0	408290.0	354.00	980.238229	980.311226	0.83	-2.53
9049.1236	365230.0	407980.0	315.00	980.248309	980.311462	0.88	-0.31
9049.1237	363150.0	407900.0	323.00	980.248228	980.311495	1.02	1.29
9049.1238	363000.0	407940.0	373.00	980.242490	980.311461	0.71	5.11
9049.1239	362540.0	407880.0	339.00	980.252896	980.311502	0.66	8.74
9049.1240	361390.0	407310.0	292.00	980.272658	980.311944	0.57	18.72
9049.1241	361740.0	408000.0	468.00	980.234540	980.311393	1.72	16.93
9049.1242	362210.0	408740.0	528.00	980.221779	980.310803	0.97	15.81
9049.1243	362000.0	409420.0	396.00	980.251530	980.310252	1.08	20.26
9049.1244	364810.0	407430.0	307.00	980.250918	980.311899	0.95	0.36
9049.1245	365280.0	406870.0	368.00	980.236517	980.312358	1.58	-1.87
9049.1246	364720.0	406790.0	343.00	980.243580	980.312414	1.18	-0.18
9049.1247	364290.0	406310.0	304.00	980.253161	980.312794	1.15	1.31
9049.1248	363870.0	406920.0	329.00	980.248982	980.312296	0.86	2.26
9049.1249	363810.0	406330.0	379.00	980.238209	980.312771	0.94	0.93
9049.1250	364770.0	406240.0	315.00	980.248411	980.312858	1.83	-0.65
9049.1251	364150.0	405350.0	320.00	980.248136	980.313566	1.12	-1.36
9049.1252	364100.0	404500.0	368.00	980.232134	980.314251	1.16	-8.57
9049.1253	364650.0	404810.0	435.00	980.221321	980.314009	1.42	-5.70
9049.1254	365490.0	406060.0	469.00	980.218915	980.313014	1.27	-0.57
9049.1255	365390.0	405630.0	485.00	980.214278	980.313359	1.39	-2.28
9049.1256	365300.0	405210.0	519.00	980.207531	980.313696	1.85	-2.22
9049.1257	364470.0	405650.0	291.00	980.251509	980.313329	2.02	-2.56
9049.1258	367540.0	407550.0	550.00	980.197696	980.311843	1.36	-4.59
9049.1259	366780.0	407740.0	521.00	980.202486	980.311679	1.67	-5.03
9049.1260	366210.0	407310.0	475.00	980.213718	980.312017	1.78	-3.08
9049.1261	377450.0	412770.0	537.00	980.192895	980.307776	1.91	-7.33
9049.1262	377040.0	412870.0	495.00	980.202466	980.307690	2.19	-5.66
9049.1263	378210.0	411250.0	609.00	980.181878	980.309012	0.70	-6.63
9049.1264	380060.0	414970.0	603.00	980.186118	980.306038	0.19	-1.10
9049.1265	379530.0	415250.0	598.00	980.186230	980.305805	1.22	-0.71
9049.1266	379060.0	415580.0	601.00	980.185068	980.305533	1.41	-0.82
9049.1267	378840.0	415270.0	562.00	980.192814	980.305780	1.37	-1.04
9049.1268	372960.0	390030.0	160.00	980.290341	980.326052	0.75	-3.49
9049.1269	373180.0	390720.0	175.00	980.286815	980.325499	0.63	-3.63
9049.1270	372690.0	390480.0	225.00	980.273290	980.325685	0.74	-7.40
9049.1271	372080.0	390430.0	220.00	980.274350	980.325717	0.79	-7.30
9049.1272	371610.0	390820.0	311.00	980.256279	980.325395	1.10	-6.84
9049.1273	371580.0	391410.0	373.00	980.236160	980.324919	1.36	-14.03
9049.1274	371670.0	391930.0	387.00	980.236823	980.324501	1.75	-9.80
9049.1275	371620.0	392510.0	402.00	980.230300	980.324032	1.88	-12.77
9049.1276	370870.0	392650.0	401.00	980.225938	980.323908	1.94	-17.15
9049.1277	370640.0	392160.0	320.00	980.245608	980.324300	1.76	-13.99
9049.1278	371700.0	392960.0	351.00	980.238566	980.323670	2.66	-13.40
9049.1279	372050.0	392660.0	393.00	980.234091	980.323917	1.94	-10.58
9049.1280	372230.0	392990.0	527.00	980.204891	980.323654	2.33	-12.76

RGC Exploration - Waratah Area Gravity Data

Station No.	East (m)	North (m)	Elev (m)	Gobs	Gtheo	Terr Corr	B.A. mgal
9049.1281	370360.0	406510.0	687.00	980.168261	980.312723	0.22	-9.09
9049.1282	369710.0	405940.0	684.00	980.167476	980.313173	0.26	-10.87
9049.1283	368650.0	405060.0	688.00	980.166416	980.313867	0.29	-11.81
9049.1284	368220.0	404620.0	699.00	980.163726	980.314216	0.39	-12.58
9049.1285	367770.0	404050.0	686.00	980.165815	980.314669	0.43	-13.47
9049.1286	366940.0	403700.0	657.00	980.171339	980.314939	0.41	-13.94
9049.1287	366330.0	403370.0	670.00	980.170717	980.315196	0.53	-12.14
9049.1288	366800.0	403080.0	665.00	980.169678	980.315436	0.66	-14.27
9049.1289	367760.0	404360.0	754.00	980.152515	980.314419	1.30	-12.26
9049.1290	367780.0	404850.0	781.00	980.146838	980.314024	1.22	-12.31
9049.1291	367790.0	405320.0	758.00	980.152749	980.313645	0.91	-10.86
9049.1292	367550.0	405430.0	728.00	980.159873	980.313553	0.48	-9.98
9049.1293	369160.0	405540.0	684.00	980.168180	980.313488	0.31	-10.43
9049.1294	388180.0	401790.0	661.00	980.169861	980.316770	0.17	-16.70
9049.1295	387820.0	402030.0	669.00	980.169454	980.316572	0.18	-15.33
9049.1296	387380.0	402280.0	663.00	980.170361	980.316364	0.19	-15.38
9049.1297	386960.0	402410.0	669.00	980.169036	980.316254	0.17	-15.44
9049.1298	386520.0	402220.0	667.00	980.170055	980.316402	0.17	-14.96
9049.1299	386040.0	402020.0	651.00	980.173245	980.316557	0.16	-15.08
9049.1300	385540.0	401670.0	683.00	980.167466	980.316833	0.20	-14.80
9049.1301	385180.0	401560.0	676.00	980.168618	980.316917	0.23	-15.08
9049.1302	384550.0	401360.0	662.00	980.171645	980.317070	0.27	-14.92
9049.1303	383840.0	401350.0	649.00	980.176568	980.317069	0.26	-12.56
9049.1304	383340.0	401490.0	643.00	980.178494	980.316950	0.27	-11.69
9049.1305	383000.0	401810.0	646.00	980.177821	980.316687	0.29	-11.49
9049.1306	382690.0	402170.0	637.00	980.181857	980.316393	0.31	-8.91
9049.1307	382350.0	402280.0	652.00	980.176364	980.316300	0.32	-11.35
9049.1308	381910.0	402030.0	646.00	980.179483	980.316495	0.34	-9.59
9049.1309	380070.0	411470.0	642.00	980.177261	980.308859	0.19	-5.11
9049.1310	379610.0	411860.0	636.00	980.175966	980.308539	0.23	-7.22
9049.1311	379360.0	412110.0	627.00	980.178198	980.308334	0.27	-6.52
9049.1312	379460.0	412590.0	625.00	980.180634	980.307948	0.41	-3.95
9049.1313	379250.0	412960.0	622.00	980.178861	980.307647	1.00	-5.42
9049.1314	378840.0	413210.0	601.00	980.183733	980.307440	1.08	-4.39
9049.1315	378420.0	413470.0	542.00	980.196452	980.307225	1.13	-3.02
9049.1316	378000.0	413760.0	585.00	980.186036	980.306985	1.19	-4.68
9049.1317	377670.0	414110.0	588.00	980.187147	980.306699	1.61	-2.27
9049.1318	377270.0	414500.0	608.00	980.182683	980.306379	1.74	-2.35
9049.1319	372320.0	403000.0	567.00	980.186270	980.315581	0.17	-17.60
9049.1320	376470.0	401470.0	572.00	980.189685	980.316874	0.28	-14.38
9049.1321	376930.0	401290.0	570.00	980.192212	980.317025	0.39	-12.29
9049.1322	377440.0	401110.0	555.00	980.196717	980.317177	0.45	-10.83
9049.1323	375940.0	401720.0	622.00	980.182214	980.316665	0.20	-11.89
9049.1324	375460.0	401870.0	625.00	980.181358	980.316537	0.17	-12.05
9049.1325	375000.0	402040.0	612.00	980.182479	980.316393	0.14	-13.38
9049.1326	374530.0	402220.0	619.00	980.182204	980.316242	0.13	-12.13
9049.1327	374070.0	402370.0	621.00	980.182214	980.316114	0.14	-11.59
9049.1328	373600.0	402550.0	607.00	980.185078	980.315962	0.16	-11.31
9049.1329	373230.0	402740.0	614.00	980.183254	980.315804	0.21	-11.55
9049.1330	372760.0	402870.0	579.00	980.187932	980.315693	0.23	-13.63
9049.1331	372370.0	405730.0	690.00	980.162207	980.313381	0.18	-15.25
9049.1332	371430.0	406130.0	668.00	980.165723	980.313045	0.22	-15.69



021082

LOCATION MAP WARATAH AREA EL 12/90 AND 15/90 FIGURE 1

FIGURE 2

PREVIOUS INTERPRETATION OF MEREDITH GRANITE AND ASSOCIATION WITH MINERALISED SITES (from Leaman & Richardson, 1989a)

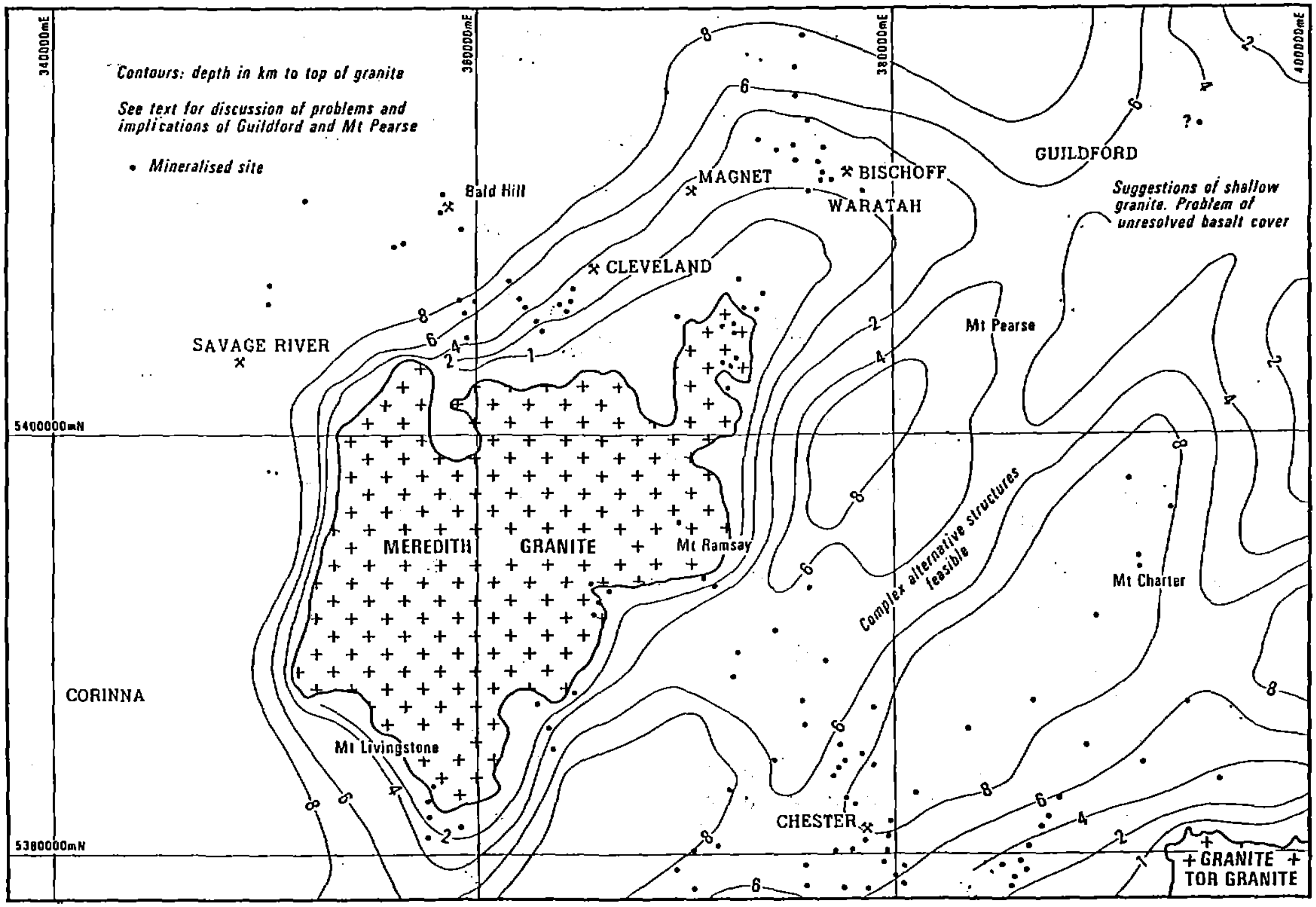
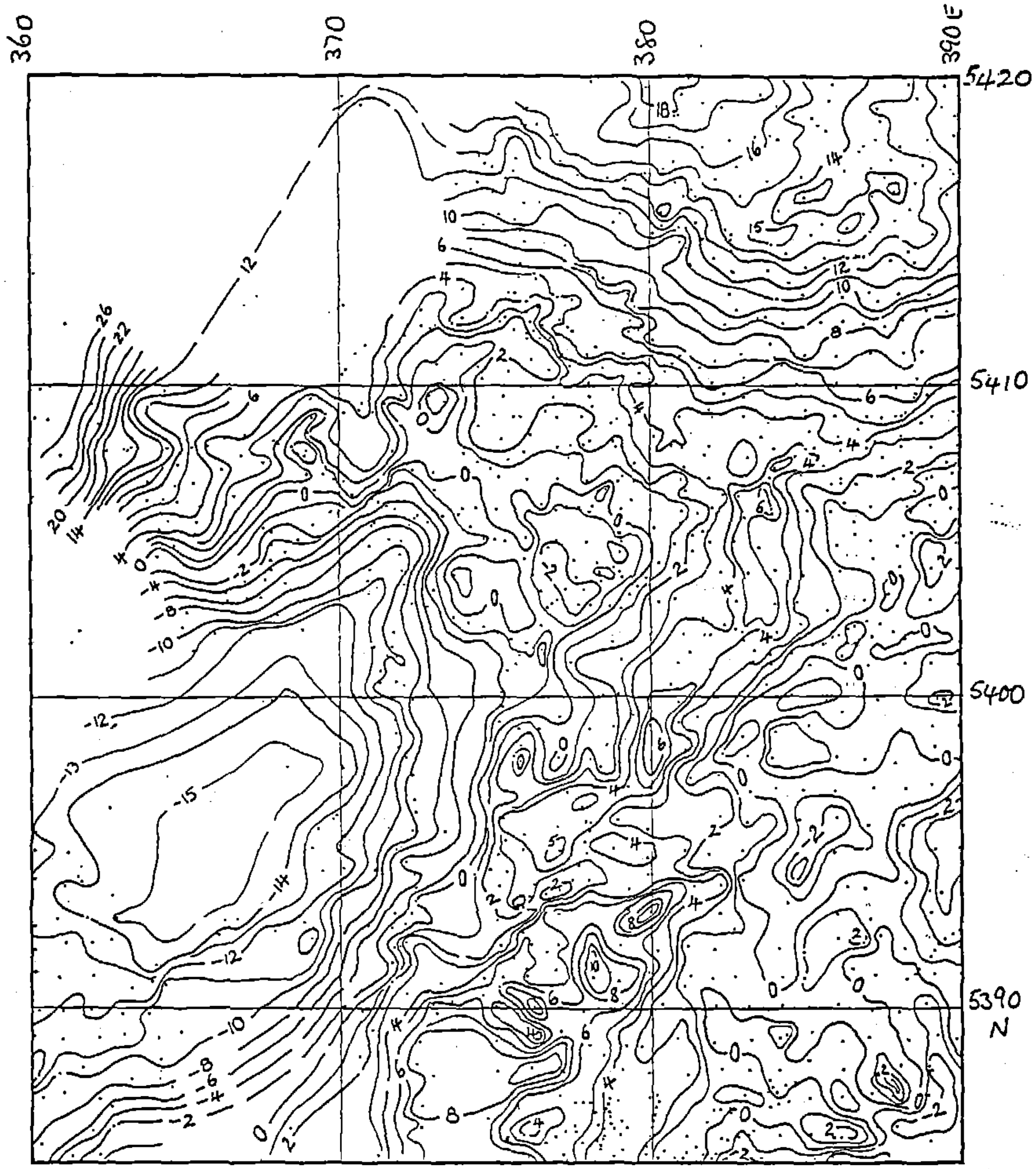


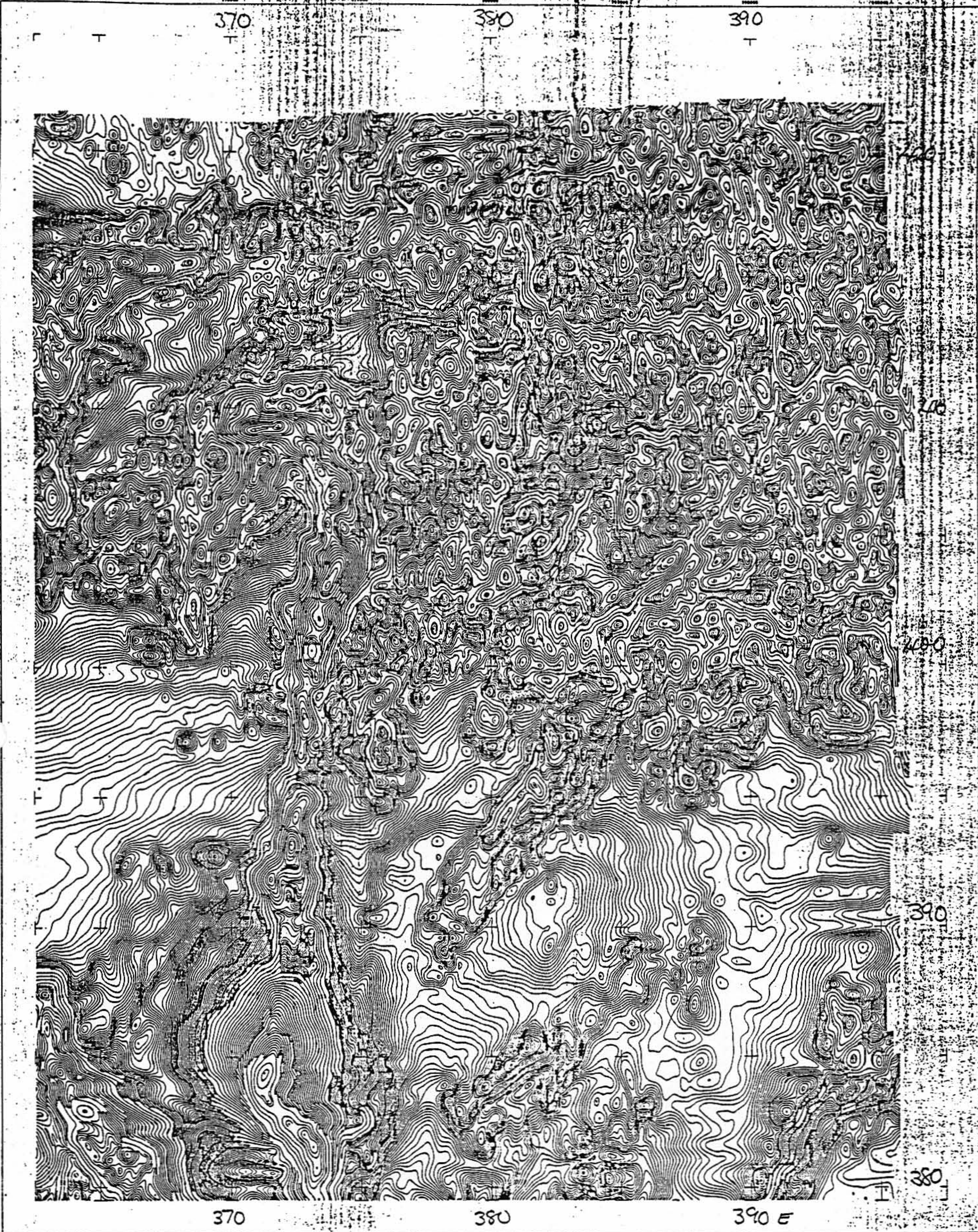
Figure 84. *Provisional interpretation of form of the Meredith granite. Mineralised sites after Bamford and Green (1986).*

021084



RESIDUAL BOUGUER ANOMALY WARATAH AREA

FIGURE 3A



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

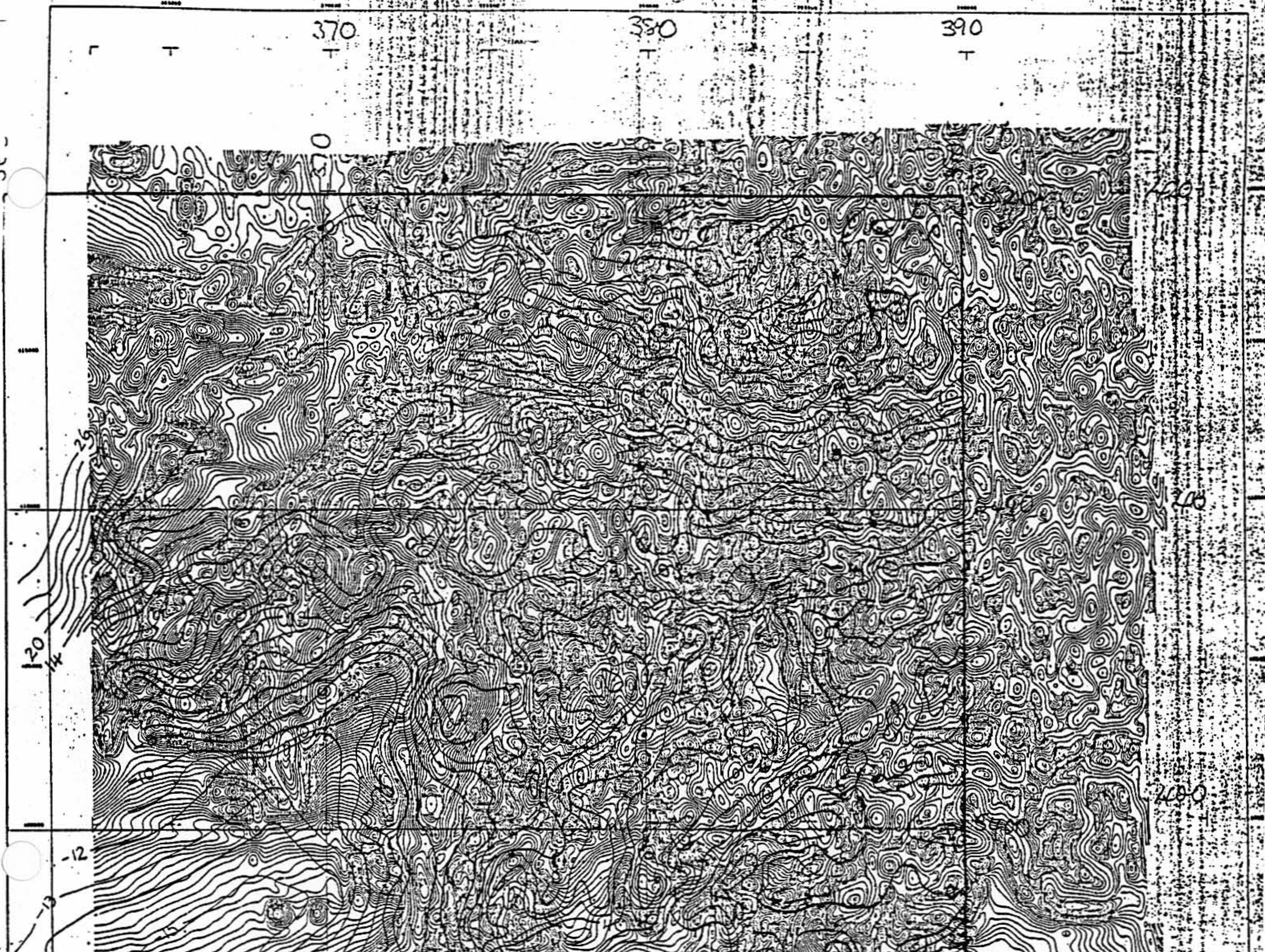
RESIDUAL MAGNETIC ANOMALY
1981 Mines Dept Survey

021085

WARATAH AREA
FIGURE 3B

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENSITY

SCALE 1:50000



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

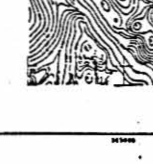
for

DEPARTMENT OF MINES TASMANIA

WEST COAST AREA TASMANIA

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENS

SCALE 1:50000



RESIDUAL GRAVITY + MAGNETIC FIELD
QUE RIVER-LUINA AREA

FIGURE 3C

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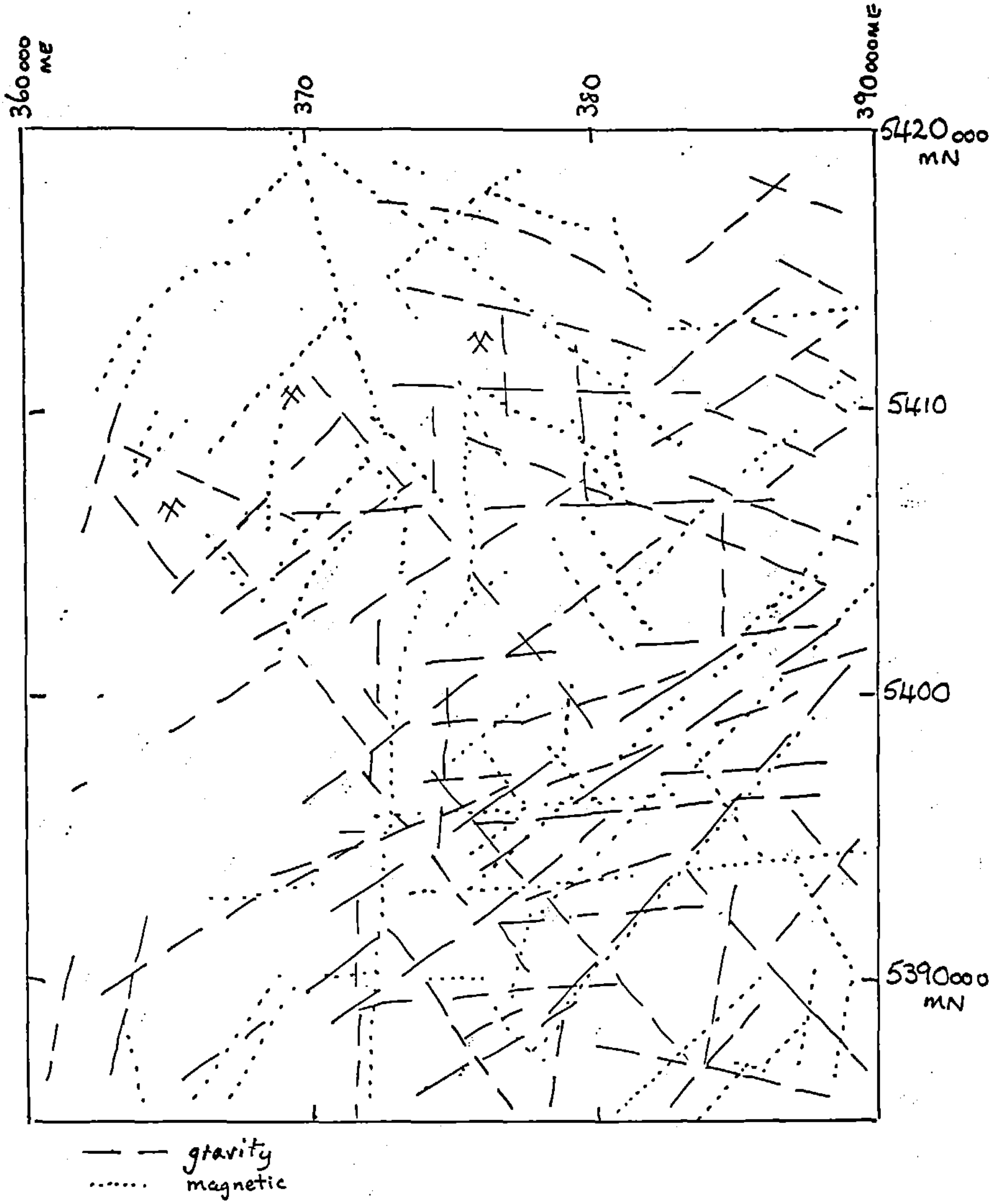
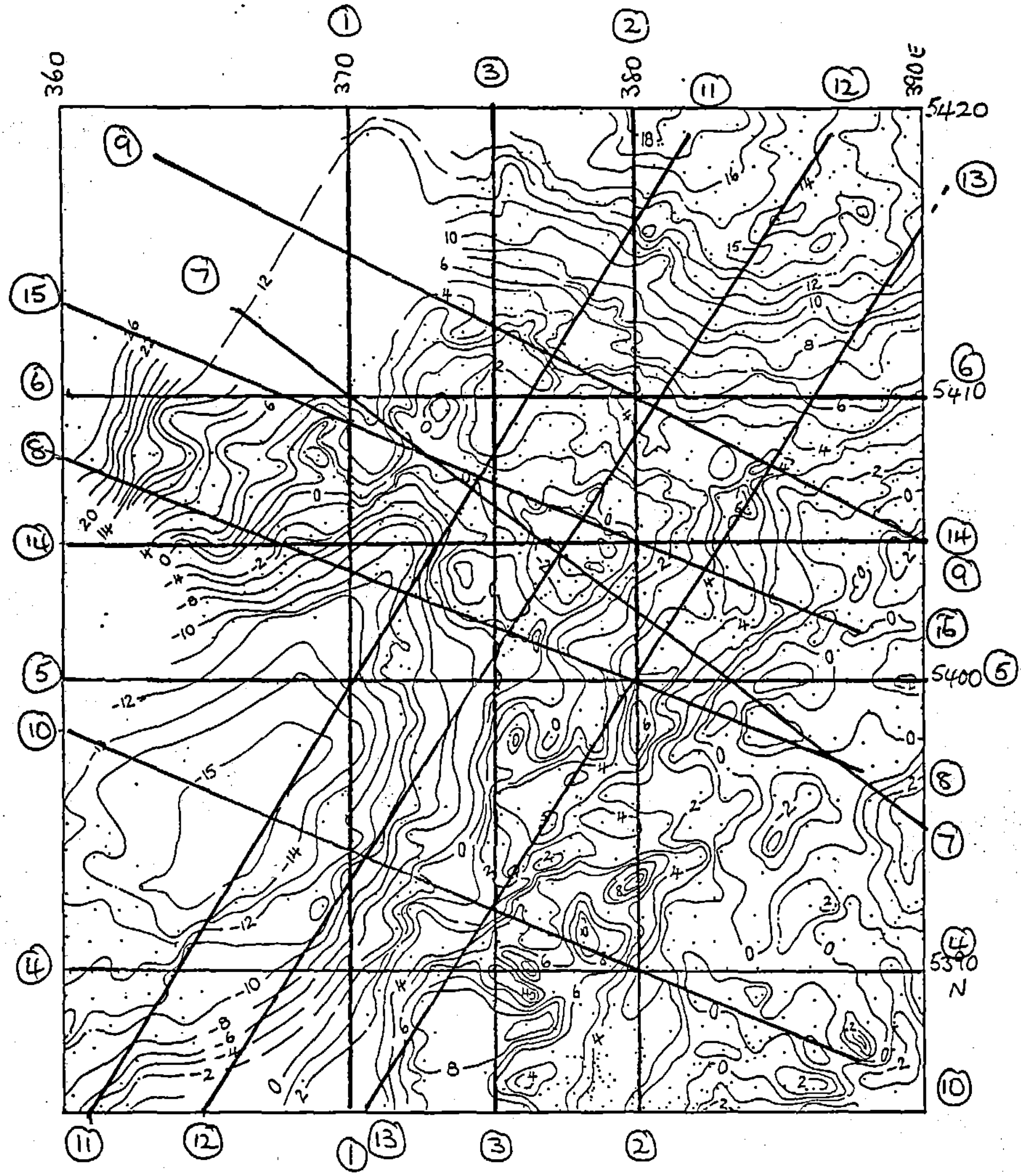
021087



TRENDS WARATAH REGION

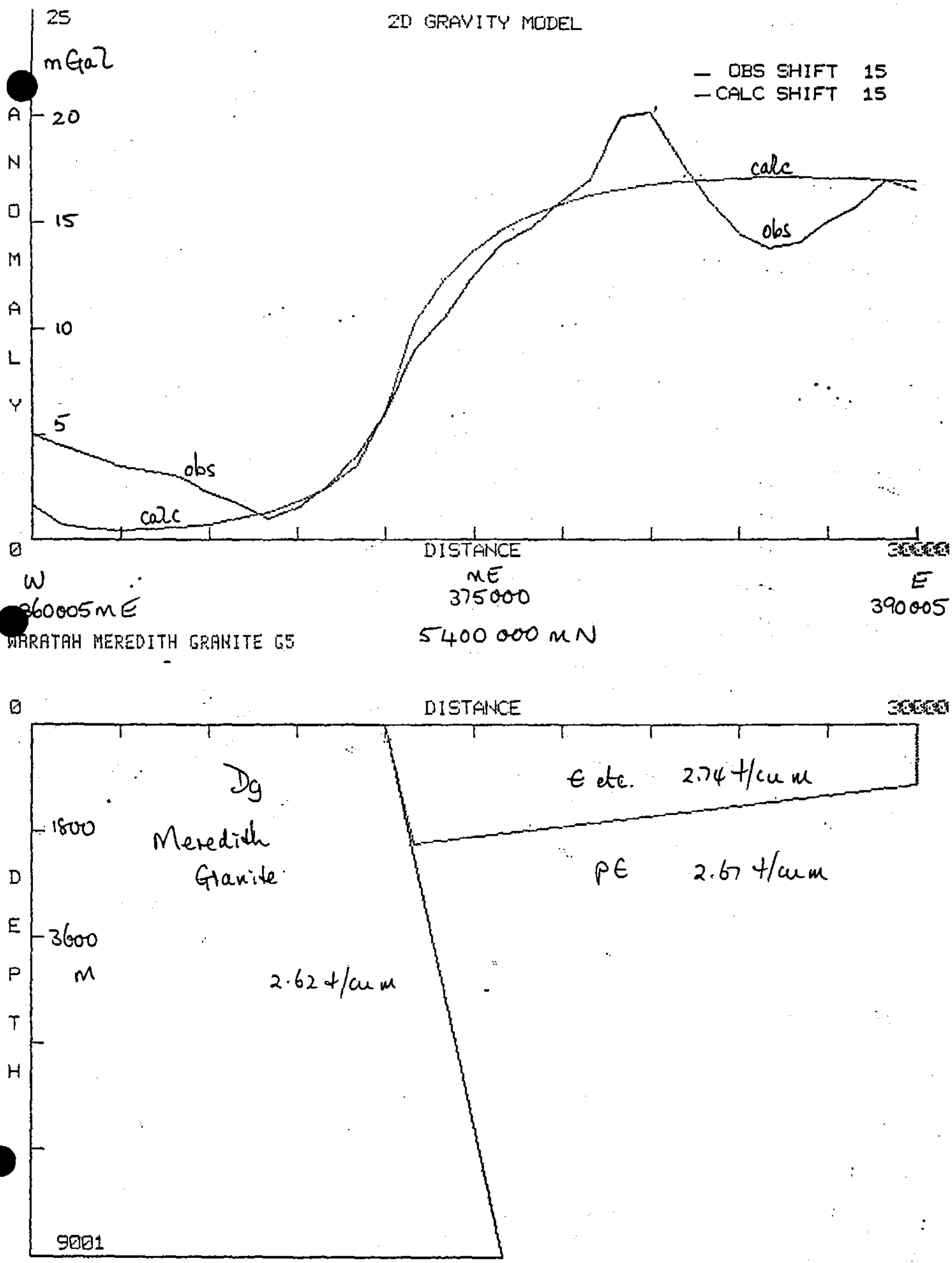
FIGURE 4



LOCATION OF PROFILES REFERRED TO IN TEXT FIGURE 5

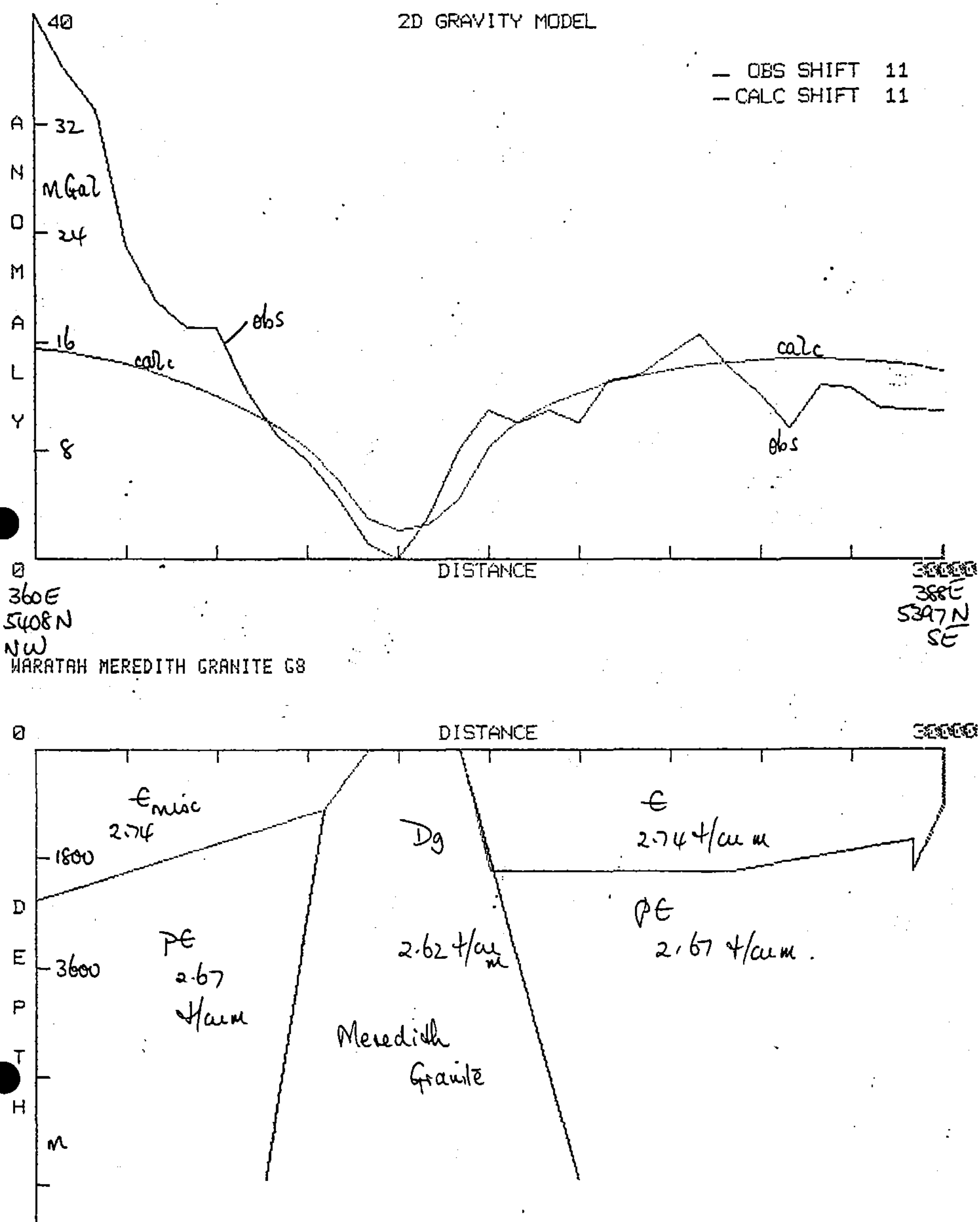
LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 30000 1000

021089



WARATAH AREA 2D MODEL LINE 5 FIGURE 6

021090

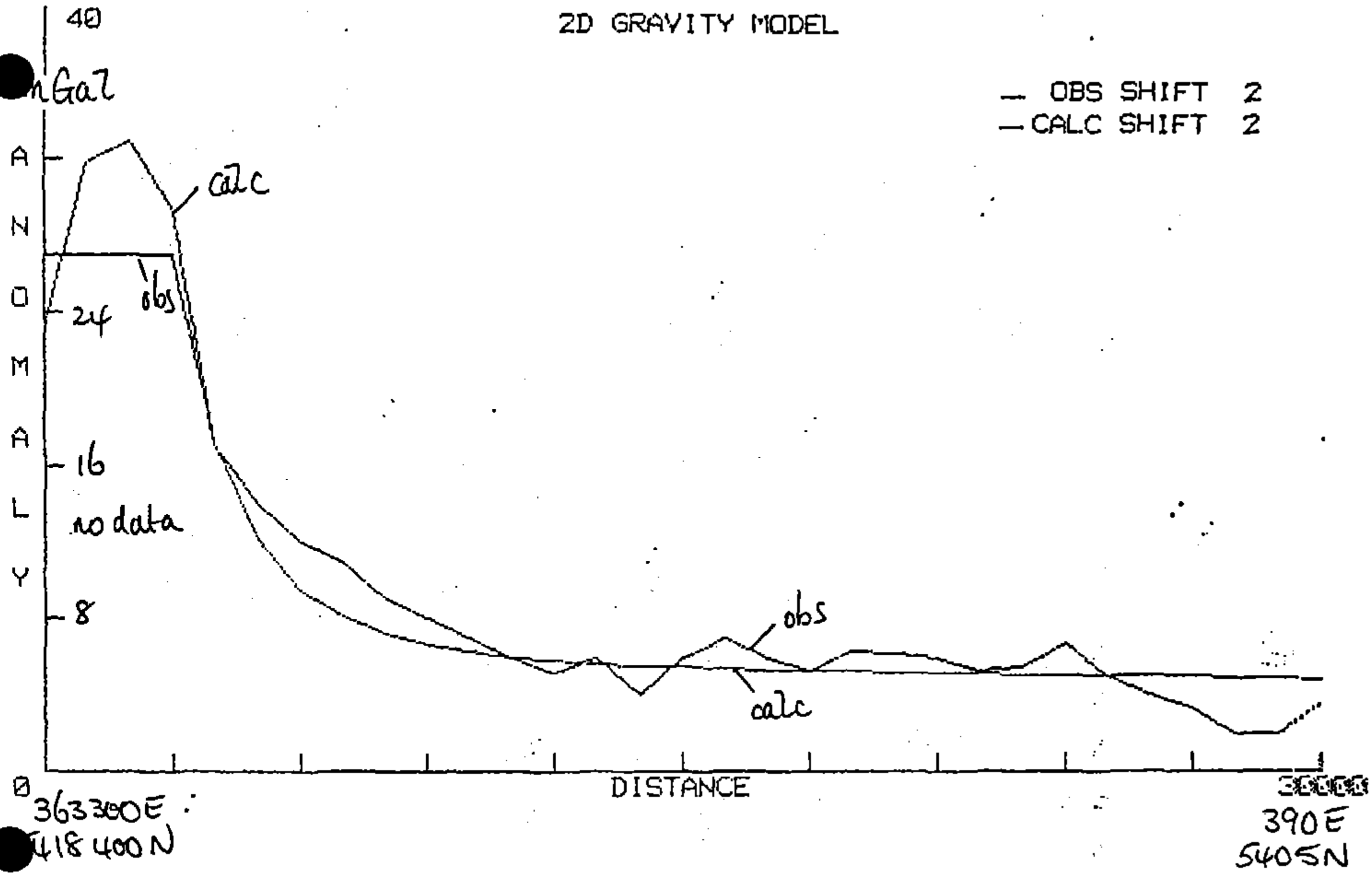


WARATAH AREA 2D MODEL LINE 8

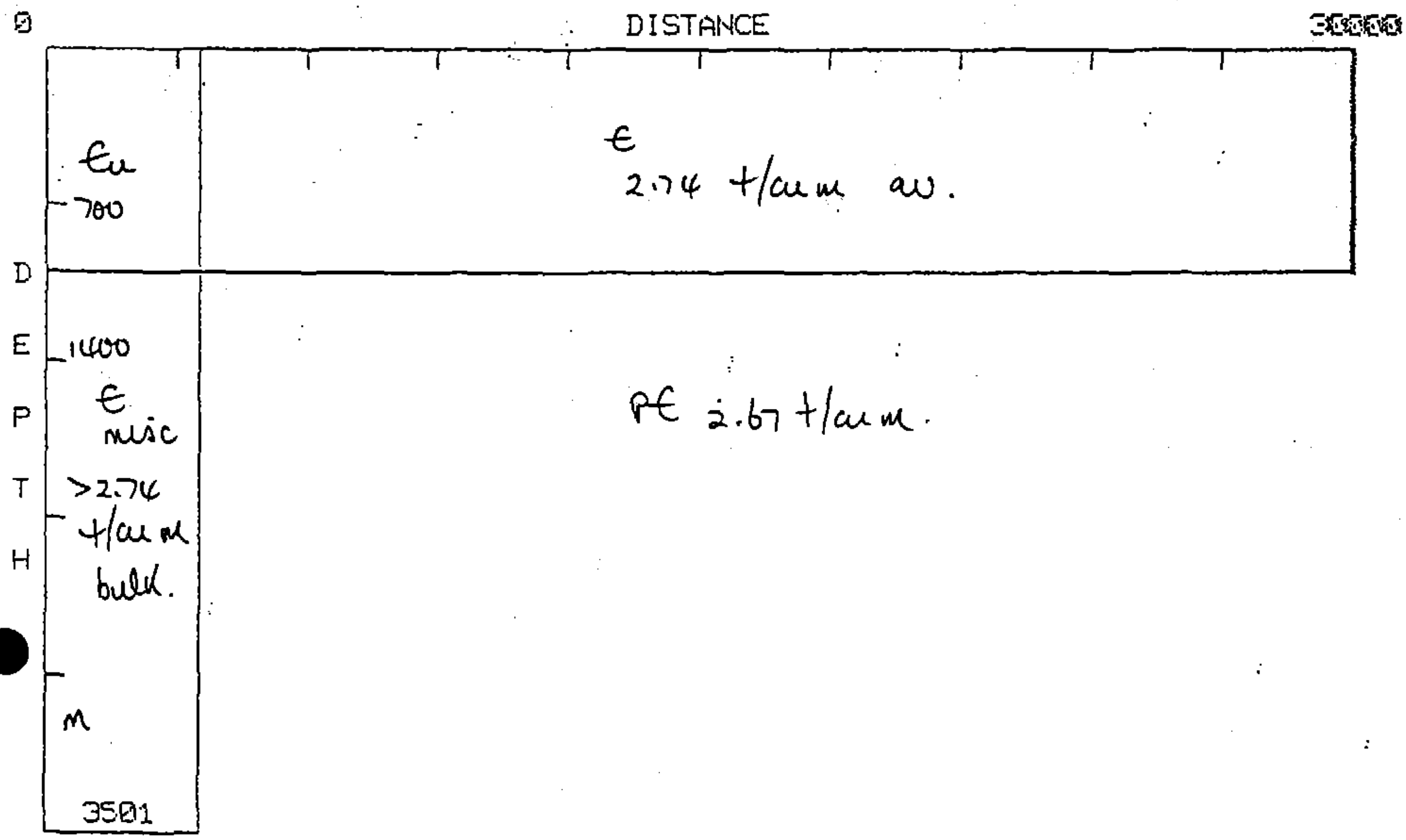
FIGURE 7

021091

LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 30000 1000



WARATAH MEREDITH GRANITE G9

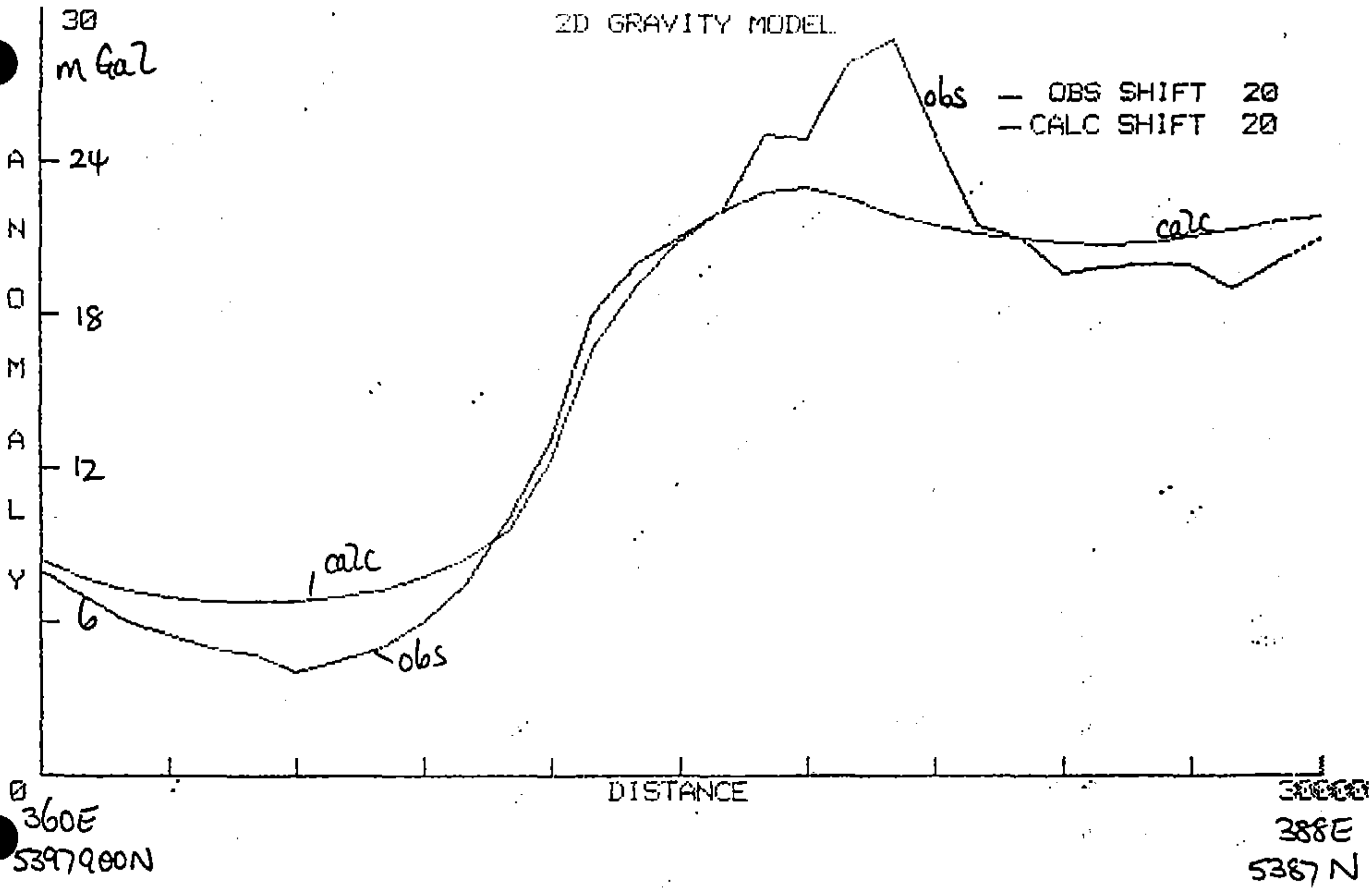


WARATAH AREA 2D MODEL LINE 9 FIGURE 8

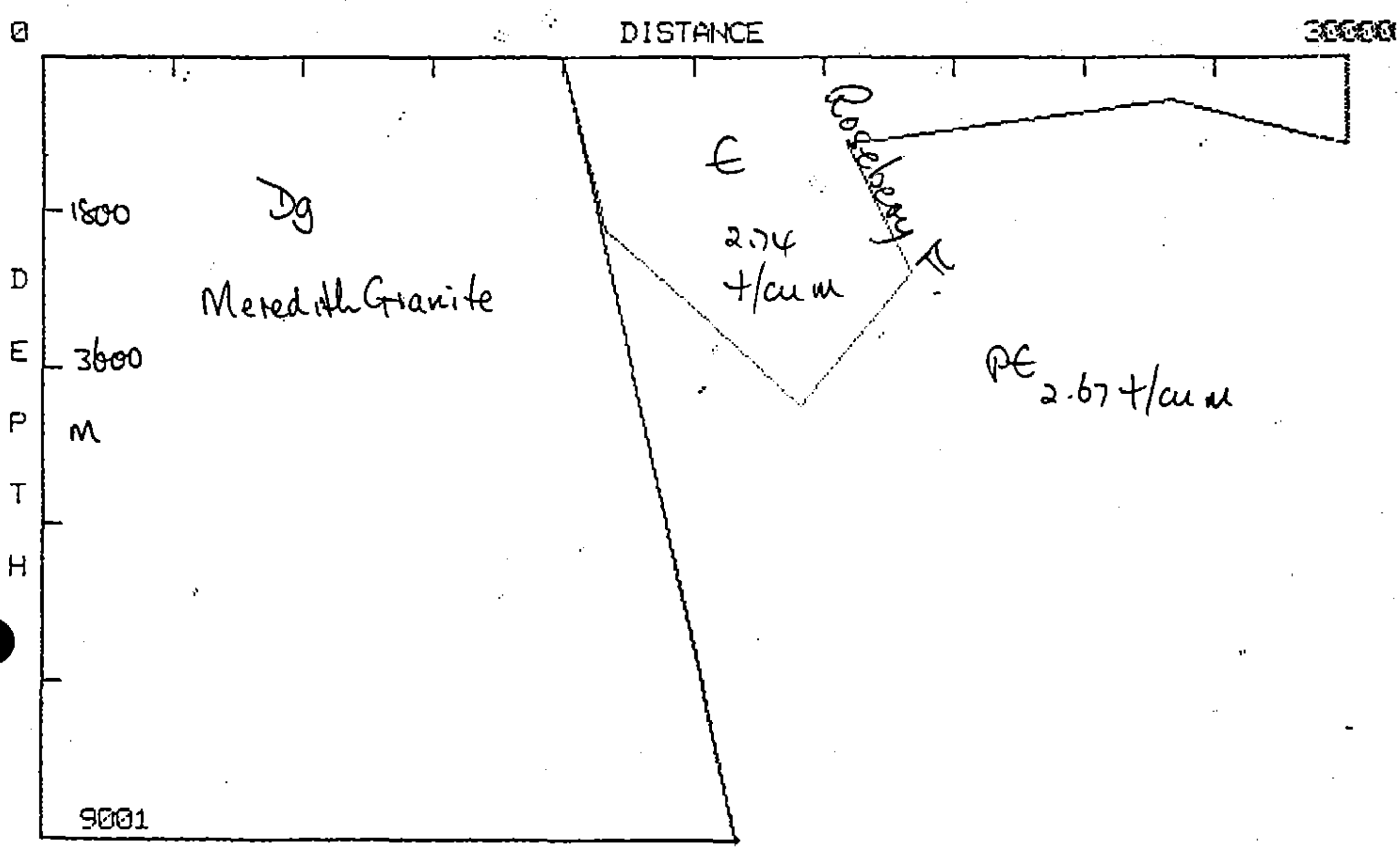
20000 2500 17500 4000 12000 2000

LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 30000 1000

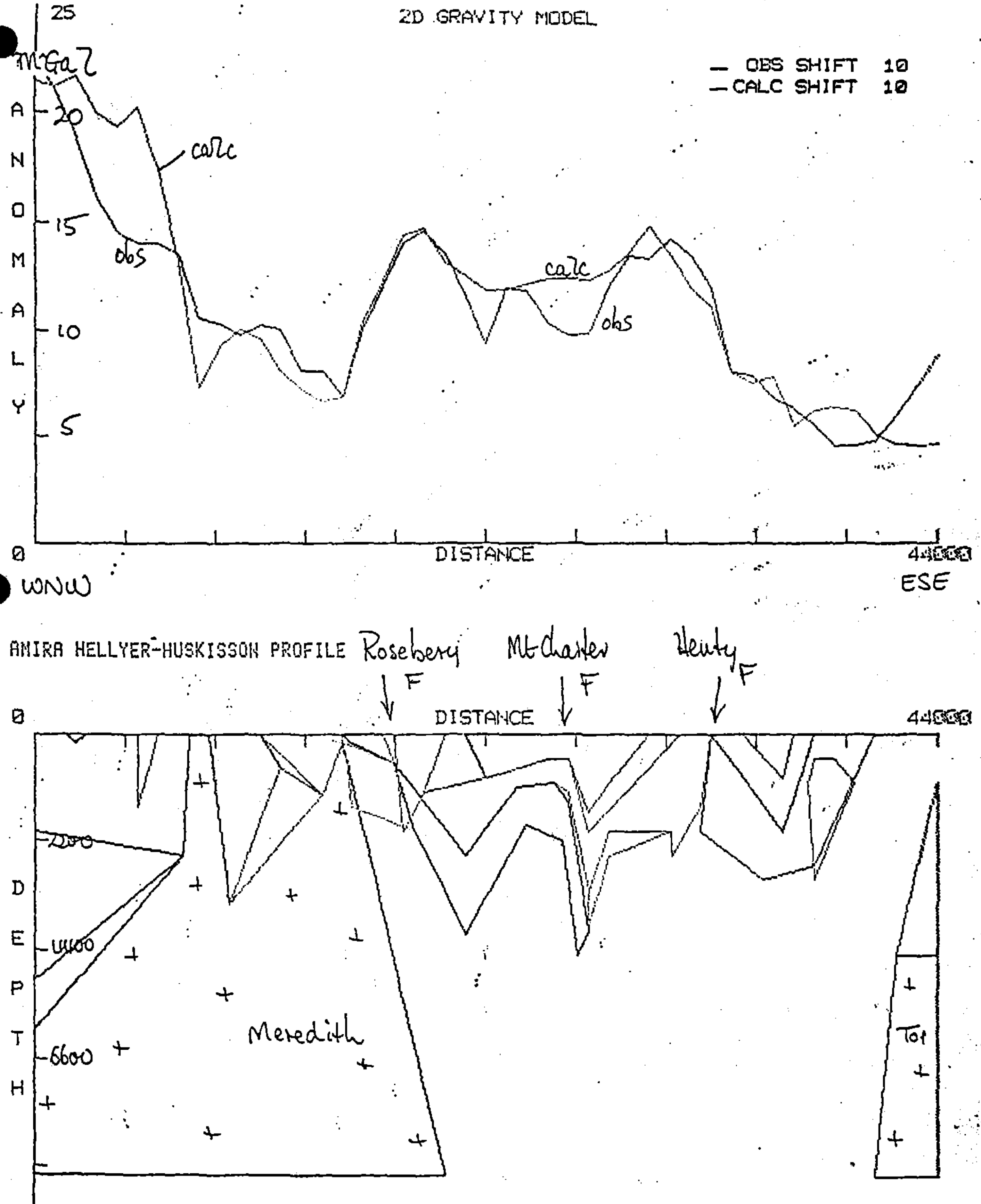
021092



WARATAH MEREDITH GRANITE G10



WARATAH AREA 2D MODEL LINE 10 FIGURE 9



10999 m

WARATAH AREA 2D GRAVITY MODEL LINE 7

(GRAVITY)

D Leaman
Jan 91

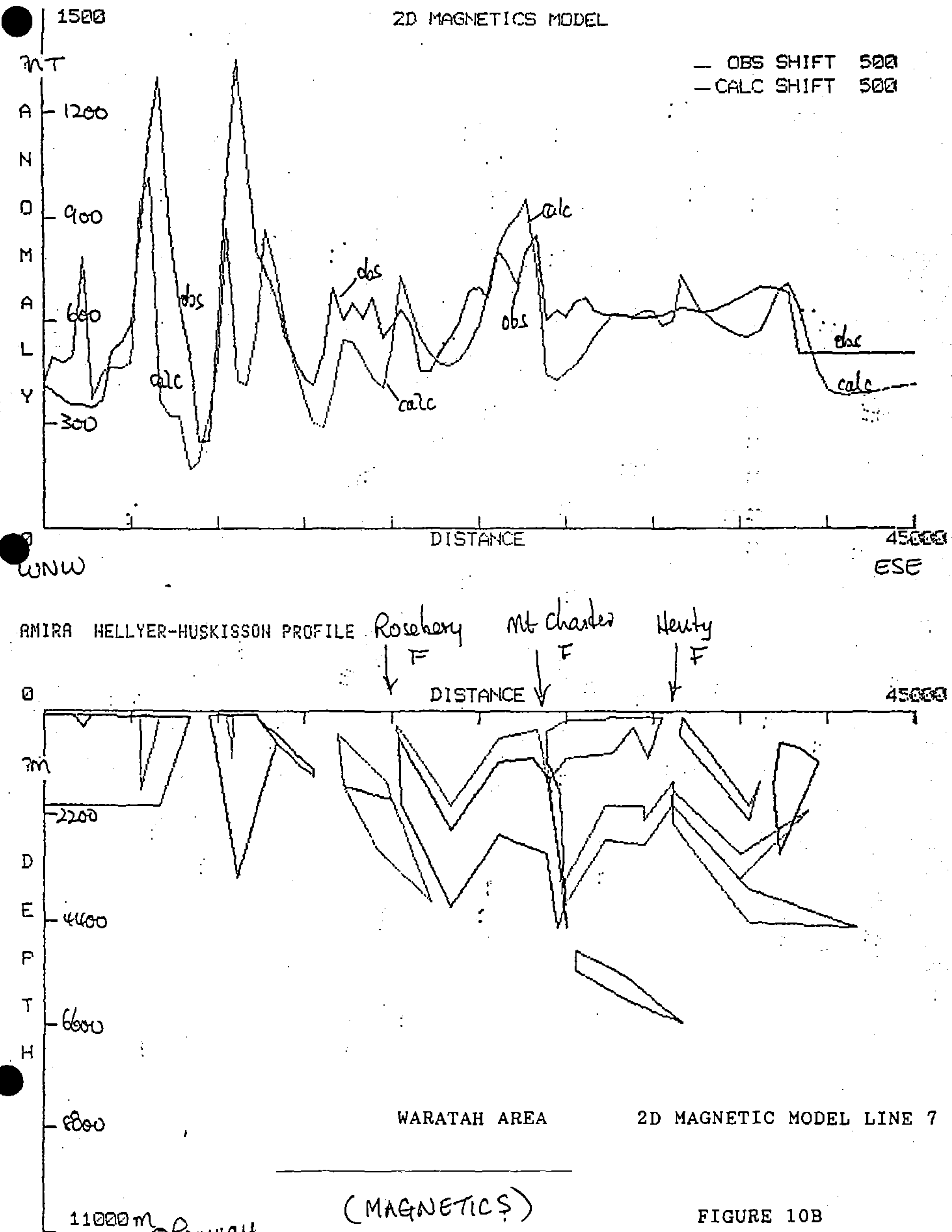
FIGURE 10A

FIELD DATA

INTENSITY	INCLINATION	DECLINATION	OBS LEVEL	LINE DIRECTION
61500.0	-71.0	13.0	0.0	125.0

021094

LINE PARAMETERS - ORIGIN,LIMIT,INCR : 0 45000 500

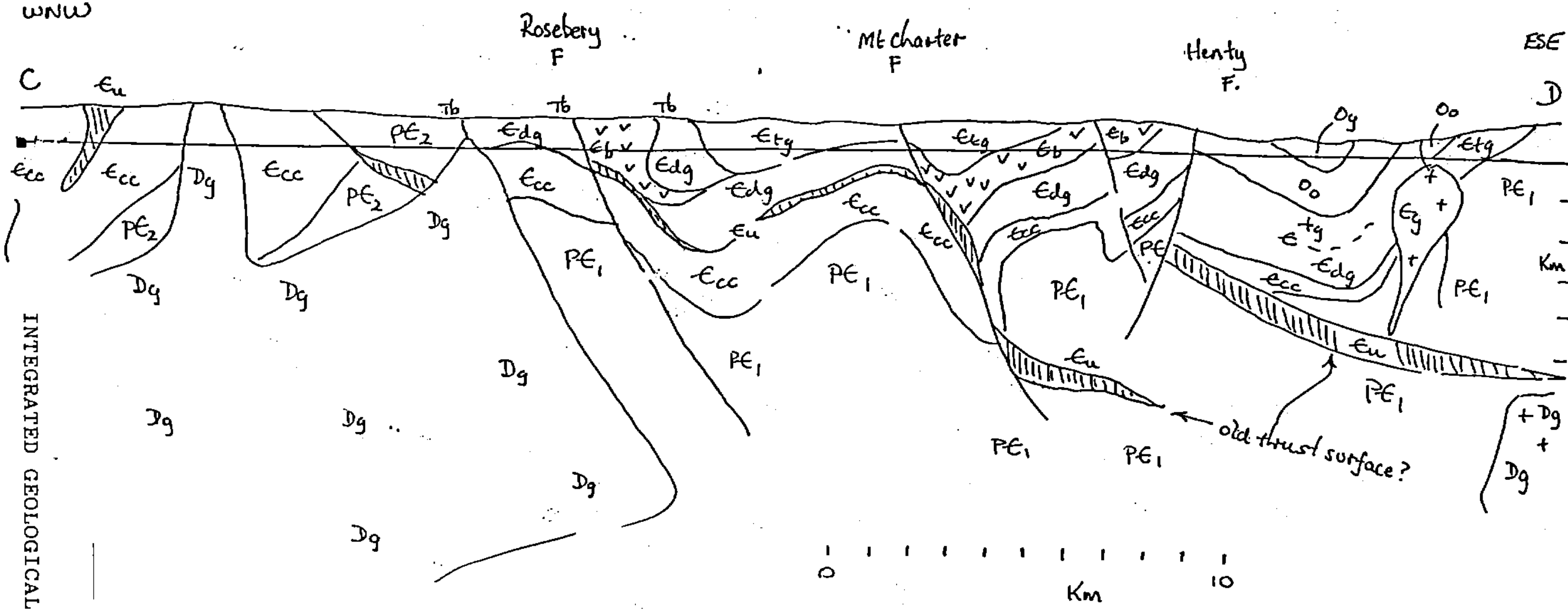


WARATAH AREA 2D MAGNETIC MODEL LINE 7

(MAGNETICS)

FIGURE 10B

D. Leaman Jan 91



POSSIBLE ALTERNATE SECTION ; HUSKISSON – QUE/HELLYER MACKINTOSH REGION

Note: solution consistent with gravity/magnetic data
other structural configurations (incl thrusted
sequences) not tested.

D.E. Leaman
Jan 91

INTEGRATED GEOLOGICAL SECTION FOR LINE 7
FIGURE 10C

WARATAH AREA

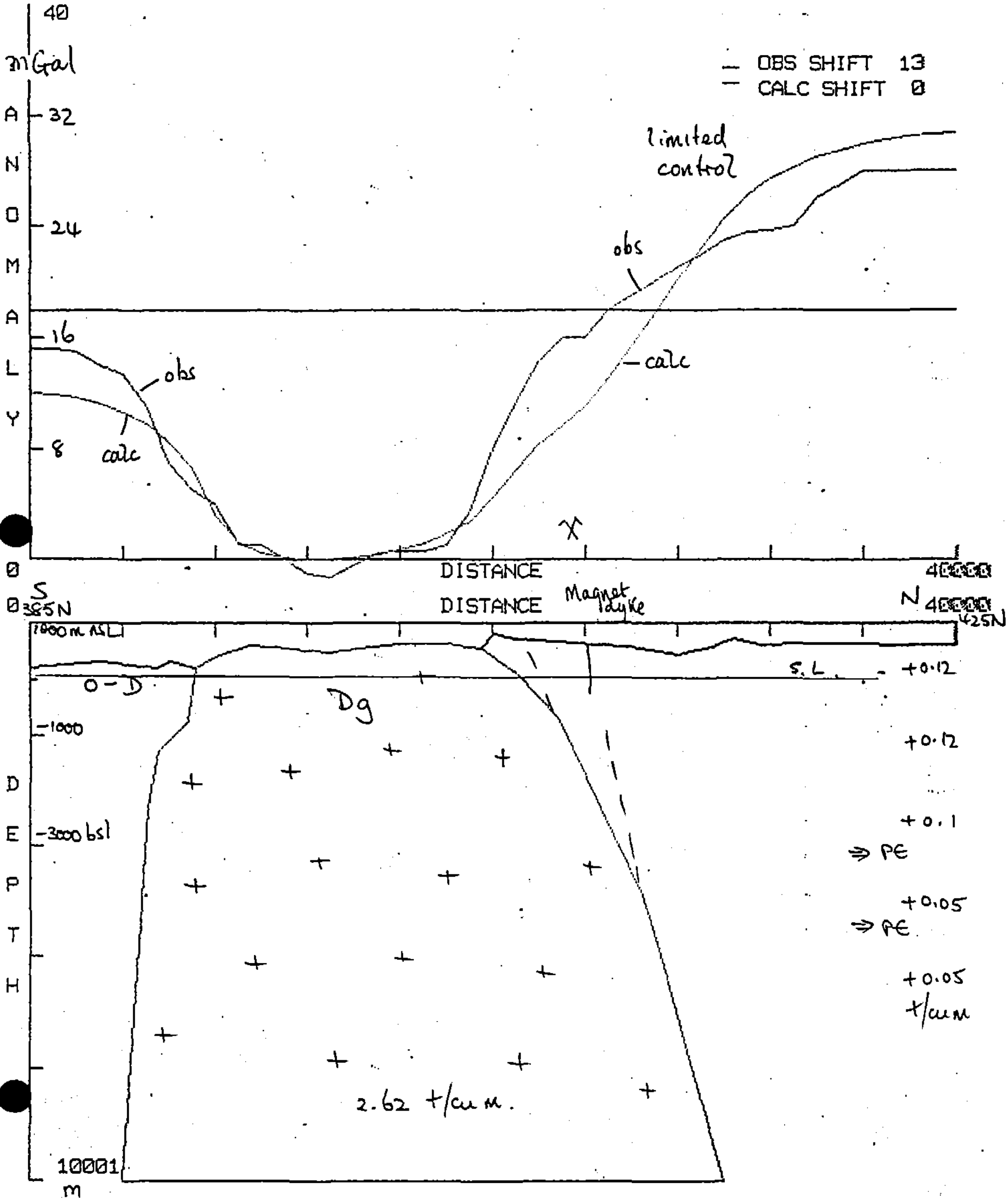
021095

PROFILE EVALUATION
LEAMAN GEOPHYSICS

021096

0 1.00 B:WARG1
1 1.00 B:GRNAL1
2 1.00 B:GRNCDL1
3 -0.50 B:HEAZ3L1

ZERO SHIFT : 17.96951

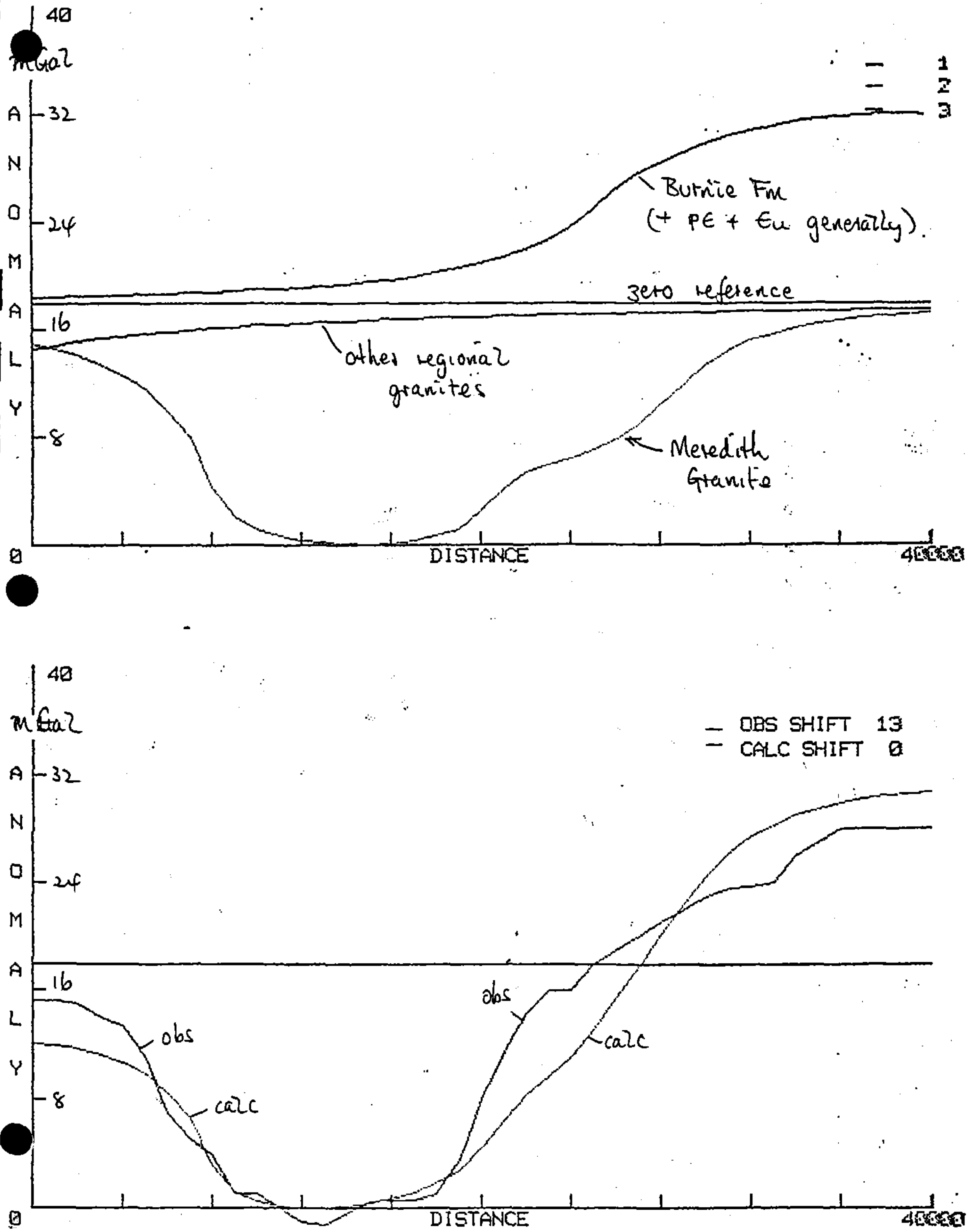


WARATAH AREA 3D MODEL LINE 1 FIGURE 11

021097

0 1.00 B:WARG1
1 1.00 B:GRNAL1
2 1.00 B:GRNCDL1
3 -0.50 B:HEAZ3L1

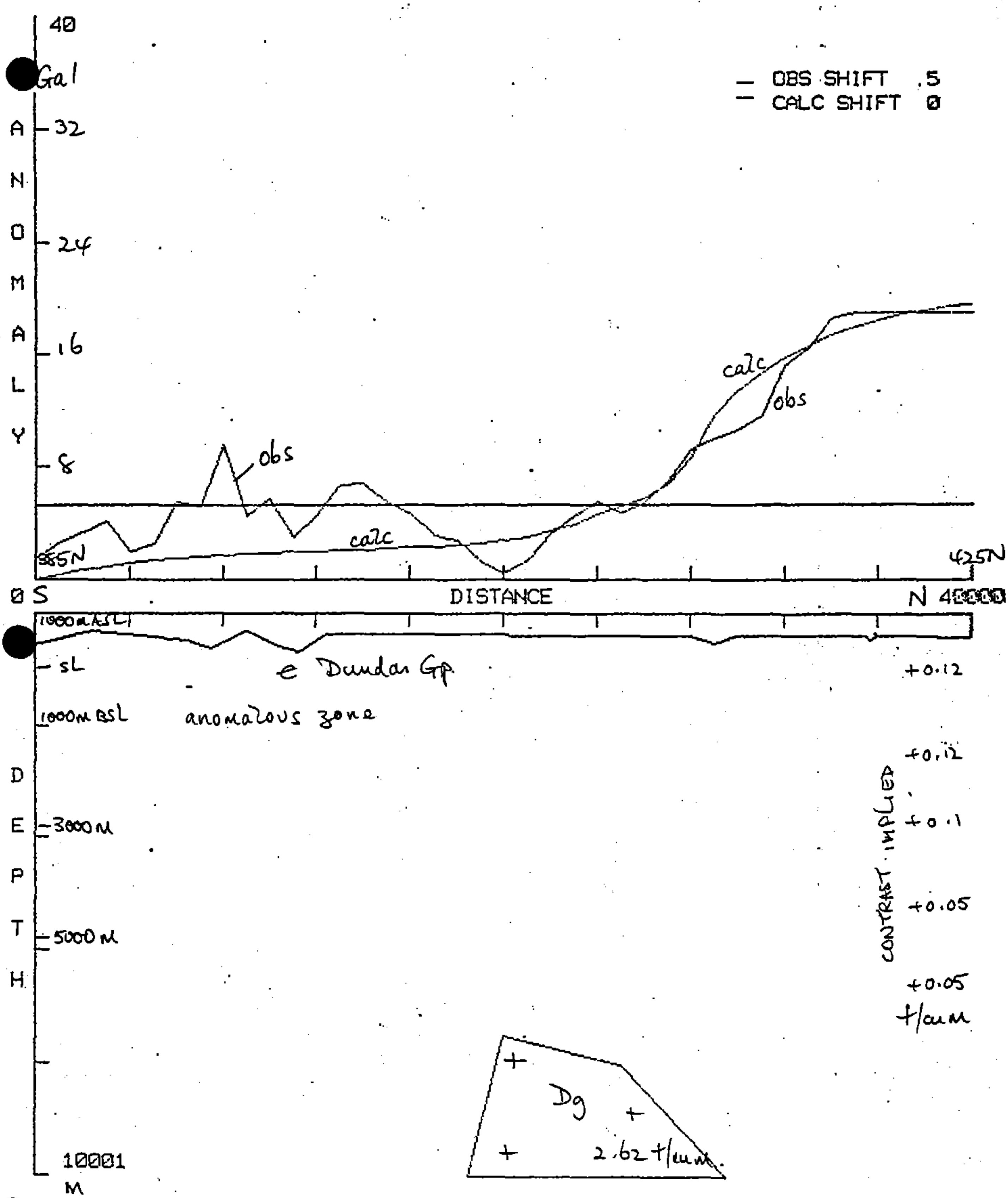
ZERO SHIFT : 17.96951



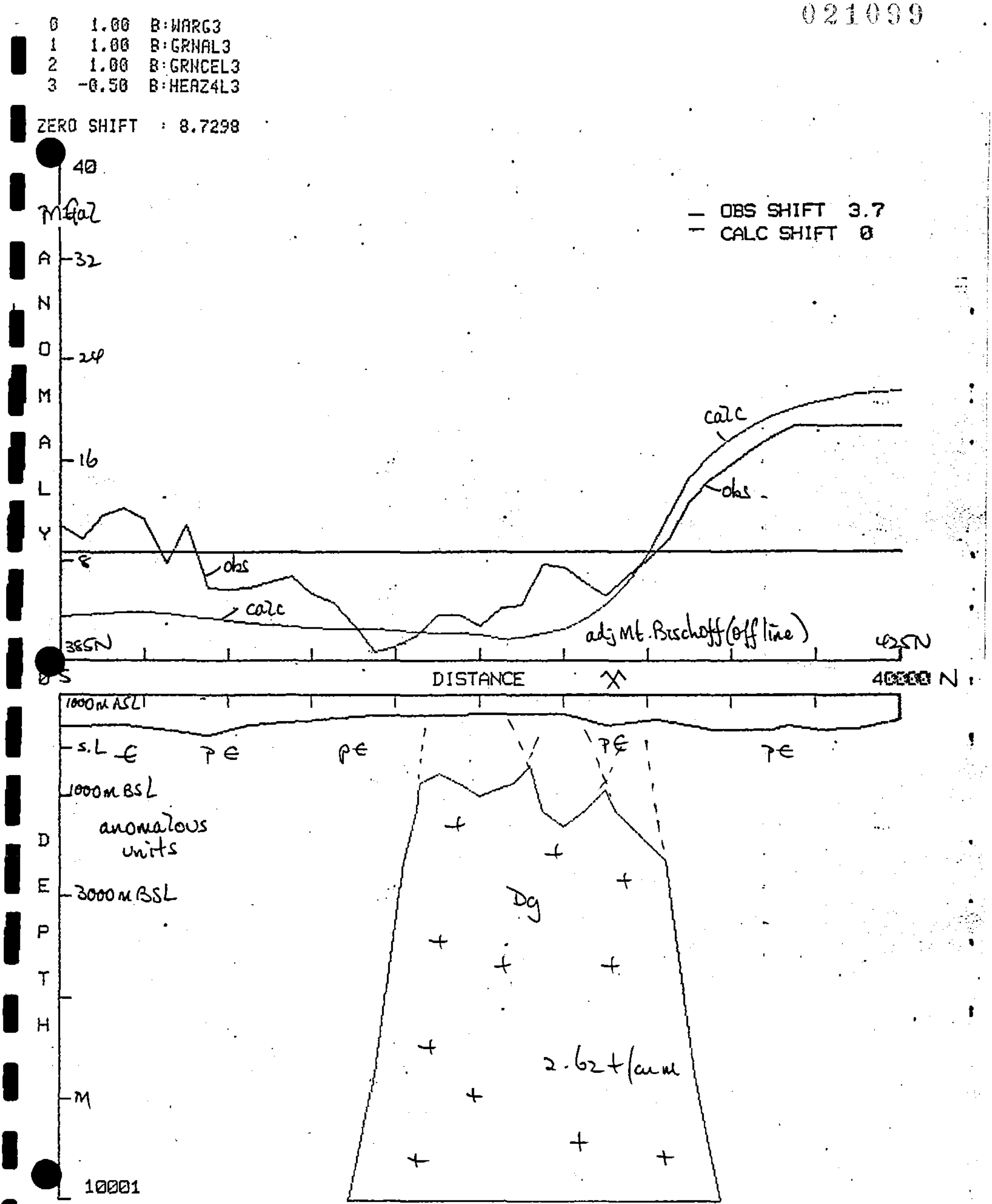
WARATAH AREA 3D MODEL COMPONENTS LINE 1 FIGURE 12

2 1.0
3 -0.6

ZERO SHIFT : 5.276319



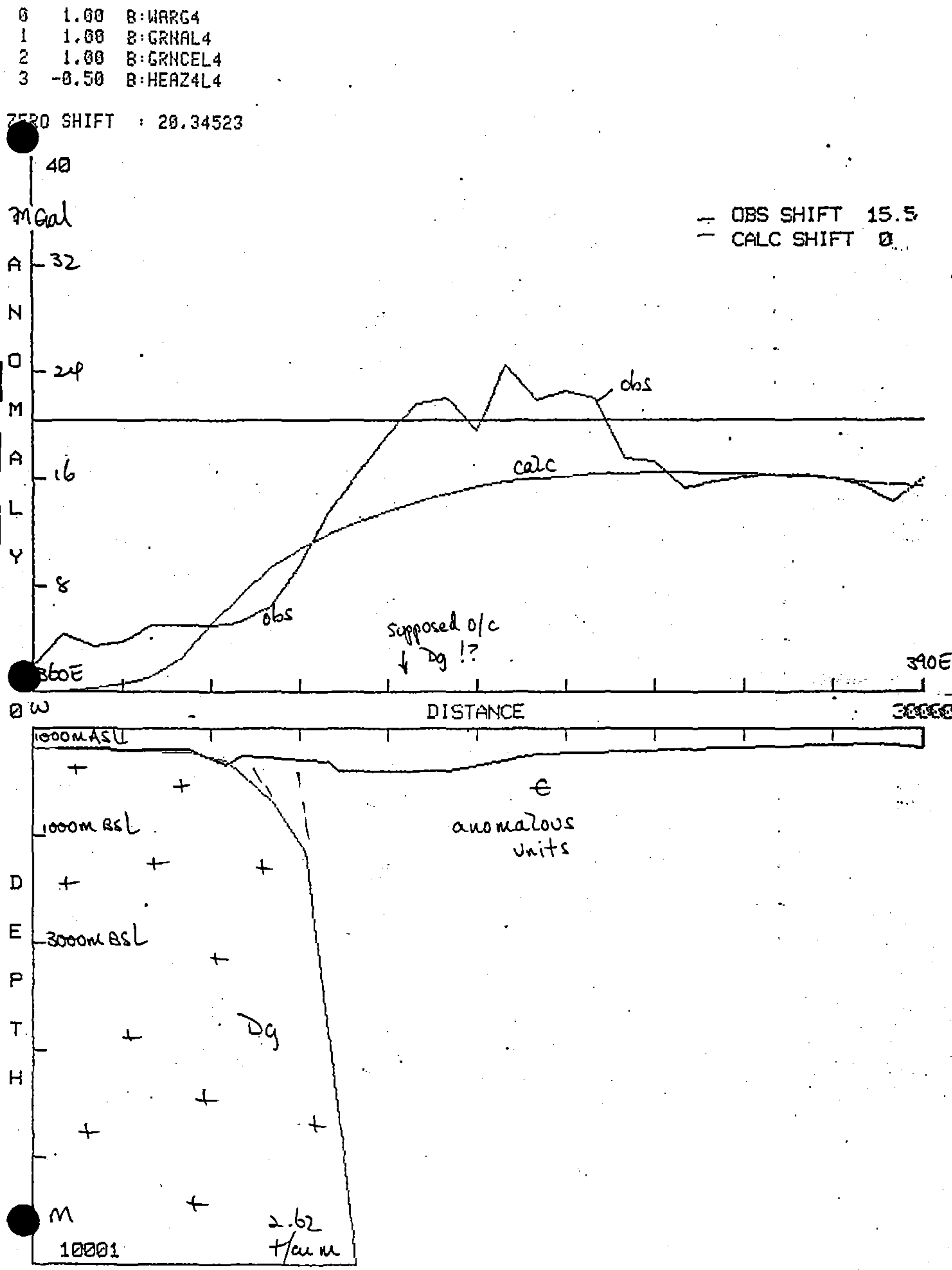
WARATAH AREA 3D MODEL LINE 2 FIGURE 13



WARATAH AREA 3D MODEL LINE 3

FIGURE 14

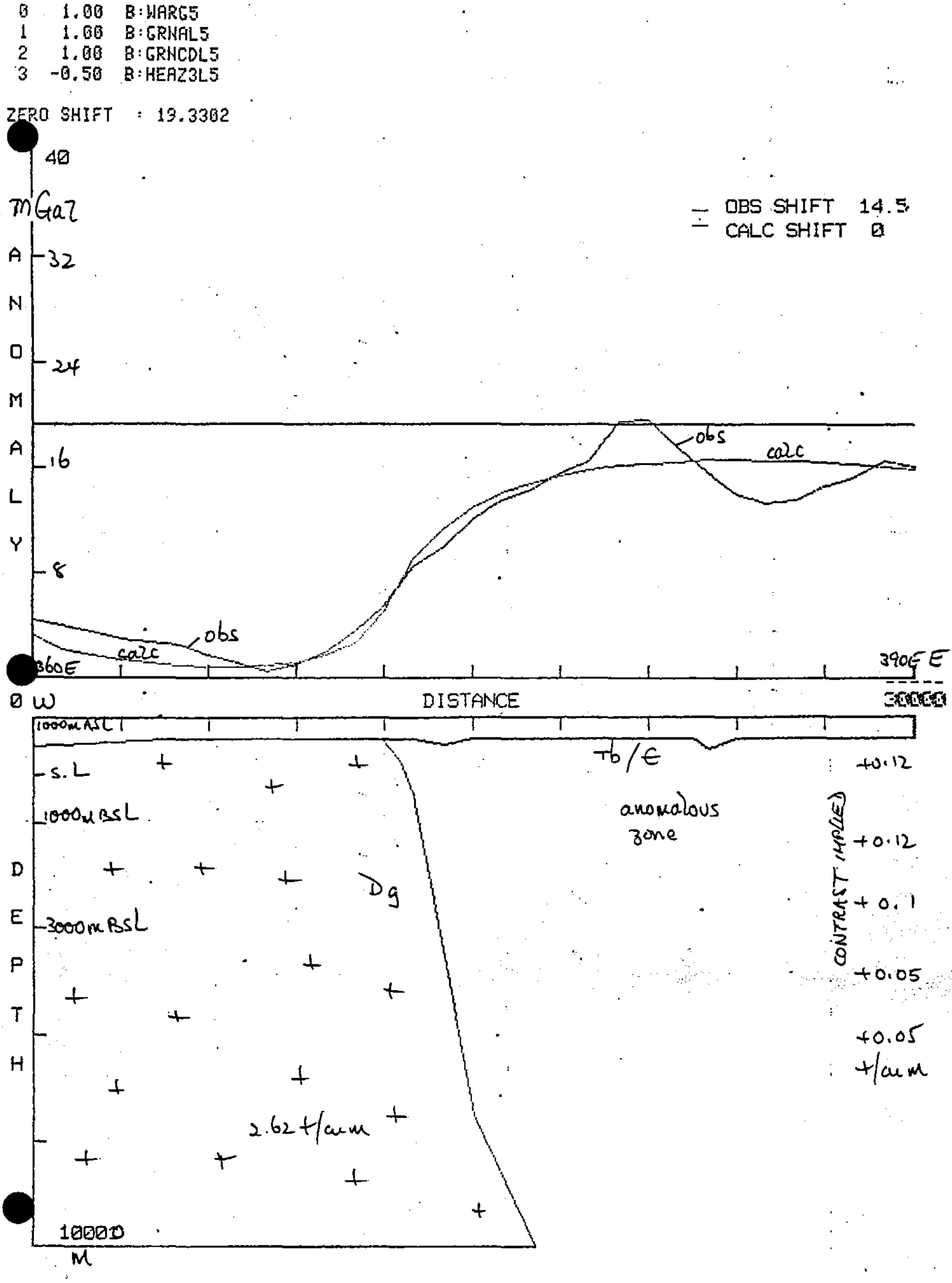
PROFILE EVALUATION
LEAMAN GEOPHYSICS



WARATAH AREA 3D MODEL LINE 4

FIGURE 15

PROFILE EVALUATION
LEAMAN GEOPHYSICS



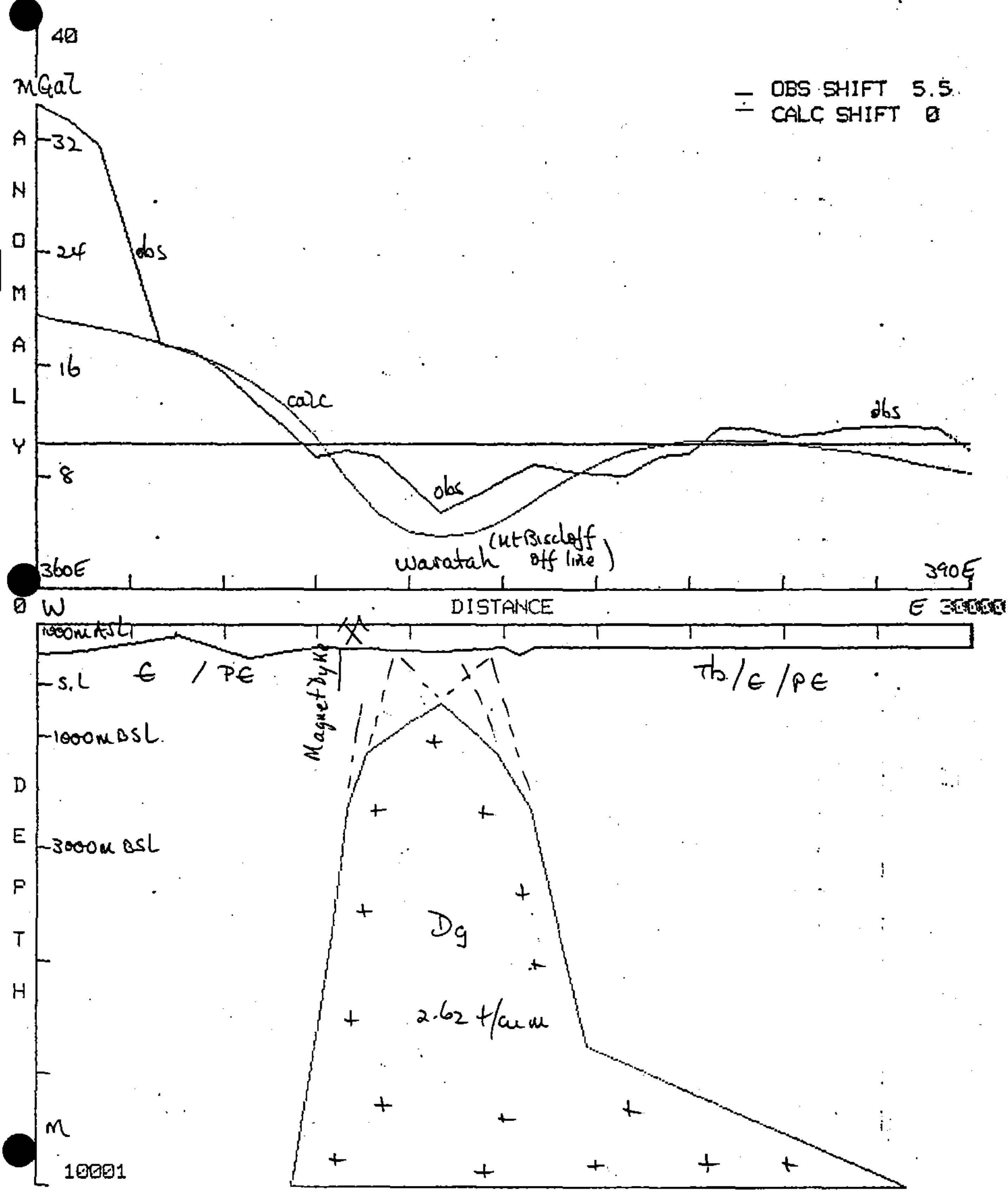
WARATAH AREA 3D MODEL LINE 5 FIGURE 16

PROFILE EVALUATION
LEAMAN GEOPHYSICS

021102

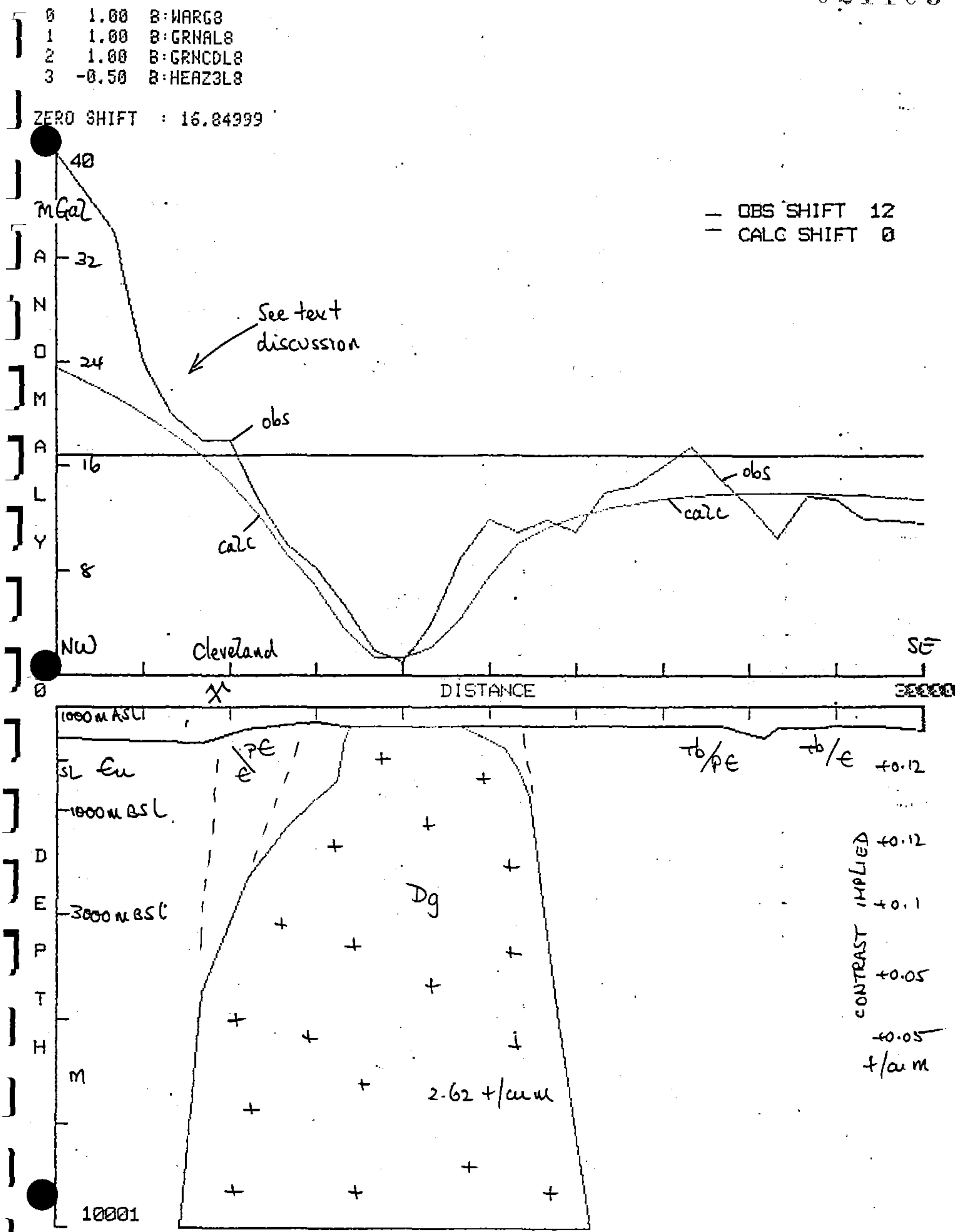
```
0    1.00   B:WARG6
1    1.00   B:GRNAL6
2    1.00   B:GRNCEL6
3   -0.50   B:HEAZ4L6
```

ZERO SHIFT : 10.37244



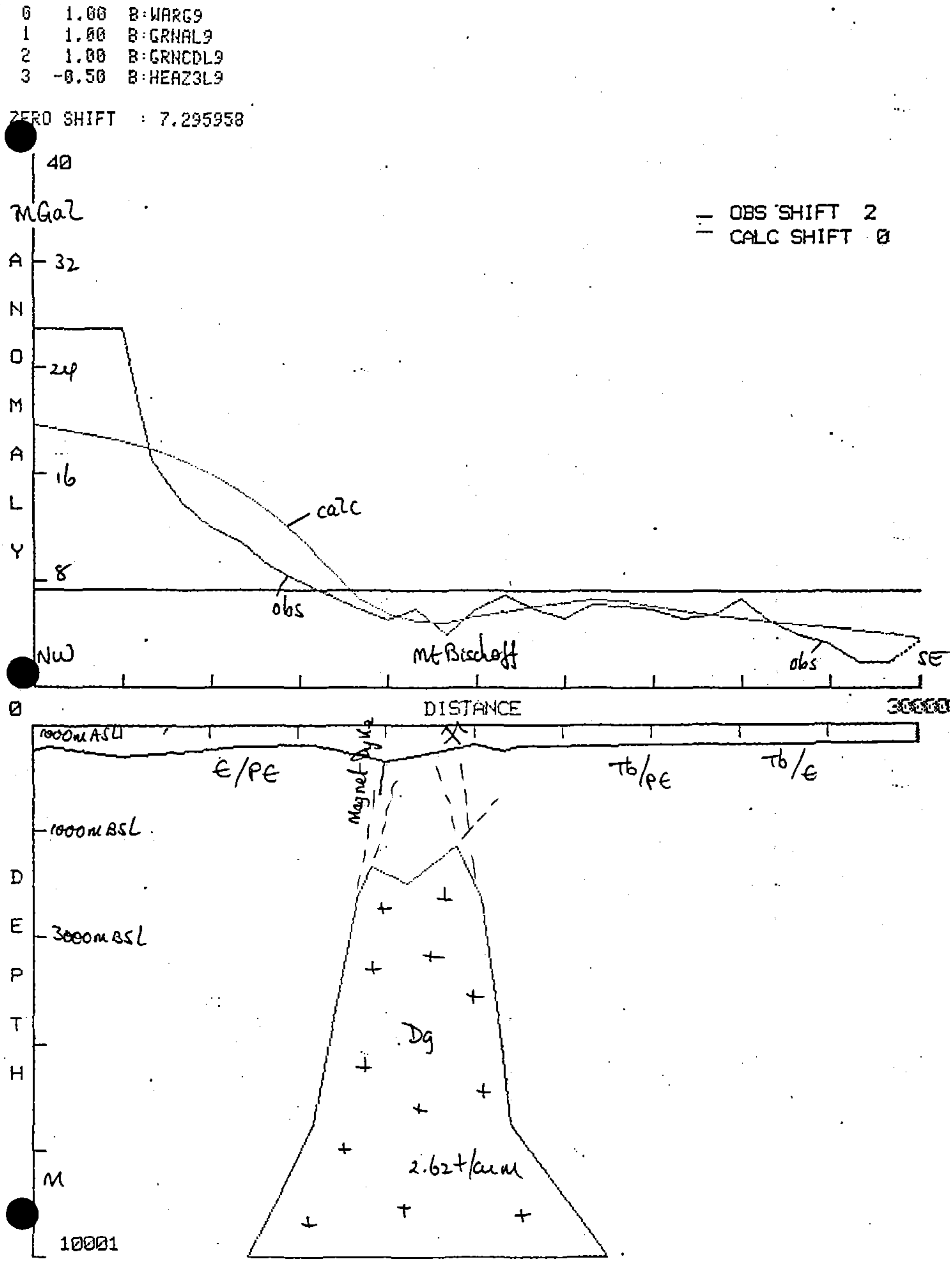
WARATAH AREA   3D MODEL   LINE 6   FIGURE 17

PROFILE EVALUATION
LEAMAN GEOPHYSICS



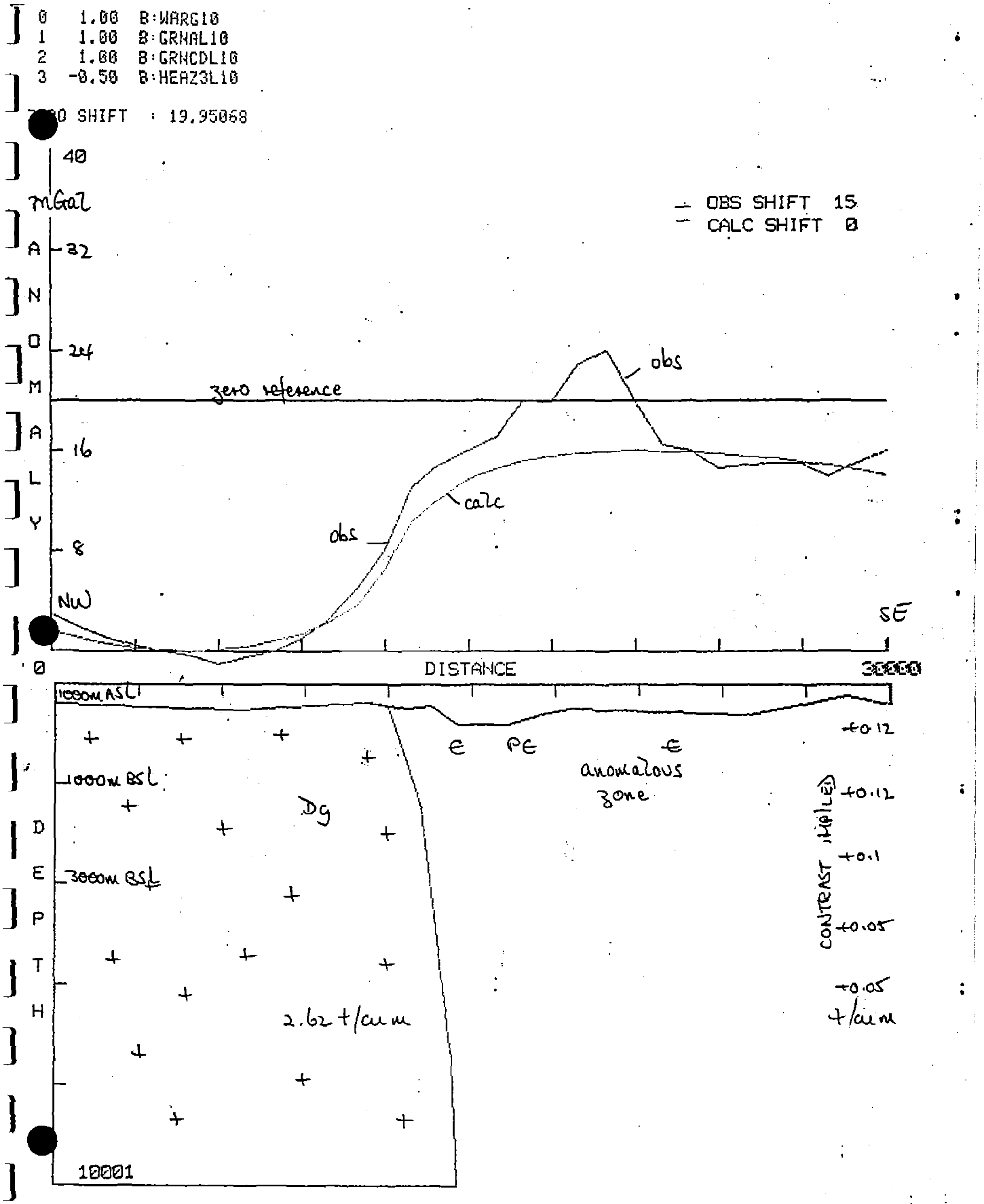
WARATAH AREA 3D MODEL LINE 8 FIGURE 18

PROFILE EVALUATION
LEAMAN GEOPHYSICS



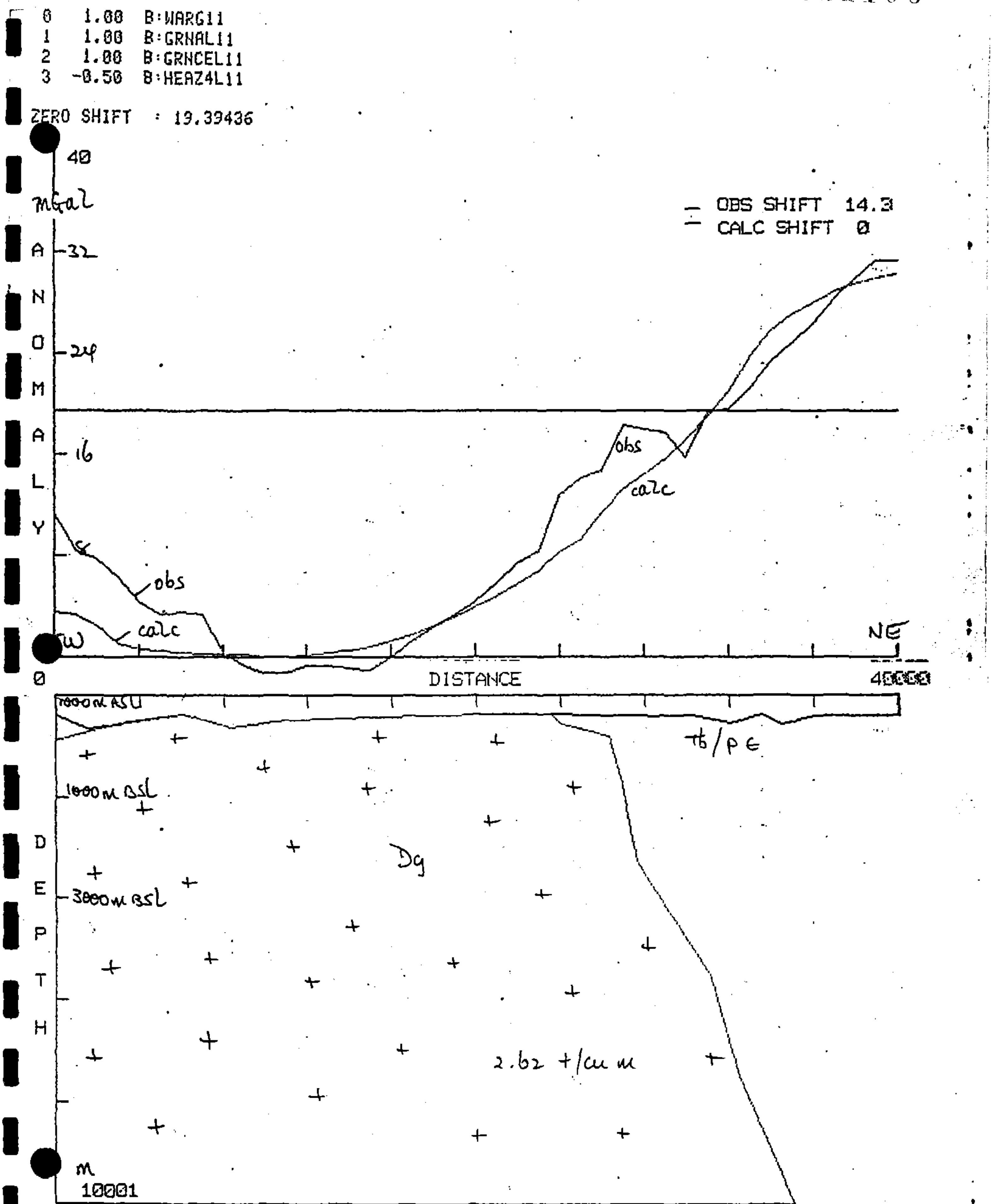
WARATAH AREA 3D MODEL LINE 9 FIGURE 19

PROFILE EVALUATION
LEAMAN GEOPHYSICS



WARATAH AREA 3D MODEL LINE 10 FIGURE 20

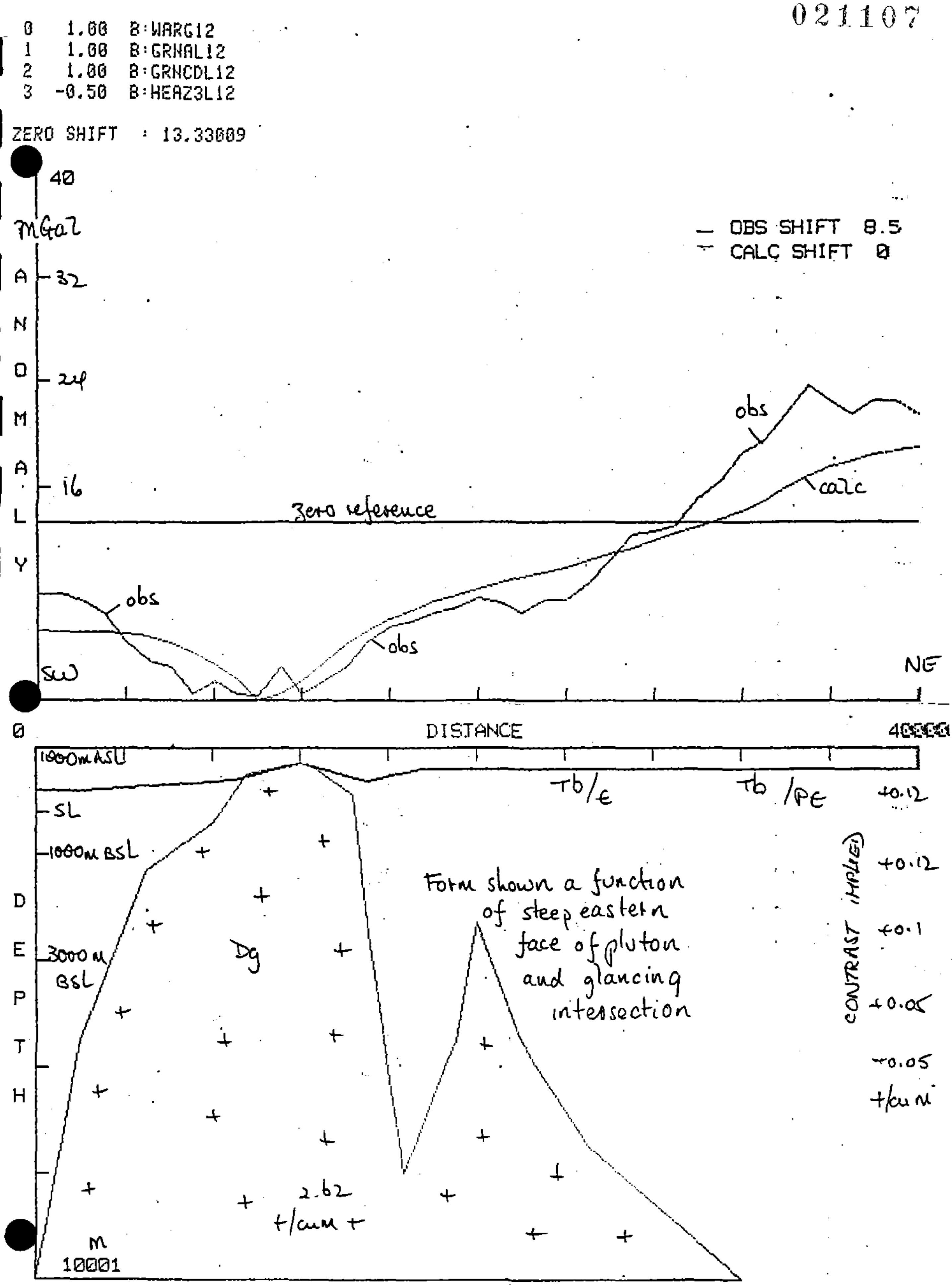
PROFILE EVALUATION
LEAMAN GEOPHYSICS



WARATAH AREA 3D MODEL LINE 11 FIGURE 21

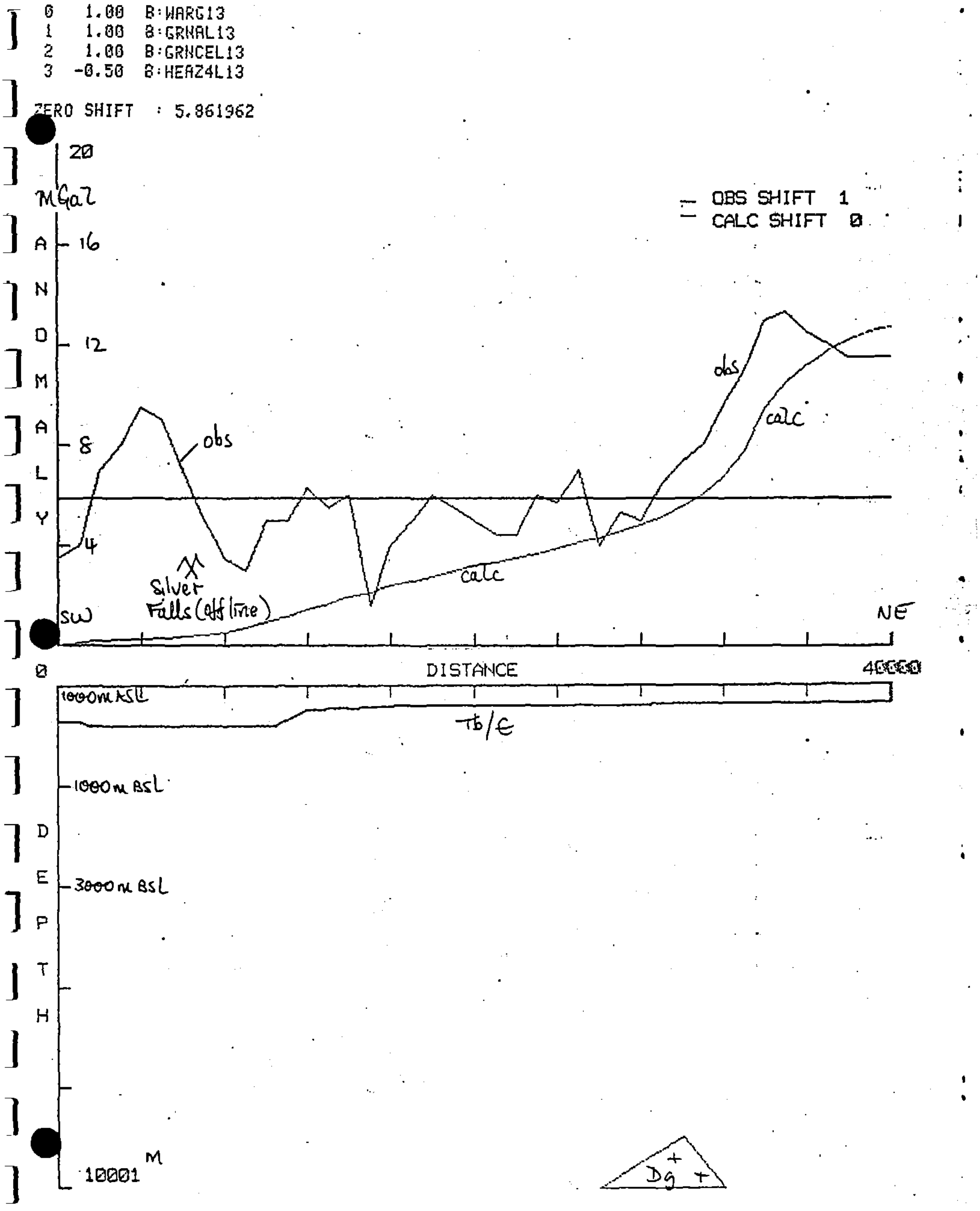
PROFILE EVALUATION
LEAMAN GEOPHYSICS

021107

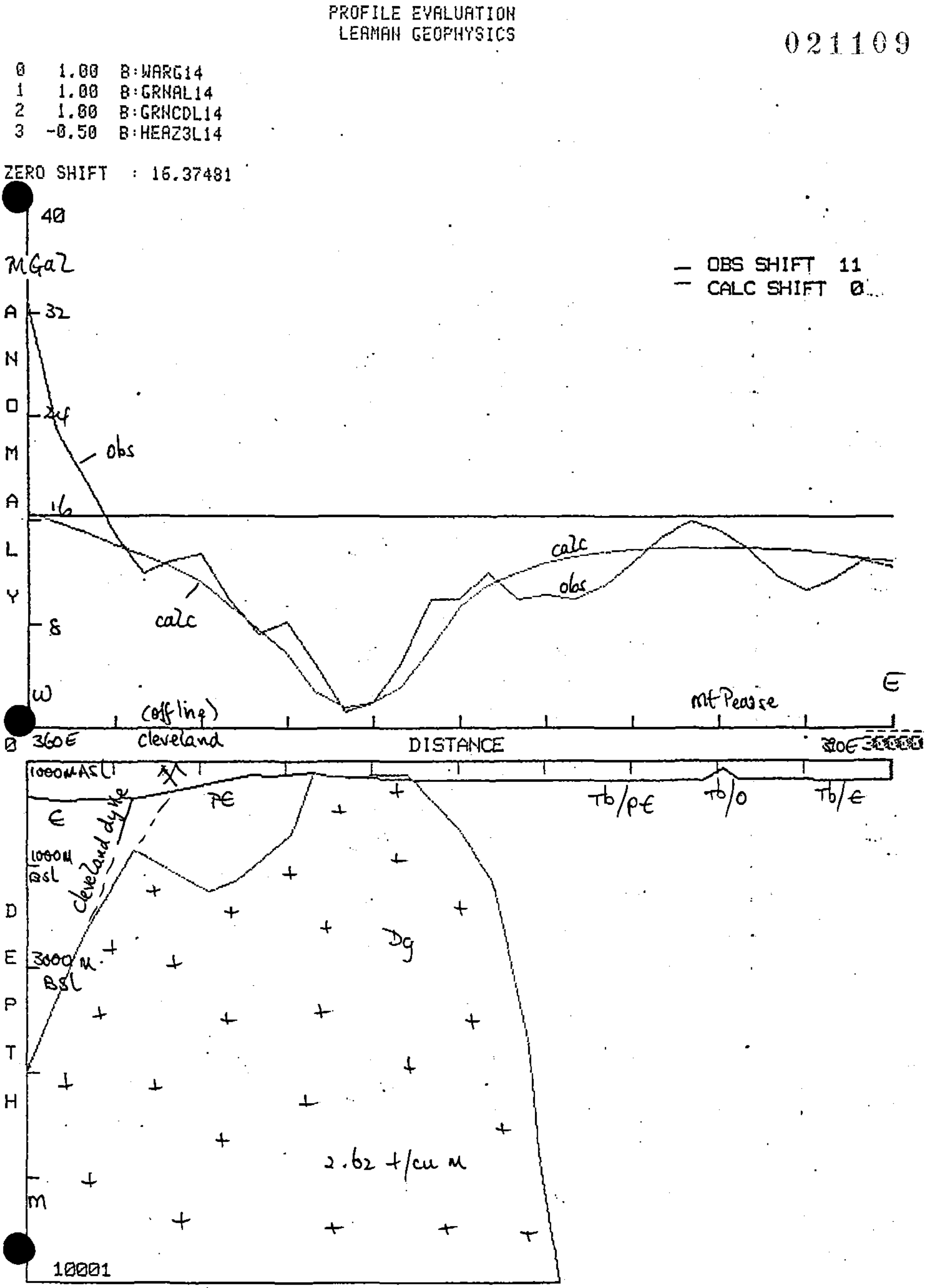


WARATAH AREA 3D MODEL LINE 12 FIGURE 22

PROFILE EVALUATION
LEAMAN GEOPHYSICS



WARATAH AREA 3D MODEL LINE 13 FIGURE 23



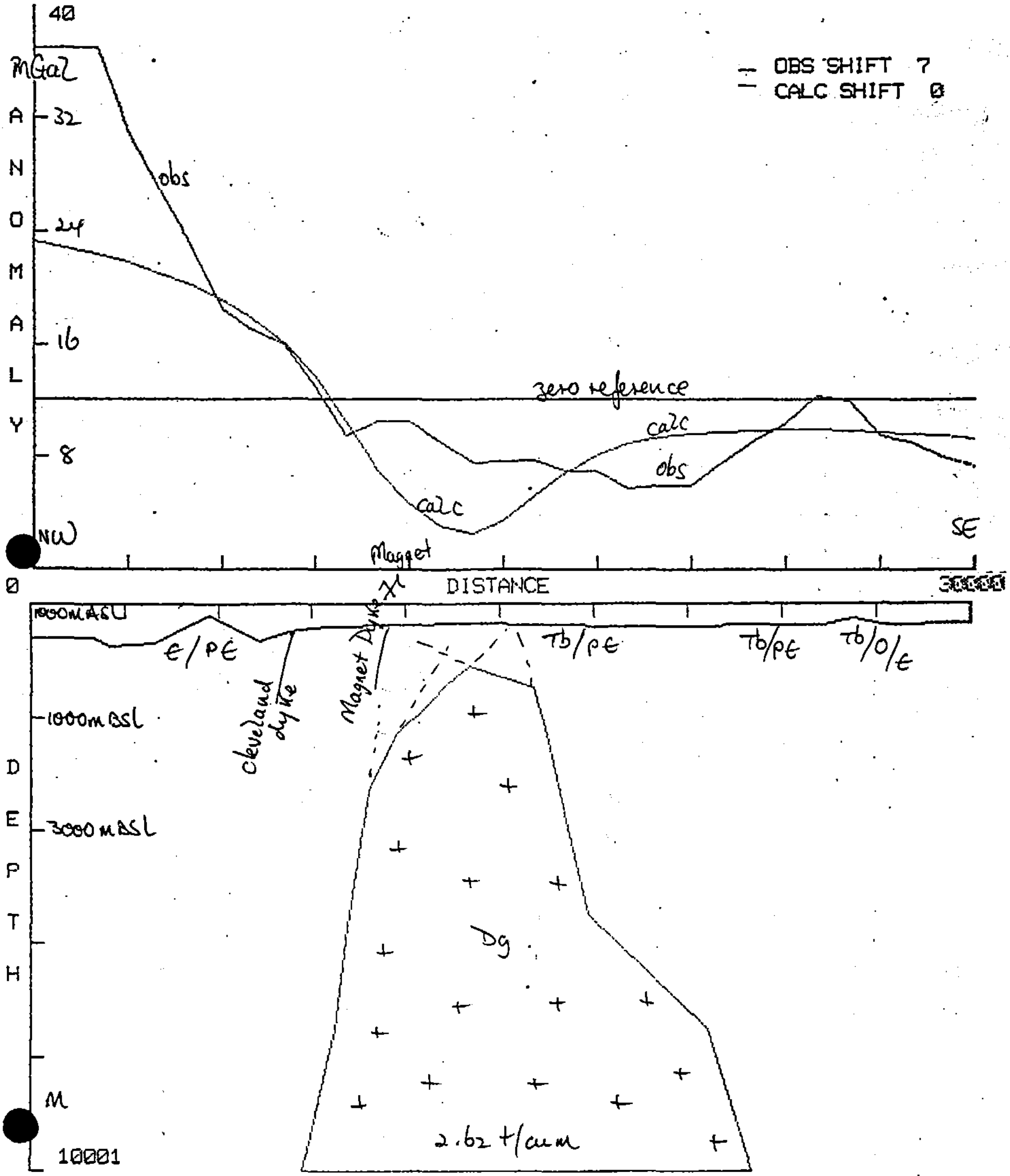
WARATAH AREA 3D MODEL LINE 14 FIGURE 24

PROFILE EVALUATION
LEAMAN GEOPHYSICS

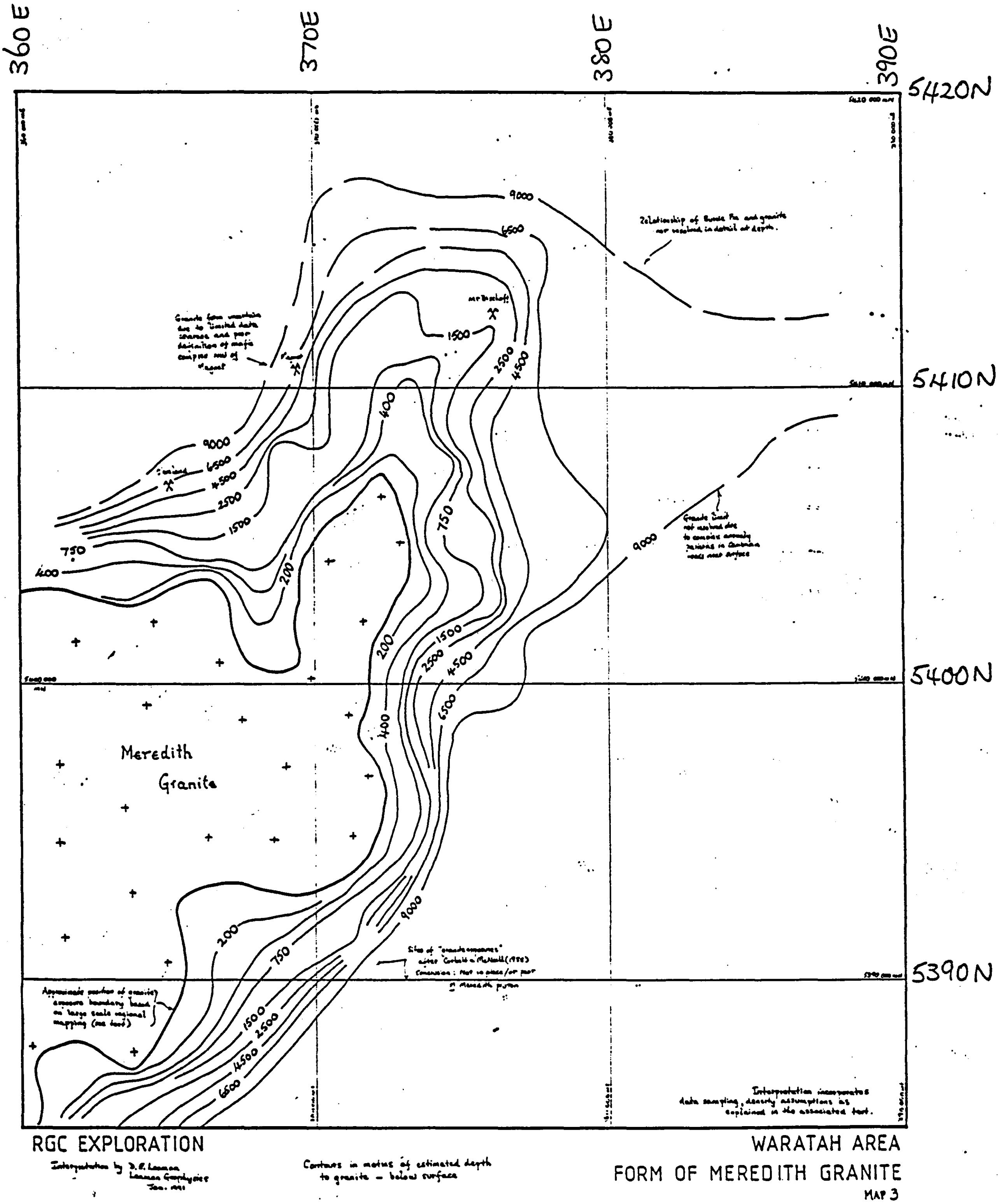
021110

0	1.00	B:WARG15
1	1.00	B:GRNAL15
2	1.00	B:GRNCEL15
3	-0.50	B:HEAZ4L15

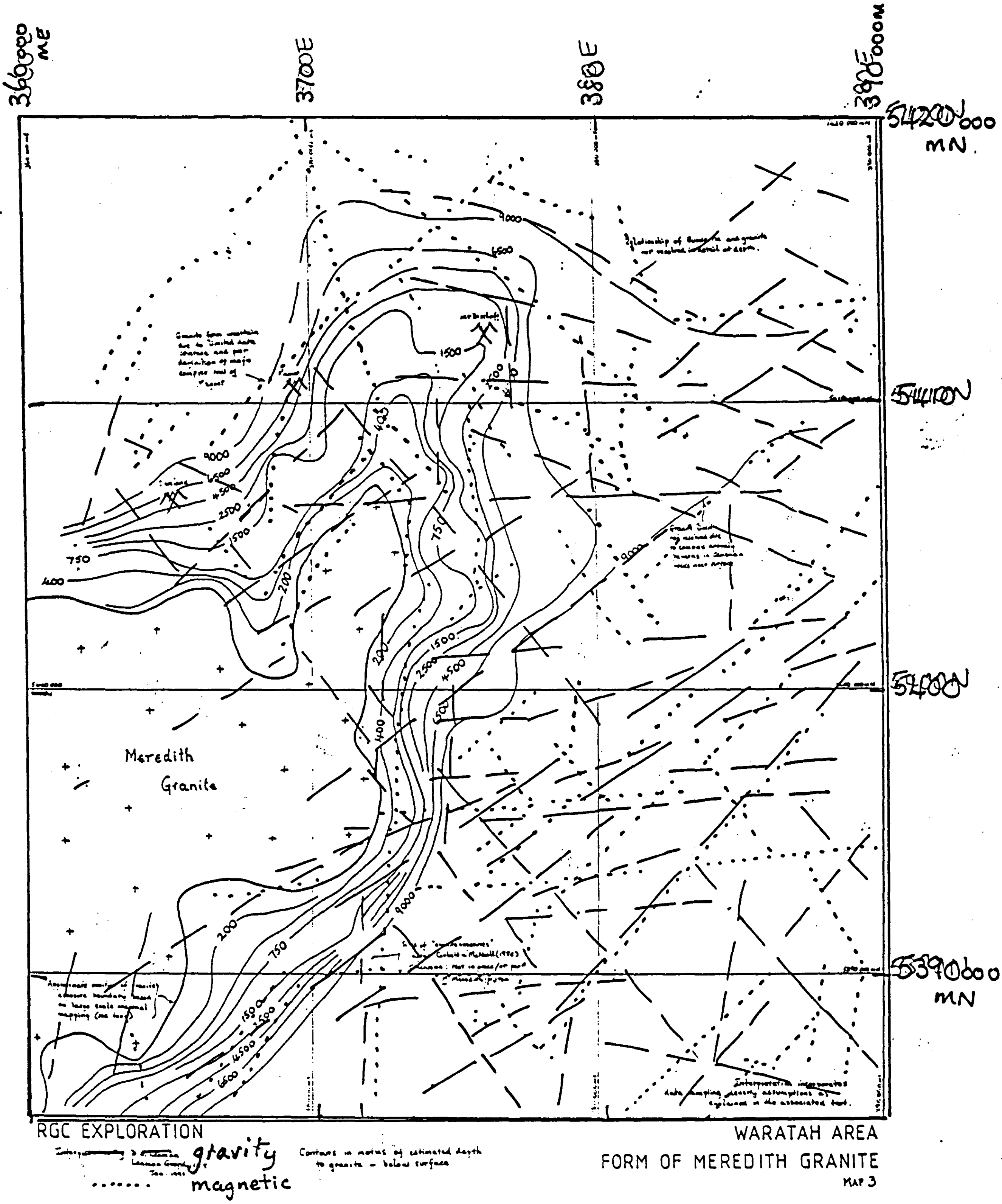
ZERO SHIFT : 12.10373



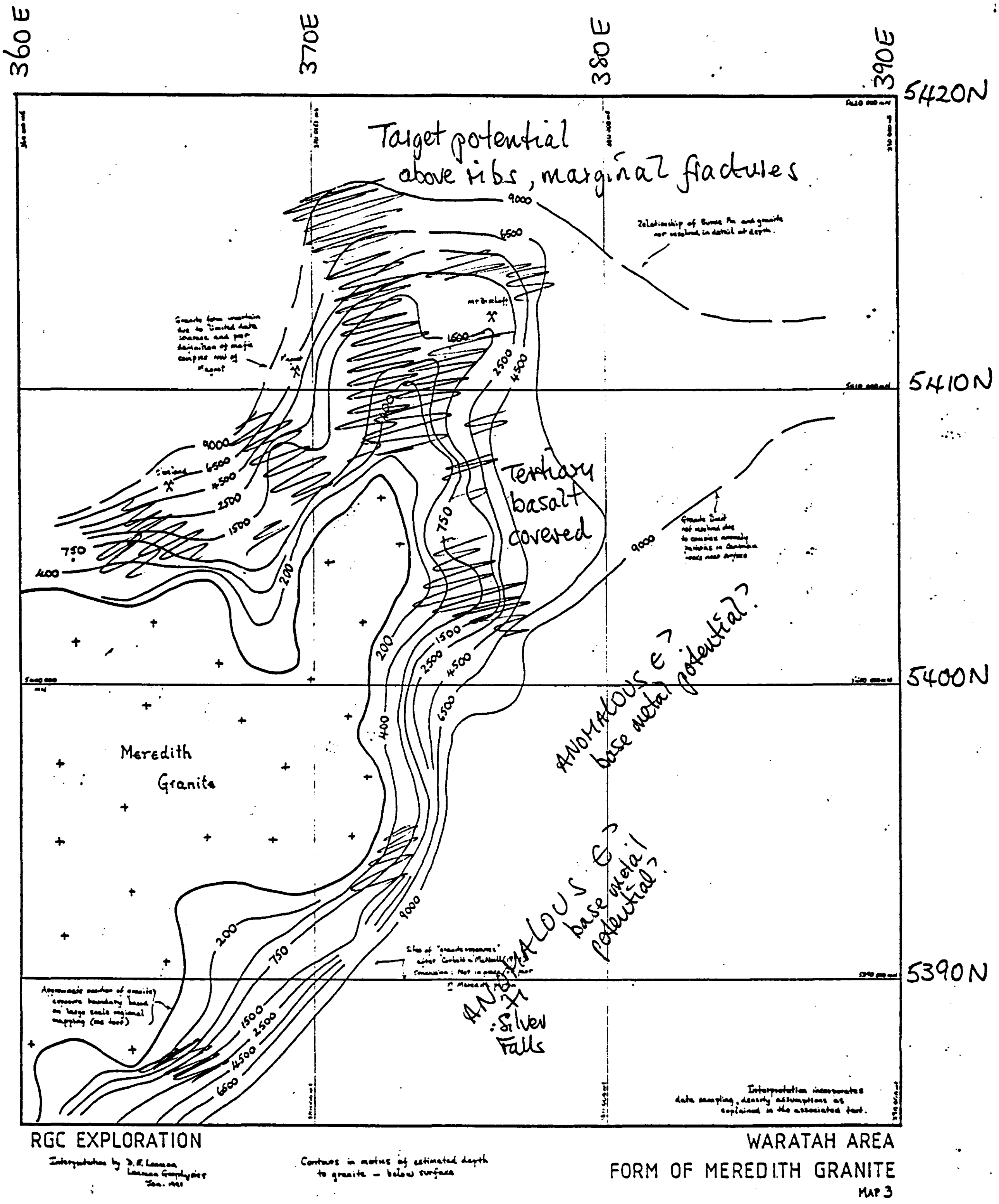
WARATAH AREA 3D MODEL LINE 15 FIGURE 25



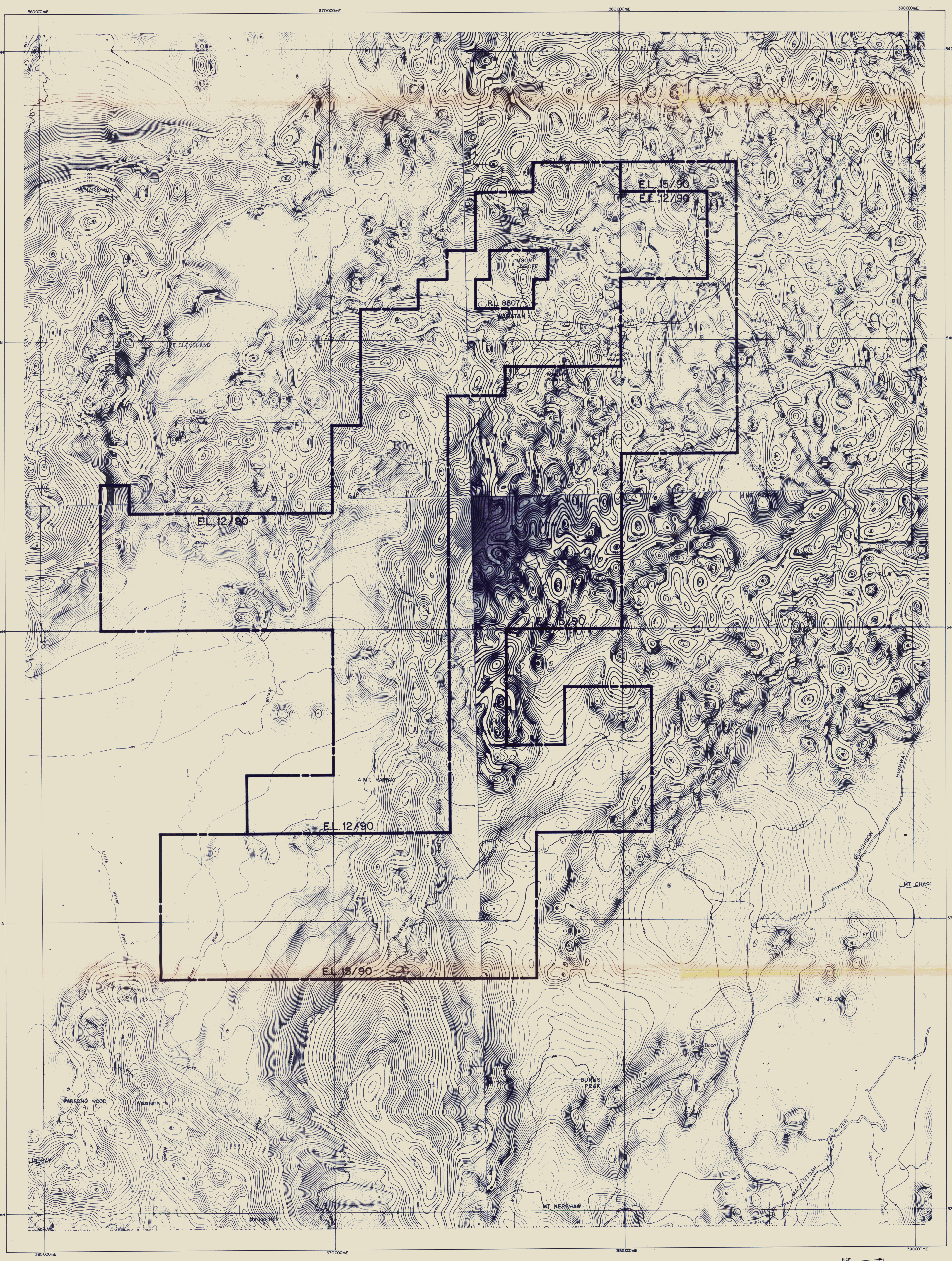
WARATAH AREA CURRENT MODEL OF FORM OF MEREDITH GRANITE
Mineralised sites indicated FIGURE 26



WARATAH AREA GRANITE MODEL AND TREND SUMMARY FIGURE 27



WARATAH AREA GRANITE MODEL AND TARGET ZONES FIGURE 28



021114

AIRBORNE SURVEY SPECIFICATIONS – WESTERN TASMANIA – SURVEY, MAY, 1981

MAGNETOMETER : SONOTEK IGSS I SYSTEM, Cessna 185 E aircraft
Sensitivity : 0·1 nT

RECORDING INTERVAL 40 m sampling (approx.)

MEAN SENSOR HEIGHT 135 m

NOMINAL LINE SPACING 500 m

FLIGHT PATH RECORD 16mm ground tracking camera

RESIDUAL MAGNETIC CONTOURS

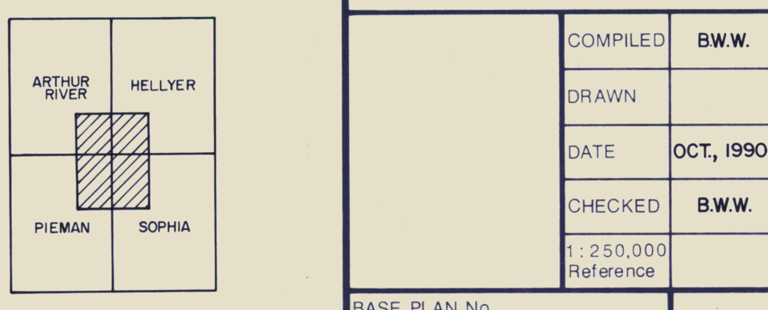
MAGNETICS Tie Line levelled

GRID MESH SIZE 125 x 125 m

GRID FILTER : Simple 3 pt filter

CONTOUR INTERVAL : 5nT

Flown by Geox Pty Ltd



RGC EXPLORATION PTY. LIMITED
INCORPORATED IN NEW SOUTH WALES

COMPILED	B.W.W.
DRAWN	
DATE	OCT., 1990
CHECKED	B.W.W.
1 : 250,000 Reference	

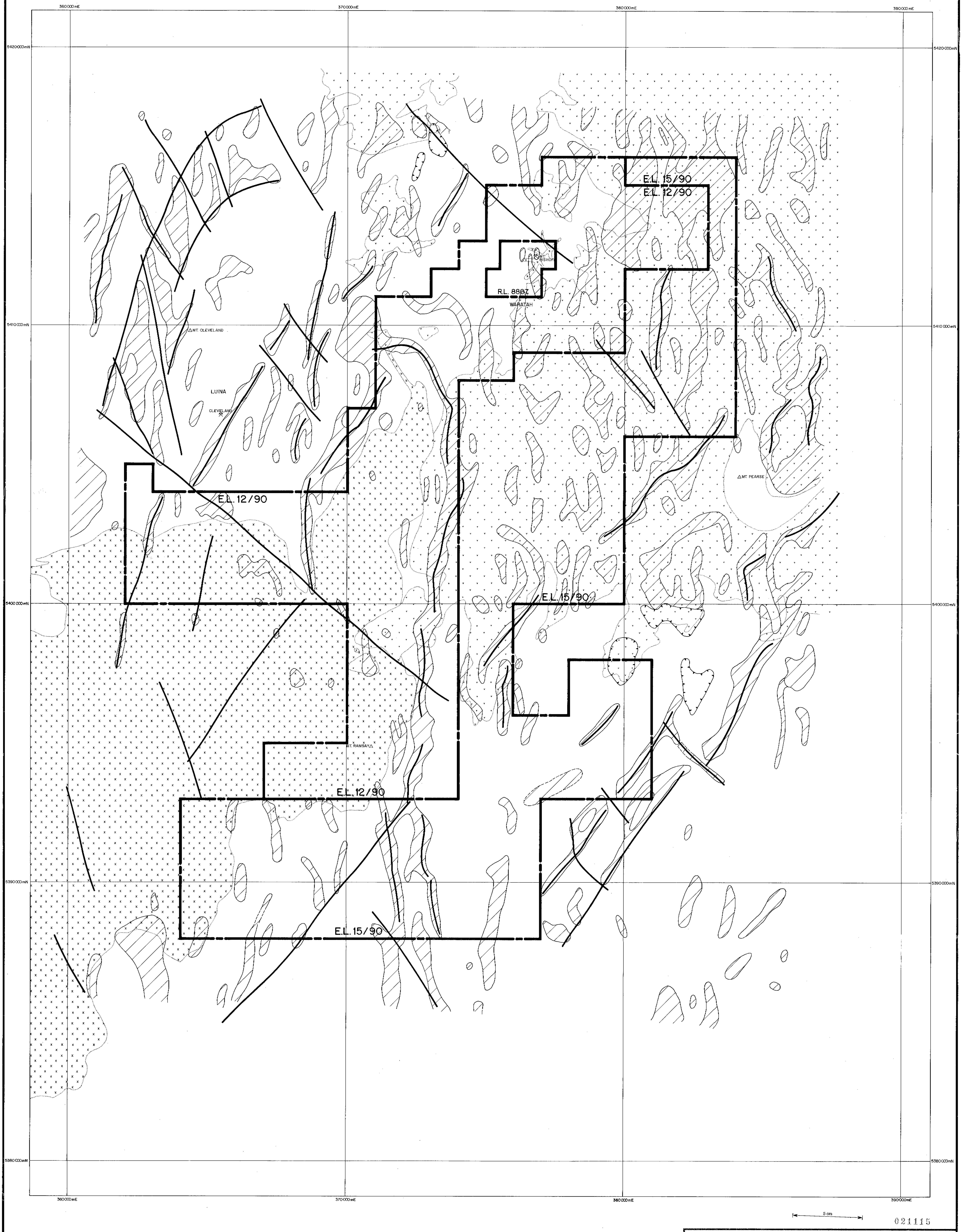
WARATAH - MT. RAMSAY AREA

RESIDUAL MAGNETIC CONTOURS

BASE PLAN No.
OVERLAY PLAN No.

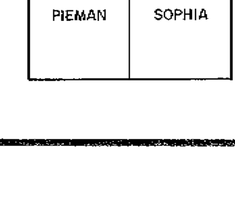
SCALE 1 : 50,000 — 0 0.5 1.0 1.5 2.0 3.0 Km.

PLATE 15



021115

MAGNETIC SOURCE
MAGNETIC SOURCE (REVERSELY MAGNETISED)
MAGNETIC LINEAMENT
MEREDITH GRANITE
TERTIARY BASALT



RGC EXPLORATION PTY. LIMITED

INCORPORATED IN NEW SOUTH WALES

COMPILED	B.W.W.
DRAWN	L.D.K.
DATE	DEC., 1990
CHECKED	B.W.W.
1:250,000 Reference	

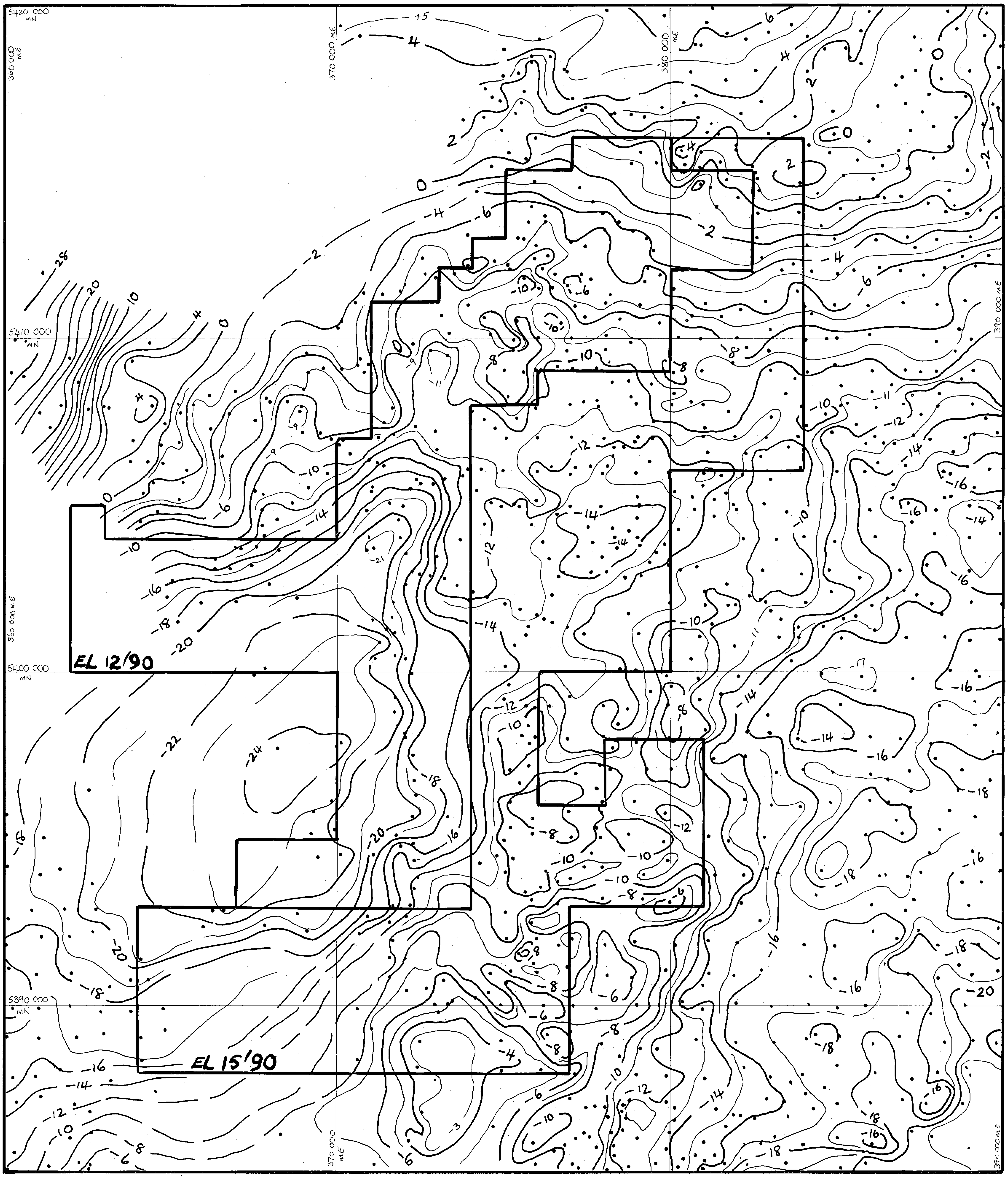
WARATAH - MT. RAMSAY AREA

MAGNETIC INTERPRETATION

BASE PLAN No
OVERLAY PLAN No

SCALE 1:50,000 — 0 0.5 1.0 1.5 2.0 3.0Km.

PLATE 16

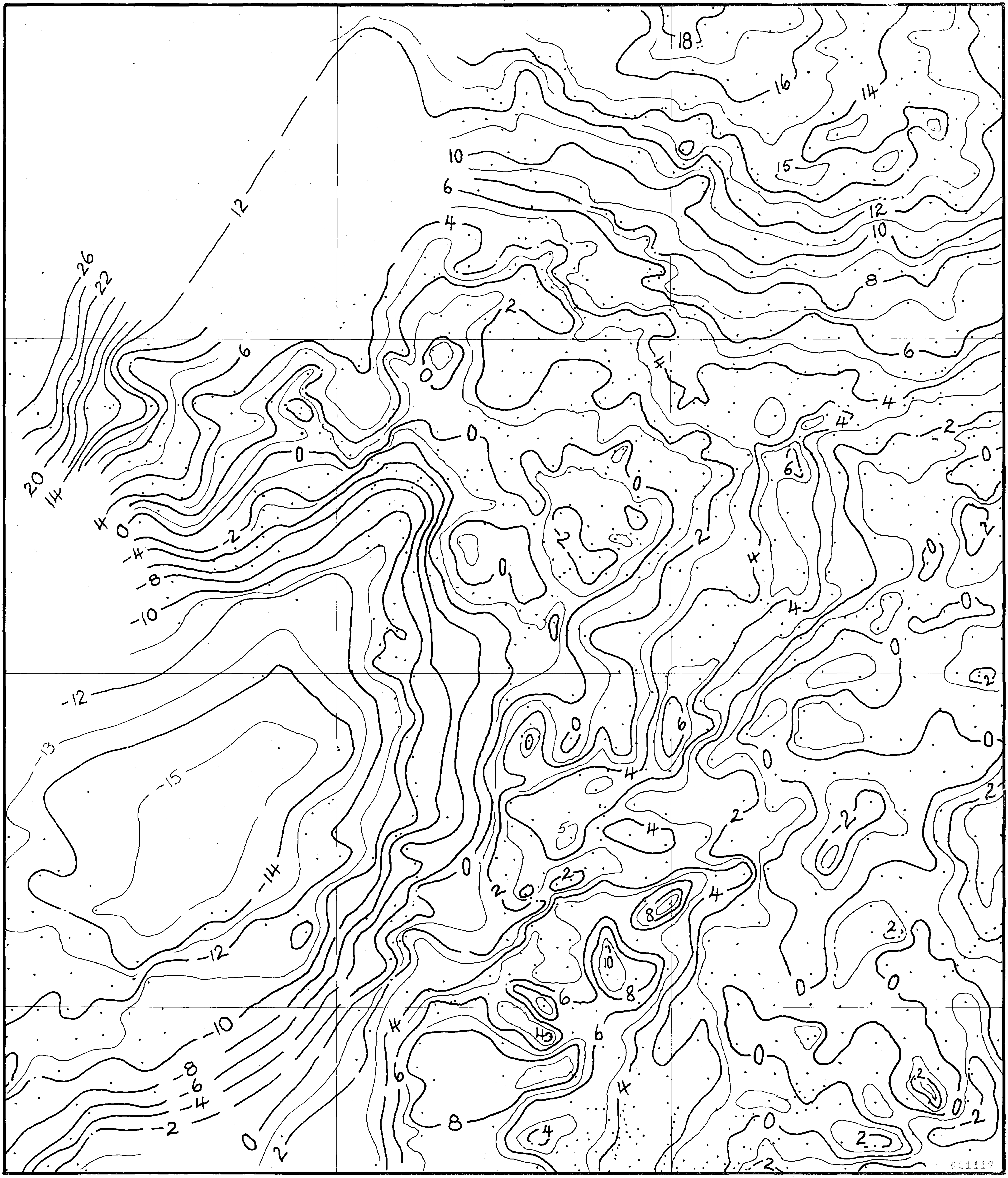


RGC EXPLORATION

Compilation by D.E. Leaman, Leaman Geophysics, Hobart Jan 1991
Data sources : Division of Mines, RGC
Reduction density : 2.67 t/m³
1930 ellipsoid
22 km terrain correction

WARATAH AREA
BOUGUER ANOMALY

021116 MAP 1

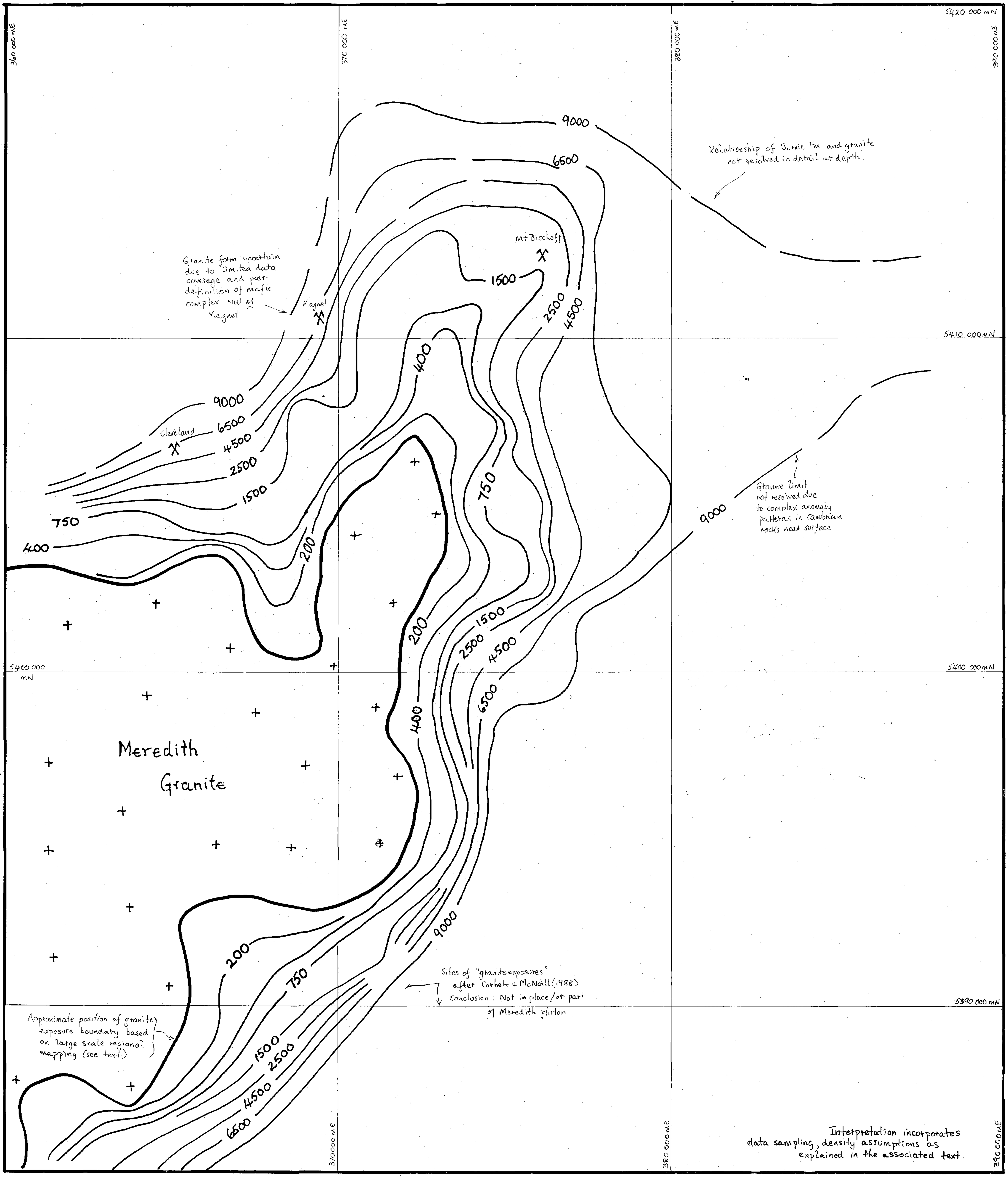


RGC EXPLORATION

Regional-residual separation using HANTLE 2 process
Bouguer anomalies at 2.67 t/m³ reduction density
Compilation by D.E. Leaman, Leaman Geophysics, Hobart
Jan 1991

WARATAH AREA
RESIDUAL ANOMALY

MAP 2



RGC EXPLORATION

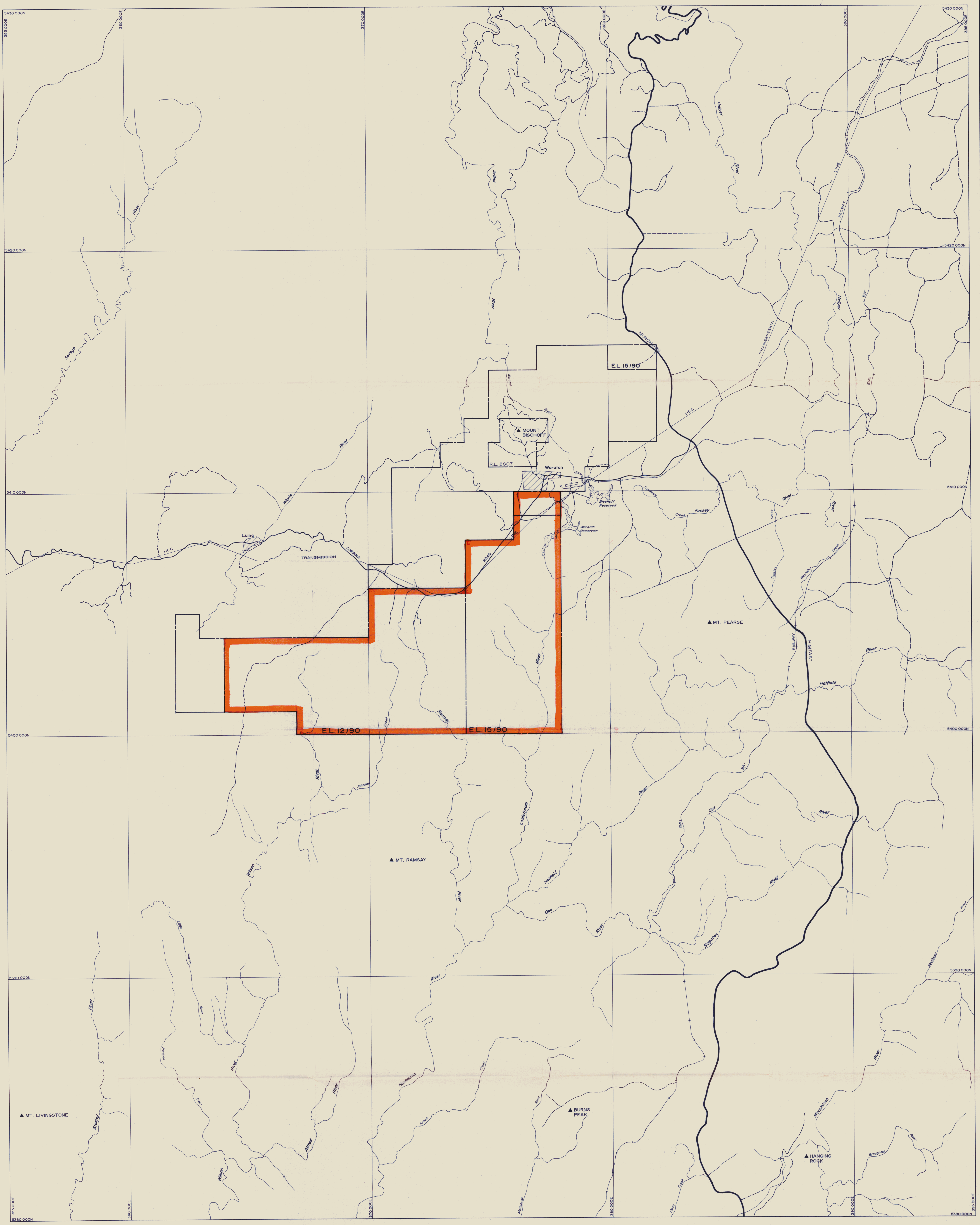
Interpretation by D.E. Leaman
Leaman Geophysics
Jan. 1991

Contours in metres of estimated depth to granite – below surface

WARATAH AREA
FORM OF MEREDITH GRANITE

021118

MAP 3



AREA TO BE RELINQUISHED

5 cm

RGC EXPLORATION PTY. LIMITED Incorporated in New South Wales			021119
	COMPILED:		E.L. 12/90 & E.L. 15/90
	DRAWN:	M. WALTER	
	DATE:	JUNE 1990	WARATAH TENEMENTS
	CHECKED:		
	1: 250 000 REFERENCE:		
BASE PLAN NO. 5530/004	SCALE 1: 50 000	0 1 2 3 4km	PLAN 1
OVERLAY PLAN NO.			

APPENDIX 3

ROCK CHIP GEOCHEMISTRY

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: WARATAH ROCK CHIP GEOCHEM MEREDITH GRAN.

Sample	TNorth	TEast	Date collected	Project code	Sample kind	Sampler(s)	Rock type	Rock unit	Alteration /weatherin	Ore minerals	Vein minerals	Cu ppm ANALAB	Pb ppm ANALAB	Zn ppm ANALAB	W ppm ANALAB	Sn ppm ANALAB	As ppm ANALAB	Ag ppm ANALAB
20081	5,405,760.0	372,790.0	25/06/90	5501	RC	SH	GRAN					10.000	15.000	50.000		5.000	30.000	-0.500
20082	5,405,790.0	372,850.0	25/06/90	5501	RC	SH	GRAN					15.000	5.000	40.000		-3.000	-2.000	-0.500
20083	5,405,790.0	372,900.0	25/06/90	5501	RC	SH	GRAN					10.000	100.000	125.000		3.000	-2.000	-0.500
20084	5,405,820.0	373,390.0	25/06/90	5501	RC	SH	BASL					55.000	-5.000	100.000		-3.000	-2.000	-0.500
20085	5,405,840.0	373,480.0	25/06/90	5501	RC	SH	BASL					65.000	-5.000	105.000		-3.000	-2.000	-0.500
20086	5,405,760.0	373,025.0	25/06/90	5501	RC	SH	GRAN					10.000	-5.000	40.000		-3.000	-2.000	-0.500
20087	5,400,300.0	372,200.0	25/06/90	5501	RC	SH	VEIN		TM			5.000	-5.000	15.000		15.000	-2.000	-0.500
20089	5,401,430.0	371,740.0	25/06/90	5501	RC	SH	VEIN		TM			5.000	5.000	10.000		25.000	-2.000	-0.500
20093	5,405,540.0	372,200.0	25/06/90	5501	RC	SH	GRAN		TM			50.000	-5.000	35.000		3.000	3.000	-0.500
20094	5,404,750.0	371,900.0	25/06/90	5501	RC	SH	GRAN		TM	MO		20.000	-5.000	35.000		10.000	-2.000	-0.500
20095	5,403,360.0	372,190.0	25/06/90	5501	RC	SH	BRXX					30.000	50.000	55.000		9.000	-2.000	-0.500
20096	5,403,340.0	372,200.0	25/06/90	5501	RC	SH	BRXX					15.000	35.000	40.000		25.000	-2.000	-0.500
27185	5,403,550.0	371,970.0	19/01/91	5530	RC	CC AH	GRAN					10.000	-5.000	50.000		5.000	4.000	-0.500
27186	5,403,585.0	371,850.0	19/01/91		RC	CC AH	GRAN		OX			10.000	-5.000	55.000		4.000	10.000	-0.500
27527	5,406,030.0	371,990.0	13/12/91	5530	RC	CHC	GRAN		LI		QZ	35.000	375.000	90.000		-3.000	20.000	1.000
27528	5,405,980.0	372,160.0	13/12/91	5530	RC	CHC	PPXX					5.000	100.000	30.000		400.000	-2.000	-0.500
27529	5,405,910.0	372,160.0	13/12/91	5530	RC	CHC	GRAN		LI			5.000	30.000	60.000		3.000	-2.000	-0.500
27530	5,405,860.0	372,250.0	13/12/91	5530	RC	CHC	GRAN					15.000	20.000	40.000		-3.000	-2.000	-0.500
27531	5,405,730.0	372,520.0	13/12/91	5530	RC	CHC	GRAN		LI			15.000	10.000	35.000		4.000	-2.000	-0.500

	Cu	Pb	Zn	W	Sn	As	Ag
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	5.000	5.000	5.000	1.000	3.000	1.000	0.500
Method:	GA101	GA101	GA101	GX401	GX401	GA114	GA101

APPENDIX 4

STREAM SEDIMENT GEOCHEMISTRY

RGC Exploration Pty Ltd
GEOCHEM Data Management System
Project: WARATHAH STREAM SED, EL 12/90 & 15/90

Sample	TNorth	TEast	Project code	Date collected	Sample kind	Sampler(s)	Stream type	Stream flow	Stream width	Stream cut (m)	Str sed composition	Bank grad/character	Stream grad/rating
35001	402,900.0	372,660.0	5530	02/02/91	SS80	MFSH	CK	M	0.	4 10	124210	2 V	2 3
	Remarks: 1A												
35002	402,915.0	372,660.0	5530	02/02/91	SS80	MFSH	CK	M	0.	4 10	124210	2 V	2 3
	Remarks: 1B DUPLICATE OF 1A, TAKEN 15m UPSTREAM.												
35003	402,470.0	373,590.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	3 30	024310	1 E/V	1 4
	Remarks: 2												
35004	402,470.0	373,590.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	3 30	024310	1 E/V	1 4
	Remarks: 2A SPLIT FROM THE SAME DISH AS 2.												
35005	402,470.0	373,570.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	3 30	024310	1 E/V	1 4
	Remarks: 2B DUPLICATE OF 2, TAKEN 20m DOWNSTREAM.												
35006	402,460.0	373,280.0	5530	02/02/91	SS80	MFSH	CK	M	0.	8 10	133210	1 V	1 3
	Remarks: 3												
35007	402,440.0	373,280.0	5530	02/02/91	SS80	MFSH	CK	M	1.	2 10	123310	3 V	1 3
	Remarks: 4												
35008	402,380.0	373,140.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	5 10	014410	1 V	1 4
	Remarks: 5 EQUIVALENT TO COMSTAFF LOCATION 1520.												
35009	402,330.0	372,990.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	5 20	014410	1 V	1 4
	Remarks: 6 EQUIVALENT OT COMSTAFF 1320 LOCATION.												
35010	402,390.0	372,800.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	2 15	133210	3 C/V	1 3
	Remarks: 7 JUNCTION OF CREEK WITH A TRIBUTARY.SAMPLE TAKEN UP TRIBUTARY.												
35011	402,370.0	372,800.0	5530	02/02/91	SS80	MFSH	CK	SL	0.	2 15	133210	3 C/V	1 3
	Remarks: 7B DUPLICATE OF 7A, TAKEN 30m UPSTREAM.												
35012	402,490.0	372,820.0	5530	02/02/91	SS80	MFSH	CK	M	1.	0 10	233110	2 V	2 2
	Remarks: 8 EQUIVALENT TO COMSTAFF LOCATION 920.												
35013	402,670.0	372,880.0	5530	02/02/91	SS80	MFSH	CK	SL	1.	0 25	123310	1 V	1 3
	Remarks: 9												
35014	402,860.0	372,810.0	5530	02/02/91	SS80	MFSH	CK	SL	2.	5 15	123220	25 R/V	1 3
	Remarks: 10A OUTCROPPING TERTIARY SEDIMENTS IN CREEK (SOURCE OF SN?)												
35015	402,875.0	372,810.0	5530	02/02/91	SS80	MFSH	CK	SL	2.	5 15	123220	25 R/V	1 3
	Remarks: 10B 15m DOWNSTREAM FROM 10A.												
35016	402,860.0	372,640.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	5 10	023320	1 V	1 4
	Remarks: 11A												
35017	402,860.0	372,640.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	5 10	023320	1 V	1 4
	Remarks: 11B SPLIT TAKEN FROM SAME DISH AS 11A.												
35018	402,860.0	372,660.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	5 10	023320	1 V	1 4
	Remarks: 11C DUPLICATE OF 11A, 11B TAKEN 20m UPSTREAM.												
35019	402,880.0	372,610.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	4 12	134110	1 V	2 2
	Remarks: 112A EQUIVALENT TO COMSTAFF LOCATION 360.												
35020	402,900.0	372,610.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	4 12	134110	1 V	2 2
	Remarks: 12B DUPLICATE OF 12A, TAKEN 20m UPSTREAM FROM 12A(SAME CRK AT T35001)												
35021	402,880.0	372,560.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	4 20	133210	1 V	1 3
	Remarks: 13 (SIDE TRIBUTARY).												
35022	402,850.0	372,460.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	5 15	133210	1 V	1 3
	Remarks: 14 EQUIVALENT TO COMSTAFF LOCATION 160.												

Laboratory:
Detection Limit:
Method:

02123

Sample	TNorth	TEast	Project code	Date collected	Sample kind	Sampler(s)	Stream type	Stream flow	Stream width	Stream cut (m)	Str sed composition	Bank grad/character	Stream grad/rating
35023	402,820.0	372,370.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	4 10	124210	1 V	1 2
Remarks: 15A	15m AWAY FROM JUNCTION WITH THE RAMSY RIVER.												
35024	402,820.0	372,390.0	5530	03/02/91	SS80	MFSH	CK	SL	0.	4 10	124210	1 V	1 2
Remarks: 15B	DUPLICATE OF 15A, TAKEN 20m UPSTREAM.												

Laboratory:
Detection Limit:
Method:

Sample	Ag ppm ANALAB GI222	Al % ANALAB GI202	As ppm ANALAB GN801	Au ppm ANALAB GN801	Ba ppm ANALAB GI201	Be ppm ANALAB GI222	Bi ppm ANALAB GI222	Br ppm ANALAB GN801	Ca % ANALAB GI201	Cd ppm ANALAB GI222	Ce ppm ANALAB GN801	Co ppm ANALAB GN801	Cr ppm ANALAB GN801	Cs ppm ANALAB GN801	Cu ppm ANALAB GI201	Eu ppm ANALAB GN801	Fe % ANALAB GI202	Ga ppm ANALAB GI222
35001	0.520	3.910	42.000	-0.005	265.000	0.890	0.670	10.000	1.070	0.150	90.000	10.000	178.000	5.000	19.300	0.700	5.950	10.900
35002	0.790	2.940	7.000	-0.005	285.000	0.570	1.040	19.000	0.636	0.100	109.000	4.000	223.000	4.000	6.000	0.600	2.140	7.210
35003	0.180	4.860	-2.000	-0.005	62.000	0.740	0.190	10.000	2.030	0.120	45.000	36.000	8920.000	2.000	9.300	0.500	9.180	14.300
35004	0.110	4.520	-2.000	0.352	60.000	0.530	0.400	13.000	2.040	0.110	49.000	37.000	8400.000	1.000	10.000	-0.500	9.230	13.900
35005	0.100	3.610	2.000	-0.005	62.000	0.590	0.210	25.000	1.930	-0.100	24.000	32.000	2290.000	-1.000	7.000	-0.500	8.120	13.300
35006	0.210	3.970	2.000	-0.005	59.000	0.700	0.250	33.000	2.330	-0.100	25.000	32.000	3700.000	1.000	8.000	-0.500	8.040	14.200
35007	0.150	3.860	2.000	-0.005	55.000	0.690	0.160	17.000	2.960	-0.100	26.000	38.000	3150.000	-1.000	9.000	0.600	9.680	13.300
35008	0.250	3.370	2.000	-0.005	42.000	0.550	0.160	13.000	3.380	0.210	35.000	44.000	4960.000	-1.000	5.000	-0.500	9.840	12.600
35009	0.240	3.620	-2.000	-0.005	53.000	0.440	-0.100	17.000	2.810	-0.100	43.000	42.000	4440.000	-1.000	5.000	-0.500	9.760	12.300
35010	0.740	4.430	7.000	-0.005	95.000	0.980	0.310	27.000	1.290	-0.100	71.000	37.000	907.000	3.000	18.000	0.700	7.080	12.500
35011	1.170	3.950	7.000	-0.005	80.000	1.010	0.310	20.000	1.320	-0.100	117.000	34.000	1370.000	2.000	15.000	0.500	7.150	11.900
35012	0.290	3.900	3.000	-0.005	67.000	0.650	0.240	34.000	2.010	-0.100	37.000	35.000	2010.000	2.000	11.000	0.500	8.060	12.600
35013	0.170	4.420	3.000	-0.005	77.000	0.750	0.190	38.000	1.890	-0.100	45.000	31.000	1660.000	1.000	11.000	0.700	7.820	13.700
35014	0.250	3.740	3.000	-0.005	89.000	0.640	0.200	14.000	2.060	-0.100	62.000	34.000	1780.000	2.000	6.000	0.700	8.850	11.800
35015	0.210	3.910	4.000	-0.005	83.000	0.840	0.180	20.000	2.020	-0.100	74.000	32.000	2790.000	3.000	8.000	0.600	8.150	12.500
35016	0.160	4.070	3.000	-0.005	97.000	0.700	0.240	25.000	1.720	0.180	53.000	28.000	1910.000	3.000	11.000	0.700	6.840	13.200
35017	0.540	4.270	3.000	0.008	101.000	0.840	0.210	25.000	1.770	0.200	49.000	29.000	1620.000	3.000	10.000	0.900	7.150	14.200
35018	0.520	3.450	4.000	-0.005	75.000	0.600	-0.100	15.000	2.050	0.120	157.000	34.000	7210.000	1.000	8.000	0.600	8.150	10.600
35019	0.850	2.760	5.000	-0.005	247.000	0.510	0.320	10.000	0.805	-0.100	176.000	8.000	584.000	3.000	5.000	0.700	2.870	7.830
35020	1.890	2.770	4.000	-0.005	272.000	0.580	0.390	13.000	0.597	-0.100	208.000	5.000	324.000	3.000	6.000	-0.500	2.190	7.240
35021	0.900	2.450	4.000	-0.005	231.000	0.540	0.320	5.000	0.719	-0.100	228.000	4.000	357.000	3.000	-5.000	0.600	2.100	7.010
35022	0.490	3.050	4.000	-0.005	209.000	0.590	0.280	20.000	0.949	-0.100	92.000	13.000	854.000	3.000	5.000	0.700	3.900	8.680
35023	0.530	2.620	3.000	-0.005	198.000	0.480	0.230	6.000	1.070	0.150	168.000	12.000	1750.000	2.000	-5.000	1.100	3.870	7.800
35024	0.490	2.490	4.000	-0.005	185.000	0.530	0.260	6.000	1.090	-0.100	162.000	12.000	1590.000	2.000	-5.000	0.600	3.750	7.550
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.100	0.020	2.000	0.005	5.000	0.100	0.100	2.000	0.005	0.100	0.000	1.000	5.000	1.000	5.000	0.500	0.020	0.500
Method:																		

021125

Sample	Hf ppm ANALAB GN801	In ppm ANALAB GI222	Ir ppm ANALAB GN801	K % ANALAB GI201	La ppm ANALAB GN801	Li ppm ANALAB GI201	Lu ppm ANALAB GN801	Mg % ANALAB GI201	Mn ppm ANALAB GI202
35001	17.000	0.140	-0.020	1.810	43.000	27.000	0.900	0.566	1750.000
35002	27.000	0.110	-0.020	2.110	57.500	19.000	1.200	0.193	1310.000
35003	16.000	0.160	-0.020	0.190	21.200	11.000	0.400	1.930	1050.000
35004	17.000	0.180	-0.020	0.190	22.400	11.000	0.500	1.910	1050.000
35005	14.000	0.170	-0.020	0.200	13.200	11.000	0.300	1.760	939.000
35006	11.000	0.180	-0.020	0.190	12.600	11.000	0.300	2.050	889.000
35007	13.000	0.190	-0.020	0.180	12.000	9.000	0.300	2.610	1160.000
35008	18.000	0.190	-0.020	0.140	17.200	9.000	0.400	3.060	1270.000
35009	19.000	0.090	-0.020	0.160	20.700	9.000	0.500	2.600	1240.000
35010	15.000	0.130	-0.020	0.380	35.800	14.000	0.600	0.981	1220.000
35011	19.000	0.150	-0.020	0.340	57.900	12.000	0.900	1.010	1180.000
35012	13.000	0.160	-0.020	0.230	18.700	11.000	0.400	1.760	971.000
35013	12.000	0.160	-0.020	0.270	23.200	11.000	0.400	1.630	877.000
35014	24.000	0.200	-0.020	0.520	30.700	11.000	0.600	1.800	1240.000
35015	20.000	0.180	-0.020	0.430	36.200	11.000	0.600	1.750	1100.000
35016	16.000	0.150	-0.020	0.550	26.600	12.000	0.500	1.460	919.000
35017	17.000	0.160	-0.020	0.550	25.100	12.000	0.500	1.490	933.000
35018	31.000	0.080	-0.020	0.440	79.100	11.000	1.100	1.820	1430.000
35019	51.000	0.120	-0.020	1.990	88.700	18.000	2.100	0.358	1710.000
35020	60.000	0.120	-0.020	2.200	108.000	19.000	2.500	0.205	1730.000
35021	65.000	0.130	-0.020	2.050	117.000	19.000	2.900	0.155	2140.000
35022	29.000	0.150	-0.020	1.700	47.800	16.000	1.000	0.604	1200.000
35023	48.000	0.140	-0.020	1.630	84.500	17.000	1.900	0.609	1850.000
35024	46.000	0.140	-0.020	1.590	63.200	17.000	1.900	0.608	1720.000
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	1.000	0.050	0.020	0.050	0.500	2.000	0.200	0.005	0.000
Method:									

Sample	Mo ppm ANALAB GI222	Na % ANALAB GI201	Nb ppm ANALAB GI202	Ni ppm ANALAB GI222	P ppm ANALAB GI202	Pb ppm ANALAB GI222	Rb ppm ANALAB GI222	Sb ppm ANALAB GN801	Sc ppm ANALAB GN801
35001	1.980	0.310	21.000	32.800	271.000	90.400	97.300	3.100	10.300
35002	2.560	0.230	27.000	30.000	178.000	43.200	105.000	1.400	5.600
35003	0.490	0.170	24.000	129.000	297.000	10.900	9.130	0.500	23.300
35004	0.450	0.180	24.000	136.000	277.000	12.300	9.320	0.800	23.900
35005	0.270	0.210	27.000	106.000	226.000	13.000	10.000	0.700	23.200
35006	0.230	0.200	-20.000	119.000	263.000	13.400	9.660	0.500	24.100
35007	0.170	0.230	26.000	121.000	221.000	9.320	8.870	-0.500	30.000
35008	-0.100	0.190	31.000	136.000	203.000	9.760	7.380	0.500	34.300
35009	0.660	0.190	30.000	119.000	213.000	10.000	8.400	-0.500	30.800
35010	0.950	0.190	43.000	93.400	367.000	16.400	20.000	1.000	17.000
35011	0.680	0.170	57.000	81.800	319.000	16.100	18.200	1.100	17.400
35012	0.240	0.220	24.000	107.000	270.000	13.700	11.700	0.600	23.200
35013	0.230	0.220	23.000	96.700	297.000	13.500	14.200	0.700	21.800
35014	0.100	0.220	35.300	98.200	249.000	13.300	24.600	0.700	24.900
35015	-0.100	0.210	28.000	95.900	263.000	14.300	21.600	0.700	23.500
35016	-0.100	0.210	24.000	97.400	259.000	18.800	27.600	0.700	20.700
35017	0.400	0.220	24.000	99.500	267.000	18.200	29.500	0.700	20.700
35018	0.760	0.160	46.000	98.300	290.000	14.900	21.800	0.800	23.500
35019	0.670	0.220	45.000	18.300	193.000	30.100	95.200	1.300	8.900
35020	0.580	0.240	51.000	20.100	213.000	32.800	103.000	1.200	6.900
35021	0.260	0.200	61.000	7.060	182.000	29.200	94.200	1.200	6.900
35022	0.180	0.230	31.000	40.700	187.000	25.500	79.700	1.200	10.900
35023	-0.100	0.200	54.000	29.100	205.000	21.900	77.300	1.200	12.000
35024	0.150	0.180	50.000	36.900	196.000	24.400	74.500	1.000	11.500
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	0.100	0.005	0.300	2.000	100.00	1.000	0.050	0.500	0.100
Method:									

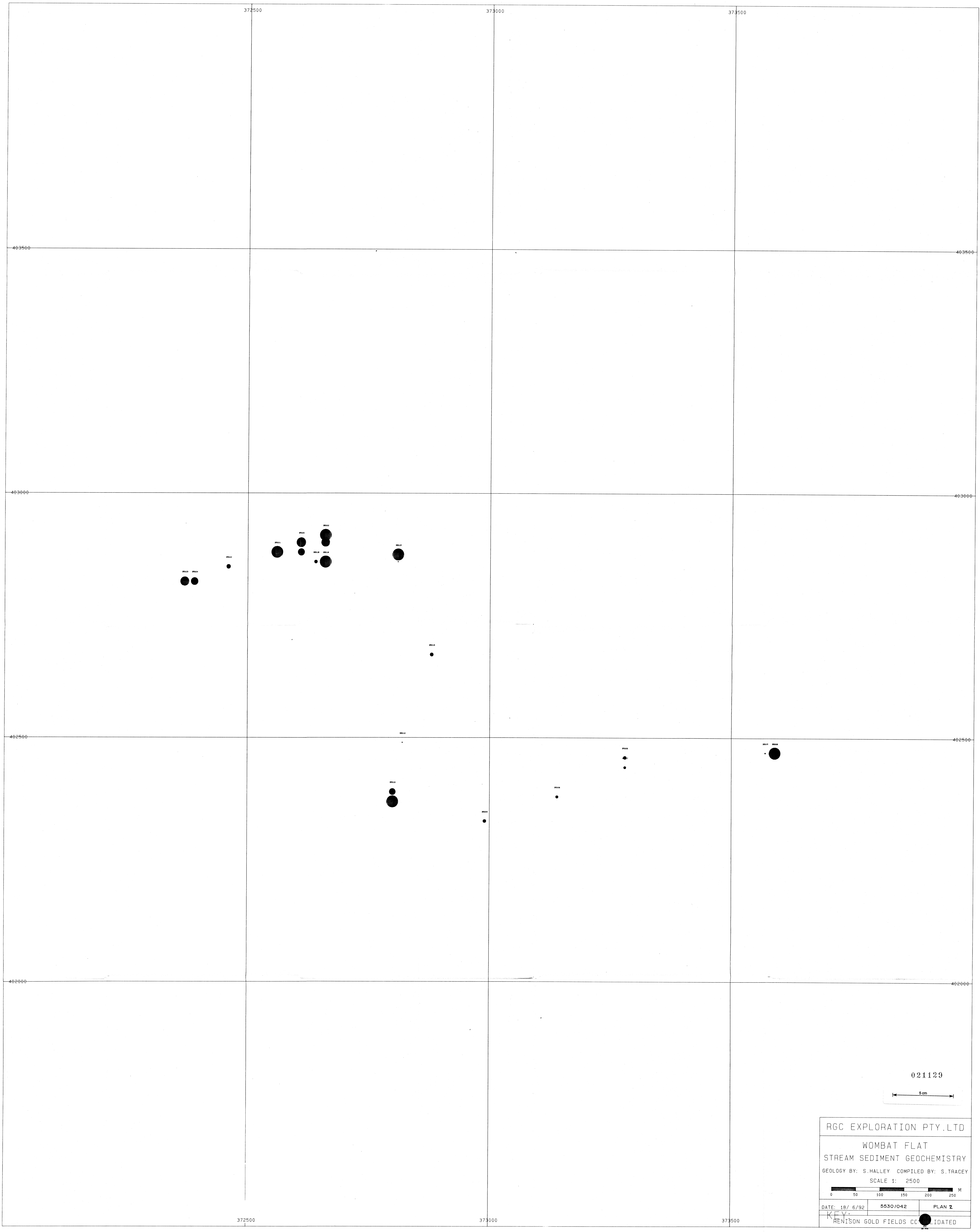
Sample	Se ppm ANALAB GN801	Si % ANALAB GI202	Sm ppm ANALAB GN801	Sn ppm ANALAB GX401	Sr ppm ANALAB GI201	Ta ppm ANALAB GN801	Th ppm ANALAB GN801	Ti ppm ANALAB GI202	Tl ppm ANALAB GI222	U ppm ANALAB GN801	V ppm ANALAB GI202	W ppm ANALAB GN801	Y ppm ANALAB GI202	Yb ppm ANALAB GN801	Zn ppm ANALAB GI201	Zr ppm ANALAB GN801
35001	-5.000	28.100	7.400	185.000	43.000	4.000	15.500	8200.000	0.610	4.000	96.000	22.000	55.000	6.100	119.000	582.000
35002	-5.000	36.300	9.300	247.000	39.000	5.000	22.000	7770.000	0.500	4.000	46.000	80.000	61.000	8.200	65.000	936.000
35003	-5.000	26.200	4.700	240.000	22.000	2.000	8.700	36700.000	-0.500	-2.000	401.000	10.000	19.000	2.700	130.000	675.000
35004	-5.000	24.200	5.000	250.000	23.000	4.000	9.200	39200.000	-0.500	-2.000	401.000	32.000	17.000	3.000	130.000	642.000
35005	-5.000	23.500	3.000	30.000	28.000	3.000	5.400	40700.000	-0.500	-2.000	366.000	8.000	13.900	2.400	100.000	624.000
35006	-5.000	23.900	3.000	75.000	26.000	2.000	4.400	31000.000	-0.500	-2.000	343.000	16.000	11.000	2.000	96.000	-500.000
35007	-5.000	24.900	3.100	60.000	29.000	3.000	4.500	46000.000	-0.500	-2.000	453.000	5.000	13.000	2.200	109.000	675.000
35008	-5.000	23.400	4.200	65.000	23.000	3.000	7.000	49100.000	-0.500	-2.000	483.000	9.000	20.000	2.900	114.000	-500.000
35009	-5.000	23.100	4.600	75.000	25.000	4.000	8.400	50600.000	0.780	2.000	470.000	6.000	23.000	3.000	118.000	714.000
35010	-5.000	27.700	7.000	140.000	34.000	5.000	13.300	24400.000	-0.500	-2.000	232.000	12.000	30.000	4.300	89.000	515.000
35011	-5.000	28.000	10.800	310.000	29.000	7.000	21.800	24600.000	-0.500	-2.000	223.000	5.000	45.000	5.900	84.000	732.000
35012	-5.000	23.900	4.000		31.000	3.000	7.300	36800.000	-0.500	-2.000	340.000	13.000	17.000	2.500	97.000	-500.000
35013	-5.000	24.300	4.700	80.000	33.000	3.000	8.500	32500.000	-0.500	-2.000	323.000	3.000	25.000	2.600	93.000	-500.000
35014	-5.000	26.600	6.100		31.000	5.000	12.600	46000.000		-2.000	392.000	7.000	30.000	4.200	103.000	1170.000
35015	-5.000	26.300	7.100	250.000	31.000	4.000	14.600	36500.000	-0.500	3.000	343.000	4.000	31.000	4.200	102.000	618.000
35016	-5.000	25.500	5.300	75.000	33.000	4.000	9.800	28900.000	-0.500	-2.000	284.000	7.000	21.000	3.400	96.000	510.000
35017	-5.000	25.700	5.100	50.000	34.000	3.000	9.400	30600.000	-0.500	-2.000	298.000	4.000	23.000	3.300	95.000	692.000
35018	-5.000	26.500	14.600	300.000	24.000	6.000	31.000	32800.000	0.810	4.000	320.000	7.000	63.000	6.800	128.000	1200.000
35019	-5.000	33.400	14.700	152.000	37.000	8.000	35.900	15900.000	0.720	7.000	90.000	5.000	99.000	13.800	85.000	1860.000
35020	-5.000	36.500	17.200	204.000	38.000	9.000	43.700	11900.000	0.570	10.000	51.000	11.000	119.000	16.400	82.000	2260.000
35021	-5.000	36.000	18.800	247.000	32.000	9.000	46.900	12500.000	-0.500	13.000	46.000	6.000	141.000	18.700	78.000	2530.000
35022	-5.000	32.400	8.200	95.000	36.000	5.000	19.000	18600.000	-0.500	4.300	142.000	6.000	51.000	7.200	74.000	1040.000
35023	-5.000	32.600	14.300	190.000	31.000	8.000	34.100	22800.000	-0.500	8.000	150.000	4.000	98.000	12.800	85.000	1580.000
35024	-5.000	31.300	14.100	160.000	29.000	8.000	33.100	20000.000	-0.500	5.000	140.000	6.000	93.000	12.900	82.000	1840.000
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Detection Limit:	5.000	0.100	0.200	3.000	1.000	1.000	0.500	0.000	0.500	2.000	5.000	2.000	5.000	0.500	5.000	500.00
Method:																

021128

Plotted with MICROMINE Resources Software Perth, Australia Tel +61 9 389 8722 Fax +61 9 386 7462			SCALE 1: 10000	DATE 13/05/93	SHEET 1 of 1	Rock Chip Sample Location	RGC Exploration PTY LTD
			PLAN 3	REF No.			

93-3428

5 cm


372500
373000
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RGC EXPLORATION PTY.LTD
WOMBAT FLAT
STREAM SEDIMENT GEOCHEMISTRY
GEOLOGY BY: S.HALLEY COMPILED BY: S.TRACEY
SCALE 1: 2500
0 50 100 150 200 250 M
DATE: 18/ 6/92
5530/042
PLAN 2
KEY:
250
SN PPM
RENISON GOLD FIELDS CO LIDATED