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MITRE GEOPHYSICS PTY LTD

MINERAL EXPLORATION AND ENGINEERING CONSULTANTS

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A SUMMARY REPORT ON THE 1982 GEOPHYSICAL SURVEYS
OVER THE TADPOLE HILL GRID, E.L. 17/77

for

RENISON LTD.

by

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MICROFILMED

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FIGURES

Numbered Figures have been included in this report: lettered Figures refer to figures in the 1981-82 annual report by L. Martin.

- 1. Locality Plan (1:50,000).
- 2. Gradient Array IP coverage (1:10,000).
- 3. Gradient Array IP Smoothed Chargeability Contours (1:5000).

- A. Composite Profile, line 23, Tadpole Hill Grid (1:5000).
- B. Composite Profile, line 23.5, Tadpole Hill Grid (1:5000).
- C. Composite Profile, line 24, Tadpole Hill Grid (1:5000).
- D. Composite Profile, line 24.5, Tadpole Hill Grid (1:5000).
- E. Composite Profile, line 25, Tadpole Hill Grid (1:5000).
- F. Composite Profile, line 25.5, Tadpole Hill Grid (1:5000).
- G. Composite Profile, line 26, Tadpole Hill Grid (1:5000).
- H. Composite Profile, line 26.5, Tadpole Hill Grid (1:5000).
- I. Composite Profile, line 27, Tadpole Hill Grid (1:5000).
- J. Composite Profile, line 27.5, Tadpole Hill Grid (1:5000).
- K. Composite Profile, line 28, Tadpole Hill Grid (1:5000).
- L. Composite Profile, line 28.5, Tadpole Hill Grid (1:5000).
- M. Composite Profile, line 29, Tadpole Hill Grid (1:5000).
- N. Composite Profile, line 29.5, Tadpole Hill Grid (1:5000).
- O. Tadpole Hill Grid Geology (Corinna D1/2, 1:5000 sheet).

NB: an index to transparencies that are listed above can be found in 85-2427.

ABSTRACT

A gradient array IP survey over the Tadpole Hill Grid defined a moderate but distinct chargeability anomaly immediately to the south of some old tin (primary cassiterite) workings. The anomaly encompasses the area of altered granite around the workings, but extends it some 300m. to the south. It is recommended that this zone (between lines 24.5 and 26 and between westings 450W to 200W) be investigated by costeaning to fresh rock or by a series of shallow, closely spaced, drill holes.

INTRODUCTION

The Tadpole Hill Grid is a detailed area within, and a northern extension of, the regional Hamman River Grid. It lies on the western boundary of E.L. 17/77 and is wholly within the Meredith Granite (see Figure 1). The grid encompasses several old workings which occur in altered (tourmalinised) granite.

The 1982 geophysical surveys consisted of gradient array IP, centred over the old workings with coincident magnetic coverage.

EXPLORATION TARGET

Tin, probably cassiterite but possibly stannite, is being sought within the granite. Specific targets are likely to be within areas of altered granite which may contain significant amounts of metallic sulphides (see results of drilling on the nearby Heemskirk Granite). If this is the case, then IP is an excellent method for locating the target: if sulphides are absent, then IP may still be applicable, however any responses would be much more subtle.

PREVIOUS WORK

The Hamman River Grid was surveyed by gradient array IP in Feb. 1980, with a 400m. line spacing: the results have been presented as chargeability and resistivity contours at 1:5000 scale and as profiles at 1:2000 (Howland-Rose, 1980). The profiles are also on Renison's 1:5000 composite profiles, together with the magnetic data. Howland-Rose (1980) defined a chargeable zone (labelled 'A') on lines 24 and 26 between 12W and 14W: the maximum contour value was 25mV/V and there was no corresponding resistivity low. Line 26 was the northernmost line of the Hamman River Grid.

Comstaff worked the area in the early 1970's as part of E.L. 1/68. The best tin assay they obtained was nearly 0.25% Sn over 49m. in one of the trenches (Piggott, 1973). Apparently no drilling was carried out.



THE 1982 GRADIENT ARRAY IP SURVEY

Scintrex carried out a gradient array IP survey over 14 lines in Feb. 1982 on the Tadpole Hill Grid (survey job no. Tas-097). The lines were 100m. apart and 10m. dipole and station spacings were used. The coverage is indicated in Figure 2. The results in profile form are shown in Figures A to N, and contour plans at 1:2000 scale are presented by Howland-Rose (in prep.).

The survey showed that zone A of the original Harman River Grid survey was centred on line 25 with the bulk of the response between lines 24.5 and 26. The maximum recorded value of 23mV/V was less than, but comparable to, the original Harman River Grid survey. There was no resistivity low associated with the chargeable zone, values being generally 1000 - 3000 ohm-m. A weaker chargeability anomaly (or series of anomalies) was partially defined on the western ends of several lines: it (they) is probably centred on line 25 and possibly extends from lines 23 to 26.

MAGNETICS

A magnetic survey (measuring total field strength) was also carried out over the grid. The station spacing was (presumably) 10m. and the results have been presented as contours at 1:5000 by Howland-Rose (in prep.). (From an examination of a preliminary copy of the map, it appears that the results recorded on line 26 are incorrect). The contour map (contoured at 10 gamma intervals) shows no useful correlation with either the geology or the IP results.

DISCUSSION

The low chargeabilities suggest only weak concentrations of sulphides and may be a response only to alteration. (The mapping by L. Martin shows no sulphides, although there is plenty of iron staining and some possible boxworks on the dumps around the shafts.)



A contour plan of the smoothed chargeability results is shown in Figure 3. This was prepared by hand-smoothing the profiles and taking 2mV/V contour values. The smoothed, rather than the raw data, was contoured partly to save time in producing this summary report, but mainly to show where the bulk of the chargeability response is situated: the smoothed data shows this most clearly.

Figure 3 shows that the workings are on the northern edge of the anomaly: given that the tin is associated with the sulphide and/or alteration, further and possibly better occurrences might be expected for some 300m. - 350m. south of the old workings. However other causes for the anomaly are possible; for example a more mafic phase of the granite would have a higher intrinsic chargeability.

CONCLUSIONS AND RECOMMENDATIONS

Assaying of the Tadpole Hill old workings by Comstaff in the early 1970's showed a significant concentration of tin ($\sim 0.25\%$), but a limited resource was indicated (Piggott, 1973). The 1982 detailed gradient array IP survey has shown that the old workings are at one end of a moderate but well defined chargeability zone which extends for about 350m. south of the workings, to line 24.5 (the geological map (Figure 0) shows the alteration surrounding the workings to extend from line 25.5 to line 27). It is recommended that either a series of deep (to fresh rock) costeans be run across lines 24.5, 25 and 25.5, or that a number of closely spaced, shallow holes be drilled along these lines, between 450W and 200W.

J.R. Bishop

June, 1982

REFERENCES

HOWLAND-ROSE, A.W., 1980. A report on gradient array EIP reconnaissance survey over the Harman River Grid near Zeehan, Tasmania. Scintrex report no. Tas-074E for Renison Ltd.

PIGGOTT, G.F., 1973. Meredith Granite Project 1972/73 summer field season report (E.L. 1/68). Comstaff Prop. Ltd. report.

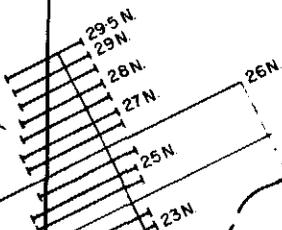
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RENISON LTD.
E.L. 17/77

Harman River area

TADPOLE
HILL
GRID



24N
22N

RENISON LTD.
E.L. 18/73

Harman River

Grid

Mt. Lindsay ▲

MT. LINDSAY
MINE

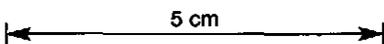
MT. LINDSAY
GRID

ABERFOYLE
E.L. 2/63

M. St. V. Valley

LEGEND:

□ Devonian Meredith Granite



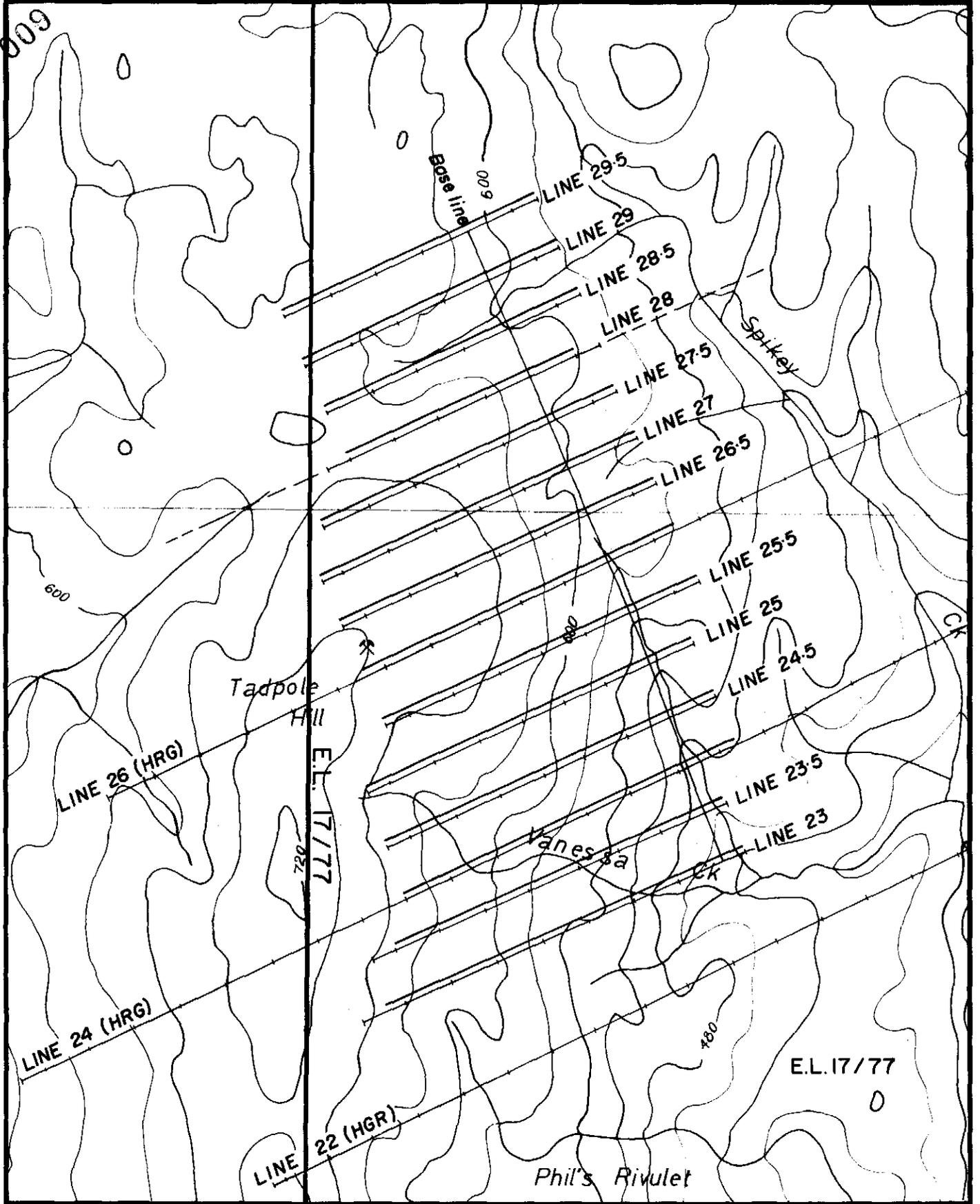
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TADPOLE HILL GRID
LOCALITY PLAN

Drawn by J.B. Scale. 1:50 000
Traced by T.G.D.S. Date. July 1982

Ref. RN/M682/08

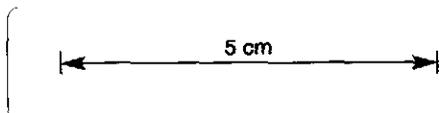
FIG. 1



Survey by: Scintrex, Feb. 1982.
Station spacing 10m.

LEGEND:

— Gradient Array I.P. Coverage.



MITRE GEOPHYSICS PTY. LTD.
TADPOLE HILL GRID
GRADIENT ARRAY
IP COVERAGE

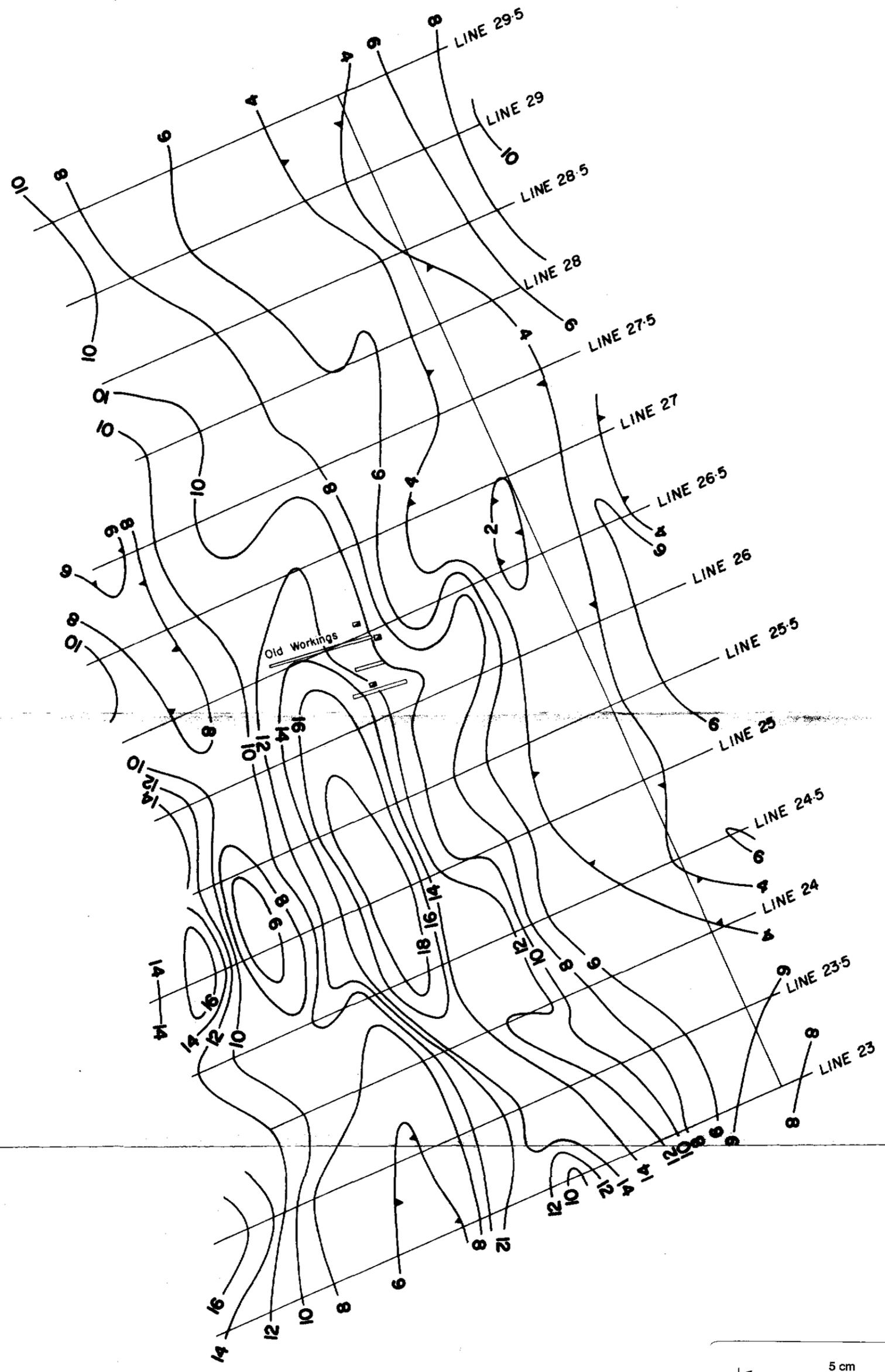
Drawn by J.B. Scale: 1:10000
Traced by TGDS Date: July, 1982

FIG. 2

360 000 E

5 388 000 N

5 388 000 N



Survey by : Scintrex
 Date : Feb., 1982
 Station spacing : 10m.

NOTE: This map was prepared from
 hand smoothed chargeability
 profiles.
 Contour interval 2mV/V.

MITRE GEOPHYSICS PTY. LTD.	
TADPOLE HILL GRID	
GRADIENT ARRAY IP	
SMOOTHED CHARGEABILITY	
CONTOURS	
Drawn by J.B.	Scale: 1:5000
Traced by T.G.D.S.	Date: July, 1982
FIG. 3	

Ref: RN/MGB2/08

360 000 E