019001 **RENISON LIMITED**

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E.L. 2/63

MT.LINDSAY AREA

WESTERN TASMANIA

ANNUAL REPORT 1979/80

November 1980

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SUMMARY

Geological mapping, soil geochemical and geophysical surveys were carried out in two areas of E.L. 2/63.

In the remote Harman River area north east of Mt. Lindsay, 26 line kilometres of cut grid were established and helicopter supported reconnaissance surveys succeeded in outlining anomalous responses in

a) Crimson Creek Formation sediments adjacent to the Meredith Granite,
b) Cambrian ultrabasic rocks,
c) the contact zone between ultrabasic rocks and inferred Gordon Limestone.

In the Merton Hill area adjacent to the HEC Pieman Road a cut grid of 3 line kilometres was established over a group of abandoned tin workings, 8 kilometres north of Renison Bell. Routine ground surveys plus chip sampling and petrological examination confirmed the presence of cassiterite - sulphide mineralisation within metasomatised Lower Palaeozoic sediments adjacent to ultrabasic rocks. Granite dykes are located nearby.

During 1979/80 $66,075 were expended on these activities.

Further work is proposed on the above areas in 1980/81 including:

a) diamond drilling of the Merton Hill mineralisation
b) geological appraisal of anomalies of the Harman River Grid
c) stream sediment sampling in the Merton Hill area.

It is also recommended that a persistent program of work be maintained on the Mt. Lindsay Grid. In 1980/81 additional work is proposed in three areas:

a) Re-evaluation of geophysical anomaly "A" north of the Lindsay skarn zones.
b) Review of petrological data on the Lindsay skarns to establish zonation trends. Further drilling is recommended for 1981/82.
c) Detailed mapping program of the Renison mine succession in the Salmon Creek area.

The budget for 1980/81 is estimated at $96,814 and includes scope for additional drilling effort at Merton Hill.

1. INTRODUCTION

E.L. 2/63, Mt. Lindsay area, is located north of Renison Bell in Western Tasmania and covers an area of 90 square kilometres (Figure 1).

A north west trending belt of Lower Palaeozoic sediments and ultrabasics is intruded by the Upper Devonian Meredith Granite. The area therefore has the potential for primary stanniferous metasomatic deposits and exploration directed to these targets has been undertaken by Renison Limited since 1972.

This report details work undertaken during 1979/80 and proposals for further work are presented.

2. LICENCE TENURE

Aberfoyle is the holder of E.L. 2/63 renewed to 1st April 1981. Renison Limited is the operator through a Joint Venture Agreement with certain Aberfoyle Group Companies and Consolidated Gold Fields (Australia) Pty. Limited.

At 30th June 1980 equities in the project were:

Aberfoyle Limited	16.16%
Paringa	23.84%
C.G.F.A.	21.0%
Renison	39.0%

During the year a 15 square kilometre area in the south of the Licence (vicinity of Merton Hill - Huskisson River) was transferred from E.L. 17/77 (Renison Limited) to E.L. 2/63.

3. EXPENDITURE

During 1979/80, $66,075 were expended on exploration activities within the enlarged Licence area. Total moneys expended from 1972 to 30th June 1980 amount to $718,963.

Itemised expenditure for the year 1979/80 is presented in Appendix 1.

4. PREVIOUS WORK

Since 1972 Renison Limited has undertaken systematic surveys over much of the Licence area. Work programs have included:

a) a combined airborne E.M. - magnetic survey.
b) construction of vehicular access to the old Lindsay tin mine via Misty Valley and Salmon Creek.
c) establishment of the Misty Valley and Mt. Lindsay Grids.
d) geological mapping, soil geochemical sampling, induced polarisation and resistivity surveys on the two grids.
e) diamond drilling of anomalous zones on the Mt.Lindsay Grid.

Detailed results of these programs have been previously reported (Bibliography).

In brief this work has located significant but presently subeconomic extensions of stanniferous skarn mineralisation at the Lindsay tin mine within the contact aureole of the Meredith Granite.

Significant carbonate horizons (and therefore potential hosts for mineralisation) have also been located in the Success Creek Group rocks in the Salmon Creek area and at several levels within the overlying Crimson Creek Formation.

5. WORK COMPLETED 1979/80

For the first year since 1975 work has been directed away from diamond drilling of the Lindsay skarn zones which have traditionally absorbed most of the exploration effort. This move is not seen as down grading the potential of these complex skarn zones as considerable research is justified before further drilling is undertaken.

This year surveys were undertaken in two areas: i.e.

a) in the granite contact zone between Parson's Hood and the Wilson River where the Harman River Grid is now established and
b) in the Merton Hill area.

5.1 HARMAN RIVER AREA

North-east of Mt.Lindsay the new grid was established in the period November 1979 to February 1980. Approximately 26 line kilometres of cut grid, lines 400 metres apart lie within E.L. 2/63. Surveys included;

a) Geological Mapping. Coverage achieved in 1979/80 was incomplete. Personnel involved were the writer and A.V. Brown, Government Geologist. The photogeological interpretation of P. Boshier has been incorporated into the geological compilation.

b) Geochemical Soil Sampling. Auger samples to bedrock or to auger limit (0.8m) were taken at 25 metre intervals by contractor P. Ashton. Samples were oven dried, sieved and the - 180 micron fraction submitted to the Renison Assay Laboratory. Determinations for Sn, As by XRF and Cu, Pb, Zn by AAS were made.

c) Magnetic Surveying. Readings were taken at 25 metre intervals using a Geometrics G816 Proton Magnetometer, sensor height 2.6m by contractor P. Ashton. The data was contoured by Scintrex Pty. Limited.

d) Induced Polarisation Surveying. A gradient array time domain method was carried out by contractor Scintrex Pty. Limited. Details of the survey are reported in Appendix 2.

It should be noted that a similar program of work was undertaken contemporaneously on an adjacent area in E.L. 17/77 to the north. The Harman River Grid consists of 12 lines numbered from 4N to 26N. Only data generated within E.L. 2/63 is discussed in this report. The remaining information is presented in:

"E.L. 17/77, Wilson River Area, Western Tasmania, Annual Report 1979/80" by A. Ross, Renison Limited Unpublished Report.

5.2 MERTON HILL AREA

Work on this prospect has been reported in "Merton Hill Area, Western Tasmania - Progress Report" by A. Ross, Renison Limited May 1980 and the reader is referred to this report for detail. A summary is presented below.

With improved access via the H.E.C. Pieman road into the southern part of the Licence area, a group of abandoned tin workings was located at Merton Hill, approximately 8 kilometres north of Renison Bell.

Work completed included sampling of underground workings, assaying and petrological examination, and the establishment of 3 kilometres of cut grid line. Mapping, geochemical soil sampling, magnetic and induced polarisation surveys have also been completed.

This work confirmed the presence of primary tin mineralisation as cassiterite, associated with base metal sulphides (mainly lead) and hosted in metasomatised quartzite, sandstone and shale rocks. A vein style of mineralisation is encountered in the underground workings, however the presence of ultrabasics and limestone (inferred) in the immediate area suggests the potential for replacement deposits is high. The area is several kilometres distant from any major granite outcrop however minor granite dykes have been independently mapped by A.V. Brown and reported in one inaccessible adit.

These results open up some encouraging possibilities in an area which previously was considered to have little exploration potential. The subtle granite expression associated with cassiterite/base metal sulphide outside a granite contact aureole invites comparison with genetic concepts of Mt.Bischoff, Renison and Queen Hill.

At the time of writing a limited diamond drilling program and close spaced orientation stream sediment survey were underway.

5.3 LOGISTICS

The style of exploration program carried out in 1979/80 on the Harman River Grid represented a departure from methods traditionally employed on remote areas in the Pieman region.

Apart from line cutting of the grid, all other work detailed in Section 5.1 above was completed in the period January 14th to

February 23rd, 1980 and was totally supported by helicopter for the daily deployment of field crews. A tabulation of production is presented below and refers to the entire Harman River Grid including the E.L. 2/63 portion (Table 1).

Number of flying days	35
Grid size	56 line kilometres

Survey Type	Coverage (line km)	Readings or samples taken	Number of personnel involved
Geochemical Soil Sampling	53	1918	3
Magnetics	52	2090	2
I.P. Surveying	48	2000	5
Geological Mapping	37	-	3

TABLE 1 - EXPLORATION COVERAGE

5.4 DATA PRESENTATION

Data from the Harman River Grid are presented at a scale of 1:5000 on plan and stacked composite line profile form.

The NE to SW oriented grid line pattern is bisected by a common boundary of E.L. 2/63 and E.L. 17/77. Since this boundary is nearly coincidental with the standard 1:5000 sheet edges, most information for E.L. 2/63 is presented on CORINNA D1/4 standard plans.

6. RESULTS - HARMAN RIVER GRID

6.1 GEOLOGY (Fig. 2a)

The area under discussion lies at the northern extremity of the western limb of the Huskisson Syncline. Here Cambrian to Ordovician ultrabasics and sediments are in contact with Devonian Granite.

The general trend of the rock units is north westerly to north and essentially four major subdivisions can be mapped. These are, from west to east:

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a) Coarse to Medium Grained Biotite Granite (Meredith Granite).

b) Crimson Creek Formation. Volcaniclastic sediments weathering to clays.

c) Ultrabasic rocks of the Websterite Hill Complex.

d) Siluro-Ordovician sediments. The dominant lithology is quartzite (Crotty Quartzite), however Gordon Limestone has been mapped in the Little Wilson River north of the licence boundary and also south of line 4N in the Wilson River. Thus Gordon Limestone is inferred along the eastern margin of the ultrabasic unit.

The non-granite lithologies have a general northerly strike and sediments dip to the east at moderate to steep angles. Granite is thought to underlie the central part of the area at shallow depths as indicated by strongly metamorphosed ultrabasic rocks which occur as resistant topographic highs.

Relief in the area is variable and the present dramatic landscape is thought to reflect the impact of glaciation and erosion of variably metamorphosed sediments and ultrabasics.

The anticipated sites for mineralisation are metasomatic/skarn strata or faults within the Crimson Creek Formation, the Gordon Limestome and Ultrabasics. The granite offers some limited potential for the development of greisen mineralisation.

6.2 GEOCHEMISTRY (Figs. 2b-2f)

The geochemical data are discussed in relation to the main geological units and their relation with the present landscape. It should be noted that residual soils are not well developed on the ridge east of the camp access road. Also a large area of swamp and recent alluvium surrounding the Harman River would be expected to contribute to contamination.

6.2.1 Tin (Fig. 2b)

a) Granite. Values are generally below the limit of detection however a moderate response is evident on Line 22N from 16W to 18W. This lies north of the E.L. 2/63 boundary. No zones of great significance are evident apart from minor responses on Line 20N, 12.5W and Line 16N 20.5W.

b) Crimson Creek Formation. Again values are generally below the detection limit. Isolated point responses are evident near the granite contact - these are Line 16N, 19.5W; Line 14N, 19W; Line 12N, 9.5W. Two unrelated zones of interest occur on Line 6N, 25W to 28W and Line 4N, 13W to 15W. It is suggested that the zone centred on Line 12N, 12W is due to detrital contamination.

c) Ultrabasics. The broad anomalous zone from Line 18N, 00 to 3W then south through Lines 16N, 14N, 12N to Line 10N, 3.5W to 5.5W correlates with recent alluvium about the Harman River and it is suggested that this zone is of detrital origin. A zone of anomalous values on Line 6N, 00 to 3E extends to Line 8N where there are patchy values from 1.5E to 3E. This zone occurs on elevated relief and is associated with metamorphosed ultrabasics. An anomalous zone developed on Line 16N, 12E to 16E (E.L. 17/77) may be related to detrital contamination, however its location near the proposed ultrabasic/carbonate contact is of potential interest.

d) Siluro-Ordovician Sediments. The patchy anomalous responses at the eastern ends of Lines 4N, 6N may be due to detrital contamination.

6.2.2 Arsenic (Fig. 2c)

a) Granite. Values are generally below the limit of detection. No significant anomalous zones are apparent.

b) Crimson Creek Formation. This unit is reflected by the wide distribution of high background values with two extensive anomalous zones. The first is developed at the granite contact from Line 18N, 16W to 17W then south through Line 16N, 19W; Line 14N, 19W to Line 12N, 17.5W. The second is a broad anomalous zone from Line 8N, 11W ro 23W; through Line 6N, 13W to 30W; to Line 4N, 19.5W to 33W. There are also several other point anomalies which are not correlatable on the current sample density.

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c) Ultrabasics. There are four main zones of interest plus a minor zone at Line 20N, 10W (E.L. 17/77).

i) From Line 18N, 6.5W; through Line 16N, 9W; to Line 14N, 8W. This may be associated with detrital contamination.
ii) Line 12N, 2.5W. An isolated zone.
iii) Line 6N, 1.5E to 5E. A broad highly anomalous zone which does not extend to Lines 8N or 4N.
iv) From Line 14N, 13E to 14E; to Line 12N, 13E to 15E. This zone is associated with the ultrabasic/carbonate contact but may have some detrital input on Line 14N.

d) Siluro-Ordovician Sediments. Values are generally low and no distinctly anomalous zones are evident.

6.2.3 Copper (Fig. 2d)

a) Granite. Values are generally low and no zones of interest are evident.

b) Crimson Creek Formation. This unit is characterised by a high copper background with more intense values occurring in a wide zone near the ultrabasic contact. For example from Line 8N, 7W to 9W; through Line 6N, 7W to 10W; to Line 4N, 7W to 15.5W. Several other correlatable zones are defined by the 50 ppm contours.

c) Ultrabasics. Copper values are generally close to the limit of detection, with isolated weak values of little interest occurring. On the eastern contact there is a persistent anomalous zone from Line 14N, 12E to 14E; through Line 12N, 12E to 13E; Line 10N, 10E to 11.5E; Line 8N, 10.5E to 11.5E; to Line 6N, 10E.

d) Siluro - Ordovician Sediments. Values are generally low and of little interest.

6.2.4 Lead (fig. 2e)

Lead responses in soils are generally very poor throughout.

a) Granite. No zones of interest.

b) Crimson Creek Formation. Generally higher levels but no correlatable anomalous zones.

c) Ultrabasics. Three areas of minor interest occur;

i) From Line 16N, 2W to 4W; to Line 14N, 3W. Related to detrital contamination.

ii) Line 6N, 2.5E to 4.5E. Moderate values are coincidental with anomalous tin and arsenic responses.

iii) Several isolated values of interest are evidently associated with the eastern contact zone.

d) Siluro - Ordovician Sediments. Generally very low responses of little interest.

6.2.5 Zinc (Fig. 2f)

a) Granite. Values are generally close to the detection limit.

b) Crimson Creek Formation. Moderate values are encountered with significant levels developed in the south of the area. Several interline correlations are present.

c) Ultrabasics. Three broadly anomalous zones are well developed in alluvial and residual soils.

i) In the west from Line 20N, centre 10W; through Lines 18N, 16N, 14N, to Line 12N, centre 11W. This zone is related to residual soils.

ii) In the central area from Line 20N, centre 3W; through Lines 18N, 16N, 14N to Line 12N, centre 3W; then patchily southwards through Lines 10N, 8N, 6N to Line 4N, 4W. The northern part of this broad zone is related to the area of alluvial soils. Within this region there is a zone with correlates with anomalous arsenic values from Line 18N, 6.5W; through Line 16N, 9W; to Line 14N, 8W.

iii) In the east a zone of patchy values extends from Line 16N, 2E to 6E; through Line 14N, 3E; Line 12N, 4E to 8E; to Line 10N, 4E to 6E.

Anomalous responses are also evident on several lines associated with the ultrabasic contact. These are present from Line 14N to Line 10N and as isolated values on Line 6N and 4N.

d) Siluro - Ordovician Sediments. No significant responses are evident.

6.3 MAGNETICS (Fig. 2g)

The four-unit lithological subdivision is reflected by contrasting magnetic patterns:

a) Granite. Generally inert as expected.
b) Crimson Creek Formation. This unit is strongly defined as a zone of intense magnetic activity, however it is difficult to establish discrete interline correlations within the unit at the present line spacing.
c) Ultrabasics. The magnetic intensity pattern varies throughout the unit, and may reflect lithological variation within the pile. For instance, east of the camp access road the pile is characterised by a suite of pyroxenites, gabbros and basaltic lavas while to the west, a basal dunite rich sequence occurs (a low magnetic response). Superimposed upon these lithological variations is the effect of Devonian contact metamorphism.
d) Siluro - Ordovician Sediments. An inert magnetic response is evident.

6.4 INDUCED POLARISATION AND RESISTIVITY (Figs. h,i,j)

The detailed results are reported in Appendix 2 to which the reader is referred. Additional comment is given below:

The I.P. and resistivity responses are attributable to broad formational responses across the area. These broad zones of significant induced polarisation response designated "C", "D" and "G" have been delineated.

a) Zones "C" and "D" reflect the Crimson Creek Formation lithologies. Zone "D" correlates with Anomaly "A" of the Mt. Lindsay Grid due to overlap of the two grids.

b) Zone "G" correlates well with an area of deformed ultramafics.

c) The eastern ultrabasic contact is reflected by resistivity data as the contouring by Scintrex normal to the grid lines is not a unique interpretation.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 HARMAN RIVER GRID

The reconnaissance exploration surveys have highlighted several anomalous zones which may be indicative of mineralisation. Further work including field mapping and minor soil sampling is recommended to evaluate the origin of the anomalies in 1980/81.

The anomalous responses worthy of follow up are tabulated below (Table 2). They are located in three general areas:

a) within the Crimson Creek Formation.
b) in the southern part of the ultrabasic mass
c) along the eastern ultrabasic contact with the inferred Gordon Limestone.

It is also recommended that subsequent in-fill 200m grid lines and similar geochemical and geophysical work be undertaken in 1981/82 on these areas (should the 1980/81 field checking provide encouragement).

7.2 MERTON HILL GRID

It is recommended an initial 2 hole (300m approximate) diamond drill program be completed early in 1980/81 to investigate the anomalous responses already outlined. Details of proposed holes are contained in the May 1980 Progress Report.

A close patterned stream sediment orientation sampling program is recommended to determine if this exploration method is effective in the Pieman region. If these programs are successful then additional work is justified in the Merton Hill area in 1980/81. Accordingly the proposed budget (Section 7.4) takes account of this contingency.

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ANOMALOUS RESPONSES - HARMAN RIVER GRID

RESPONSE / LOCATION		GOSSAN	TRACE SULPH.	ALTERED HOST LITHOLOGY	FAVOURABLE HOST LITHOLOGY	Sn	As	Cu ± Pb ± Zn	Mag.	I.P.
18N	13W to 17W	N.A.	N.A.	N.A.	+	–	+	+	+	+
18N	5W to 8W	N.A.	N.A.	N.A.	+	–	+	+	–	–
16N	16W to 20W	–	N.A.	N.A.	+	–	–	+	+	+
14N	15W to 19W	–	N.A.	N.A.	+	–	+	+	+	+
14N	11W	–	N.A.	N.A.	+	–	+	+	–	–
12N	12W to 18W	–	N.A.	N.A.	+	+	+	+	+	+
12N	5.75W	–	N.A.	N.A.	+	–	+	+	+	–
12N	2W to 3W	–	N.A.	N.A.	+	+	+	+	–	+
12N	9.75E	–	+	+	+	–	–	+	+	+
12N	12.5E	–	N.A.	N.A.	+	–	+	+	+	+
12N	15E	–	N.A.	N.A.	+	–	+	+	+	–
10N	12W to 19W	–	N.A.	N.A.	+	–	–	+	+	+
8N	10W to 27W	–	N.A.	N.A.	+	–	+	+	+	+
8N	2W	–	N.A.	N.A.	+	+	+	+	+	–
8N	1E to 3E	–	N.A.	N.A.	+	+	–	+	+	+
8N	4E to 5E	–	N.A.	N.A.	+	–	–	+	+	+
8N	9E to 12E	–	N.A.	N.A.	+	–	–	+	+	+
6N	28W to 30W	N.A.	N.A.	N.A.	+	–	+	+	+	+
6N	24.5W to 27W	N.A.	N.A.	N.A.	+	+	+	+	+	+
6N	10W to 24W	N.A.	N.A.	N.A.	+	–	+	+	+	+
6N	00 to 5E	N.A.	N.A.	N.A.	+	+	+	+	+	+
6N	7E to 10E	N.A.	N.A.	N.A.	+	+	+	+	+	+
4N	31W to 35W	N.A.	N.A.	N.A.	+	–	+	+	N.A.	+
4N	12W to 31W	N.A.	N.A.	N.A.	+	–	+	+	+	+
4N	7W to 12W	N.A.	N.A.	N.A.	+	+	–	+	+	+
4N	7W to 2E	N.A.	N.A.	N.A.	+	+	–	+	+	+
4N	3.5E to 5.5E	N.A.	N.A.	N.A.	+	–	+	+	+	+

TABLE 2

Key:

N.A. Response not available

\+ Positive response

– Absence of response.

Notes to Accompany Table

The composite line data (Figs. 3 a-h) was interpreted with certain mineralisation characteristics in mind, i.e. the mineralisation sought is a stanniferous sulphide/skarn deposit which may have varying responses depending on its level of concealment.

The deposit should:

a) contain Sn and Fe, As, ± Cu, ± Pb, ± Zn sulphides
b) exhibit some magnetic and/or induced polarisation response
c) exhibit some geochemical response.

Outcropping mineralisation should have the following responses:

- Geological. Directly observable, may have a gossan.
- Geochemical. Sn, As, ± Cu, ± Pb, ± Zn response.
- Geophysical. Probably a magnetic and I.P. response.

Near Surface mineralisation

- Geological. Not observable, may be represented by trace sulphides in metasomatised host rocks. Favourable lithologies and/or fault structures may be evident.
- Geochemical. Probably no Sn response. Probably As, ± Cu, ± Pb, ± Zn response.
- Geophysical. Probably a magnetic and/or I.P. response but an absence of same should not be a negative factor.

Concealed mineralisation would have an absence of geochemical and geophysical responses but there may be evidence of broad favourable host lithologies and favourable structures.

7.3 MT. LINDSAY GRID

7.3.1 Lindsay Skarn Zones.

Detailed diamond drilling in the past has indicated the presence of significant multiple carbonate hosts containing tin mineralisation of variable intensity and petrological complexity. If the mechanisms of skarn formation and spatial distribution of tin species can be resolved then scope exists for further drilling of the carbonate horizons.

In addition, carbonate has been exposed in the recent HEC Pieman Road cuttings. This indicates an additional one kilometre of strike potential from the eastern drill hole (M.L. D.D.H. 42). Although much of this area has been covered by ground surveys it is unlikely that mineralisation occurring below a depth of 50 metres would have a recognisable surface response.

It is recommended that petrological research by outside personnel (e.g. T. Kwak; C.S.I.R.O.) continue and be assessed during 1980/81 with the intention of resuming limited diamond drilling in 1981/82.

7.3.3 Anomaly A.

Located north of the Lindsay skarn zones is a persistent I.P. anomaly with weak geochemical responses and this zone requires re-evaluation since the adjoining Harman River Grid has outlined contiguous anomalous responses (i.e. Zone D). A minor program of line cutting, mapping, magnetics and soil re-sampling is proposed.

7.4 PROPOSED EXPENDITURE

For the above programs a budget of $96,814 is proposed, allocated as follows:

a) Harman River Grid - mapping, helicopter support, soil sampling, consumables	$15,000

b) Merton Hill - diamond drilling (300m NQ triple tube), bulldozer access, orientation stream sediment sampling. $25,000

c) Anomaly A - line cutting, mapping, soil sampling. $ 6,000

d) Salmon Creek area - preparation of base maps, recutting grid lines, mapping, magnetics. $ 6,000

e) Contingencies - additional stream sediment sampling, additional drilling site access at Merton Hill. $44,814

The breakdown of charges to Joint Venture Partners would be:

Renison Limited	$58,086
Aberfoyle Group	$38,728
C.G.F.A.	NIL
TOTAL	$96,814

TABLE 3 - PROPOSED COMPANY EXPENDITURES

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Appendix 1

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RENISON LIMITED
GEOLOGY DEPARTMENT

EL 2/63 - MOUNT LINDSAY RESPONSIBILITY 076 P/E 24/ 6/80

ACCOUNT NUMBER	ACCOUNT NAME	PERIOD TO DATE ACTUAL	PERIOD TO DATE VARIANCE	YEAR TO DATE ACTUAL	YEAR TO DATE VARIANCE
010760702	SALARIES	281	4 L	6345	116 G
010760703	SALARY LOADING	43	234 G	475	63 G
010760705	CONSUMABLES	13	98 G	1389	799 G
010760708	VEHICLES			164	164 L
010760720	RENISON SERVICES - SURVEY			816	1920 G
010760721	RENISON SERVICES - ASSAY			6115	2685 G
010760722	RENISON SERVICES - RESEARCH				1595 G
010760723	RENISON SERVICES - OTHER				
010760730	OUTSIDE SERVICES - GEOLOGICAL	148	148 L	278	278 L
010760731	OUTSIDE SERVICES - GEOPHYSICAL	14446	14446 L	16346	16346 L
010760732	OUTSIDE SERVICES - GEOCHEMICAL			6965	5865 L
010760733	OUTSIDE SERVICES - TRK CUTTING			11665	7319 G
010760735	OUTSIDE SERVICES -SITE ACC DEV	1256	1256 L	2191	1191 L
010760736	OUTSIDE SERVICES-DIAMOND DRLNG				11250 G
010760737	OUTSIDE SERVICES - OTHER			13128	13128 L
010760760	SUB TOTAL	16187	15522 L	66077	11225 L
010760770	CHARGED TO PARTNERS	6475-	6209 G	26432-	4493 G
010760780	CHARGED FROM PARTNERS				
	ROUNDING			2-	2 G
010769999	TOTAL EL2/63 MT. LINDSAY	9712	9313 L	39643	6730 L

010025

025

019026 Appendix 2

A REPORT ON
GRADIENT ARRAY EIP RECONNAISSANCE SURVEY
OVER THE HARMAN RIVER GRID, E.L.2/63
NEAR ZEEHAN, TASMANIA
ON BEHALF OF
RENISON LIMITED

BY

A.W. HOWLAND-ROSE

MSC.DIC.AMAUSIMM.FGS.

GEOPHYSICIST

SCINTREX PTY. LTD.

JUNE 1980

SYDNEY, N.S.W.

TAS-074E

SUMMARY

Over the 48 kilometres of grid covered by the gradient array electrical induced polarization survey at Harman River, some seven areas of anomalous induced polarization have been located which have been designated zones A to G. The most extensive is zone C which dominates the south-western section of the grid and is certainly of formational graphitic (and/or sulphide) shale origin. Within this zone resistivities of as low as 3 ohm-metres have been located coincident with very high chargeability. Such zones have been assessed as being of primary geophysical interest on a basis of their superficial likeness to the pyrrhotite-tin veins of the Renison deposits.

A realistic assessment of the economic merit of the anomalous induced polarization can only be made when additional geo-parameters such as magnetic field, geochemistry and detailed geology are considered.

N.B. This report deals with data acquired in the Mt.Lindsay exploration licence (2/63) only. Comments and data relative to the adjoining Wilson River exploration licence 17/77 are not included in this report.

INTRODUCTION

At the request of Mr. L.A. Newnham, Chief Geologist for Renison Limited, Scintrex Pty. Ltd. carried out a gradient array reconnaissance survey over the Harman River grid.

The survey was undertaken over some 19¼ double and 6½ single operator days between 14th January and 23rd February 1980. The crew leader was Scintrex senior operator Mr. B. Ekstrom assisted by Mr. M. Joseph, B.Sc. (second operator) and field hands A.Hudson and I. Newby and operator P. List.

Organisation and field supervision was undertaken by Mr. A. Ross, Senior Exploration Geologist for Renison, while the author visited the area during the course of the survey.

This survey was one of the few carried out in Tasmania which was wholly helicopter supported. The crew was lifted in and out of the area daily, and the heavy 10/15 kilowatt motor generator was moved from set-up to set-up by helicopter. The use of the helicopter and the minimal travelling time undoubtedly led to the excellent production achieved on the survey.

In all, about 2000 stations were read from 10 gradient array set-ups involving some 48 kilometres of line. Very limited moving source follow-up was carried out also.

METHOD

Brief comments on the method are appended to this report.

EQUIPMENT AND OPERATION

A Scintrex 10/15 kilowatt transmitter was employed to energise the large gradient array spreads employed in the reconnaissance survey. The currents employed ranged between 3.5 to 5 amps at high voltages. The minimum output voltage required to achieve good data was employed due to possible leakage from the energising cables.

The energising pulse employed was a two second on, two second off, reverse and repeat square wave. The reading programme consisted of a 2 second programme read on a single slice under the decay curve, with three slices being taken at regular intervals and in areas of particular interest.

The current dipoles employed are as set out below:

2400W and 2100E on 24N
200W and 3000E on 18N
2400W and 3000E on 18N
2500W and 700E on 12N
300W and 2900E on 12N
3400W and 200W on 6N
1000W and 2200E on 6N
2100W and 500W on 6N
100E and 1000E on 20N

As can be seen the current dipole ranged from 3.2 kilometres to 5.4 kilometres with a 1.6 kilometres dipole being employed to read sections of lines 4N, 6N and 8N where extremely low current densities were encountered. The potential dipole employed was 25 metres, read at 25 metre intervals with closer spacings being taken over particularly sharp changes in chargeability or resistivity.

DATA PRESENTATION

The gradient array data has been contoured on the standard 1:5000 Renison survey sheet D1/4 of the Corinna sheet.

Profiles are presented on the standard Renison 1:5000 composite line profiles.

DISCUSSION OF RESULTS

The data is first discussed in terms of the significant anomalous induced polarization areas, and then in terms of overall form.

The comments made refer wholly to the geophysical data as such. Those chargeable horizons which show very low resistivities, high chargeabilities and slow decay forms are considered to be the most significant based on the argument that the classic pyrrhotite-tin veins show this type of response. As with all geophysical data the real merit of any anomaly depends on the correlation of the geophysical data with geochemistry, geology, and in this case, additional geophysical information such as magnetic field data.

Significant Anomalies

These are reviewed by region, generally from north to south. Each anomaly is identified alphabetically on both profiles and on the contour interpretation of the data.

ZONE 'C'

This zone consists of a wedge shaped zone of high to very high chargeability which increases in width from zero on line 18N, and about 3000 metres centred at about 1800W in the north, to 1000 to 3500W on the most southerly line run (4N). While the contouring has been done for best fit, namely, normal to the grid lines, the 400 metres (±) interline spacing does not allow interline correlation between individual events.

Some of the lowest apparent resistivities recorded in the area (to 10 ohm-metres) have been recorded within the centre section of zone 'C'. A particularly low resistivity zone runs from 1700W on line 14N, 1500W ±200 metres on line 12N, 1300W on line 10N, 1200W on line 8N, 1350W on line 6N to cross line 4N at 1600W ±300 metres. Since these low resistivity values are invariably accompanied by high to very high chargeability, they are caused by massive interconnected graphite and/or sulphide bearing sediments. In general there is an inverse relationship between the amplitudes of the chargeability and resistivity.

In view of the individual nature of the anomalies within the large area of the grid covered by Zone 'C', the section covered by this zone is discussed on a line by line basis from north to south.

Line 18N ... Two rather low amplitude responses recorded on this line at 1400W and 1640W ±60 metres have been designated C2 and C1 respectively. The amplitude is about 10 millivolts/volt above the 8 millivolts/volt background. The associated resistivity, while on average being slightly lower than background, is still high at 3000 ohm-metres (±) in absolute terms. Thus the source is wholly disseminated on this line. These two anomalies are considered to be the correlatives of C3 and C4 on line 16N described below.

Line 16N ... Within a broad decrease in resistivity from over 6000 ohm-metres to the west, and 1000 to 2000 ohm-metres to the east, a broad zone of 50 millivolts/volt chargeabilities was recorded from 1000 ohm-metres resistivities. On the extreme western (C3) and eastern (C4) margins, chargeabilities rise to over 200 millivolts/volt and 100 millivolts/volt respectively, and are coincident with resistivity lows of 200 ohm-metres and 250 ohm-metres respectively. The interpreted sources are massive, interconnected sulphide/graphite at maximum depths of the order of 40 metres. The high chargeability between zones C3 and C4 is due to disseminated graphite and/or sulphides. The decay form noted at 1960W, to the west of the above, is very slightly faster than normal (Mn = -1.0%), while readings at 1850W gave decay forms of +5.4%, at 1787W (within the disseminated central zone) decay form was +3.8%, and at 1662.5W on C4 the anomaly shows a slow decay form of +8%. Thus it would appear that the causative material is slightly coarser than normal.

To the immediate west of the above, a sharp anomaly C5 was defined at 1890W of 34 millivolts/volt, but is associated with higher resistivities of 4000 ohm-metres. The source therefore is disseminated and is inferred from the profile form to have a maximum depth of the order of 40 metres.

Line 14N ... As with zone 'C' on line 16N, the western margin is signified by a dramatic drop in resistivity from over 500 ohm-metres to the immediate west of the chargeability high to an average value of about 1000 ohm-metres. Within this level, however, resistivities as low as 100 ohm-metres (±) were recorded. The chargeability rises from the west to over 50 millivolts/volt at 1885W to form anomaly C6. The decay form within the source is not known, but at 1912W the decay form is +12%, which infers a very slow decay form. The resistivity is a low 100 ohm-metres which clearly infers significant conduction within the source.

Between about 1850W and 1600W chargeabilities remain within the 40 to 60 millivolts/volt range while resistivities average less than 1000 ohm-metres. The sub-zone C7 therefore consists of disseminated to weakly interconnected sulphides and/or graphite. On the flanks of this broad feature the maximum depth to source is inferred to be of the order of 40 to 60 metres, however, no estimate of depth to source can be made in the central sector.

Two lesser maxima of 38 millivolts/volt and 34 millivolts/volt were located at 1485W and 1540W. Again an essentially disseminated source is interpreted at depths of the order of 30 metres.

Line 12N ... The zone of higher induced polarization was contained between 1795W in the west and 1260W in the east. Within these limits the chargeabilities are, for the most part, between 50 and 100 millivolts/volt. The resistivity data remains for the most part below 1000 ohm-metres, but distinct resistivity lows of 250 ohm-metres at 1720W, 20 ohm-metres at 1535W, 60 ohm-metres at 1400W and 120 ohm-metres at 1360W were recorded. The chargeability data gives maxima of 68 millivolts/volt at 1750W, 72 millivolts/volt at 1675W, 120 millivolts/volt at 1550W, 74 millivolts/volt at 1462W and 82 millivolts/volt at 1387W. These maxima merely represent local segregations of graphite and/or sulphides within the overall zone C10 rather than individual anomalies. A number of decay curves were monitored which gave slow decay forms, inferring coarser than average grain sizes for the causative sulphides or graphite. These show ΔMn values of +4% at 1787W, +8% at 1762W, +11% at 1650W, +17% at 1387W and +37% at 1237W, just east of the main C10 zone, but still in anomalous values. This data would appear to indicate a coarsening of grain size from west to east over the chargeable source on this line. The maximum depth can only be guesstimated on the extreme western flank where it is assessed to be of the order of 60 metres ($\pm$).

Line 10N ... The main section of zone 'C' on this line (designated C11) was sharply defined between 1700W and 1250W as a 50 millivolts/volt to 100 millivolts/volt response associated with resistivities which for the most part are less than 1000 ohm-metres. These features contrast with backgrounds of 11 millivolts/volt and 10,000 ohm-metres to the west and 18 millivolts/volt and 1000 ohm-metres to the east. The whole section between the limits given above is anomalous, and no real definition is possible within this zone except that local maxima represent local segregations of the sulphide/graphite source. The depth of source can be gauged only on the flanks where the maximum depth is assessed to be in the range of 50 metres $\pm$10 metres.

West of the main chargeable horizon which makes up C11, a discrete chargeability response (C12) of 16 millivolts/volt on the 10 millivolts/volt background was recorded at 1812W which is interpreted as coming from a source assessed to be of the order of 50 metres $\pm$10 metres deep. The local resistivity background is a high 11,000 ohm-metres with the resistivity over the anomaly being 14,000 ohm-metres. The source is obviously disseminated in nature, and the decay form data indicates a normal grain size, ΔMn = 0.

A very similar response was recorded to the east of the main zone C11 at 1150W. Here a 20 millivolts/volt above the 16 millivolts/volt background response was defined from material which shows a slight increase in resistivity above the 800 ohm-metres local background.

Line 8N ... On line 8N the anomalous response from zone 'C' (C14) extends from 2380W in the west to 1140W in the east.

The resistivities are so low in the central section that on this line (and lines 6N and 4N) an array having a much shorter 1.6 kilometre current dipole had to be employed. On this line the data extended from about 1100W to 1600W.

The whole section is characterised by high chargeability with a number of distinct maxima such as 121 millivolts/volt at 1487W and 94 millivolts/volt at 1562W. Overall the chargeability remains between 50 millivolts/volt and 100 millivolts/volt, inferring a most chargeable rock suite. A number of notable resistivity lows of 30 ohm-metres at 1260W and 20 ohm-metres at 1450W may infer conduction within the chargeable material. There is no way of differentiating potential economic zones from within this unit as the whole section is highly anomalous.

Line 6N ... A very similar state of affairs was seen on line 6N where highly anomalous chargeability values were recorded from about 2560W to about 1080W. Distinct chargeability maxima of greater than 100 millivolts/volt were recorded at 2465W, 2285W, 2045W, 1940W, 1740W and inferred between about 1400W and 1300W, while the recorded resistivity reached about 3 ohm-metres, which indicates the existence between these coordinates of massive interconnecting sulphides and/or graphite. The chargeability demonstrates the presence of graphite and/or sulphides exceeding 5% over the entire section. Only at 2437W was a decay form taken, and here the ΔMn at +13% indicates a very coarse grained source, at least at that site.

Line 4N ... On this the most southerly line surveyed, the most extensive zones of anomalous chargeability were defined. Here, zone 'C' extends from 2920W to 1180W. In fact the anomalous induced polarization extends to the end of the line at 3500W, but between 2920W and 3500W the resistivities are much higher and for this reason it has been classified as a separate zone, zone 'D'. Over the sector defined as zone 'C', the apparent resistivities are the lowest recorded in the area, rarely rising above 1000 ohm-metres.

In detail, the resistivity falls to about 400 ohm-metres at 2915W and less than 20 ohm-metres at 2880 W. The associated chargeabilities are a high 70 millivolts/volt, clearly inferring a chargeable and well interconnected source. This response must be due to a 'massive' graphite and/or sulphide source. One point of interest at this site is that the chargeability is higher over the flank of the resistivity low at 80 millivolts/volt to the west and 120 millivolts/volt to the east. This could be due to the fact that massive, electrically continuous material has less surface area and thus less chargeability.

Between about 2860W and 2300W the resistivity remained just about 1000 ohm-metres, while the chargeability varied about the 50 millivolts/volt level. A distinct local peak of about 140 millivolts/volt above 70/40 millivolts/volt local background was defined at about 2785W. The maximum depth to source based on profile form would be about 40 metres, however, as the zone probably represents a gradual increase in chargeable material rather than a discrete source, this depth estimate could be excessive.

Centred at about 2220W a broad decline in apparent resistivity was noted to 250 ohm-metres allied to a broad increase in the already high background level of 50 to 60 millivolts/volt to over 100 millivolts/volt centred at 2240W. These features represent gradual changes in electrical properties not abrupt changes.

Between 1930W and about 1440W the level of resistivity varies about the 50 to 60 ohm-metres level, while the chargeability varies from low levels of 40 millivolts/volt to 80 millivolts/volt. Again formational variation is the source of the observed changes.

From 1440W to about 1230W the base resistivity shows a gradual increase from the 50 ohm-metres ($\pm$) level to 600 ohm-metres with a gradual fall in chargeability to 30 millivolts/volt from 60 millivolts/volt.

The eastern end of zone 'C' on this line is marked at 1190W by an abrupt fall in resistivity to 20 ohm-metres and a sharp rise in chargeability to 62 millivolts/volt. This discrete anomaly has a single event source whose interpreted maximum depth is 25 metres. The source is obviously interconnected graphite and/or sulphides and is considered of primary interest.

The decay forms noted over zone 'C' on this line are slow, examples are:

Station	Mn	Inferred grain size
1837.5W	+40%	very coarse
1887.5W	+37.5%	very coarse
1937.5W	+11.7%	coarse
2087 .5W	+13%	coarse

Station	Mn	Inferred grain size
2387W	+12%	coarse
2587.5W	+15%	coarse
2662.5W	+8%	slightly coarser
2775W	+10%	slightly coarser
2925W	+12%	coarse

These data clearly indicate that the source of the chargeable material has a coarser than average grain size which may be due to individual grains being coarse, or alternatively agglomerates of smaller grains giving an effectively large grain size.

This zone is open to the south.

ZONE 'D'

On the western extremities of lines 6N and 4N high induced polarization readings were recorded from material having significantly higher associated resistivities than those observed within zone 'C'. On line 6N there is a distinct 'low' background break of 20 millivolts/volt (±) between about 2550W and 2800W, but between zones 'D' and 'C' on line 4N, although there is a relative low of 30 to 40 millivolts/volt between about 3000W and 3300W, the chargeability level must be considered to be anomalous.

Line 6N ... Some four distinct chargeability maxima were observed on this line, which may? relate to much more substantial maxima on line 4N about 400 metres to the south. All are associated with high to very high apparent resistivities ranging from 4000 ohm -metres to 10,000 ohm-metres.

Sub-zones 'D1' was located at 2788W as a 10 millivolts/volt above the 20 millivolts/volt background. The maximum depth to source is about 20 metres, and the source is disseminated.

Sub-zone 'D2' is centred at 2860W and is about 13 millivolts/volt on a 27 millivolts/volt local background, again within high 10,000 ohm-metres resistivities. The maximum depth to source is assessed at 40 metres.

Sub-zone 'D3' was centred at 2950W and is a 12 millivolts/volt response within an 8000 ohm-metres background. The maximum depth to source is about 35 metres. Again the inferred source is disseminated sulphides within a resistive host.

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Sub-zone 'D4' is centred at 3000W where a 14 millivolts/volt above the 28 millivolts/volt background response is interpreted as being caused by a source at a maximum depth of about 25 metres. The source is assessed to be disseminated.

In all the above where decay curve data was acquired, it gave near normal decay forms which infers an 'average' grain size to the causative source. All anomalies are considered of tertiary interest at best.

<u>Line 4N</u> ... The profile form over the section designated as zone 'D' on this line (i.e. west of 3100W) shows little if any clear correlation with the presumed along strike zone 'D' on line 6N.

A distinct anomaly designated 'D5' of some 26 millivolts/volt above the 28 millivolts/volt ($\pm$) background was defined at 3175W from rocks whose resistivity is of the order of 9000 ohm-metres. The maximum depth to source is assessed to be of the order of 40 metres. Near normal decay forms were observed.

Subzone 'D7' is a significant 170 millivolts/volt response centred at 3335W accompanied by a distinct decrease in resistivity to 400 ohm-metres ($\pm$). The source therefore, while not being conductive as such, is significantly less resistive than the enclosing rocks. Thus as some conduction within the source is inferred, the source may be in part 'massive'.

Sub-zone 'D8' defined at 3465W gives a 50 millivolts/volt above the 40 millivolts/volt background response. A lower resistivity of 3500 ohm-metres as against 9000 ohm-metres was recorded over this anomaly, inferring weak interconnection between the source grains and/or a less resistive host to the chargeable material. A decay form nearby infers a slightly slower than normal decay with ΔMn being +11%.

<u>ZONE 'G'</u>

Two distinct anomalies, both open to the south, make up the core of this anomalous zone. The most eastern response, 'G1', is seen over three lines. On line 4N a distinct maximum of 66 millivolts/volt is accompanied by resistivities of the order of 1500 ohm-metres which show no change in background. The assessed maximum depth to source is of the order of 80 metres and is almost certainly excessive. On line 6N the anomaly 'G1' reaches over 60 millivolts/volt at about 420E and is associated with an increase in resistivity to about 3000 ohm-metres from an 800 ohm-metres background. The maximum depth to source is estimated to be of the order of 40 metres. On line 8N twin maxima of 66 millivolts/volt at 512E and 412E were recorded. The decay form of the former is normal while the latter shows a slow decay form with ΔMn = +7%. The accompanying resistivities range between 1200 and 2000 ohm-metres. The source is interpreted as being disseminated in nature, and is at a maximum depth of 30 to 35 metres.

Zone 'G2' was defined at about 200W on line 4N as a 75 millivolts/volt maximum associated with resistivities of the order of 900 ohm-metres ($\pm$). The decay form observed is slow, with ΔMn = +12.5%, which infers a coarser than normal grain size to the sulphide/graphite source. On line 6N 'G2' reaches about 60 millivolts/volt in close proximity to a change in resistivity, the absolute amplitude of which is of the order of 600 ohm-metres ($\pm$ ohm-metres). The decay form at +12% is similar to line 4N. While higher chargeabilities are noted on line 8N along strike, they cannot be directly linked to 'G2). The maximum depth to source is estimated to be about 60 metres.

A distinct chargeability anomaly, 'G3', was defined on line 4N at 480W having an amplitude above background of about 24 millivolts/volt. A slight increase in resistivity from the base level of 200 ohm-metres ($\pm$) to 700 ohm-metres was noted. The maximum depth to source is estimated at 50 metres. This sub-zone has no expression on line 6N and is open to the south.

'G4' ... A similar response of 24 millivolts/volt was defined at 312W which on this occasion is associated with a distinct, broad depression in apparent resistivity to about 350 ohm-metres from the 700 to 1000 ohm-metres background. Two distinct sources are inferred, and a second associated with a shoulder at about 350W. The maximum depth to source is estimated to be of the order of 50 metres. This response is open to the south but closed to the north.

COMMENTS ON THE ELECTRICAL PROPERTIES AS THEY RELATE TO THE GEOLOGY AS KNOWN AT 23RD OCTOBER, 1979.

As remarked earlier the chargeability and resistivity data has been contoured on to Renison standard sheets for the area at the scale of 1:5000. These are shown in Plates 1 & 2. Also a summary of electrical properties map has been constructed which displays the salient characteristics of both contour interpretations.

Resistivity Data

The western margin of the area is defined by granite. The resistivity data records the granite Cambrian contact as a sharp change in resistivity of about tenfold.

The Cambrian Ordovician sediments enclosed by the granites appear to have a distinct trend about normal to the grid lines which appears valid notwithstanding the 400 metres interline spacing. This is particularly true of the alternations of resistive (3000 ohm-metres+) and conductive (700 ohm-metres-) units seen between the access road and the eastern granite contact. A number of distinct resistive 'marker' horizons can be identified which are considered 'real' features and not a function of the line spacing. These occur as narrow features in the west and as much wider features in the east. These features have been marked on the electrical property summary map(plate 3).

From the resistivity data only the granite unit on the east and west flanks of the area are distinctly seen. The boundaries of the Cambrian Crimson Creek, Cambrian Ultrabasic or Ordovician or Silurian sediments of the eastern section are not clearly delineated in terms of resistivity alone.

Chargeability Data

The bulk of the area has a chargeability background in the range 10 to 20 millivolts/volt. Against this low background a number of linear induced polarization anomalies were located.

In stark contrast to the above, highly anomalous induced polarization was recorded in the south-western and central southern sections of the area.

High chargeability values in excess of 100 millivolts/volt have been recorded in high resistivity sections on the western end of lines 2N, 4N and 6N which on a basis of their high resistivities were taken to be of granite origin. Thus either the granite contains sulphides as such, or perhaps includes sections of the chargeable Crimson Creek formation.

To the east of the granite on lines 2N, 4N and 6N high chargeability of 50 to 100 millivolts/volt (+) and lower resistivities in the 500 ohm-metres range have been recorded from an area mapped as Crimson Creek formation. These properties are in accord with those defined elsewhere in the region.

Line	Station	Sub-zone	Anomaly/ B'ground	Resistivity Background	Maximum Depth	Decay (Mn)	Priority
14N	1540W	C9	34/12	800/1000Ωm	30m	+3%(W)- +37%(E)	Sy/Ty
12N	1795W- 1260W	C10	60/12	20-800/1000Ωm	60m(W)	-	? Formational
10N	1700W- 1240W	C11	50-100/12	250-5K/1000Ωm	50-60m	-	? Formational
10N	1810W	C12	16/10	14K/11KΩm	50±10m	0	Sy
10N	1150W	C13	20/16	1000/800Ωm	35m	0	Sy
8N	2300W- 1140W	C14	50-130/8	20-/3000Ωm	to 50m	-	? Formational
6N	2560W- 1080W	C15	50-150/8	3-1000/1000Ωm	40-100m	-	? Formational
6N	1350W±50m	C15	150	3Ωm	40m	-	Py
4N	2920W- 1180W	C16	50-180	4-/1000Ωm	-	+8% - +40%	? Formational
4N	2880W	C16	70	15Ωm	35m	-	Py
4N	1190W	C16	62/30	20Ωm	25m	-	Py

ZONE 'D' ... This zone was defined to the west of the highly chargeable and conductive zone 'C' on lines 4N and 6N, and remains open to the west and south. Overall the source is generally much more resistive by one to two orders of magnitude than seen over zone 'C'.

Line	Station	Sub-zone	Anomaly/ B'ground	Resistivity Background	Maximum Depth	Decay (Mn)	Priority
6N	2788W	D1	10/20	8000Ωm	20m	normal	Ty
6N	2860W	D2	13/27	10,000Ωm	40m	-	Ty
6N	2950W	D3	12/28	8000Ωm	35m	-	Ty
6N	3000W	D4	14/28	6000Ωm	25m	normal	Ty
4N	3175W	D5	26/28	8000Ωm	40m	normal	Ty
4N	3260W	D6	26/20	1200Ωm	25m	-	Ty
4N	3335W	D7	170/40	400/3K±Ωm	50m	-	Sy
4N	3465W	D8	50/40	3500/9KΩm	30m	+11%	Sy/Ty

ZONE 'G' ... Two material anomalies were located on lines 4N, 6N and 8N which have an inferred strike normal to the grid. In detail these are summarised below:

Line	Station	Sub-zone	Anomaly/ B'ground	Resistivity Background	Maximum Depth	Decay (Mn)	Priority
8N	412E	G1	66/30	2000Ωm±	80m	+7.4%	Sy/Ty
8N	512E	G1	66/30	2000Ωm±	40m	normal	Sy/Ty
6N	412E	G1	30/30	3000/800Ωm	40m±	-	Sy/Ty
6N	262E	G2	30/30	800/350Ωm	50m±	+11%	Sy/Ty
4N	012E	G1	37/30	1200Ωm	80m	+12%	Sy/Ty
4N	200W	G2	35/40	1000Ωm	?	+13%	
4N	312W	G4	24/20	350/1000Ωm	50m±	-	Sy/Ty
4N	460W	G3	24/20	700/300Ωm	50m	-	Sy/Ty
4N	137E)	G5	8/26	6000/1200Ωm	50m±	-	Ty
4N	188E)		8/24	1800Ωm	50m±	-	Ty

None of the anomalies are assessed to be of primary geophysical interest and all are essentially disseminated in nature.

2. The geophysical data will require careful study in conjunction with the magnetic field data, revised geology, and geochemistry before the significance of this work can be assessed.

ROCK SPECIMENS COLLECTED BY A.V. BROWN

HARMAN RIVER AREA

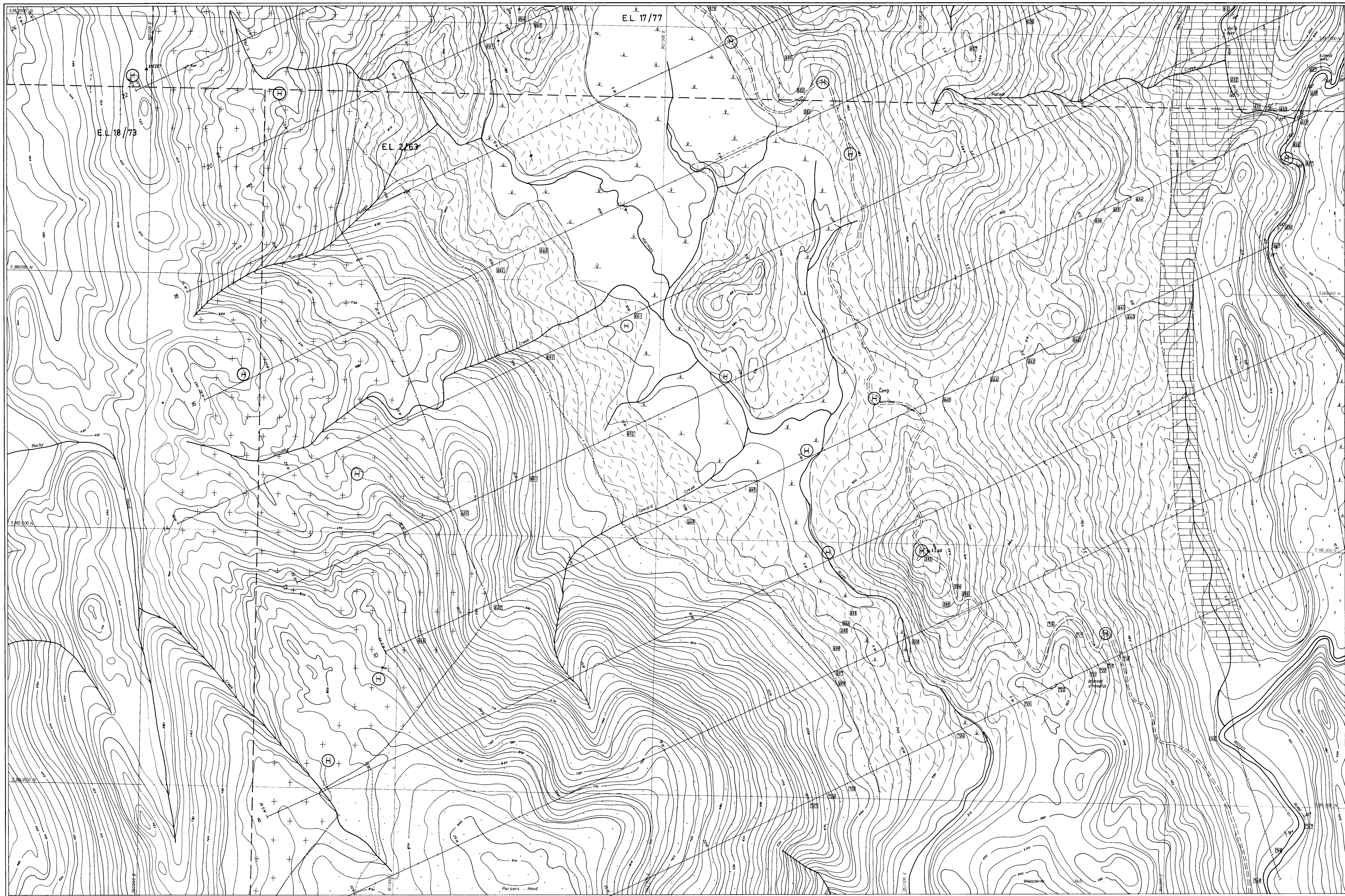
No.	Name
562	Serpentinised pyroxenite } metaserpentinite
563	Serpentinised pyroxenite } metaserpentinite
564	Medium to coarse grained non-porphyritic granite
565	Serpentinised pyroxenite
566	Serpentinised pyroxenite
567	Serpentinised pyroxenite
568	Serpentinised dunite
569	Harzburgite
570	Orthopyroxenite
571	Orthopyroxenite
572	Granite
573	Undifferentiated ultrabasic
574	Undifferentiated ultrabasic
575	Undifferentiated ultrabasic
577	Serpentinised dunite
578	Serpentinised dunite
579	Serpentinised dunite
580	Serpentinised dunite
581	Dunite
582	Quartz feldspar porphyry
583	Metaperidotite
584	Silicified ultramafic
585	Metadunite
586	Metaperidotite
588	Serpentinised dunite
589	Harzburgite
590	Harzburgite
591	Pyroxenite
592	Metaperidotite
593	Pyroxenite
594	Undifferentitated ultrabasic
595	Pyroxenite
596	Gabbro and harzburgite
597	Pyroxene bearing dunite
598	Pyroxene bearing dunite
599	Pyroxene bearing dunite

042

No.	Name
600	Dunite
601	Medium grained biotite granite
602	Pyroxenite
603	Metaperidotite
604	Metaperidotite
605	Metapyroxenite
606	Metapyroxenite
607	Pyroxenite
609	Meta-serpentinised pyroxenite (fibrous amphibole)
610	Metadunite
611	Contact hybrid zone
612	Carbonate
623	Quartzite
627	Quartzite; sulphide mineralisation nearby.
628	Quartzite
629	Quartzite
630	Quartzite
631	Carbonate
632	Carbonate
633	Quartzite
634	Altered basaltic lava
635	Altered basaltic lava
636	Altered basaltic lava
637	Quartzite
638	Quartzite
639	Quartzite
640	Altered gabbro
641	Altered gabbro
642	Hybrid ultramafic
643	Serpentinite
644	Gabbro
645	Pyroxenite
646	Coarse grained biotite granite
647	Hornfelsed metasediment
648	Gabbro
649	Undifferentiated serpentinite
650	Hornfels
651	Silicified ultramafic
652	Dunite
653	Gabbro

No.	Name
654	Metaperidotite
655	Metaperidotite
656	Fine grainted gabbro
657	?
658	Gabbro
659	Meta-ultramafic
660	Serpentinised dunite
661	Undifferentiated serpentinite
662	Dunite
663	Dunite
664	Serpentinised dunite
665	Pyroxene bearing dunite
666	Dunite
667	Dunite
716	Metaperidotite
717	Metaperidotite
718	Serpentinite
719	Metaserpentinite
720	Deformed websterite
721	Deformed websterite
722	Altered websterite
723	Serpentinised dunite
724	Gabbro
725	Gabbro
726	Gabbro
727	Gabbro
745	Undifferentiated serpentinite
746	Carbonate
747	Quartzite
748	Meta-ultrabasic
749	Metaserpentinite

RENISON LTD.
E.L. 17/77
Harman River area
RENISON LTD.
E.L. 18/73
ABERFOYLE
E.L. 2/63
E.L. 17/77
area 2
Corinna
Tullah
Rosebery
Pieman
River
RENISON LTD
E.L. 42/71
Renison Bell
Renison Mine Complex
RENISON LTD
E.L. 42/71
Granville Harbour
St. Dizier
SOUTHERN
OCEAN
Mt. Heemskirk
RENISON LTD
E.L. 11/76
Federation area
Mt. Agnew
Cumberland
MT. LYELL MG. & RLY. Co. Ltd.
S.P.L. 129
Zeehan
Mt. Zeehan
Mt. Dundas
Trial Harbour
Remine
RAZORBACK
Murchison
Highway
TASMANIA
BURNIE
LAUNCESTON
TULLAH
ROSEBERY
ZEEHAN
HOBART
Permian + younger
S + D Silurian + Devonian Sediments
Os Ordovician Sediments
Є Cambrian Sediments + Volcanics
PЄ Precambrian Units
Єb Cambrian Basic + Ultrabasic Intrusives
Dg Devonian Granite Intrusives
Traverse Line Systems
80·1507.
RENISON LIMITED
LOCALITY MAP
010044
GEOLOGIST :
DRAUGHTSMAN : F. A. Colson
DATE :
REVISIONS :
SCALE 1:50,000 METRES
MAP 1:1,000,000
DRAWING No.
FIG.1
5 cm
2882



(H) Helipad
Walking track
Grid line, 100 m pegs
[718] Sample location (A. Brown)
▲ S2165 Survey control station

D1/1	D1/2	
	CORINNA D1	
D1/3	D1/4	D2/3
	D3/2	

Mapping by A. Ross, A. Brown, P. Boshier.
Compiled by A. Ross.

REFERENCE

DEVONIAN

INTRUSIVES

MEREDITH GRANITE
- Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
- Fine grained muscovite - biotite granite (Dg 2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration - tourmaline, chlorite.

CAMBRIAN

WEBSTERITE HILL COMPLEX
- Ultrabasic rocks (€s)
- Silicification (alteration).

SEDIMENTS

CAMBRIAN
- **CRIMSON CREEK FORMATION** (€c) — Hornfelsed volcaniclastic sediments, minor gabbro

ORDOVICIAN
- **GORDON LIMESTONE** (Og) — Grey massive limestone

SILURIAN
- **CROTTY QUARTZITE** (Sc) — Quartzite and undifferentiated sediments

TERTIARY
- Ironstone, laterite scree developed on ultrabasics (Ts)

QUATERNARY
- Recent alluvium (Qra)

2883

80-1507

RENISON LIMITED

CORINNA D1/4

GEOLOGY

019045

GEOLOGIST	A Ross
DRAUGHTSMAN	T.G.D.S
DATE	September 1980
REVISIONS	

SCALE 1:5000 METRES
100 0 100 200

5 cm

DRAWING No
FIG. 2 (a)

2883

80-1507	RENISON LIMITED

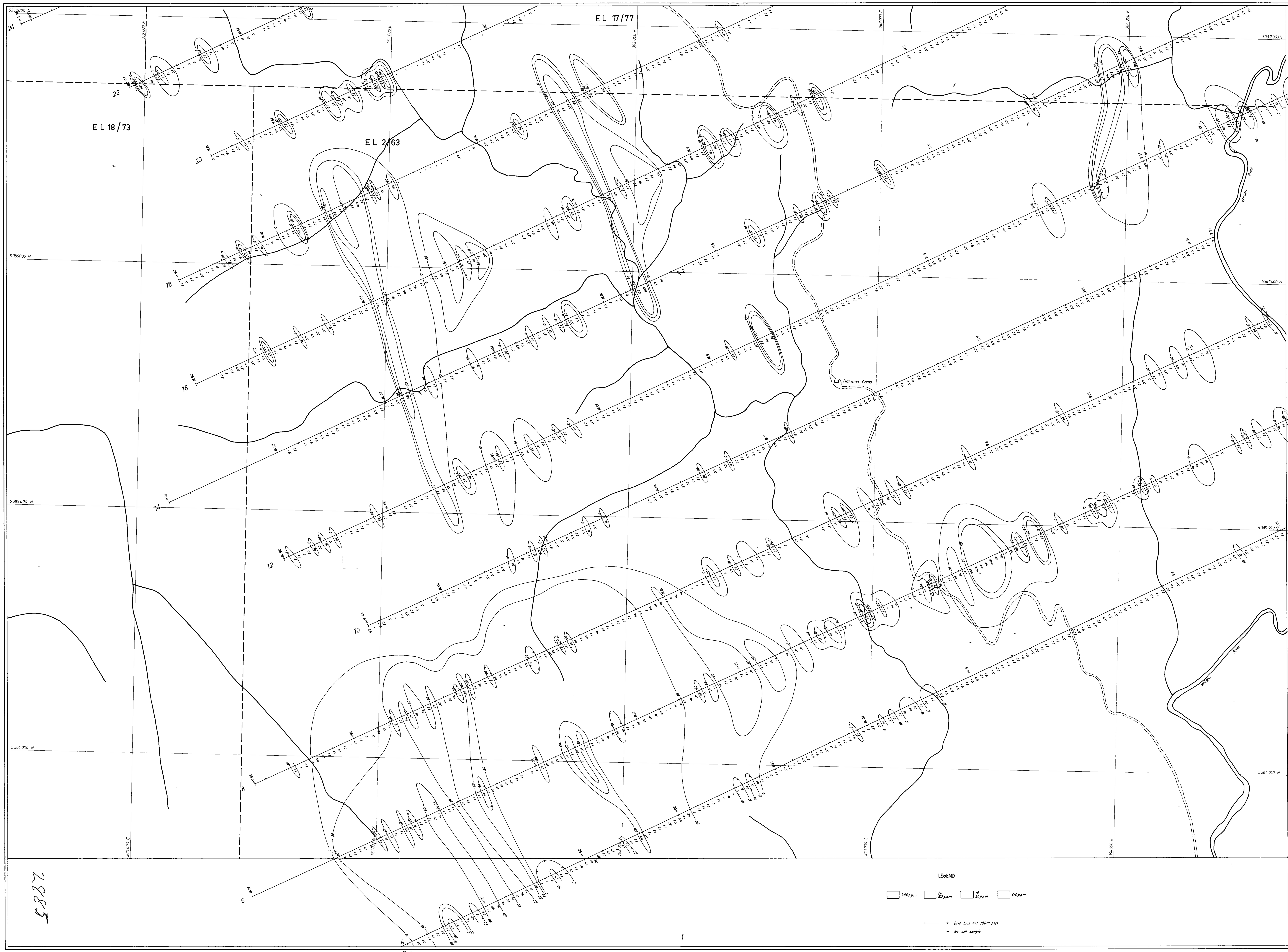
CORINNA D1/4

SOIL GEOCHEMISTRY - TIN (ppm) 019046

GEOLOGIST	A ROSS	SCALE 1 5000 METRES
DRAUGHTSMAN	F COLSON	
DATE	MAY 1980	
REVISIONS		DRAWING No Fig 2 (b)

2884

2884



010047

80 1507

RENISON LIMITED

CORINNA D1/4

SOIL GEOCHEMISTRY - ARSENIC (ppm)

GEOLOGIST	A ROSS
DRAUGHTSMAN	F COLSON
DATE	MAY 1980
REVISIONS	

SCALE 1 5000 METRES

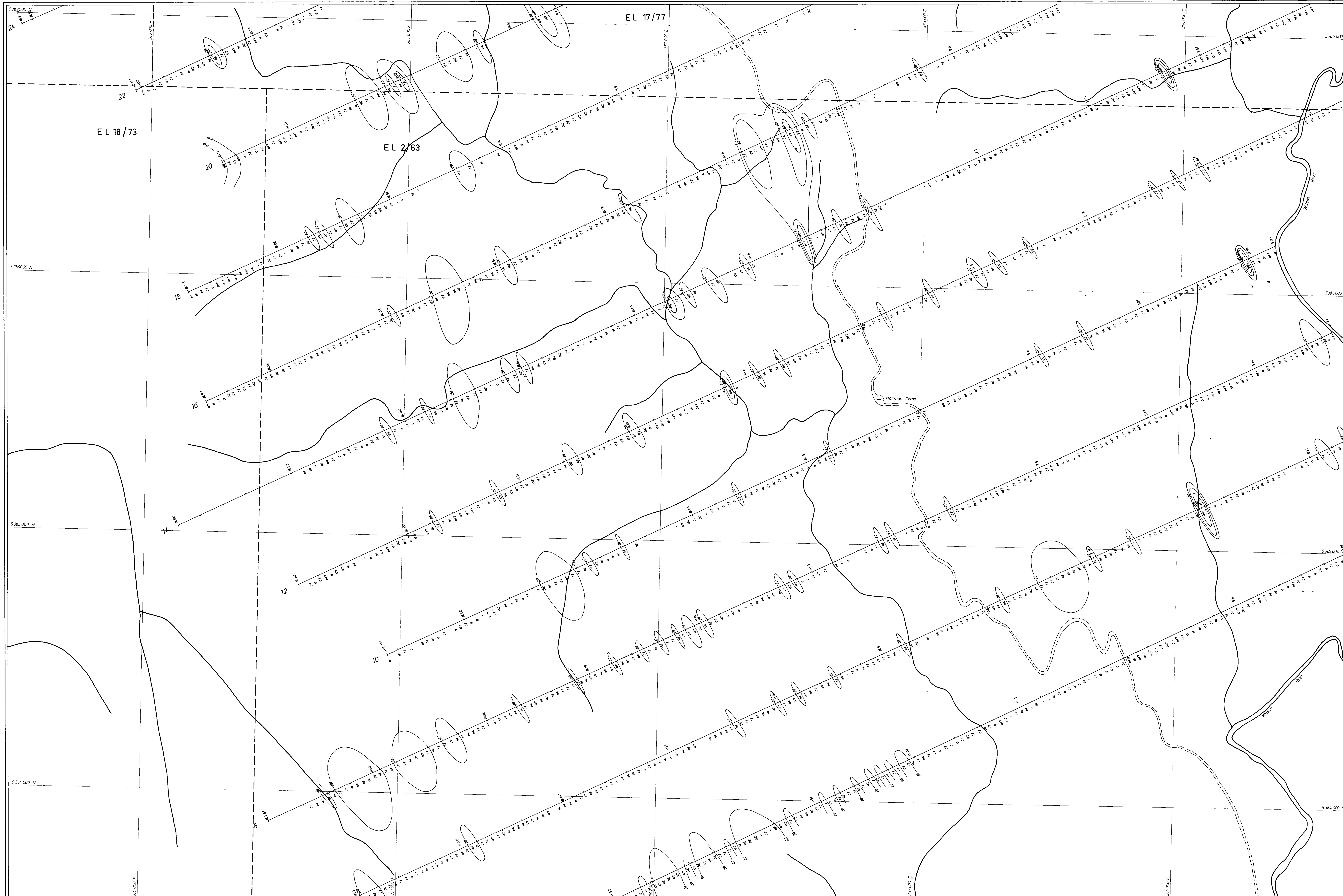
100 0 100 200

DRAWING No Fig 2 (c)

5 cm

2885


EL 17/77
EL 18/73
EL 2/63
Harman Camp
Wilson River
AMG NORTH
D1/1
D1/2
CORINNA D1
D1/3
D1/4
D2/3
D3/2
LEGEND
>100 ppm
50 100 ppm
20 50 ppm
<20 ppm
Grid Line and 100m pegs
- No soil sample
010018
80-1507
RENISON LIMITED
CORINNA D1/4
SOIL GEOCHEMISTRY - COPPER (ppm)
GEOLOGIST A ROSS
DRAUGHTSMAN F COLSON
DATE MAY 1980
SCALE 1 5000 METRES
REVISIONS
DRAWING No Fig 2(d)
5 cm
2886



LEGEND

>100 p.p.m — 50–100 p.p.m — 20–50 p.p.m — <20 p.p.m

Grid Line and 100m pegs

– No soil sample

2887

019049

80-1504

RENISON LIMITED

CORINNA D1/4

SOIL GEOCHEMISTRY - LEAD (ppm)

GEOLOGIST	A ROSS	SCALE 1 5000 METRES	
DRAUGHTSMAN	F COLSON	100 0 100 200	
DATE	MAY 1980		
REVISIONS		DRAWING No	Fig 2 (e)

5 cm

2887

019050

80 1507

RENISON LIMITED

CORINNA D1/4

SOIL GEOCHEMISTRY - ZINC (ppm)

GEOLOGIST A ROSS

DRAUGHTSMAN F COLSON

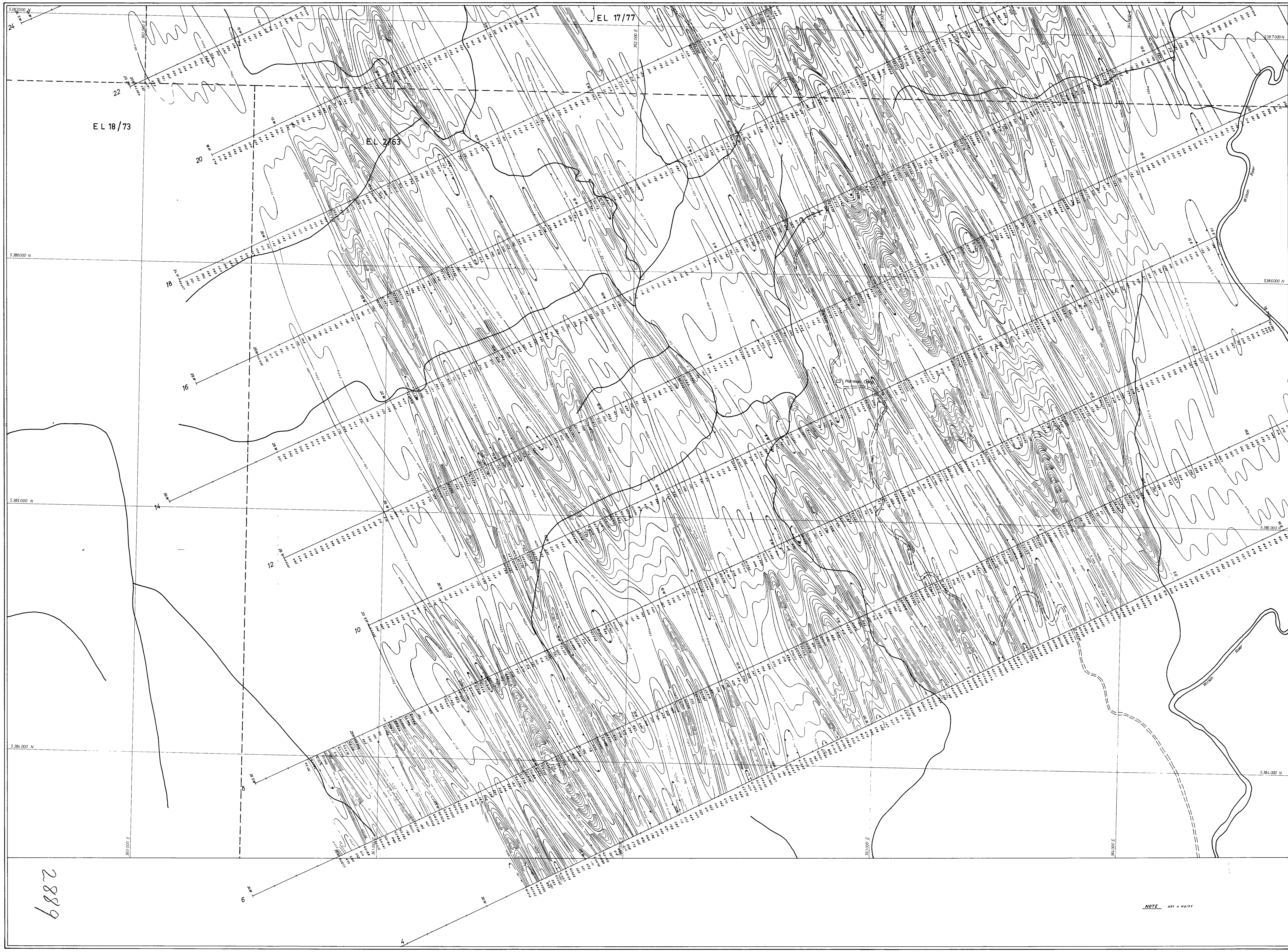
DATE MAY 1980

REVISIONS

SCALE 1 5000 METRES

DRAWING No Fig 2 (f)

2888



LEGEND

	>64000 GAMMAS
	63500 - 64000
	63000 - 63500
	62500 - 63000
	62000 - 62500
	<62000

D1/3 D1/4 D2/3 D3/2

019051

80-1507

RENISON LIMITED

CORINNA D1/4

PROTON MAGNETICS

GEOLOGIST	A ROSS	SCALE 1 5000 METRES	
DRAUGHTSMAN	F COLSON	100 0 100 200	
DATE	JUNE 1980		
REVISIONS		DRAWING No	Fig 2(g)

5 cm

2889

SURVEYED & COMPILED BY SCINTREX

019052

JAN FEB - 1980

Job N° TAS-074-E

80-1507.

RENISON LIMITED

CORINNA D1/4

GRADIENT ARRAY E/P SURVEY

RESISTIVITY CONTOUR MAP

GEOLOGIST	SCALE 1 5000 METRES (100 0 100 200)
DRAUGHTSMAN	
DATE	
REVISIONS	DRAWING No PLATE 2 SHT 2 of 2

Fig 2 (h)

5 cm

2890

2890


EL 17/77
EL 18/73
EL 2/63
ARRAY 4
ARRAY 5
ARRAY 6
ARRAY 7
ARRAY 8
ARRAY 9
Harman Camp
Wilson River
5 386 000 N
5 385 000 N
5 384 000 N
>100 MILLIVOLTS PER VOLT
80-100
60-80
40-60
20-40
<20
Legend
ARRAY 1 - Electrodes at 2400W+2100E on 24N
3 - 200W +3000E on 18N
4 - 2400W+3000E on 18N
5 - 2500W+ 700E on 12N
6 - 300W+2900E on 12N
7 - 3400W+200W on 6N
8 - 1000W+2200E on 6N
9 - 2100W +500W on 6N
10 - 100E + 1000E on 20N
AMG NORTH
D1/1
D1/2
CORINNA D1
D1/3
D1/4
D2/3
D3/2
SURVEYED & COMPILED BY
SCINTREX
019053
JAN-FEB-1980
Job N° TAS-074-E
80-1507
RENISON LIMITED
CORINNA D1/4
GRADIENT ARRAY EIP SURVEY
CHARGEABILITY CONTOUR MAP
GEOLOGIST
DRAUGHTSMAN
DATE
REVISIONS
SCALE 1 5000 METRES
100
0
100
200
Fig 2 (1)
DRAWING No
PLATE 1
SHT 2 of 2
5 cm
2891
2891

80 1307

RENISON LIMITED

CORINNA D1/4

GRADIENT ARRAY EIP SURVEY
INTERPRETATION PLAN

Fig 2(j)

PLATE 3
SHT 2 of 2

80 1507

RENISON LIMITED

HARMAN RIVER GRID
LINE 4
EL 2/63

DRAWN	A ROSS
TRACED	F COLSON
DATE	July 1980
SCALE	1 5000
DRAWING No	
HRG 301	FIG 3(a)

SCALE 1 5000 METRES
100 0 100 200 300

2893 — 5 cm

I P DATA
Gradient Arrays 7 & 8
Current Dipoles located at 6N 3400W 200W (Array 7) 6N 1000W 2200E (Array 8)
— Chargeability
--- Resistivity

MAGNETICS
5000 scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY
Sn
Cu
Pb
Zn
As

GEOLOGY (Mapping by A Brown 17W to 00 only additional data by P Ashton) 604 Rock chip sample location (A Brown)

DEVONIAN
MEREDITH GRANITE
INTRUSIVES
Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
Fine grained muscovite biotite granite (Dg 2) occassionally porphyritic
Microgranite (Dgm)
Alteration tourmaline chlorite

CAMBRIAN
WEBSTERITE HILL COMPLEX
Ultrabasic rocks (€s)
Silicification (alteration)

CAMBRIAN
SEDIMENTS
CRIMSON CREEK FORMATION (€c) Hornfelsed volcaniclastic sediments minor gabbro

ORDOVICIAN
GORDON LIMESTONE (Og) Grey massive limestone

SILURIAN
CROTTY QUARTZITE (Sc) Quartzite and undifferentiated sediments

TERTIARY
Ironstone laterite scree developed on ultrabasics (Ts)

QUATERNARY
Recent alluvium (Qra)

010050

80 1507 RENISON LIMITED	
HARMAN RIVER GRID LINE 6 EL 2/63	DRAWN: A ROSS
	TRACED: F COLSON
	DATE: July 1980
	SCALE: 1 5000
SCALE 1 5000 METRES (100 0 100 200 300)	DRAWING No. HRG 302 FIG 3(b)

I P DATA

Gradient Arrays 7 & 8
Current Dipoles located at
6N 3400W 200W (Array 7)
6N 1000W 2200E (Array 8)
— Chargeability
--- Resistivity

MAGNETICS

5000 Scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY

Sn
Cu
Pb
Zn
As

GEOLOGY (No line mapping available some data from P Ashton) [804] Rock chip sample location (A Brown)

DEVONIAN — MEREDITH GRANITE

INTRUSIVES
- Coarse to medium grained biotite granite (Dg1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg2) occassionally porphyritic
- Micrograinte (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX
- Ultrabasic rocks (€s)
- Silicification (alteration)

CAMBRIAN — SEDIMENTS
- CRIMSON CREEK FORMATION (€c) Hornfelsed volcaniclastic sediments minor gabbro

ORDOVICIAN
- GORDON LIMESTONE (Og) Grey massive limestone

SILURIAN
- CROTTY QUARTZITE (Sc) Quartzite and undifferentiated sediments

TERTIARY
- Ironstone laterite scree developed on ultrabasics (Ts)

QUATERNARY
- Recent alluvium (Qra)

2694

5 cm

80 1507

RENISON LIMITED

HARMAN RIVER GRID
LINE 8
EL 2/63

SCALE 1 5000 METRES

DRAWN	A ROSS
TRACED	F COLSON
DATE	July 1980
SCALE	1 5000
DRAWING No	
HRG 303	Fig 3 (c)

I P DATA

Gradient Arrays 7 & 8
Current Dipoles located at
6N 3400W 200W (Array 7)
6N 1000W 2200E (Array 8)

—— Chargeability
- - - Resistivity

MAGNETICS

5000 Scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY

Sn
Cu
Pb
Zn
As

GEOLOGY (Mapping by A Ross 27.5W to 00, additional data by P Ashton)

DEVONIAN — MEREDITH GRANITE — INTRUSIVES
- Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg 2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX
- Ultrabasic rocks (Ꞓs)
- Silicification (alteration)

CAMBRIAN — SEDIMENTS
- CRIMSON CREEK FORMATION (Ꞓc) Hornfelsed volcaniclastic sediments minor gabbro

ORDOVICIAN
- GORDON LIMESTONE (Og) Grey massive limestone

SILURIAN
- CROTTY QUARTZITE (Sc) Quartzite and undifferentiated sediments

TERTIARY
- Ironstone laterite scree developed on ultrabasics (Ts)

QUATERNARY
- Recent alluvium (Qra)

2893 5 cm


Geochemistry
PPM
I P Data
CHARGEABILITY IN MILLIVOLTS/VOLT
NOTE REDUCED SCALE
C 12
C 11
C 13
RESISTIVITY IN OHM - METRES
Total Magnetic Field (δ)
COARSE SCALE
Topography & Geology
HEIGHT ABOVE SEA LEVEL (METRES)
COWARD'S CREEK
HARMAN RIVER
ROAD
WILSON RIVER
20W
15W
10W
5W
00
5E
10E
15E
019058
80 1507. RENISON LIMITED
HARMAN RIVER GRID
LINE 10
EL 2/63
SCALE 1 5000 METRES
DRAWN A ROSS
TRACED F COLSON
DATE July 1980
SCALE 1 5000
DRAWING No
HRG 304 Fig 3(d)
I P DATA
Gradient Arrays 5 & 6
Current D poles located at
12N 2500W 700E (Array 5)
12N 300W 2900E (Array 6)
Chargeability
Resistivity
MAGNETICS
5000 Scale
1000 Scale
Erratic magnetometer reading
GEOCHEMISTRY
Cu
Pb
Zn
As
GEOLOGY (Mapping by A Brown 24W to 16E Jan 1980)
604 Rock chip sample location (A Brown)
INTRUSIVES
DEVONIAN
MEREDITH GRANITE
Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
Fine grained mus ovite biotite granite (Dg 2) occassionally porphyritic
Microgranite (Dgm)
Alteration tourmaline chlorite
CAMBRIAN
WEBSTERITE HILL COMPLEX
Ultrabasic rocks (€s)
Silicification (alteration)
SEDIMENTS
CAMBRIAN
CRIMSON CREEK FORMATION (€c)
Hornfelsed volcaniclastic sediments minor gabbro
ORDOVICIAN
GORDON LIMESTONE (Og)
Grey massive limestone
SILURIAN
CROTTY QUARTZITE (Sc)
Quartzite and undifferentiated sediments
TERTIARY
Ironstone, laterite scree developed on ultrabasics (Ts)
QUATERNARY
Recent alluvium (Qra)
2896
5 cm

80-1507	RENISON LIMITED
HARMAN RIVER GRID LINE 12 EL 2/63 EL 17/77	
DRAWN	A ROSS
TRACED	F COLSON
DATE	July 1980
SCALE	1 5000
DRAWING No	HRG FIG 305 3(e)

SCALE 1 5000 METRES

I P DATA

Gradient Arrays 5 & 6
Current Dipoles located at
12N 2500W 700E (Array 5)
12N 300W 2900E (Array 6)

— Chargeability
--- Resistivity

MAGNETICS

5000 Scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY

Sr, Cu, Pb, n, As

GEOLOGY (Mapping by A Brown 22W to 00, 10E to 19 5E Jan 1980 additional data from P Ashton) * Rock chip sample location (D Turvey) 604 (A Brown)

DEVONIAN — MEREDITH GRANITE — INTRUSIVES
- Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg 2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX
- Ultrabasic rocks (€s)
- Silicification (alteration)

SEDIMENTS

CAMBRIAN — CRIMSON CREEK FORMATION (€c) Hornfelsed volcaniclastic sediments minor gabbro

ORDOVICIAN — GORDON LIMESTONE (Og) Grey massive limestone

SILURIAN — CROTTY QUARTZITE (Sc) Quartzite and undifferentiated sediments

TERTIARY — Ironstone laterite scree developed on ultrabasics (Ts)

QUATERNARY — Recent alluvium (Qra)

← EL 2/63 | EL 17/77 →

2897 5 cm

80-1507 RENISON LIMITED	DRAWN: A ROSS
HARMAN RIVER GRID	TRACED: F COLSON
LINE 14	DATE: July 1980
EL 2/63 EL 17/77	SCALE: 1 5000
SCALE 1 5000 METRES (100 0 100 200 300)	DRAWING No: HRG 306

Fig 3 (f)

2398 — 5 cm

I P DATA

Gradient Arrays 5 & 6
Current Dipoles located at
12N 2500W 700E (Array 5)
12N 300W 2900E (Array 6)

—— Chargeability
--- Resistivity

MAGNETICS

5000 Scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY

Sn
Cu
Pb
Zn
As

GEOLOGY (Mapping by A Brown 25W to 21E with additional data from P Ashton) [604] Rock chip sample location (A Brown)

DEVONIAN — MEREDITH GRANITE

INTRUSIVES

- Coarse to medium grained biotite granite (Dg1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX

- Ultrabasic rocks (€s)
- Silicification (alteration)

SEDIMENTS

CAMBRIAN — CRIMSON CREEK FORMATION (€c): Hornfelsed volcaniclastic sediments minor gabbro

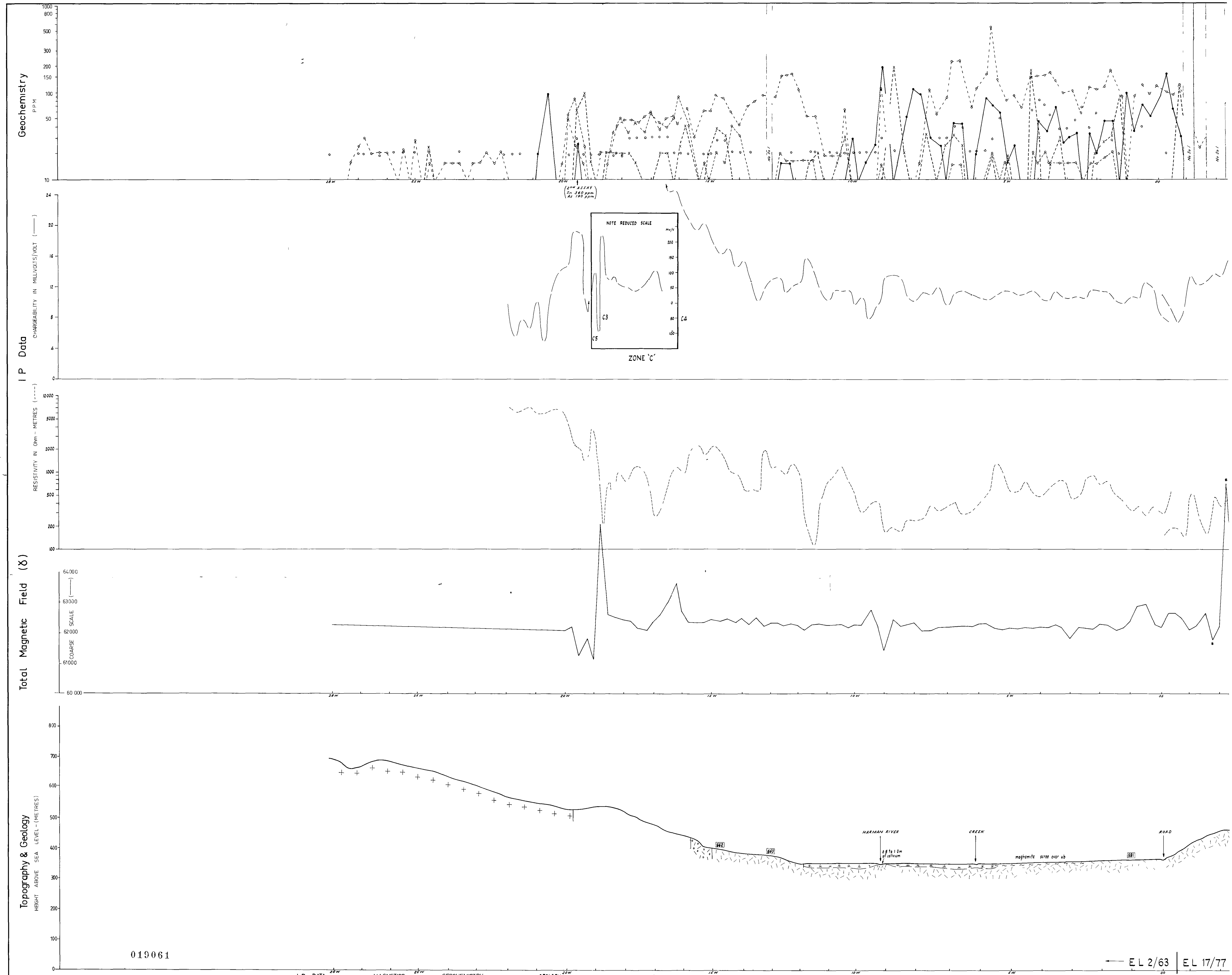
ORDOVICIAN — GORDON LIMESTONE (Og): Grey massive limestone

SILURIAN — CROTTY QUARTZITE (Sc): Quartzite and undifferentiated sediments

TERTIARY — Ironstone laterite scree developed on ultrabasics (Ts)

QUATERNARY — Recent alluvium (Qra)

← EL 2/63 | EL 17/77



80-1501.	RENISON LIMITED
HARMAN RIVER GRID LINE 16 EL 2/63 EL 17/77	
SCALE 1 5000 METRES	

DRAWN	A ROSS
TRACED	F COLSON
DATE	July 1980
SCALE	1 5000
DRAWING No.	HRG 307

2899 5 cm

Fig 3 (g)

I P DATA

Gradient Arrays 3 & 4

Current dipoles located at
18N 200 W 3000E (Array 3)
18N 2400W 3000E (Array 4)

—— Chargeability
--- Resistivity

MAGNETICS

5000 Scale

1000 Scale

* Erratic magnetometer reading

GEOCHEMISTRY

Sn, Cu, Pb, Zn, As

GEOLOGY (Mapping by A Ross Jan 1980 27.5W to 25.5E) [604] Rock chip sample location (A BROWN)

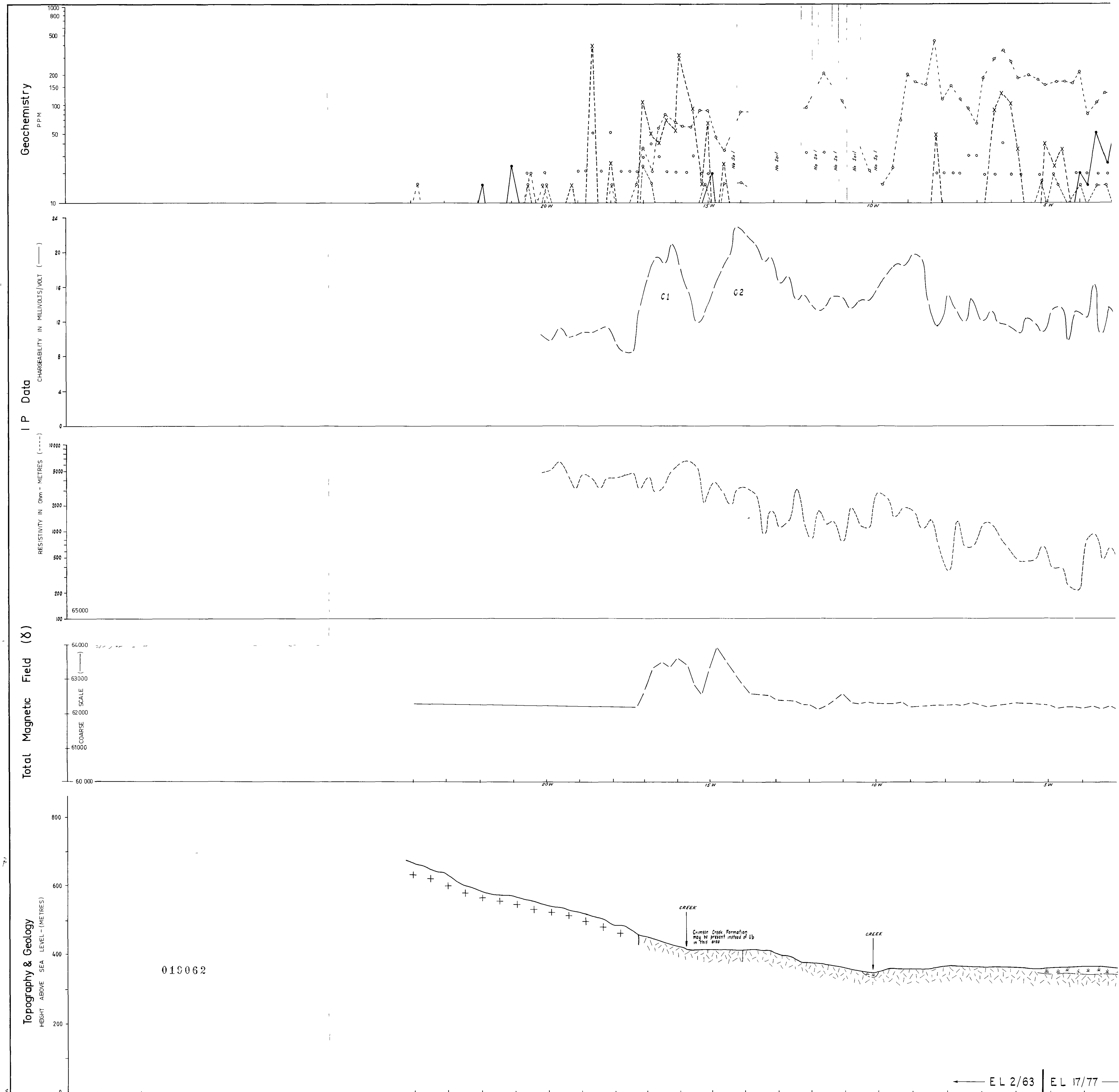
DEVONIAN — INTRUSIVES — MEREDITH GRANITE
- Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg 2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX
- Ultrabasic rocks (€s)
- Silicification (alteration)

CAMBRIAN — SEDIMENTS
- CRIMSON CREEK FORMATION (€c) Hornfelsed volcaniclastic sediments minor gabbro

ORDOVICIAN
- GORDON LIMESTONE (Og) Grey massive limestone

SILURIAN
- CROTTY QUARTZITE (Sc) Quartzite and undifferentiated sediments



80-1507 RENISON LIMITED

HARMAN RIVER GRID
LINE 18
E L 2/63 E L 17/77

SCALE 1 5000 METRES

DRAWN	A ROSS
TRACED	F COLSON
DATE	APRIL 80
SCALE	1 5000
DRAWING No	HRG 308

Fig 3 (h)

2900

I P DATA

Gradient Arrays 3 & 4
Current dipoles located at
18N 200W 3000E (Array 3)
18N 2400W 3000E (Array 4)

— Chargeability
--- Resistivity

MAGNETICS

5000 Scale
1000 Scale
* Erratic magnetometer reading

GEOCHEMISTRY

Sn
Cu
Pb
Zn
As

GEOLOGY (Mapping by D Turvey Jan 1980 00 to 27E only, no line mapping available from 00 to 24W, although limited data from P Ashton)

* Rock chip sample location (D Turvey) [604] (A Brown)

DEVONIAN — MEREDITH GRANITE — INTRUSIVES

- Coarse to medium grained biotite granite (Dg 1 Loxton Hunting reference)
- Fine grained muscovite biotite granite (Dg 2) occassionally porphyritic
- Microgranite (Dgm)
- Alteration tourmaline chlorite

CAMBRIAN — WEBSTERITE HILL COMPLEX

- Ultrabasic rocks (Єs)
- Silicification (alteration)

CAMBRIAN — SEDIMENTS

- CRIMSON CREEK FORMATION (Єc) Hornfelsed volcaniclastic sediments minor gabbro