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EXPLORATION GROUP

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EXPLORATION PROGRESS REPORT

E.L. 53/70, STANLEY RIVER, TASMANIA

PERIOD ENDING 10TH NOVEMBER, 1982

EMR 160/82

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KEYWORDS

TASMANIA
TIN
COPPER
GOLD
ALLUVIAL
DRAINAGE
HEAVY MINERAL
AUGER
GRANITE
8SK 55-Ø3

EXPLORATION
MINERALISATION
ZINC
GEOLOGY
GEOCHEMISTRY
SAMPLING
PANNING
SOIL
DOLOMITE
REPORT

1. INTRODUCTION

Exploration Licence 53/70 (E.L. 53/70) was granted to Valley Exploration Pty. Ltd. on 10th December 1970. This Licence covers an area of approximately 62 km² (originally 40 sq miles) situated about 18 km north of Zeehan on the west coast of Tasmania. Included in the Licence is most of the lower reaches of the Stanley River system from the Pieman River (south) to the Rocky River (north) and from the Stanley River (east) to Whaleback Ridge (west).

CSR Limited (through Pacminex Pty. Ltd.) commenced active exploration in E.L. 53/70 in August 1973 under a "Heads of Agreement" with Valley Exploration Pty. Ltd. A joint venture was signed on 24th July 1974. Valley Exploration Pty. Ltd. withdrew from E.L. 53/70, retaining only royalty rights, when the Licence was transferred to CSR Limited on 15th January 1979.

Most of CSR's activity has been centred on the Stanley Reward/Livingstone Creek gossans and old mining area adjacent to the dolomitic sediments. Recently geological studies have been undertaken.

On 10th December 1981 the Licence was renewed for a further 12 month period. Most of the exploration completed during the 1981/82 summer season has been reported (Ellis, 1982). Further investigations completed during 1982 and work proposed for the following renewal period are included in this report.

2. SUMMARY

The exploration of E.L. 53/70 continued through 1982.

A review of past geophysical data showed that drilling south of the Stanley Reward failed to test many strong geophysical targets. Targets also exist in the area between the Stanley Reward and Livingstone Creek gossans. These geophysical drill targets were confirmed by a gravity traverse of line 6000N.

Forced auger soil sampling showed strong tin, copper, zinc and lead anomalies along the eastern edge of the dolomitic sequence. These support the geophysical anomalies.

Regional stream sediment sampling showed two copper, gold, zinc and nickel anomalies. Gridding with soil sampling, magnetics and VLF-EM is continuing over these anomalous areas.

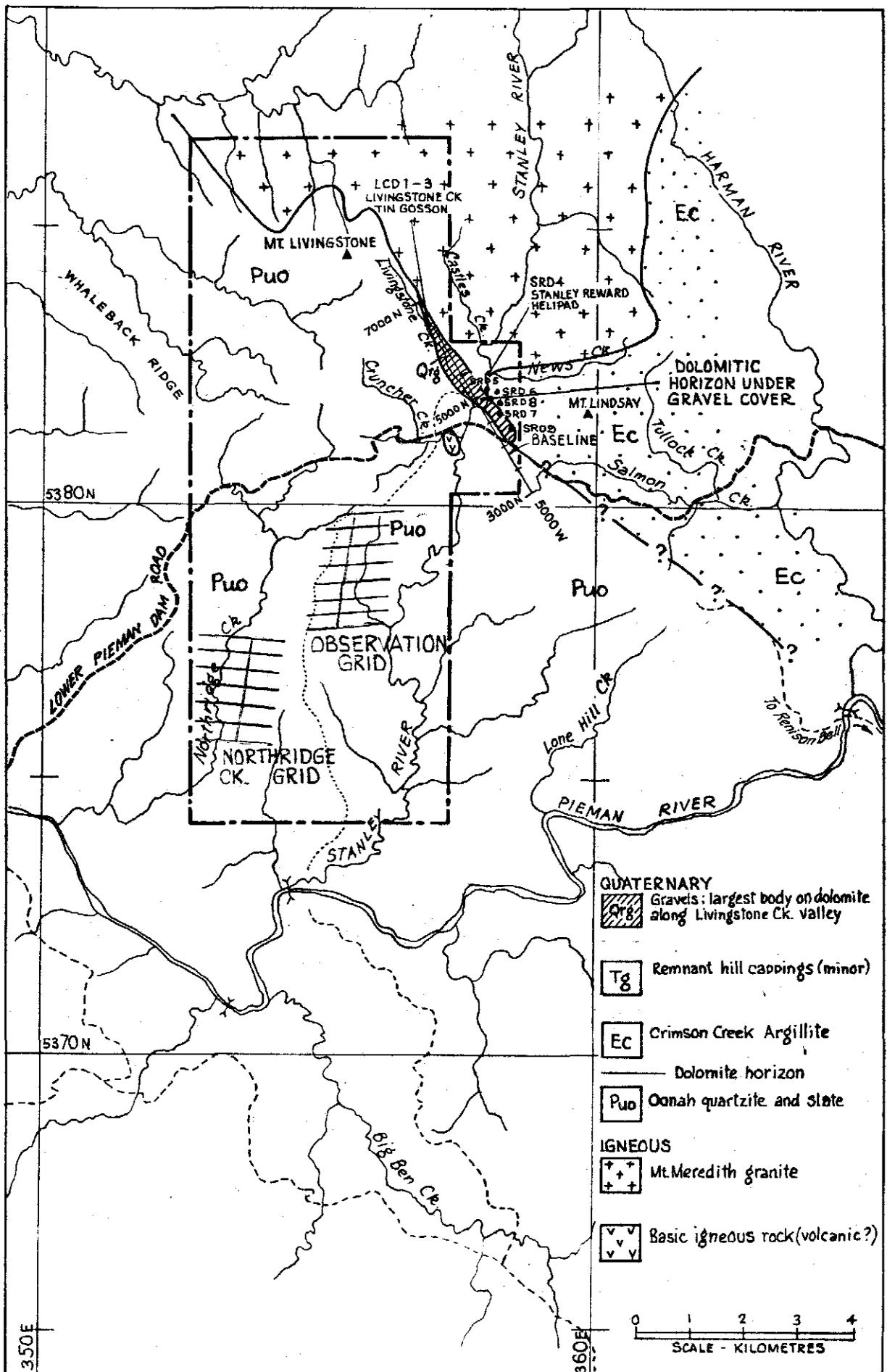


FIG. 1. GEOLOGY EL. 53/70 STANLEY RIVER TASMANIA

5 cm

3. LOCATION AND ACCESS

E.L. 53/70 is centred 18 km north of Zeehan and 28 km west of Tullah on the west coast of Tasmania. The Licence is about 5 km from east to west and 12 km from north to south (Figure 1).

Until recently the only ground access was from Zeehan by vehicle track to the Pieman River cable car crossing at the mouth of the Stanley River and then by foot track to the Stanley Reward area. Stanley Reward is at the intersection of the Zeehan Waratah Bett's Track and the track from Renison Bell to Corinna. In 1980 the Hydro Electric Commission (HEC) completed the Lower Pieman dam-site access road from Tullah, and a sealed road runs east-west across the centre of E.L. 53/70. The Licence is 34 km by road from the Murchison Highway.

Approximately 75% of the Licence is underlain by mudstones, siltstones and lithic sandstones of the Oonah Formation. These rocks support easily traversed, low buttongrass scrub with ti-tree/sword grass/~~bowrah~~ scrub in the deep gullies. The northeast of the Licence is underlain by Eo-Cambrian Success Creek Group sediments (10%) and Devonian Meredith Granite (15%). These areas are covered by thick, almost impenetrable horizontal scrub. The Success Creek sediments in the Livingstone Creek valley are overlain by Tertiary alluvial gravels which support a cover of buttongrass.

E.L. 53/70 covers portions of four drainage basins, all of which flow into the ~~Permian~~ River. In the north is the Rocky River system; the central west contains the Paradise River; the southwest contains Northridge Creek; and the Stanley River drains the eastern portion. These rivers are deeply incised resulting in a steep hilly topography ranging in elevation from 100 to 900 m above sea level.

4. PREVIOUS EXPLORATION

4.1 Pre CSR Limited

The Stanley Reward tin prospect (ferruginous gossan and alluvial) and the Mt. Lindsay prospect (lode tin east of E.L. 53/70) were located by prospectors late in the 19th century and worked until about 1910. Little exploration took place until 1956 when Rio Tinto/E.Z. produced photogeological and aeromagnetic maps of the west coast area. Rio Tinto then concentrated on the Stanley River and Mt. Lindsay area completing geological, geochemical, magnetometer and spontaneous potential surveys. Drilling was recommended but not undertaken prior to the area being relinquished.

The Aberfoyle Tin Development partnership undertook preliminary investigations of the Stanley River/Livingstone Creek area in 1963-64. Follow-up work in 1969-70 consisted of magnetometer and geochemical traverses over anomalies. The Stanley River area was relinquished because of disappointing results.

Valley Exploration Pty. Ltd. obtained E.L. 53/70 in December 1970 as a Precambrian carbonatite mineralisation prospect. Preliminary heavy mineral geochemistry (despite many samples being too small for analysis) showed anomalies over the known mineralisation at Mt. Lindsay, Stanley Reward and Livingstone Creek. Other anomalies occurred in the Paradise River headwaters and between the Stanley and Wilson Rivers.

Valley Exploration also completed some rock chip geochemistry, magnetometer, scintillometer, ultraviolet radiation, VLF-EM traverses and orientation studies.

4.2 CSR Limited

CSR's initial interests in E.L. 53/70 were the Livingstone Creek and Stanley Reward gossans with associated dolomites. After orientation and sampling traverses

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were completed, four diamond drill holes were drilled - three in the Livingstone Creek gossan and one in the Stanley Reward dolomites. The minor mineralisation intersected prompted further investigation.

Airborne magnetic and electromagnetic surveys were followed by establishment of 17 grid lines across the 4 km strike length of the dolomitic units of the Success Creek Group. Grid controlled mapping, soil sampling, ground magnetics, I.P., resistivity and EM surveys were completed. The grid was progressively enlarged to include anomalous areas. Airborne EM anomalies were checked by drainage and soil sampling.

Two diamond drill holes were then sunk to the south of the Stanley Reward gossan intersecting minor tin/copper mineralisation. Further grid controlled soil and rock chip sampling with ground EM, magnetic, VLF-EM and scintillometer surveys were initiated. Contract I.P. surveys were completed prior to the drilling of two further holes adjacent to the Stanley Reward Gossan.

One further hole was drilled at the south of the Stanley Reward grid intersecting pyrrhotite in the Success Creek Group dolomitic sediments.

The above work is detailed in reports by Macnamara (1974, 1975, 1976, 1977a, 1977b, 1978a, 1978b, 1980a and 1980b).

In 1981/82 regional drainage sampling was completed. Several copper/gold/zinc/nickel anomalies were observed (Ellis 1982).

5. GEOLOGY

5.1 Regional

The oldest rocks in the area are the relatively unmetamorphosed Precambrian rocks of the Oonah Formation. These interbedded fine-grained lithic and siliceous sandstones with laminated phyllitic mudstones, siltstones and coarse lithic sandstones cover all but the northeast corner of the Licence.

Unconformably overlying the Oonah sediments and with a possible faulted contact, are the Success Creek Group sediments which underlie the swampy area along Livingstone Creek. The Success Creek Group consists of thinly-bedded siliceous siltstones and dolomitic siltstones (Renison Bell Shale equivalents). These are in the upper part of the Success Creek Group (Brown, 1980).

Volcaniclastic lithic wackes with interbedded siltstones and mudstones of the Crimson Creek Formation disconformably overlie the Success Creek sediments in the eastern portion of E.L. 53/70.

The Devonian Meredith Granite outcrops in the northeast corner of the Licence. Fluids associated with this multiple adamellite intrusion are believed to be responsible for mineralisation at Mt. Bischoff, Cleveland, Mt. Lindsay, Mt. Razorback, Stanley Reward, Livingstone Creek, Renison Bell and Queen Hill.

Minor recent glacial and fluvioglacial sediments cap older rocks. These occur as ridge caps or valley floor alluvial-type deposits and contain anomalous tin and gold concentrations.

5.2 Structural

The Oonah Formation sediments form a series of anticlinoria in the northern and southern portions of the

Licence, the Success Creek Group sediments being deposited and preserved in the intervening synclitorium (pers. comm. A.V. Brown).

Locally the Oonah Formation sediments contain highly refolded isoclinal folds. The refolded folds have then been subjected to large scale regional deformation which produced the anticlinorial structures (Brown, 1980). A further phase of deformation in the Devonian produced open folds in the Success Creek sediments. This was followed by regional block faulting and granite emplacement.

The dominant regional structure within E.L. 53/70 is the Huskisson Syncline which is reflected by the steeply dipping Oonah and Success Creek successions. It has been suggested that the Success Creek Group sediments have east facings within the Licence (Brown, 1980).

6. EXPLORATION CONCEPTS

6.1 Alluvial Cassiterite

Alluvial workings occur to the south and southwest of the Stanley Reward gossan outcrop. Tin was won from a Tertiary gravel deposit (up to 7 m thick) at the confluence of the Livingstone Creek with the Stanley River. These gravels extend the 3 km along Livingstone Creek to the Livingstone Creek gossan.

Past work by Rio Tinto and Aberfoyle suggests there may be up to 1 million cubic metres of the tin-bearing gravels between the Stanley Reward and Livingstone Creek gossans. These gravels contain approximately 0.1% Sn (4 lb/yd³ SnO₂).

The gravels are not considered commercially viable. However, they may be significant if the gossans are proven to reflect an economic lode tin/copper deposit.

6.2 Lode Tin

Two primary cassiterite deposits are known within the Licence - the Stanley Reward and Livingstone Creek gossanous deposits. Both were worked by several adits. The Stanley Reward deposit was also worked from shafts reputedly up to 150 m deep.

Tin grades within the gossans tend to be sporadic with values up to 3.15% Sn. Outcrops of these gossans are about 10 m wide. Geophysics suggest the gossans extend beneath the alluvial gravel cover. This is supported by geochemical data.

Both gossans are probably related to skarn-type mineralisation associated with the contact of the Meredith Granite with the dolomitic units of the Success Creek sediments. Potential exists for large (3 km long) economic skarn deposits containing tin and possible scheelite.

Replacement-type tin deposits (similar to the Renison lode) are also possible in the dolomitic horizons of the Success Creek Group. Suitable host rocks occur in a large area to the west and south of the Stanley Reward gossan. The tin-rich Meredith Granite has intruded these rocks up to 1 km along strikes. Faults (channelways?) for mineralising fluid movement are common in the area.

6.3 Base Metals

Many of the old silver-lead-zinc mines around the Zeehan area occur in sheared Oonah Formation rocks. Within E.L. 53/70 copper and gold Mining Leases covered the headwaters of the Paradise and Meredith Rivers and Northridge Creek.

Past work within the Licence has outlined rock, stream sediment and soil copper, lead and zinc anomalies which require further testing.

Recent drainage sampling in E.L. 53/70 has outlined two large areas of copper, gold and zinc (with minor nickel) anomalies.

7. CURRENT EXPLORATION

7.1 Regional

A detailed, regional, stream geochemistry programme was undertaken during the 1981-82 summer field season.

Several large areas of anomalous copper, zinc and gold (with minor nickel) was outlined (Ellis, 1982).

Heavy mineral samples from anomalous drainage sample sites are being examined prior to being chemically analysed.

The two areas of coincident copper, zinc and gold anomalies are being gridded. The area containing stream sediment samples A120463 to A120483 (DRG No. K553-48) has been gridded by 12 east-west lines at 200 m intervals (Observation Grid). Soil samples have been taken at 25 m spacings along the lines and the baseline. The pegged sample points will be used for magnetic and VLF-EM surveys.

The areas of anomalous stream sediment samples along Northridge Creek (to the west of the Observation Grid) are being gridded. Three grids (Northridge Creek A, B and C grids) are being pegged and sampled at the same intervals and spacings as the Observation Grid. At present one line has been sampled. The remainder will be completed in 1982-83.

7.2 Soil Augering - Stanley Reward/Livingstone Creek

Soil geochemistry coverage northward ceases at Line 5000N (Figure 2) due to the increasing thickness of the alluvial boulder cover to the north. South of line 5000N alluvial mining has removed much of the boulder cover enabling in-situ soil (weathered bedrock) samples to be obtained by hand auger. Attempts to penetrate the thicker boulder cover using hand augers and hand-held mechanical power augers failed. The most northerly hand auger soil samples (one line 5000N) showed significant tin anomalies.

Current exploration was planned to extend and close these anomalies.

A Muskeg type Bombadier with a rear-mounted modified Jacro 250 rotary drilling rig has been used successfully to penetrate boulder horizons elsewhere in Tasmania and was employed here in an attempt to obtain weathered bedrock samples from beneath the boulder cover in the Livingstone Creek area of E.L. 53/70.

Attempts were made to penetrate the boulder cover on each of the old Stanley Reward grid lines (at 100 m intervals) from grid 5000N to 6300N (the latter intersects the Livingstone Creek gossan outcrop). The holes were at 25 m spacings along each line. Up to four attempts to penetrate the boulder cover were made at each location. On penetrating the boulder cover the thickness was noted before drilling at least 0.5 m further to obtain an uncontaminated sample from the material caught around the auger bit.

Samples were dried and screened at 20 mesh. The -20 mesh fraction was sub-sampled for Sn and W analysis. The remaining -20 mesh material was screened at 80 mesh with the -80 mesh fraction being analysed for Cu, Pb, Zn, Bi, Ni, Ag and Co. This method of sample preparation and analysis was used to facilitate a comparison with the geochemical results from the hand augering in the southern part of the grid. Further comparisons of past and present results was achieved when several holes were drilled at old sample sites along line 4700N.

7.3 Geophysics

The abundance of geophysical data available on the Stanley Reward area of E.L. 53/70 had been little evaluated except by a brief review of the geophysical and drilling data from the area to the south of the Stanley Reward gossan. A more detailed evaluation of the geophysical data from the Stanley Reward/Livingstone Creek gossanous

area was initiated and integrated with the results of the recent forced augering (Section 7.2).

Following this evaluation a trial gravity survey along line 6000N was completed. A consultant with a La Coste meter was employed to complete the survey along the levelled grid line. Although levelled accurately, the line was not tied (gravity or level) to known gravity stations.

8. RESULTS

8.1 Regional

The results of the drainage sampling programme completed in the 1981-82 summer field season have been compiled (Ellis, 1982). The heavy mineral samples from the anomalous drainage sample sites have been despatched for petrology and analysis, but results are not yet available.

8.2 Soil Augering

116 auger holes penetrated the alluvial boulder cover in the northern part of the Livingstone Creek valley. 122 soil samples were taken and despatched for analysis.

Generally the gravel cover was between 1.5 and 2.5 m thick, varying from 0 m on the edge of the valley to 7.5 m along a roughly central channel. The hole at 5000N 5000W penetrated 11.1 m of gravel before being abandoned.

Examination of the weathered material from around the auger bit at each hole allowed the geology of the rocks beneath the boulder cover to be interpreted (DRG No. K553-44). The western edge of the Livingstone Creek valley is marked by soft friable sandstones/quartzites and coarse siltstones of the Oonah Formation. The eastern part of the valley is underlain by the Meredith Granite. Dolomites, dolomitic shales and siltstones of the Success Creek Group occur as a lenticular body between the granite and the Oonah Formation. Block faulting apparently decreases the width of the lenticular dolomitic horizons in the north.

Minor sulphides (galena and pyrite with minor chalcopyrite) were noted in several holes in the vicinity of 5200N/5000W. Flecks of pyrite were also observed in two holes on the western end of line 5800N.

Analysis of the forced auger soil samples (Appendix I) showed anomalous tin values along or close to the contact of the Meredith Granite and the dolomitic Success Creek sediments (DRG No. K553-46). South of the block fault at about 5650N the anomalous tin values range from 880 ppm (5000N/4900W) to 105 ppm (5600N/5075W). North of the fault values peak at 200 ppm Sn (6100N/5125W). This zone is aligned with the Livingstone Creek gossan to the north and is to the west of the Stanley Reward gossan on Line 5000N.

Several isolated areas of anomalous tin (to 180 ppm) occur to the west of the main anomaly. These anomalies may represent the surface expression of possible replacement ore bodies in the broad belt of dolomitic shales and dolomites to the west of the Stanley Reward gossan.

Anomalous copper occurs in narrow zones along the edge of the granite between 5000N and 5300N and between 5700N and 5900N (DRG No. K553-47). These zones peak at 520 and 95 ppm Cu respectively and are generally coincident with the main tin anomalies.

Anomalous lead also occurs along the edge of the granite (DRG No. K553-45). However, unlike tin and copper, the main lead peak (560 ppm Pb) is to the north of the block fault on line 6000N. To the south of the fault the peak lead value is only 90 ppm. In the area of the predicted fault the lead anomaly becomes stronger and broader. The lead anomaly tends to peak slightly to the west of the main tin and copper anomalies.

Zinc anomalies are more discontinuous and irregular than those for copper, lead and tin. The main zinc anomalies again tend to be west of the granite contact between 5000N and 5300N and between 5700N and 6000N. However, the strongest anomaly (1200 ppm Zn) occurring on line 5800N is in the Oonah formation well to the west of the dolomitic sediments.

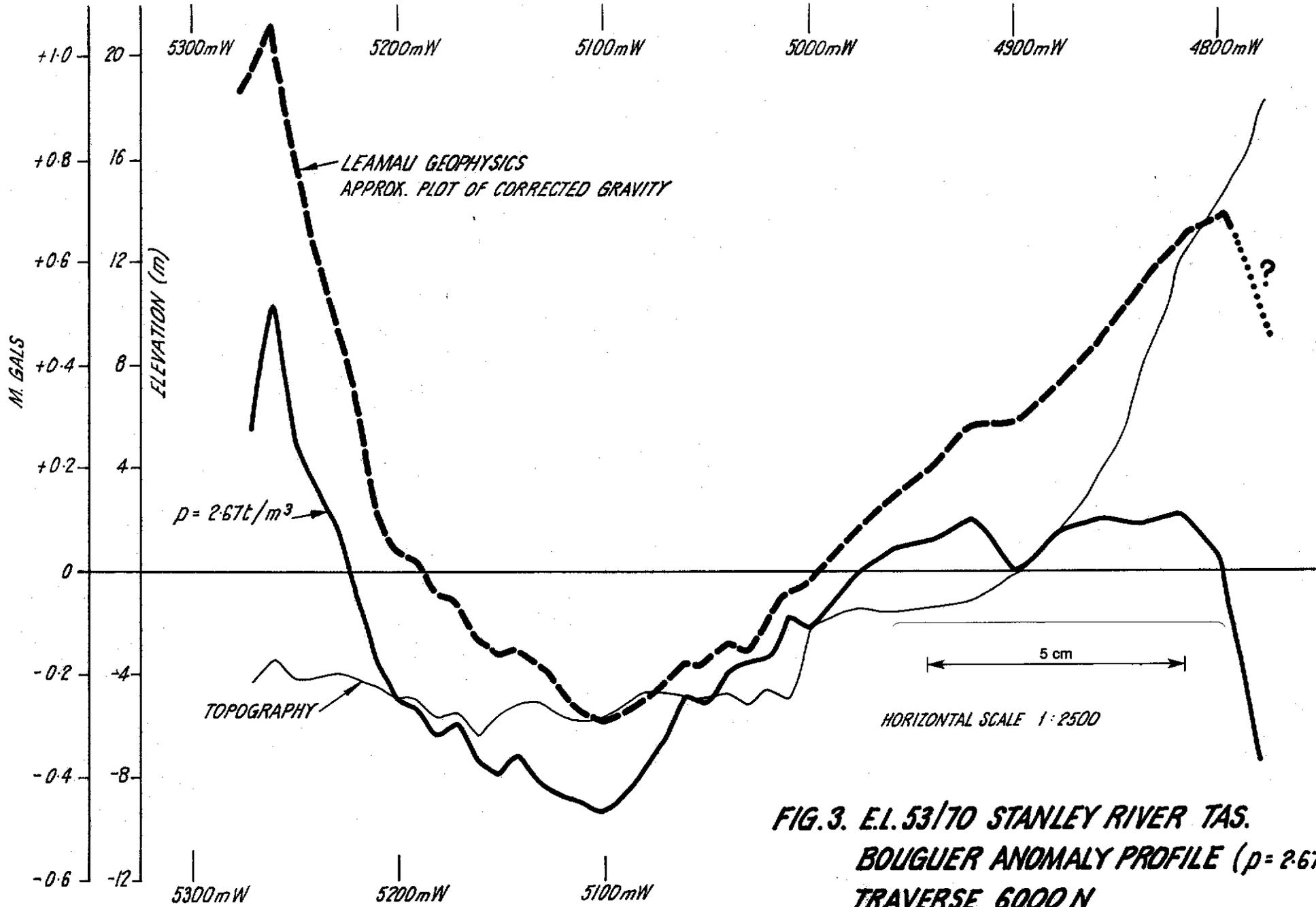


FIG. 3. E.L. 53/70 STANLEY RIVER TAS.
BOUGUER ANOMALY PROFILE ($\rho = 2.67t/m^3$)
TRAVERSE 6000 N

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 C
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 C

There is good agreement between the forced augering programme and the earlier hand augering programme. Areas of anomalies are in alignment, although minor differences in values do occur.

8.3 Geophysics

The review of all past geophysical data on the Stanley Reward grid (DRG No's. K553-18-K553-30) showed past drilling (SRD4-SRD9) has not tested many of the geophysical anomalies except for one I.P. anomaly (SRD 8).

In the zone between the Stanley Reward and Livingstone Creek gossans, all geophysical methods indicate a continuation of the electrical/magnetic sources (DRG No. K553-44). The magnetics indicate the causative body to be at or near the surface at the Livingstone Creek gossan (line 6500N) and becoming deeper towards the south. At line 6000N the body is indicated to be 200 m deep. The form of the magnetic profile (for line 6000N) also suggests the body is dipping steeply to the east. Magnetic and VLF-EM profiles for line 5200N indicates this body is deeper, wider and/or flattening to the south.

On line 6500N there is a tight coincidence between magnetic, VLF-EM, chargeability and resistivity anomalies with the electrical methods peak responses being slightly to the west (up dip) of the peak magnetic response. To the south the peak responses diverge slightly. VLF-EM responses become poorer as the body becomes deeper to the south.

The trial gravity traverse of line 6000N (Figure 3, Appendix II), shows the residual bouguer anomaly to be in close agreement with the magnetic, VLF-EM and IP anomalies. Again this gravity profile indicates a steeply east dipping body.

A comparison of the geophysical and geochemical results show coincident but slightly offset anomaly peak

positions. This offset again suggests an easterly dipping mineralised zone.

9. CONCLUSIONS

Forced augering in the Stanley Reward/Livingstone Creek area outlined coincident tin, copper, lead and zinc anomalies slightly to the west (up dip) of gravity, magnetic, VLF-EM and I.P. anomalies. All geophysical and geochemical data indicates the presence of an easterly dipping mineralised body. Drilling is required to confirm this interpretation. This drilling should commence to the south of Livingstone Creek gossan on line 6000N near 4900W. If this hole (up to 350 m deep) intersects mineralisation as predicted by the geochemical and geophysical data, a further two holes should be drilled at 200 m intervals to the south (along strike).

At present the extension of the gravity traverses is not required as the traverse along grid line 6000N only confirmed the VLF-EM, magnetics and I.P. data.

A review of the geophysical and geochemical data over the area south of the Stanley Reward gossan showed previous drilling has tested very few of the geophysical targets. These targets require drilling evaluation.

The regional drainage geochemistry has outlined two major areas of coincident anomalous copper, gold, zinc and nickel. These two areas are being gridded and traversed with soil geochemistry, magnetic and VLF-EM surveys. Grid cutting has not been required. This investigation will continue in the 1982/83 season.

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APPENDIX I

RESULTS OF THE FORCED AUGER

SOIL SAMPLING ANALYSES

STANLEY REWARD/LIVINGSTONE CREEK AREA

FIELD SAMPLE DESPATCH SHEET

13037

State TASMANIA Project STANLEY RIVER Prospect No. 600 Locality STANLEY REWARD
 CSR Order No. 30660 Date Sampled MAY 82 Sampler P.D. ELLIS
 Date Despatched 20/6/82 Despatcher P.D. ELLIS Despatched per TAA
 Type of Sample Soil Auger
 Lab. Name COMLABS

Gravel
Rubbles

Sample Number Co-ordinates	From To		Chemical Analyses (ppm or %)								Remarks	Sgr Rpt		
	EW	NW	Cu	Pb	Zn	Ni	Co	Cr	Sn	W			Ag	Bi
354	135801	5050	5000N	10	24	26	<4	<4	8	16	10	1	<4	4.5
5-7	135802	5025	5000	20	14	16	<4	<4	<4	22	20	2	<4	6.0
11-1	135803	5000	5000	16	44	10	<4	<4	12	125	20	1	<4	11.0
5-1	135804	4975	5000	24	70	200	40	8	14	260	10	1	<4	8.0
5-4	135805	4950	5000	14	30	40	60	<4	6	32	10	1	<4	6.0
4-0	135806	4925	5000	10	24	42	<4	<4	12	300	40	4	<4	GR 11.0
3-5	135807	4900	5000	110	50	330	100	34	46	800	25	2	<4	GR 6.0
3-5	135808	4875	5000	70	90	170	80	18	55	880	25	6	<4	GR 3.0
4-0	135809	4850	5100	70	70	300	140	42	44	350	125	2	<4	6.0
1-0	135810	4825	5100	110	60	250	160	60	60	165	15	2	<4	3.0
1-0	135811	5000	5100	14	60	55	<4	<4	<4	8	10	1	<4	CO 2.0
1-0	135811A	5000	5100	16	46	46	<4	<4	<4	18	15	2	<4	CO 6.0
2-0	135812	5025	5100	10	46	30	<4	<4	<4	8	10	1	<4	STANLEY CO 5.0
7-6	135813	5050	5100	30	46	32	<4	<4	20	180	25	1	<4	STANLEY CO 9.0
1-5	135814	5075	5100	14	18	14	<4	<4	8	26	10	1	<4	STANLEY CO 2.0
1-0	135815	5100	5100	20	22	18	<4	<4	6	38	20	1	<4	STANLEY CO 1.5
5-5	135816	5125	5100	14	10	16	<4	<4	6	32	10	1	<4	STANLEY CO 2.0
6-0	135817	5075	5000	12	16	12	<4	<4	12	38	10	1	<4	STANLEY CO 8.0
0-5	135818	5105	5000	6	14	6	<4	<4	8	26	10	4	<4	REWARD CO 2.0
4-0	135819	5125	5000	8	8	12	<4	<4	8	18	15	2	<4	REWARD CO 2.0
0-7	135820	5150	5200	6	10	6	<4	<4	6	60	20	1	<4	REWARD CO 2.0
0-8	135821	5125	5200	6	10	8	<4	<4	6	22	30	1	<4	REWARD CO 1.5
1-5	135822	5100	5200	4	6	6	<4	<4	6	40	20	1	<4	REWARD CO 2.2
1-5	135823	5075	5200	42	12	8	<4	<4	10	20	10	1	<4	REWARD CO 3.0
7-5	135824	5050	5200	8	10	10	<4	<4	8	46	30	1	<4	REWARD CO 6.0
7-0	135825	5025	5200	6	20	9	<4	<4	6	00	15	1	<4	GR 2.0
2-5	135826	5100	5200	38	24	80	40	8	16	195	15	1	<4	GR 2.0
1-5	135827	4975	5200	46	20	1000	140	36	18	180	20	2	<4	GR 2.0
0-5	135828	4950	5200	10	26	16	<4	<4	4	210	25	1	<4	GR 2.5
2-0	135829	5000	5300	26	26	55	<4	<4	18	4	30	2	<4	GR 3.0
0-5	135830	5025	5300	18	10	14	<4	<4	6	100	40	2	<4	GR 1.5
1-0	135831	5050	5300	4	6	4	<4	<4	<4	34	10	1	<4	GR 1.7
1-0	135832	5075	5300	6	12	42	<4	<4	<4	75	10	1	<4	GR 2.0
0-5	135833	5100	5300	10	24	12	<4	<4	44	26	20	1	<4	GR 1.5
1-0	135834	5125	5300	8	32	10	<4	<4	16	46	15	2	<4	GR 2.5
1-0	135835	5150	5300	6	30	6	<4	<4	<4	80	10	1	<4	GR 1.5
0	135836	5175	5300	8	20	2	<4	<4	8	28	40	4	<4	GR 1.5
1-5	135837	5175	5400	20	30	150	30	12	14	32	40	1	<4	GR 2.5
0	135838	5125	5400	8	22	30	84	84	6	150	20	2	<4	GR 3.2
1-5	135839	5100	5400	10	20	8	<4	<4	44	32	25	2	<4	GR 2.0

Instructions to Analyst: Pummell and sieve all samples to -20 mesh. - Sub sample -20 mesh and ANALYSE for Sn and W by XRF-1. Sieve to -80 mesh and ANALYSE -80 mesh for Cu, Pb, Zn, Bi, Ni, Ag, Co by AAS-1

RESULTS - INVOICE TO CSR Ltd (PG Mill) Min Div GPO Box 483 SYDNEY NSW 2001

Results to: RESULTS + SAMPLE BUTTS TO CSRLTD 6 WILLIAM ST WEST HOBART TAS 7000



FIELD SAMPLE DESPATCH SHEET

13038

State TASMANIA Project STANLEY RIVER Prospect No. 606 Locality STANLEY REWARD
 CSR Order No. 30660 Date Sampled MAY 1982 Sampler P. D. Ellis
 Date Despatched 20/6/82 Despatcher P. D. Ellis Despatched per TAA
 Type of Sample Soil Auger
 Lab. Name COMLABS

Sample Number Co-ordinates	From	To	Chemical Analyses (ppm or %)								Remarks		
			BiW	NiB	Cu	Pb	Zn	Ni	Co	Cr	Sr	W	Hg
135840	5075	5700	10	20	8	24	24	24	28	20	1	24	2
135841	5050	5400	8	8	10	24	24	6	55	10	1	24	1
135842	5020	5400	6	6	10	24	24	10	38	20	3	24	1
135843	4975	5500	8	60	6	24	24	6	22	45	2	24	5
135844	5025	5300	14	40	8	24	24	12	110	10	1	24	1
135845	5050	5300	8	48	8	24	24	10	210	25	1	24	2
135846	5075	5300	8	46	8	24	24	6	48	20	1	24	2
135847	5700	5500	6	24	8	24	24	6	42	20	1	24	2
135848	5125	5300	6	60	10	24	24	12	40	15	1	24	2
135849	5150	5300	6	40	6	24	24	10	36	20	1	24	2
135850	5175	5600	8	26	8	24	24	18	28	10	1	24	1
135851	5150	5600	10	50	6	24	24	12	44	25	1	24	2
135852	5700	5600	4	48	8	24	24	10	36	15	1	24	2
135853	5075	5600	12	42	14	20	24	14	105	15	1	24	1
135854	5050	5600	4	20	4	24	24	6	16	25	1	24	1
135855	5025	5600	4	80	8	24	24	14	65	25	1	24	5
135856	5000	5600	8	100	10	24	24	6	22	20	1	24	2
135856A	5000	5600	6	105	6	24	24	4	6	25	1	24	11
135857	4975	5600	10	60	12	24	24	4	26	20	1	24	3
135858	4950	5600	4	26	8	20	24	4	14	40	1	24	3
135859	4925	5600	6	18	8	24	24	4	6	15	1	24	3
135860	4925	5700	8	24	10	24	24	4	26	40	1	24	5
135861	4950	5700	6	24	8	24	24	4	20	25	1	24	3
135862	4975	5700	8	30	10	24	24	4	6	60	1	24	3
135863	5000	5700	4	50	10	24	24	4	32	15	1	24	2
135864	4975	5800	6	24	8	24	24	4	12	50	1	24	3
135865	4950	5800	10	30	12	24	24	4	8	55	1	24	2
135866	4925	5800	10	26	6	24	24	4	14	40	1	24	2
135867	4900	5800	6	24	12	24	24	4	8	15	1	24	2
135868	4875	5800	10	8	14	10	24	4	8	40	1	24	5
135869	4900	5900N	6	10	12	24	24	4	20	10	1	24	3
135870	4925	5400	4	14	8	24	24	4	14	25	1	24	2
135871	5050	5700	16	40	18	24	24	4	10	15	2	24	3
135872	5075	5700	14	40	24	24	24	4	20	10	2	24	3
135873	5700	5700	10	36	12	24	24	4	12	30	1	24	5
135874	5125	5700	22	18	14	24	24	4	30	15	1	24	5
135875	5175	5700	95	18	60	24	24	12	75	40	1	24	2
135876	5200	5700	26	26	210	24	8	14	14	15	1	24	8
135877	5300	5800	26	50	110	24	8	32	10	30	1	24	2
135878	5275	5800	55	110	1200	130	28	100	28	20	1	24	2

Instructions to Analyst: See Field Sample Despatch Sheet 13037

Results to:

FIELD SAMPLE DESPATCH SHEET

13039

State TASMANIA Project STANLEY RIVER Prospect No. 600 Locality STANLEY RIVER
 CSR Order No. 30660 Date Sampled MAY 1982 Sampler P. D. Ellis
 Date Despatched 20/6/82 Despatcher P. D. Ellis Despatched per TAA
 Type of Sample Soil Pugin
 Lab. Name COMLABS

1.2
+ 5.0
+ 5.0
2.0
1.4
2.8
0
0
2.5
2.5
2.5
1.5
2.7
2.7
0
1.5
2.5
2.5
2.5
3.1
3.5
2.2
1.5
1.5
5.0
1.0
2.5
2.5
2.0
2.8
2.7

Sample Number Co-ordinates	From To		Chemical Analyses (ppm or %)								Remarks		
	EW	NW	Cu	Pb	Zn	Mn	Co	Cr	Sm	W		Hg	Bi
135879	5250	5800	20	44	60	20	44	74	44	15	<1	44	3.0
135880	5175	5800	50	44	50	44	44	8	65	30	<1	44	5.0
135880A	5175	5800	80	44	65	6	44	20	115	45	1	44	3.5
135881	5150	5800	36	44	95	30	28	10	40	45	<1	44	5.1
135882	5075	5800	34	44	44	44	44	14	8	25	5	44	5.1
135883	5900	5900	44	12	46	44	44	44	70	60	<1	44	5.1
135884	5150	5900	65	16	55	30	8	30	32	25	<1	44	3.5
135885	5175	5900	12	44	12	44	44	10	42	20	<1	44	3.6
135886	5200	5900	18	44	230	30	44	8	60	10	<1	36	3.5
135886A	5200	5900	20	10	240	44	44	14	46	10	<1	55	5.1
135887	5250	6000	18	30	100	30	10	6	10	15	1	44	2.6
135888	5225	6000	22	16	55	44	4	44	8	10	<1	44	3.6
135889	5200	6000	65	130	390	130	22	8	8	40	1	44	3.5
135890	5125	6000	44	560	90	10	4	44	16	40	1	44	5.2
135891	5700	6000	14	28	20	30	44	44	42	25	<1	44	5.2
135892	5075	6000	6	22	10	20	44	44	12	25	<1	44	5.1
135893	5050	6000	16	48	10	44	44	6	36	25	<1	44	3.7
135894	5025	6100	20	10	15	44	44	44	24	25	<1	44	3.5
135895	5050	6100	26	20	24	44	44	44	16	25	1	44	5.1
135896	5125	6100	28	40	32	44	6	44	200	75	1	44	5.2
135897	5175	6100	18	12	12	44	44	4	24	15	1	44	3.6
135898	5200	6100	4	20	2	44	44	44	4	20	<1	44	3.5
135899	4900	6200	10	18	12	44	44	4	8	15	<1	44	6.5
135900	4925	6200	14	10	16	44	44	44	26	25	<1	44	6.3
135901	4950	6200	12	14	16	44	44	8	70	20	<1	44	3.5
135902	5000	6200	22	30	20	44	44	44	14	20	<1	44	5.1
135903	5025	6200	6	24	10	44	44	44	6	20	<1	44	5.1
135904	5700	6100	26	18	24	44	44	44	75	35	<1	44	5.1
135905	5700	5800	8	20	42	44	44	6	24	25	<1	44	5.1
135906	5050	5800	17	38	44	44	44	6	14	20	<1	44	5.1
135907	4950	5300	320	24	630	110	26	72	125	40	<1	44	3.6
135908	4925	5300	150	40	200	70	14	80	32	20	1	44	3.5
135909	4975	5300	150	50	420	260	60	70	115	35	<1	44	9.2
135910	4900	5200	14	44	130	44	4	6	8	15	<1	44	3.6
135911	4925	5200	520	26	470	70	14	200	210	25	1	44	5.1
135912	4950	5200	270	18	520	70	10	34	300	60	1	44	5.1
135913	4950	5100	95	46	350	150	70	70	250	160	1	44	4.5
135914	5150	5000	20	26	42	44	44	20	100	30	<1	44	6.1
135915	5050	4700	6	30	44	44	44	8	60	40	<1	44	11.1
135916	5025	4700	8	20	46	20	44	4	10	25	1	44	2.7

GRID
CO-ORDINATES
STANLEY RIVER
REFER
TO FILE
GRID

Instructions to Analyst: See Field Sample Despatch Sheet 13037

Results to:

APPENDIX II

GRAVITY SURVEY DATA

GRID LINE 6000N

STANLEY REWARD GRID

La Coste Romberg meter G473

<u>STN</u>	<u>TIME</u>	<u>READING</u>	<u>R.L.</u>
Base	10.01	3797.52	
"	10.05	3797.52	
"	10.09	3797.52	
"	11.35	3797.53	
"	11.37	3797.54	
"	11.39	3797.54	
"	11.33	3797.55	
"	13.35	3797.54	
"	13.37	3797.54	
"	17.24	3797.65	
"	17.25	3797.65	

LINE 6000N (8/7/82)

<u>STN</u>	<u>TIME</u>	<u>READING</u>	<u>R.L.</u>	<u>TERRAIN CORRECTION</u>
4780W	10.24	3791.85	120.27	1.36
	10.26	3791.89		
	10.29	3791.89		
4800W	10.51	3793.02	116.53	1.25
	10.53	3793.01		
4820W	11.02	3793.98	112.08	1.16
	11.04	3793.98		
4840W	11.11	3794.86	107.59	1.06
	11.16	3794.85		
4860W	11.26	3795.66	103.60	0.93
	11.27	3795.66		
4880W	11.48	3796.05	101.52	0.89
	11.51	3796.05		
4900W	12.01	3796.30	100.00 assigned	0.89
	12.04	3796.30		
4920W	12.12	3796.67	98.67	0.80
	12.15	3796.66		
4940	12.22	3796.68	98.54	0.75
	12.26	3796.68		

<u>STN</u>	<u>TIME</u>	<u>READING</u>	<u>R.L.</u>	<u>TERRAIN CORRECTION</u>
4960W	12.35	3796.69	98.41	0.75
	12.38	3796.69		
4980W	12.46	3796.61	98.54	0.69
	12.48	3796.62		
5000W	12.54	3796.74	97.53	0.68
	12.57	3796.74		
5010W	13.11	3797.24	95.02	0.67
	13.12	3797.25		
5020W	13.20	3797.09	95.31	0.64
	13.23	3797.10		
5030W	13.47	3797.28	94.48	0.61
	13.50	3797.28		
5050W	13.55	3797.14	95.10	0.63
	13.56	3797.14		
5050W	14.17	3797.13	94.99	0.65
	14.19	3797.13		
5060W	14.24	3797.15	94.94	0.68
5070W	14.30	3797.10	94.84	0.71
5080W	14.37	3797.00	95.15	0.74
5090W	14.50	3797.02	94.79	0.76
5100W	14.59	3797.11	94.24	0.79
5110W	15.16	3797.14	94.20	0.79
5120W	15.20	3797.08	94.61	0.80
5130W	15.25	3797.12	94.67	0.81
5140W	15.33	3797.23	94.33	0.81
5150W	15.39	3797.30	93.60	0.83
5160W	15.52	3797.22	94.45	0.84
5170W			94.20	0.85
5180W	15.59	3797.16	95.08	0.87
5190W	16.07	3797.23	95.01	0.88
5200W	16.13	3797.19	95.44	0.89
5210W	16.23	3797.23	95.59	0.93
5220W	16.29	3792.33	95.81	0.97
5230W	16.35	3797.45	95.94	1.01
5240W			95.76	1.05
5250W	16.41	3797.66	95.81	1.11
5260W	16.48	3797.76	96.61	1.16

<u>STN</u>	<u>TIME</u>	<u>READING</u>	<u>R.L.</u>	<u>TERRAIN CORRECTION</u>
5270W	16.54	3797.74	95.61	1.21
5170W	17.12	3797.36	94.20	0.85
5150W	17.17	3797.37	93.60	0.83

Correction necessary for each reading is :-

Meter reading of 3700 = 3735.29 milligals + correction factor above this is 1.00910

i.e. for STN 5270W with meter reading 3797.74

$3735.29 + (97.74 \times 1.00910)$ milligals

LEAMAN GEOPHYSICS

Survey Review, Specification, Reduction, Interpretation
Wide Experience Most Methods
Gravity, Magnetics a Specialty

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11 VERONICA ST., BELLERIVE, TAS.
All Correspondence to:
G.P.O. BOX 320 D, HOBART, TAS. 7001.
TELEPHONE: (002) 44 2239

TERRAIN CORRECTIONS : EL 53/70 (Stanley River) Tas for CSR

Station positions have been estimated using the topographic map provided and it is clear that possible uncertainties in topographic form and position at the ends of line 6000N have not been wholly resolved. However, as the corrected sketch plot of the Bouguer anomalies shows, only minor and very local noise remains in the values. This could only be removed if the stations are described in detail. The plot does show much purer and more believable gradients and anomaly forms.

Values stated are in mgal for zones A (approx) to G at 2.67 t/m^3 . The excess value for zones H to L is 0.55 to 0.58 mgal along the line. As this is close to the implicit error (0.03) and only the differences are relevant in this test survey only the near zone values are given.

4780	1.36	5020	0.64	5150	0.83
4800	1.25	5030	0.61	5160	0.84
4820	1.16	5040	0.63	5170	0.85
4840	1.06	5050	0.65	5180	0.87
4860	0.93	5060	0.68	5190	0.88
4880	0.89	5070	0.71	5200	0.89
4900	0.88	5080	0.74	5210	0.93
4920	0.80	5090	0.76	5220	0.97
4940	0.75	5100	0.79	5230	1.01
4960	0.71	5110	0.79	5240	1.05
4980	0.69	5120	0.80	5250	1.11
5000	0.68	5130	0.81	5260	1.16
5010	0.67	5140	0.81	5270	1.21

The plot assumes a base correction of about 0.60 and uses differences only.

Although a memo WJL/sgl/600 dated Aug 16, 1982 states that no latitude correction is required the plan provided shows that this assumption is incorrect. A gradient error will be introduced if it is ignored which may lead to interpretive error.

The corrected profile appears to reflect the local structure clearly and a dispersed array of stations would obviously be very informative.

D. E. Leaman

D. E. Leaman
September 29, 1982

**Minerals Division**

TO P. Ellis

REFERENCE WJL/lmc/600

FROM W. J. Langron

DATE 15th October, 1982.

Gravity Traverse 6,000N, E.L. 53/70
Stanley River, Tasmania

I refer to the terrain corrections and comments provided by Leaman Geophysics.

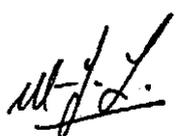
As anticipated, the main effect of the terrain corrections is to raise the level of the profile without altering its shape greatly. However the trough of the profile has been smoothed somewhat and the "residual" based on the dotted curve, presumably sketched in by Dave Leaman, seems plausible. I must admit that sketching in such a curve on my profile had not occurred to me, probably because the low about station 5100W seemed to me to be the dominant feature.

As you pointed out, this residual gravity anomaly agrees fairly closely in position with the magnetic, VLF-EM and IP anomalies although it is displaced a little to the west of the magnetic anomaly. If you plot out the residual you will see that, like the magnetic response, the gravity anomaly indicates a body dipping to the east.

As advised previously, Nick Winnel raised the possibility of doing regular gravity traverses across the grid. Whilst this could be valuable in testing the worth of terrain corrections applied to gravity work, I feel it could be a rather slow and expensive exercise. We have enough geophysical data, particularly magnetics, in the northern half of the E.L. to guide the first few holes. Hopefully, one of the early holes will test the gravity/magnetic/electrical response on traverse 6000N and perhaps that is the time to reconsider the gravity method. At this time,

-2-

a much better approach would seem to me to drill a series of holes at say, 200m along the "line of lode", as you suggested earlier. However, the decision will be up to further response from Union Corp.



W. J. Langron

cc MDL
PGM
PRG
DJC/File

Minerals Division

TO P.G. Ellis REFERENCE WJL/sgl/600
FROM W.J. Langron DATE August 16, 1982

GRAVITY TRAVERSE, STANLEY RIVER, TASMANIA

Attached is a copy of the reduced gravity profile along traverse 6000N. I have added the profile to the profiles of geophysical data contained in plan K553-27, the relevant portion of which is also attached.

The data have been reduced using a density of 2.67 Hm^3 in the Bouguer correction. It has not been possible to apply terrain corrections but I doubt if these are critical, at least in the central portion of the traverse. As the traverse is oriented W-E, no latitude corrections need be applied. A profile of topography (at exaggerated scale) is included with the gravity profile.

There are two principal features about the gravity profile (a) the "low" coincides in position with the deeper of the two magnetic sources and (b) the body producing the gravity "low" has a fairly steep dip to the east. It is tempting to conclude that the magnetic and gravity anomalies are due to the same body but it is difficult to imagine such a highly magnetic body having a density lower than that of the enclosing rocks.

The depth to source of the main magnetic anomaly is somewhat less than 100m. It is difficult to estimate the residual amplitude of the gravity anomaly but if this is taken to be 0.4-0.5 mgal, and assuming a density contrast of 0.2 t/m^3 , then the depth to source is 50-70m. In other words, a hole drilled from the east to test the ground 100m below 5100W would test both the gravity and magnetic anomalies.

Several other situations could be envisaged. For example, the granite cover could be thin (it extends as far west as 5150W) and there could be lighter shaley-siltstones over-riding the (?dolomites) beneath; the magnetic body would have been intruded separately. Or again, the gravity "low" could indicate simply a wide fault/crush zone and this would provide ideal conditions for an intrusion. In any instance, the drill test recommended above would most readily resolve the situation which I assume is important in terms of primary mineralisation.

I have commented previously on the sharp magnetic peak at 5150W. It is due to a surface or near-surface source at the fault between granite and ?dolomites. The material may be a good guide to the composition of the main intrusive. I would wish to see the results of the holes drilled along this

- 2 -

traverse - perhaps susceptibility and density measurements on core would prove useful. Do you have a geological section drawn up for this traverse?

The main electrical (chargeability and VLF-EM) responses are about 100m further west. I feel we have to think seriously of testing the "B/D" zone but one disturbing feature is that the gravity work here is incomplete. The gravity results could be important as they are not dependent on topography such as is apparent in the eastern portion of the traverse. The other feature of note is that the gravity "high" corresponds closely to a magnetic anomaly at about 5280W. This is the (normal) relationship I would have expected; in addition, I always have a liking for "flank" anomalies.

Summary

Further interpretation/speculation is not warranted at this stage but you should consider the proposition of testing both zones of interest with the one hole, angled from the east. As Mr. Macnamara points out, unless the causative (? mineralised) bodies in the western portion have some depth to them then they are not viable targets.


W.J. Langron

cc - MDL
- PGM
- PRG
- PMM
- DJC/file

SUMMARY OF GEOPHYSICAL RESULTS, E.L. 53/70 (STANLEY RIVER),
TASMANIA

1. Introduction

This summary is concerned specifically with results in the Stanley Reward-Livingstone Creek section of E.L. 53/70 (i.e. between traverses 5,000N and 7,175N on the pegged grid).

In 1976 the whole E.L. was flown with low-level helicopter-borne EM and magnetics (see Georex report, EMR 51/76). It is interesting to note that about $\frac{2}{3}$ of all EM anomalies located occur about the Stanley gossan-Livingstone Creek gossan "line of lode". All EM anomalies outside of the pegged grid have been sampled geochemically and only EM anomaly No. 9 (at or near the granite contact) showed results of interest. This anomaly seems reasonably well placed on the northern extension of the line of gossans.

The aeromagnetic contours are useful in a regional sense although no detailed processing has been done on them. Such processing could be useful over particular sections, e.g. in mapping the boundaries of granite.

The pegged grid has been surveyed with magnetics, I.P., VLF-EM (unfiltered data), chip and soil geochemistry. Limited portions were covered with SP and VHEM. The geophysical results together with geology and topography are shown on a series of compilations - DWG 553-18 through 553-30. SP and VHEM results are available also for some traverses in the southern section. A geophysical trend plan (DWG 553-44) has been prepared for the northern section. I.P. chargeability anomalies on this plan have been labelled as in the two Scintrex reports, EMR 36/75 and 37/78. A gravity profile along traverse 6,000N is shown in sketch form (Fig. 1); terrain corrections have not yet been applied to these data but are being computed by the Tasmanian Mines Department. A computer generated magnetic contour map for the northern section is being prepared.

All geological, geophysical and geochemical maps are at scale 1:2,500.

2. General Remarks

All geophysical methods indicate a continuation of the electrical/magnetic source between the gossans (ref : DWG K553-44). However, the magnetic axis is the dominant single trend in the northern portion but this axis bifurcates in the region of traverse 5,700N, the western minor branch lying within Oonah Quartzites near its surface contact with dolomitic shales. The main magnetic axis generally is within granite but seems to be independent of the mapped granite/shale contact. The bifurcation about traverse 5,700N is related to cross-faulting there. Similar response, with faulting, occurs on traverse 5,050N.

The magnetic profiles in the interval 5,700N to 6,500N indicate a causative body which is at surface in the region of the gossans ("spikey" nature of the profiles) but which dips fairly steeply to the east (e.g., traverse 6,000N) and flattens in dip and plunges to the south from here. The cross-fault between traverses 5,600N and 5,700N is confirmed clearly by the shift in the positions of the magnetic peaks on these traverses.

Geophysical results along traverse 6,000N have been considered in particular. The minor magnetic peak originates from a near or at-surface source and is of no great interest. The depth to source of the main magnetic anomaly is somewhat less than 100m (the results could be modelled once representative values of magnetic susceptibilities on core are assembled). The gravity profile (Fig. 1) contains a "low" which coincides in position with the magnetic anomaly and the body producing the gravity "low" also has a fairly steep dip to the east. It is tempting to conclude that the magnetic and gravity anomalies are due to the same body but it is hard to imagine such a highly magnetic body having a density lower than that

of the enclosing rocks. It is difficult to estimate the residual amplitude of the gravity anomaly but if this is taken to be 0.4-0.5 mgal, and assuming a density contrast of 0.2 t/m^3 then the depth to source is 50-70m. In other words, a hole drilled from the east to test the ground 100m below 6,000N/5,100N would test both the gravity and magnetic anomalies.

Several other situations could be envisaged. For example, the granite cover could be thin (it extends as far west as 5,150W) and there could be lighter shaley-siltstones over-riding the (dolomites) beneath; the magnetic body would have been intruded separately. Or again, the gravity "low" could indicate simply a wide fault/crush zone and this would provide ideal conditions for an intrusion. In any instance, the drill test recommended above would most readily resolve the situation which I assume is important in terms of primary mineralisation.

I have commented previously on the sharp magnetic peak at 6,000N/5,150W. It is due to a surface or near-surface source at the contact between granite and dolomites. The material may be a good guide to the composition of the main intrusive.

The main electrical (chargeability and VLF-EM) responses are about 100m further west. I feel we have to think seriously of testing the "B/D" zone but one disturbing feature is that the gravity work here is incomplete. The gravity results could be important as they are not dependent on topography such as is apparent in the eastern portion of the traverse. The other feature of note is that the gravity "high" corresponds closely to a magnetic anomaly at about 5,280W. This is the (normal) relationship I would have expected.

On traverse 6,500N there is coincidence between magnetic, VLF-EM, chargeability and resistivity anomalies but as

expected, the peak response of the electrical methods lies to the west of the peak magnetic response, i.e. up-dip from it, on traverses to the south. It is also noticeable that the VLF-EM response becomes poorer as the body becomes deeper. However, we may be dealing with two separate conductors (e.g. VLF-EM response on traverses 5,900N and 6,000N compared with the single excellent response on traverse 6,500N).

VLF-EM results should be interpreted with caution. There is always a VLF-EM pick associated with a resistivity low (this is a straight out conductive effect) and often, a VLF-EM cross-over related directly to a chargeability anomaly as is often the case where the VLF-EM results indicate that the single conductor (as on traverse 6,500N) has split. I feel the resistivity lows and the chargeability anomalies are due to different sources and that the VLF-EM/chargeability correlation is the more important. Consideration should be given to some fair quality VLF-EM responses which occur near the eastern ends of long traverses (e.g. 5,000N); these locations correspond with outcrop and near-surface magnetic anomalies and should be investigated further.

I.P. anomalies generally mean chargeability anomalies, but one of the main values of the resistivity profiles is in locating the granite contact, resistivity values generally rising sharply about this location.

Magnetic profiles in the southern portion of this section become increasingly "spikey" indicating multiple near-surface sources in combination with a principal deep source (cores from southern holes give some confirmation of sulphides in shale bands). In addition, in the southern portion, much of this spikey data is obtained over mapped granite.

Several of the conductor/chargeability axes would seem to

be too far removed from the magnetic peaks to originate from the same source. In particular it would seem that chargeability axis D is left fairly undisturbed by the cross-faulting between traverses 5,600N and 5,700N. Hence, it is suggested that drilling be designed to test some of the electrical anomalies specifically.

It is not the purpose of this summary to discuss in detail the geophysical results south of the Stanley Reward gossan though most of the drill testing has been conducted in that section. For the most part, drill sites were selected for geological/geochemical reasons and hence few of the geophysical targets have been tested. SRD 9 tested the strongest I.P. response; it intersected a fair amount of pyrrhotite but little Sn in assay (hence I feel it could be worthwhile reassaying this core). Most other holes started to the west of the zones of geophysical interest which generally in this southern portion is about the granite contact and to the east of the main geochemical anomalies. However, it should be noted that a principal geochemical Sn anomaly about the western end of traverse 4,700N has not yet been tested.

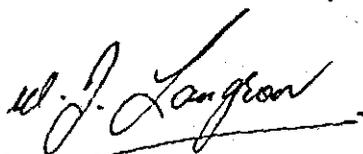
3. Summary

In the northern section of the grid under review we are dealing with discrete geophysical responses having close correspondence with geochemical anomalies. This is in contrast to the more diffuse relationship in the southern portion.

The magnetic response in the northern section is particularly "clean" and therefore offers a good interpretation. I can only guess at the nature of the causative body but it would seem to be closely related to mineralisation in a zone which has not yet been tested and in which there is reasonably good electrical response.

A hole on traverse 6,000N is suggested. However, testing of the chargeability/VLF-EM anomalies per se and a pattern of drill holes along the "line of lode" should also be considered.

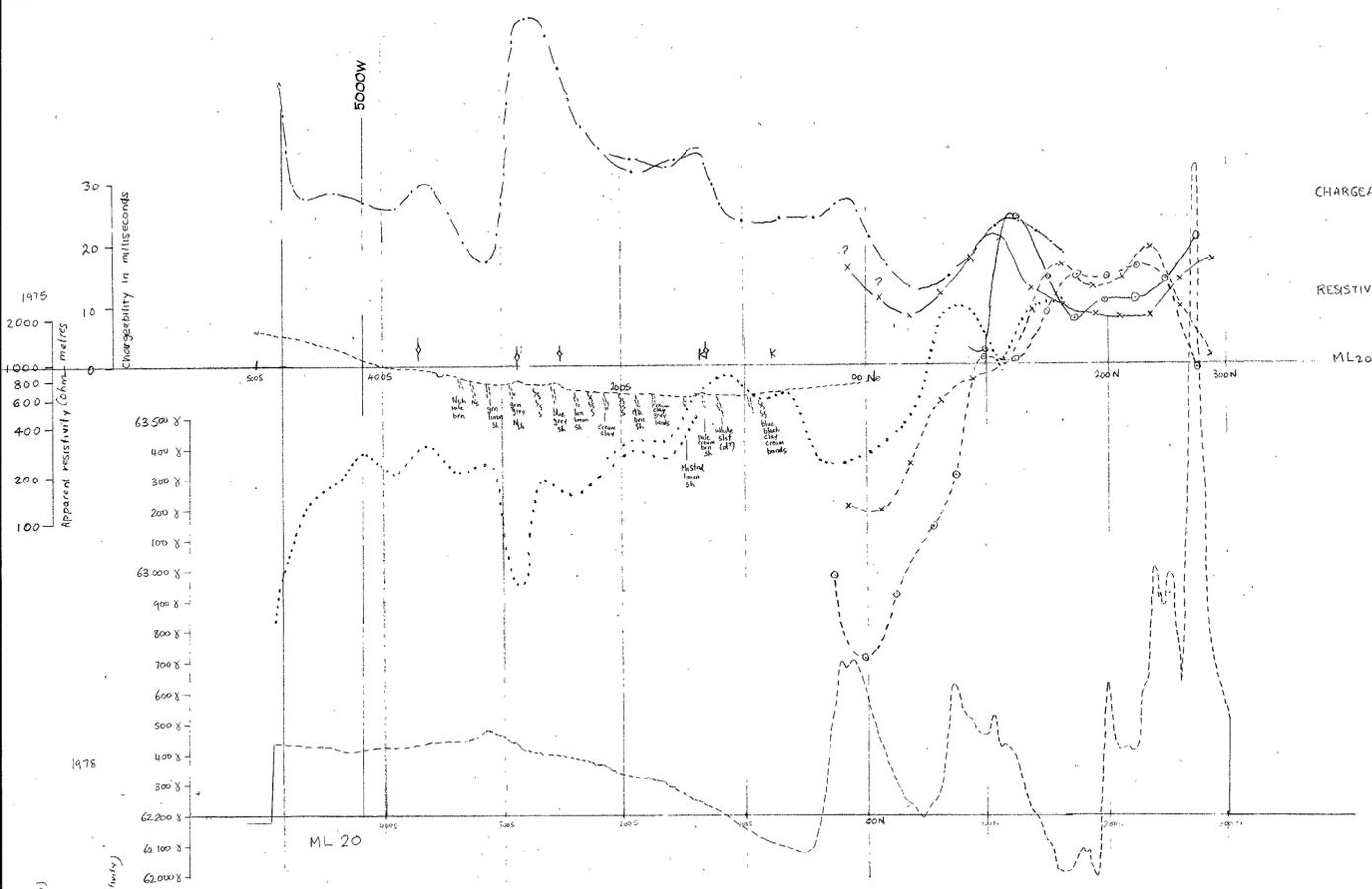
As suggested by Mr. Macnamara, A hole could be sited between SRD7 and SRD9 to test magnetic, I.P. (and geochemical Sn) response but I feel targets in the Stanley Reward-Livingstone Creek section offer more promise in the first instance.



W.J. Langron

September 20, 1982

ML 20

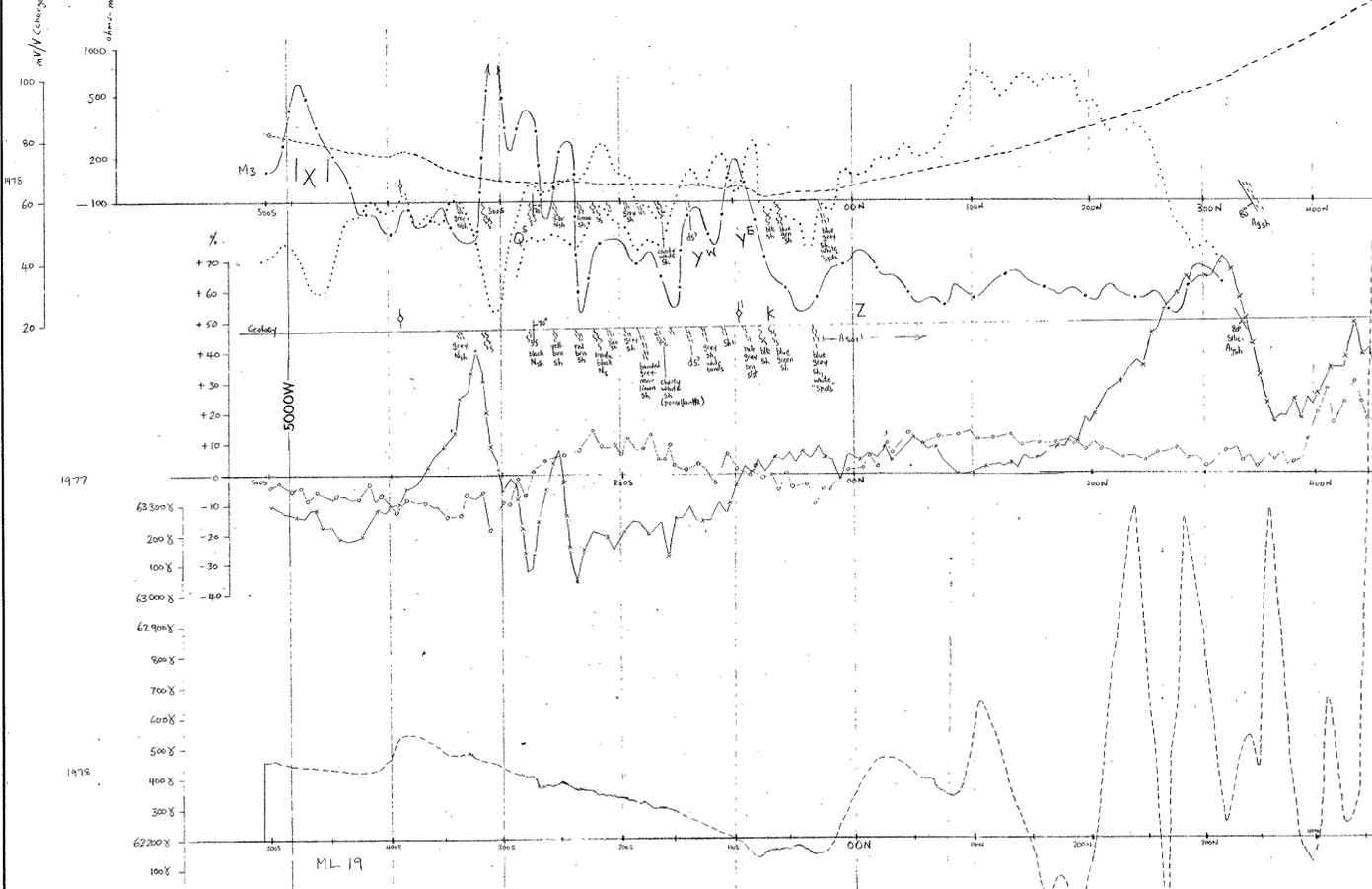


CHARGEABILITY SCALE, $Z_{cm} = 10$ Milliseconds
 BASE LEVEL = 0 Milliseconds
 SYMBOL: — Gradient, —X—X—X $n=1$, —O—O—O $n=2$ Pole-Dipole

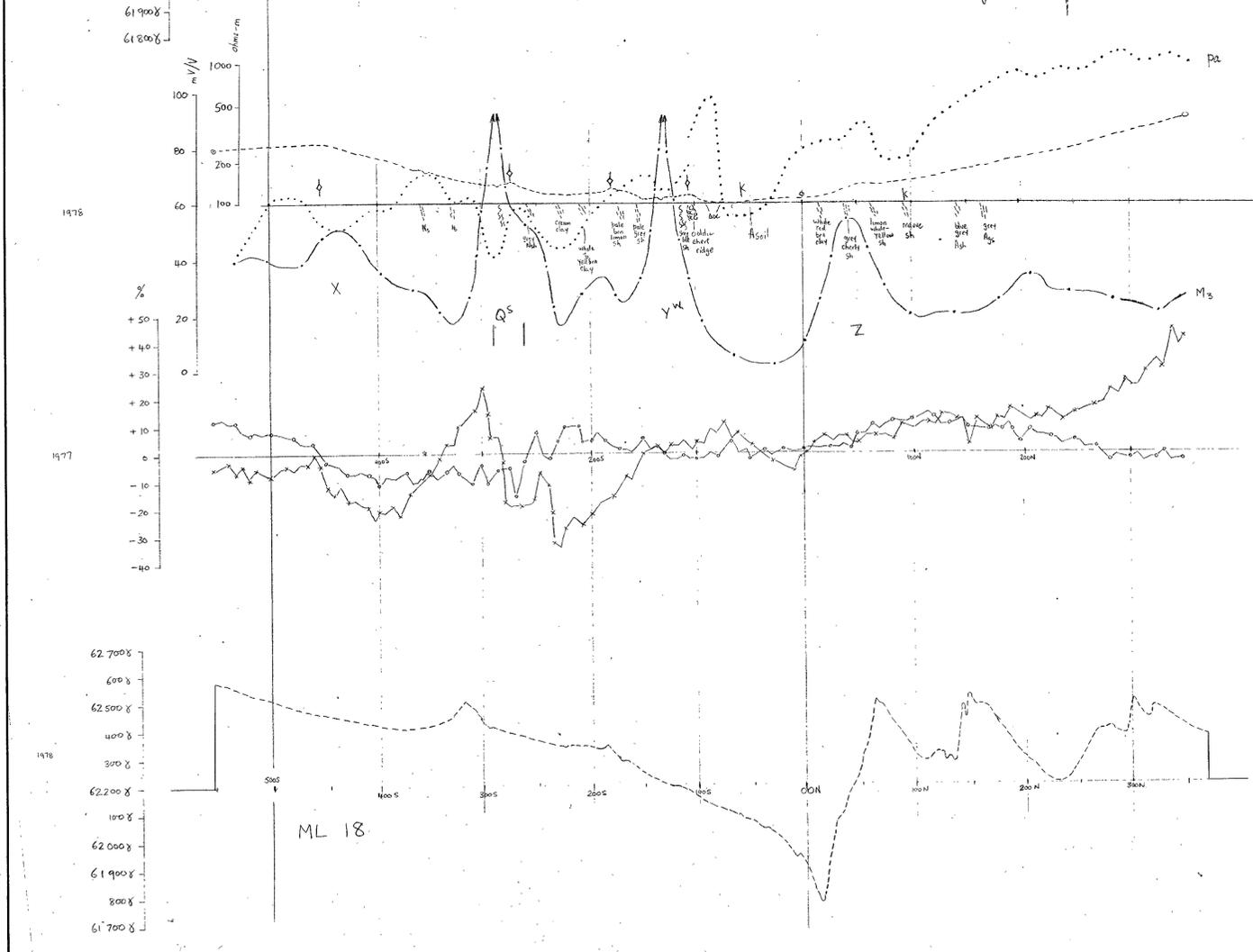
RESISTIVITY SCALE, $S_{cm} = 1$ Logarithmic cycle
 BASE LEVEL = 1000 Ohm-metres
 SYMBOL: — Gradient, —X—X—X $n=1$, —O—O—O $n=2$ Pole-Dipole

1975
 SURVEY
 (PR7 receiver)

ML 19



ML 18

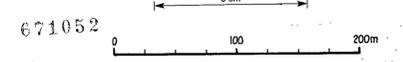


REFERENCE

- ▲ ▲ ▲ Breccia
- N Onah quartzite and shale
- Nq Onah quartzite
- Ns Onah siltstone
- Nsh Onah shale
- s's Black shale
- cc cc Black chert, chert
- ac Chert fragment (scree)
- A Onman Creek Aquilite
- ds Dolomite, dolomitic siltstone
- ↑ Ridge top
- ↓ Base of slope

1977 - 1979 DATA

- Gradient EIP chargeability (millivolts/volt, M3 slice, IPR receiver)
- I/P resistivity (ohm-metres)
- Topographic profile (100 ohm-M line - RL color SR04)
- YW etc. I/P resistivity anomaly zones (1978)
- VLF-EM: In phase component (Hil angle ±%)
- VLF-EM: Quadrature component (1%)
- Magnetics: Total Field (6200y base level)



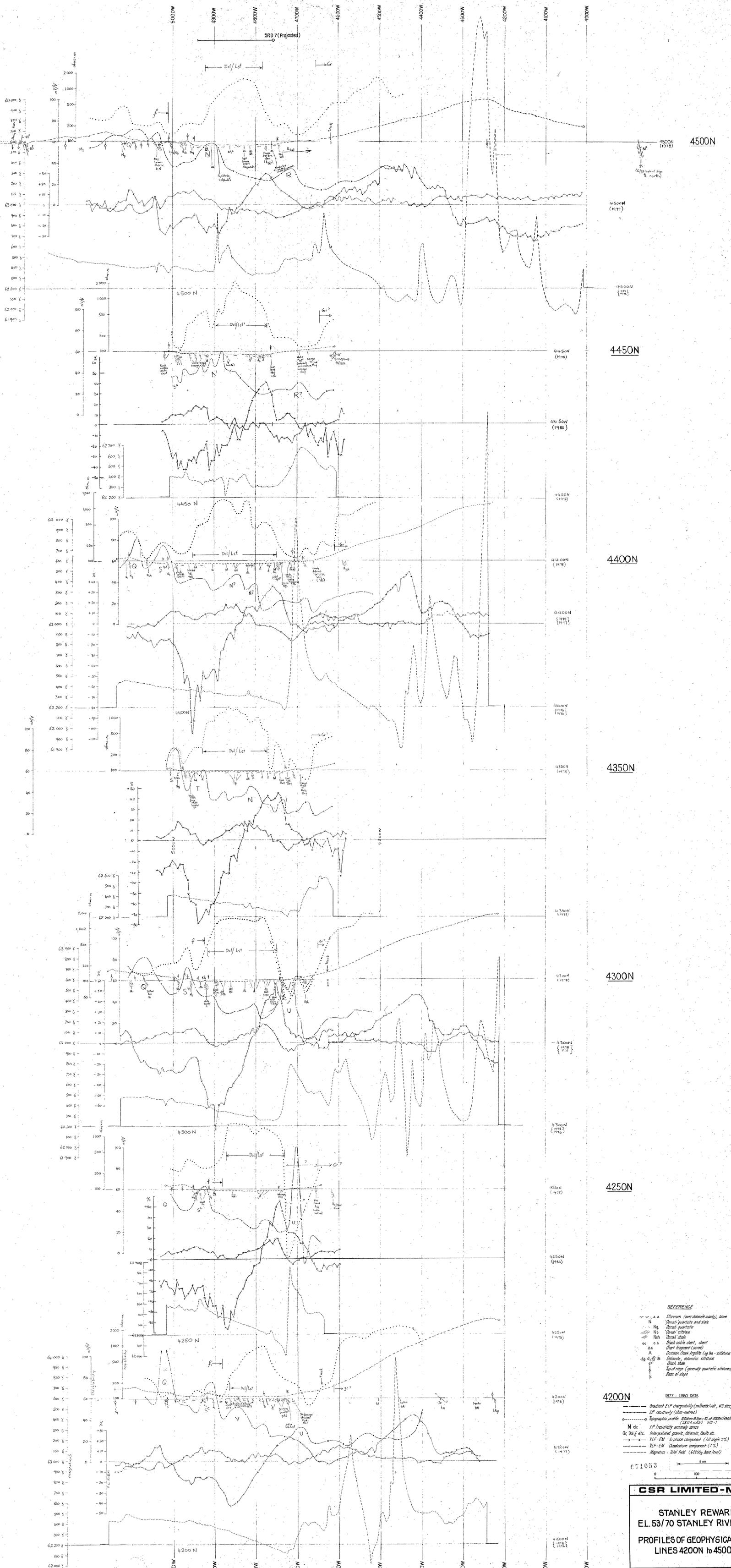
CSR LIMITED-MCD

STANLEY REWARD
 E.L.53/70 STANLEY RIVER, TAS.

PROFILES OF GEOPHYSICAL DATA
 LINES ML18 to ML20

SCALE	1:2500	DRG. No.	
DRAWN	P.M.M.		
DATE	AUG '80		
REVISED			

K553-18



- REFERENCE**
- Alluvium (over-dominant), zone
 - N Dark quartzite and slate
 - Nq Dark quartzite
 - Ns Dark schistose
 - Nsh Dark shale
 - cc Black and/or chert, chert
 - Δc Chert fragments (scattered)
 - A Drimmon Creek Argillite (eg. ha - schistose etc.)
 - Δg, Δs, Δd Distalitic, dolomitic schistose
 - Black slate
 - Top of ridge (generally quartzitic schistose, chert etc.)
 - Base of slope
- 1977 - 1980 DATA**
- Gradient EIP chargeability (millivolt/volt, M3 dec, 1980 meter)
 - LP resistivity (ohm metres)
 - Topographic profile 1980m at the E.L. of 5000m/ANCON bridge (1:500 scale) 1/8/77
 - N etc. IP resistivity anomaly zones
 - Gr, Dd, Lst etc. Interpretated granite, dolomite, faults etc.
 - VLF-EM in-phase component (10 degree etc.)
 - VLF-EM Quadrature component (±1)
 - Magnetism - total field (62000m base level)

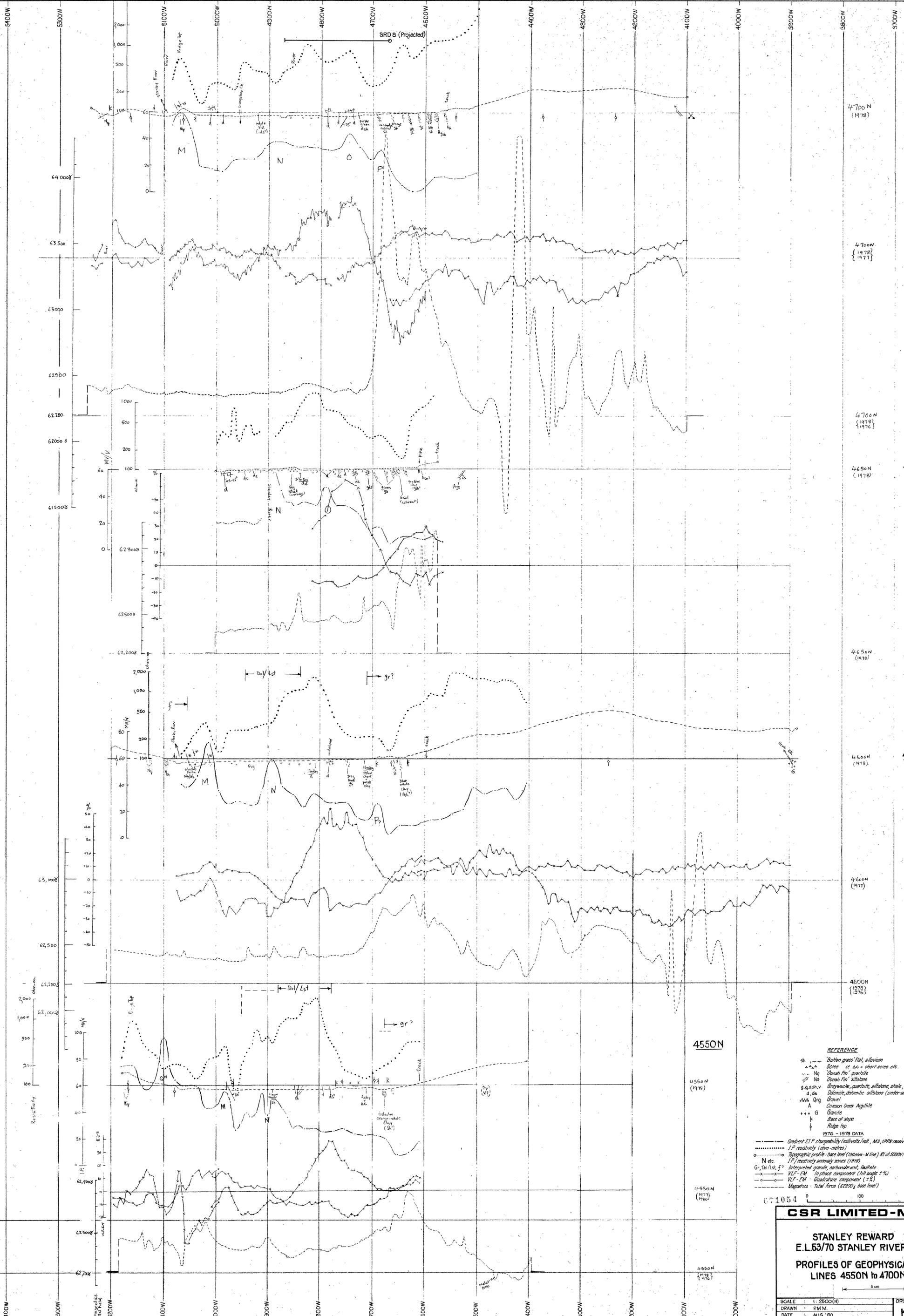
671053

0 100 200m

CSR LIMITED-MCD

STANLEY REWARD
E.L. 53/70 STANLEY RIVER, T.A.S.
PROFILES OF GEOPHYSICAL DATA
LINES 4200N to 4500N

SCALE	1:2500 (H)	DRG NO.
DRAWN	P.M.M.	
DATE	Aug. '80	K553-20
REVISED		



- REFERENCE**
- sk - Bullen grass flat, alluvium
 - sc - scree etc. sc = chest scores etc.
 - Nq - Onaham fm quartzite
 - ds - Onaham fm siltstone
 - g, q, sh, v - Greywacke, quartzite, siltstone, shale, volcanic
 - d, ds - Dolomite, dolomitic siltstone (under alluvium)
 - Gr - Gravel
 - A - Onaham Creek Argillite
 - G - Granite
 - ++ - G - Slope of slope
 - k - Ridge top
- 1976 - 1978 DATA
- Gradient EIP chargeability (millivolt/m, MS, 1978 receiver)
 - I.P. resistivity (ohm-metres)
 - Topographic profile - base level (100m - M line) N of 5200W (see map sheet V11)
 - o - I.P. resistivity anomaly zones (1978)
 - N etc - Interpreted granite, carbonate unit, fault etc.
 - Gr, Dol/Lst, f? - Dolomite, dolomitic siltstone, fault etc.
 - VLP - EM in phase component (HP angle ± 1°)
 - VLP - EM Quadrature component (± 2°)
 - Magnetics - Total force (22000y base level)

071054 0 100 200m

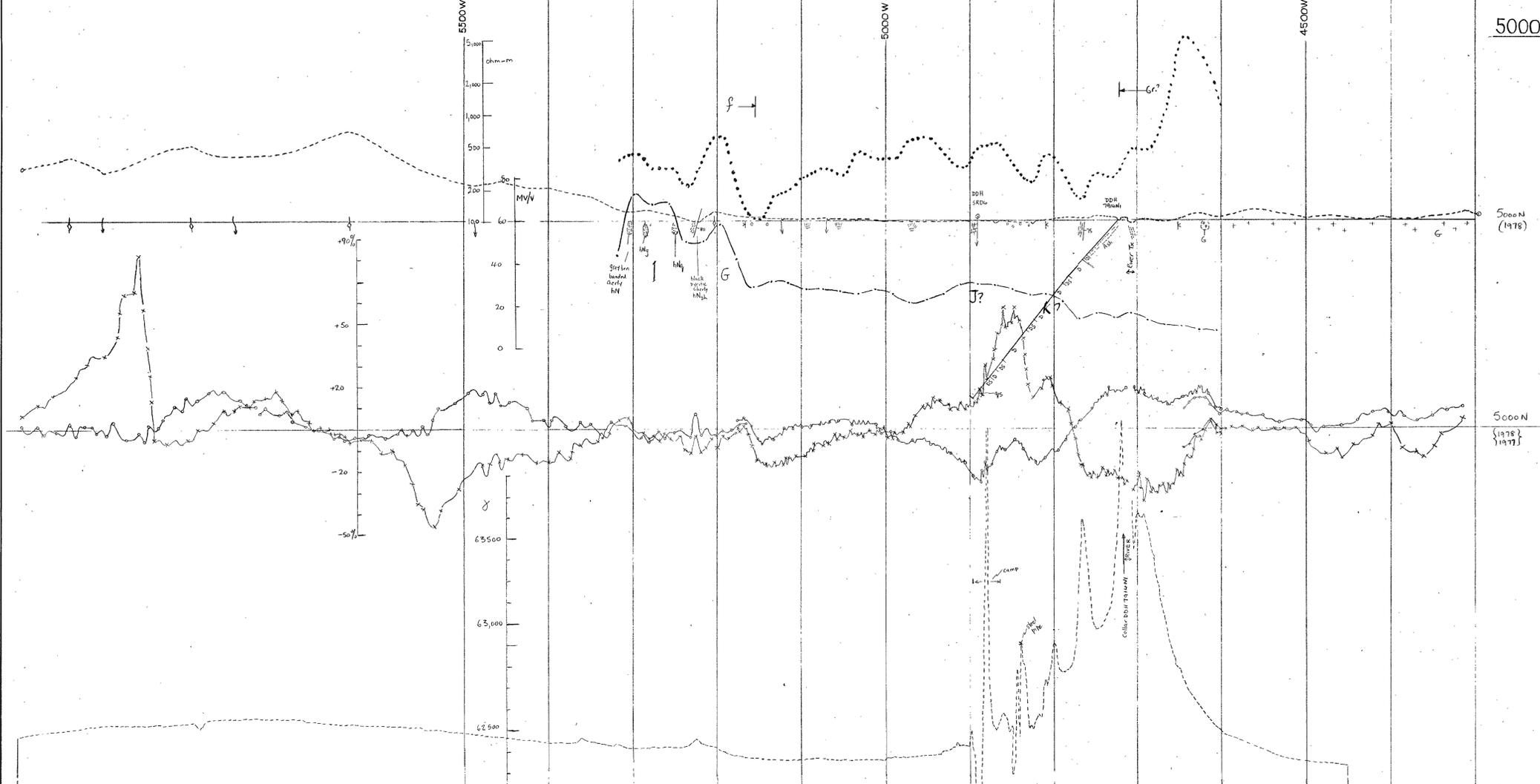
CSR LIMITED-MCD

STANLEY REWARD
E.L.53/70 STANLEY RIVER, T.A.S.
PROFILES OF GEOPHYSICAL DATA
LINE 4550N to 4700N

SCALE: 1:2500(H)
 DRAWN: P.M.M.
 DATE: AUG '80
 REVISED:

DRG No.
K553-21

5000N

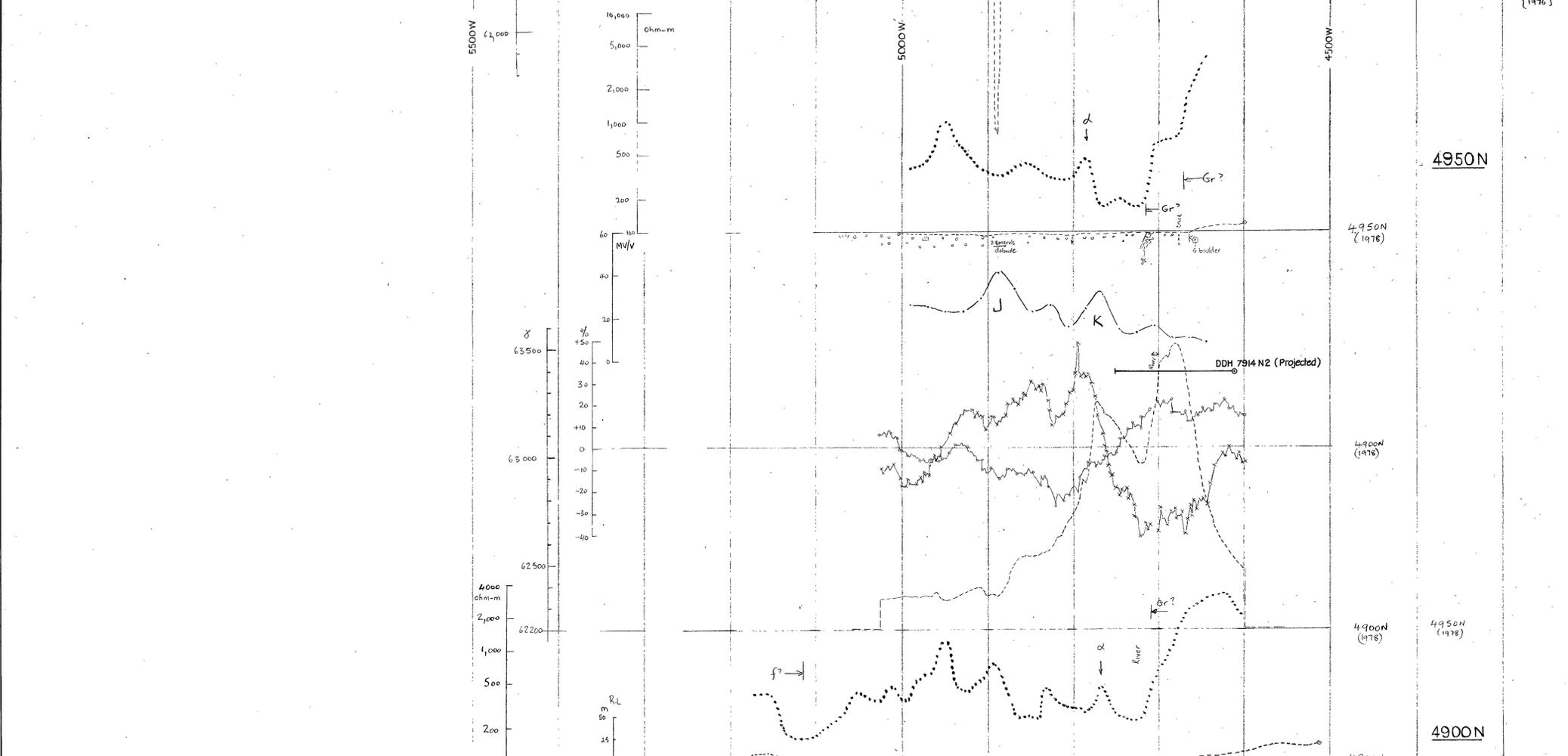


5000N (1978)

5000N (1978)

5000N (1978)

4950N

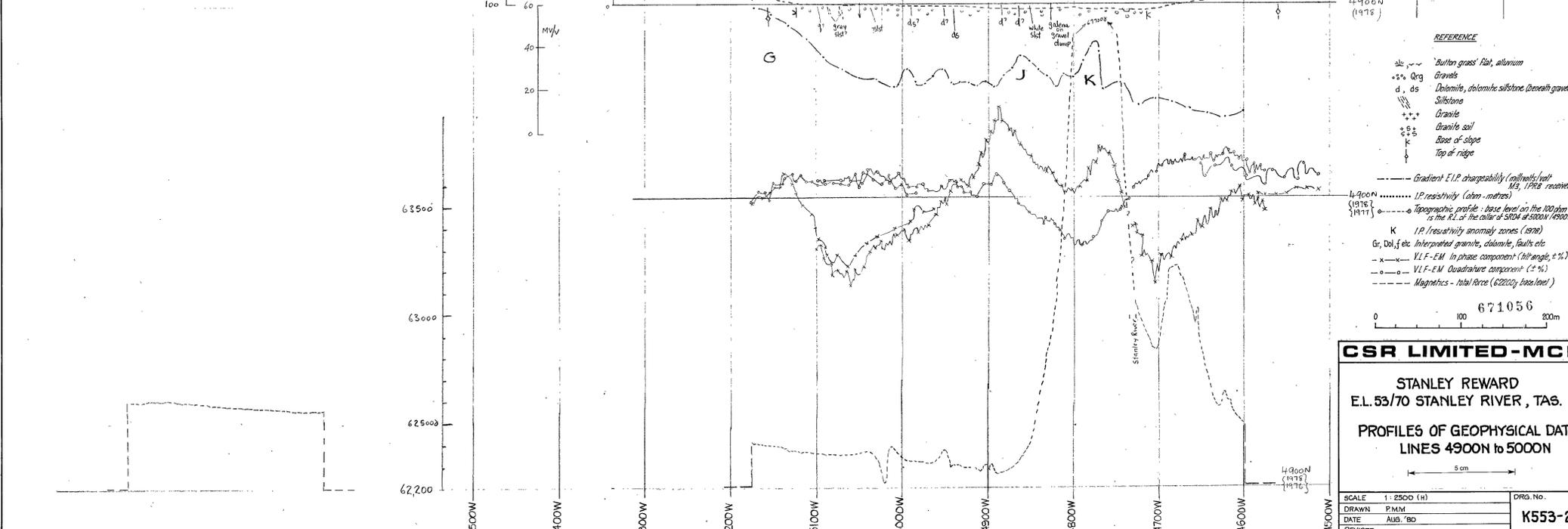


4950N (1978)

4950N (1978)

4950N (1978)

4900N



4900N (1978)

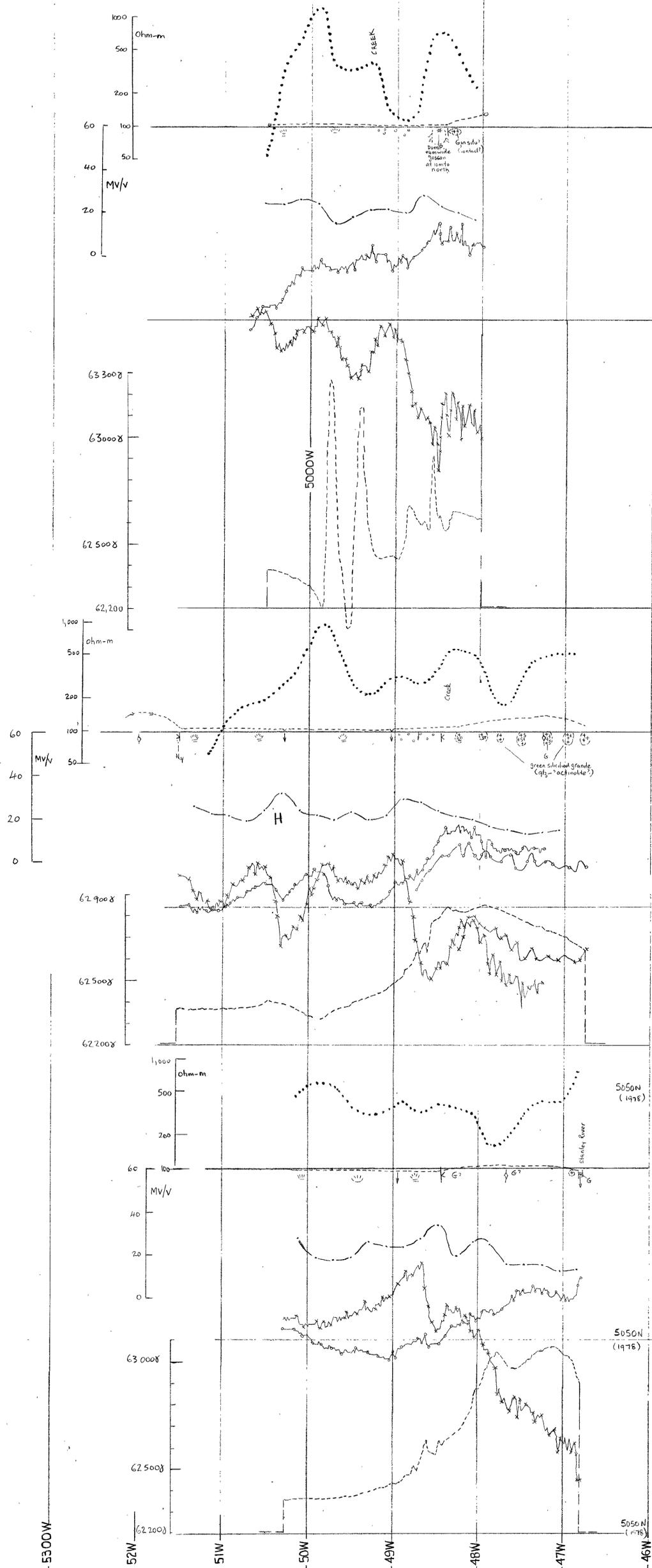
REFERENCE

- alt. --- Buller grass flat, alluvium
- Gravels
- ds, ds' Dolomite, dolomitic siltstone (beneath gravels)
- Siltstone
- Granite
- Granite soil
- Base of slope
- Top of ridge
- Gradient EIP chargeability (millivolt/volt)
- IP resistivity (ohm-meters)
- Topographic profile - base level on the 100-foot line to the RL of the collar of SD04 at 5000N/4900W
- K IP resistivity anomaly zones (zero)
- Gr, Dol etc. Interpreted granite, dolomite, faults etc.
- VLF-EM In phase component (100% ± 1%)
- VLF-EM Quadrature component (± 1%)
- Magnetics - total force (62000 base level)

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STANLEY REWARD
 E.L. 53/70 STANLEY RIVER, TAS.
 PROFILES OF GEOPHYSICAL DATA
 LINES 4900N to 5000N

SCALE 1:2500 (H)	DRG. No.
DRAWN P.M.M.	K553-23
DATE AUG '80	
REVISED	



4500W

4500W

5150N

5100N

5050N

5150N
(1978)

5150N
(1978)

5150N
(1978)

5100N
(1978)

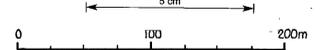
5100N
(1978)
(1977)

5100N
(1978)

5050N
(1978)

REFERENCE

- Burton grass, alluvium
- Gravel
- Stanniferous limonite gossan
- Shale
- Granite
- Ridge top
- Base of slope
- Gradient E.I.P. chargeability (millivolts/volt)
- I.P. resistivity (ohm-metres)
- Topographic profile (V/H-1) Base level = 100 ohm M line
- H I.P. resistivity anomaly zones (1978)
- Gr, Dol, f etc Interpreted granite, dolomite, fault? etc
- V.L.F.-E.M. In phase component (10% and ±%)
- V.L.F.-E.M. Quadrature component (±%)
- Magnetic - Total force (62700 base level)



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STANLEY REWARD
E.L. 53/70 STANLEY RIVER, TAS.
PROFILES OF GEOPHYSICAL DATA
LINES 5050N to 5150N
671057

SCALE : 1:2500 (H)	DRG. No.
DRAWN : P.M.M.	K553-24
DATE : Aug '80	
REVISED :	

5600W

5600W

5500W

5500W

5400W

5300W

52W

51W

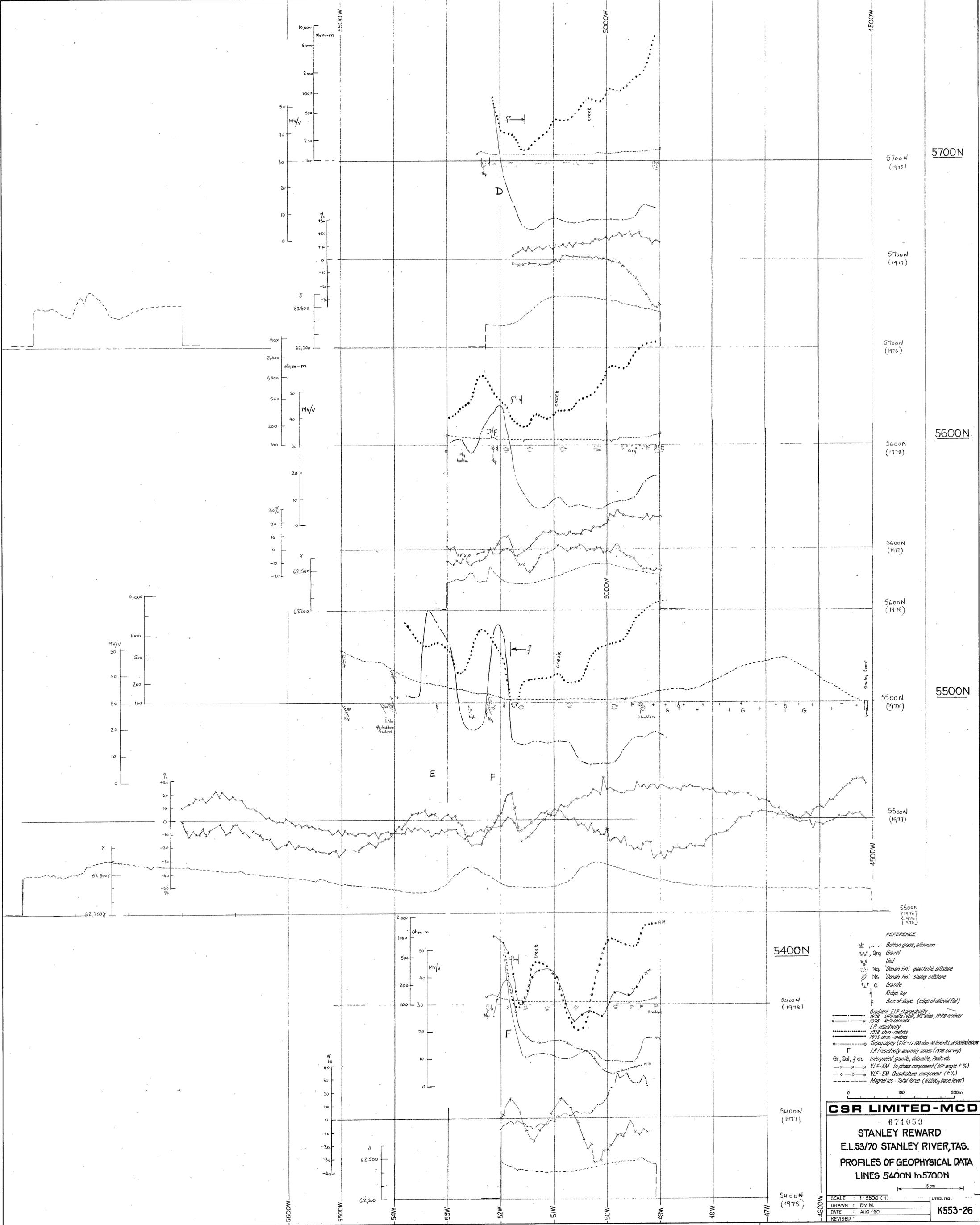
50W

49W

48W

47W

46W



5700N (1978) **5700N**

5700N (1977)

5700N (1976)

5600N (1978) **5600N**

5600N (1977)

5600N (1976)

5500N (1978) **5500N**

5500N (1977)

5500N (1976)

- REFERENCE**
- Bulten grass, alluvium
 - Gravel
 - Soil
 - Nq Denah fm. quartzitic siltstone
 - Ns Denah fm. shaley siltstone
 - G Granite
 - Ridge top
 - Base of slope (edge of alluvial fan)

- Gradient E.P. chargeability
- 1978 Millivolt/Volt, 45° slope, 1P/2R receiver
- 1975 Millivolt/Volt
- I.P. resistivity
- 1978 ohm-metres
- 1975 ohm-metres
- Topography (V/U-1) 100 ohm-M/line-FL at 5000V/1000V
- I.P. resistivity anomaly zones (1978 survey)
- F Interpreted granite, dolomite, boulders etc.
- Gr, Dol, f etc.
- VLF-EM In phase component (100 angle ±%)
- VLF-EM Quadrature component (±%)
- Magnetics - Total force (62200 base level)

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671059

STANLEY REWARD

E.L.53/70 STANLEY RIVER, TAS.

PROFILES OF GEOPHYSICAL DATA

LINES 5400N to 5700N

SCALE : 1" = 2000 (H)

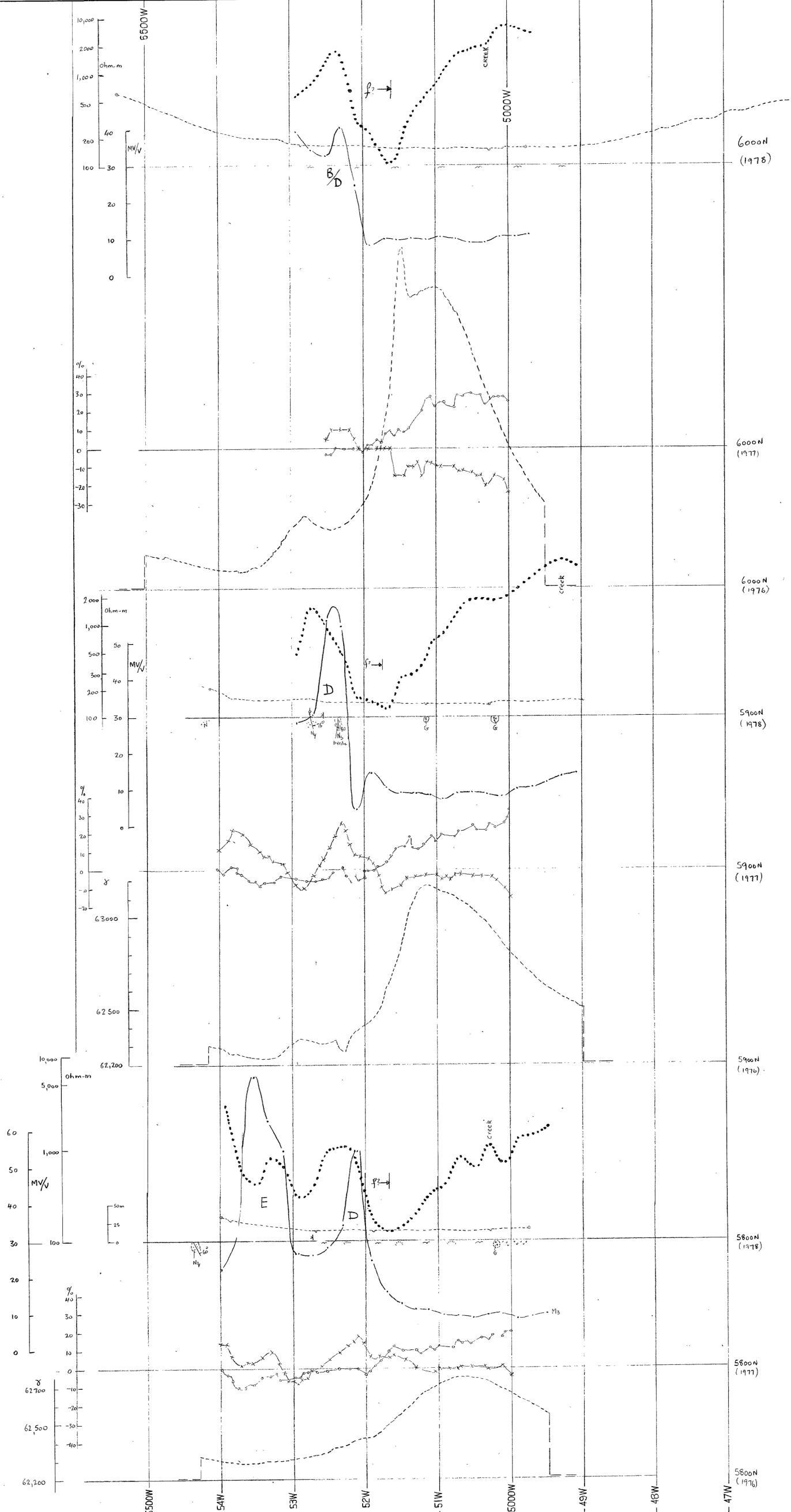
DRAWN : P.M.M.

DATE : Aug '80

REVISED :

UNVS. NO.

K553-26



6000N
5900N
5800N

4500W
4500W
4500W

5800N (1978)
5900N (1977)
5900N (1976)
5900N (1978)
5900N (1977)
5800N (1978)
5800N (1977)

62,200
62,500
62,800
62,500
62,200

5500W 54W 53W 52W 51W 5000W 49W 48W 47W 4600W

REFERENCE

- ~ Bluff grass, alluvium
- * Gravel
- Qrg Gravel
- Nq Donah fm quartzitic siltstone
- NS Donah fm shaly siltstone
- G Granite
- Base of slope
- Ridge top

1976 - 1979 DATA

- Gradient EIP chargeability (millivolts/volt)
- I.P. resistivity (ohm-metres) MS slice, IPR8 receiver
- E etc. I.P. resistivity anomaly zones (1978 survey)
- Gr, Dol, f etc. Interpreted granite, dolomite, faults etc.
- Topography: 100 ohm-M line - R.L. 5000W/4900N = (SRD4 collar) V/H = 1
- VLF-EM. In phase component (tilt angle ±%)
- VLF-EM. Quadrature component (±%)
- Magnetics: Total force (62200g base level)

0 100 200m

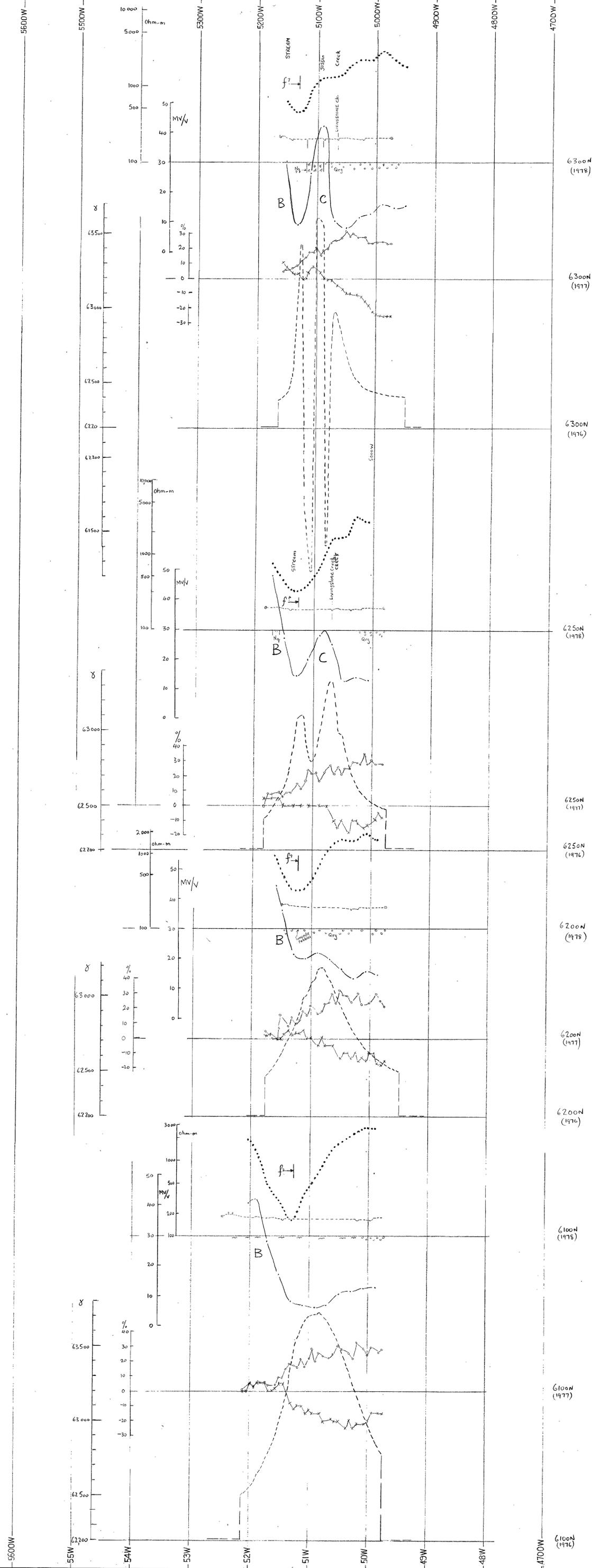
CSR LIMITED-MCD

671060
STANLEY REWARD
E.L.53/70 STANLEY RIVER, TA6.
PROFILES OF GEOPHYSICAL DATA
LINES 5800N to 6000N

5m

SCALE : 1:2500 (H)
DRAWN : P.M.M.
DATE : AUG '80
REVISED :

UKR. NO.
K553-27



6300N
6300N (1978)
6300N (1977)
6300N (1976)
6250N
6250N (1978)
6250N (1977)
6250N (1976)
6200N
6200N (1978)
6200N (1977)
6200N (1976)
6100N
6100N (1978)
6100N (1977)

- REFERENCE**
- Built-up areas, alluvium
 - Gravel
 - Stroniferous limestone gossan
 - Dolomite, quartzitic siltstone
 - Granite
 - Ridge top
 - Base of slope
 - 1976-1979 DATA
 - Gradient E.I.P. chargeability (millivolt/half MS slice on IPM receiver)
 - IP resistivity (ohm-metres)
 - B etc. IP resistivity anomaly zones (1978 survey)
 - Gr, Dol, f etc. Interpreted granite, dolomite, faults etc.
 - Topography: 100 ohm-M line - R.I. 5000W/4000W - (1:5000 collar) 1/4" = 1'
 - VLF-EM in phase component (with angle $\pm 1\%$)
 - VLF-EM Quadrature component ($\pm 1\%$)
 - Magnetics Total force (62200y base level)

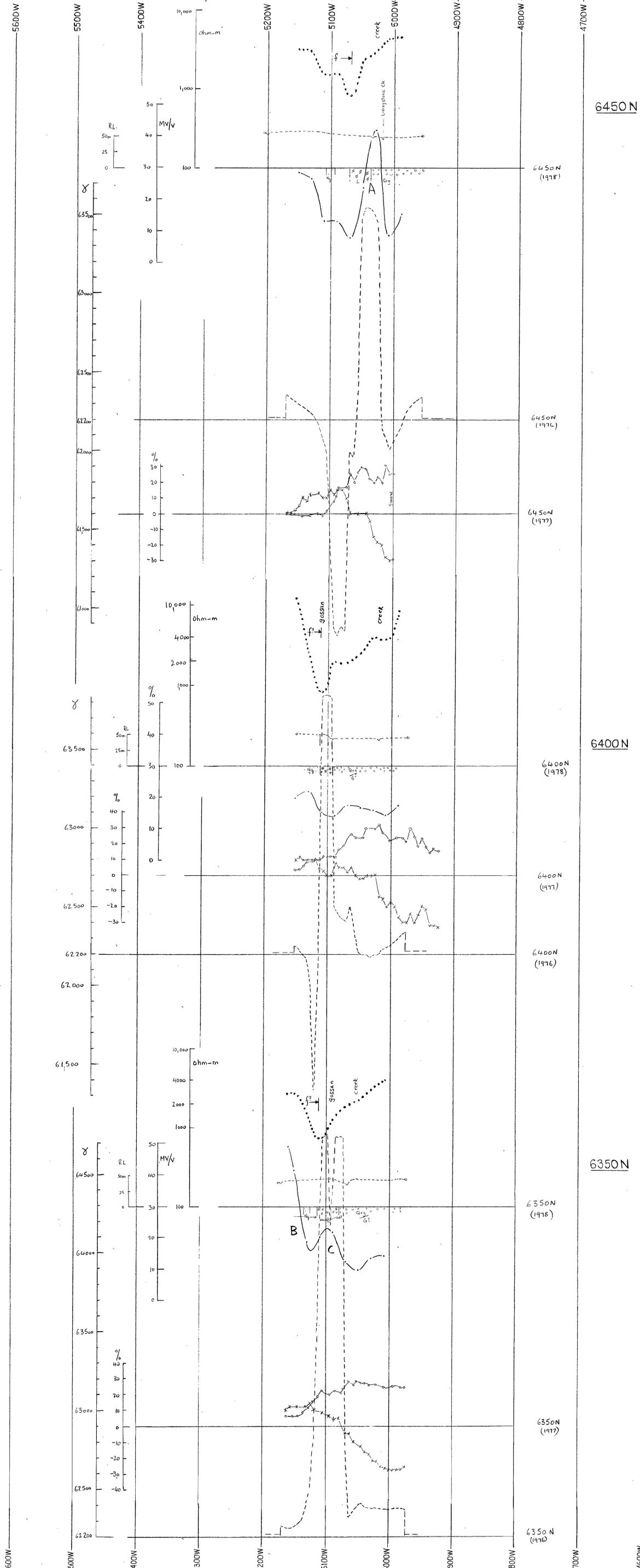
0 100 200m

5cm

CSR LIMITED-MCD

671061
STANLEY REWARD
E.L.53/70 STANLEY RIVER, TAS.
PROFILES OF GEOPHYSICAL DATA
LINES 6100N to 6300N

SCALE	1:2500 (H)	DRG. No.
DRAWN	F.M.M.	K553-28
DATE	AUG '80	
REVISED		



REFERENCE

- Bullen grass, alluvium
- Gravel
- Dune
- Limonite bodies (5m gossan)
- Donah quartzite
- Granite
- Ridge top
- Base of slope
- 1976 - 1979 DATA
- Gradient EIP chargeability (millivolts/volt)
- I.P. resistivity (ohm-metres)
- B etc. I.P. resistivity anomaly zones (1979 survey)
- Gr, Dol, f etc. Interpretated granite, dolomite, faults etc.
- Topography: 100m-M line - RL 5200W/4900W -
- VLF-EM: In phase component (1/4 angle ± 1%)
- VLF-EM: Quadrature component (± 1%)
- Magnetes: Total force (62200y base level)

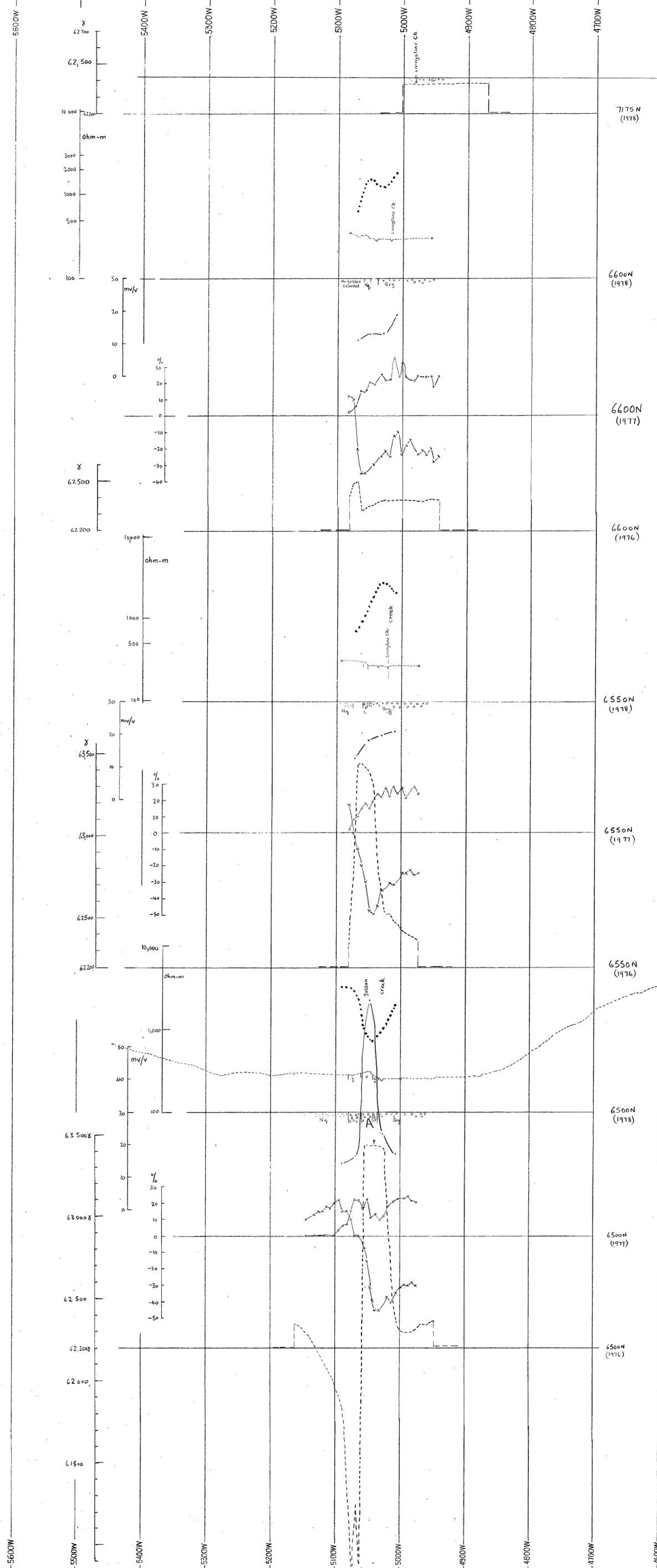
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DRAWN : P.M.M. **DATE** : AUG '80 **K553-29**

REVISIONS

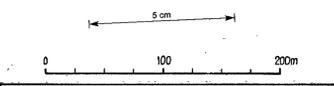
CSR LIMITED-MCD

671062
STANLEY REWARD
 E.L.53/70 STANLEY RIVER, TAG.
 PROFILES OF GEOPHYSICAL DATA
 LINES 6350N to 6450N



7175N
 6600N
 6550N
 6500N

- REFERENCE**
- Gravel
 - △ Scree
 - * * * * * Limonite bodies (Sn gossan)
 - Quartzite
 - + + + Granite
 - Ridge top
 - ∇ Base of slope
- 1976-1979 DATA**
- Gradient EIP chargeability (millivolt/volt)
 - Resistivity (ohm-meters)
 - A etc. Interpretated granite, dolomite, faults etc.
 - Topography - 100 ohm-M line - EL at 6500W/4500W (SRD 4 collar) V/U-1
 - x-x-x VLF-EM - In phase component (tilt angle ±%)
 - o-o-o VLF-EM - Quadrature component (±%)
 - Magnetics - Total force (62200 base level)

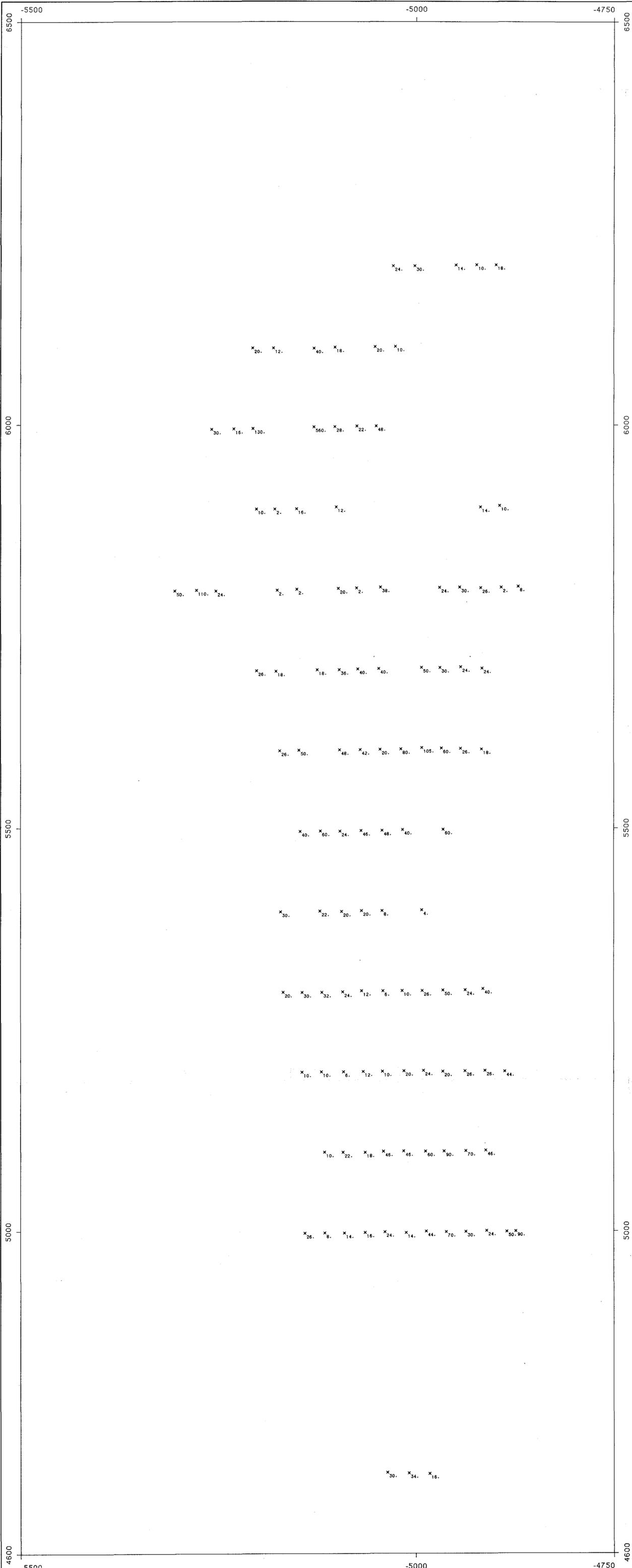


CSR LIMITED-MCD

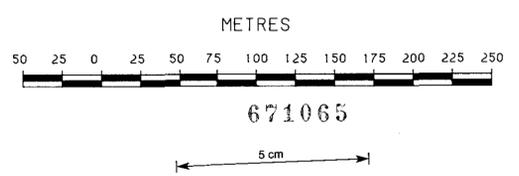
671063

STANLEY REWARD
E.L.53/70 STANLEY RIVER, TAS
PROFILES OF GEOPHYSICAL DATA
LINES 6500N to 7175N

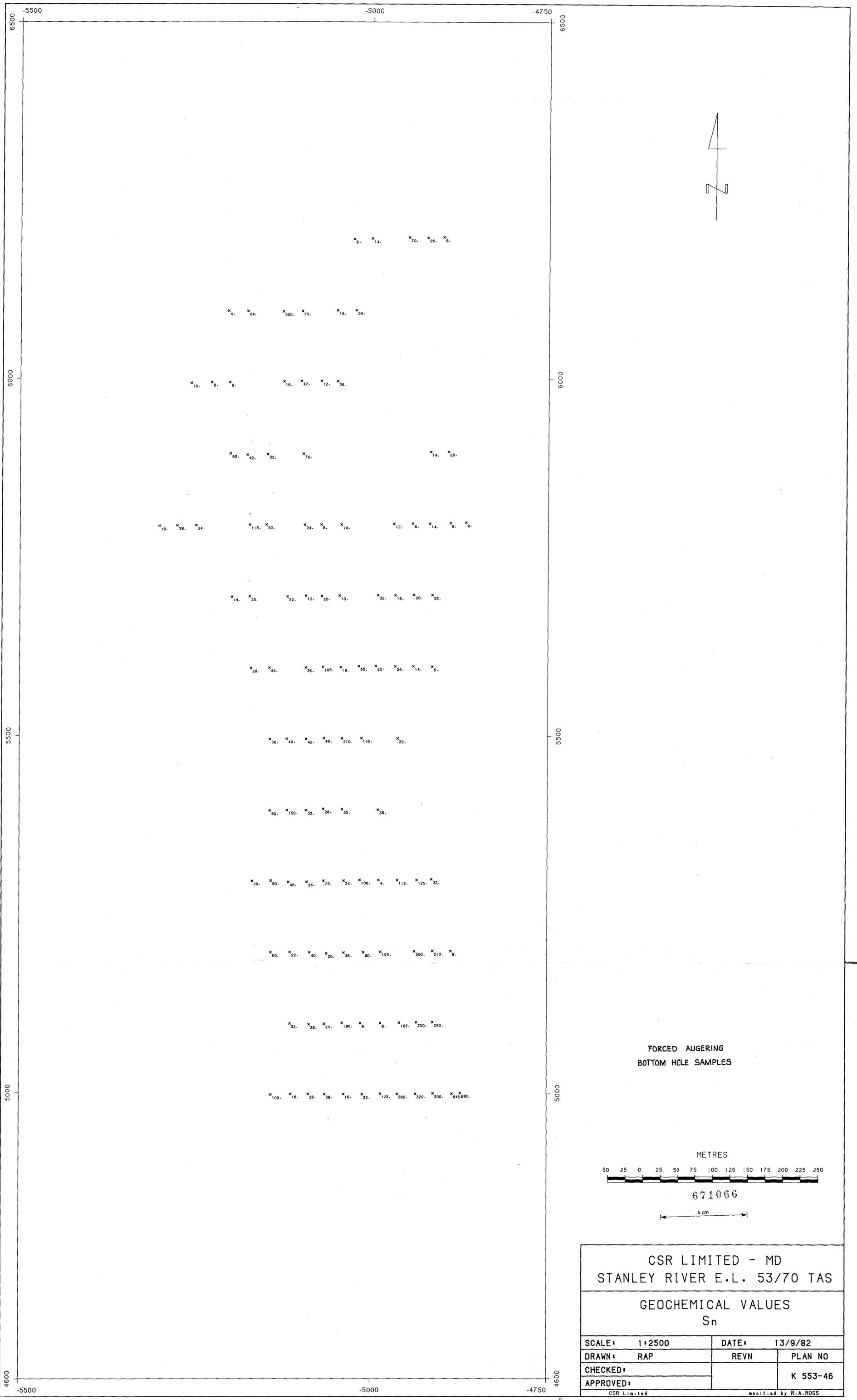
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DRAWN : P.M.M.	K553-30
DATE : AUG '80	
REVISED :	



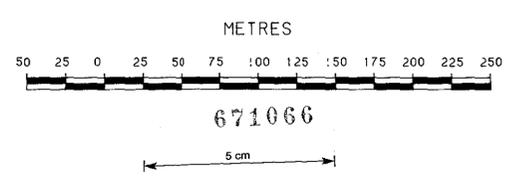
FORCED AUGERING
BOTTOM HOLE SAMPLES



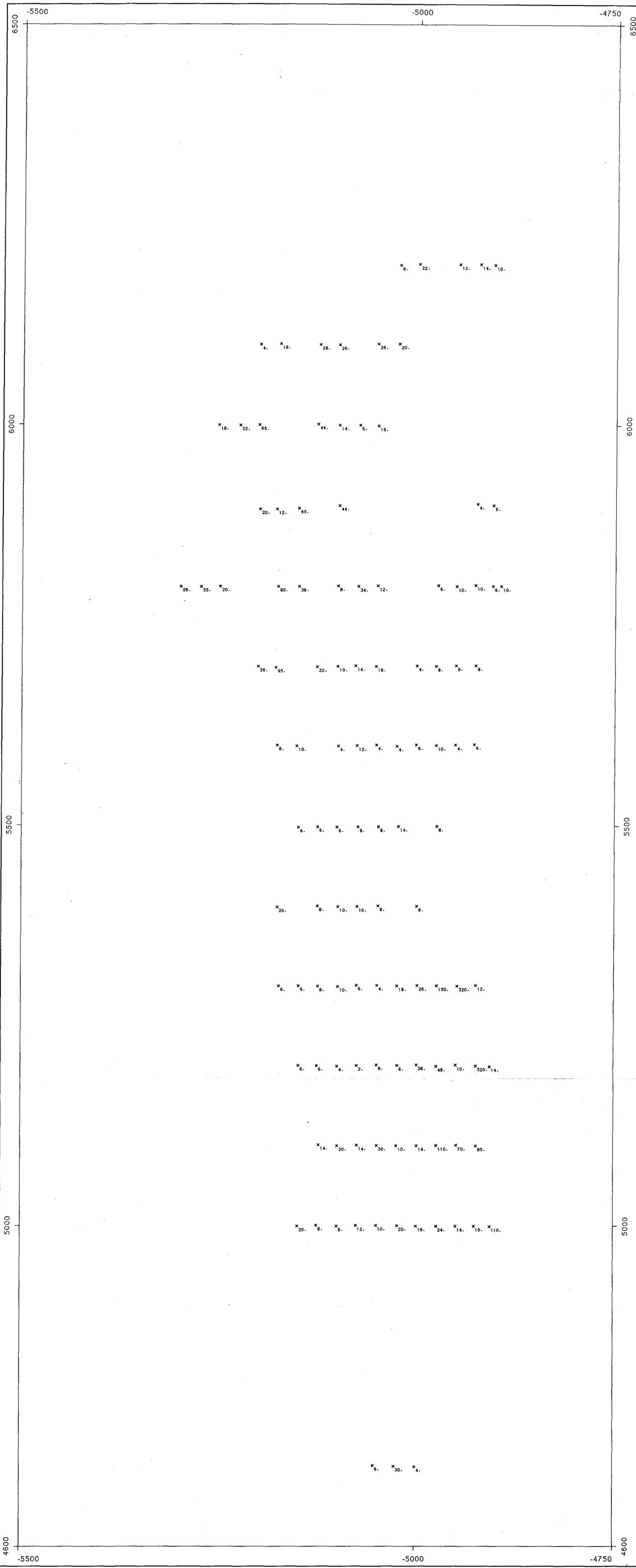
CSR LIMITED - MD STANLEY RIVER E.L. 53/70 TAS			
GEOCHEMICAL VALUES Pb			
SCALE:	1:2500	DATE:	13/9/82
DRAWN:	RAP	REVN	PLAN NO
CHECKED:			K 553-45
APPROVED:			
<small>CSR Limited</small>		<small>modified by R.A.ROSS</small>	



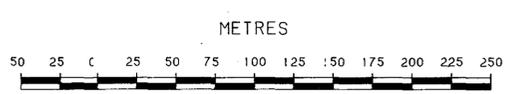
FORCED AUGERING
BOTTOM HOLE SAMPLES



CSR LIMITED - MD STANLEY RIVER E.L. 53/70 TAS			
GEOCHEMICAL VALUES S _n			
SCALE:	1:2500	DATE:	13/9/82
DRAWN:	RAP	REVN	PLAN NO
CHECKED:			K 553-46
APPROVED:			
<small>CSR Limited</small>		<small>modified by R.A. ROSS</small>	



FORCED AUGERING
BOTTOM HOLE SAMPLES



671067

CSR LIMITED - MD STANLEY RIVER E.L. 53/70 TAS			
GEOCHEMICAL VALUES Cu			
SCALE:	1:2500	DATE:	13/9/82
DRAWN:	RAP	REVN	PLAN NO
CHECKED:			K 553-47
APPROVED:			
<small>CSR Limited</small>		<small>modified by R.A.ROSS</small>	

