

UNRECORDED

Report on exploration of Exploration Licence Area
No. 12/73

Exploration of Porphyry Copper
The Dove River Granite Area, Tasmania

Preliminary Field Report

73-977

~~Complete~~

Complete Report

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Report on exploration of Exploration Licence Area No. 12/73
in the vicinity of the Dove River by Freeport of Australia,
Incorporated between September and December 1973

The exploration licence area covered 23 square miles. It was taken out with the principal interest being one of searching for copper porphyry style mineralisation. The work was carried out by two experienced geologists from Cundill Meyers and Associates of Melbourne between September and December 1973 with frequent visits by geologists of Freeport of Australia's staff. The appended Cundill Meyers' report is fairly comprehensive and additional enclosures are full details of all assays undertaken. Original maps accompany the report. In a final review of the exploration licence area we have considered not only the possibilities of porphyry copper style material but also the chances of finding gold, tin and tungsten mineralisation & strata-bound lead, zinc and copper bodies. Each of the succeeding paragraphs discusses in detail the various types of mineralisation considered.

1. Porphyry Copper Possibilities

As stated above the initial interest was centred around the discovery of disseminated copper mineralisation in flanks and cusps of the granite stocks outcropping within the licence area on the basis that the granite in the vicinity of the Powerful Mine displayed chloritic and slightly kaolinitic hydro-thermal alteration with some minor pyrite and chalcopyrite dissemination. A thorough investigation of the licence area reveals a number of similar cusp areas in both granite stocks. However, the alteration never exceeds that of intense chloritic and slightly sericitic zoning except for two highly fractured and heavily re-silicified areas of small dimension on the eastern flanks of what we call the Devon granite. These areas show hairline fractures in medium to heavy proportion associated with north-south lineaments and east-west anticlinal features. The area of this alteration is limited in both cases to localities of about a quarter of a square mile. The sulphide content is generally less than .5% and the best copper figures of 0.16% probably represents the grade of protore which one would anticipate from the sulphide content of this nature. Other late fractions on the edges of the granite displayed as porphyritic diorites are well prepared for the introduction of sulphides in a glassy textured rock type but the sulphide content is negligible. We therefore conclude that within the outcropping stocks there is little likelihood of a porphyry body of sufficient size and grade to warrant our further interest. We have also

investigated the possibilities of porphyry style mineralisation beneath shallow thicknesses of Tertiary basalt. We have had no encouragement from this enquiry and have come to the conclusion that the stripping ratio would be severe and that a greater grade than we see at surface already is unlikely. On the porphyry question we have finally considered the hematite within the Lorinna graywacke. We conclude that this is due to hydro-thermal action in late stages of the granite connected with quartz and chlorite veins containing minor gold and base metal accumulations.

2. Tin and Tungsten Possibilities

The tin and wolfram possibilities came to light because of the discovery of tourmaline in fine acicular form and occasionally associated with quartz pegmatite blows, plus the existence of quartz chlorite and hematite veins which are quite frequent in other tin centres in the world with fine grained cassiterite and wolfram. All the rock types we have tested, examined and assayed show particularly low values for tin and whilst there is a number of anomalous tungsten values, these are most likely to be associated with the base metal associations characterised by the minor sulphide in the way of pyrite and chalcopyrite. No tungstate bloom exists to our knowledge and provides little hope of substantial wolfram content.

3. Lead, Zinc and Gold Possibilities

In view of the hematite veins and considering that all the known mines within the licence area are gold, lead and zinc prospects, we considered the possibility of strata-bound lead, zinc and copper orebodies within the Cambrian and Ordovician sequences within the licence area. There are signs at Mount Lyell that hematite gossans preface the existence of acid volcanic orebodies. We have investigated the rock types closely. We feel that the chlorite and hematite derives from the granite and late stage hydro-thermal solutions. All the known mines are worked on narrow veins generally only a few inches in thickness. The Cambrian and Ordovician successions are not heavily pyritised and what pyrite content we have discovered appears to be along fine bedding planes. We feel therefore that there is not enough sulphide within these successions to sustain an orebody of a dimension and size to warrant our further interest.

We therefore conclude that following our reconnaissance exploration programme there is little chance of finding a series of orebodies which warrant our further interest and we reluctantly have to recommend that we relinquish EL 12/73. Our exploration over the period of time has been documented and filed with the Mines Department and has cost a total of approximately \$8500.

B. T. Walsham

B. T. Walsham

FREEPORT OF AUSTRALIA INCORPORATED

**EXPLORATION FOR PORPHYRY COPPER
THE DOVE GRANITE AREA, TASMANIA
PRELIMINARY FIELD REPORT.**

By

G. Austin, S. Serim.

of

Cundill, Meyers & Associates Pty. Ltd.

October 1973

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INTRODUCTION

The Dove Granite Area of 24 square miles is located in the north-west part of the Middlesex sheet, in Northern Tasmania. The area extends 4 miles south, ½ mile east and 5½ miles west of Lorinna and encompasses the lower part of the Dove River, and part of the Forth River.

Field work was carried out during October 1973 to investigate the possibility of porphyry copper type mineralization associated with granite bodies known to be exposed in the area.

Since 1880, numerous small gold and base metal deposits have been worked in the area. The types of deposits related to granite intrusion which have been worked are as follows:

(i) Surface-enriched quartz-gold-sulphide veins, which become impoverished with depth, some of which grade to silver-lead in the sulphide zone, which occur in quartzite on the Five Mile Rise.

(ii) Quartz-galena-sphalerite with minor chalcophyrite, pyrite, silver e.g. Devon Mine (discussed later) which occur in pre-Cambrian schist at or near the granite contact.

(iii) Quartz-specularite veins, which occur either in the granite or the country rock, and are more common near the intrusive contact. The Powerful Mine, south of Lorinna, was worked for hematite.

GEOLOGY

A chronological table of the rock units encountered during the survey is shown below. The rocks are grouped according to the stratigraphic system adopted by I. B. Jennings (1963).

Tertiary	Basalt
Devonian	Granite (Dove Granite)
Ordovician	Quartzite, sandstone (Maine Sandstone).
Cambrian	Greywacke, volcanic quartz porphyry (Lorinna Greywacke).
Pre-Cambrian	Quartz-mica schist, quartzite (Dove Group).

Quartz-mica Schist, Quartzite (Pre Cambrian)

This group outcrops in the southern half of the area and comprises a thick sequence of quartz-mica schist, with local gradations to quartzite. The rocks are tightly folded, and show a strong schistosity, parallel to the axial planes of the folds.

Quartz veining is scattered, but becomes more abundant closer to the contact between the schist and the Dove Granite. The veins are irregular, in places lenticular, and have been deformed by the folding.

Greywacke, Quartz-Porphry (Cambrian)

This group of rocks outcrops to the north of the Pre-Cambrian schist and quartzite, on the north side of the Dove River, and to the west of the Pre-Cambrian rocks in the western part of the area. Greywacke and volcanic quartz-porphry are the main lithologies. The greywacke is dark grey, purple and grey-green with extensive chloritization throughout. The quartz-porphry, has characteristic round phenocrysts of quartz, 2mm to 5mm, is grey, grey-green, dark green and brown, and shows chloritic alteration, particularly near its contact with the Dove Granite.

Quartzite, Sandstone (Ordovician)

This group outcrops adjacent to, and to the north of, the Lorinne Greywacke. It consists of white to light grey quartzite, which grades locally to fine, medium and coarse grained, well-sorted sandstone. It is intruded by the Dove Granite in the east of the area.

Granite (Devonian)

→ Possibly CAMBRIAN - SEE AGE DATES
"MERSEY RIVER GRANITE"

The granite (hereinafter referred to also as the Dove Granite) outcrops along a broad east-west trending zone, extending across the centre of the area. It has intruded the Pre-Cambrian, Cambrian and Ordovician rocks mentioned above (see Plan 1).

The granite is generally medium to coarse-grained, with an equigranular texture. Finer grained, porphyritic varieties occur in places near the margins of the intrusion.

It is essentially a biotite granite, showing euhedral books of biotite, although in places the biotite is accompanied by euhedral hornblende laths. In places it contains minor disseminated pyrite, thought to be of primary origin, observed along the track west of R15, and also at R6, R7 and R8.

The feldspars are euhedral, especially in porphyritic varieties, and appear to be orthoclase, with colours ranging from pink through cream to white and very light grey. No zoning was seen in the crystals to indicate the presence of plagioclase; however weathering and alteration in many cases precluded the identification of the feldspar type in the hand specimen.

Quartz appears in most specimens as irregular anhedral masses, which are larger and more isolated in the porphyritic variety.

Near the contact with the greywacke and quartz porphyry, some specimens showed distinctly rounded masses of quartz, e.g., specimens R25 and R40, which raises considerable doubt as to whether the rock is actually granite, or quartz porphyry.

The granite contact is, in general, obscure, where the granite has intruded the Cambrian quartz porphyry, because of the similarity in texture of the two rock types. The strong chloritization has helped to mask the basic differences between granite and volcanic porphyry, and in many locations along the contact zone, there is still some doubt as to the identity of the original rock type. In contrast, the granite contact is quite sharp where the Pre-Cambrian schist and quartzite has been intruded, e.g., the contact where intersected in the Dove River at R38, at the Devon Mine, near R41 and near R10 (see Plan 2) is sharp with very little variation in the texture of either the granite or the schist near the contact. There is, however, a slight increase in the amount of quartz veining in the schist, towards the granite. On the north-east margin of the granite, near the Golden Cliff mine, the granite has intruded Ordovician quartzite. There, the contact is irregular, with considerable variation in the texture of the granite, much chloritization, and quartz-specularite veining. However, the quartzite, unlike the quartz porphyry, is easily identified because of its basic differences from the granite.

Basalt (Tertiary)

The basalt is fine-grained, dark grey, and contains some olivine. It forms a resistant capping on the high plateaux to the west and east, and on a ridge in the centre of the area. In places, the basalt extends downwards into the valleys, e.g. south of the Five Mile Rise. In places, also, basalt talus has drifted downslope, obscuring other rock types, e.g. on the eastern slope of the Forth Valley, south of Lorinna.

ALTERATION

(a) Chlorite

Chloritization is the predominant alteration observed in the area. It has occurred extensively throughout the greywacke and quartz porphyry, resulting in a grey-green to dark green chloritic, quartz bearing rock. In the granite, chloritization is prevalent near the contact with the quartz porphyry. It is extensive throughout the granite on the east side of the Forth River, where little or no hornblende, biotite, or feldspar remain. Instead, the rock shows dark green, pale green to yellow green, or light grey-green, masses of soft

chloritic material with pink hematite-stained quartz grains, or a pinkish, possibly quartzo-feldspathic groundmass.

Chlorite occurs also as veins or joint coatings in zones of chloritization.

(b) Silica

Massive silicification is evident in the Pre-Cambrian schist and quartzite in the Dove River around locations R38 and R39. Possibly associated with the alteration, is the presence of quartz veins which contain disseminated pyrite, or zones of euhedral pyrite crystals, and large irregular pods of massive chlorite (R39). Limonite staining is moderate in the area of silicification and is thought to be derived from pyrite veining or joint fillings.

(c) Potassic feldspar (?)

In a few specimens of granite of medium grain size and end uniform texture, e.g. R37, were observed occasional large, euhedral flesh-coloured feldspar crystals, thought to be porphyroblasts. Hence there may have been some isolated potassium feldspar metasomatism, or, just as likely, a straightforward recrystallization of potassium feldspar at a late stage in the plutonic activity.

MINERALIZATION

Mineralization is basically of hydrothermal origin and except for localized disseminated sulphides, occurs in the form of the following vein types:

(a) Quartz-pyrite

Quartz-pyrite veins occur in the silicified zone of Pre-Cambrian schist and quartzite in the vicinity of R38 and R39. Quartz veins contain disseminated pyrite, and in places, central zones of euhedral pyrite aggregate and pods of finer-grained chloritic material.

(b) Quartz-pyrite with galena, sphalerite, chalcopryite. e.g. the Devon Mine, on the granite-schist contact.

The pyrite gives way to massive galena at the richest part of the lode. The galena is accompanied by chalcopryite, chalcocite, sphalerite, and silver-bearing sulphides, and is confined to a number of small veins or dykes.

(c) Pyrite

Pyrite veinlets and fracture-fillings occur immediately north of the Devon Mine in quartzite. Disseminated pyrite is present in isolated small quantities, e.g. in quartzite specimen R33, which assays at 603 p.p.m. Cu. Isolated occurrences of pyrite on fractures in schist were observed along the Dove River, downstream from the granite, towards the Silver Dove Mine.

(d) Quartz-specularite, specularite

Quartz-specularite veins have intruded both the granite and the Cambrian greywacke and porphyry. There seems to be a concentration of this type of veining in the quartz porphyry near the granite contact in the vicinity of R23, R24, R25. In fact, because of the presence of quartz-specularite veining, it is thought that the granite closely underlies the porphyry in that area. On the eastern side of the Forth River, quartz-specularite veining was found within the granite, and seems to be concentrated near the south-eastern contact with the schist. The richest part of the quartz-hematite lode in the latter area extends down to the Lorinna road and has been worked for iron, (the Powerful Mine). //?

In the abovementioned areas, the veins are irregular in shape and thickness, with disseminated and/or large platy aggregates of specularite in the quartz. In places the veins carry red amorphous hematite, with or without quartz.

Fracture fillings of specularite and massive hematite occur in both the areas already described, also in the quartzite near the Golden Cliff Mine.

(e) Mafic dykes (?)

Some talus (R38) was found close to the Dove River which consisted of solid euhedral hornblende aggregate. It was found near the edge of the granite and may be part of a system of mafic dykes, or may have come from a large quartz or pegmatite vein containing isolated pods of hornblende.

(f) Tourmaline-bearing pegmatite dyke

One piece of coarse grained pegmatite (R32) was found in granite talus. It contained a coarse euhedral aggregate of black tourmaline, indicating that high temperature mineralization, possibly favourable for tin and tungsten deposits, does occur in association with the Dove Granite.

FRACTURING AND JOINTING AS AN INFLUENCE ON MINERALIZATION.

Fracturing and jointing occur to a significant degree only in three localities:

(i) In the granite and quartzite around the Devon Mine, and extending about half a mile upstream along the Dove River. The fractures in the quartzite have a separation averaging 3 inches and show some limonite staining, and rare manganese oxide staining. Close to the Devon Mine, along the strike of the granite contact, some samples collected exhibit limonite coating on fractures and possible massive black sulphide. The fracture spacing in two of the samples was closer than 1 inch. The two samples in question assayed as follows: R27: 1600 p.p.m. Cu, no significant Pb, Zn or Mo; R29: 1600 p.p.m. Cu, 4400 p.p.m. Pb, no significant Zn or Mo. These high values are attributed to local mineralization associated with the Devon Mine lode, and extending outwards along thin, closely spaced fractures.

(ii) In the granite, in the vicinity of R37, and in the schists and quartzites immediately to the south. In the vicinity of R37, a set of orthogonal joints has been strongly developed in the granite. The average joint spacing is 12 inches. Some joints show limonite staining, with minor associated Cu mineralization (R37 assayed 635 p.p.m. Cu with no significant Pb, Zn or Mo). Some shearing has probably occurred along the most prominent joint direction, which is 018/43W. The strike is given in degrees true.

Minor limonite staining was noted on fractures in the schist, although fracturing is less intense than in (i) above.

(iii) A localized zone of fracturing was noted in the granite at R26, east of the Devon Mine. The sample R26 assayed 750 p.p.m. Cu. Chlorite, limonite, and black, presumably manganese oxides, were observed on the steeply dipping fractures, on which there has probably been some shearing.

GEICHEMISTRY

A total of thirty-six rock samples and twenty-two stream sediment samples were assayed for copper, lead, zinc, and molybdenum. The sediment samples were sieved to -80 mesh and -40 mesh and assayed for both particle sizes. For copper, lead and zinc, it was found that for a large proportion of samples the values for -40 mesh were between 60% and 85% of the corresponding values for -80 mesh. For molybdenum, the -40 mesh values were much lower than the corresponding -80 mesh values.

It is concluded that only -80 mesh samples need be taken in any future work, depending on the availability in the field of the finer sample fraction.

The assay results are plotted on Plans 3, 4, 5, and 6. A visual inspection of the results was made to detect anomalous values, from both the rock and stream sediment values.

For stream sediments, only two values could bear significance for Cu. Sample 14 (108 p.p.m.); sample 19 (145 p.p.m.). Both values are for -80 mesh, and are the only Cu stream sediment values over 100 p.p.m. However, these samples, and several others i.e., Nos. 15, 16 and 21, from tributaries of the Dove River further upstream, show more definite anomalies in Pb and Zn, suggesting that there could be some quartz-sulphide lodes on the north side of the Dove River similar in type to the Devon Mine lode, i.e. they contain substantial amounts of Pb and Zn, and a probable trace of Cu. Mo values are conspicuously low throughout.

For rocks, samples R27 and R29 gave 1600 p.p.m. Cu as previously mentioned. R29 also gave 4400 p.p.m. Pb, which is in keeping with the continuation of Pb, Cu mineralization north-eastward in the region of the granite contact for a short distance. The only other significant values in Cu are:

- R26 750 p.p.m. (fractured granite)
- R33 603 p.p.m. (quartzite with disseminated pyrite)
- R37 635 p.p.m. (granite-strongly jointed).

Each of the anomalous values could be attributed to Cu in local fracturing or jointing in granite or to disseminated sulphide in quartzite. In any case, the values are still quite low. Mo values were very low throughout except for R19 (160 p.p.m.) in quartzite in the east of the area. Not enough field evidence has been gathered to explain the single anomalous Mo value, however it is probably associated with the nearby granite.

SUMMARY OF OBSERVATIONS

1. The western extent of the Dove Granite is uncertain, as it appears to underlie Tertiary basalt in the west. However it does outcrop further west than was observed in the field, because granite constitutes 15% of the drift in the Dove River at R39 (Plan 1). Granite scree (R30) and drift in the stream at 15 (Plan 2) suggest that granite outcrops on the slope to the north of the Dove River (Plan 1). From observations of continuous granite outcrop between the Devon Mine and R15, at R6, R7, R8, and probable granite outcrop at R1, it follows that there is probably continuous granite body extending across the area, the middle section of which is covered by Tertiary basalt (Plan 1).

2. There is only a small amount of fracturing in the area, and hence there is not the extensive stockwork of quartz-sulphide veins that would be expected to be associated with a porphyry copper orebody.

3. Disseminated sulphide (Pyrite only) is restricted to isolated occurrences.

4. There are no broad zones of alteration, e.g. biotite, sericite, pyrite, which normally surround a porphyry copper deposit. Only chloritization and silicification occur to any significant extent, but do not appear to be directly related to observed mineralization.

5. Observed mineralization of the quartz-sulphide vein type occurs in discrete veins and small dykes, most likely controlled by small faults. The main type of mineralization in the veins is Pb-Zn-Ag, with lesser associated Cu.

6. Geochemical results reveal: (i) Moderate Pb-Zn anomalies with little weak Cu backup from stream sediments in the tributaries of the Dove River upstream of the Devon Mine, and south of sample location No. 19.

(ii) Isolated weak Cu anomalies (600-800 ppm) from samples of fractured granite, or quartzite with disseminated sulphide.

(iii) Very low Mo values in stream sediments and rock samples.

CONCLUSIONS

1. From observations (2), (3), (4) and (6) (above) it appears unlikely that a porphyry copper orebody of economic proportions exists in the area surveyed.

2. From the pattern of folding in Ordovician sediments, and the areal distribution of known granite bodies in the area of the Middlesex Sheet (Geol. Survey of Tasmania), it is likely that any mineralization favourable for the formation of a porphyry copper orebody would occur within or close to the granite area shown on Plan 1 (enclosed). As the above-mentioned granite area has been covered by this survey it follows from observation (2) above that there is little likelihood of the existence of an economic porphyry copper orebody within the prospecting areas.

1. From observations (5) and (6), it appears that any prospective mineralization within the lease would be of the discrete quartz-sulphide vein type (lead-silver-zinc), and would be situated on the northern slopes of the Dove River, or in the south, near sediment sample location No. 19.

2. The isolated occurrence of tourmaline-bearing pegmatite means that there is a remote possibility of tin-tungsten mineralization in unexplored parts of the granite and associated wall rock to the south of the Dove Valley.



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26th October, 1973.

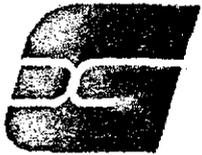
Our Job No.73/400E

Invoice No.5591

FREEPORT OF AUSTRALIA, INCORPORATED,
20TH FLOOR, A.M.P. TOWER,
535 BOURKE STREET,
MELBOURNE. VIC. 3000.

ASSAY REPORT

Sample No.	Cu	Pb	Zn	Mo
R 1	209	18	45	1
R 2	775	454	166	2
R 3	27	19	34	11
R 4	32	44	53	∠1
R 6	10	20	32	∠1
R 7	26	23	19	1
R 8	10	26	62	2
R 9	105	36	122	2
R 10	12	23	34	1
R 11	79	137	24	1
R 13	13	15	31	1
R 14	47	25	110	1
R 15	23	20	28	3
FAB 1	6	51	16	4
FAB 2	4	47	18	4
FAB 3	13	48	61	2
FAB 4	15	51	80	3



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- 2 -

26th October, 1973.

Sample No.	Cu	Pb	Zn	Mo
-80 mesh No.1	119	90	106	1
-80 mesh No.2	83	111	88	1
-80 mesh No.3	45	63	83	1
-80 mesh No.4	76	52	90	1
-80 mesh No.5	64	73	88	1
-80 mesh No.6	58	86	58	2
-80 mesh No.7	69	89	258	1
-80 mesh No.8	43	55	125	2
-80 mesh No.9	41	38	101	4
-80 mesh No.10	52	34	131	1
-80 mesh No.11	29	32	41	1
-40 mesh No.1	57	47	147	2
-40 mesh No.2	30	43	107	4
-40 mesh No.3	17	19	70	1
-40 mesh No.4	57	46	86	3
-40 mesh No.5	57	43	84	3
-40 mesh No.6	51	36	63	3
-40 mesh No.7	85	90	315	2
-40 mesh No.8	32	41	93	4



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Our Job No.73/400E

- 3 -

26th October, 1973.

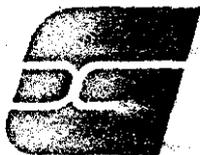
Sample No.	Cu	Pb	Zn	Mo
-40 mesh No.9	31	33	84	1
-40 mesh No.10	54	49	122	1
-40 mesh No.11	28	27	43	1

METHOD: Total attack and,
Atomic Absorption Spectrophotometry
conclusion.

For and on behalf of,
DANIEL C. GRIFFITH (VIC) PTY. LTD.

[Signature]

P. Hedger,
Managing Director.



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9th November, 1973.

Our Job No. 73/418E

Invoice No. 5606

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ASSAY REPORT

<u>Sample No.</u>	<u>CuPPM</u>	<u>PbPPM</u>	<u>ZnPPM</u>	<u>MoPPM</u>
-80 mesh No.12	52	46	113	4
-80 mesh No.13	45	65	114	3
-80 mesh No.14	108	45	97	1
-80 mesh No.15	87	217	175	8
-80 mesh No.16	54	201	210	2
-80 mesh No.17	69	37	124	5
-80 mesh No.18	27	63	61	1
-80 mesh No.19	145	465	152	2
-80 mesh No.20	38	30	37	4
-80 mesh No.21	46	129	121	∠1
-80 mesh No.22	43	51	74	3
-40 mesh No.12	37	33	95	4
-40 mesh No.13	28	38	74	∠1
-40 mesh No.14	78	36	79	1
-40 mesh No.15	54	162	153	1
-40 mesh No.16	28	136	172	2
-40 mesh No.17	39	12	55	∠1
-40 mesh No.18	22	34	46	2



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Our Job No.73/418E

- 2 -

9th November, 1973.

<u>Sample No.</u>	<u>Cuppm</u>	<u>Pbppm</u>	<u>Znppm</u>	<u>Moppm</u>
-40 mesh No.19	84	320	121	∠1
-40 mesh No.20	33	23	30	∠1
-40 mesh No.21	27	86	100	∠1
-40 mesh No.22	32	45	61	1
R 19	66	370	4	160
R 20	65	27	44	5
R 21	68	24	14	2
R 22	625	51	8	4
R 23	110	26	8	4
R 24	191	52	9	5
R 25	79	144	72	∠1
R 26	750	72	17	2
R 27	0.16%	71	34	1
R 28	146	107	54	4
R 29	0.16%	0.44%	127	2
R 30	224	92	30	3
R 31	75	63	50	11
R 32	153	63	48	3
R 33	603	52	24	3
R 34	95	40	40	2
R 35	108	42	47	1
R 36	45	30	21	2
R 37	635	82	62	3



DANIEL C. GRIFFITH (VICTORIA) Pty. Ltd.

REGISTERED OFFICE: NEWLANDS
TELEPHONE: 350 2515

ROAD, COBURG, VICTORIA, 3088
TELEX: SPECTRO AA 32462

Our Job No. 73/418E

- 3 -

9th November, 1973.

<u>Sample No.</u>	<u>Cuppm</u>	<u>Pbppm</u>	<u>Znppm</u>	<u>Moppm</u>
R 38	380	63	58	9
R 39	42	34	5	7
R 40	110	55	174	2
R 41	194	37	25	1

METHOD: Total attack and,
Atomic Absorption Spectrophotometry
conclusion.

For and on behalf of,
DANIEL C. GRIFFITH (VIC) PTY. LTD.

P. Hedger

P. Hedger,
Managing Director.



DANIEL C. GRIFFITH (VICTORIA) Pty. Ltd.

REGISTERED OFFICE: NEWLANDS
TELEPHONE: 350 2515

ROAD, COBURG, VICTORIA, 3058
TELEX: SPECTRO AA 32482

14th December, 1973.

Our Job No. 73/418E (cont'd)

Invoice No. 5639

FREEPORT OF AUSTRALIA INC.,
20TH FLOOR, A.M.P. TOWER,
535 BOURKE STREET,
MELBOURNE. VIC. 3000

ASSAY REPORT

<u>Sample No.</u>	<u>W PPM</u>	<u>Sn PPM</u>
R 23	26	3
R 24	182	∠1
R 25	∠5	∠1
R 32	∠5	5
R 38	∠5	∠1
FATW 1	62	∠1
FATW 2	204	∠1

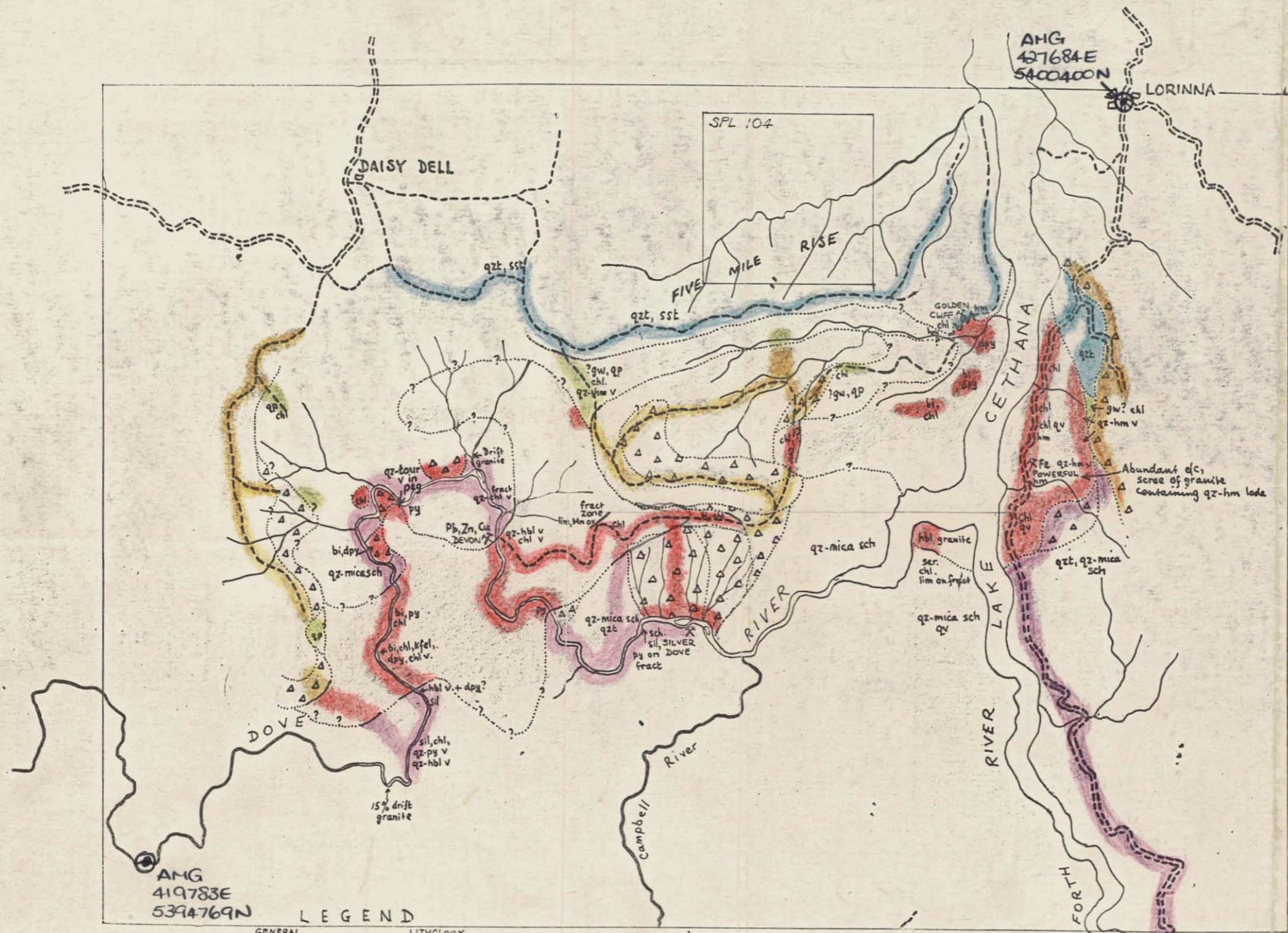
METHOD: Sn - gallein colorimetric following
ammonium iodide sublimation.

WO₃ - toluene 3 : 4 dithiol colorimetric.

For and on behalf of,
DANIEL C. GRIFFITH (VIC) PTY. LTD.

PH
P. Hedger,
Managing Director.

5 cm



FREEPORT OF AUSTRALIA, INC
 DOVE GRANITE AREA,
 TASMANIA

GEOLOGICAL PLAN

0 1/4 1/2 MILES
 SCALE: 1: 37,300

G. AUSTIN, S. SERIM OCT. 1973

CUNDILL, MEYERS & ASSOCIATES, P/L

PLAN 1

AMG REFERENCE POINTS ADDED

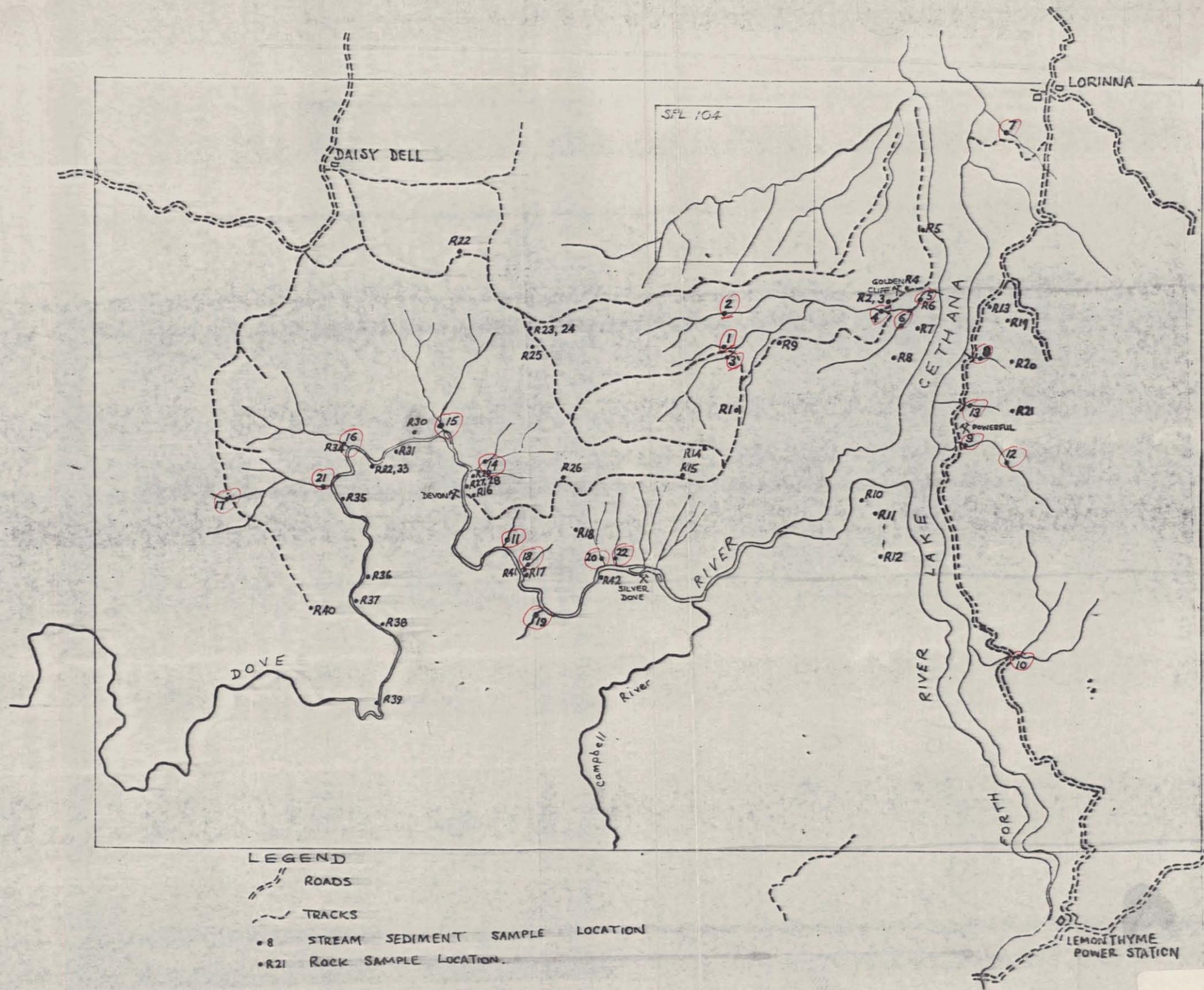
LEGEND

- GENERAL**
- ROADS
 - TRACKS
 - GEOLOGICAL BOUNDARIES**
 - Known
 - estimated
 - estimated with uncertainty

- LITHOLOGY**
- Basalt. (Tertiary)
 - Granite. (Devonian)
 - Quartzite, sandstone (Ordovician)
 - Greywacke, quartz porphyry (Cambrian?)
 - Quartz-mica schist quartzite (pre-Cambrian)
- N.B. COLOURING SHOWS EXTENT OF FIELD OBSERVATION.**

- ABBREVIATIONS.**
- sch schist
 - qzt quartzite
 - ist sandstone
 - gw greywacke
 - qp quartz-porphry
 - qz quartz
 - v vein(s), veining
 - qv quartz veining
 - hm hematite, specularite
 - lim limonite
 - bl biotite
 - ser. chl. lim on fract

- chl chlorite
- hbl hornblende
- kfel K-feldspar (secondary)
- py pyrite
- dpv disseminated pyrite
- Mnox Mn oxide(s)
- peg pegmatite

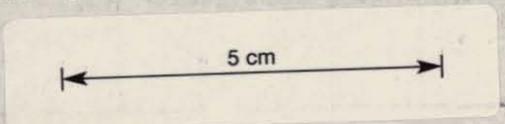


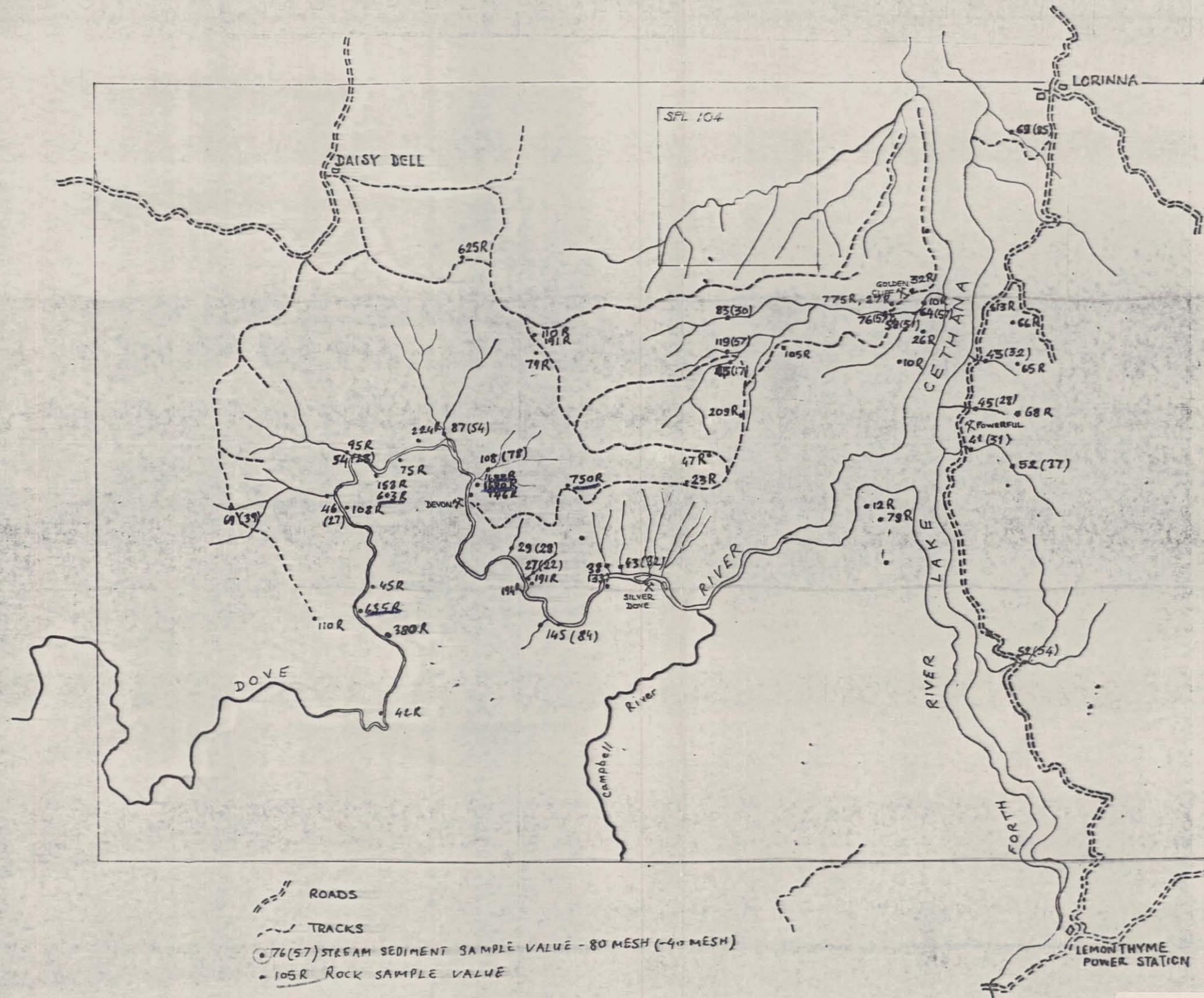
GIS
 SS ads
 31589-31610

FREEPORT OF AUSTRALIA, INC.	
DOVE GRANITE AREA, TASMANIA	
STREAM SEDIMENT AND ROCK SAMPLE LOCATIONS	
0 1/4 1/2 MILES SCALE = 1:37,300	
G. AUSTIN, S.SERIM	OCT. 1973
CUNDILL, MEYERS & ASSOCIATES, P/L	

PLAN 2

- LEGEND
- - - ROADS
 - - - TRACKS
 - 8 STREAM SEDIMENT SAMPLE LOCATION
 - R21 ROCK SAMPLE LOCATION





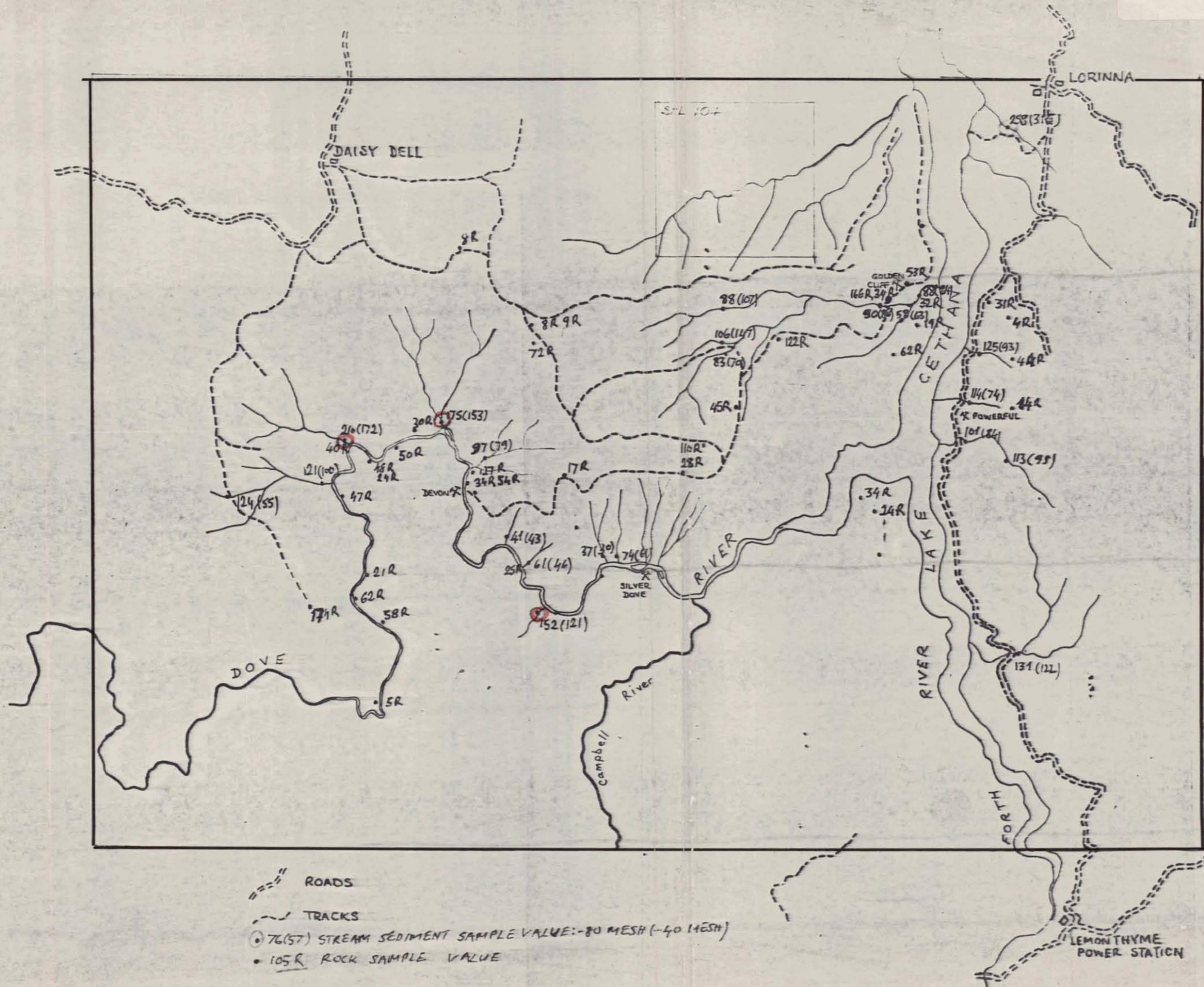
FREEPORT OF AUSTRALIA, INC.
 DOVE GRANITE AREA,
 TASMANIA
 STREAM SEDIMENT
 AND ROCK SAMPLE
 ASSAY VALUES
 p.p.m. Cu
 0 1/4 1/2 MILES
 SCALE 1: 37,500
 G. AUSTIN, S. SERIM. OCT. 1973
 CUNDILL, MEYERS & ASSOCIATES, P/L
 PLAN 3

--- ROADS
 - - - TRACKS
 • 76(57) STREAM SEDIMENT SAMPLE VALUE - 80 MESH (-40 MESH)
 • 105R ROCK SAMPLE VALUE

5 cm

5 cm

657028



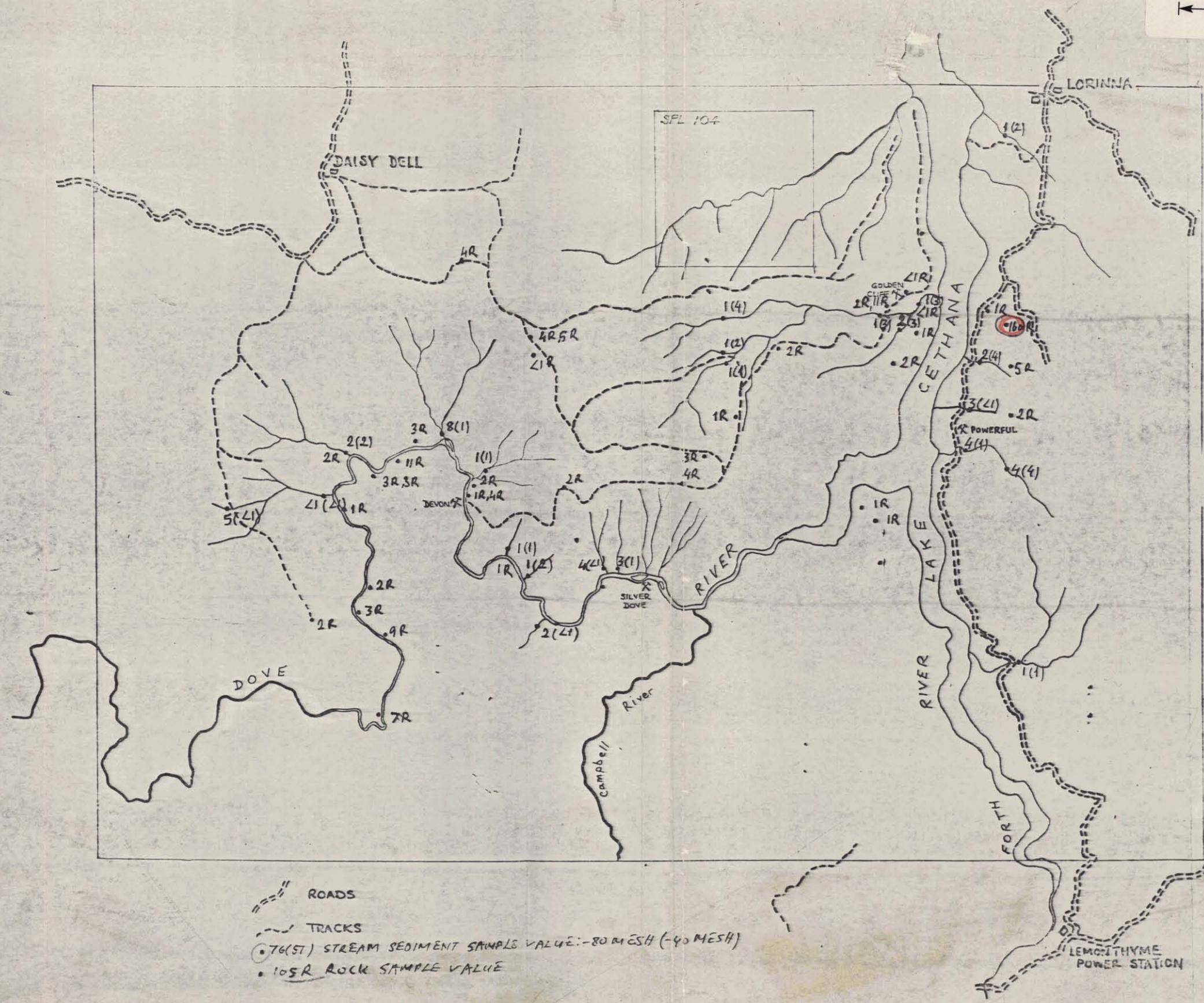
FREEPORT OF AUSTRALIA, INC
 DOVE GRANITE AREA,
 TASMANIA
 STREAM SEDIMENT
 AND ROCK SAMPLE
 ASSAY VALUES
 p.p.m. Zn
 0 1/4 1/2 MILES
 SCALE = 1 : 37,300
 G. AUSTIN, S. SERM. OCT. 1973
 CUNDILL, MEYERS & ASSOCIATES, P/L

PLAN 5

--- ROADS
 - - - TRACKS
 ● 76(57) STREAM SEDIMENT SAMPLE VALUE: -80 MESH (-40 MESH)
 • 105R ROCK SAMPLE VALUE

5 cm

657029



FREEPORT OF AUSTRALIA, INC

DOVE GRANITE AREA, TASMANIA

STREAM SEDIMENT AND ROCK SAMPLE ASSAY VALUES
p.p.m. Mo

0 1/4 1/2 MILES
SCALE = 1 : 37,300

G. AUSTIN, S. SERIM. OCT. 1973

CUNDILL, MEYERS & ASSOCIATES, P/L

PLAN 6

- - - ROADS
 - - - TRACKS
 • 76(51) STREAM SEDIMENT SAMPLE VALUE: -80 MESH (-40 MESH)
 • 105R ROCK SAMPLE VALUE