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ROCKY CAPE EL 1/77

PROGRESS REPORT, JULY 1981 - JUNE 30TH, 1982.

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1. SUMMARY

Reconnaissance mapping, rock chip sampling and stream - sediment geochemistry over part of the Smithton trough have been completed. A density of 1 stream sediment sample per 1 to 2 square km. as been achieved. Mapping has shown that the Smithton trough is a fault controlled basin which can be divided into three structural and lithological domains. Geological correlation between domain is poor owing to lack of outcrop and marker horizons. Lithological types include black carbonaceous shales, quartzites, chert, dolomite, siltstones and basic volcanics.

Two lead-zinc stream-sediment geochemical anomalies have been obtained at Julius River (340 ppm Pb, 2500 ppm Zn) and Stephens Rivulet (440 ppm Pb, 1000 ppm Zn). The Julius River anomaly has been followed up with limited soil geochemistry and geophysics. A very restricted soil anomaly was obtained over a strike distance of 100m. No follow up has been conducted over the Stephens Rivulet anomaly to date.

2. INTRODUCTION

The Rocky Cape Shelf basin shows a number of similarities in geological and tectonic setting to the Selwyn Basin, Canada, which contains major shale-hosted lead-zinc deposits. Legge (1981) outlined a number of lead-zinc anomalies in the northern part of the license area which were confirmed by a recent computer study of old -80# stream sediment data. The report outlines the progress of reconnaissance exploration activities over the period from July 1981 to 30th June 1982. The principal target being shale-hosted lead-zinc mineralisation of the Selwyn Basin type.

3. CONCLUSIONS

1. The Smithton trough shows a remarkable similarity in structural setting and lithology to the Selwyn Basin in Canada.
2. The Julius River lead-zinc anomaly is a seepage anomaly.
3. The intense aeromagnetic anomalies bounded by the Duck River and Julius River faults are caused by basic volcanics.

4. RECOMMENDATIONS

1. The on-strike extensions to the Julius River anomaly should be followed up in detail since the seepage anomaly obtained indicates the presence of lead in the "system".
2. The Stephens Rivulet anomaly warrants detailed follow up.
3. Infill of areas not covered to date by mapping and reconnaissance stream sediment sampling at a sample density of 1 per square km. should be undertaken.

5. GEOLOGICAL SETTING OF THE SELWYN BASIN

The Selwyn Basin is a major tectono - stratigraphic feature extending 1300 km from British Columbia to Alaska and is of Palaeozoic age. It contains approximately 20 shale hosted lead-zinc deposits totalling 900 m.t. at a minimum combined grade of 9% lead-zinc.

The basin is bounded by coeval carbonate platforms and consists of a thick sequence of black shales some of which are calcareous. Near the base of this sequence, the Faro deposit occurs at a change in style of sedimentation, specifically from carbonaceous to graphitic shales. Higher up in the sequence, the Howards Pass deposit is located near the margin of the McKenzie platform, where sedimentation is characterised by cherts, argillaceous limestones and cherty mudstones. Further sedimentation was dominated and controlled by rift faulting causing the development of sub-basins within which carbonaceous shales and coarser clastic material (eroded black shales) were deposited. The Tom and Jason barite Zn - Pb - Ag deposits are located in this horizon. The Cirque deposit occurs in a similar, possibly 3rd order, fault-controlled basin within the Akie trough.

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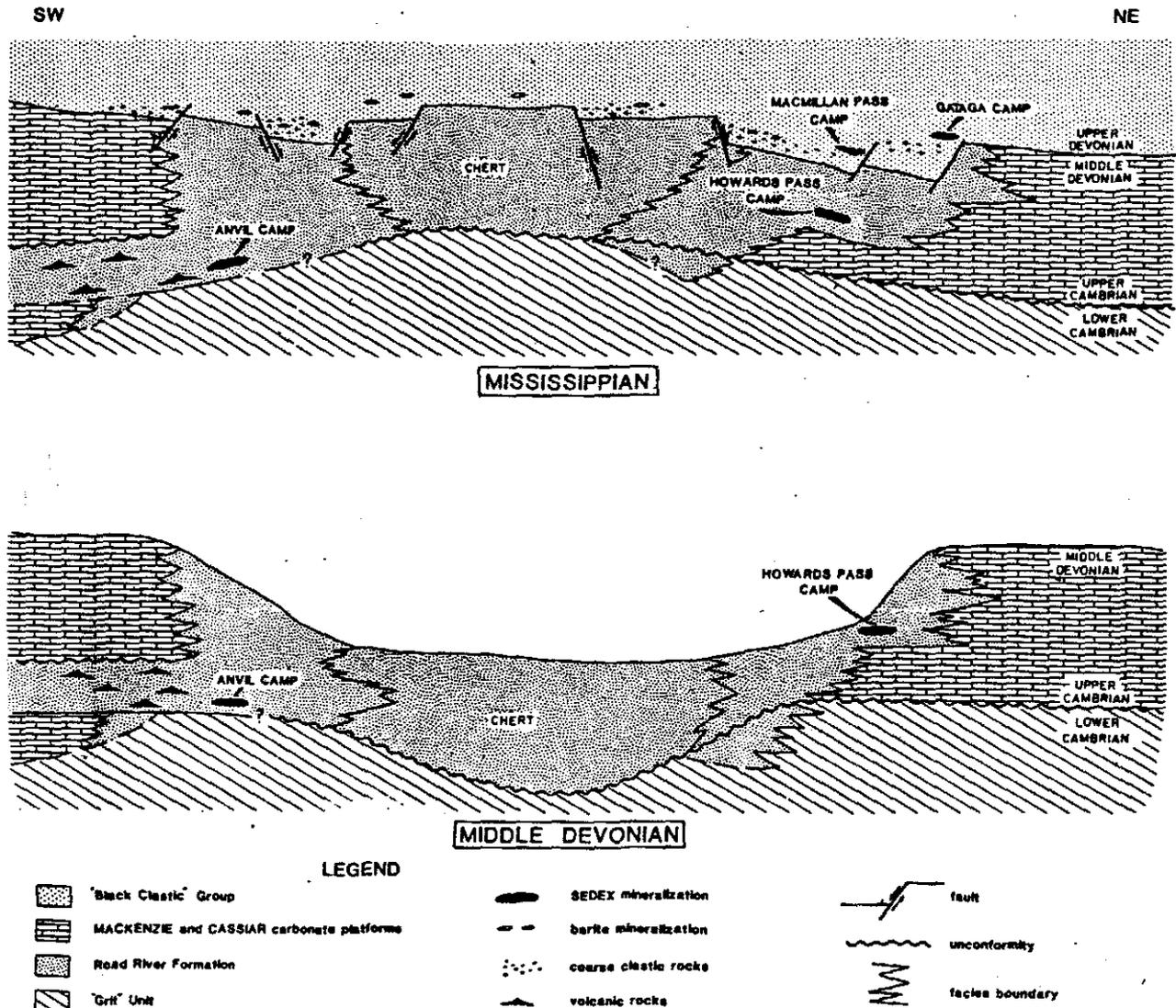


FIGURE | Generalized distribution of Road River Formation and Black Clastic Group lithologies across the Selwyn Basin in middle Devonian and Mississippian times.

Figure 1. Generalised section through the Selwyn Basin.

Post Mississippian history is complex, dominated by tectonics and granite emplacement. The favoured origin of these deposits is brine development by simple diagenetic compaction.

The general exploration features can be summarised as follows:

1. Palaeozoic age.
2. Thick sequences of shales to act as source rocks for brine generation.

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3. Metallogenic province.
4. Carbonate shelf along a hinge line to develop an adjacent "straved" basin which would contain chemical sediments.
5. Lineaments, hinge lines, active movements.
6. Presence of graphite/carbon.
7. Stratigraphic and chemical changes within the basin.

6. HISTORY OF PREVIOUS INVESTIGATIONS

The northern part of EL 1/77 has received little attention owing to the lack of known mineralisation. This area has been included within regional geochemical surveys but no detailed work has been conducted.

6.1 Pickands Mather (PMI) EL 12/65

During the mid - 1960's, PMI conducted an extensive regional stream geochemical survey over EL 12/65 which included the Smithton trough. A number of geochemical anomalies were outlined and later resampled since differing sample number sequences appear on their plans. No further work was undertaken.

6.2 Anzeco EL 6/72

Anzeco conducted a panned concentrate survey and mapping programme over EL 6/72 to search for tungsten on the premise that the dolomites and dolomitic sediments appeared to be similar to carbonates observed on King Island. Approximately 100 samples were collected and analysed for Cu, Pb, Zn, Ci, W, Mo, Sn. A number of anomalies were obtained, the majority of which were attributed to Tertiary sediments and black shales. One or two tungsten anomalies in the Trowutta area were recommended for follow up.

6.3 ESSO EL 2/73

ESSO conducted an airborne INPUT survey in conjunction with helicopter-borne geological follow up. A number of INPUT anomalies were obtained and attributed to black shale horizons.

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6.4 CRAE EL 1/77

Reconnaissance follow up of a panned concentrate anomaly in the Blackwater Rivulet and a low level aeromagnetic survey over the Frankland magnetic anomaly have been undertaken. Four panned concentrate and stream sediment samples were collected in the Blackwater Rivulet and low order tin anomalies obtained. Extensive Tertiary gravels occur in this area and may be causative though sample profiles through the gravels suggest not.

The Frankland aeromagnetic anomaly was gridded, sampled and ground magnetics were completed. The magnetic anomalies obtained were coincident with units of basic volcanics. Marginally anomalous tungsten values were obtained.

7. GEOLOGY

7.1 Regional Geology

*Smithton
sheet?*

The two major sources of regional mapping within the Smithton trough are Longman and Matthews (1961) and Matthews (1960). Their stratigraphy can be summarised in Table 1.

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GEOLOGY

Stratigraphy.—The stratigraphy of the area is summarized below:—

	Age	Details	Thickness (feet)	
Quaternary	Recent	Alluvium on beaches, river flats and button grass plains	up to 20	
	Pleistocene (?)	Alluvium and gravels in dunes and swamps, gravels on valley walls and button grass plains	up to 60	
Tertiary	Pliocene ?	Vesicular and massive olivine basalt flows	100+	
	Formation and uplift of peneplain			
	Upper Oligocene-Miocene	Limestone with bryozoa, gastropods, and pelecypods	15+	
Upper Palaeozoic	Permian	Sandstone Siltstone, mudstone, shale (fossiliferous) Mudstone Tillite	100+ 220 210 140+	
	Devonian	Tabberabberan Orogeny, folding, intrusion of pink granite with Sn, W, Pb and Ag mineralization ?		
Lower Palaeozoic	Cambrian	Sasalt, tuff and interbedded greywackes	1,000+	
		Greywacke, black and grey shale and intraformational breccia	500	
		Breccia containing fragments of dolomite and chert in dolomite matrix	100—	
Disconformity				
" Younger " Precambrian		Smithton Dolomite (grey dolomite, chert and oolitic limestone)	1,200	
	Unconformity ?			
		Bryant Hill Quartzite (quartzite and conglomerate)	2,000+	
	Intrusion of basic dykes ?			
		Interbedded quartzite, shale, sub-greywacke and rare conglomerate	2,000	
		Black and blue-grey pyritic shale	1,000	
		Interbedded green chloritic shale and quartzite	5,000+	
" Older " Precambrian		Nesay Formation (quartzite, slate and phyllite)	5-10,000	
		Intrusion of basic dykes, now amphibolites (?)		
	Keith Beds (schist and quartzite)	" several thousand "		

Table 1. Stratigraphy of the Bluff Point and Trowutta Quadrangles (Longman and Matthews 1961).

Structurally, they interpret the Cambrian rocks as being distributed symmetrically around a major synclinorium trending SW from Trowutta.

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7.2 Present Investigations

Reconnaissance field mapping and rock chip sampling has been undertaken over the majority of roads in the northern part of EL 1/77.

7.2.1 Structure

The overall structural setting of the Smithton trough appears to be of an initial basin whose sedimentation has been dominated and controlled by two major NE trending faults, the Duck River and Julius River faults. A third, parallel ERTS photo lineament is apparent to the SE of the Julius River fault.

The style of faulting appears to be of horst and graben type and has resulted in three structural/geological domains. Geological correlation between the domains is poor owing to lack of outcrop and lack of suitable marker horizons.

axial surface?

1. NW of the Duck River fault. The structural attitude of this domain is characterised by a regional NW bedding trend. Moderate to steep anticlinal folding is observed with dips varying between 50 and 70 degrees to NE or SW. Repetition of individual units is probable though confirmation is lacking.
2. Central domain. The central domain is bounded by the Duck River and Julius River faults and is characterised by an intense aeromagnetic signature. This domain is interpreted as being a downfaulted rift within which the greatest thickness of basic volcanics has been developed.
3. SE domain. The south eastern domain is characterised by gentle folding or warping about a NE axis. Abrupt changes in strike direction are observed in the vicinity of the Leigh River which may be attributed to either cross folding, the margin of a basin or strike continuation of the Marrawah fault. The stratigraphic sequence observed in this domain has not been observed elsewhere.

7.2.2 Geology

Rock type descriptions are given in approximate stratigraphic order.

Cambrian volcanics

The unit mapped as Cambrian volcanics includes basalt, tuffs and tuffaceous sediments. It is most extensive in the central domain but several outliers crop out in the southeast and northwest. The basalts are typically fine grained and are composed of plagioclase, pyroxene, chlorite, magnetite and are often amygdaloidal. Epidote - carbonate veining is common at the Leigh River whilst native copper and pyrite are occasionally observed. Scoriaceous textures are common and in some cases pillow structures may be observed. Contact alteration in the form of silicification is well developed at the Leigh River outcrop whilst purple mudstones near the contact are common to both the Kannunnah bridge and Leigh River outcrops. The basalt has a high magnetic susceptibility and is considered to cause the intense aeromagnetic anomalies in the area.

Cambrian ? Grey and green to red shaley siltstones

These units are observed in the vicinity of the Julius River and are fine grained argillaceous sediments which may be tuffaceous in part. Their stratigraphic position is uncertain and may be related either to the Cambrian volcanics or correlates of the siltstone - greywacke succession. No positive evidence is available.

Cambrian ? Siltstone - Greywacke Units

Siltstone - greywacke units are observed in the northwest and central domains and are considered to be correlates. In the central domain, the unit is a fine grained, well bedded argillaceous rock varying to a siltstone and occasionally contains clasts up to 3mm across. The rock is usually well sorted and no grading has been determined. In the northwest, the unit varies in colour from grey to black, contains minor disseminated pyrite and has a similar texture to the rocks observed in the central domain. Lithic fragments have been identified by petrological examination and a primary or reworked volcanic component may be present.

greywacke?
descriptions?

Dolomite breccia

Dolomite breccia is only observed at two localities, in the Julius River and at the Salmon River - Warra Road intersection. The rock is composed of sub-angular to sub-rounded clasts of dolomite and chert set in a fine grained dolomite matrix. It could represent either a fault breccia or a talus fan type deposit. The latter is preferred and would support a growth fault interpretation.

Chert

The term chert has been used purely as a mapping term to describe a suite of highly silicified rocks rather than in the context of a chemical sediment. Its outcrop is restricted to the SE domain. The rock is highly silicified and varies in colour from white through grey to black. It consists of irregularly alternating bands of what appear to be mudstones and dolomitic sediments. Carbonaceous matter is common throughout the rock and minor bedded pyrite is occasionally observed. Textures in the chert vary from well bedded to conglomeratic. Small ovoid clasts? are common and are reminiscent of an oolitic carbonate rock.

Stromatolitic structures composed of concentrically banded layers of grey and white material have been observed, though not in situ. These probably indicate a shallow water supra-tidal depositional environment.

The origin of the silicification is speculative. Although similar alteration has been observed at the contact of the Leigh River basalt, the alteration is slight whereas that in the chert is pervasive and widespread. Karst features are common in the vicinity of Lake Chisholm.

Dolomite

Dolomite is predominant in the northwest domain apparently interbedded with the siltstone - greywacke unit. Though similar outcrops of dolomite have been observed in the Julius River and Sumac Rivulets, it is thought that the two are not the same unit but are facies equivalents. The rock is a white to creamy coloured, poorly bedded, fine grained dolomite with occasional silicification or development of "chert veins", some sparry dolomite is developed. Karst features are common, such as caves in the Julius River.

Quartzite

This is the younger of the two quartzites and is an impure variety containing numerous argillaceous, shaley interbeds. It conformably overlies the black pyrite shales.

Black Shales

Black carbonaceous, pyritic shales are prevalent in the southeast. The rock contains euhedral pyrite crystals developed along bedding planes and occasionally rimmed by calcite veins. Ripple marks accentuated by the pyrite have been observed in one specimen.

Concretionary nodules are frequently developed and contain some pyrite though no relict bedding structures in the nodules have been observed. Dolomitic interbeds have been noted in the Horton River, downstream from the bridge, and limonitic coatings are often seen, caused by oxidation of the pyrite.

Green chloritic banded siltstones

This unit is best developed in the southeast, conformably underlying the black shales. The rock is a siltstone, usually green and highly chloritic. Banding is irregular and composed of alternating chloritic and quartzitic layers. The unit is well bedded and has a well developed slaty cleavage.

Quartzite

This is apparently the older of the two quartzites whose stratigraphic position is uncertain. The quartzite may represent a basement "high" or might be conformable with the black shales and chloritic banded siltstones. The rock is a relatively pure, almost massive quartzite. Sedimentary structures appear to have been destroyed though a crude bedding can be discerned.

Chloritic Shales

Green chloritic shales have only been recognised in the northwest along the Blackwater road. The rock is fine grained, argillaceous, chloritic and has a well developed slaty cleavage along which mica is usually observed. No banding is seen but the unit may be a facies variant of the Balfour type "pyjama siltstones". No

Balfour type "pyjama siltstones"

Exposures of this unit are observed on the Blackwater road and the western end of the Warra road. The rock is a fine grained banded siltstone, usually green though varying to pink in colour. The banding is irregular varying from chloritic, tourmaline ? rich argillaceous siltstone layers to quartzitic or sandstone rich layers.

7.2.3 Discussion

Contact relationships between the chert, dolomite and underlying sediments have not been unravelled satisfactorily. The chert appears to be younger than the dolomite and conformably overlies it.

In the southeast, the chert seems to conformably overlie the older ? quartzite. The structure and stratigraphic position of the quartzite is uncertain since it has a similar attitude to the surrounding sediments. The quartzite may represent a local basement high or may be conformable with the black shales and chloritic siltstones.

In the northwest, the stratigraphic position of the "pyjama siltstones" and chloritic shales is also enigmatic. If they are equivalents of the succession observed at Balfour, then they should be older than presently indicated.

Further mapping is required.

8. GEOCHEMISTRY

8.1 Rock chip sampling

Routine rock chip samples have been collected along roads and within creeks. The samples have been analysed for a range of elements, Cu, Pb, Zn, Ni, Co, As, Sn, W by AAS and XRF. Locations are plotted on plan 10, and assay details are given in the Appendix.

Assay ranges for the more important elements are outlined in Table 1.

Table 1: Approximate element ranges for the major rock types

Rock type	Element ppm					
	Cu	Pb	Zn	Ni	Co	As
Basic volcanics	31-320	2-30	51-200	71-158	33-86	2-10
Grey, green to red Shaley siltstones	36-150	13-22	18-120	25-145	11-56	9-19
Dolomite breccia	10-30	13-33	15-27	25-51	19-27	18
Chert	5-19	<1-39	4-26	75-340	1-5	<1-11
Dolomite	1-12	<1-28	6-85	18-242	2-14	1-5
Quartzite (older)	8-150	2-6	11-29	33-240	5-9	3-5
Black Shales	3-290	3-117	10-99	27-310	7-42	2-250
Green chloritic banded siltstones	2-230	<1-72	51-151	8-140	8-43	1-16
Chloritic Shales	8	7	106	38	14	2
"Pyjama rocks"	8-18	7-10	38-106	38-46	14-18	2-9

Samples having high arsenic values, especially the black shales were resubmitted for gold analyses. Pyrite taken from the black shales was also tested for gold but maximum assays returned were 0.03 ppm Au.

8.2 Stream-sediment geochemistry

A total of approximately 250 stream sediment samples have been collected at an average of 1 per 1-2 square km. Two or three kilogram samples were collected at suitable trap sites and later dried and received to 80#. Cu, Pb, Zn, Ni, Co, As, Ag were analysed by AAS whilst Sn and W were analysed by XRF.

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Ba, Au, V, Bi, Sb were occasionally analysed. Thresholds were determined using log-probability plots. Plan 2 shows sample locations whilst plans 3-9 show assay results.

Initial concern using the -80# fraction due to lack of identifiable lead dispersion trains was overcome by analysing a suite of samples using the -10# + 20# and -80# fractions. In general, the -80# fraction appeared to be more sensitive than the -10# + 20# fraction. Details of results are given in Appendix 6.

8.2.1 Element Thresholds

Lead

The distribution of lead is complex below 30 ppm as evidenced by the sigmoidal curve on the log-probability plot. Population breaks have been identified at:

- Background = <15 ppm
- High Background - Possibly Anomalous = 15-28 ppm
- Anomalous = >28 ppm

Copper

The copper distribution is complex with a poorly defined log-probability plot. Population breaks have been identified at:

- Background = <27 ppm
- Possibly Anomalous = 27-90 ppm
- Anomalous = >90 ppm

Zinc

Zinc has a simple distribution with a number of well defined populations. Thresholds have been set as follows:

- Background = <95 ppm
- Possibly Anomalous = 95-390 ppm
- Anomalous = >390 ppm

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Nickel

The nickel distribution is complex in the upper ranges and probably indicates more than one source of derivation. Thresholds are as follows:

- Low Background = <22.5 ppm
- High Background - Possibly Anomalous = 22.5-195 ppm
- Anomalous = >195 ppm

Cobalt

Cobalt shows a simple distribution and thresholds have been set at:

- Background = <46 ppm
- Possibly Anomalous = 46-71 ppm
- Anomalous = >71 ppm

Arsenic

Arsenic has a simple distribution with thresholds as follows:

- Background = <12.5 ppm
- Possibly Anomalous = >12.5 ppm

Assays of other elements, Ag, Sn, W were considered insignificant.

8.2.2 Interpretation

Julius River

Anomalous values of lead (340 ppm) and zinc (2500 ppm) were obtained in a tributary of the Julius River draining a sequence of chert and dolomite. This was considered the major target since similar anomalies together with copper and nickel occur elsewhere in the Julius River but drain sequences of basic volcanics. Limited follow up work has been completed, details of which are outlined in section 9.0.

Stephens Rivulet

Anomalous values of copper (180 ppm), lead (440 ppm), zinc (1000 ppm),

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nickel (260 ppm), and cobalt (130 ppm) occur in a tributary of the Stephens Rivulet, east of the Blackwater road. Mapping to date has indicated the presence of basalt but lead values in the basic volcanics are generally low, and therefore follow up is warranted.

Sumac Rivulet

A single arsenic (89 ppm), nickel (480 ppm), cobalt (107 ppm), zinc (580 ppm) anomaly occurs in a tributary south of the Sumac road. Follow up is required.

Trowutta Area

Several copper, nickel, cobalt anomalies were obtained from creeks draining basic volcanics north of the Arthur River. These are considered to be derived from the volcanics and no further work is required.

Leigh River

A 300 ppm lead value was obtained upstream of the Leigh River bridge near the contact of the basalt and underlying green chloritic siltstones. Resampling and sampling upstream has failed to repeat this value and no further work is required.

Wents Creek

A 195 ppm lead anomaly was obtained from Wents Creek, approximately 2 km northeast of the Julius River anomaly. Resampling failed to repeat the anomaly, (max 3 ppm Pb) and mapping indicated the presence of chert. Rechecking of sample sites is planned.

9. JULIUS RIVER FOLLOW-UP

Limited reconnaissance follow up of the Julius River Pb-Zn anomaly has been completed. The methods employed include detailed stream-sediment geochemistry, gridding, soil sampling, ground magnetics and VLF.

9.1 Stream-sediment geochemistry

The anomalous tributary draining into the Julius River was mapped using compass and tape whilst stream sediments were collected at

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100m intervals. The stream sediments show an even dispersion train down both creeks with a maximum of 1900 ppm lead, 2650 ppm zinc, and 3.25% manganese at the source. Values of 4450 ppm zinc and 8.15% manganese were obtained 125m downstream. The anomaly is diluted down to 90 ppm and 50 ppm over a distance of 400m and 250m respectively. The anomalies are totally lost within the Julius River itself.

9.2 Soil geochemistry

'C' horizon bank samples were collected at 25m intervals using a power auger along both banks of the tributaries. Samples were dried, sieved to -80# and analysed for Cu, Pb, Zn, Ni, Co, Ag, Fe, Mn, by AAS. Results obtained indicated that the anomaly was located above the stream source and maximum assays returned were Pb (180 ppm), Zn (1950 ppm), Mn 3.9%.

Four 400m grid lines bearing 270⁰ mag, spaced 100-150m apart across the anomaly were flagged in and sampled at 25m intervals using a power auger. No grid lines were cut since this area falls within the Julius River Forest Reserve. Samples were dried, sieved to -80# and analysed for Cu, Pb, Zn, Ni, Co, As, Ag, Fe, and Mn by AAS.

Results were very disappointing with the anomaly reflected by one sample 100m southwest of the original anomaly. Maximum assay values returned were 240 ppm Pb, 6800 ppm Mn, 385 ppm Zn, 75 ppm As, and 56 ppm Cu. It is interesting to note that backgrounds are slightly higher over the dolomite areas compared with the chert.

9.3 Geology

The geology of the gridded area is relatively simple with dolomite dipping gently (10-15⁰) to the southeast and conformably overlain by chert, (banded, siliceous mudstone and dolomite sediments).

Iron and manganese staining was noted on float and outcrop in the creek. Maximum rock chip assays 104 ppm Pb, 700 ppm Zn, 5850 ppm Mn.

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9.4 Geophysics

Ground magnetic and VLF measurements were taken at 25m intervals over the grid. Ground magnetic profiles were very flat and no anomalies obtained. VLF gave a number of weak cross-overs in the vicinity of the geochemical anomalies.

9.4.1. Wents Creek anomaly

An anomalous lead (195 ppm) stream sediment anomaly was obtained from Wents Creek indicating a possible strike extension of 1-2km from the Julius River. Later resampling proved this anomaly to be spurious but in the meantime, four reconnaissance ground magnetic and VLF traverses were completed between the two creeks. Ground magnetic profiles were generally flat, though a slight increase in intensity to the southeast was obtained on line 2350 S. One strong VLF cross-over was obtained on line 2000 S, 775 mE and corresponds to a sinkhole.

9.5 Discussion

Detailed follow up of the Julius River lead-zinc anomaly has failed to locate a source. The anomaly does not appear to be linked with manganese staining since a manganiferous gossan returned assays of 7.55% Mn, 11 ppm Pb. The implications are either that the anomaly is due to seepage or that it reflects buried lead-zinc mineralisation. Geophysics to date has failed to detect this, as also geochemistry since the chert provides an impervious horizon.

10. KEYWORDS

Locality: BURNIE 1:250,000 sheet SK 55-3.

Lead, zinc, shale-hosted, Selwyn basin (Canada), geol. mapping - regional, geochemical - drainage, assays - surf, geophysics - mag, EM.

020

11. LIST OF REFERENCES

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12. LIST OF PLANS

<u>Plan No.</u>		<u>Scale</u>
1.	TASH 077 EL 1/77 Rocky Cape - Geological Map.	1:100 000
2.	TASH 078 " " " " - Stream Sediment Samples - Location Map	"
3.	TASH 079 " " " " " " " - Lead	"
4.	TASH 080 " " " " " " " - Zinc	"
5.	TASH 081 " " " " " " " - Copper	"
6.	TASH 084 " " " " " " " - Nickel	"
7.	TASH 083 " " " " " " " - Cobalt	"
8.	TASH 085 " " " " " " " - Arsenic	"
9.	TASH 082 " " " " " " " - Tin	"
10.	TASH 828 EL 1/77 Rocky Cape, Rock Chip Samples - Location Map	"
11.	TASH 829 " " " " " " " - Copper	"
12.	TASH 830 " " " " " " " - Lead	"
13.	TASH 831 " " " " " " " - Zinc	"
14.	TASH 093 EL 1/77 Rocky Cape, Julius R. Follow Up - Location Map	1:500 00
15.	TASH 066 " " " " Stream Sediment Pb,Zn,Mn	1:2000
16.	TASH 070 " " " " Soil Geochemistry Cu	"
17.	TASH 068 " " " " " " Pb	"
18.	TASH 069 " " " " " " Zn	"
19.	TASH 075 " " " " " " Ni	"
20.	TASH 074 " " " " " " Co	"
21.	TASH 076 " " " " " " As	"

22.	TASh 073	EL 1/77	Rocky Cape	Soil	Geochemistry	Ag	1:2000 ✓
23.	TASh 071	"	"	"	"	Fe	1:2000 /
24.	TASh 072	"	"	"	"	Mn	1:2000 /

13. LIST OF APPENDICES

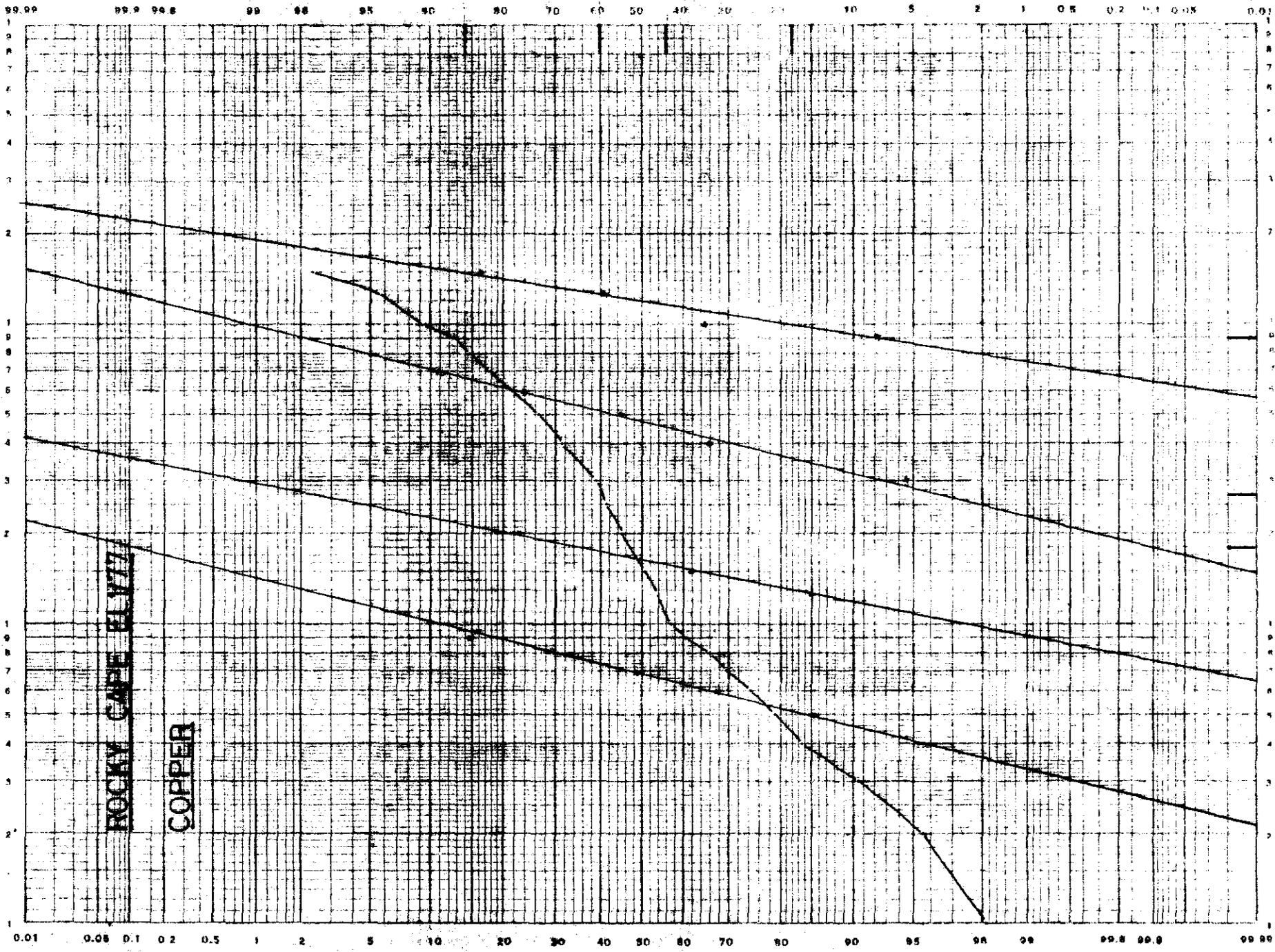
1. Stream Sediment - log probability plots.
2. Geochemical assay ledgers - roads.
3. Geochemical assay ledgers - streams.
4. Geochemical assay ledgers - Julius River Follow-up.
5. Julius River - ground magnetic and VLF profiles.
6. Size fraction analysis.
7. Petrographic Reports.

APPENDIX 1

Stream-sediment - log probability plots

730025

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16 27 90

CUMULATIVE FREQUENCY CALCULATION

Area: ROCKY CAPE N. PART

Element: Cu Name: DJM

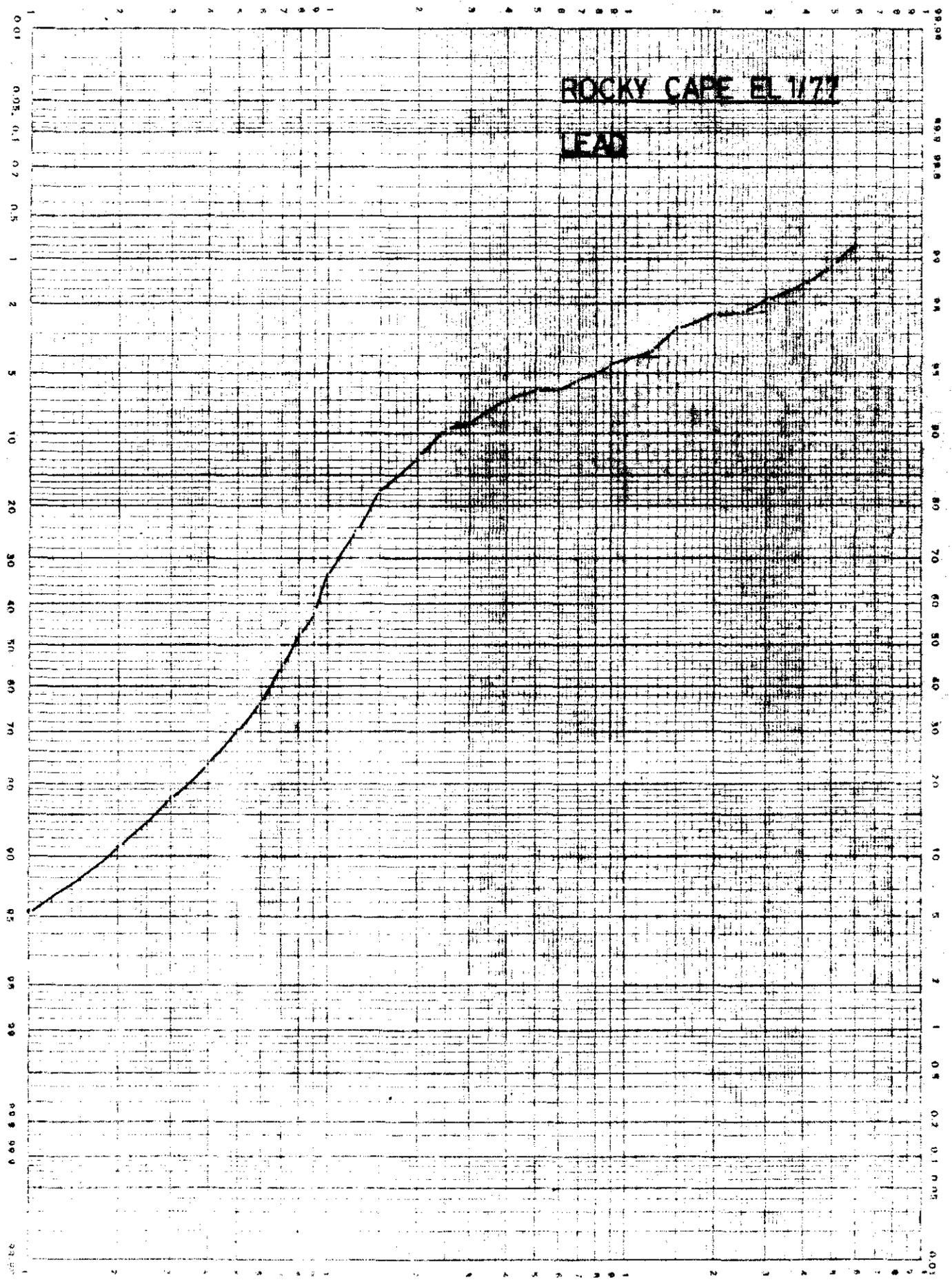
Date: 20/5/82

ppm											Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1											5	5	1.89		1.89	11.3
1.25											0	5	1.89			
1.5											0	5	1.89			
2											7	12	4.6		4.6	27.2
2.5											0	12	4.6			
3											13	25	9.5		9.5	56.9
4											19	44	16.7		16.7	
5											13	57	21.6	18	3.6	14.9
6											11	68	25.8		7.8	32.2
7											12	80	30.3		12.3	50.8
8											10	90	34.1		16.1	66.5
9											15	105	39.8		21.8	90.0
10											8	113	42.8		24.8	
12.5											9	122	46.2	44	2.2	15.0
15											9	131	49.6		5.6	38.1
20											15	146	55.3		11.3	76.9
25											9	155	58.7		14.7	
30											7	162	61.4	60	1.4	5.6
40											19	181	68.6		8.6	34.1
50											14	195	73.9		13.9	55.2
60											12	207	78.4		18.4	73.0
70											11	218	82.6		22.6	89.7
80											7	225	85.2		25.2	
90											5	230	87.1	86	1.1	7.8
100											10	240	90.9		4.9	35.0
125											9	249	94.3		8.3	59.3
150											9	258	97.7		11.7	83.6
200											6	264	100		14	
250																
300																
400																
500																
600																
700																
800																
900																
1000																
1250																
1500																
2000																
2500																
3000																
4000																
5000																
6000																
7000																
8000																
9000																
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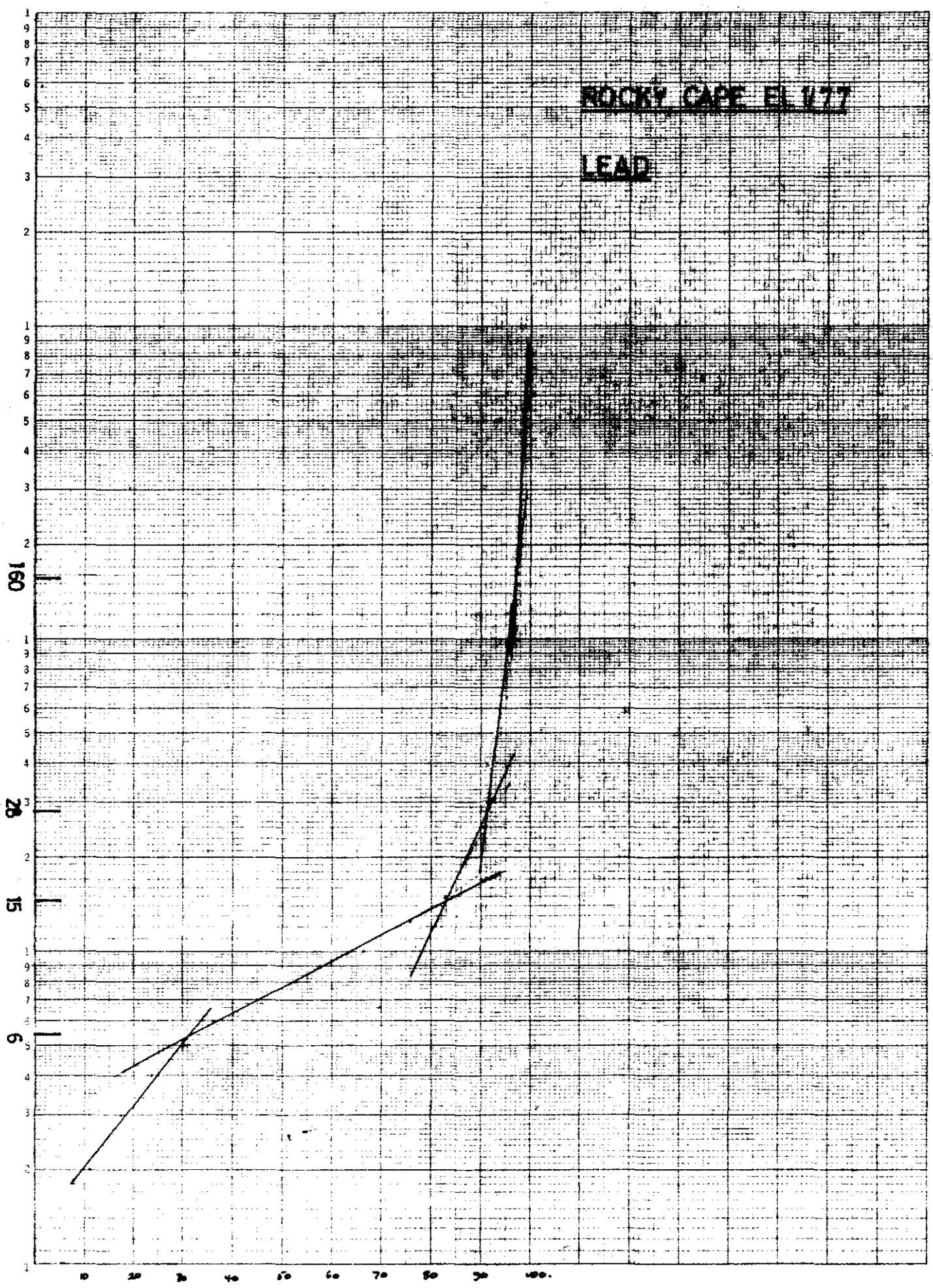
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CUMULATIVE FREQUENCY CALCULATION

Area: ROCKY CAPE N. PART

Element: Pb Name: DM

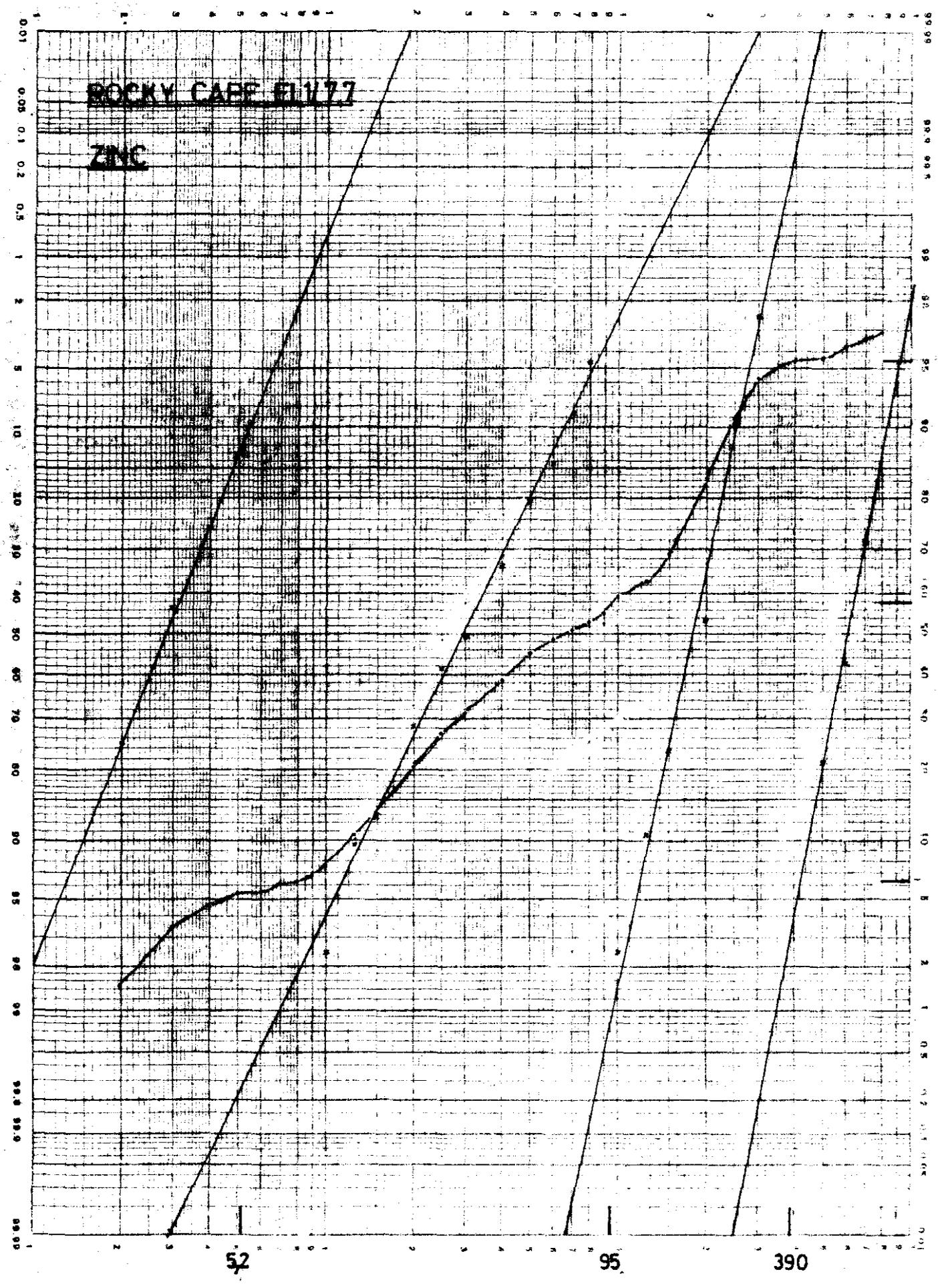
Date: 20/5/82

ppm											Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1											14	14	5.36			
1.25											0	14				
1.5											0	14				
2											15	29	11.1			
2.5											0	29	11.1			
3											17	46	17.6			
4											16	62	23.8			
5											17	79	30.3			
6											15	94	36.0			
7											23	117	44.8			
8											20	137	52.5			
9											14	151	57.9			
10											22	173	66.3			
12.5											25	198	75.9			
15											18	216	82.8			
20											12	228	87.4			
25											8	236	90.4			
30											2	238	91.2			
40											5	243	93.1			
50											2	245	93.9			
60											0	245	93.9			
70											2	247	94.6			
80											1	248	95.0			
90											1	249	95.4			
100											1	250	95.8			
125											1	251	96.2			
150											3	254	97.3			
200											1	255	97.7			
250											0	255	97.7			
300											1	256	98.1			
400											1	257	98.5			
500											1	258	98.85			
600											1	259	99.23			
700											0	259	99.23			
800											0	259	99.23			
900											1	260	99.61			
1000											0	260				
1250											0	260				
1500											0	260				
2000											1	261				
2500																
3000																
4000																
5000																
6000																
7000																
8000																
9000																
10000																

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730030

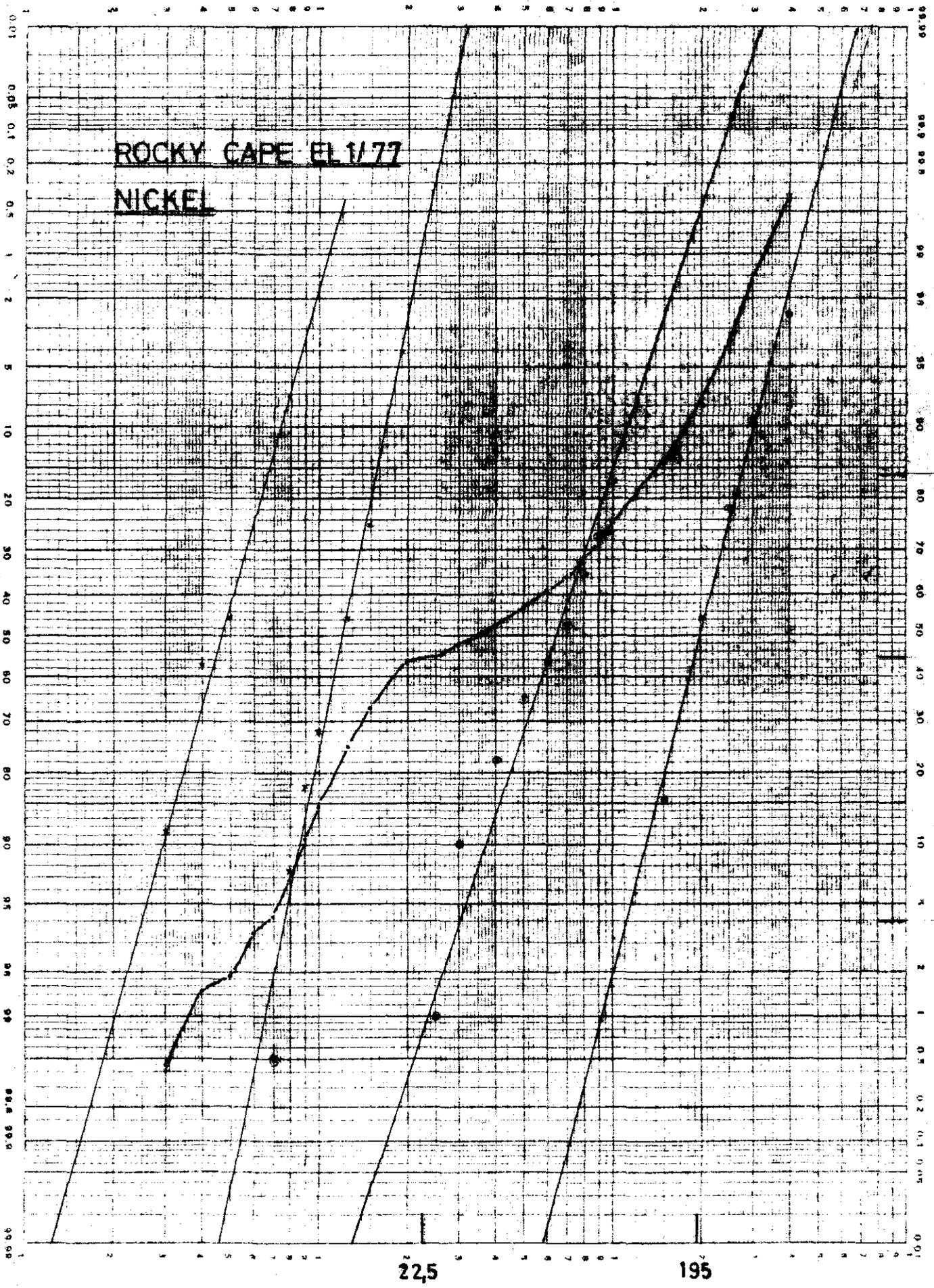


CUMULATIVE FREQUENCY CALCULATION Area: ROCKY CAPE N. PART Element: Zn Name: DHW Date: 20/5/82

ppm											Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1																
1.25																
1.5																
2																
2.5																
3																
4																
5																
6																
7																
8																
9																
10																
12.5																
15																
20																
25																
30																
40																
50																
60																
70																
80																
90																
100																
125																
150																
200																
250																
300																
400																
500																
600																
700																
800																
900																
1000																
1250																
1500																
2000																
2500																
3000																
4000																
5000																
6000																
7000																
8000																
9000																
0000																

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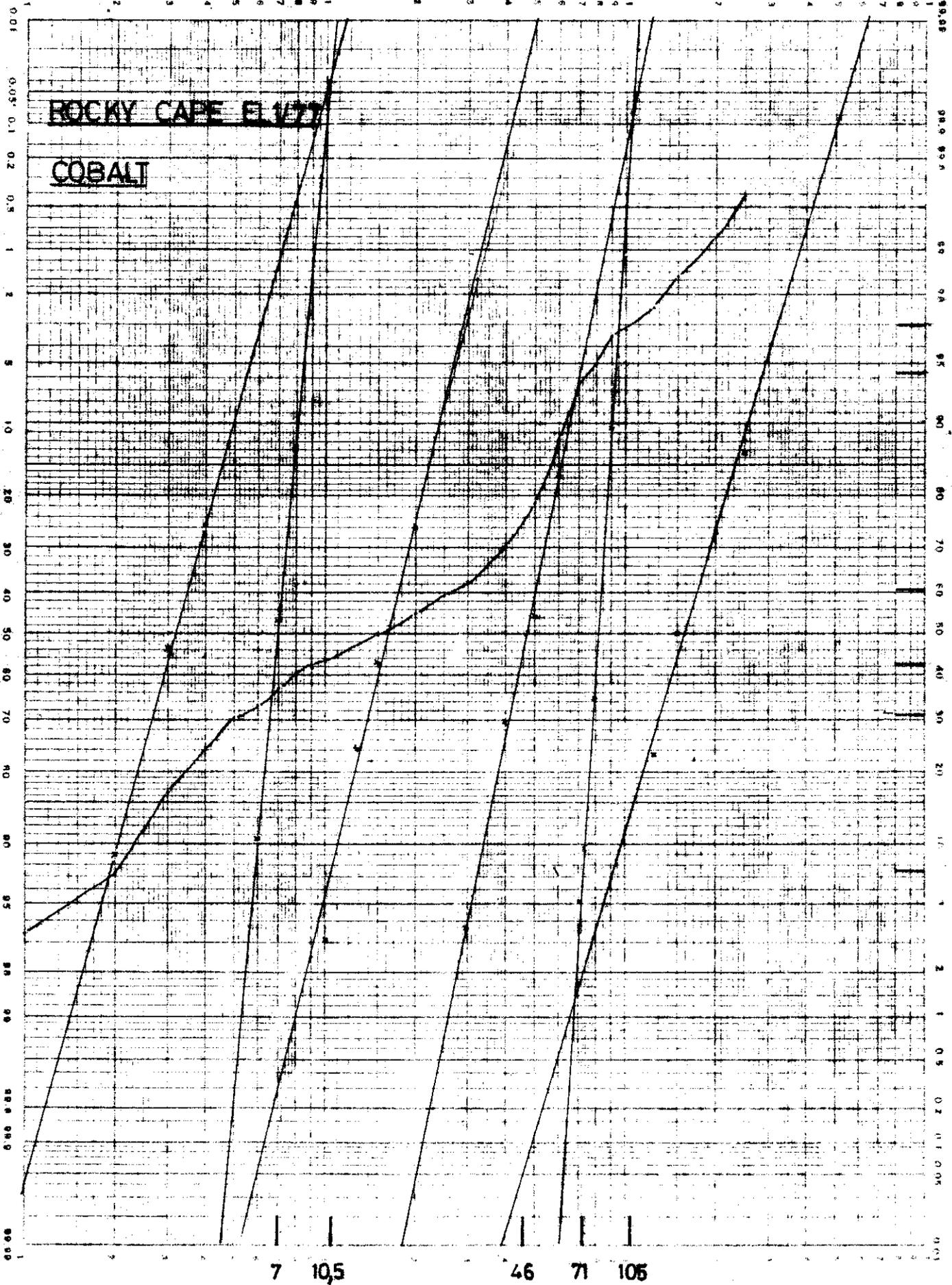
CUMULATIVE FREQUENCY CALCULATION

Area: ROCKY CAPE N. PARTS

Element... Ni Name... DW Date... 28/5/77

ppm	Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1						
1.25						
1.5						
2						
2.5						
3	1	1	0.4		0.4	11.4
4	3	4	1.5		1.5	42.9
5	1	5	1.9		1.9	54.3
6	4	9	3.5		3.5	
7	2	11	4.2	4	0.2	0.5
8	7	18	6.9		2.9	7.6
9	10	28	10.8		6.8	17.8
10	10	38	14.7		10.7	28.0
12.5	26	64	24.7		20.7	54.2
15	21	85	32.8		28.8	75.4
20	28	113	43.6		39.6	
25	2	115	44.4	44	0.4	1.0
30	9	124	47.9		3.9	10.2
40	12	136	52.5		8.5	22.3
50	13	149	57.5		13.5	35.3
60	8	157	60.6		16.6	43.5
70	9	166	64.1		20.1	52.6
80	12	178	68.7		24.7	64.7
90	8	186	71.8		27.8	72.8
100	10	196	75.7		31.7	83.0
125	17	213	82.2		38.2	
150	11	224	86.5	84	2.5	15.6
200	16	240	92.7		8.7	54.4
250	10	250	96.5		12.5	78.1
300	5	255	98.5		14.5	90.6
400	3	258	99.6		15.6	97.5
500	1	259	100		16	
600						
700						
800						
900						
1000						
1250						
1500						
2000						
2500						
3000						
4000						
5000						
6000						
7000						
8000						
9000						
10000						

033



034

CUMULATIVE FREQUENCY CALCULATION

Area: ROCKY CAPE EL 1177 N. PART

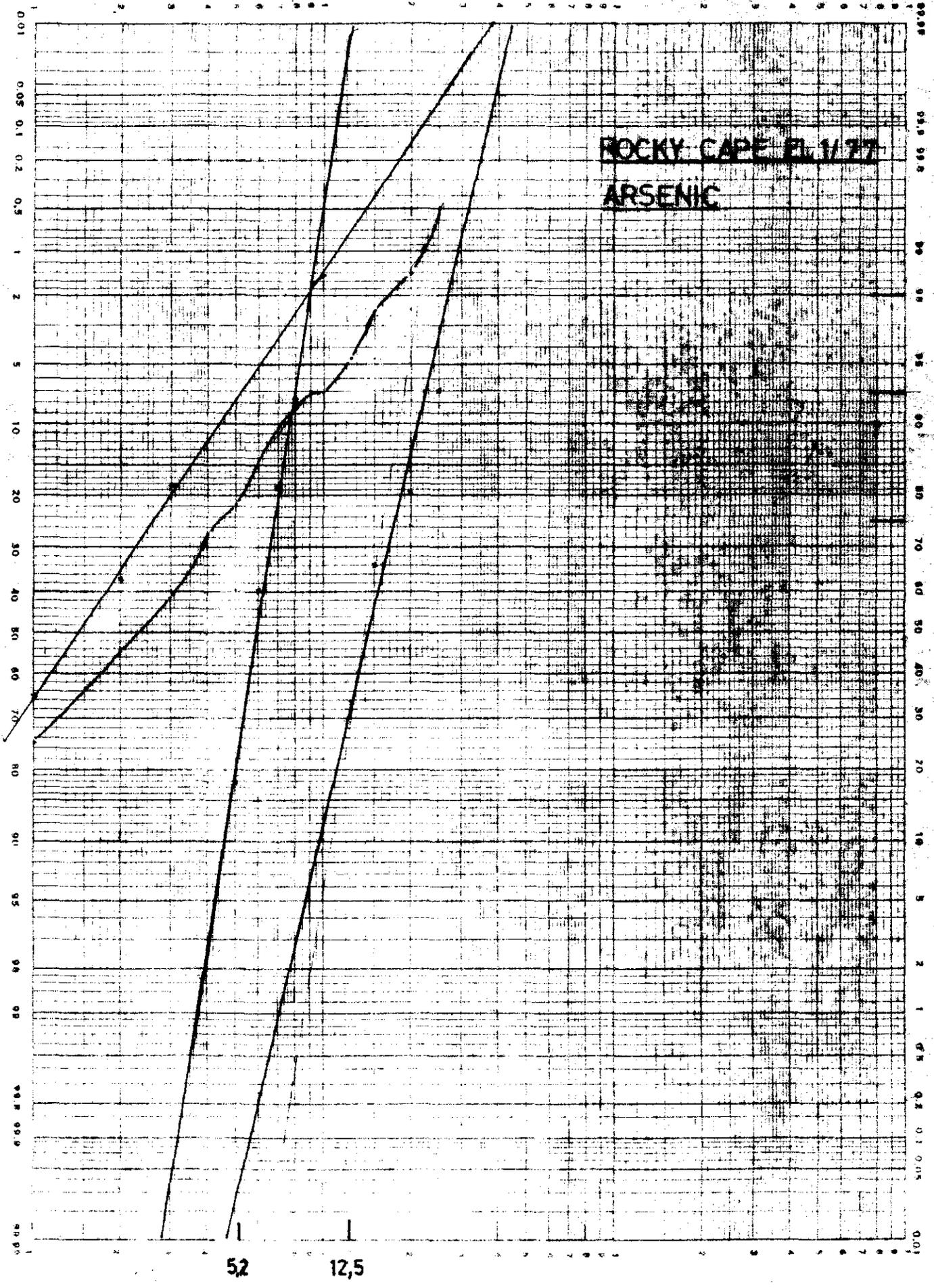
Element: Co Name: J.W. Date: 23/5/82

ppm											Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1											9	9	3.4		3.4	
1.25											0	9	3.4			
1.5											0	9	3.4			
2											10	19	7.3	5	2.3	9.0
2.5											0	19	7.3			
3											25	44	16.8		11.8	46.2
4											19	63	24.0		19.0	74.5
5											17	80	30.5		25.5	
6											7	87	33.2	31	1.2	10.7
7											10	97	37.0		6.0	53.6
8											10	107	40.8		9.8	87.5
9											5	112	42.8		11.2	
10											2	114	43.5	43	0.5	3.1
12.5											9	123	47.0		4.0	24.7
15											8	131	50		7.0	43.2
20											13	144	55		12.0	74.1
25											11	155	59.2		16.2	
30											8	163	62.2	61	1.2	3.7
40											22	185	70.6		9.6	29.5
50											21	206	78.6		17.6	54.2
60											25	231	88.2		27.2	83.7
70											14	245	93.5		32.5	
80											4	249	95.0	94	1.0	34.5
90											4	253	96.6		2.6	89.7
100											1	254	96.9		2.9	
125											2	256	97.7	97	0.7	23.3
150											2	258	98.5		1.5	50
200											2	260	99.2		2.2	73.3
250											1	261	99.6		2.6	86.6
300											1	262	100		3.0	
400																
500																
600																
700																
800																
900																
1000																
1250																
1500																
2000																
2500																
3000																
4000																
5000																
6000																
7000																
8000																
9000																
10000																

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035

730036



036

CUMULATIVE FREQUENCY CALCULATION

Area: ROCKY CAPE N. PART

Element: AS

Name: RJW

Date: 2015/82

ppm												Total	Cum. Tot	% Cum. Tot	Breaks	Remainder	Recalc. %
1	###	###	###	###	###	###	###	###	###	###	###	53	53	25.1		25.1	34.6
1.25																	
1.5																	
2	###	###	###	###	###	###	###	###	###	###	###	44	97	45.9		45.9	63.3
2.5												0	97	45.9		45.9	
3	###	###	###	###	###	###	###	###	###	###	###	28	125	59.2		59.2	81.7
4	###	###	###	###	###	###	###	###	###	###	###	28	153	72.5		72.5	
5	###	###	###	###	###	###	###	###	###	###	###	12	165	78.2	75	3.2	17.9
6	###	###	###	###	###	###	###	###	###	###	###	16	181	85.8		10.8	60.3
7	###	###	###	###	###	###	###	###	###	###	###	8	189	89.6		14.6	81.6
8	###	###	###	###	###	###	###	###	###	###	###	4	193	91.5		16.5	92.2
9	###	###	###	###	###	###	###	###	###	###	###	3	196	92.9		17.9	
10												0	196	92.9		17.9	
12.5	###	###	###	###	###	###	###	###	###	###	###	5	201	95.3	92.9	2.4	33.8
15	###	###	###	###	###	###	###	###	###	###	###	5	206	97.6		4.7	60.2
20	###	###	###	###	###	###	###	###	###	###	###	2	208	98.6		5.7	60.3
25	###	###	###	###	###	###	###	###	###	###	###	2	210	99.5		6.6	93.0
30												0	210				
40												0	210				
50												0	210				
60												0	210				
70												0	210				
80												0	210				
90	###	###	###	###	###	###	###	###	###	###	###	1	211	100.		7.1	
100																	
125																	
150																	
200																	
250																	
300																	
400																	
500																	
600																	
700																	
800																	
900																	
1000																	
1250																	
1500																	
2000																	
2500																	
3000																	
4000																	
5000																	
6000																	
7000																	
8000																	
9000																	

730037

APPENDIX 2

Geochemical assay ledgers - roads

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE E.L. 1/77 No. 934201 - 934223 Sample numbers 934201 - 934223 Collected by M. LAAN Sheet no. 1

Area / Prospect BLACKWATER ROAD Date 4/12/81

Map / Photo reference SANDY CAPE 1:100 000 TOPO FORESTRY BLUFF POINT SPECIAL 40cm:1" Analysed by ANALABS, COFFE DPO no. 30066

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		ss*	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	As	Bi	Sn	W.		
		oc	o/c sample type ***																	
		f	s sample type ****																	
34201	oc/cs		50m						138	9	106	82	56	9	42	9	410		Fresh f.g. basalt & pillow structures	
202	oc/cs								160	8	124	114	68	5	42	9	410		weathered basalt to purple mudstone contact.	
203	oc/cs								82	14	110	106	44	13	42	43	10		Purple mudstone.	
204	oc/cs		0.37 miles						52	13	140	158	56	10	42	43	410		Weathered basalt	
205	oc/cs		0.48 miles						76	15	86	86	34	9	42	5	410		weathered, reddish basic? Tuffs.	
206	oc/cs		0.6 miles						80	14	82	104	30	8	42	43	410		" " " "	
207	oc/cs		0.6 miles						74	17	82	62	28	8	42	4	410		" " " "	
208	oc/gs								12	10	14	32	8	12	42	7	410		weathered siltstones.	
209	oc/gs								20	11	30	44	12	27	42	43	10		Black, pyritic, graphitic shale.	
34210	oc/gs								24	10	22	42	8	19	42	8	410		Black shale -> yell. grey on weathering.	
211	oc/gs								26	17	22	48	6	17	42	5	410		laminated shales.	
212	oc/cs		50m						22	12	24	32	8	18	42	6	410		Black pyritic shale	
213	oc/gs								18	22	22	28	4	15	42	7	410		Black graphitic shale & pyrite.	
214	oc/gs								20	11	36	74	10	11	42	3	410		banded shales, graphitic & narrow chert bands.	
215	oc/gs								6	9	22	28	16	1	42	43	10		Dolomitic lst. & Calcite veining.	
216	oc/gs								10	1	4	320	8	79	42	7	410		cemented nodules within clay-lst. Contact. - small sulphides	
217	oc/gs								44	19	72	76	24	12	42	7	410		red, weathered clay.	
218	oc/gs								104	12	116	132	50	12	42	3	10		mixed zone of banded siltstones & tuffs.	
219	oc/gs								4	8	10	38	14	2	42	43	410		massive dolomitic limestone.	
34220	oc/gs								300	8	108	126	86	3	42	43	410		weathered basic volcanics, Tuffs.	
221	oc/gs								38	14	50	68	4	6	42	6	410		shale within contact zone & volcanics minor pyrite.	
222	oc/gs								94	17	104	58	44	3	42	3	15		Ashfall tuff, poorly sorted.	
34223	oc/gs								28	24	22	94	10	17	42	5	410		Black pyritic shale.	

7300130

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE 621/77 No. Sample numbers 934224 - 934239 Collected by M. LAAN Sheet no. 2
 Area / Prospect BLACKWATER ROAD 934274 Date 4/12/81
 Map / Photo reference SANDY CAPE 1:100 000 TOPO SHEET Analysed by ANALABS COOE DPO no. 30066
FORESTRY BLUFF POINT SPECIAL 40411

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Pb	Sr	W			
		o/c sample type ***																		
		s sample type ****																		
34 224	oc/gs							6	25	8	58	2	5	22	5	<10	shales + minor quartz veins.			
225	oc/gs							17	9	12	66	4	4	22	4	<10	banded grey + white shales			
226	oc/gs							32	31	28	36	8	25	22	4	<10	black pyritic shales.			
227	oc/gs							24	10	22	70	4	6	2	23	<10	black pyritic shale.			
228	oc/gs							8	46	10	26	2	3	22	4	10	black pyritic, graphitic shales.			
229	oc/gs							8	7	106	38	14	2	2	10	<10	green chloritic shales.			
934 230	oc/gs							14	36	56	102	10	5	22	8	<10	grey shales + minor quartzites.			
231	oc/gs							18	7	78	40	14	3	22	23	<10	green, brown spotted chloritic siltstone.			
232	oc/gs							18	10	38	46	14	9	22	6	<10	- - - - -			
233	oc/gs							8	10	66	40	18	3	2	5	<10	banded pink + green siltstones.			
234	oc/gs							28	7	58	300	10	6	22	4	<10	chert + conglomerate boulders.			
235	oc/gs							140	11	40	98	68	3	22	23	<10	basic? volcanic tuffs.			
236	oc/gs							8	4	4	156	4	2	22	6	<10	laminated grey shale.			
237	oc/gs							12	9	6	240	8	3	22	23	<10	massive dolomitic limestone.			
238	oc/gs							60	13	74	80	26	14	22	5	<10	basic tuffs.			
239	oc/gs							72	17	66	108	26	22	22	4	10	Tuffs + interbedded mudstone.			
34 274	oc/gs							8	4	6	360	10	68	22	23	<10	black, nodular agglomerate as per 934216			

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

730040

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE JUDGER

Tenement name ROCKY CAPE EL 1/77 No.

Sample numbers 93416 - 93422

Collected by [Signature]

Sheet no. 1040

Area / Prospect JULIUS RIVER

Date 5.1.82

Map / Photo reference ARTHUR RIVER 1:100,000 TOPO

Analysed by ANALABS COOEE

DPO no. 30069

A 02143

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		ss * oc f s	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ag Ni	Mo Co	Mn As	Au Bi	Sn	N		
			o/c sample type ***																	
			s sample type ****																	
93416	OC	GS	30M					14	39	26	195	2	4	42	43	410	CHERT, CALCITE, MINOR DOLOMITE			
93417	OC	GS	50M					8	2	9	210	2	2	2	25	410	" " " "			
93418	F	GS	50M					5	2	8	140	2	1	42	7	410	" "			
93419	OC	GS	40M					9	5	10	200	2	1	42	5	410	CHERT, MINOR CALCITE VEINING			
93420	OC	GS	40M					8	5	9	230	2	1	42	4	410	CHERT (FOLDED & DEFORMED)			
93421	OC	GS	100M					14	6	15	340	3	2	42	8	410	IRON-STAINED CHERT			
93422	F	GS	50M					8	4	30	220	7	3	42	4	410	CHERT, QUARTZITE, PURPLE/WHITE SILTSTONE			

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

730041

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLING RIDGER

Tenement name ROCKY CAPE EL/1-77 No. 934123-150, 276-285 Collected by J.H. Aldridge Sheet no. 1

Area / Prospect HORTON RIVER Date 6.1.81

Map / Photo reference ARTHUR RIVER, 1:100,000 Topo Analysed by ANALABS CODEE DPO no. 30069

A 02143

041

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations							
		ss *	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	N									
		oc	o/c sample type ***						Ni	Co	As	Bi															
		f	s sample type ****																								
934123	OC	GS	40M						48	17	29	78	7	60	42	10	<10										GREY MUDSTONE, WHITE SILTSTONE.
934124	OC	GS	40M						44	34	30	62	9	90	2	8	<10										BLACK PYRITIC SHALES
934125	OC	GS	50M						99	55	31	130	21	220	42	5	<10										" " "
934126	OC	GS	50M						290	117	13	310	15	250	42	5	<10										" " "
934127	OC	GS	100M						49	16	33	37	17	11	42	6	<10										BLACK SHALES, SILTSTONES, PYRITE.
934128	OC	GS	50M						55	13	45	74	19	54	2	8	<10										BLACK PYRITIC SHALES
934129	OC	GS	75M						20	14	35	46	15	35	2	8	<10										BLACK PYRITIC SHALES, SILTSTONE
934130	OC	GS	50M						91	38	47	130	18	100	42	5	<10										" " "
934276	OC	GS	50M						12	4	54	43	9	2	42	6	<10										SILTSTONE BAKED TO A QUARTZITE.
934277	OC	GS	40M						70	26	30	68	19	70	42	<3	<10										BLACK PYRITIC SHALES (2 SPOTTED PYRITITES, PYRITIC)
934278	OC	GS	150M						67	41	22	89	10	51	2	<3	<10										BAKED BAKED SILTSTONE, ALTERED CHERT
934279	OC	GS	50M						68	18	19	150	14	70	2	7	<10										BLACK PYRITIC SHALES
934280	OC	GS	50M						230	80	99	210	17	180	42	5	<10										" " "
934281	OC	GS	60M						65	48	35	77	26	58	2	7	<10										" " "
934282	OC	GS	50M						92	35	42	80	33	60	42	5	<10										" " "
934283	OC	GS	50M						83	42	53	75	27	90	42	7	<10										" " " + HARD SHALES
934284	OC	GS	75M						24	28	22	43	6	58	42	6	<10										BLACK SHALE PYRITIC SHALES
934285	OC	GS	75M						62	40	16	59	8	42	42	10	<10										BLACK, DEPOSITED PYRITIC SHALES

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE JUDGER

Tenement name ROCKY CAPE EL 1177 No. 934286-934296 Sample numbers 934286-934296 Collected by A.P. Robinson Sheet no. 3
 Area / Prospect LEIGH RIVER Date 7.1.82
 Map / Photo reference ARTAR RIVER, 1:100,000 TOPO Analysed by ANALABS COOEE DPO no. 30069
 A 02143

042

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Mo	Mn	Au	Bi	Sr	N		
		o/c sample type ***							Ni	Co	As	Bi	Sr	N						
		s sample type ****																		
934286	OC	GS	50M					51	24	39	66	17	47	42	3	410		BLACK BANDED PHYLITIC SANDS		
934287	OC	GS	75M					6	41	50	45	11	1	42	9	410		QUARTZITE, GREEN BANDED PHYLITES		
934288	F	GS	50M					44	12	83	59	28	3	42	6	410		PHYLITES, BAKED SILTSTONE, VOLCANICS		
934289	F	GS	25M					38	6	53	35	22	1	42	8	410		BANDED SILTSTONE, VOLCANICS		
934290	F	GS	25M					71	5	57	74	30	2	42	5	410		" " , BASALT & TREPANITE		
934291	OC	GS	50M					5	41	46	51	17	1	42	9	410		GREEN CHLORITIC PHYLITES		
934292	OC	GS	50M					5	41	69	47	18	1	42	9	410		" " "		
934293	OC	GS	50M					50	3	57	43	24	1	42	8	410		PHYLITE, SILTSTONE, VOLCANICS, TUFFS		
934294	OC	GS	50M					6	1	65	39	19	1	42	7	410		GRAY-GREEN PHYLITE, CHORITE BANDS		
934295	OC	GS	75M					21	12	47	150	12	6	42	6	410		GRAY PHYLITES, COSSANDUS GRG FLOAT		
934296	OC	GS	75M					10	8	56	42	10	1	42	6	410		BLACK BANDED PHYLITES?		

730043

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLING LOG

Tenement name ROCKY CAPE RD 1/77 No. 934297-934302 Sample numbers 934297-934302 Collected by A.P. Williams Sheet no. 4
 Area / Prospect JUNIUS RIVERS Date 8/1/82
 Map / Photo reference ARTHUR RIVER, 1:100,000 TOPO Analysed by ANALABS CODEE DPO no. 30069
 A 02143

043

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations				
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Mb	Mn	As	Bi	Sn	W						
		o/c sample type ***							Ag	Ni	Co	As	Bi	Sn	W									
s sample type ****																								
934297	OC	GS	50M						7	1	8	100	1	1	42	43	410							CHERT, CALCITE.
934298	OC	GS	75M						6	41	7	140	2	1	42	4	410							GREY SHALET CHERT.
934299	OC	GS	50M						5	3	13	75	1	1	42	43	410							CHERT - BAKED, SHALET, ETC.
934300	OC	GS	75M						5	3	8	170	2	2	42	20	410							" - " , " , "
934301	F	GS	70M						9	41	13	97	2	3	42	3	410							CHERT.
934302	F	GS	100M						98	4	82	86	39	10	42	3	410							CHERT BRECCIA, SILTSTONE, TUFF, VOL. CLAY

730044

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLING LOG

Tenement name Rocky Cape EL 1/77 No. 934310 - 934322 Sample numbers 934310 - 934322 Collected by J.P. Blain Sheet no. 6
 Area / Prospect LEIGHT RIVER Date 13.1.81
 Map / Photo reference ARTHUR RIVER, 1:100,000 TOPO. Analysed by ANALABS CODEE DPO no. 30069
 A 02143

045

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag Ni	Mo Co	Mn As	Au Bi	Sn	W			
		o/c sample type ***																		
		s sample type ****																		
934310	OC	GS	75m.					61	24	31	100	29	53	2	9	<10	Hashed pyritic black shales			
934311	OC	GS	50m					59	12	36	85	13	52	42	5	<10	Phyllite - green / " " contact			
934312	OC	RC	20m					60	78	63	73	23	2	42	3	<10	Green banded phyllites & Fe-rich var.			
934313	OC	GS	75m					21	2	90	61	19	1	2	5	<10	Green banded grey/purple phyllite			
934314	OC	GS	50m					5	41	75	37	18	1	2	10	<10	Green/white phyllites			
934315	OC	GS	100m					21	4	38	35	19	1	42	8	<10	Schist - green contact zone Green banded green/purple phyllite, type			
934316	OC	RC	20m					6	1	61	46	48	1	2	6	<10	Nodular pyritic green/gray phyllites			
934317	OC	RC	20m					15	5	55	68	10	3	2	6	<10	Outcrop + green/white phyllite			
934318	OC	GS	50m					150	13	31	96	17	46	2	8	<10	Black pyritic shales			
934319	OC	GS	100m					16	64	48	34	6	39	42	3	<10	Black pyritic shales, green/white phyllite			
934320	OC	GS	100m					20	10	49	31	5	7	42	6	<10	Quartzite, white/green phyllite			
934321	OC	GS	75m					11	2	69	28	11	6	42	7	<10	Nodular pyritic banded grey phyllite			
934322	OC	GS	150m					17	4	39	27	13	5	42	6	<10	Gray/purple banded phyllites & psite			

730046

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Creek EL 1/77 No. Sample numbers 934133 - 934140 Collected by K. Robinson Sheet no. 1
 Area / Prospect Julius River - SUMAC ROADS Date 8-12-81
 Map / Photo reference Arthur River 1:100 000 Topo Sheet Analysed by ANALABS CODEE DPO no. 30065

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		ss *	fl	wl	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	As	Bi	Sn	W		
		oc	o/c sample type ***																	
		f	s sample type ****																	
34133	OC	GS	200m						160	2	150	83	44	6	42	4	410	Weathered basalt		
34134	OC	GS	100m						72	4	54	65	26	10	42	4	10	Banded mudstone / siltstone + volcanics		
34135	OC	GS	100m						75	5	83	81	25	9	42	43	410	Weathered, layered basalt		
34136	OC	GS	100m						60	2	190	131	39	7	42	5	410	Volcanic shale / clay		
34137	OC	GS	100m						66	7	150	65	39	14	42	4	410	" " "		
934138	OC	GS	100m						45	6	160	103	26	18	42	4	410	Green siltstone, weathered basalt.		
934139	OC	GS	100m						320	2	72	130	55	6	42	7	410	Weathered basalt + assoc. mudstone.		
934140	OC	GS	100m						180	41	65	80	67	6	42	43	410	Basalt, minor qtz veins + mudstone.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wl = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type ns = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

730049

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Cape GL 1/77 No. 934141 - 934157 Sample numbers 934141 - 934157 Collected by K.R. Robinson Sheet no. 9/12/81
 Area / Prospect Julius River SUMAC ROADS Date 9/12/81
 Map / Photo reference Arthur River 1:100 000 TAPP. Analysed by ANALABS COOE. DPO no. 30065

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %								Grid ref	Geological Observations			
		ss *	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	As	Bi			Sn	W	Ba
		oc	o/c sample type ***																		
		f	s sample type ****																		
34141	OC	RC	25m					130	1	30	87	30	2	42	5	40		olivine - qtz - porphyry?			
34142	OC	RC	75m					170	41	30	89	36	2	42	4	40		Nodular weathered basic volcanics			
34143	OC	RC	100m					57	10	120	134	47	5	42	8	40		Volcanics - Tuffaceous scoria.			
34144	OC	RC	200m					120	5	40	122	44	9	42	7	410		Weathered tuff to mudstone.			
34145	OC	RC	50m					76	10	69	127	47	7	42	7	410		Weathered nodular basalt			
34146	OC	RC	25m					150	13	120	145	56	9	42	3	410		Weathered basalt - mudstone			
34147	OC	RC	25m					36	22	31	153	13	14	42	10	410		Black (siliceous) nodular siltstone / shale			
34148	OC	RC	100m					79	8	70	123	65	5	42	7	410		Weathered basalt			
34149	OC	RC	75m					42	20	31	25	11	18	42	4	410		Shale, well cleaned ± dissemin. py.			
34150	OC	RC	25m					82	19	18	63	14	19	42	6	410		Red-purple shales, Fe stng.			
34151	OC	RC	100m					15	6	15	95	4	5	42	3	410		Chert / minor Dolomite.			
34152	OC	RC	100m					12	3	8	154	2	3	42	4	10		Banded chert.			
34153	OC	RC	75m					66	24	39	41	22	19	42	5	410		Siltstone - shale.			
34154	OC	RC	25m					71	8	130	127	55	6	42	6	410		Limestone breccia + minor py.			
34155	OC	RC	25m					52	6	110	124	36	5	42	3	10		* Limestone breccia + minor py			
34156	OC	RC	50m					10	3	7	131	2	2	2	6	410		Fracture laminated chert.			
34157	OC	RC	50m					9	1	5	170	5	2	42	4	410		Banded chert. & siliceous.			
																		* Limestone clasts in a f.g. dark green calcareous matrix.			

2300050

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Cape EL 1177 No. 934158 - 934173 Sample numbers 934158 - 934173 Collected by K.P. Robinson Sheet no. 10/12/81
 Area / Prospect Jubilee River SUNAC ROADS Date 10/12/81
 Map / Photo reference Arthur River 1:100000 Topo Sheet Analysed by ANALABS COOE DPO no. 30065

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Bi	Sn	W	Ba		
		o/c sample type ***																		
		s sample type ****																		
934158	OC	RC	40m					56	9	130	173	3	5	42	43	10		Limestone Breccia		
934159	OC	RC	40m					53	8	120	173	42	4	42	43	410		" "		
934160	OC	GS	200m					52	13	54	72	40	7	42	43	410		Chert - banded		
934161	OC	RC	10m					24	6	34	47	22	6	42	43	410		Pyritic grey Dolomite		
934162	OC	GS	150m					73	42	49	79	74	12	42	7	410		Basalt / siltstone / shale		
934163	OC	GS	150m					11	5	14	132	5	5	42	43	410		Chert, Dolomitic, minor calcite		
934164	OC	RC	15m					7	2	7	115	3	2	42	4	410		" " " "		
934165	f	GS	100m					9	5	17	186	2	41	42	3	410		" " " "		
934166	f	GS	50m					8	2	6	170	4	1	2	43	410		" " " "		
934167	f	GS	50m					8	3	4	151	2	1	42	43	410		" " " "		
934168	f	GS	50m					8	1	5	132	3	41	42	5	410		" " " "		
934169	f	GS	50m					9	8	11	133	5	1	42	43	410		" " " "		
934170	f	GS	50m					13	23	20	270	5	7	42	43	410		" " " "		
934171	f	GS	100m					19	2	6	143	3	11	42	6	410		" " " "		
934172	f	GS	200m					11	4	6	141	2	3	42	9	410		Weathered siliceous Chert + Dolomite		
934173	OC	RC	20m					10	7	14	163	2	3	42	3	410		Chert, Dolomitic, minor calcite		

730051

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type super hole or pit depth m A B or C horizon

C.R.A. EXPLORATION , GEOCHEMICAL SAMPLE LEDGER

Tenement name... ROCKY CAPE EL 1177 No. Sample numbers... 934182 - 934243 Collected by... K.P. Robinson Sheet no.Area / Prospect... SUMAC KIVULET SUMAC ROADS 934240 - 934243 Date... 15/12/81Map / Photo reference... ARTHUR RIVER 1:100,000 Topo Analysed by... ANALABS CODEE DPO no. 30065

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		ss *	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	As	Bi	Sm	W		
		oc	o/c sample type ***																	
		f	s sample type ****																	
934182	OC	GS	75m						49	20	49	49	9	12	42	4	<10	Brown Siltstone		
934183	F	GS	50m						16	21	16	93	19	29	42	5	<10	Chert, slightly Ferruginous.		
934184	OC	GS	50m						24	15	24	51	8	16	42	4	<10	Chert, slightly conglomeratic		
934185	OC	GS	75m						13	6	13	119	3	4	3	43	<10	Dolomitic Chert		
934186	OC	RC	20m						62	11	140	74	12	28	42	6	<10	Pyritic, siliceous mudstone		
934187	OC	RC	30m						69	6	25	34	13	5	42	43	<10	" " "		
934188	f	GS	50m						11	5	19	119	2	3	42	43	<10	Banded siliceous chert - shaley		
934189	OC	GS	75m						10	3	16	115	2	3	42	43	<10	" " " "		
934190	OC	GS	75m						9	4	4	190	3	3	42	3	<10	" " " "		
934191	OC	GS	75m						11	6	9	193	2	5	42	43	<10	" " " "		
934192	OC	GS	75m						8	3	3	106	2	2	42	43	<10	" " " "		
934193	OC	GS	75m						14	6	11	240	5	4	42	43	<10	Quartzite, Qtz Siltstone / Lutite		
934194	OC	RC	20m						9	4	29	109	9	4	42	43	<10	Quartzite, dissem py - minor		
934195	OC	RC	40m						150	2	14	33	5	3	42	3	10	Quartz abundant - feldspathic sst.		
934196	OC	GS	100m						8	3	17	47	6	5	42	43	<10	v. siliceous Chert.		
934197	OC	GS	50m						12	4	13	24	6	7	42	43	<10	Quartzite		
934198	OC	GS	75m						11	6	16	149	2	3	42	4	<10	Chert - Dolomite		
934199	OC	GS	75m						16	35	65	178	3	2	42	43	<10	" "		
934200	OC	GS	100m						140	39	270	101	49	20	42	4	<10	Bedded tuff - mudstone?		
934240	OC	GS	50m						12	5	16	49	7	14	42	3	<10	Siltstone		
934241	OC	GS	100m						19	7	7	420	5	5	42	43	<10	Contact zone - siltstone - tuff.		
934242	OC	GS	50m						10	5	18	31	7	8	42	4	<10	Siltstone - mudstone		
934243	OC	GS	75m						9	3	15	41	8	5	42	43	<10	Weathered siliceous Chert.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name... Rocky Cape EL 1777 No. Sample numbers... 934244 - 934245 Collected by... K.P. Robinson Sheet no. 6

Area / Prospect... Julius River SUNAC ROADS Date... 15/12/21

Map / Photo reference... Arthur River 1:100,000 Topo sheet. Analysed by... DPO no. 30065

Table with columns: Sample No., Type, ss channel (fl, wi, al, co, ca, pH), Carbon, Metal content (Cu, Pb, Zn, Ni, Co, As, Bi, Sn, W), Grid ref, Geological Observations. Contains two rows of data for samples 934245 and 934244.

* Sample type ss = stream sediment oc = outcrop f = float s = soil
** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name... ROCKY CAPE EL 177 No. Sample numbers... 934246-934268 Collected by... K.P. Robinson Sheet no.
 Area / Prospect... HORTON RIVER SUMAC ROADS Date... 16/12/81 ..
 Map / Photo reference... ARTHUR RIVER 1:100,000 TOPO Analysed by... ANALABS, COOEG DPO no. 30065
30070

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %											Grid ref	Geological Observations
		ss *	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	As	Ba	Sn	W	Au.		
		oc	o/c sample type ***																		
		f	s sample type ****																		
934246	OC	GS	100 m						10	41	14	29	7	3	3	5	<10		Contact zone chert - Quartzite		
934247	F	RC	1 m						14	3	9	181	4	4	42	43	<10		Black cryptocrystalline chert.		
934248	F	GS	50 m						9	3	7	147	2	3	42	3	<10		Chert - Dolomite		
934249	OC	GS	100 m						7	2	5	101	1	3	42	4	<10		" "		
934250	OC	GS	35 m						7	41	4	162	2	2	42	3	<10		banded grey chert - Shales.		
934251	OC	GS	75 m						11	4	5	230	2	4	42	43	<10		" " " "		
934252	OC	GS	50 m						23	10	34	290	5	10	42	43	<10		Chert - Fe stained		
934253	OC	GS	50 m						7	2	14	39	7	6	42	7	<10		Interbedded quartzite + siltstone		
934254	OC	GS	150 m						11	7	12	109	5	3	42	4	10		Weathered chert.		
934255	OC	RC	20 m						7	41	6	153	2	3	42	3	<10		Chert, Dolomite		
934256	OC	RC	30 m						9	6	25	61	6	3	42	5	<10		Quartzite		
934257	OC	GS	50 m						32	11	20	35	12	11	42	6	10		Grey pyritic mudstone + dry cement.		
934258	OC	GS	50 m						19	4	25	43	9	10	42	5	10		Contact zone Black py. shales and quartz cement		
934259	OC	GS	75 m						8	7	23	51	5	5	42	9	<10		Grey shales		
934260	OC	GS	50 m						60	63	37	56	19	71	42	43	<10		Black pyritic shales.		
934261	OC	GS	30 m						47	26	37	78	12	130	42	43	<10	0.01	" " "		
934262	OC	GS	50 m						21	8	27	26	8	13	42	43	10		Grey pyritic shales		
934263	OC	GS	50 m						27	10	64	63	14	25	42	5	10		Green shales siltstone with clasts.		
934264	OC	GS	75 m						45	6	109	113	36	17	42	5	<10		Green chloritic shales + purple mudstone		
934265	OC	GS	75 m						81	5	121	123	44	8	42	8	<10		Contact zone basic volcanics and purple mudstone.		
934266	OC	GS	50 m						193	5	71	107	140	8	42	7	<10		Purple basic volcanics		
934267	OC	GS	20 m						220	7	113	81	46	3	42	4	<10		Basalt + minor native Cu.		
934268	OC	RC	20 m						66	41	91	72	43	3	42	43	<10		Basalt + minor py and native Cu.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m³/sec wi = width m al = alluvial co = colluvial ca = catchment km²

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

APPENDIX 3Geochemical assay ledgers - streams

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LOGGER

Tenement name ROCKY CAPE EL1177 No. _____ Sample numbers _____ Collected by D.J. WEIR Sheet no. _____
 Area / Prospect SALMON RIVER Date 18/5/82
 Map / Photo reference SANDY CAPE 1:100 000 TOPO SHEET Analysed by ANALABS COOZE DPO no. 30085

Sample No.	Type	ss channel **						Carbon Top 10	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag	Sn	W			
		o/c sample type ***																		
		s sample type ****																		
934840	OC	9/5						7	7	130	215	58	5	<0.1	4	<4		weathered basalt, hematitic + disseminated pyrite. Black pyritic dolomitic shale		
841	OC	9/5						30	13	27	51	27	18	<0.1	<4	<4		Ferruginous dolomite gossan + boxworks.		
842	OC	9/5						29	11	62	280	14	11	<0.1	<4	<4		Mn rich pisolitic gossan.		
934843	OC	9/5						5	13	125	37	38	7	<0.1	<4	<4				
934901	SS	1.5	1.5		V	not	4	4	3	12	12	2	1	<0.1	<4	<4		RH tub WENTS CK. No o/c float chert.		
902	SS	1.5	1.5		V	located	4	5	2	11	14	4	<1	0.2	<4	<4		Above locality, 100m upstream. float? chert.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LOGGER

Tenement name ROCKY CAPE EL 1/77 No. 934973 - 934994 Sample numbers 934973 - 934994 Collected by B. Morley Sheet no. 12/5/82
 Area / Prospect Blackwater Rivulet. Date 12/5/82
 Map / Photo reference ARTHUR R. 1:100 000 Topo Sheet. Analysed by ANALABS COOBS DPO no. 30085

Sample No.	Type	ss channel **						Carbon Top 10	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Ni	Co	As	Sm	W			
		o/c sample type ***																		
		s sample type ****																		
34973 x	SS	S	1	V			2	4	2	12	40.1	18	3	41	81	44	LH trib Blackwater Riv. No o/c float f.g. white quartz.			
34974	f							5	1	30	0.1	175	3	41	44	44	Above locality			
34975 x	SS	S	1	V			2	4	4	9	0.1	15	2	41	79	44	LH trib Blackwater Riv. grey dolomite Sl. Sparry.			
34976	OC	g/s						2	7	11	40.1	20	14	1	44	44	Above locality Dolomite.			
34977 x	SS	S	1.5	V			2	3	2	7	40.1	12	3	41	14	44	LH trib Blackwater Riv. float Tertiary gravels. - siltstone - quartz.			
34978	f							7	2	3	0.2	255	3	1	44	44	Above locality Tertiary gravel.			
34979 x	SS	m	2	V			2	3	2	7	0.2	10	2	1	44	4	LH trib Blackwater Riv. o/c Dolomite			
34980	OC	g/s						1	8	13	0.3	20	14	2	44	4	Above locality Dolomite.			
34981 x	SS	m	1	V			2	1	4	19	40.1	9	2	1	55	44	LH trib Blackwater Riv. o/c grey dolomite Sparry.			
34982	f							1	7	13	40.1	21	13	2	44	6	Above locality grey dolomite.			
34983 x	SS	dry	1	V			2	2	9	33	0.1	10	6	5	40	44	LH trib Blackwater Riv. o/c weathered Dolomite.			
34984	OC	g/s						1	7	20	40.1	23	14	41	44	44	Above locality weathered Dolomite.			
34985 x	SS	S	1.5	V			1	4	12	70	0.1	19	7	3	192	44	LH trib Blackwater Riv. o/c weathered Dolomite			
34986	OC	g/s						2	7	29	40.1	58	11	3	44	6	Above locality weathered Dolomite.			
34987 x	SS	S	1	V			2	3	<1	13	40.1	11	4	3	6	44	LH trib Blackwater Riv. o/c grey Dolomite.			
34988	OC	g/s						9	5	14	40.1	155	11	1	44	44	Above locality grey Dolomite.			
34989 x	SS	S-m	2	V			2	6	7	46	0.1	31	11	2	48	44	LH trib Blackwater Riv. o/c v. weath. Dolomite.			
34990	OC	g/s						2	5	15	0.1	45	4	2	44	44	Above locality v. weath. Dolomite			
34991 x	SS	S/m	1	V			2	3	3	30	40.1	18	4	2	708	4	LH trib Blackwater Riv. float Tertiary Sst. gravels.			
34992	f							22	1	3	40.1	390	11	2	44	44	Above locality Sst. Gravels.			
34993 x	SS	S/m	1	V			2	10	20	61	0.1	31	16	3	95	44	LH trib Blackwater Riv. o/c Dolomite.			
34994	OC	g/s						3	<1	4	40.1	140	2	2	44	44	Above locality Dolomite.			

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE GL1/77. No. 934801 - 934822 Sample numbers 934801 - 934822 Collected by M. LAAN. Sheet no. 12/5/82
 Area / Prospect RECONNAISSANCE Date 12/5/82
 Map / Photo reference SANDY CAPE 1:100 000 TOPO SHEET. Analysed by ANITA MBS COOGE. DPO no. 30084

Sample No.	Type	ss channel **						Carbon ToPo /10	Metal content ppm or %								Grid ref	Geological Observations		
		ss*	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ag	Ni	Co	As			Sn	W
		oc	o/c sample type ***																	
		f	s sample type ****																	
934801	SS	S-M	2		✓			3	115	3	190	20.1	105	51	21	5	5	LH trib EIKBERG CK. No 9c Float: basic volcanics. ✓		
934802	SS	0	0.5		✓			3	150	7	145	0.11	98	50	2	45	44	RH trib EIKBERG CK. No 9c Float: basic volcanics. ✓		
934803	SS	S-M	2		✓			3	106	9	170	20.1	110	43	3	4	44	LH trib CHESTER CK. No 9c Float: basic volcanics. ✓		
934804	SS	0	0.5		✓			2	39	3	85	0.1	59	26	4	44	44	RH trib CHESTER CK. No 9c Float: basic volcanics. ✓		
934805	SS	S	3	✓	✓			2	72	2	86	20.1	54	23	21	44	44	EIKBERG CK. No 9c Float: quartz. ✓		
934806	SS	S	2	✓				2	89	7	95	20.1	65	27	2	92	44	CHESTER CK. No 9c Float: quartz. ✓		
934807	SS	S-M	1.5		✓			8	20	7	200	20.1	225	66	3	24	44	LANGFORD CK. No 9c Float: basic volcanic tuff? ✓		
934808	SS	S	1.5	✓	✓			2	7	3	47	0.1	47	12	1	18	44	VICTOR CK. No 9c Float quartz. ✓		
934808 ^B	SS	S	1.5	✓	✓			2	16	5	76	20.1	72	19	3	32	4	VICTOR CK. - above quarry. - Same locality as above. ✓		
934809	SS	S	1	✓	✓			2	7	4	250	20.1	79	68	2	186	44	LH trib SALMON R. No 9c No float. ✓		
934810	SS	S	3.0	✓	✓			2	5	1	68	20.1	43	15	1	19	44	RH trib SALMON R. No 9c No float. ✓		
934811	SS	S	1		✓			8	32	7	160	20.1	220	36	4	44	44	LH trib LANGFORD CK. No 9c Float: basic volcanics. ✓		
934812	SS	S	2.5		✓			3	2	2	20	0.1	11	3	21	17	44	HOME CK. 9c Dolomite. ✓		
934813	SS	M	3.0		✓			3	6	4	80	0.1	49	18	1	14	44	SALMON R. (above HOME CK). 9c Dolomite. ✓		
934814	SS	M	1.0		✓			5	30	7	125	0.1	180	39	4	44	44	SALMON R. E of Leruma rd. 9c basic volcanics. ✓		
934815	SS	M	1.5		✓			5	52	10	145	20.1	355	47	6	44	44	LANGFORD CK. 9c basic volcanics. ✓		
934816	SS	0	1.5	✓				1	38	10	140	20.1	270	24	4	44	44	RH trib SALMON R. No 9c No float. ✓		
934817	SS	M	2		✓			3	7	2	57	0.11	35	12	1	139	44	RH trib HAWKES CK. No 9c Float quartz. ✓		
934818	SS	M	2.5		✓			2	8	3	77	20.1	43	14	3	164	44	RH trib HAWKES CK. - UPPER No 9c Float quartz. ✓		
934819	SS	M	1.5		✓			3	8	4	48	0.2	33	18	4	18	44	LH trib HAWKES CK. LOWER. 9c Dolomite. ✓		
934820	SS	S	3	✓	✓			2	3	2	26	20.1	15	8	1	104	44	LOVELL CK. No 9c Float quartz. ✓		
934821	SS	S	2.5		✓			3	3	2	40	0.1	20	3	2	99	44	HOME CK. No 9c Float Dolomite. ✓		
934822	SS	S	1	✓				1	2	21	14	0.1	9	2	1	53	44	RH trib LOVELL CK. 9c Dolomite. ✓		

* Sample type ss = stream sediment oc = outcrop f = float s = soil
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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL 1/77 No. Sample numbers 934823 - 934839 Collected by N. LAMM Sheet no.
 Area / Prospect RECONNAISSANCE Date 12/5/82
 Map / Photo reference SANDY CAPE 1:100 000 TOPO SHEET Analysed by ANALYSIS CODEE DPO no. 30084

Sample No.	Type	ss channel **						Carbon Total /10	Metal content ppm or %										Grid ref	Geological Observations
		ss*	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ag	Ni	Co	As	Sm	W		
		oc	o/c sample type ***																	
		f	s sample type ****																	
34823	SS	S-M	3		✓			4	12	4	120	20.1	68	33	4	92	5		SALMON R. 9c Volcanics + Shale.	✓
34824	SS	S	1		✓			2	2	<1	18	0.1	8	3	<1	24	24		ADELAIDE CK. 9c Slates + Shales.	✓
34825	SS	S	1		✓			3	4	2	26	<0.1	10	3	1	100	6		LH trib Arthur R. 9c Shales, float shale + quartz.	✓
34826	SS	O	0.5	✓	✓			2	5	4	18	0.2	8	3	<1	11	24		LH trib ARTHUR R. No 9c float quartz.	✓
34827	SS	O	0.5		✓			4	3	<1	10	0.1	9	<1	<1	131	4		LH trib. No 9c float shales.	✓
34828	SS	O	0.5		✓			3	2	1	7	0.1	6	<1	<1	22	24		LH trib float quartz.	✓
34829	SS	O	0.5		✓			3	2	2	7	<0.1	5	<1	<1	4	24		RH trib WARRA CK. 9c Shales.	✓
34830	SS	O	1	✓	✓			2	2	<1	5	<0.1	6	<1	<1	28	24		WARRA CK. No 9c float quartz.	✓
34831	SS	S	1		✓			6	4	2	10	<0.1	8	<1	1	24	24		LH trib SALMON R. o/c Black Shales.	✓
34832	SS	S	10	✓	✓			5	19	6	61	<0.1	45	17	2	35	24		SALMON R. 9c Black Shale.	✓
34833	SS	S	1.5		✓			4	3	3	8	0.1	9	<1	1	24	24		LH trib SALMON R. No 9c float quartz.	✓
34834	SS	S-M	6		✓			8	41	5	58	<0.1	37	16	1	79	4		SALMON R. 9c Slates + Shales.	✓
34835	SS	O	0.5		✓			8	3	3	11	<0.1	8	<1	<1	24	24		LH trib Salmon R. No 9c float quartz	✓
34836	SS	O	4.0		✓			8	10	6	20	<0.1	11	4	1	24	24		LH trib SALMON R. No 9c float quartzite.	✓
34837	SS	O	0.5	✓	✓			2	11	5	54	<0.1	44	13	1	24	24		LH trib HAWKES CK. No 9c No float.	✓
34838	SS	S	1.5	✓	✓			2	3	1	20	<0.1	10	5	1	45	24		LOVELL CK. No float.	✓
34839	SS	S	1.0		✓			9	37	8	165	<0.1	250	115	7	24	24		RH trib LANGFORDS CK. No 9c float: basic volcanics.	✓

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LOG

Tenement name Rocky Cape EL1177 No. 934951 - 934972 Sample numbers 934951 - 934972 Collected by G. Morley Sheet no. 14/4/82
 Area / Prospect DODDS CK. Date 14/4/82
 Map / Photo reference ARTHUR RIVER 1:100 000 SHEET. Analysed by ANALABS COFFE DPO no. 30082
30085

Sample No.	Type	ss channel **						Carbon To/To 10	Metal content ppm or %								Grid ref	Geological Observations	
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Ni	Co	As	Sn			W
		o/c sample type ***																	
		s sample type ****																	
934951	SS	v.s.	1	✓				3	9	19	56	0.2	17	12	1	9	44	RH trib Dadds CK. above road. No o/c float: white Dolomite. ✓	
934952	f								12	4	8	0.1	242	6	2	44	44	Above locality float: white Dolomite.	
934953	SS	s.	2	✓				3	16	10	34	0.2	15	15	13	44	40	RH trib Dadds CK. nr. junction. No o/c float: white Dolomite. ✓	
934954	f								12	28	85	<0.1	37	78	12	44	44	Above locality white Dolomite float.	
934955	SS	m	2	✓				1	6	8	42	<0.1	15	11	1	44	8	RH trib Dadds CK. No o/c float: green banded siltstone. ✓	
934956	f								8	10	81	0.1	179	18	1	44	44	Above locality float: green banded siltstone.	
934957	SS	m	2	✓				1	5	7	48	0.2	17	11	41	44	44	RH trib Dadds CK. float: green banded siltstone. ✓	
934958	f								9	11	109	0.2	149	21	4	44	44	Above locality green banded siltstone.	
934959	SS	m	3	✓				2	6	10	49	0.1	18	13	1	5	44	Dadds CK. above road. o/c green banded siltstone. ✓	
934960	OC	g/s							6	4	56	<0.1	49	15	1	44	44	Above locality green banded siltstone.	
934961	SS	m	1	✓				2	4	4	9	0.2	9	5	3	10	44	RH trib Dadds CK. o/c Black pyritic Shales. ✓	
934962	OC	g/s							12	7	15	0.3	54	20	18	44	44	Above locality Black pyritic Shales.	
934963	SS	m	4	✓				1	9	10	24	0.3	19	7	7	44	44	Dadds CK. o/c Black pyritic Shales. ✓	
934964	OC	g/s							30	9	30	0.3	46	13	14	44	44	Above locality Black pyritic Shale.	
934965	SS	m	1	✓				4	29	16	19	0.3	16	7	15	44	4	RH trib Dadds CK. o/c Black pyritic Shale. ✓	
934966	OC	g/s							8	21	18	0.3	30	7	39	44	44	Above locality Black pyritic Shale.	
934967	SS	m	4	✓				3	8	9	24	0.2	16	8	6	44	44	Dadds CK. o/c Black pyritic Shale. ✓	
934968	OC	g/s							6	27	10	0.4	35	6	28	44	44	Above locality Black pyritic Shale.	
934969	SS		4	✓				2	9	11	31	0.2	18	9	6	44	44	Dadds CK. Black pyritic Shale. ✓	
934970	OC	g/s							3	3	12	0.1	27	7	2	44	44	Above locality Black pyritic Shale.	
934971	SS	s	2	✓				2	4	5	10	0.2	13	11	12	44	5	RH trib Dadds CK. Black pyritic Shale. ✓	
934972	OC	g/s							5	6	99	<0.1	47	42	99	44	4	Above locality Black pyritic Shale.	

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R. PLORATION . GEOCHEMICAL SAMPLING GER

Tenement name ROCKY CAPE ELI/77 No. Sample numbers 934600 Collected by B. MOWLEY Sheet no. _____
 Area / Prospect Sumac Rivulet 934903 - 934909 Date 14/4/82
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET. 934941 - 934950 Analysed by ANALABS COOEE DPO no. 30082
 A 02143 _____ 30085

Sample No.	Type	ss channel **						Carbon Type	Metal content ppm or %								Grid ref	Geological Observations		
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Sn	W	Au	Co			Ni	As
		o/c sample type ***																		
		s sample type ****																		
934600	S.S.	S	2	✓			1	4	6	21	0.2	24	24		5	11	<1	403410.	L/H FORK INTO LAMPREY CREEK. ✓	
934903	F.	S	2	✓			1	3	8	13	<0.1	5	24		6	56	1	403410.	FLOAT CONTAINS PYRITIC CHERT. ✓	
934904	S.S.	S-m	3	✓			1	4	7	21	0.2	24	24		8	11	<1	401409.	R/H FORK LAMPREY CREEK. ✓	
934905	F.	S-m	3	✓			1	7	6	15	0.2	24	24		7	29	6	401409.	FLOAT CONTAINS CHERTS. ✓	
934906	S.S.	S	1	✓			1	3	3	16	0.1	24	24		3	9	<0.1	374384	L/H trib Sumac Riv. No 9c float quartzite. ✓	
934907	F.							4	6	4	0.1	24	24		2	160	1	374384	float: Quartzite. above locality ✓	
934908	S.S.	S	2	✓			1	4	7	15	0.1	24	14		3	8	<1	372383	R/H trib Sumac Riv. float Dolomite ✓	
934909	F.							4	1	3	0.1	24	24		2	202	<1	372383	above locality float Dolomite ✓	
934941	S.S.	m	3	✓	✓		1	21	10	137	0.2	24	4		29	59	1	554380.	L/H trib Sumac Riv. float Dolomite ✓	
934942	F.							9	6	65	0.2	24	24		21	141	2	354380	above locality float Dolomite ✓	
934943	S.S.	m	4	✓	✓		1	53	10	219	0.2	24	24		45	76	1	353383	R/H trib Sumac Riv. float Dolomite ✓	
934944	F.							440	9	90	0.3	6	24		38	68	2	353383	above locality float Dolomite. ✓	
934945	S.S.	S	1.5	✓	✓		1	4	5	11	<0.1	24	24		4	7	1	361381	L/H trib Sumac Riv. float Dolomite. ✓	
934946	F.							11	7	29	0.2	24	24		9	328	5	361381	above locality Dolomite ✓	
934947	S.S.	S	1	✓	-			6	15	17	<0.1	4	6		4	14	4	365381	L/H trib Sumac Riv. float Dolomite ✓	
934948	F.							5	2	4	<0.1	24	10		4	297	1	365381	above locality Dolomite. ✓	
934949	S.S.	S	1		✓		3	4	10	17	0.1	24	4		7	12	<1	366373	R/H trib Sumac Riv. float Dolomite ✓	
934950	F.							2	4	17	0.2	24	6		7	32	<1	366373.	above locality Dolomite. ✓	

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R. PLORATION . GEOCHEMICAL SAMPLING GER

Tenement name ROCKY CAPE ELIOTT No. Sample numbers 934554 - 934576 Collected by B. Motley Sheet no.
 Area / Prospect N. of Arthur R. Date 29/3/82
 Map / Photo reference ARTHUR RIVER 1:100 000 Topo sheet. Analysed by ANALABS COBEE DPO no. 30082
 A 02143

064

Sample No.	Type	ss channel **						Carbon Topo	Metal content ppm or %							Grid ref	Geological Observations				
		ss*	fl	wi	al	co	ca		ph	Cu	Pb	Zn	Ag	Sn	W			Au	Co	Ni	As
		oc	o/c sample type ***																		
		f	s sample type ****																		
934554	S.S.	S	1/2m	✓				6	13	10	23	X	44	44	3	9	1	410486	W/SANDSTONES & QUARTZITES. N/4 TRIB OF ARTHUR		
934555	F.	S	1.5m	✓				6	16	6	8	X	44	44	8	250	X	410486	W/SANDSTONES & QUARTZITES. N/4 TRIB OF ARTHUR.		
934556	S.S.	DRY	1.0	✓				1-2	9	5	11	X	44	44	3	11	2	422503	W/SANDSTONE & QUARTZITES. N/4 TRIB OF ARTHUR		
934557	F.	DRY	1.0	✓				1-2	9	22	9	X	44	44	7	74	4	422503	W/SANDSTONE & QUARTZITES. N/4 TRIB OF ARTHUR		
934558	S.S.	S	3.0	✓				2	19	12	37	X	44	4	15	15	5	420505	QUARTZITES. N/4 TRIB OF ARTHUR.		
934559	F.	S	3.0	✓				2	7	13	35	X	44	44	21	41	6	420505	QUARTZITES. N/4 TRIB OF ARTHUR.		
934560	S.S.	m	5.0	✓				2	81	12	119	X	44	44	28	42	11	420507	QUARTZITES. N/4 TRIB OF ARTHUR. ✓		
934561	F.	m	5.0	✓				2	6	4	11	X	44	44	7	9	4	420507	QUARTZITES. N/4 TRIB OF ARTHUR.		
934562	S.S.	m	2-3	✓				3	10	14	17	X	44	44	9	240	4	425510	QUARTZITES. N/4 TRIB OF ARTHUR ✓		
934563	F.	m	2.3	✓				3	6	6	41	0.1	44	44	9	39	13	425510	QUARTZITES. N/4 TRIB OF ARTHUR		
934564	F.	m	2-3	✓				3	9	47	8	X	44	5	14	68	2	425506	GOSSAN, SAME AREA AS ABOVE.		
934565	S.S.	DRY TRACT	2.	✓				2	6	5	21	X	44	44	3	14	4	412471	N/4 TRIB OF ARTHUR OPP JOY CRK. ✓		
934566	F.	DRY TRACT	2.	✓				2	3	5	18	X	44	44	3	89	1	412471	FLOAT CONTAINS CHERT/QUARTZ.		
934567	S.S.	m	3	✓				4	6	5	19	0.1	30	44	3	18	X	416480	N/4 TRIB OF ARTHUR WITH FLOAT CON- ✓		
934568	F.	m	3	✓				4	154	12	4150	X	44	44	450	860	91	416480	TAINING GOSSANOUS IRON RICH ROCK.		
934569	S.S.	S	1.5	✓				3	4	8	83	X	44	44	5	14	6	401450	SUMAC SPR 3-1 ✓		
934570	F.	S	1.5	✓				3	5	8	14	X	44	7	5	240	2	401450	FLOAT CONTAINS CHERT/QUARTZ		
934571	S.S.	S-m	1.5	✓				2	5	7	19	X	44	44	6	13	4	390448	SUMAC SPR 3 N/4 TRIB INTO ARTHUR. ✓		
934572	F.	S-m	1.5	✓				2	13	9	12	0.1	44	44	9	280	7	390448	FLOAT CONTAIN CHERT/QUARTZITES, SLIGHTLY MANGANESEOUS.		
934573	S.S.	S	2	✓				2	19	195	230	0.4	44	44	2	8	7	365445	N/4 SIDE OF JUNCTION ON WHEATS CRK ✓		
934574	F.	S	2	✓				2	11	5	5	X	44	4	7	280	X	365445	FLOAT CONTAINS CHERT/DOL.		
934575	S.S.								7	4	29	X	44	44	5	19	X	368444	N/4 SIDE OF JUNCTION WHEATS CRK ✓		
934576	F.								7	15	6	X	44	44	4	200	1	368444	FLOAT CONTAINS CHERT/DOL & QUARTZITE.		

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 **** Soil sample type auger hole or pit depth m A, B or C horizon

Tenement name... ROCKY CAPE EL1/77

C.R. EXPLORATION . GEOCHEMICAL SAMPLE LOG

730066

Area / Prospect... Sumac Riv. + Julius R.

No. Sample numbers... 934577 - 934599

Collected by... B. Morley

Sheet no. 29/3/82

Map / Photo reference... ARTHUR RIVER 1:100 000 TOPO SHEET.

Analysed by... ANALABS COOEE

DPO no. 30082

A 02143

30085

065

Sample No.	Type	ss channel **							Carbon Topo	Metal content ppm or %										Grid ref	Geological Observations			
		fl	wi	al	co	ca	pH	Cu		Pb	Zn	Ag	Sn	W	Au	Co	Ni	As						
		o/c sample type ***																						
		s sample type ****																						
934577	S.S.	S	3-4	✓				1	8	8	580	X	24	24	107	480	89	375406	R/H FORK SUMAC RIVULET					
934578	F.	S	3-4	✓				1	7	12	290	X	24	24	64	190	55	375406	CHERT/DOL.					
934579	S.S.	m	5-6	✓				1	17	12	97	X	24	24	21	46	7	375405	L/H FORK SUMAC RIVULET.					
934580	F.	m	5-6	✓				1	11	10	55	0.1	24	24	17	136	7	375405	CHERT/DOL.					
934581	S.S.	m	3	✓				1	6	7	23	X	24	5	7	17	2	372390	L/H FORK OF SUMAC RIVULET APPROX 1.5 KM UP FROM BRIDGE.					
934582	F.	m	3	✓				1	12	21	12	0.2	24	24	8	145	X	372390	FLOAT CONTAINS CHERT/DOL.					
934583	S.S.	m	3	✓				1	27	12	97	0.1	24	24	21	46	X	370390	R/H FORK OF SUMAC RIVULET APPROX 1.5 KM UP FROM BRIDGE.					
934584	F.	m	3	✓				1	23	21	45	0.1	24	24	18	155	5	370390	FLOAT CONTAINS CHERT/DOL.					
934585	S.S.	S	1.5	✓				1-2	65	14	270	0.1	24	24	57	260	6	371400	R/H TRIB SUMAC RIVULET ABOUT 1 KM FROM BRIDGE.					
934586	F.	S	1.5	✓				1-2	59	40	115	X	24	24	22	55	9	371400	FLOAT CONTAINS PYRITIC CHERT.					
934587	F.								12	25	21	0.1	24	6	9	21	6	371400	BLACK SAND } R/H TRIB SUMAC Riv.					
934588	F.								11	8	43	X	24	24	11	35	8	371400	PYRITIC VOLCANIC.					
934589	S.S.	m	3	✓				1	31	11	161	0.1	24	24	48	110	3	331401	TOP JULIUS RIVER AT SECOND L/H FAN R/H FORK.					
934590	F.	m	3	✓				1	14	4	70	0.2	24	24	36	380	12	331401	FLOAT CONTAINS COSSANOUS CHERT.					
934591	S.S.	S	2	✓				2-3	5	8	25	0.2	24	24	16	15	2	333401	TOP JULIUS RIVER ABOVE SECOND L/H FAN R/H FORK.					
934592	F.	S	2	✓				2-3	4	2	9	0.1	24	24	7	150	21	333401	FLOAT CONTAINS CHERT/DOL.					
934593	S.S.	S	1.5	✓				3	7	10	69	0.2	24	24	8	18	2	340410	L/H TRIB COMING INTO JULIUS RIVER					
934594	F.	S	1.5	✓				3	10	13	18	0.1	24	24	17	26	2	340410	FLOAT CONTAINS CHERT/DOL.					
934595	S.S.	m-f	5	✓				1	16	14	116	0.3	24	24	20	37	4	390414	SUMAC RIVULET BELOW BRIDGE.					
934596	F.	m-f	5	✓				1	14	2	13	0.2	24	24	7	520	2	390414	FLOAT CONTAINS CHERT/DOL.					
934597	S.S.	m	1.5	✓				1	4	7	30	0.1	24	24	8	11	1	391411	CREEK FLOWING INTO SUMAC ON R/H SIDE BELOW BRIDGE.					
934598	F.	m.	1.5	✓				1	10	2	21	0.1	24	24	14	375	2	391411	FLOAT CONTAINS CHERT/DOL.					
934599	O/C.								15	4	9	0.1	24	24	6	106	28	388410	O/C TAKE 1 KM S/E OF SUMAC BRIDGE. COSSANOUS CHERT BRACCON.					

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL 1/77 No. Sample numbers 934610 - 934632 Collected by B. MORLEY Sheet no.
 Area / Prospect STEPHENS RIVULET. Date 15/3/82
 Map / Photo reference SANDY CAPE 1:100,000 Topo SHEET. Analysed by ANALABS, COOEE. DPO no. 30076

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		ss *	fl	wi	al	co	ca		pH	Cu	Pb	Zn	Ni	Co	Ag	As	Sn	W		
		oc	o/c sample type ***																	
		f	s sample type ****																	
4610	SS								69	10	190	100	52	20.1	5	24	24		RH TMB KEPPLE CK.	✓
34611	SS								78	8	190	110	46	20.1	6	24	24		LH TMB KEPPLE CK.	✓
34612	SS								56	11	180	120	47	20.1	9	24	24		RH TMB KEPPLE CK	✓
34613	SS								50	11	200	140	52	20.1	8	24	24		KEPPLE CK.	✓
34614	SS								24	6	120	66	21	20.1	4	24	24		RH TMB KEPPLE CK.	✓
34615	SS								56	9	190	100	41	20.1	6	4	24		KEPPLE CK.	✓
34616	SS								70	8	190	110	47	20.1	8	24	24		LH TMB STEPHENS RVT.	✓
34617	SS								66	11	180	110	43	20.1	5	24	24		LH TMB STEPHENS RVT.	✓
34618	SS								65	9	160	89	43	0.1	4	24	24		STEPHENS RVT.	✓
34619	SS								31	6	120	71	35	20.1	3	24	24		BLACKWATER RVT.	✓
34620	SS								9	3	26	24	11	0.1	1	25	24		RH TMB BLACKWATER RVT.	✓
34621	SS								15	78	170	27	9	0.2	4	95	24		RH TMB BLACKWATER RVT.	✓
34622	SS								67	70	240	85	37	0.2	8	19	24		STEPHENS RVT.	✓
34623	SS								120	12	210	100	51	20.1	2	24	24		STEPHENS RVT.	✓
34624	SS								100	9	170	98	73	20.1	3	24	24		LH TRIB STEPHENS RVT	✓
34625	SS								97	9	230	120	53	0.1	6	24	24		LH TRIB STEPHENS RVT.	✓
34626	SS								120	9	230	110	57	20.1	4	24	24		LH TRIB STEPHENS RVT.	✓
34627	SS								140	110	460	120	59	0.2	5	24	24		STEPHENS RVT.	✓
34628	SS								180	440	1000	260	130	1.2	21	24	24		RH TMB STEPHENS RVT.	✓
34629	SS								28	11	110	65	31	0.1	5	24	24		RH TMB STEPHENS RVT.	✓
34630	SS								180	9	280	150	57	20.1	1	24	24		RH TMB STEPHENS RVT.	✓
34631	SS								63	14	300	260	71	20.1	4	24	24		RH TMB STEPHENS RVT.	✓
34632	SS								54	7	140	72	34	0.1	3	24	24		STEPHENS RVT.	✓

066

* Sample type ss = stream sediment oc = outcrop f = float s = soil
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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CREEK EL 1/77 No. 934451 - 934474 Sample numbers 934451 - 934474 Collected by D.J. WEIR Sheet no. 1
B. MORLEY Date 23 Feb 1982
 Area / Prospect TROWUTTA AREA
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET Analysed by ANNAISS COFFE DPO no. 30074

Sample No.	Type	ss channel **						Top Carbon %	Metal content ppm or %								Grid ref	Geological Observations	
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Ag	As	Sn			W
		o/c sample type ***																	
		s sample type ****																	
934451	SS.	0	2		✓			2	50	25	85	55	52	0.1	4	45	44	LH Trib Roger R. Poor site. No % No float. Urban contam? ✓	
934452	SS.	2	2	✓	✓			2	91	9	150	90	49	20.1	3	5	24	Roger R. No % No float. ✓	
934453	SS	2	4	✓	✓			2	87	7	170	89	51	20.1	2	24	24	ROGER R. No % No float. ✓	
934454	SS.	0	0.5	✓				2	54	4	55	44	19	0.1	1	24	24	LH Trib ROGER R. No %/float. Drain? Organic rich sediment. ✓	
934455	Ss	0	1	✓	✓			2	66	7	80	53	23	20.1	2	24	24	LH Trib ROGER R. No %/float. Poor site. ✓ ✓ Organic.	
934456	SS	3	3		✓			3	100	10	190	120	65	20.1	4	24	24	ROGER R. % + float: Basalt. ✓	
934457	OC	g/s							31	17	130	71	40	20.1	3	40	24	Above locality: Basalt. ✓	
934458	SS	2	2		✓			3	130	17	240	180	67	20.1	3	5	24	MONTAGU R.: No % float: Basalt. ✓	
934459	SS	1.5	3	✓	✓			2	120	14	200	160	52	20.1	4	24	24	SPINKS CR. No %/float. ✓ CAHM Contamination.	
934460	SS.	0.5	1		✓			2	76	17	180	190	56	20.1	3	24	24	GREENES CR. No % float: Basalt ✓	
934461	SS	0.5	1	✓	✓			3	98	24	170	130	51	20.1	4	11	24	LH. Trib WILLIAMSONS CR. No % float Basalt. ✓	
934462	SS.	0	2	✓	✓			3	75	13	85	85	28	20.1	6	24	24	RH Trib FAHEY'S CR. No %/float. ✓ Poor site: ORGANIC Basalt in Roadcutting	
934463	SS	0	5	✓				3	44	7	180	120	44	20.1	13	24	24	LH TRIB FAHEY'S CR No % float: Basalt. ✓ Swampy	
934464	SS	0.5	1		✓			4	61	12	180	140	67	0.1	17	24	24	FAHEY'S CR: % Brown Siltstone. ✓	
934465	OC	g/s							46	42	88	45	11	20.1	22	4	24	Above locality: Brown Siltstone. ✓	
934466	SS	1	2		✓			5	120	7	190	110	65	20.1	6	24	24	LH TRIB McDONALDS CR. No % float: Basalt Mod Mn Stng. ✓	
934467	SS	1	2		✓			4	170	3	130	97	71	20.1	2	24	24	RH Trib McDONALDS CR. % + float: weathered Amygdaloidal basalt + minor related Tuff. ✓	
934468	OC	g/s							110	10	230	130	62	20.1	2	24	24	Above locality: gully, sparsely Tuff. ✓	
934469	SS	1.5	2		✓			3	140	6	160	150	69	20.1	2	24	24	LH TRIB WILLIAMSONS CR. No % float: Basalt. ✓	
934470	SS	0.5	1		✓			4	92	18	310	340	58	20.1	5	24	24	WILLIAMSONS CR. No % float: Basalt. ✓	
934471	SS	0.5	2	✓	✓			4	160	8	120	120	90	20.1	4	24	24	LH TRIB WILLIAMSONS CR. No % float: Basalt. ✓	
934472	SS	2	4		✓			3	72	9	260	220	62	20.1	12	24	24	RH TRIB SPINKS CR. % + g. brown Tuff ✓ 2 mm clasts.	
934474	OC	g/s							110	13	190	210	47	20.1	2	24	24	Above locality: 7-9 brown Tuff. 2 clasts. ✓	

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C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Cape EL177 No. 934473 - 934496 Sample numbers 934473 - 934496 Collected by D.J. WEIR Sheet no. 2
 Area / Prospect TROWUTTA AREA. Date 23/2/82
 Map / Photo reference ACTIVK R. 1:100,000 SITEET. Analysed by ANALABS COOEE DPO no. 30074

Sample No.	Type	ss channel **						Carbon 10% /10	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Ag	As	Sn	W			
		o/c sample type ***																		
		s sample type ****																		
34473 x	SS.	1.5	1.5	✓	✓			3	99	7	210	200	54	20.1	6	5	24		LH TRIB SPINKS CR. No etc Float: Basalt.	
34475 x	SS	0.5	0.5		✓			4	91	10	150	150	38	20.1	8	24	24		DRY DOG CR. etc + Float: Basalt. minor Purple mudstone float on road track ✓	
34476 x	SS	0	1		✓			3	78	13	94	64	26	20.1	15	6	24		LH TRIB SPINKS CR. No etc No float V. Boggy ✓	
34477 x	SS	2	2		✓			4	160	4	210	95	53	20.1	2	24	24		LH Trib ROGER R. etc + Float: Basalt. ✓	
34478	OC	g/s.							100	10	130	83	48	20.1	2	24	24		Above locality: Basalt.	
34479 x	SS	5	7		✓			5	84	8	220	130	64	20.1	5	24	24		ROGER R. etc + Float Basalt. ✓	
34480 x	SS	2	3		✓			4	130	4	230	120	90	20.1	2	24	24		LH Trib ROGER R. etc + Float Basalt. ✓	
34481 x	SS	0.5	3		✓			3	70	7	250	190	53	20.1	9	12	24		LH Trib ROGER R. etc Creamy brown siltstone. ✓	
34482	OC	g/s.							58	15	63	120	26	20.1	17	24	24		Above locality Creamy brown siltstone.	
34483 x	SS.	1	2	✓	✓			3	100	6	180	170	75	20.1	6	24	24		LH Trib ROGER R. etc. Amygdaloidal basalt Float: siltstone + Basalt. ✓	
34484 x	S.S.	1.5	3	✓	✓			3	69	6	270	190	49	20.1	7	8	24		Polanski CR. No etc. Float Basalt + siltstone ✓	
34485 x	S.S.	0.5	1		✓			4	140	3	160	150	180	20.1	2	24	24		LH Trib ROGER R. etc + Float Basalt. Mn Stng. Cattle contam. ✓	
34486 x	S.S.	1	3		✓			4	130	4	200	130	130	20.1	2	24	24		RH Trib ROGER R. etc + Float Basalt. Mn Stng. ✓	
34487 x	SS.	1.5	6	✓	✓			3	36	6	130	59	43	20.1	5	24	24		ROGER R. No etc. Float: Basalt. Mn Stng. ✓	
34488 x	S.S.	1.5	2	✓	✓			3	130	5	200	190	55	20.1	6	24	24		WITELANS CR. No etc. Float Basalt + Hematitic nodules. Mn Stng. ✓	
34489	f								130	6	150	110	50	20.1	2	24	24		Above locality: Basalt	
34490 x	S.S.	2	5		✓			3	39	9	94	71	27	20.1	4	24	24		DUCIE CR. etc f.g. banded brown Tuff. minor Mn Stng. ✓	
34491	OC	g/s							130	8	130	220	47	20.1	2	6	24		above locality: brown, banded Tuff.	
34492 x	SS	0.5	1		✓			6	95	14	230	150	70	20.1	15	24	24		etc + Float. grey-black mudstone. ✓	
34493	OC	g/s							30	18	57	67	27	20.1	5	24	24		above locality: grey-black mudstones	
34494 x	SS	0.5	3	✓				3	11	5	53	26	13	20.1	2	24	24		EANNON CR. etc. pale grey siltstone - mudstone. float chest. ✓	
34495	OC	g/s							8	7	35	37	13	20.1	21	24	24		Above locality pale grey siltstone - mudstone.	
34496	f								4	8	22	170	7	0.1	1	24	24		above locality chest. ✓	

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C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL1/77 No. 934497 - 934502 Sample numbers 934601 - 934609 Collected by DJ. WEIR Sheet no. 3
 Area / Prospect TROWUTTA AREA Date 23/2/82
 Map / Photo reference ARTHUR R. 1:100 000 TOPO SHEET Analysed by ANNALS CODEC DPO no. 30074
30076

Sample No.	Type	ss channel **						Carbon ToFO /10	Metal content ppm or %								Grid ref	Geological Observations	
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Ag	As	Sn			W
		o/c sample type ***																	
		s sample type ****																	
934497	SSx	0	3	✓	✓			2	9	3	30	17	4	20.1	1	24	24		LH TRIB ROGER R. No 9c No float. Cattle Contamination. ✓
934498	SSx	0.5	3	✓					26	8	130	66	37	20.1	5	24	24		RH TRIB ROGER R. No 9c, No float. Marshy site. Cattle contain. ✓
934499	f.								8	9	74	74	23	20.1	45	24	24		above locality. adjacent field. Pisolithic Gossan - burnt dinner?? by Sawmill.
934500	9c	9/5							28	23	79	71	16	20.1	2	24	24		grey-black mudstones.
934501	SSx	1	3		✓			3	13	8	96	42	23	0.3	4	24	24		BOUNDARY CK. No 9c float: chert. ✓
934502	S.Sx	0.5	2	✓	✓			2	59	9	130	120	23	20.1	2	5	24		DOBSONS CK. No 9c Basalt. v. boggy. ✓
934601	SSx								15	12	54	29	16	0.1	7	13	24		DUCK RIVER. ✓
934602	SSx								11	12	37	22	9	20.1	5	24	24		LAIKBE CK. ✓
934603	SSx								52	14	160	120	45	20.1	11	130	24		FAMEYS CK. ✓
934604	RC	9/5							19	10	200	45	48	20.1	5	24	24		Gossan float in Paddock. ✓
934605	SSx								79	11	230	250	85	20.1	7	24	24		RH TRIB DUCK R. ✓
934606	SSx								41	13	130	73	39	0.1	6	24	24		DUCK R. ✓
934607	SSx								83	12	130	76	45	20.1	3	24	24		DOBSONS CK. ✓
934608	SSx								31	9	140	99	37	20.1	7	6	24		BOUNDARY CK. ✓
934609	SSx								43	12	62	73	35	20.1	2	24	24		NOLAN CK. ✓

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name LEIGH R. EL 12/80 No. 934440 - 934443 Sample numbers 934440 - 934443 Collected by Kent Wood, D. Steward Sheet no. 5
 Area / Prospect LEIGH R - HORTON R. Date 23/2/82
 Map / Photo reference ARTHUR R 1:100,000 Sheet Analysed by ANAGAS COOKE DPO no. 30075

Sample No.	Type	ss channel **						Carbon Top% /10	Metal content ppm or %							Grid ref	Geological Observations			
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag			Bi	Sn	W
		o/c sample type ***																		
		s sample type ****																		
934440	SS x	0.5	6	✓	✓		2	9	6	19	18	4	3	0.1	n.a	23	24	LH Tnb HORTON R. No fl. No float. ✓		
934441	NO	SAMPLE																		
934442	SS x	0.5	1	✓	✓		2	10	5	20	13	3	3	20.1	n	23	11	24-703. LH Tnb HORTON R. o/c Dirty grey quartz - M'g'wacke. ✓		
934443	oc	g/s						3	11	22	30	4	7	20.1	n	23	24	Above locality Dirty-grey quartz - M'g'wacke.		

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 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name LEIGH RIVER EL 12/80 No. 934417 - 934439 Sample numbers 934417 - 934439 Collected by Kent Wood, D. St. Herd Sheet no. 4

Area / Prospect LEIGH R - HORTON R. Date 23/2/82

Map / Photo reference ARTHUR R. 1:100 000 Topo SHEET Analysed by ANALABS COOKE DPO no. 30075

Sample No.	Type	ss channel **						Carbon Total /10	Metal content ppm or %											Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag	Bi	Sn	W			
		o/c sample type ***																			
		s sample type ****																			
934417	f							11	14	66	62	9	5	<0.1	n.a.	<3	<4		Above locality: grey shales.		
934418 x	SS+	3	15		✓			6	14	17	81	27	7	4	0.1	n	<3	<4		HORTON R.: 9c Black Pyritic Shales. ✓	
934419	OC	9/5						65	36	96	120	19	49	<0.1	n	<3	<4		Above locality Black Pyritic Shales.		
934420 x	SS.	4	10		✓			4	48	18	92	31	7	11	0.1	n	<3	<4		HORTON R.: o/c Black shales. Float: Basalt + minor Tuffs. ✓	
934421	OC	9/5						12	24	39	53	7	25	0.1	n	4	<4		Above locality: Black shales.		
934422 x	SS	0	2		✓			4	20	14	32	31	6	4	0.1	n	<3	<4		LH Tnb HORTON R. 9c Black shale. ✓	
934423	OC	9/5						2	11	12	37	4	4	<0.1	n	6	<4		Above locality Black shale.		
934424 x	SS.	4	10		✓			2	33	15	44	35	7	6	0.1	n	<3	<4		HORTON R.: 9c Black shale. Float: Basalt. ✓	
934425	OC	9/5						14	25	50	54	7	54	0.1	n	<3	<4		Above locality: Black shale.		
934426 x	SS	0	2	✓	✓			2	6	6	12	11	4	3	<0.1	n	<3	<4		LH Tnb HORTON R. No 9c. Float green chlor. Siltstone. ✓	
934427	f							2	6	51	18	8	2	0.1	n	<3	<4		Above locality green chloritic Siltstone.		
934428 x	SS	5	12		✓			2	32	14	57	30	8	4	<0.1	n	<3	<4		HORTON R. 9c Black shale. Float: grey dirty qtzite? ✓	
934429	f							8	9	36	51	4	2	0.1	n	<3	<4		Above locality: grey dirty qtzite - Meta greywacke?		
934430 x	SS	4	10		✓			3	24	12	35	18	3	3	0.1	n	I.S.	<4		HORTON R.: 9c grey dirty qtzite - M'g'wacke? ✓	
934431	OC	9/5						1	12	21	10	2	9	<0.1	n	<3	<4		Above locality: dirty qtzite - M'g'wacke.		
934432 x	SS	4	10		✓			3	5	12	16	12	2	2	<0.1	n	4	4		HORTON R.: No 9c. float: Dirty qtzite. ✓	
934433	f							1	9	36	42	4	2	<0.1	n	<3	<4		Above locality grey dirty qtzite - M'g'wacke.		
934434 x	SS	0	3	✓	✓			3	5	6	13	10	2	1	<0.1	n	<3	5		LH Tnb HORTON R. No 9c or float. ✓	
934435	Bank.							3	9	14	13	3	3	0.1	n	7	<4		Above locality. Bank sample.		
934436 x	SS.	0	6	✓	✓			2	3	8	13	11	3	2	<0.1	n	<3	5		LH Tnb HORTON R. No 9c or float. ✓	
934437	Bank							5	7	17	11	3	3	<0.1	n	6	<4		Above locality. Bank sample.		
934438 x	SS	0	3	✓	✓			2	1	5	11	10	3	2	<0.1	n	<3	4		LH Tnb HORTON R. No 9c Float dirty qtzite - g'wacke. ✓	
934439	f							1	5	26	39	6	2	<0.1	n	<3	<4		Above locality dirty qtzite - M'g'wacke		

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** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type os = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name LEIGH RIVER EL 12/80 No. 934395-934416 Sample numbers 934395-934416 Collected by D.J. WEIR Sheet no. 3
 Area / Prospect LEIGH R - HORTON RIVER Date 10/2/82
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET Analysed by ANALABS, COOKE DPO no. 30072
30073

30076

Sample No.	Type	ss channel **						Carbon Topo /10	Metal content ppm or %											Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag	Bi	Sn	N /Sb			
		o/c sample type ***																			
		s sample type ****																			
934395x	SSx	0	1		✓			3	4	3	25	15	5	2	20.1	n.a.	8	L10 /S5	RH TRIB. LEIGH R. o/c green phyllite. Minor Fe Stng along bedding.		
934396x	SSx	0.5	2		✓			3	9	4	25	11	3	2	0.1	-	8	L10 /L3	LH TRIB LEIGH R. o/c chert in main R. 100m. downstream → volcanics.		
934397	OC	g/s							15	37	17	146	12	130	0.7	-	8	L10 /n.a.	Above locality chert.		
934398x	SSx	0	1		✓			4	9	5	17	9	3	2	0.1	-	L3	L10 /L3	LH TRIB HORTON R. No o/c/float. v. muddy/boggy, more of a seepage.		
934399x	SSx	2	7		✓			3	7	7	27	13	6	3	20.1	-	6	10 /L3	HORTON R. No o/c float green banded siltstone + gels + basalt overlying imbricate gravels 1m thick.		
934400.	OC	g/s							15	5	29	73	7	6	20.1	-	3	L10 /n.a.	Dolomite + chert nodules. Slightly brecciated.		
934401	OC	g/s							18	19	38	55	9	24	0.2	-	6	L10 /n.a.	Black. Ferruginous shales - after pyrite?		
934402	OC	g/s							7	5	17	49	6	6	20.1	-	6	L10 /n.a.	Dolomite + minor chert.		
934403	OC	g/s							15	16	30	45	7	12	20.1	-	3	L10 /n.a.	Black pyritic shales.		
934404	OC	g/s							9	9	17	93	7	4	0.1	-	7	L10 /n.a.	"cherty" rock. brecciated; minor Fe Stng. Chertitic in part.		
934405x	SSx	0	1		✓			3	8	8	42	11	4	2	20.1	-	9	L10 /L3	RH TRIB HORTON R. No o/c/float - boggy.		
934406x	SSx	2	10		✓			4	7	7	24	13	5	2	0.1	-	4	L10 /L3	HORTON R. No o/c float: green banded siltstone/ black shale basalt, Mn Stng.		
934407x	SS	0	3		✓			3	9	2	18	11	3	2	20.1	-	7	10 /7	LH TRIB HORTON R. o/c green banded siltstone float same + triffaceous rock.		
934408x	SS	0	1		✓			3	7	2	24	12	7	2	0.1	-	L3	L10 /3	RH TRIB LEIGH R. No o/c. float: banded green silic. siltstone.		
934409	OC	g/s							9	6	68	57	23	16	20.1	-	5	L10 /L3	green carbonitic siltstone.		
934410x	SS.	3	10		✓			3	7	11	35	14	6	2	20.1	-	8	L10 /L3	LEIGH R o/c green phyllitic siltstone.		
934411x	SS	0	1		✓			3	5	3	17	10	4	2	0.1	-	3	L10 /8	RH TRIB LEIGH R. o/c green phyllitic siltstones.		
934412	OC	g/s							2	9	27	60	4	3	20.1	-	4	L4	TRIAS CK. Grey shale. Mudstone sl. silicified.		
934413x	SS.	1	4		✓			2	5	8	24	12	3	1	20.1	-	L3	L4	TRIAS CK. o/c grey shales - mudstone.		
934414x	SS	0	1.5	✓	✓			2	9	9	33	18	4	3	20.1	-	L3	L6	RH TRIB TRIAS CK. o/c grey shales - mudstone.		
934415	OC	g/s							3	27	38	46	5	4	20.1	-	6	L4	Above locality: Grey shales.		
934416x	SS	4	10		✓			2	7	11	31	14	4	3	20.1	-	L3	L4	HORTON R. No o/c. float: grey shales.		

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C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name LEIGH RIVER EL12/80 No. Sample numbers 934372-934377 Collected by D. J. WEIR Sheet no. 2
 Area / Prospect LEIGH RIVER - HORTON RIVER. 934380-934394
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET. Analysed by ANALABS COOGE. DPO no. 30071
SANDY CAPE 1:100 000 TOPO SHEET. 30072

Sample No.	Type	ss channel **						Carbon Topo /10	Metal content ppm or %											Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag	Bi	Sn	W Sb			
		o/c sample type ***																			
		s sample type ****																			
934372.1	SS	5	10		✓		6	9	7	24	17	5	4	<0.1	<10	7	10	LEIGH R. o/c grey-green silicified siltstone Float: siltstone, qtz, 1 tuffaceous rock. ✓			
934373	OC	g/s						74	5	120	140	43	6	<0.1	n.a.	3	<10	Above locality grey-green silicified siltstone.			
934374	f	g/s						9	7	27	76	6	7	<0.1	n.a.	23	<10	Above locality. Tuffaceous rock.			
934375	OC	g/s						330	1	98	64	48	2	0.1	n.a.	3	<10	green siltstone - Fe stng.			
934376x	SS	0	1.5		✓		3	10	3	41	20	11	3	0.1	<10	4	<10	RH Trib LEIGH R. o/c chert. Float: chert + green siltstone. ✓			
934377x	SS	5	8		✓		3	16	10	21	16	9	3	<0.1	<10	8	<10	LEIGH R. o/c green siltstone. ✓			
934380x	SS	0	1		✓		4	11	1	26	20	5	2	0.1	<10	23	<10	LH Trib LEIGH R. No o/c Float: qtz, chert, qtzite, grey-green siltstone. ✓			
934381x	SS	0	1		✓		3	12	1	32	19	8	3	<0.1	<10	8	10	LH Trib LEIGH R. Float: qtz, chert, grey siltstone. ✓			
934382x	SS	5	15		✓		3	13	14	42	28	10	3	0.1	<10	4	<10	LEIGH R. No o/c or float. ✓			
934383x	SS	0	1	✓	✓		2	4	4	45	4	1	1	0.1	n.a.	5	L10 5	LH Trib GRANE R. No o/c or float. Slightly organic. ✓			
934384x	SS	0	1		✓		2	21	3	37	11	4		<0.1	n.a.	5	L10 L3	LH Trib GRANE R. o/c green banded siltstone - phyllite. ✓			
934385x	SS	0	3		✓		3	4	5	35	6	3	1	0.1	n.a.	7	L10 3	HORTON R. o/c green chloritic siltstone. ✓			
934386x	SS	3	7		✓		3	8	6	91	15	7	1	<0.1	n.a.	23	L10 4	GRANE R. o/c green chloritic siltstone. ✓			
934387x	SS	0	3		✓		3	5	5	47	10	4	1	<0.1	n.a.	6	L10 4	LH Trib GRANE No o/c. Float: green chloritic siltstones. ✓			
934388x	SS	3	10		✓		3	6	10	29	11	5	2	<0.1	n.a.	5	L10 5	LEIGH R. o/c green spotted phyllite. 1m well sorted rounded gravels. ✓			
934389x	SS	3	6		✓		3	5	9	22	11	4	2	<0.1	n.a.	10	15 6	LEIGH R. o/c green phyllites. 290°m/35°s. ✓			
934390x	SS	3	6		✓		3	10	10	25	17	5	2	<0.1	n.a.	8	15 L3	LEIGH R. o/c green phyllites 310°m/50°s. ✓			
934391	OC	g/s						14	72	151	38	13	8	0.2	n.a.	5	10 n.a.	Above locality. green phyllite. ✓			
934392x	SS	5	10		✓		3	12	10	48	17	5	2	<0.1	n.a.	10	L10 4	LEIGH R. o/c green phyllites. ✓			
934393	OC	g/s						7	37	90	48	23	9	0.1	n.a.	.4	L10 n.a.	Green phyllite - above locality. ✓			
934394x	SS	0	1		✓		3	5	6	14	9	3	2	0.1	n.a.	8	10 4	RH Trib LEIGH R. No o/c or float. ✓			

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C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name LEIGH RIVER EL12/80 No. 934337 Sample numbers 934351 - 934371 Collected by D.J. WEIR Sheet no. 1
 Area / Prospect LEIGH RIVER Date 10/2/82
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET Analysed by ANALABS, COOEE DPO no. 30071

Sample No.	Type	ss channel **						Carbon Topo /10	Metal content ppm or %											Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	As	Ag	Bi	Sn	W			
		o/c sample type ***																			
		s sample type ****																			
34337	OC	g/s						10	7	24	96	14	5	20.1	n.a.	8	<10		Quartz breccia, minor limonite.		
934351 x	SS	2m	6m		✓		3	12	8	45	16	8	3	20.1	<10	5	<10		LEIGH R. No o/c. Float: Basalt, chert banded siltstones.		
934352 x	SS	0.5	1.5		✓		2	13	2	35	12	6	3	0.3	<10	4	<10		LH Tub Leigh R. No o/c. Float: chert + quartz.		
934353 x	SS	0	1.5	✓	✓		3	7	<1	12	10	4	2	20.1	<10	6	<10		LH Tub Leigh R. No o/c. Float: chert.		
934354 x	SS	0.25	1		✓		3	10	2	59	29	15	3	20.1	<10	3	<10		RH Tub Leigh R. No o/c, float.		
934355 x	OC	g/s						7	38	62	160	10	8	0.2	n.a.	7	<10		pink green, spotted siltstones - phyllite. Slightly tuffaceous?		
934356 x	SS	0	1		✓		4	13	7	32	15	5	4	0.1	<10	3	<10		No o/c float chert. LH Tub Leigh R.		
934357 x	SS	5	10		✓		3	9	10	47	14	8	3	20.1	<10	3	<10		Leigh R. o/c green, spotted chloritic siltstones 246°N/10°S.		
934358	OC	g/s						5	11	130	33	15	2	0.2	n.a.	23	<10		green chloritic siltstones - phyllitic. Cleavage 238°N/86°S. Bed: 247°/20°S.		
934359 f	SS	0	1.5		✓		3	10	10	16	11	3	2	20.1	<10	23	<10		LH Tub Leigh R. No o/c. Float: green chloritic siltstones + quartz.		
934360	OC	g/s						5	1	6	200	12	5	0.1	n.a.	3	<10		Chert breccia.		
934361	OC	g/s						230	25	83	39	8	4	20.1	n.a.	6	<10		pale green siltstone. 330°N/14°W.		
934362 x	SS	5	10		✓		4	8	10	37	10	4	4	20.1	<10	6	<10		Leigh R. o/c weath. whitish banded siltstone.		
934363	OC	g/s						13	55	89	45	11	5	20.1	n.a.	4	<10		whitish weath. banded siltstone. Bed: 248°N/75°S. Clean 240/70N.		
934364	OC	g/s						53	72	74	62	19	90	0.4	n.a.	23	<10		Black pyritic shales: coarse striae pyrite. 205°/15NW.		
934365	OC	g/s						34	27	55	49	17	50	0.4	n.a.	3	<10		Black pyritic shales: mod. carbonaceous. 220/20SW.		
934366 x	SS	0.25	1	✓	✓		2	8	11	16	11	4	9	20.1	<10	4	<10		RH Tub Leigh R. No o/c / float. o/c in Leigh: Bl. py. shales.		
934367	OC	g/s						7	1	23	41	9	6	0.2	n.a.	23	<10		dk. grey, amygdaloidal tuffaceous rock + py. interbedded in bl. shales.		
934368 x	SS	5	20		✓		3	9	11	26	12	5	6	20.1	<10	23	<10		Leigh R. o/c grey tuffaceous rock. 140/40W.		
934369	OC	g/s						5	9	39	51	10	8	0.1	n.a.	23	<10		grey, tuffaceous rock. Minor limonite after py?		
934370	OC	g/s						7	18	85	62	8	6	20.1	n.a.	23	<10		" " " "		
934371 x	SS	0.25	1		✓		4	25	5	70	45	19	2	20.1	<10	3	<10		RH Tub Leigh R. No o/c. Float: Bl. shales, tuffaceous rock + quartz.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE - Pb-Zn follow up No. Sample numbers 934110 - 934115 Collected by D.J. WEIR Sheet no. 4
 Area / Prospect JULIUS R. Date.....
 Map / Photo reference ARTHUR R. 1:100 000 TOPO SHEET. Analysed by ANALABS, COOPE DPO no. 30064

Sample No.	Type	ss channel **						Carbon ToPo 10	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Cr	Mn	As	Bi	Sb W		
		o/c sample type ***																		
		s sample type ****																		
934110 x	S.S.	40	10		✓		4	27	15	169	82	36	280	1300	n.a	n.a	n.a	Julius R. Float: Chert, Dolomite. ✓		
934111 ✓	SS.	0.5	0.5	✓	✓		3	1	6	4	4	2	10	10	n.a	n.a	n.a	Went's Creek. No. etc or float. ✓ Organic - Seepage? ✓		
934112 ✓	S.S.	1	1	✓	✓		2	<1	41	5	4	2	10	25	n.a	n.a	n.a	Went's Creek. No etc / Float. ✓		
934113 x	S.S.	1	1	✓	✓		2	1	<1	3	3	2	20	5	n.a	n.a	n.a	Went's Creek. No etc / Float. ✓		
934114 x	S.S.	2	1.5		✓		3	35	10	103	66	31	1500	415	n.a	n.a	n.a	RH Tub of Julius R. above Summit Rd. etc Or-brown Scoriaeous Volcanics. ✓ Or-brn. WEATH. Scoriaeous Volcanics.		
934115.	gc/gz							41	2	47	76	25	n.a	n.a	28	22	6 210			

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE Pb-Zn Followup No. 934041 - 934063 Sample numbers 934041 - 934063 Collected by D. J. WEIR Sheet no. 1
 Area / Prospect JULIUS R + LEIGH R. Date 21/5/81
 Map / Photo reference ARTHUR R. 1:100 000 Topo. Analysed by ANALABS COOE. DPO no. 30060
30061

ALL STREAM SEDS SIEVED TO -80*

Sample No.	Type	ss channel **						Carbon Total /10	Metal content ppm or %							Grid ref	Geological Observations			
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Cr	Mn			Sn	W.	Ag
		o/c sample type ***																		
		s sample type ****																		
934041	P.C.	3	3		✓		3	19	10	315	148	55	1160	635	5	10	0.1	Julius R. L.H. Trib. above SUMAC RD. (5 dishes).		
934042	SS	3	3		✓		3	19	28	350	100	67	460	4150	n.a.		-	" " " " " " " " ✓		
934043	P.C.	3	4		✓		3	33	45	470	240	68	3.75	530	3	210	-	Julius R. above SUMAC RD. (5 dishes)		
934044	SS	3	4		✓		3	32	33	285	126	58	2650	1550	n.a.		0.1	" " " " " " " " ✓		
934045	oc/rc	25m	23m					176	10	95	100	67	50	1550	"		-	weathered basic volcanic - pillow lava - spide? Leigh R. Rd. off SUMAC RD.		
934046	oc/rc	25m	23m					113	8	140	155	39	800	545	"		-	f.g. volcanic rock, vesicular, chertic. Leigh R. Rd off SUMAC RD.		
934047	SS	2	15		✓		4	16	300	35	16	5	70	85			0.7	f.g. volcanic rock, Py, CPY? Above bridge, Leigh R. Rd. off SUMAC RD. ✓		
934048	PC	2	15		✓		4	10	26	20	17	3	815	135	15	10	-	As above. (Poor SMC).		
934049	f							2	15	20	12	2	155	315	n.a.		0.1	bl. Mn rich chert Julius R. L.H. Trib. above SUMAC RD.		
934050	oc/gs.							11	10	20	26	15	10	550			-	Black Mudstone - Julius R.		
934051	oc/gs							18	7	85	64	37	30	480			0.1	f.g. volcanic rock, vesicular chertic. non magnetic.		
934052	f.							1	2	5	5	-	75	20			-	road metal along Leigh R. Rd. off SUMAC RD. Spherulitic Limestone?		
934053	S.S.	2	15		✓		3	41	48	290	154	57	355	1450				qc + float basic chertic volcanics. ✓		
934054	f							67	39	96	153	35	95	1250				Above locality. basic chertic volcanics.		
934055	S.S.	3	2		✓		4	52	15	280	177	68	350	2300				ok weathered scoriaceous volcanics. float: green chertic volcanics. ✓		
934056	f							72	10	187	126	46	90	860				Above locality weathered or-brn. volcanics.		
934057	S.S.	1	0.5		✓			45	28	190	230	210	395	220				float: basic volcanics. ✓		
934058	f																	Above locality. or-brn. volcanics.		
934059	gs.							19	10	40	21	25	125	730	n.a.			Gossan. up mainstream from 934061 on side of logged hill.		
934060	gs.							17	9	25	22	16	5	615				fine g. gray flinty chert?		
934061	S.S.	2	0.5		✓		3	31	24	91	42	27	40	1200				ok porphyritic volcanic. rock? ✓		
934062	S.S.	3	0.5		✓		3	4	8	32	6	8	30	810				float qtz. chert. ✓		
934063	S.S.	4	2.0		✓		3	24	70	210	78	35	115	1700				float: volcanics ✓		

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

APPENDIX 4

Geochemical assay ledgers - Julius River follow up

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL1/77 No. Sample numbers 934445 - 934553 Collected by D.J. WEIR Sheet no.
 Area / Prospect JULIUS RIVER Follow up. - ROCK CHIPS. Date 15/3/92.
 Map / Photo reference ARTHUR RIVER 1:100 000 SHEET Analysed by ANALABS COOEE DPO no. 30077

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag	As.			
934445	oc	rc	5m @	0.5m	intervals			5	10	13	21	13	135	2800	0.2	3	T1 75m	Dolomite - Creamy-white rock & minor grey staining.		
446	f							15	34	330	66	9	2050	3450	0.1	3	T1 175m	Ferruginous dolomite & mod. Mn staining.		
447	f	rc						4	9	105	56	4	700	3250	0.2	4	T1 190m	grey-black cherty dolomite mod Mn staining.		
448	oc	rc	5m @	0.5m	intervals			25	59	360	140	19	2700	5150	0.2	7	T1 225m	grey, f.g. dolomite. Slightly silicified. mod. Mn & Fe staining.		
449	f							11	54	265	37	17	1900	7100	0.1	12	T1 360m	DK grey chert & Mn staining.		
450	f							16	69	700	56	29	5850	9000	0.2	8	T1 360m	DK grey-black weathered dolomite? Ferruginous in places. Mn staining.		
934551	oc	rc	15m @	1m	intervals			18	104	155	190	20	3150	8750	0.2	9	T1 400-415m	DK grey-black chert. - orange Fe staining.		
934552	f							10	7	16	180	2	160	4650	0.2	2	T3 100m	grey-white chert.		
553	f							4	17	18	200	3	350	6100	0.2	3	T3 125m	grey-white chert, oolitic in part?		

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL 1/77 No. 934503 - 934514 Sample numbers 934503 - 934514 Collected by D.J. WEIR Sheet no. 15/3/82
 Area / Prospect JULIUS RIVER FOLLOW UP. STREAM SEDS. - 80# 934634 - 934635 Date 15/3/82
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET. Analysed by ANALABS COEPE DPO no. 30077 30079

Sample No.	Type	ss channel **						Carbon ToPo /10	Metal content ppm or %								Grid ref	Geological Observations		
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag			As	Sn/m
		o/c sample type ***																		
		s sample type ****																		
934503	SS.	2m ³ /s	3		✓		3	32	134	1400	84	37	7250	2.45	<0.1	18	T1 038m	Chert float minor Mn string. ✓		
504	SS	2	3		✓		3	20	84	685	36	17	2350	8750	<0.1	10	T1 100m	Dolomite outcrop. ✓		
505	SS	2	3		✓		3	30	147	1250	63	31	6850	1.85	<0.1	15	T1 150m	Chert float Mn string. ✓		
506	SS	2	3		✓		3	84	590	3450	210	87	2135	3.25	0.3	24	T1 200m	Chert float Mn string. ✓		
507	SS	2	3		✓		3	120	820	4450	365	200	8.15	7.35	<0.1	72	T1 300m	Chert float Mn string. ✓		
508	SS	2	3		✓		3	180	1900	2650	210	290	3.25	4.85	0.1	65	T1 400m	Chert outcrop Mn & Fe string. ✓		
509	SS.	2	3		✓		3	150	147	2650	195	96	2.35	4.00	0.3	70	T1 425m	Chert float. ✓		
934510	SS.	-	1.5		✓		3	55	8	390	27	5	545	5700	<0.1	5	T2 25m	Dry gully. - washway? ✓		
511	SS	1m	1.5		✓		3	5	3	56	9	5	265	2450	0.1	3	T3 50m	Chert float ✓		
512	SS	1	1.5		✓		3	6	8	70	11	9	625	3750	0.1	4	T3 100m	Chert float ✓		
513	SS	1	1.5		✓		3	7	5	76	11	1	440	3600	<0.1	3	T3 125m	Chert float. ✓		
514	SS	-	0.5		✓		2	4	1	46	8	3	95	2300	0.1	3	T4 25m	Chert float. ✓		
934634	SS	1	1.5		✓		3	23	50	760	47	23	1150	4.15%	<0.1	13	T3 / 210 T5 25m	Chert float ✓		
635	SS	1	2.0		✓		3	36	168	1850	81	35	4950	3.75	<0.1	18	T3 / 210 T5 100m	Chert float. ✓		
636	NOT SAMPLED																			

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C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL1/77 No. Sample numbers 934515 - 934536 Collected by D.J. NEIR Sheet no. 1
 Area / Prospect JULIUS RIVER FOLLOW UP - SOIL SAMPLES. 934543 Date 15/3/82
 Map / Photo reference ARTHR RIVER 1:100000 TOP SHEET. Analysed by ANALABS COOE. DPO no. 30077

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %							Grid ref	Geological Observations		
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe			Ag	As
		o/c sample type ***																	
		D(m)	s sample type ****																
934515	S	1m		B/c	all	frags / Power		20	23	53	74	34	1000	415	0.1	16	T1 0R	Yellow brown soil. Dolomite chips.	
516	S	0.5		B/c	anger	samples.		3	2	14	145	1	30	2150	0.1	4	T1 0L	Grey soil & chert fragments.	
517	S	0.8		B/c				25	19	48	49	31	1300	370	0.1	14	T1 25R	Orange brown clayey soil.	
518	S	0.5		C				3	41	14	38	1	20	1450	0.1	3	T1 25L	Grey, gravelly soil	
519	S	1.2		B/c				40	17	93	94	31	1350	625	0.1	16	T1 050R	Orange brown clayey soil.	
934520	S	1.1		B/c				12	11	120	54	14	300	2145	0.1	11	T1 050L	Olive green brown clay.	
521	S	0.3		B.				29	20	96	56	61	2350	356	0.1	12	T1 075R	grey-brown soil.	
522	S	0.5		B/c				14	5	79	43	3	70	4400	0.1	4	T1 075L	DK. grey soil - high water table.	
523	S	1.3		C				10	7	38	34	15	280	9250	0.1	10	T1 100R	pale cream loam. Dolomite chips.	
524	S	1.5		B/c				43	7	240	36	8	80	8800	0.1	8	T1 100L	grey-black gravelly mud.	
525	S	0.6		B/c				35	22	68	94	65	635	405	0.1	21	T1 125R	Orange-brown soil.	
526	S	1.0		B/c				4	3	46	14	2	45	4250	0.1	4	T1 125L	DK. grey-black soil & chert chips.	
527	S	0.9		B/c				23	17	47	44	10	105	4100	0.1	16	T1 150R	Orange brown soil.	
528	S	1.5		B/c				12	4	64	21	5	245	6950	0.1	10	T1 150L	DK. grey-black soil - mud.	
529	S	0.6		B				7	14	34	23	9	125	3110	0.1	13	T1 175R	Orange-brown loam.	
543	S	1.2		B/c				15	2	165	29	4	35	6000	0.1	5	T1 200L	DK grey-black clayey soil & black siliceous shaley chips.	
530	S	0.7		B/c				11	3	62	89	5	270	7150	0.1	5	T1 225R	light grey-brown soil.	
531	S	1.2		B/c				22	5	220	21	5	40	5300	0.1	5	T1 250L	DK. grey-black soil, clayey. Chert & black siliceous shaley fragments.	
532	S	1.2		B/c				22	31	385	45	15	350	1,65	0.1	16	T1 275R	greeny-grey clayey soil & chert fragments.	
533	S	0.6		B				40	23	545	26	8	350	4750	0.1	8	T1 300L	grey-DK. grey soil.	
534	S	0.9		B/c.				13	11	225	21	7	200	6850	0.1	7	T1 325L	DK grey-greenish soil & black siliceous shaley fragments.	
535	S	0.8		B/c				8	3	83	9	5	305	5400	0.1	7	T1 350L	DK grey soil & siliceous black shaley fragments.	
536	S	1.1		B/c				15	30	470	35	11	140	8300	0.1	12	T1 375R	DK grey-green soil & black sil. shaley fragments.	

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL1/77 No. 934537-934550 Sample numbers 934537-934550 Collected by D.J. WEIR Sheet no. 2
 Area / Prospect JULIUS RIVER FOLLOW UP - SOIL SAMPLES 934444 Date 15/3/82
 Map / Photo reference ARTHUR RIVER 1:100 000 TOPO SHEET Analysed by ANALABS CODEE DPO no. 30077

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %								Grid ref	Geological Observations	
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag			As
		o/c sample type ***																	
		s sample type ****																	
534 537	S	1.0	B/C					30	22	385	33	8	70	7400	<0.1	8	T1 400L	DK. grey-black soil.	
538	S	0.6	B/C					60	31	720	48	12	355	7250	0.1	7	T1 425R	DK. blue-grey soil & black sil shaly fragments.	
539	S	0.7	B/C					325	180	1950	275	130	3,90	3,40	0.4	44	T1 450L	Greasy-brown soil & cherty fragments.	
540	S	1.2	B					15	6	200	25	7	410	1,65	<0.1	11	T3 025R	DK grey brown clayey soil.	
541	S	1.0	B/C					4	2	84	13	2	35	4000	<0.1	4	T3 025L	DK grey-black clayey soil	
542	S	1.1	B/C					26	4	190	58	7	415	7150	<0.1	6	T3 050R	DK grey-black soil & black siliceous shaly fragments.	
544	S	0.8	B/C?					16	8	225	26	9	144	8850	<0.1	7	T3 050L	grey soil & chert fragments	
545	S	0.9	B.					17	10	270	56	16	170	8550	0.2	5	T3 075R	DK. grey-black clayey soil.	
546	S	0.9	B.					19	12	83	31	5	45	9000	0.1	5	T3 075L	light grey clayey soil + few chert fragments.	
547	S	0.7	B?					2	2	16	5	41	50	1450	0.2	3	T3 100R	light grey soil & chert fragments + DK brown humus.	
548	S	0.25	B?					2	41	16	5	41	70	1100	<0.1	4	T3 125L	light grey soil & chert fragments.	
549	S	0.3	B?					2	2	11	5	41	40	1050	<0.1	4	T3 150	grey-brown soil.	
550	S	1.2	B.					7	3	63	5	6	250	2750	<0.1	4	T3 175	DK. grey brown soil.	
934 444	S	1.0	B/C.					6	2	60	11	3	205	14400	0.1	5	T4 047m	DK. grey-black clayey soil & chert fragments.	

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 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** O. area, L. l. h. in (state interval & length) h. al. la (total length)

C.R.A. EXPLORATION GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Cape EL1/77 No. 934915 - 934931 Sample numbers 934915 - 934931 Collected by B. Morley Sheet no. 5/4/82
 Area / Prospect Julius River Follow-up Date 5/4/82
 Map / Photo reference Arthur River 1:100 000 Topo Sheet Analysed by Annalabs, Coel DPO no. 30081

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag	As			
		o/c sample type ***																		
		s sample type ****																		
934915	S	1.0						5	17	119	89	46	1110	6.00	<0.1	6	150W SL			
916	S	0.5						1	<1	7	13	3	15	1050	<0.1	<1	175W BL	Grey loam		
917	S	1.0						2	<1	7	25	1	5	500	0.2	<1	150W BL	Grey Soil + chert f'gments		
918	S	1.0						1	<1	4	36	2	5	700	<0.1	<1	125W BL	Grey loam		
919	S	1.2						1	1	8	31	2	10	700	0.1	1	100W BL	Grey-brown soil		
934920	S	1.0						3	3	19	94	3	35	1700	0.1	<1	75W BL	Brown organic rich soil + grey-white flecks.		
921	S	1.2						3	2	48	18	5	10	2600	0.1	1	50W BL	Grey clay		
922	S	1.0						1	<1	6	28	2	5	350	0.1	1	25W BL	White - grey clay		
923	S	0.6						2	1	10	76	2	10	750	0.1	<1	0 BL	- - -		
924	S	0.8						3	1	13	27	1	10	800	0.1	1	25E BL	Brown organic rich soil + white flecks.		
925	S	0.5						2	2	14	26	1	15	1000	<0.1	<1	50E BL	Grey loam		
926	S	0.6						2	2	13	15	2	10	650	0.1	1	75E BL	- - -		
927	S	0.5						1	1	11	23	1	20	800	<0.1	<1	100E BL	Brown organic rich soil		
928	S	1.0						1	1	10	32	1	15	1100	<0.1	<1	125E BL	Grey clay		
929	S	0.6						1	<1	4	30	2	10	700	0.1	<1	150E BL	White - grey soil		
934930	S	0.4						1	<1	7	33	2	5	800	<0.1	<1	175E BL	- - -		
931	S	0.2						1	<1	6	16	1	10	600	<0.1	<1	200E BL	- - -		

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 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE EL1/77No. Sample numbers 934637-934659Collected by B. Morley

Sheet no.

Area / Prospect JULIUS RIVER - Follow up.Date 22/3/82Map / Photo reference ARTHUR R. 1:100 000 TOPO SHEET.Analysed by Analabs, Coee.DPO no. 30079

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag	As.			
		o/c sample type ***																		
		s sample type ****																		
934637	S	0.6						33	14	88	52	39	2250	5.25	<0.1	10	T5 25R	Brown-yellow clay		
638	S	0.5						25	15	45	53	35	1050	4.90	<0.1	11	T5 L	Brownish clay		
639	S	0.7						53	15	110	84	37	1150	7.35	<0.1	13	T5 50R	Brownish clay		
934 640	S	1.0						69	29	129	86	54	2050	9.15	<0.1	21	T5 75L	Brown-yellow clay		
641	S	0.8						33	18	75	61	31	625	5.75	<0.1	9	T5 75R	Brown-yellow clay.		
642	S	0.5						45	17	113	83	77	3700	5.60	<0.1	15	T5 100L	Brown-yellow clay		
643	S	0.6						3	2	8	53	4	55	3700	0.1	2	T5 100R	Light grey soil.		
644	S	1.0						5	1	10	21	2	65	4550	0.1	2	T5 125L	Brown clay		
645	S	0.4						16	11	39	33	5	290	1.00	0.2	8	T5 125R	Greyish soil.		
646	S	0.8						7	3	22	18	3	75	4450	0.1	2	T5 150R	Greyish soil + organic material.		
647	S	0.6						37	20	165	65	55	1500	4.25	<0.1	16	T5 150L	Dark brown clay		
648	S	0.4						5	4	15	17	2	90	3550	0.2	2	T5 175R	Grey-brown clay		
649	S	1.0						16	23	190	46	19	445	1.56	<0.1	12	T5 175L	Greyish clay		
934 650	S	1.0						18	6	37	25	5	150	7150	0.2	5	T5 200R	Brown sandy clay		
651	S	1.0						11	7	43	28	6	135	6850	0.1	6	T2 25R	L. Brown soil.		
652	S	1.0						6	3	68	13	3	65	2550	0.1	2	T2 25L	Greyish soil		
653	S	0.8						19	4	270	20	6	585	6100	0.2	7	T2 50L	Greyish mud		
654	S	1.0						11	11	43	32	11	120	1.25	<0.1	12	T2 50R	Greyish mud-clay		
655	S	1.0						5	<1	49	25	3	70	2250	0.2	2	T2 75R	Grey-brown soil		
656	S	0.7						11	3	67	17	4	155	4550	0.1	5	T2 75L	Grey-brown soil.		
657	S	0.5						4	5	12	41	5	285	6650	0.2	3	T1 475R	Grey-brown soil		
658	S	0.4						39	20	310	158	250	13.0	33.0	<0.1	260	T1 475L	Dark brown - black soil		
934 659	F							19	11	165	93	161	7.55	34.5	<0.1	220	T1 475L	Fe, Mn rich gossan / wad.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name Rocky Cape EL 1/77 No. Sample numbers 934660 - 934682 Collected by B. Morley Sheet no.
 Area / Prospect Julius River Follow up. Date 22/3/82
 Map / Photo reference Arthur River 1:100 000 Topo Analysed by Analabs Coore. DPO no 30079
30081

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag	As			
		o/c sample type ***																		
		s sample type ****																		
934660	S	1.2						1	<1	5	59	3	15	1000	<0.1	<1	375 NL	Grey-brown Sandy Soil.		
661	S	0.6						1	<1	4	95	4	10	850	<0.1	<1	350 NL	" " " "		
662	S	1.0						4	1	14	33	2	30	2100	<0.1	<1	325 NL	white - grey soil		
663	S	0.8						2	1	9	64	3	25	2650	<0.1	<1	300 NL	Brown - grey soil		
664	S	1.0						2	<1	8	94	4	20	850	<0.1	<1	275 NL	" " "		
665	S	0.6						2	<1	13	5	2	15	650	<0.1	<1	250 NL	" " "		
666	S	0.6						2	<1	8	32	3	15	1000	<0.1	<1	225 NL	" " "		
667	S	0.6						4	1	23	23	3	15	1750	<0.1	<1	200 NL	" " "		
668	S	0.6						2	<1	12	24	2	25	1600	<0.1	<1	175 NL	" " "		
669	S	0.6						6	4	26	26	2	30	1500	<0.1	<1	150 NL	white - grey soil		
934670	S	0.8						4	4	23	24	3	35	1600	<0.1	<1	125 NL	" " "		
671	S	0.8						9	5	42	22	3	35	3350	<0.1	<1	100 NL	Dark grey clay		
672	S	0.8						4	2	34	15	1	25	1650	<0.1	<1	75 NL	DK. grey soil		
673	S	0.7						2	1	5	16	3	30	2300	<0.1	<1	50 NL	Grey - white soil		
674	S	0.5						1	<1	12	13	3	10	850	<0.1	<1	25 NL	white - grey soil + chert f'ments.		
675	S	0.5						1	<1	8	14	1	15	900	0.1	<1	0 NL	Grey - white soil + " "		
676	S	0.6						41	23	76	83	42	160	4170	<0.1	7	0 ML	Yellow clay		
677	S	0.6						5	9	14	13	4	20	1,400	<0.1	<1	25 ML	Brown clay		
678	S	0.8						29	21	40	38	13	85	2,165	0.1	19	50 ML	Brown clay		
679	S	0.6						21	31	281	47	31	1050	2,140	<0.1	20	75 ML	Brown - yellowish clay		
934680	S	0.5						7	4	27	12	4	30	4500	<0.1	1	125 ML	Brown - grey clay - loam		
681	S	0.5						7	9	39	12	3	25	2700	<0.1	<1	150 ML	Greyish clay + organic rich		
682	S	0.8						4	1	16	11	2	20	1400	0.1	<1	175 ML	Grey brown clay + organic rich.		

* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name: Rocky Cape EL 1/77 No. 934683 - 934700 Sample numbers: 934683 - 934700 Collected by: B. Moshey Sheet no. 25/4/82
 Area / Prospect: Julius R. Follow up Map / Photo reference: Arthur River 1:100 000 Topo Sheet. DPO no. 30081
 Analysed by: Anatalas Coode.

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %								Grid ref	Geological Observations	
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Mn	Fe	Ag			As.
		o/c sample type ***																	
		s sample type ****																	
934683	S	1.0						3	6	14	11	1	15	900	<0.1	<1	200 ML	Brown soil + grey flecks	
684	S	0.8						3	1	9	9	1	20	1400	<0.1	<1	225 ML	Grey clay	
685	S	0.5						4	1	17	7	1	25	1900	<0.1	<1	250 ML	Grey-white soil + humus	
686	S	0.4						3	2	17	4	2	15	300	<0.1	<1	275 ML	Grey-white soil	
687	S	0.6						1	2	8	10	2	30	2000	0.1	<1	300 ML	Grey-brown soil	
688	S	0.4						1	2	6	8	2	30	1700	<0.1	<1	325 ML	Greyish flecks in humus	
689	S	0.9						1	<1	3	7	2	20	1350	0.1	<1	350 ML	White-grey soil	
934690	S	0.7						2	3	7	4	1	25	800	0.1	<1	375 ML	" " "	
691	S	0.6						2	1	9	6	2	55	2500	0.1	<1	400 ML	" " "	
692	S	0.8						2	4	10	9	2	50	1100	<0.1	<1	200 SL	Grey soil	
693	S	1.0						1	<1	5	6	1	25	550	<0.1	<1	175 SL	Grey-white soil	
694	S	1.0						1	1	4	4	1	25	1200	<0.1	<1	150 SL	Grey soil + chest fragments.	
695	S	0.5						2	2	9	5	2	100	4250	<0.1	<1	125 SL	Greyish soil + humus	
696	S	0.2						1	1	6	4	<1	5	500	0.1	<1	100 SL	Grey loam	
697	S	0.2						1	<1	3	3	<1	15	550	<0.1	<1	75 SL	" "	
698	S	0.3						3	2	28	4	1	35	550	0.1	<1	50 SL	Greyish soil + humus.	
699	S	1.0						4	6	6	165	2	15	1050	0.1	<1	25 SL	Grey-white loam	
934700	S	0.7						56	240	385	349	59	6800	4.45	0.1	75	0 SL	Black clay	
934910	S	1.2						4	4	17	86	2	35	1250	<0.1	1	25W SL	Grey white soil + humus	
911	S	0.8						3	<1	16	34	2	15	500	<0.1	<1	50W SL	" " " "	
912	S	0.7						2	1	14	48	1	10	550	0.1	<1	75W SL	" " " "	
913	S	1.0						3	3	16	39	1	15	950	0.1	<1	100W SL	" " " "	
914	S	1.0						4	3	22	20	1	55	1400	<0.1	<1	125W SL	" " " "	

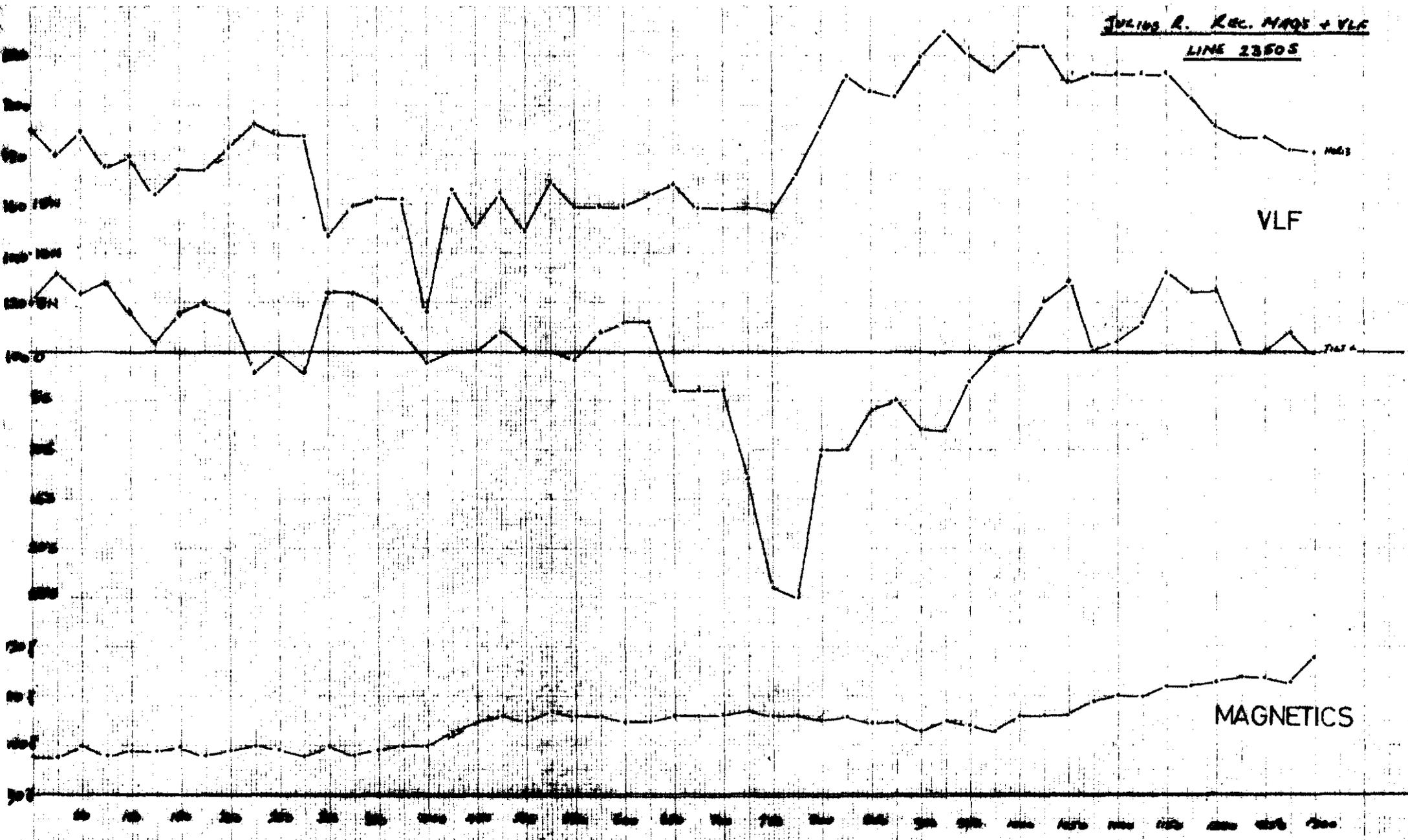
* Sample type ss = stream sediment oc = outcrop f = float s = soil
 ** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
 *** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
 **** Soil sample type auger hole or pit depth m A, B or C horizon

APPENDIX 5

Julius River - ground magnetic and VLF profiles

JULIUS R. REC. MAGS + VLF

LINE 23505



MAGS

VLF

MAGS

MAGNETICS

MAGNETIC TIME →

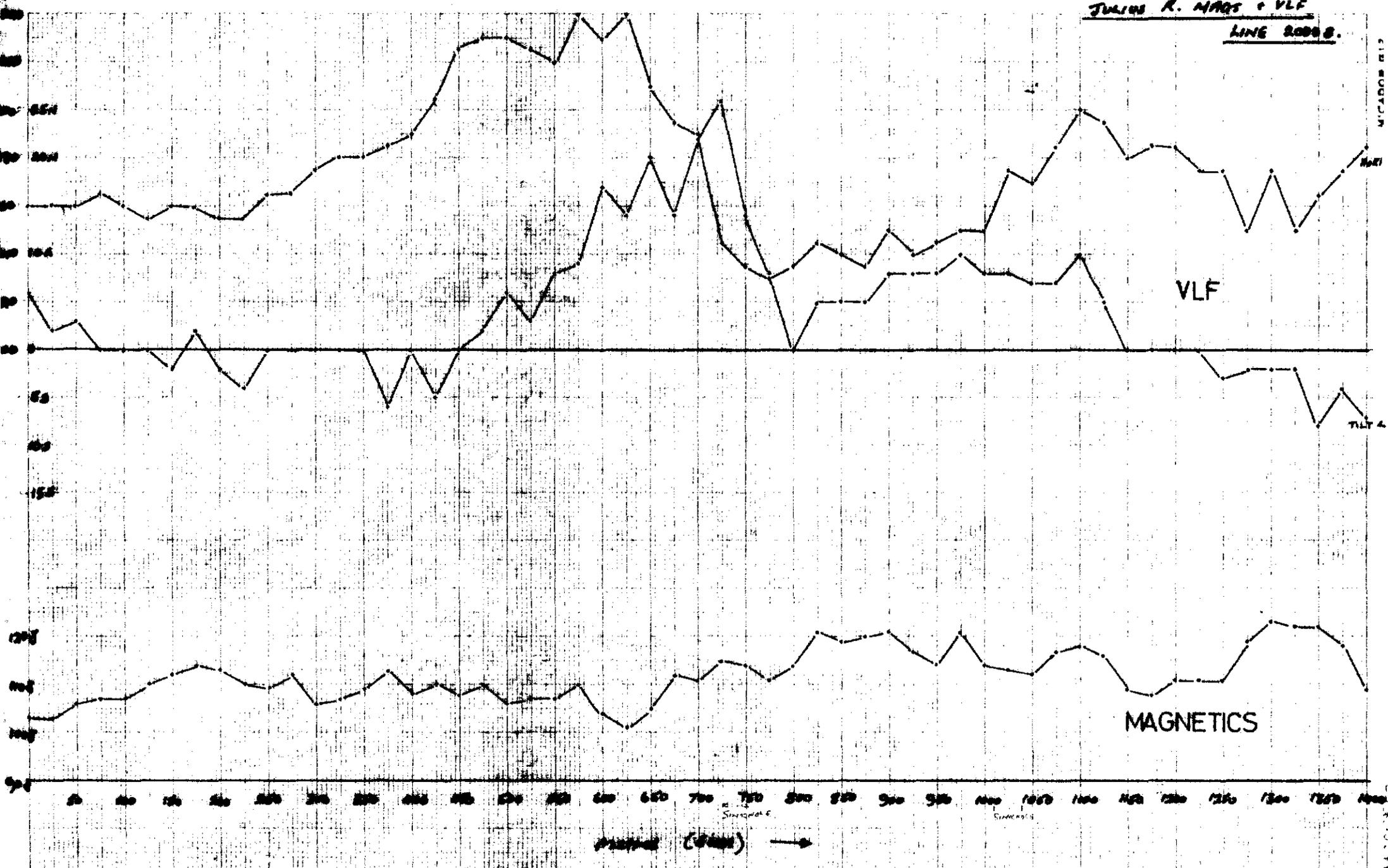
730090

089

MAGNETIC TIME

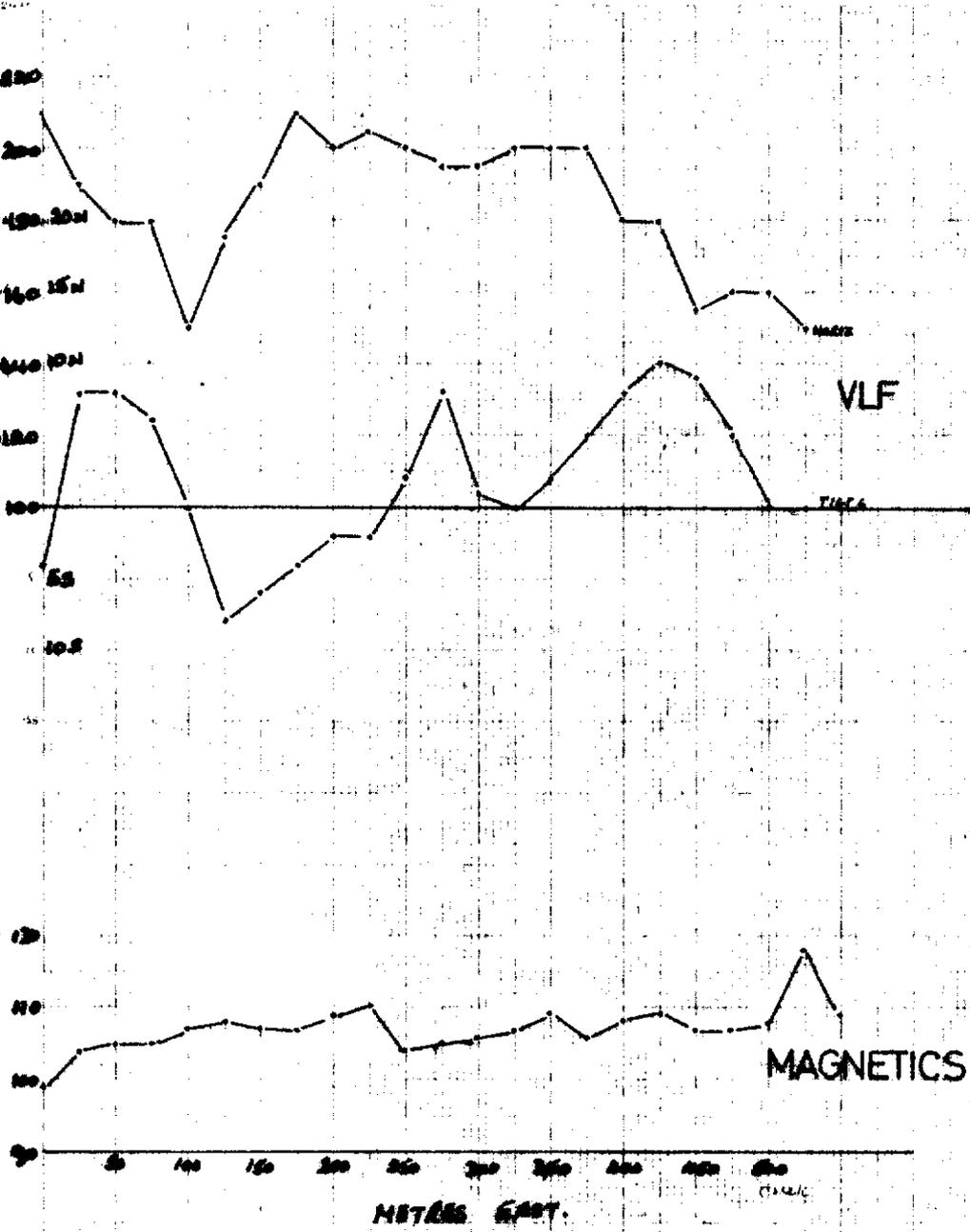
MAGNETIC TIME

JULIUS R. MAGS + VLF
LINE 20000.

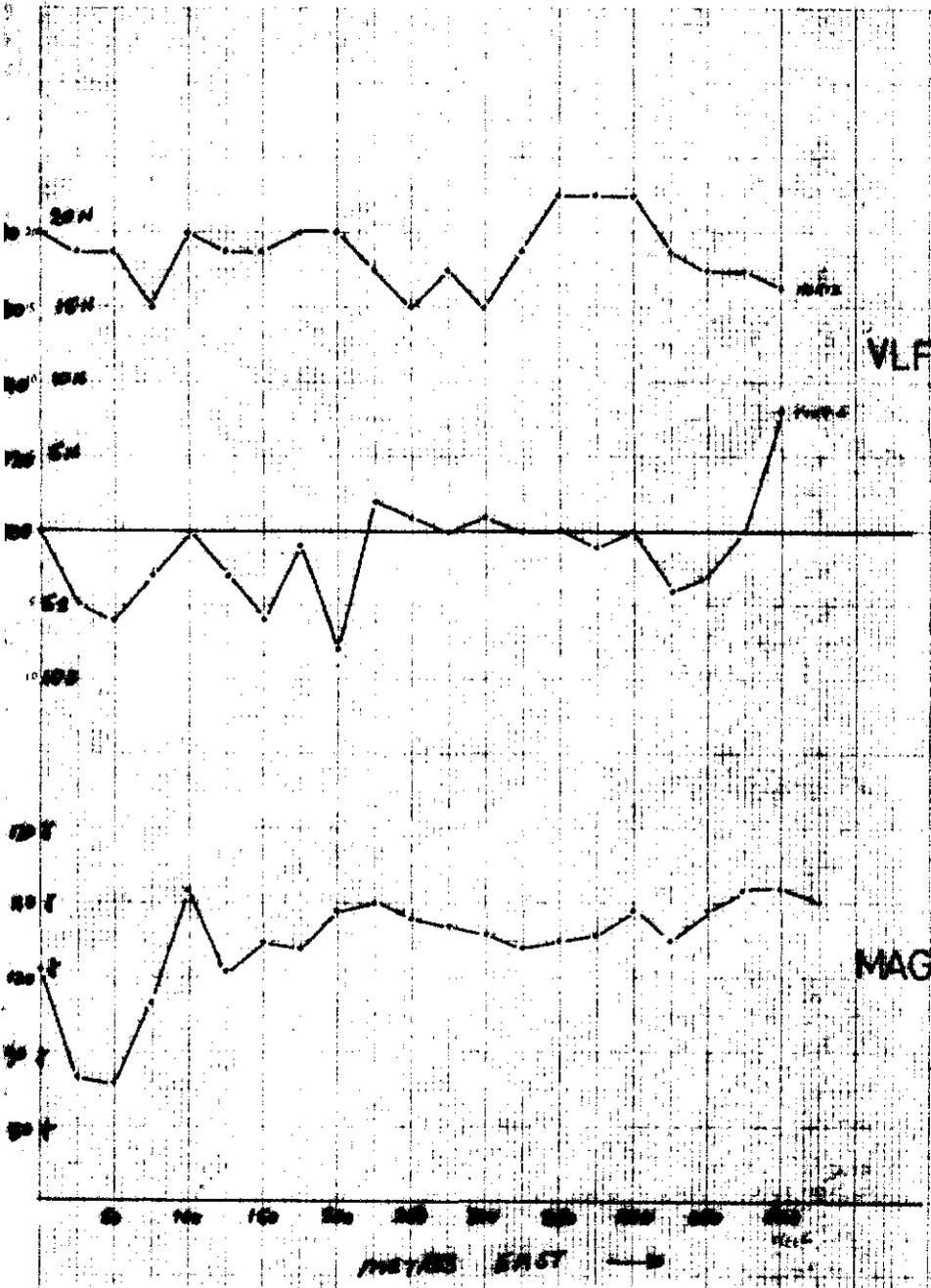


030 160091

JULIUS R. BEE MAGNETIC & VLF
E. LINE



091 780092



VLF

MAGNETICS

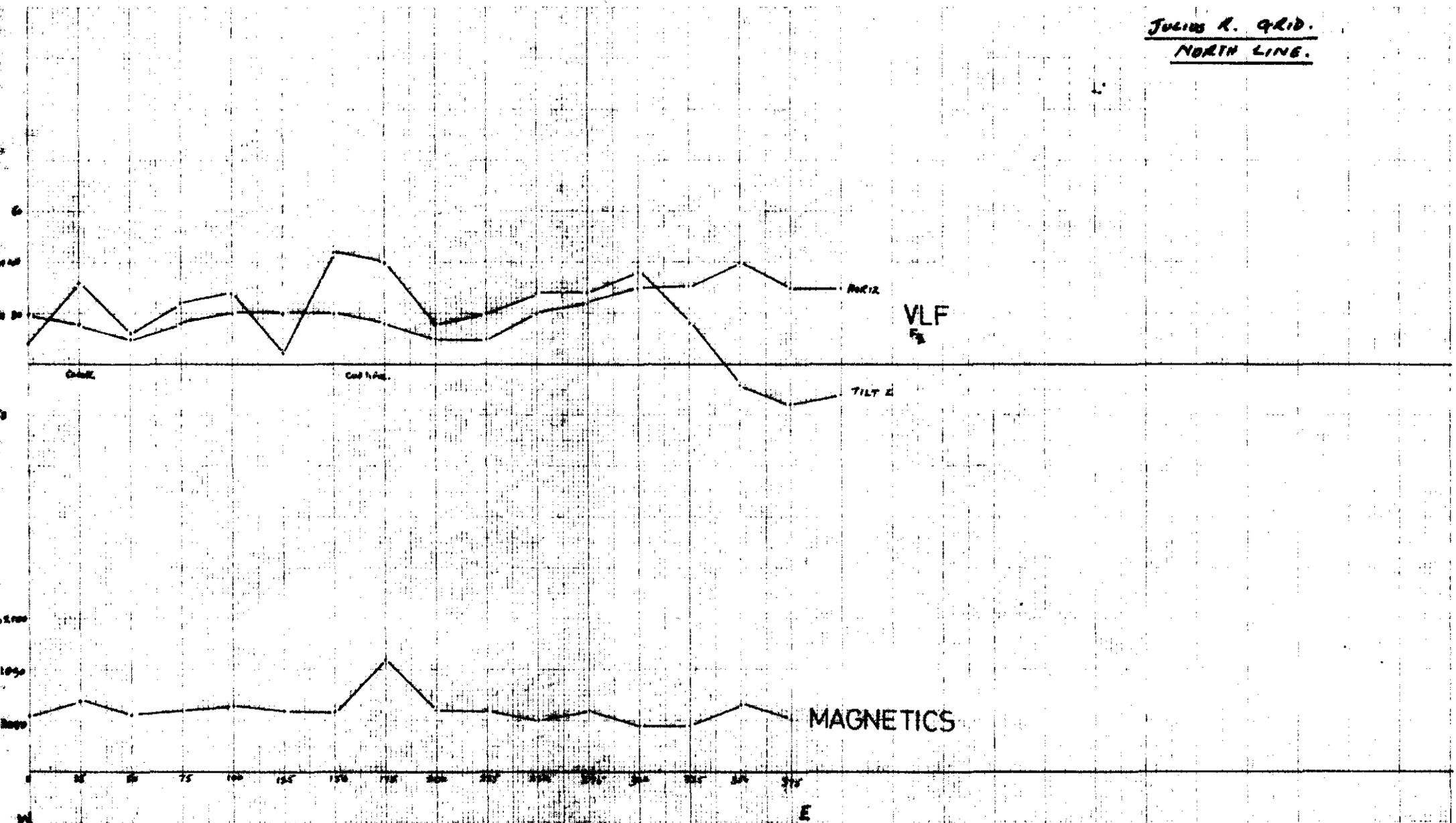
METERS EAST →

730093

092

JULIUS R. GRID.
NORTH LINE.

MICADCR 512

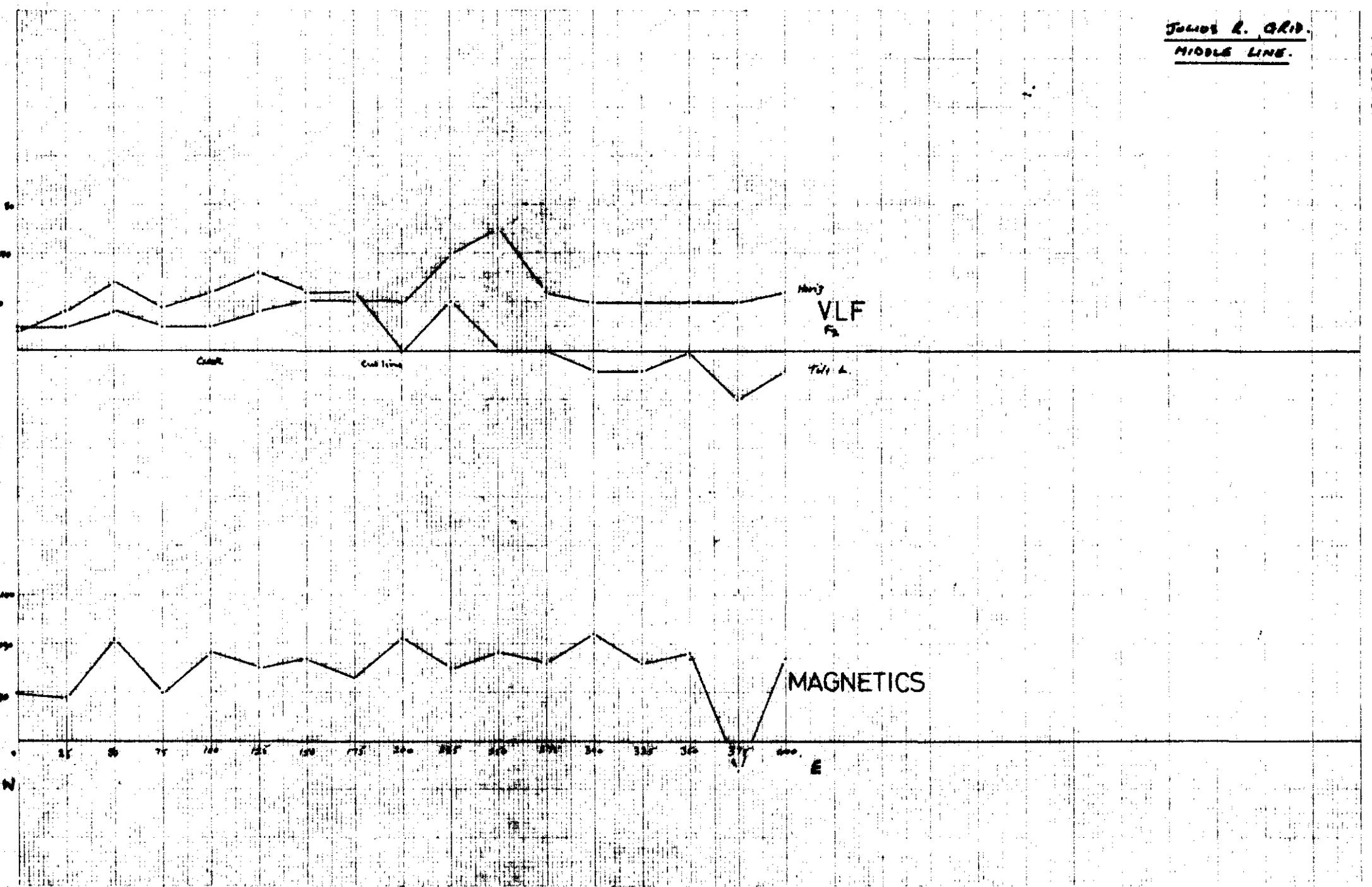


730094

093

James L. Quid
MIDDLE LINE.

MICADOR 612



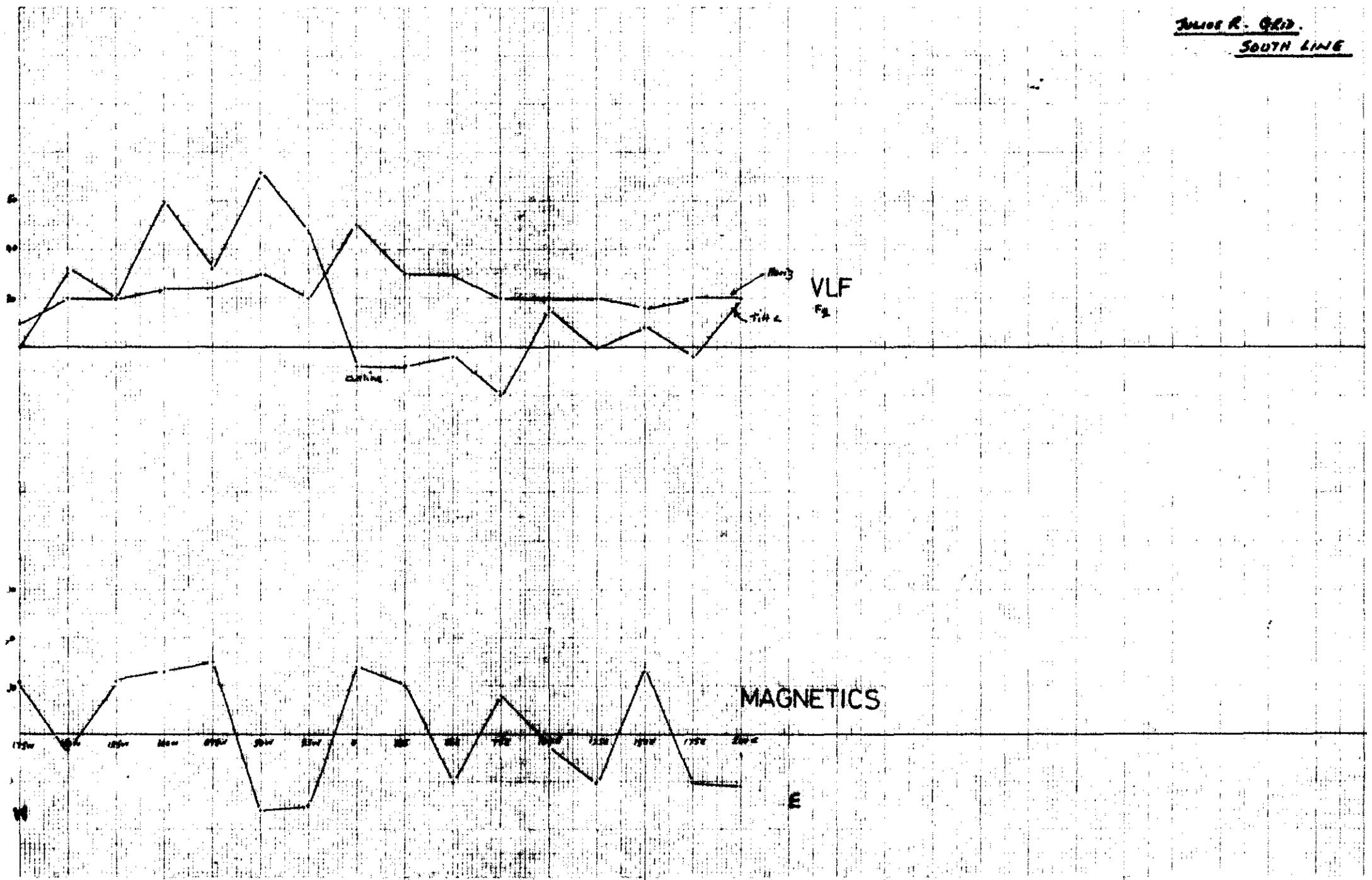
730095

160

A 2101 97-48

JULIUS R. Q813.
SOUTH LINE

MICADOR 612



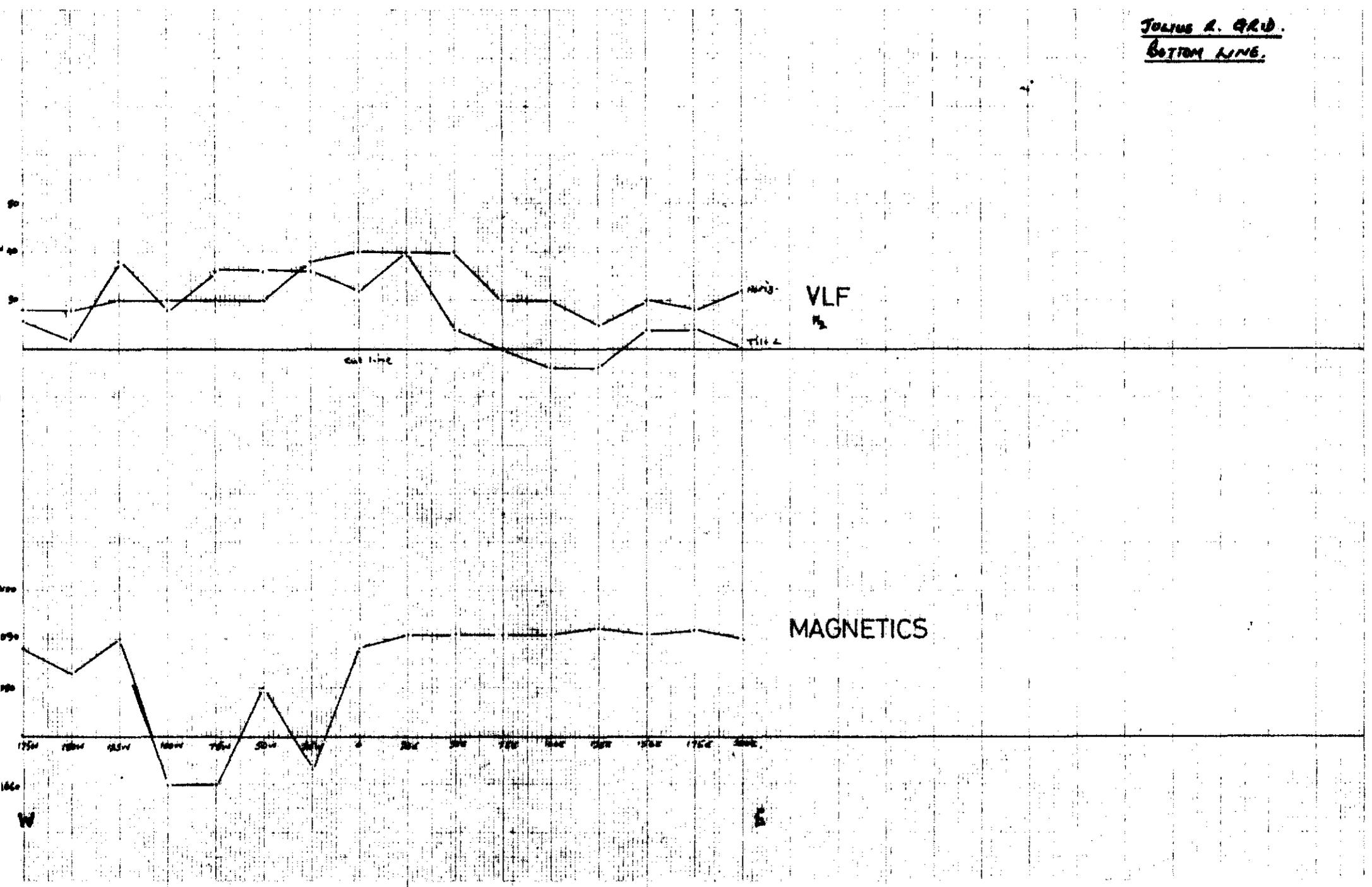
730096

095

A-1 200-130 RB

JULIUS L. QRO.
BOTTOM LINE.

WICADCR 012



096 730097

44 201037 MW

APPENDIX 6

Size fraction analysis

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE + LEIGH R. E.L.C. No. Sample numbers various Collected by
 Area / Prospect LEIGH R., JULIUS R. Sheet no. 1
 Map / Photo reference ARTHUR R. 1:100 000 TOPO SHEET. Date 24/2/82
 RE - ASSAYS. Analysed by ANALABS COOKE. DPO no. 30073

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %						Grid ref	Geological Observations				
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Ag			Ti	V	Sn	Ba
		o/c sample type ***																		
		s sample type ****																		
934042	SS		-10	#	+	20	#		19	9	315	110	62	0.1	1700	430	<3	340		
044	SS								41	11	325	130	67	0.1	2050	360	4	250		
047	SS								5	44	11	9	4	0.2	1750	20	3	200		
053	SS								31	12	210	145	59	0.1	7000	250	4	1350		
057	SS								36	18	155	120	75	0.1	8000	370	4	1150		
064	SS								12	13	300	61	76	0.1	1300	530	<3	60		
090	SS								23	112	2050	100	55	0.2	670	90	4	270		
092	SS								52	320	4000	230	100	0.1	330	80	<3	670		
351	SS								6	4	16	13	5	0.1	1650	25	<3	190		
354	SS								5	7	20	17	9	0.1	530	30	<3	110		
362	SS								6	16	18	14	6	0.2	1250	25	<3	150		
371	SS								10	7	28	30	14	0.2	2200	55	<3	450		
382	SS								5	11	19	14	6	0.1	1650	40	<3	170		
385	SS								5	13	20	12	5	0.1	1750	25	<3	200		
395	SS								4	13	11	13	4	0.1	1050	20	<3	150		
399	SS								4	8	15	12	5	0.1	1650	30	<3	250		
406	SS								5	41	18	12	5	0.1	1850	30	<3	280		
934 410	SS								3	16	12	9	5	0.1	1050	30	<3	200		
934 042	SS								19	23	360	110	73	0.1	2600	250	4	560		
044	SS								30	31	290	130	65	0.1	7170	220	4	540		
047	SS								12	305	39	19	8	0.7	2.0%	100	7	440		
053	SS								36	43	270	160	61	0.3	9800	210	<3	760		

* Sample type ss = stream sediment oc = outcrop f = float s = soil

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name ROCKY CAPE + LEIGH R. EL'S No. Sample numbers various Collected by Sheet no. 2
 Area / Prospect JULIUS R. + LEIGH R. Date 24/2/82
 Map / Photo reference ARTUR R. 1:100 000 TOPO SHEET RE - ASSAYS. Analysed by ANALABS CODEC DPO no. 30073

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
		fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ni	Co	Ag	Ti	V	Sn	Ba		
		o/c sample type ***																		
		s sample type ****																		
334 057	SS			-	80 #			39	30	195	210	230	20.1	1.29%	290	5	800			
064	SS							16	28	280	55	74	20.1	3600	230	23	210			
090	SS							24	94	790	49	20	0.2	650	25	23	100			
092	SS							54	360	2650	109	56	0.1	550	60	23	240			
351	SS							12	11	48	20	10	0.1	2.8%	120	9	270			
354	SS							11	4	63	34	19	0.1	6100	75	3	200			
362	SS							11	14	47	14	6	0.1	1.9%	85	6	280			
371	SS							24	8	69	50	20	0.1	2.2%	170	4	220			
382	SS							17	17	46	31	13	0.1	2.0%	130	4	260			
385	SS							6	8	36	9	5	0.1	1.9%	60	6	170			
395	SS							5	5	24	18	7	0.1	1.0%	50	23	270			
399	SS							5	8	25	16	7	0.1	1.3%	60	23	250			
406	SS							9	9	27	16	7	20.1	1.4%	55	23	300			
410	SS							8	9	32	17	7	0.1	3.2%	130	23	260			

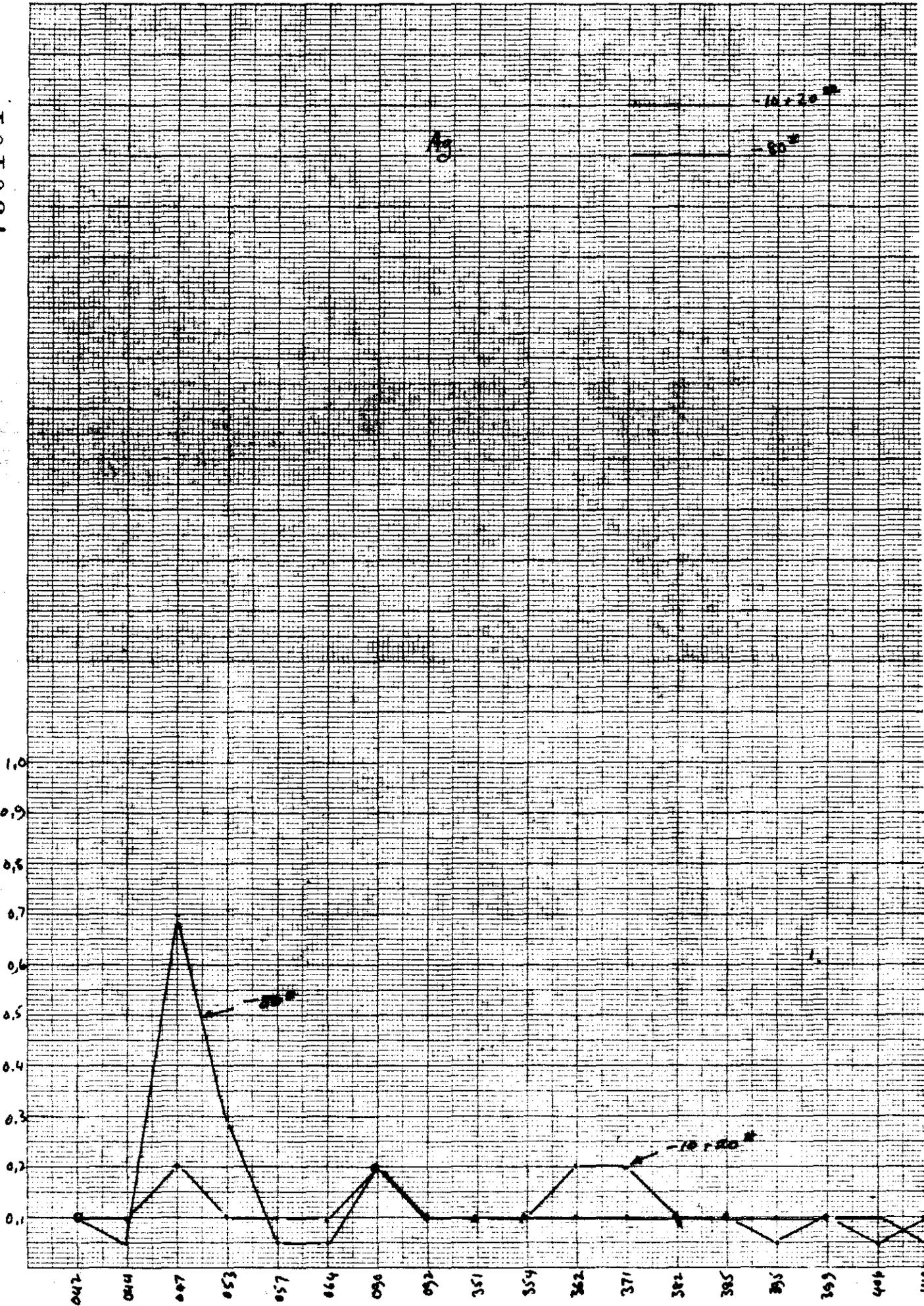
* Sample type - ss = stream sediment



100

730101

Ag (ppm) →

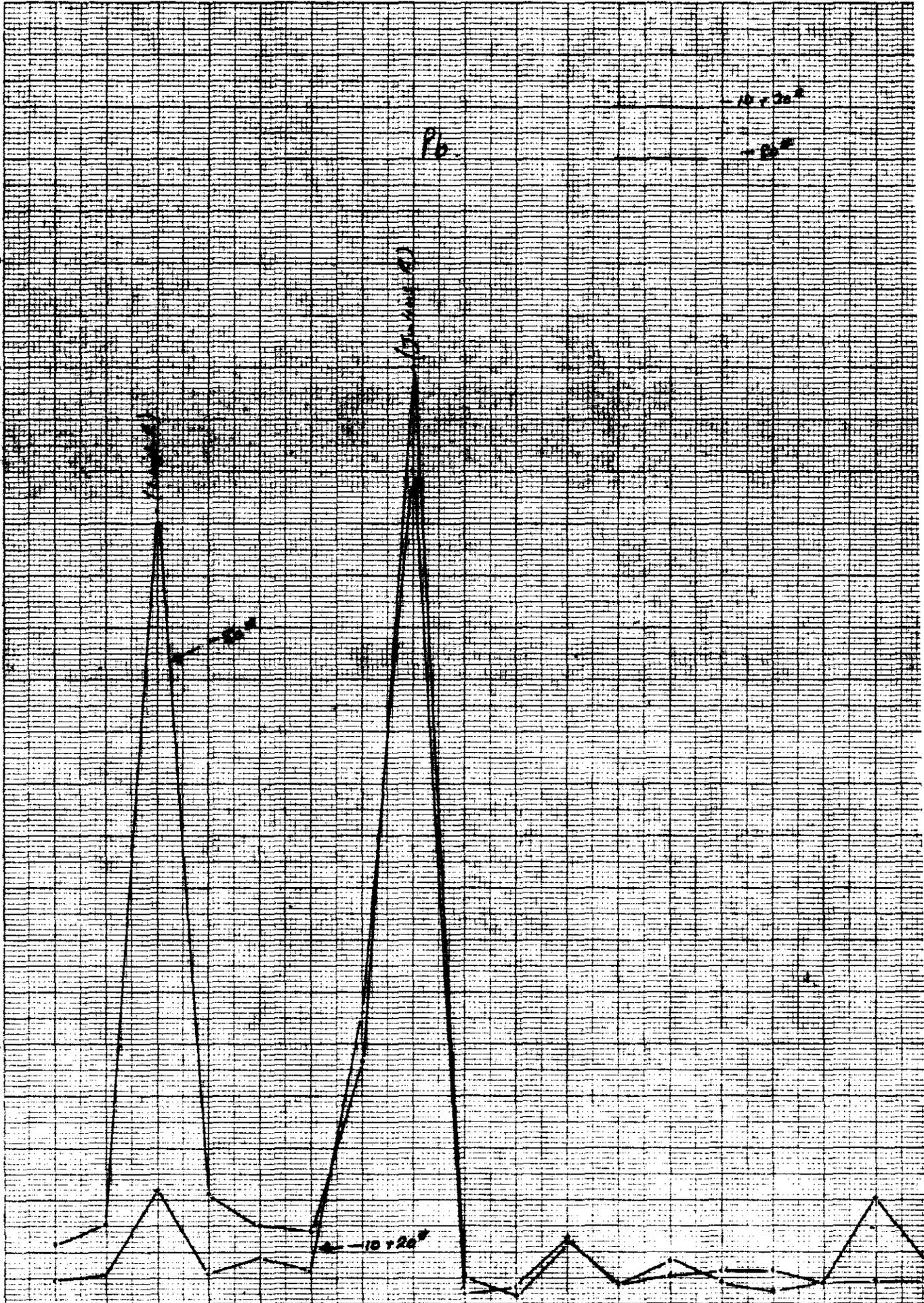




01

Pb. ppm.

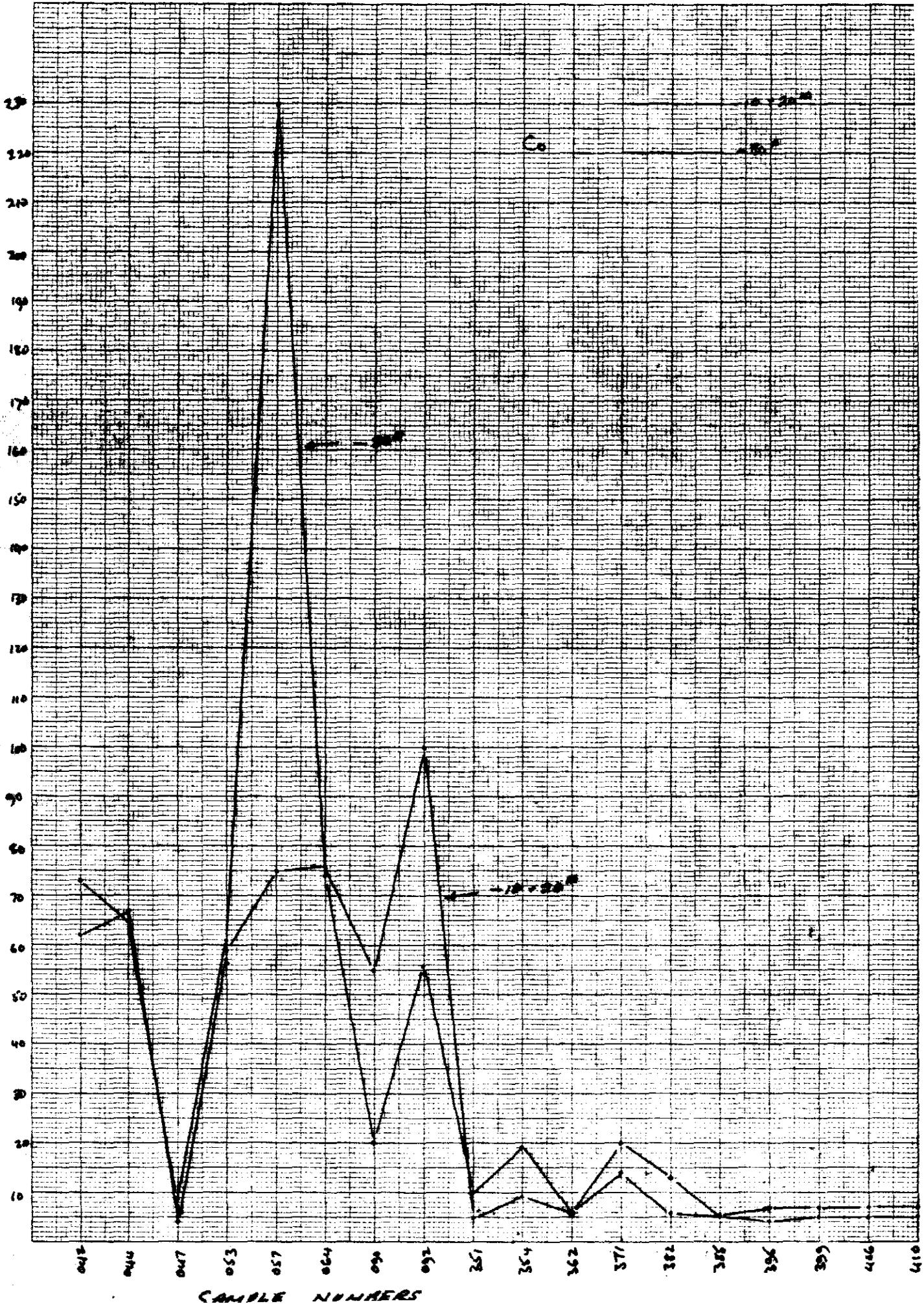
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6
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50



SAMPLE No: 934 Series 351



103



730105

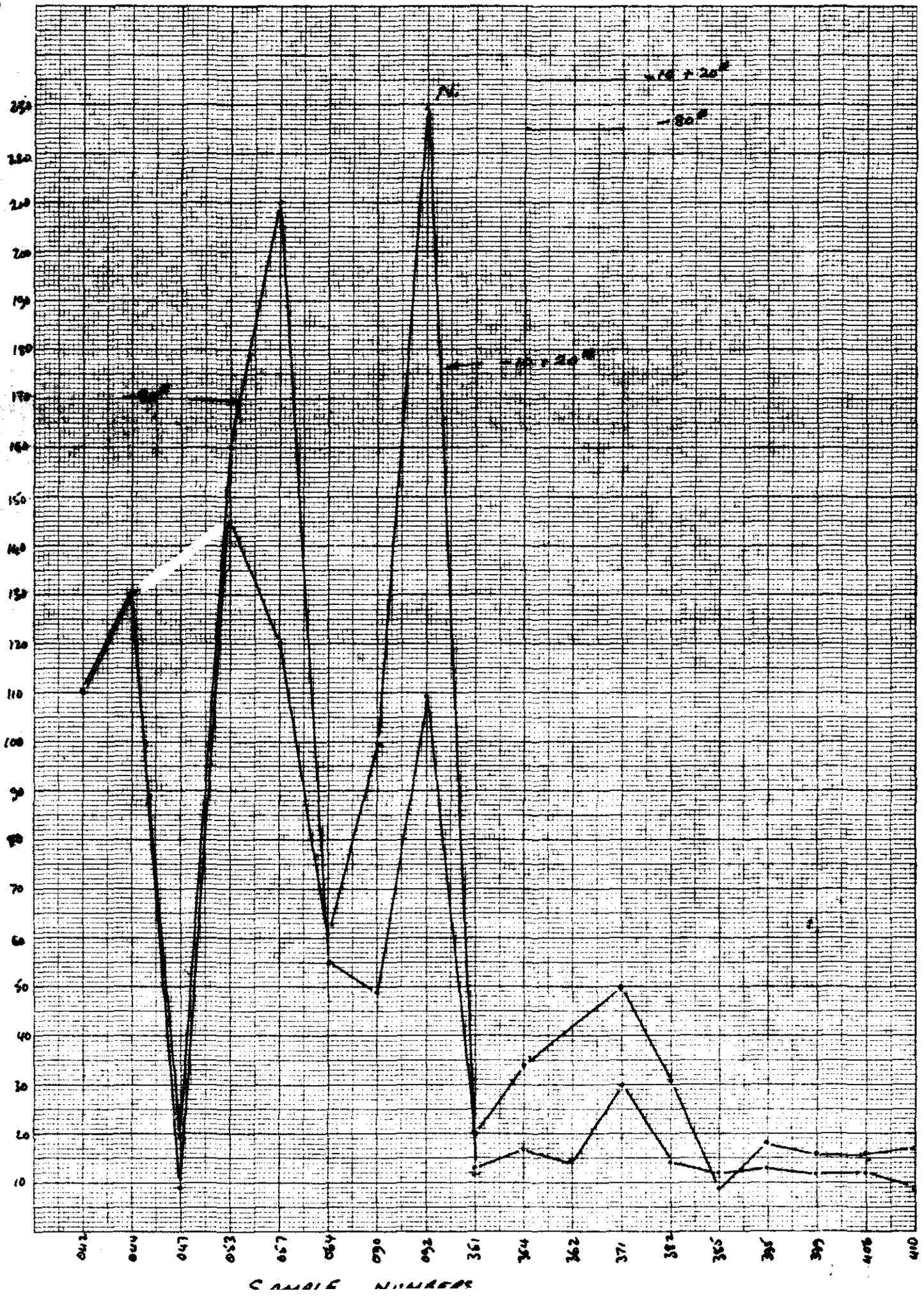
07A88

1 millimetre squares



104

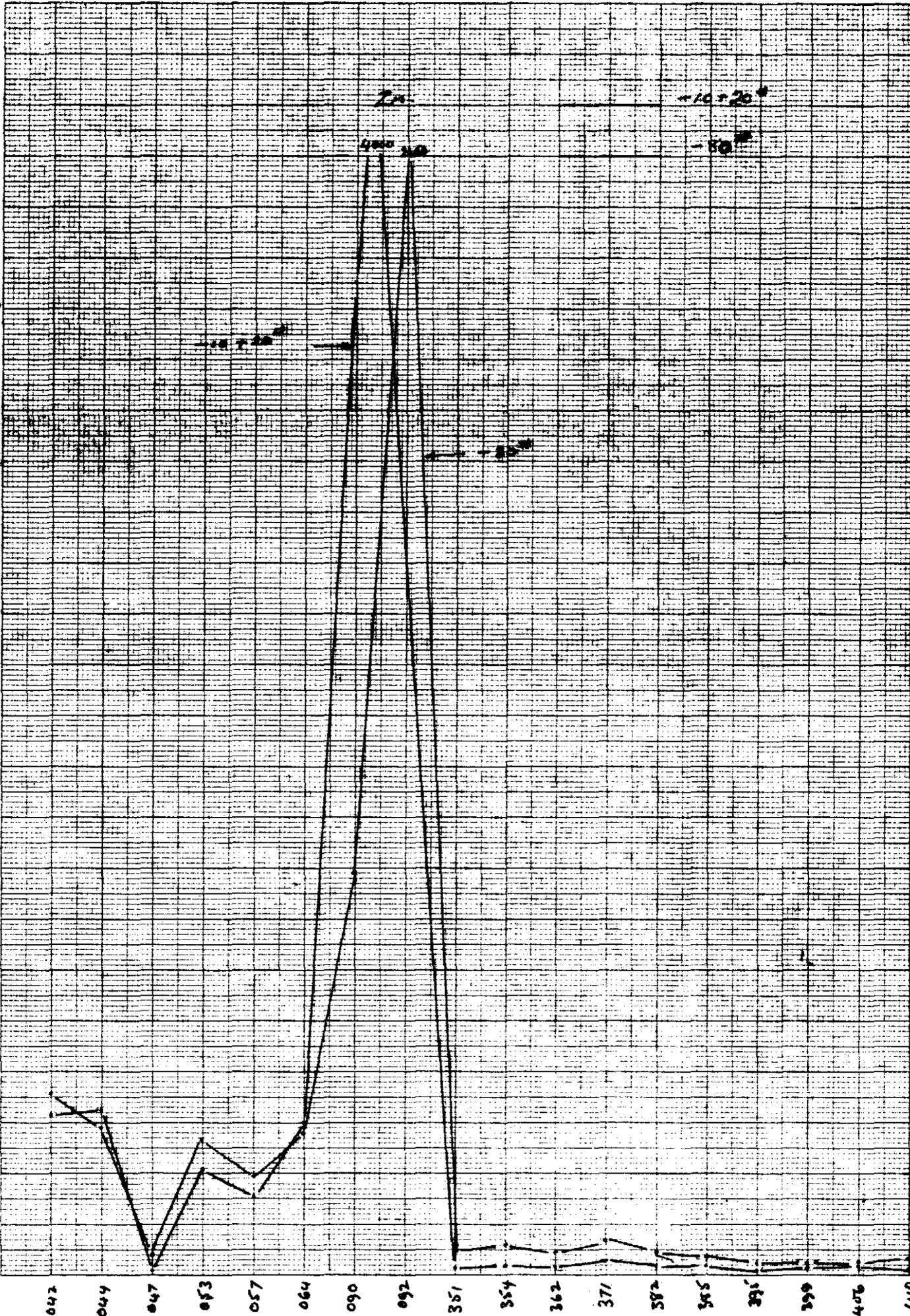
Ni (ppm)





105

Apr 20



CABLE NUMBERS

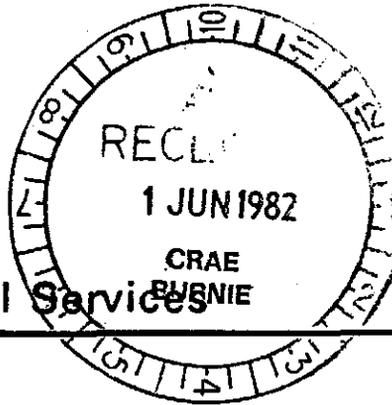
APPENDIX 7

Petrographic Reports

730108

6462

107



Central Mineralogical Services



39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Weir
Geologist
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BURNIE / TAS. 7320

27th May, 1982

REPORT CMS 82/4/36

YOUR REFERENCE: D.P.O. No. 30083
 DATE RECEIVED: 28th April, 1982
 SAMPLE NOS.: 6 Samples
 SUBMITTED BY: D.J. Weir
 WORK REQUESTED: Petrology

Copy to:
The Chief Geologist
C.R.A. Exploration Pty. Ltd.
G.P.O. Box 384D
MELBOURNE / VIC. 3001

Copy & Invoice to:
Administration Officer
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BELLERIVE / TAS. 7018

H.W. Fander
H.W. Fander, M. Sc.

REPORT CMS 82/4/36Rock Samples from the Smithton Trough

Six rock samples were received for petrological examination; two required impregnation before sectioning, and all were extensively weathered and ferruginised, which placed some limitations on classification and interpretation.

Summary

Two of the rocks are poorly-lithified sediments (883, 897), and three others are mildly metamorphosed, with evidence of shearing and brecciation (884, 900A, 900B); specimen 896 seems to be unmetamorphosed, but otherwise resembles 900A in particular.

The poorly-lithified sediments 883 and 897 are most unlikely to be Cambrian and are believed to be Tertiary or younger; the abundance of chromite in 883 indicates an ultramafic source, but the mineral may be reworked.

The other four rocks may well be Cambrian; specifically, the greywackes, which could be tuffaceous and may be correlatable with the Crimson Creek formation. 900B is of interest because of evidence of metasomatic activity in the form of phlogopite veins.

H.W. Fander, M. Sc.

730111

abw FILE

110

Central Mineralogical Services



39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. D.J. Weir
Geologist
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BURNIE / TAS. 7320

27th January, 1982

REPORT CMS 81/12/43

YOUR REFERENCE: D.P.O. No. 30067
DATE RECEIVED: 29th December, 1981
SAMPLE NOS.: 8 Samples
SUBMITTED BY: D.J. Weir
WORK REQUESTED: Petrology

Copy to:
The Chief Geologist
C.R.A. Exploration Pty. Ltd.
G.P.O. Box 3840
MELBOURNE / VIC. 3001

Copy & Invoice to:
Administration Officer
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BELLERIVE / TAS. 7018

H. W. Fander
H.W. Fander, M. Sc.

REPORT CMS 81/12/43D.P.O. 30067 Rock Samples

Eight rock samples were received for petrological examination; thin-sections were prepared and carefully examined in the light of the comments on the order.

Summary

This suite comprises basalts, a tuff and two sediments. None of the rocks showed any contact-metamorphic or metasomatic effects; calcium silicates, often associated with limestone/basalt contacts, are absent, and the only non-magmatic minerals are the deuteritic assemblages (calcite, chlorite, epidote, pyrite, adularia, ^{hastingsite}). The carbonate masses present in some specimens are cavity/amygdale-filling, not sedimentary limestones - as far as can be determined from these samples.

The basalts are categorised as hawaiites (andesine basalts) and are generally fresh; compositionally, they verge on Fe-rich andesites or 'melaphyres'. The tuff (934155) is clearly related to (derived from) the basalts.

The two sediments are both unusual; one has been termed a metasomatised ?siltstone (934194), in which the matrix-cement is silicified and sericitised; it contains quartz pseudomorphs after ?halite crystals. The other (934247) consists solely of toffee-brown quartz crystals, clearly replacive; the rock may have been a sedimentary carbonate, but there is no direct evidence of this.

Since the basalts are apparently lava flows, the only notable contact effects will be at their base (i.e. the contact with underlying rocks) or adjacent to the feeders.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Central Mineralogical Service Comments
34141 T.S. 0402)	<u>Scoriaceous Basalt</u> . Dense, semi-opaque basalt with altered plagioclase laths in ferruginous groundmass. Chalcedony, epidote in amygdales.	Numerous large/small amygdales, drawn out; Flow-banded lava.	Blebs of red-brown glass. Secondary zoisite representing feldspar.	A rapidly cooled extrusive rock, from flow-top of basic lava. Presumed basaltic composition.
34155	<u>Tuff</u> . Large and small irregular fragments of dolerite, basalt, andesite, dark glass, pyroxene, andesine, chert, in very fine semi-opaque ash matrix.	Smaller fragments stretched, deformed. Unsorted, Grainsizes up to 15 mm.	Some fragments replaced by chlorite, carbonate.	Believed to be subaerially deposited, possibly welded. Andesitic/basaltic source material.
34179	<u>Porphyritic Basalt</u> . Complexly-twinned fresh andesine phenocrysts in mass of andesine, augite, magnetite; large irregular amygdales of calcite-prehnite-chlorite.	Random orientation uniform fabric. Phenocrysts in clusters (glomeroporphyritic texture).	Albite and quartz veinlets. Pyrite crystals. Trace epidote.	More correctly classified as a hawaiite (andesine basalt). White calcitic masses are essentially openings and veins.
34181	<u>Basalt Breccia</u> . Irregular masses of basalt with andesine phenocrysts in andesine-augite-magnetite groundmass; interstitial chlorite, carbonate, epidote.	Basalt is amygdaloidal/scoriaceous, fragmented. Broad shear zones.	Veins of dense epidote with pyrite; younger calcite veins.	Probably a flow-breccia, with extensive deuteric alteration. Compositionally the same as 934179.
34194	<u>Metasomatised ?Siltstone</u> . Small angular quartz grains dispersed through ultrafine featureless quartz-sericite matrix with oxidised chlorite patches.	Very uniform, with faint preferred orientation, but otherwise structureless.	Clastic muscovite; quartz pseudomorphs after ?halite cubes. Trace pyrite.	Thought to have been an argillaceous siltstone, possibly evaporitic facies, if pseudomorphs were originally halite.
34247	<u>Quartzite</u> . Interlocking subhedral small quartz crystals; each contains cloudy inclusions of ultrafine goethite; cavities lined with crystals.	Relict banding or bedding preserved, and accentuated by elongate cavities.	None detected.	A monomineralic rock, formed by complete silicification, probably of a fine-grained carbonate.
34269	<u>Basalt</u> . Complexly twinned andesine phenocrysts in a mass of fine andesine, augite, magnetite, altered glass. Coarse adularia veined by hastingsite and chlorite, in cavities.	Basalt is fine-grained, uniform, with large openings.	Quartz-chlorite-epidote-carbonate veins cut all other minerals.	Same type of hawaiite as the others; no indication of skarn formation.
34270 T.S. 0409)	<u>Porphyritic Basalt</u> . Fresh, complexly-twinned andesine phenocrysts in mass of random andesine laths, subhedral augite, magnetite crystals.	Verging on medium-grained, doleritic fabric. A few amygdales.	Pyrite conspicuous in rock and amygdales, with chlorite. Calcite veins.	Correlates with the other basalts. Pyrite is deuteric. Calcite veins are younger.

113

Central Mineralogical Services



39 Beulah Road
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Mr. D.J. Weir
Geologist
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BURNIE / TAS. 7320

2nd November, 1981

REPORT CMS 81/10/11

YOUR REFERENCE:	D.P.O. No. 30062
DATE RECEIVED:	7th October, 1981
SAMPLE NOS.:	5 Samples
SUBMITTED BY:	D.J. Weir
WORK REQUESTED:	Petrology

Copy to:
The Chief Geologist
C.R.A. Exploration Pty. Ltd.
G.P.O. Box 3840
MELBOURNE / VIC. 3001

Copy & Invoice to:
Administration Officer
C.R.A. Exploration Pty. Ltd.
P.O. Box 138
BELLERIVE / TAS. 7018

H.W. Fander for
H.W. Fander, M. Sc.

REPORT CMS 81/10/11

Five specimens were received for petrological examination and results are summarised in the attached table. Descriptions incorporate data from stereobinocular and petrological microscopic examination of representative thin-sections and offcuts, and include interpretative comments.

Summary

Sample 934051 represents an amygdaloidal basalt with a "spilitic" alteration assemblage of albite, chlorite and epidote accompanied by conspicuous fine-grained pyrite and traces of prehnite. Part of the area sectioned comprises relatively amygdaloidal ("scoriaceous") flow breccia, suggestive of a flow-marginal facies. In view of the association of pyrite with a prehnite alteration assemblage, Cu-geochemistry may be warranted.

The remaining four samples can be classified as carbonaceous cherts. These rocks are rather featureless, but there is evidence of differential modes of origin. Samples 934052 and 934095 appear to be primary cherts or, conceivably, diagenetically chertified limestone in the case of 934052. In contrast, 934080 and 934093 both exhibit evidence of secondary silicification, postdating a weak tectonic overprint. These rocks were possibly impure metacarbonates (?talc-dolomite rocks).

This interpretation requires consideration in the light of field evidence. The apparent association of partly nodular carbonate and chert facies is reminiscent of the basal zones of the Crimson Creek Formation.

D. Cowan, B. Sc.

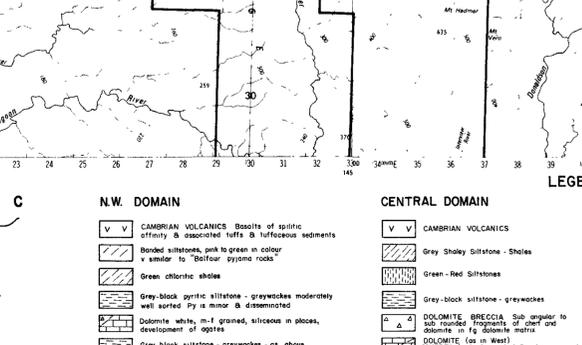
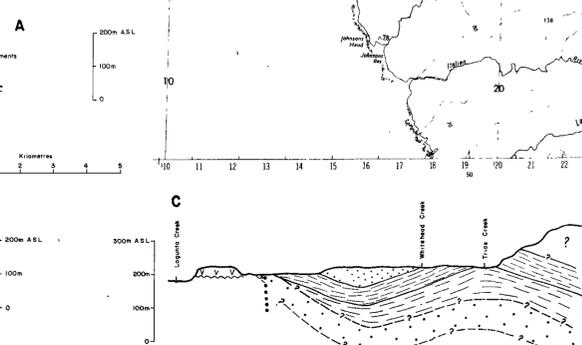
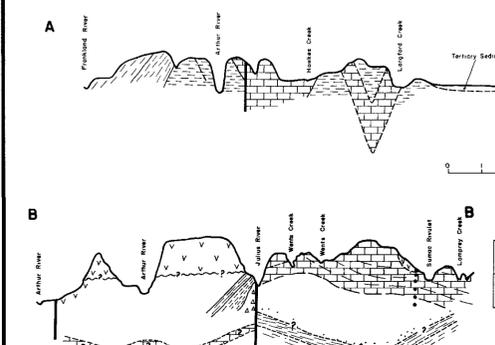
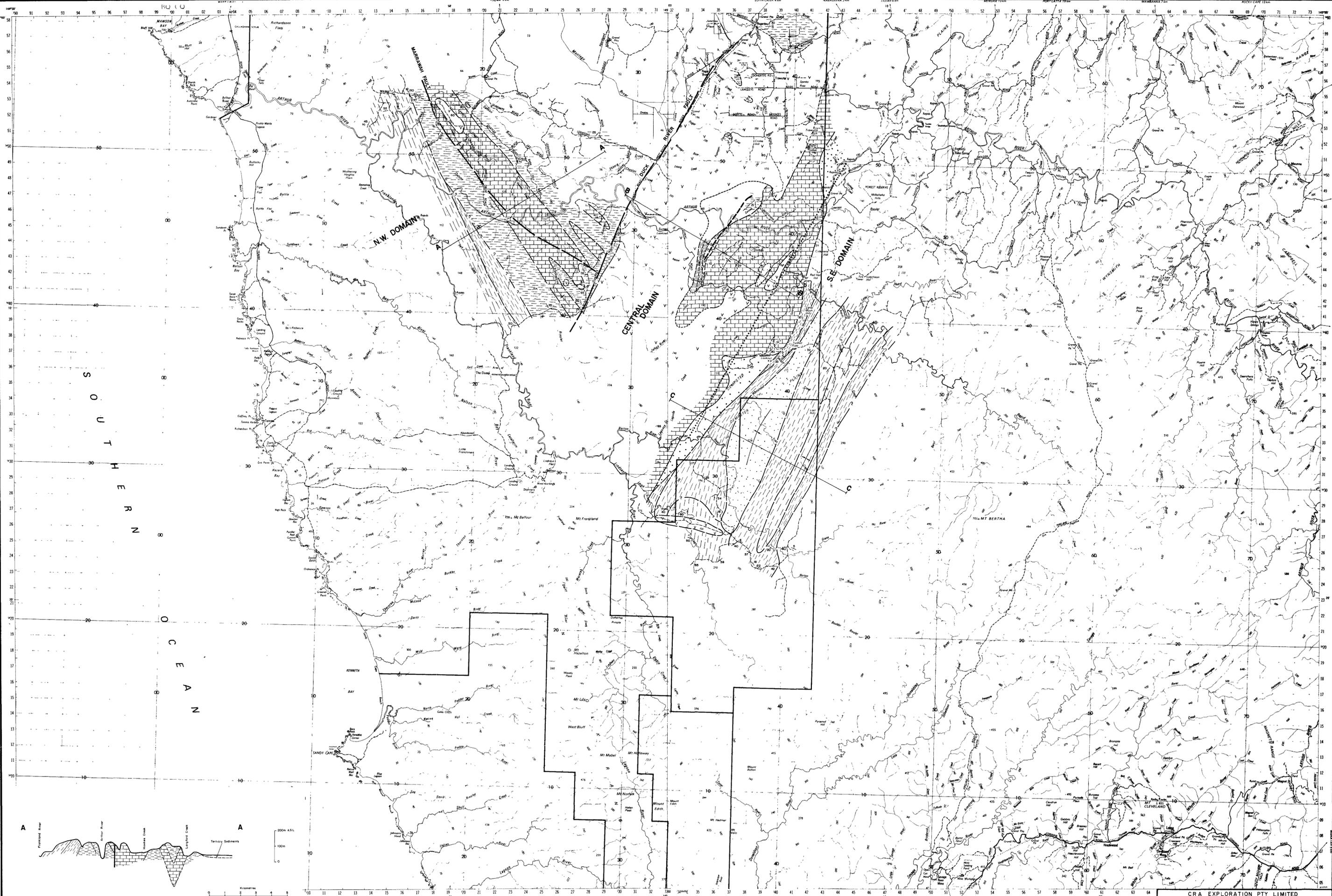
Classification - Composition	Fabric	Accessories	Comments
5042 B Altered Basalt. Albitised plagioclase phenocrysts, fresh augite microphenocrysts in plagioclase-microlathic/granular augite groundmass, argillic mesostasis. Disseminated chlorite (-epidote-pyrite) amygdaloes.	Glomeroporphyritic, amygdaloidal, basaltic. Sporadic chlorite-pyrite films, veinlets.	Leucoxenised opaques. Patchy prehnite, minor allanite (at cores of amygdale epidote).	Grades marginally into relatively chloritised (+ prehnite) scoriaceous breccia. "Spilitic" alteration pattern. Unstressed.
13081 Chert. Cherty crypto- to microcrystalline quartz, variably stained with ultrafine carbonaceous matter. Sporadic quartz veinlets.	Nodular on sub- to millimetric scale. Vague ?carbonate-pseudomorphous microtextures.	None detected.	Vague affinities with nodular cherts of "Red Rock" sequence Renison area, but non-hematitic. Conceivably a silicified oolitic carbonate, but no
13081 "Chert". Cherty microcrystalline quartz incipiently stained with carbonaceous matter. Frequent microfilms carbonaceous matter and degraded ?talca.	Vaguely nodular (sim. 934052). Reflects weak relict tectonic fabric (pre-quartz).	None detected.	Essentially quite ^{positive evidence} similar to 934052. Weak relict slaty cleavage predates bulk of cherty silicification. ?Silicified impure limestone or dolomite.
13081 "Chert". Cherty microcrystalline quartz with irregularly distributed carbonaceous stainings, minor degraded ?talca films.	Similar to 934080, but with vague segmented nodular features.	None detected.	Closely related to 934093. Vague relict tectonic fabric is very weak in comparison. ?Silicified impure limestone or dolomite.
13081 Chert. Cherty crypto- to microcrystalline quartz with very thinly disseminated fine silt-sized clastic quartz grains, muscovite flakes. Weak, but pervasive carbonaceous stainings.	"Nodular", sub- to millimetric, ovoid, microcrystalline clasts, cryptocrystalline matrix.	Minor traces "syngenetic" pyrite, rare diagenetic dolomite rhombs.	Affinities with 934052, but interpreted as a chert breccia (as against nodular chert). Clasts are homogeneous, featureless.
730116			
115			

12. LIST OF PLANS

<u>Plan No.</u>		<u>Scale</u>
1.	TASh 077 EL 1/77 Rocky Cape - Geological Map.	1:100 000
2.	TASh 078 " " " " - Stream Sediment Samples - Location Map	"
3.	TASh 079 " " " " " " " - Lead	"
4.	TASh 080 " " " " " " " - Zinc	"
5.	TASh 081 " " " " " " " - Copper	"
6.	TASh 084 " " " " " " " - Nickel	"
7.	TASh 083 " " " " " " " - Cobalt	"
8.	TASh 085 " " " " " " " - Arsenic	"
9.	TASh 082 " " " " " " " - Tin	"
10.	TASh 828 EL 1/77 Rocky Cape, Rock Chip Samples - Location Map	"
11.	TASh 829 " " " " " " " - Copper	"
12.	TASh 830 " " " " " " " - Lead	"
13.	TASh 831 " " " " " " " - Zinc	"
14.	TASh 093 EL 1/77 Rocky Cape, Julius R. Grid Locations	1:31,680
15.	TASh 066 " " " " Stream Sediment Pb,Zn,Mn	1:2000
16.	TASh 070 " " " " Soil Geochemistry Cu	"
17.	TASh 068 " " " " " " Pb	"
18.	TASh 069 " " " " " " Zn	"
19.	TASh 075 " " " " " " Ni	"
20.	TASh 074 " " " " " " Co	"
21.	TASh 076 " " " " " " As	"

730118

22.	TASh 073	EL 1/77	Rocky Cape	Soil	Geochemistry	Ag	1:2000
23.	TASh 071	"	"	"	"	Fe	1:2000
24.	TASh 072	"	"	"	"	Mn	1:2000



N.W. DOMAIN	CENTRAL DOMAIN	S.E. DOMAIN
CAMBRIAN VOLCANICS Basalts of spilitic affinity & associated tuffs & tuffaceous sediments	CAMBRIAN VOLCANICS	CAMBRIAN VOLCANICS
Banded siltstones, pink to green in colour or similar to "Redfour" siltstone rocks	Grey Shaly Siltstone - Shales	DOLOMITE/CHERT
Green chloritic shales	Green-Red Siltstones	Quartzite - dirty
Grey block pyritic siltstone - greywackes moderately well sorted by a minor & determined	Grey block siltstone - greywackes	Black Pyritic Shales. Euhedral pyrite showing development of Concretionary nodules & chert
Dolomite white, m-f grained, siliceous in places, development of oolites	Dolomite (see in sheet)	Green chloritic banded siltstone
Grey block siltstone - greywackes - as above	Dolomite (see in sheet)	Quartzite
	Dolomite (see in sheet)	
	Dolomite (see in sheet)	

SYMBOLS
Fault
Fault Inferred
Major photo lineament
Anticline Axis
Syncline Axis
Dip & strike of bedding
Cleavage trace

CRA EXPLORATION PTY LIMITED

EL 1/77 - ROCKY CAPE

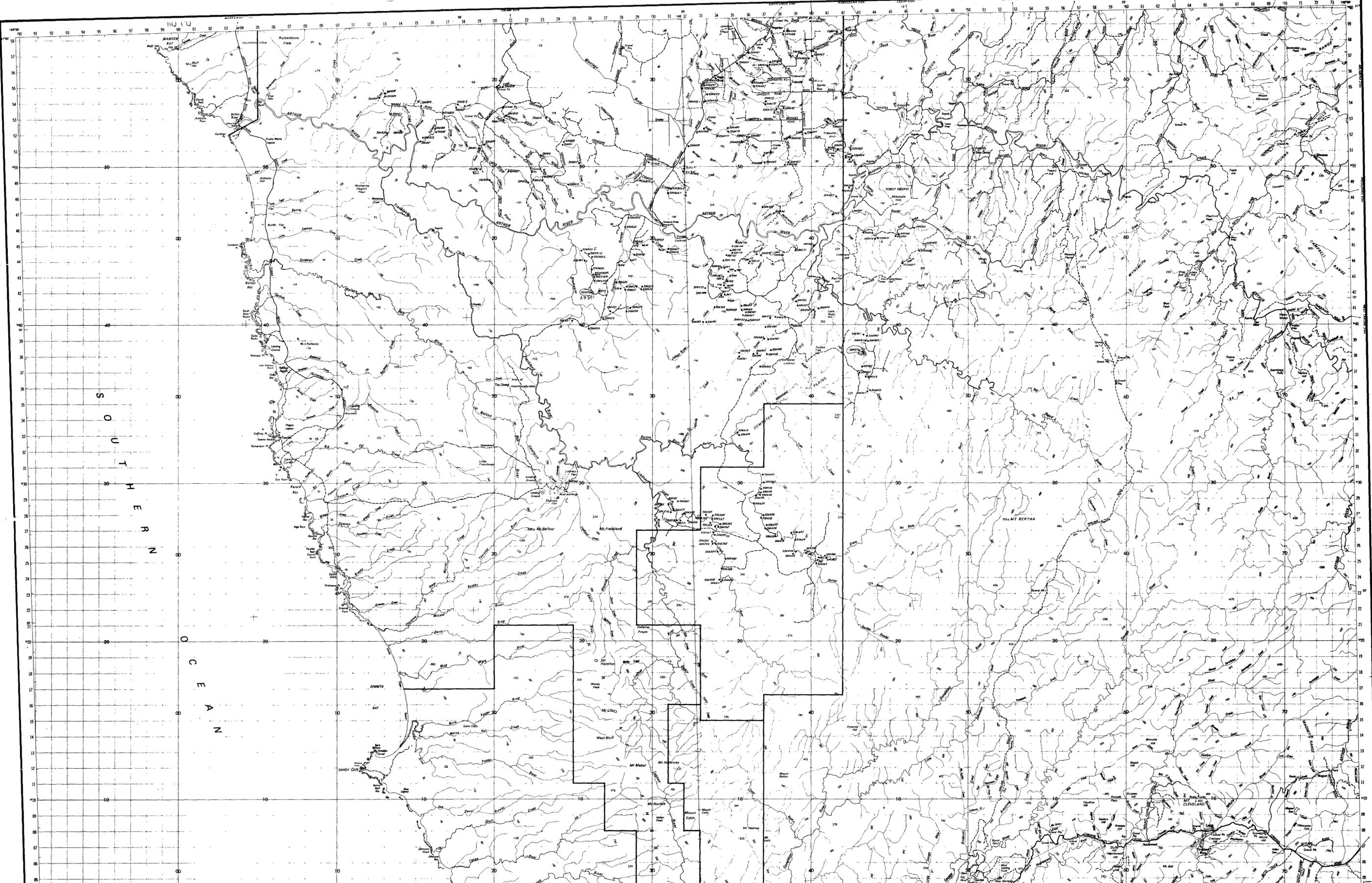
GEOLOGY PLAN

730119

3059

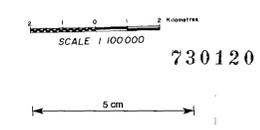
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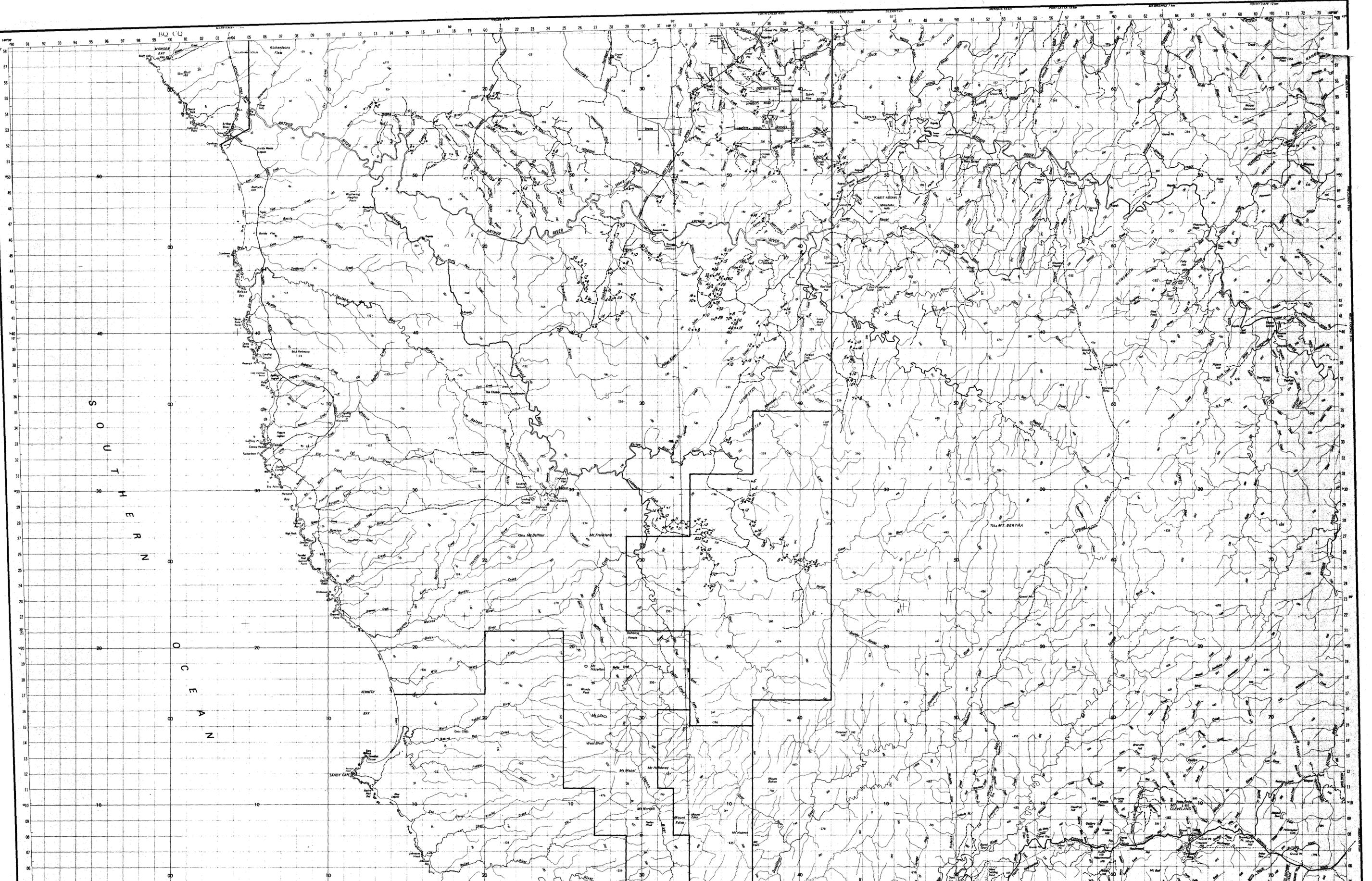
Drawn TGDS Date August, 1982 Plan No. TAS h 077



CRA EXPLORATION PTY LIMITED
 EL. 1/77 - ROCKY CAPE
 STREAM SEDIMENT SAMPLING
 SAMPLE LOCATIONS 3060
 82-1511 (Vol 2) 212

Geologist J.W.	Scale 1:100,000	Report No 11604
Drawn T.G.D.S.	Date June 1982	Plan No: TAS h 078





S O U T H E R N O C E A N

CRA EXPLORATION PTY. LIMITED

EL. 1/77 - ROCKY CAPE

STREAM SEDIMENT SAMPLING

LEAD

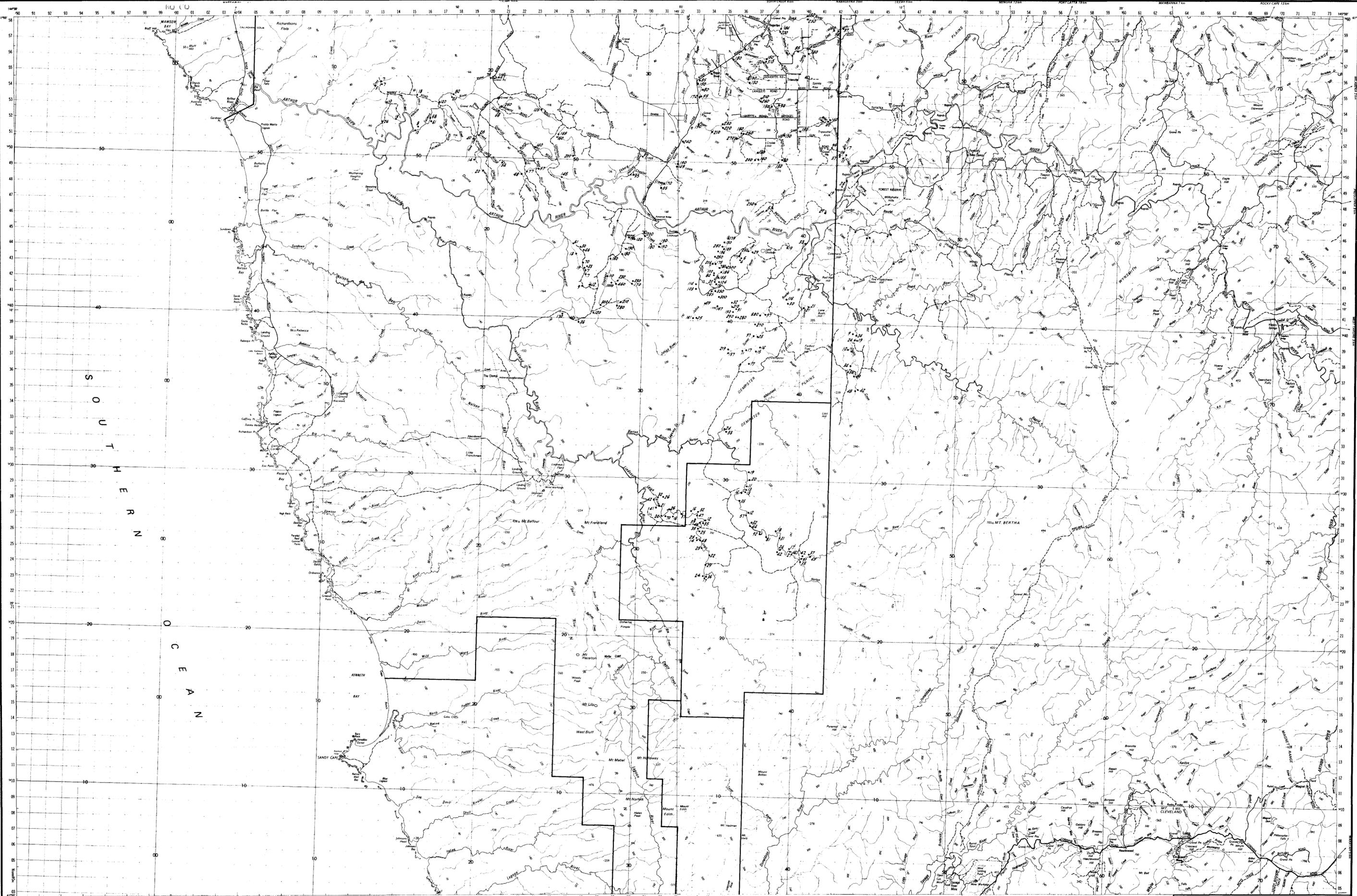
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82-151 (No. 22)

Geologist: J.W.	Scale: 1:100000	Report No. 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 079

SCALE: 1:100000





CRA EXPLORATION PTY LIMITED

EL. 1/77 - ROCKY CAPE

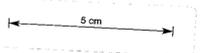
STREAM SEDIMENT SAMPLING

ZINC

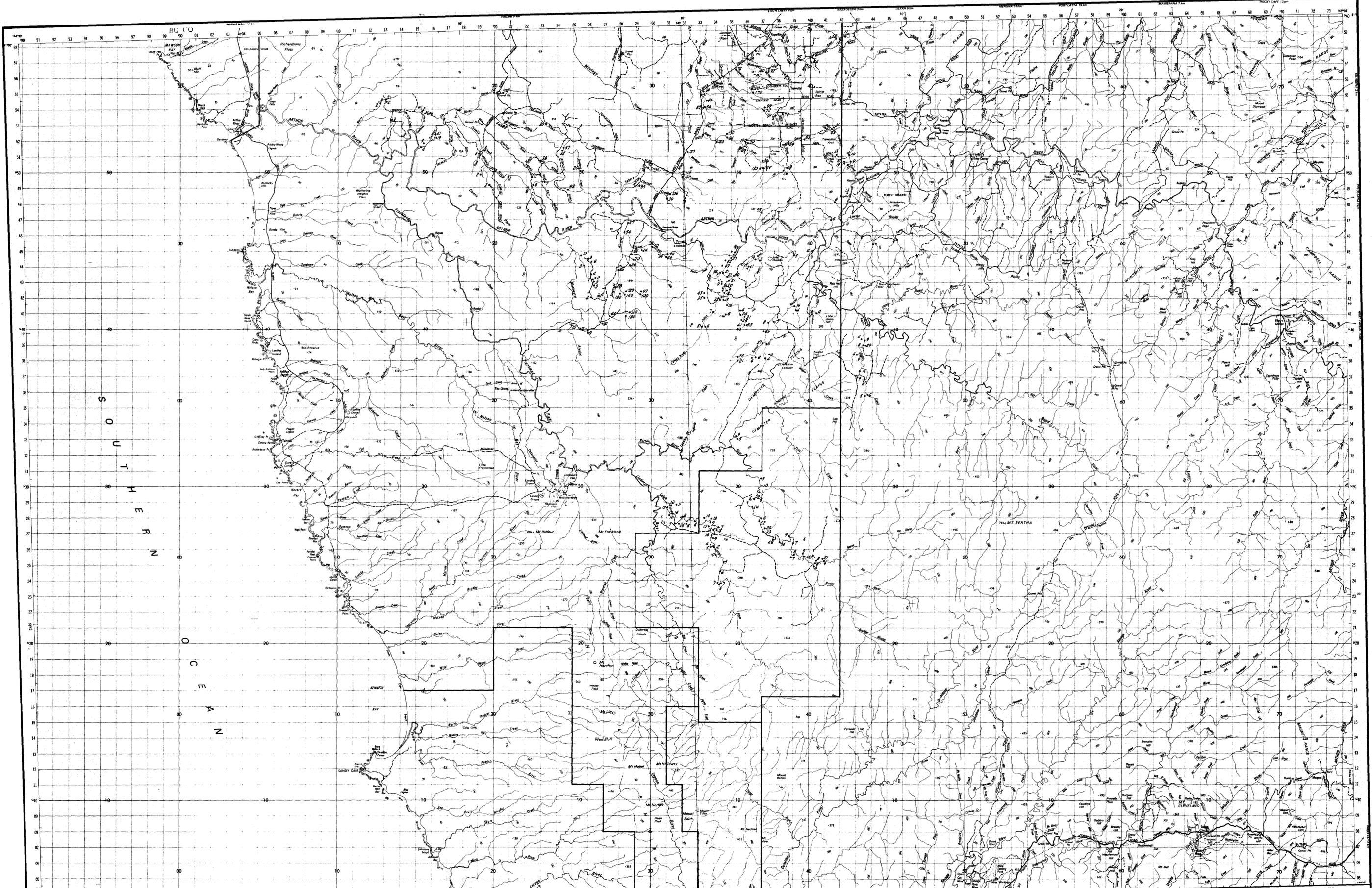
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Geologist: J.W. Scale: 1:100000 Report No: 11604
 Drawn: TGDS Date: June 1982 Plan No: TAS h 080

SCALE 1:100000

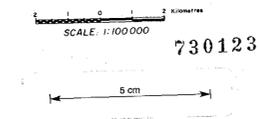


730122



S O U T H E R N

O C E A N



CRA EXPLORATION PTY. LIMITED

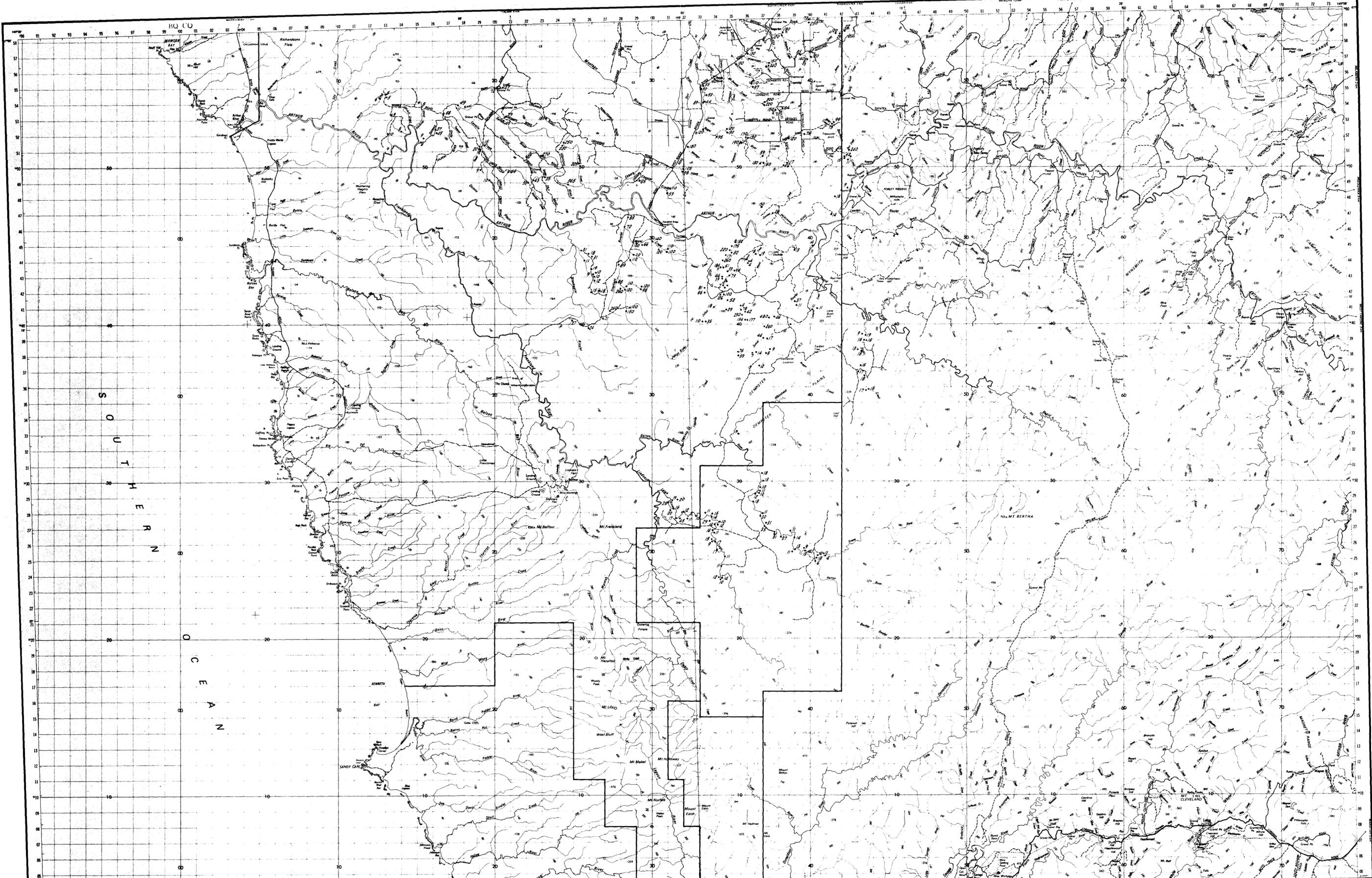
E.L. 1/77 - ROCKY CAPE

STREAM SEDIMENT SAMPLING

COPPER

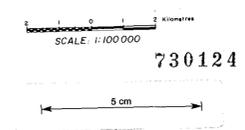
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Geologist: J.W.	Scale: 1:100000	Report No: 11604
Drawn: T.G.S.	Date: June 1982	Plan No: TAS h 081



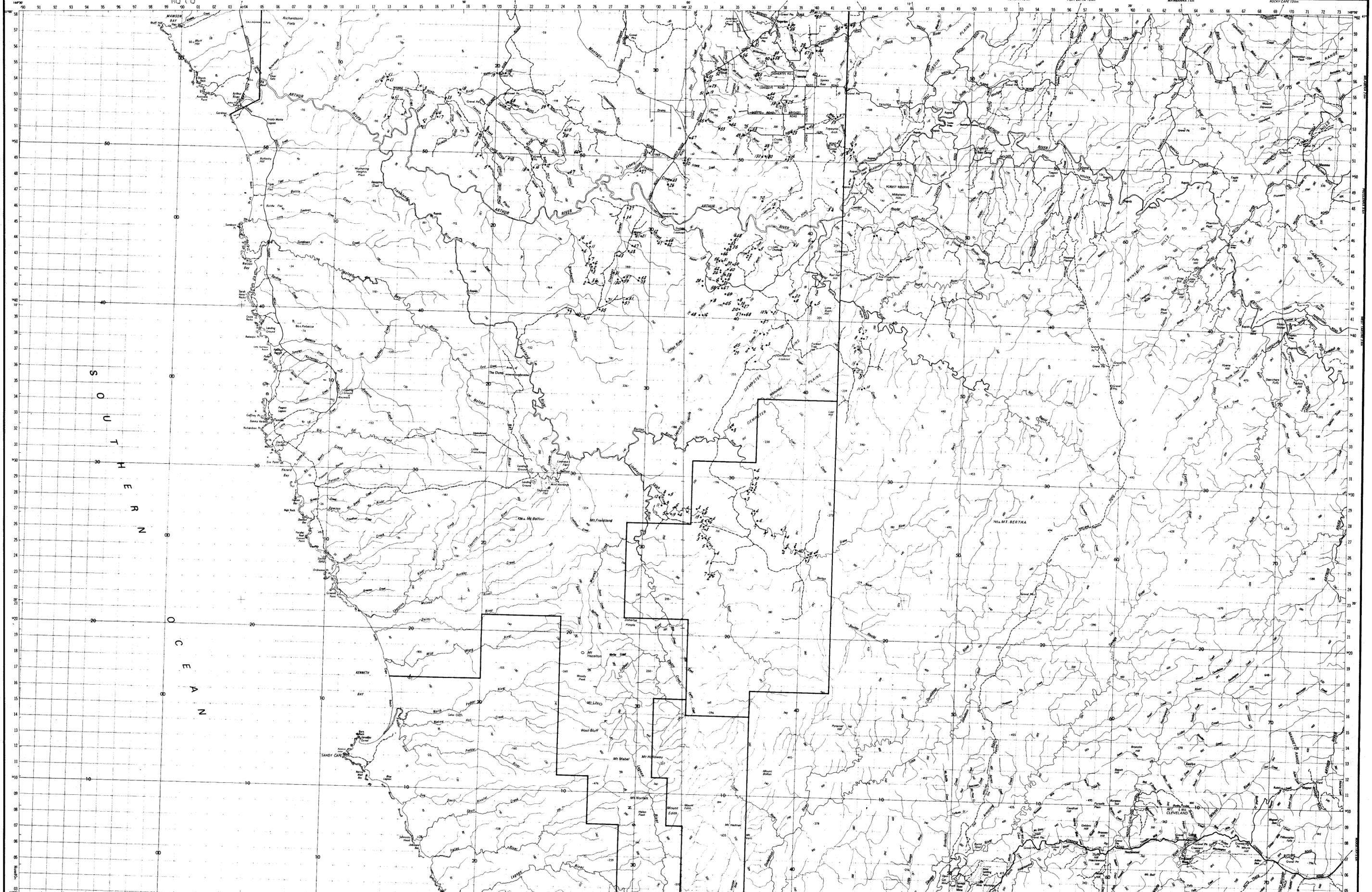
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CRA EXPLORATION PTY. LIMITED		
EL. 1/77 - ROCKY CAPE		
STREAM SEDIMENT SAMPLING		
NICKEL		
52-1811 (Vol 2/3)		3064
Geologist: J.W.	Scale: 1:100000	Report No: 11604
Drawn: TG.D.S.	Date: June 1982	Plan No: TAS h 084



S O U T H E R N

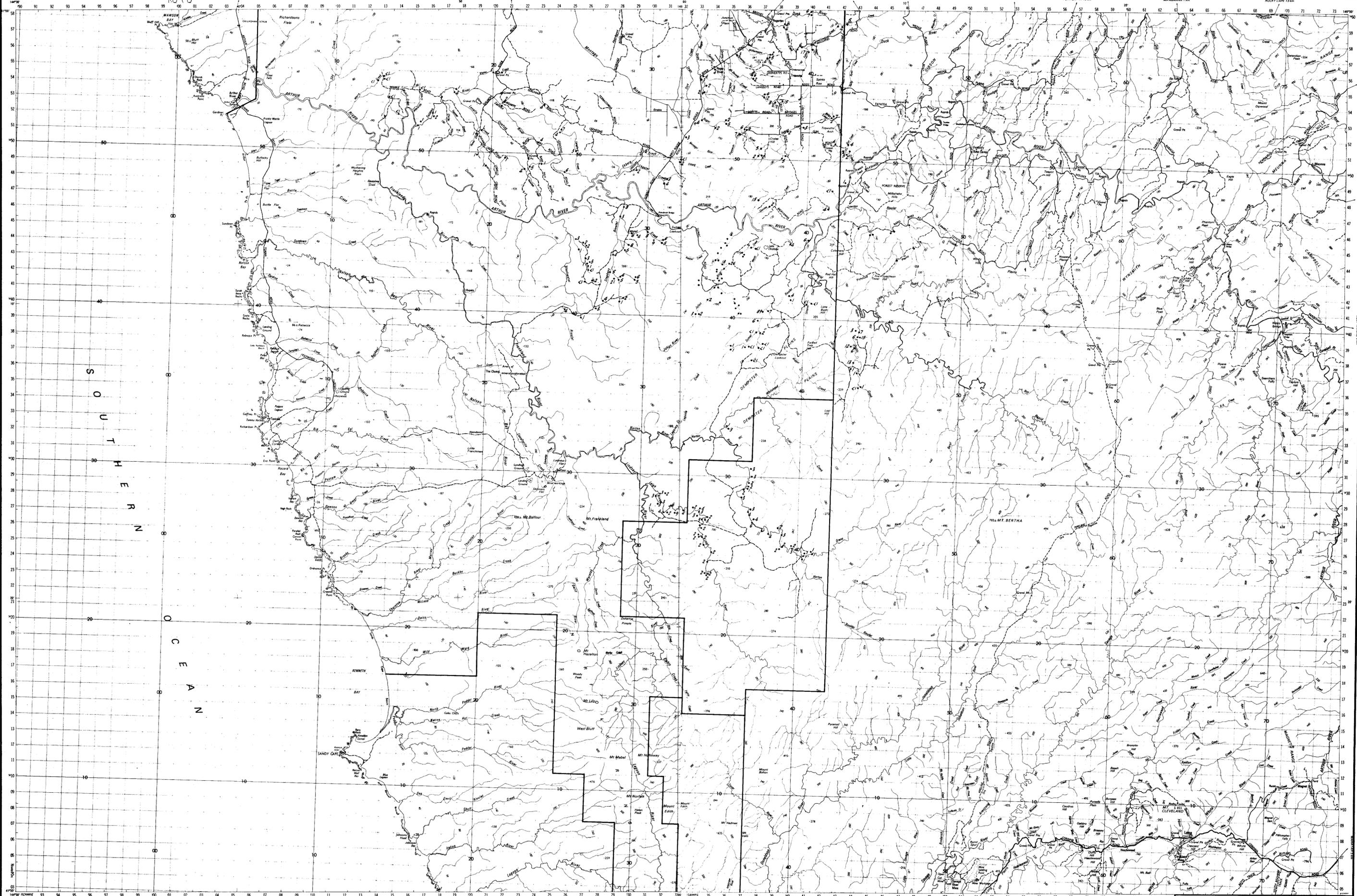
O C E A N

SCALE 1:100 000

730125

5 cm

CRA EXPLORATION PTY. LIMITED		
E.L. 1/77 - ROCKY CAPE		
STREAM SEDIMENT SAMPLING		
COBALT		
82-121 (Vol 2)	3065	
Geologist: J.W.	Scale: 1:100 000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 083



CRA EXPLORATION PTY LIMITED

E.L. 1/77 - ROCKY CAPE

STREAM SEDIMENT SAMPLING

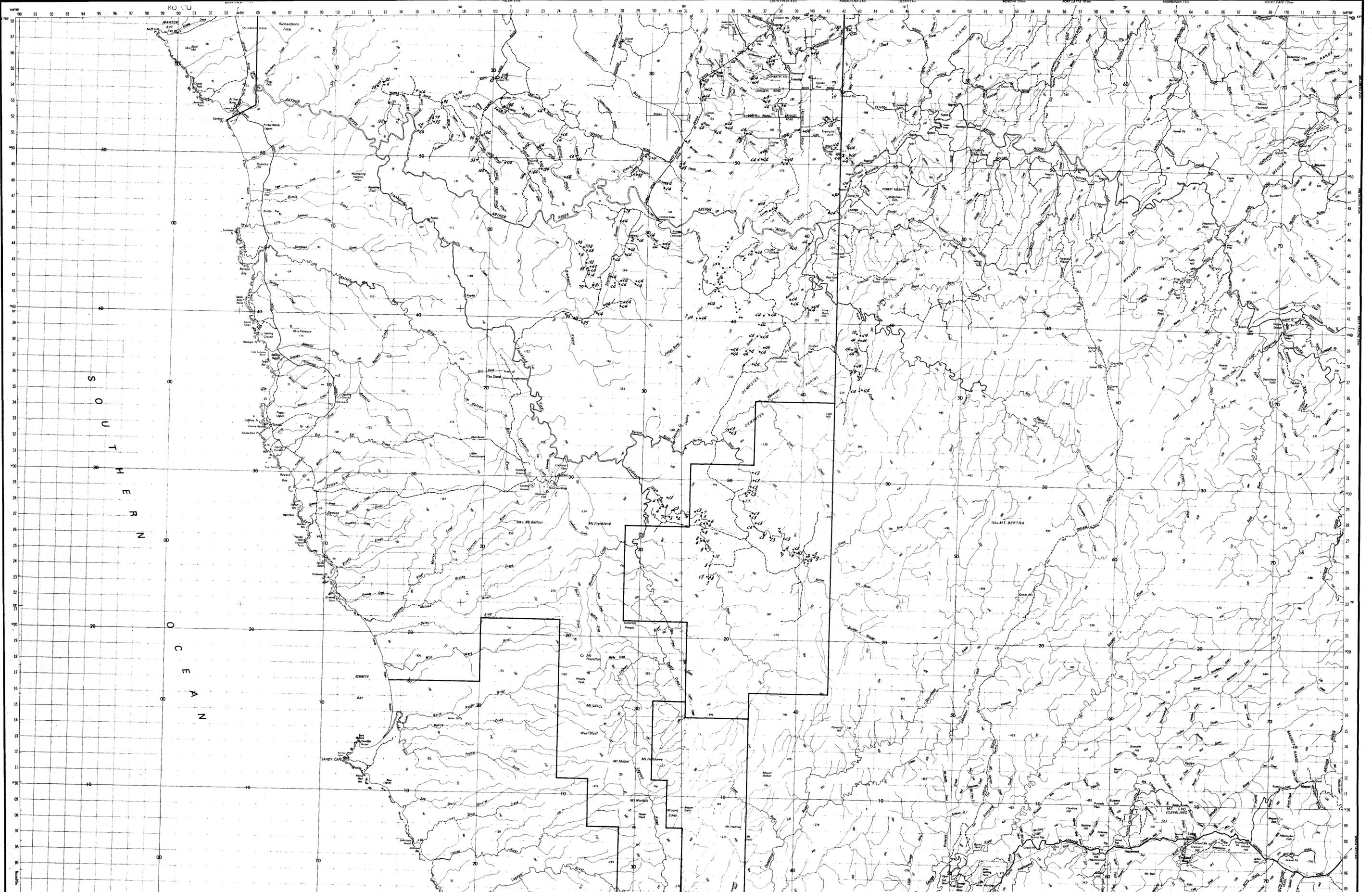
ARSENIC

3066

Geologist : J.W.	Scale : 1:100 000	Report No. 11604
Drawn : T.G.D.S.	Date : June 1982	Plan No. : TAS h 085

730126

5 cm



730127
 SCALE: 1:100 000
 5 cm

CRA EXPLORATION PTY. LIMITED

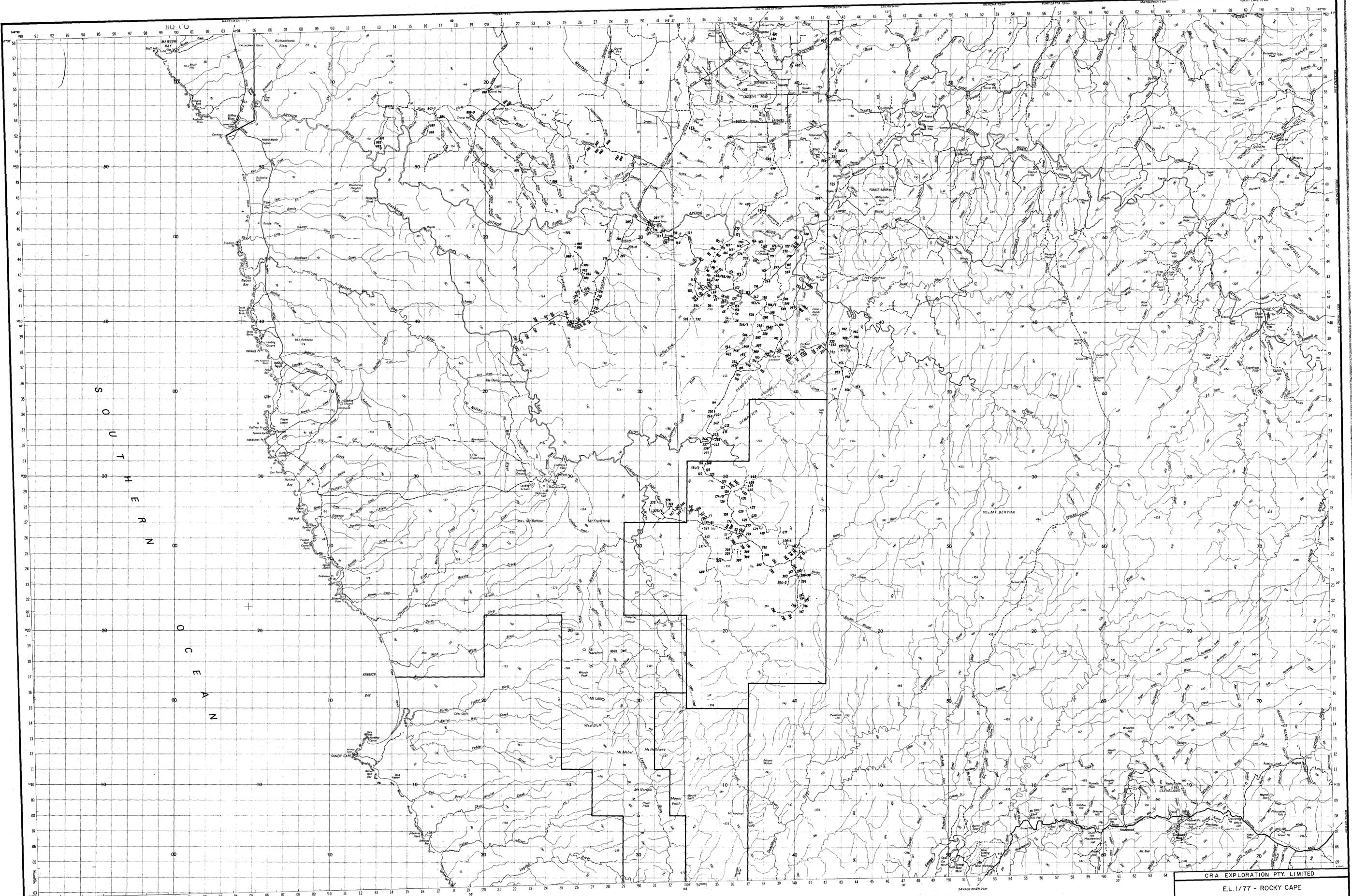
EL. 1/77 - ROCKY CAPE

STREAM SEDIMENT SAMPLING

TIN 3067

20-1511 (Vol 2/2)

Geologist: J.W.	Scale: 1:100 000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 082



CRA EXPLORATION PTY. LIMITED

E.L. 1/77 - ROCKY CAPE

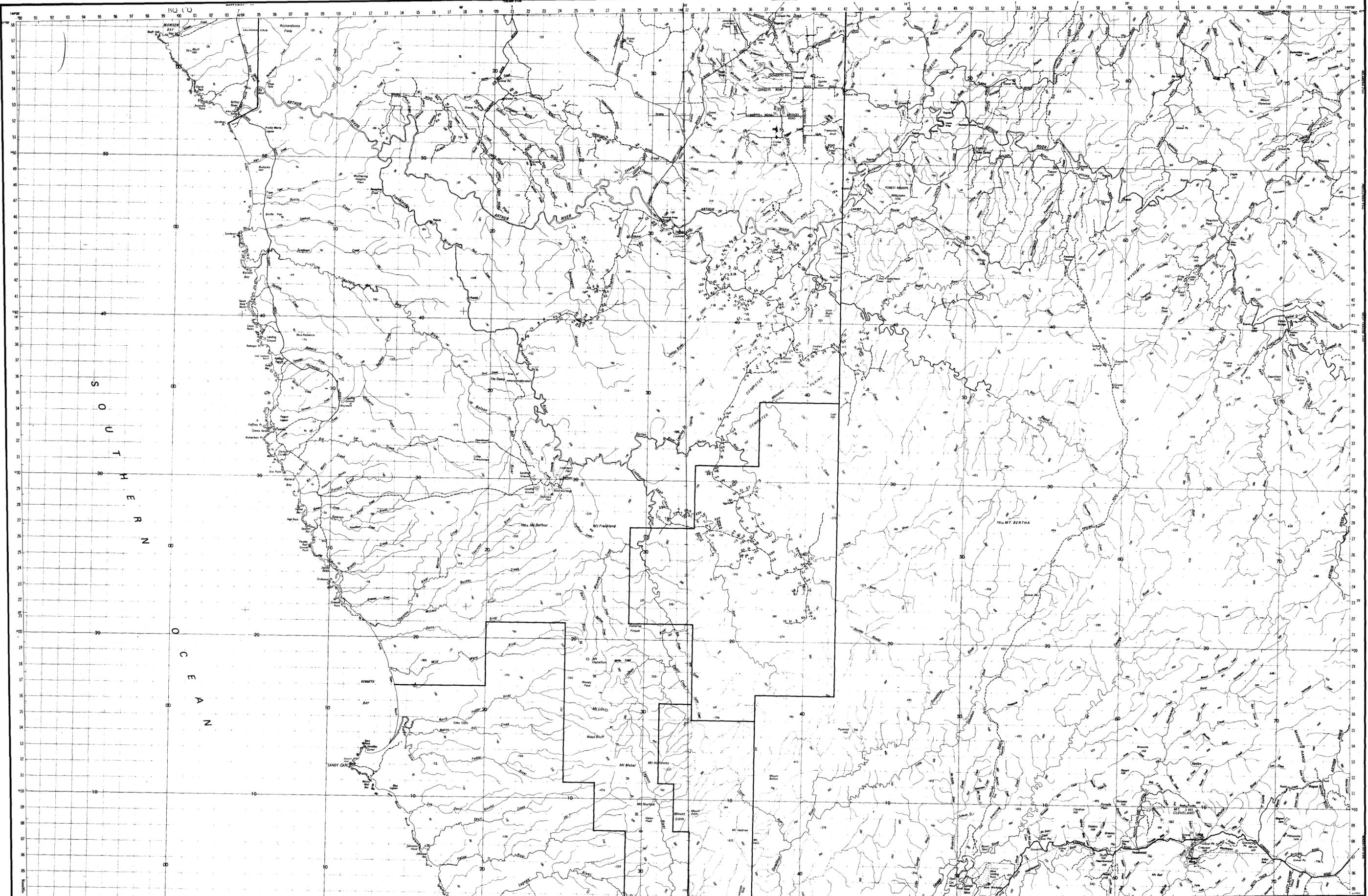
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CHIP SAMPLE LOCATIONS

3068

82-1511 (Vol 212)

Geologist: J.W.	Scale: 1:100 000	Report No: 71604
Drawn: T.G.D.S.	Date: 10 - 8 - 1982	Plan No: TASH 428



CRA EXPLORATION PTY. LIMITED

EL. 1/77 - ROCKY CAPE

CHIP SAMPLES

COPPER (ppm) 3069

82-181 (No) 2(a)

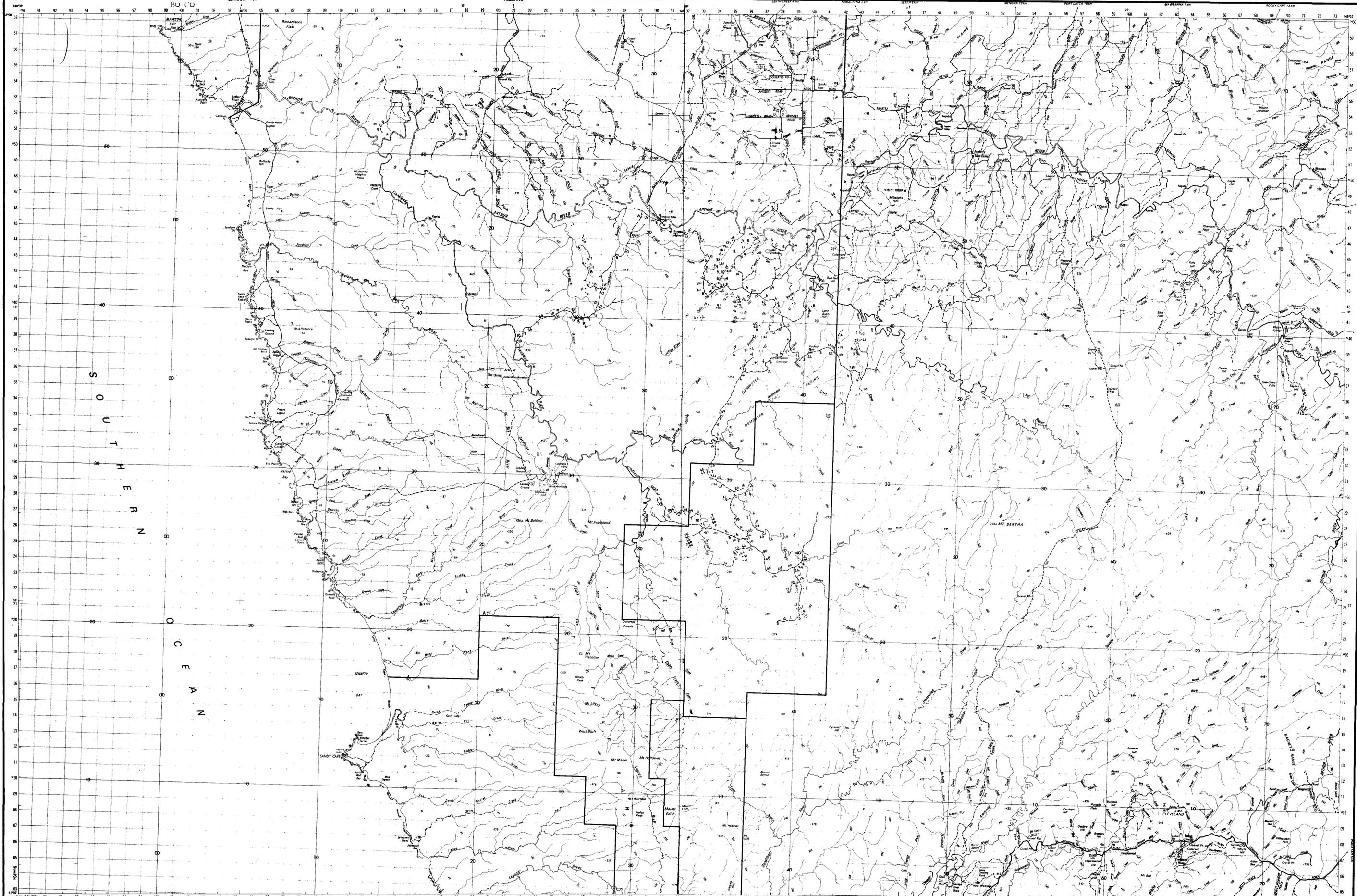
Geologist: J.W. Scale: 1:100000 Report No: 17604

Drawn: TG.D.S. Date: 10 - 8 - 1982 Plan No: TASH 629

730129

SCALE: 1:100000

5 cm



CRA EXPLORATION PTY LIMITED

EL. 1/77 - ROCKY CAPE

CHIP SAMPLES

LEAD (ppm)

82-151 (1 of 2) 3070

Geologist: J.W. Scale: 1:100 000 Report No.: 71604

Drawn: T.G.D.S. Date: 10 - 8 - 1982 Plan No.: 7ASh 830

SCALE: 1:100 000

730130

5 cm

149° 10' E

149° 00' E

148° 50' E

148° 40' E

148° 30' E

148° 20' E

148° 10' E

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108° 10' E

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107° 50' E

107° 40' E

107° 30' E

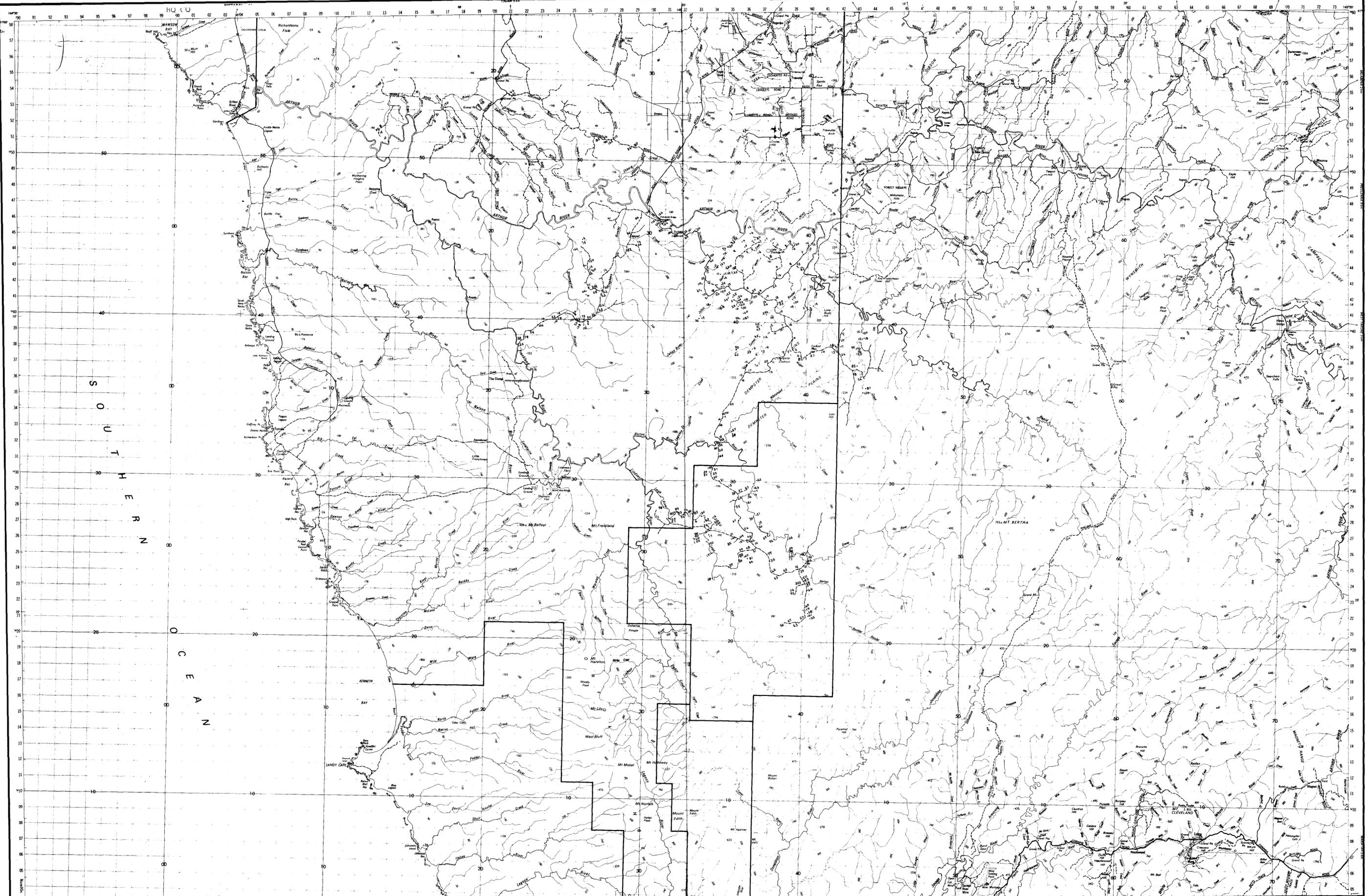
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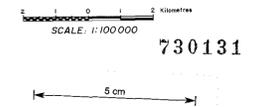
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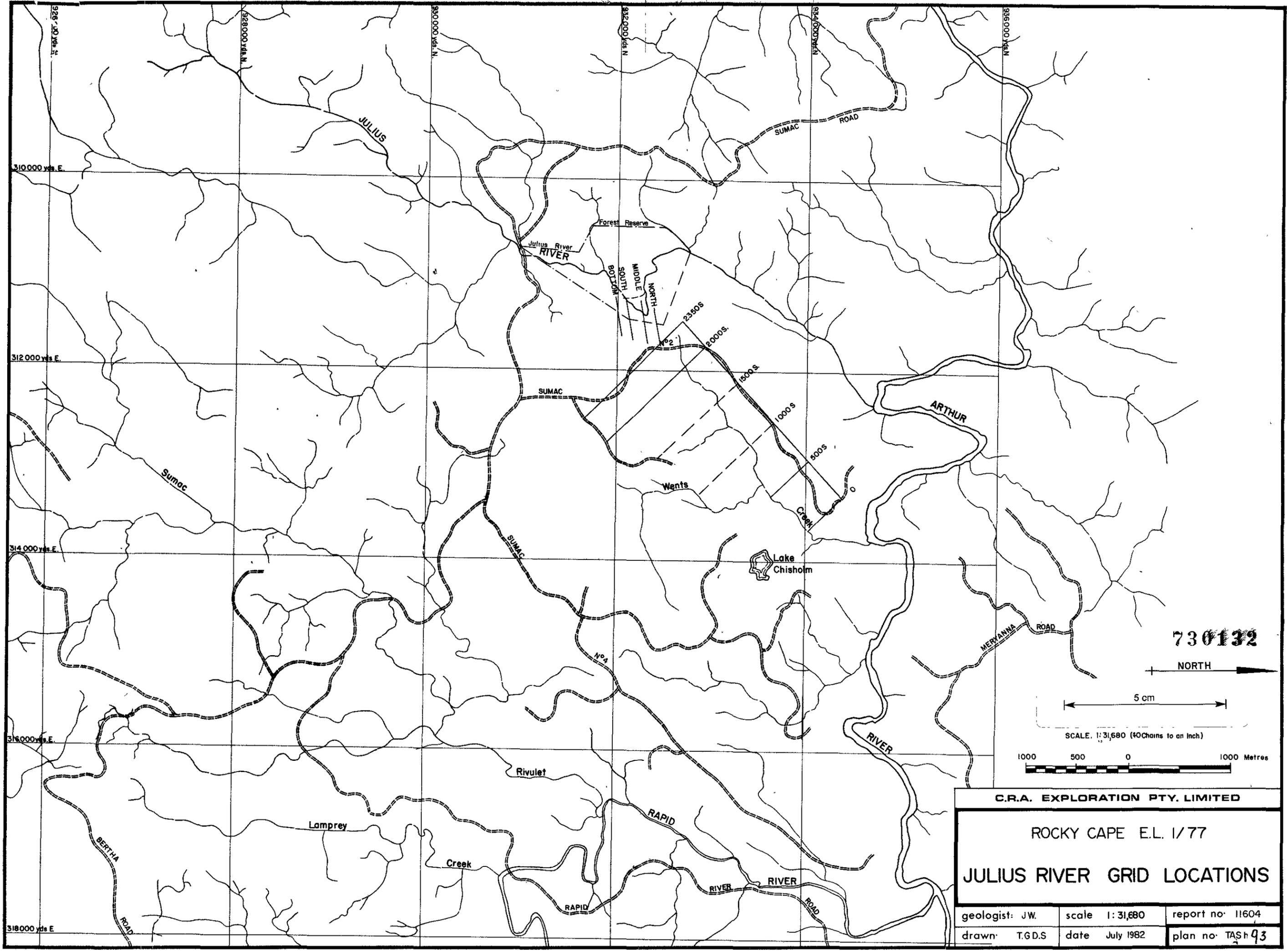
106° 40' E



S O U T H E R N
O C E A N

CRA EXPLORATION PTY LIMITED		
E.L. 1/77 - ROCKY CAPE		
CHIP SAMPLES		
ZINC (ppm)		
730131		3071
Geologist: J.W.	Scale: 1:100000	Report No: 11694
Drawn: T.G.D.S.	Date: 10 - 8 - 1982	Plan No: 7456 831





730132

NORTH

5 cm

SCALE: 1:31,680 (40 Chains to an Inch)

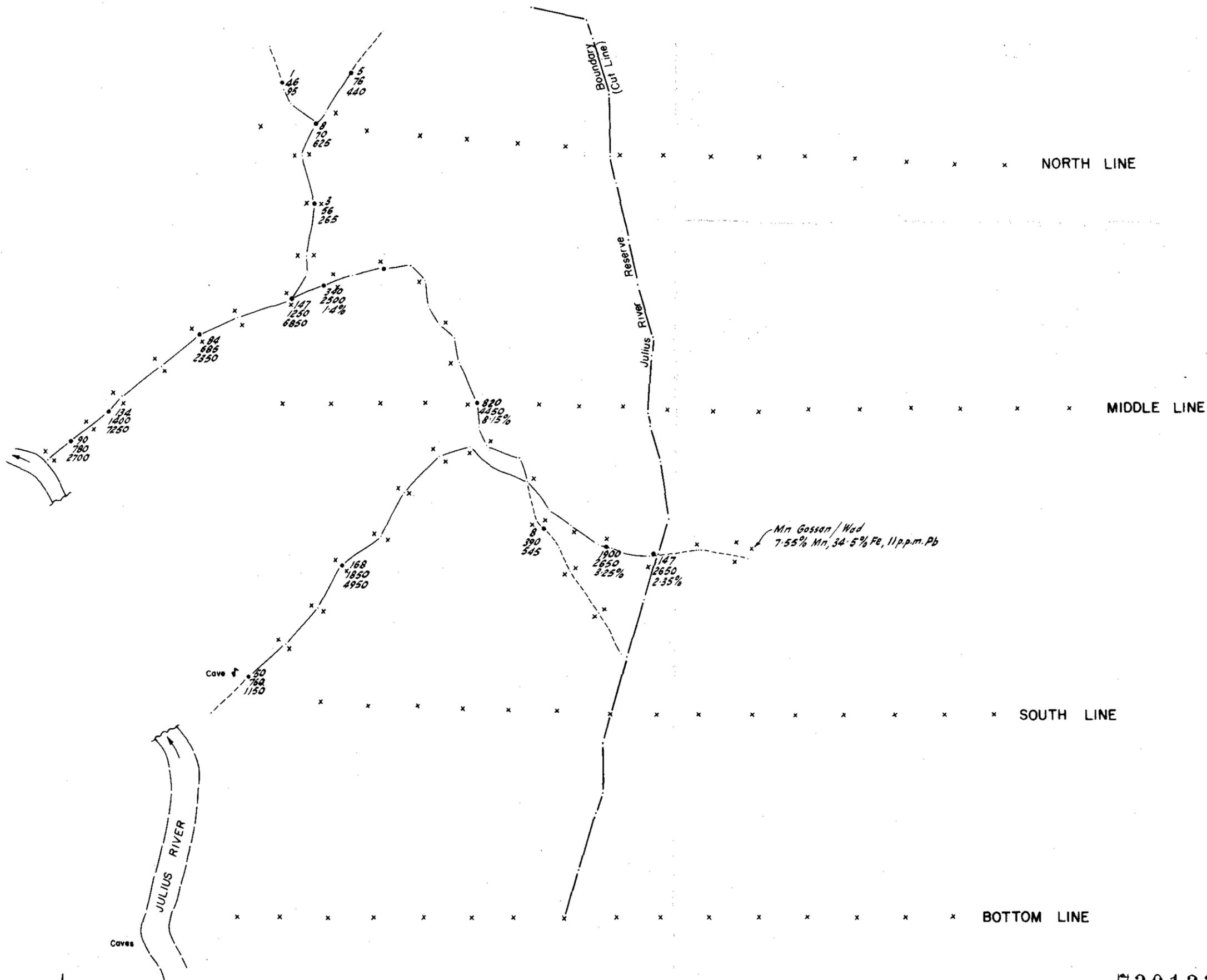


C.R.A. EXPLORATION PTY. LIMITED

ROCKY CAPE E.L. 1/77

JULIUS RIVER GRID LOCATIONS

geologist: JW.	scale 1:31,680	report no. 11604
drawn: T.G.D.S.	date July 1982	plan no. TASH 93



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

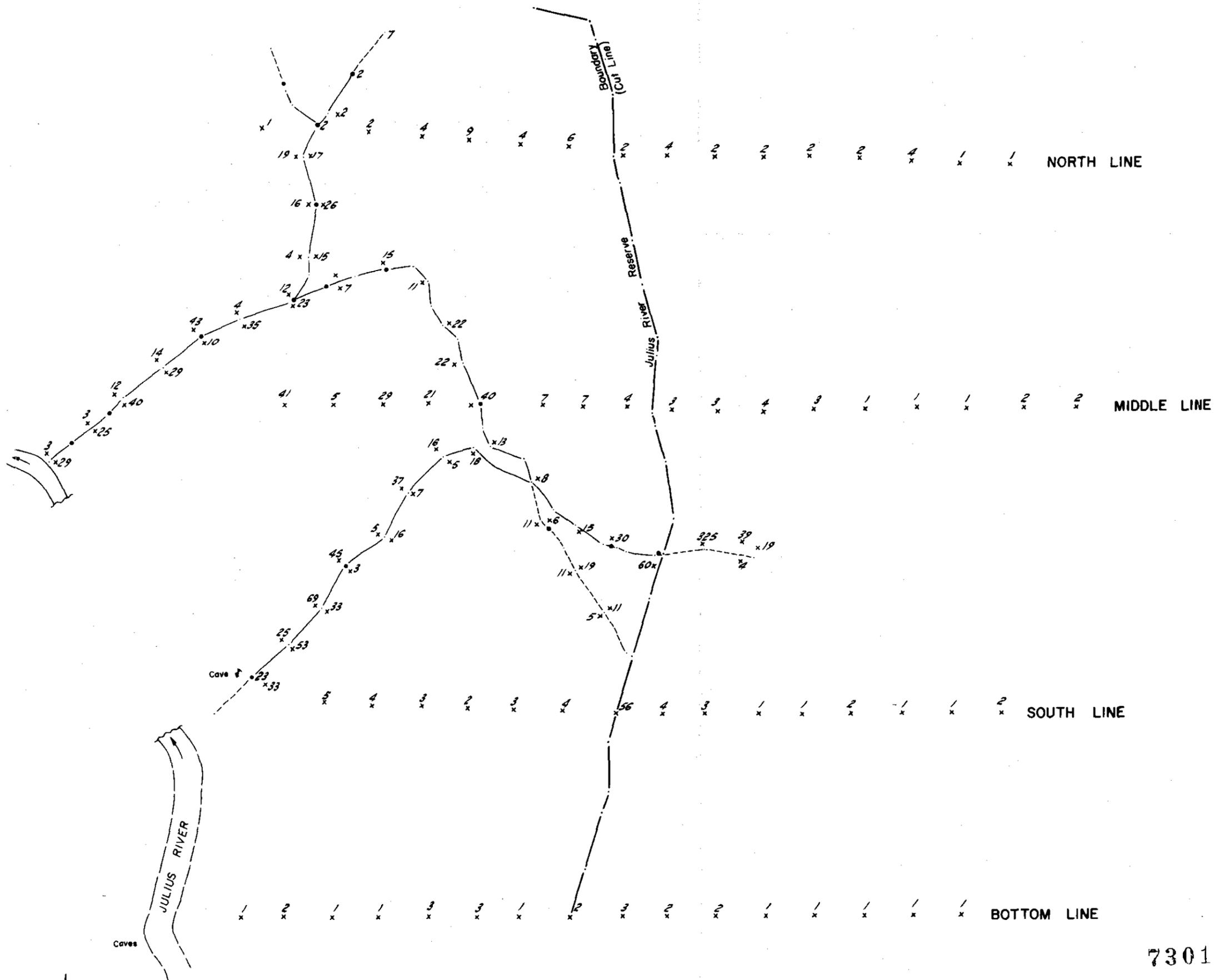
5 cm

0 50 Metres
SCALE: 1:2000

730133

3072

CRA EXPLORATION PTY. LIMITED		
E.L. 1/77 - ROCKY CAPE		
JULIUS RIVER FOLLOW-UP		
STREAM SEDIMENT GEOCHEMISTRY		
LEAD - ZINC - MANGANESE		
Geologist: J.W.	Scale: 1:2000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS F 066



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

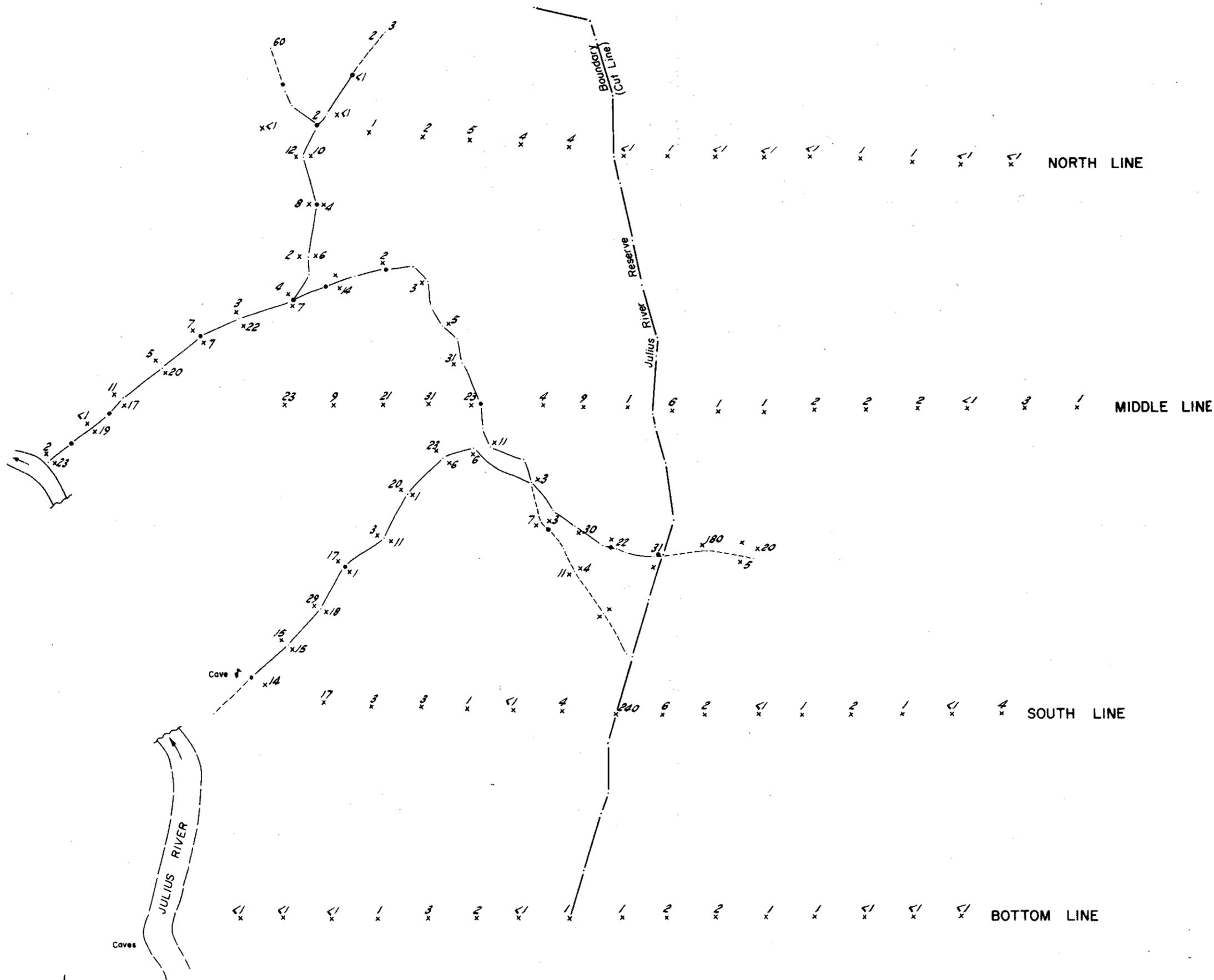
0 50 Metres
SCALE: 1:2000

5 cm

730134

3073

CRA EXPLORATION PTY. LIMITED		
52-1811 (161 212) E.L. 1/77 - ROCKY CAPE		
JULIUS RIVER FOLLOW-UP SOIL GEOCHEMISTRY-COPPER		
Geologist: J.W.	Scale: 1:2000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 070



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730135

3074

CRA EXPLORATION PTY. LIMITED

82-1871 E.L. 1/77 - ROCKY CAPE
 (Vol
 a12)
**JULIUS RIVER FOLLOW-UP
 SOIL GEOCHEMISTRY - LEAD**

Geologist: J.W.

Scale: 1:2000

Report No: 11604

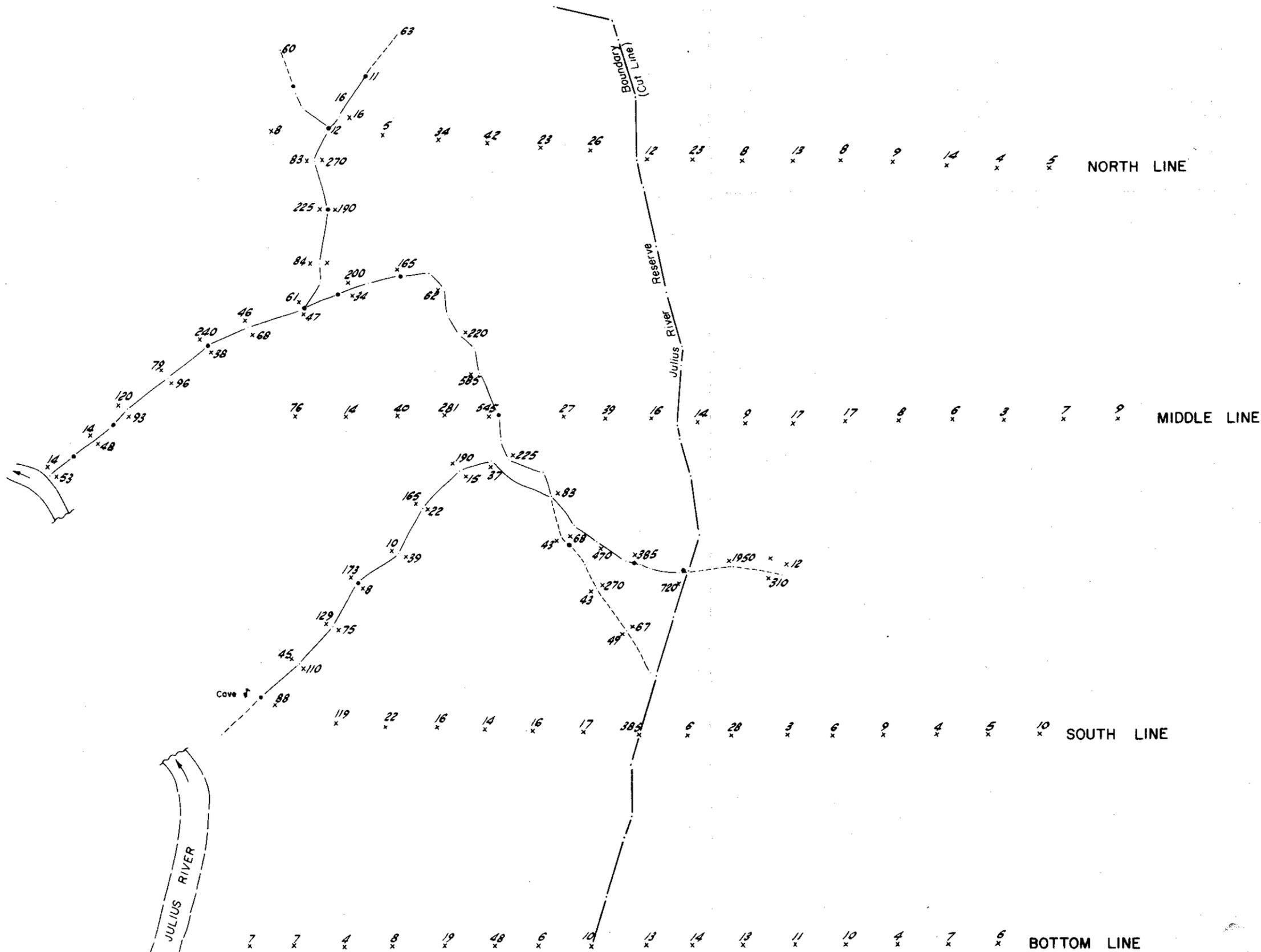
Drawn: T.G.D.S.

Date: June 1982

Plan No: TAS h 068

0 50 Metres
 SCALE: 1:2000

5 cm



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730136

3075

CRA EXPLORATION PTY. LIMITED

32-181 E.L. 1/77 - ROCKY CAPE
(1/01/2/2)

JULIUS RIVER FOLLOW-UP
SOIL GEOCHEMISTRY - ZINC

Geologist: J.W.

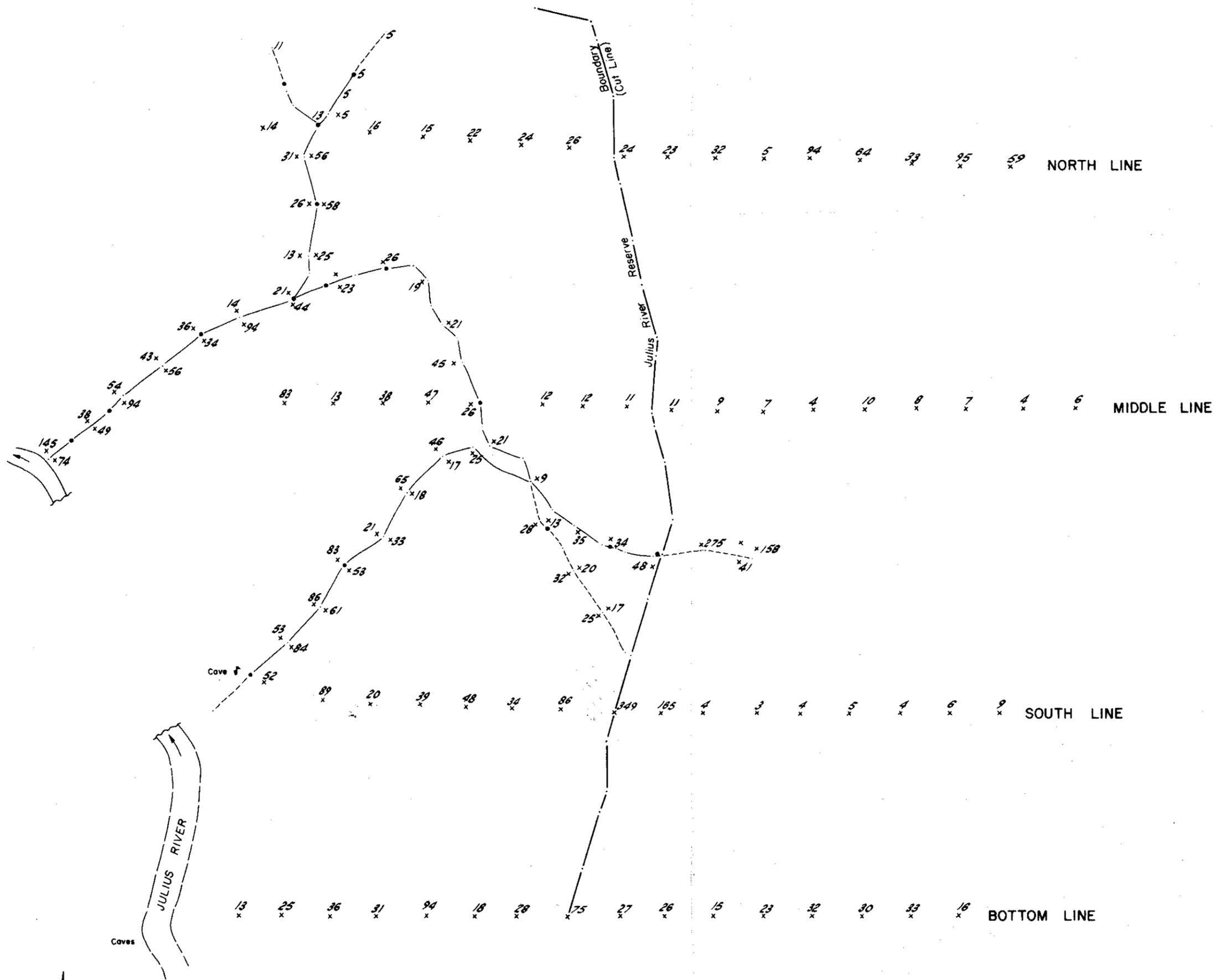
Scale: 1:2000

Report No: 11604

Drawn: T.G.D.S.

Date: June 1982

Plan No: TAS h069



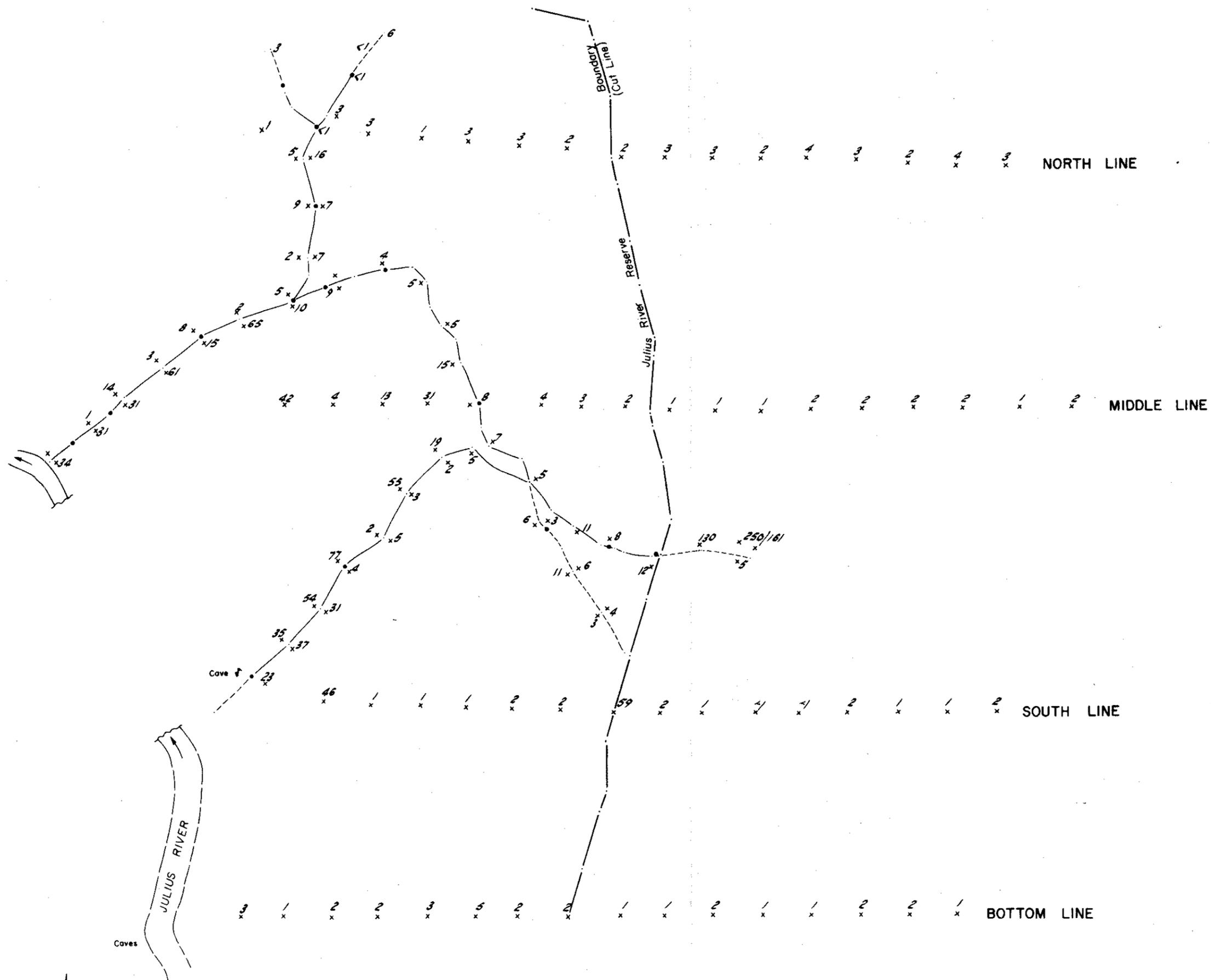
LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730137

3076

CRA EXPLORATION PTY. LIMITED		
82-1811 E.L. 1/77 - ROCKY CAPE C101 2/23		
JULIUS RIVER FOLLOW-UP SOIL GEOCHEMISTRY - NICKEL		
Geologist: J.W.	Scale: 1:2000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS 1075



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

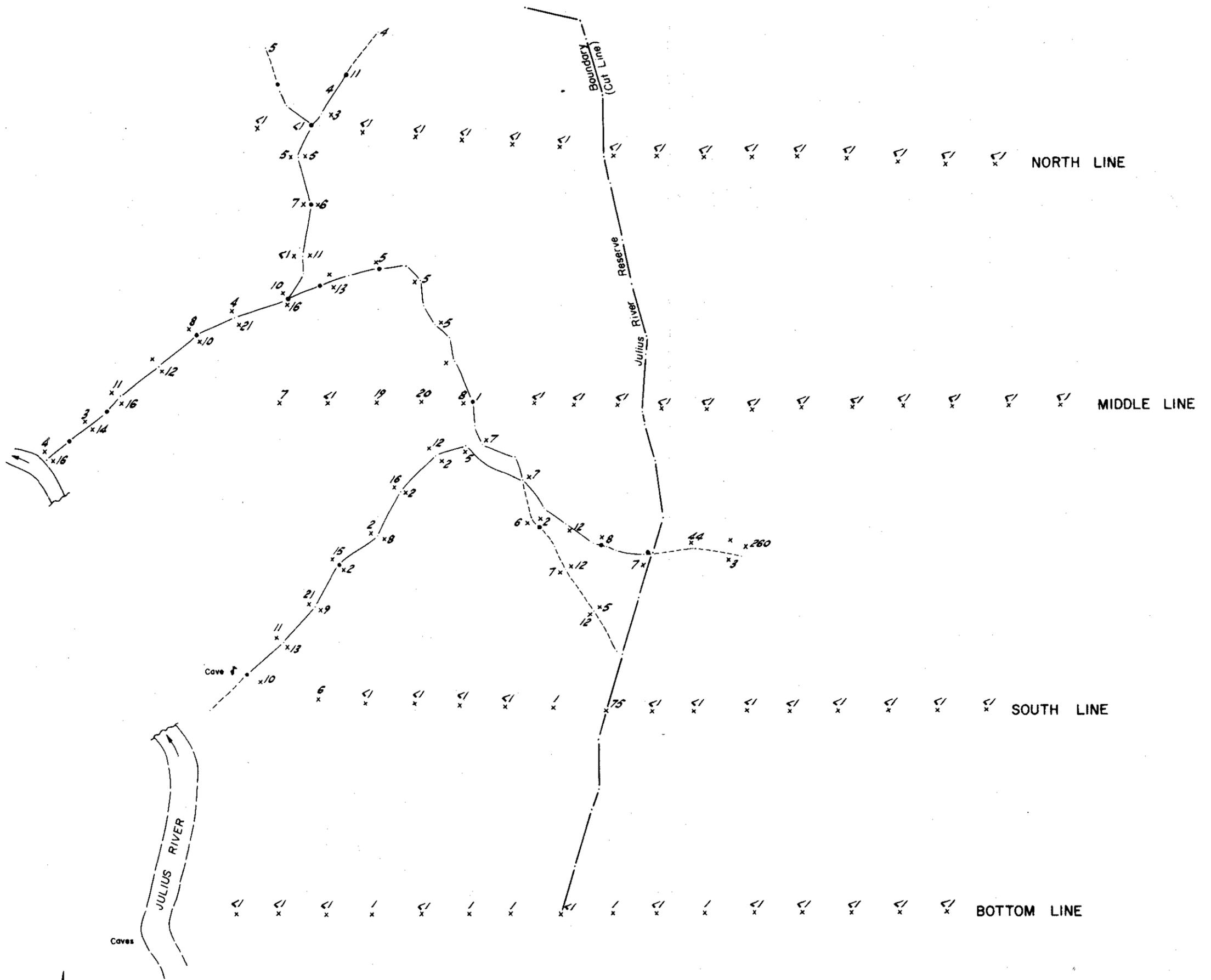
730138

3077

CRA EXPLORATION PTY. LIMITED		
E.L. 1/77 - ROCKY CAPE		
JULIUS RIVER FOLLOW-UP		
SOIL GEOCHEMISTRY - COBALT		
Geologist: J.W.	Scale: 1:2000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 074

0 50 Metres
SCALE 1:2000

5 cm



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730139

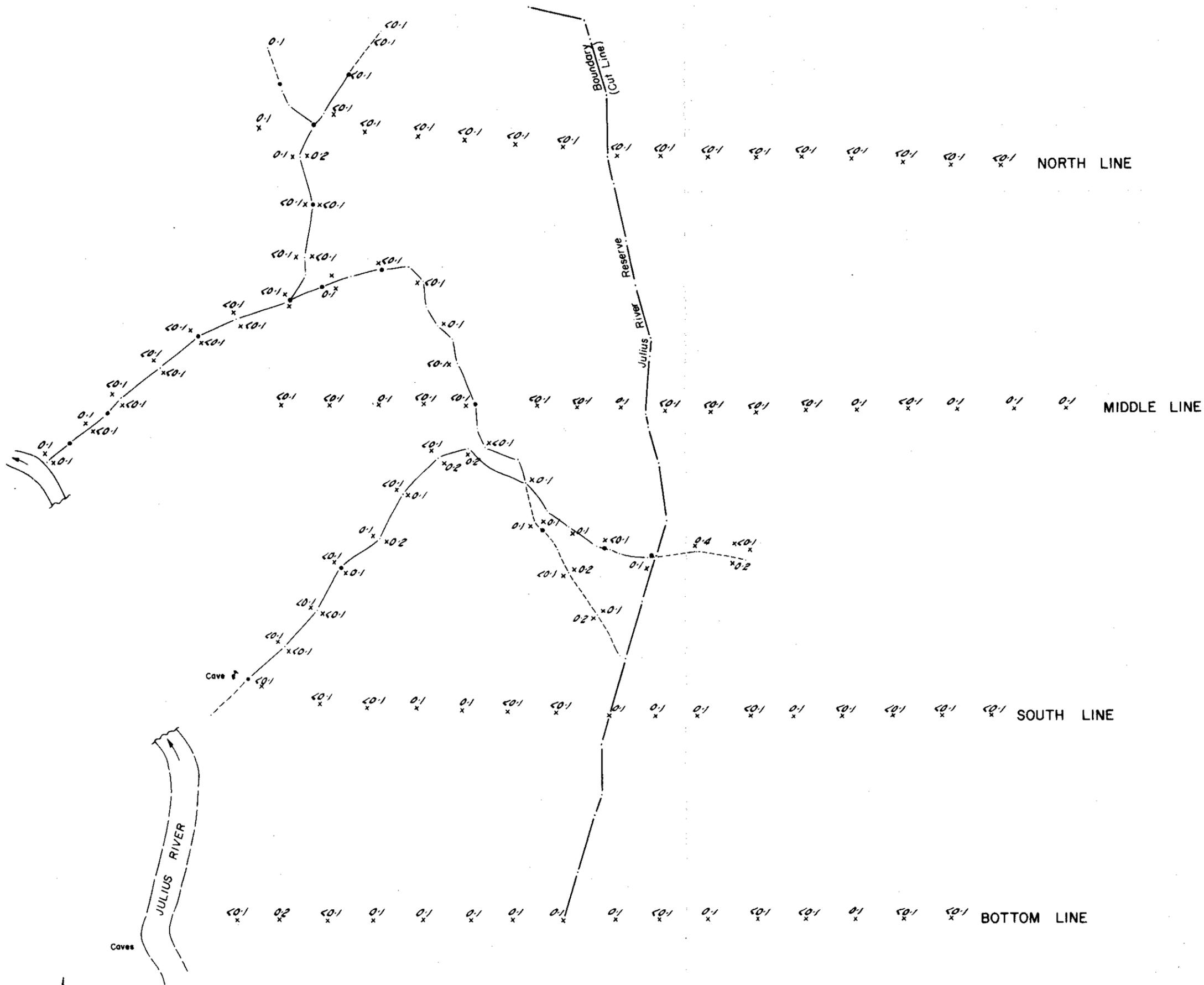
3078

CRA EXPLORATION PTY. LIMITED
 82-1811
 (101 2/2) E.L. 1/77 - ROCKY CAPE
**JULIUS RIVER FOLLOW-UP
 SOIL GEOCHEMISTRY - ARSENIC**

Geologist: J.W.	Scale: 1:2000	Report No: 11604
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS h 076

0 50 Metres
 SCALE: 1:2000

5 cm



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730140

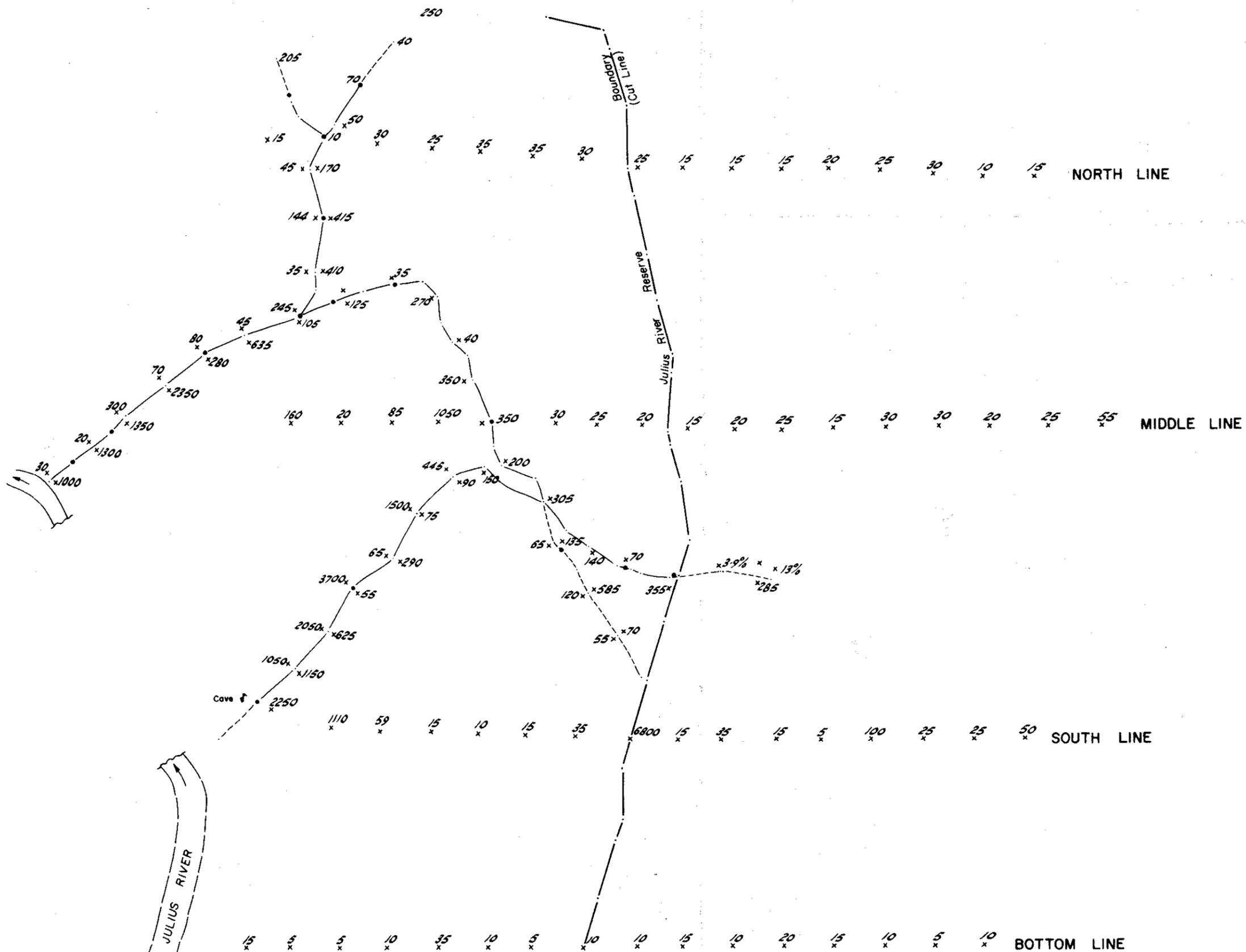
3079

CRA EXPLORATION PTY. LIMITED		
82-1811 E.L. 1/77 - ROCKY CAPE (Vol 2/2)		
JULIUS RIVER FOLLOW-UP		
SOIL GEOCHEMISTRY - SILVER		
Geologist: J.W.	Scale: 1:2000	Report No: 11634
Drawn: T.G.D.S.	Date: June 1982	Plan No: TAS 1073

0 50 Metres

SCALE: 1:2000

5 cm



LEGEND

- x Soil Sample Location
- Stream Sediment Sample Location
- Creek

730142

3081

CRA EXPLORATION PTY. LIMITED

82-1811 E.L. 1/77 - ROCKY CAPE
(Vol 212)

JULIUS RIVER FOLLOW-UP SOIL GEOCHEMISTRY - MANGANESE

Geologist: J.W.

Scale: 1:2000

Report No: 11604

Drawn: T.G.D.S.

Date: June 1982

Plan No: TAS h 072

0 50 Metres
SCALE: 1:2000

5 cm