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(36)

RESULTS OF INITIAL RECONNAISSANCE PROGRAMME Q57, Q58
FOR Q 64, 65

E.L. 47/70, WEST TASMANIA
OCTOBER - NOVEMBER, 1971.

CYPRUS MINES CORPORATION

001

TABLE OF CONTENTS

	Page
INTRODUCTION	1
RESULTS	2
SUMMARY AND RECOMMENDATIONS	9
APPENDIX i. Results of Reconnaissance ridge soil sampling programme at Lynch Creek	
ii. Results of small Reconnaissance rock chip sampling programme at Teepookana	
iii. Index of C.M.C. maps accompanying this report.	

002

INTRODUCTION

As a result of preliminary investigations carried out during September, the following areas within E.L. 47/70 were considered worthy of reconnaissance:-

1. Any outcrop areas of Dundas Group volcanics within the Exploration Licence:-
 - a. Mt. Sorell northwest towards the Harris Reward Gold Mine.
 - b. Undifferentiated sequence along road east of Strahan (including Teepookana Area).
 - c. Gordon River area south of 790,000yN.
 - d. Lynchford area.
 - e. Sequence along the Abt track south of Queenstown.
 - f. Other areas.

2. All known occurrences of mineralisation within the Exploration Licence:-
 - a. Harris Reward Gold Mine.
 - b. King Gold Mine.
 - c. Prospects close to Mt. Sorell and west of Mt. Darwin.
 - d. Lead-silver prospect in proximity to the Queenstown - Strahan road.
 - e. Queenstown Airport gold prospects.
 - f. Any prospects located by making enquiries around the area, particularly in contacting local prospectors who may know of any mineral occurrence not already reported to the Mines Department.

003

RESULTS1a. Mt. Sorell

Two field traverses were conducted to investigate this area. The first, conducted on October 25th and 26th, was impeded by exceptionally bad weather. However, an access route via South Mt. Darwin was established. The second traverse was carried out between October 30th and November 1st. Two geologists and two field assistants were able to examine the eastern flank of Mt. Sorell, the Clark River valley and Slate Spur (the divide joining Mt. Sorell and Mt. Darwin).

It was established that the top section of Mt. Sorell is composed of Owen Conglomerate, and the contact with the Cambrian volcanics appears to be transitional. Immediately underlying the Owen Conglomerate there is a fine-grained conglomerate with a tuffaceous matrix (Sorell Conglomerate of J. Bradley 1956?). In no way are these rocks mineralised or are they hematite stained. Weak limonite stains from the weathering of Fe-Mg minerals is the only ironstaining apparent.

The Clark River valley consists of quartz sericite schists, slates and perhaps felsitic volcanics towards Mt. Darwin. Apart from alteration attributable to regional metamorphism, there were no chloritized or sericitised volcanics.

The Mt. Sorell Area was found to be of no interest to Cyprus. The volcanic assemblage close to the Owen conglomerate contact is not similar to the Mt. Lyell environment, and there is no indication that it is likely to contain copper mineralization. North of Mt. Sorell, in the Garfield and Currie valleys, access is difficult. To satisfactorily investigate this area, a helicopter would be required to support field crews. However, on the basis of present knowledge of trends in this section of the Cambrian volcanics, it is not recommended that any further work be initiated.

b. Undifferentiated Section east of Strahan (including Teepookana Area)

Brief roadside examination of the section of Cambrian between Strahan and 5 mile post on the Queenstown road has not revealed any rock types of interest to Cyprus.

004

However, to the south on the old Abt railway track and on recent timber trails near Teepookana, an interesting environment has been identified. A sequence of black pyritic shales and silicious, pyritic, intermediate tuffs (occasionally sheared and sericitic) and interbedded greywackes is exposed over a known estimated strike length of approximately one mile, with a zone of interest of perhaps 2000 feet width. As wandering timber trails and the occasional creek bed provide the only outcrops, present investigations have not really determined the potential of this area.

Several days were spent in reconnaissance mapping; and the following description provides an explanation for the attached map (fig. 2).

Section

- "A" to "B": This section consists predominantly of tuffs and lavas of intermediate composition. Eastward, the rocks became sheared and silicified (associated with quartz veining) and ironstained. Towards "B" the volcanics have been altered to sericitic schists.
- "B" to "C": Finely laminated black and yellow-brown, micaceous siltstones.
- "C" to "D": Interbedded black shales, siltstones and intermediate tuffs with quartz veining.
- "D" to "E": Medium to fine grained, crystalline, intermediate lavas and reworked tuffs. Eastward, the volcanics became more highly sheared (and sericitic) and interbedded with black shales. Quartz veining is common.
- "E" to "F": Sheared, intermediate volcanics interbedded with black pyritic shales. The volcanics are sericitised and contain pyrite nodules and veinlets.
- "F" to "G": Laminated shales and siltstones.
- "G" to "H": Laminated pyritic shales and siltstones interbedded with sheared, intermediate volcanics. Some of the tuffs within this section are massive in outcrop.
- "H" to "I": Interbedded cherts, tuffs and pyritic shales occur in a prominent outcrop.

005

- "I" to "J": Interbedded siltstones and intermediate tuffs.
- "J" to "K": Interbedded black shales, tuffs and greywackes. The tuffs tend to be coarse-grained.
- "K" to "L": Interbedded shales, tuffs and siltstones. A probable aplitic intrusive outcrops at "L" and appears to be concordant. Pyrite occurs in associated shales.
- "L" to "M": Interbedded micaceous tuffs and siltstones becoming pyritic westward. Some associated volcanics appear to be of basic composition, and have been extensively silicified.
- "M" to "N": At "M", near the abutment of the Teepookana bridge, a coarse conglomerate with pebbles of quartz and volcanics in a tuffaceous matrix outcrops. This unit is overlain by interbedded tuffs and siltstones.
- "N" to "O": From the King River along the creek to "O", the outcrop is predominantly Ordovician Gordon Limestone. The Limestone appears to be faulted against the Cambrian sequence in this area.
- "O" to "P": Interbedded tuffs, conglomerate and siltstones of similar character to those outcropping at "M".
- "P" to "Q": Interbedded shales, siltstones and tuffs of similar character to those between "L" and "M".
- "R" : Eldon Group shales and siltstones. This sequence is extensively quartz veined.
- "S" : Eldon Group quartzite underlying the shales described above.
- "T" to "U": Ordovician Owen Conglomerate at "T" underlain by Cambrian intermediate volcanics at "U". The Gordon Limestone could not be identified along the timber trail.

It is possible that the pyritic black shales

006

and pyritic, silicified volcanics exposed along the timber trail (marked "V" on the map) can be correlated with a similar sequence between "K" and "M" along the King River.

Environmental Interpretation (Teepookana Area):

The occurrence of interbedded pyritic black shales, siltstones and tuffs of intermediate composition suggests that this area may have been situated off the margin of the Mt. Read volcanic axis during Middle Cambrian time. (Fig 3) Furthermore, the area could be considered as lying between the Lyell-Darwin axis intrusives, at Asbestos Point (southwest of Macquarie Harbour). The sequence has characteristics similar to the Type Sequence of the Dundas Group. Although on a relatively small scale, it would appear that the Teepookana section is situated in the "Island Arc Subduction Zone" frequently cited in Plate Tectonic theory.

It appears that the Mt. Lyell ore bodies are associated with intermediate volcanics which have undergone sericitisation and chloritisation. The base metal sulphides may have been deposited with the volcanics and then remobilised and concentrated through metamorphism. The volcanics at Teepookana are of intermediate composition, contain disseminated pyrite, have undergone sericitisation and can be correlated with the vulcanism that occurred at Mt. Lyell. However, the evaluation geochemical survey of representative rock types has indicated that this area does not show sufficient signs of mineralisation to warrant further exploration by Cyprus.

c. Gordon River

Apart from a reconnaissance boat trip up the Gordon River, no work has been carried out in this area. The only few outcrops seen along the river banks were Gordon Limestone and sediments of the Eldon Group. Heavy bush makes disembarking extremely difficult in most places. However, at the mouth of Eagle Creek it is possible to land at a spot where the Hydro Electricity Commission have a hut. Further up Eagle Creek the Mt. Lyell M. & R. Company have conducted reconnaissance work to locate an old adit supposedly driven in mineralized rock. (T.B. Moore prospect).

007
d. Lynchford Area (refer to Figs 4 and 5)

The Lynchford Area is located approximately three miles south of Queenstown. Numerous reconnaissance traverses in the Lynchford area have located a zone of possible interest to Cyprus. Between Lynch Creek and Roaring Meg Creek a fairly extensive exposure of altered Cambrian volcanics, including coarse agglomerates, sericite schists, spilites and other basic lavas is exposed. Much of this zone is strongly hematite stained and a small section could be considered gossanous. The King Gold Mine is located at the southern end of this zone. Kaolinisation is particularly strong throughout the volcanics, especially at the King Gold Mine. Although not reported by previous companies working in the area, this zone has been surprisingly pit-holed by small pits (now overgrown and infilled) presumably dug by early prospectors searching for gold.

A small reconnaissance ridge soil and rock chip sampling programme has confirmed that the area containing the gossanous zone yielded values for copper which are statistically "probably" anomalous (greater than the threshold plus 6 times the standard deviation in this case). A few samples showed corresponding "possibly" anomalous lead values. Silver values in the area were overall high, with many occurrences of values of 2 ppm and several values of 3 and 4 ppm. Detailed results of this programme are tabled in Appendix I.

On November 4th, 1971, an area of 92.4 acres was pegged over vacant ground at Lynch Creek and will be included in E.L. 47/70.

e. Sequence along the Abt Track south of Queenstown towards Teepookana

A one day field traverse was completed along this track and the geology mapped in broad units. As reported by early workers, the Queen River is eroding in Gordon Limestone, with Eldon Group to the west and Owen Conglomerate to the east. Cambrian volcanics were not located in this area, and there were no signs of mineralisation.

f. Other Areas

It had been planned to investigate the Crotty track along Pillinger in Kelly Basin and the Franklin track

008

to the Hydro Electricity Commission camp, near the junction of the Andrew and Franklin Rivers. However, owing to the presence of a landslide at Purgatory Gap, 16 miles from Linda, it has not been possible as yet to carry out this work. As soon as the Public Works Department are able to clear the track, steps will be undertaken to inspect these areas.

The section of Cambrian geology near the Newall Creek confluence with the King River was another planned traverse. The section was inspected along the old packtrack between Lynchford and the King, but it was not possible, with present equipment, to cross the King River. The original packbridge has been burnt down (the track continues on the other side to the Harris Reward Gold Mine, Flannagan's Flat and eventually on to the Currie and Garfield Rivers). Close to the King River, massive "quartz porphyry" volcanics outcrop. It is planned to carry out later, with the aid of an inflatable dinghy, further investigations in the area.

2.

a & b Harris Reward and King Gold Mines

As explained in the previous section, it was not possible to examine the Harris Reward Gold Mine. The King Gold Mine has been mentioned in a previous section (1d). Detailed examination of this prospect is prevented by thick vegetation which has overgrown the many deep trenches and possibly tunnels.

c. Prospects west of Mt. Darwin towards Mt. Sorell

Several leases have been plotted as existing in this area on old Mines Department maps of the area. Attempts were made to locate these on the Mt. Sorell traverse. Firstly, owing to the overgrown nature of the bush, it was impossible to locate these leases in the field. Secondly, after inspecting the Cambrian sequence in the area it was considered that they may have been pegged for gold, which would be of no interest to Cyprus. The same applies to the numerous alluvial gold leases along the Clark River.

009
d. Lead-silver prospects along the Queenstown-Strahan road

Several days were employed attempting to locate these old prospects. Owing to the thick undergrowth and the lack of tracks, very little evidence of the old workings was located. A Strahan resident was able to point out the general location of a 20 foot shaft (reputed to have been sunk on copper) situated 11.6 miles from Strahan. This coincided with a limonite stained zone of sediments of the Eldon Group, with sporadic quartz colluvial cover, exposed in the roadside cutting. It is likely that this shaft was sunk for gold. Furthermore, the evidence of mineralization is insufficient to be of interest to Cyprus.

e. Queenstown Airport Gold Prospects (including the Madam Howard Gold Mine, 8 miles from Queenstown)

These have all been investigated. They are all located in Eldon Group siltstones and quartzites, (probably the Bell Shale). Gold may have occurred in sporadic stock-work quartz veins associated with tension gashes and other structural features. A substantial adit was driven at the Madam Howard Gold Mine and it appears that some gold may have been extracted. The area is not worthy of further investigation by Cyprus.

f. Other Prospects

Despite considerable time devoted to discussions with prospectors, timber men and interested local people, Cyprus was able to uncover only one report of mineralization not previously documented. This was the 20 foot roadside shaft described elsewhere in this report.

In summary, intensive investigations indicate that within the Exploration Licence there is no known prospect that was worked for, or even showed copper mineralization. All old leases in the area were worked for gold.

010

SUMMARY AND RECOMMENDATIONS

The Lynchford prospect is of sufficient interest to justify further surface exploration for a more detailed evaluation. It is recommended that a grid be established in preparation for further exploration work.

The Teepookana area which was recognised by the reconnaissance programme is of no interest to Cyprus.

The remaining outcrop area of Cambrian volcanics must be considered as "grassroot" material. Up to date, no information has been gleaned that would justify further studies in these areas. Apart from mild alteration typical of regional metamorphism, there is no evidence to suggest that there exists any general alteration patterns attributable to mineralization. It can only be concluded that Bradley (1956) in his frequent use of the words "chloritised", "felspathised", "hematized" etc., is not referring to mineralisation phenomena.

011

APPENDIX i : RESULTS OF RECONNAISSANCE RIDGE SOIL
SAMPLING PROGRAMME AT LYNCH CREEK

Note:

1. Suffix "R" is rock chip sample, Suffix "S" is soil sample. There is not a corresponding rock chip and soil sample in every case. Rock chip samples were only taken where there was outcrop nearby.
2. Five ridges designated "A", "B", "C", "D" and "E" were sampled.

012

Sample	Description	Cu, ppm	Pb, ppm	Zn, ppm	Ag, ppm	Se, ppm
LCA	1 S	10	20	20	<2	<20
	2	25	30	40	2	<20
	3	45	30	10	<2	<20
	4	5	<20	5	<2	<20
	5	5	<20	5	2	<20
	6	5	<20	10	<2	<20
	7	5	<20	10	<2	<20
	8	10	35	35	2	<20
	9	15	30	40	4	<20
	10	30	40	30	3	<20
	1	20	25	55	3	<20
	2	10	35	20	<2	<20
	3	25	50	30	2	<20
	4	20	60	20	<2	<20
	5	20	35	10	<2	<20
	6	15	35	15	2	<20
LCA	17 S	30	25	15	<2	<20
LCB	1 S	15	30	50	<2	<20
	2	10	20	15	<2	<20
	3	5	25	60	<2	<20
	4	20	30	45	2	<20
	5	10	35	25	<2	<20
LCB	6 S	15	35	30	2	<20
LCC	1 S	25	30	20	<2	<20
	2	30	55	75	2	<20
LCC	3 S	10	40	30	2	<20
LCD	1 S	55	45	25	2	<20
	2	40	45	25	<2	<20
	3	15	30	15	2	<20
	4	5	30	20	<2	<20
	5	20	45	20	<2	<20
	6	30	35	25	2	<20
	7	10	40	20	<2	<20
LCD	8 S	10	40	30	<2	<20
LCE	1 S	5	<20	10	<2	<20
	2	5	<20	10	<2	<20
	3	45	70	20	<2	<20
	4	95	40	25	<2	<20
	5	130	50	20	2	<20
LCE	6 S	110	45	20	<2	<20
LCA	3 R	20	20	15	<2	<20
	4	10	<20	5	<2	<20
	11	85	120	90	3	<20
	13	25	70	35	<2	<20
	14	25	50	50	<2	<20
	15	20	60	45	<2	<20
	16	35	45	55	2	<20
LCA	17 R	60	60	45	<2	<20
LCB	2 R	15	<20	10	<2	<20
	4 R	25	20	70	2	<20
	5 R	50	95	55	<2	<20
LCB	6 R	40	80	50	2	<20
LCC	1 R	35	25	20	<2	<20
LCC	2 R	45	55	75	2	<20
LCD	1 R	40	50	70	<2	<20
	6 R	35	40	30	3	<20
	7 R	25	35	60	3	<20
LCD	8 R	15	30	50	<2	<20

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APPENDIX ii : RESULTS OF SMALL RECONNAISSANCE ROCK
CHIP SAMPLING PROGRAMME AT TEEPOOKANA

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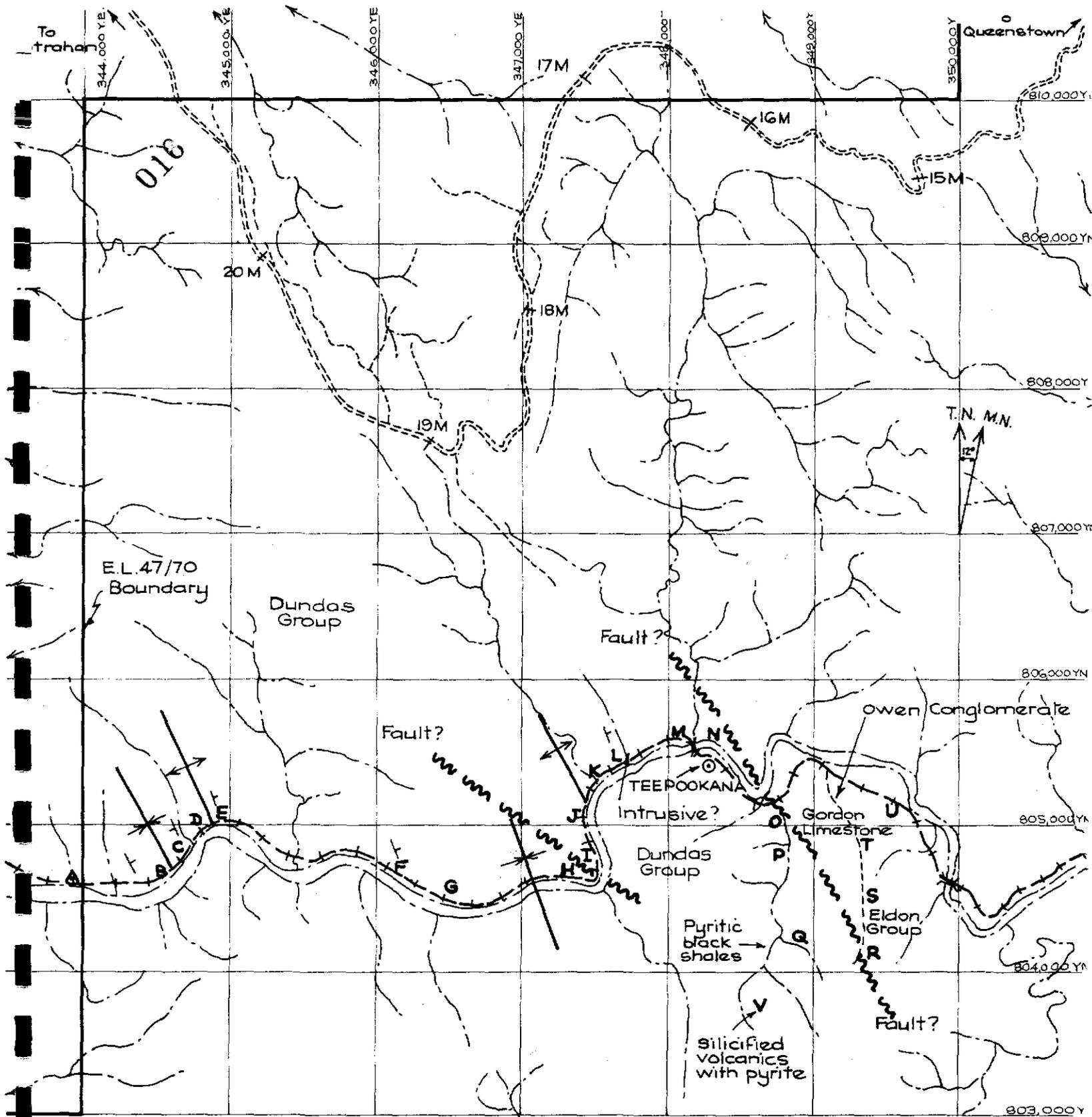
814013

ROCK TYPE	Cu,ppm	Pb,ppm	Zn,ppm	Ag,ppm
Siliceous Pyritic Tuff	15	40	20	<2
Ironstained Tuff	15	30	15	<2
Pyritic Black Shale	25	65	330	<2
Pyritic Black Shale	40	60	360	<2
Grey, Fault Gouge Material	20	25	30	<2

These rock types are located along a timber trail at a location marked "V" on Figure 2.

APPENDIX iii : INDEX OF CYPRUS MINES CORPORATION MAPS
ACCOMPANYING THIS REPORT.

- Fig. 1 Revised topographical map of
E.L. 47/70 summarising work
completed. Scale 1" = 1 mile } In Pocket
Envelope
- Fig. 2 Geological sketch map of
Teepookana area.
Scale 1" = ½ mile
- Fig. 3 Diagrammatic geological inter-
pretation of Teepookana area
during the Cambrian Period.
- Fig. 4 Plan map of the Lynch Creek
area, with the True North grid.
Scale 1" = 1000'
- Fig. 5 Geological sketch map of the
Lynch Creek area.
Scale 1" = 1000'



LEGEND

- River
- Road
- Track
- Old Abt. Railway Formation
- Fold Axis
- Fault
- Dip & Strike
- "B" Locality (for description see text)

1GM - Milepost (distance from Queenstown)

5 cm

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FIGURE 2

CYPRUS MINES CORPORATION

E.L. 47/70 TASMANIA

GEOLOGICAL SKETCH MAP
OF
TEEPOOKANA AREA

NOVEMBER 1971 1" = 1/2 MILE

ASBESTOS POINT
SOUTH-WEST OF
MACQUARIE HARBOUR

TEEPOOKANA

814018 017
MT. LYELL - MT. DARWIN

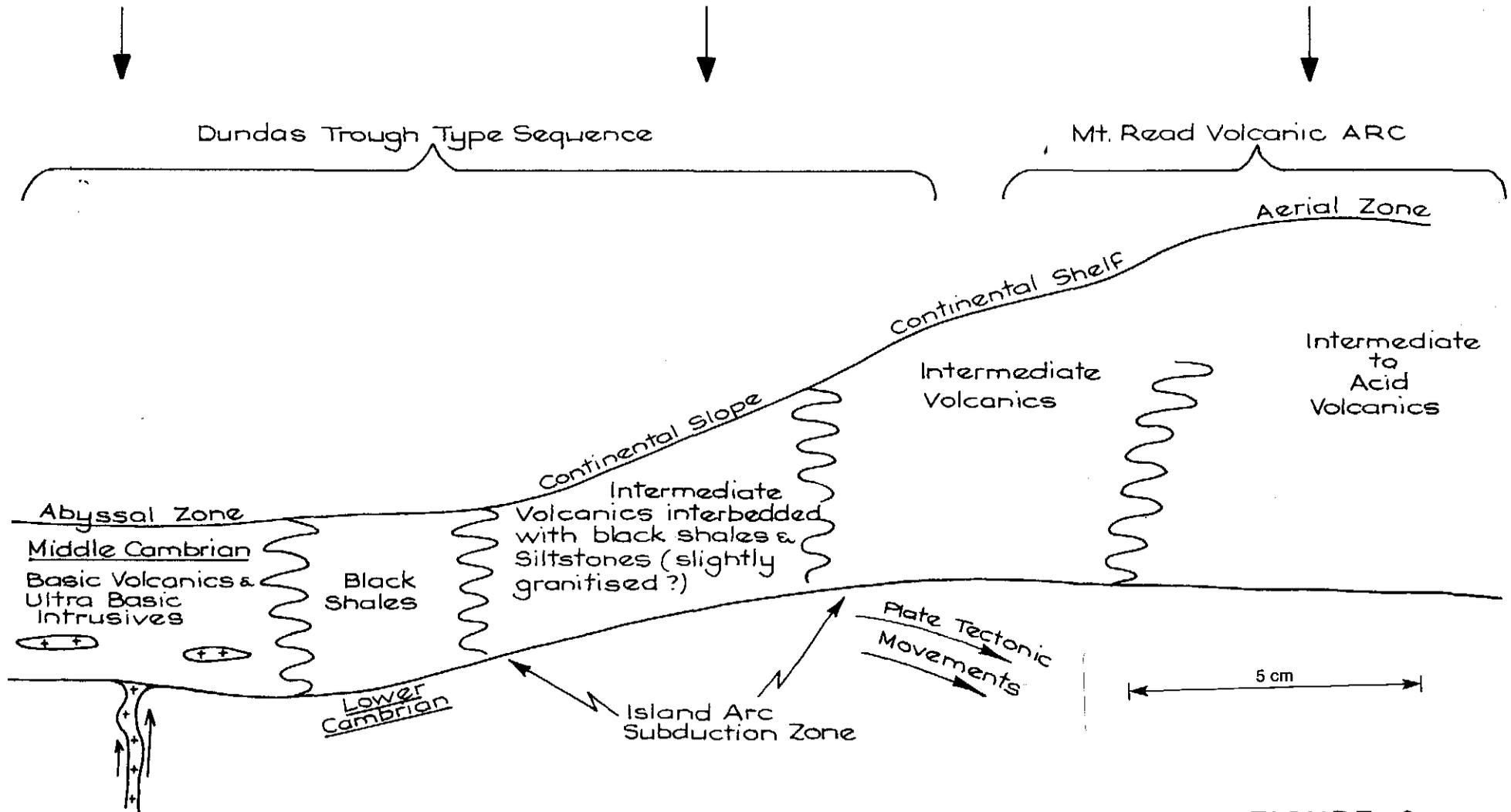


FIGURE 3

CYPRUS MINES CORPORATION

E.L. 47/70 TASMANIA

DIAGRAMMATIC INTERPRETATION
OF THE GEOLOGICAL ENVIRONMENT
DURING THE CAMBRIAN PERIOD

SECTION LOOKING APPROX. NORTH
NOVEMBER 1971 Hor. Approx. 1" = 3 MILES

018

7,000 y N

358,000 y E

359,000 y E

817,000 y N

TN MN

12°

5 cm

16,000 y N

State Grid System.

816,000 y N

8,200 E

Line "B"

Line "C"

9,200 E

Line "D"

Line "E"

Old Pits

E.L. 47/70

MT. LYELL E.L.

815,000 y N

815,000 y N

To Lynchford
Lynch Creek
To Queensstown

C.M.C. Lease Renewal
Application.
92.4 Acres.

*Now included
in E.L. 47/70
Formation*

Datum Post

King Gold Mine

TOPOGRAPHY

- River
- ==== Road
- - - - Track
- + + + + Old Abt Railway formation
- Line "A" Reconnaissance Ridge soil Sample Lines.

Note:- Lines 500' spacing, pegs at 200' centres.

358,300 y E = 10,000 E

12,000 N

CYPRUS MINES CORPORATION

E.L. 47/70 TASMANIA

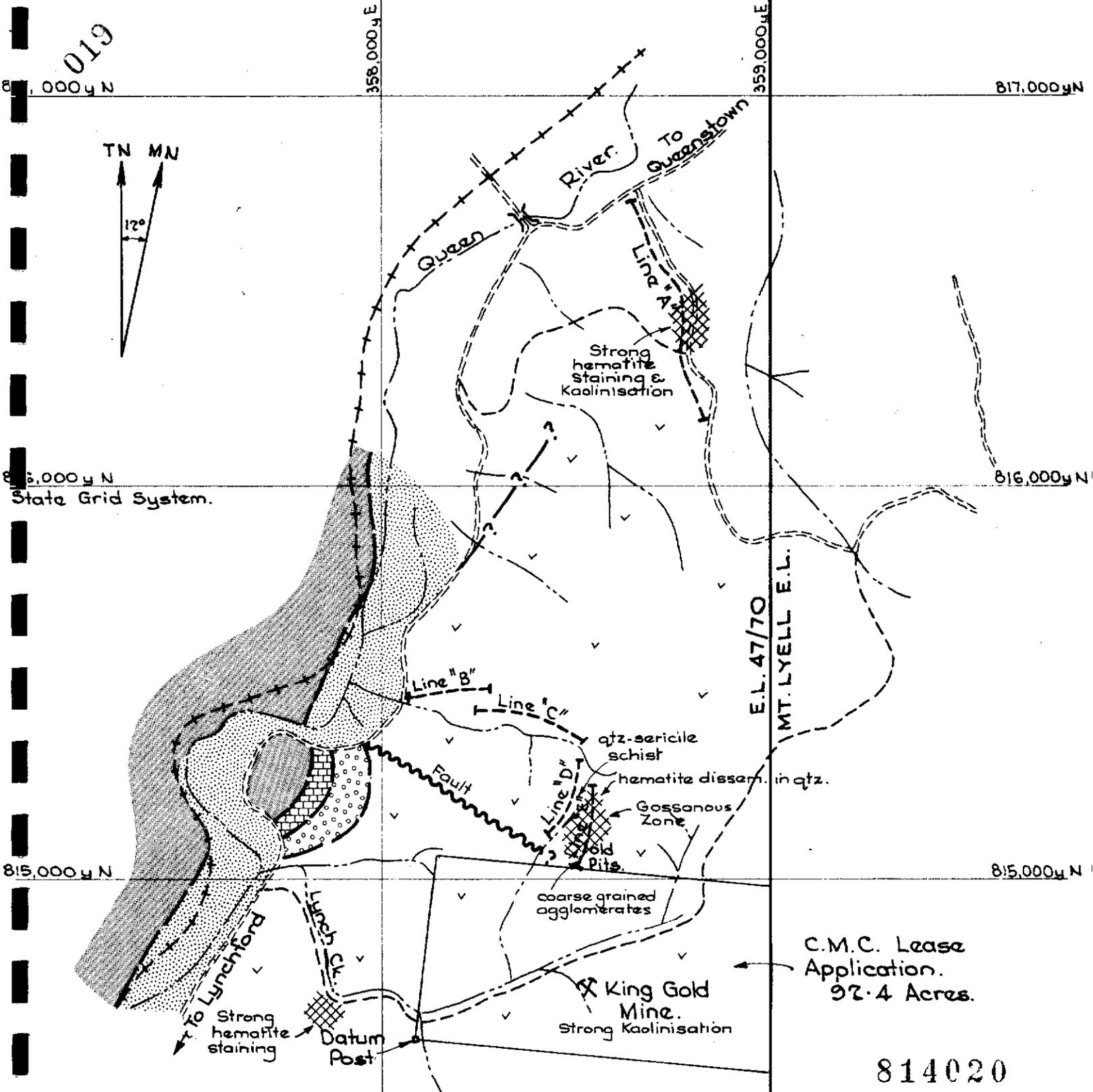
PLAN OF
LYNCH CREEK AREA
TRUE NORTH GRID

NOVEMBER 1971

1" = 1000'

814019

FIGURE 4



TOPOGRAPHY

- River
- ==== Road
- Track
- + + + Old Abt Railway formation
- Line "A" Reconnaissance Ridge soil Sample Lines.
- ~~~~ Fault
- - - Geological Boundary

GEOLOGICAL

- Recent
 - Alluvium
- Siluro-Devonian
 - Eldon Group (quartzites etc.)
- Ordovician
 - Junee Group
 - Gordon Limestone
 - Owen Conglomerate
- Cambrian
 - vvv Volcanics

C.M.C. Lease Application.
92.4 Acres.

814020

5 cm

FIGURE 5

CYPRUS MINES CORPORATION

E.L. 47/70 TASMANIA

GEOLOGICAL SKETCH MAP
OF
LYNCH CREEK AREA

NOVEMBER 1971

1" = 1000'

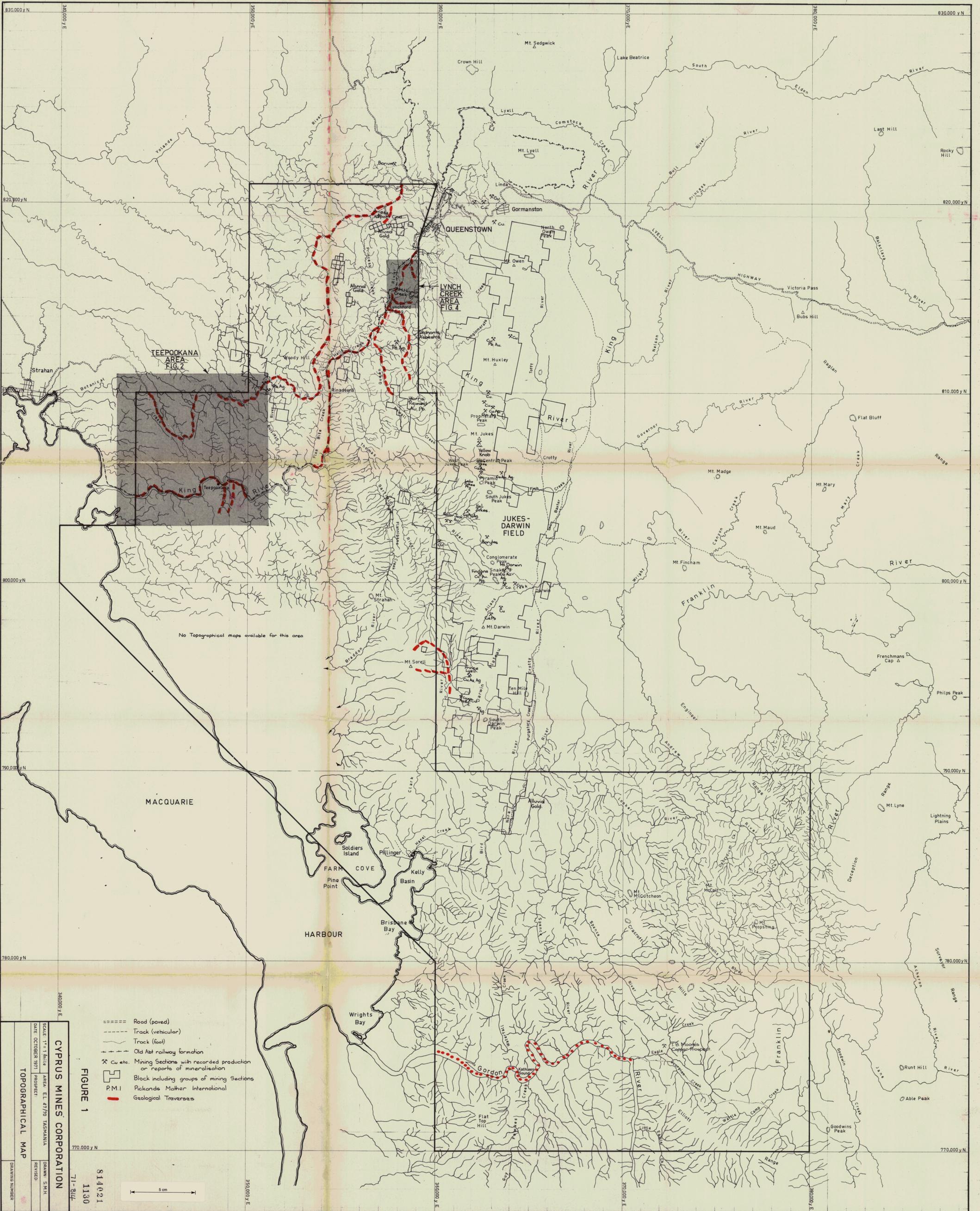


FIGURE 1

- ==== Road (paved)
- Track (vehicular)
- - - Track (foot)
- - - - Old Abt railway formation
- X Cu etc. Mining Sections with recorded production or reports of mineralisation
- [] Block including groups of mining Sections
- P.M.I. Pickands Mather International
- Geological Traverses

814021
1130
71-51/4

5 cm

CYPRUS MINES CORPORATION
SCALE 1" = 1 mile
DATE OCTOBER 1971
TOPOGRAPHICAL MAP
DRAWN S.M.H.
REVISED

No Topographical maps available for this area