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EL 11/85 YOLANDE TASMANIA

NEWTON CREEK

GOLD POTENTIAL OF THE NORTH AND SOUTH HENTY FAULTS

May - August 1987
Roger Poltock Geological Pty. Ltd.
for Cyprus Minerals Australia Co.

R. Poltock

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3. Henty River Gorge Line 28N
The river bed is covered by glacial boulders derived from the West Coast Range Conglomerate.
- 4-20 See Appendices IV.

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REFERENCE

K.D. CORBETT AND T.C. LEES
STRATIGRAPHIC AND STRUCTURAL RELATIONSHIPS AND EVIDENCE FOR
CAMBRIBAN DEFORMATION AT THE WESTERN MARGIN OF THE MT. READ
VOLCANICS, TASMANIA

AUSTRALIAN JOURNAL OF EARTH SCIENCES (1987) 34

SUMMARY

This report details exploration carried out by Cyprus Minerals during 1986-87 at Newton Creek, in the northern sector of E.L 11/85, between lines 14N and 31N. The Electrolytic Zinc Co, the joint venture partner on this licence carried out a concurrent programme 7km further south.

The Newton Creek area lies approximately 3km south of G.F.E.L's Henty Prospect where significant gold silver mineralization is associated with silicified and pyritized Cambrian Mount Read Volcanics adjacent to the Henty Fault. Newton Creek occupies a similar structural and stratigraphic setting.

A reconnaissance grid with line spacings between 800 and 1400m has been established across the North and South Henty Fault splays. Exploration completed includes geological mapping, bedrock geochemistry in the fault zones and a partial stream sediment coverage.

Glacial cover in the area is minimal, the fault zones can be located with geological mapping and bedrock geochemistry.

Two significant alteration zones have been located in this programme which are considered to be prospective for:-

- gold and basemetals in pyritized and sericitized volcanics.
- gold and platinum group minerals in dolomitized and silicified ultramafics.

Pyrite, sericite alteration with several phases of quartz, carbonate and sulphide veining in felsic volcanics has been mapped over a strike length of 4km, located on the eastern side of the South Henty Fault. This alteration has been extensively exposed by Hydro Electric Commission earth works on the Henty Canal. Gold assays from this zone have been disappointing, 0.04ppm at the canal and 0.1ppm on Line 18N.

Dolomitized ultramafics and chloritized tuffaceous siltstones within the North Henty Fault have been located in proximity to Howard's Road on Lines 14N and 18N. The maximum value in this area is 0.22ppm gold. The samples have yet to be assayed for platinum group minerals.

A third style of gold mineralization may occur in the area. Tourmalinized breccias at 24N in the White Spur Creek Fault zone have probably emanated from acid to intermediate intrusives. Skarns may be developed in the Henty River Sequence, limestones outcropping in the Henty River at 18N.

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Conclusions and Recommendations

Proposed exploration for 1987-88 in the Newton Creek area includes an initial programme of infill gridding with geological mapping, stream and bedrock geochemistry.

If significant gold or basemetal mineralization is not located with these methods then electrical geophysics may be used to define buried pyritic massive sulphides and zones of intense pyritic alteration.

A total of 10km of infill lines will be cut between 12N - 31N over the alteration zone associated with the South Henty Fault. 2km of infill lines will be established over the dolomitized ultramafics and chloritized tuffaceous siltstones between 12N and 18N on the North Henty Fault Zone.

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INTRODUCTION

The Newton Creek area is situated in the NE part of the E.L. 11/85, centred on the Henty River which flows through a gorge cut in a peneplain with an elevation of 500m ASL. The area is predominantly heavily forested, but opens out into buttongrass plains in the east (see Plate 1.)

Access to the eastern alteration zone is via the H.E.C.'s sealed Howard's Road and the Henty Canal (see Plate 2.) The southern part of the zone is less accessible, requiring an hours walk along cut lines with slopes up to 60 (see Plate 3.)

The North Henty Fault and dolomitized serpentinites are accessed off Old Howard's Road, an all weather logging road.

Geology of the area has recently been mapped by Corbett's Geological Survey of Tasmania as part of a regional mapping programme. This has been used by the writer with minor modifications (see Enc. 1)

The Henty Fault splays are central to the areas gold potential. These two NE trending structures coalesce 2km north of E.L. 11/85, forming the Henty Fault. This fault is a fundamental structural break which can be recognised in Cambrian volcanics and Ordovician sediments and is associated with Cambrian volcanic hosted base metal sulphides and gold mineralization over tens of kilometres in Western Tasmania.

Stratigraphy at Newton Creek is entirely of Cambrian age and can be divided into three units. contacts between each of these are the Henty Fault splays. To the east and west of the faults the Central Volcanics of Corbett, with dacitic to andesitic volcanics in the west and rhyolitic to andesitic in the east.

The Henty River sequence, a misfit wedge of sediments, felsic to mafic volcanics and serpentinitized ultramafics, is located between the two fault splays.



PLATE 1. View south along the Henty River from the H.E.C.'s Howard's Road. The eastern ends of lines 24 and 28N are located on the buttongrass peneplain, which is approximately 500m ASL



PLATE 2. View south along the Henty Canal, eastern end of Line 31N. The Canal has been cut along a zone of pyritic and sericitic alteration, the South Henty Fault is located 50-100m to the right of the canal.



PLATE 3. Henty River Gorge LINE 28N
The river bed is covered by glacial boulders derived
from the West Coast Range Conglomerate.

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PREVIOUS EXPLORATION

The area was undoubtedly prospected at the turn of the century, the only evidence of this activity are shallow prospect pits in volcanics at the eastern end of Line 28N.

Modern exploration was initiated by the Mount Lyell Mining and Railway Co in 1968-69 on E.L. 9/66, the target a Mt. Lyell style mineralization. A system of east west grid lines were cut, the West Tyndal Grid on the western side of the Henty Gorge and the Howard's Grid to the east. Most of these lines were not extended across the prospective Henty Fault.

The Mt. Lyell lines were covered by geology, soil geochemistry and Induced Polarization. Minor anomalies were detected and there has been no detailed follow up in the current Newton Creek area. Some of these old lines have been renovated by Cyprus Minerals.

Getty Oil Development Co. Ltd a joint venture partner with Mt. Lyell carried out the next phase of exploration at Newton Creek McNaught 1984. Their target, tin mineralization associated with Cambrian carbonates at Hall's Rivulet. Lines 8N-20N part of the West Tyndal Grid were recleared between Old Howard's Road and the Henty River, again lines not extending over the South Henty Fault.

These lines were assessed by power auger and rockchip geochemistry, and ground magnetics. The maximum tin assay was 8ppm, some gold determinations were made with the maximum value 0.06ppm.

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WORK COMPLETED AT NEWTON CREEK BY CYPRUS MINERALS

Lines 14N, 18N, 24N, 28N and 31N were renovated and in some cases re cut by contractor L. Baulch, a total of 12.4 kilometres. Lines were slope corrected and pegged at 20 or 25m intervals depending on the previous spacing.

All lines were geologically mapped, this data presented on a 1:10,000 Interpretive Plan (see Encl. 1) and 1:5,000 Section Lines (see Encl. 2 a-e) Geology is essentially from Corbett with modifications by the writer.

With the exception of a small area of glacial cover on 18N, a complete bedrock sample coverage across the fault zones was achieved by using the "Wacka" drill and conventional soil augers at 10m sample spacings. On less accessible sections in the Henty gorge alteration and mineralization associated with the fault zone was chip sampled (see Encl. 1 & 2, Appendices I & II).

Stream sediments and pan concentrates were collected in proximity to the North Henty Fault, this part of the programme was not completed due to time constraints and inclement weather but will be continued in the coming season.

Stream sediments were sieved to -80# in the field from active silt. The concentrates were panned to approximately 100gm from 15kg of - 2mm gravel from the stream bed.

Only the -80# samples were assayed, the concentrates visually examined for precious and other heavy minerals in the field. (See Encl.1 and Appendices II).

All geochemical samples were assayed by Analabs for the following elements, Cu, Pb, Zn, Ag, Ni, Cr, Mn, Co, As, Ba, W and Au (see Appendix I). All gold determinations were by fire assay Method 313. Sample locations, descriptions and analysis are listed in Appendix II.

A suite of rock samples were collected for a lithological record and not submitted for assay. Twelve samples were sent to Geochempet Services for petrology, to determine the original lithologies, alteration styles and nature of vein fillings (see Appendix III).

VLF and ground magnetics were going to be used to locate the Henty Faults but geological exposure was better than anticipated and the geophysical methods were not used.

DISCUSSION OF RESULTS

Stratigraphy

Cambrian lithologies can be broadly subdivided into the Central Mount Read Volcanic Sequence to the east and west of the Henty Fault splays, the Henty River Sequence located between the faults and the White Spur Sequence a Dundas Group equivalent overlying Central Volcanics in the west. (Encl. 1 & 2). This division is based on Corbett's mapping.

The Central Volcanic Sequence

At Newton Creek these are rhyolitic to andesitic, fine to medium grained pyroclastics with minor andesitic lavas. The volcanics may be compositionally similar east and west of the Henty Fault but the lithologies are quite distinctive.

To the west a medium grained chloritized pyroclastic is the dominant rock type (see Plate 4.) Narrow basic dykes intrude these volcanics.

These volcanics are overlain by the White Spur Formation on the western end of Lines 14-28N.

East of the fault the volcanics comprise a variety of fine to medium grained pyroclastics, epiclastics and minor trachyandesite lavas (see Plates 5,6.) From petrological descriptions the main rock type is an unwelded vitric crystal tuff, some of these rocks were mistakenly identified in the field as rhyolitic lavas.

This sequence is well exposed in the H.E.C. canal on 31N and the Henty Gorge on Lines 14-18N.

Tyndall Group volcanics may overlie this eastern sequence in the NE part of the licence.

The Henty River Sequence

A wedge of sediments and ultramafic intrusives are located between the Henty Fault splays. This wedge is considered to be a stratigraphic and lithological misfit which has been faulted into the Central Volcanics, Corbett & Lees.

The dominant lithology is a fine to medium grained tuffaceous greywacke which occasionally contains detrital magnetite (see Plate 7.) On Lines 14 and 18N chert and chert pebble conglomerates outcrop.

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North east of the White Spur Fault the Henty River Sequence consists of black shales, quartz sandstones, carbonates and porphyritic andesite lavas (see Plates 8 & 9.)

Serpentinized, dolomitized and silicified ultramafics are located within the North Henty Fault Zone (see Plates 17-19) Scattered microgabbro dykes <20m wide occur throughout the Henty River Sequence. (see Plate 10.)

ALTERATION & MINERALIZATION

A variety of styles of alteration and veining are associated with the Henty Fault splays and the crosscutting White Spur Creek Fault. Gold and basemetal assays from these alteration zones are barely geochemically anomalous.

South Henty Fault - Henty Canal Alteration Zone

Pervasive sericite, albite, chlorite and pyrite alteration in fine to medium grained volcanics has been located over a strike length of 4km between lines 14-31N, and extends beyond the northern licence boundary. (see Plates 13-15)

Multiphase quartz, carbonate, chlorite, pyrite veining with minor galena, sphalerite, chalcopryrite and fluorite frequently occur. Some veins are of laminated microcrystalline quartz.

This zone is best exposed in the H.E.C. canal at 31N and on lines 14-18N in the Henty Gorge.

The geochemical assessment of this alteration zone is at present only on a reconnaissance basis. Rock chips and B/C horizon soils have been collected on Lines 14-31N, the current line spacing varies from 800-1400m.

The best values to date are:

216524 calcareous slate with quartz carbonate sulphide veining from 18N 1950E, Au 0.10ppm, As 63ppm (see Plate 16)

216485 silicified pyritic volcanic with quartz veining from 31N Henty canal, Au 0.04ppm.

Pyritic stockworks and pyritic volcanics with laminated quartz veins from the Henty Canal assayed 0.01 and 0.005ppm gold. (See Plate 11 and 12).

North Henty Fault Zone

A slither of ultramafics has been structurally emplaced in this fault zone, and has been locally serpentized, silicified and dolomitized. (see Plate 17, 18, 19).

"Wacka" sampling over these ultramafics and adjacent chloritized siltstones returned the highest gold and arsenic values recorded in the current exploration programme.

216560 14N 390E Au 0.22ppm, other values in the dolomitized ultramafic ranged from 0.008- 0.04ppm gold and up to 1200ppm arsenic.

Chip samples of silicified and serpentized ultramafics from 28N 1020E assayed <0.005ppm gold.

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White Spur Creek Fault Zone

Scattered quartz sulphide veins and tourmalinized breccias are exposed on a cliff between 24N 2460E - 2490E, the veining is hosted by sericitized micaceous quartzites. (see Plate 20).

Samples of this veining, 216464 - 216467 assayed <0.005ppm gold and arsenic up to 81ppm.

Although the tourmaline breccia and associated veins are not significantly mineralized their occurrence indicates the presence of acid to intermediate intrusives, in the area.

Carbonate horizons have been located in the Henty River sequence in proximity to the South Henty Fault, these are a possible host for skarn style gold mineralization.

CYPRUS MINERALS AUSTRALIA COMPANY

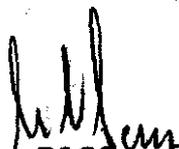
EXPENDITURE FOR THE PERIOD 1ST JANUARY TO 31ST AUGUST 1987

EXPLORATION LICENCE 11/85 YOLANDE, TASMANIA

SALARIES & WAGES	516.52
BENEFITS	185.53
DRAFTING	21.46
TRAVEL	216.60
COMMUNICATIONS	33.30
ASSAYS	4,529.44
CONTRACT GEOLOGICAL	9,150.00
OTHER CONTRACTORS	10,861.00
PROPERTY PAYMENTS	1,700.00

	27,213.85
OVERHEAD @ 10%	2,721.39

TOTAL	29,935.24


M. BASS

ACCOUNTANT

SF:AMC 59

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APPENDIX I
ANALYTICAL REPORTS

ANALABS

A division of Macdonald Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999

52 Murray Road, Welshpool, W.A. 6106
TEL: 40 3923

Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04615

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
DN 3455	
DATE RECEIVED	RESULTS REQUIRED
13/07/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
12	28/07/87	1	136

REFER NO	SAMPLE NUMBERS	PRE-TREATMENT							ANALYSIS			
		DAY	CRUSH	SPLIT	PULV VERSED	WASH	OTHER REAGENTS	NOTE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD	
Various		RD	Prep: 005	009,011	012,013,016					Cu,Pb,Zn,Ag,Ni,Cr,Mn/101,Co/02,As/114		
Various		RD								Ba,W/401		
Various		RD								Au,AuChk/313		
216544/50		SS	Prep: 005	007,-80#						Cu,Pb,Zn,Ag,Ni,Cr,Mn/101,Co/02,As/114		
216544/50		SS								Ba,W/401		

RESULTS TO	RESULTS TO	REMARKS
<p>B. Roxburgh Cyprus Minerals P.O. Box 493 North Sydney N.S.W. 2060</p>	<p>R. Pollock Cyprus Minerals C/- Post Office Wilmot Tasmania 7310</p>	

STATE OF SAMPLES	ANALYSIS — PREPARATION	ANALYSIS — METHOD
whole core	perchloric acid A1	atomic absorption AAS
split core	hydrochloric acid A2	x-ray fluorescence XRF
cutting	nitric acid A3	spectrophotometry SPEC
rock	aqua regia A4	colorimetry COL
oil	nitric-perchloric A5	chromatography CHR
slip	HF mixture A6	titration TTN
water	HF under pressure A7	other chemical means CHEM
tissue	fusion A8	miscellaneous MISC
cream sediment		fluorescence FLUOR
heavy mineral		inductively coupled plasma ICP

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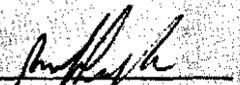
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1 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
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2	216452	20	15	60	<0.5	15	15	410	20	62
3	216453	5	10	20	0.5	10	10	35	<5	2
4	216454	5	65	30	<0.5	10	10	120	5	3
5	216455	10	<5	<5	<0.5	10	10	175	10	2
6	216456	<5	<5	20	<0.5	10	15	265	5	2
7	216457	20	<5	5	<0.5	20	10	120	10	25
8	216458	5	<5	10	<0.5	20	20	135	10	4
9	216459	<5	<5	85	<0.5	820	1050	805	85	1
10	216460	135	<5	75	<0.5	60	20	610	55	2
11	216461	10	<5	40	<0.5	10	5	755	15	66
12	216462	25	<5	80	<0.5	45	35	265	25	3
13	216463	10	<5	10	<0.5	15	55	50	10	3
14	216464	70	5	70	<0.5	30	25	265	15	33
15	216465	85	<5	60	<0.5	45	55	840	30	81
16	216466	35	<5	10	<0.5	5	25	60	5	64
17	216467	5	<5	20	<0.5	25	65	1300	20	13
18	216469	65	25	220	<0.5	125	55	1050	55	12
19	216470	150	70	200	<0.5	490	80	4900	290	720
20	216510	20	<5	75	<0.5	15	5	190	15	14
21	216511	5	<5	10	0.5	1300	1350	230	90	16
22	216512	10	<5	90	<0.5	100	1650	150	10	300
23	216513	40	<5	55	<0.5	50	50	360	30	6
24	216514	15	<5	55	<0.5	180	160	740	50	14
25	216515	330	<5	95	<0.5	90	45	930	40	15

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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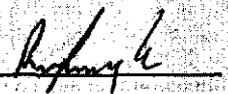
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2 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
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2	216517	20	<5	15	<0.5	10	10	180	15	6
3	216519	215	<5	80	<0.5	75	20	1150	50	1
4	216521	20	<5	20	<0.5	45	50	520	15	18
5	216522	20	280	850	<0.5	70	50	1050	35	33
6	216523	5	<5	90	0.5	15	10	1400	25	9
7	216524	30	175	25	0.5	85	55	1250	45	63
8	216525	10	25	50	<0.5	60	20	6250	50	7
9	216526	15	<5	65	<0.5	40	45	2100	30	11
10	216527	5	<5	70	<0.5	5	5	250	10	6
11	216530	10	<5	65	<0.5	5	10	240	5	11
12	216531	40	<5	65	<0.5	30	25	745	30	10
13	216532	15	<5	55	<0.5	60	50	810	35	12
14	216533	10	70	105	<0.5	20	20	1050	15	2
15	216534	40	<5	30	<0.5	10	10	415	10	3
16	216535	10	<5	20	<0.5	10	10	120	10	7
17	216536	5	<5	25	<0.5	10	5	160	10	5
18	216537	5	<5	25	<0.5	10	10	280	5	3
19	216538	20	<5	100	<0.5	5	<5	285	10	6
20	216540	10	<5	30	<0.5	15	25	715	15	7
21	216541	5	<5	30	<0.5	10	5	155	10	10
22	216543	60	<5	115	<0.5	80	65	1150	30	2
23	216551	10	<5	45	<0.5	110	120	355	30	2
24	216552	10	<5	40	<0.5	105	120	300	25	4
25	216553	10	<5	30	<0.5	65	55	315	20	6

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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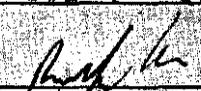
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1	216554	5	<5	45	<0.5	60	35	430	20	5
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3	216556	70	<5	60	<0.5	455	3450	125	55	67
4	216557	70	<5	60	<0.5	315	645	140	20	27
5	216558	75	<5	70	<0.5	510	175	480	35	28
6	216559	20	<5	30	<0.5	65	65	400	25	16
7	216560	35	<5	40	<0.5	50	20	810	25	6
8	216561	35	<5	55	<0.5	130	80	715	35	11
9	216562	10	<5	130	<0.5	495	925	480	45	62
10	216563	15	<5	380	<0.5	3100	3350	950	160	1200
11	216564	10	<5	190	<0.5	1550	280	135	75	150
12	216565	10	<5	105	<0.5	980	530	265	55	430
13	216566	15	70	145	<0.5	1550	2250	465	100	270
14	216567	5	<5	75	<0.5	660	810	1150	70	94
15	216568	20	<5	65	<0.5	190	155	160	25	60
16	216569	25	<5	140	0.5	465	530	310	40	100
17	216570	10	360	15	0.5	30	30	20	10	13
18	216571	10	50	150	0.5	1450	70	240	90	96
19	216572	10	5	230	<0.5	1450	3000	150	70	420
20	216573	10	<5	160	<0.5	1200	940	230	65	270
21	216574	10	<5	100	<0.5	500	4100	340	70	130
22	216575	10	<5	120	<0.5	870	1650	60	20	8
23	216576	10	<5	165	<0.5	745	2450	1150	100	11
24	216577	10	<5	220	<0.5	745	4550	40	30	6
25	216578	5	<5	185	<0.5	1550	1950	575	105	31

Results in ppm unless otherwise specified

T = element present, but concentration too low to measure

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-- = element not determined

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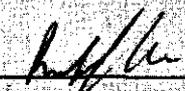
ANALYTICAL DATA

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TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216579	15	<5	165	0.5	945	1850	85	30	150
2	216580	10	<5	170	1.0	935	1800	90	70	87
3	216581	10	30	130	<0.5	530	2000	395	75	62
4	216582	15	35	110	0.5	590	190	240	55	160
5	216583	65	70	35	<0.5	15	20	55	20	46
6	216584	10	<5	20	<0.5	5	5	20	10	8
7	216585	35	60	115	<0.5	10	5	700	15	23
8	216592	55	10	120	<0.5	105	70	315	20	16
9	216593	20	10	40	<0.5	15	10	130	10	17
10	216594	10	<5	25	0.5	15	10	65	10	7
11	216595	10	<5	15	<0.5	15	30	5	5	6
12	216596	30	<5	70	<0.5	30	5	40	15	17
13	216597	5	<5	45	<0.5	50	15	75	10	13
14	216598	5	<5	15	<0.5	15	<5	20	10	4
15	216599	5	<5	10	<0.5	10	10	<5	10	3
16	216600	5	<5	5	0.5	10	25	5	5	4
17	216601	5	<5	20	<0.5	15	10	90	5	6
18	216602	10	5	55	<0.5	10	15	210	10	5
19	216603	15	<5	90	<0.5	30	15	230	15	2
20	216604	10	<5	55	<0.5	10	10	465	15	2
21	216605	10	<5	65	<0.5	25	10	465	15	3
22	216606	75	<5	145	<0.5	115	25	360	35	3
23	216607	30	<5	220	0.5	695	2700	90	40	14
24	216608	10	<5	75	<0.5	695	1650	2000	45	20
25	216609	15	<5	50	0.5	40	40	200	15	2

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 -- = element not determined

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020

886024

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

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TUBE No.	SAMPLE No.	Eu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216610	30	<5	80	<0.5	160	180	625	35	5
2	216611	10	<5	70	0.5	220	430	625	45	2
3	216612	10	<5	65	<0.5	245	250	405	50	3
4	216613	20	<5	80	<0.5	90	20	535	70	1
5	216614	10	<5	30	<0.5	165	120	105	45	<1
6	216615	25	<5	45	<0.5	180	120	330	40	2
7	216616	40	<5	55	<0.5	105	60	545	35	2
8	216617	20	<5	30	0.5	50	30	90	20	<1
9	216618	40	<5	15	<0.5	50	25	40	20	3
10	216619	45	<5	35	<0.5	45	30	70	20	18
11	216620	30	<5	20	<0.5	30	20	55	15	20
12	216621	105	<5	15	<0.5	60	40	95	15	20
13	216622	40	<5	45	<0.5	90	40	445	30	1
14	216623	45	<5	70	0.5	105	50	605	35	1
15	216624	30	<5	15	<0.5	25	40	40	10	4
16	216625	20	<5	40	<0.5	60	50	490	25	9
17	216626	20	<5	35	<0.5	100	60	475	25	5
18	216627	90	<5	20	<0.5	40	45	40	15	51
19	216628	10	<5	25	<0.5	45	20	300	20	3
20	216629	10	<5	35	<0.5	60	40	350	20	2
21	216630	15	<5	30	<0.5	50	30	335	20	7
22	216631	15	<5	60	<0.5	95	60	655	30	3
23	216632	290	<5	100	<0.5	85	25	1250	65	2
24	216633	180	<5	110	<0.5	100	30	1300	75	3
25	216634	40	<5	80	<0.5	75	50	545	35	9

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
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ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

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TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216635	75	<5	200	<0.5	210	50	630	215	92
2	216636	40	<5	60	<0.5	30	30	200	15	5
3	216637	15	<5	55	<0.5	15	30	190	10	5
4	216638	15	<5	30	<0.5	10	15	110	10	4
5	216544	15	5	70	<0.5	10	30	385	10	5
6	216545	5	<5	20	0.5	5	20	45	10	3
7	216546	10	<5	30	0.5	20	90	100	10	5
8	216547	10	<5	30	1.0	65	290	80	5	12
9	216548	10	<5	25	0.5	15	230	65	5	6
10	216549	10	<5	20	0.5	5	85	50	5	5
11	216550	20	<5	50	<0.5	30	140	270	15	12
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	5	5	5	1
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	101	101	101	101	114

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
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TUBE No.	SAMPLE No.	Au	AuChk	Ba	W					
1	216451	<0.005	-	1450	<10					
2	216452	<0.005	-	855	<10					
3	216453	<0.005	-	740	<10					
4	216454	<0.005	-	695	<10					
5	216455	<0.005	-	22	<10					
6	216456	<0.005	-	96	<10					
7	216457	<0.005	-	13	<10					
8	216458	<0.005	-	105	<10					
9	216459	<0.005	-	4310	<10					
10	216460	<0.005	-	160	<10					
11	216461	<0.005	<0.005	631	<10					
12	216462	<0.005	-	265	<10					
13	216463	<0.005	-	227	<10					
14	216464	<0.005	-	142	<10					
15	216465	<0.005	-	163	<10					
16	216466	<0.005	-	130	<10					
17	216467	<0.005	-	558	<10					
18	216469	<0.005	-	300	<10					
19	216470	<0.005	-	155	<10					
20	216510	<0.005	-	338	<10					
21	216511	<0.005	-	<10	<10					
22	216512	<0.005	-	16	<10					
23	216513	<0.005	-	142	<10					
24	216514	<0.005	-	262	<10					
25	216515	<0.005	-	321	<10					

Results in ppm unless otherwise specified
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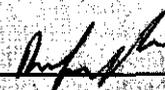
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TUBE No.	SAMPLE No.	Au	AUCHK	Ba	W					
1	216516	<0.005	-	113	<10					
2	216517	<0.005	-	553	<10					
3	216519	<0.005	-	595	<10					
4	216521	<0.005	-	268	<10					
5	216522	<0.005	-	249	<10					
6	216523	<0.005	-	415	<10					
7	216524	0.100	-	208	<10					
8	216525	<0.005	-	71	<10					
9	216526	<0.005	-	70	<10					
10	216527	<0.005	-	387	<10					
11	216530	<0.005	-	1300	<10					
12	216531	0.020	-	781	<10					
13	216532	0.010	-	199	<10					
14	216533	<0.005	-	369	<10					
15	216534	0.020	-	88	<10					
16	216535	0.010	-	118	<10					
17	216536	<0.005	-	121	<10					
18	216537	0.010	-	135	<10					
19	216538	<0.005	-	647	<10					
20	216540	<0.005	-	702	<10					
21	216541	0.020	<0.005	688	<10					
22	216543	0.010	-	188	<10					
23	216551	0.010	-	146	<10					
24	216552	<0.005	-	183	<10					
25	216553	0.010	-	243	<10					

Results in ppm unless otherwise specified.
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886028

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

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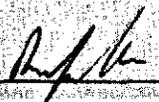
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TUBE No.	SAMPLE No.	Au	AuChk	Ba	W					
1	216554	0.010	-	326	<10					
2	216555	0.070	-	128	<10					
3	216556	<0.005	-	222	<10					
4	216557	0.010	-	<10	<10					
5	216558	0.010	-	93	<10					
6	216559	<0.005	<0.005	252	<10					
7	216560	0.220	-	153	<10					
8	216561	0.020	-	140	13					
9	216562	<0.005	-	283	<10					
10	216563	<0.005	-	31	<10					
11	216564	<0.005	-	290	<10					
12	216565	0.040	-	208	<10					
13	216566	0.010	-	134	<10					
14	216567	<0.005	-	43	<10					
15	216568	0.010	-	505	<10					
16	216569	0.020	<0.005	511	<10					
17	216570	0.020	-	429	<10					
18	216571	0.010	-	55	<10					
19	216572	0.010	-	56	<10					
20	216573	0.010	-	677	<10					
21	216574	0.005	-	18	<10					
22	216575	<0.005	-	240	<10					
23	216576	0.020	-	83	<10					
24	216577	0.010	-	853	<10					
25	216578	0.010	<0.005	39	<10					

Results in ppm unless otherwise specified.
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TUBE No.	SAMPLE No.	Au	AuChk	Ba	W					
1	216579	<0.005	-	341	<10					
2	216580	0.010	-	5240	<10					
3	216581	0.020	-	<10	<10					
4	216582	<0.005	-	2140	<10					
5	216583	<0.005	-	1200	<10					
6	216584	<0.005	-	307	<10					
7	216585	<0.005	-	1160	<10					
8	216592	<0.005	-	497	<10					
9	216593	<0.005	-	378	<10					
10	216594	<0.005	-	537	<10					
11	216595	<0.005	-	242	<10					
12	216596	<0.005	-	614	<10					
13	216597	<0.005	-	383	<10					
14	216598	<0.005	-	496	<10					
15	216599	<0.005	<0.005	223	<10					
16	216600	<0.005	-	315	<10					
17	216601	<0.005	-	666	<10					
18	216602	<0.005	-	737	<10					
19	216603	<0.005	-	893	<10					
20	216604	<0.005	-	926	<10					
21	216605	<0.005	-	1250	<10					
22	216606	<0.005	-	227	<10					
23	216607	<0.005	-	61	<10					
24	216608	<0.005	-	15	<10					
25	216609	<0.005	<0.005	629	<10					

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

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TUBE No.	SAMPLE No.	AU	AuChk	Ba	W				
1	216610	<0.005	-	200	<10				
2	216611	<0.005	-	205	<10				
3	216612	<0.005	-	449	<10				
4	216613	<0.005	-	241	<10				
5	216614	<0.005	-	619	<10				
6	216615	<0.005	-	613	<10				
7	216616	<0.005	-	334	<10				
8	216617	<0.005	-	394	<10				
9	216618	<0.005	-	533	<10				
10	216619	<0.005	<0.005	408	<10				
11	216620	<0.005	-	260	<10				
12	216621	<0.005	-	279	<10				
13	216622	<0.005	-	315	<10				
14	216623	<0.005	-	197	<10				
15	216624	<0.005	-	348	<10				
16	216625	<0.005	-	342	<10				
17	216626	<0.005	-	264	<10				
18	216627	<0.005	-	428	<10				
19	216628	<0.005	<0.005	376	<10				
20	216629	<0.005	-	394	<10				
21	216630	<0.005	-	623	<10				
22	216631	<0.005	-	433	<10				
23	216632	<0.005	-	159	<10				
24	216633	<0.005	-	138	<10				
25	216634	<0.005	-	262	<10				

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886031

ANALABS

A Division of Macdonald Analytical & Co. Pty Ltd.

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12 OF 12

TUBE No.	SAMPLE No.	Au	AuChk	Ba	W				
1	216635	<0.005	-	333	<10				
2	216636	<0.005	-	634	<10				
3	216637	<0.005	-	912	<10				
4	216638	0.050	-	576	<10				
5	216544	<0.005	-	312	<10				
6	216545	<0.005	-	226	<10				
7	216546	<0.005	-	358	<10				
8	216547	<0.005	-	194	<10				
9	216548	0.070	-	125	<10				
10	216549	<0.005	-	109	<10				
11	216550	0.010	-	203	<10				
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	0.005	0.005	10	10				
24	UNITS	PPM	PPM	PPM	PPM				
25	METHOD	313	313	401	401				

Results in ppm unless otherwise specified.
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886032

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999

52 Murray Road, Walsby, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04627

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No. 3456 PROJECT

DATE RECEIVED 20/07/87 RESULTS REQUIRED ASAP

No. OF PAGES OF RESULTS: 8
DATE REPORTED: 07/08/87
No. OF COPIES: 1
TOTAL No. OF SAMPLES: 75

DATE	SAMPLE NUMBERS	PRE-TREATMENT							ANALYSIS			
		DRY	CRUSH	SPLIT	PULVERISE	SEIVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD	
	216701/50, 217001/25	SO	Prep	005	009, 01	, 012, 013, 016				Cu, Pb, Zn, Ag, Ni, Cr, Mn, Co/101, 45/114		
	216701/50, 217001/25	SO								Au, AuChk/313, W, Ba/401		

RESULTS TO
B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

RESULTS TO
R. Fallick
Cyprus Minerals
C/- Post Office
Wilmot
Tasmania 7310

REMARKS

STATE OF SAMPLES	ANALYSIS — PREPARATION	ANALYSIS — METHOD
whole core WC	perchloric acid A1	atomic absorption AAS
split core SC	hydrochloric acid A2	x-ray fluorescence XRF
cutting CU	nitric acid A3	spectrophotometry SPEC
rock Ro	aqua regia A4	colorimetry COL
oil SO	nitric-perchloric A5	chromatography CHR
slip PU	HF mixture A6	titration TTN
water WA	HF under pressure A7	other chemicals means CHEM
tissue TI	fusion A8	miscellaneous MISC
stream sediment SS		fluorescence FLUOR
heavy mineral HM		inductively coupled plasma ICP

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886033

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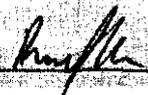
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TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216701	30	135	30	1.0	15	25	20	5	650
2	216702	15	10	410	<0.5	25	15	360	40	73
3	216703	<5	<5	35	<0.5	10	15	55	5	4
4	216704	<5	5	20	<0.5	10	25	35	<5	2
5	216705	<5	<5	25	<0.5	10	30	30	<5	1
6	216706	<5	<5	20	<0.5	10	15	20	<5	1
7	216707	45	60	120	<0.5	15	15	55	10	20
8	216708	<5	<5	20	<0.5	10	10	30	5	2
9	216709	<5	<5	20	<0.5	10	15	30	<5	2
10	216710	<5	5	15	<0.5	10	10	35	<5	4
11	216711	<5	<5	15	<0.5	5	20	35	<5	13
12	216712	<5	<5	15	<0.5	10	25	30	<5	2
13	216713	<5	<5	20	<0.5	60	30	50	5	2
14	216714	30	10	55	<0.5	15	10	90	10	11
15	216715	<5	5	15	<0.5	10	10	30	<5	14
16	216716	<5	<5	15	<0.5	10	30	25	5	2
17	216717	<5	10	10	<0.5	10	10	35	<5	1
18	216718	<5	<5	10	<0.5	10	25	20	<5	1
19	216719	<5	10	10	<0.5	10	10	30	<5	1
20	216720	<5	<5	20	<0.5	15	15	40	5	1
21	216721	<5	<5	10	<0.5	10	15	25	<5	1
22	216722	50	<5	10	<0.5	10	25	20	<5	1
23	216723	<5	<5	10	<0.5	10	<5	30	<5	1
24	216724	20	<5	145	<0.5	690	485	480	40	2
25	216725	85	70	330	<0.5	205	115	120	25	59

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216726	25	15	35	<0.5	50	125	115	15	7
2	216727	45	85	150	<0.5	120	85	475	25	50
3	216728	<5	5	10	<0.5	5	25	25	<5	1
4	216729	5	<5	15	<0.5	20	65	45	<5	2
5	216730	15	95	80	<0.5	70	90	270	10	4
6	216731	15	20	125	<0.5	165	240	410	15	34
7	216732	<5	<5	15	<0.5	65	65	25	5	4
8	216733	<5	<5	15	<0.5	10	10	15	5	5
9	216734	<5	<5	20	<0.5	5	<5	10	5	4
10	216735	<5	<5	10	<0.5	10	20	5	5	6
11	216736	<5	<5	15	<0.5	5	15	100	10	16
12	216737	<5	<5	20	0.5	10	20	20	<5	6
13	216738	<5	<5	15	<0.5	10	10	15	5	5
14	216739	<5	<5	25	<0.5	10	10	115	5	6
15	216740	<5	<5	20	<0.5	10	15	25	5	8
16	216741	<5	<5	25	<0.5	10	15	775	<5	4
17	216742	<5	<5	95	<0.5	125	45	1750	20	9
18	216743	<5	<5	50	<0.5	30	25	14000	25	7
19	216744	<5	<5	40	<0.5	20	40	170	15	3
20	216745	<5	<5	15	<0.5	15	25	70	5	4
21	216746	<5	<5	15	<0.5	20	90	35	5	6
22	216747	<5	<5	30	<0.5	15	10	295	10	3
23	216748	5	<5	130	<0.5	135	230	190	40	7
24	216749	<5	<5	20	<0.5	20	105	50	10	5
25	216750	<5	<5	60	<0.5	85	40	105	20	7

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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886035

ANALABS

A Division of Macdonald Hamilton & Co. Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX REPORT NUMBER REPORT DATE CLIENT ORDER No. PAGE

7.5.08.04627

07/08/87

3456

3 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	217001	<5	<5	35	<0.5	40	70	85	10	8
2	217002	<5	<5	35	<0.5	15	30	150	10	3
3	217003	<5	<5	15	<0.5	5	<5	90	10	1
4	217004	<5	<5	30	<0.5	10	<5	195	15	1
5	217005	<5	<5	20	<0.5	5	<5	95	10	1
6	217006	<5	<5	10	<0.5	10	10	60	10	1
7	217007	10	<5	35	<0.5	10	<5	165	10	1
8	217008	<5	<5	20	<0.5	10	<5	70	10	2
9	217009	<5	<5	10	<0.5	5	<5	25	5	1
10	217010	<5	<5	35	<0.5	10	<5	240	15	5
11	217011	<5	<5	40	<0.5	10	<5	310	15	3
12	217012	10	<5	35	<0.5	15	<5	225	15	4
13	217013	70	<5	35	<0.5	15	<5	305	15	5
14	217014	<5	<5	10	<0.5	10	10	30	5	4
15	217015	<5	<5	10	<0.5	10	<5	50	10	5
16	217016	<5	<5	10	<0.5	15	40	40	5	3
17	217017	5	<5	35	<0.5	85	50	715	35	14
18	217018	35	<5	40	<0.5	40	20	375	40	7
19	217019	25	<5	50	<0.5	80	20	490	20	6
20	217020	10	<5	15	<0.5	30	95	75	10	9
21	217021	10	<5	25	<0.5	15	75	110	10	11
22	217022	35	<5	65	<0.5	105	60	600	35	8
23	217023	15	<5	50	<0.5	85	60	410	20	14
24	217024	25	<5	45	<0.5	55	30	255	15	10
25	217025	10	<5	20	<0.5	45	75	190	20	10

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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886036

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

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TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22	DETECTION	5	5	5	0.5	5	5	5	5	1
23	UNITS	PPM								
24	METHOD	101	101	101	101	101	101	101	101	114
25										

Results in ppm unless otherwise specified.
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

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036

886037

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A Division of Macdonald Bennett & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

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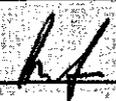
07/08/87

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1 OF 4

TUBE No.	SAMPLE No.	Au	AuChk	Ba	W					
1	216701	<0.005	-	959	<10					
2	216702	<0.005	-	952	<10					
3	216703	<0.005	-	1850	<10					
4	216704	<0.005	-	2010	<10					
5	216705	<0.005	-	1340	<10					
6	216706	<0.005	-	1240	<10					
7	216707	<0.005	-	1470	<10					
8	216708	<0.005	-	1380	<10					
9	216709	<0.005	<0.005	1590	<10					
10	216710	<0.005	-	642	<10					
11	216711	<0.005	-	951	<10					
12	216712	<0.005	-	760	<10					
13	216713	<0.005	-	420	<10					
14	216714	<0.005	-	240	<10					
15	216715	<0.005	-	570	<10					
16	216716	<0.005	-	253	<10					
17	216717	<0.005	-	158	<10					
18	216718	<0.005	-	308	<10					
19	216719	<0.005	<0.005	362	<10					
20	216720	<0.005	-	237	<10					
21	216721	<0.005	-	199	<10					
22	216722	<0.005	-	204	<10					
23	216723	<0.005	-	206	<10					
24	216724	<0.005	-	75	<10					
25	216725	<0.005	-	220	<10					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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ANALYTICAL DATA

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TUBE No.	SAMPLE No.	Au	AuChk	Ba	W				
1	216726	<0.005	-	168	<10				
2	216727	<0.005	-	164	<10				
3	216728	<0.005	-	236	<10				
4	216729	<0.005	-	201	<10				
5	216730	0.010	-	233	<10				
6	216731	<0.005	-	277	<10				
7	216732	<0.005	-	903	<10				
8	216733	<0.005	-	1040	<10				
9	216734	<0.005	<0.005	910	<10				
10	216735	<0.005	-	848	<10				
11	216736	<0.005	-	762	<10				
12	216737	<0.005	-	766	<10				
13	216738	<0.005	-	817	<10				
14	216739	<0.005	-	396	<10				
15	216740	<0.005	-	767	<10				
16	216741	<0.005	-	81	<10				
17	216742	<0.005	-	86	<10				
18	216743	<0.005	-	181	<10				
19	216744	<0.005	<0.005	163	<10				
20	216745	<0.005	-	133	<10				
21	216746	<0.005	-	105	<10				
22	216747	<0.005	-	159	<10				
23	216748	<0.005	-	118	<10				
24	216749	<0.005	-	52	<10				
25	216750	<0.005	-	169	<10				

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration below detection limit
 - = element not determined

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A Division of Macdonald Hammon & Co. Pty. Ltd.

ANALYTICAL DATA

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TUBE No.	SAMPLE No.	Au	AuChk	Ba	W					
1	217001	<0.005	-	69	<10					
2	217002	<0.005	-	227	<10					
3	217003	<0.005	-	986	<10					
4	217004	<0.005	-	809	<10					
5	217005	<0.005	-	1570	<10					
6	217006	<0.005	-	1080	<10					
7	217007	<0.005	-	1230	<10					
8	217008	<0.005	-	1180	<10					
9	217009	<0.005	-	1130	<10					
10	217010	<0.005	-	893	<10					
11	217011	<0.005	-	724	<10					
12	217012	<0.005	-	1050	<10					
13	217013	<0.005	-	653	<10					
14	217014	<0.005	-	433	<10					
15	217015	<0.005	-	537	<10					
16	217016	<0.005	-	328	<10					
17	217017	<0.005	<0.005	346	<10					
18	217018	<0.005	-	104	<10					
19	217019	<0.005	-	444	<10					
20	217020	<0.005	-	159	<10					
21	217021	<0.005	-	248	<10					
22	217022	<0.005	-	136	<10					
23	217023	<0.005	-	289	<10					
24	217024	<0.005	-	413	<10					
25	217025	<0.005	-	209	<10					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

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886040

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A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

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TUBE No.	SAMPLE No.	Au	AlChk	Ba	N					
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22	DETECTION	0.005	0.005	10	10					
23	UNITS	PPM	PPM	PPM	PPM					
24	METHOD	313	313	401	401					
25										

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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886041

ANALABS

A division of MacDonal Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999

52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 7.5.08.04639

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

B. Roxburgh
Cyprus Minerals
P.O. Box 493
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
3457	
DATE RECEIVED	RESULTS REQUIRED
23/07/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	11/08/87	1	27

DATE OF ANALYSIS	REFER FLOW	SAMPLE NUMBER	PRE-TREATMENT						ANALYSIS			
			DRY	CRUSH	SPLIT	OTHER	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD		
		116472/98	RD	Prep: 006	010,011,012,013,016					Cu,Pb,Zn,Ag,Ni,Cr,Mn,Co/101,As/114		
		116472/98	RD							W,Ba/401,Au,AuChk/313		

RESULTS TO

R. Foltack
Cyprus Minerals
C/- Post Office
Wilmot
Tasmania 7310

RESULTS TO

REMARKS

STATE OF SAMPLES	ANALYSIS — PREPARATION	ANALYSIS — METHOD
whole core WC	perchloric acid A1	atomic absorption AAS
split core SC	hydrochloric acid A2	x-ray fluorescence XRF
cutting CU	nitric acid A3	spectrophotometry SPEC
rock Ro	aqueous regia A4	colorimetry COL
soil SO	nitric-perchloric A5	chromatography CHR
pulp PU	HF mixture A6	titration TTN
water WA	HF under pressure A7	other chemicals means CHEM
tissue TI	fusion A8	miscellaneous MISC
stream sediment SS		fluorescence FLUOR
heavy mineral HM		inductively coupled plasma ICP

041

886042

ANALABS

A Division of Macdonald, Hamilton & Co., Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

7.5.08.04639

11/08/87

3457

1 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Hg	Br	Mn	Ca	As
1	216472	40	55	40	<0.5	25	10	615	20	12
2	216473	150	60	85	<0.5	35	15	1300	60	62
3	216474	45	55	115	<0.5	90	45	1000	55	4
4	216475	30	145	185	2.0	15	15	90	20	38
5	216476	40	130	185	6.0	10	10	115	15	64
6	216477	30	205	105	1.5	15	15	85	10	73
7	216478	20	105	245	<0.5	20	15	70	15	28
8	216479	25	685	80	1.5	15	15	75	15	31
9	216480	20	180	65	0.5	10	10	50	15	19
10	216481	30	85	105	<0.5	10	10	60	15	37
11	216482	25	105	175	1.0	15	10	65	15	28
12	216483	25	90	755	0.5	10	10	80	10	29
13	216484	25	80	45	0.5	10	10	90	15	28
14	216485	45	150	85	2.5	20	15	90	15	41
15	216486	20	55	95	<0.5	20	15	300	20	1
16	216487	25	55	40	<0.5	20	10	110	10	3
17	216488	30	55	80	<0.5	10	10	190	5	8
18	216489	45	80	30	0.5	15	10	60	20	17
19	216490	90	70	15	<0.5	10	15	35	10	10
20	216491	5	790	175	<0.5	10	10	820	10	8
21	216492	30	80	80	<0.5	20	30	270	10	220
22	216493	85	390	310	5.5	20	15	150	20	420
23	216494	50	160	35	2.0	15	10	135	15	21
24	216495	20	70	15	<0.5	20	50	50	5	12
25	216496	20	560	185	1.0	20	15	1200	30	65

Results in ppm unless otherwise specified.
 Y = element present; but concentration too low to measure.
 X = element concentration is below detection limit.
 - = element not determined.

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ANALABS

A Division of Macdonald International A Co. Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

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11/08/87

3457

2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	As
1	216497	10	325	115	0.5	15	15	520	10	35
2	216498	20	1700	730	3.0	10	10	70	10	220
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	5	5	5	1
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM-
25	METHOD	101	101	101	101	101	101	101	101	114

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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043

886044

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ANALYTICAL DATA

SAMPLE PREFIX

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TUBE No.	SAMPLE No.	Au	AuChk	W	SA					
1	216472	0.005	-	<10	766					
2	216473	0.010	-	<10	440					
3	216474	0.005	-	<10	524					
4	216475	0.005	-	<10	1300					
5	216476	0.005	-	<10	1420					
6	216477	0.005	0.005	<10	895					
7	216478	0.005	-	<10	796					
8	216479	0.005	-	<10	639					
9	216480	0.010	-	<10	451					
10	216481	0.005	-	<10	1070					
11	216482	0.005	-	<10	465					
12	216483	0.020	-	<10	1280					
13	216484	0.015	-	<10	403					
14	216485	0.040	-	<10	756					
15	216486	0.005	-	<10	385					
16	216487	0.005	-	<10	376					
17	216488	0.005	-	<10	441					
18	216489	0.015	-	<10	634					
19	216490	0.015	0.015	<10	484					
20	216491	0.005	-	<10	668					
21	216492	0.005	-	<10	516					
22	216493	0.005	-	<10	1510					
23	216494	0.005	0.005	<10	777					
24	216495	0.005	-	<10	45					
25	216496	0.005	-	<10	774					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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A Division of Macdonald Hill Laboratories Ltd.

ANALYTICAL DATA

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3457

4 OF 4

TUBE No.	SAMPLE No.	AU	AUCHK	W	Ba				
1	216497	0.005	-	<10	455				
2	216498	0.035	-	<10	926				
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	0.005	0.005	10	10				
24	UNITS	PPM	PPM	PPM	PPM				
25	METHOD	313	313	401	401				

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
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 - = element not determined

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C 045

APPENDIX II

SAMPLE RECORD AND ANALYTICAL DATA SHEETS

SOILS/ WACKA SAMPLES

STREAM SEDIMENTS

PANNED CONCENTRATES

ROCKS

ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS
 PROJECT 11/85 YORANDE
 PROSPECT HENTY FAULT - NEWTON CREEK

SAMPLE RECORD AND ANALYTICAL DATA SHEET

LABORATORY ANALABS CASE
 SAMPLE TYPE "WACKA" R/c horizon

COLLECTED BY: N Poltock 046
 DATE DISPATCHED: 13-7-87
 DATE RECEIVED:

A 2808

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES											
				Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As
216551	14N	500E	1.4m Feldsp phytic volc	10	<5	45	<0.5	110	120	355	30	<10	146	0.01	2
216552		490E	1.0m Volc or tuffae sed? f-mud gnd, kaolki	10	<5	40	<0.5	105	120	300	25	<10	183	<0.005	4
216553		480E	0.5m " " " ?	10	<5	30	<0.5	65	55	315	20	<10	243	0.01	6
216554		470E	1.0m Tuffae sed, f-mud gnd, grey green	5	<5	45	<0.5	60	35	430	20	<10	326	0.01	5
216555	FAULT ZONE	460E	1.0m Siltst sheared dk grey-kaolki-schistoid	45	<5	40	<0.5	220	890	620	25	<10	128	0.07	53
216556		450E	5.4m Highly sheared, talc, serpentinite?	70	<5	60	<0.5	450	3450	125	55	<10	222	<0.005	67
216557		440E	1.5m Glacial clay and gravel	70	<5	60	<0.5	315	645	140	20	<10	<10	0.01	27
216558		430E	1.7m Sheared siltst with qb veins	75	<5	70	<0.5	510	175	480	35	<10	93	0.01	28
		420E													
		410E													
216559		400E	0.5m Siltst-tuffae sed, orange-grey	20	<5	30	<0.5	65	65	400	25	<10	259	<0.005	16
216560		390E	0.3m Tuffae sed, med gnd, chloritic	35	<5	40	<0.5	50	20	810	25	<10	153	0.22	6
216561		380E	1.3m Siltst	35	<5	55	<0.5	130	80	715	35	13	140	0.02	11
	FAULT ZONE	370E													
		360E													
216562		350E	0.7m Ultramafic? carbonat alk	10	<5	130	<0.5	495	925	480	45	<10	283	<0.005	62
		340E													
216563		330E	2.8m Ultramafic gossanous?	15	<5	380	<0.5	3100	3350	950	160	<10	31	<0.005	1200
216564		320E	2.4m Limp gabbro grey green	10	<5	190	<0.5	1550	280	135	75	<10	290	<0.005	150
216565		310E	3.0m Ultramafic carbonat alk. leucitic	10	<5	105	<0.5	980	530	215	55	<10	208	0.04	430
216566		300E	2.5m " leucite	15	70	145	<0.5	1550	2250	465	100	<10	134	0.01	270

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS
 PROJECT EL 11/85 YOLANDE
 ASPECT HENTY FAULT - NEWTON CRACK

SAMPLE RECORD AND ANALYTICAL DATA SHEET
 LABORATORY ANALYSIS CODE
 SAMPLE TYPE WACKA B/c horizon

COLLECTED BY: N. POLTOCK
 DATE DISPATCHED: 15-7-87
 DATE RECEIVED:

A 28305

04

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES											
				Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	N	Ba	Au	As
216601	12N	153E	Felsic vlc	5	<5	20	<0.5	15	10	90	5	<10	666	<0.005	6
216602		160E	Glacial clay grit	10	5	55	<0.5	10	15	210	10	<10	737	<0.005	5
216603		170E	Vlc med grnd vbl latic	15	<5	90	<0.5	30	15	230	15	<10	893	<0.005	2
216604		180E	Vlc " " fgy green + pink rock frags	10	<5	55	<0.5	10	10	465	15	<10	926	<0.005	2
216605		200E	" " " "	10	<5	65	<0.5	25	10	465	15	<10	1250	<0.005	3
216606		210E	Chloritized felsic phytic vlc	75	<5	145	<0.5	115	25	360	35	<10	227	<0.005	3
216607	NORTH HENTY FAULT ZONE	220E	>hemonitic after chl or aerp?	30	<5	220	0.5	695	2700	90	40	<10	61	<0.005	14
216608		230E	Sheared completely oxidized vlc?	10	<5	75	<0.5	695	1650	2000	45	<10	15	<0.005	20
216609		240E	Glacial grit - clay	15	<5	50	0.5	40	40	200	15	<10	629	<0.005	2
216610		250E	Siltstone tuffac - khaki	30	<5	80	<0.5	160	180	625	35	<10	200	<0.005	5
216611		260E	" fgy green	10	<5	70	0.5	220	430	625	45	<10	205	<0.005	2
216612		270E	" " "	10	<5	65	<0.5	245	250	405	50	<10	449	<0.005	3
216613		280E	" " " chloritic	20	<5	80	<0.5	90	20	535	70	<10	241	<0.005	1
216614		290E	" " " - cream	10	<5	30	<0.5	165	120	65	45	<10	619	<0.005	21
216615		300E	Tuffac sur fin - med grnd	25	<5	45	<0.5	180	120	330	40	<10	613	<0.005	2
216616		310E	Sediment fgy fine grit	40	<5	55	<0.5	105	60	545	35	<10	334	<0.005	<1
216617		320E	0.8m Tuffac grit fgy green - micaceous	20	<5	30	0.5	50	30	90	90	<10	394	<0.005	<1
216618		330E	1.0m Siltstone khaki - yellow	40	<5	15	<0.5	50	25	40	20	<10	533	<0.005	3
216619		340E	0.8m Tuffac grit " - orange	45	<5	35	<0.5	45	30	70	20	<10	408	<0.005	18
216620		350E	0.7m Sed? bit - orange with qb Vermif	30	<5	20	<0.5	30	20	55	15	<10	260	<0.005	20

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

ENT CYPRUS MINERALS
 SUBJECT EL 11/85 YOLANDE
 ASPECT KENTY FAULT - NEWTON CREEK

SAMPLE RECORD AND ANALYTICAL DATA SHEET

LABORATORY ANNAVARIS COUSE
 SAMPLE TYPE WACKA B/c HORIZON

COLLECTED BY: N Pollock
 DATE DISPATCHED: 13-7-87.
 DATE RECEIVED: 0

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SAMPLE NUMBER	LOCATION		Depth	DESCRIPTION	ANALYSES											
					Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As
216621	18N	360E	0.8m	Silt - tuffac sps grey	105	<5	15	<0.5	60	40	95	15	<10	279	<0.005	20
216622		370E	?	Tuffac gntk fine med grad.	40	<5	45	<0.5	90	40	445	30	<10	315	<0.005	1
216623		380E	0.7m	" " grey	45	<5	70	0.5	105	50	605	35	<10	197	<0.005	1
216624		390E	0.6m	Siltit grey-fine gr	30	<5	15	<0.5	25	40	40	10	<10	348	<0.005	4
216625		400E	1.2m	Siltit grey	20	<5	40	<0.5	60	50	490	25	<10	342	<0.005	9
216626		410E	0.6m	Tuffac grey wacka - grey.	20	<5	35	<0.5	100	60	475	25	<10	264	<0.005	5
216627		420E	1.2m	Siltit cream lemontic.	90	<5	20	<0.5	40	45	40	15	<10	428	<0.005	51
216628		430E	1.1m	Siltit cream - grey	10	<5	25	<0.5	45	20	300	20	<10	376	<0.005	3
216629		440E	0.6m	Tuffac gntk - siltstone grey-green	10	<5	35	<0.5	60	40	350	20	<10	394	<0.005	2
216630		450E	0.8m	Siltit grey-green	15	<5	30	<0.5	50	30	335	20	<10	623	<0.005	7
216631		460E	0.7m	" " "	15	<5	60	<0.5	95	60	655	30	<10	433	<0.005	3
216632		470E	0.6m	Tuffac gntk - silt	290	<5	100	<0.5	85	25	1250	65	<10	159	<0.005	2
216633		480E	0.7m	" " "	180	<5	110	<0.5	100	30	1300	75	<10	138	<0.005	2
216634		490E	0.8m	Siltstone, hard silicified? grey.	40	<5	20	<0.5	75	50	545	35	<10	262	<0.005	9
216635		500E	1.3m	Tuffac siltit grey	75	<5	200	<0.5	210	50	630	215	<10	333	<0.005	2

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: N. Poltock

PROJECT E.L. 11/85 YOLANDE

LABORATORY

DATE DISPATCHED:

PROSPECT NEWTON CREEK - HENTY FAULT

SAMPLE TYPE Soil B/c horizon or rock chip

DATE RECEIVED:

A 28306

051

SAMPLE NUMBER	LOCATION	DESCRIPTION	ANALYSES																	
			Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As						
R217002	24N	1560E Rock chip	Volc	flu	phyric	-	pink-gr	<5	35			15	30	150	10	<10	227	<0.005	3	
217003		1570E " "	"	"	"	"	chloritic	<5	<5	15		5	<5	90	10	<10	986	<0.005	1	
217004		1580E " "	"	"	"	"	"	<5	<5	30		10	<5	195	15	<10	809	<0.005	1	
217005		1590E " "	"	"	"	"	"	<5	<5	20		5	<5	95	10	<10	1570	<0.005	1	
217006		1600E 1.4m soil	"	"	"	"	"	<5	<5	10		10	10	60	10	<10	1080	<0.005	1	
217007		1610E Rock chip	"	"	"	"	"	10	<5	35		10	<5	165	10	<10	1230	<0.005	1	
217008		1620E 0.8m soil	"	"	"	"	"	<5	<5	20		10	<5	70	10	<10	1180	<0.005	2	
217009		1630E 0.6m "	"	"	"	"	"	<5	<5	10		5	<5	25	5	<10	1130	<0.005	1	
217010		1640E Rock chip	Volc	chl	fol	phyric	"	<5	<5	35		10	<5	240	15	<10	893	<0.005	5	
217011		1650E " "	"	"	"	"	"	<5	<5	40		10	<5	310	15	<10	724	<0.005	3	
217012		1660E " "	"	"	"	"	"	10	<5	35		15	<5	225	15	<10	1050	<0.005	4	
217013		1670E " "	"	"	"	"	"	70	<5	35		15	<5	305	15	<10	653	<0.005	5	
217014		1680E soil 1.0m	"	"	"	"	"	<5	<5	10		10	10	30	5	<10	433	<0.005	4	
217015		1690E " 0.8m	"	"	"	"	"	<5	<5	10		10	<5	50	10	<10	537	<0.005	5	
217016	NORTH HENTY FAULT	1700E " 0.8m	"	"	"	"	"	<5	<5	10		15	40	40	5	<10	328	<0.005	3	
217017		1710E Rock chip	Volc	or	sed?	chloritic	"	5	<5	35		85	50	715	35	<10	346	<0.005	14	
217018		1720E " "	"	"	chloritic	-	med	gn	sed.	40		40	20	375	40	<10	104	<0.005	7	
217019		1730E 0.6m	art	shore	frags	in	soil	25	<5	50		80	20	490	20	<10	444	<0.005	6	
217020		1740E 1.0m soil	"	"	"	"	"	10	<5	15		30	95	75	10	<10	159	<0.005	9	
217021		1750E 1.0m soil	"	"	"	"	"	10	<5	25		15	75	110	10	<10	248	<0.005	11	
217022		1760E Rock chip	Med	gn	tuffac	gn	chl	vein	35	<5	65		105	60	600	35	<10	136	<0.005	8

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SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: N Poltock

053

DATE DISPATCHED:

DATE RECEIVED:

A 28205

CLIENT CYPRUS MINERALS

LABORATORY

SAMPLE TYPE "WACKA" B/C HORIZON

PROJECT E-L 11/85 VOLANDE

INSPECT NEWTON CK HENTY FAULTS

SAMPLE NUMBER	LOCATION	DESCRIPTION	ANALYSES											
			Ca	Fe	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As
21670	24N	3000E 0.5m Volc? cream talus, pink feld pheno	30	BS	30	1.0	15	25	20	5	<10	959	<0.005	650
21671		2890E 0.9m S. Hbr fine - green	15	10	40	<0.5	25	15	360	40	<10	952	<0.005	73
21672		2880E 2.2m Volc or red? fine sericitized qtz pheno	<5	<5	35	<0.5	10	15	55	5	<10	1850	<0.005	4
216704		2970E 0.4m Volc - lava? pink, qtz pheno	<5	S	20	<0.5	10	25	35	<5	<10	2010	<0.005	2
216705		2960E 1.7m Glaciols	<5	<5	25	<0.5	10	30	30	<5	<10	1340	<0.005	1
216706		2950E 0.8m Vol/clastic fine, grey	<5	<5	20	<0.5	10	15	20	<5	<10	1240	<0.005	1
216707		2940E 1.5m Volc or red? fine, hematite fractures	45	60	120	<0.5	15	15	55	10	<10	1470	<0.005	20
216708		2930E 0.5m Sed? fine grnd, qtz grains	<5	<5	20	<0.5	10	10	30	5	<10	1380	<0.005	2
216709		2920E 1.2m " " " "	<5	<5	20	<0.5	10	15	30	<5	<10	1590	<0.005	2
216710		2910E 0.5m Volc, highly fractured, silicified	<5	S	15	<0.5	10	10	35	<5	<10	642	<0.005	4
216711		2900E 0.8m " " " "	<5	<5	15	<0.5	5	20	35	<5	<10	951	<0.005	13
216712		2890E 1.4m Volc qtz rich, silicified, fractured	<5	<5	15	<0.5	10	25	30	<5	<10	760	<0.005	2
216713		2880E 1.2m " " " "	<5	<5	20	<0.5	60	30	50	5	<10	420	<0.005	2
216714		2870E 1.2m Volc or red, cherty/silicified, hematite	30	10	55	<0.5	15	10	90	10	<10	240	<0.005	11
216715		2860E 1.0m Glaciols / bedrock	<5	S	15	<0.5	10	10	30	<5	<10	570	<0.005	14
216716		2850E 1.3m Tuffac qtz grit, med grnd	<5	<5	15	<0.5	10	30	25	5	<10	253	<0.005	2
216717		2840E 1.2m Glaciols	<5	10	10	<0.5	10	10	35	<5	<10	158	<0.005	1
216718		2830E 1.4m Quartzite fine grnd fractured	<5	<5	10	<0.5	10	25	20	<5	<10	308	<0.005	1
216719		2820E 1.2m Glaciols / bedrock	<5	10	10	<0.5	10	10	30	<5	<10	362	<0.005	1
216720		2810E 0.4m Volc cream, fine, qtz all vents	<5	<5	20	<0.5	15	15	40	5	<10	237	<0.005	7
216721		2800E 0.8m Volc or red " " " "	<5	<5	10	<0.5	10	15	25	<5	<10	199	<0.005	7

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: N POLTOCK

PROJECT E.L. 11/85 YOLANDE

LABORATORY

DATE DISPATCHED:

PROSPECT NEWTON CREEK - HENTY FAULT

SAMPLE TYPE "WACKA" B/c horizon

DATE RECEIVED:

A 2805

SAMPLE NUMBER	LOCATION	DESCRIPTION	ANALYSES											
			Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As
E 216722	24N	2780E 1.6m Sed? foliated sericitized	50	<5	10	<0.5	10	25	20	<5	<10	204	<0.005	1
216723	SOUTH HENTY FAULT	2780E 0.8m " 9/13 rich - 9/13 veinup	<5	<5	10	<0.5	10	<5	30	<5	<10	206	<0.005	1
216724		2770E 1.0m shale black, highly cleaved	20	<5	145	<0.5	690	485	480	40	<10	75	<0.005	2
216725		2760E 1.4m " " "	85	70	330	<0.5	205	115	120	25	<10	220	<0.005	59
216726		2750E 1.4m " " "	25	15	35	<0.5	50	125	115	15	<10	168	<0.005	7
216727		2740E 0.5m " " "	45	85	150	<0.5	120	85	475	25	<10	164	<0.005	50
216728		2730E 1.6m Glacial gravel / shale	<5	5	10	<0.5	5	25	25	<5	<10	236	<0.005	1
216729		2720E 1.7m " " "	5	<5	15	<0.5	20	65	45	<5	<10	201	<0.005	2
216730		2710E 0.8m Shale - black	15	95	80	<0.5	70	80	210	10	<10	233	<0.005	4
216731		2700E " " "	15	20	125	<0.5	115	240	410	15	<10	277	<0.005	34

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: N. Poltock

PROJECT EL. 11/85 YOLANDE

LABORATORY

DATE DISPATCHED:

PROSPECT NEWTON CREEK HENTY FAULT

SAMPLE TYPE ~~ROCK~~ ^{ANGER} B/c horizon, soil/rock chip

DATE RECEIVED:

A 2806

055

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES											
				Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	N	Ba	Au	As
E216732	28N	1900E	1.3m	<5	<5	15	<0.5	65	65	25	5	<10	903	<0.005	4
216733		1890E	Rockchip, Volc pink-orange - feldspar	<5	<5	15	<0.5	10	10	15	5	<10	1040	<0.005	5
216734		1880E	Rockchip	<5	<5	20	<0.5	5	<5	10	5	<10	910	<0.005	4
216735		1870E	Soil 0.5m	<5	<5	10	<0.5	10	20	5	5	<10	848	<0.005	6
216736		1860E	Soil 0.4m	<5	<5	15	<0.5	5	15	100	10	<10	762	<0.005	16
216737		1850E	Rockchip Volc - pink feldspar, possible lithia series	<5	<5	20	0.5	10	20	20	<5	<10	766	<0.005	6
216738		1840E	Soil 1.0m	<5	<5	15	<0.5	10	10	15	5	<10	817	<0.005	5
216739		1830E	Rockchip, Volc cream-pink, limonite joints	<5	<5	25	<0.5	10	10	115	5	<10	396	<0.005	6
216740		1820E	soil 1.5m	<5	<5	20	<0.5	10	15	25	5	<10	767	<0.005	8
216741		1810E	Rockchip, Volc cream, limonite joints	<5	<5	25	<0.5	10	15	775	<5	<10	81	<0.005	4
216742	SOUTH HENTY FAULT	1800E	" " Silty, possibly carbonate rich	<5	<5	95	<0.5	125	45	1750	20	<10	86	<0.005	9
216516		1790E	Rockchip Qtz grit sensitized, foliated	5	<5	25	<0.5	20	10	190	10	<10	113	<0.005	3
216743		1780E	Rockchip fine sand, cream, limonite - Mn	<5	<5	50	<0.5	30	25	14000	25	<10	181	<0.005	7
216744		1770E	" " Tuffaceous, qtz feld xtal, grey green	<5	<5	40	<0.5	20	40	170	15	<10	163	<0.005	3
216745		1760E	Soil 1.0m	<5	<5	15	<0.5	15	25	70	5	<10	133	<0.005	4
216746		1750E	" 1.0m	<5	<5	15	<0.5	20	90	35	5	<10	105	<0.005	6
216747		1742E	Rockchip, Tuffaceous, feld qtz + lithia, < chl	<5	<5	30	<0.5	15	10	295	10	<10	159	<0.005	3
216748		1730E	Soil 0.8m	5	<5	130	<0.5	135	230	190	40	<10	118	<0.005	7
216749		1720E	" 0.8m	<5	<5	20	<0.5	20	105	50	10	<10	52	<0.005	5
216750		1710E	" 0.8m	<5	<5	60	<0.5	25	40	105	20	<10	169	<0.005	7
217001		1700E	" 0.8m	<5	<5	35	<0.5	40	70	25	10	<10	69	<0.005	8

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

PROJECT EL 11/85 YOLANDE

PROSPECT HENTY FAULT - NEWTON CREEK

SAMPLE RECORD AND ANALYTICAL DATA SHEET

LABORATORY ANALYSIS CODE E

SAMPLE TYPE 80# Stream sed

COLLECTED BY: R. Pollock

DATE DISPATCHED: 13-7-87

DATE RECEIVED:

A 2830

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SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES											
				Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Bs	As	As
216550	dts	216501	✓	20	<5	50	<0.5	30	140	270	15	<10	203	0.01	12
216549	dts	216502	✓	10	<5	20	0.5	5	85	50	5	<10	109	<0.005	5
216548	dts	216503	✓	10	<5	25	0.5	15	230	65	5	<10	125	0.07	6
216547	dts	216504	✓	10	<5	30	1.0	65	290	80	5	<10	194	<0.005	12
216546	dts	216505	✓	10	<5	30	0.5	20	90	100	10	<10	358		5
216545	dts	216506	✓	5	<5	20	0.5	5	20	45	10	<10	226	<0.005	3
216544	dts	216507		15	5	70	<0.5	10	30	385	10	<10	312	<0.005	5

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ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS
 PROJECT EL 11/ES YOLANDE
 PROSPECT HENTY FAULT - NEWTON CREEK

SAMPLE RECORD AND ANALYTICAL DATA SHEET
 LABORATORY ANALYSIS LOUÉE
 SAMPLE TYPE Rock.

COLLECTED BY: R. Pollock
 DATE DISPATCHED: 13-7-87.
 DATE RECEIVED:

059

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES											
				Cu	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	As	At
216469	24N	2570E	Siltstone dk grey calcite veinip. pyrite	65	25	220	<0.5	125	55	1050	55	<10	300	<0.005	12
216470	24N	2580E	Calcite qtz laminate pyrite veinip	150	70	200	<0.5	490	80	4900	290	<10	155	<0.005	160
216471	24N	3220-3240E	fine med grd, volc or sand, phosfat, feldsp rich?												
216472	31N	2460E	Siltst dk grey-green	40	55	40	<0.5	25	10	65	20	<10	766	<0.005	12
216473	31N	2460E	" " minor pyrite	150	60	85	<0.5	35	15	1300	60	<10	440	0.01	62
216474	31N	252SE	Tuffac gnlk ~ pink outst	45	55	115	<0.5	90	45	1000	55	<10	524	<0.005	4
216475	31N	2975-2981E	Chip sample canal med grd volc, pyritic	30	145	185	2.0	15	15	90	20	<10	1300	<0.005	38
216476	31N	2981-2987SE	" " " pyrite, minor galena	40	130	185	6.0	10	10	115	15	<10	1420	<0.005	64
216477	31N	29875-29925	Chip sample canal pyrite volc, qtz veins	30	205	105	1.5	15	15	65	10	<10	895	<0.005	73
216478	31N	2970-2975E	" " " qtz veinip, minor py	20	105	245	<0.5	20	15	70	15	<10	796	<0.005	28
216479	31N	2960E	" " " pyritic volc, minor disse galena	25	685	80	1.5	15	15	75	15	<10	639	<0.005	31
			" " " blue & mineral joint faces (Cu?)												
216480	50m N of 31N	2960E CANAL	pyrite sericite volc, laminated qtz veinip	20	180	65	0.5	10	10	50	15	<10	451	0.010	19
216481	135m N of 31N	2960E CANAL	pyrite volc, stockwork veins, laminated qtz ve	30	85	105	<0.5	10	10	60	15	<10	1070	0.005	37
216482	31N	2975E	laminated qtz vein with sphalerite on pyritic volc	25	105	175	1.0	15	10	65	15	<10	465	<0.005	28
216483	50m N of 31N	CANAL	Chip sample pink volc with lithic	25	90	755	0.5	10	10	80	10	<10	1280	0.02	29
216484	100m N of 31N	CANAL	" " " " " "	25	80	45	0.5	10	10	90	15	<10	403	0.015	28
216485	160m N of 31N	"	" " " silicified very pyritic volc with qtz py vein	45	150	85	2.5	20	15	90	15	<10	756	0.040	41
216486	200m N of 31N	"	" " " volcanic med grd chloritic (E side)	20	55	95	<0.5	20	15	300	20	<10	385	<0.005	1
216487	"	"	" " " Sericite pyrite (W side)	25	55	40	<0.5	20	10	110	10	<10	376	0.005	3

20060

ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: R. Pollock

PROJECT EL 11/85 VOLANDE

LABORATORY

DATE DISPATCHED:

PROSPECT NEWTON CREEK HENTY FAULT.

SAMPLE TYPE Rock

DATE RECEIVED:

A 2806

060

SAMPLE NUMBER	LOCATION	DESCRIPTION	ANALYSES											
			Ca	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As
216488	300m N3m	CANAL Sm chip sample E side Chl v.ole minor py	30	SS	60	<0.5	10	10	190	5	<10	441	<0.005	3
216489	"	Sm - adjoining 488 Pyrite v.ole disseminated veinlets	45	80	30	0.5	15	10	60	20	<10	634	0.015	17
216490	"	chip sample W side canal Pyrite v.ole	90	70	15	<0.5	10	15	35	10	<10	484	0.015	10
216491	"	large block veined silicified and, with qtz galena veins - From vicinity 21649	5	790	175	<0.5	10	10	820	10	<10	668	<0.005	8
216492	CANAL	Volcanic silicified? pyrite with qtz py veinlets	30	80	80	<0.5	20	30	270	10	<10	516	<0.005	220
216493	CANAL 25m E 216492	Silicified pyrite v.ole with pyrite, fluorite galena chalcocite joint faces	85	390	310	5.5	20	15	150	20	<10	1510	<0.005	420
216494		Foliated silicified v.ole/carbonate, fine pyrite	50	160	35	2.0	15	10	135	15	<10	777	<0.005	21
216495	ditto 216494	Rhyt v.ole qtz veined	20	70	15	<0.5	20	50	50	5	<10	45	<0.005	12
216496	sm chip sample	Carbonate rock med grnd v.ole/lethal minor pyrite galena qtz carbonate veinlet	20	560	185	1.0	20	15	1200	30	<10	774	<0.005	65
216497	3m chip sample	Volcanic, carbonate/silicate alkali qtz galena veinlet source of E 216491	10	325	115	0.5	15	15	520	10	<10	455	<0.005	35
216498	7m chip sample	Black shale, laminated qtz veins	20	1700	730	3.0	10	10	70	10	<10	926	0.035	220

080001

ROGER POLTOCK GEOLOGICAL PTY. LTD.

CLIENT CYPRUS MINERALS

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: R. Poltock

PROJECT EL 11/85 YOLANDE

LABORATORY ANALABS CODEE.

DATE DISPATCHED: 13-7-87

PROSPECT HENRY FAULT - NEWTON CREEK

SAMPLE TYPE ROCK

DATE RECEIVED:

A 2888

001

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES														
				Si	Pb	Zn	Ag	Ni	Cr	Mn	Co	W	Ba	Au	As			
E 216508	28N	460E	Basic vdc or intrusive - grey green, fine															
216509	28N	870E	Felsic vdc pink lithic $\leq 25mm$															
216510	28N	1000E	Qtz felds phytic vdc - cream-limonitic, qtz veins	20	<5	75	<0.5	15	5	190	15	<10	338	<0.005			14	
216511	28N	1020E	Pyroxenitic coarse granit, magnetite - bubble veins	5	<5	10	0.5	1300	1350	230	90	<10	<10	<0.005			16	
216512	28N	1020E	Silicified serp? clusters of chromite	10	<5	90	<0.5	100	1650	150	10	<10	16	<0.005			300	
216513	28N	1160E	Silicified and? fine-med grnd, qtz rich + qtz veins	40	<5	55	<0.5	50	50	360	30	<10	142	<0.005			6	
216514	28N	1270E	Tuffaceous and, grey green, pyritic, qtz limonitic veins	15	<5	55	<0.5	180	160	740	50	<10	262	<0.005			14	
216515	28N	1300E	Porphyritic andesite, felds phenos in fine grnd	330	<5	95	<0.5	90	45	930	40	<10	321	<0.005			15	
216516	28N	170E	Chlorite grnd, silicified, foliated.	5	<5	25	<0.5	20	10	190	10	<10	113	<0.005			3	
216517	18N	195E	Feldsp phytic vdc, grey, silicified, pyritic	20	<5	15	<0.5	10	10	180	15	<10	553	<0.005			6	
216518	18N	1150E	Quartz and/or quartz pebble comp, magnetite, chl veins															
216519	18N	1350E	Basic intrusive? fine-med grnd.	215	<5	80	<0.5	75	20	1150	50	<10	595	<0.005			1	
216520	18N	1425E	Fluorapatite pink-green chert + basic volcanic															
216521	18N	1910E	Chlorite and mica, micaceous, limonitic	20	<5	20	<0.5	45	50	520	15	<10	268	<0.005			18	
216522	18N	1930E	Silicified and/or druse py grnd, veinings py calcite	20	280	850	<0.5	70	50	1050	35	<10	249	<0.005			33	
216523	18N	1950E	Rhyolite vdc? foliated and/or silicified, qtz veins, pyrite	5	<5	90	0.5	15	10	1400	25	<10	415	<0.005			9	
216524	18N	1950E	Qtz carb veinings with grnd pyrite	30	175	25	0.5	85	55	1250	45	<10	208	0.10			63	
216525	18N	1950E	Carbonate pyrite veinings, cut by later qtz veins	10	25	50	<0.5	60	20	6250	50	<10	71	<0.005			7	
216526	18N	1950E	Qtz pyrite clay on joint faces.	15	<5	65	<0.5	40	45	2100	30	<10	70	<0.005			11	
216527	18N	1975E	Felds phytic vdc, fine-med grnd, chl veins	5	<5	70	<0.5	5	5	250	10	<10	387	<0.005			6	
216528	18N	2070E	Vdc qtz feld phenos, chloritized.															

000062

063

APPENDIX III

PETROLOGICAL REPORT ON TWELVE SAMPLES

FROM E.L. 11/85 ON THE HENTY FAULT ZONE, TASMANIA

GEOCHEMPET SERVICES

064

886065

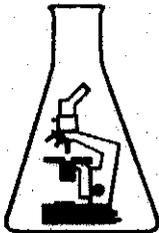
Geochempet Services

PETROLOGICAL and GEOCHEMICAL CONSULTANTS

REGISTERED IN QUEENSLAND

Principal : A.S. Joyce B.Sc. (Hons), Ph.D.
200 Chapel Hill Road
Chapel Hill, Qld. 4069

Telephone: (07) 375 5258 892 1789
A/H 378 6467



PETROLOGICAL REPORT ON
TWELVE SAMPLES FROM E.L. 11/85
ON THE HENTY FAULT ZONE, TASMANIA

prepared for

ROGER POLTOCK GEOLOGICAL PTY. LTD.

A handwritten signature in cursive script, appearing to read 'A. S. Joyce'.

A. S. Joyce, B.Sc. (Hons), Ph.D.

18th August, 1987.

065

886066

Sample Number : 216466

Identification : Sericitized, foliated, micaceous metasandstone with a tourmalinized breccia zone cut by deformed quartz veins then deformed quartz-chlorite-pyrite veins

Description :

The sample is a lightly weathered specimen of light grey arenite cut by a 15mm wide breccia zone containing fine, dark grey silicates. There are some irregular, porous, iron-stained veinlets.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the host rock displays foliated meta-sandstone textures, involving ovoid, strained and sutured quartz grains (0.1 to 0.5mm), detrital muscovite and coarsely sericitized inferred biotite (secondary rutile inclusions) and foliated sericite after labile sand grains and a matrix or cement.

The brecciated zone displays intensive veining and replacement by small prisms of green tourmaline (0.02 to 0.1mm). The tourmaline is disrupted and thinly fissure veined by quartz which in turn is strained and disrupted.

The latest, but also deformed vein structures are about 0.5mm wide, of fissure style and composed of strained quartz, heavily iron-stained probable chlorite, and pores and cubic goethite pseudomorphs after inferred pyrite (about 0.05 to 0.3mm in grainsize).

An approximate mode is :

55-65%	metasedimentary quartz
20-25%	sericitized clasts and matrix or cement
2-3%	detrital muscovite and sericitized biotite
4-5%	tourmaline
5-7%	vein quartz
2-3%	iron-stained probable chlorite in veins
2-3%	pores and goethite after inferred pyrite

Comments and Interpretations :

This rock is interpreted to have originated as micaceous, labile sandstone. It developed a distinct metamorphic foliation and its labile components have been completely sericitized.

A zone of brecciation was heavily veined and replaced by fine, green tourmaline. The breccia zone and adjacent foliated meta-sandstone was then cut by quartz veins which experienced subsequent deformation. Later fissure veins, also deformed, carried quartz, chlorite and pyrite (the latter two minerals now oxidized by weathering).

Sample Number : 216511

Identification : Serpentinite

Description :

The sample is an olive grey, soft, heavily weathered hand specimen.

A staining test revealed no K-feldspar.

In thin section the sample displays textures consistent with only mildly deformed serpentinite. Well preserved serpentine mesh textures after olivine and serpentine bastite textures after pyroxene indicate that the original rock consisted of cumulate, equant olivine grains about 0.5 to 4mm in size with anhedral intercumulus grains of pyroxene of similar size but more complex, cusped shape. There are a few equant grains of opaque to translucent brown chromite, about 0.2 to 0.5mm in size.

Fine, secondary magnetite is distributed throughout the serpentinitized grains : it generally delineates irregular to semi-regular cracking patterns in the serpentinitized inferred olivine grains and cleavage patterns in the serpentinitized inferred pyroxene grains. In parts of the sample the inferred olivine grains have been partly to wholly replaced by aggregates of randomly orientated talc.

Apart from irregular, thin, short fractures carrying serpentine and secondary magnetite, there are a few thicker veins (up to 0.4mm wide) now composed of goethite and pores : textures are vaguely suggestive of carbonate.

An approximate mode is :

60-70%	serpentine minerals
20-30%	talc
6-8%	magnetite
0.2-0.3%	chromite
2-3%	porous goethite veins

Comments and Interpretations :

This rock is confidently identified as only mildly deformed serpentinite. The original rock was peridotite, composed of cumulus olivine, very minor chromite and intercumulus pyroxene. The primary silicates have been completely altered to serpentine minerals, secondary magnetite and talc. Chromite survives.

Porous goethite veins probably represent weathered magnesite.

067

886068

Sample Number : 216512

Identification : Intensely silicified probable serpentinite

Description :

The sample is a light brown, weathered and mildly porous but very hard and finely siliceous hand specimen.

A staining test revealed no K-feldspar.

In thin section the sample is seen to be intensely silicified, but there are textural indications of a formerly crystalline rock with grainsizes commonly of about 0.5 to 5mm. The most common primary grains were equant and have been replaced by aggregates of anhedral quartz about 0.1 to 0.2mm in grainsize. Less common, more elongate grains have been replaced by finer, more fibrous, anhedral quartz.

Scattered through the rock there are fractured anhedral grains (about 0.2 to 0.5mm) of translucent brown picotite (a chrome spinel).

Unevenly distributed throughout the specimen there are specks of goethite, traces of a very fine sericitic mineral (probably talc) and disseminated equant pores (some of non-cubic isometric form) about 0.01mm in size, but others larger and less regular.

An approximate mode is :

92-96%	quartz
3-4%	goethite
3-4%	pores
0.2-0.3%	picotite
tr	(?)talc

Comments and Interpretations :

This rock has been intensely silicified. The best clue to the nature of its precursor is the picotite, a chrome spinel found with or in place of chromite in peridotite and serpentinite. Given the presence of picotite, the subtle remnant textures in the rock can be interpreted to be consistent with the textures in the serpentinite sample 216511.

There is uncertainty about whether the disseminated goethite and related pores were indicative of weathered magnetite or weathered pyrite. Sulphide is suspected.

Sample Number : 216515

Identification : Mildly deformed, chloritized porphyritic andesite with sericitized shears and ferruginous pores after possible sulphide

Description :

The sample is a lightly weathered hand specimen which displays abundant very light grey feldspar phenocrysts set in a fine-grained, greenish grey groundmass.

A staining test revealed no K-feldspar.

In thin section the sample displays altered and mildly sheared, porphyritic, hypidiomorphic, volcanic rock. The phenocrysts are mainly 0.5 to 5mm and commonly broken or bent. The groundmass is dominated by randomly orientated plagioclase laths, about 0.1 to 0.2mm long, many of them bent.

The phenocrysts are lightly sericitized plagioclase. The groundmass consists of slightly sericitized laths of plagioclase with interstitial chlorite after mafic silicates and sphene after titaniferous opaque oxides. Shear zones narrower than about 2mm are heavily sericitized.

Within cracks in the plagioclase phenocrysts there are commonly iron-stained pores which may represent weathered sulphides. There are also some coarser (1 to 2mm) but similarly porous and iron-stained, discontinuous vein structures crudely concordant with the shearing. One carries a 1mm x 2mm goethite structure possibly after chalcopyrite. One porous vein carries minor quartz and sericite.

An approximate mode is :

20-25%	phenocrysts of lightly sericitized plagioclase
40-50%	groundmass plagioclase
20-25%	groundmass chlorite
3-4%	groundmass secondary sphene
5-7%	sericite, mainly in shears
2-3%	ferruginous pores after possible sulphides

Comments and Interpretations :

This rock is interpreted to have originated as feldspar phytic intermediate lava (more specifically, porphyritic andesite). It has been pervasively chloritized, slightly sericitized and mildly sheared. The most sheared zones have been sericitized. Cracks in plagioclase phenocrysts have been occupied by possible sulphides (now ferruginous pores) and related possible sulphides also formed some veins crudely concordant with the foliation. One porous ferruginous vein also carries sericite and quartz.

Sample Number : 216519

Identification : Greenstone, developed from porphyritic,
finely crystalline mafic rock

Description :

The sample is a lightly weathered hand specimen of fine to medium-grained, greenish grey, crystalline rock.

A staining test revealed no K-feldspar.

In thin section the sample displays a metamorphic greenstone mineral assemblage, but its remnant primary textures involve many former phenocrysts about 1 to 7mm in size set in a groundmass with hypidiomorphic grains about 0.1 to 0.5mm in size.

The phenocrysts have shapes mainly consistent with plagioclase, but they have been completely replaced by aggregates of epidote group minerals about 0.05mm in grainsize. Rare phenocrysts were mafic silicate, now pseudomorphed by fine-grained actinolite. The groundmass displays aggregates of actinolite and chlorite after mafic silicates, epidote group minerals after plagioclase, incompletely leucoxenized opaque oxides, and anhedral remnant primary quartz.

There are a few thin (less than 0.1mm) fissure veins of quartz, some with epidote.

An approximate mode is :

45-55%	epidote
30-35%	actinolite
8-10%	partly leucoxenized opaque oxide
4-6%	primary quartz
4-6%	chlorite
0.2-0.3%	veins of quartz and minor epidote

Comments and Interpretations :

This sample has a non-foliated, metamorphic greenstone assemblage of epidote-actinolite-leucoxene-chlorite-quartz.

Remnant primary textures indicate that the original rock was porphyritic and probably crystallized within a dyke, sill or small intrusion. Its primary composition was either mafic microdiorite or quartz bearing microgabbro.

Trivial fissure veins carry quartz and minor epidote.

Sample Number : 216522

Identification : Sericitic slate with disseminated and vein sulphides and a late breccia pattern of carbonate veinlets

Description :

The sample is an essentially unweathered specimen of pyritic, light greenish grey, fine-grained rock cut by some quartz veins and finer, yellowish grey veinlets of carbonate.

A staining test revealed no K-feldspar.

In thin section the host rock is seen to consist mainly of sericite, fine quartz (less than 0.05mm), carbonate and aggregates of very fine rutile. The sericite displays two foliation directions, intersecting at about 40°. The carbonate is anhedral and of ankeritic or dolomitic appearance.

A pattern of incipient brecciation is delineated by very thin fissure veins (mainly 0.02 to 0.1mm thick) of ankeritic or dolomitic carbonate, lined in some cases with chlorite. Disrupted, earlier thicker veins (up to 0.5mm thick) carry sulphides and quartz. The main sulphides are subhedral pyrite (0.01 to 0.1mm), but there is some anhedral galena and anhedral, translucent yellow and brown sphalerite. Similar sulphides are also disseminated through the rock.

An approximate mode is :

40-45%	sericite
30-35%	quartz
8-10%	disseminated carbonate
2-3%	rutile
2-3%	vein quartz
4-5%	sulphides (pyrite, galena and sphalerite) as disseminations and in quartz veins
6-8%	carbonate veins with minor chlorite

Comments and Interpretations :

This rock is interpreted to have originated as mudstone, composed mainly of clays, carbonate and quartz silt. It has been converted to sericitic slate with two schistositities.

Pyrite, galena and sphalerite were introduced as fissure veins with quartz and as fine disseminations. A subsequent pattern of incipient brecciation has been delineated by carbonate veinlets with minor chlorite. It is unclear whether the carbonate was introduced or derived by local mobilization.

Sample Number : 216525

Identification : Mildly siliceous fractured and recrystallized limestone

Description :

The sample is a very slightly weathered hand specimen of light grey, carbonate-dominated rock.

A staining test revealed no K-feldspar.

In thin section the sample is seen to consist mainly of anhedral carbonate with patchy variations in grainsize from about 0.02 to 1mm. The grainsize variations are suggestive of fossils or clasts of varied shapes and sizes, from about 0.5 to 8mm. The optical properties seem consistent with calcite.

There are irregular fracture patterns and related thin veins of clear calcite.

Strained, sutured quartz (about 0.02 to 0.5mm) is unevenly but widely distributed. There are traces of fine carbonaceous matter.

There are sparse, unevenly distributed, subhedral to euhedral, multifaceted grains of pyrite, about 0.1 to 0.2mm in size.

An approximate mode is :

82-88%	carboante (apparently calcite)
12-18%	quartz
tr	pyrite
tr	carbonaceous matter

Comments and Interpretations :

This sample is a mildly siliceous carbonate rock with traces of pyrite and a few specks of carbonaceous matter. It seems to represent fractured and recrystallized limestone (= marble). The traces of pyrite may well be of syngenetic/diagenetic origin. It is not clear whether the quartz represents an original cherty component or an introduced component.

Sample Number : 216534

Identification : Sericitized vitric tuff with irregular fine veining by quartz, carbonate and traces of sulphide

Description :

The sample is a lightly weathered, hard specimen of yellowish grey, fine-grained rock cut by irregular, thin, yellowish grey veins.

A staining test revealed no K-feldspar.

In thin section the sample displays a fine-grained assemblage of foliated sericite, untwinned albite and possibly quartz cut by numerous irregular fissure veins. In a few places careful observation reveals remnant textures consistent with former unwelded vitric shards about 0.1 to 0.3mm in size. There are also numerous, but inconspicuous kaolinitic pseudomorphs of tabular phenocrysts of inferred feldspar, about 0.2 to 0.5mm in size; there are also rare clasts of quartz.

The fissure veins display a paragenetic sequence which starts with narrow quartz veins (generally less than 0.2mm) with only minor carbonate, progresses to thicker veins (0.2 to 2mm) dominated by carbonate but with some quartz, and finishes with very thin veins (0.02mm) of carbonate. Refractive indices of the carbonate appear consistent with dolomite or ankerite.

Traces of fine sulphide (less than 0.05mm) occur in the early quartz-carbonate veins. Pyrite and possibly chalcopyrite were seen.

An approximate mode is :

2-4%	kaolinized clasts of inferred feldspar
rare	quartz clasts
40-50%	matrix sericite
30-40%	matrix albite and possibly quartz
10-15%	quartz within veins
4-5%	carbonate within veins
tr	sulphide within veins

Comments and Interpretations :

This rock has poorly preserved primary textures, but seems to have originated as unwelded vitric tuff with minor phenocrysts of feldspar and rare clasts of quartz.

The tuff has been completely devitrified to foliated sericite and fine albite and possibly quartz and then it has been abundantly, irregularly fissure veined. The veins show a progressive change in mineralogy from quartz with traces of carbonate and sulphides to carbonate with minor quartz and finally to carbonate alone. The carbonate seems to be ankerite or dolomite.

Sample Number : 216536

Identification : Foliated sericitized vitric tuff with abundant irregular veining by quartz and probably carbonate (now pores)

Description :

The sample is a pale orange, weathered, but hard, finely siliceous specimen cut by irregular, thin, porous vein structures.

A staining test revealed no K-feldspar.

In thin section the sample displays an assemblage of foliated very fine sericite and equally fine albite and possibly quartz cut by many irregular fissure veins of mildly strained quartz. The rock shows disseminated kaolinized phenoclasts of inferred feldspar (up to 0.5mm) and rare clasts of quartz and in some places careful observation reveals remnant textures consistent with unwelded vitric shards (about 0.1 to 0.3mm).

The quartz veins are mainly 0.02 to 2mm, but a zone of brecciated slate about 15mm wide consists mainly of coalesced, multiple quartz veins. Disseminated pores of generally rhombic shape (less than about 0.2mm) are common in the quartz veins. The quartz veins and their host rock are cut by some porous, thin vein structures (commonly 0.03 to 0.4mm wide) which may have carried carbonate.

An approximate mode is :

2-4%	kaolinized inferred feldspar clasts
rare	quartz clasts
30-40%	matrix sericite
20-30%	matrix albite and possibly quartz
35-40%	veins of quartz with minor rhombic pores
1-2%	completely porous, late vein structures

Comments and Interpretations :

There are textural similarities to Sample 216534 except that this sample is more heavily veined by quartz and retains no carbonate.

The original rock is interpreted to be unwelded vitric tuff with sparse phenoclasts of feldspar (now kaolinized) and rare clasts of quartz. The vitric components have converted to sericite and albite. Abundant irregular veining by quartz accompanied by a minor amount of a euhedral rhombic mineral (presumably dolomite or a ferruginous carbonate) post-dated foliation of the sericite. Late thinner veins carried minerals which have been completely removed by weathering : they may well have contained carbonate.

Sample Number : 216540

Identification : Unwelded vitric crystal tuff, with a moderately sericitized matrix and with feldspar phenoclasts rim replaced by siderite

Description :

The sample is a yellowish brown, weathered but very hard specimen with subtle tuffaceous textures.

A staining test revealed no K-feldspar.

In thin section, under low light conditions, the sample plainly displays tuffaceous textures, involving unwelded, formerly vitric shards (commonly 0.1 to 0.3mm in size), numerous phenoclasts of plagioclase (about 0.5 to 2mm) and a few clasts of undeformed pumice (1 to 3mm).

The vitroclastic matrix has finely devitrified to sericite, untwinned albite and possibly quartz. There are zones of incipient slaty foliation. The plagioclase phenoclasts are now albite and all have rims heavily replaced by oxidized siderite (much of it now dense limonite) occurring as rhombs about 0.01 to 0.03mm in size; minor sericite and some siderite occurs within the cores of the phenoclasts. The pumiceous clasts have filamentous vesicular structures and now consist of sericite, albite, and oxidized siderite rhombs.

A few quite inconspicuous and veyr thin veins carry moderately twinned albite and traces of sericite.

An approximate mode is :

25-30%	phenoclasts of plagioclase with rim alteration to siderite
tr	clasts of pumice, altered to sericite-albite-siderite
70-75%	vitroclastic matrix devitrified to sericite, albite and possibly some quartz
tr	veinlets of albite and sericite

Comments and Interpretations :

This rock has remnant textures which are plainly consistent with unwelded vitric crystal tuff. The only phenoclasts recognised are plagioclase so the source magma was probably intermediate.

The vitroclastic matrix has devitrified to sericite, albite and possibly some quartz. The plagioclase phenoclasts have experienced rim replacement by fine rhombs of siderite, now heavily oxidized to limonite.

Incipient slaty foliation is developed in parts of the rock.

0. 075
Sample Number : 216541

Identification : Probable vitric crystal tuff, now albitized, pyritized, chloritized and sericitized and with two schistosities

Description :

The sample is a superficially weathered hand specimen of finely pyritic rock which displays whitish phenocrysts or clasts set in a fine-grained, light grey groundmass. Two acutely intersecting cleavage directions are prominent.

A staining test revealed no K-feldspar.

In thin section the whitish clasts are seen to be single crystals (0.3 to 2mm) and aggregates of crystals of plagioclase now replaced generally by aggregates of albite. There are also some albitized porphyritic and non-porphyritic structures which resemble lithic clasts or recrystallized pumice, about 2 to 5mm in size. The major matrix is a fine-grained aggregate of sericite, untwinned albite, chlorite, rutile and possibly some quartz. Two competing sericitic schistosities are variably developed.

Subhedral cubes of pyrite (about 0.02 to 0.2mm) are evenly disseminated throughout the rock.

An approximate mode is :

20-25%	albitized phenoclasts and phenocrysts
30-40%	fine albite and possibly some quartz
30-35%	sericite
3-4%	chlorite
0.1-0.2%	rutile
6-8%	pyrite

Comments and Interpretations :

This sample has been albitized, pyritized, lightly chloritized, moderately sericitized and moderately foliated by two schistosities.

Primary textures are not well preserved, but it seems likely that this rock originated as an intermediate vitric crystal tuff, probably similar to Sample 216540. There is only a small alternative possibility that it was a lava.

The pyrite is evenly disseminated and there are no distinct veins.

Sample Number : 216542

Identification : Mildly deformed, amygdaloidal, chloritized and lightly sericitized and carbonated porphyritic latite

Description :

The sample is a lightly to moderately weathered specimen of finely porphyritic, greenish grey rock with many ovoid, quartzose amygdales a fraction of a millimetre to about 10mm long.

A cobaltinitrite staining test revealed a moderate abundance of fine K-feldspar.

In thin section the sample is confirmed to have abundantly amygdaloidal and porphyritic volcanic textures. The phenocrysts are about 0.5 to 2mm in size and the groundmass displays feldspar laths about 0.1 to 0.2mm long and other smaller anhedral grains. A mild shear foliation has been superimposed on the igneous textures.

The amygdales are thinly lined with chlorite, then calcite and filled with quartz (now strained). The main phenocrysts are plagioclase, moderately altered to sericite, calcite and chlorite. Other phenocrysts are magnetite and some chlorite pseudomorphs of inferred pyroxene. The groundmass consists of lightly sericitized carbonated and chloritized plagioclase, completely chloritized mafic silicates, opaque oxides largely pseudomorphed by sphene, anhedral orthoclase and small amounts of quartz.

An approximate mode is :

20-25%	phenocrysts of moderately sericitized, carbonated and chloritized plagioclase
2-3%	chloritized mafic silicate phenocrysts
0.1-0.3%	magnetite phenocrysts
20-25%	lightly sericitized, carbonated and chloritized groundmass plagioclase
20-25%	groundmass K-feldspar
15-20%	groundmass chlorite after mafics
4-5%	groundmass sphene and remnant oxide
1-2%	groundmass quartz
8-10%	amygdales of chlorite-calcite-quartz

Comments and Interpretations :

This rock is interpreted to have originated as vesicular, porphyritic latite (= trachyandesite) lava. It has been pervasively chloritized and lightly sericitized and carbonated and its vesicles filled with chlorite-calcite-quartz.

The alteration minerals and the related vesicle fillings pre-dated development of a mild shear foliation.

077

APPENDIX IV

PHOTOGRAPHS OF LITHOLOGIES, ALTERATION & VEINING

- A) CENTRAL VOLCANICS WEST OF HENTY FAULT
- B) CENTRAL VOLCANICS EAST OF HENTY FAULT
- C) HENTY RIVER SEQUENCE
- D) ALTERATION & VEINING
 - SOUTH HENTY FAULT-HENTY CANAL 31N
 - SOUTH HENTY FAULT - LINES 14-18N
 - NORTH HENTY FAULT
 - WHITE SPUR CREEK FAULT

078

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LITHOLOGIES

A) CENTRAL VOLCANICS WEST OF HENTY FAULT

079

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PLATE 4. SAMPLE 216509 28N/870E
FELSIC PYROCLASTIC

080

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LITHOLOGIES

CENTRAL VOLCANICS EAST OF SOUTH HENTY FAULT

081



PLATE 5. 216540 14N 2910E
VITRIC CRYSTAL TUFF, UNWELDED. LIMONITIC PATCHES
FELDSPARS PARTIALLY REPLACED BY SIDERITE.



PLATE. 6 216542 18N 2440E
AMYGDALOIDAL TRACHYANDESITE LAVA
HENTY RIVER SEQUENCE

082

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LITHOLOGIES
HENTY RIVER SEQUENCE



PLATE 7. 216543 24N 1920E
TUFACEOUS GREYWACKE WITH DETRITAL MAGNETITE.



PLATE 8. 216525 18N 1950E
RECRYSTALIZED FRACTURED LIMESTONE



PLATE 9. 216515 28N 1340E
PORPHYRITIC ANDESITE LAVA



PLATE 10. 216519 18N 1350E
QUARTZ BEARING MICROGABBRO

APPENDIX IV

B) ALTERATION - VEINING

SOUTH HENTY FAULT - HENTY CANAL 31N

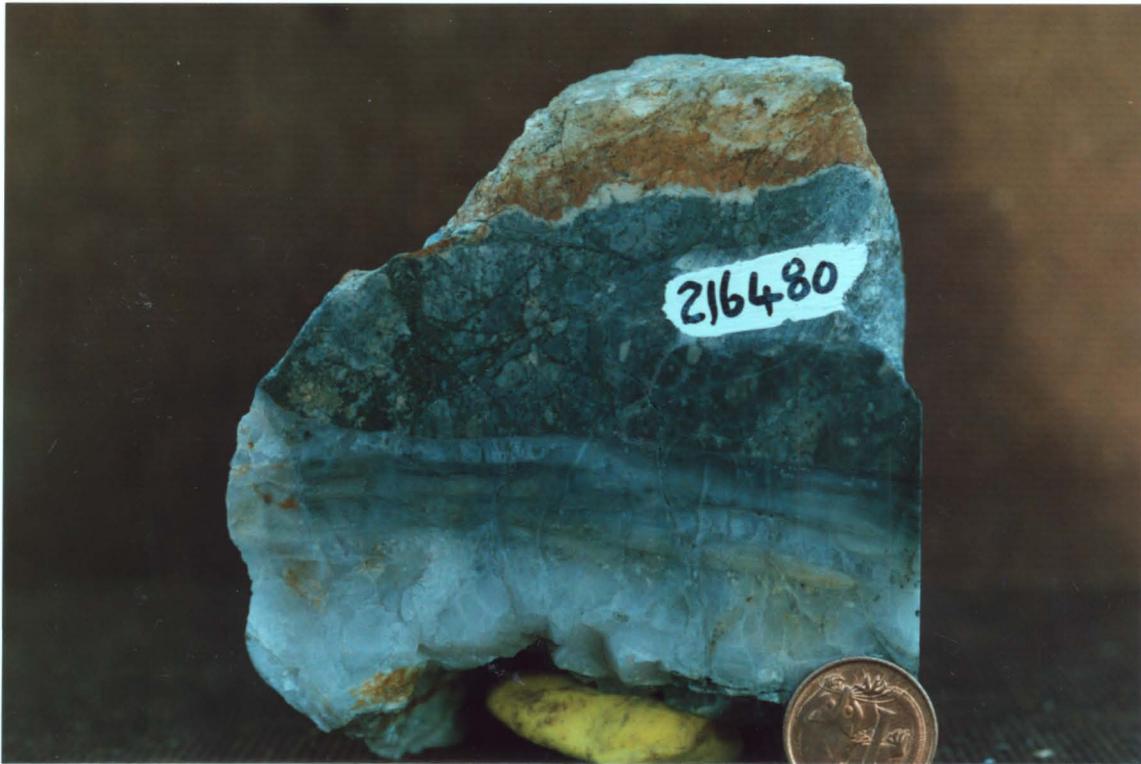


PLATE 11. 216480 31N 29603
LAMINATED QUARTZ VEIN IN PYRITIC AND SERICITIC
VOLCANIC



PLATE 12. 216481 CANAL 135M NORTH OF 31N
PYRITIC STOCKWORK IN VOLCANICS

087

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ALTERATION & VEINING

SOUTH HENTY FAULT - HENTY GORGE LINE 14-18N

088



PLATE 13. 216522 18N 1930E
SERICITIC SLATE WITH DISSEMINATED AND VEIN SULPHIDES
AND LATE BRECCIA PATTERN OF CARBONATE VEINLETS



PLATE 14. 216534 14N 2650E
SERICITIZED VITRIC TUFF WITH QUARTZ CARBONATE AND
SULPHIDE VEINING

089



PLATE 15. 216541 18N 2220E
VITRIC CRYSTAL TUFF, ALBITIZED, PYRITIZED,
CHLORITIZED AND SERICITIZED



PLATE 16. 216524 18N 1950E
PYRITIC QUARTZ CARBONATE VEINING

090

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ALTERATION & VEINING
NORTH HENTY FAULT



PLATE 17. 216511 28N 1020E
SERPENTINIZED PERIDOTITE



PLATE 18. 216512 28N 1020E
INTENSELY SILICIFIED SERPENTINITE



PLATE 19. 216459 14N 147E
DOLOMITIZED SERPENTINITE WITH CHROMITE BLEBS

093

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ALTERATION & VEINING
WHITE SPUR CREEK FAULT

094



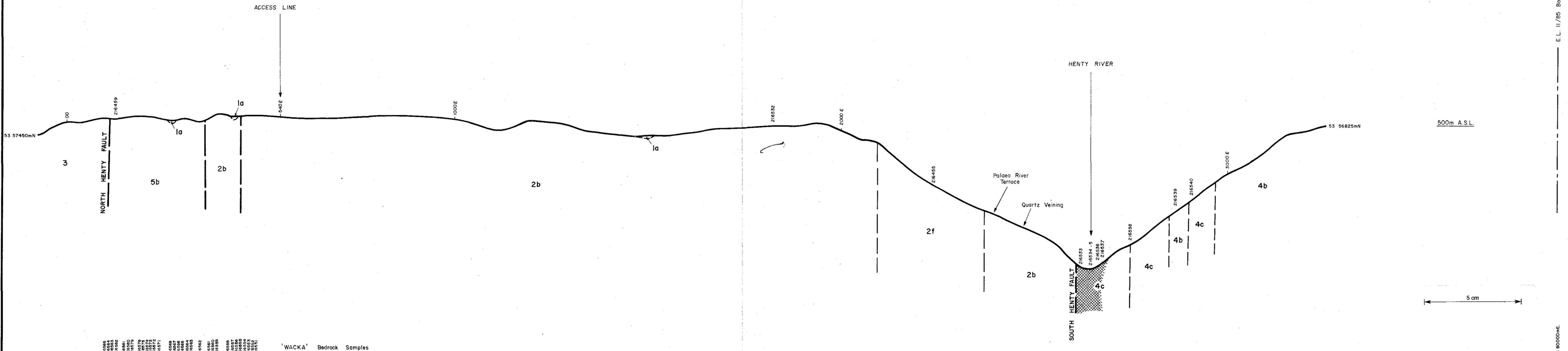
PLATE 20. 216466 24N 2480E
TOURMALINIZED BRECCIA ZONE IN MICACEOUS METASANDSTONE

095

095

095

886096



- 'WACKA' Bedrock Samples
- 216595
 - 216596
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NOTE:
Refer to 1:10,000 Geological Interpretation Plan for Legend.

CYPRUS MINERALS AUST. CO.	
YOLANDE J.V. E.L. 11/85 NEWTON CREEK	
INTERPRETIVE GEOLOGICAL SECTION & SOIL/ROCK GEOCHEMISTRY	DRAWN BY : R. Pollock DRAFTSMAN : T.G.D.S. DATE : Aug '87 REVISIONS :
LINE 14N	FILE No.
SCALE: 1:5000	FIG.

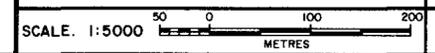
E.L. 11/85 Boundary

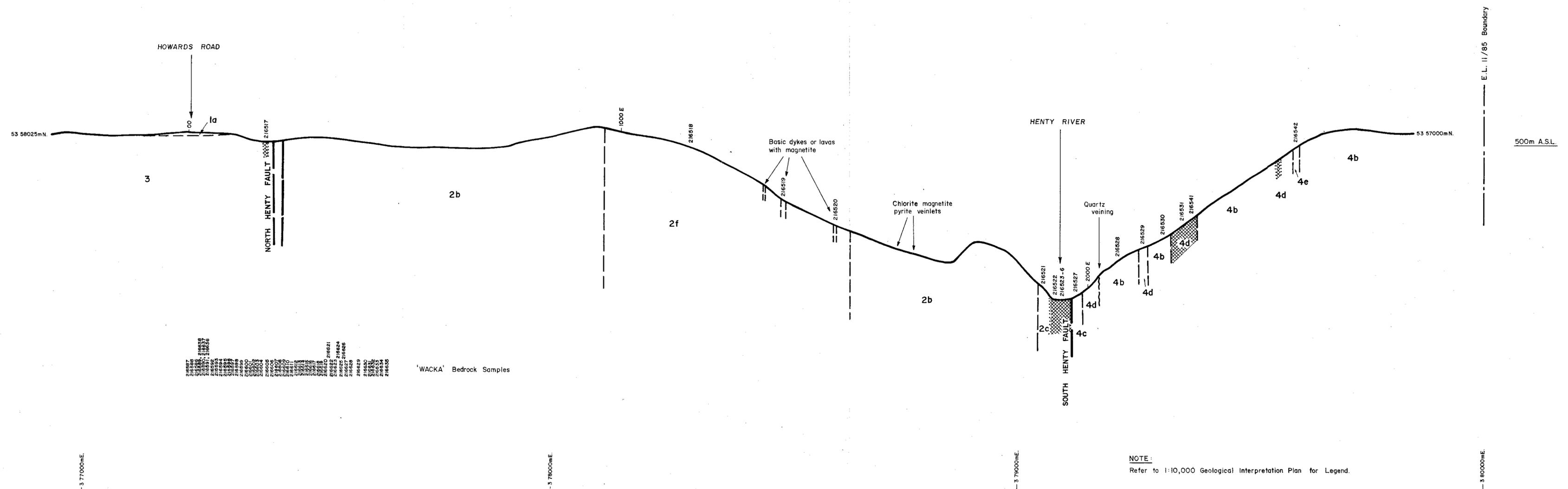
3 80000mE.

3 77000mE.

3 78000mE.

3 79000mE.

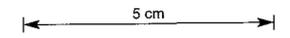
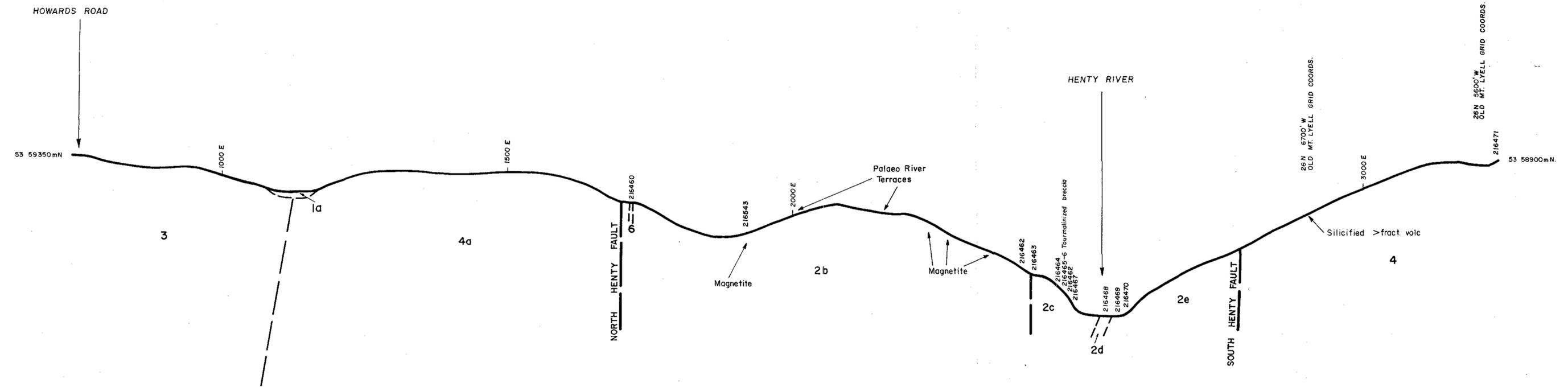




5 cm

NOTE:
Refer to 1:10,000 Geological Interpretation Plan for Legend.

CYPRUS MINERALS AUST. CO.	
YOLANDE J.V. E.L. 11/85 NEWTON CREEK	
INTERPRETIVE GEOLOGICAL SECTION & SOIL/ROCK GEOCHEMISTRY LINE 18N	
SCALE: 1:5000	
DRAWN BY : R. Pollock DRAFTSMAN : T.G.D.S. DATE : Aug '87 REVISIONS : FILE No.	FIG.



217002
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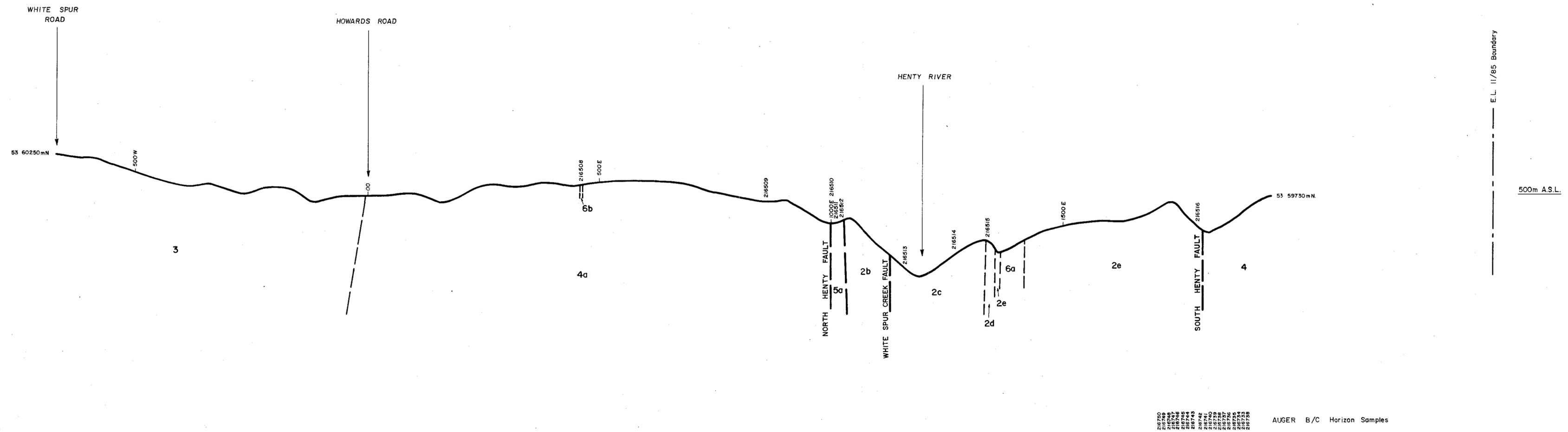
AUGER B/C Horizon Samples

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'WACKA' Bedrock Samples

NOTE:
Refer to 1:10,000 Geological Interpretation Plan for Legend.

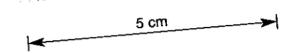
CYPRUS MINERALS AUST. CO.	
YOLANDE J.V. E.L. 11/85 NEWTON CREEK	
INTERPRETIVE GEOLOGICAL SECTION & SOIL/ROCK GEOCHEMISTRY	
LINE 24 N	
SCALE: 1:5000	 METRES
DRAWN BY : R. Pollock DRAFTSMAN : T.G.D.S. DATE : Aug '87 REVISIONS : FILE No.	FIG.



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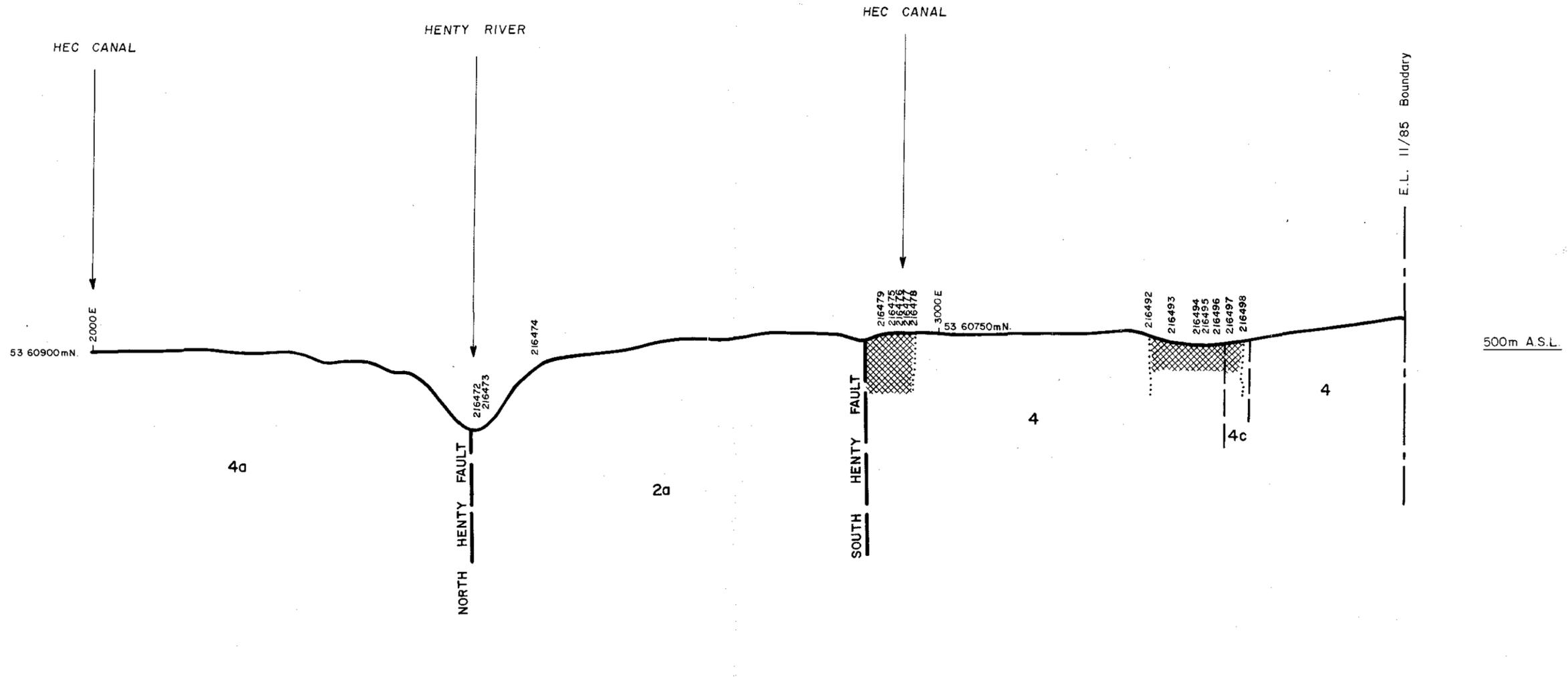
AUGER B/C Horizon Samples

NOTE:
Refer to 1:10,000 Geological Interpretation Plan for Legend.



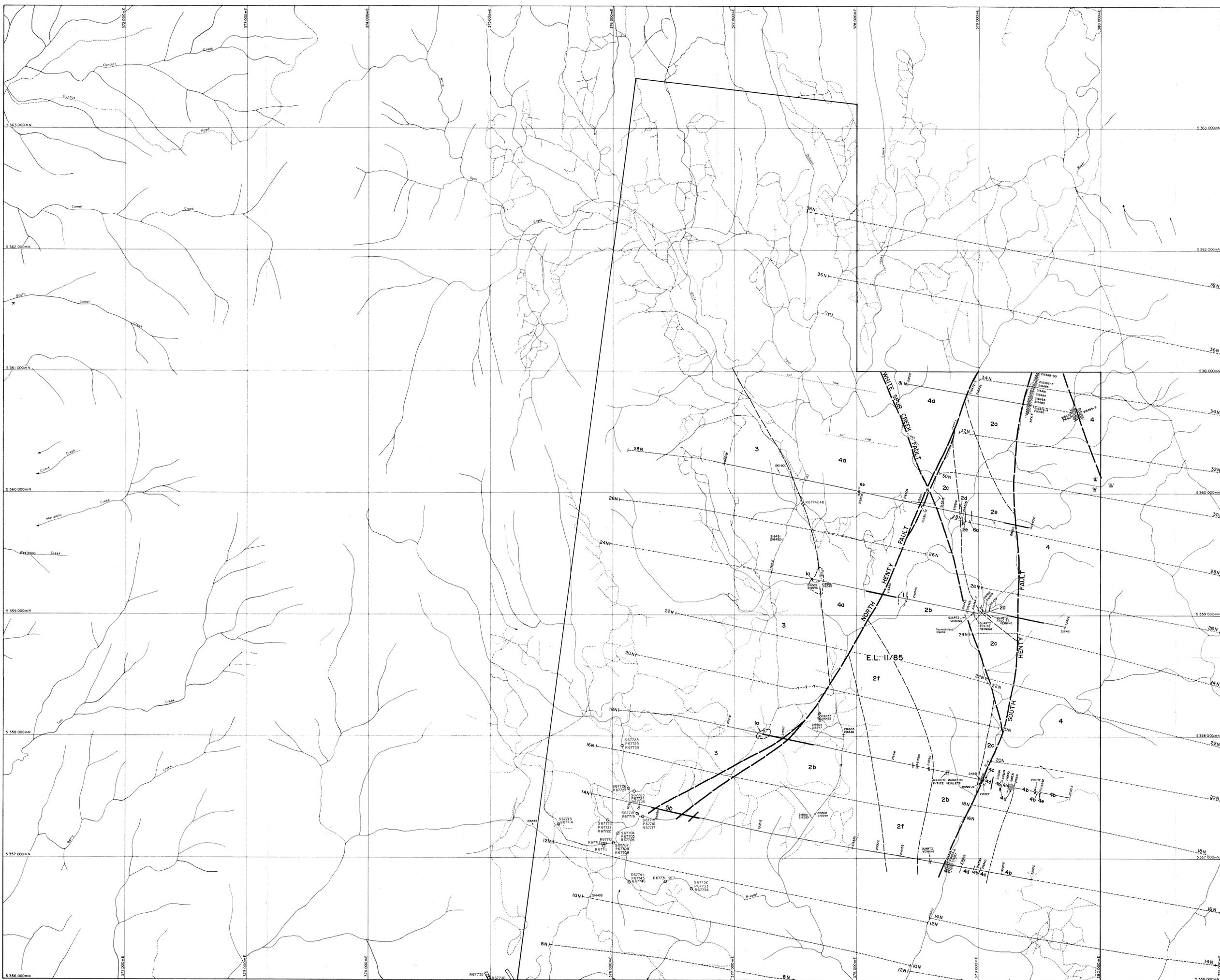
CYPRUS MINERALS AUST. CO.	
YOLANDE J.V. E.L. 11/85 NEWTON CREEK	
INTERPRETIVE GEOLOGICAL SECTION & SOIL/ROCK GEOCHEMISTRY LINE 28 N	
SCALE: 1:5000	50 0 100 200 METRES
FIG.	
DRAWN BY : R.Poltack	
DRAFTSMAN : T.G.D.S.	
DATE : Aug.'87	
REVISIONS :	
FILE No.	

049



NOTE:
 Refer to 1:10,000 Geological Interpretation Plan for Legend.

CYPRUS MINERALS AUST. CO.	
YOLANDE J.V. E.L. 11/85 NEWTON CREEK	
DRAWN BY : R. Pollock	DATE : Aug '87
DRAFTSMAN : T.G.D.S.	REVISIONS :
INTERPRETIVE GEOLOGICAL SECTION & SOIL/ROCK GEOCHEMISTRY	
LINE 31N	
SCALE: 1:5000	FILE No.
	FIG.



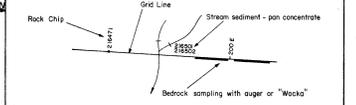
LEGEND

- QUATERNARY**
- 1 GLACIAL DEPOSITS
 - 1a Gravel - clay
 - 1b Erratics
- CAMBRIAN - MT. READ VOLCANICS**
- 2 HENTY RIVER SEQUENCE
 - 2a Siltstone - greywacke, pink-green
 - 2b Tuffaceous siltstone and greywacke ± detrital magnetite
 - 2c Quartz grit greywacke, siltstone and minor carbonates
 - 2d Siltstone with feldspar crystals
 - 2e Black shales, fine tuffaceous sediments
 - 2f Chert, pebble conglomerate, siltstone and greywacke
 - 3 WHITE SPUR FORMATION
 - 3 Siltstone and quartz feldspar phytic tuffs
 - 4 CENTRAL VOLCANIC SEQUENCE
 - 4a Felsic pyroclastics, med-coarse grained, feldspar phytic, West of Henty Fault
 - 4b Felsic pyroclastics, med-coarse grained, feldspar phytic, East of Henty Fault
 - 4c Rhyolite lavas and pyroclastics
 - 4d Ash, fine grained volcanoclastics
 - 4e Andesitic lavas
 - 5 ULTRAMAFICS AND SERPENTINITES
 - 5a Pyroxenite
 - 5b Dolomitized serpentinite
 - 6 BASALT
 - 6a Volcanics
 - 6b Intrusives

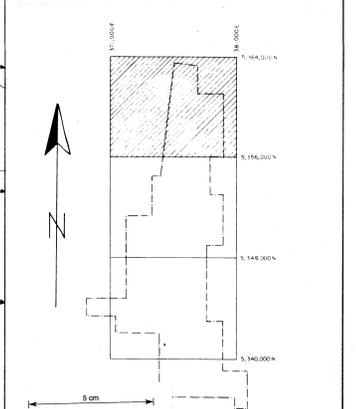
- Geological Contact
- Alteration Boundary
- Fault

- ALTERATION**
- Pyrite, sericite, ± quartz, calcite veining, minor goethite sphaerulites.

GEOLOGY SOURCE: K.D. Coburn, Geological Survey of Tasmania with modifications by R. Pallock



- S 6728 = Stream Sediment Sample
- P 6729 = Panned Concentrate Sample
- R 6730 = Rock Chip Sample



CYPRUS MINERALS AUSTRALIA CO.
 PROJECT: YOLANDE J.V. E.L.11/85 T.AS.
 886101
 NEWTON CREEK
 INTERPRETIVE GEOLOGY
 AND
 SAMPLE LOCATIONS

Scale: 1:10,000	Survey: L.M.A.T.	Revised:
Reference:	Date: August 1987	Ref. No.:
Drawn: R. Pallock	Checked:	AD-519-0005

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87-2702 5675