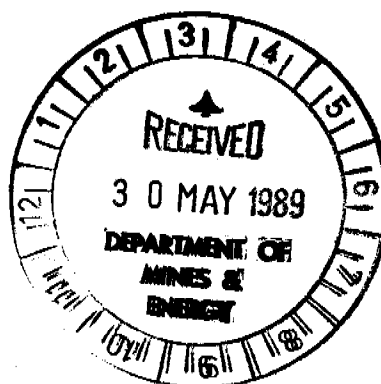


**ANNUAL REPORT**

**EXPLORATION LICENCE 5929**

**ZAPOPAN N.L.**



**C. KOSE  
MAY, 1989**

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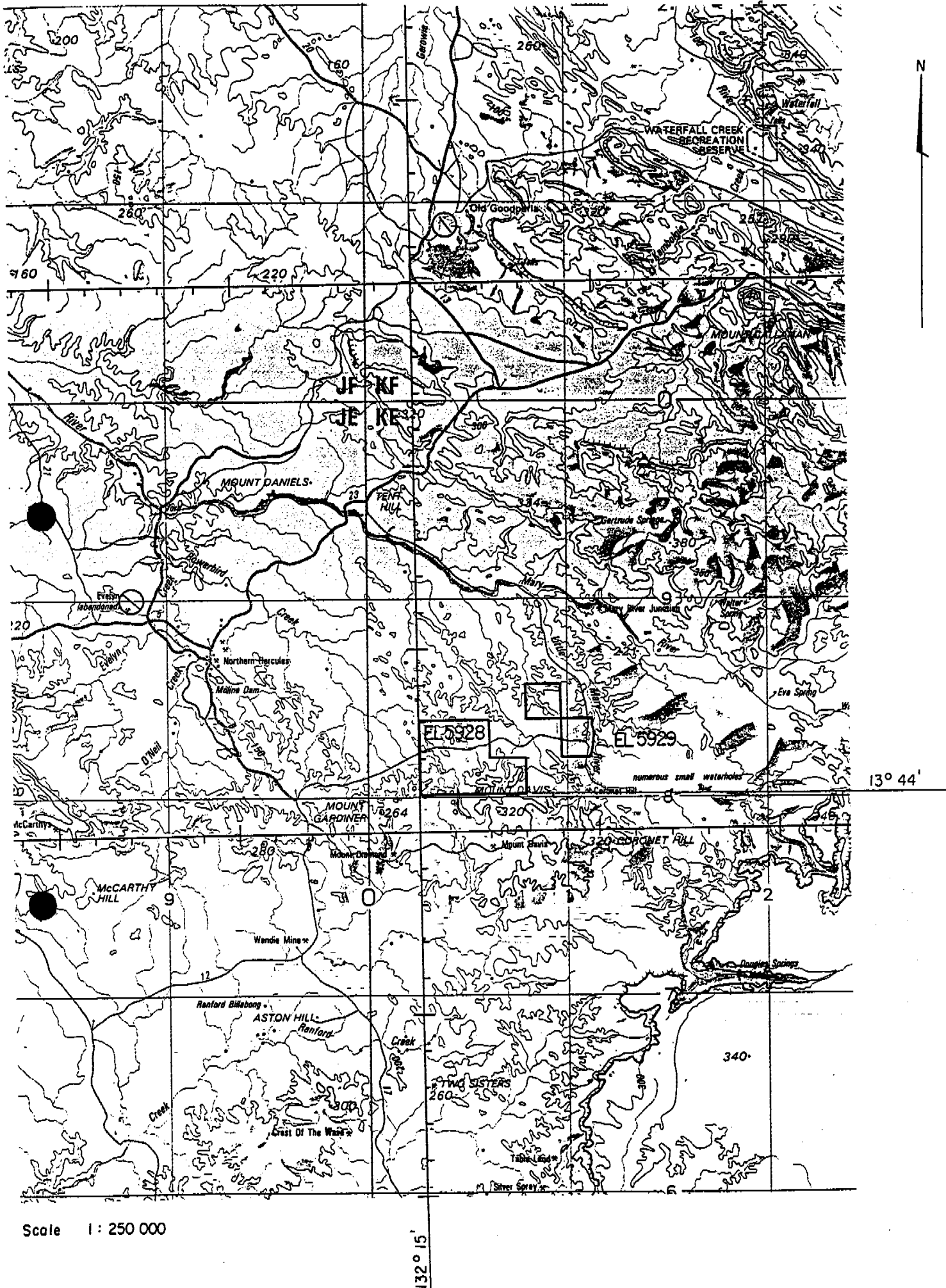
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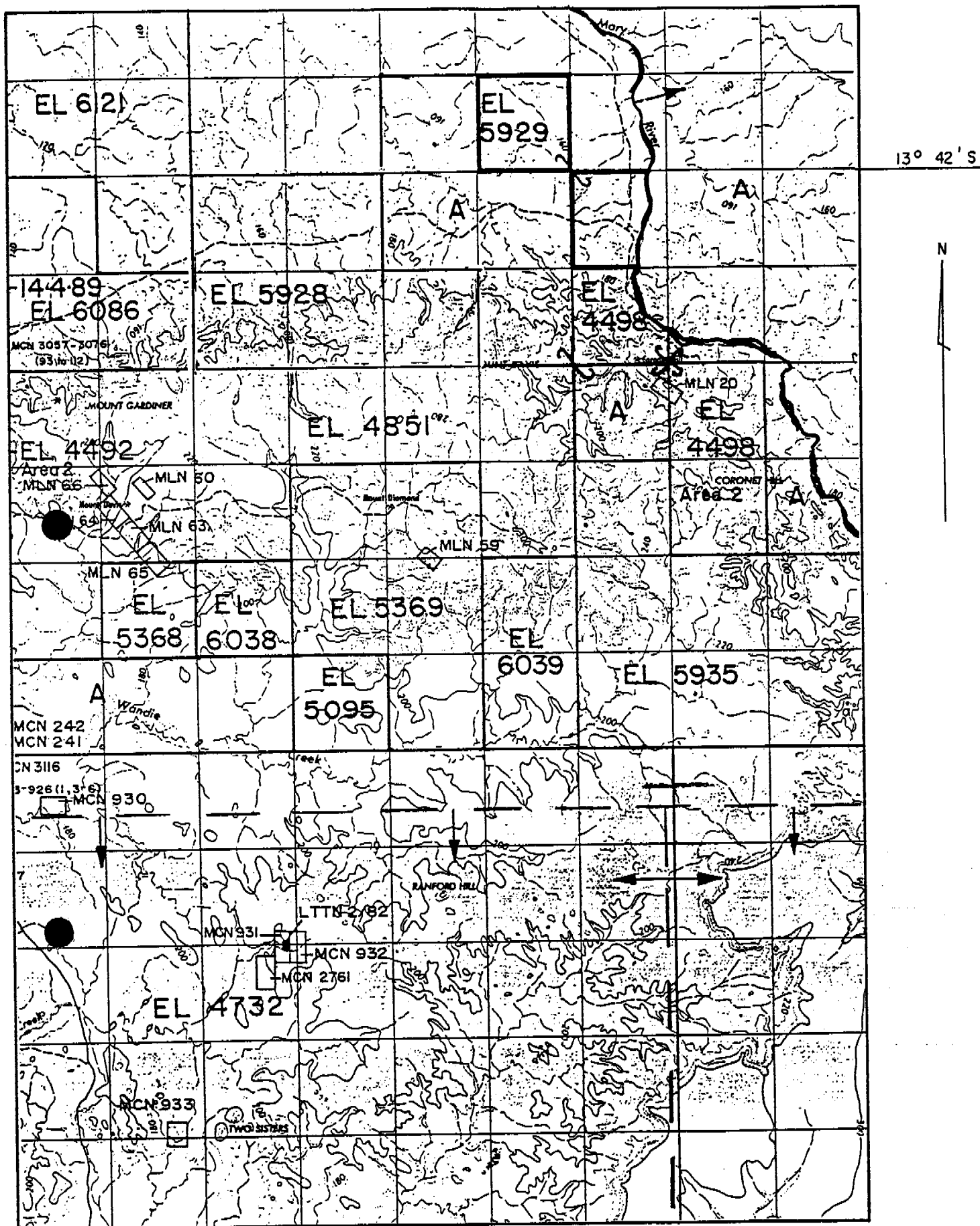
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**SUMMARY:**

Geological and geochemical reconnaissance was carried out within Exploration Licence 5929 in the Ranford Hill area. 20 rock chip samples were selectively collected over gossanous quartz veins float and country rocks and assayed for Au, As, Ag, Sn and W. However, no significant Au, As, Ag, Sn and W anomalies were detected.



ZAPOPAN N.L.  
LOCALITY MAP  
EL 5929



ZAPOPAN N.L.  
TENEMENT MAP  
EL 5929

FIGURE 2

## INTRODUCTION:

Exploration Licence 5929 having two square blocks of an area is located in the Ranford Hill 1:100,000 Sheet area, approximately 45kms east of Pine Creek mining town (Figs. 1 and 2).

The licence was granted to R.J. Young on 29.04.88 for a term of three years and exploration has been carried out by Zapopan NL under an option agreement entered into in January 1989. Initial field work comprised aerial photo interpretation, geological mapping and rock chip sampling, targeting occurrences of gold and certain base metals (Ag, W, Sn).

Four wheel vehicle access to the region was limited due to the late wet season. No adequate track leading through the licence area could be found because of flood washout. Therefore, access to the area was gained by a helicopter.

The area is considered grass-root with limited exploration was carried out in the past. Australian Coal and Gold Holdings Ltd held the area between 1984-86 as part of EL 4498, however, no open file report has been released yet.

## REGIONAL GEOLOGY:

The Ranford Hill area lies in the southern part of the Pine Creek Geosyncline, which comprises 14km of chronostratigraphic mainly pelitic and psammitic Lower Proterozoic sediments with interlayered tuff units, resting on granitic late Archaean complexes (Needham et al., 1980). At 1870 to 1800 Ma the geosynclinal deposits were folded and metamorphosed to greenschist facies, and in places to amphibolite facies (Stuart-Smith et al., 1988).

The sedimentary rocks of the geosyncline are mainly shale, siltstone, conglomerate, carbonate rocks and iron formation; the pelitic rocks are commonly carbonaceous. The geosynclinal sequence is intruded by the pre-tectonic dolerite sills and syn-to-post-tectonic granitoid plutons. An undeformed younger platform cover, mainly sandstone and minor volcanics and carbonate rocks, rests on the metamorphosed Early Proterozoic sequence.

In the Ranford Hill area deposits of the Burrell Creek Formation crop out (Fig. 3 and Table 1). The major structural features such as folds and faults are oriented NW-SE in the region.

Most mineral deposits are of vein type located in faults, shear zones or fractures within the Early Proterozoic metasediments in the Ranford Hill region (Stuart-Smith et al., 1988). According to Nicholson and Eupene (1984), no stratiform mineralisation is known in the Burrell Creek Formation.

### LOCAL GEOLOGY:

Ground investigations were carried out only within the north-western block of the licence. All the outcropping rocks belong to the Burrell Creek Formation which comprises predominantly greywacke-shale and minor conglomerate and bif formation (Fig. 4). Effects of thermal metamorphism are not seen on these rocks.

A small patch of conglomerate occurs in the north-eastern corner of the area, which has pebbles a couple of centimetres in size, silicified and tightly cemented resisting weathering. At least 80% of the area is covered by rock outcrop and a very thin soil blanket. The bif formation is exposed by a fault cut in the southern part composed of alternating iron-chert layers. The latter has a couple of metres of apparent width, and is typically drag folded commonly with 3-10 centimetres of wavelength.

Two major and one smaller fault are located within the area. One of the faults runs centrally N-S, the other one is oriented diagonally at  $030^{\circ}$  and the minor one is located in the west and oriented at  $080^{\circ}$  (Figs. 4 and 5). Fault zones are associated with breccia and fractured vughy quartz veins. Substantial milky quartz veins and float occur particularly along the N-S trending major fault zone.

Bedding trend lines have a uniform orientation pattern of NW-SE (Figs. 4 and 5). Orientation of cleavages follow the bedding trend and are sub-vertical - to SW dipping. Lineations (other than bedding trends) are approximately perpendicular to the general bedding trends suggesting that these lineations are coincident with the tensional joints. The pre-tectonic main stress ( $F^1$ ) dominated at NE-SW directions, therefore, the structural axes are oriented at NW-SE.

Quartz veins occur in both directions primarily along the cleavage planes and some along the tensional joints.



### GEOCHEMISTRY:

The geochemical reconnaissance covers rock chip sampling to detect any mineralisation. 20 samples were selectively collected over the gossanous quartz veins, bif, and the country rocks and assayed for Au by fire assay, As, Sn and W by XRF and Ag by AAS.

Samples returned insignificant Au and As, being as high as 0.16 ppm Au (sample no. 2). Au and As values were in the range of background - threshold. The Sn, W and Ag values have uniform distribution patterns as background, each 5, 10 and 1 ppm respectively.

No significant association of Au with the favourable sites (i.e. fault zones and bif) is indicated by the results.

### CONCLUSIONS AND RECOMMENDATIONS:

The preliminary geological and geochemical reconnaissance have concluded discouraging results although such activities did not cover the whole licence area. Based on the present ground reconnaissance the following conclusions and recommendations can be made:

- The major structural zones and the bif horizon are not associated with gold and base metals mineralisations within the north western block, therefore, no more exploration is recommended for this part.
- Aerial photo interpretations did not reveal significant surface structures in the south-eastern block although it still remains untouched on the ground.

**REFERENCES:**

Needham, R., Crick, I.H., and Stuart-Smith, P.G., 1980,

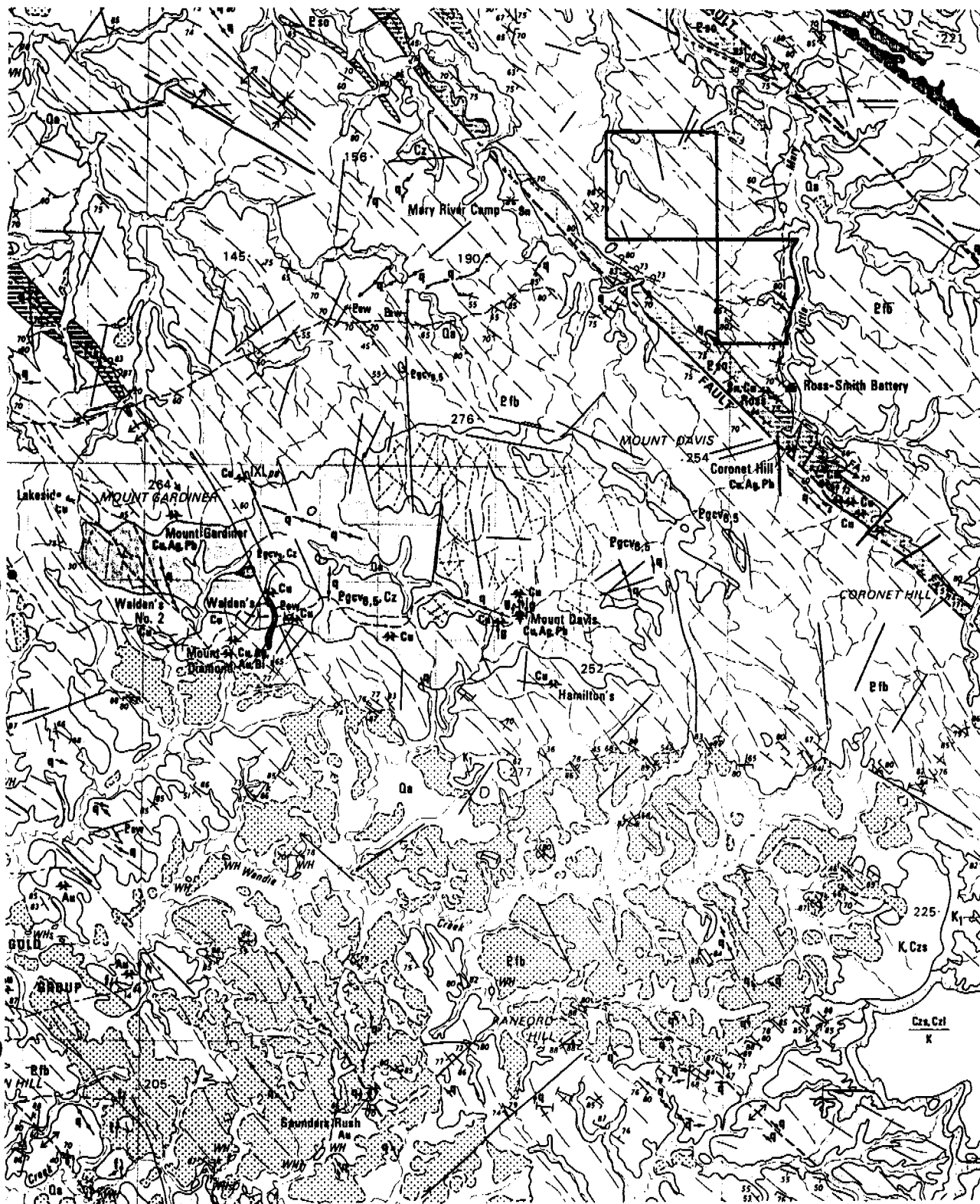
Regional Geology of the Pine Creek Geosyncline:  
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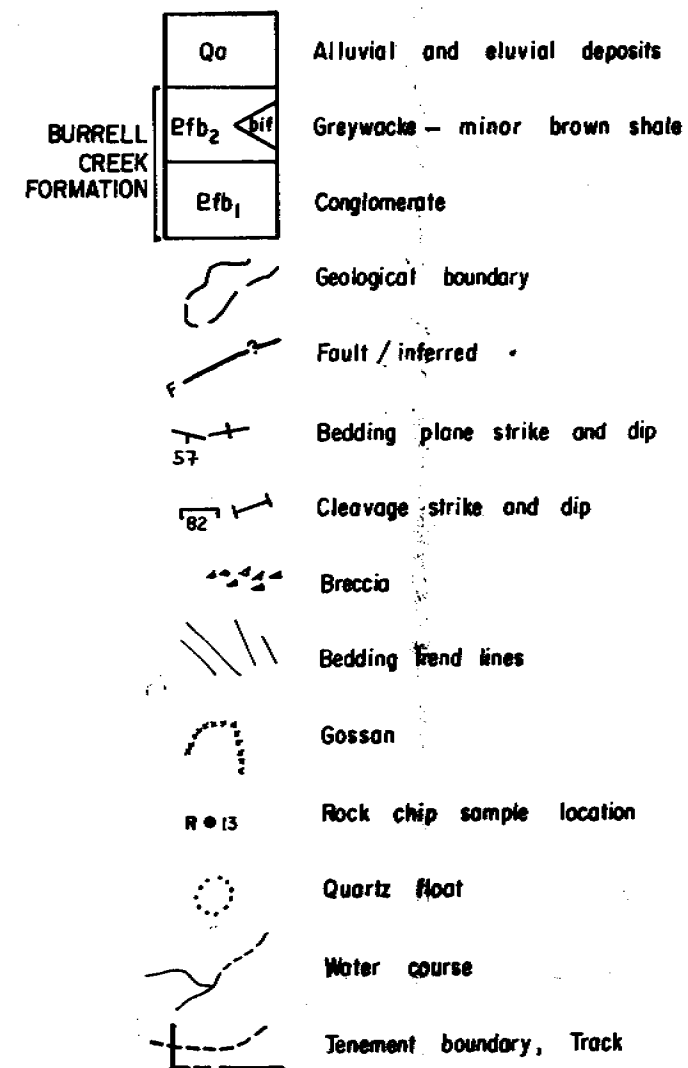
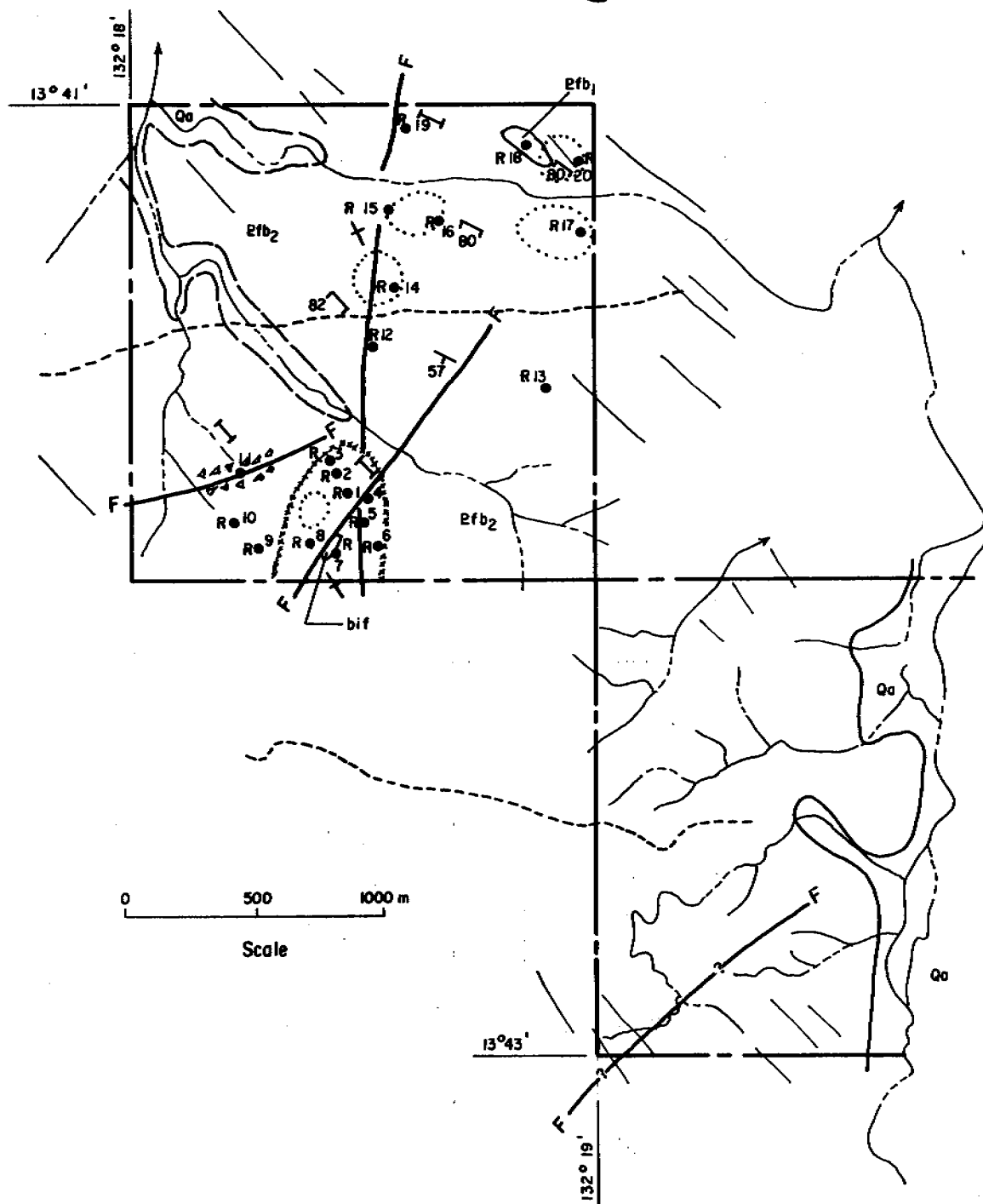
Ranford Hill: Northern Territory Geological  
Survey, 1:100,000 Geological Map Commentary.



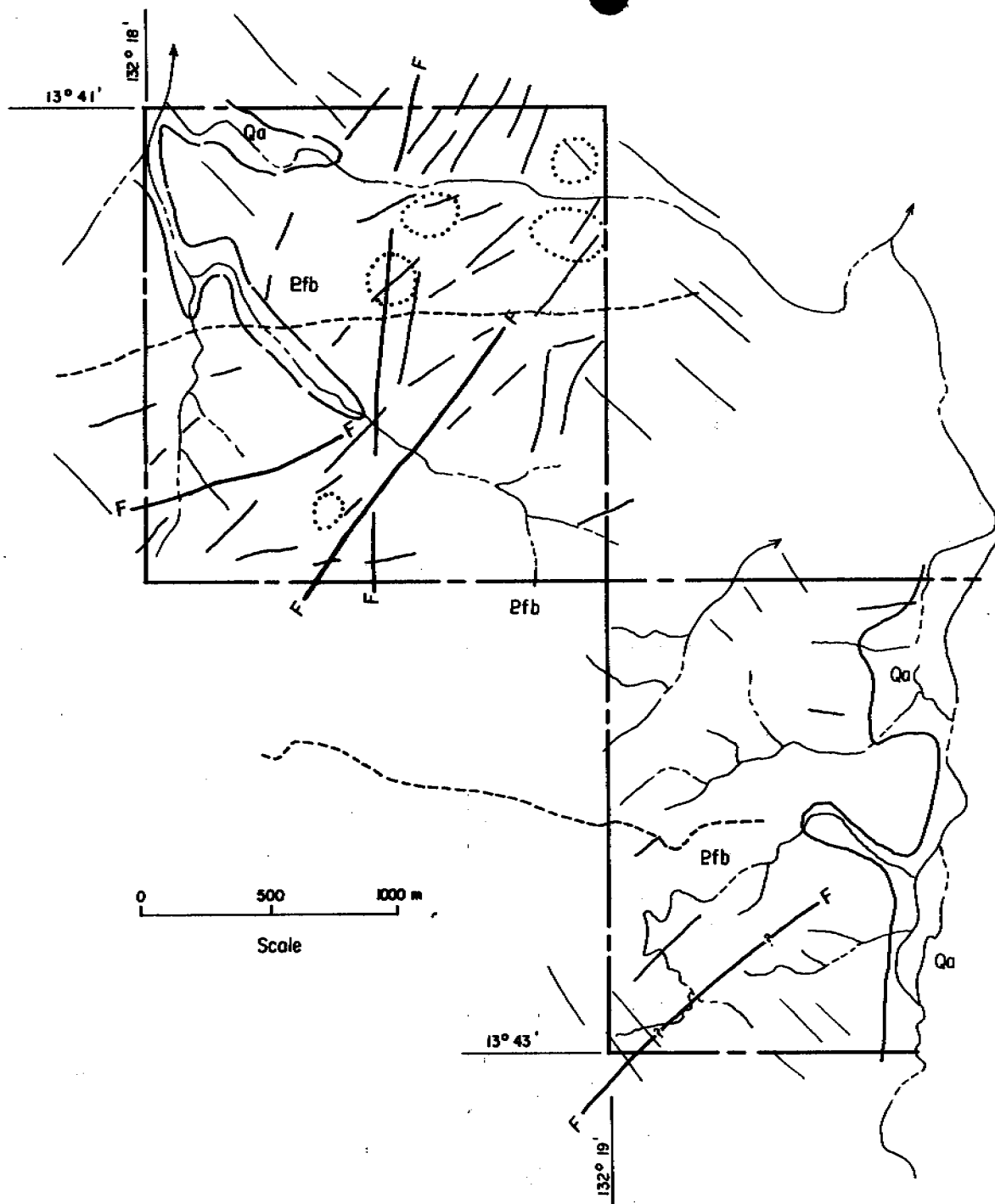
Qa	Alluvium
Eg	Granite
Efb	Burrell Creek Formation
Eso	Mount Bonnie Formation

ZAPOPAN N.L.  
REGIONAL GEOLOGY  
EL 5929

FIGURE 3



ZAPOPAN N.L.  
GEOLOGY AND SAMPLE LOCATIONS  
EL 5929



# Legend

Qa	Alluvium
Efb	Burrell Creek Formation
F	Fault
/	Lineation
//	Bedding trend lines
○	Quartz floats ?
~	Geological boundary
→	Water course
- - -	Vehical track
—	Tenement boundary

ZAROPAN N.L.  
 PHOTO GEOLOGY  
 EL 5929

FIGURE 5



**TABLE I: Summary of partial early Proterozoic Stratigraphy in Ranford Hill Area (after Stuart-Smith, et al., 1988)**

EARLY PROTEROZOIC

GROUP

SHERANA

EL

Unit	Description	Field Relationships	Thickness (m)	Remarks*
UNCONFORMITY				
Toilis Formation (Ebt)	Interbedded metasiltstone, slate, greywacke, pale green argillite; minor crystal tuff and tuffaceous chert	Unconformably overlies Efb intruded by Egc. Probably a lateral equivalent of Ebb	1000	Volcaniclastic flyschoid sediments (Needham & Stuart-Smith, 1985b)
Big Sunday Formation (Ebb)	Altered amygdaloidal mafic volcanics; minor tuff, and laminated to thinly bedded dark brownish purple ferruginous siltstone, and fine feldspathic greywacke	Conformable over Ebp where present. Unconformably overlies Enm. Disconformably overlain by Eek	150	Bimodal volcanism and flysch sedimentation (Needham & Stuart-Smith, 1985b)
Pul Pul Rhyolite (Ebp)	Massive pale grey to pink siliceous ignimbrite	Conformably overlies Eec where present. Elsewhere unconformably overlies older units. Overlain conformably by Ebb and disconformably by Eek	200	Subaerial felsic volcanism (Needham & Stuart-Smith, 1985)
Coronation sandstone (Ebc)	Pebbly coarse quartz sandstone	Conformable lens beneath Ebp. Unconformable on Eso	100	Fluvial valley-fill deposits (Needham & Stuart-Smith, 1985b)

UNCONFORMITY

FINNISS RIVER GROUP

GROUP

ALLIGATOR

SOUTH

Zamu Dolerite (Edz)	Medium grey amphibolite	Pre-orogenic sill intruding Esk and Epw. Intruded and contact metamorphosed by Egc	170	Continental tholeiitic intrusions (Ferguson & Needham, 1978)
Burrell Creek Formation (Efb)	Grey-brown phyllite, slate, and siltstone, fine to coarse feldspathic greywacke; rare volcanolithic pebble conglomerate, and banded green chlorite-magnetic ironstone. Micaceous andalusite and cordierite hornfels common near granite	Conformably overlies Eso. Faulted against older units. Unconformably overlain by younger units. Intruded by Egc	1000	Deep-water flysch deposits
Mount Bonnie Formation (Eso)	Interbedded slate, phyllite, phyllitic siltstone, argillite, and fine to coarse feldspathic greywacke; minor ferruginous, carbonaceous and dolomitic slate and phyllite with chert bands and nodules, glassy black spotted crystal tuff, and tuffaceous chert; rare dolomite. Micaceous andalusite and cordierite hornfels common near granite	Conformably overlain by Efb and underlain by Eso. Intruded by Egc. Unconformably overlain by later Early and Middle Proterozoic strata	500-600	Transition between low-energy, shallow-water, reduced environment and deeper water flysch facies
Gerowie Tuff (Esg)	Green, brown, or grey argillite; siliceous siltstone and slate; minor glassy black spotted crystal tuff, and tuffaceous chert; rare ferruginous phyllite	Conformably overlain by Eso and underlain by Esk. Intruded by Egc. Unconformably overlain by Eep	300	Reworked subaqueous deposits of siliceous ash in a low-energy, reduced environment
Koolpin Formation (Esk)	Hematitic siltstone and phyllite with chert bands, lenses and nodules; massive limonitic and hematitic ironstone capping in places, pyritic and graphitic chialtolite, carbonaceous hornfels; minor dolomite. Marble and calcsilicate hornfels near granite	Conformably overlain by Esg. Intruded by Edz and Egc. Unconformably overlain by Eep	350	Fresh to brackish shallow acid and reducing environment (Crick & others, 1980)

UNCONFORMITY



**APPENDIX 1**

**EXPENDITURE**

# APPENDIX 1: EXPENDITURE

EL 5929

Geologist	\$ 800
F. Assistant	\$ 300
Vehicle & Accommodation	\$ 900
Fuel & Servicing	\$ 150
Assays	\$ 430
Helicopter	\$ 630
Consumables	\$ 300
Aerial Photos	\$ 200
Reporting	\$ 500
Drafting	\$ 200
Overheads	\$ 661
	-----
TOTAL EXPENDITURE:	<u>\$ 5,071</u>

## **APPENDIX 2**

### **LABORATORY ASSAY RESULTS**

# CLASSIC COMLABS LTD

Analytical Laboratories (INC. IN WA.)



This Laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full.

Job: 9AD0757

O/N: 9DN0494

## ANALYTICAL REPORT

SAMPLE	As	Sn	W	Ag
R 1	36	<4	<10	<1
R 2	32	6	<10	<1
R 3	4	6	10	<1
R 4	9	6	<10	<1
R 5	55	12	<10	<1
R 6	40	<4	<10	<1
R 7	70	4	<10	<1
R 8	42	10	10	1
R 9	56	<4	10	<1
R 10	19	4	<10	<1
R 11	28	8	<10	<1
R 12	16	<4	<10	<1
R 13	7	<4	<10	<1
R 14	9	6	<10	<1
R 15	17	8	<10	<1
R 16	108	<4	<10	<1
R 17	190	<4	<10	<1
R 18	17	4	10	<1
R 19	20	4	<10	<1
R 20	8	4	<10	<1

# CLASSIC COMLABS LTD

Job: 9DN0484  
O/N: 837

## ANALYTICAL REPORT

### Rock Type

Q - Quartz Vein  
R - Greywacke - Shale

SAMPLE	Au	Au	Dp1
Q R 01	0.13		--
Q R 02	0.16		--
Q R 03	0.03		--
G R 04	0.04		--
G R 05	0.05	0.04	
Q R 06	0.03		--
Q R 07	0.02		--
G R 08	0.04		--
Q R 09	0.02		--
Q R 10	0.05		--
Q R 11	<0.01		--
Q R 12	0.05		--
Q R 13	0.10		--
Q R 14	0.04	0.03	
G R 15	0.03		--
Q R 16	0.02		--
Q R 17	<0.01		--
Q R 18	<0.01		--
Q R 19	<0.01		--
G R 20	<0.01		--