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MINESITE GEOLOGY

OAKLEIGH CREEK MINE

TASMANIA

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BY
[Signature]

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81-1612.*

79/SYD/19
SEPTEMBER, 1979

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SUMMARY

The detailed surface and underground mapping at the Oakleigh Creek wolframite mine has shown the vein to be controlled by a change in lithology which is associated with faulting. The main body of the vein is hosted by a massive, well-jointed quartzite, which has provided defined channels for the vein to follow. At the southern end of the underground workings, a fault block of quartz-mica schist is encountered. The schist is only weakly jointed and apparently contained no clear channels for the ore solution. The main vein has split into numerous thin stringers and veins up to 4cm thick with the main vein mineral being arsenopyrite.

An underground drilling programme, designed to test for any parallel veins close to the main vein and to test at depth the Cliff and Waterfall vein systems, failed to intersect any veins of a width of economic interest.

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1. INTRODUCTION (SEE FIGURES 1 & 2)

The Oakleigh Creek wolframite mine is situated on the south-eastern side of the Upper Forth River Valley. Access is via a sealed road from Devonport as far as the Lemonthyme Power Station. A gravel road continues from the power station to the mine, a distance of 26 km.

In the period 19th June to 17th July, detailed surface and underground mapping in conjunction with an underground drilling programme was undertaken. The detailed mapping was mainly of a structural nature, and its purpose was to gain a understanding of the geological setting of the mineralized vein, and to determine ore controls. At the same time, an underground drilling programme of three holes was designed to test for any parallel veins which could be of economic significance.

The geological mapping of the surface was limited to outcrop in road cuttings and costeans, due to an extensive scree and glacial cover.

2. REGIONAL GEOLOGICAL SETTING (SEE FIGURE 3)

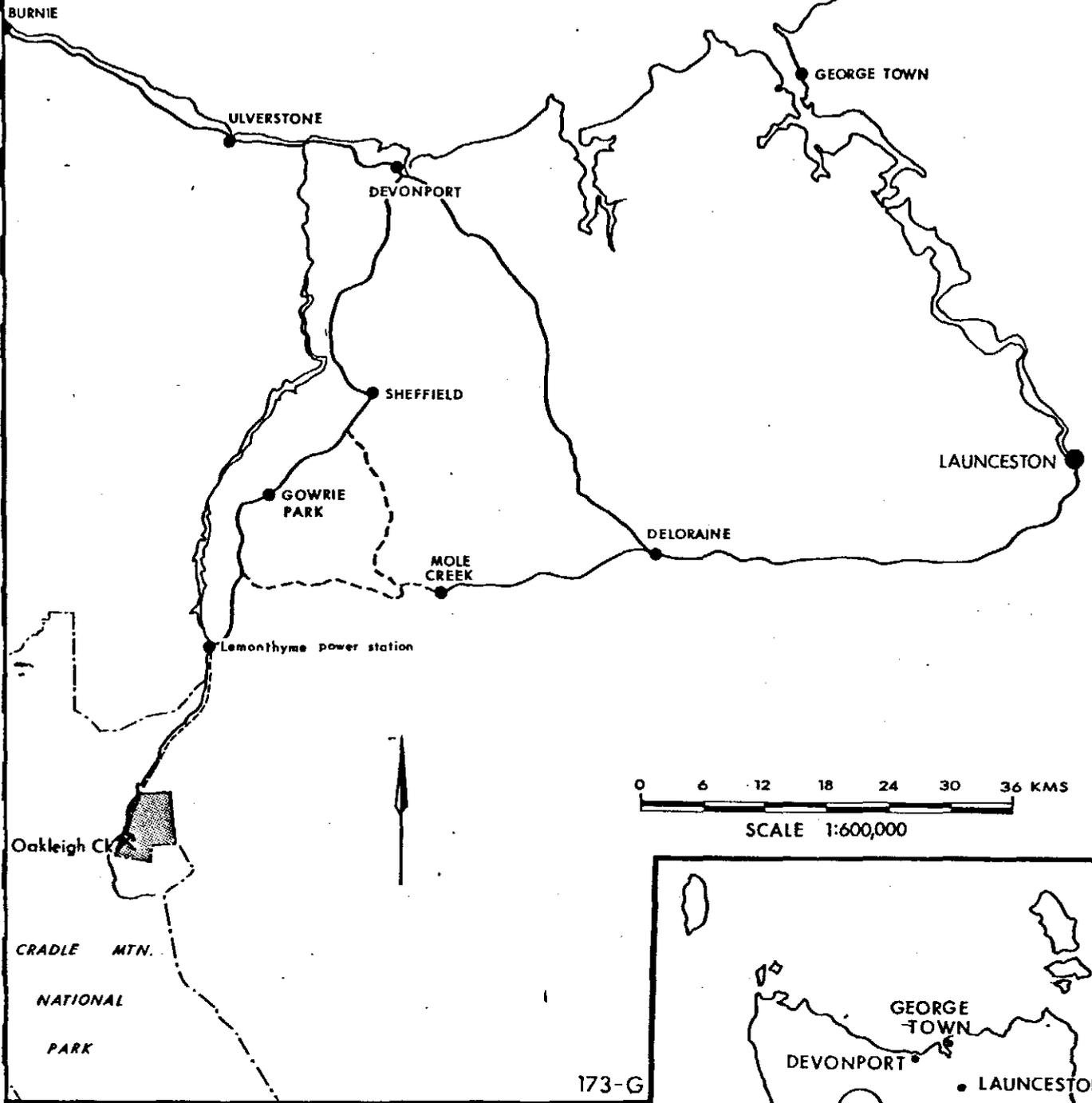
In the Forth River Valley the rock types include quartzite, mica schist and quartz mica schist of the Precambrian Fisher Group with a general strike slightly east of north and dips of between 15° and 30° to the south-east (Macleod, 1961). At the Oakleigh Creek mine, the strike varies from 082° to 108° magnetic and dips from 15° to 27° in a northerly direction. The metasediments are abundantly veined by white quartz and locally sheared along planes trending north-north-west. These shear planes served as structural controls in the localization of copper and wolfram mineralization in the district.

Most of the rocks in the Fisher Group have been derived from orthoquartzite and siltstone and metamorphosed to greenschist facies.

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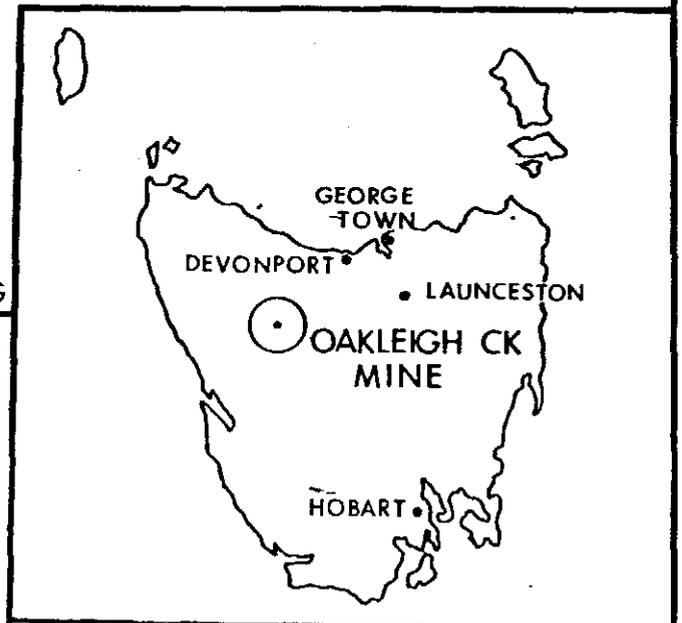
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Bass Strait

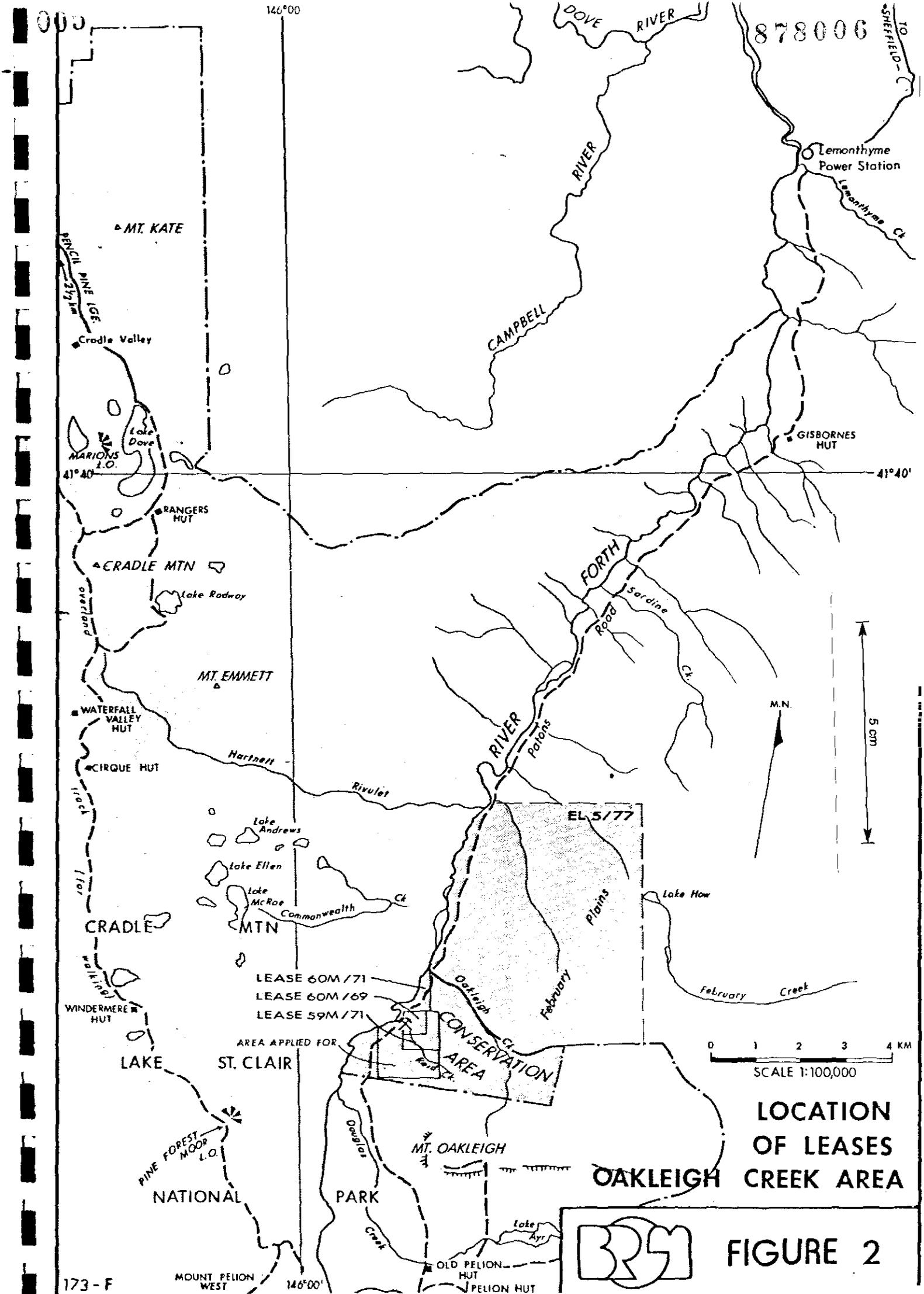


LOCALITY MAP

5 cm



BRM FIGURE 1



878006

▲ MT. KATE

Lemonthyme Power Station

GISBORNES HUT

MARIONS I.O.

RANGERS HUT

▲ CRADLE MTN

MT. EMMETT

WATERFALL VALLEY HUT

CIRQUE HUT

CRADLE

Lake Andrews

Lake Ellen

Lake McRoe

COMMONWEALTH CR.

LEASE 60M/71

LEASE 60M/69

LEASE 59M/71

AREA APPLIED FOR ST. CLAIR

CONSERVATION AREA

PINE FOREST MOOR I.O. NATIONAL

▲ MT. OAKLEIGH

OAKLEIGH CREEK AREA

PARK

OLD PELION HUT

PELION HUT

0 1 2 3 4 KM
SCALE 1:100,000

LOCATION OF LEASES
OAKLEIGH CREEK AREA



FIGURE 2

173 - F

MOUNT PELION WEST

146°00'

41°40'

5 CM

M.N.

DOVE RIVER

CAMPBELL RIVER

FORTH RIVER

RIVER

Hartnell

Rivulet

EL 5/77

Plains

Lake How

February Creek

Oakleigh Cr.

Lake Ayr

VERCILL PINE ICE

Cradle Valley

Lake Dove

overland track

WINDERMERE HUT

LAKE

TO SHEFFIELD

Lemonthyme Cr.

Road

Sardine

Cl.

Palms

Commonwealth Cr.

Oakleigh Cr.

February

Oakleigh Cr.

Creek

5 CM

006

M.N.

5 cm

pEf

RUN 4/025

55°

RUN 5/000

30°

45°

pEf

Lone Pine W

RUN 5/000

41° 45' S

DU CANE
1 MILE SHEET (1961)

Barn Bluff Cu

41° 45' S

pCh

pEf

RUN 6/023

Birthday W

Mt. Pelion W

20°

Big Blow Cu

FORTH

RUN 6/023

41° 50' S

Quaternary
Tertiary
Jurassic
Permian
Devonian
Precambrian



DOLERITE SCREE
TALUS, TILL & MARSH DEPOSITS
FLUVIOGLACIAL DEPOSITS, ALLUVIUM
BASALT
THOLEIITE DOLERITE
PERMIAN UNDIFFERENTIATED
BASAL CONGLOMERATE
WALLACE RIVER GROUP
BIRTHDAY GRANITE
LONE PINE GRANITE
FISHER GROUP
HOWELL GROUP



REGIONAL GEOLOGY
OF
OAKLEIGH CREEK AREA



FIGURE 3

001

Two small granitic intrusions (adamellite of mid-Devonian age) occur within the E.L., the Birthday and Lone Pine Granites, both of which outcrop on Patons Road. They are the source of the wolfram, tin and copper mineralization in the district. The granite is discordantly intrusive into the Precambrian Fisher Group. The granite contains biotite and muscovite (with the latter predominating in some exposures), pinkish white feldspar and coarse quartz. Tourmaline, molybdenite and arsenopyrite have also been noted. Near its contact the granite commonly develops large phenocrysts of feldspar and abundant biotite.

Quartz veins associated with the granites cut both the intrusives and Precambrian sediments. Of the veins observed, only the Birthday Granite Prospect and the Oakleigh Creek Wolfram Mine are mineralized and they contain wolframite, pyrite, cassiterite, and rare molybdenite. The Lone Pine Prospect adjacent to the granite intrusive consists of a single, very narrow, vein (<4cm) of arsenopyrite with only traces of wolframite. The vein within the Lone Pine granite was barren wherever it was observed.

On the more gradual slopes of the lower parts of the valley, there is thick dolerite scree, with little or no outcrop of the Precambrian sediments. The drainage in this area is diffuse, most of it being by seepage through the dolerite scree and into the glacial gravels filling the valley floor.

The major structure in the Precambrian is a series of subparallel east-west folds. The folds are open and asymmetrical with their axial planes dipping to the north. Minor folding in many places is intense, with the less competent schists being strongly distorted between the more competent quartzites.

008

3. DETAILED GEOLOGY OF THE MINE AREA (SEE PLATE 1,2,3 & FIGURE 4)

Surface geological mapping of the mine area was restricted to road cuttings and costeans, as very few natural outcrops are available. Generally the area is covered by a variable thickness of talus, mainly derived from the overlying dolerite which caps the plateau above the mine.

The Precambrian Fisher Group within the mine area consists basically of two rock types, siliceous micaceous quartzite and quartz-mica schist. The quartzite is massive bedded striking east-west and dipping 10 to 15° to the north. The quartz-mica schist is thinly bedded with numerous lenses and pods of quartz within the bedding which contorts the more micaceous laminae. These quartz lenses have been observed up to 1 metre long in the underground workings.

- 3.1 Folding : Folding of the sequence is not a significant structural element. Only one regional anticline and minor folding associated with some faults have been observed. The anticline has an axis striking east-west and plunging 2-15° to the east. The variable plunge of the axis is due to minor cross folding.
- 3.2 Faulting : At least two ages of faulting have been delineated. The younger group cuts the main vein but does not displace it. These faults have brecciated gouge zones, which are oxidized, porous and quite spectacular. They are high angle reverse faults which dip south. Associated with these faults are bedding plane faults, which are pug filled and show only 2-5cm movement.

An older fault has been recognised in the underground workings. This fault is a high angle reverse fault with the south block moved down relative to the northern block. In the 240 level adit, the fault separates the massive quartzite in the northern block from the quartz-mica schist in the southern block. The main vein cuts the fault plane which is quartz filled and not brecciated. This is a pre-vein fault and important in the control of mineralized vein emplacement.

878010

009

- 3.3 Jointing: Three main sets of joints have been mapped. Two strike roughly parallel to the vein and dip steeply to the east or west. The third is of less importance and strikes approximately east-west and dips steeply north and south.

Jointing within the quartzite is well defined and with a joint spacing density of between 20cm and 50cm. However, in the less competent schist the jointing is less well defined and more closely spaced.

- 3.4 Mineralized Vein: The main vein strikes 170° and dips from 75° to 80° to the east, subparallel to one of the major joint systems. The vein splits and rejoins in an enechelon fashion along the major part of the exposures in the 240 & 280 level adits. (See Plates 2 & 3) The vein consists of crystalline quartz gangue with inclusions of wolframite, cassiterite, fluorite, pyrite, arsenopyrite, chalcopyrite and sphalerite. The wolframite occurs in pods and patches near the edge of the vein; it has an apparently random distribution both horizontally and vertically. Some zonation of mineralization is apparent as the wolframite content decreases in a southerly direction and is replaced by arsenopyrite as the major vein mineral. Vertically the content of cassiterite is visually seen to be higher on the 280 level than the 240 level.

The southern extent of the vein appears to be controlled by a change in rock type. At the 240 level portal, massive quartzites are the host rocks for the vein. Here the quartzites are very well jointed with definite channels for the vein to follow. Towards the southern end of the 240 level a fault is seen to separate the quartzite from a well laminated quartz-mica schist. The schist is less strongly jointed and presents no clear channel for the vein to follow. Hence the vein pattern gradually changes from one or two main veins in the quartzite to a number of thin vein stringers over a much wider interval in the schist. This change marks the economic limits of the mineralization because the run of mine grade over the diffuse vein system is too low to be profitably extracted. (See Figure 4)

OAKLEIGH CREEK GEOLOGICAL SECTION THROUGH MINE

SECTION LOOKING WEST

S

Scale : 1/200

N

010



Micaceous Quartzite



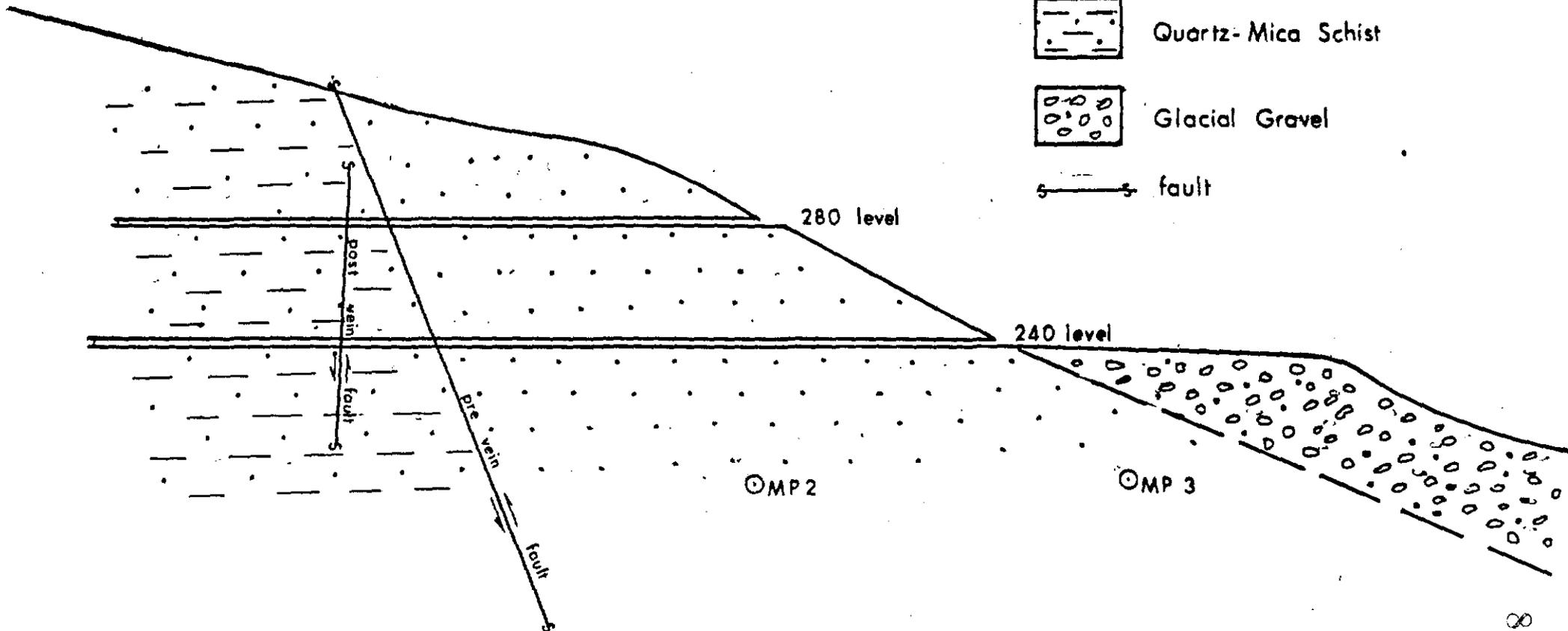
Quartz-Mica Schist



Glacial Gravel



fault



OMP 2

OMP 3

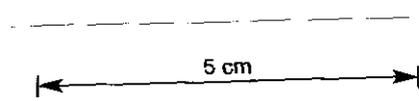


FIGURE 4

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011

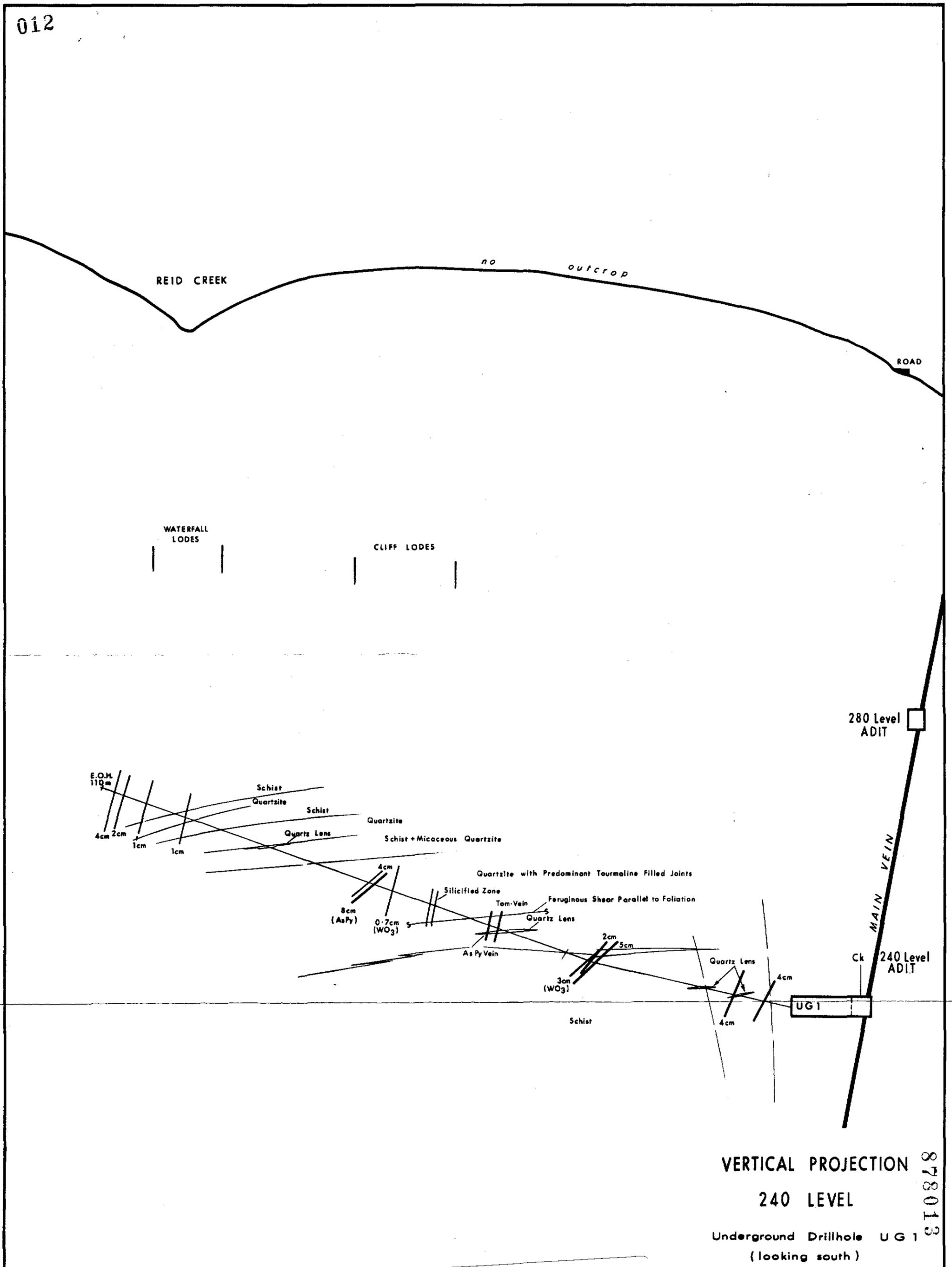
4. UNDERGROUND DRILLING (SEE APPENDIX 1 - DRILL LOGS & FIGURES 5,6,7)

Three drill holes totalling 325m were drilled from the 240 level (see Plate 2). UG 1 and UG 3 were drilled to the east to test at depth the Cliff and Waterfall lodes, and to determine if there were any parallel veins close to the main vein. One hole, UG 2, was drilled to the west to test for parallel veins close to the main vein which could be exploited from the existing workings. The drill logs for these holes are contained in Appendix 1 and the sections are shown as Figures 5 to 7. Briefly, this drilling failed to locate any veins of a width which could be economically interesting.

5. CONCLUSIONS & RECOMMENDATIONS

The following conclusions can be made from this study:

- a) The vein extension to the south is related to a change in host rock, which is controlled by a pre-vein high angle reverse fault.
- b) Arsenopyrite becomes dominant in the vein when it starts to split and finally ceases to be of economic significance.
- c) Cassiterite appears to be richer on the 280 level than the 240 level.
- d) Underground drilling failed to locate any new veins which may be of economic interest.



VERTICAL PROJECTION

240 LEVEL

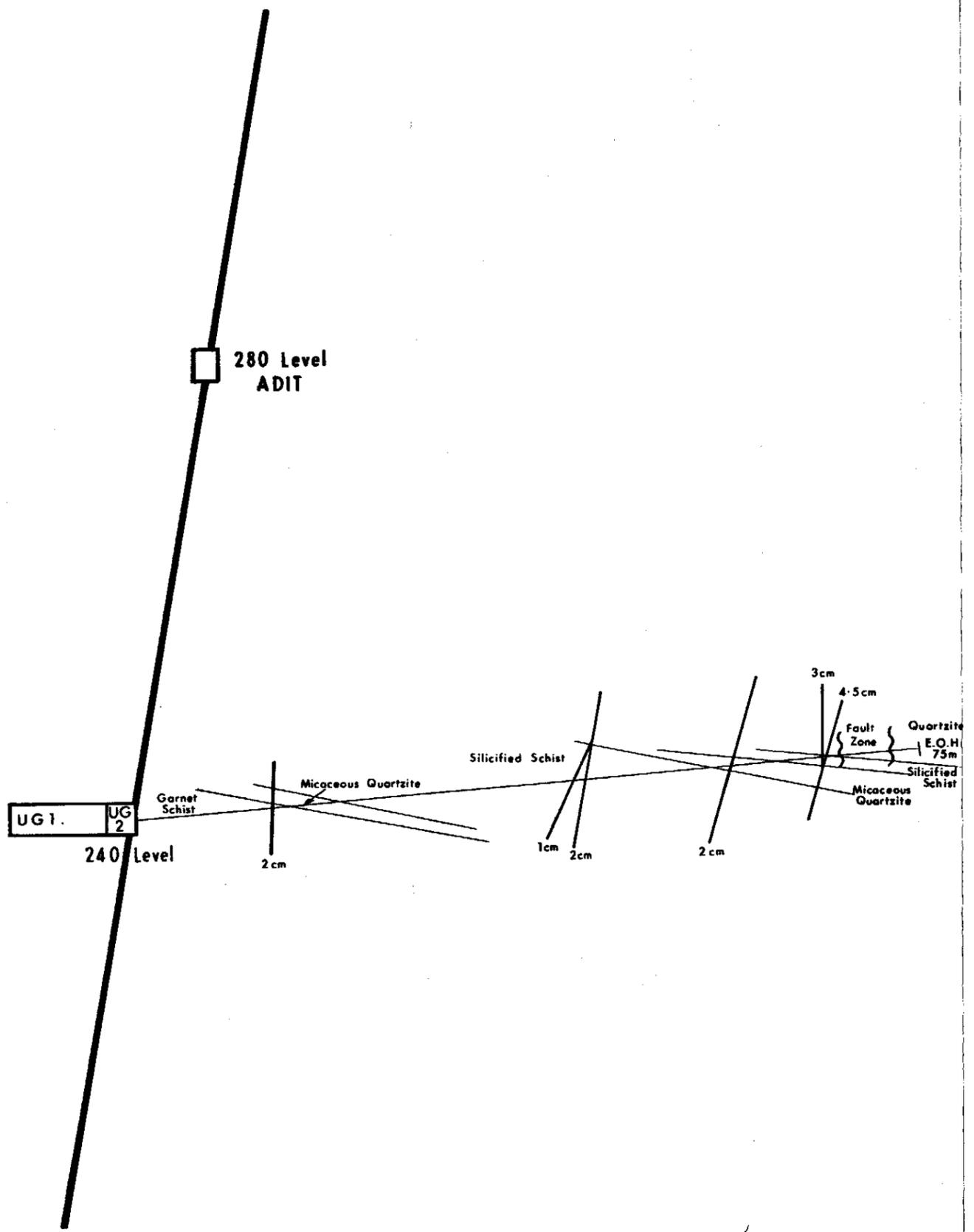
Underground Drillhole UG 1
(looking south)

878013

5 cm



FIGURE 5



5 cm

VERTICAL PROJECTION

240 LEVEL

Underground Drillhole UG 2
(looking south)



FIGURE 6

REID CREEK

Vein Reported in Trench
(Thompson 1950)

MP2 (PROJECTED 30m SOUTH)

Quartzite

Schist

32cm(WO₃)

Quartzite

280 Level

Brecciated Siliceous Zone
dis Sulphides
2cm 30cm
E.O.M.
140m
Siliceous Zone

Schist

Massive Sulphides
30cm

Fault
Zone

Massive Tourmaline
Vein.
1cm 1cm 1cm 3cm 6cm 2cm
(Tr. WO₃)
(WO₃ Rich)

Micaceous Quartzite
1cm 5cm 3cm 2-5cm 6cm 1cm
(Sn?)
Massive Tourmaline
Rock

4cm

8cm 6cm 3-5cm
(WO₃)

Brecciated Zone

1-5cm
4
4
4
?

UG 3

240 Level

Schist

VERTICAL PROJECTION

240 LEVEL

Underground Drillhole UG 3

(looking south)



FIGURE 7

5 cm

UNDERGROUND DRILLING PROGRAMME, OAKLEIGH CREEK MINE

DRILL LOGS - UG 1

UG 2

UG 3

Hole No.	UGI		Prospect: Oakleigh Creek Mine		Purpose			
Location	26.6 km south of Lemonthyme power station, Upper Forth River Valley							To test for veins parallel to main vein east, c.f. cliff lodes and waterfall lodes
	Central Tasmania.							
Tenement	Mining Lease 60M/69							
Level	240		Co-ordinates:		1743.5 N		1047.5 E	
Collar R.L.	Length (m):							
Survey Depth (m)	0	30	60	90				Comments
Bearing	090	095	099	101				
Declination	+10	+13.25	+17	+20.5				
Precollar								
Core Size	8x							
	0 - 110							
Core Recovery	100%							
Contractor & Machine	Associated Diamond Drillers		Mindrill E500		Logged by: W. P. Ayling			
Commenced	19.6.79				Completed: 2.7.79			

016

87801

HOLE No: UG 1
 BEARING: 090
 DECLINATION: +10
 COLLAR R.L.: 241 M
 LENGTH: 110 M

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT : OAKLEIGH CREEK MINI
 DRILLED BY : A.D.D.
 COMMENCED : 19.6.79
 COMPLETED :
 SHEET 1 OF 6

LOGGED BY: W. P. Ayling

017
878018

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
0	3.10	3.1	100	<u>Silicified micaceous quartzite</u> : grey, weakly foliated by thin laminae of mica rich layers. Milky quartz pods and lenses parallel to foliation common. Quartz-tourmaline veins filling joints up to 1cm wide, frequently carrying sulphides - pyrite, arsenopyrite, chalcopyrite, splalerite, trace fluorite. Sulphide often penetrating in micaceous laminae adjacent to jointing. Sulphides 1% for interval. Schist dk.grey brown, foliated, quartz-muscovite-biotite. Rare pyrite chalco-pyrite disseminated in foliation planes adjacent to tourmaline filled joints. Siliceous pods and lenses common parallel to foliation.	CBA 27° Joints 73°
				<u>Quartz vein</u> 4cm thick at 5.00m. Contains tourmaline needles and arsenopyrite 1% and pale brown-yellow clay. Core to vein angle - 75°.	
7.82	8.40	0.58	100	Quartz Lens: grey, massive lens of quartz, fractured tourmaline filled with inclusions of mica schist. Tourmaline joints 70° to core axis.	
8.40	8.80	0.40	100	<u>Schist</u> brown to grey, foliated, quartz-muscovite-biotite schist. Dark grey quartz pods and lenses within foliation, bedding contorted subparallel to core axis.	
8.80	8.87	0.07	100	<u>Quartz vein</u> massive milky white vein quartz, fractured with tourmaline-chlorite clay inclusions in fractures, vein boundary to core axis angle -80°.	
8.87	13.10	4.23	100	Schist dark grey-brown, foliated, quartz-muscovite-biotite schist. Numerous grey quartz lenses and pods within foliation up to 7 cm long.	CBA 15°

HOLE No : UG 1
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 2 OF 6

018 878019

LOGGED BY : W. P. Ayling

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
				Tourmaline filled joints common throughout. Tourmaline also occurs as small clots in the schist adjacent to some tourmaline joints : At 11.45m a pug filled joint with broken schist on down hole side. Foliation tends to bend around the quartz lenses, however in some cases, insipient foliation is seen within them. Sulphides rare in section.	Joint CA 70°
13.10	13.80	0.70	100	<u>Quartz Lens</u> : Lt. grey to white, massive, quartz lens with inclusions of schist. Top and bottom contacts with schist are parallel with the foliation indicating it is a lens within the schist and not a cross cutting vein. Tourmaline joints out the core at 65°. No sulphides present.	
13.80	31.80	18.00	100	<u>Schist</u> : Brown to dark grey, foliated, quartz-muscovite-biotite schist as above with numerous lenses and pods of massive grey to white quartz up to 10cm long subparallel to the foliation. Foliation is wavy to contorted - mainly around the quartz lenses throughout the interval, most of the joints are tourmaline filled with trace films of pyrite. Minor sulphides also in foliation planes adjacent to jointing.	CBA 14.5m - 33° Joints at 15.4m - 70° 16.9m CBA - 25° Joints-60°, 68°(11) 18m -CBA 12° Joints - 68°
				29.93 to 30.00m <u>vein</u> -quartz-tourmaline-arsenopyrite (true thickness 5cm) tourmaline>50%, sulphides <1%, contact to core axis - 55°	22.5m -CBA 15° Joints -65°
				30.56m vein - true width 2 cm, contains mica and trace fluorite -massive milky	29m CBA 15°

HOLE No : UG 1
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 3 OF 6

LOGGED BY : W. P. Ayling

01978020

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
				31.34m vein : true width 3cm, quartz-tourmaline-arsenopyrite-pyrite-wolframite (one bleb) core to contact angle -60°	
31.80	34.63	2.63	100	Micaceous quartzite : Brown-grey, thinly laminate, quartz-muscovite, biotite, sparsely jointed, joints filled with tourmaline and trace sulphides; this unit grades into the quartz-micaschist unit above. Bedding generally uniform with only rare minor contortions.	CBA 15° Joints 60°
34.63	77.00	42.37	100	<u>Quartzite</u> : Lt. grey-brown silicified micaceous quartzite, fractured with zones of quartz filling fractures. Pyrite-tourmaline filled joints common. Micaceous foliation developed over most of interval from 39m a weak foliation is developed. From 44.0m to 44.8m quartz-mica schist with a large quartz pod 20cm long within the foliation - contains inclusions of schist.	CBA 15° at 37m Joints 50° at 37m Joints 60° at 40m CBA 20° at 40m CBA 35° at 44m
				45.4 to 45.6m <u>Tourmaline vein</u> - massive tourmaline with pyrite crystals 1% included.	Joints 66° at 46m CBA 25° at 46m
				47.22m a 1-5cm thick arsenopyrite vein with minor quartz.	CBA 25° at 51m
				51.26m feruginous crenulated schist zone 1.5 cm wide - possible shear - 25° to CA and parallel to foliation	Joints 50° at 51m CBA 28° at 53.5m
				56.9 to 57.5m silicified zone - fractured with quartz filling contains minor dis. sulphides.	Joints 50° at 53.5m Joints 35° at 53.5m

HOLE No : UG 1
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 4 OF 6

LOGGED BY : W.P. Ayling

8208021

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
				63.2m - vein-quartz-arsenopyrite-tourmaline-pyrite - wolframite	CBA 25° at 58m
				true width 0.7cm.	Joints 51° at 58m
					CBA 20° at 64m
					Joints 10° 54° at 64m
				65.25 to 65.33m <u>vein</u> quartz-tourmaline-arsenopyrite. True width 8cm CBA 60°	CBA 15° at 67.5m
				66.12 to 66.17 <u>vein</u> quartz-arsenopyrite-tourmaline-flourite. True width 4cm	Joints 55° at 67.5m
				CBA 60°	40°
				66.50 to 67.00m Schist with large quartz lens with inclusions of schist, Schist	CBA 25° at 69.7m
				is contorted and silicified either side of lens. Tourmaline joints cut across	Joints 55° at 69.7m
				quartz lens at 55° to 60° to core axis.	CBA 30° at 74.0m
				67.40m to 73.3m Quartzite becomes more schistose with numerous lenses and pods of	Joints 52° at 74.0m
				quartz within schist. Most Tourmaline bearing joints contain diss. sulphides -	Joints 28° at 74.4m
				usually pyrite; arsenopyrite, some sulphides within schist adjacent to joints	
				usually where some contortion occurs.	
				73.3m to 73.6m core is very broken and fractured.	
				74.4 to 75.0m as above.	
77.00	78.20	1.20	100	<u>Schist</u> Lt. brown-grey, well foliated and laminated quartz-mica and mica-quartz	CBA 25° at 77.5m
				(misc.biot) schist. Siliceous lenses and nodds of grey to white subparallel to	

HOLE No : UG 1
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

LOGGED BY : W. P. Ayling

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 5 OF 6

021 878022

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
				foliation causing minor contortion of bedding . No tourmaline filled joints in this section.	
78.20	86.45	8.25	100	Micaceous quartzite: brown-grey, well foliated, quartz-muscovite-biotite. Thin Laminae of mica gives the foliation. Jointing common, but tourmaline filled joints aren't as predominant as in previous sections. Sulphides are rare to absent except in the tourmaline joints.	CBA 25° at 79.5m Joints 55° at 79.5m
				83.55 to 83.74m siliceous zone - lenses of white quartz within bedding.	
				84.20 to 86.45m quartzite becomes more micaceous and schistose with numerous lenses of white-grey quartz in bedding.	
86.45	91.13	4.68	100	Quartzite: Lt. grey-brown, massive to foliated, quartz-muscovite-biotite quartzite well jointed throughout. Foliation uniform and marked by thin laminae of mica rich layers.	CBA 25° at 87.0m Joints 30° at 87.0m 63° at 87.0m
				88.45m to 88.6m fractured siliceous zone, filled with white quartz-tourmaline and inclusions of micaceous quartzite- brecciated.	CBA 25° at 90.1m (Normal to bedding) Joints 25° at 90.1m
				90.7m to 91.3m minor garnet porphyroblasts and chlorite developed in quartzite.	CBA 33° at 91.0m Joints 60° at 91.0m 71° at

HOLE No : UG 1
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 6 OF 6

022 878023

LOGGED BY W. P. Ayling

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
91.13	93.40	2.27	100	Schist: Dark brown-grey, foliated, biotite-muscovite-quartz schist. Pods & lenses of grey quartz within bedding throughout.	CBA 36° at 92.0m Joints 76° at 92.8m
				91.5 to 91.7m grey micaceous quartzite.	CBA 35° at 92.8m
93.4	94.4	1.0	100	Silicified quartzite: lt. grey, massive to foliated, highly fractured and broken micaceous quartzite. Minor diss. pyrite on some recognisable joint planes	
94.4	96.84	2.44	100	Schist: brown-grey, foliated laminated, biotite-muscovite-quartzschist and quartz-muscovite quartzite thinly interbedded. Numerous grey quartz lenses within bedding throughout.	CBA 36° at 95.0m Joints 20° ⊥ bedding 9 65°
96.84	99.16	2.32	100	Quartzite: grey, massive, silicified, highly fractured quartzite, minor muscovite on bedding surfaces. Well jointed throughout.	CBA 32° at 98.3m Joints 52° at 98.3m
				97.00m Vein quartz-arsenopyrite-tourmaline 1cm, true width.	8°
99.16	110.00	10.84	100	Schist: brown-grey, foliated, laminated, biotite-muscovite-quartz-schist. Numerous pods and lenses of grey quartz throughout. Regular jointing 3 to 20cm apart, usually carrying tourmaline, tr. pyrite, arsenopyrite.	CBA 28° at 100m Joints 17° at 100m
				102.86m vein: 1cm true width, chlorite-tourmaline-pyrite-chalcopyrite	CBA 37° at 101.7m Joints 58° at 101.7m
				106.32m vein: 2cm true width, quartz-tourmaline-arsenopyrite	CBA 34° at 103.5m
				108.75m vein: 4cm true width, brecciated quartz-pyrite-arsenopyrite-tourmaline vein parallel to foliation.	Joints 55° at 103.5m
				E.O.H. 110.00m.	

D R I L L R E C O R D

Hole No.	UG2		Prospect: Oakleigh Creek Mine						Purpose: To test for the presence of veins west of the main vein system indicated from drill hole MPI.
Location	26.6 km south of Lemonthyme Power Station, Upper Forth River Valley, Central Tasmania.								
Tenement	Mining Lease 60 m/69								
Level	240		Co-ordinates: 1743.5N						
			1035.8E						
Collar R.L.			Length (m): 75M						
Survey Depth (m)	0	30	60					Comments:	
Bearing	270°	268°	269°						
Declination	+4°	+4.75°	+4.75°						
Precollar	-								
Core Size	8x								
	0 - 75								
Core Recovery	100%								
Contractor & Machine	Associated diamond drillers				Logged by: W.P. Ayling				
	Mindrill E500								
Commenced	2-7-79		Completed: 5-7-79						

023

878024

HOLE No : UG2
 BEARING : 270°
 DECLINATION : +5°
 COLLAR R.L. : 240
 LENGTH : 75M

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT : Oakleigh Creek Mi
 DRILLED BY : A.D.D.
 COMMENCED :
 COMPLETED :
 SHEET 1 OF 3

024
878025

LOGGED BY :

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
0	6.84	6.84	100	<u>Schist</u> : Brown, massive to weakly foliated, quartz - muscovite - biotite - garnet - chlorite. garnet porphyroblasts have destroyed the foliation giving the rock a more massive texture. Numerous grey - white lenses and pods of quartz distributed throughout, but larger and more common toward base. Pyrite disseminated and in stringers associated with jointing and quartz lenses and especially where fractured.	CBA - 10° 1.3M Joint - 68° 1.3M CBA - 5° 2.0M
6.84	14.36	7.52	100	<u>Schist</u> : H. brown - grey, foliated, muscovite - biotite - quartz schist. rare garnet porphyroblats in sections. grey-white quartz lenses and pods predominant throughout interval. Jointing common usually filled with tourmaline and trace discriminated pyrite. Pyrite rarely found penetrating into the foliations of the schist. 12.7m a 2cm wide <u>Qtz Vein</u> 83° to core axis. Quartz - arsenopyrite - gilbertite (green mica), and a brown clay disseminated.	CBA - 20° 12M Joints - 56° 12M CBA - 10° Joints - 70° 12M
14.36	19.80	5.44	100	<u>Micaceous Quartzite</u> : H. brown/grey, silicified, weakly foliated, muscovite - quartz silicified schist. Well jointed throughout - usually tourmaline filled rare sulphides associated with jointing.	CBA - 15° 18M Joint - 60° 18M CBA - 0° 19M Joint - 63° 19M - 80° 19M

HOLE No : UG 2
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 2 OF 3

025
878020

LOGGED BY : W. P. AYLING

Depth (m)		Interval (m)	Recovery %	Description	Remarks	
From	To					
19.8	55.0	35.2	100	Silicified schist: grey to light brown foliated, quartz-muscovite-biotite schist with numerous pods, lenses of grey white quartz up to 0.8m long in core section, as between 20.4m to 21.2m micaceous foliations are folded around and sometimes penetrate the quartz inclusions. Tourmaline filled joints are common throughout interval, usually carrying and associated with trace pyrite. Narrow (1cm) vein of quartz-tourmaline-trace sulphide (pyrite arsenopyrite) are common throughout, subparallel to the main joint system.	Joints 68°	20.5m
					CBA 10°	21.8m
					Joints 73°	21.8m
					CBA 5°	23.3m
					Joints 65°	23.3m
					Vein 65°	29.1m
					CBA 8°	29.1m
				20.3m - pug filled joint (1cm) - shear	Joint 77°	29.1m
				41.73m vein quartz - tourmaline, 1 cm.	CBA 60°	30.0m
				42.46m vein quartz - tourmaline - arsenopyrite 2cm,	CBA 75°	35.0m
				46.5m to 50.5m unsilicified strongly foliated schist as above, with trace diss. pyrite and chalcopryrite in tourmaline veins and within foliations - sulphide less than 0.5%.	Vein 70°	35.0m
					Joint 65°	35.0m
					CBA 0°	39.0m
					Joints 75°	39.0m
					CBA 10°	45.2m
					Joints 77°	45.2m
					CBA 15°	52.0m
					Joint 75°	52.0m

HOLE No: UG 2

BEARING:

DECLINATION:

COLLAR R.L.:

LENGTH:

B.R.G.M. AUSTRALIA FIELD DIAMOND DRILLING LOG

LOGGED BY: W. P. AYLING

PROSPECT:

DRILLED BY:

COMMENCED:

COMPLETED:

SHEET³ OF³

026

878027

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
55.0	61.1	6.1	100	Micaceous Quartzite: Grey-brown, weakly foliated, silicified, quartz-muscovite-biotite quartzite. Well jointed - usually tourmaline filled with diss. pyrite.	CBA 10° 56.74m CBA 5° 59m
				56.74m vein Quartz tourmaline 1.7 cm CBA 70°	Joint 70° 59m
					55° (W) to 59m
61.10	67.00	5.90	100	Silicified schist: Grey-brown/green, foliated, quartz-muscovite-biotite-chlorite schist, with inclusions of white quartz as pods and lenses to 16cm long in core section.	60° (E) each other 59m CBA 5° 62.9m
				65.28m vein 3cm, quartz-tourmaline-chlorite-pyrite CBA 85°	Joint 65° 64.2m
				65.52 to 65.57m vein 4.5 cm (true), quartz-chlorite (gilbertite) - arsenopyrite. Pyrite-tourmaline with brown clay in fracture. CBA 70° (E?)	
67.00	72.3	5.30	100	Shear Zone: Brecciated and sheared muscovite-quartz schist, grey/brown, puggy clay zones throughout - a major fault.	
72.3	75.0	2.70	100	Quartzite: Grey, massive to weakly bedded, quartzite, well jointed with tourmaline - pyrite in joints sulphides <0.5%.	CBA 30° 73.2m Joints 68° (W?) 73.2m 65° (E?) 73.2m
				E.O.H. 75.00m	

Hole No.	UG3	Prospect: Oakleigh Creek Mine					
Location	26.6m south of Lemonthyme Power Station, Upper Forth Valley						
	Central Tasmania						
Tenement	Mining Lease 60M/69						
Level	240 Level Adit			Co-ordinates:			
				1891.5 N 1020.0 E			
Collar R.L.				Length (m): 140 m			
Survey Depth (m)	0	30	60	105			
Bearing	090°	091°	095°	099°			
Declination	+4°	+4.5°	+4.75°	+5.25°			
Precollar	-						
	-						
Core Size	Bx						
	0 - 140m						
Core Recovery	100%						
Contractor & Machine	Associated Diamond Drillers			Logged by W. P. Ayling			
	Mindrill E500						
Commenced	5/7/79			Completed: 16/7/79			

Purpose:
To test for the presence of veins close to the main vein system and to explore the cliff and waterfall lodes at depth.

Comments:

HOLE No : UG 3
 BEARING : 090°
 DECLINATION : +5°
 COLLAR R.L. : 240L
 LENGTH : 140M

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

PROSPECT : OAKLEIGH CREEK
 DRILLED BY : A.D.D.
 COMMENCED : 5.7.79
 COMPLETED : 16.7.79
 SHEET 1 OF 6

LOGGED BY : W. P. AYLING

028
8
18029

Depth (m)		Interval (m)	Recovery %	Description	Remarks	
From	To					
0	115.20	115.20	100	Micaceous quartzite: grey, massive bedded to thinly foliated in sections, quartz muscovite quartzite - silicified throughout. Even, well spaced jointing usually	CBA 3°	2.5m
				tourmaline pyrite filled up to 1cm thick. Occasional fractured zones with white quartz inclusions, sometimes associated with pyrite seams carrying trace	Joint 68°E	1.1m
				chalcopyrite and arsenopyrite.	CBA 0°	7.0m
				3.0 to 4.8m brecciated zone with white quartz inclusions <0.5% sulphides.	Joint 78°E	7.0m
				14.0 to 14.4m vein narrow 1.5cm quartz-pyrite vein cutting across section,	69°E	7.0m
				CBA - 10°	CBA 6°	10.0m
				20.65 to 20.69° vein 3.5cm true width quartz-gilbertite mica-wolframite	Joint 67°	10.0m
				pyrite CBA 70°	CBA	14.5m
				21.40 to 21.46m vein 6 cm true width. White quartz-gilbertite mica - tr	Joint	14.5m
				yellow clay	CBA 0°	22.0m
				24.62 to 24.71 m vein 8cm true width, white quartz-tourmaline tr pyrite	Joints 67° W	
				CBA 67°	65° W	
				32.28 to 32.2m vein 4 cm true width, white quartz tourmaline-gilbertite	CBA 0°	28.6m
				flourite CBA 75°	Joints 70°	28.6m
				45.56m vein 1.2cm true width, quartz-flourite-tourmaline-pyrite CBA 60°	CBA 0°	37.0m
				46.96 to 47.04m vein 6cm - irregular contacts. Quartz muscovite tr pyrite	Joints 80°	37.0m
					73°	
					CBA 5°	42.0m

HOLE No : UG3
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

LOGGED BY : W. P. AYLING

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 2 OF 6

029
878030

Depth (m)		Interval (m)	Recovery %	Description	Remarks	
From	To					
				50.7m to 5095m 25cm vein quartz-gilbertite-tourmaline-tr pyrite contacts with	CBA 5°	50m
				quartzite are diffuse as quartzite is highly silicified.	Joints 69°	50m
				51.50m to 51.80m vein 30 cm quartz-gilbertite-tourmaline over central 17cm	Joints 76°	52m
				(true vein) with quartz (silicified quartzite?) and massive seams of tourmaline		
				either side jointed. 65° to CA.		
				51.80m to 52.37m - Massive tourmaline rock - crystalline with diss. mica and trace		
				pyrite.		
				52.37m to 53.15m massive tourmaline rock as above occupying half core with		
				silicified quartzite in other half hole following contact of quartzite		
				tourmaline filled joint - contact between two rock types is white quartz and		
				micaceous schist with diss. supplies. This quartz-sulphide filled joint		
				(<1cm wide) continues to 54.75m angle to core axis - 0-5°		
				56.92 to 57.00m massive crystalline tourmaline vein. Minor quartz diss.trace		
				pyrite. 58.15 to 59.32m massive white quartz contacts conformable with		
				quartzite. Irregular quartzite inclusions well jointed diss. tourmaline and tr		
				pyrite.		

HOLE No : UG 3
 BEARING :
 DECLINATION :
 COLLAR R.L. :
 LENGTH :

B.R.G.M. AUSTRALIA

FIELD DIAMOND DRILLING LOG

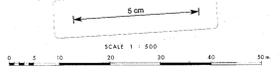
LOGGED BY : W. P. AYLING

PROSPECT :
 DRILLED BY :
 COMMENCED :
 COMPLETED :
 SHEET 3 OF 6

030
878031

Depth (m)		Interval (m)	Recovery %	Description	Remarks
From	To				
				Possible vein between 58.45m and 59.00m interval jointing 65° to core axis. Minor small vughs in vein quartz. Possible diss. brown cassiterite (white streak) - if so very rich. Quartz to quartzite contact 10° to core axis.	CBA 6° 56.0m Joint 80° 70°
				61.15 to 61.72m vein white quartz, massive, jointed with tourmaline films on joint planes. Contact with quartzite apparently conformable - possibly this is not a vein but a lens of massive quartz within the quartzite.	CBA 5° 65.0m Joint 68° 65.0m CBA 0° 69.5m
				66.60 to 66.77m vein white quartz, massive, jointed, subparallel with bedding of quartzite - 18° to core axis.	Joints 71° 69.5m CBA 5° 79.0m
				67.23 to 67.27m vein quartz-tourmaline-gilbertite-flourite - true width 4cm Vein to core axis 72°.	Joints 76° 71°
				82.85m vein massive tourmaline - tr pyrite-silicified zone up to 10cm wide surrounding vein.	CBA 5° 85.71 Joints 76°
				84.75m vein. 2.3cm true width, quartz-tourmaline-flourite-gilbertite vein to core axis 67°.	71°

FACTUAL GEOLOGY OF THE OAKLEIGH CREEK MINE ENVIRONS



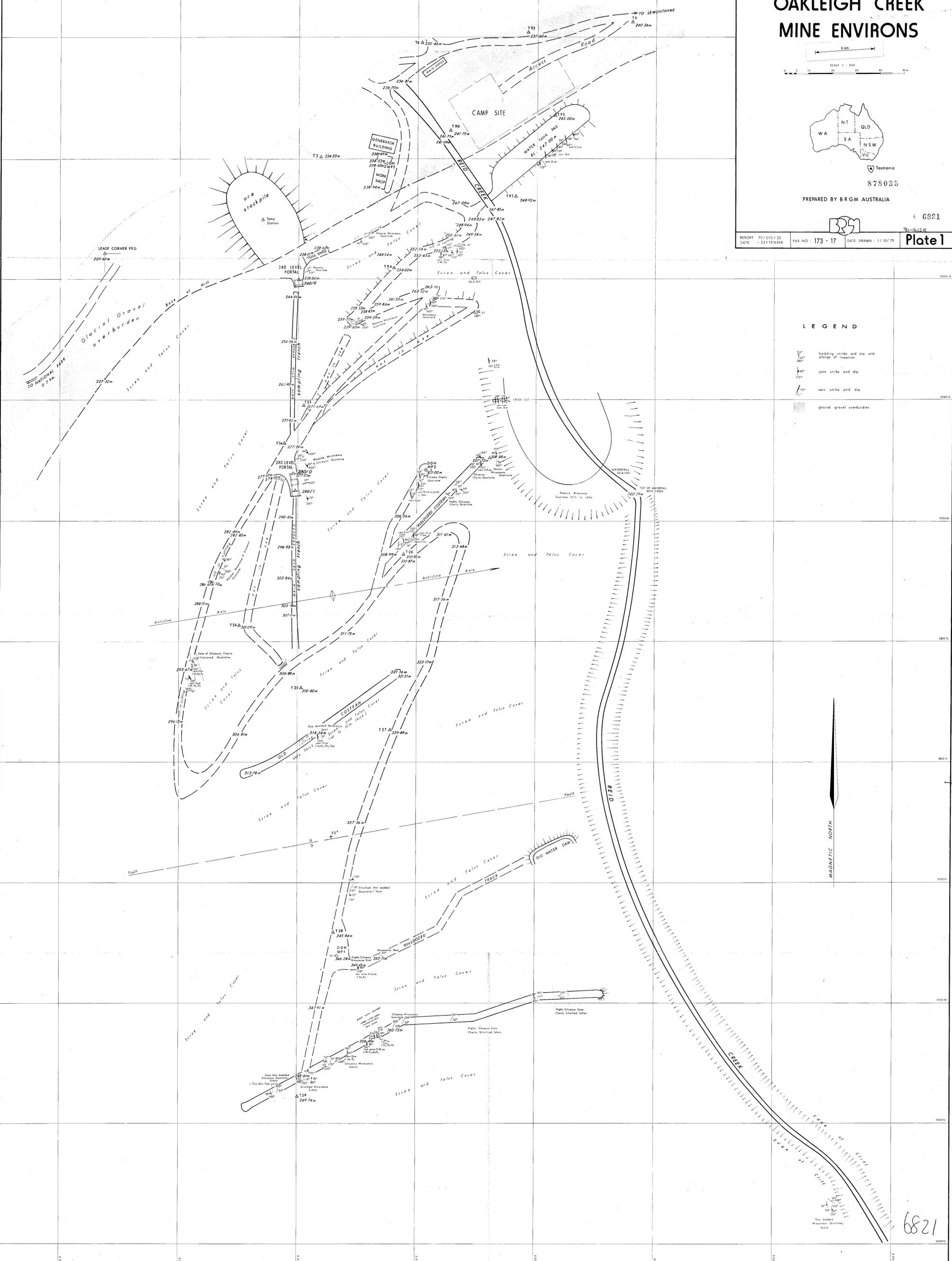
Tasmania
878035

PREPARED BY B R G M AUSTRALIA



6821

REPORT 79/510/20
DATE - SEPTEMBER
FILE NO: 173-17
DATE DRAWN: 1/10/79
Plate 1



LEGEND

- bedding strike and dip with plunge of lineation
- joint strike and dip
- vein strike and dip
- glacial gravel overburden

MAGNETIC NORTH

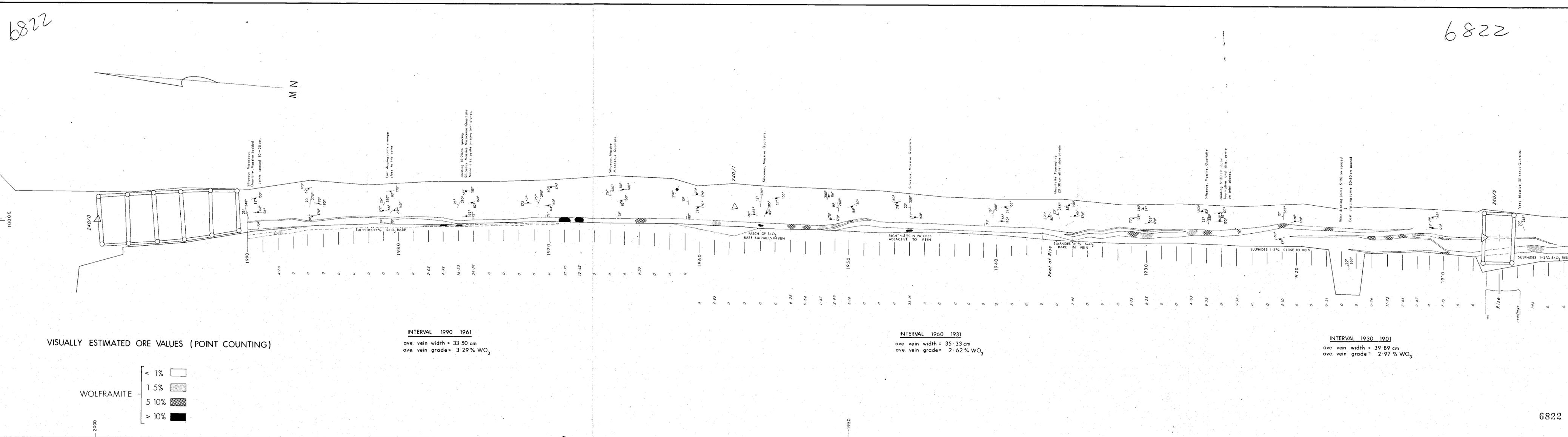
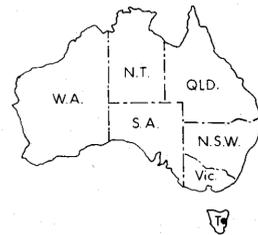
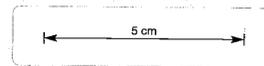
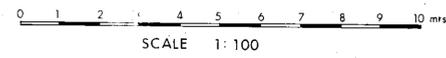
6821

240 LEVEL ADIT

OAKLEIGH CK WOLFRAMITE PROJECT

878036

SHEET 1



6822

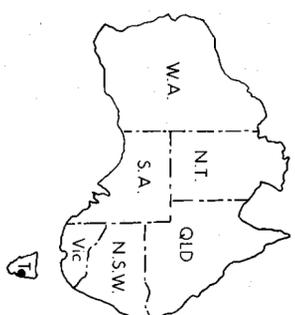
6822

240 LEVEL ADIT

878037

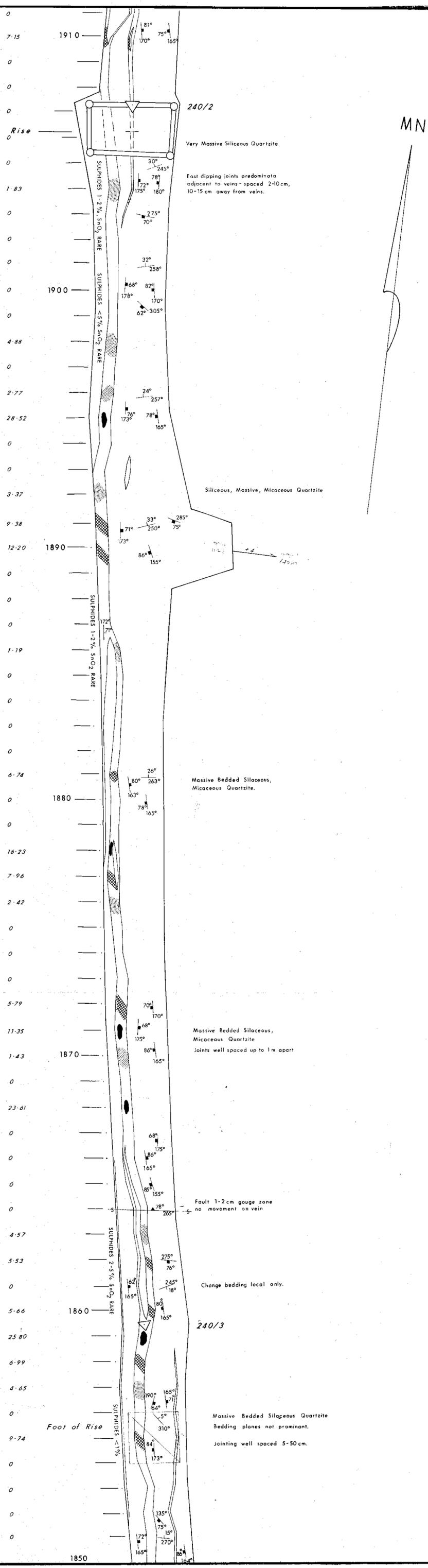
OAKLEIGH CK WOLFRAMITE PROJECT

SHEET 2



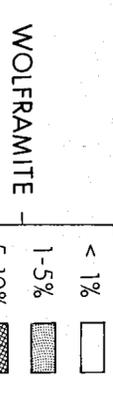
REPORT : 79/SVD/19
 DATE : SEPTEMBER/79
 FILE NO : 173-11b
 DATE DRAWN : 1/11/79

81-1612 R
Plate 2



INTERVAL 1900-1871
 ave. vein width 42.60 cm
 ave. vein grade = 3.80% WO₃

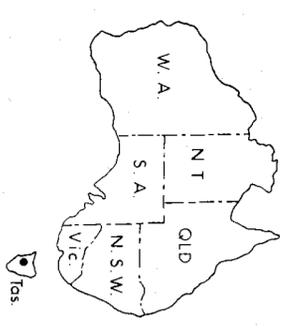
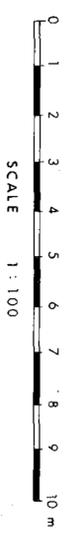
VISUALLY ESTIMATED ORE VALUES (POINT COUNTING)



280 LEVEL ADIT

OAKLEIGH CK WOLFRAMITE PROJECT

SHEET 1



878044

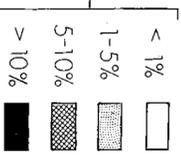


REPORT : 79/SND/19
 DATE : SEPTEMBER/79
 FILE NO : 173-10d
 DATE DRAWN 1/11/79

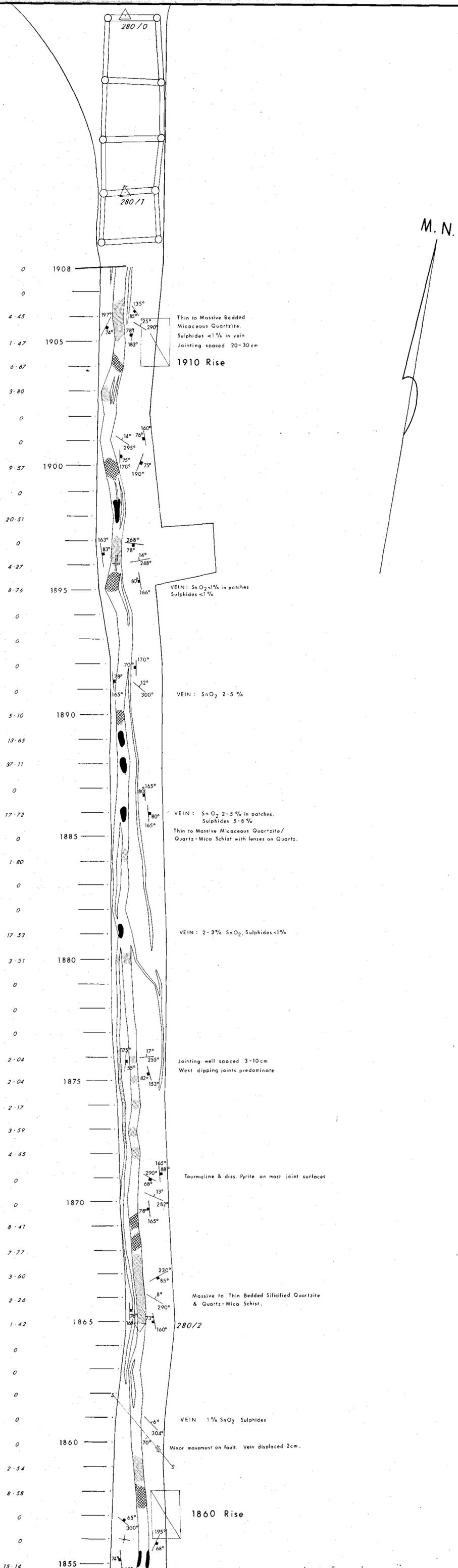
8-16/2R
Plate 3

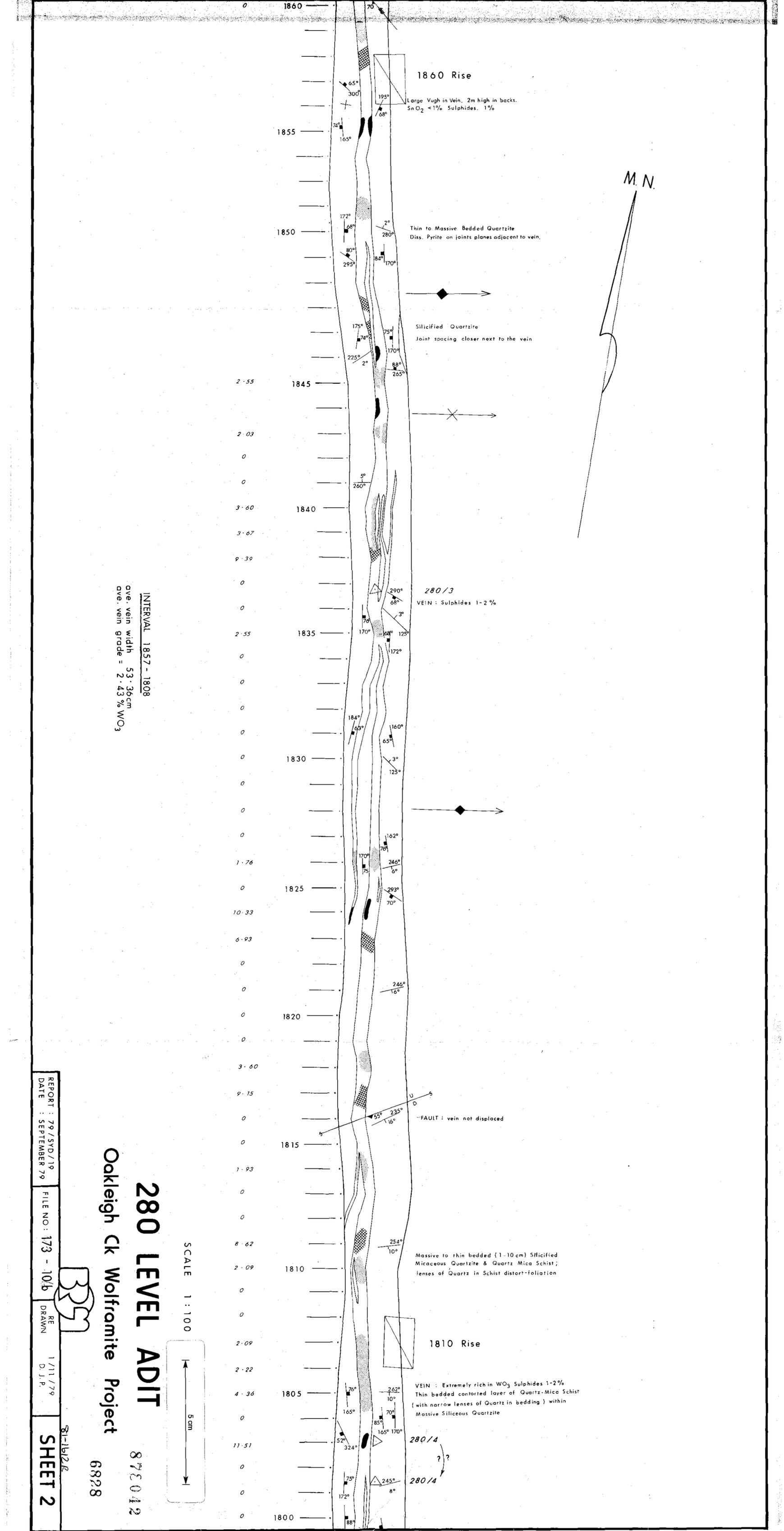
VISUALLY ESTIMATED ORE VALUES (POINT COUNTING)

WOLFRAMITE



INTERVAL 1908 - 1858
 ave. vein width = 51.12cm
 ave. vein grade = 4.21% WO₃





INTERVAL 1857-1808
ave. vein width 53.36cm
ave. vein grade = 2.43% WO₃

280 LEVEL ADIT
Oakleigh Ck Wolframite Project

SCALE 1:100
5cm

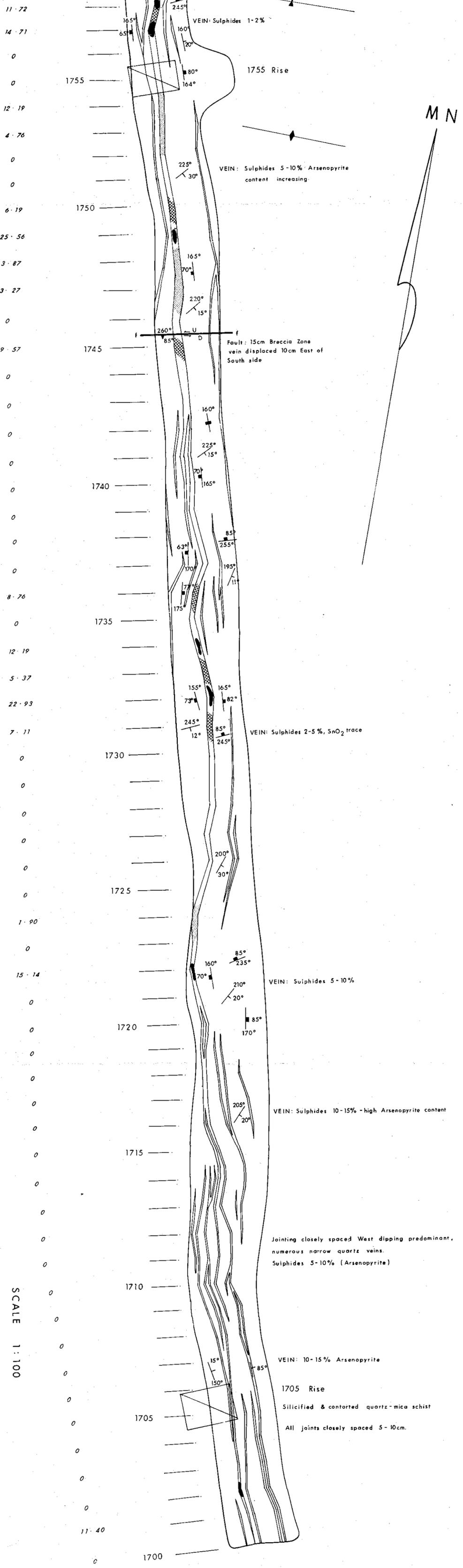
REPORT: 79/SYD/19
DATE: SEPTEMBER 79
FILE NO: 173 - 10/b
RE DRAWN: 1/11/79
D.J.P.
81-1512R
SHEET 2



873012

6828

Interval 1757 - 1708
 ave. vein width 21.87cm
 ave. vein grade 3.44% WO₃



SCALE 1:100



280 LEVEL ADIT 878044
 Oakleigh Ck Wolframite Project 6830

REPORT : 79 / SYD / 19
 DATE : SEPTEMBER 79
 FILE NO : 173-12d
 DRAWN : D.J.P.
 1 / 11 / 79
 SHEET 4



S1-161212