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GEOCHEMICAL SAMPLING SURVEY

OF

E. L. 5/77

OPEN FILE

BY

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PLATES

LOCALITY MAP - GEOCHEMICAL SAMPLE E.L. 5/77

Enclosure

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I. INTRODUCTION

During late July 1978, an orientation stream sediment sampling survey was carried out on EL 5/77. Samples were collected from the six major creeks draining the area. Each sample was sieved to -80#, +80 -20 #, +20#, and each fraction was assayed by XRF for W and As.

In conjunction with this survey, stream float and outcrops were inspected for evidence of mineralised quartz veins similar to those occurring at the Mt. Pelion wolfram prospect.

The method of stream sediment sampling was evaluated to determine its applicability to locating other veins within the EL.

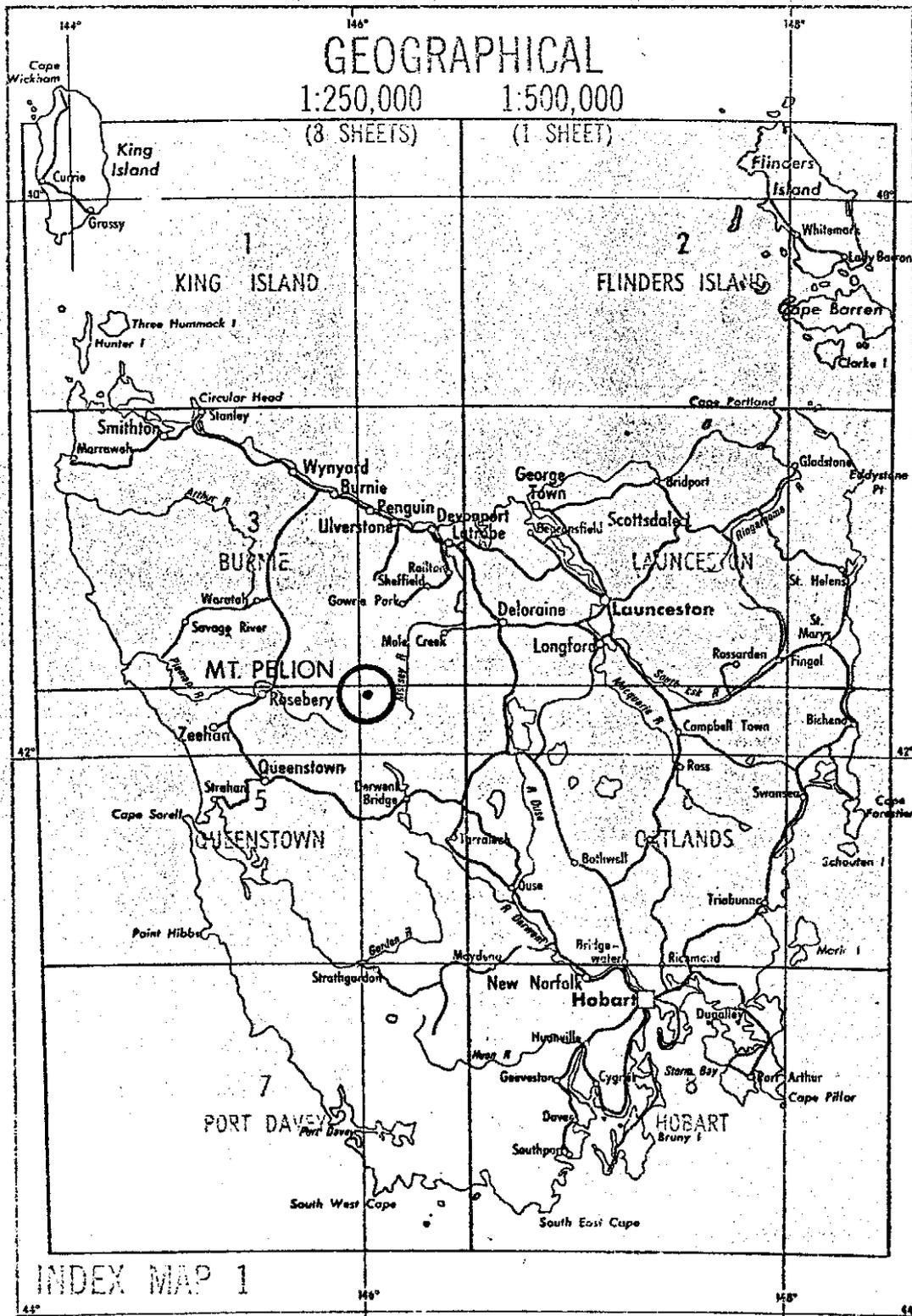
II. LOCATION AND ACCESS (FIGURE 1)

EL 5/77 is situated on the eastern side of the upper Forth River valley, in rugged, mountainous, isolated terrain. To the west, on the opposite side of the Forth River, is located the Cradle Mountain - Lake St. Clair National Park, having the river as its boundary. The Forth River flows north, discharging into the Bass Strait near Devonport.

The EL can be reached from Devonport by sealed road as far as the Leronthyme Power Station, which is 20 km from the EL via a gravel road.

III. GEOLOGICAL SETTING

In the Forth Valley the rock types include quartzite, mica schist and quartz mica schist of the 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 Mt. Pelion 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 Forth Valley.



BRM **FIGURE 1**

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

Two small granitic intrusions (adamellite of mid-Devonian age) occur within the EL, the Birthday and Lone Pine Granites. They are the source of the wolfram, tin and copper mineralisation in this district. The granite is discordantly intrusive into the Precambrian quartzite and quartz-mica schist of the 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 been noted. Near its contact the granite commonly develops large phenocrysts of feldspar and abundant biotite.

The granite is associated with several small quartz veins which in the past were prospected for tin and wolfram (Lone Pine and Birthday prospects).

IV. STREAM SEDIMENT SURVEY (PLATE 1)

A reconnaissance stream sediment survey of the six major creeks draining the EL into the Forth River was carried out to determine the applicability of the method for prospecting for mineralised quartz veins within the EL. In conjunction with this survey, float and outcrops were examined for evidence of mineralisation. (See Plate 1)

Two stream sediment samples were collected from each creek traversed (see Plate 1). Each sample was sieved to -80#, +80 -20#, +20#, and analysed for W and As. The three size fractions were examined to determine which one gives the best response. W and As were used as pathfinders for mineralisation. W being transported mechanically should give a good response close to its source. Arsenic is transported chemically and should be traceable at greater distances from its source. As is used in this survey as a pathfinder element, as it is commonly associated with the mineralised quartz veins in the area, in the form of Arsenopyrite.

The float-outcrop survey revealed that every creek traversed contained quartz float, but no evidence of mineralisation was observed. As minor quartz veining is common in the quartzite and quartz mica schist, the observation of white quartz in creek beds should be expected, and does not necessarily indicate the presence of a mineralised quartz vein.

The samples collected from the creek (Reid Creek) draining the Mt. Pelion wolfram lode will be used as reference samples for comparison with the samples collected from the other creeks.

V. GEOCHEMISTRY

The twelve samples assayed show low values for W and As. The samples collected from Reid Creek are very low in W. This was not expected as the creek drains known wolframite bearing quartz veins. Unfortunately only the +20# fraction was able to be analysed, because there was insufficient finer fractions. However, due to the close proximity to the source some wolframite should have been expected to report in this size range. Comparison of the As values in samples 0577 and 0578 (Table 1) shows lower values closer to a known source. This indicates an erratic distribution of As in the stream sediments.

TABLE 1

Location	Sample	W (ppm)			As (ppm)		
		+20	-20+80 ⁺	-80 ⁺	+20	-20+80	-80
Reid Ck.	0577	10	-	-	150	150	95
" "	0578	10	-	-	10	55	55

⁺insufficient sample for analysis.

Table 2 sets out the analyses of samples from the other creeks in the EL. It is seen that W is nowhere anomalous while there are several erratic high volumes of As.

Samples 0584 and 0585 indicate the erratic distribution of As in the various size ranges. The higher As values in the coarser fractions might be explained by the presence of locked arsenpyrite in rock fragments. The -80# fraction has a more even distribution of As values, and this size range would be the most useful in a large scale sampling programme. In the -80# fraction, the highest values are found in the creeks adjacent to the Mt. Pelion and Birthday prospects. If the -80# fraction for Arsenic is a reliable indicator of mineralization, then it appears no other outcropping mineralized veins are present in the EL apart from the known lodes. Unfortunately there was not sufficient of the -80# fraction in the stream sediments to analyse for W to support this finding.

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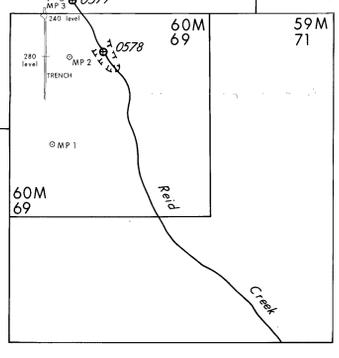
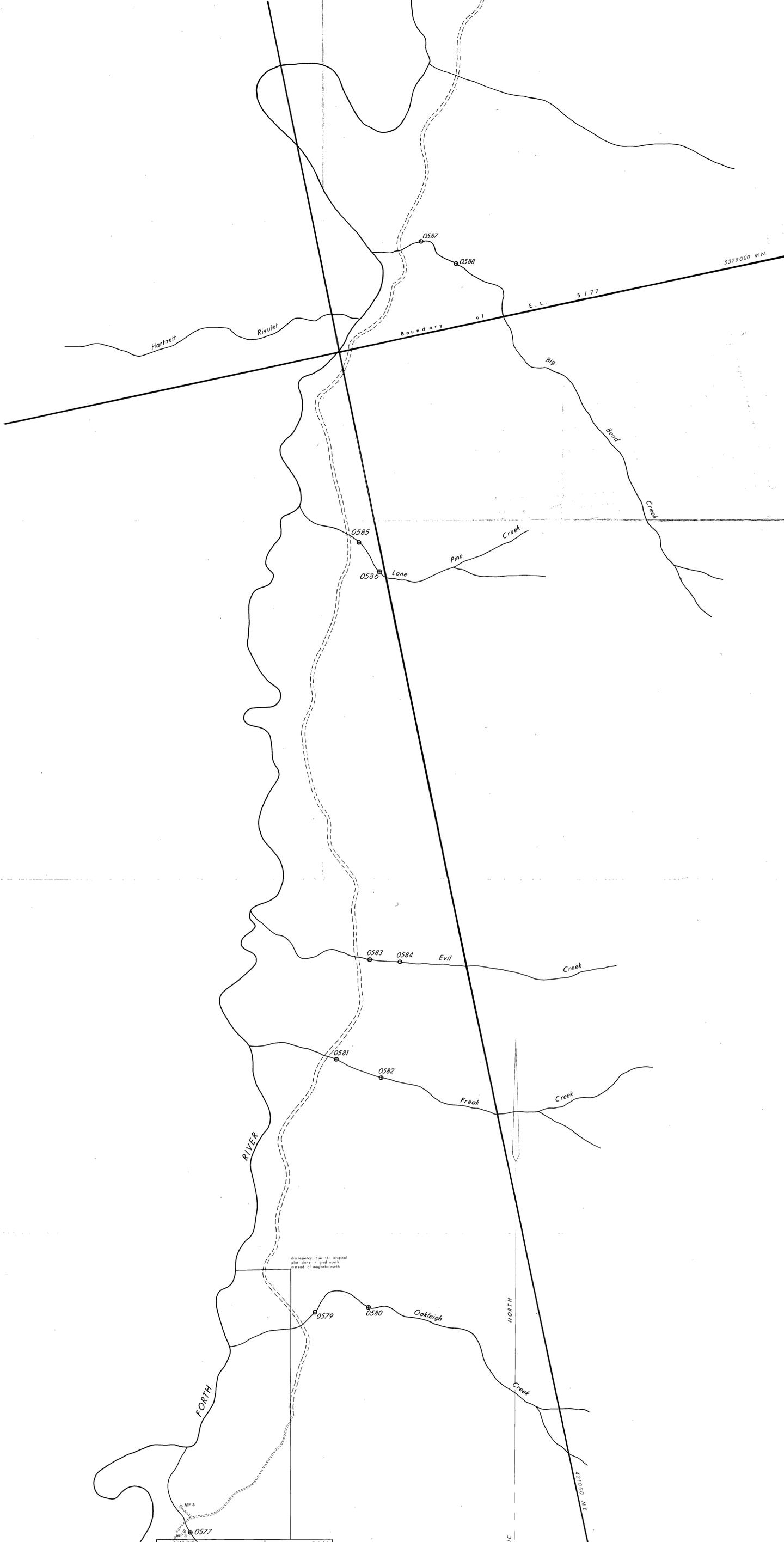
TABLE 2

Location	Sample	W(ppm)			As(ppm)		
		+20	-20+80	-80	+20	-20+80	-80
Oakleigh Ck.	0579	5	20	-	15	50	40
" "	0580	15	-	-	20	40	35
Freak Ck.	0581	20	-	-	30	35	40
" "	0582	20	25	-	30	35	30
Evil Ck.	0583	15	10	-	30	25	15
" "	0584	20	-	-	240	30	-
Lone Pine Ck.	0585	15	-	-	35	170	-
" " "	0586	10	-	-	2	15	5
Big Bend Ck.	0587	5	-	-	<1	2	-
" " "	0588	5	5	-	1	5	5

VI. CONCLUSIONS

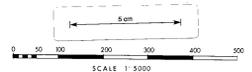
The results of this survey indicate that stream sediment geochemistry is not a decisive tool in exploration for new mineralized quartz veins in this area. The -80# fraction appears to be the best for As and some conclusions can be gleaned from the results. The streams draining the Birthday and Mt. Pelion W prospects show generally higher values for As in this size fraction, however many more samples would need to be analysed before a statistically reliable threshold value can be obtained.

Insufficient sample resulted in only the +20 # fraction being analysed for W. No reliable conclusions can be made on the value of assaying for W in this survey. The two creeks draining the Lone Pine Prospect were not anomalous in W, which is not surprising as very little wolframite occurs in the outcropping vein. However the low As values cannot be explained as the Lone Pine vein contains abundant Arsenopyrite.



BUKA - SEREM - TRIAKO JOINT VENTURE

LOCALITY MAP
GEOCHEMICAL SAMPLE
E.L. 5/77



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