EXPLORATION LICENCE 4456

COX PENINSULA

Annual Report - JANUARY, 1985

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Department of Mines & Energy - Darwin

Greenbushes Tin Ltd. - Perth & Darwin

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NORTHERN TERRITORY
GEOLOGICAL SURVEY

CR85/108

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1) INTRODUCTION

This report documents the work carried out on Exploration Licence 4456 during the period 9th January, 1984 to 8th January, 1985. It was submitted to the Northern Territory Department of Mines and Energy to document exploration activities and in support of a renewal of the exploration licence.

The exploration programme was carried out by Greenex, a subsidiary of Greenbushes Tin Ltd. on behalf of Greenbushes Tin Ltd. and its Joint Venture partner Barbara Mining Corp, a subsidiary of Bayer A.G. of Leverkusen, West Germany. The Joint Venture is known as the 'Bynoe Joint Venture'.

2) LOCATION, CLIMATE & TOPOGRAPHY

The tin, tantalum and niobium resources of the Cox Peninsula south west of Darwin (Fig 1) covers an area 55km X 9 km. The 6 square kilometre EL 4456 is part of a larger area being investigated by the Joint Venture partners.

The area's climate is tropical, monsoonal with 2 seasons, the wet extending from October to April and the dry May to September. Annual rainfall is 1,600 mm with approximately 97 % falling in the wet season. The humidity varies from 50 % to 80 % in the wet and 45 % to 70 % in the dry.

The land system comprises 3 main land forms :

2.1 the upland plains consist of gently undulating plains with gravel ridges often associated with quartz veining or ironstone lateritic crust.

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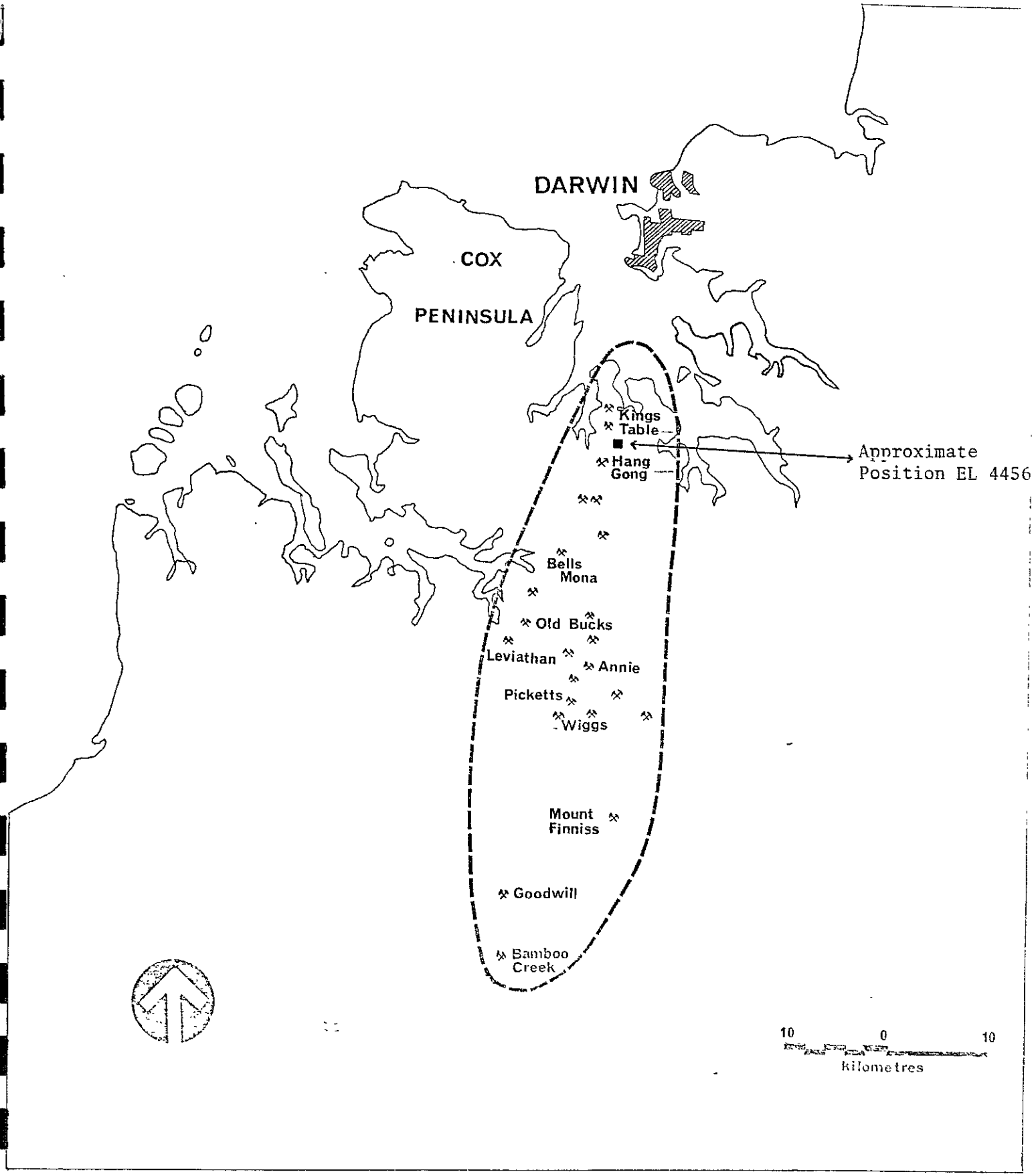

THE FINNISS RIVER PEGMATITE BELT

Figure 1

2) 2.2 the alluvial flats are 200 m to 300 m wide and several kilometres long. The accumulation of organic material in the drainage means they are commonly known as black soil plains.

2.3 the lower slopes separate the upland from the alluvial flats. In most cases the slopes are scree covered and outcrop is poor.

3) LICENCE DETAILS

Exploration Licence 4456 was approved by the Secretary on the 9th January, 1984 and application was made on the 5th November, 1984 for renewal of this licence.

The licence area is approximately 6 square kilometre in area and is covered by the graticular blocks : 2949 and 2950. Figure 2 shows the location of the licence area.

Greenbushes Tin Ltd. undertook an exploration expenditure of $ 5,000 for the first year of the project.

4) REGIONAL EXPLORATION CONTEXT

Exploration Licence 4456 is one of a number of licences held by the Joint Venture partners in the Finniss River Pegmatite Belt. The exploration plan has been to prove ore reserves for a number of pegmatites and associated alluvial deposits centred on an area suitable for a central plant site and water storage. The satellite mining operations would supply ore to the central plant, which on completion of mining in one area would be moved progressively to other locations.

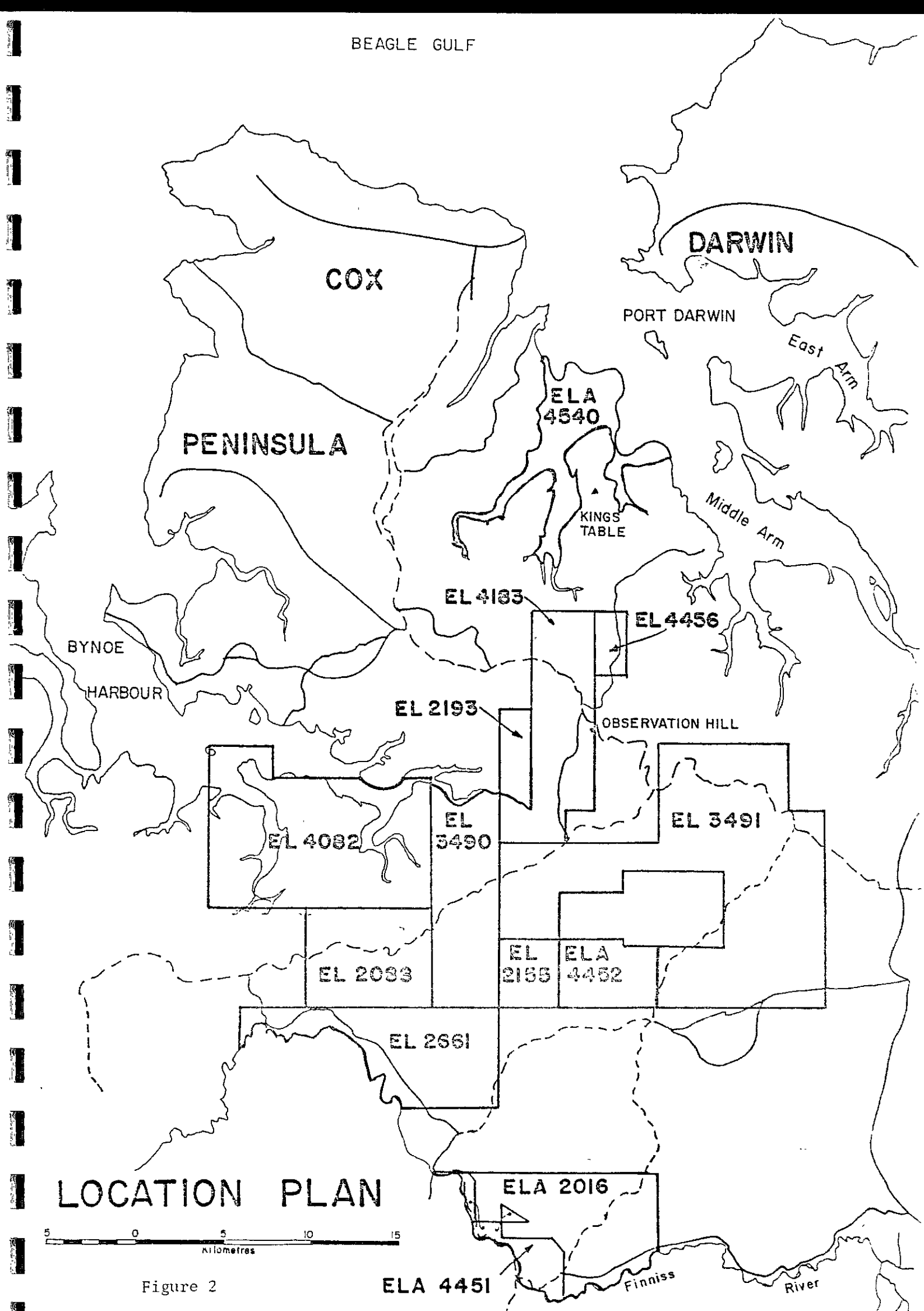
BEAGLE GULF
COX
PENINSULA
DARWIN
PORT DARWIN
East Arm
ELA 4540
KINGS TABLE
Middle Arm
EL 4183
EL 4456
BYNOE HARBOUR
EL 2193
OBSERVATION HILL
EL 4082
EL 3490
EL 3491
EL 2083
EL 2155
ELA 4452
EL 2661
ELA 2016
ELA 4451
Finniss River
LOCATION PLAN
5 0 5 10 15
Kilometres

Figure 2

4) In may, 1984 the Joint Venture established an exploration camp near Observation Hill in EL 4183. The camp included sample processing facilities. To 1st January, 1985 the Joint Venture has spent approximately $ 1,000,000 on exploration and development of tin and tantalum deposits in the Finniss River Pegmatite Belt, much of it within EL 4183.

The Joint Venture has transported a pilot gravity concentration plant with a nominal 30 m^3 to 40 m^3 per hour capacity to the project area and will commence trial mining and processing operations in the 1985 dry season.

5) WORK COMPLETED 1983-1984

5.1 Initial Evaluation

Discussions were held with Mr Barry Pietch of the Department of Mines and Energy in November, 1984 and February, 1984, and preliminary information was obtained from his 1:100,000 mapping allowing exploration targets to be defined. From his geological base sheets 1:25,000 plans were prepared.

On the 18th February potential targets within the licence area were inspected by helicopter with representatives of Bayer's Head Office in Leverkusen, West Germany.

5.2 Exploration Procedure

2 separate exploration targets were apparent from photogeological evaluation and helicopter surveys :

a) there were many quartz scree ridges in the licence area. Elsewhere these had been shown to be closely assoicated with pegmatite occurrences, particularly those with quartz - muscovite scree.

5) 5.2 a) During the intense weathering of the bedrock associated with laterite development the felspars were commonly kaolinized. Subsequent erosion under the monsoonal conditions prevalent in the Darwin region resulted in the concentration of quartz scree on pegmatite ridges with the clay fraction being washed away. These ridges were the primary target of exploration.

b) in their assessment of the alluvial potential of the region Greenbushes Tin Ltd. had discovered a number of alluvial tin - tantalum concentrations. Although most alluvial deposits could be directly related to known pegmatite occurrences there were some instances in which there was no known sources of mineralization. This suggests hidden deposits or the complete erosion of the primary source pegmatites. Within EL 4456 there is a typical broad, shallow drainage which drains from the south into the West Arm of Darwin Harbour (Fig 3).

5.3 Quartz Scree Evaluation

6 separate quartz scree covered ridges were identified and inspected. Other quartz scree areas exist from air-photos (Fig 3). The strike direction of the quartz veining was parallel to that of the pegmatites to the south. These outcrops were inspected by contract geologist Phil Kimber. He found that :

a) none of the vein systems had muscovite a common associate of quartz in pegmatite intrusions.

b) there were no workings in the vicinity of any of the quartz veins.

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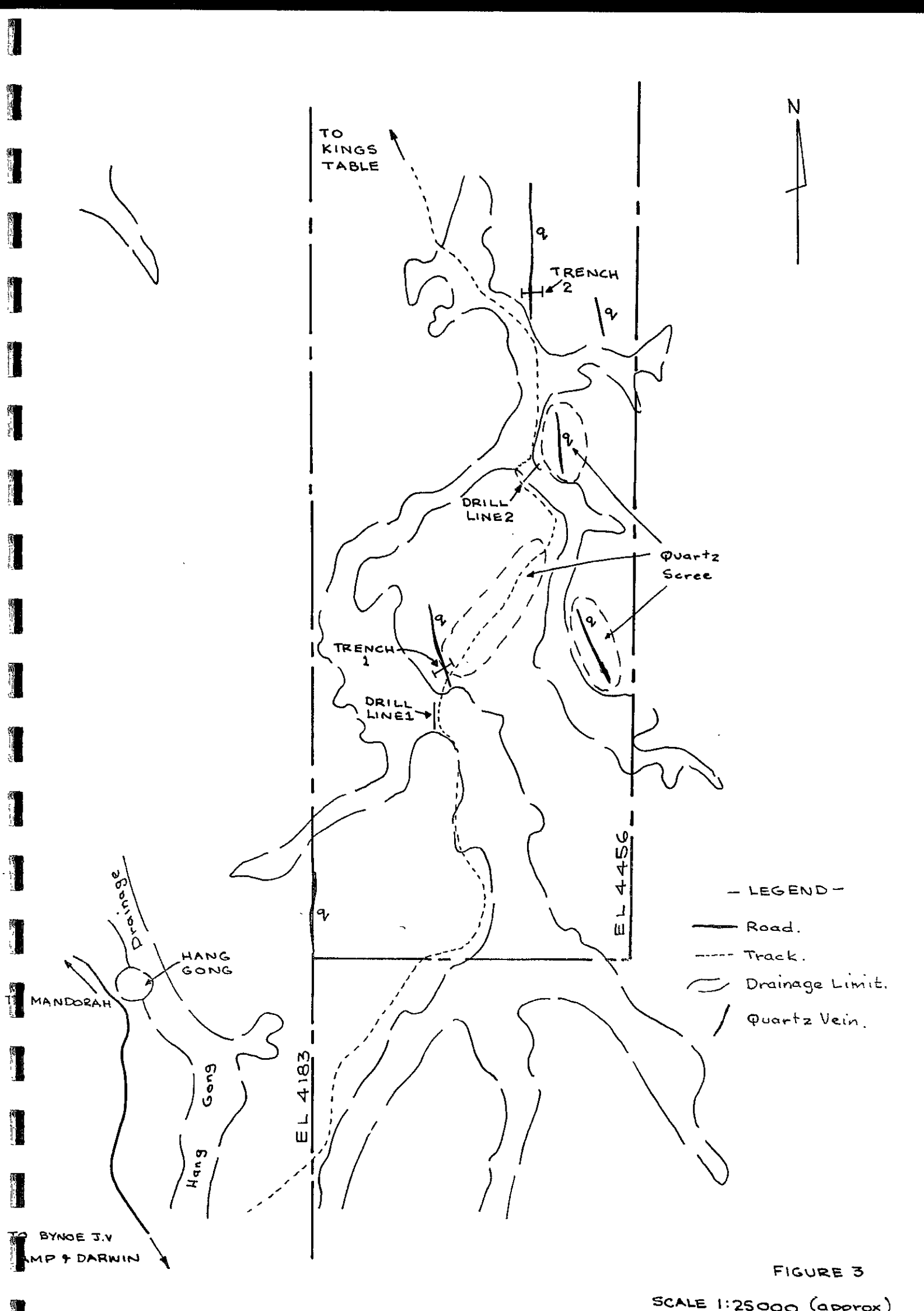

FIGURE 3

SCALE 1:25000 (approx)

5) 5.3 2 quartz veins were selected for trenching on the basis of accessability and prominence of quartz veining. The trenches (Fig 4) failed to find any pegmatite, simply quartz veining in a mica schist host.

Total length of trenching 45 metres.

5.4 Alluvial Evaluation

A prominent broad drainage passes from south to north through EL 4456. The drainage was auger drilled in 2 localities as shown in Figure 3. Holes were spaced at 10 m intervals and extended from one side of the drainage to the other (Fig 5). Previous experience has shown that closely spaced drilling is required to test alluvial channels of this type.

AREA	NUMBER of HOLES	METRES DRILLED
Line 1	21	80.9
Line 2	16	42.7
TOTAL	37 holes	123.6 m

A total of 57 alluvium samples were processed and assayed for Sn, Ta_2O_5 and Nb_2O_5. At the time of writing this report none of the analysis results were available.

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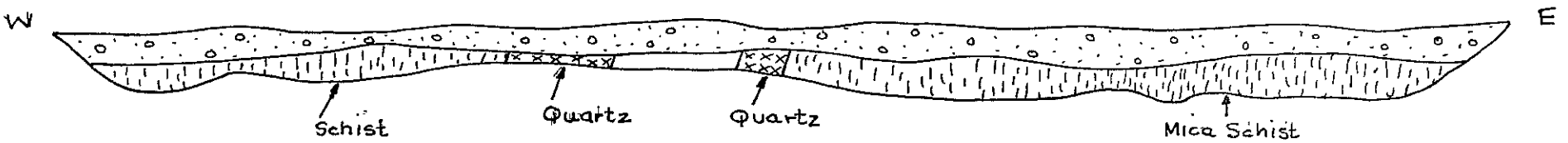
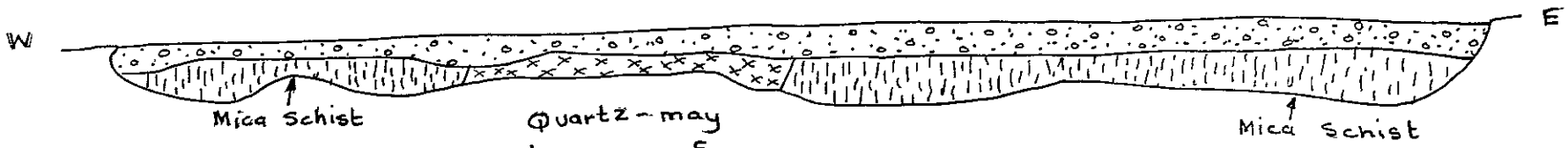
TRENCH 11



TRENCH 22

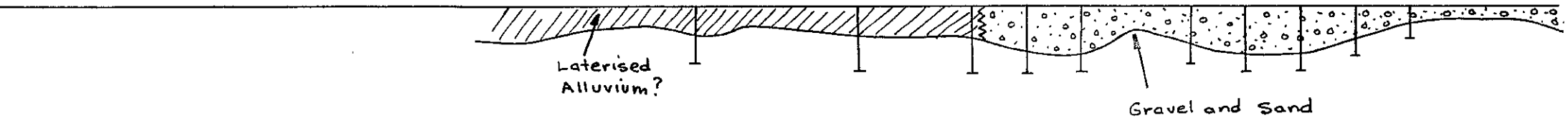


Scale Horizontal 1:100
Vertical 1:50

EL 4456 TRENCHES

FIGURE 4

(a) DRILL LINE 1



(b) DRILL LINE 2

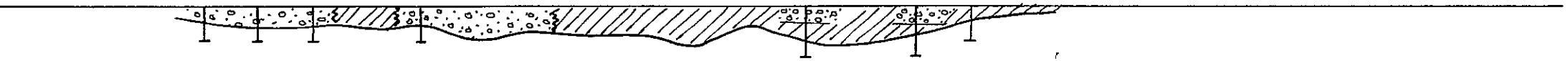


FIGURE 5.

6) 1984 EXPENDITURE ESTIMATES

	$
Accommodation and Messing	500.00
Auger Drilling	1,000.00
Technical Materials (sample bags, log books, etc.)	100.00
Trenching Leasing (hire)	500.00
Trenching Maintenance (fuel)	200.00
Helicopter Hire	100.00
Contractor (geological services)	600.00
Travel	150.00
Vehicle Hire	300.00
Vehicle Fuel and Maintenance	100.00
Drafting and Materials	350.00
Geological Salaries and Wages	1,000.00
Sample Preparation	570.00
Sample Analysis	430.00
Communication	70.00
Office Administration	600.00
	$ 6,570.00

7) 1985 PROGRAMME

7.1 Pegmatite Bodies

6 quartz outcrops were examined as part of the 1984 programme. Trenching of 2 of these failed to locate pemgatite. However, potential exists and will be tested as :

a) a number of other quartz outcrops have yet to be examined.

.../7

7) 7.1 b) 4 of the quartz outcrops originally inspected need follow-up trenching.

c) those 2 quartz outcrops already trenched have potential along strike for mineralized pegmatite.

7.2 Alluvial Deposits

The extent of follow-up auger drilling in EL 4456 main drainage will depend on the results of work already carried out.

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