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ANTHONY, McKENNA & PARTNERS PTY. LTD.

STAGE 1 EXPLORATION PROGRAMME

AND BUDGET

OF

LEFROY PROJECT TASMANIA

BY

EL 30/70

ANTHONY JANNINK

JULY 30, 1970

AMG REFERENCE POINTS ADDED

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## Accompanying Plans :

	Scale
<del>8000</del> -10 Geological Plan	1 inch to 10 chains
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SUMMARY

Minefields Exploration N.L. hold an Exploration Licence of 80 square miles over the Lefroy and Back Creek goldfields in Northern Tasmania.

At Lefroy, over 150,000 oz of gold have been won from over 30 parallel quartz reefs situated along E-W fault planes within Cambro - Ordovician sediments. Later tertiary basalts have filled the old river valleys, covering alluvial gold deposits.

Previous Mines Department diamond drilling has outlined the old river beds and found traces of gold beneath the basalt.

A programme of percussion drilling is recommended to test these covered alluvial deposits as follow - up work to the Mines Department Drilling.

A budget of approximately \$25,000 is required for this work.

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INTRODUCTION :

An Exploration Licence was pegged on Minefields Exploration N.L.'s behalf in March 1970 covering the Lefroy and Back Creek goldfields.

The intention was to explore for gold - both lode and alluvial - and antimony associated with the gold reefs.

LOCATION :

Lefroy is on the north coast of Tasmania, about 25 miles NNW of Launceston and 8 miles inland from Bell Bay.

Access by road is good, and power and water are available locally.

TENEMENTS :

The Exploration Licence, number 30/70, covers 80 square miles and was granted on 28th April 1970. The Licence expires on 28th October 1970 but is renewable in full.

One small mining tenement exists in the Back Creek area, otherwise the area is free from tenements.

GEOLOGY :

The Lefroy area marks the most western occurrence of the Cambro-Ordovician Mathinna beds, consisting of strongly cleaved sandstones, siltstones, slates and quartzites. These are overlain by Permo-Carboniferous conglomerates to the S.E. and by pre-basaltic Tertiary stream deposits and Tertiary basalts in old stream beds.

Pleistocene and Recent gravels are deposited along present streams and generally over the country.

The gold deposits are confined to the siltstone and sandstones of the Mathinna Series.

Structurally the area is marked by E. - W. faulting and little folding. At Lefroy the Mathinna beds dip 30-50 degrees west and strike 320 - 340 degrees, while at Back Creek they dip east, indicating at least one anticlinal axis.

Most of the gold bearing reefs lie along the E. W. fault planes and generally dip south although some smaller reefs dip north.

Repeated movement along these fault planes is indicated by slickensides and quartz crushing and the introduction of "new" quartz into shear zones.

The reefs usually occur on the hanging wall or footwall within the shear zones.

Two other fault systems ( N.W.-S.E. and N.E.-S.W. ) cut the auriferous reefs. They have a low angle of dip, usually west, and are possibly overthrust.

In about 2 miles, over 30 parallel reefs have been worked, for gold, producing an estimated total ( Mines Department Statistics ) of 166,193 oz and 5000 oz of alluvial gold.

A feature of all the mines has been that below the 300 - 400 ft levels ( in many cases below the 100 ft level ) the reefs have rapidly declined in grade from about 1 oz per ton to less than 2 dwt per ton.

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GEOLOGY - cont'd

Stibnite and cervantite ( an oxide of antimony ) as well as pyrite are associated with the gold mineralisation.

Alluvial gold has been won both from quaternary deposits and tertiary pre-basaltic leads. 4 leads have been traced, and worked to where they pass under the basalt cover. Generally at this point the gradients of the leads dip sharply, ranging up to 1 in 4 in steepness.

Diamond drilling by the Mines Department in 1883, 1892 and 1937 has shown that the old river beds drop in a short distance to over 200 ft below the surface. A total of 14 holes have been drilled of which 3 intersected gold bearing wash. The core of these holes is no longer available and reports indicate that recovery in the wash may have been poor, since the greatest value obtained was 3 dwt, whereas in the underground alluvial workings values of 13 dwt were worked.

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CONCLUSIONS AND RECOMMENDATIONS :

Due to the rapid decrease in grade with depth in the quartz lode mines, it is not thought that there is much potential for exploration of the lode deposits. Discovery of new lodes on the surface is unlikely since nearly all the quartz reefs found on the surface have been prospected. Further lodes may exist beneath the basalt cover, however discovery of these would entail an exorbitant cost.

It is thought that the subbasaltic deep leads offer a good target for exploration since only about 7 of the 14 holes were located within the probable old river beds. 3 of these 7 holes were situated where the gradients of the old rivers were too steep to hold much wash, and 3 of the remaining 4 holes intersected traces of gold. Thus only one of the holes put down in the prospective ground failed to find traces of gold.

Since the lodes were rich at the surface, declining in grade with depth, it is assumed that much rich gold bearing rock has been washed down the old steep-sided gorges to the bottom of the valley.

It is recommended that 10 percussion holes be drilled to test this possibility, the holes being drilled on two grid lines 1000 ft apart and the separation on the lines being 250 ft. The locations of these holes are shown on an accompanying plan.

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EXPLORATION PROGRAMME :1. Mapping and Surveying

8 grid lines 1000 ft apart are to be surveyed over the deep lead area. The lines are to be approximately 4000 ft long.

Geological mapping will be performed along the grid lines concentrating on locating the sediment/basalt contacts.

Sections will be drafted, interpreting the location of the old river beds.

10 drill hole locations will be laid in on two of the grid lines, the holes being 250 ft apart.

2. Percussion Drilling

3000 ft of percussion drilling, being an average of 300 ft per hole, will be drilled to discover whether any quantity of alluvial gold exists beneath the basalt cover.

All intersections of wash material will be analysed for gold in 5 ft intersection lengths.

A contract will be let for the percussion drilling.

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BUDGET :1. Mapping and Surveying

Professional Services	1650
Accommodation	290
Vehicles	255
Drafting etc.	25
Air Fares	<u>150</u>
	2,370

2. Percussion Drilling

Professional Services	2030
Labour	250
Accommodation	540
Vehicles	405
Contract Drilling 3000 ft at \$5	15000
Drill positioning	400
Sample containers, freight etc.	200
Assaying 100 samples at \$8	800
Air Fares	150
Drafting etc	<u>75</u>

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\$ 19600

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TOTAL \$ 22220

Contigencies 10% 2222

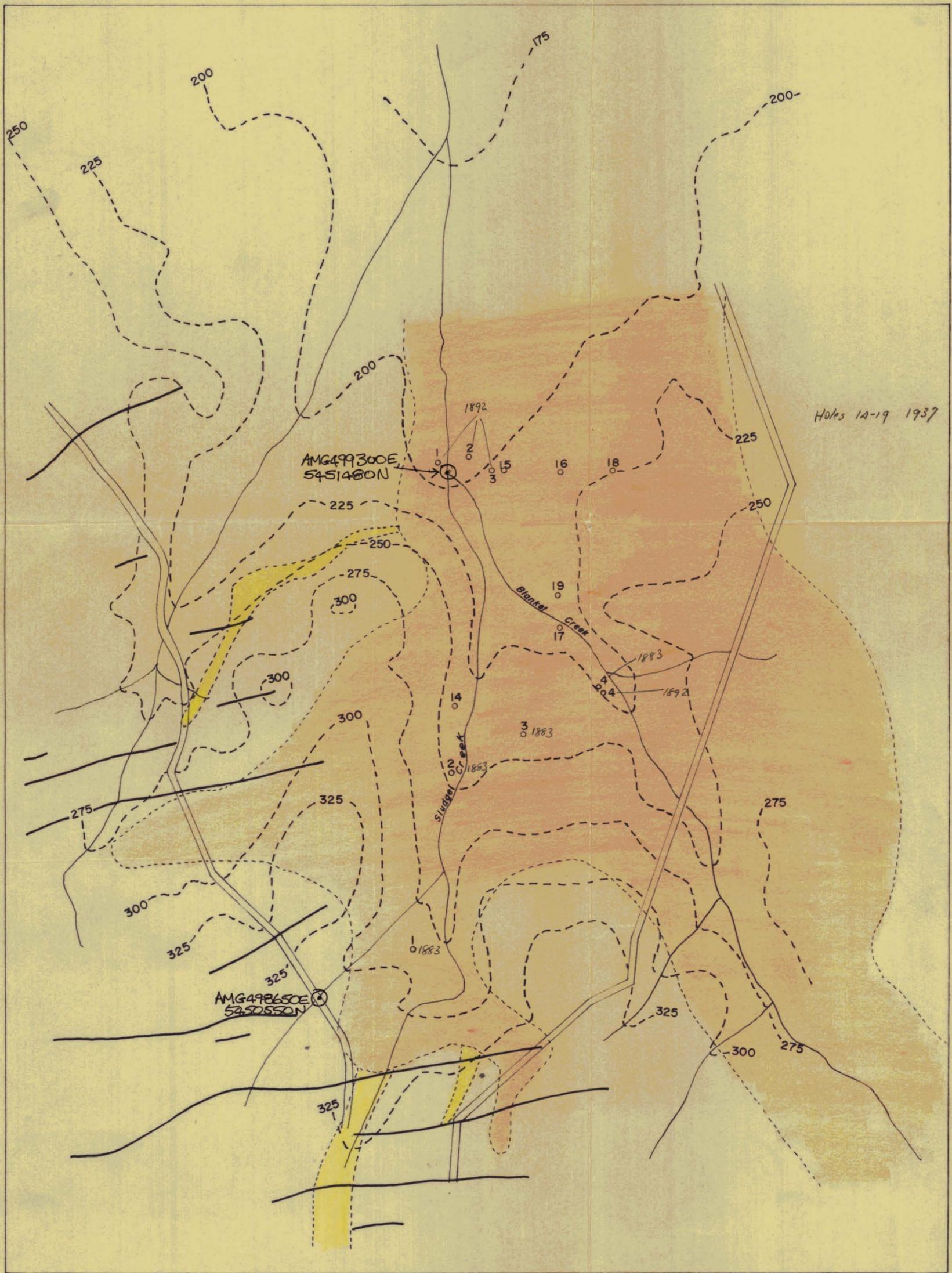
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BUDGET ESTIMATE TOTAL \$ 24,442

*Anthony Jannink*

ANTHONY JANNINK

ANTHONY, McKENNA & PARTNERS PTY.LTD.



**LEGEND**

- BASALT.
- LEAD.
- REEF.
- 14 DRILL HOLE.

AMG REFERENCE POINTS ADDED

5 cm

MINEFIELDS EXPLORATION N.L.

LEFROY PROJECT 983010

GEOLOGICAL PLAN

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COMPILED. A. JANNINK.

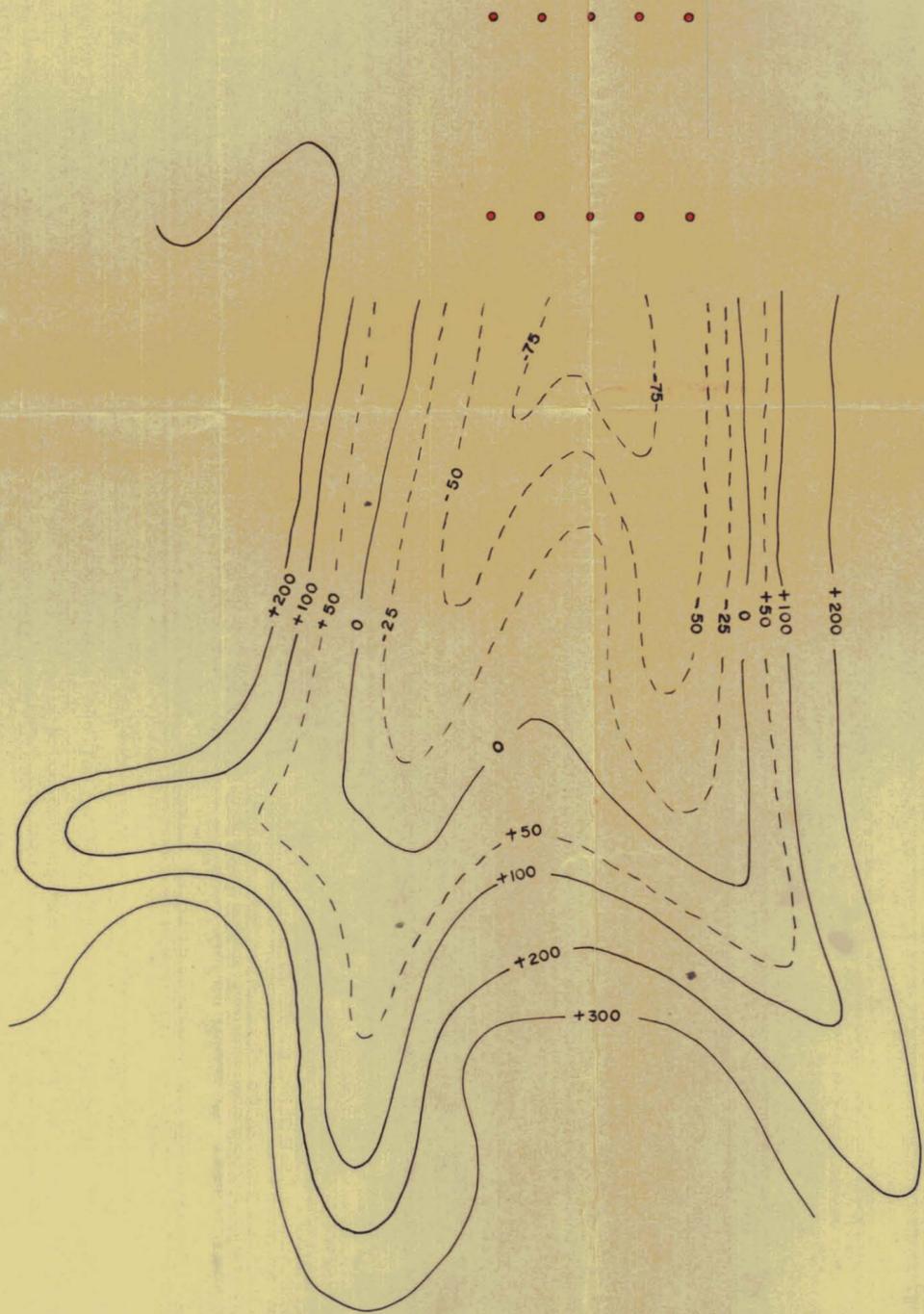
DRAWN. D.M.I.S.

Drg No.

SCALE. 1" to 10 Chains.

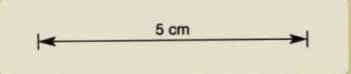
DATE. JULY 1970.

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LEGEND

- ~ CONTOURS IN FEET.
- PROPOSED DRILL HOLE.



MINEFIELDS EXPLORATION N.L.

LEFROY PROJECT 983011  
 PROBABLE BASEMENT CONTOURS &  
 PROPOSED DRILL HOLE LOCATIONS

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SCALE. 1" to 10 Chains.	DATE. JULY 1970	8000-11.