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PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: GOLD SAMPLING REPORT - PINNACLES

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APPENDICES:

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DATE: August 1984

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

COMSTAFF PROPRIETARY LIMITEDGOLD SAMPLING REPORT- PINNACLES**1. INTRODUCTION**

Specific problems are inherent in the sampling and assaying of gold-bearing material because of gold's unique physical properties and high economic value. Consequently, gold sampling and assaying needs to be closely monitored and the limitations of the procedures fully comprehended. The following is a concise account of the techniques used and the problems encountered to date on the gold search at Comstaff's Pinnacles prospect (TAS/2/1586, 1801).

A gold-bearing "cherty" horizon has been recognised at the Pinnacles. Pyrite typically occurs with the chert and often has syngenetic form. Base metals, predominantly zinc (as sphalerite), are usually associated with the chert as a network of veinlets or occasionally as rich massive pods. A petrographic study on twelve gold-bearing samples recognised particulate gold in four of the slides. The gold grains ranged from less than one micron to approximately 100 microns in size, and the gold was closely associated with sphalerite in all cases.

The cherty horizon has been exposed in various trenches and adits within the area and these exposures have been channel sampled. An extensive grid (EAF, 200 metre line spacings) was cut over the Pinnacles prospect (TAS/2/1801). The grid has been geophysically tested, and C-horizon soil samples have been collected every twenty metres. Drilling of the cherty horizon has recently commenced on a forty metre spacing (based on intermediate grid lines).

2. SOIL SAMPLING**Orientation Studies**

Two orientation studies were carried out over known localities of gold mineralisation. Three test lines were cut over both localities. The lines were spaced forty metres apart and were each two hundred metres long. C-horizon auger samples were collected every 20 metres at depth typically between 1/2 and 1 metre. The samples were dried, disaggregated by mortar and pestle, and split evenly into two halves. One half was sieve separated into -80#, +80 to -20#, and +20# fractions. The three sieve fractions plus the unsieved half of the original sample were sent for analysis to Analabs in Tasmania. The samples were assayed (see assaying below) for Cu, Pb, Zn, As, Ag and Au.

2.

Techniques and Procedures

Sampling

Results of the orientation studies have shown that C-horizon auger sampling successfully delineates the mineralisation. C-horizon sampling has been carried out over the entire EAF grid.

Preparation

From the orientation studies it was concluded that the best overall results, especially considering gold, were obtained from the split but unsieved sample. Consequently, all samples from the EAF grid have been dried, disaggregated and split at the Comstaff Offices. One half was sent for analysis, the remainder was stored for description and checks.

Laboratory Techniques

Orientation results indicate that As and Ag assays were superfluous; the soil samples are analysed for Cu, Pb, Zn and Au.

Laboratory Preparation

At the laboratory the samples are

- 1) Fine pulverised to -200# in a ring pulveriser (pulp)
- 2) Split and assayed.

Assaying

Cu, Pb and Zn are assayed by Analabs 102 method; perchloric acid digestion followed by Atomic Absorption Spectrophotometry (AAS). Au is assayed by Analabs 329 method; 20 gram sample, aqua regia digestion followed by AAS - lower limit of detection is 0.0125 ppm. On every tenth sample a repeat assay is taken from the pulp as an internal check.

3. CHANNEL SAMPLING

Techniques and Procedures

Sampling

One to two metre long samples are typically collected across the zone of interest. Samples either side of the zone are also collected. A single gouge of uniform depth (usually a couple of centimetres) is taken across each sample interval, with samples generally varying from 1 to 2 kilograms in weight.

3.

Preparation

Channel samples are dried and sent for analysis.

Laboratory Techniques

Preparation

The following procedure is carried out

- 1) Crush whole sample through jaw crusher.
- 2) Disc pulverise whole sample to approximately 60#.
- 3) Roll and Riffle split to 100 - 200 grams
- 4) Fine pulverise split to -200# in ring pulveriser (pulp)
- 5) Split and assayed.

All residues from this preparation are stored at Analabs.

Assaying

All channel samples have been assayed for Cu, Pb, As, Ag and Au. Cu, Pb, Zn, Ag are assayed by Analabs 103 method; Dissolution by Nitric Perchloric Hydrochloric and Hydrofluoric acids followed by AAS. As is assayed by Analabs 114 method; Vapour Hydride generation. Au is assayed by Analabs 309 method; 30 gram sample, digestion by fire assay; analysis by AAS. For internal checking, on every tenth sample a repeat assay is carried out on the pulp and on every twentieth a second split is taken (from the residue from stage 3 above) pulverised, split and assayed.

Orientation Study: Table 1 represents the results of an orientation study carried out on a batch of samples to compare assays from two splits taken at stage 3 in the preparation procedure. Differences can be up to 25% of the initial value which can cause large (e.g. 12 grams) differences at higher values. Analabs Laboratories have suggested that such variation could result from the presence of coarse (>100 micron) gold in the samples which can agglutinate during disc pulverisation. Screened fire assay (Analabs method 315) could be used to achieve greater consistency between the splits. With screened fire assay large particles are screened out and assayed in one fire assay, while duplicate splits of the material passing the screen are taken and also fire assayed. A weighted-average gold content is reported. Cost of a screened fire assay is approximately twenty dollars compared with approximately eight dollars for a normal fire assay.

4.

At present the gold value variation between the splits is not sufficiently great, nor is the Pinnacles project sufficiently advanced, to warrant a blanket increase in the cost of assaying by 250%. However, during follow-up drilling, second split gold values carried out on every twentieth sample will be recorded which will allow the variation to be monitored. The possible necessity to assay the high-grade gold zones by screened fire assay will be assessed from these results.

4. CORE

Sampling

Only HQ and NQ core is drilled. Sludge samples are collected at three metre intervals where possible.

Preparation

The core is logged into appropriate sampling intervals by the geologist (typically 1 metre intervals in the zones of interest, 2 to 3 metre intervals outside these zones). The core is split with half the core bagged and sent for analysis. Sludge samples are dried and sent for analysis. Delineation of the Au-bearing zones in the early holes should allow preparation to be refined: the Au-bearing zones will then be split at 1 metre intervals, whereas the remainder will be checked by chip sampling.

Laboratory Techniques

Preparation

The five stage procedure carried out on channel samples is identical for split core.

Assaying

Cu, Pb, Zn, Ag are assayed by Analabs 103 technique (see channel sampling). Au is assayed by Analabs 309 technique (see channel sampling). Resulting from the Orientation Study carried out on second splits from channel samples (Table 1) all results of repeats and second splits (taken as internal checks) are now requested by Comstaff (discussed above). Where core recovery is poor, sludge samples are assayed for Cu, Pb, Zn, Ag and Au by the above methods. However, only Au is assayed in the sludges where recovery is good.

5. DISCUSSION AND ASSESSMENT OF PROCEDURES

Sampling

The sampling procedures outlined above are generally well accepted. The difficulty with gold, because of its particulate nature and typically irregular distribution, is in achieving a reproducible representative sample. With soil sampling this is not a problem for it is not used as a means of evaluation, only as a gold indicator. However, with channel sampling and drilling, evaluatory results are required. It is impracticable in drilling to solve the problem of representivity by increasing sample size. Similarly, substantially increasing the sample size would greatly increase the cost of channel sampling, and such sampling would be out of phase with the drilling programme. The effects of this problem, however, are lessened as the prospect proceeds for sample spacing naturally decreases and evaluation becomes increasingly more reliable. Several means have been carried out to assess the distribution of gold in the rocks. The channel sample giving the initially highest gold value was resampled resulting in a significant change from 51.2 g/t (Av. of two splits) to 12.5 g/t (Table 2). Both sides of a major adit were channel sampled to assess variation across it. Findings indicated that although absolute values varied, zones of high-grade gold were delineated on both sides and these averaged out to give similar results (TAS/2/4057). Two short drill holes have also been drilled in close proximity (few metres) through a gold bearing horizon to assess the gold distribution. Results from these drill holes are not yet available.

Preparation

The laboratory preparation required to produce a homogeneous sample for assaying is designated on all consignment forms sent from Comstaff. These requirements are determined by liaison between Comstaff and Analabs.

All splits are routinely checked internally at the laboratory as described previously. Comstaff receives the results of these internal checks (see below). The possible necessity of screen fire assay for gold because of the gold's grainsize (coarse gold grains tend to agglutinate during pulverisation) is presently being investigated.

Assaying

The most suitable methods of analysis are determined by liaison between Comstaff and the Laboratory. All techniques used by Analabs are universally accepted techniques.

6.

Laboratory Controls

Accuracy

Standard samples are included in each batch of samples.

Precision

Precision is measured by replicating 10% of the analyses on the pulps. In gold work second splits are also taken for 5% of the samples.

Client Control on the Laboratory

The regular use of international standards in exploration is not cost effective. The possibility of professionally prepared control samples being made from bulk samples collected from the Pinnacles has been assessed. It is considered that the cost and difficulty of regularly producing large bulk samples of uniform gold concentration is not warranted at the present stage of the Pinnacles prospect.

The present means of laboratory control is by submission of cross checks to another laboratory. At the initial stages of the Pinnacles gold search ten pulp samples analysed by Analabs were sent to an umpire laboratory (Amdel) for assay. Results from the two laboratories are extremely close (Table 3). These results further confirmed our confidence in the accuracy and reliability of results provided by Analabs. During drilling one in every 15 samples are being selected for umpire analysis. This will monitor variation between the laboratories and provide a useful check on the possibility of a poor batch of results.

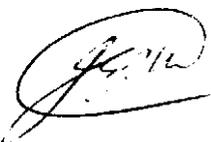
Cross checking in the manner described does not check on precision. A record of Analabs internal precision checks is now sent to Comstaff. Available results to date are presented in Table 4. It is also intended to resubmit to Analabs (relabelled) samples sent for cross checking to the umpire laboratory. This will provide a precision check on the samples unknown to the laboratory. However, it is recognised that any variation in these results could be derived from sample inhomogeneity rather than laboratory precision.

General Assessment

The gold sampling programme at the Pinnacles prospect is closely monitored from initial sampling through to assay. Orientation surveys have been carried out at all levels to determine appropriate methods and to minimise persistent errors. A close liaison with the analytical laboratory, plus checks both internally and between laboratories, has created confidence in the accuracy and precision of the analytical results from Analabs, as well as a knowledge of the limitations of such data. The difficulties of obtaining a truly representative sample of a gold-bearing zone are well understood and are taken into account in any interpretation.

6. PRESENT RESULTS - RESUME

Channel sampling has delineated gold in a N-S trending chert horizon at the Pinnacles. Gold values are variable and can range from zero to over 60 ppm. Geochemical orientation studies have shown that soil sampling can identify localities of gold mineralisation. The entire prospect has been soil sampled, and samples sent for analysis. Drilling of the cherty horizon has recently commenced and extensive chert has been intersected in holes 2 and 3.



for

R H ROBERTS
July 1984.

TABLE 1

ORIENTATION STUDY COMPARISON OF SECOND SPLITS

SAMPLE INTERVAL	Au	Au (S/S)	Difference
<u>Brown's Creek</u>			
156.6-157.6	0.10	0.06	.04
157.6-159	13.33	10.16	3.17
159-160	0.16	0.15	.01
160-163	0.36	0.27	.09
163-166	0.16	0.15	.01
<u>Sth Brown's Creek</u>			
157.3-158.3	0.07	0.06	.01
158.3-159.2	0.77	0.58	.19
159.2-160.2	0.60	0.57	.03
<u>Thomas's Tunnel</u>			
70.6-71.6	0.05	0.04	.01
71.6-71.9	0.16	0.14	.02
71.9-72.9	0.30	0.32	.02
72.9-74.3	0.17	0.08	.09
74.3-75.3	0.06	0.04	.02
75.3-76.3	0.13	0.11	.02
76.3-77.6	0.07	0.07	-
77.6-78.6	0.05	0.05	-
<u>Southern Trench</u>			
36-39	0.15	0.19	.04
39-42	0.28	0.20	.08
42-43	4.30	3.30	1.00
43-45	45.20	57.20	12.00
45-47	0.58	0.61	.03
47-49	1.08	1.02	.06
49-50	0.39	0.38	.01
50-51	0.74	0.68	.06
51-54.5	0.23	0.22	.01
54.5-58	0.07	0.06	.01
<u>Brown's Workings</u>			
0-1	0.42	0.22	.20
1-1.5	2.52	2.48	.04
1.5-2.5	13.02	14.73	1.71
2.5-3.5	0.70	0.56	.14
<u>BT 2 Sth</u>			
15.5-17.0	0.01	0.02	0.01

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TABLE 2COMPARISON OF TWO CHANNEL SAMPLES TAKEN FROM
THE SAME HIGH-GRADE Au INTERVAL

ST 2 43-45m	Cu	Pb	Zn	Ag	Au	Au S/S
	9400	7.45%	12.5%	81.5	45.2	57.2
Repeat Sample	4950	6.45%	5.75%	63.0	12.5	

TABLE 3

ORIENTATION STUDY

PULP CROSS CHECKS BETWEEN ANALABS AND AMDEL LABORATORIES

BASE METALS

INTERVALS	Cu		Pb		Zn	
	An	Am	An	Am	An	Am
ST 36-39	249	290	1.15%	1.10%	1450	1600
ST 39-42	255	270	5.41%	5.20%	2950	2800
ST 42-43	2950	3300	3.92%	4.00%	2.80%	3.00%
ST 43-45	7500	7800	11.56%	10.70%	9.86%	9.90%
ST 45-47	8900	9100	15.78%	15.00%	8.41%	7.90%
ST 47-49	6700	6700	15.34%	14.60%	5.20%	5.60%
ST 49-50	1400	1300	6.04%	5.70%	0.95%	9200
ST 50-51	2350	2000	14.28%	12.90%	2.20%	2.10%
ST 51-54.5	615	590	4.58%	4.70%	2550	2600
ST 54.5-58	565	650	4950	6200	2950	3400

PRECIOUS METALS

INTERVALS	Ag		Au	
	An	Am	An	Am
ST 36-39	26	21	0.84	0.89
ST 39-42	40	38	0.94	1.60
ST 42-43	113	102	40.2	43.0
ST 43-45	185	175	64.2	64.0
ST 45-47	121	118	2.11	2.8
ST 47-49	95	90	2.56	3.56
ST 49-50	50	48	1.80	3.4
ST 50-51	78	74	3.02	4.2
ST 51-54.5	26	25	0.61	0.8
ST 54.5-58	9.5	11	0.19	0.35

An = ANALABS

Am = AMDEL

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TABLE 4

ANALABS IN-HOUSE REPEATS (PULPS)

DIAMOND DRILLING RESULTS

EAF-1
SPLIT CORE

	Au	Au (Repeat)
30.1-32.1	0.01	0.02
44.0-46.0	0.10	0.20
68-70	0.2	0.2

EAF-2
SPLIT CORE

	Au	Au (Repeat)
10-11	x	x
20-21	x	x
32-33	x	x
44-44.45	x	x
54.56-55.56	0.03	0.03
64-65	x	0.01
74 - 75	0.02	0.02
84 -85	0.01	0.02
94 - 95	0.01	0.04
107.26-108	x	0.01
126 - 128	x	x

SLUDGE

	Au	Au (Repeat)
20.6-23.6	x	x
50.6-53.6	0.03	0.02

SOIL SAMPLES

L 4200N

	Au	Au (repeat)
3480E	x	x
3680E	x	x
3880E	x	x
4080E	x	x
4280E	x	x
4480E	x	x
4660E	x	x
5020E	x	0.01
5220E	x	x
5420E	0.01	0.01

L 4460N

4660E	x	0.01
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L 4500N

4660E	0.01	0.07
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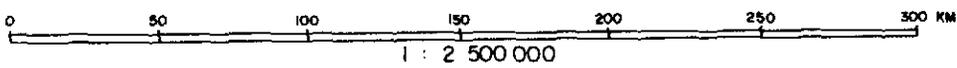
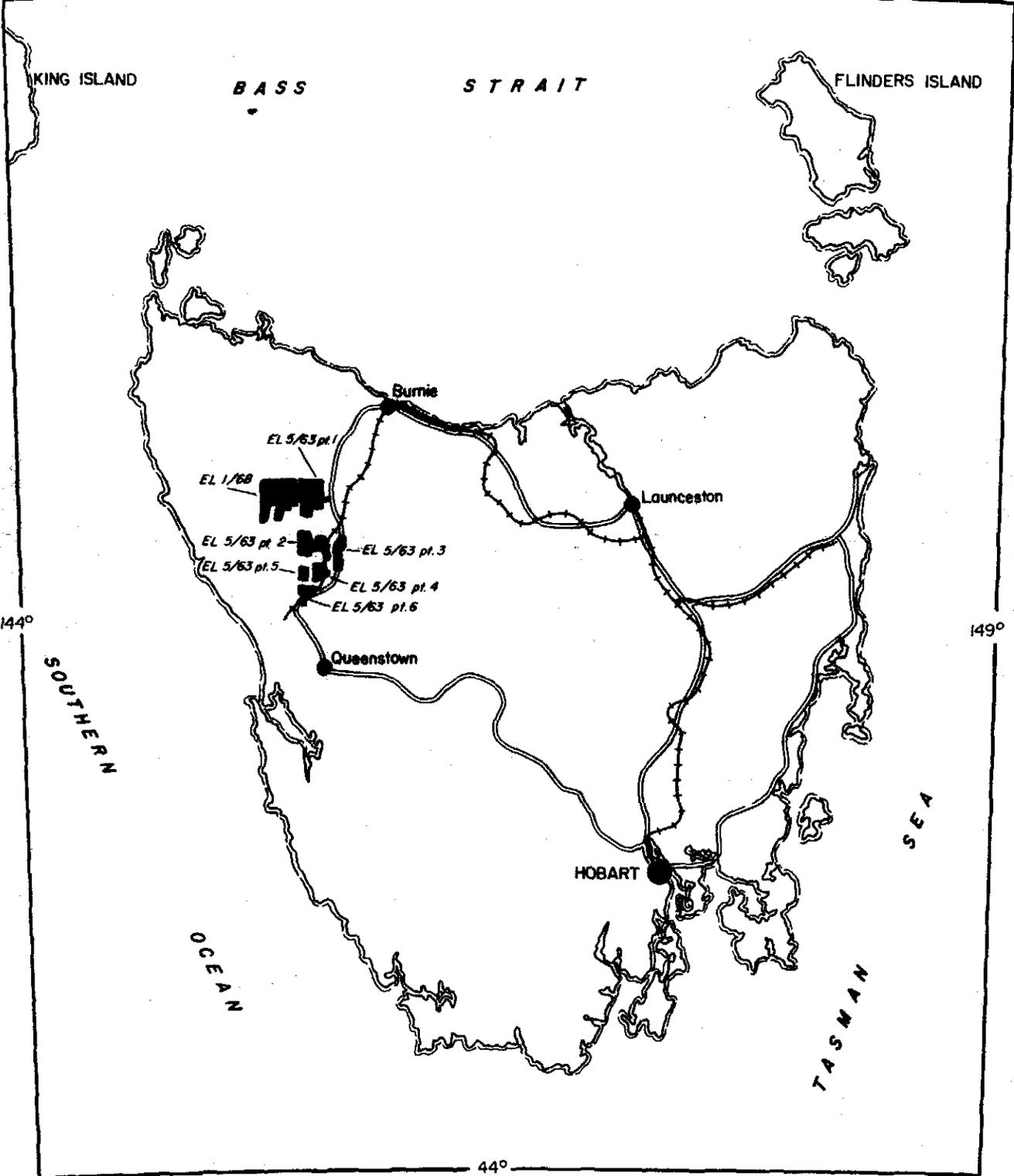
PULPS

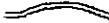
CHANNEL SAMPLES

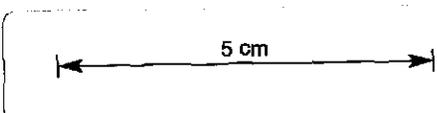
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	Au	Au (repeat)
43.45	64.2	55.0

39° 30'



-  Major roads
-  Major railways
-  Major towns
-  Comstaff lease areas

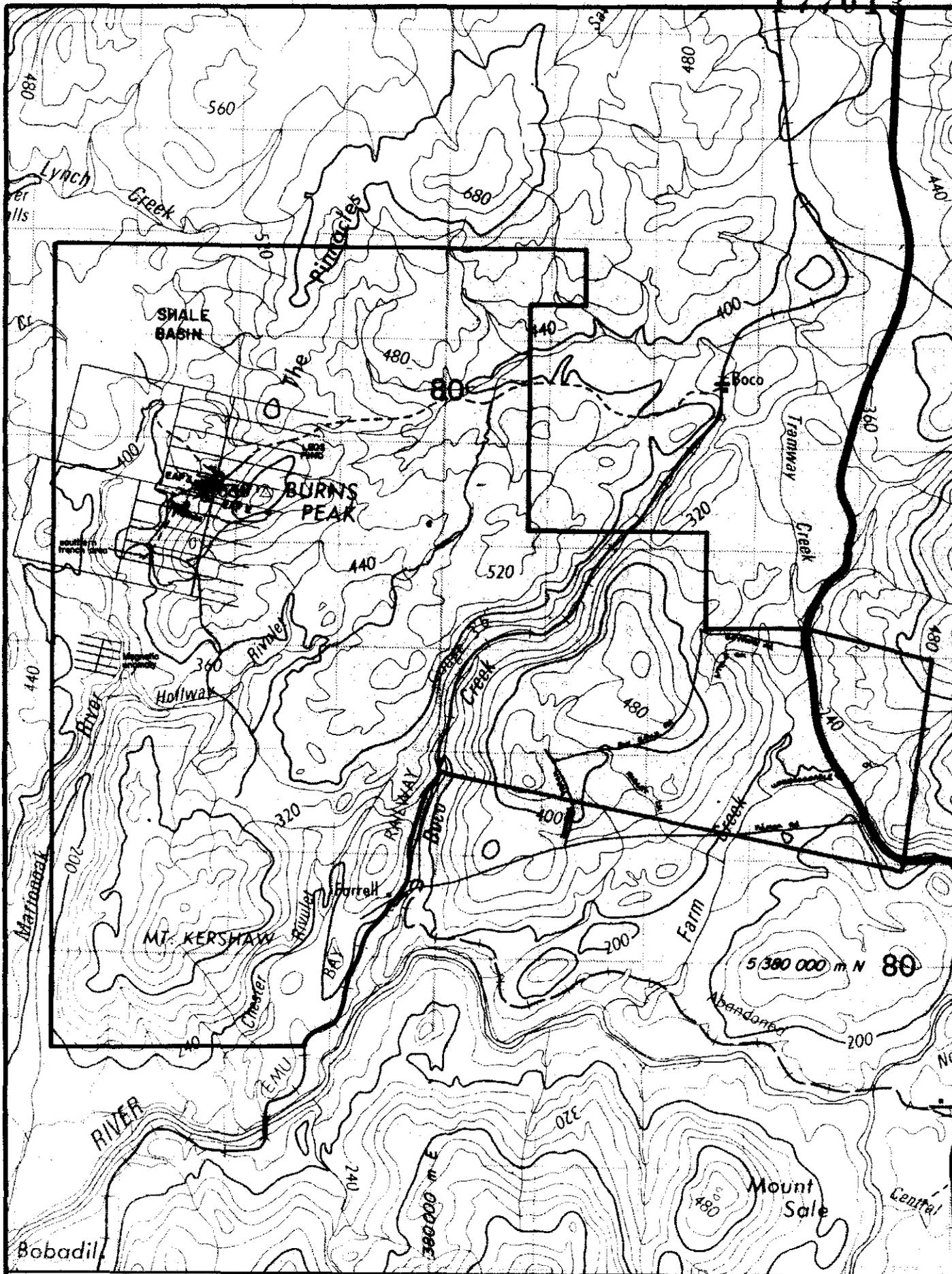


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**LOCATION OF COMSTAFF LEASES
IN TASMANIA**

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LEGEND

- Access rd/walking track construction
- Grid lines cut
- Grid line/drainage surveying
- Grid line/drainage sampling
- Geophysical survey
- Geological mapping
- Drilling

5 cm

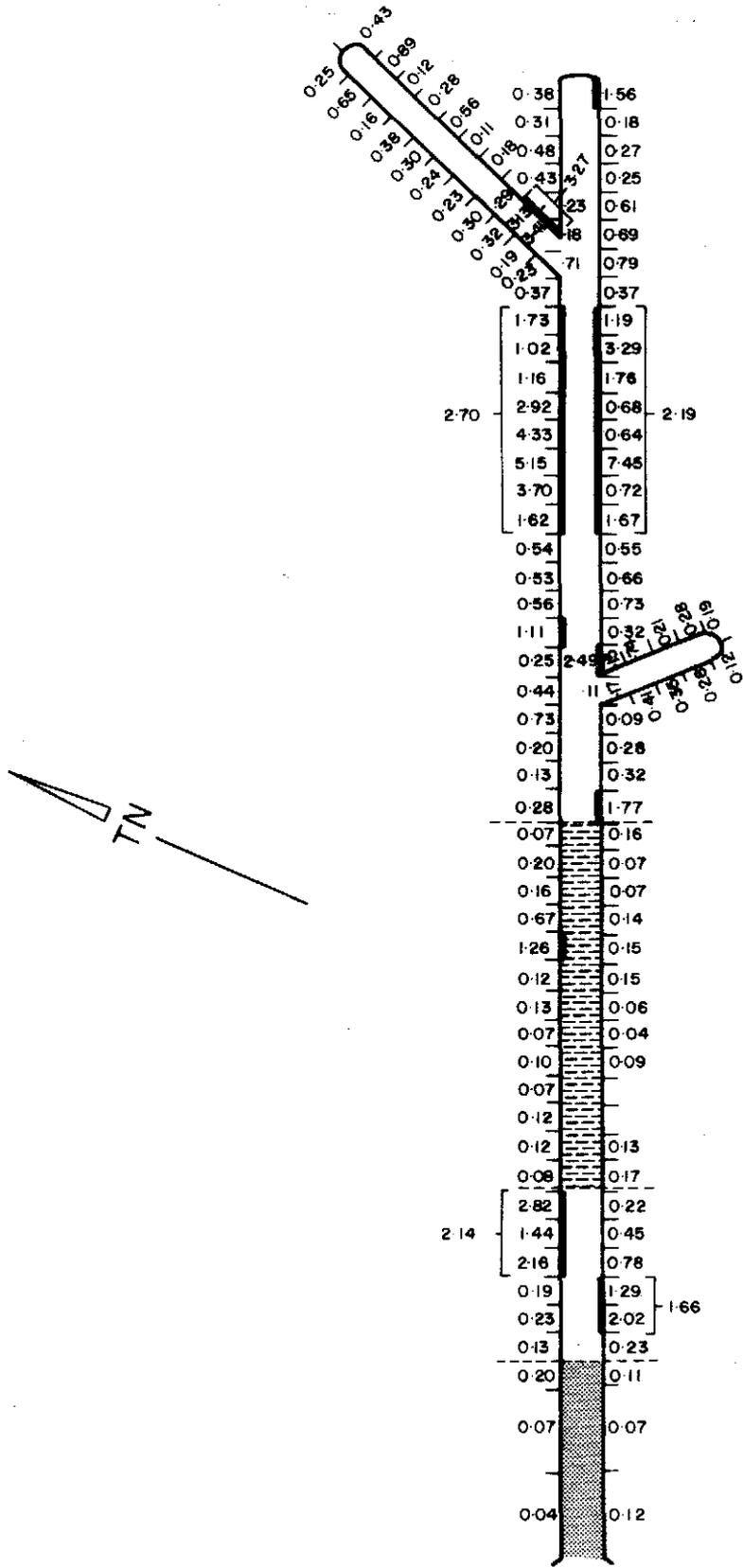
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**EL 5/63 AREA 4
 CHESTER/PINNACLES
 PLAN TO ACCOMPANY MONTHLY REPORT
 FOR JULY 1984**

COMPILED R H R	DRAWN GEODRAFT	SCALE 1 : 50 000	TAS/2/1801
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-  PREDOMINANTLY CHERT WITH MINOR SHALE AND VOLCANICLASTICS
-  PALE GREEN SILICEOUS VOLCANICLASTIC CAN BE WELL FOLIATED
-  PREDOMINANTLY SHALE WITH SOME SILICEOUS VOLCANICLASTICS AND CHERT BLOCKS
- 0-22 GOLD CHANNEL SAMPLE VALUE IN PPM (FIRE ASSAY)
- SAMPLE VALUES GREATER THAN 1 PPM

5 cm

COMSTAFF PROPRIETARY LIMITED			
PINNACLES GRID - EAF			
PLAN OF BROWNS TUNNEL SHOWING			
GOLD CHANNEL SAMPLE VALUES			
COMPILED R.H. ROBERTS	DRAWN J. HARDISTY	DATE 9/8/84	AMENDED
LEASE No E L 5 / 63	AREA 4	SCALE 1 250	PLAN No TAS/2/4057