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TITLE: INTERIM REPORT ON EL 5/63 AREA ONE

ARTHUR RIVER

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APPENDICES: 3

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AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

C O N T E N T S

INTERIM REPORT ON E.L. 5/63 AREA ONE

ARTHUR RIVER

1. INTRODUCTION

Exploration activity has been carried out in the Arthur River area at various times and in different localities within the Exploration Licence. This summer (1981/82) has seen more active exploration in the area, and much detailed information on the geology in many parts of the licence has been obtained. It is therefore pertinent that an attempt should be made to amass and correlate this information, which is the main purpose of this report.

2. LOCATION AND ACCESS

E.L. 5/63 Area 1 encompasses Waratah township to the south and the Arthur River to the north, the northern boundary lying about 2km south of the joining of the Wandle and Arthur Rivers.

There is good access to the eastern part of the E.L. as there are a number of logging tracks in the area. Wandle Road runs up the eastern side of the Arthur River, to a few kilometres past Deep Gully Creek. Belmont Road connects Wandle Road with the Murchison Highway, and Arthur River Road extends westwards over the Arthur River. Both the northwestern and southwestern sectors have poor access at the present time.

3. PREVIOUS WORK

The bulk of all previous exploration activity has taken place during the 1972/73 and 1973/74 summer season, although there was some earlier work done in the area.

Much mapping of creeks in the north and southwestern sectors was carried out. Most of the creeks were sediment sampled and some heavy concentrate sampling was undertaken in a few of the major tributaries of the Arthur River.

A number of geochemically anomalous areas were delineated and grids were cut over them. The grids were sampled, but the anomalies are not now considered prospective for any economic mineralisation.

4. RECENT EXPLORATION

4.1 Work Completed

Exploration activity has been carried out in the 1981/82

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4.1. Work Completed Cont

summer season.

4.1.1. GEOLOGY

Geological mapping has been carried out along the whole lengths of Wandle Road, Belmont Road, Arthur River Road and Tree Road. Deep Gully Creek has been mapped for a length of 9.3km; Belmont Creek and Robinsons Rivulet have been mapped for 3km up each creek.

A regional geological compilation of the Arthur River area has been completed on a scale of 1:10 000, and is appended to the report. The geological data used for this compilation was the result of geological mapping by previous Comstaff Pty Ltd geologists, N.P.Green, C.M.Jones, and P.R.Williams of the Mines Dept; whose field maps proved to be extremely useful.

4.1.2. GEOCHEMISTRY

Heavy concentrate samples were collected at 200m intervals along Deep Gully Creek, Belmont Creek and Robinsons Rivulet. These were dried, and despatched to Amdel in Adelaide for analysis for Sn, Au and W.

4.1.3. GEOPHYSICS

An airborne electromagnetic survey over the southern part of the area is being carried out at the time of writing by Geoex Pty Ltd, flying northwest, southeast lines across the strike of the sediments running northeast from Mt.Bischoff. Results are not expected for some time.

4.2. RESULTS ACHIEVED

4.2.1. Geology

4.2.1.1. Bischoff Series

The Bischoff Series rocks are made up of sediments of carbonaceous shales, quartzites and minor siliceous "metasiltstones". These lithologies are thought to belong to the Success Creek Formation and are therefore of lower Cambrian or pre-Cambrian age. Bischoff series rocks comprise the southern part of the Arthur River area, including Mt.Bischoff itself.

The carbonaceous shales are dark grey to black in colour and seem to be the dominant lithology. They are relatively thinly bedded and usually well

4.2.1.1. Bischoff Series Cont

They are often graphitic, and in many places, they contain finely disseminated pyrite. Tiny flakes of mica are often visible, oriented parallel to the bedding planes, indicating low grade metamorphism during burial and subsequent diagenesis.

The quartzites tend to be more massive and thickly bedded than the shales. They are pale to dark grey and grey/brown, made up of fine-medium grained quartz granules with some muscovite. They are sometimes slightly carbonaceous and often show orientated micaceous flakes, similar to those more easily observed in the shales above. For a detailed petrological description, see Appendix 111, Sample No. Z 0716.

The "metasiltstones" are highly siliceous and are generally interbedded with the shales. They may be regarded as very fine and sometimes argillaceous quartzites.

The Bischoff Series rocks are considered to have been deposited under fairly stable conditions during the early phases of deposition within a geosynclinal trough.

4.2.1.2. Crimson Creek Formation

The Crimson Creek Formation outcrops extensively within the central and northern parts of the Arthur River area. It is of Cambrian age, and is generally made up of interbedded argillites/ mudstones; tuffaceous lithicwackes; cherts and minor siltstones and sandstones. These sediments overly the Bischoff series rocks. The whole sequence has been intruded by small sills (?flows) of basic igneous rocks of varying grain size.

The argillites/mudstones are generally dark red/ brown or mauve in colour, although there are many beds of grey, brown, purple or olive colour. They are generally thinly bedded, although some thick more massive beds are seen in outcrop. They are sometimes silicified and are nearly always highly fractured and jointed, and in some places are extremely sheared.

The tuffaceous lithic wackes along with the argillites comprise the major lithologies of the

4.2.1.2. Crimson Creek Formation Cont

Crimson Creek formation in most places studied so far. They have previously been referred to as "greywackes", however it is considered that this term has now become too ambiguous for a precise lithological description.

These wackes are usually of fine sandstone to siltstone size and are nearly always highly micaceous, sometimes containing muscovite flakes up to 3mm in diamater. They are generally of an orange/brown, grey and sometimes purple colouration. They are generally more thickly bedded and massive that the argillites, and often exhibit black Manganese staining in fracture joints and between beds. Some are very arkosic and have plagioclase phenocrysts (or remnants thereof) of up to 3mm in length. Thin quartz veining is sometimes seen.

These sediments probably represent re-worked or water laid pyroclastic deposits. For a full petrological description, see Appendix 111, Sample No Z 0715.

There are many outcrops of well bedded cherts within the Crimson Creek Formation. These cherts are very hard and silicified, although they may be highly fractured and occasionally sheared in some places. They often exhibit quartz veining, with some veins up to 50mm thick, containing some very coarse euhedral crystals. Some of these cherts are banded (Appendix 111, Sample N.Z 0718).

There are other minor siltstones and sandstones of a non tuffaceous and non micaceous nature. On the 1: 10 000 geological map of the area, there are large areas of "undifferentiated sediments". These are areas where Crimson Creek sediments are known to exist, but the specific nature of the lithologies is not known.

The basic volcanics which intrude the sediments probably occurred as sills, and they seem to be concordant with the bedding. They were probably intruded soon after deposition of the sediments and have been subsequently deformed along with the sediments. On the 1:10 000 geological compilation they have been divided into basaltic types and dolerite/gabbroic types, on a basis of grain size.

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4.2.1.2. Crimson Creek Formation Cont

Although this is an obvious over simplification, it is useful to distinguish between the very fine-grained basaltic types, and the coarser grained "microgabbros" and dolerites.

These basic intrusives are usually a dark grey or grey/green in colour and are extensively jointed into angular rectangular blocks. They are sometimes extensively weathered and are usually altered (eg chloritisation and serpentinisation of feldspars and olivine). Most contain primary albite. See Appendix 111, Sample nos. Z 0701, Z 0705, Z 0706, T 9976 and T 9977, for full descriptions of some of this basic suite.

Some of the sediments in contact with the basic intrusives exhibit mild baking effects. (Appendix 111 Sample No T 9975).

Both the Crimson Creek and the underlying Bischoff Series sedimentary sequences, have a general strike in a northeast-southwest direction. However, there is much small scale local deformation, resulting in both sequences being tightly folded, with varying dips and strikes of the beds resulting. It is thought that the Bischoff Series may have undergone some slight deformation prior to the deposition of the Crimson Creek sediments, but that the greater part of the deformation has occurred subsequent to Crimson Creek deposition. It seems, therefore, that the Bischoff Series and the Crimson Creek sediments have undergone simultaneous deformation.

Dolomitic limestones are reported as having been observed outcropping in some areas of the Arthur River Licence, but the exact location, and the chances of finding them again are a little hazy. They are, however, of interest, as they are the host rock for the mineralisation occurring at Mt. Bischoff and at the Cleveland Mine. The relationship between these dolomites and the other sedimentary sequences is not understood, but it is likely that the dolomites were deposited as limestones in shallow water conditions subsequent to the Bischoff Series deposition and prior to the main Crimson Creek deposition, The dolomites are not in outcrop wherever the contact

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4.2.1.2. Crimson Creek Formation Cont

between the two major groups occurs, but this is probably due to the rapid weathering and erosion of the softer dolomites, and also, the dolomites may not form a laterally continuous horizon.

4.2.1.3 SERPENTINITES

Outcropping along the Belmont Road and Wandle Road are some very altered and highly sheared igneous intrusives. They are probably of gabbroic origin, but are now so altered that recognition of the original rock type is very difficult. They consist almost entirely of serpentinite, with many thin, fibrous chrysotile veins. They are a pale to dark green/grey colour, with highly sheared, slickensided surfaces which often exhibit extensive talc development. In some outcrops, they are extensively weathered to a soft, greasy clay, but the prescence of magnetite and some chromite indicates their igneous origins. They are considered to be of early Palaeozoic .

4.2.1.4. GABBROS

There are some gabbro/dolerite dykes outcropping in the Arthur River area, although these are not extensive. They are more prevalent in the southern part of the area. They are not considered to be part of the Crimson Creek Formation, but are probably a later intrusive and may be associated with the Magnet Dyke suite of rocks.

4.2.1.5. QUARTZ PORPHYRIES

Intruding into the Bischoff and Crimson Creek sediments are dykes of quartz porphyries, probably associated with the Meredith Granite, which is considered to be of Devonian age. They are made up of quartz, mica and albite, and are extremely hard in outcrop. (see Appendix 111 Sample No.Z0717)

These dykes are associated with much of the mineralisation at Mt.Bischoff and could be more widespread than indicated. Notably, they have been discovered in Deep Gully Creek, between the Bischoff and Crimson Creek sedimentary sequences.

4.2.1.6. TERTIARY BASALTS

Tertiary basalt covers much of the high ground in the Arthur River area, and is part of a large, now dissected plateau of basalt. It is an olivine basalt and considered uneconomic and a hindrance to geophysicists, geochemists and geologists alike

OK!

4.2.2. GEOCHEMISTRY

Heavy concentrate sample results are tabulated in Appendix 11. They have been calculated to give a value in gm $Sn O_2 m^{-3}$. The method of calculation is given in Appendix 1. This has been done to, achieve values that are of a standard nature and that can be directly compared with each other.

Belmont Creek does not show particularly encouraging tin values, which remain fairly constant along the length of the stream sampled.

Robinson's Rivulet shows a general increase in tin values upstream. These values, however, are not startling, and are not considered to warrant further investigation.

Deep Gully Creek, however, has some very interesting tin values. There is a general increase upstream until about 5,000 m, where the values become quite large. The values increase further upstream until about 7,000m, where there is a sharp reduction in the amount of tin present.

It seems, therefore, that there is an input of tin into the creek around the 7,000m mark, presumably after being washed down from the surrounding slopes.

It is also interesting to note that in this area, the contact between the Crimson Creek and Bischoff sequences exists, with at least one quartz porphyry dyke intruded between them. This area is therefore considered to be worthy of further intense exploration.

5. RECOMMENDATIONS AND FUTURE WORK

It is recommended that a grid should be cut in Deep Gully Creek, to cover the contact zone of the Crimson Creek sediments and Bischoff Series sediments, as well as the intruding quartz porphyry dyke. This grid will probably consist of five lines, each line 120m apart and 1 km long.

Detailed geological mapping of the grid will enable a more precise picture of the geological relationships and boundaries.

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5. RECOMMENDATIONS AND FUTURE WORK Cont

Soil auger sampling will be undertaken, and it is hoped that a more extensive and useful pattern of anomalous tin values can be built up, and a source area defined.

Geophysical surveys (Magnetics, Crone Shootback E M etc) will also be carried out.

The area where a grid should be established, however, is mostly in ground which is outside Comstaffs E.L; and lies within the northeastern corner of Metals Exploration Licence
An approach will therefore have to be made to Metals Exploration, and a solution to this situation should be resolved.

It is also recommended that the contact between the Crimson Creek and Bischoff units be traced and mapped more fully, to enable a definite geological boundary to be known. Any dolomitic units or quartz porphyries should be investigated.

The northwestern sector of the Arthur River area is still little known, and geological mapping, perhaps with the aid of a helicopter should be undertaken.

Report written by C.M.Jones.

J.C. Wilding

For C.M.Jones.

LIST OF PLANS

TAS 2/ 1586	Location of Comstaff leases in Tasmania		1:2 500 000
TAS 2/ 2862	" " "	Regional Geology	1: 10 000
2863	" " "	" "	"
2864	" " "	" "	"
2865	" " "	" "	"
2866	" " "	" "	"
2867	" " "	" "	"
2868	" " "	" "	"
2869	" " "	" "	"
TAS 2/ 1039	Detailed Geology and Sn Values		1: 5 000
1040	" " " " "		"
1075	" " " " "		"
1078	" " " " "		"
1079	" " " " "		"
1080	" " " " "		"
1081	" " " " "		"
1114	" " " " "		"
1121	" " " " "		"

A P P E N D I X 1

HEAVY CONCENTRATE CALCULATIONS

HEAVY CONCENTRATE RESULTS

CALCULATION METHODS

To convert ppm Sn to $g.m.^{-3}$ $Sn\ O_2$:

Sample are collected at a constant volume of $1/5\ ft.^3$

$$1/5\ ft^3 = 0.0057\ m^3$$

Mol.WT. Sn = 118.7

Mol.WT SnO_2 = 118.7 + 32

= 150.7

$\Rightarrow$ Sn x 1.27 = $Sn\ O_2$

$\Rightarrow$ WT. of heavy metal fraction ($>$2.96 specific gravity) x Sn (ppm) x $1.27/10^6$

= $Sn\ O_2$ g. $1/5\ ft^{-3}$

$\Rightarrow$ WT. of $>$ 2.96 sp. gr. x Sn (ppm) x 1.27 0.0057×10^6

$= Sn\ O_2\ g.m.^{-3}$

grams cassiterite per cubic metre

A P P E N D I X 11

HEAVY CONCENTRATE SAMPLE RESULTS

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HEAVY CONCENTRATE SAMPLE RESULTS

BELMONT CREEK

Sample Location (m)	Total Weight (g)	>2.96 Sp Gr. Weight(%)	>2.96 Sp Gr. Weight(g)	Sn (ppm)	SnO_2 ($g.m^{-3}$)
0	381.49	5.963	22.75	26	0.13
200	356.78	4.086	14.58	16	0.05
208	411.06	7.779	31.98	32	0.23
387	366.22	5.562	20.37	38	0.17
589	221.18	6.745	14.92	12	0.04
805	236.78	5.866	13.89	26	0.08
1010	260.09	5.267	13.70	36	0.11
1418	417.64	10.643	44.45	8	0.08
1595	360.50	8.915	32.14	16	0.11
1815	354.46	7.532	26.70	16	0.08
2015	294.31	10.995	32.36	12	0.09
2185	248.47	7.586	18.85	12	0.05
2415	223.79	9.062	20.28	22	0.10
2595	238.73	5.458	13.03	24	0.07
2787	270.69	8.895	24.08	14	0.08

HEAVY CONCENTRATE SAMPLE RESULTS
ROBINSON"S RIVULET

Sample Location (m)	Total Weight (g)	> 2.96 Sp.Gr. Weight(%)	> 2.96 Sp.Gr. Weight (g)	Sn (ppm)	SnO_2 ($G.M^{-3}$)
20	286.16	15.120	43.27	100	0.96
200	492.10	14.539	71.55	90	1.44
400	429.20	15.542	66.71	160	2.38
643	256.00	13.203	33.80	65	0.49
822	359.14	14.771	53.0 5	85	1.01
1028	442.00	7.151	31.61	320	2.26
1208	383.61	8.508	32.64	230	1.67
1392	428.60	8.348	35.78	85	0.68
1598	394.63	15.386	60.72	120	1.62
1820	296.92	19.048	56.56	170	2.14
1998	417.80	21.646	90.44	210	4.23
2205	211.15	5.403	11.41	520	1.32
2392	151.23	11.432	17.29	780	3.01
2580	293.76	9.112	26.77	490	2.92
2815	403.30	4.626	18.66	1150	4.78
2940	315.93	7.552	23.86	640	3.40

HEAVY CONCENTRATE SAMPLE RESULTS

DEEP GULLY CREEK

Sample Location (m)	Total Weight (g)	>2.96 Sp.Gr. Weight(%)	>2.96 Sp.Gr. Weight (g)	Sn (ppm)	SnO_2 ($g.m.^{-3}$)
40	575.0	0.82	4.71	120	0.13
180	404.7	0.95	3.85	300	0.26
440	611.8	1.29	7.89	120	0.21
700	643.1	0.75	4.85	-	-
800	571.1	1.18	6.73	150	0.22
1000	617.3	0.74	4.54	130	0.13
1160	431.9	2.10	9.05	300	0.61
1420	591.7	2.08	12.28	840	2.30
1640	688.0	0.86	5.89	440	0.58
1800	588.8	1.68	9.89	100	0.22
2100	477.5	1.30	6.22	-	-
2200	432.1	1.59	6.88	920	1.41
2400	527.7	1.37	7.24	880	1.42
2600	501.3	2.33	11.66	520	1.35
2780	567.5	1.98	11.21	-	-
3000	575.7	1.90	10.93	580	1.41
3200	407.5	2.16	8.80	1400	2.75
3360	331.4	1.91	6.33	330	0.47
3618	242.62	10.007	24.28	170	0.92
3786	260.33	15.415	40.13	300	2.68
3997	289.98	7.883	22.86	1250	6.37
4184	355.97	5.919	21.07	600	2.82
4398	286.04	5.796	16.58	280	1.04

HEAVY CONCENTRATE SAMPLE RESULTS

DEEP GULLY CREEK Cont.

Sample Location (m)	Total Weight (g)	> 2.96 Sp.Gr. Weight(%)	> 2.96 Sp.Gr. Weight (g)	Sn (ppm)	SnO (G.M.$^{-3}$)
4604	194.73	5.273	10.27	700	1.60
4802	222.32	9.072	20.17	840	3.78
5005	288.94	6.997	20.23	720	3.79
5205	311.91	8.033	25.05	1400	7.82
5427	141.09	8.994	12.69	1250	3.54
5615	199.18	15.754	13.38	4650	13.87
5795	106.14	6.887	7.31	3150	2.20
6000	210.06	9.140	19.20	2250	9.63
6222	218.73	9.943	21.75	860	4.17
6386	180.07	7.885	14.20	1100	3.48
6600	198.96	9.333	18.57	880	3.64
6785	231.75	11.162	25.87	1850	10.67
6980	264.60	9.614	25.44	240	1.36
7203	398.14	12.023	47.87	110	1.17
7403	333.48	6.938	23.14	38	0.20
7597	402.74	6.334	25.51	22	0.13
7787	322.13	9.434	30.39	18	0.12
7988	380.94	6.273	23.90	70	0.37
8213	333.80	8.037	26.83	65	0.39
8383	301.87	7.648	23.09	10	0.05
8600	379.36	13.749	52.16	60	0.70
8793	388.63	6.525	25.36	28	0.16
8983	463.63	3.998	18.54	340	1.41

HEAVY CONCENTRATE SAMPLE RESULTS

DEEP GULLY CREEK Cont.

Sample Location (m)	Total Weight (g)	>2.96 Sp. Gr. Weight (%)	>2.96 Sp. Gr. Weight (g)	Sn (ppm)	SnO (G.m.)
9204	318.84	9.807	31.27	16	0.11

A P P E N D I X 111

PETROLOGICAL DESCRIPTIONS

DEEP GULLY CREEK

Central Mineralogical Services

mple	Classification ~ Composition	Fabric	Accessories	Comments
Z 0701 T.S. 40019) 5180m	Olivine Basalt. Weakly albitised, chlorite-stained labradorite, fresh augite phenocrysts in groundmass of similarly altered plagioclase laths with sparse "serpentinised" olivine microphenocrysts, intergranular augite.	Typical porphyritic, basaltic, trend glomeroporphyritic (clustered phenocrysts).	Conspicuous fine-grained primary magnetite. Sparse discontinuous albite-chlorite-pumpellyite-quartz veinlets.	Mildly altered, unmetasomatised basalt. Alteration trend is ?deuteric bowlingite-serpentine (after olivine) and subgreenschist metamorphic albite-chlorite-pumpellyite.
Z 0705 5747m	Olivine Basalt. Albitised/chlorite-stained plagioclase laths with fresh intergranular pigeonitic augite, minor fresh to serpentinised olivine granules, pervasive chloritic mesostasis.	Even-grained basalt, trend medium-grained, subophitic ("doleritic"). Patchy granulated zones.	Leucoxenised opaques. Rare pumpellyite veinlets/stainings.	Affinities with Z 0701, but non-porphyritic, even-grained. Alteration pattern is similar with chlorite-albite(-pumpellyite) partly granulation-fracture controlled.
Z 0706 5776m	Prehnite Rock. Semi- to massive prehnite with patchy, partly degraded/kaolinised albite, minor quartz, ankeritic carbonate, pale chlorite. Sparse quartz-chlorite-prehnite amygdales.	Poorly resolved, vaguely felsitic (devitrified), weakly amygdaloidal, banded, pitchstone-like.	Leucoxenised opaques. Minor traces ultra-fine-grained pyrite.	Pervasively altered amygdaloidal pitchstone (or obsidian) of felsic intermediate-acid affinities. Prehnite possibly marginal contact-metasomatic, but is non-diagnostic.
Z 0715 5799m	Tuffaceous Greywacke. Framework of montmorillonitised/chloritised lithic clasts, subordinate to minor albitised/calcitised feldspar, minor glauconite pellets. Weakly calcite-stained chlorite matrix.	Weakly bedded, turbidite-like, silty fine sandstone/fine sandy siltstone.	Conspicuous clastic leucoxenic semi-opaques, minor quartz, biotite, zircon, chromite. Traces pyrite.	Lithic clasts vaguely recognisable as basic-intermediate lava, subangular to rounded (distal reworked). Affinities with Crimson Creek Formation. Unmetasomatised.
Z 0716 7058m	Protoquartzite. Framework of subangular to subround quartz, subordinate sericitic pelite clasts, minor muscovite flakes. Overgrowth/intergranular quartz, minor sericite matrix.	Weakly bedded silty fine sandstone.	Minor clastic chert clasts, schorl, zircon grains, biotite flakes. Traces carbonaceous matter, graphite.	Weakly carbonaceous, essentially unaltered, unmetasomatised protoquartzite. Contrasts with Z 0715 and more typical of the Success Creek Group psammites.
Z 0717 T.S. 40024) 7295m	Porphyry. Frequent quartz, subordinate orthoclase, albite, muscovitised biotite, muscovite phenocrysts with weakly pervasively sericite-stained microcrystalline quartzofeldspathic groundmass.	Evenly disseminated phenocrysts/glomerophenocrysts. Fine-grained, homogeneous groundmass.	Thinly disseminated zircons.	Mildly greisened porphyritic mica microgranite. Close affinities with the typically more altered, particularly topazised Mount Bischoff porphyries.

644022

CENTRAL MINERALOGICAL SERVICES PTY. LTD.

Date 11th February, 1982

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

IDENTIFICATION
Z 0718
Banded Chert

Job No. CMS 82/1/2 Date Received: 5.1.1982

Reference Letter - C.M. Jones

Sample No. Z 0718

Nature of Sample: Hand Specimen

DESCRIPTION **SECTION No.** 40436

a. Hand Specimen:

Banded, fine-grained siliceous rock.

FROM BELMONT ROAD. 6324 m

b. Microscopic:

This is a banded chert; it is featureless, and contains no tourmaline; there is very minor late-stage (post-lithification) fracturing and introduction of traces of fine ?zoisite-epidote.

The rock consists of alternating paler and darker (brown and grey) bands of quartz; the coloured bands are composed of crypto- to microcrystalline quartz with ultrafine pigmentation, and the pale bands comprise masses of fibrous chalcedony. The nature of the pigment is not known, because it is submicroscopic.

The rock is cut by diagenetic quartz veinlets, younger veins of coarser quartz with albite laths, and fine fractures containing fine ?zoisite-epidote, too poorly-developed for confident optical identification.

The rock lacks distinctive features and, on the basis of its petrology alone, cannot be assigned to any particular formation.

H.W. Fander, M. Sc.

T 9976 (T.S. 37366)
Gully Creek 500m

This rock represents an altered basic-intermediate igneous facies with the reli-ct fabric consistent with a minor intrusive.

Major features comprise disseminated montmorillonite-stained, albite-pseudomorphed plagioclase phenocrysts (mean 750 μ) and a similarly altered groundmass of semi-felted feldspar laths (mean 75 μ diameter) with a more or less pervasive montmorillonitic mesostasis. Conspicuous fine-grained leucoxenised opaques and weakly oxidised primary magnetite are present. Sparse montmorillonite-pseudomorphed ferromags are present as microphenocrysts. Shapes are poorly diagnostic, but suggestive of pyroxene and subordinate olivine and, on this basis, the rock is interpreted as essentially microgabbroic (doleritic). Alteration is of deuteric character.

T 9977 (T.S. 37367)
Gully Creek 515m.

This rock is of similar paragenesis to T 9976, representing an altered microgabbro.

The rock consists essentially of clay-stained, albite-pseudomorphed plagioclase laths (mean 50 μ), embedded in near-isotropic chlorite pseudomorphs of ophitic pyroxene (to 2 mm), with the relict cleavage pattern defined by microscopic networks of secondary ("exsolved") opaques. Conspicuous primary fine-grained magnetite is present. Cloudy ankeritic carbonate is an accessory alteration phase introduced in part with sparse chlorite veinlets. Minor traces of pyrite and pyritised pyrrhotite are present.

In comparison with T 9976, the main contrasts are the distinctly (altered) pyroxenic composition and related relict ophitic fabric.

D. Cowan, B. Sc.

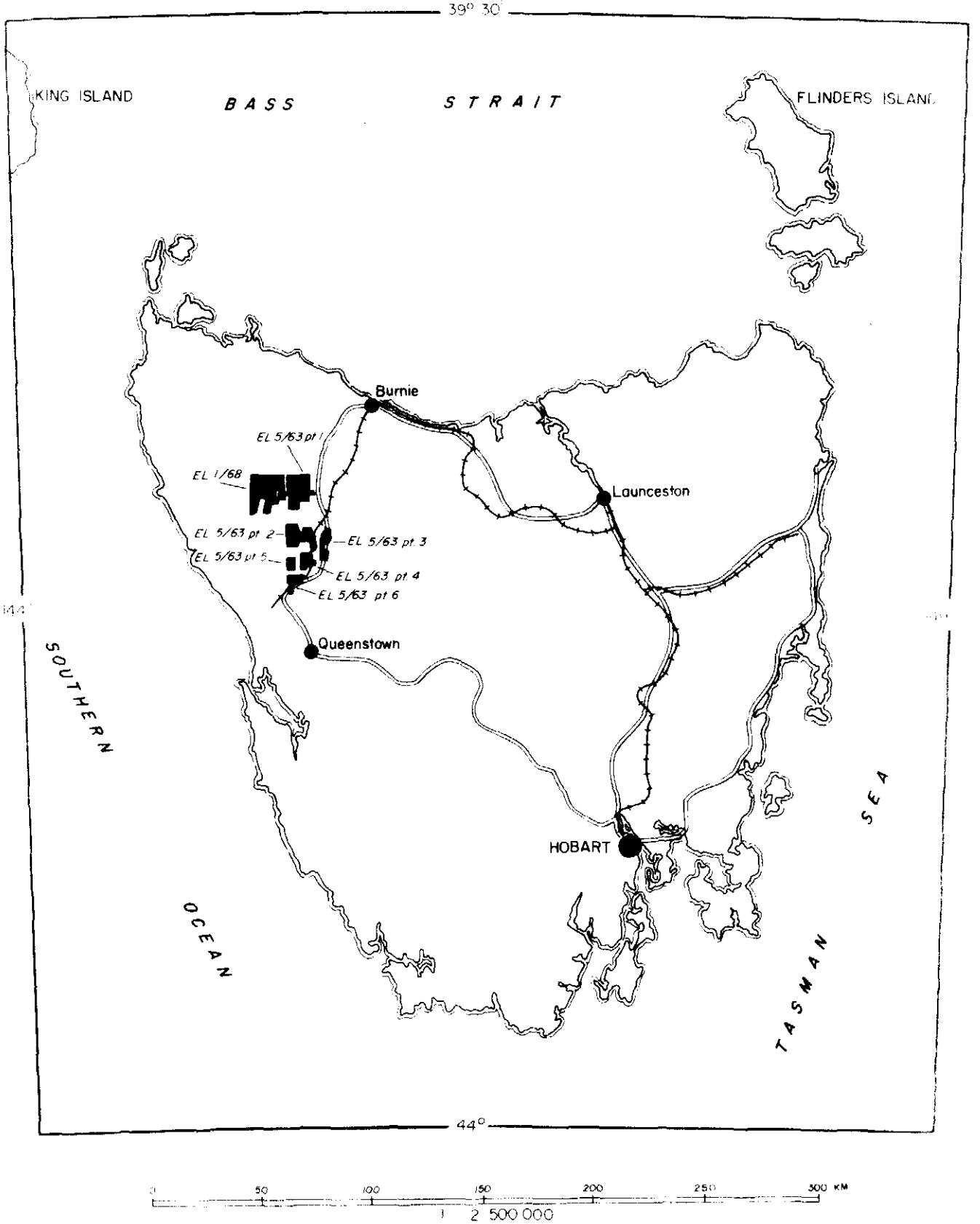
T 9975 (T.S. 37367)
Gully Creek. 318m.

This rock can be classified as a low-grade pelitic hornfels and represents a marginally contact-metamorphosed cherty argillite.

The rock consists essentially of semi-sericitic muscovite, pale phlogopite and closely intergrown microcrystalline quartz with subtle variations defining a faint relict banding. Frequentclots (<50-500 μ) of quartz stained with pale chlorite are disseminated throughout and representdegraded ("retrogressed") cordierite porphyroblasts.

Phlogopite is metasomatic in part and is concentrated into thin selvedges on sporadic straight-walled quartz veinlets (with degraded/ferruginised mica flakes) and in crosscutting microscopic films. Similarly, there are very minor traces of ultrafine metasomatic tourmaline.

644024



Major roads

Major railways

● Burnie Major towns

Comstaff lease areas

5 cm

COMSTAFF PROPRIETARY LIMITED

LOCATION OF COMSTAFF LEASES IN TASMANIA

DRAWN	COMPILED	SCALE	
GEODRAFT 7/78		1 2 500 000	TAS/2/1586

5 425 000 m N

ARTHUR RIVER

600

400

500

Tbl

sed

Tbs

bvg

gr

5 420 000 m N

367 000 m E

375 000 m E

68 69 70 71 72 73 74 75

5 cm

644025

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
ARTHUR RIVER / MAGNET

GEOLOGICAL INTERPRETATION

COMPILED	C. M. J.
DRAWN	GEODRAFT
DATE	25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No.	TAS / 2 / 2862

5 425 000 m N

ROAD

500

400

300

WANDLE

RIVER

600

500

MURCHISON

PIT

GRAVEL

PITS

SHEFFIELD

Tbs

PLAINS

BELLS PLAINS

600

500

400

HIGHWAY

RIVER

NORTH GODERICH ROAD

ARTHUR

sed

bvg

ar

ROAD

ss

ch

tuf

NORTH

WANDLE

Tbs

375 000 m E

383 000 m E

5 420 000 m N

5 cm

644026

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
ARTHUR RIVER / MAGNET

GEOLOGICAL INTERPRETATION

COMPILED	C. M. J.
DRAWN	GEODRAFT
DATE	25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No	TAS/2/2863

644027

5 cm

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

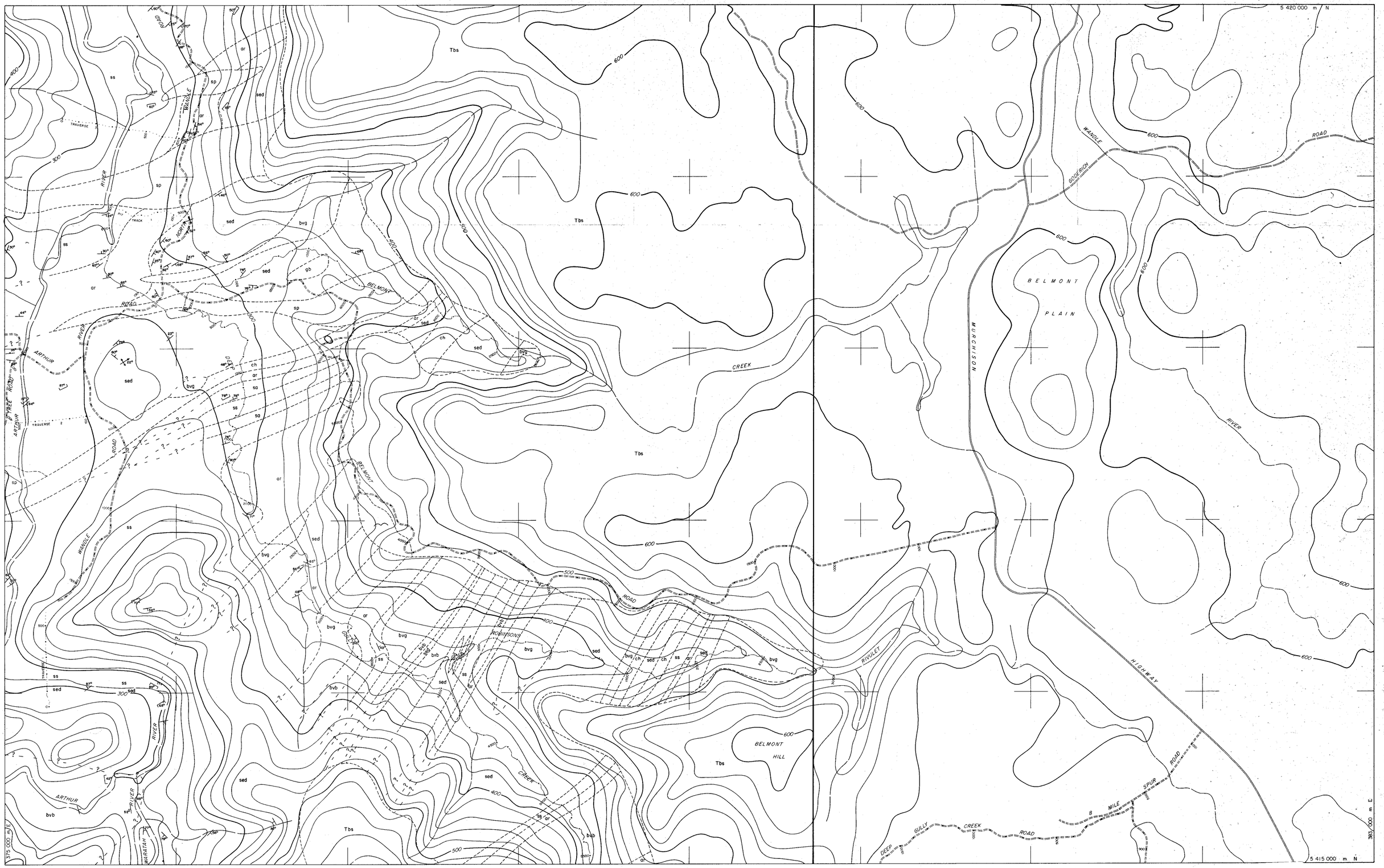
TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
ARTHUR RIVER / MAGNET

GEOLOGICAL INTERPRETATION

COMPILED	C.M.J.
DRAWN GEODRAFT	DATE 25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No.	TAS/2/2864



644028

5 cm

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

TN

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
ARTHUR RIVER/MAGNET

GEOLOGICAL INTERPRETATION

COMPILED	C. M. J.
DRAWN	GEODRAFT
DATE	25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No.	TAS/2/2865

644029

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

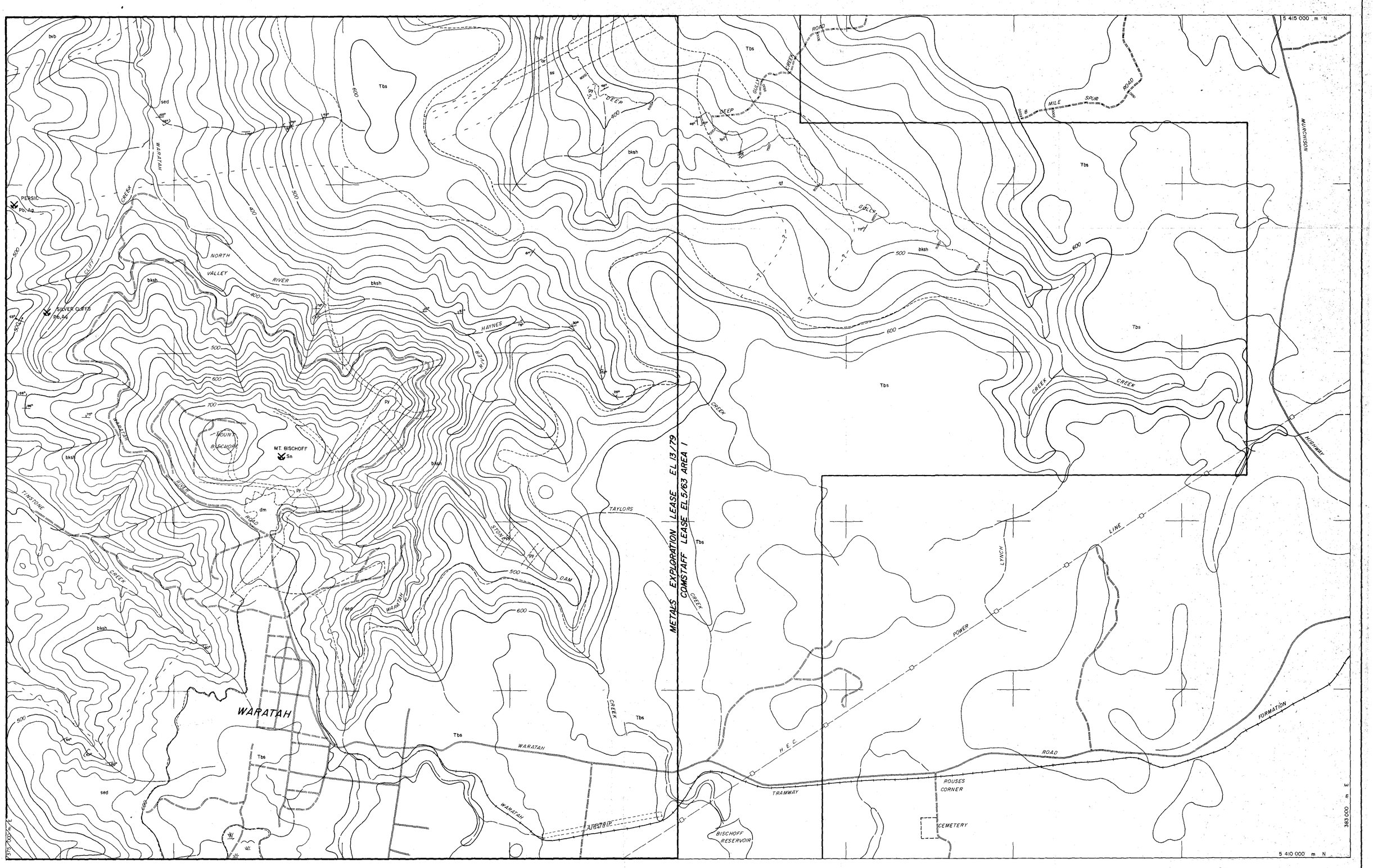
TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 1
ARTHUR RIVER / MAGNET
GEOLOGICAL INTERPRETATION

COMPILED	C. M. J.
DRAWN	GEODRAFT
DATE	25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No.	TAS /2 /2866



FOR GEOLOGICAL LEGEND SEE TAS/2/2869

644030

5 cm

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 1
ARTHUR RIVER / MAGNET
GEOLOGICAL INTERPRETATION

COMPILED	C.M.J.
DRAWN	GEODRAFT
DATE	25/3/82
AMENDED	
SCALE	1 : 10 000
PLAN No.	TAS/2/2868

5 410 000 m N

5 405 000 m N

367 500 m E

375 000 m E

MAGNET DAM

MAGNET ROAD

SEVEN MILE CREEK

ARTHUR RIVER

PHILOSOPHER FALLS

GRAVEL

WHYTE HILL

CORINNA

H E C

WASHINGTON

DEEP CREEK

ARTHUR DAM

BUTLERS

CAMPBELLS GALENA PROSPECT

Pb

POWER LINE

ROAD

TRACK

BETTS

BISCHOFF

SOUTH RAMSAY RIVER

RAMSAY ROAD

WOMBAT HILL 800

500 600 700

sed

py

Tbs

gb

g

67 68 69 69 70 71 72 73 644031 74

5 cm

FOR GEOLOGICAL LEGEND SEE TAS/2/2869

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

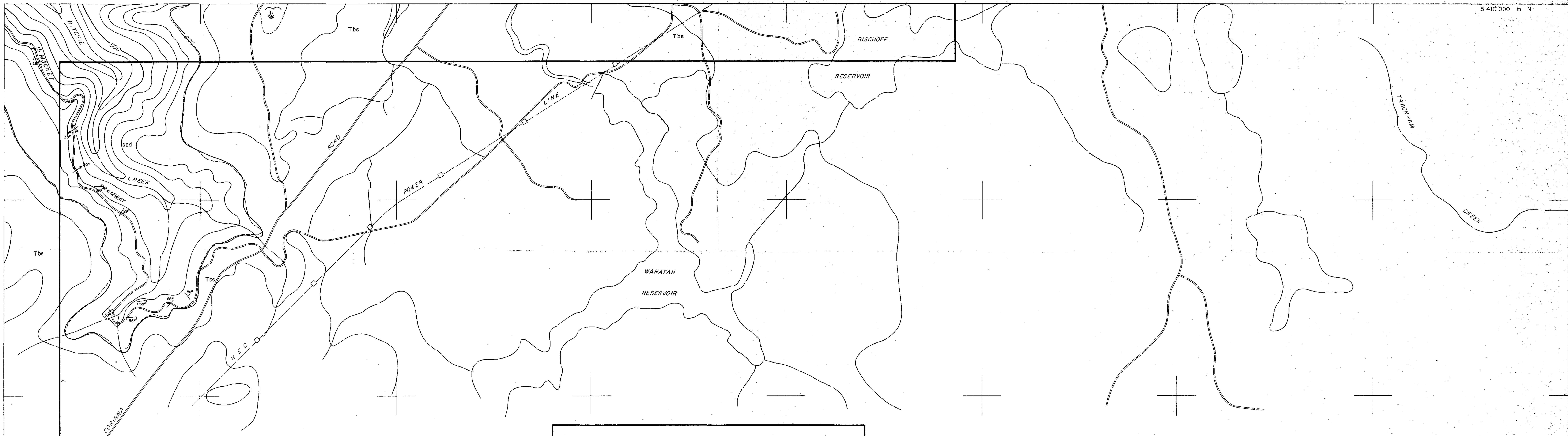
TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 1
ARTHUR RIVER / MAGNET

GEOLOGICAL INTERPRETATION

COMPILED C. M. J.
DRAWN GEODRAFT
DATE 25/3/82
AMENDED
SCALE 1 : 10 000
PLAN No. TAS/2/2868



GEOLOGICAL LEGEND

- - - - - - - -	geological boundary
- - - -	geological boundary – assumed
-? - -?-	geological boundary – highly tentative
——— f	fault
47°	strike and dip of bedding
32°	strike and dip of jointing
64°	strike and dip of foliation
28°	strike and dip of cleavage
	anticline showing direction of plunge
	syncline showing direction of plunge
30°	strike and dip of overturned bedding

QUARTERNARY			Alluvium and colluvium deposits
TERTIARY		Tbs	Olivine basalt
DEVONIAN		py	Quartz porphyry dykes
		g	Granite
		gb	Gabbro
		sp	Serpentinised ultramafics and gabbros
CAMBRIAN	CRIMSON CREEK FORMATION	bvb	Basic volcanics (basaltic)
		bvg	Basic volcanics (gabbroic)
		sed	Undifferentiated sediments
		ar	Argillites/Mudstones predominant
		ss	Silstones predominant
		tuf	Tuffaceous lithic wackes predominant
		ch	Cherts predominant
		sa	Sandstone predominant
PRE-CAMBRIAN	BISCHOFF SERIES	bksh	Black shales, slates, some quartzite
		qt	Quartzite predominates
		dm	Dolomite

644032

5 cm

TAS/2/2862	TAS/2/2863
TAS/2/2864	TAS/2/2865
TAS/2/2866	TAS/2/2867
TAS/2/2868	TAS/2/2869

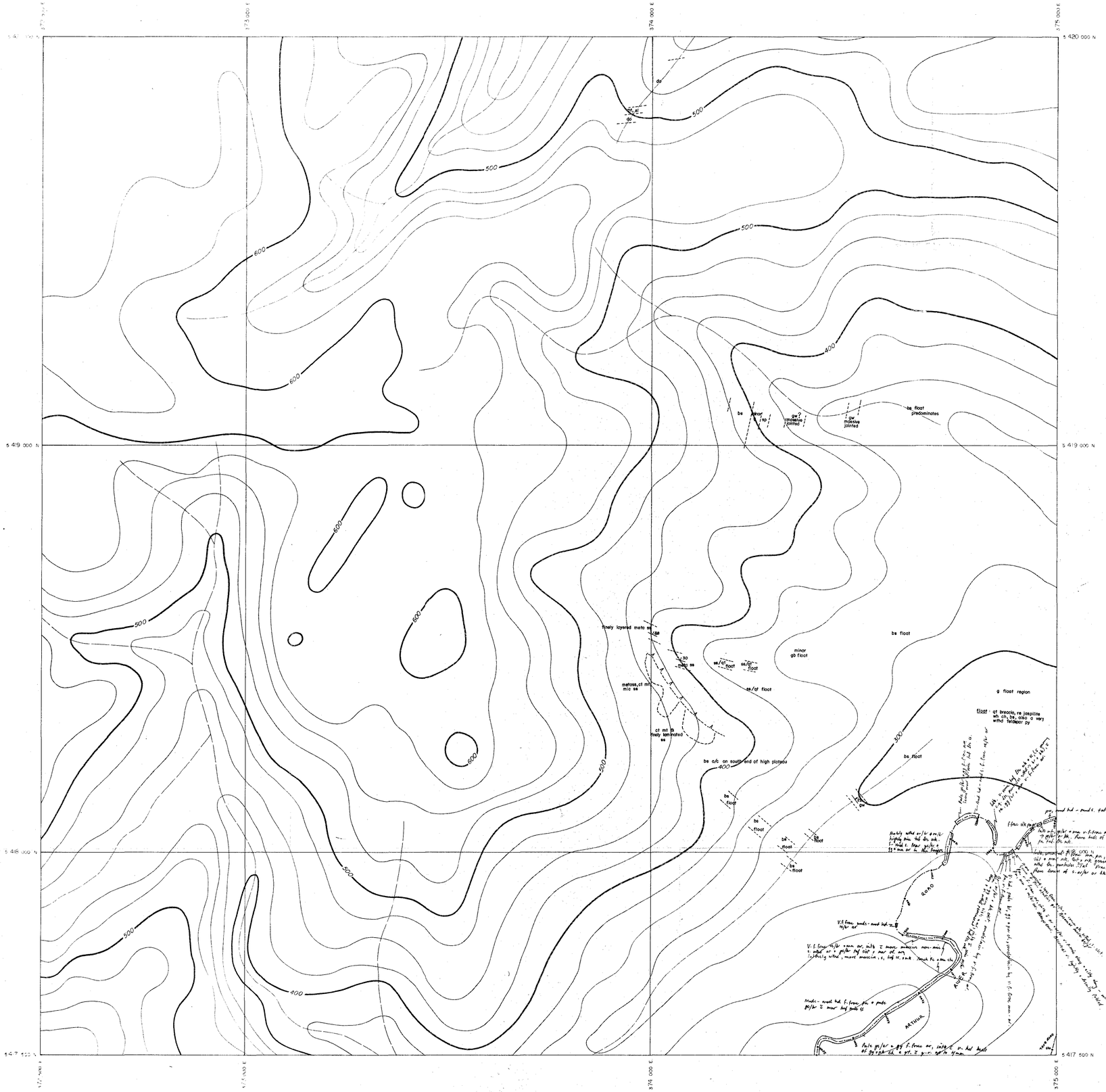
TN

COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
ARTHUR RIVER / MAGNET

GEOLOGICAL INTERPRETATION

COMPILED C. M. J.
DRAWN GEODRAFT
DATE 25/3/82
AMENDED
SCALE 1 : 10000
PLAN No. TAS /2 /2869



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
ss,qt,ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
- Unconformity
- Anticline showing direction of plunge
- Syncline showing direction of plunge
- Plunge of minor anticline
- Plunge of minor syncline
- Overturned anticline
- Overturned syncline
- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
- Location of horizontal jointing
- Strike and dip of foliation
- Strike of vertical foliation
- Location of horizontal foliation
- Strike and dip of cleavage
- Strike of vertical cleavage
- Location of horizontal cleavage
- Mineral occurrence - minor
- Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- Trigonometrical station (MT BISCHOFF)
- Road/track
- Railway - used/disused(or formation)
- Peg location (P32)
- Drillhole location (B25)
- Building
- Dam or lake
- Drainage
- Topographic contour line (250)
- Fence
- Sample point (T 3806)
- Quarry/dump

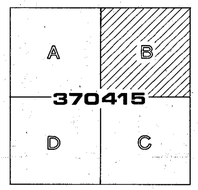
Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644033

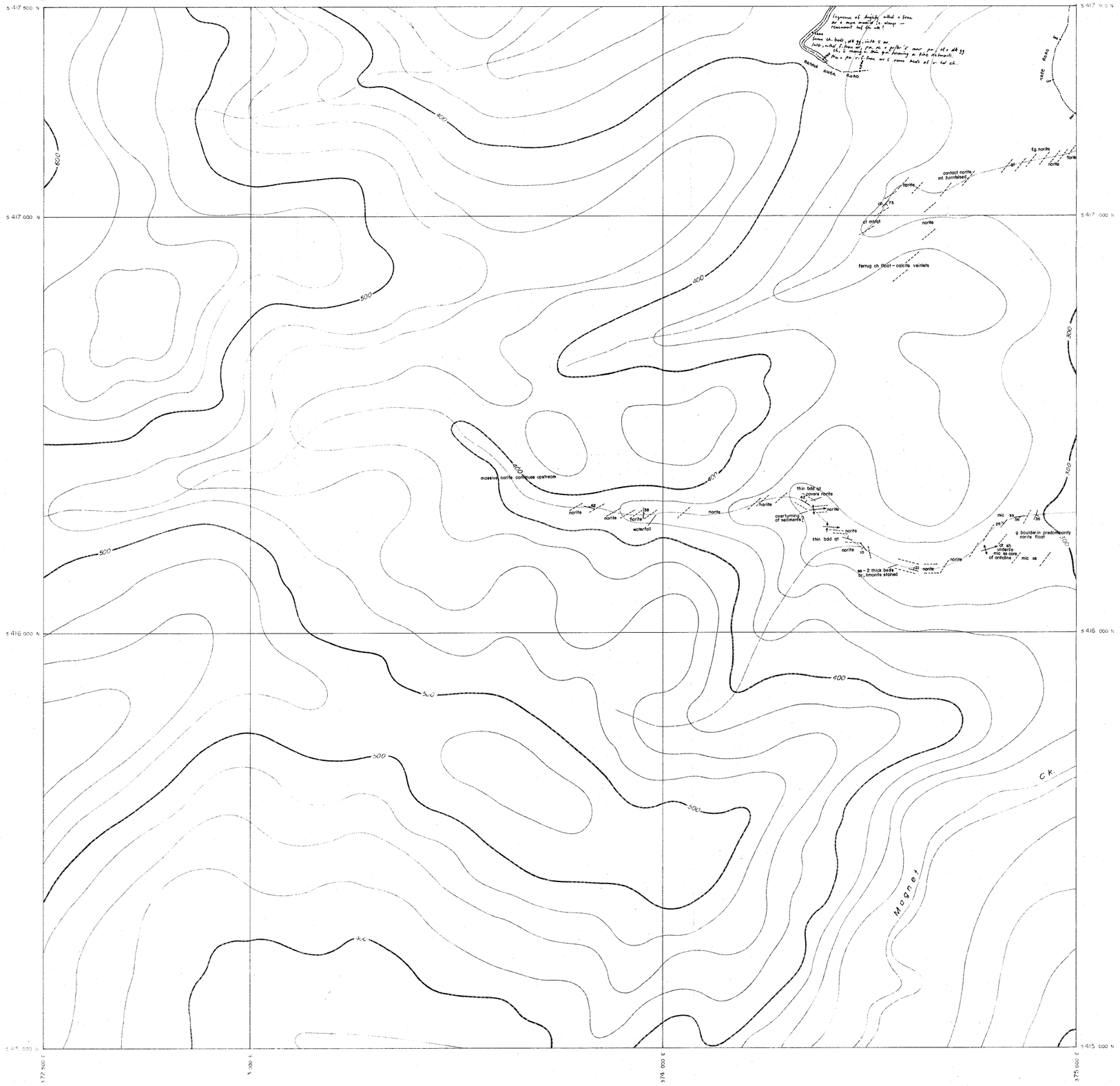
COMSTAFF PROPRIETARY LIMITED

370415-B

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000
	TAS/2/1039

83-1902



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,si	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
ss/cg ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
- Unconformity
- Anticline showing direction of plunge
- Syncline showing direction of plunge
- Plunge of minor anticline
- Plunge of minor syncline
- Overturned anticline
- Overturned syncline
- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
- Location of horizontal jointing
- Strike and dip of foliation
- Strike of vertical foliation
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- Strike and dip of cleavage
- Strike of vertical cleavage
- Location of horizontal cleavage
- Mineral occurrence - minor
- Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- Trigonometrical station
- Road/track
- Railway - used/disused(or formation)
- Peg location
- Drillhole location
- Building
- Dam or lake
- Drainage
- Topographic contour line
- Fence
- Sample point
- Quarry/dump

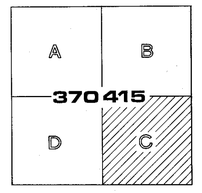
Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1: 5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644034

83/902

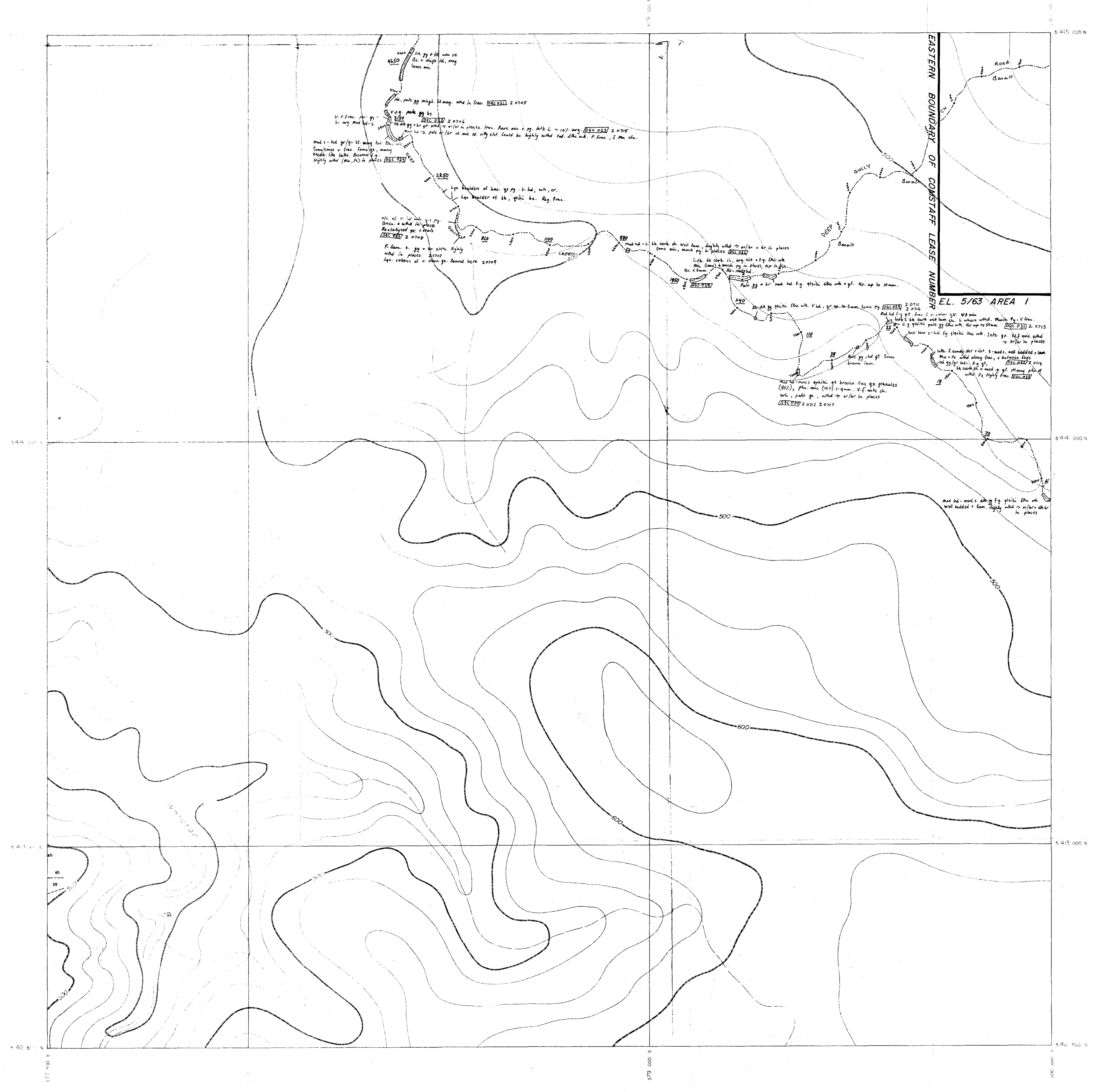
COMSTAFF PROPRIETARY LIMITED

370415-C

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000
	TAS/2/1040

83-1902



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
ss qt ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

Geological boundary
Unconformity
Anticline showing direction of plunge
Syncline showing direction of plunge
Plunge of minor anticline
Plunge of minor syncline
Overturned anticline
Overturned syncline
Fault, showing hade
Shear zone
Strike and dip of bedding
Strike of vertical bedding
Location of horizontal bedding
Overturned bedding
Generalised strike & dip undulating strata
Strike and dip of jointing
Strike of vertical jointing
Location of horizontal jointing
Strike and dip of foliation
Strike of vertical foliation
Location of horizontal foliation
Strike and dip of cleavage
Strike of vertical cleavage
Location of horizontal cleavage
Mineral occurrence - minor
Major mineral occurrence with mine
Mine shaft - operating, disused
Mine tunnel portal
Costean, pit or trench
Trigonometrical station (Mt. BISCHOFF)
Road/track
Railway - used/disused(or formation)
Peg location (+P32)
Drillhole location (O825)
Building
Dam or lake
Drainage
Topographic contour line (250)
Fence
Sample point (•T 3806)
Quarry/dump

Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX

A	B
D	C

375410

5 cm

SCALE 1 : 5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644035

COMSTAFF PROPRIETARY LIMITED

375410-B

GEOLOGY

DRAWN GEODRAFT
DATE OCTOBER 1977
COMPILED VARIOUS
SCALE 1 : 5000

TAS/2/1075

83-1902

LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
ss,qt,ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
df	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

Geological boundary
Unconformity
Anticline showing direction of plunge
Syncline showing direction of plunge
Plunge of minor anticline
Plunge of minor syncline
Overturned anticline
Overturned syncline
Fault, showing hade
Shear zone
Strike and dip of bedding
Strike of vertical bedding
Location of horizontal bedding
Overturned bedding
Generalised strike & dip undulating strata
Strike and dip of jointing
Strike of vertical jointing
Location of horizontal jointing
Strike and dip of foliation
Strike of vertical foliation
Location of horizontal foliation
Strike and dip of cleavage
Strike of vertical cleavage
Location of horizontal cleavage
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Major mineral occurrence with mine
Mine shaft - operating, disused
Mine tunnel portal
Costean, pit or trench
Trigonometrical station
Road/track
Railway - used/disused(or formation)
Peg location
Drillhole location
Building
Dam or lake
Drainage
Topographic contour line
Fence
Sample point
Quarry/dump

Mineralisation

As	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

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Ag	Silver
As	Arsenic
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Cd	Cadmium
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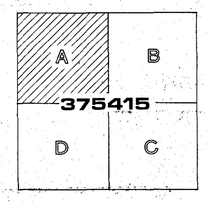
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungstea
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644036

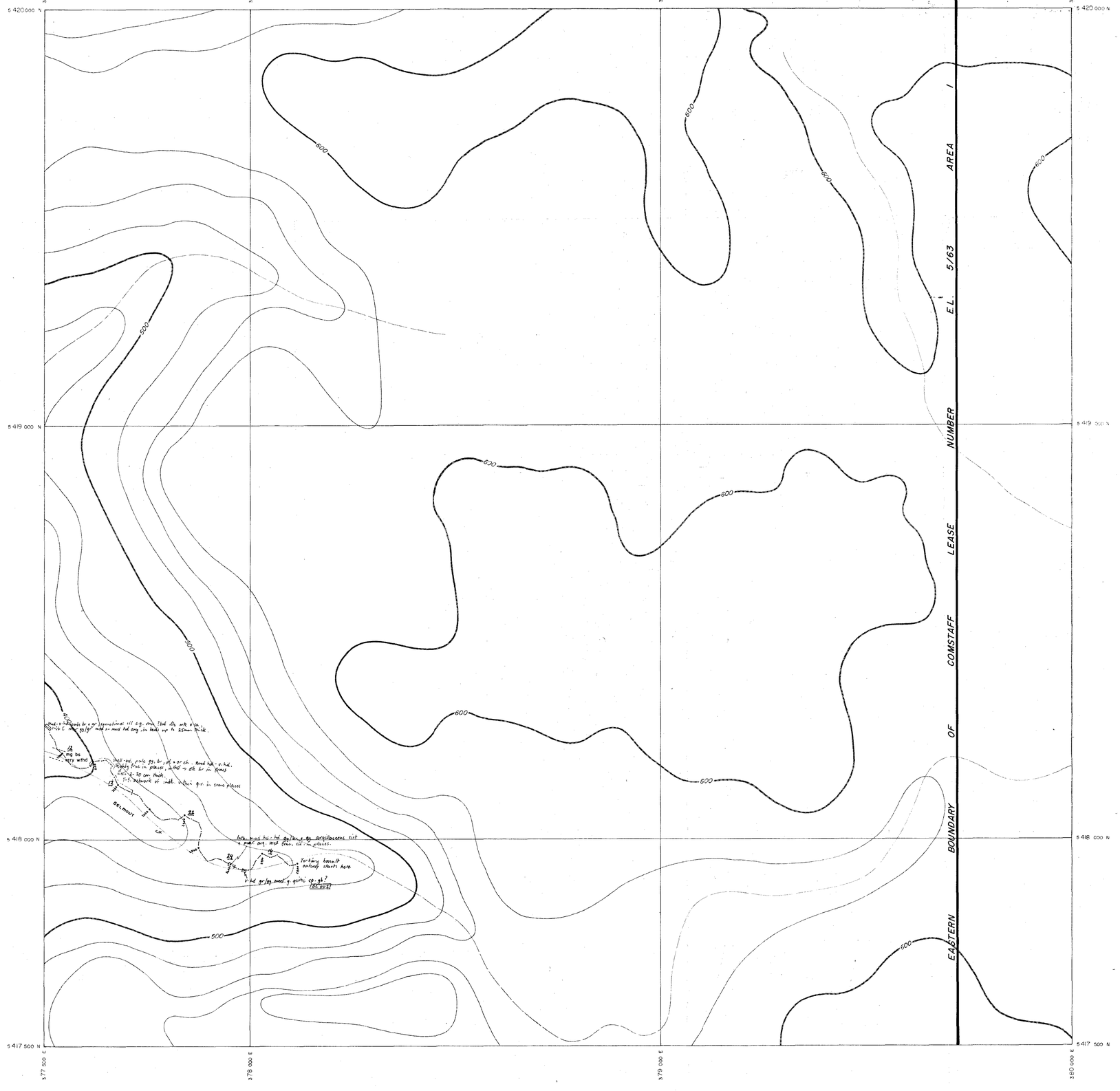
COMSTAFF PROPRIETARY LIMITED

375415-A

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1:5000
	TAS/2/1078

83-1962



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
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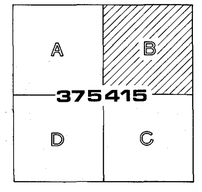
sa,qt,ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

	Geological boundary		Mineralisation
	Unconformity	Asb	Asbestos
	Anticline showing direction of plunge	Az	Azurite
	Syncline showing direction of plunge	By	Barytes
	Plunge of minor anticline	Cc	Chalcocite
	Plunge of minor syncline	Ch	Chalcopyrite
	Overturned anticline	Fl	Fluorspar
	Overturned syncline	G	Galena
	Fault, showing hade	Ml	Malachite
	Shear zone	Mt	Magnetite
40	Strike and dip of bedding	Py	Pyrite
	Strike of vertical bedding	Sp	Sphalerite
+	Location of horizontal bedding	Sr	Sericite
76	Overturned bedding	St	Siderite
25	Generalised strike & dip undulating strata		
42	Strike and dip of jointing		Mineral
	Strike of vertical jointing	Ag	Silver
+	Location of horizontal jointing	As	Arsenic
21	Strike and dip of foliation	Au	Gold
	Strike of vertical foliation	Ba	Barium
+	Location of horizontal foliation	Cd	Cadmium
79	Strike and dip of cleavage	Cu	Copper
	Strike of vertical cleavage	Hg	Mercury
	Location of horizontal cleavage	Mn	Manganese
•Cu	Mineral occurrence - minor	Mo	Molybdenum
Pb	Major mineral occurrence with mine	Ni	Nickel
	Mine shaft - operating, disused	Os	Osmiridium
	Mine tunnel portal	Pb	Lead
	Costean, pit or trench	Sb	Antimony
△M BISCHOFF	Trigonometrical station	Sn	Tin
	Road/track	W	Tungsten
	Railway - used/disused(or formation)	Zn	Zinc
+P32	Peg location		
⊙B25	Drillhole location		
	Building		
	Dam or lake		
	Drainage		
250	Topographic contour line		
	Fence		
•T 3806	Sample point		
	Quarry/dump		

SHEET INDEX



5 cm

SCALE 1: 5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644037

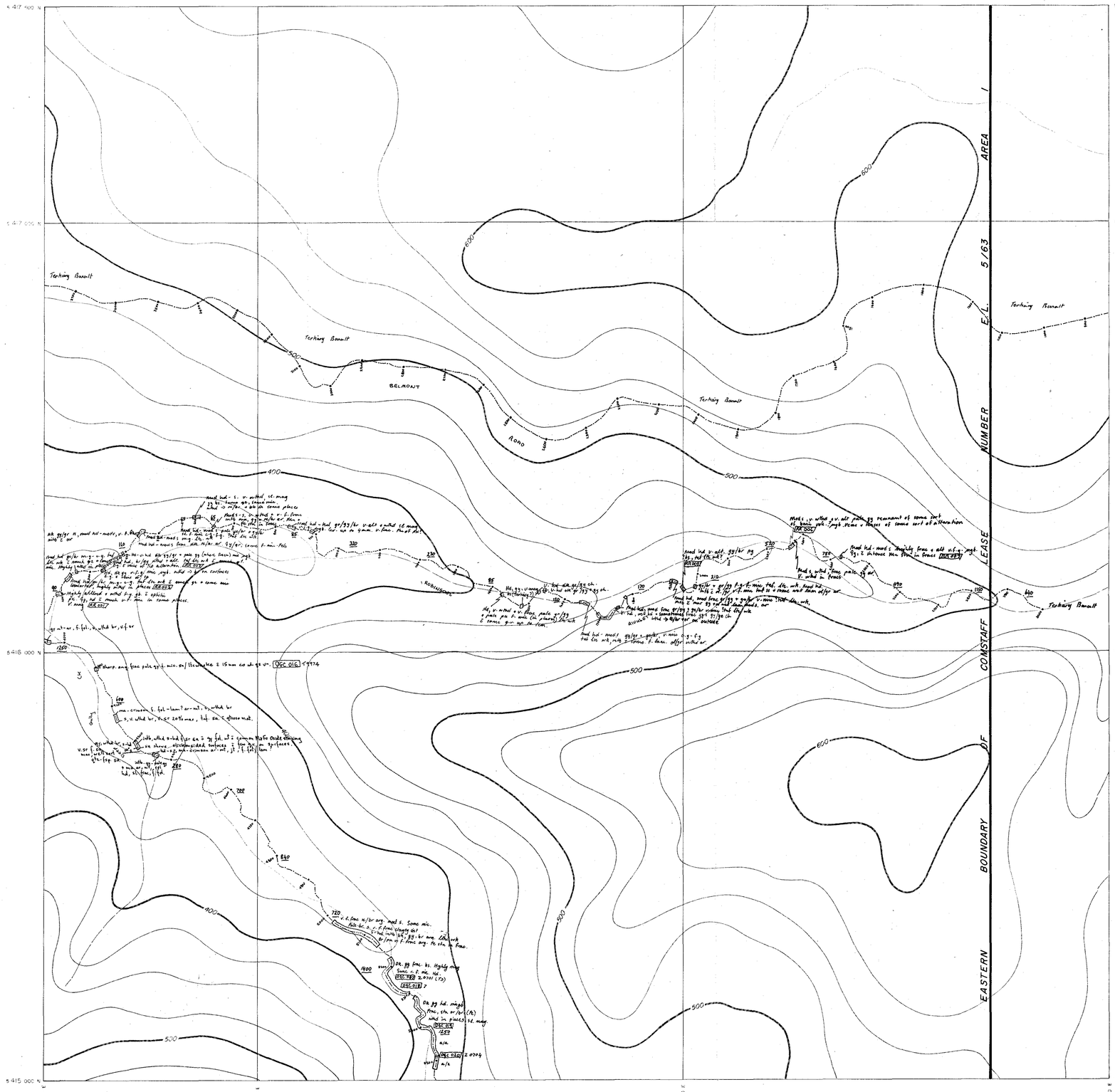
COMSTAFF PROPRIETARY LIMITED

375415-B

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000
	TAS/2/1079

83-1902

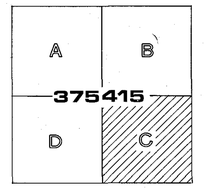


LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
^{50}qz$_{ch}$	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

	Geological boundary		Mineralisation
	Unconformity	Asb	Asbestos
	Anticline showing direction of plunge	Az	Azurite
	Syncline showing direction of plunge	By	Barytes
	Plunge of minor anticline	Cc	Chalcocite
	Plunge of minor syncline	Ch	Chalcopyrite
	Overturned anticline	Fl	Fluorspar
	Overturned syncline	G	Galena
	Fault, showing hade	Ml	Malachite
	Shear zone	Mt	Magnetite
	Strike and dip of bedding	Py	Pyrite
	Strike of vertical bedding	Sp	Sphalerite
	Location of horizontal bedding	Sr	Sericite
	Overturned bedding	St	Siderite
	Generalised strike & dip undulating strata		
	Strike and dip of jointing		Mineral
	Strike of vertical jointing	Ag	Silver
	Location of horizontal jointing	As	Arsenic
	Strike and dip of foliation	Au	Gold
	Strike of vertical foliation	Ba	Barium
	Location of horizontal foliation	Cd	Cadmium
	Strike and dip of cleavage	Cu	Copper
	Strike of vertical cleavage	Hg	Mercury
	Location of horizontal cleavage	Mn	Manganese
	Mineral occurrence - minor	Mo	Molybdenum
	Major mineral occurrence with mine	Ni	Nickel
	Mine shaft - operating, disused	Os	Osmiridium
	Mine tunnel portal	Pb	Lead
	Costean, pit or trench	Sb	Antimony
	Trigonometrical station	Sn	Tin
	Road/track	W	Tungsten
	Railway - used/disused(or formation)	Zn	Zinc
	Peg location		
	Drillhole location		
	Building		
	Dam or lake		
	Drainage		
	Topographic contour line		
	Fence		
	Sample point		
	Quarry/dump		

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644038

COMSTAFF PROPRIETARY LIMITED

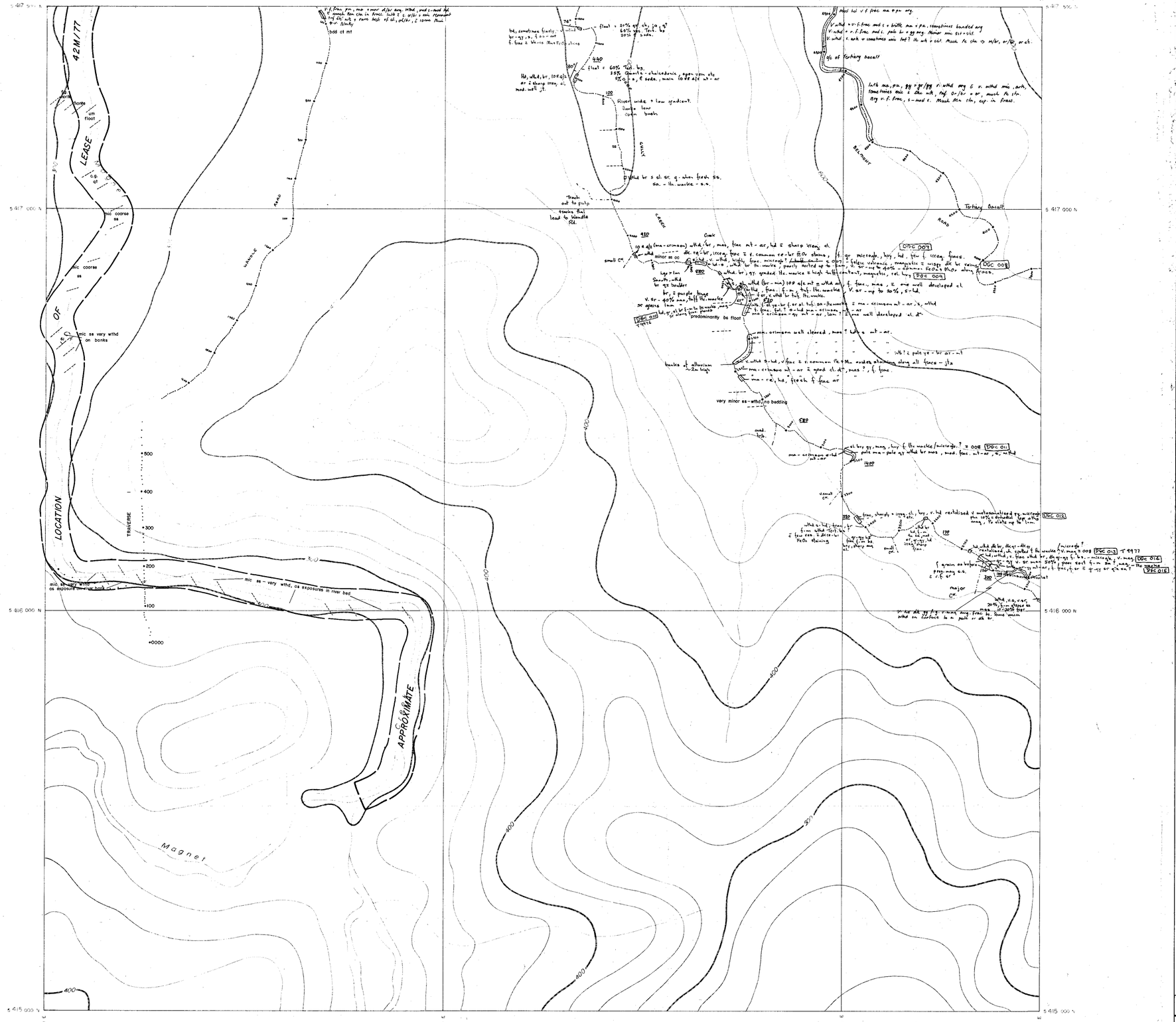
375415-C

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1:5000

TAS/2/1080

83-1902



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
m,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
sq,qt,ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
- Unconformity
- Anticline showing direction of plunge
- Syncline showing direction of plunge
- Plunge of minor anticline
- Plunge of minor syncline
- Overturned anticline
- Overturned syncline
- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
- Location of horizontal jointing
- Strike and dip of foliation
- Strike of vertical foliation
- Location of horizontal foliation
- Strike and dip of cleavage
- Strike of vertical cleavage
- Location of horizontal cleavage
- Mineral occurrence - minor
- Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- Trigonometrical station
- Road/track
- Railway - used/disused(or formation)
- Peg location
- Drillhole location
- Building
- Dam or lake
- Drainage
- Topographic contour line
- Fence
- Sample point
- Quarry/dump

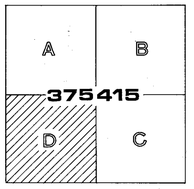
Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1 : 5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644039

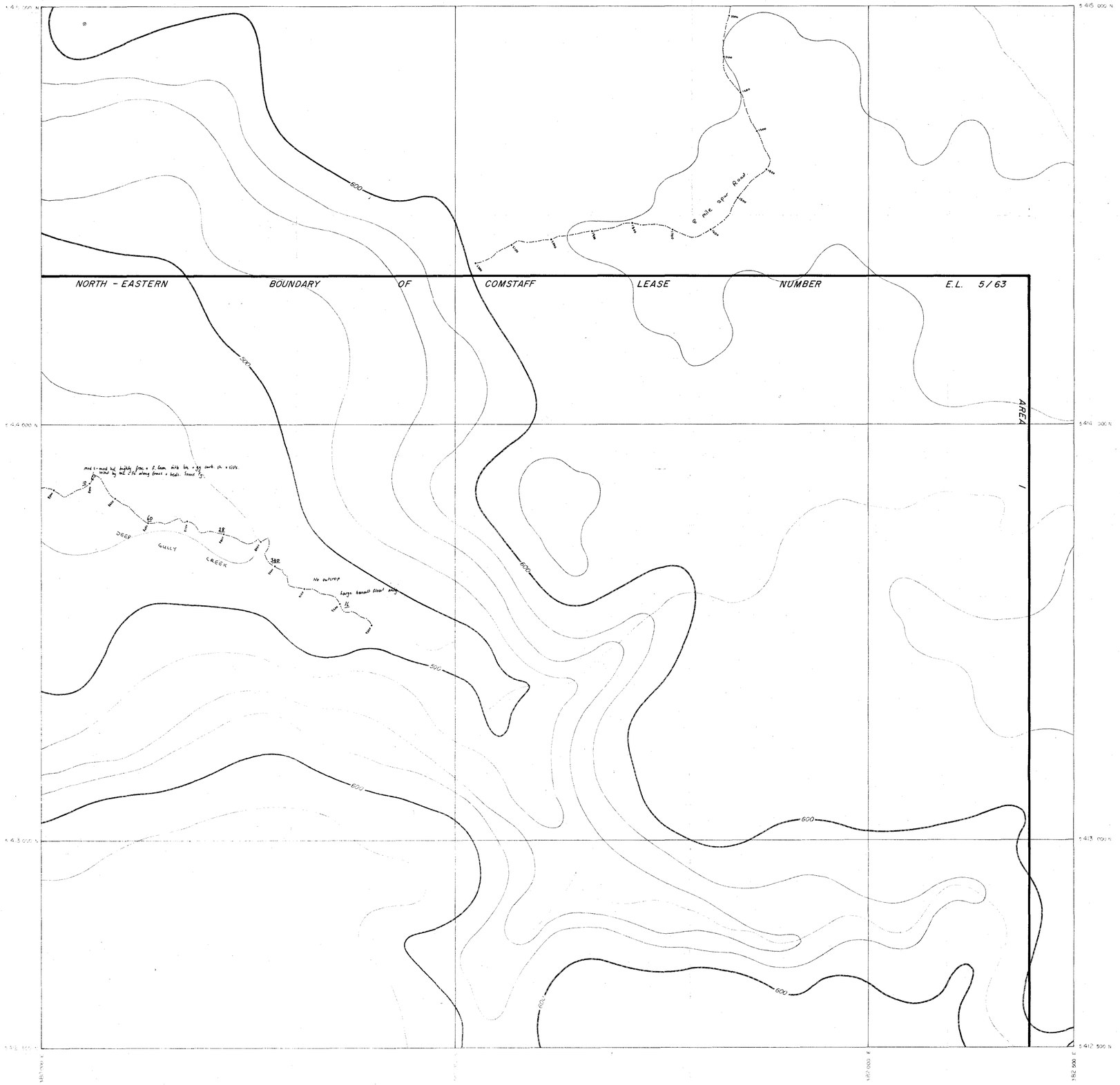
COMSTAFF PROPRIETARY LIMITED

375415-D

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000
	TAS/2/1081

84-1902



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
$^{ss}qt_{ch}$	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
- Unconformity
- Anticline showing direction of plunge
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- Plunge of minor anticline
- Plunge of minor syncline
- Overturned anticline
- Overturned syncline
- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
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- Strike and dip of foliation
- Strike of vertical foliation
- Location of horizontal foliation
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- Strike of vertical cleavage
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- Mineral occurrence - minor
- Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- Trigonometrical station (△Mt BISCHOFF)
- Road/track
- Railway - used/disused(or formation)
- Peg location (+P32)
- Drillhole location (⊙B25)
- Building
- Dam or lake
- Drainage
- Topographic contour line (250)
- Fence
- Sample point (•T 3806)
- Quarry/dump

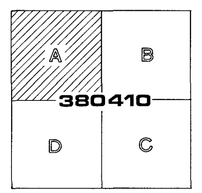
Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Mt	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1: 5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644040

COMSTAFF PROPRIETARY LIMITED

380410-A

GEOLOGY

DRAWN	GEODRAFT
DATE	OCTOBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000

TAS/2/1114

83-1902

LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
ss qt ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	og	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
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- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
- Location of horizontal jointing
- Strike and dip of foliation
- Strike of vertical foliation
- Location of horizontal foliation
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- Strike of vertical cleavage
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- Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- Trigonometrical station (△Mt BISCHOFF)
- Road/track
- Railway - used/disused(or formation)
- Peg location (+P32)
- Drillhole location (⊙B25)
- Building
- Dam or lake
- Drainage
- Topographic contour line (250)
- Fence
- Sample point (+T 3806)
- Quarry/dump

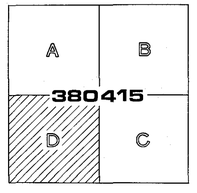
Mineralisation

Asb	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

644041

COMSTAFF PROPRIETARY LIMITED

380415-D

GEOLOGY

DRAWN	GEODRAFT
DATE	NOVEMBER 1977
COMPILED	VARIOUS
SCALE	1 : 5000
	TAS/2/1121

83-1962