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COMSTAFF PROPRIETARY LIMITED

EXPLORATION LICENCE 5/63

WILL O' WISP FOLLOW UP PROJECT

March to December 1972

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

72-914

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COMSTAFF PROPRIETARY LIMITED

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9. BIBLIOGRAPHY

Blanchard, Roland. Interpretation of Leached Outcrops, Bulletin 66, Nevada Bureau of Mines, 1968.

WILL O' WISP FOLLOW UP PROJECTMarch 1972 - December 19721. GENERAL1.1. Contents of Report

This report deals with the period March 1972 when the Will O' Wisp project was initiated to December 1972 when drilling proposals for the first two holes were finalised.

No field work on this project was accomplished from mid August to late November owing to access difficulties.

1.2. Location (see TAS 452)

The Will O' Wisp area is located within E.L. 5/63, approximately 10 miles south of Mt. Bischoff, between the Ramsay and Coldstream rivers.

1.3. Physical Features

The area is typical of the west of Tasmania in that it has deeply incised rejuvenated drainage resulting in a rugged, densely vegetated terrain.

1.4. Access

Access was provided by a rough four-wheel drive track starting from near Waratah and ending at the main campsite located at the junction of the Coldstream and Hatfield rivers. Access to other parts of the area was mainly on foot.

2. PREVIOUS WORK2.1. General

Previous work entailed the location of the Will O' Wisp prospect by regional geochemical and geological techniques as outlined in the following reports:

- M.P. Everett (1969/70) "The Coldstream - Ramsay River Systems"  
 C.S. Rugless (1971/72) "The Ramsay Area Project"  
 M.P. Everett (1971/72) "The Coldstream - Hatfield - Que Regional Reconnaissance Report".

2.2. Geology (see TAS 453)

Regional geological mapping indicated the presence of a N-S trending stable block of complexly folded rocks, the Ramsay Group, unconformably overlain to the east by the Hatfield Group of coarse greywackes and mudstones and to the west in part by the Webb's Creek Tuffaceous Sequence.

A specific area of interest was defined within the Ramsay Group. Road construction revealed the presence of two gossanous areas separated by approximately 600' of a curious "white quartz" rock. This quartz rock was at first thought to be a remnant beach deposit associated with the Coldstream unconformity and later silicified hydrothermally. However, subsequent improved exposure has changed this view considerably.

2.3. Structure

Structurally, it was thought that the Ramsay Group formed an antiform with a shallow plunge to the south. To the east the Hatfield Group forms a symmetric anticline, with a sharp apex, plunging to the SW at about 25°. Near to the Coldstream river the structure merges with that of the Ramsay Group forming a minor synformal "overlap" rather than a sharp angular unconformity.

To the west of the Ramsay Group the structural setting is apparently much more complex and is not so clearly understood.

2.4. Geochemistry (TAS 454)

Stream sediment sampling, first undertaken in the regional coverage of 1969 and confirmed during the summer season of 1972, clearly revealed the presence of anomalous areas, now known as the Will O' Wisp prospect.

Further soil sampling along the main access track revealed geochemical anomalies in association with the gossans (see above).

Geochemical values realised were of the following order:

<u>Type of Sample</u>	<u>Element</u>	<u>Anomalous Value Range</u>	<u>Threshold</u>
Stream	Cu	No anomalies	49 ppm
"	Pb	110 - 190	100 "
"	Zn	330 - 840	299 "
"	Ni	110 - 190	109 "
"	Ag	No anomalies	1 "
"	Bi	" "	-
"	Sb	" "	-
"	Sn	" "	-
Soil	Cu	100 - 150	49 ppm
"	Pb	No analysis	
"	Zn	430 - 440	149 "
"	Ni	130	99 "
"	Ag	No anomalies	1 "
"	Bi	" "	-
"	Sb	50 - 200	20 "
"	Sn	No analysis	

Heavy concentrate sampling in the vicinity of the above anomalies revealed further anomalous values viz:

Ba	2000 ppm	Th	600 ppm
Zn	1500 "	Sn	800 "

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2.5. Summary of Previous Work

The presence of soil and stream geochemical anomalies apparently associated with gossans warranted follow up work on a large scale.

3. OBJECTIVES OF FOLLOW UP PROGRAMME

3.1. General

The objectives of the follow up programme were to locate the source of the stream sediment anomalies in Rhapsody Creek and to trace along strike the discrete anomalous zone associated with the gossans.

3.2. Methods

In view of the good geochemical response in this area gridding and soil sampling at 50' intervals was selected as the exploration method.

Geophysical techniques were to be used only if the geochemical response was patchy or otherwise ill-defined.

4. GEOCHEMISTRY

4.1. C.M.T. Grid

The first stage of the follow up programme was to cut a small grid across both gossanous areas (see TAS 455).

The samples were analysed for Cu, Ni, Sb, Co, Pb, Zn, Mo, Mn, Hg, W, Th, Sn, Cd, As, Bi, Ge, and Ag. Definite anomalies were realised.

The northern gossan area was anomalous in Cu, Pb, Ni, Zn, Hg, and Mo, with minor anomalies in Sb and Co. The values indicated an anomalous zone up to 50' wide and 400' long trending NNW-SSE and open at both ends.

The southern gossan area was anomalous in Cu, Ni, Pb, Zn, Hg, and Mn, with minor anomalies in Sb and Co. The high order antimony values of the soil samples previously taken from the road side were not repeated within the grid area. In the southern gossan area the anomalous zone trended NW-SE for 250' and was up to 100' wide, probably due to downslope dispersion. The zone appeared open at each end.

Maximum geochemical values were as follows:

<u>South Gossan area</u>	<u>Element</u>	<u>North Gossan area</u>
140 ppm	Cu	290 ppm
30 "	Ni	60 "
310 "	Pb	1050 "
400 "	Zn	750 "
BLD	Mo	3 "
0.5 "	Hg	BLD
3000 "	Mn	150 "
30 "	Sb	30 "
30 "	Co	20 "

BLD = Below limit of detection

4/ For other elements .....

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For other elements analysed (see above) the values were all below the limits of detection.

The presence of molybdenum in the northern zone and the increase of manganese and mercury in the southern zone would suggest the possibility of the northern gossan having mesothermal affinities whilst the southern gossan has more epithermal characteristics. This view was supported by structural considerations (see 5.5.2.).

4.2. Will O' Wisp Grid

On the basis of the above evidence, a larger grid was cut over a period of several months to determine the strike directions and extent of the established anomalous zone. It was hoped that the anomalous stream sediment samples in Rhapsody Creek and the gossan in the Ramsay river (see TAS 454) would prove to be indications of the extensions of this established zone and a large grid was cut accordingly.

The large grid (see TAS 456 and 457) involved cutting 62,850' of grid lines. These were sampled every 50' and the samples were analysed by A.A.S. for Cu, Pb, Zn, and Ni. Anomalous samples were further analysed by spectrographic scan for Co, Sb, Hg, Mo, Mn, and Ag, and in some cases for Sn, and Ba. Analyses were carried out by the Australian Mineral Development Laboratories in Adelaide.

Definite anomalies were obtained, the most interesting of which trended NNW from the known C.M.T. anomalies. Eventually, a "strike length" of 4000' was obtained.

Maximum values within this anomalous zone are as follows:

Cu	580	ppm
Pb	4100	"
Zn	1.3%	**
Ni	280	ppm
Ag	8.0	"
Sb	80	"
Co	350	"
Hg	3.0	"
Mn	10000	"
Mo	5	"
Ba	800	"
Sn	1	"

(\*\* This sample was taken in an orange oxidised "slime" probably acting as a scavenger of migrating cations. The next highest Zn value was 2400 ppm.)

N.B. Orientation

For comparison with the above values soil samples were taken over a known orebody at the Adelaide Mine (Pb, Zn, Ag), Dundas. The values obtained were of a similar order to those realised at Will O' Wisp and ranged as follows:

Cu	18 - 200	ppm
Zn	210 - 1700	"
Pb	160 - 7800	"
Ag	0.5 - 4.0	"

Within the overall linear Cu-Pb-Zn anomaly, two distinct sub-zones become apparent (see TAS 456 and 457), one to the SW side and one to the NE, seemingly extensions of the original northern and southern gossan anomalies.

To confirm the presence of these two sub-zones in the vicinity of line 18 an experiment was undertaken to determine the exchangeable Cu-Pb-Zn cation levels within selected samples. The samples chosen were:

Line 11	3100 - 3300	inclusive
" 12A	2250 - 2450	"

and both sets of samples were anomalous in Cu-Pb and Zn. The results were appraised by Dr. I. G. P. Wilding (Melbourne) and his opinions are summarised in the following paragraph.

The absolute levels obtained from the analyses are low but it seems that the samples from line 12A are residual as none of the lead or zinc in the samples is exchangeable whilst the samples from line 11 may be transported. Moreover, the silver content of the line 12A samples is generally noticeably higher than the silver content of the line 11 samples. (The theoretical view is that silver is less mobile than Cu, Pb, or Zn.)

Topographic evidence does not permit derivation of the possibly transported anomalies of line 11 from the residual anomalies of line 12A. Thus, there appears to be two distinct sub-zones within the overall linear anomaly.

To support this view there is further evidence from the distribution of the minor elements. The Mo content of samples from line 11 is distinctly higher than that of samples from line 12A. Mercury levels show the opposite distribution whilst Mn levels from both lines are of a similar order.

It is tentatively suggested that these elemental associations indicate an epithermal mineralisation for the SW sub-zone and a more mesothermal mineralisation for the NE zone (see 5.5.2 also).

No major patterns of distribution of Sb, Ag, Mn, Ba, or Sn are apparent.

#### 4.3. Leaching

##### 4.3.1. General

In an area of high rainfall and varying pH conditions, leaching is significant with regard to the development of geochemical anomalies in soils and to the formation of gossans.

## 4.3.2. Soils

The degree of geochemical response within the anomalous zone itself is variable along strike and in parts of a low order. This is believed to be caused primarily by localised leaching conditions. These conditions are the factor of such variables as Eh/pH conditions, permeability, depth of soil and presence of organic matter, and slope of ground, etc.

Apparent differential leaching within the soils is well illustrated at Point P (TAS 456/457) where Zn and Cu values are non-anomalous (15 ppm) while Pb values are distinctly anomalous (1500 ppm).

This highlights the theoretical view that Cu and Zn are highly mobile whereas Pb is relatively immobile.

## 4.3.3. Gossans

The geochemical values obtained from the gossans are generally of a low order and again comparison was made with the Adelaide Mine, Dundas:

	<u>Adelaide Mine</u>		<u>Will O' Wisp</u>		
	(1)	(2)	<u>South gossan</u> (1)	<u>North gossan</u> (2)	<u>Simon's gossan</u> (3)
Co	10	50	150	50	30
Ni	100	250	20	100	50
Mo	BLD	BLD	BLD	BLD	BLD
Mn	4,000	1,000	2,500	300	300
Cu	50	200	250	400	80
Pb	3,000	3,000	2,000	1,000	200
Zn	10,000	8,000	150	450	600
Ag	3	0.1	5	3	0.5
Sn	BLD	10	BLD	BLD	BLD
As	200	200	BLD	100	BLD
Sb	BLD	100	BLD	BLD	BLD
Hg	BLD	2	0.5	0.15	0.15

BLD = below limit of detection

All values in ppm.

The values from the two sets of gossans tend to be of the same order with the exception of the zinc values.

Assuming a roughly equal percentage of zinc ore in both areas (and the similarity of the Pb and Ag values would, perhaps, suggest this) the difference in zinc gossan values may possibly suggest that more thorough and deeper leaching has taken place at the Will O' Wisp area. Leaching is known to a depth of 150' at the Adelaide Mine (personal comment D.Murray) and glaciation may have removed some of

the upper gossan. The effect of glaciation is believed to account for the apparent lack of gossan at the Rosebery Mine. However, glaciation is not known from the Will O' Wisp area so oxidation must be considered to extend at least 150' below the surface.

The significance of the presence of small limonite "dice" in a specimen taken from Simon's gossan is not yet fully understood. Blanchard maintains that these "dice" are "yielded by oxidation of pyrite in a gangue of strong neutralizer". He further states that with few exceptions the "dice" are found in limestone and are generally formed well above the water-table, usually within 10-20' of the surface, in semi-arid to arid regions.

The high rainfall and apparent lack of extensive carbonates in the Will O' Wisp area makes the presence of limonite dice a puzzling feature at this stage.

#### 4.4. Other Soil Anomalies within the Will O' Wisp Grid Area

##### 4.4.1. General

The significance of the following anomalies (see TAS 456 and 457) is not yet fully understood but they appear unrelated to the main Will O' Wisp anomaly. When more information is forthcoming on the main anomaly, the significance, if any, of these small satellite anomalies can be reviewed. If warranted, further follow up work will be proposed.

- 4.4.2. In the north and NW of the Will O' Wisp grid the main anomalous zone merges with high order Ni/Co anomalies (TAS 456 and 457). Geological mapping has indicated that the nickel highs are caused by Tertiary basalt.
- 4.4.3. At the junction of line 18 and line 14, gossan fragments have been observed adjacent to anomalous soil values in Pb, Zn, Mo, Cu, and Ni.
- 4.4.4. In the SW corner of the grid anomalous values in Cu, Ni, Pb, and Zn, are possibly associated with the black shales observed in this area.
- 4.4.5. To the NE of the grid soil sampling along the main access track revealed anomalies in Cu, Pb, Zn, and Ni. This area has now been costeamed and the anomalies attributed to weathered and altered dolerite containing trace amounts of sphalerite with small quartz veins (C.M.S. thin section).

4.5. Summary

The follow up grid cutting and sampling established a major linear multi-element geochemical anomaly which appeared related to gossans at several points along its strike length. The anomalous zone has a strike for 4000' with possible extensions at either end. Both the gossans and the soil samples taken returned values favourable with those obtained from gossan and soils taken in the vicinity of a known Pb-Zn-Ag orebody.

5. GEOLOGY

5.1. Regional Setting

The salient features of the regional geology have been outlined previously (see 2.2. Geology) and the basic concepts remain unchanged with the possible exception of the postulated plunge of the Ramsay antiform (see 5.5.2.) and the origin of the white quartz rock (see 5.5. Structure).

5.2. Geology of the Grids (see TAS 458)

Rocks outcropping within the grid area were usually confined to creeks and road excavations. Much of the information gleaned was from rock fragments in the soils. From the SW the general succession is summarised as follows:

- i) black shales with boudinaged chert bands
- ii) laminated siltstone
- iii) black shales with chert boudin
- iv) ferruginous silty shale with occasional quartzite bands
- v) micaceous ferruginous siltstone with occasional quartzite bands
- vi) polymictic conglomerate
- vii) massive siltstone with brecciated quartzite band
- viii) flaggy siltstone
- ix) massive siltstone - occasional quartzite and gritty greywacke
- x) white friable quartz rock.

To the east and NE of the white friable quartz rock the succession comprises a rapidly alternating sequence of grey shales, sometimes flaggy, and grey quartzite often with minor quartz veining. Within this sequence the strike directions are fairly constant, generally NNW-SSE, while the dip averages 50-60° to the east. One outcrop of poorly graded siltstones indicated younging to the east. Thus, the succession would appear to be the right-way-up.

In contrast to the orderly strike directions of the easterly sequence, the strikes and dip directions within the westerly sequence are very variable. There would appear therefore to be a fundamental difference between the more psammitic group to the east and the more pelitic group to the west. The significance of this difference will be discussed further in section 5.5. Structure.

### 5.3. Gossans

#### 5.3.1. General

The gossans so far exposed are of varying character, some having visible boxwork and an open texture, while others have no visible boxwork and appear "earthy" and massive. Structurally, the gossans are difficult to interpret.

They appear to be related to the contacts of the white quartz rock (see later 5.4.) but this remains to be proved in the case of the gossanous material exposed in the costean adjacent to line 18.

#### 5.3.2. The North Gossan (see photo one)

This gossan has quartz veining on its NE contact and exhibits open boxwork, possibly derived in part from bornite, chalcopyrite and tetrahedrite. However, most of the goethite observed in thin section appears to be exotic rather than indigenous.

The main body of the gossan consists of parallel sub-horizontal bands of chert alternating with open gossanous "webworks" probably replacing shaly material.

Thin section reports by C.M.S. described the presence of iron-stained silica pseudomorphs after carbonate rhombs, the replacement of carbonate by silica being a diagenetic feature. The presence of carbonate "webworks" is emphasized but genuine boxwork does occur.

There appears to be a large shale "raft" caught up in the gossanous material and at one point these shales are "spotted", presumably due to wall-rock alterations by thermal effects.

Structurally, this gossan exhibits indistinct contacts, although the contact between the shale "raft" and the gossanous material is quite clear (see photo two). This contact strikes at  $095^{\circ}$  (mag) and dips at  $56^{\circ}$  to the south. This strike is at a high angle to that of the overall geochemical anomaly and may prove to be unreliable. The gossan appears to have a true width of approximately 40' and brecciation is apparent at its northern contact.

#### 5.3.3. South Gossan

This gossan is of totally different appearance to the northern gossan in that it is less well defined and has no inside boxwork or quartz veining. It consists mainly of limonitic-clayey material and appears to be in excess of 30' wide. However, its strike direction is not known owing to its poor definition.

#### 5.3.4. Simon's Gossan

This is a poorly defined gossan but there are first order geochemical anomalies associated with it. This gossan exhibits no boxwork but limonitic "dice" have been observed in a specimen of the gossan (see previously). On its eastern contact irregular slickensiding was observed but quartz veining was lacking.

#### 5.3.5. The Line 18 Gossan

The gossan exposed in the costean adjacent to line 18 was represented mainly by a highly weathered limonite-stained clay-pug (see photo 3). However, genuine boxwork was observed in a large boulder embedded in the floor of the costean (see photo 4).

The strike of this gossanous zone, as indicated by bands within the ferruginous clay-pug, would appear to be  $320^{\circ}$  mag. with a  $67^{\circ}$  dip to the west (see photo 3).

#### 5.4. White Quartz Rock

Between the north and south gossans is a zone of pure white quartz rock up to 800' wide. Two distinct types are visible; the one is very friable and granular and has the appearance of coarse flour; the second is more silicified and occurs as hard blocks, sometimes exhibiting a brecciated appearance and commonly showing quartz veining.

In thin section (C.M.S.) the rock is observed to consist almost entirely of quartz, having an estimated  $\frac{1}{2}\%$  or less of impurities. The bulk of the quartz is chalcedonic, often with a very faintly yellow cast and occurring as microcrystalline radiating and banded areas. The quartz is of hydrothermal origin and there are pockets of discontinuous veinlets of clear mosaic quartz representing cavity fillings. Also inclusions of dense, semi-opaque, whitish material which is most probably leucoxene. Extremely small crystals of carbonate are sometimes present; they are generally less than  $5\mu$  in size.

C.M.S. have suggested that the rock may be a type of siliceous sinter, though it shows no banding or growth features, or a chert which has been recrystallised. They state that the more friable patches may have contained more carbonate which has been leached, but there is no detectable evidence of sedimentary features and no pseudomorphs, relicts or other replacement features.

#### 5.5. Structure

##### 5.5.1. General

Three theories were advanced (resulting from discussions between Dr. J.F. Lambert and the author) to explain the evidence available within the context of the regional structural setting. They are described separately as follows:

### 5.5.2. Fracture Theory

The Ramsay Group is believed to behave structurally as a rigid, incompetent, block. The axis of the Ramsay antiform is aligned N-S and does not appear to have yielded to the regional warping to which the Hatfield Anticline and Que Syncline have been subjected. From south to north the axes of these two structures have been bent from a N-S trend to a NE-SW trend (see TAS 453).

The failure of the rigid Ramsay Group to bend similarly, has led, it is believed, to its fracture. This fracture is represented by a NW-SE zone of brecciation. It is not known whether there is a throw on this brecciated zone but the difference between the sedimentary sequences on either side of it would suggest this.

Field evidence, e.g., dips from the gossans, would imply that the brecciated zone dips steeply to the west and may possibly connect with the Ramsay Gossan.

Should this fracture extend as far as the Devonian Meredith Granite to the west, it is conceivable that solutions emanating from the granite have mineralised the entire brecciated zone, more especially at its contacts with the country rock.

If the westerly dip of the brecciated zone prevails, then the two orebodies postulated at its contacts may be termed the "footwall" orebody (north gossan) and the "hanging wall" orebody (south gossan). This enhances the view previously stated (4.1. and 4.2.) that the southerly or hanging wall gossan has epithermal characteristics and the northerly or footwall gossan has mesothermal characteristics.

### 5.5.3. Carbonatite Theory

It was thought conceivable that the "white quartz rock" of the Will O' Wisp area represented a highly silicified and leached carbonatite intruded along a regional fracture originating as described above (5.5.2.).

There was evidence to support this theory in the form of minute carbonate crystals within the friable white quartz (see 5.4.) and the presence nearby in the Coldstream river of a beforosite-carbonatite in close association with a biotite-pyroxene lamprophyre. The latter is partially brecciated and quartz veining as well as calcite veining is apparent. The amount of strontium present (378 ppm) indicates a non-sedimentary origin for the carbonate.

Two specimens of the "white quartz rock" were analysed for the following elements and the results were compared with analyses of known carbonatites.

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Element	"white quartz rock"			Known carbonatite - Wyllie (Basutoland)
	(1)	(2)		(3)
	Nb	x		x
P	x	x	P <sub>2</sub> O <sub>5</sub> 0.66% **	
Ba	200	200	740 ppm	
Sr	x	x	445 "	
Y	x	x	46 "	
La	x	x	370 "	
Ti	300	600	TiO <sub>2</sub> 2.03% **	

\*\* (Wyllie) Micaceous kimberlite.

These values are of a low order, especially that of niobium, and would tend to indicate that the "white quartz rock" was not originally a carbonatite. However, the very low percentage of carbonate in the samples analysed, compared to the amount of carbonate in an actual carbonatite, makes this conclusion of dubious validity.

No evidence of fenitization was observed and the balance of evidence would suggest the rejection of this theory.

5.5.4. Sedimentary Origin

It was considered possible that the friable white quartzite represented a silicified and leached carbonate-rich sedimentary rock, possibly a dolomite or limestone.

The apparent transgressive nature of the "white quartz zone" with respect to the westerly pelitic sequence and the change of succession to the east (see 5.2.) may indicate an unconformity at the base of the "white quartz zone". Equally, in this case, it may indicate a faulted contact.

If carbonates are present within the "white quartz zone" the presence of limonite at its contacts may be explained by the precipitation of leached limonite in the presence of a neutralizing gangue (see also 4.3.2.). Furthermore, the migrating limonite may have "scavenging" tendencies and its consequent enrichment with cations would make it geochemically anomalous.

However, the presence of genuine boxworks has been observed, especially from the costean at line 18.

5.6. Geological Conclusions

Definite and unequivocal conclusions cannot be formulated as the evidence available can be interpreted in a number of ways.

The postulation of a brecciated and silicified fracture zone, dipping to the west, seems to fit the facts most satisfactorily, although other possibilities cannot be disregarded.

Clearly, diamond drilling will reveal the correct interpretation.

## 6. GEOPHYSICS

### 6.1. General

It was decided to confirm the acceptability and reliability of the geochemistry by a limited amount of geophysical traversing, especially in areas where the geochemical response was discontinuous.

Being readily available, cheap and reliable, self-potential was chosen as the method.

### 6.2. Self Potential

#### 6.2.1. Methods

Using a Scintrex VSP-7 meter and standard Austral porous clay pots filled with saturated copper sulphate solution, five grid lines were traversed (see TAS 459).

The travelling pot method was employed and readings were taken every 50'. In order to monitor the "zero-drift", two base pots, one on-line and one off-line, were placed 50' from the stationary pot. Diurnal drifts were low - typically less than 10 mv along a line.

#### 6.2.2. Results (as per memo from Mr.D.Trussell)

Very distinct and broad anomalies were recorded on all lines, especially near known gossans. They do not appear to be the result of topography. The anomalies are exceptionally broad so only the most negative peaks may be of interest. Readings greater than -40 mv are usually regarded as definite SP anomalies. This would place all of the "white quartz rock" within the self potential anomaly (e.g. line 10B).

## 7. PROPOSALS FOR FUTURE WORK

### 7.1. Drilling

It is proposed that the Will O' Wisp project is drilled and initially 3,600' of drilling is envisaged.

The first two holes are to be drilled as follows:  
(see also TAS 460).

Hole No.1 - To be collared 480' from the north gossan on a bearing of 230° mag.

Angle of hole 60°  
Bearing 050°  
Length 600'

Hole No.2 - To be collared 425' from Simon's gossan on a bearing of 220° mag.

Angle of hole 45°  
Bearing 040°  
Length 600'

The remaining holes, probably four, of 600' length, will be collared as required depending upon information gained from the first two holes. Hole No.3 will probably be drilled to intersect the orebody beneath the gossan exposed in the costean at line 18.

7.2. Geophysics

Further geophysical traversing is recommended. If possible, an E-M technique should be used in order to gain further information on the dip of the postulated orebodies.

A total of 10,000' of E-M traversing is envisaged.

7.3. Geochemistry

The Will O' Wisp grid will be enlarged to the SE in order to trace the extensions of the anomalous zone as far as the Coldstream unconformity.

Compiled by:  
M. P. Everett,  
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Approved by:  
R.J.Kernick,  
Chief Geologist.

*pp. B. Mc Bride*



Photo 1 : NORTH GOSSAN



Photo 2 : North Gossan - contact  
between gossan and "shale raft".



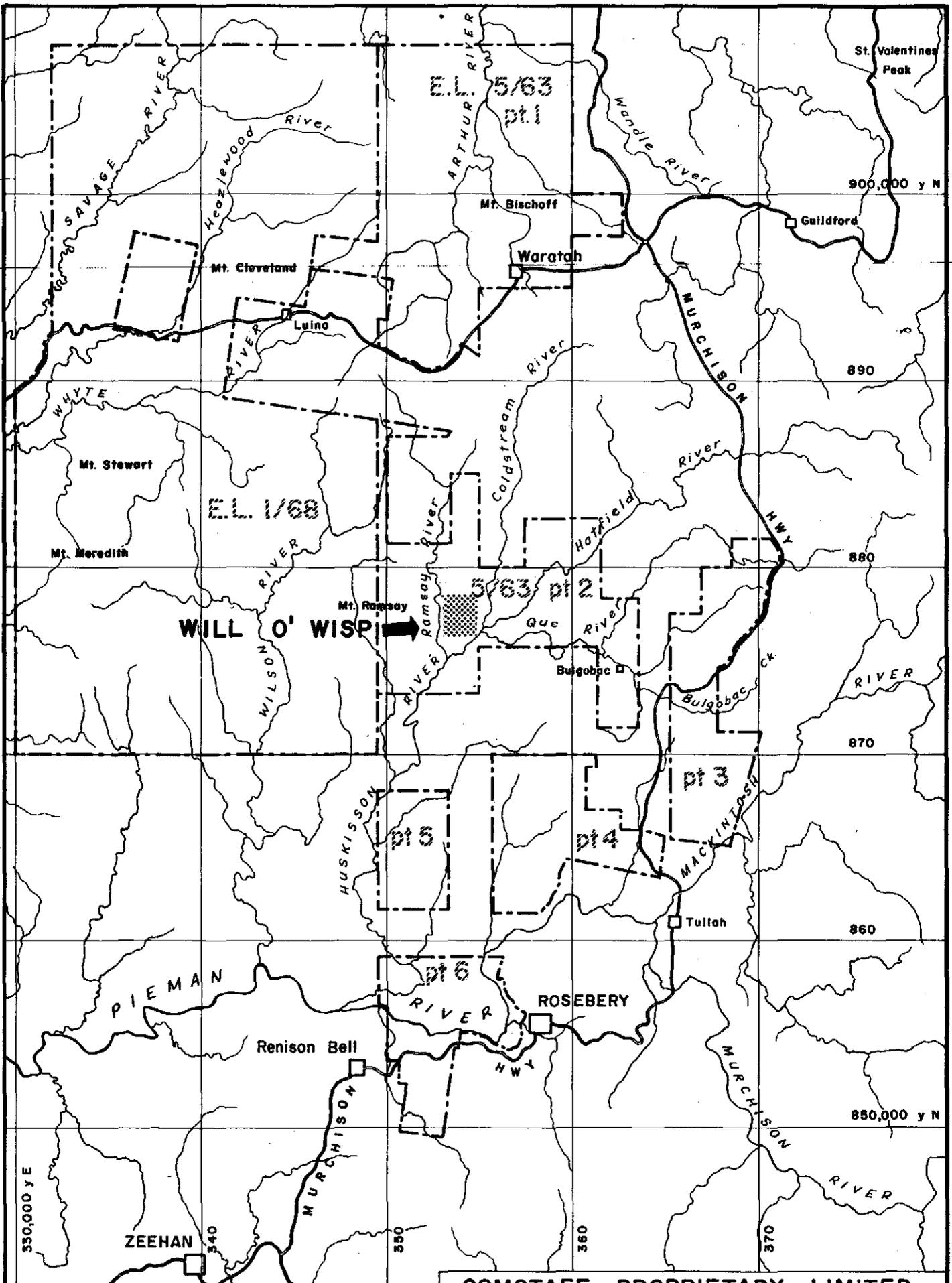
Photo 3 : Weathered, banded,  
limonite-stained clay  
pug



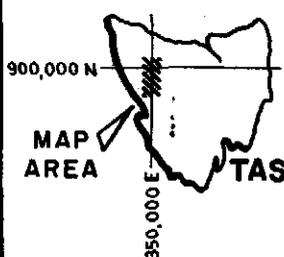
Photo 4 : Gossan with genuine  
boxwork

019

715020



**WILL O' WISP**



ANG COORDINATES

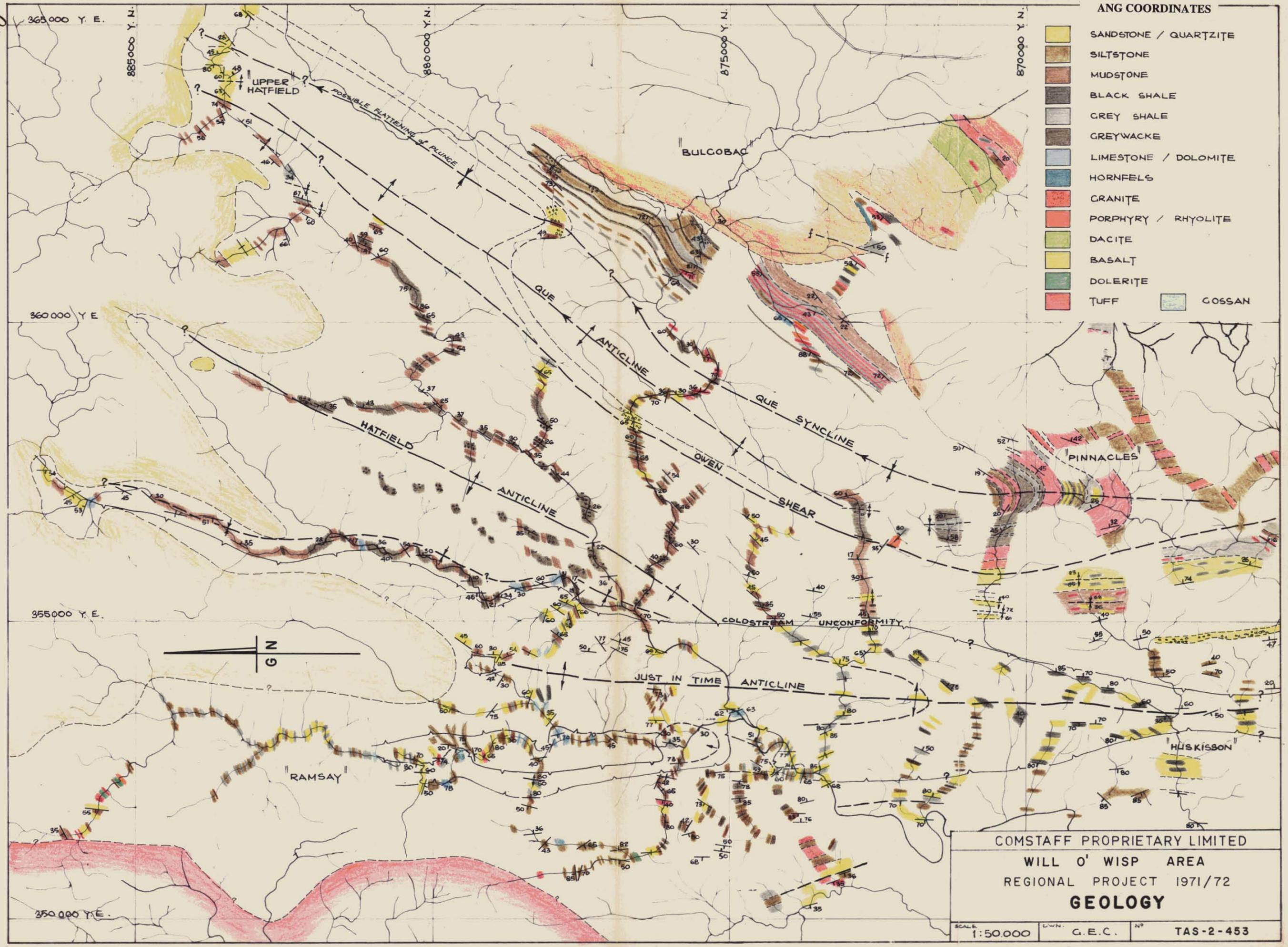
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP AREA  
 1972 WINTER SEASON REPORT  
**LOCATION MAP**

020  
715021

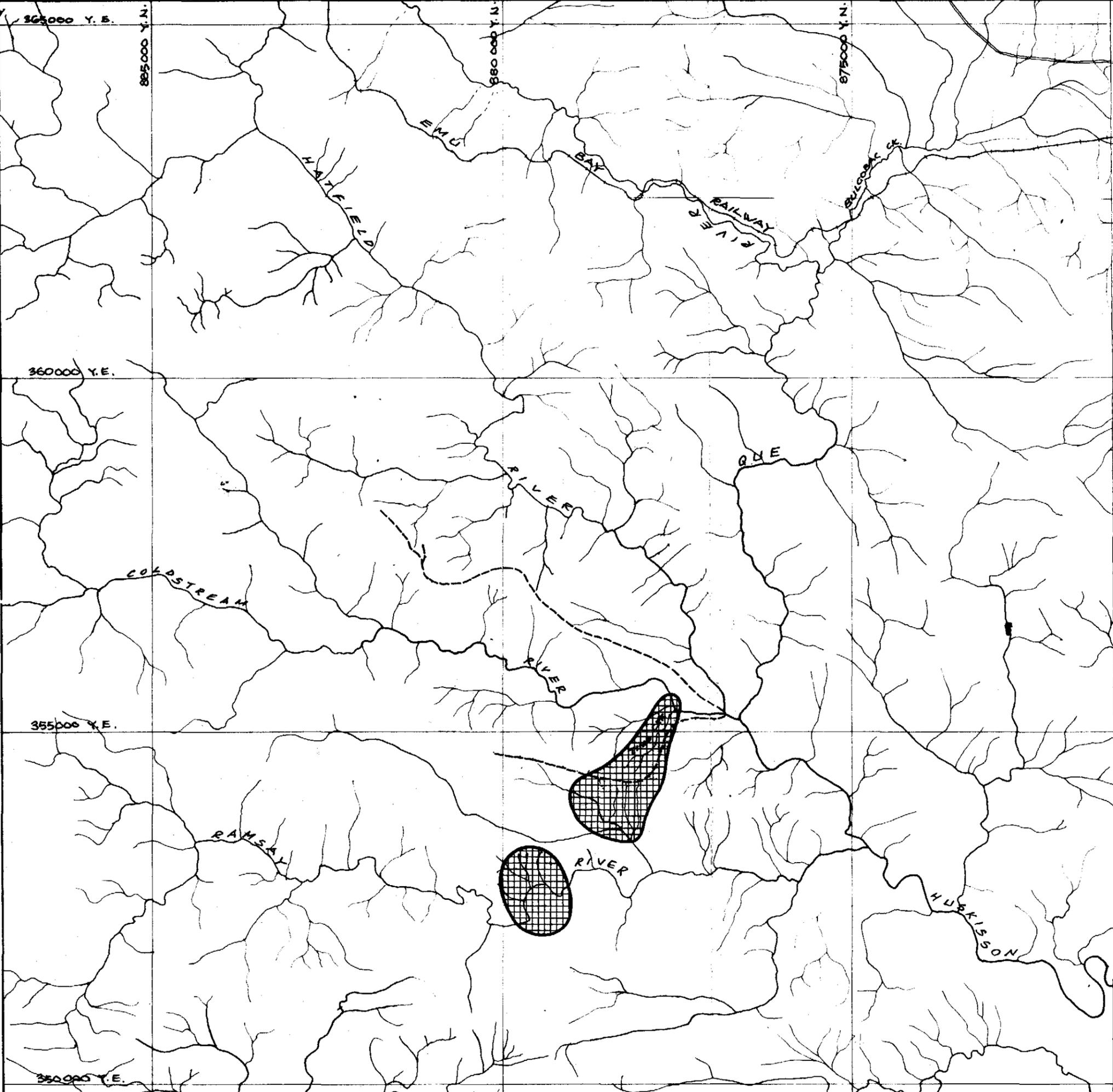
ANG COORDINATES

- SANDSTONE / QUARTZITE
- SILTSTONE
- MUDSTONE
- BLACK SHALE
- GREY SHALE
- GREYWACKE
- LIMESTONE / DOLOMITE
- HORNFELS
- GRANITE
- PORPHYRY / RHYOLITE
- DACITE
- BASALT
- DOLERITE
- TUFF
- GOSSAN



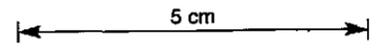
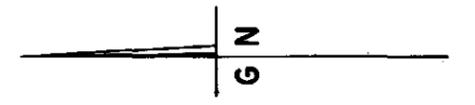
COMSTAFF PROPRIETARY LIMITED  
 WILL O' WISP AREA  
 REGIONAL PROJECT 1971/72  
**GEOLOGY**  
 SCALE 1:50,000 G.E.C. TAS-2-453

021



ANG COORDINATES

715022



COMSTAFF PROPRIETARY LIMITED  
 WILL O' WISP AREA  
 REGIONAL PROJECT 1971/72  
**GEOCHEMICAL ANOMALIES**

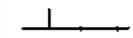
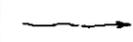
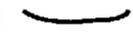
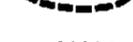
SCALE 1:50,000 | DWN. C.E.C. | NO. TAS-2-454

022

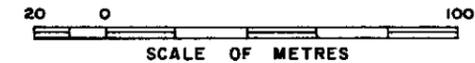
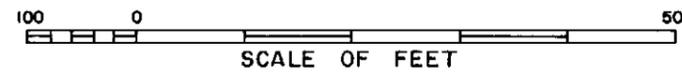
Line 15 A

715023

# LEGEND

-  Coldstream Main Track original grid
-  Will O' Wisp 50 foot interval grid, (extention of G.M.T. grid)
-  Road or track, chained in feet
-  Creek
-  50 ppm Pb contour (not within anomalous Zn zone)
-  40 ppm Zn contour
-  80 ppm Zn contour
-  160 ppm Zn contour
-  50 ppm Cu contour
-  50 ppm Ni contour

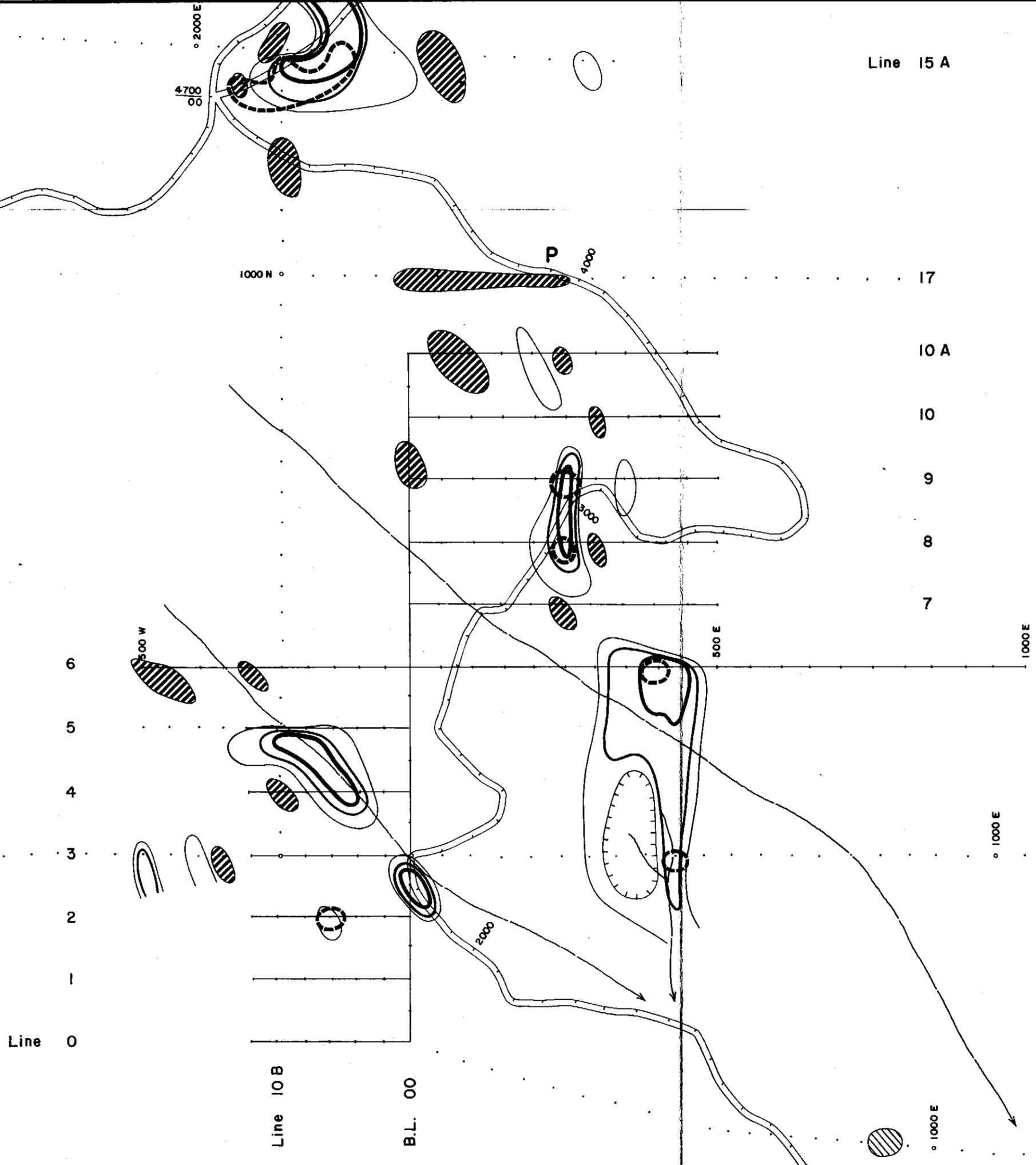
5 cm



COMSTAFF PROPRIETARY LIMITED

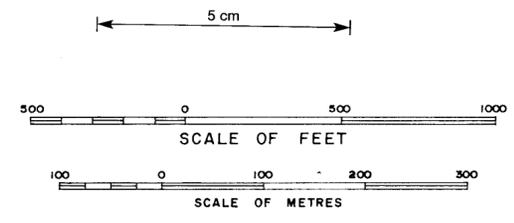
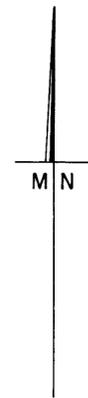
C.M.T. GRID - WILL O' WISP AREA  
 1972 WINTER SEASON REPORT  
**Pb, Zn, Cu & Ni GEOCHEMISTRY**

DRAWN June 73 *R. H. L.* COMPILED MPE SCALE 1:2,000 DWG. No. TAS-2-455



LEGEND

-  Coldstream Main Track original grid
-  Will O' Wisp 50 foot interval grid, (extension of C.M.T. grid)
-  Road or track, chained in feet
-  Creek
-  50 ppm Cu contour
-  50 ppm Ni contour



NOTE THAT DISTANCES CHAINED ARE IN FEET AND HAVE NOT BEEN CORRECTED FOR SLOPE.

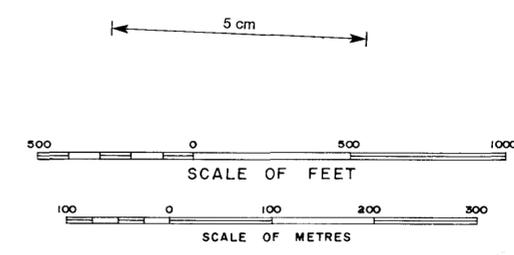
715024

COMSTAFF PROPRIETARY LIMITED...			
WILL O' WISP GRID 024			
1972 WINTER SEASON REPORT			
<b>Cu &amp; Ni GEOCHEMISTRY</b>			
DRAWN JUNE 73	COMPILED MPE	SCALE 1:5,000	DWG. TAS-2-456



**LEGEND**

- Coldstream Main Track original grid
- Will O' Wisp 50 foot interval grid, (extention of C.M.T. grid)
- Road or track, chained in feet
- Creek
- 40 ppm Zn contour
- 80 ppm Zn contour
- 160 ppm Zn contour
- >49 ppm Pb zone (not within anomalous Zn zones)



NOTE THAT DISTANCES CHAINED ARE IN FEET AND HAVE NOT BEEN CORRECTED FOR SLOPE.

715025

COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 025  
1972 WINTER SEASON REPORT  
**Pb & Zn GEOCHEMISTRY**

DRAWN *R. Little* COMPILED MPE SCALE 1:5,000 DWG. TAS-2-457

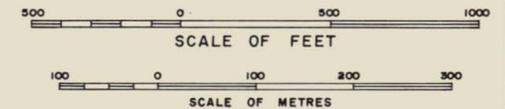
LEGEND

- Coldstream Main Track original grid
- Will O' Wisp 50 foot interval grid, (extension of C.M.T. grid)
- Road or track, chained in feet
- Creek

- Sandstone
- Chert
- Quartzite
- Conglomerate
- Siltstone
- Mudstone
- Light shale
- Black shale
- Greywacke
- Dolomite
- Dolomitic conglomerate
- Dolomite with leached silica rich capping
- Gossan
- Intermediate igneous
- Dolerite
- Basalt

- Strike and dip of bedding
- Strike and dip of cleavage
- Strike and dip of jointing
- Stream, road & grid, rock outcrops

5 cm



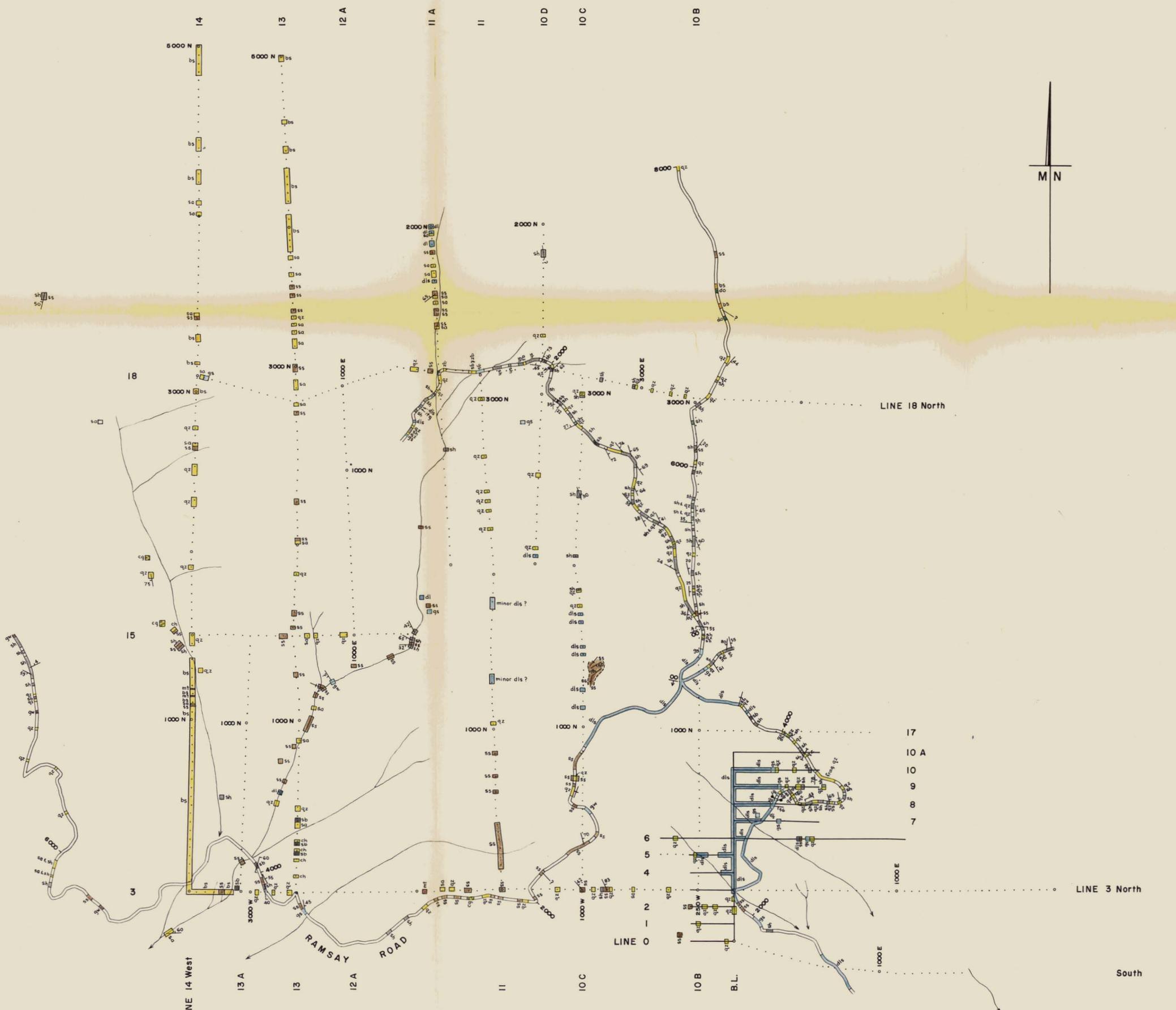
NOTE THAT DISTANCES CHAINED ARE IN FEET AND HAVE NOT BEEN CORRECTED FOR SLOPE.

715026

COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 026  
1972 WINTER SEASON REPORT  
DETAIL GEOLOGY

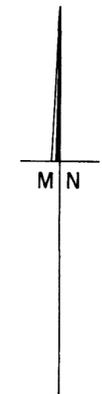
DRAWN *R. Kelly* COMPILED MPE SCALE 1:5,000 DWG. TAS-2-458



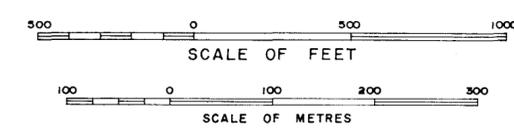
South

LEGEND

-  Coldstream Main Track original grid
-  Will O' Wisp 50 foot interval grid, (extention of C.M.T. grid)
-  Road or track, chained in feet
-  Creek
-  Self potential



5 cm

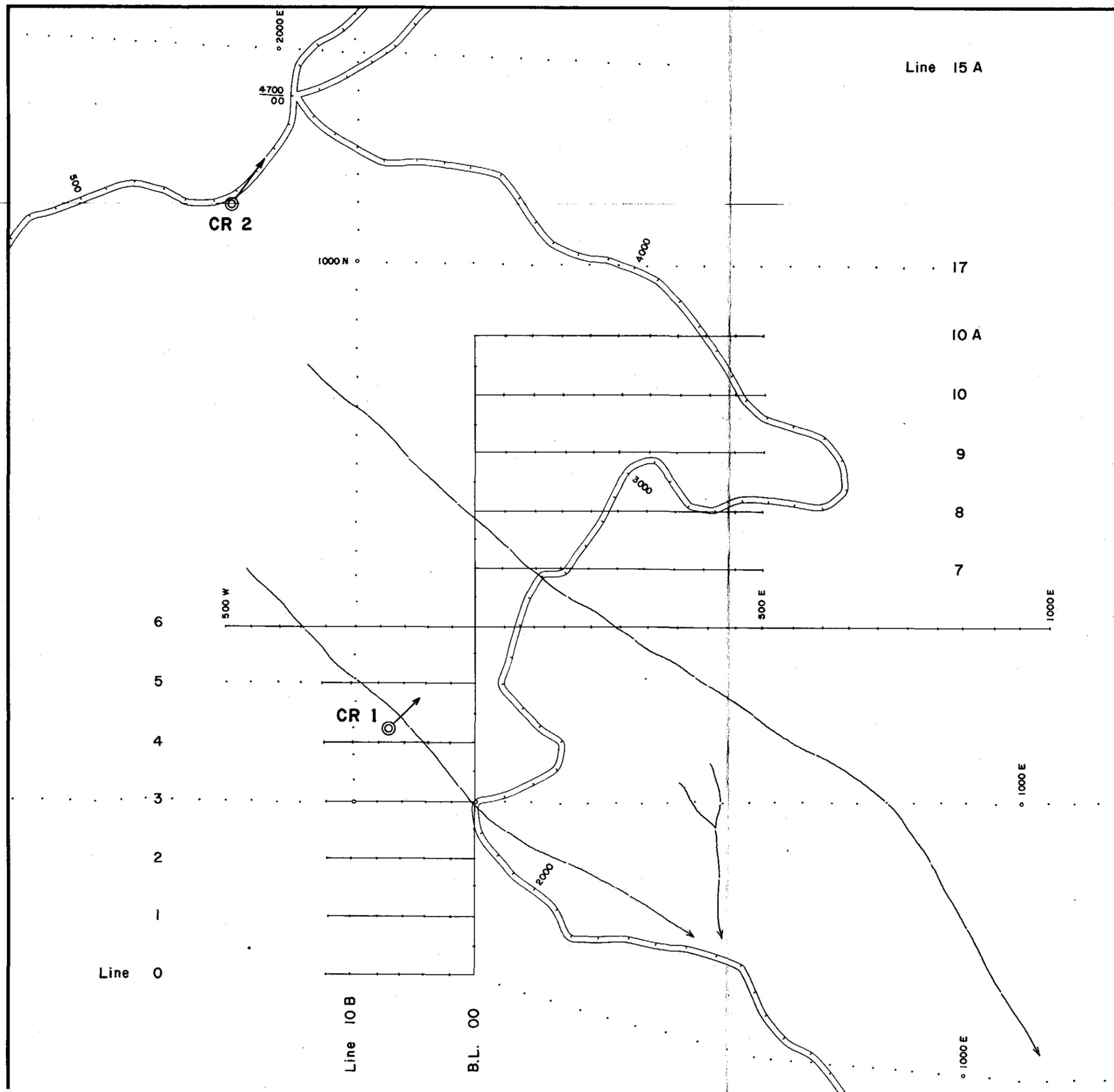


NOTE THAT DISTANCES CHAINED ARE IN FEET AND HAVE NOT BEEN CORRECTED FOR SLOPE.

715027

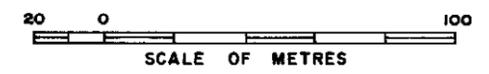
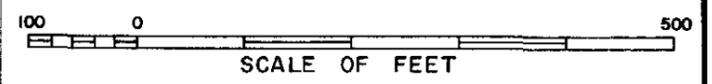
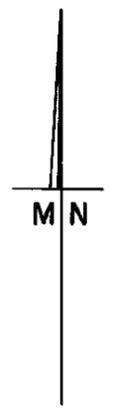
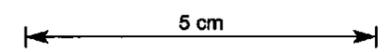
COMSTAFF PROPRIETARY LIMITED			
WILL O' WISP GRID 027			
1972 WINTER SEASON REPORT			
S. P. GEOPHYSICS			
DRAWN JUNE 73	COMPILED MPE	SCALE 1:5,000	DWG. TAS-2-459

023



### LEGEND

- Coldstream Main Track original grid
- Will O' Wisp 50 foot interval grid, (extention of C.M.T. grid)
- Road or track, chained in feet
- Creek
- CR1** Proposed diamond drill hole



715028

COMSTAFF PROPRIETARY LIMITED

C.M.T. GRID - WILL O' WISP AREA  
 1972 WINTER SEASON REPORT  
 PROPOSED D.D.H's. CR 1 & CR 2