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COMSTAFF PROPRIETARY LIMITED

EXPLORATION LICENCE 5/63

WILL O'WISP PROJECT

COLDSTREAM

REPORT ON DRILLING PROGRAMME

PARTS I & II

1972/1973 SUMMER FIELD SEASON

AUSTRALIAN ANGLO AMERICAN LIMITED

MELBOURNE

Incorporated in the State of Victoria

JUNE 1973.

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1972/1973 SUMMER FIELD SEASON

PART I

1. SUMMARY

Six diamond drill holes totalling 3,473 feet were drilled to test the Will O' Wisp lead/zinc prospect in the Coldstream area of Exploration Licence 5/63. The drill holes intersected a gently folded, steeply dipping sedimentary sequence of dolomitic limestones and associated dolomitic shales, sandstones, and black shales, with minor fine sulphides of probably syngenetic and diagenetic origin. No economic mineralisation was encountered.

2. INTRODUCTION

2.1. Location

The Will O' Wisp prospect is about 10 miles south of Mt.Bischoff, near the junction of the Coldstream and Hatfield rivers within Exploration Licence 5/63 (see Location Plan TAS 461).

2.2. Physical Features

The area has deeply incised rejuvenated drainage, generally flowing to the SW between steep and densely vegetated ridges.

2.3. Access

Access from December to mid February was by helicopter and thence by four wheel drive vehicle on a rough bulldozed track which, in mid March, due to continuing bad weather and heavy use, permitted access only by bulldozer.

2.4. Previous Work

Regional exploratory work commenced with stream sediment sampling and mapping of the Coldstream drainage system during the 1969/1970 field season. Follow up sampling was undertaken in the 1971/1972 summer field season. Gridding and geophysical surveys culminating in the siting of the first two drill holes was carried out in 1972.

2.5. Objective

The objective was to test, by diamond drilling, for the

2/ presence of sulphide .....

presence of sulphide mineralisation within the elongated zone of gossans and geochemical anomalies of the Will O' Wisp lead-zinc prospect.

2.6. Work Undertaken

Six diamond drill holes of footages, 800', 600', 623', 400', 600', and 450' were sited and completed.

Mineralised or possibly mineralised sections of core were despatched to the Australian Mineral Development Laboratories in Adelaide, and analysed for Pb, Zn, Cu, Ag, and Ni, and scanned for minor metals and elements. Thirty petrological samples were submitted to Central Mineralogical Services in Adelaide for petrological description and sulphide identification.

3. DRILLING

3.1. CR1

CR1 had been sited at the end of the 1972 winter programme, bearing at 050° mag., and dipping at 60° to test a leached Pb/Zn gossan thought to be dipping to the SW (see plan TAS 462). Detailed reasons for its position are outlined in the report on the 1972 winter season at Coldstream.

CR1 intersected dolomitic limestone and minor chert and black sericitic siltstone, which appears to dip to the NE at a moderate to steep angle (see section plan TAS 466).

At 753' a ¼" vein of coarse chalcopyrite, sphalerite, galena and pyrite was intersected. Apart from this, mineralisation consisted of very fine grained pyrite, lesser sphalerite and trace galena disseminated patchily throughout all the lithologies, often associated with carbonaceous material, and in some carbonate veinlets.

DD73 CR1 Borehole log

0 - 87	Fine quartz rock, probably silicified, leached carbonate and cavity infillings.
87 - 93½	Dolomitic limestone.
93½ - 96	Dolomitic limestone or dolomite rock, brecciated and siliceous.
96 - 120	No core, probably solution cavity.
120 - 123	Dolomitic limestone.
123 - 126	Chert, fractured and carbonate veined.
126 - 277	Dolomitic limestone.
277 - 279	Cherty dolomitic limestone.
279 - 524	Dolomitic limestone.
524 - 543	Black sericitic siltstone.
543 - 577	
577 - 800	Dolomitic limestone, minor silicification.

End of hole.

3/ 3.2. CR2

3.2. CR2

CR2 had been sited at the end of 1972, bearing at 040° mag., and dipping at 45° to test a leached lead/zinc gossan thought to be dipping to the SW (see plan TAS 462).

Details of reasons for its position are outlined in the report of the 1972 winter field season at Coldstream.

CR2 intersected carbonaceous black and grey shales and dolomitic limestone. The sequence appears to be gently folded and to dip near vertically. (see TAS 467).

CR2 encountered two feet of moderate pyrite in dolomitic limestone near its contact with a black carbonaceous shale sequence. Minor galena was found at 263' in a carbonate veined black shale. Very fine sulphides occurred disseminated in the dolomitic limestone and the black shale.

DD73 CR2 Geology of Borehole

0	- 35	No core
35	- 37	Micaceous pyritic quartzite (sulphides apparently syngenetic) and fine grained quartz rock.
37	- 53	Coaly organic matter with fragments of fine grained quartz.
53	- 63	Fine grained quartz rock, probably low temperature cavity infillings in carbonate rocks.
63	- 86	Brecciated fine detrital and chemical sediments (quartzite, micaceous siltstone and cherty carbonate) in a matrix of coaly organic matter.
86	- 93	Fine grained quartz rock.
93	- 94	Organic matter with rock fragments as in 63 - 86.
94	- 117	Fine grained quartz rock.
117	- 124	Organic matter with grey shale fragments.
124	- 127	Black shale.
127	- 129	Coaly, organic matter.
129	- 157½	Fine grained quartz rock.
157½	- 280	Black shales.
280	- 297½	Black and grey shales, banded.
297½	- 332	Black shales.
332	- 335	Organic matter with quartz rock fragments.
335	- 546	Dolomitic limestone, pyritic 518 - 520
546	- 609	Black shales.

End of hole.

3.3. CR3

CR3 was collared after the completion of CR1, before CR2 was completed, on a bearing of 050° mag., and inclined

4/ at 55° .....

at 55° (see TAS 462). Although CR1 had not intersected mineralisation dipping to the SW, it was decided to test initially for south-westerly dipping mineralisation in this area. This was decided in view of the excellent geochemical anomalies in the vicinity, the attitude of ferruginous bands in the gossan, dipping 60-66° to the SW and the geophysical evidence in the form of an EM anomaly indicating a south-westerly dip also.

However, to take into account the possibility of a vertical or steep easterly dip also, the hole was sited much closer to the gossan than the previous holes.

CR3 intersected a folded sequence of dolomitic limestones, dolomitic shales and dolomitic sandstones. Bedding indicates a north-easterly dip from 150' below the surface in contrast to a probable vertical or steep SW dip closer to the surface (see TAS 468 for interpretation).

Eleven feet of moderate pyrite with fine galena and sphalerite associated with coarse recrystallised dolomite was encountered at 516'. Fine pyrite and trace sulphides were also disseminated in dolomitic and carbonaceous shales, dolomitic sandstones, and dolomitic limestone, and occasionally occurring in layers. Locally, pyrite was concentred within diagenetic carbonate and quartz veinlets. It was generally associated with carbonaceous material also and occasionally with barite.

DD73 CR3 Geology of Borehole

0	-	57½	No core.
57½	-	87	Dolomitic limestone or dolomite rock.
87	-	110	No core, probably solution cavity.
110	-	130	Dolomitic limestone.
130	-	138	Black shales, brecciated.
138	-	141	Dolomitic limestone.
141	-	165	Dark grey dolomitic shales.
165	-	173	Black shales, brecciated.
173	-	178½	Dolomitic limestone breccia.
178½	-	194	Dolomitic shales with minor dolomitic sandstone.
194	-	210	Dolomitic shales and sandstones.
210	-	217	Quartzite.
217	-	219½	Interbedded quartzite/shale.
219½	-	228	Dolomitic shale or dolomitic limestone, very brecciated.
228	-	229	Dark grey shale.
229	-	254	Dolomitic shale.
254	-	260	Grey shale, brecciated.
260	-	327	Dolomitic sandstones and minor shales, becoming more shaley downhole.
327	-	347	Banded grey and dark grey shales.
347	-	384	Dolomitic sandstones and shales.
384	-	411	Dark grey banded shales.
411	-	516	Dolomitic sandstone with minor dolomitic shales.
516	-	529	Dolomitic shale, pyritic 516-527; strong pyrite 519-522.
529	-	578	Dolomitic limestone.
578	-	623	Cherty dolomitic limestone.
End of hole.			

3.4. CR4

CR4 was sited to test beneath the line 18 gossan from the opposite direction to CR3 on a bearing of 230° mag., and inclined at 60° (see TAS 462).

The hole intersected the same rock types as CR3. Dips are apparently to the NE (see TAS 468).

Gossan fragments (> 1% Zn, 1%-.3% Pb) were intersected within clay from 70 to 114' down hole. Two inches of massive galena and sphalerite were encountered in cavernous dolomitic limestone at 162'. 11' of core was missing from this section and may have included sulphides. Elsewhere, fine grained pyrite and sulphides occurred in the same manner as found in CR3.

DD73 CR4 Geology of Borehole

0	- 70	No core.
70	- 114	Gossan fragments in ferruginous clay.
114	- 158	Dolomitic breccia, recrystallised.
158	- 161	Dolomitic shales, brecciated.
161	- 163½	Recrystallised dolomitic limestone with cavities. 161'11" 2" coarse galena and sphalerite.
163½	- 174	No core, probably solution cavities.
174	- 179	Dolomitic grey shales.
179	- 188	Black carbonaceous shales.
188	- 237	Dark grey banded shales.
237	- 252	Interbedded carbonaceous quartzites and shales.
252	- 288	Dolomitic shales.
288	- 349	Dolomitic shales and minor dolomitic sandstone.
349	- 358	Dolomitic shales.
358	- 368	Dolomitic limestones.
368	- 383	Dolomitic shales.
383	- 389	Dark grey banded shales.
389	- 398	Dolomitic shales and sandstones.
398	- 400	Banded dark grey shales.
End of hole.		

3.5. CR5

CR5 was sited after the completion of CR2 to test its target gossan from the opposite direction (see TAS 462).

No significant mineralisation was encountered.

CR5 passed through interbedded quartzites and shales, into the dolomitic sequence. The sequence appears to be gently folded, changing dip from steeply to the SW near surface to moderately to the NE by 150' below surface (see TAS 469).

Minor fine grained pyrite occurred in layers, particularly in the black carbonaceous shales. Moderate megascopic pyrite was intersected at 394' in dolomite near its contact with the quartzite/shale sequence and is probably the same horizon encountered by CR2 at 518'.

6/ DD73 CR5 Geology .....

DD73 CR5 Geology of Borehole

0	-	30	No core.
30	-	79	Interbedded quartzites and shales.
79	-	88	Black shales.
88	-	90½	Quartzite, weathered, iron stained.
90½	-	93	Black shales.
93	-	105	Weathered shales.
105	-	124	Quartzite, weathered, iron stained.
124	-	187	Weathered shales and minor quartzites.
187	-	204	Quartzite.
204	-	363	Dolomitic dark grey banded shales with minor quartzites, carbonate veined carbon content increasing down hole.
363	-	385	Black carbonaceous shale, dolomitic.
385	-	388	Dolomitic limestone.
388	-	389	Black carbonaceous shales, dolomitic.
389	-	397	Dolomitic limestone, iron stained, brecciated minor blebs and smears of scaly material. 394' pyrite.
397	-	450½	Dolomitic limestone, minor quartz veinlets.

End of hole.

3.6. CR6

CR6 was sited to test for an extension of the mineralisation intersected by CR4 (see TAS 462). It passed through the same sequence as CR4 but did not intersect significant mineralisation. Bedding was dipping steeply to the NE initially but by 500' below the surface it had folded to dip gently to the SW (see TAS 468 for interpretation).

Patchy megascopic pyrite concentration were intersected in carbonaceous shales and in dolomitic limestones. Very fine grains of pyrite and other sulphides were disseminated in dolomitic limestones, generally in association with carbonaceous partings and also with barite in dolomitic shales and sandstones.

DD73 CR6 Geology of Borehole

0	-	97½	No core.
97½	-	122	Dark grey shales, ?dolomitic.
122	-	123	Dolomitic black shales or carbonaceous dolomite.
123	-	172	Carbonaceous dolomitic breccia. 136-139' pyritic.
172	-	386	Dolomitic limestone. 363-365' minor pyrite concentrations.
386	-	393	Brecciated dark grey shales.
393	-	399	Dolomitic shale.
399	-	402	Dolomitic shales and sandstones.
402	-	420½	Dolomitic shales. 410-415' pyritic.
420½	-	421	Dark grey banded shales, pyritic.
421	-	450	Dolomitic sandstones with minor shales, becoming more shaly down hole.
450	-	453	Grey and green banded shales.
453	-	467	Dark grey banded shales with minor green shales.
467	-	473	Dolomitic shales and minor sandstones.
473	-	495	Dolomitic sandstones and minor shales.
495	-	507	Green and grey banded dolomitic shales, becoming greyer down hole.

507	- 509	Dark grey shales, brecciated.
509	- 523	Green and grey dolomitic shales.
523	- 550	Dolomitic sandstones and minor dolomitic shales.
550	- 558	Black and dark grey shales.
558	- 577	Dolomitic shales and very minor sandstones. $567\frac{1}{2}$-569' Carbonaceous.
577	- 579	Dolomitic limestone.
579	- 583	Carbonaceous black shale.
583	- 584	Carbonaceous black shale and dolomitic limestone.
584	- 595	Dolomitic limestone.
595	- 600	Cherty dolomitic limestone.

End of hole.

4. GENERAL GEOLOGY

4.1. Stratigraphy

The conformable sedimentary carbonate sequence in the Will O' Wisp area can be divided into three main units, from top to base or from NE to SW, as follows:

1. Upper dolomitic limestone.

2. Thinly bedded dolomitic shales and sandstones with minor quartzites and black shales.

3. Lower dolomitic limestone.

Between units 1 and 2, and 2 and 3, there is often a minor sequence of dolomitic shales and limestones. Within unit 2, shales, sandstones and quartzites give way to black more carbonaceous shales along strike to the SE.

The carbonate sequence is conformable with the north-easterly dipping grey quartzites and shales to the NE formerly assigned to the Ramsay Group. The contact of the carbonate sequence with the Ramsay Group sediments, mainly greywackes and siltstones to the NW was not tested by drilling and it is not known whether it is conformable or not.

The true width of each of the dolomitic limestone sequences appears to be from 100' to 200' in the CR3 area on the NW while to the SE near CR1 it appears to be much thicker. The true width of the dolomitic shale sandstone unit is 200' to 250' in the CR3 area.

Dolomitic Limestones

These are mostly white-grey, fine grained crystalline carbonate rocks. Recrystallisation is considered to have caused the coarse grained sections. Vugs, thought to be solution cavities are present, particularly near the surface and are infilled with white crystalline dolomite euhedra or clear quartz euhedra. Quartz infilling is common at the surface and rare at depth. Minor carbonated cherty sections occur in the dolomitic limestone. Quartz occurs throughout the limestones and appears to be of authigenic or diagenetic origin. Occasional oolitic sections are present. There is some evidence of organic, probably algal remains in the form of radial, concentric structures and ovoid shapes. Minor carbonaceous material often

stylolitic, is common and pyrite is generally closely associated with this. Sparcely disseminated fine pyrite euhedra are common throughout the core. Brecciation is not unusual and microscopic textures suggest that most is preconsolidation or intraformational brecciation.

Dolomitic limestones from the two units are very similar.

The sediments from unit 2 are generally dolomitic. They consist of siliceous lithic sandstones and finely laminated shales which are often very carbonaceous. Minor non-dolomitic carbonaceous quartzites and interbedded shales occur.

4.2. Alteration

Petrological examination indicated that the most common alteration is diagenetic.

Numerous coarsely crystalline patches and veins of dolomite cut the carbonate sequence rocks and are most probably a diagenetic feature. Often the coarser veins have stylolitic margins infilled with carbonaceous material and occasionally quartz. However, other dolomite veins are straight-sided, narrow, tectonic fracture fillings. Most fine sulphides, mainly pyrite, appear to be syn- or diagenetic. Diagenesis is thought to have concentrated sulphides during stylolite formation and in carbonate and quartz veinlets.

Minor barite aggregates and veins are present in the carbonate sequence.

There is little to no evidence of hydrothermal alteration or veining at depth. However, there are minor microscopic quartz veinlets and rare fine infilled solution cavities lined with quartz euhedra. Authigenic quartz grains and interstitial quartz is not uncommon and some coarser quartz aggregates appear to be of diagenetic origin. Solution cavities in the limestone are most prominent within 100' of surface and are lined with euhedral crystals of clear quartz of "low temperature hydrothermal origin" (Central Mineralogical Services, Adelaide). Intrusive quartz veining is rare or absent both at surface and at depth.

At surface a white opaque porous friable microcrystalline quartz rock is apparently the surface expression of dolomitic limestone at depth. There is some microscopic evidence of replacement of carbonate by silica, e.g., silica pseudomorphs after carbonate rhombs and the presence of extremely small crystals of carbonate embedded in some of the quartz. It is suggested that the friable or porous patches contained more carbonate which has been leached and that much of the quartz is residual after the weathering of carbonate.

9/ This silicified rock .....

This silicified rock does not extend below 120' subsurface in any drill hole and is interpreted as silicified leached carbonate with low temperature hydrothermal quartz infilling solution cavities or karsts.

No mineralisation was observed in the quartz or in the friable white quartz rock at surface.

4.3. Structure

In the area of interest the sedimentary carbonate sequence forms a broad sinuous zone trending NW and extending for at least 2,500'. The maximum width is 800' in the vicinity of CR2 and the zone appears to narrow to the NW before it passes under basalt. It may also narrow to the SE.

Overall the carbonate unit appears to dip steeply to the NE but is deformed by a broad gentle fold which causes near surface dips to be vertical or steeply to the SW, while by 300' below surface the bedding appears to dip steeply to moderately to the NE.

Minor folds occur in the sequence particularly within the shaly units. Within the dolomitic limestones, breccias are common. It is difficult to distinguish penecontemporaneous structures from later tectonic structures, but evidence of plastic deformation and microscopic textures indicate that many of the breccias are intraformational preconsolidation breccias. Most carbonate veins appear to be diagenetic, prelithification veins, but a few are straight-sided narrow veins indicating tectonic fracture fillings.

Fracturing is rare.

The conformable grey quartzites and shales to the NE generally dip steeply to moderately to the NE, presumably as part of the eastern limb of the Just-in-Time Anticline.

4.4. Mineralisation

The mineralisation observed in the Will O' Wisp drill holes occurs in the following forms:

1. Syngenetic pyrite with minor sphalerite occurs within the carbonaceous shales.

2. Fine grained pyrite with traces of chalcopyrite, sphalerite and galena occur in the dolomites. The sulphides commonly occur associated with carbonaceous partings in stylolites. They also occur as randomly disseminated grains in carbonate veinlets and as thin intersecting veinlets along carbonate grain boundaries. Most of the pyrite occurs as sub or euhedral cubic grains. Atoll textures are common and some relict framboids exist.

10/ 3. Occasional aggregates .....

3. Occasional aggregates of pyrite, marcasite, galena, sphalerite and chalcopyrite with associated barite occur in the dolomites. This aggregation suggests some remobilisation or replacement.

4. Veins or replacement masses containing pyrite, chalcopyrite, galena and sphalerite occur within dolomitic limestone but near the contact with the dolomitic sandstones and shales.

The sphalerite is invariably pale, indicating its poverty in iron.

None of the mineralised intersections approaches ore grade except for two narrow massive "veins". A ¼" vein of chalcopyrite, pyrite, galena and sphalerite in dolomite was intersected 50' from the end of CR1.

The other "vein" and the only possibly significant mineralisation is at 162' in CR4, where 2 inches of massive galena and sphalerite were intersected in dolomitic limestone with solution cavities. A total of 11' of core was unrecovered from the section 162' to 177'. CR6 intersected only pyrite at the same stratigraphic level so the Pb-Zn mineralisation in CR4 must be very restricted.

5. DISCUSSION

It is interesting to note that the significant factors of major Australian Pb-Zn deposits outlined by H.F.King in "Lead-Zinc Ore Deposits of Australia" 8th Commonwealth Mineralogical and Metal Congress, Vol.I, Geology of Australian Ore Deposits, are fulfilled at Will O' Wisp.

1. Rocks are of Precambrian or Paleozoic age.

2. The major or extensive deposits are conformable, while transgressive deposits are of unimportant dimensions.

3. The lithology of the enclosing rock is in the shale-limestone range.

4. The grain size of the conformable bodies resembles the grain size of the enclosing rocks and the grain size of the transgressive and irregular deposits is coarse.

In addition, the presence of magnesian limestones and dolomite, barite, pyrite, marcasite and pale sphalerite, all found at Will O' Wisp, are among the significant characteristics of the stratabound limestone-lead-zinc association. Thus, Will O' Wisp has the right environment for a stratabound or stratiform Pb-Zn deposit.

The association with carbonaceous material implies a low temperature genesis for the fine grained sulphide. Most sulphides appear to be of syn or diagenetic origin.

Most concentrations of mineralisation at Will O' Wisp appear to be near the contact of a limestone sequence with a shale/sandstone sequence. As there are two major limestone units, this may explain the apparent presence of two lines of gossans.

6. RECOMMENDATIONS

1. No further drilling is recommended at Will O' Wisp prospect.

2. In view of the dolomitic limestone-lead-zinc association at Will O' Wisp and the stratabound lead-zinc deposits in a similar environment (Rosebery, Tasmania, and Mt.Isa, Queensland) Exploration Licences held by Comstaff Pty.Ltd. in Tasmania should be considered prospective for stratiform lead-zinc deposits.

PART II

CONTINUING EXPLORATORY WORK WITHIN THE WILL O' WISP AREA

1. GENERAL

1.1. Contents

This part of the report summarises the follow up work carried out within the Will O' Wisp area after December 1972 and contemporaneous with the drilling programme.

1.2. Previous Work

Previous work is summarised in the Will O' Wisp Project Report dealing with the period from March to December 1972.

1.3. Objectives

1.3.1. To gather as much available information as possible so that further diamond drill holes could be located to maximum effect.

1.3.2. Geophysical methods were to be used to try to establish -

a) whether patchy geochemical anomalies indicated patchy mineralisation or whether the geochemical response was a direct factor of changing leaching conditions.

b) determination of the attitude of the postulated orebody.

1.3.3. To trace extensions of the Will O' Wisp anomalies to the SE by grid cutting and soil sampling.

2. GEOLOGY

Geological mapping was carried out on grid lines not previously

12/ traversed, a road .....

traversed, a road to the costean on Line 18 and on drill profile lines.

Significant new information included the following:

Dolomite and dolomitic shales were found to crop out at a point 2000' on Line 11A. This is one of the few indisputable exposures of carbonate within the Will O' Wisp area, and is directly along strike from the gossanous material exposed in the costean on Line 18.

Mapping of the road to the costean showed a swing in the strike of the grey quartzite and shale sequence from north to NNW which is paralleled by the strike of the carbonate sequence in that region. This indicated that the carbonate zone was probably conformable, rather than cross cutting as thought previously.

Exposures in the costean and at drill sites CR4 and CR6 included deeply weathered clayey pug, in contrast to the friable white quartz rock which denotes carbonate elsewhere. The reasons for the difference in weathering characteristics are unknown.

The overall geological picture is that of a carbonate sequence conformably underlain by a quartzite/shale sequence which youngs to the NE. An essentially siltstone sequence crops out to the SW of the carbonate zone and may not be conformable with the overlying dolomites.

3. GEOCHEMISTRY

A limited amount of grid cutting and soil sampling was undertaken to extend the Will O' Wisp anomalous zone to the SE as far as the Coldstream unconformity.

The anomalous zones were traced another 300' - 400' along strike (see TAS 464) but the grid was not enlarged further owing to the lack of economic mineralisation encountered in the drill holes. The anomalies obtained were distinct but generally of a low order and appeared patchy and less well defined than those to the north.

4. GEOPHYSICS

4.1. Proton Magnetometer

Proton magnetometer traversing along selected lines (see TAS 465) was undertaken to determine the usefulness of this method of tracing strike extensions.

Definite anomalies were obtained over some gossanous areas (e.g. Lines 18, 10B, 19) whilst there were no anomalies across other known gossans (e.g. Line 0).

Moreover, the anomalies on lines 18 and 19 are probably due to near surface phenomena rather than a true indication of sub-surface ore (personal communication Mr.D.Trussell).

13/ 4.2. Crone E-M

4.2. Crone E-M

Selected lines were traversed using the horizontal loop method with 400' separation (see TAS 465).

Definite anomalies were obtained as follows:

Line 0 - weak conductor at 50'E dipping steeply to east, depth estimated 160'.

6 - conductor at 50'E, dipping at 50° to west, depth estimated 125'.

10B - no conductor.

10C - weak conductor at 8.0N, dipping to ?N, depth estimated 200'.

16 - conductor at 1150'E, dipping at 60° to west, depth estimated 150', possible conductor at 400'E.

18 - strong conductor at 2175'E, dipping at 50° to west, depth 160',
weak conductor at 8.0E, dipping to west at 70°, depth 140'.

Drill profile CR1 - no conductor.

Drill profile CR2 - weak indication of vertical conductor at 300'.

Drill profiles CR3, CR4, and CR6 - weak indication of conductor 70'SW of gossan, dipping steeply to SW.

Although a strong conductor was delineated at Line 18/2175E, the response was not repeated 180' along strike on the CR3, CR4, and CR6 profiles. The lack of anomaly on Line 10B may be indicative of weathering to a depth greater than the penetration of the equipment or, of course, a lack of mineralisation.

5. CONCLUSIONS

5.1. There was little indisputable field evidence of extensive carbonates. However, the presence of a white silicified friable porous quartz rock is considered to represent silicified and leached carbonate.

5.2. Extensions of the Will O' Wisp geochemical anomaly do appear to be present to the SE, although the overall zone narrows.

5.3. All geophysical methods employed gave definite anomalies even in areas of weak geochemical response but most await explanation.

14/ 5.4. E-M anomalies .....

5.4. E-M anomalies were difficult to interpret with respect to the attitude of the conductive body giving the anomaly. However, the bulk of geophysical evidence suggested an orebody dipping steeply to the west.

6. FUTURE WORK

In view of the lack of good sulphide intersections (see Part I) no further large scale grid cutting, geochemical sampling or geophysics is warranted within this immediate area.

As the dolomitic limestone sequence appears to disappear under Tertiary basalt to the NW and under the Hatfield greywackes to the SE, further exploration with regard to possible mineralisation along strike would be limited to deep penetrating geophysical methods. It is felt that such an expensive procedure is not warranted at this stage.

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WILL O' WISP PROJECT

Assay sample intervals and results (in ppm)

Footage	Pb	Zn	Cu	Ni	Ag	
CR1						
133 - 135	310	750	5	8	<1	
185 - 190	10	70	2	8	<1	
190 - 195	10	80	2	8	<1	
305 - 306	10	28	2	8	<1	
425 - 430	10	32	2	8	<1	
540 - 545	680	600	55	38	<1	
545 - 550	160	240	12	15	<1	
600 - 605	360	40	10	8	<1	
700 - 710	12	20	12	10	<1	
710 - 720	10	20	5	8	<1	
720 - 730	10	22	2	8	<1	
730 - 740	5	12	2	8	<1	
740 - 750	30	30	15	8	<1	
750 - 760	2230	2400	3050	15	100	(contained mineralised patch)
760 - 770	120	120	30	8	1	
770 - 780	20	45	8	5	<1	
780 - 790	30	30	5	5	<1	
790 - 795	60	80	8	5	<1	
795 - 800	240	750	10	12	<1	
CR2						
160 - 165	850	270	420	5	10	
CR3						
147 - 150	22	30	12	18	<1	
150 - 160	35	32	20	22	<1	
160 - 165	45	32	75	34	1	
165 - 173	530	150	107	37	3	
173 - 178½	12	40	21	15	<1	
178½ - 183	20	40	22	19	<1	
358 - 360	90	340	6	16	<1	
360 - 370	45	50	19	12	<1	
370 - 380	12	38	9	9	<1	
380 - 385	30	65	6	11	<1	
500 - 510	15	32	15	20	<1	
510 - 519	15	190	150	25	<1	Pyritic 516-527 Moderate pyritic 519-522
519 - 522	2480	2450	22	20	2	
522 - 530	200	400	22	30	<1	
530 - 535	5	700	28	12	<1	
535 - 540	5	150	75	28	2	
540 - 550	5	60	10	12	<1	
550 - 560	5	50	22	5	<1	
560 - 570	15	35	110	8	<1	
570 - 580	<5	35	2	<5	<1	
580 - 590	8	15	2	8	<1	
590 - 600	8	15	2	5	<1	
600 - 610	<5	22	18	5	<1	
610 - 620	190	70	2	10	<1	
620 - 623	15	18	15	10	1	

Footage	Pb	Zn	Cu	Ni	Ag
CR4					
114 - 120	270	3900	19	100	2
120 - 130	45	90	6	10	<1
130 - 140	65	100	5	12	<1
140 - 150	45	120	17	12	<1
150 - 160	60	160	10	15	1
160 - 161'11"	65	110	5	12	1
161'11" - 162'1"	≈ 30%	≈ 30%	600	<5	710
162'1" - 163½	400	1200	5	20	<1
174 - 180	120	550	43	32	2
180 - 188	35	75	42	35	1
188 - 200	20	70	51	30	1
200 - 210	40	75	65	38	2
210 - 220	40	46	57	35	2
220 - 230	35	58	45	20	1
230 - 234	73	77	97	42	1
237 - 250	12	8	13	15	<1
383 - 389	45	30	44	31	1

CR5	Cu	Pb	Zn	Ni	Ag
140 - 145	60	90	220	7	<1
180 - 185	70	440	600	20	<1
185 - 187	58	490	900	28	<1
187 - 190	70	790	2200	60	3
190 - 193'7"	72	1300	900	30	1
204 - 210	21	105	375	30	<1
210 - 215	16	65	140	15	<1
215 - 220	27	73	165	14	<1
220 - 230	25	45	260	19	<1
325 - 330	28	18	78	13	<1
380 - 385	92	740	3050	70	1
385 - 388	14	45	465	12	<1
388 - 389	65	150	320	65	3
389 - 395	23	10	1150	12	<1
395 - 397	57	280	1750	15	1
397 - 400	4	84	185	16	<1
400 - 410	10	110	420	15	<1
410 - 420	4	66	64	18	<1

CR6					
135 - 140	77	360	2100	65	3
235 - 240	10	720	295	12	<1
250 - 260	6	45	95	15	<1
380 - 386	4	13	34	12	<1
386 - 393	73	180	305	45	3
393 - 399	15	60	115	15	<1
399 - 402	47	55	87	20	<1
410 - 415	36	70	350	20	<1
570 - 577	95	19	185	16	1
577 - 579	38	90	90	43	1
579 - 583	62	105	69	62	2
583 - 590	16	19	47	17	<1
590 - 600	8	45	99	15	<1

020

676020

CR1	Au	Mo	Sb	Bi	Cu	As	Ge	V	Co	W	Mo	Sn	Be	Hg
133 - 135	x	x	x	x	x	x	x	30	x	x	300	x	x	x
185 - 190	x	x	x	x	x	x	x	x	x	x	150	x	x	x
190 - 195	x	x	x	x	x	x	x	x	x	x	100	x	x	x
305 - 306	x	x	x	x	x	x	x	x	x	x	100	1	x	x
425 - 430	x	x	x	x	x	x	x	10	x	x	80	x	x	x
540 - 545	x	3	x	x	x	x	x	50	5	x	100	x	200	x
545 - 550	x	x	x	x	x	x	x	50	5	x	250	x	400	x
600 - 605	x	x	x	x	x	x	x	x	x	x	30	x	x	x
700 - 710	x	x	x	x	x	x	x	x	x	x	50	x	x	x
710 - 720	x	x	x	x	x	x	x	x	x	x	30	x	x	x
720 - 730	x	x	x	x	x	x	x	x	x	x	50	x	x	x
730 - 740	x	x	x	x	x	x	x	x	x	x	50	x	x	x
740 - 750	x	x	x	x	x	x	x	100	5	x	150	x	x	x
750 - 760	x	x	1000	x	x	x	x	50	5	x	400	x	x	x
760 - 770	x	x	x	x	x	x	x	70	5	x	300	x	x	x
770 - 780	x	x	x	x	x	x	x	10	x	x	150	x	x	x
780 - 790	x	x	x	x	x	x	x	10	x	x	150	x	x	x
790 - 795	x	x	x	x	x	x	x	10	x	x	200	x	x	x
795 - 800	x	x	x	x	x	x	x	30	x	x	250	x	x	x

CR2														
160 - 165	x	3	x	x	x	x	3	500	x	x	10	1	200	x

021

CR3 ASSAY SAMPLE INTERVALS AND RESULTS

676021

	Au	Mo	Sb	Bi	Cd	As	Ga	V	Co	W	Mn	Sn	Ba	Hg
147 - 150	X	X	X	X	X	X	X	100	50	X	400	1	200	X
150 - 160	X	X	X	X	X	X	X	100	50	X	300	2	200	X
160 - 165	X	3	X	X	X	X	X	100	100	X	1000	X	200	X
165 - 173	X	3	X	X	X	X	X	100	50	X	800	X	X	X
173 - 178½	X	X	X	X	X	X	X	30	10	X	600	X	X	X
178½ - 183	X	X	X	X	X	X	X	100	50	X	600	1	300	X
358 - 360	X	X	X	X	X	X	X	100	30	X	800	1	500	X
360 - 370	X	X	X	X	X	X	X	80	5	X	800	1	10,000	X
370 - 380	X	X	X	X	X	X	X	50	5	X	1000	1	500	X
380 - 385	X	X	X	X	X	X	X	80	10	X	1000	1	600	X
500 - 510	X	X	X	X	X	X	X	50	10	X	500	1	400	X
510 - 519	X	X	X	X	X	<	<	50	20	X	2000	<	500	X
519 - 522	X	X	X	X	X	X	X	50	20	X	300	1	500	X
522 - 530	X	X	X	X	X	<	3	100	20	X	800	1	500	X
530 - 535	X	3	X	X	<	X	3	80	5	X	300	1	10,000	X
535 - 540	X	5	X	X	X	X	3	400	10	X	350	1	1500	X
540 - 550	X	X	<	<	X	X	X	10	<	<	200	1	5000	X
550 - 560	X	X	X	X	X	X	X	10	X	X	200	X	10000	X
560 - 570	X	<	<	X	<	X	X	10	<	<	200	X	2000	X
570 - 580	X	X	X	X	X	X	X	10	X	X	150	X	3000	X
580 - 590	<	<	<	<	<	X	X	10	X	<	50	X	X	X
590 - 600	X	X	X	X	X	X	X	10	X	X	100	X	400	X
600 - 610	X	X	X	X	X	X	X	10	X	X	120	X	5000	X
610 - 620	X	X	X	X	X	X	X	10	X	X	150	X	500	X
620 - 623	X	X	X	X	X	X	X	10	<	X	80	X	X	X
CR4														
114 - 120	X	3	X	X	50	X	X	10	50	X	10000	X	500	X
120 - 130	X	X	X	X	X	X	X	10	<	X	2000	X	X	X
130 - 140	X	X	X	X	X	X	X	10	X	X	1500	X	X	X
140 - 150	X	X	X	X	X	X	X	10	X	X	2000	X	X	X
150 - 160	X	50	X	X	X	X	X	10	X	X	1500	X	X	X
160 - 161 11"	X	X	X	X	X	X	X	20	X	X	1500	X	X	X
161'11" - 162'1"	X	X	1000	X	2000	X	X	10	30	X	150	100	X	20
162'1" - 163½	X	3	X	X	X	X	X	10	5	X	2000	X	X	X
174' - 180	X	10	X	X	X	X	X	150	50	X	1000	X	300	X
180 - 188	X	3	X	X	X	X	X	100	50	X	1000	1	300	X
188 - 200	X	X	X	X	X	<	X	100	50	X	1000	1	300	X
200 - 210	X	3	X	X	X	X	X	300	80	X	1200	1	200	X
210 - 220	X	3	X	X	X	X	X	80	20	X	200	1	X	X
220 - 230	X	X	X	X	X	X	X	30	10	X	200	1	X	X
230 - 234	X	5	<	<	<	<	3	100	20	<	500	1	<	<
237 - 250	X	X	X	X	X	X	X	200	10	X	30	1	300	X
283 - 289	X	3	X	X	X	X	X	150	50	X	400	1	200	X

022

CR 5 ASSAY SAMPLE INTERVALS AND RESULTS

676022

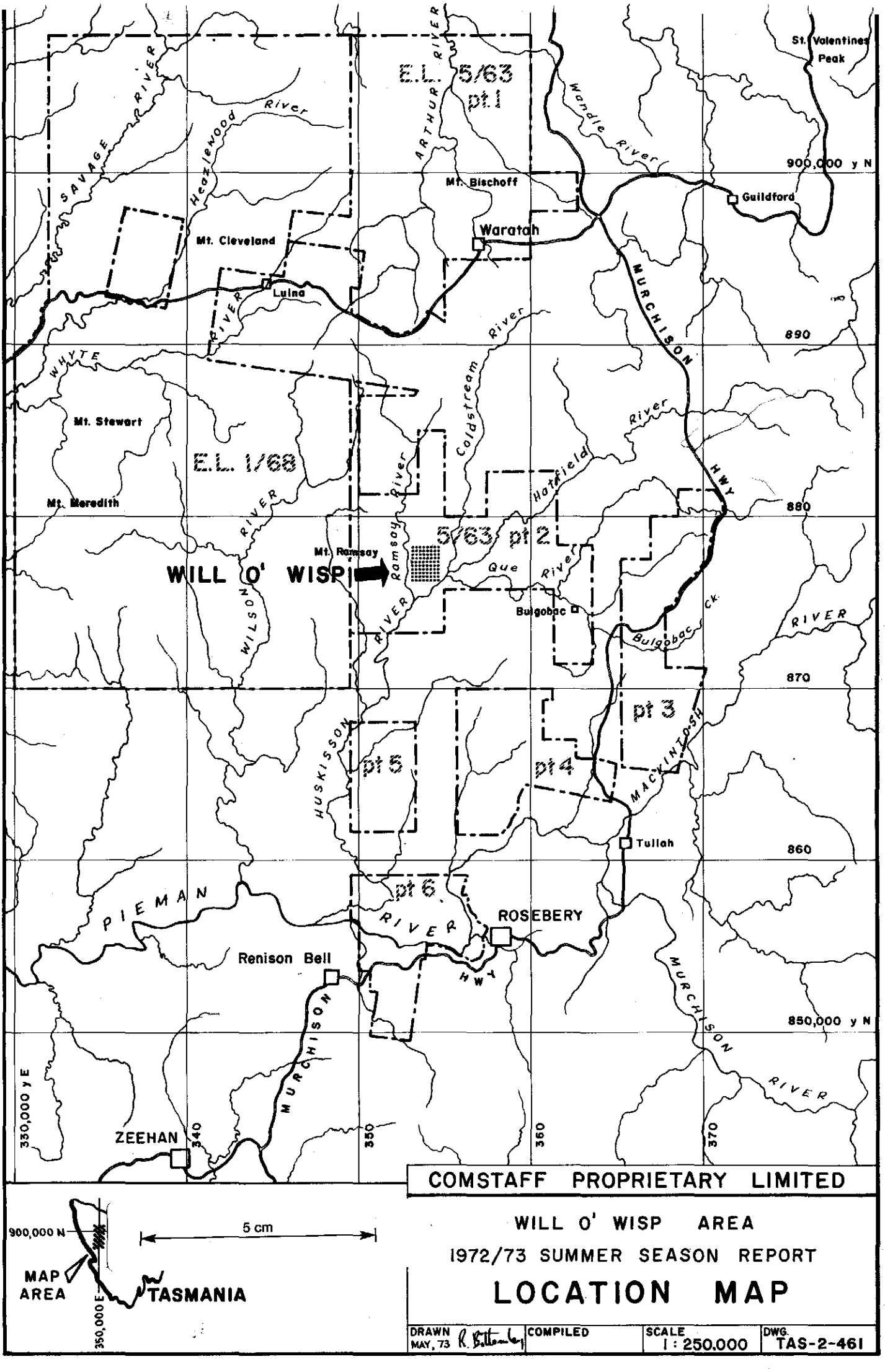
	Au	Mo	Sb	Bi	Cd	As	Ge	V	Co	W	Mn	Sn	Be	Hg
140 - 145	X	X	X	X	X	X	X	100	5	X	50	1	300	X
180 - 185	X	10	X	X	X	X	X	500	20	X	50	1	500	X
185 - 187	X	3	X	X	X	X	X	200	50	X	50	1	500	X
187 - 190	X	3	X	X	X	X	X	20	10	X	50	1	300	1
190 - 193'7"	X	3	X	X	X	X	X	10	80	X	400	1	400	X
204 - 210	X	3	X	X	X	X	3	80	10	X	150	1	400	X
210 - 215	X	X	X	X	X	X	X	200	50	X	300	1	300	X
215 - 220	X	X	X	X	X	X	3	80	10	X	150	1	200	X
220 - 230	X	X	X	X	X	X	3	80	10	X	130	1	300	X
325 - 330	X	X	X	X	X	X	3	80	10	X	150	1	300	X
380 - 385	X	20	X	X	X	X	X	200	20	X	80	1	300	X
385 - 388	X	3	X	X	X	X	X	30	X	X	250	X	X	X
388 - 389	X	10	X	X	X	X	X	150	30	X	100	X	200	X
389 - 395	X	5	X	X	X	X	X	20	X	X	100	X	800	X
395 - 397	X	5	X	X	X	X	X	10	X	X	200	X	X	X
397 - 400	X	3	X	X	X	X	X	10	X	X	400	X	400	X
400 - 410	X	X	X	X	X	X	X	10	X	X	200	X	X	X
410 - 420.	X	X	X	X	X	X	X	10	X	X	150	X	X	X

CR 6

135 - 140	X	3	X	X	X	X	X	50	10	X	150	X	200	X
235 - 240	X	X	X	X	X	X	X	10	X	X	500	X	X	X
250 - 260	X	X	X	X	X	X	X	20	X	X	400	X	X	X
380 - 386	X	X	X	X	X	X	X	X	5	X	10	X	X	X
386 - 393	X	3	X	X	X	X	X	30	10	X	400	X	X	X
393 - 399	X	X	X	X	X	X	X	30	10	X	300	X	300	X
399 - 402	X	X	X	X	X	X	X	30	10	X	300	X	500	X
410 - 415	X	X	X	X	X	X	X	80	20	X	1000	1	400	X
570 - 577	X	X	X	X	X	X	3	50	X	X	2000	1	300	X
577 - 579	X	5	X	X	X	X	X	150	30	X	2000	X	100	X
579 - 583	X	10	X	X	X	X	3	200	50	X	200	1	500	X
583 - 590	X	X	X	X	X	X	X	10	5	X	300	X	600	X
590 - 600	X	X	X	X	X	X	X	10	X	X	250	X	500	X

U23

676023



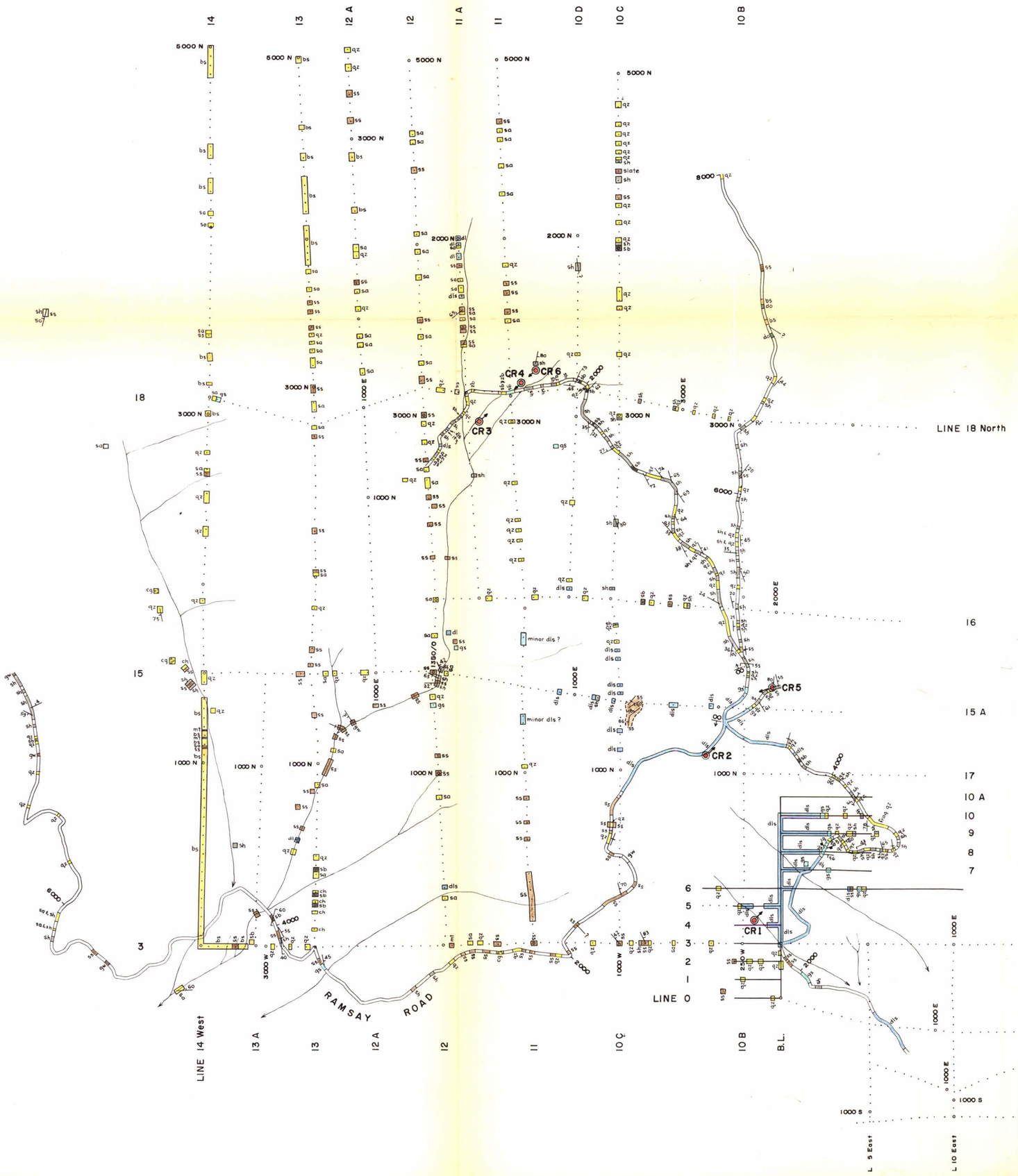
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP AREA

1972/73 SUMMER SEASON REPORT

LOCATION MAP

DRAWN	COMPILED	SCALE	DWG.
MAY, 73 R. Bottomley		1 : 250.000	TAS-2-461



M N

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

sa	Sandstone
ch	Chert
qz	Quartzite
cg	Conglomerate
ss	Siltstone
mf	Mudstone
sh	Light shale
sb	Black shale
gw	Greywacke
dl	Dolomite
dl	Dolomitic conglomerate
dls	Dolomite with leached silica rich capping
gs	Gossan
itg	Intermediate igneous
do	Dolerite
bs	Basalt

- Strike and dip of bedding
- Strike and dip of cleavage
- Strike and dip of jointing
- Stream, road & grid, rock outcrops
- CR2 Diamond drill hole

5 cm

500 0 500 1000
SCALE OF FEET

100 0 100 200 300
SCALE OF METRES

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

676024

73-958

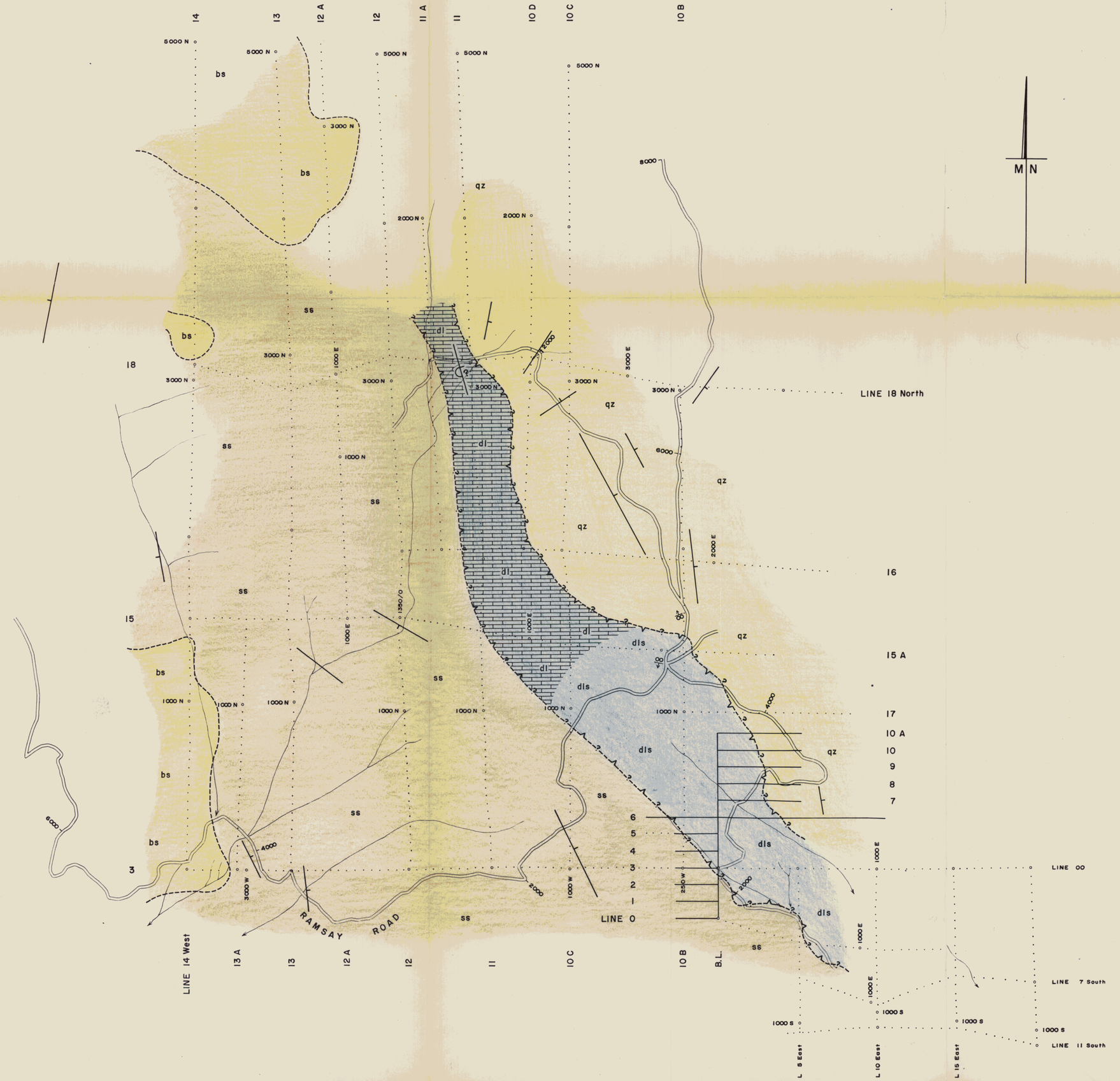
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 808

1972/73 SUMMER SEASON REPORT

DETAIL GEOLOGY

DRAWN	COMPILED	SCALE	DWG.
JUNE 73 R. Patterson	MP & MPE	1 : 5,000	TAS-2-462



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

	bs	Basalt (major areas)
YOUNGER	qz	N.E. quartzite / shale sequence
OLDER	ss	S.W. siltstone group
	dl	Dolomite (largely inferred)
	dls	Dolomite with leached silica rich capping

- Geological boundary, approx.
- Geological boundary, inferred, possible unconformity
- Structural trends
- Overturned structure

M N

5 cm

500 0 500 1000
SCALE OF FEET

100 0 100 200 300
SCALE OF METRES

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

676025

73-958

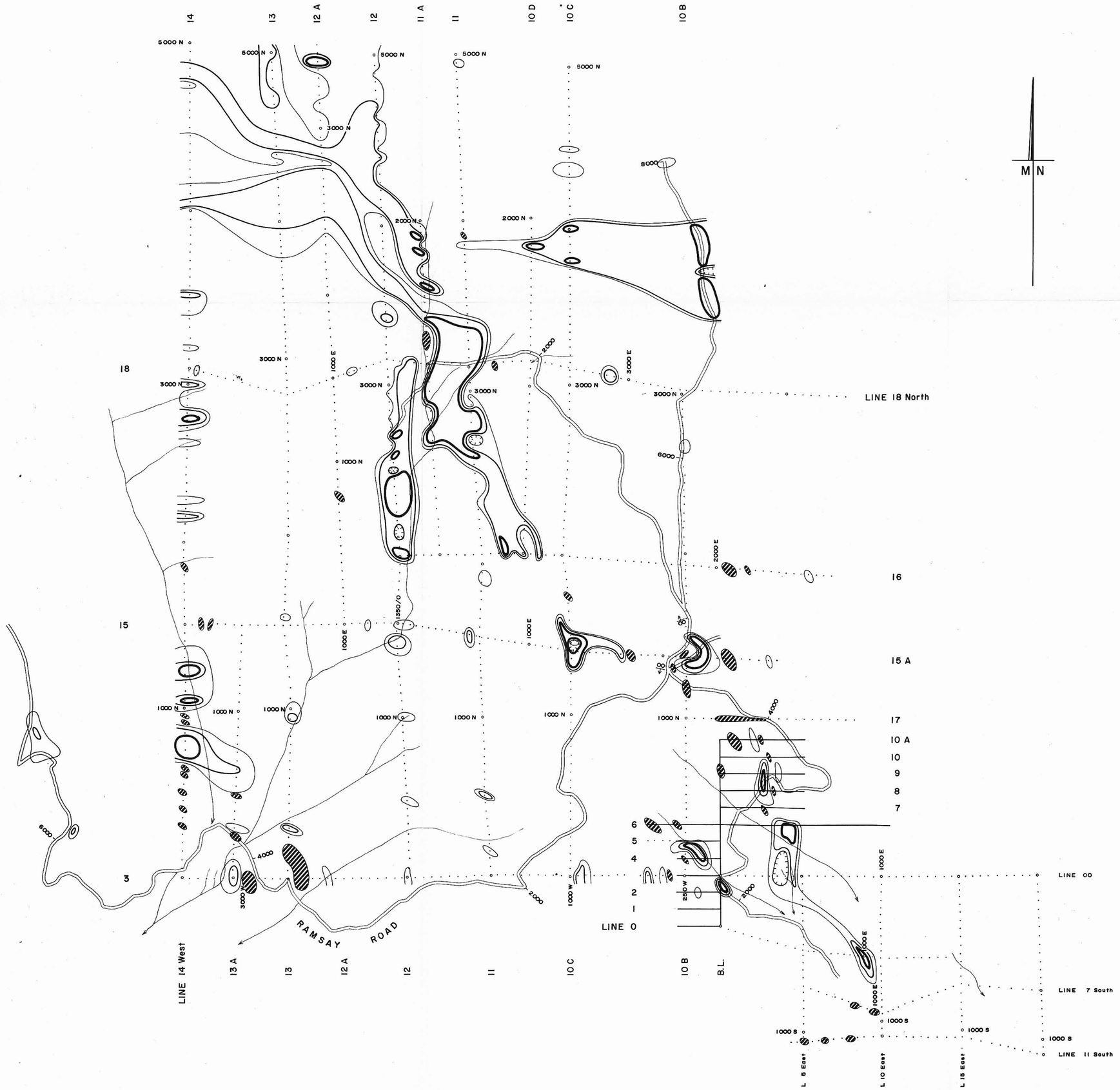
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 809

1972/73 SUMMER SEASON REPORT

INTERPRETED GEOLOGY

DRAWN	COMPILED	SCALE	DWG.
JUNE 73 K. Rotondy	MPE	1 : 5,000	TAS-2-463



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)

M N

5 cm

500 0 500 1000
SCALE OF FEET

100 0 100 200 300
SCALE OF METRES

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

676026

73-958

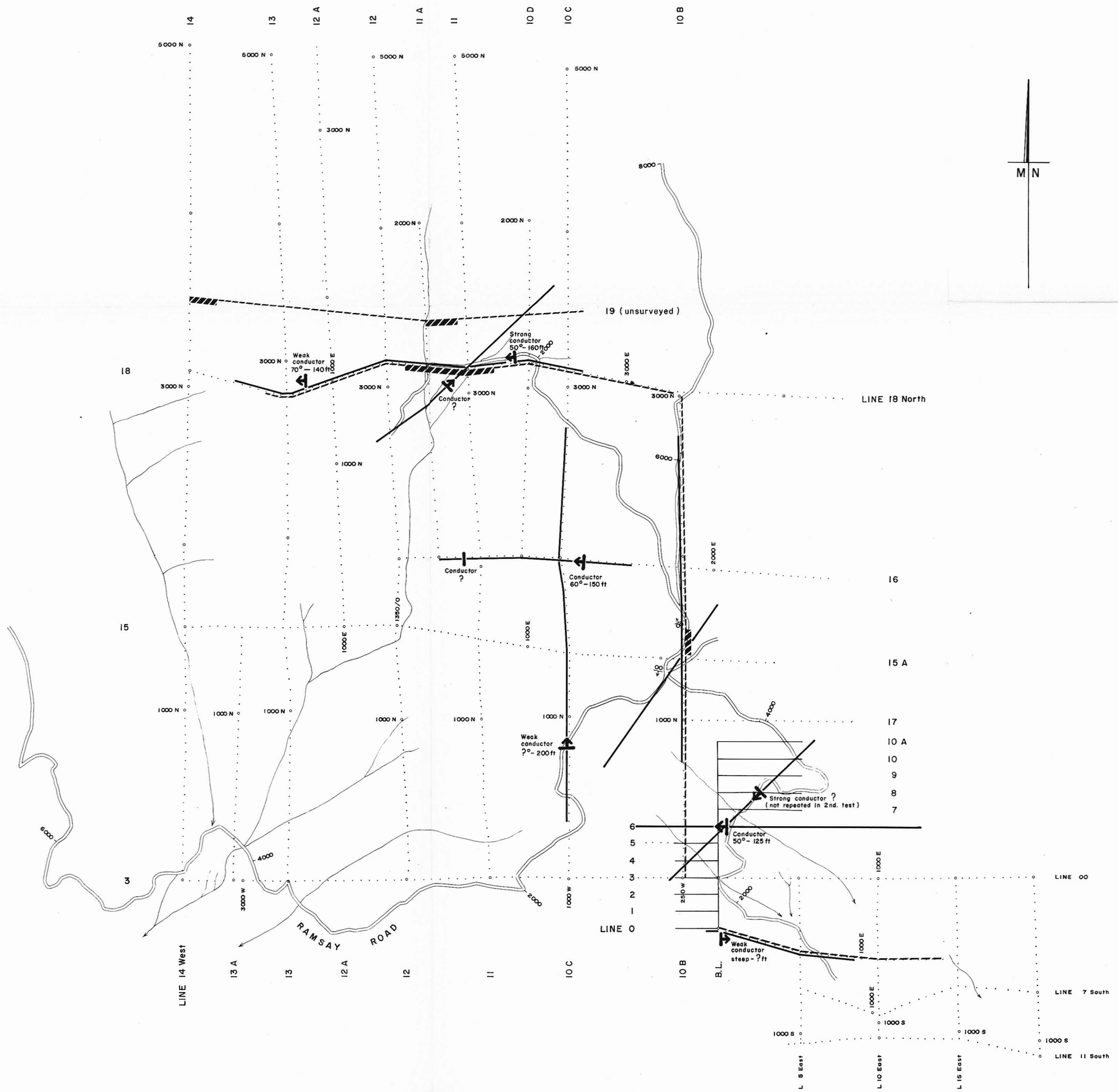
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 810

1972/73 SUMMER SEASON REPORT

Pb & Zn GEOCHEMISTRY

DRAWN	COMPILED	SCALE	DWG.
JUNE 73 R. Patterson	MP & MPE	1 : 5,000	TAS-2-464



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
- Magnetometer (Proton)
- E.M. (Crone)

M N

5 cm

500 0 500 1000
SCALE OF FEET

100 0 100 200 300
SCALE OF METRES

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

676027

73-958

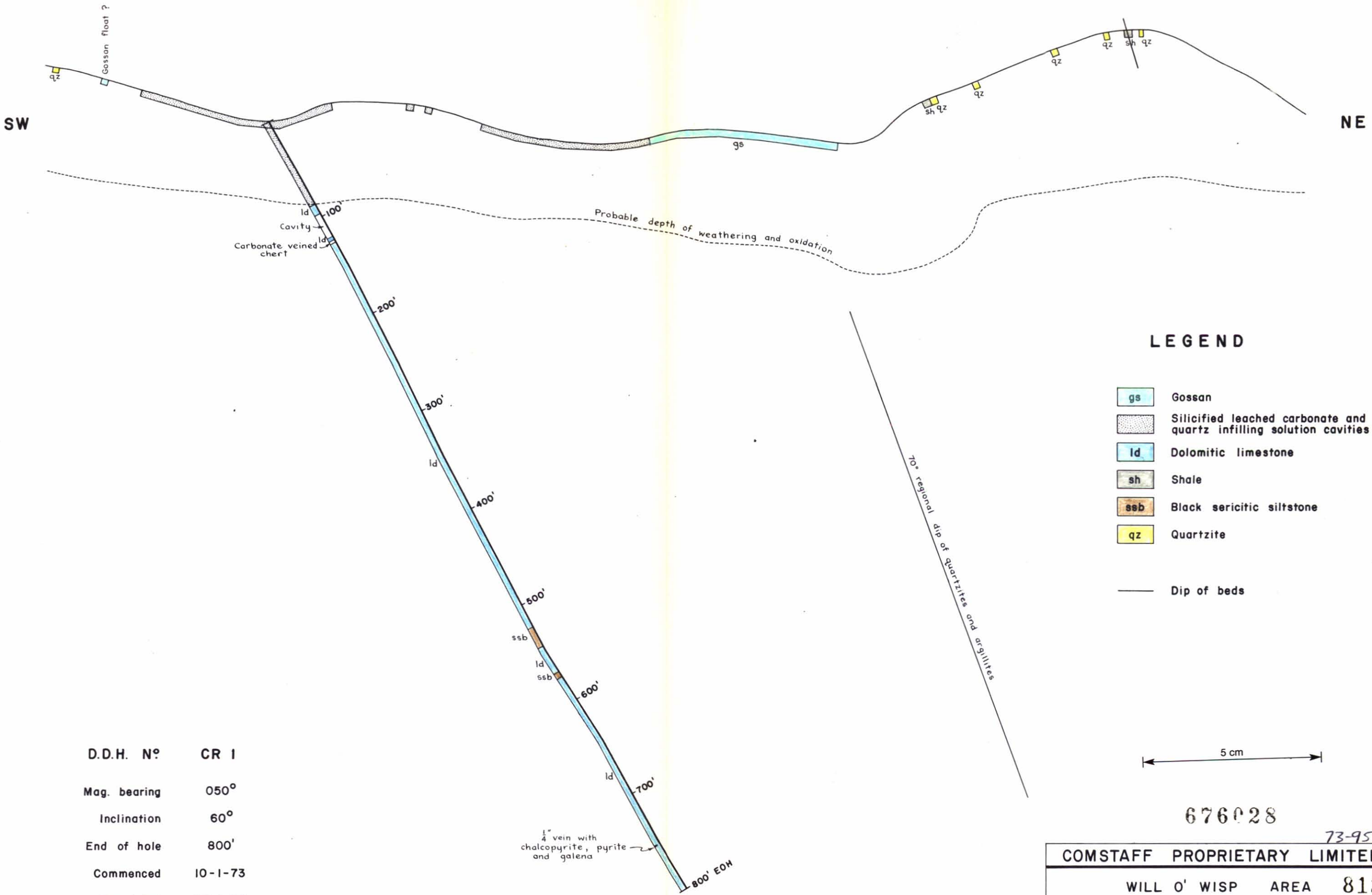
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP GRID 811

1972/73 SUMMER SEASON REPORT

E.M. & MAG. GEOPHYSICS

DRAWN	COMPILED	SCALE	DWG.
JUNE 73	MP & MPE	1 : 5,000	TAS-2-465



LEGEND

- gs — Gossan
- Silicified leached carbonate and quartz infilling solution cavities
- ld — Dolomitic limestone
- sh — Shale
- ssb — Black sericitic siltstone
- qz — Quartzite
- Dip of beds

5 cm

D.D.H. Nº	CR 1
Mag. bearing	050°
Inclination	60°
End of hole	800'
Commenced	10-1-73
Completed	26-1-73

676028

73-958

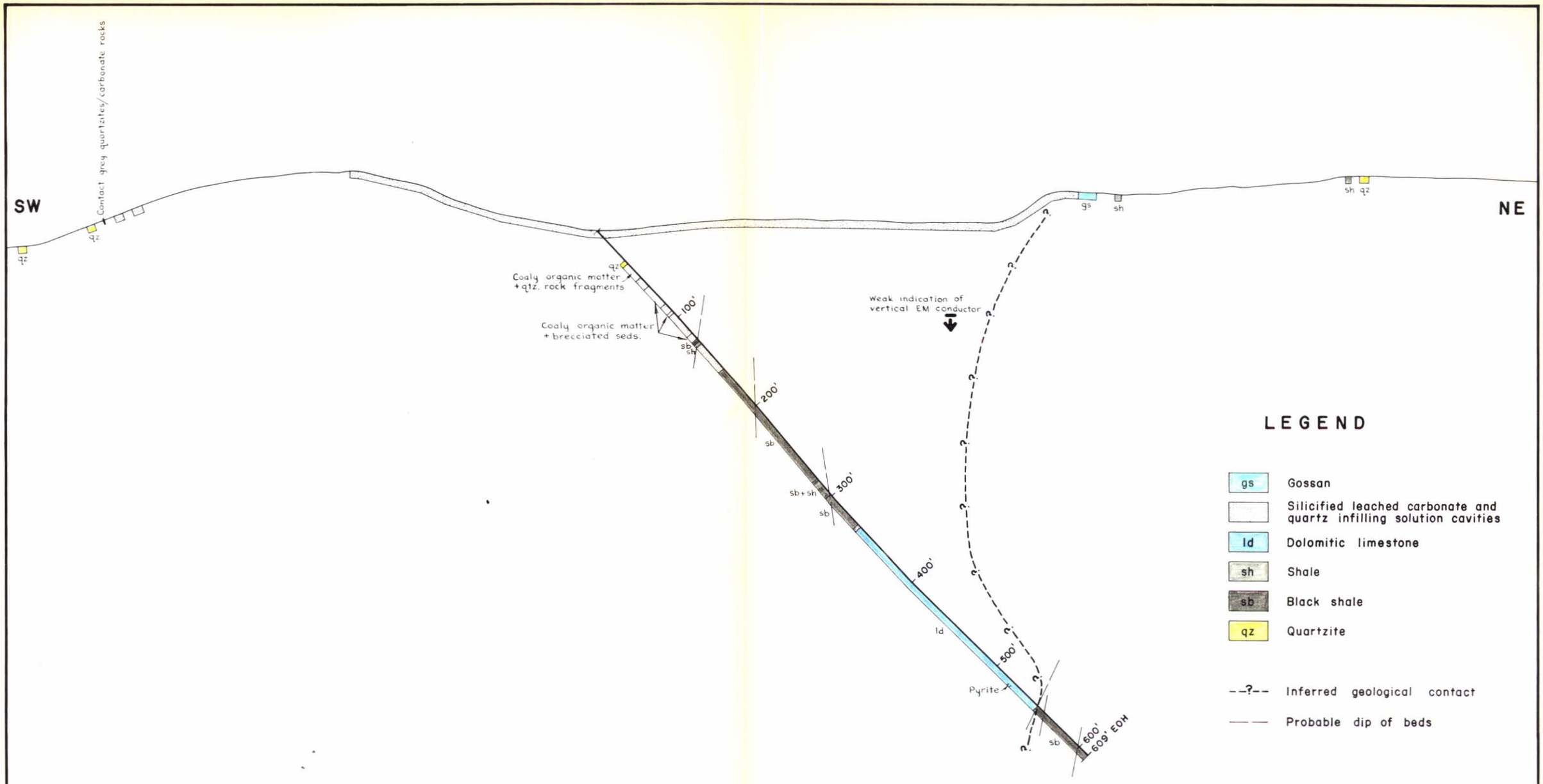
COMSTAFF PROPRIETARY LIMITED

WILL O' WISP AREA 812

1972/73 SUMMER SEASON REPORT

D.D.H. CR 1 SECTION

DRAWN	COMPILED	SCALE	DWG. No.
May 73 R Patterson	30 Mch 73 M.P.	1:1,000	TAS-2-466



D.D.H. Nº	CR 2
Mag. bearing	040°
Inclination	45°
End of hole	609'
Commenced	8 - 1 -73
Completed	5 - 3 -73

676029

73-958

COMSTAFF PROPRIETARY LIMITED

813

WILL O' WISP AREA

1972/73 SUMMER SEASON REPORT

D.D.H. CR 2 SECTION

DRAWN	COMPILED	SCALE	DWG. No.
May 73 R Patterson	30 Mch 73 M.P.	1 : 1,000	TAS-2-467

SW

NE

Probable depth of weathering

CR 3

CR 4

CR 6

No core

Cavity

Very weak EM conductor dipping steeply to SW

2" vein galena

Carbonaceous dolomitic breccia

Interbedded sa & sh

sa with minor sh

sh with minor sa

sh & sa

sa with minor interbedded sh

sh with pyrite & minor Pb & Zn

Pyrite

Interbedded sa & sh

EOH

623' EOH

LEGEND

- gs — Gossan
- Silicified leached carbonate and quartz infilling solution cavities
- ld — Dolomitic limestone
- sh — Shale
- sb — Black shale
- sa — Sandstone or quartzite
- --?-- Inferred geological contact
- —— Probable dip of beds

5 cm

D.D.H. Nº	CR 3	CR 4	CR 6
Mag. bearing	050°	230°	230°
Inclination	55°	60°	80°
End of hole	623'	400'	600'
Commenced	30-1-73	26-2-73	10-3-73
Completed	24-2-73	7-3-73	17-3-73

676030

73-958

COMSTAFF PROPRIETARY LIMITED

WILL O' WISP AREA 814

1972/73 SUMMER SEASON REPORT

D.D.H's CR 3, CR 4 & CR 6 SECTION

DRAWN	COMPILED	SCALE	DWG. No.
May 73 R Patterson	30 Mch 73 M.P.	1:1,000	TAS-2-468

024

LEGEND

gs	Gossan
	Silicified leached carbonate and quartz infilling solution cavities
ld	Dolomitic limestone
sh	Shale
sb	Black shale
qz	Quartzite
--?--	Inferred geological contact
——	Probable dip of beds

D.D.H. Nº	CR 5
Mag. bearing	250°
Inclination	50°
End of hole	450'
Commenced	7-3-73
Completed	19-3-73

5 cm

676031

COMSTAFF PROPRIETARY LIMITED

WILL O' WISP AREA

1972/73 SUMMER SEASON REPORT

D.D.H. CR 5 SECTION

DRAWN	COMPILED	SCALE	DWG. No.
May 73 K Bottomley	30 Mch 73 M.P.	1 : 1,000	TAS-2-469