GEOPEKO LIMITED

KING ISLAND

REPORT No. KI/73/1

GEOLOGICAL EVALUATION OF S.P.L. 107 N.E. TASMANIA

by

M. J. DANIELSON

KING ISLAND JUNE 1973.

CONTENTS

INTRODUCTION

Geopeko Limited were invited to inspect S.P.L. 107 by Mr. John Rudge of Georgetown, Tasmania who was acting on behalf of Mr. Norm Brown who is the registered holder of the licence. Mr. Brown works S.P.L. 107 in partnership with Mr. Jack Cox and both are resident in the Ringarooma district.

The author visited S.P.L. 107 on May 12 - 13, 1973.

S.P.L. 107 is located approximately 20 km south southeast of Ringarooma on the southern slopes of Mt. Victoria, (Fig. 1.) The licence is 3.2 km long in a north northwest direction which is parallel to the strike of the country rock and 0.8 km wide. The area is heavily timbered and steeply incised by many young streams. Elevation would probably be in excess of 600 m although rapid changes due to slopes as steep as 45° are not uncommon.

Access to the northern part of the licence is by an all weather bitumen and unsealed road from Ringarooma. Travel over the major part of the licence would be restricted to four wheel drive vehicles and in some cases this would be severely limited due to the dense vegetation.

SUMMARY

During May 1973 Geopeko Limited was invited to inspect Special Prospectors Licence No. 107 near Mount Victoria in northeast Tasmania from which assay values of 5% Sn, 4.8% Pb, and 15 dwt Au had been reported. The source of these values was shown to be a quartz vein with a high sulphide content which was exposed over a strike length of 2 metres and exhibited a maximum width of 0.5 metres. Ten chip samples were taken from the vein which returned assays of up to 31.1 dwt Au, 2.8% Pb, 2.0% Zn with a maximum tin value of 100 ppm Sn. Tin had never been reported in the area previously and the accuracy of the high tin assay is questionable. The sulphide components of the quartz vein in decreasing order were arsenopyrite, marcasite, pyrite, sphalerite, chalcopyrite, covellite, galena, cuprite and pyrrhotite. The gold was completely enclosed within arsenopyrite. No evidence was apparent for any substantial increase to the strike length of the lode which would indicate the probability of only a small tonnage. It is recommended that no further work be undertaken by Geopeko Limited.

CONCLUSIONS

The source of the reported high tin, lead and gold assays was a quartz vein containing a high sulphide aggregate emplaced along a joint plane enclosed within a sequence of highly cleaved slates and sandstones known as the Mathinna Beds.

The potential for any significant tonnage in the vein is low due to its apparent narrow width and limited strike length. A diamond drill hole to test the vein along strike or at depth is not considered warranted due to the restricted exposure of the vein and the knowledge that no other veins of any appreciable size occur on the property.

The high tin assay reported from this vein was derived by Tasman Analytical Laboratories, a company operated by Mr. J. Rudge who freely admitted difficulty with tin assaying. It is suggested that the 5% tin assay reported was due to analytical error.!?

RECOMMENDATIONS

1. That Mr. J. Rudge be asked to notify Geopeko Limited if any future development of the sulphide lode indicates any significant increase in the tonnage potential.

2. If the response to Recommendation No. 1 is negative that no further work be undertaken.

ACTION SHEET

1. Mr. K. Wright, Geopeko Ltd., was notified as to the results of the evaluation.

2. Mr. J. Rudge was notified on the 26th June as to the recommendations of this report.

3. A copy of appendices 1 and 2 were forwarded to Mr. Rudge along with an appreciative note.

PREVIOUS WORK

S.P.L. 107 occurs within an area which has been broadly referred to as the Mathinna Goldfield. Gold was discovered in the district in 1852 and considerable mining and prospecting activity took place until the end of the century. The New Golden Gate Mine which produced 234,000 ozs of gold between 1884 and 1912 was the only mine of any significance on the field. The New Golden Gate was situated 13 km SSW of S.P.L. 107 along the strike of several lesser gold occurrences. Finucane (1935) has described the Mathinna Goldfield in detail.

Numerous small pits, trenches and several adits bear evidence of an earlier search for gold over S.P.L. 107, (Figs 1 and 2).

Several other mining companies including Aberfoyle Ltd. and Geophotos Ltd. had earlier been invited by Mr. Brown to look over the licence before an invitation was issued to Geopeko Ltd. Apparently Geophotos had expressed some interest in the area but no definite approach had been made to the owners.

One recent development of significance has been the extension of a part of E.L. 6/68 held by Texins Development Pty. Ltd. to completely enclose S.P.L. 107.

GEOLOGY

(a) GENERAL

The area consists of a sequence of Lower Palaeozoic shales, sandstones and quartzites known as the Mathinna Beds, with Devonian granites occurring to both the east and west.

The Mathinna Beds which strike NNW and dip steeply west are strongly cleaved and Finucane (1935) has reported that the foliation is more pronounced in the mining areas.

Mineralisation is restricted to gold bearing quartz reefs occupying the planes of bedding, foliation and jointing. The quartz reefs have been known to vary in width from several centimetres to 10 metres and to have a strike length up to 300 metres, although the majority were generally very much smaller. Finucane (1935) reports the quartz veins as containing free gold with arsenopyrite and pyrite as common accessories. Chalcopyrite, galena and sphalerite occur more rarely but their presence is often a good indicator for gold.

(b) LOCAL

The area of S.P.L. 107 inspected in detail is that shown in Fig. 2. where the country rock was invariably a shale and sandstone exhibiting a very pronounced slaty cleavage. The strike of the country rock varied between N 15° W and N 40° W and dips were to the west usually at greater than 60°. The strike and dip of the slaty cleavage were similar to the bedding which often made the two very difficult to differentiate.

A brief inspection was made of several quartz veins exposed in various pits and in the Drive of the Una Mine and several samples taken and assayed (Fig. 2.) The highest gold assay returned was 1.6 dwt/short ton from the Una Mine where the lode was represented by a quartz vein 1 metre wide striking 330°. Ground conditions in the Drive were too poor to permit a more detailed look at the old workings.

Most attention was focused on a small vein exposed beside a creek from which the high tin, lead and gold assays had been reported. The vein, although essentially a quartz vein contained a high sulphide content and is referred to as the "sulphide lode" in this report to distinguish it from other quartz veins on the property.

The "sulphide lode" varied in width from 7 cms to 50 cms and was exposed over a strike length of 2 metres in the floor of a small adit dug into a hill beside a creek. The lode had a strike of 345° and dipped steeply east at 83° which was transgressive to the bedding which had a strike of 327° and dipped west at 57°. Several sets of joints were apparent near the lode (Fig 3). One set of joints paralleled the direction of the lode and appeared to dip vertically, which probably represents the plane along which the lode was emplaced.

Six chip samples (GSK 3753 - 8) were taken across the lode (Fig. 3.) and four random chip samples (GSK 3751 - 2, 3757 - 8) were taken from a dump of lode material piled beside the diggings. The assay results are presented in Appendix 1.

The highest gold and lead assays returned were 31.1 dwt/short ton and 2.3% Pb respectively. The highest tin assay recorded was 100 ppm which did not substantiate the 5% Sn reported from this source and it is significant that tin has not been reported in this area previously.

A thin section and mineragraphic report (appended) indicates the sulphide lode to be a sulphide aggregate in a quartz vein. Minerals in decreasing abundance are arsenopyrite, marcasite, pyrite, sphalerite, chalcopyrite, covellite, galena, cuprite, pyrrhotite and gold. Only one grain of gold was detected which was completely enclosed within arsenopyrite.

The most important factor affecting the viability of the sulphide lode would appear to be its size. The lode was exposed in the face and floor of a cutting into the side of a hill and it was apparent that the width of the lode had increased downwards and had reached its greatest width of 50 cms in the floor of the cutting. A strike length of 2 metres was observed in the cutting but no extension could be observed either southward into the Una Creek or northward where a costean had been bulldozed across the strike of lode 20 metres north. However the

costean was approximately 10 metres to 15 metres vertically above the level of exposure of the lode in the cutting so possibly the lode had thinned to extinction before reaching the surface.

A brief inspection over the northern part of the property did not reveal any quartz veins of width greater than 1.5 metres or a continuous strike length of over 30 metres although a full inspection of the old Una Mine workings was not possible due to the ground conditions.

The probability of the vein expanding to an appreciable size would appear to be very low and it is considered that a drill hole for further testing is not warranted. Unless future development work by Mr. Brown and Mr. Cox indicates a significant increase in the size of the vein no further work is recommended.

M. DANIELSON
MINE GEOLOGIST.

REFERENCES

Finucane, K. J., 1935. Mathinna and Tower Hill Goldfields. Bull. Geol. Surv. Tas. No. 43.

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ASSAY RESULTS

APPENDIX 1

Sample No.	Rock Type	Elements in ppm										Au dwt/short ton	Location
		Cu	Pb	Zn	Co	Ni	Ag	Cd	Sb	Sn	As		
GSK 3751	"Sulphide" Lode	510	8000	2000	5	80	12	<5	<20	30	>10000	3.9	Random sample from dump near sulphide lode.
2	" "	9400	16000	9000	10	90	190	30	280	100	>10000	31.1	
3	" "	7300	480	860	5	60	120	<5	45	30	10000	7.9	See Fig. 3.
4	" "	90	2800	7200	5	40	25	25	<20	20	10000	15.2	" " "
5	" "	65	3400	1400	5	25	5	<5	<20	30	500	3.8	" " "
6	" "	11000	23000	20000	15	80	170	70	180	10	>10000	16.9	" " "
7	" "	5200	13000	12000	5	150	60	45	170	50	>10000	2.4	" " "
8	" "	9200	7900	15000	20	60	160	60	230	10	>10000	22.8	" " "
9	" "	1500	2800	9400	5	60	42	35	<20	5	>10000	15.0	Random sample from dump near sulphide lode.
60	" "	2100	12000	14000	15	110	50	50	90	5	>10000	11.6	
1	Quartz vein	30	45	100	5	100	<2	<5	<20	5	5000	0.3	See Fig. 2.
2	" "	25	40	70	5	70	<2	<5	<20	5	1000	0.2	" " "
3	" "	30	<20	45	5	140	<2	<5	<20	5	5000	0.8	" " "
4	Country rock slate	15	<20	40	5	40	<2	<5	<20	5	100	<0.1	" " "
5	Quartz vein	35	25	55	5	190	<2	<5	<20	10	100	0.1	" " "
6	" "	50	<20	40	5	140	<2	<5	<20	10	1000	0.1	" " "
7	" "	20	<20	30	5	120	<2	<5	<20	10	5000	1.5	" " "
GSK 3768	" "	60	85	170	5	120	<2	<5	<20	10	5000	1.6	" " "
GSK 3751-3	"Sulphide" Lode	-	-	-	-	-	-	-	-	<100	-	-	Reassay by XRF.

ANALYTICAL METHODS: Cu Pb Zn Co Ni Ag Cd Sb by AAS following hot conc. HCl leach and HCl/HNO_3 leach in latter stages for 1 hour. Sn As by Emission Spectroscopy. Au by Fire Assay.

APPENDIX 2

MINERALOGICAL REPORT No. 1253

by I. R. Pontifex, McPhar Geophysics.

GSK 3751: very fine grained sandstone, sericitised by hydrothermal agencies emmanating from a quartz-arsenopyrite vein.

The rock consists of a massive, fairly loosely packed and rather poorly sorted aggregate of quartz grains and minor felspar and quartzose rock fragments with an ultrafine matrix of sericite, minor clays and opaque "dust". Traces of sphene, tourmaline also occur in the interstitial matrix. The grainsize varies from 0.02 mm to 0.4 mm, their shape is subangular to subrounded.

The rock is a modified, very fine grained (lithicfelspathic) quartz sandstone and may be classified as a wacke. It shows no metamorphic structural deformation and there is no tendency for the ubiquitous interstitial sericite to show common orientation. It is suggested therefore that the sericite is a hydrothermal alteration product, conceivably modified clay material inherent to the sediment.

This interpretation is confirmed by the increase in concentration of interstitial sericite, clays and traces of tourmaline and opaque dust toward a vein cutting the rock.

The vein consists of heterogeneous aggregate of vein quartz, fragments of entrained sericitised rock and randomly scattered euhedral crystals of arsenopyrite. Subsidiary stringers of ? pyrite also cut the rock.

A vein of this composition together with traces of hydrothermal tourmaline and sphene suggest a high level mesothermal or possible epithermal source.

GSK 3752: sulphide aggregate in quartz vein; minerals in decreasing abundance are arsenopyrite, marcasite, pyrite, sphalerite, chalcopyrite, covellite, galena, cuprite, pyrrhotite, gold.

An irregular aggregate of sulphides have a predominantly quartzose gangue with minor drewsy cavities and occur in a sericitised, leached, brecciated siltstone.

Examined in polished section the ore minerals are found to consist mainly of a random loose aggregate of euhedral and subhedral arsenopyrite crystals irregularly intergrown with aggregates of subhedral marcasite which in turn contains scattered subhedral pyrite crystals. Minor large masses of pyrite locally occur independently. These crystals measure up to 2 mm.

Minor chalcopyrite and sphalerite grains, generally measuring up to 1.2 mm are randomly scattered in the gangue and in fractures between the Fe-As sulphides. The sphalerite invariably contains minute exsolution inclusions of chalcopyrite and also very fine grains of this mineral. Traces of pyrrhotite accompany some chalcopyrite. The chalcopyrite is commonly partly altered to covellite and minor accompanying chalcocite. Minor cuprite is located in fractures within arsenopyrite.

Much of the pyrite enclosed in marcasite has a pinkish-cream tint, it may be cobaltiferous or nickeliferous.

Accessory amounts of galena (3-5%) have the same mode of occurrence as chalcopyrite and sphalerite. There is insufficient of this mineral in the polished section to account for the 16000 ppm Pb. Certainly galena is present in the sample, it can only be assumed that it has a very patchy distribution and that more massive areas of galena were not intersected by the section. Conceivably a section of a heavy mineral concentrate of this sample, or of sample GSK 3756 would confirm the presence of significant galena.

One grain of gold 5 micron across was identified, enclosed in arsenopyrite adjacent to chalcopyrite filling fractures, two grains of similar size were seen in pyrite.

This ore mineral assemblage supports the suggestion given for GSK 3751, that the mineralisation is of a high-level, mesothermal or possibly epithermal type.

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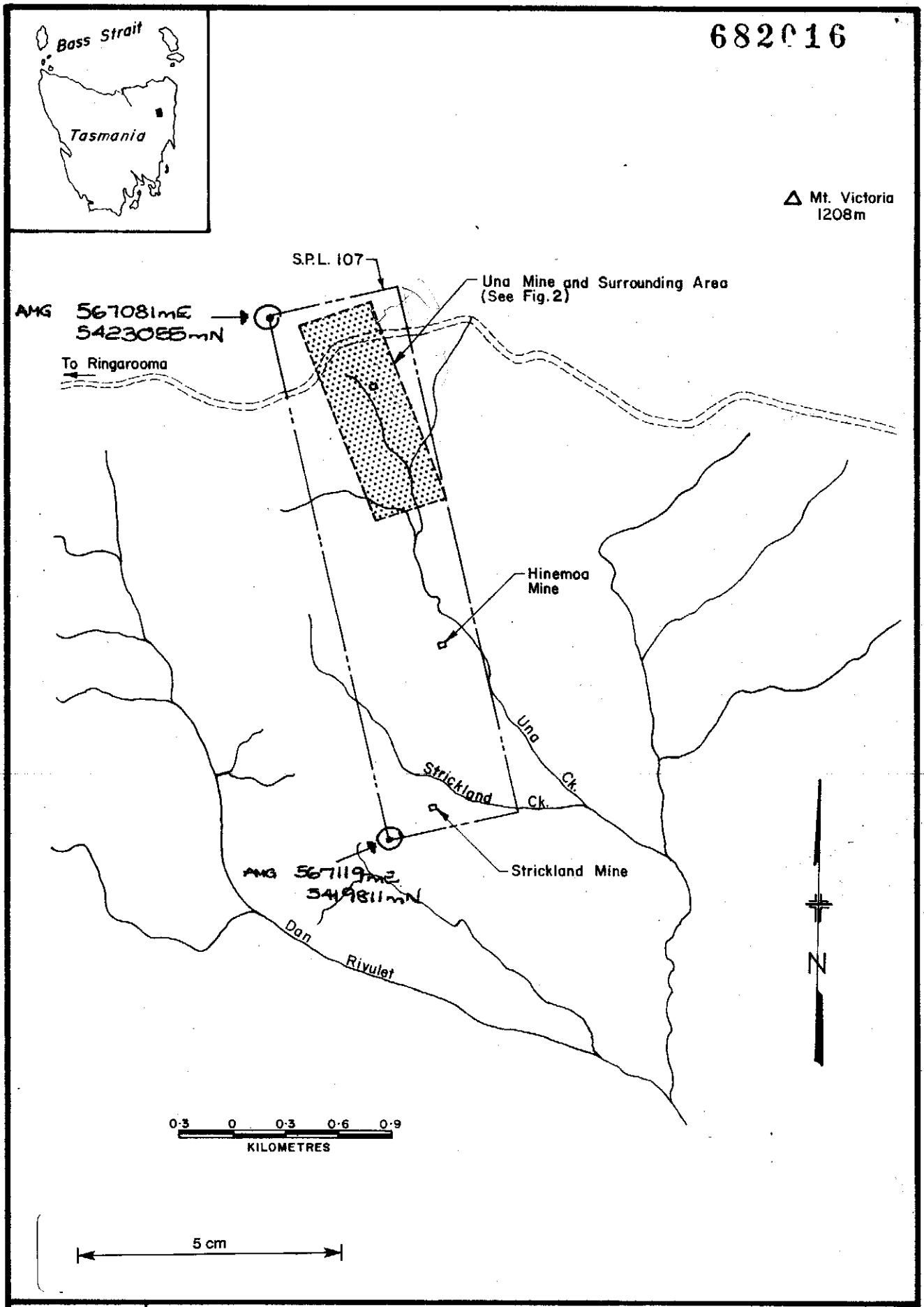


GEOPEKO LIMITED
KING ISLAND GROUP

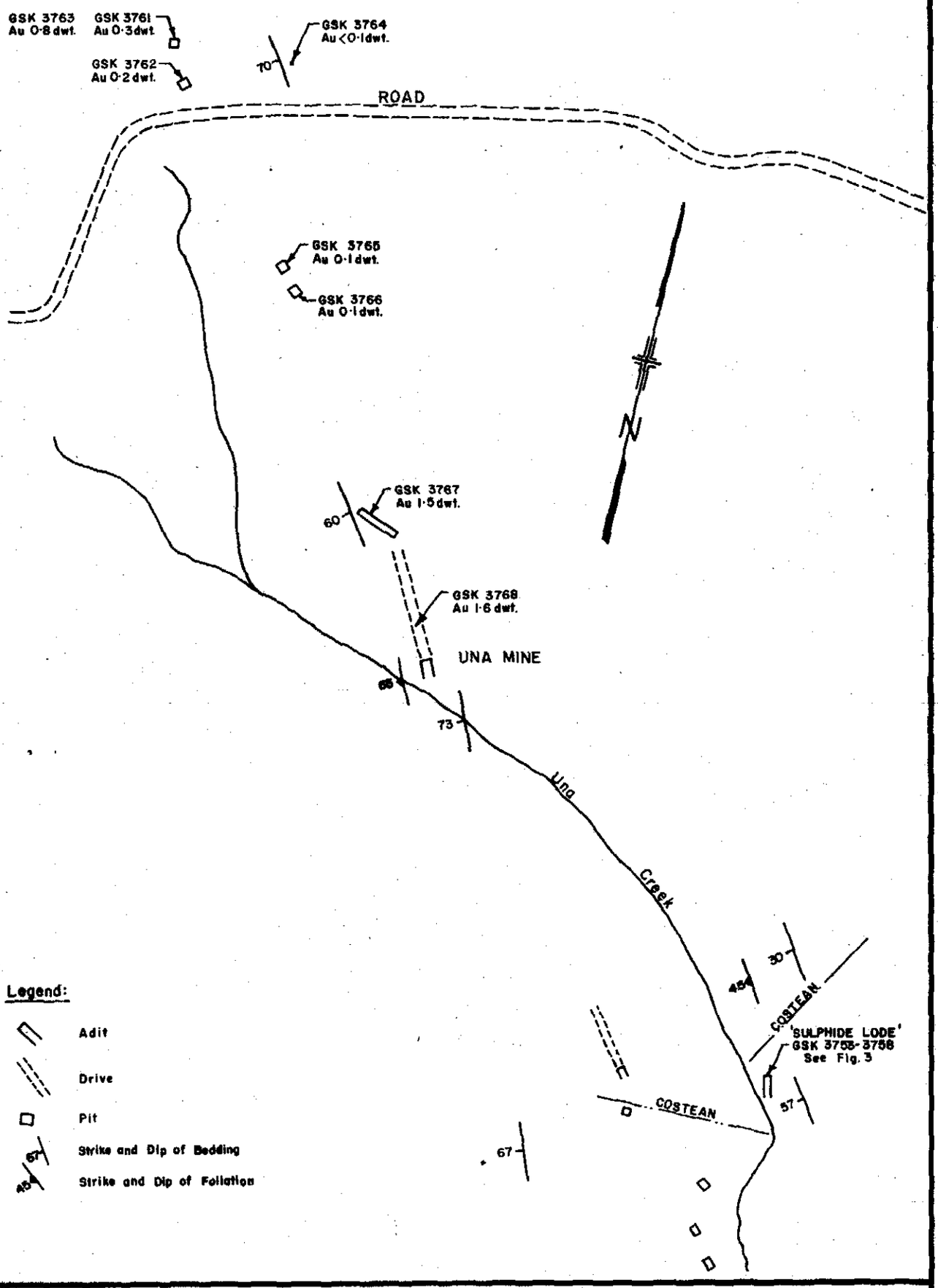
LOCALITY MAP

S.P.L. 107

FIGURE 1

DATE: MAY, 1973
GEOLOGIST: M.J.D.
DRAWN: R.F.
CHECKED: M J D

AMG REFERENCE POINTS ADDED



MAP OF THE NORTHERN AREA OF SPL 107

FIGURE 2

5 cm

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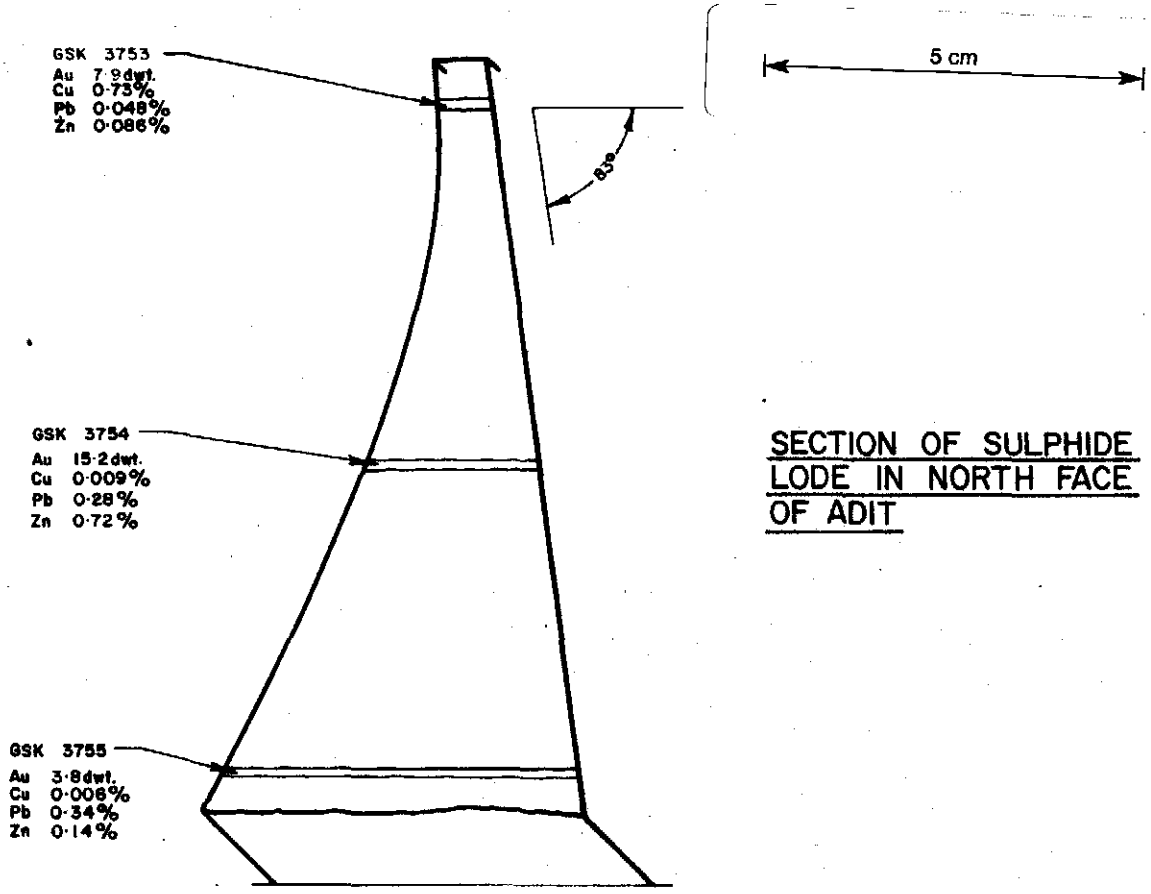
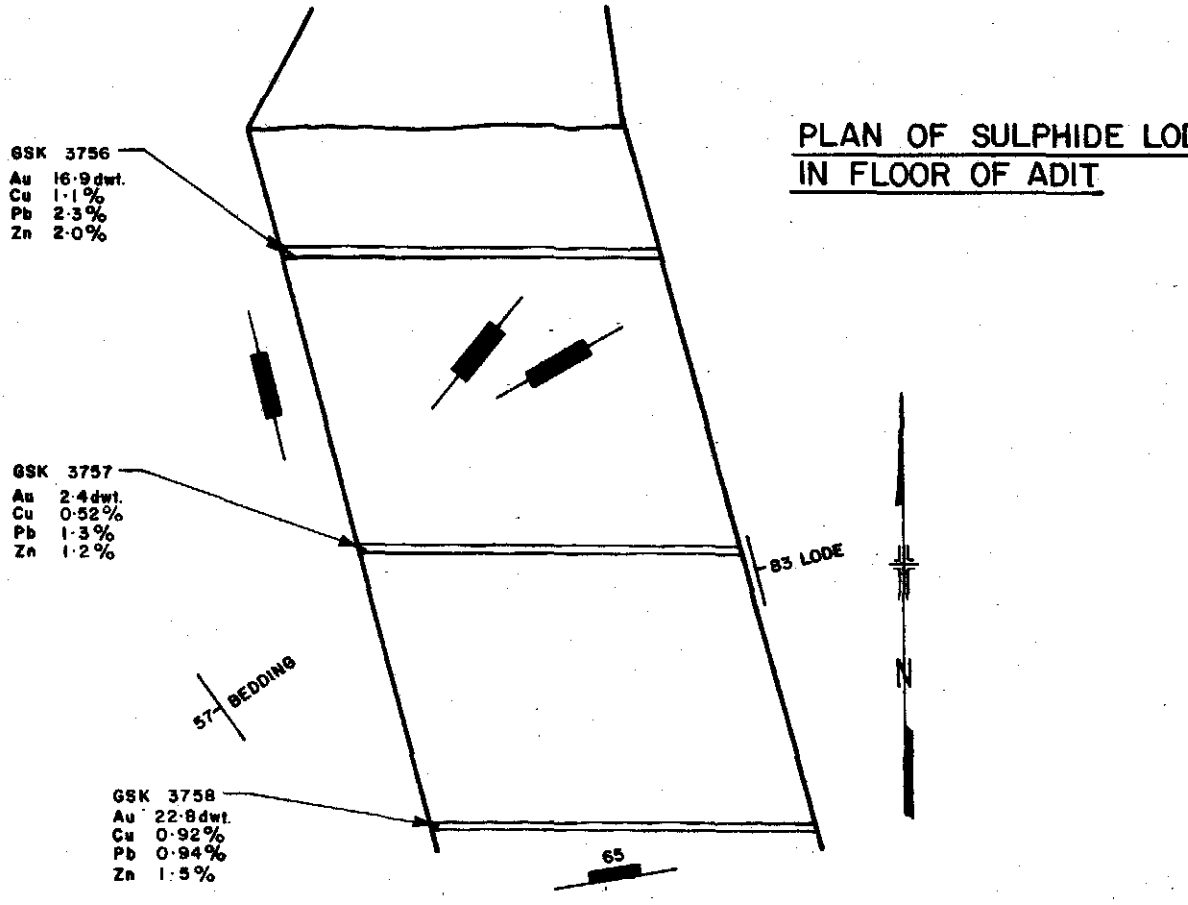
682 c 18



SECTION OF SULPHIDE LODE IN NORTH FACE OF ADIT



PLAN OF SULPHIDE LODE IN FLOOR OF ADIT

'SULPHIDE LODE' S.P.L. 107

FIGURE 3