

GEOPEKO - KING ISLAND

Report No. KI/82/3

An Assesment of the Overall
Tungsten Potential of
King Island

by

S. Grieve Brown

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INTRODUCTION

King Island lies in the Western approach to Bass Strait mid way between Tasmania and the mainland of Australia. The Scheelite deposits being located in the south east of the island.

King Island consists basically of a series of Lower Proterozoic shists and Upper Proterozoic pelitic sediments with in the west, a Lower Proterozoic Granite complex.

The Cambrian sequence, a series of bedded calcium silicate rocks overlain by volcanics, is located in the south and east of the island. These rocks are tentatively correlated with the Smithton and Jane group in the north west of Tasmania.

The King Island Scheelite deposits are pyrometasmatic deposits formed in the Cambrian sediments in contact with the Devonian-Carboniferous adamellite intrusions at Grassy and Bold Head. A third Devonian-Carboniferous granite body occurs at Mount Council on the north east coast.

Tungsten was first discovered on King Island by Tom Farrel in 1904 at the site of the current mining operations at Grassy. Little further exploration was carried out for this material until the early 1950's. The high Tungsten prices then prevailing, due to the Korean War, provided a strong incentive for exploration and during this period the mineralization in the Reekarra and the Loop Road areas was investigated.

With the down turn in prices at the end of the Korean War exploration again tailed off and it was not until 1966 that significant efforts again commenced. This effort has continued until the present, at varying levels of activity dependent on economic conditions and shifting priorities.

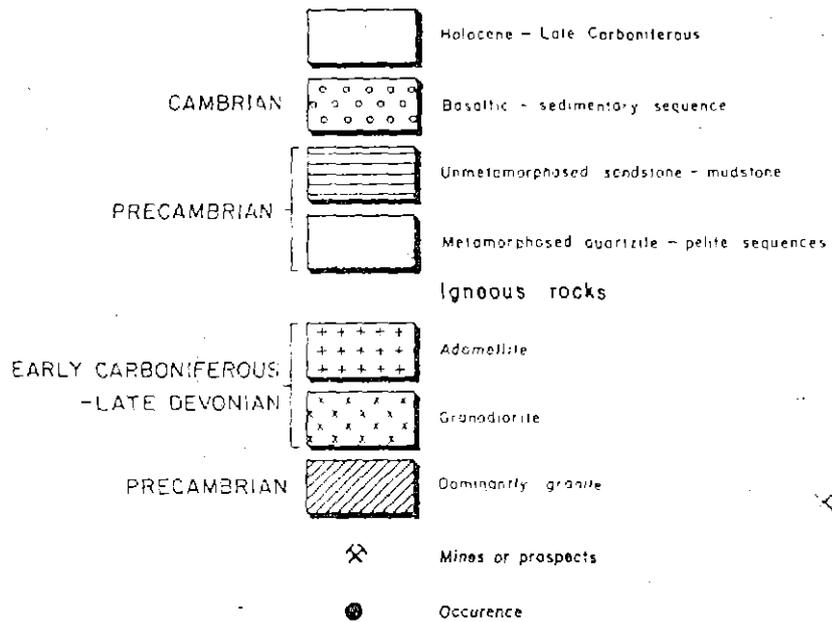
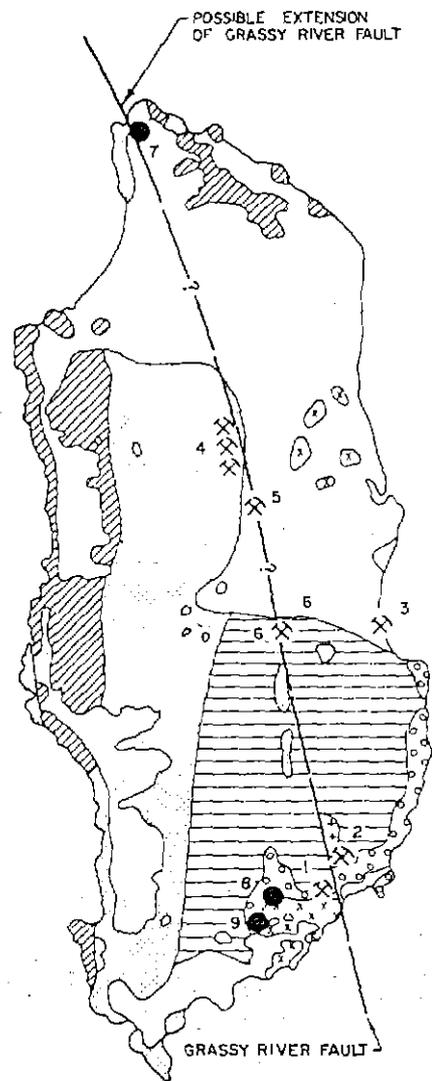
Peko Wallsend has, since 1969, carried out regional studies over the whole Island and detailed studies in a number of areas.

The results of this exploration work has been to provide a good overall understanding of the regional geology of the island and to delineate the areas with the best potential for economic tungsten deposits. All known insitu tungsten and tin mineralization on the island has been found in proximity to one of two geological features. They are located adjacent to either a Devonian-Carboniferous granite or the Grassy River Fault, and its theoretical northern extension. (Figure 1)

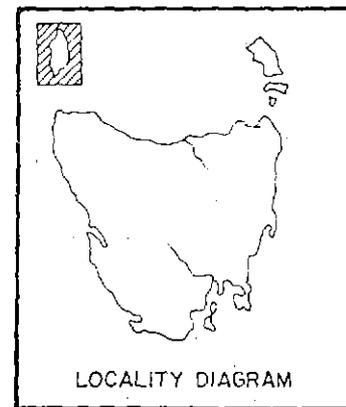
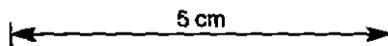
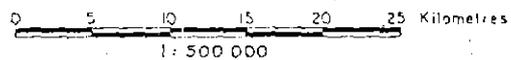
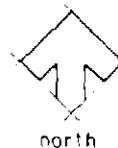
Since it is considered that the Devonian-Carboniferous granites are the source rocks for the tungsten mineralization and that the Cambrian sediments are suitable host rocks for the formation of large skarn type orebodies, work has been concentrated on the south east corner of the island where both these rock types are presented, in close association with the Grassy River Fault.

The company currently holds three exploration licences on the island. E.L's 15/66 and 21/78, covering the Grassy and Bold Head Granites and surrounding areas, and E.L. 39/80 which covers the known mineralization in the Reekarra area. (Figure 2)

The purpose of this report is to present a relatively brief overview of the potential for economic tungsten deposits on King Island and the current state of exploration designed to test that potential.



1. DOLPHIN / N^o 1 OREBODY - W, Mo
2. BGLD HEAD - W, Mo
3. NARACOOPA - Beach Sands
4. BEEKARA - W, Sn
5. HAWKES ALLUVIAL - Sn, W
6. FRASER RIVER - Au
7. VICTORIA COVE - W
8. LOOP ROAD - W, Mo
9. INVESTIGATOR 21 - W, Mo



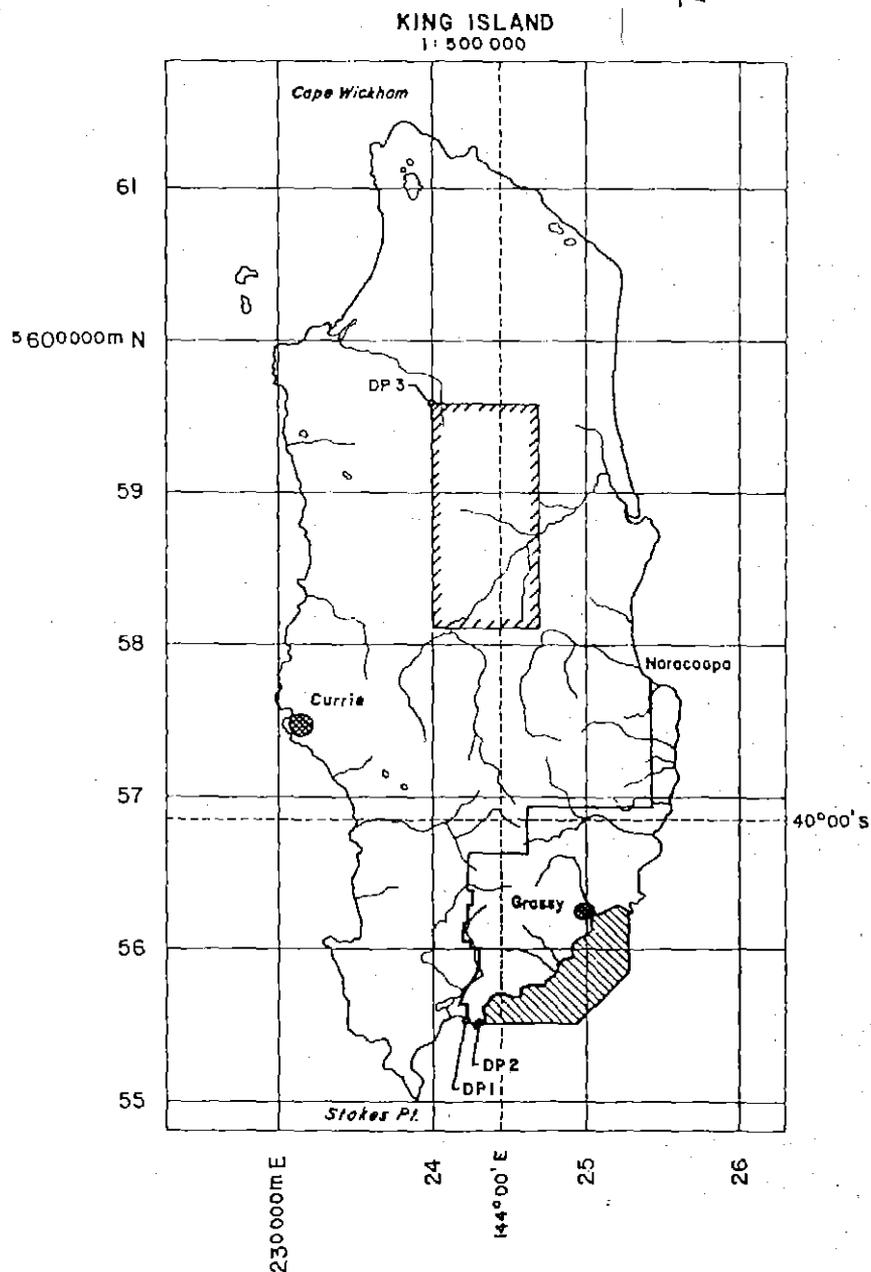
KING ISLAND GEOLOGICAL MAP
FIGURE 1

150005

FIGURE 2
COMPANY EXPLORATION LICENCES - KING ISLAND

-  E. L. 15/68
-  E. L. 21/78
-  E. L. 39/80

5 cm



DATA POINTS (DP) CO-ORDINATES

DP1 - E.L. 15/68:	5 555 260m N
	241 330m E
DP2 - E.L. 21/78:	5 555 000m N
	242 000m E
DP3 - E.L. 39/80:	5 596 000m N
	240 000m E

Australian Map Grid Zone 55 (AMG)

SUMMARY

To date the total pre-mining Resource which has been defined on King Island has been some 17 million tonnes at a grade of 0.85% WO₃. This ore was located in 2 main bodies, the No 1/Dolphin Orebody (14.5mt @ 0.85% WO₃) and the Bold Head Orebody (2.5mt @ 0.85% WO₃.)

Both these orebodies are closely associated with Devonian-Carboniferous granite intrusions and the major structural feature of the island, the Grassy River Fault. A detailed account of the Features and Metallogensis of these bodies is given in a report by M. C. Rogers (1976) and a discussion of all the factors considered significant for orebody formation are not given here.

The only major economic discovery made during the last three years has been the Southern Orebody at Dolphin Mine. This has been instrumental in maintaining the mining resource at a relatively stable figure.

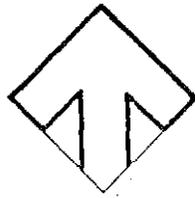
The total proven and probable resource figure at March 1982 of 8,286,700 tonnes at 0.97% WO₃ can be compared with the August 1978 figure of 8,060,400 tonnes at 1.01% WO₃. In addition the possible resource figure now stands at 1.3 million tonnes against the August 1978 figure of 477,000 tonnes.

Allowing for mining and sterilisation of some 1,648,000 tonnes of ore during this period there has been an increase of 226,000 tonnes in the overall proven and probable resource showing that oreblocking of new resource has, on average, kept ahead of extraction. The additional ore is, however, at a lower grade.

During the past twelve months the exploration effort has been concentrated in the areas immediately adjacent to the current mines. (Figure 3) One diamond drill hole was completed and one is currently suspended at the depth of 157m on the Southern orebody area of Dolphin. Minor diamond drilling was carried out at the southern limits of Bold Head Mine. A large, 26 line kilometer grid was established over the area from Bold Head to the coast and a gravity survey carried out over it.

150008

Naracoopa



NORTH

LEGEND:

- DIAMOND DRILLING
- ▣ GEOPHYSICAL GRID

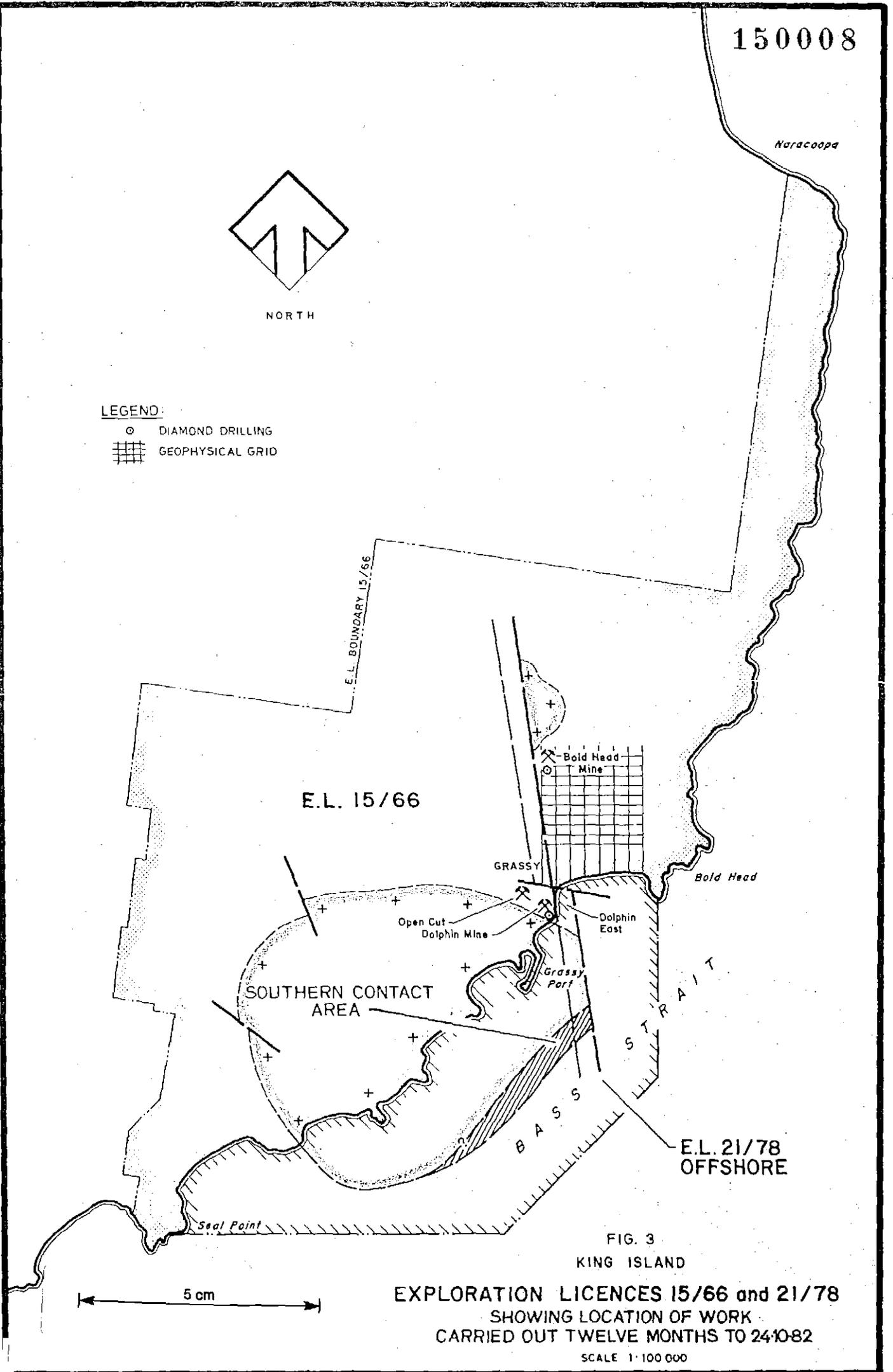


FIG. 3

KING ISLAND

EXPLORATION LICENCES 15/66 and 21/78
 SHOWING LOCATION OF WORK
 CARRIED OUT TWELVE MONTHS TO 24/10/82

SCALE 1:100 000

It is considered that exploration potential still exists on the island and can effectively be regarded as of two types:-

- a) Extension of current mine resource/reserves.
- b) Orebodies outside of the current mine blocks.

These can be further subdivided into three categories:-

Category 1

That which has some diamond drill intersections

Category 2

That based on interpretation of available geological and geophysical data.

Category 3

That where current geological and geophysical data is insufficient to preclude the presence of an orebody.

The various prospects will be discussed under the following headings:-

- 1) Grassy Granite Area: Where potential exists for up to:-
 - 1,400,000 tonnes in category 1
 - 14,800,000 tonnes in category 2
 - with 2 prospects in category 3
- 2) Bold Head Granite Area: Where a potential exists for up to:-
 - 250,000 tonnes in category 1
 - 2,500,000 tonnes in category 2
 - with 3 prospects in category 3
- 3) Other Potential Areas:
 - 2 areas in category 3

The Exploration potential of South East King Island is shown on figure 4.

EXPLORATION POTENTIAL:

150010

CATEGORY I	<u>PROSPECT:</u>	A BOLD HEAD MINE	250,000 tonnes
		C DOLPHIN MINE	100,000 tonnes
		E SOUTHERN OREBODY	1,300,000 tonnes
		H INVESTIGATOR 21	300,000 tonnes
CATEGORY II	<u>PROSPECT:</u>	B BOLD HEAD SOUTH	2,500,000 tonnes
		D DECLINE OREBODY	300,000 tonnes
		G 'TEREDO'	14,500,000 tonnes
CATEGORY III		F 'WINDOW'	
		I INVESTIGATOR 1	
		J BOLD HEAD N°4 AREA	
		K 'HORST'	
		L DOLPHIN EAST	

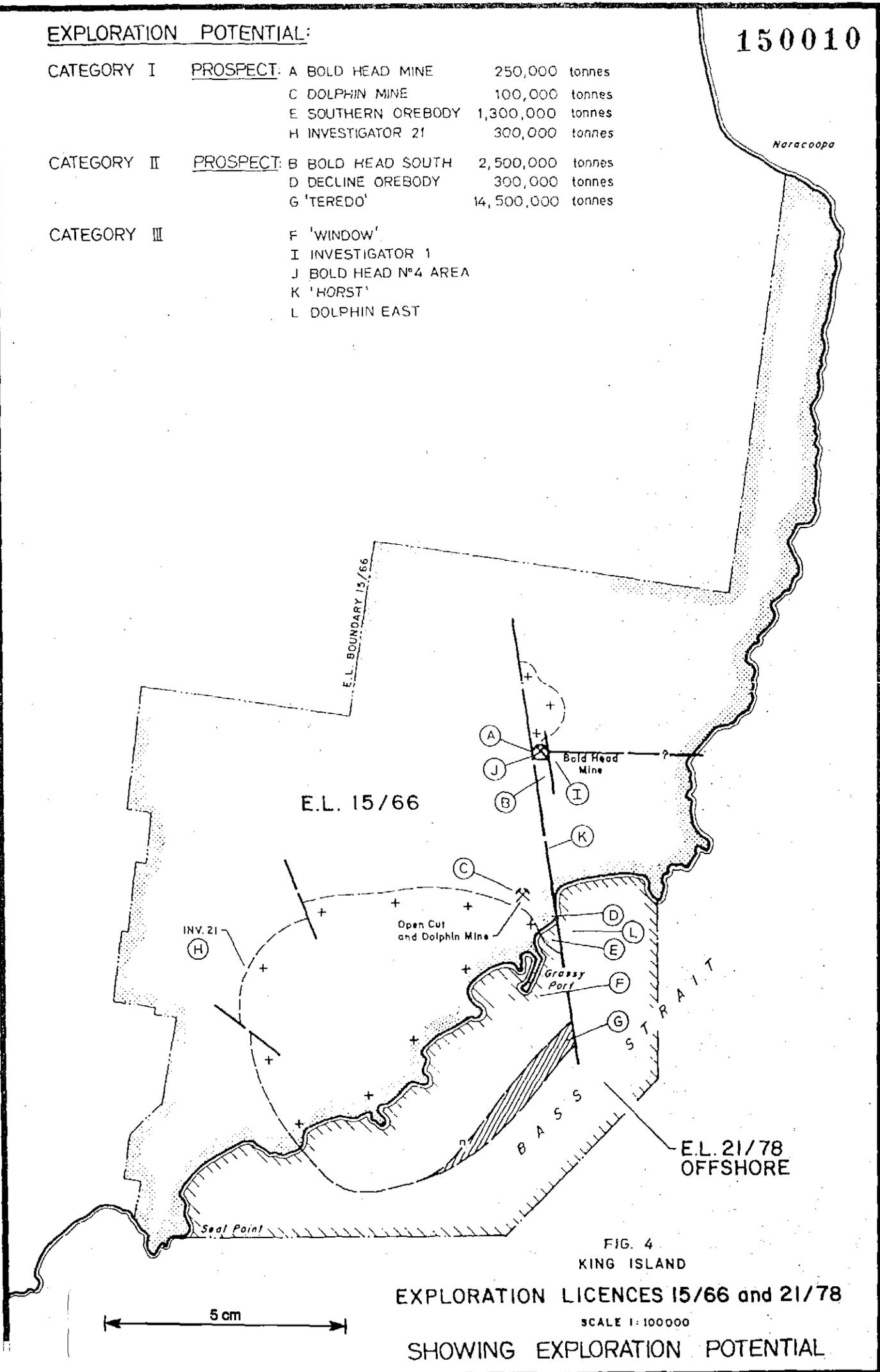


FIG. 4
KING ISLAND
EXPLORATION LICENCES 15/66 and 21/78
SCALE 1:100000
SHOWING EXPLORATION POTENTIAL

POTENTIAL

1) GRASSY GRANITE AREA

In the immediate mine area potential for additional resources exists in three areas. (Figure 5).

- a) Current mining area (C) (Category 1). Potential exists for some 100,000 tonnes in minor extensions to current mining blocks.

The majority of this potential occurs in the Lower Wedge Remnant, The Lower Central, The Lower Pit and B lens orebodies.

Diamond drilling and development work is required to define this potential, with current efforts being concentrated on the Lower Wedge Area.

- b) Southern Orebody (E) (Category 1). Potential exists for 1.3 million tonnes in two zones.

Zone one, current testing by underground diamond drilling suspended, is estimated to have a potential of 800,000 tonnes. Zone two, with a potential for up to 500,000 tonnes has so far had only one surface diamond drill hole targetted at it.

Zone one is defined as that area lying between the Swan fault and the southern limits of the intersections recorded in diamond drill holes D 160/22 and D 300/5. Those holes which were drilled at about 25° to L.C.A. intersected 43.0m at 0.79% WO₃ and 11.0m at 0.80% WO₃, respectively. (Figure 6 & 7)

The true ore intersection in D300/5 would probably have been about 14m had the hole not encountered an aplite in the middle of the skarn horizon.

This zone was, during the current financial year, scheduled for oreblocking from underground development on the -200m RL. Owing

150012

CURRENT MINING BLOCK
POTENTIAL ESSENTIALLY DEFINED
100 000 Tonnes

564 000 N

SWAN

FAULT

SWAN OREBLOCK

WEDGE

AUK OREBLOCK

AUK

COAST OREBLOCK

POSSIBLE

PHEASANT

ZONE I

FAULT

300/5:
11m at 0.80%

PHEASANT OREBLOCK

563 800 N

160/22:
43m at 0.80%

DECLINE OREBODY

360/14:
DRILLING
SUSPENDED

ZONE II

FAULT

DECLINE

CONTACT

WITH

C LENS

HORIZON

RIVER

Bay

FAULT

563 600 N

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Grassy

REF PLAN	GEOLOGY		1: 2 500 SCALE	
	SURVEY			
	PLANNING			
	ROCK MEC.			
	GRADE CON.			
	DRAFTING			
T.S.S.		DRAWING NUMBER	FIGURE 5:	

5 cm

DOLPHIN MINE
SOUTHERN OREBODY
EXPLORATION POTENTIAL

150013

DOLPHIN MINE
GEOLOGICAL X-SECTION
220 160 E

SOUTHERN OREBODY

SCALE: 1:1000

SHOWING D160/22 43m at 0.72% WO₃

ZONE I ← → ZONE II

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PHEASANT OREBLOCK

AUK OREBLOCK

11m at 0.82%

12m at 0.58%

D160/21

D160/24

D160/23

D160/22

gr

B Lens

B Lens

FAULT

FAULT

PHEASANT

IV

30m at 0.58%

30m at 0.58%

30m at 0.58%

30m at 0.58%

563 800 N

563 700 N

563 600 N

-200mR.L.

-250mR.L.

-300mR.L.

-350mR.L.



FIGURE 6:

DOLPHIN MINE
GEOLOGICAL X-SECTION
220 300 E
SOUTHERN OREBODY
SCALE 1:1000

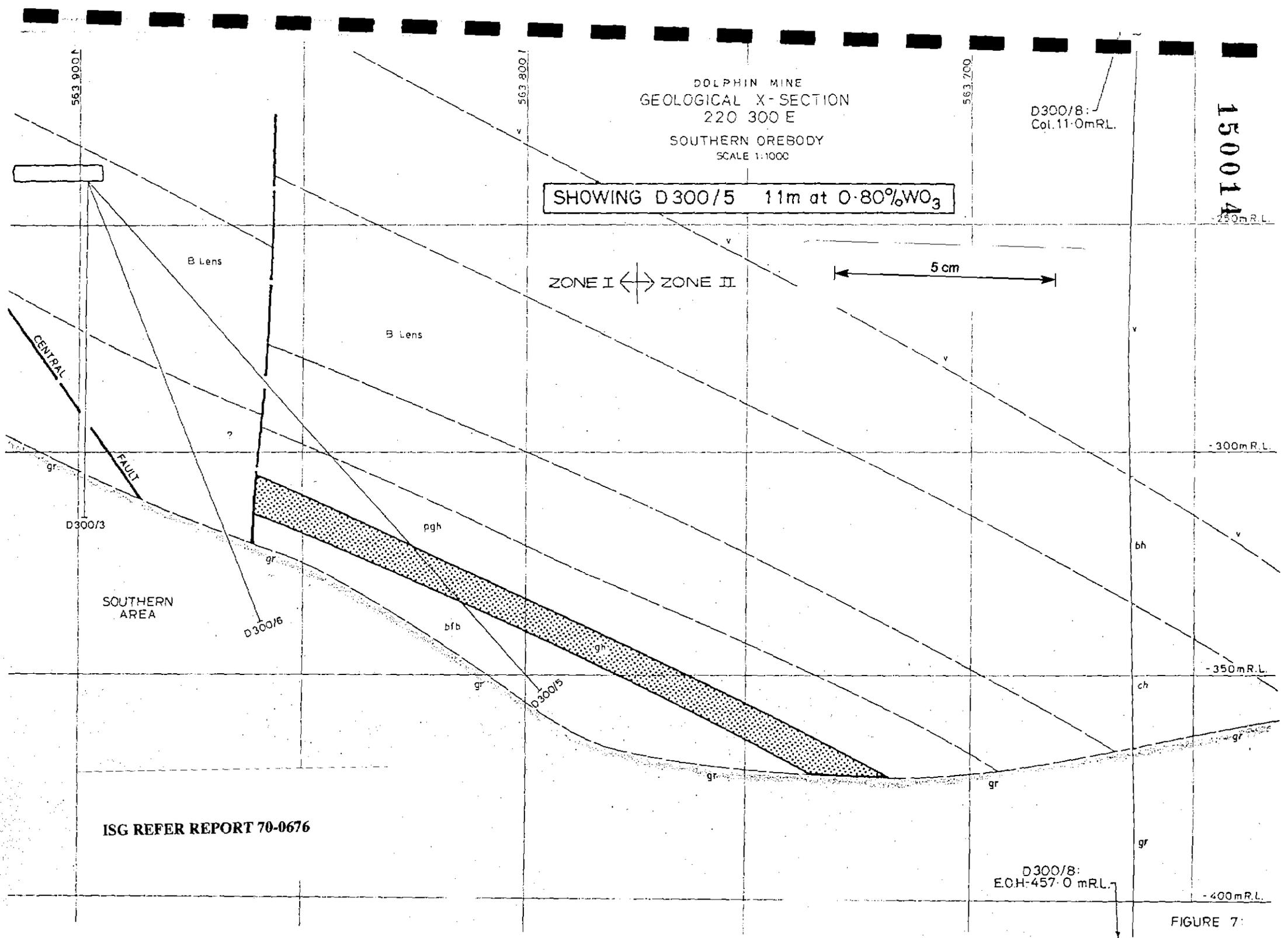
D300/8:
Col. 11.0m R.L.

150014

SHOWING D 300/5 11m at 0.80% WO₃

ZONE I ↔ ZONE II

5 cm



ISG REFER REPORT 70-0676

D300/8:
ECH-457.0 m R.L.

FIGURE 7:

to major delays in development of suitable sites, due only in a small part to the current restrictions on development, no useful oreblocking diamond drilling has been carried out in this area since August 1981. The situation has now been reached where, unless a long term access to the current L6 area, future drilling will not be possible from the currently proposed sites. This would necessitate drilling from less advantageous sites which will require additional development drivage underground or diamond drilling from the surface. Both of these alternatives will add considerably to the cost of testing the area in question.

It is considered absolutely essential that additional diamond drilling be carried to at least broadly define the southern orebody prior to any attempt to carry out development within or close to the orebody. It is again stressed that the current data is, outside of the Swan oreblock, based on only 2 diamond drill sections and a total of only 3 significant holes.

The theoretical interpretation must be further tested and refined prior to development or firm planning.

Zone two is untested except for diamond drill hole D 300/8. This drill hole which intersected granite at the -366m RL has indicated that the potential zone is probably closed off to the south west by the presence of the main body of the Grassy Granite. Further drilling will however be required to confirm this interpretation as recent work in the current mine area has shown that the granite contact is much less uniform than previously thought. It is therefore possible that hole D 300/8 may have intersected a local granite high or a major ridge such as geophysics indicate as a possibility east of Bold Head.

The tonnage quoted for this zone, some 500,000 tonnes, is based on extensions of the Southern orebody south from the current limit of drilling until cut off by the granite contact. At the present time this area can only be tested by diamond drilling from the surface although some progress was made early in the year on the T8 -240 level drill drive.

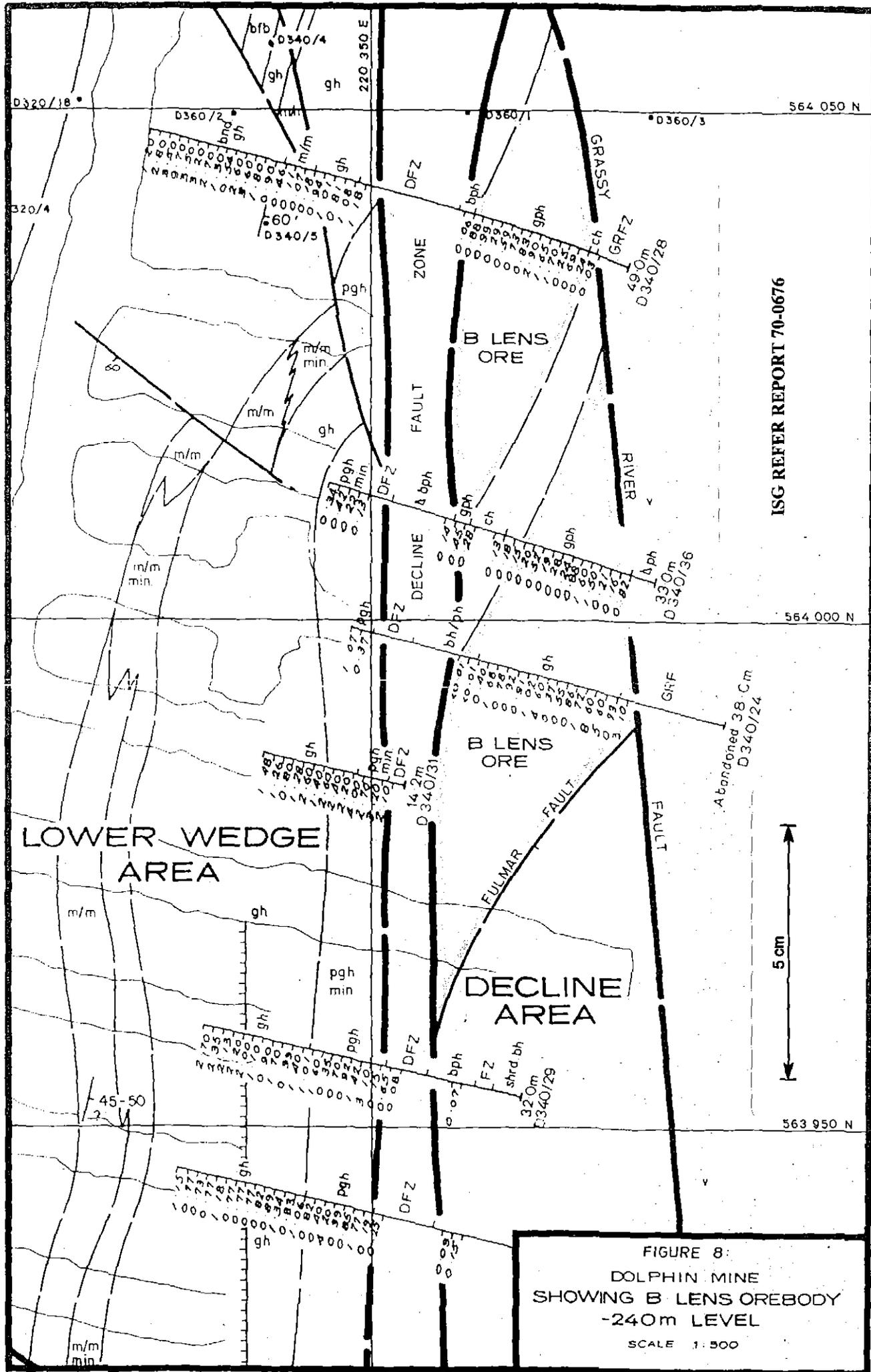
Dependant on the results of diamond drill hole D 360/14, currently suspended at a depth of 157m, consideration may be given to carrying out a wedge run-off from D 300/8 once exploration drilling recommences.

- c) Decline Orebody (D) (Category 2). Potential exists for some 300,000 tonnes in the Decline Orebody. This orebody is untested south of the Fulmar Fault, but north of this area contains 337,000 tonnes at 0.74% WO_3 in B lens. This is the only significant ore resource in B lens and, should the mines series sequence be present south of the Fulmar Fault, a similar resource tonnage could occur.

The Decline Orebody is defined as that portion of mine the series rocks lying between the Decline and Grassy River Faults. As can be seen on figure 8 the strikes of these faults diverge to the south and it is considered possible that south of the Fulmar Fault area there is sufficient space for a down faulted block of mines series rocks containing both B lens and C lens sequences to occur.

It is apparent from any examination of the distribution of mineralisation at the Dolphin Mine that there is an overall increase towards faults, the increase towards the Decline Fault being most evident, as in the Lower Wedge area. It is probably that this trend continues between the Decline and Grassy River Faults as evidenced by the high grades recorded in B lens, where that unit is in contact with both faults. (Figure 8)

It is therefore considered that any additional ore found in the Decline overbody is likely to be of a similar grade to that recorded in the Lower Wedge (1.2% WO_3). For this reason this area is currently regarded as a high priority target.



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FIGURE 8:
 DOLPHIN MINE
 SHOWING B LENS OREBODY
 -240m LEVEL
 SCALE 1:500

Outside of the immediate area of the Dolphin Mine but also associated with the Grassy Granite area a further four prospects.

a) Investigator 21 (H) (Category I). Potential 300,000 tonnes. Ore present as a thin, 3 metre wide, skarn horizon within mine series rocks. Prospect defined by diamond drilling no further work envisaged

b) Southern Grassy Granite Contact (G). (Category 2).

This prospect termed, the Teredo prospect, lies some 450 metres off the Breakwater of the Grassy Port, and is based essentially on the assumption that mine series rocks could exist adjacent to the southern contact of the Grassy Granite in a similar structural setting to that occurring in the Dolphin/No. 1 orebody area. (Figure 9).

As mentioned the Dolphin/No. 1 orebody contained an estimated total original resource (proven and probable) of 14.5 million tonnes at 0.85% WO_3 .

This orebody occurred due to the presence of a source rock, the Grassy Granite, suitable host rocks, the mine series and a number of localizing factors. The most important of these probably were the presence of a shelf in the granite contact and a major structural feature, the Grassy River Fault, movement on which folded and faulted the adjacent area of mine series rocks.

In the Southern Contact area the source rock is the same Grassy Granite and the Grassy River Fault is thought to extend well south of this area.

The presence of mine series rocks is not known but it would appear from geophysical data that volcanic rocks, possibly the equivalent of those which overlie the mine series at the Northern Contact, are present.

Should these volcanics in fact overlie mine series rocks then the potential for an orebody, of a similar size to that currently being mined, is considered to be high.

It is considered such a deposit could be developed and worked using the infrastructure present at Grassy which currently handles the Dolphin and Bold Head mines.

It is considered that at least one diamond drill hole will be required to test the stratigraphy of this area before the presence or absence of mine series rocks can be confirmed.

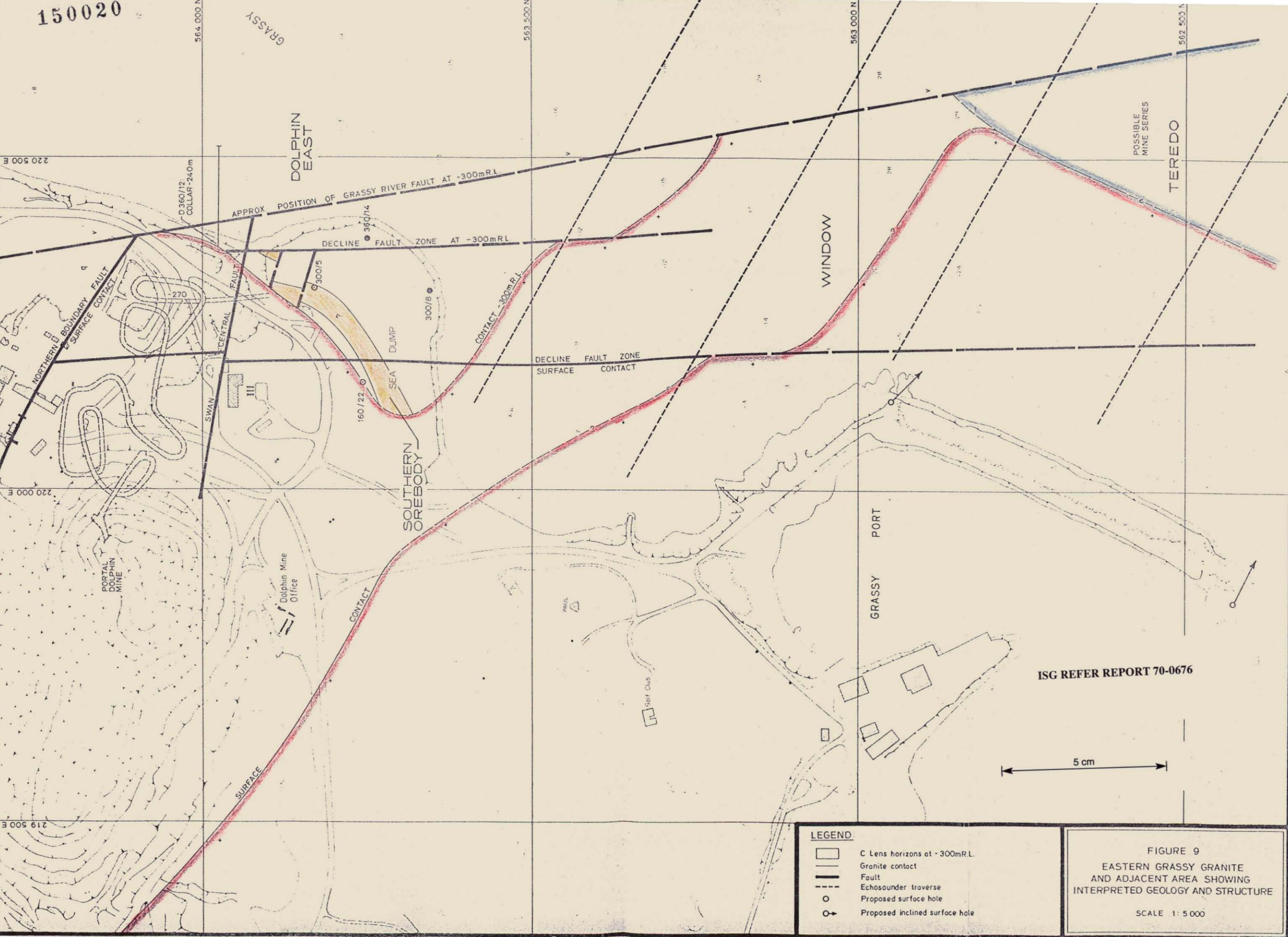
Due to the very high cost of exploration drilling offshore, in the depths of water which occur in the southern granite contact area, this prospect is considered to have a low priority. At the present time there are a number of onshore or near shore areas with potential which should be tested prior to the expenditure of large sums on a prospect where there is no direct geological, geochemical or geophysical method available to show the presence of suitable host rocks.

- c) 'Window' Prospect (F). (Category 3) This prospect is based on the possibility of continuity of mine series between the Southern Orebody (Decline) at Dolphin and the southern granite contact. (Figures 9 & 10)

This prospect is infact the southern continuation of the Decline area previously described. Due to the southward divergence of the faults their point of intersection will be deeper in this area than in Dolphin Mine and hence the potential for a down faulted block of mine series rocks to exist is higher. As with the Decline area the presence of the two faults, which in Dolphin Mine appear to have acted as channel ways for mineralisation, allows the inference that any ore found in this area would have a high tungsten grade.

- d) Dolphin East (L) (Category 3). This prospect is based on the possibility of down faulted mine series rocks east of the Grassy River Fault. (Figures 9 & 10). Any orebody in this area would be expected to be at considerable depth say -700 to 800m at best. Diamond drill hole D360/12 was drilled to a depth of 500m RL and terminated while still in Upper Volcanics.

150020

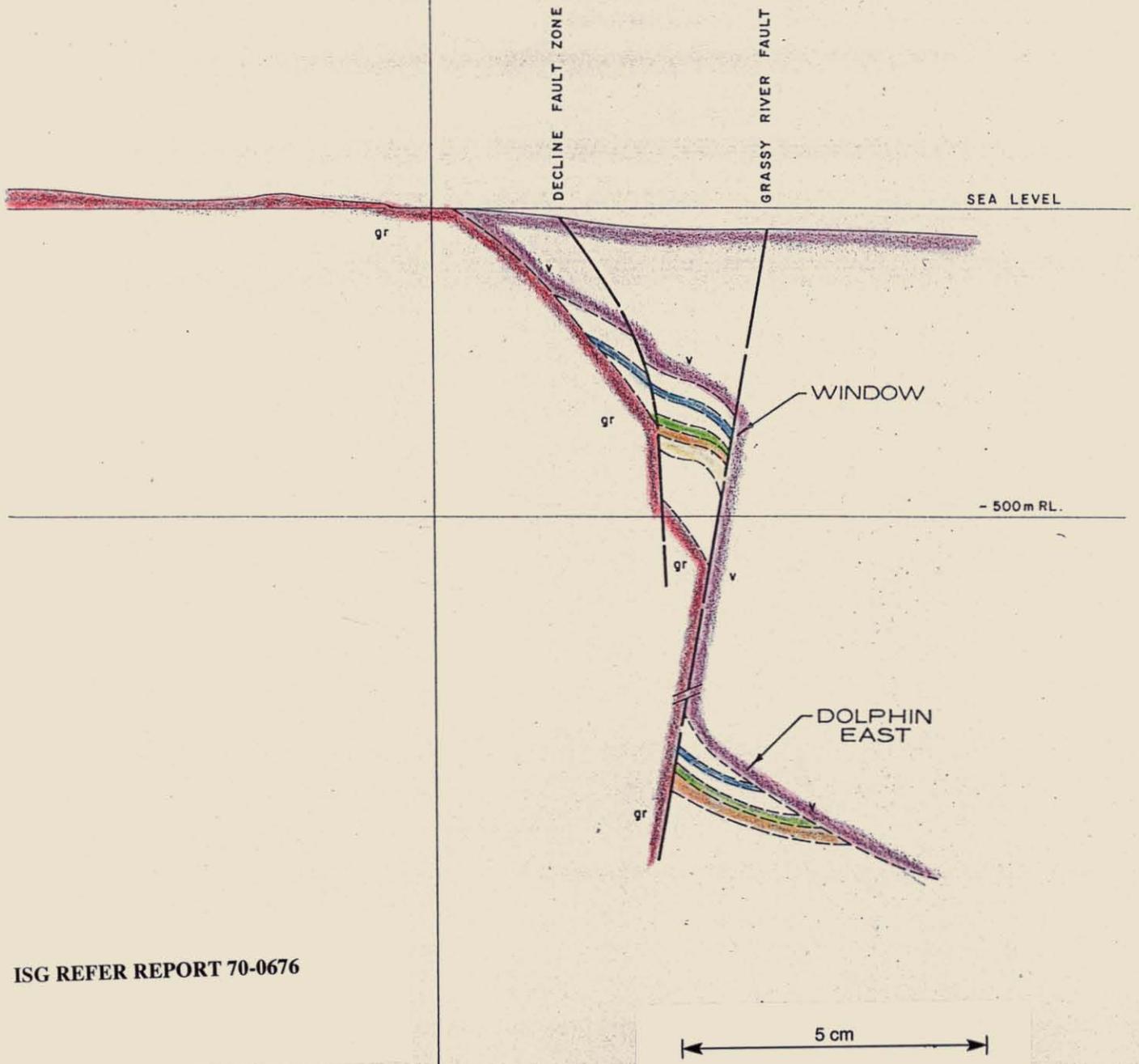


LEGEND

- C Lens horizons at -300m R.L.
- Granite contact
- Fault
- Echosounder traverse
- Proposed surface hole
- Proposed inclined surface hole

FIGURE 9
 EASTERN GRASSY GRANITE
 AND ADJACENT AREA SHOWING
 INTERPRETED GEOLOGY AND STRUCTURE
 SCALE 1:5 000

220 000 E



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SCHEMATIC LONGITUDINAL SECTION - 563 500 N

SCALE 1:10 000

As with the Teredo prospect this is considered to be of low priority.

2) BOLD HEAD GRANITE AREA

In the immediate mine area potential exists for additional reserves in three areas. (Figure 11).

- a) Current mining area (A) (Category 1). Potential 400,000 tonnes. 250,000 tonnes of this is located at the southern end of the mine where oreblocking is in progress.

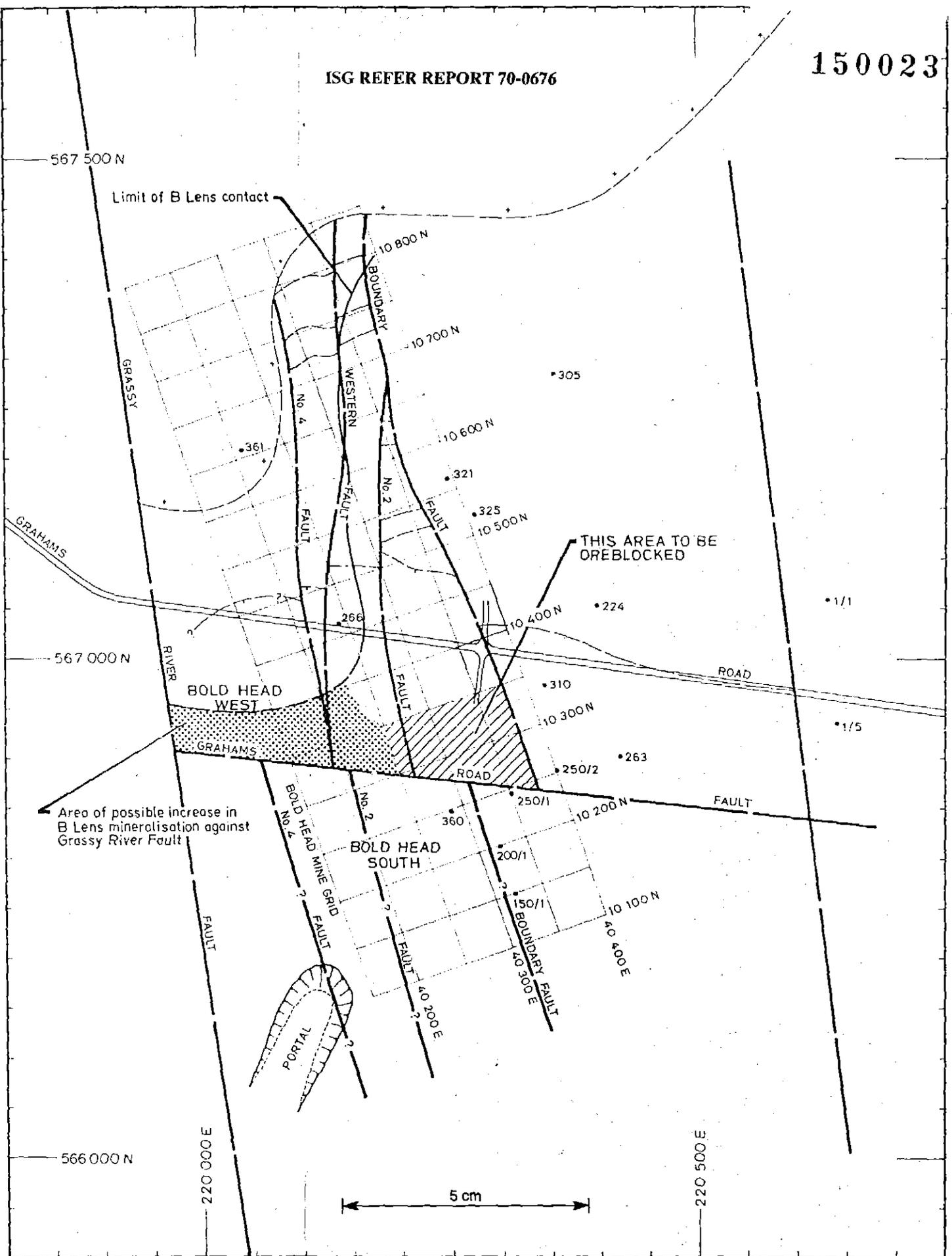
The Bold Head Mine block, as currently developed, has been shown to be terminated in the south at about 10250N by a major east - west fault, the Grahams Road Fault. This fault has a down throw to the south of in excess of 200m.

Only two areas of potential for additional ore resource are considered to exist north of the Grahams Road Fault. The Fault Block South, lying between the No. 2 and Boundary faults, and C lens West lying west of the Western Fault.

The Fault Block area has been effectively defined south of the 10325N cross section to be tested. This area, some 75m north - south by 100m east - west has a potential for another 50,000 tonnes of resource.

C lens west has been defined down to 10400N with the zone from here to the Grahams Road Fault as yet undefined. Drilling carried out on the 10350N section intersected reasonable grades in two holes and showed that the granite contact lies considerably further west than was previously interpreted. (Figure 12). B 350/14 intersected 9 m @ 0.84% WO_3 in C_2 lens. A potential of some 100,000 tonnes is currently envisaged for this area in addition to that currently quoted in the resource.

- b) West of Bold Head Mine (J) (category III) there is a zone some 150 metres wide between the No. 4 Fault and the Grassy River Fault which has no diamond drill hole present in it. The pattern of faulting



REF PLAN		GEOLOGY	30/3/81	1 : 5000	 KING ISLAND SCHEELITE GRASSY KING ISLAND
LEGEND:		SURVEY		SCALE	
	Upper volcanics	PLANNING		BOLD HEAD AREA SHOWING ZONES OF ADDITIONAL POTENTIAL WITHIN CURRENT MINING BLOCK	
	Mine series	ROCK MEC			
	Quartzites and siltstones	GRADE CON			
	Adamellite	DRAFTING			
		T.S.S.			
				DRAWING NUMBER	FIGURE 11:

at Bold Head is such that an up faulted block containing mine series could occur.

Such a block would have remained undetected if the upthrow was of a relatively small size so that the mine series rocks remained unexposed on surface.

The lack of outcrop together with the lack of detailed stratigraphic knowledge of the upper volcanic sequence makes it currently impossible to identify ones position within the volcanics and the area would be mapped purely as volcanics in the earlier work. The presence of even a thin volcanic cover would be sufficient to obscure any geochemical indications of buried mine series rocks as has been shown with the main orebody.

The indications are, at Dolphin and Bold Head Mines, that the major faults have acted as channel ways for the mineralizing fluids and hence the richest ore occurs adjacent to these faults.

If the mine series at Dolphin and Bold Head are the same stratigraphic sequence then one would expect mine series to occur adjacent to the Grassy River Fault in the Bold Head area at some point, dependant on the sub surface shape of the granite contact, and the relative throws of the various faults in the area.

Thus if mine series rocks of suitable composition were to occur between the No. 4 and Grassy River faults then they could be expected to contain some high grade greater than 1% WO_3 zones.

Although it is considered that the potential for mine series rocks to occur in this area is relatively low it should not be eliminated from the overall assessment of the total King Island potential without further study.

Outside of the immediate mine area a further three prospects are regarded as having some potential for Tungsten mineralization. These are the Bold Head South, Investigator I and Horst area. (figure 4)

These areas are currently the subject of a unified exploration programme consisting of three geophysical surveys; Gravity, Magnetics and Very Low Frequency.

The initial results of the Gravity and VLF surveys, carried out over a grid extending from Bold Head south to the coast, have been encouraging. A second closer spaced grid is now being established over the northern portion of the area to allow a more detailed ground gravity survey and a ground magnetic survey to be carried out.

The initial airborne magnetic survey showed a distinct east - west linear truncation of the dominant magnetic features at about 576250N and it is considered that this could be indicative of a major east - west fault.

A distinct area of low magnetic response was also noted to the east of Bold Head.

The ground gravity survey showed a marked low in a similar area to the above mentioned area of low magnetic response. This combination could result either from the presence of a ridge of granite underlying the volcanic in this area or a relatively thin volcanic cover over a non magnetic sedimentary unit such as the quartzites.

There are some indications from the drilling at Bold Head Mine that support the possibility of the presence of a granite ridge in the area. Should such a ridge occur then at least one of the major conditions necessary for the formation of King Island type tungsten deposits would be present in both the Bold Head South and Investigator I areas.

a) Bold Head South (B) (Category 2)

As noted previously the southern limit of the current mine block is defined by a major fault which has a throw in excess of 200m south side down.

It is considered probable that mine series rocks will again occur in contact with the Bold Head Adamellite south of the Grahams Road Fault. The exact location of this juncture will be dependent of the actual throw of the Grahams Road Fault and the subsurface shape of the granite contact.

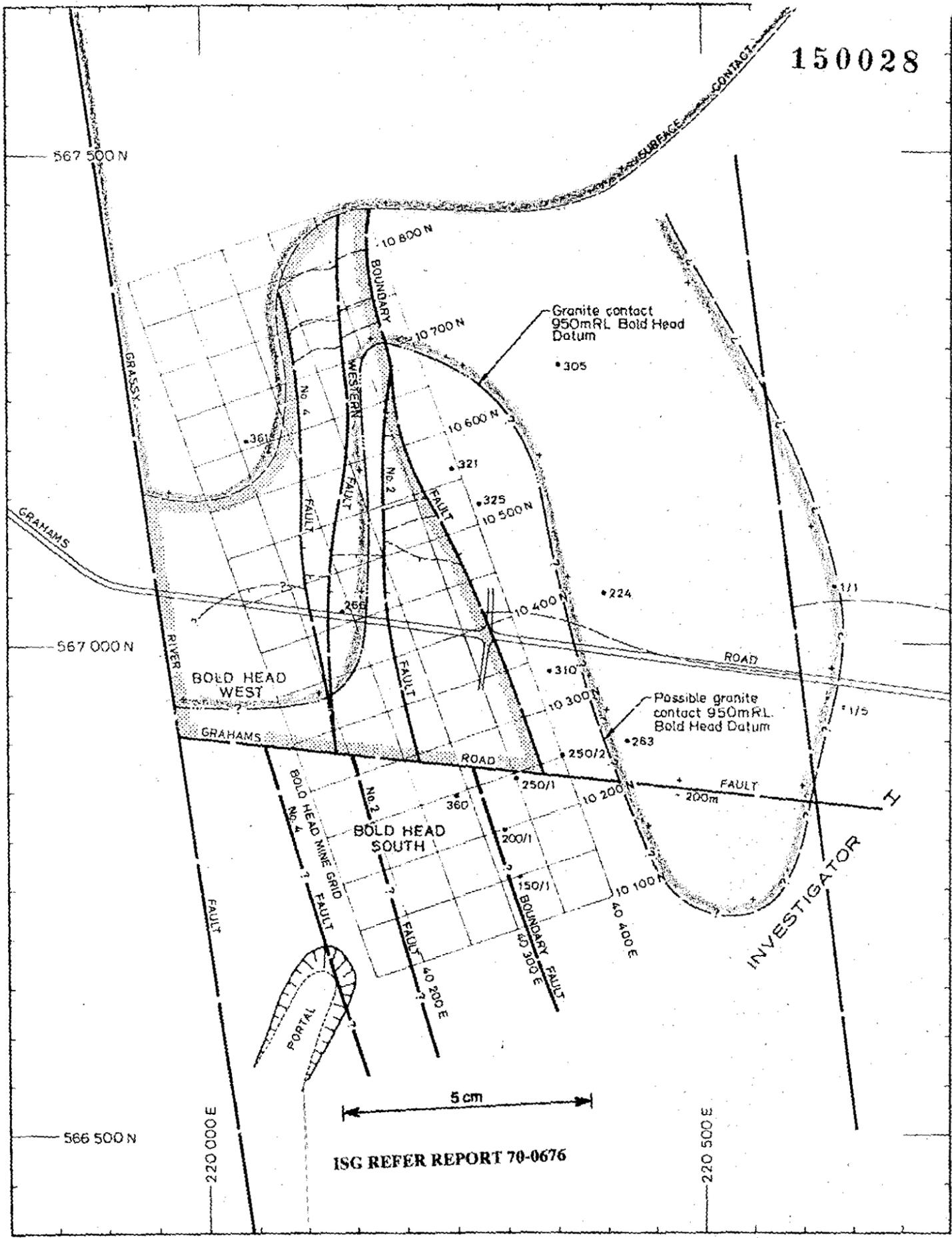
Should the Granite contact plunge steeply to depth then it is considered probable that any orebodies present would be restricted to the immediate Granite/Mine Series contact zone and hence the potential would be for a small tonnage orebody. If, on the other hand, the Granite contact were to have a similar shape to that occurring under the Bold Head Mine area, where it forms a distinct shelf, then if the Mine Series was in close proximity to, and overlying such a shelf, the potential would be for an orebody of similar size to that currently being mined at Bold Head. The total original resource at Bold Head is estimated at 2.6 million tonnes at 0.84% WO₃.

It is possible that the Grahams Road Fault post dates the major north - south trending faults in the Bold Head area and therefore offsets them. Since the north - south faults dip to the east, they would be offset to the west, south of the Grahams Road Fault, and it is therefore possible that the three deep surface holes drilled in this area lie to the east of the Boundary Fault (Figure 13). If this were the case then they would not have tested the area of primary potential which is interpreted to lie in the zone between the Grassy River Fault and Boundary Fault.

b) Investigator 1 (J) (Category III)

Prior to the latest ground gravity survey this area had been regarded as having low potential for ore. Should the large gravity low located east of Bold Head be due to the presence of a ridge of the Bold Head granite body, then one of the major disadvantages which this area

150028



ISG REFER REPORT 70-0676

REF PLAN		GEOLOGY	1:5000 SCALE	KING ISLAND SCHEELITE GRASSY KING ISLAND
LEGEND:		SURVEY		
	Upper volcanics	PLANNING		BOLD HEAD AREA SHOWING ZONES OF EXPLORATION POTENTIAL
	Mine series	ROCK MEC		
	Quartzites and siltstones	GRADE CON		
	Adamellite	DRAFTING		
	Current Mining Block	T.S.S.		
			DRAWING NUMBER	FIGURE 13:

was considered to have, remoteness from a Devonian Granite, will have been overcome.

If, as is currently interpreted, the linear feature on the aeromagnetics in this area is a major east-west fault, down-throwing south, then it is possible that a suitable sequence of mine series rocks could occur at depth adjacent to the inferred granitic high.

c) Horst (h) (Category III)

This is a theoretical possibility, with no supporting data to date except for the now proven existence of a major east-west fault, the Grahams Road Fault in the Bold Head Area. (figure 14)

The presence of an upfaulted block containing mine series rocks adjacent to the Grassy River Fault in the area between Bold Head and the South Coast cannot be discounted but is considered a low priority target at this point.

The current work programme of geophysical surveys is aimed at obtaining as much structure data on all these three areas as possible.

Initially this will be done using geophysics, with the ground magnetics being interpreted using the new susceptibility data and allowing a depth to the base of the volcanics to be estimated. The Gravity survey is aimed at assessing the depth to granite contact throughout the area, while VLF will hopefully identify and locate the major faults.

It is hoped that, by comparing the contours derived for the base of the volcanics and those derived from the granite contact, areas of non-coincidence will be apparent. Assessment of these areas for the presence of mine series rocks will be the major priority and future diamond drilling will be aimed to test those areas in which it is considered that the mine series rocks, if present, have the best potential for ore deposition. The distribution of faulting will play a major part in this assessment since it has been determined that, in the Bold Head area, faults have provided the major channelways for the introduction of mineralisation into the mine series rocks.

BOLD HEAD POTENTIAL

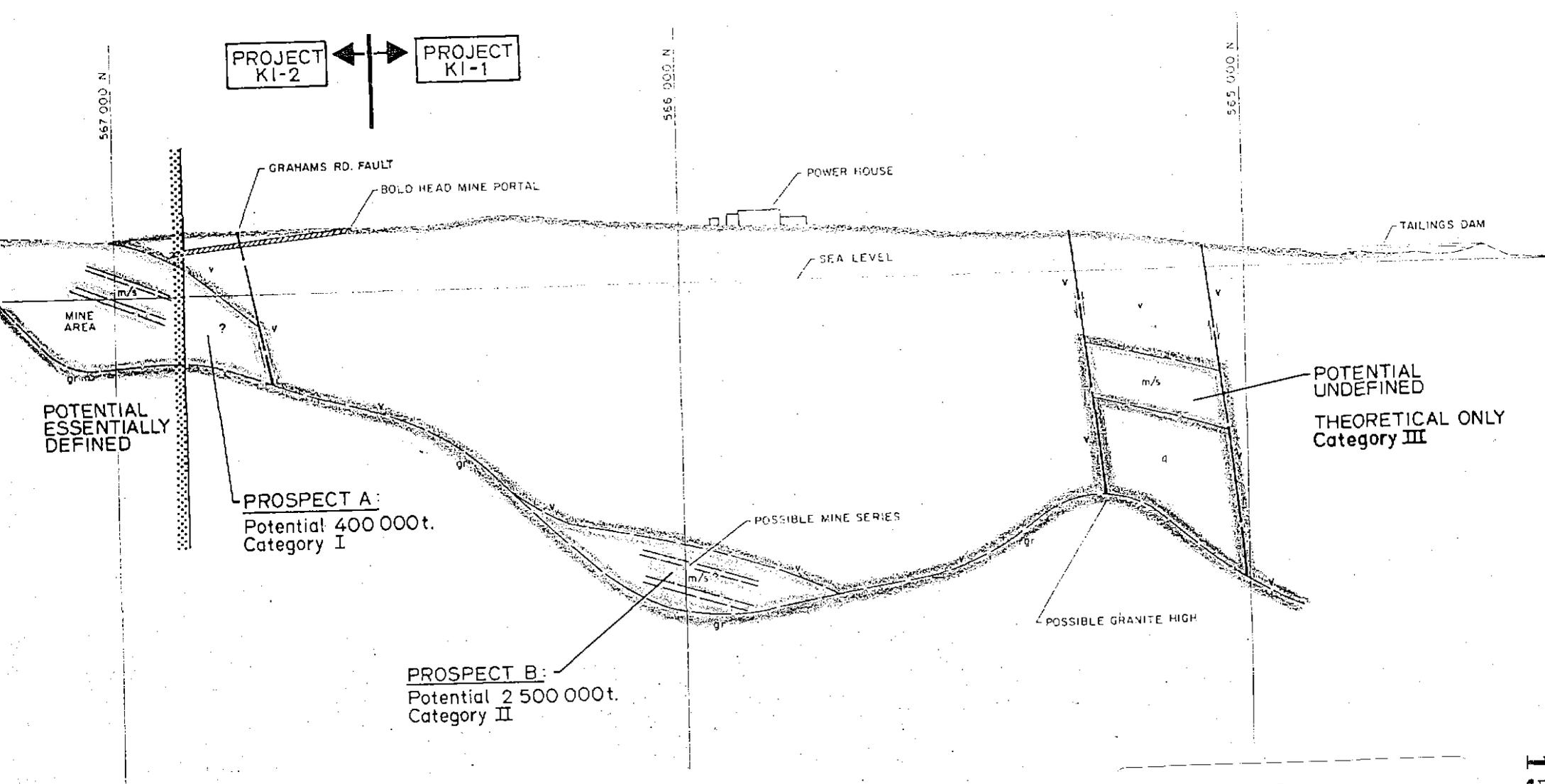


FIGURE 14:
BOLD HEAD AREA SCHEMATIC SECTION
SHOWING POSSIBLE SITUATIONS WITH ORE POTENTIAL
SCALE 1:10000

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150030

3) OTHER POTENTIAL AREAS

a) Reekarra

The only other area on King Island, which is currently considered to have any potential for an economic tungsten deposit in the short term is at Reekarra in the north central portion of the island.

Previous work done in the twenties and fifties showed the presence of quartz tourmaline veins containing tin and tungsten mineralization. Values up to 6.70% WO_3 and 0.64% Sn were obtained over a width of 97cm in one shaft. (Figure 15). No detailed exploration has been carried out to define the number and distribution of the quartz veins.

The Mt Carbine deposit (Figure 16) in North Queensland consists of a vein swarm in close proximity to both a major fault and a mineralizing granite body and so has a number of important similarities to the current interpretation of the geology of the Reekara area.

It is considered possible that the source of the mineralization at Reekara is the Devonian-Carboniferous, Mt Council Granite which outcrops some 5km to the east. The known veins tend to parallel two major photolinears which are tentatively considered as reflecting the northward extension of the Grassy River Fault.

For this reason it is considered that potential exists in this area for a Mt Carbine type ore deposit.

The priority on this project is relatively low with the initial work carried out being a geophysical survey designed to test for the presence of an extension of the Mt Council granite underlying the Reekara area. Such a structure if present would further enhance the potential of this prospect.

b) Mt Council East

It is considered possible that potential exists in the Mt Council East area for tungsten deposits of similar nature to those occurring at Grassy.

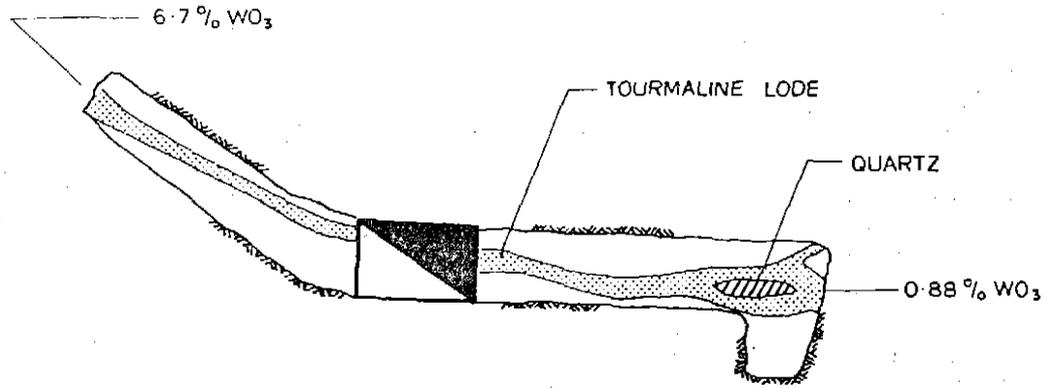


fig. I

'A' SHAFT, 7m BELOW SURFACE

Scale 1:120

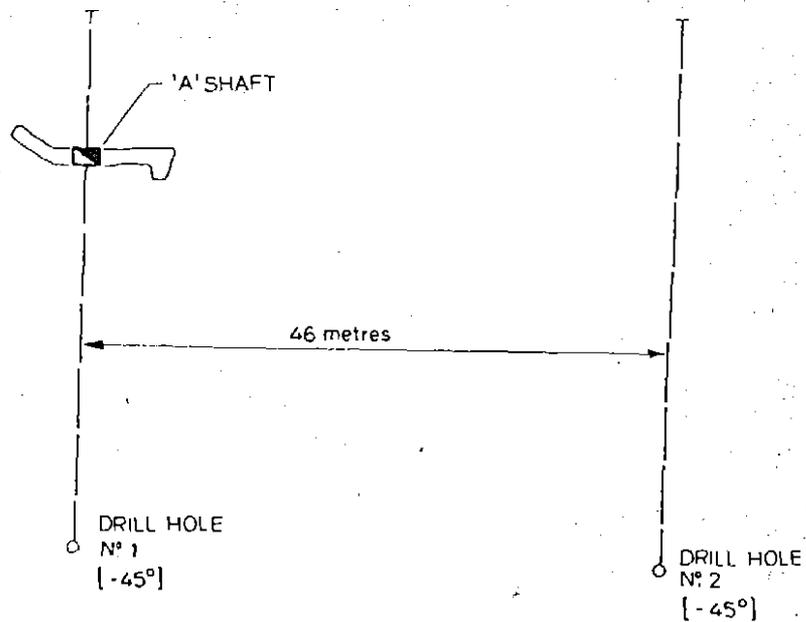
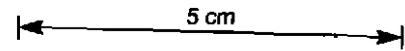


fig. II

REF. PLAN

NOTE

INFORMATION OBTAINED FROM MINES DEPT. REPORT DATED 30th JUNE 1955

GEOLOGY		
SURVEY		
PLANNING		
ROCK. MEC.		
GRADE CON.		
DRAFTING		
T.S.S.		

1: SCALE

KIS KING ISLAND SCHEELITE
GRASSY KING ISLAND

REEKARA

DRAWING NUMBER

FIGURE 15:

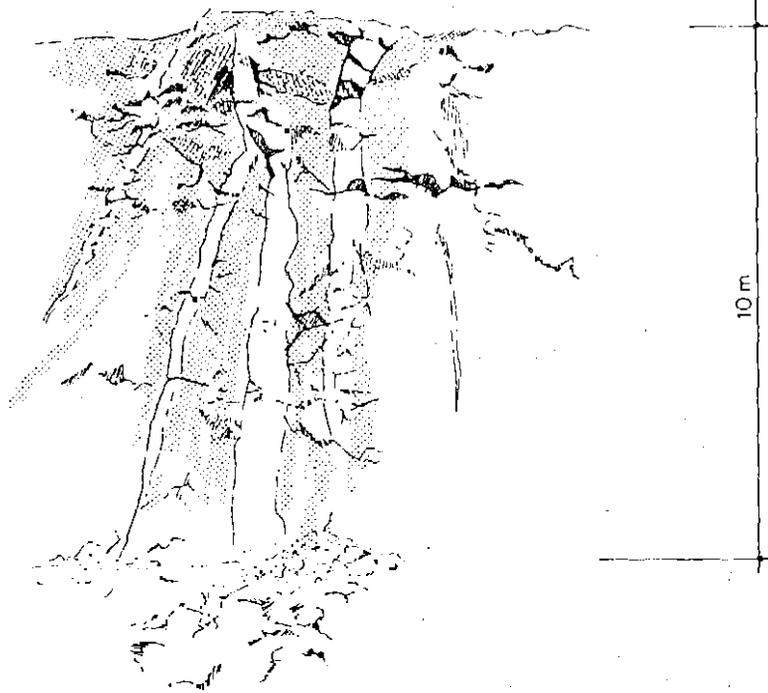


fig. III

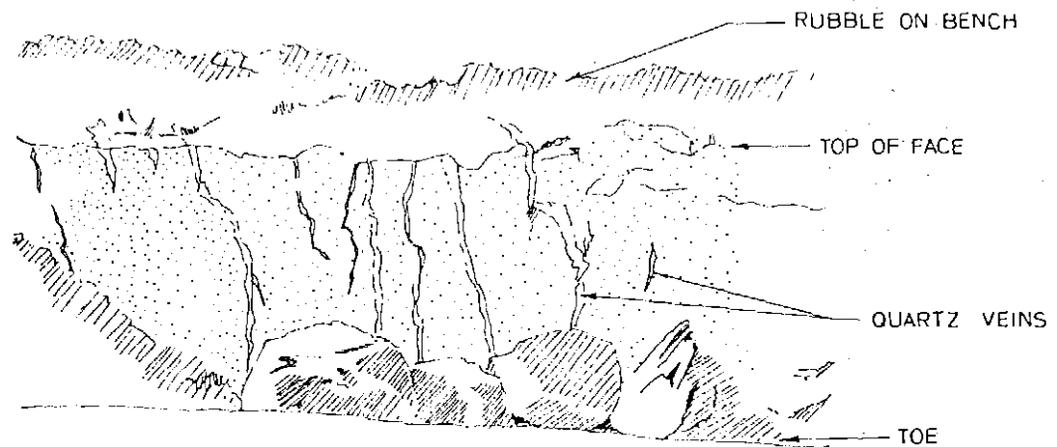
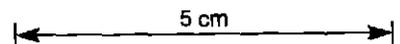


fig IV



REF PLAN	GEOLOGY			1 SCALE	
	SURVEY				
	PLANNING			Mt. CARBINE	
	ROCK.MEC.				
	GRADE CON.				
	DRAFTING				
T.S.S.			DRAWING NUMBER	FIGURE 16:	

On the basis of the information obtained from two widely spaced lines of aeromagnetics it would appear possible that the Cambrian volcanic sequence present along the east coast from Naracoopa to Cottons Flat, may be present adjacent to the eastern contact of the Mt Council Granite. An area of high magnetic character located offshore at two points between Naracoopa and the Martha Lavinia area is interpreted as being possibly due to the presence of this volcanic sequence.

A continuation of the Cambrian sequence in this area is possible if the major east - west fault inferred in the Naracoopa area had a throw, northside up.

Such a throw would, when the eastward dip of the Cambrian sequence is considered, account for the lack of this rock type at any other contact of the Mt Council Granite, due to erosion.

The Cambrian east coast sequence has been considered to be the lateral equivalent of the mine series rocks and overlying volcanics. If this is correct then the possible presence of these rocks in the vicinity of the Mt Council Granite must be worthy of further investigation.

This prospect although theoretically possible is obviously not worth following up until all other areas have been tested as its offshore location and remotness from the current operations at Grassy give it an extremely low priority.

It is included here for the sake of completeness.

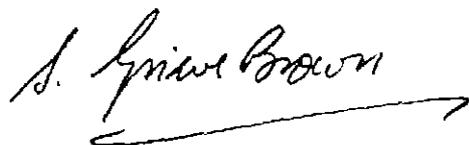
CONCLUSIONS

- 1) The potential for further tungsten resource on King Island is considerable:-
 - 1,950,000 tonnes in Category I
 - 17,300,000 tonnes in Category II
 - 7 prospects in Category III
- 2) Two types of deposits could occur, the Dolphin/Bold Head type and the Mt Carbine type.
- 3) Exploration for additional tungsten resources on King Island should continue at a pace which gives due regard to economic conditions and available mine reserves.
- 4) Exploration costs likely to be entailed in locating offshore deposits will be high and initially efforts should be concentrated in the onshore areas.
- 5) Priority within the mine areas must be given to obtaining at least a broad definition of the Southern Orebody prior to ANY access development into the currently inferred ore zones. This will require an active decision on the future of the -200m RL L6 diamond drill drive.
- 6) Priority outside of the immediate mine areas should be given to Bold Head South and the Investigator 1 areas in that order. These areas will be technically the easiest and financially the least expensive to assess.

RECOMMENDATIONS

It is recommended that:-

- 1) Diamond drilling for the Southern Orebody at Dolphin Mine be carried out from the -200m L6 drill drive as planned.
- 2) Access to the L6 area be maintained to ensure that the proposed drilling can be carried out when the financial situation allows.
- 3) Diamond drill hole D360/14 currently suspended at a depth of 157m be completed as soon as financially possible.
- 4) The current geophysical work planned for the Bold Head Area be completed and the results interpreted.
- 5) Two stratigraphic diamond drill holes be located in the Bold Head South/Investigator 1 area, dependent of the results of 4) above, when economically feasible,



S Grieve Brown

SUPERVISING GEOLOGIST

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