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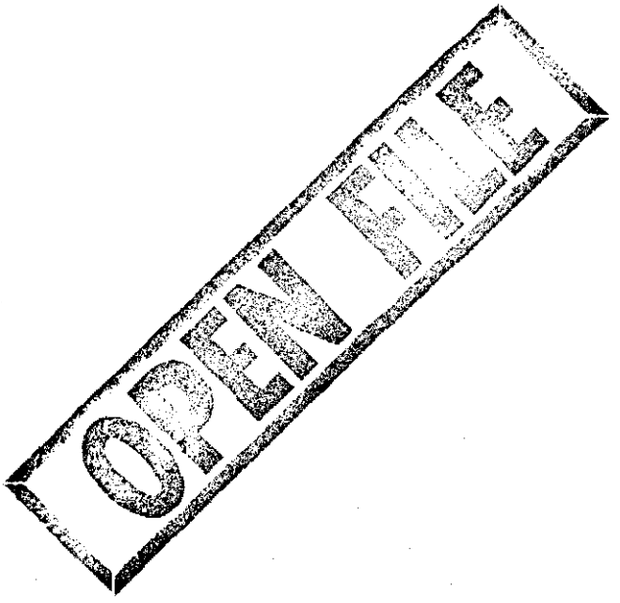
868001



TASMANIA MINES LIMITED

RETENTION LICENCE APPLICATION

WITHIN E.L. 17/68

September, 30, 1987

87-2720

TASMANIA MINES LIMITED

APPLICATION FOR A RETENTION LICENCE - E.L. 17/68

TABLE OF CONTENTS

LIST OF PLANS

Plan No.	Title	Scale
1/RL	Retention Licence Application Area	1:10,000
2/RL	Location Plan of Retention Licence Area	1:10,000
3/RL	Geological Plan of Retention Licence Area	1:10,000
4/RL	Ground Magnetic Survey Location L.5 to Loudwater Creek	1:1,000
5/RL	Ground Magnetic Survey Loudwater Creek to Hampshire Magnetite Skarn	1:1,000
6/RL	Ground Magnetic Survey Hampshire Magnetite Skarn	1:1,000
7/RL	Regional Geology of Wollastonite Creek	1:15,000
8/RL	Wollastonite Creek - Geological Interpretation	1:2,500

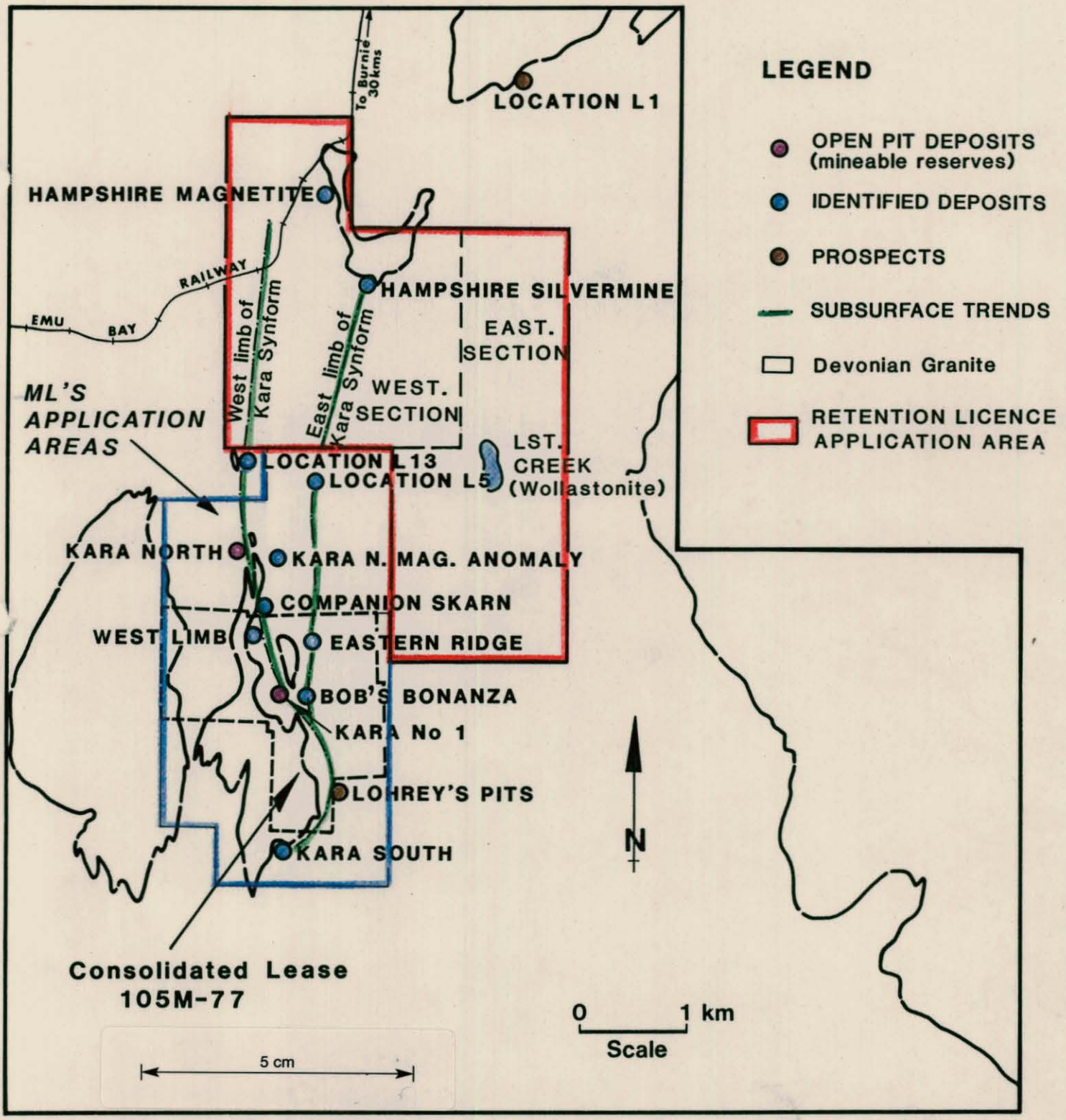
FIGURES

003

868004 **FIGURE No. 1**

E. L. 17/68 LOCATION PLAN

RETENTION LICENCE APPLICATION AREA



TASMANIA MINES LIMITED - RETENTION LICENCE APPLICATION E.L. 17/68

A. Introduction

Tasmania Mines Limited, the holder of Exploration Licence 17/68, hereby applies for the grant by the Minister for Mines of a Retention Licence in respect of:

- an area of 10 square kilometres at Kara shown in plans 1/RL, 2/RL and 3/RL;
- all mineral products in that area.

The area, which is further described in section B, is part of the area of EL 17/68. EL 17/68 relates to all mineral products.

The Retention Licence is sought for the period of five years commencing from 4 November 1987, immediately following the expiry of EL 17/68.

B. Area Under Application

The area under application is:

- specifically delineated on accompanying Plan No. 1/RL, and shown in Figure 1.
- defined by the RL boundaries which conform to the 1000 metre grid line coordinate system.
- for 10 square kilometres and is situated immediately south of Hampshire.
- situated entirely within the current Exploration Licence 17/68 area, specifically within the north-central section.
- surrounded by the RL southern and south western boundaries which are contiguous with the existing Consolidated Mineral Lease (CL.105M/77) and mineral leases (Nos. 1267P/M and 1269P/M) currently under application by Tasmania Mines Limited. (please refer to Plan 1/RL)

The area under application also falls into two sections as follows:

The WESTERN SECTION (plans 2/RL and 3/RL) of the proposed retention licence adjoins C.L. 105M/77 and other M.L.'s covering the current tungsten mine operation at Kara No. 1, and additional proven reserves at other tungsten ore zones constituting the Kara Properties - namely Kara North, Western Limb, Kara South and Eastern Ridge. It occurs immediately north of the delineated zone of high grade scheelite mineralisation blocked out by

drilling at Location L.5, and the recently (1986/87) discovered strike extensions of tungsten mineralisation between Eastern Ridge and Location L.5. Through completed surface exploration work (geology, geophysics, geochemistry) and subsequent geological interpretations, the "Western Section" of the R.L., (in the form of buried magnetite skarn zones and magnetic trends), constitutes the northerly strike extensions of the above mentioned proven tungsten ore zones.

The Western Section also includes the Hampshire Magnetite skarn zone, an extensive skarn development previously delineated by detailed surface investigations (1984-85).

The EASTERN SECTION, (plans 2/RL and 3/RL) of the proposed R.L. cover known wollastonite deposits and their strike extensions.

C. Grounds for the Retention Licence Application

The grounds for Retention Licence application are as follows:

1. The Applicant has explored the land extensively and intensively and discovered or investigated substantial deposits of wollastonite, tungsten and magnetite and skarns which could have potential for associated gold mineralization. In aggregate since 1968 Exploration Licence 17/68 area has attracted an expenditure in current value of over $10,180,000 in exploration, assays and associated activity.

Demand for scheelite at an economic price has diminished and the renowned miners in the field such as Canada Tungsten, Mount Carbine and Anglad, the largest French producer, have suspended their operations in the production of scheelite.

Work to date on wollastonite has been extremely encouraging and one that definitely justifies continuation. Investigations would indicate a 1 - 2 million tonnes deposit of wollastonite material of potential open-pit mine extraction. Initial surface and drill samples would show superior wollastonite grades (45 - 60% $CaSiO_3$) than originally assessed by the Department of Mines (30 - 38% $CaSiO_3$). These are still lower than overseas commercial wollastonite products, but future work must be aimed at achieving a cost-effective upgrading by either

selective mining or by processing techniques to a commercial quality.

Recognised miners like Aberfoyle and Amalgamet are prepared to discuss joint venture in respect of the wollastonite investigation by the Applicant.

The Applicant has continued its evaluation of the wollastonite potential and on completion of this work would decide its further course of action.

2. The Applicant has secured a market for tungsten and magnetite and continues its efforts to expand the market available to it for these products. The Applicant has expended some $500,000 in this respect.

The Applicant has initiated discussions with Savage River Mines, BHP and Adelaide Brighton Cement for sale to them of magnetite to be used respecitvely for blending purposes and in the manufacture of steel and cement. BHP has recently imported several thousand tonnes of magnetite from India. At the initiative of the Applicant it appears likely that BHP will on a continuing basis buy and use the magnetite produced by the Applicant.

Discussions are afoot with Hallmark Oil & Minerals Pty. Ltd. for purchase and export by them to Eastern

European countries of 500,000 tonnes of magnetite per year for ten years under a barter arrangement.

The Applicant has spent substantial sums of money and effort to enter the market for magnetite used in coal washeries and is resolved to succeed despite initial set back due to Coal and Allied's reluctance to proceed with a joint venture in this field because of the down-turn in the coal industry and Commercial Mineral's refusal to allow the Applicant to participate in the monopoly enjoyed by that company.

A representative of the Applicant was earlier in September 1987 in Canada, U.S.A. and Europe partly to identify the potential for wollastonite and to discuss with Cominco the work carried out by that Company in this field.

3. In April 1987 Comad Exim Pty. Ltd. ("Comad") a subsidiary of Pacific Industrial Corporation increased its interest to 41% in the share capital of the Applicant by subscription of over $2,200,000 to the Share Capital of the Applicant. ANZ Bank which advanced approximately $5,000,000 to the Applicant as a cash-flow loan for 2 years, agreed in February 1987 at the initiative of Comad to extend the loan to a term of some 10 years and the loan now stands at approximately $4,200,000. Coupled with

capital raisings the Applicant has since March 1985 had a capital injection of some $12,000,000.

In February 1987 the creditors of the Applicant amounted to $2,500,000 whereas now this amount has dwindled to under $100,000. Comad has further entered into Management Superintendence Agreement with the Applicant as from 25th February 1987 for a term of three years. The Applicant has with the help of Comad since March 1987 reversed its losses of approximately $700,000 per month to a small cash surplus. Comad is committed to achieving success for the Applicant. Since March 1987 the Applicant has expended over $250,000 in exploration on the subject land and assaying and market research for the products in question.

The Applicant since 1st March 1987 produces the largest monthly quantity of scheelite it has ever produced in the past. Again, since early March 1987 the Applicant has streamlined its new mill and commenced probably for the first time in its history to meet shipment of scheelite punctually and in accordance with the contract quality.

Associated companies of Comad in Europe and America have shown willingness to help the Applicant to maintain at strategic locations a stock of its products and to sell the same without any cost for this service to the Applicant.

4. The Applicant has expended over $3,500,000 in approximately last one year to establish a new mill which is suitable for scheelite and magnetite production. After the initial difficulty the mill operates satisfactorily and the Applicant has obtained help from recognised metallurgists and the Mines Department to improve the performance of the mill.

5. Since March 1987 the Applicant has availed itself of the full-time services of Mr. Cliff Whitehead a geologist associated for many years with the subject area. Mr. Whitehead will continue his efforts for the Applicant.

The new mill of the Applicant operates satisfactorily under the Operations Manager Mr. John Scales who was appointed in that position in February 1987.

The Applicant has engaged on a full-time basis Mr. Stewart Ritchie as the Financial Controller and Accountant who exercises a "hands-on" approach to the financial and administrative affairs of the Applicant.

6. The financial position of the Applicant is sound and if necessary there is adequate support available from Comad and the ANZ Bank facility of $5,000,000.

7. The experience gained in the reorganization of the Kara Mine in the past eighteen months at an expense of over $1,000,000 is now at the disposal of the Applicant for establishment of new mines on the subject land.

8. The Chinese suppliers of scheelite and wolfram have depressed the demand and price of the products. There are only two miners currently of these products in the "western developed world" who export these products. These are the Applicant and King Island Mine. The Applicant has abandoned the programme to operate three shifts per day and in lieu manage on one 10 hour shift per day. The Chinese have represented that they will show restraint. It is essential to exploit the tungsten ore in a limited manner in pace with the current situation.

Steel and coal production is not at present buoyant. Magnetite is of course used in these industries in substantial quantities. The deposit of magnetite in the mining leases granted and under application and the area subject of this application is believed to have the potential of 40,000,000 tonnes. The Applicant has for some time in a systematic manner investigated the market and cost of and availability of facility for transport of the product to a port

and to its ultimate destination. Some of this work now appears to yield result. It is a fragile marketing situation.

The Applicant has also investigated the potential for the supply of its magnetite to other producers such as Savage River Mines. In the case of Savage River a long term supply of magnetite from the Applicant would provide material for blending with product mined from Savage River's diminishing resource and enable an extended life for Savage River operation.

Again, the marketing considerations will determine how expeditiously the Applicant should pursue the matter. Wollastonite buyers in Europe have been approached and samples of wollastonite are being prepared for examination by Carbocrom (Milan, Italy) and Jan de Poorter (Netherlands). Local Australian representatives of Monier, Amalgamet, Berjak and Armstrong have also recently approached Tasmania Mines Limited with regard to future wollastonite product.

Results of analytical work on the above drill samples are currently being received, and an overall summary report on all investigations and results is being compiled.

In the current uncertain times the Applicant would like the Minister and you to consider that a retention licence for five years is justifiable.

In our respectful submission on the grounds, reasons and facts stated in this Application there is a reasonable prospect that the land could be effectively and efficiently mined and it would be required for the effective and efficient mining of the mining products mentioned. We trust the Minister and you would consider we are justified in not proceeding with the mining for economic reason and because it is essential to complete evaluation and feasibility and to secure sales and to ensure satisfactory and viable operation. Additional details of the evaluation and feasibility studies and marketing study necessary to secure sales follow.

D. Additional Evaluation Programme

It is proposed to carry out on and in respect of the area comprised in the licence the following evaluation programme which is additional to the substantial evaluation work already carried out:

(A) Tungsten and Magnetite (Western Section)

1. Additional evaluation drilling along three interpretated magnetic trends already outlined by completed surface exploration work, namely:

- L5 to Loudwater Creek
- Loudwater Creek to the Hampshire Magnetite Skarn.
- North of Location L13. to Loudwater Creek.

Additional evaluation drilling would also be carried out at two other locations delineated by past surface exploration activities:

- Hampshire Magnetite Skarn Zone.
- Hampshire Silver Mine Zone.

Analytical work complimentary to the above drilling would include examination for associated gold and silver content.

2. Geological, geophysical, metallurgical studies combined with the results of the above evaluation drilling, would assess the

overall potential of the Hampshire Magnetite Skarn to be economically mined.

3. The Hampshire Magnetite Skarn zone, was as a result of completed ground magnetic surveys (1984-85) proven to be of far greater magnitude than previously anticipated (Anzeco 1973).. Geochemical studies over a small (northerly) portion of the skarn exposed on surface does provide an anomalous WO_3 geochemical expression, but its greatest economic potential would be as a future source of magnetite. The overall size, near surface disposition and close proximity to the Emu Bay Railroad at Hampshire make the skarn extremely attractive. Provision has been made for further evaluating this potential during retention licence tenancy.

It is believed the continuing tungsten evaluation work of the Western Section of the proposed R.L. would be completed by in-house Tasmania Mines exploration staff and drilling personnel with an estimated timeframe of 24 to 30 months.

A breakdown of estimated costs required to complete the above proposed work would be as follows:-

	$
Exploratory drilling	125,000
Evaluation drilling	195,000
Assays/drill	27,500
Geology	50,000
Exploration/Surveying	62,500
Magnetite investigations	60,000
Office, administration	40,000
TOTAL	$560,000

4. Feasibility Studies:

Assuming the Hampshire Magnetite Skarn resource potential proves favourable, engineering/design work, marketing, environmental, and overall feasibility studies including the feasibility of using the Emu Bay Railway to transport mineral products to Burnie would be completed.

5. Marketing Studies -

Marketing studies for magnetite have progressed considerably. These studies continue and for the future will have regard to the interest expressed as previously stated by BHP, which requires delivery at Port Kembla, and by Adelaide Brighton Cement,

which requires delivery to South Australia. Marketing studies for barter of magnetite with Eastern European countries is in progress and now will also require a consideration of the barter arrangements recently embarked upon in the case of iron ore from Western Australia and proposed in the case of coal from Queensland.

(B) Wollastonite

With the intention of bringing the deposits to development Tasmania Mines Limited will continue to pursue its investigations of the wollastonite deposits.

The Eastern Section of the Retention Licence both covers the mapped occurrences of wollastonite but also the southerly strike extensions of their host horizons and other known calc-siliate units.

Future investigations will comprise:

- Evaluation drilling of the known surface mineralised area (approx. 900m strike length - Plan No. 8/RL). This would initially be in the form of percussion drilling along section lines spaced at 200m intervals (30 holes, total metres 1,000m), followed by anticipated infill drilling (30 holes, total metres 1,000m).

- Regional geological work and reconnaissance diamond drilling aimed at achieving:
  - Delineating strike extensions of wollastonite to the south east.
  - Investigating an E - W connection of wollastonite towards Location L.5.
  - Approximately 8 exploratory holes of 1,200m would be planned.
- Engineering, mine studies.
- Bulk sample test work/metallurgical test work to ascertain whether commercial commodity requirements for the time being can be met.
- Market availability. Continue investigations as to whether a realistic market is available to justify mining.

Estimated expenditures for these continuing investigations are:-

	$
Exploratory Drilling	78,000
Evaluation Drilling	40,000
Infill Drilling	40,000
Geology/engineering	48,000
Transport/Field Equipment	12,000
Field Staff, surveying	18,000
Assays	30,000
Metallurgical	40,000

Marketing	8,000
Office, administration	28,000
TOTAL	$350,000

It would be anticipated the above initial work (drilling, geology), could be completed utilising in-house personnel/equipment and contractors - the later stages of investigation would require engaging qualified consultants.

These additional studies will run concurrently with proposed work in the Western Section of the Retention Licence.

E. Historical Background

Since the original acquisition of the Exploration Licence in 1968, exploration activities could be subdivided into three separate phases:

- Exploration managed by ANZECO, a subsidiary of Union Carbide Corp., who held joint venture agreement with Tasminex N.L. on E.L. 17/68 during the period 1971-1974. Approximately A$800,000 were expended on exploration, primarily directed towards overall assessment of the tungsten potential of the region embraced by E.L. 17/68. Particular emphasis was placed upon:
  - an evaluation of the economic potential of the Kara No. 1 WO_3 deposit.
  - an assessment of the recently discovered WO_3 deposits at Kara North and the Eastern Ridge.
  - regional exploration work over the entire area of the E.L.

  Work by Anzeco consisted of regional/local geochemistry, geologic mapping, aeromagnetics/ground geophysic surveys, extensive diamond drilling and metallurgical test work on various WO_3 ore types found at Kara.
- Exploration completed by McINTYRE MINES (AUSTRALIA) PTY. LTD. who held a joint venture arrangement with Tasminex N.L. during the period November 1977 to April 1985. Again extensive exploration work was completed with the E.L. area, and the total expenditures incurred by McIntyre Mines amounted to

approximately A$2,800,000. Work was orientated at both a thorough appraisal of the tungsten potential of the E.L., and to evaluate the true economic viability of the Kara No. 1 and Kara North tungsten deposits.

- From November, 1985 to the current time, Tasmania Mines Limited have in conjunction with making radical changes to the Kara No. 1 mine/mill tungsten operation - also executed their own independent exploration work in E.L. 17/68. Total exploration costs amount to A$338,000.

The Tasmania Mines Limited efforts have simultaneously aimed at:

(i) proving additional supplies of tungsten reserves to supplement the established Kara No. 1 mine operation; and

(ii) assessing the economic viability of magnetite and wollastonite located in the Exploration Licence. This work is still in progress.

Within the given time frame prior to its eventual relinquishment in November 1987, the prime objective of the current term of exploration work was to finally assess the E.L. area and thereby enable realistic decisions to be made with respect to conversion of mineral tenancy to mineral leases and/or justification for a retention licence.

On November 25th, 1986 a section (totalling 469 ha) of the E.L. area, evaluated to contain proven reserves/resources of tungsten mineralisation (ie. Kara North, Kara South, Eastern Ridge, Location L.5) was pegged for mineral lease acquisition. Application has been made to the Department of Mines for six separate mineral leases - 71M/86, 72M/86, 1267P/M, 1268P/M and 1270P/M. With Department of Mines approval, it is anticipated that these mineral leases will eventually be consolidated with the existing lease CL.105M/77.

Work has continued on assaying of drill cores gathered over a period to determine the presence of gold in the area under application.

Milling and testing of magnetite as high density agent for coal washeries has been completed and negotiations entered into for joint ventures to produce and sell magnetite required for coal washeries. Prospects for another supplier of magnetite for coal washing appear to be reasonable as soon as there is greater demand for coal and some pick up in price.

Action is in progress on a continuing basis to determine the availability of market for scheelite, magnetite and wollastonite in substantial quantities in order to plan the mining and production of these minerals. The market is currently slow.

In the Western Section the combined exploration efforts of Anzeco, McIntyre Mines and Tasmania Mines, have over the years, been successful at identifying controls of ore genesis and delineating economic zones of tungsten mineralisation. The latter are still being outlined, and it is believed the Western Section contains additional resources of mineralisation.

For a number of years it has been recognised that all the important magnetite skarn bodies and associated tungsten mineralisation in E.L. 17/68 are associated with the Ordovician "Transition Beds" - a series of sandstone with calcareous interbeds of variable thickness (15 to 120m) sandwiched between the Moina Sandstone and Gordon Limestone. A knowledge of specific controls of mineralisation and a combination of controls within these host horizons, (eg. structural controls, nature of bordering intrusive, degree of metamorphism/metasomatism) has gradually been learnt, and this combined with the detailed execution of field exploration work, has and is the basis for pinpointing drill targets and delineating zones of mineralisation.

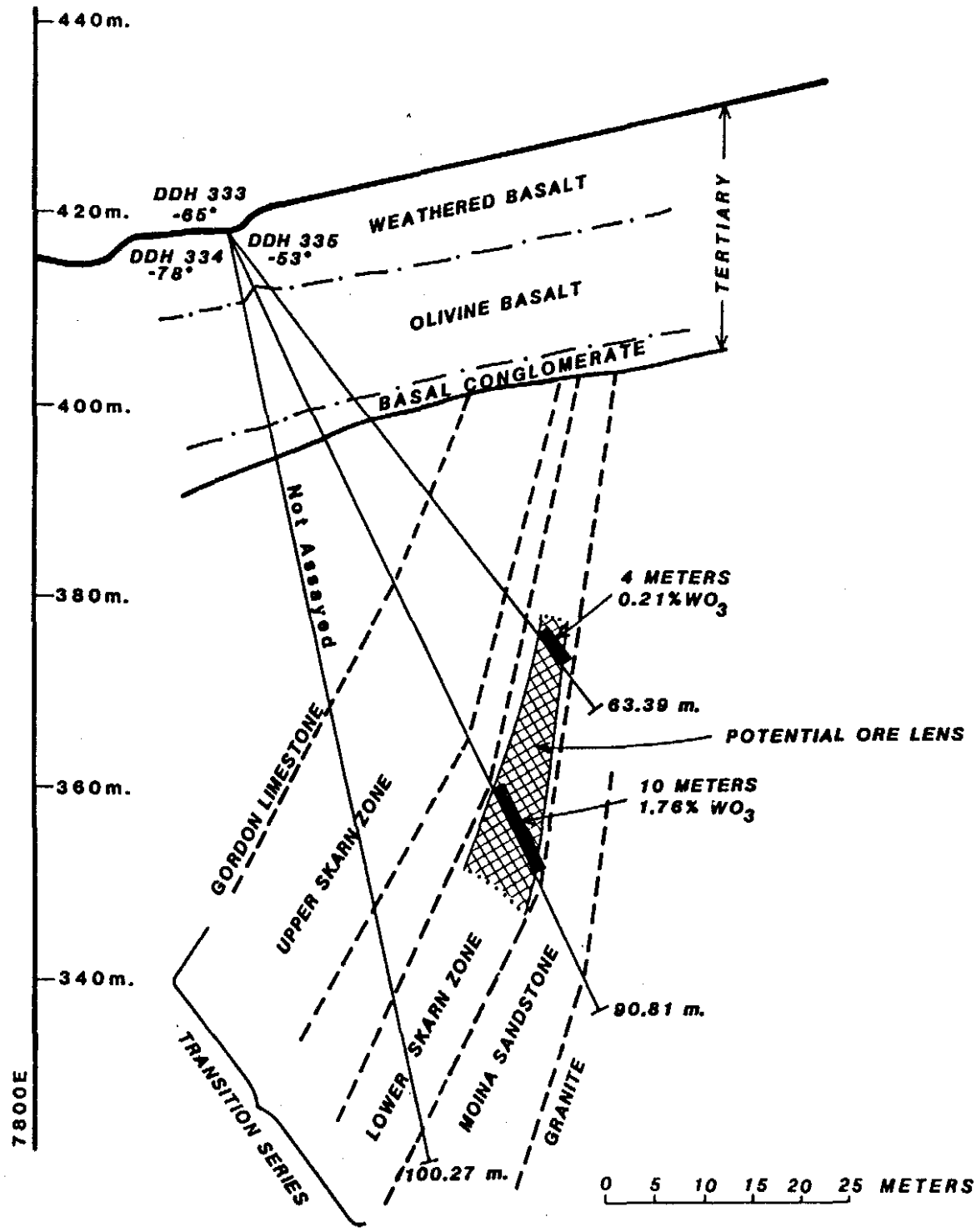
On the Kara Properties, the prospective metamorphised Transition Beds occur within a synform type structure warped underlying Devonian granite intrusive, the structure itself having a N - S trending axis and general regional northerly plunge from the Kara No. 1 deposit. Although the majority of the region is masked by a highly variable

868026

FIGURE No. 2

GEOLOGIC CROSS SECTION
L5 - 7770 N.

VIEWING NORTH



thickness of Tertiary basalt/sediments, the two main limbs of the synform have been accurately delineated from Kara No. 1 to the northern border of the current E.L. area. (please refer to Figure No. 1).

The western limb of the synform proceeds from Kara No. 1 through the deposits at the Kara W. Flank, the Companion Skarn, Kara North 266 Zone, Location L.13, and then subsurface towards Loudwater Creek. The eastern limb of the structure proceeds from Kara No. 1, Bobs Bonanza, Eastern Ridge, and then subsurface towards the Hampshire Magnetite Skarn and Hampshire Silver Mine area.

In late 1982, McIntyre Mines initiated a step-out drilling programme to test the potential of buried magnetite skarns along the above mentioned eastern limb of the Kara synform. The programme was extremely successful in proving a new ore lens of high grade scheelite mineralisation (Figure No. 2). 10 diamond drill holes (DDH's 326 to 335) over a total strike distance of 90 metres blocked out approximately 98,000 tonnes of high grade 1.5%WO_3 scheelite bearing ore. Mineralisation was open-ended both along strike to the north and south, and also down dip.

The success of the Location L.5 drilling programme obviously enhanced the delineated magnetic trends along strike to the south and north buried beneath Tertiary sequences, and in view of this, the 1985-1986 Tasmania Mines Limited exploration programme included detailed work

at these regions. The 1.4 km strike length area south of Location L.5 to the Eastern Ridge tungsten deposits, the 2.6 km strike area north of Location L.5 to Loudwater Creek, and then to the Hampshire Magnetite Skarn and Hampshire Silver Mine location were covered by detailed ground magnetic surveys providing better definition/interpretation of subsurface geology plus optimise specific locations of drill sites and targets of buried magnetite skarn (plans 4/RL, 5/RL and 6/RL.

In the region south of Location L.5, seven potential drill targets were recognised at 6600N, 6700N, 7070N, 7100N, 7250N, 7300N, and 7550N.

Subsequent exploratory diamond drilling (DDH's 508, 509, 510 and 511) at three of these locations (late 1986) was successful in defining subsurface magnetite bodies, and at two of the locations the discovery and intersection of new scheelite ore grade mineralisation was made. The discoveries further enhance the recognised potential of the area north of Location L.5 in the demarcated Western Section of the Retention Licence.

Plans No. 2/RL and 3/RL show the specific location and geology of the Western Section. Detailed ground magnetic surveys have been completed over the region (see Plans 4/RL, 5/RL and 6/RL) and again buried magnetite skarns have been interpretated beneath Tertiary basalt cover and drill targets defined. These await drilling, and constitute the

main justification for further delineating the "western section" of the Retention Licence area.

The Eastern Section of the proposed retention licence covers the occurrences and potential strike extensions of known wollastonite occurrences. The latter are situated within the lower reaches of Limestone Creek, a tributary of Emu Creek, approximately 1km south of the Hampshire - Upper Natone Road, - please refer to Plans 1/RL, 2/RL, 3/RL, 7/RL and 8/RL.

The area was first investigated as a possible producer of wollastonite by the Department of Mines (Henderson 1943, Hughs 1950 + 1957, Longman 1960).

In September 1985, Tasmania Mines Limited originally commissioned ZETETIC (economic consultant geologists) to undertake a brief preliminary assessment of known wollastonite occurrences and produce a geological map of the area, plus formulate an ongoing exploration programme if this was considered worthwhile.

During the period December 1985 - February 1986, Tasmania Mines Limited conducted reconnaissance geological mapping, structural interpretation and a detailed sampling programme of all calcsilicate exposures of the Limestone Creek region.

In addition to the above Limestone Creek samples, selective drill core samples of calc-silicate rock suites from other drilled skarn locations within E.L. 17/68 (namely the Kara North Magnetite Anomaly and Location L.5) were submitted for mineralogical/petrological examinations. Favourable results with regard to wollastonite identification and content were obtained not only for the Limestone Creek samples but also those of the Location L.5 drill intersections.

Samples of surface exposed wollastonite from Limestone Creek were collected and subjected to metallurgical test work at both Abermet, Burnie (crushing, grinding, sieving, H.I. Mag tests, analysis) and the Department of Mines Laboratories, Launceston (sizing, flotation tests, analysis).

From January 1987 to the present time, the Applicant has continued with detailed investigations of the wollastonite deposits, expenditure costs to date for this latest work totalling approximately $50,000. This recent work has included drilling, namely nine airtrack holes totalling 187m (holes W.L.1 to W.L.9), two diamond drill holes DDH519 and DDH520 totalling 400m drilled, additional geological mapping and sampling, and completing a detailed topographical survey of the overall area.

F. Summary

A Retention Licence is sought for a period of 5 years to cover an area of 10 square kilometres at Kara as shown in plans 2RL and 3RL.

The products of the area, scheelite and magnetite are commercial minerals. The demand and price for scheelite have diminished and therefore mining in the Retention Licence area of that product at present is not justified. The market for magnetite is poor. As the competition is severe due to too many suppliers' desire to meet a limited requirement mainly in the steel industry and to lesser extent in the coal washeries, at the present time it is not economical to establish a new mine in the area under application. The cyclical nature of the industries in which scheelite and magnetite are used would indicate that their present low state should improve when it would be appropriate to establish mines in the area under application.

The Applicant has continued its efforts to secure quality of wollastonite from the area under application required by ceramic, paint and plastic industries. The current demand for wollastonite in the generally depressed state of economy in many countries is limited. Wollastonite may be used as asbestos substitute and as soon as this occurs, the demand for wollastonite will increase immeasurably. The Applicant is anxious to establish a mine in the area under application to mine and produce wollastonite.

The Applicant has substantially improved its mining, milling and administrative operations, has had a capital injection of some $12,000,000 since March 1985 and has sought and secured new buyers for its products.

The area of E.L. 17/68 of which the Retention Licence area forms part has attracted an expenditure in current value of over $10,180,000 in exploration, assays and associated activity.

The period of the Retention Licence will enable necessary further evaluation programmes to be carried out, allow time for improvement in demands for the minerals in question, permit continuation of delicate negotiations to sell the products in increasing quantity and ensure that the mining and production in the area under application are economically viable.

There is a reasonable prospect that the Applicant which alone has the benefit of existing efficient and effective operations adjoining or in the vicinity of the area under application and which possesses thorough background knowledge of the area and products, could effectively and efficiently mine the area under application in due course when economic and other reasons already adverted to in this

Application would justify proceeding to mining the area under a lease. The Applicant accordingly applies for the Retention Licence.

TASMANIA MINES LIMITED

Shamsher Kanji

Shamsher Kanji
Director

6916

TASMANIA MINES LTD.

E.L. 17/68 – KARA PROPERTIES

RETENTION LICENCE APPLICATION

AREA UNDER APPLICATION FOR RETENTION LICENCE

EXISTING CONSOLIDATED LEASE CL 105M/77

MINERAL LEASES UNDER APPLICATION

5 cm

865034

SCALE, 1:10,000

DATE. - Sept. 1987

PLAN 1/RL

N

SCALE 1:10000

RETENTION LICENCE APPLICATION AREA

1269 P/M

1270 P/M

1267 P/M

C.L. 105M/77

71M/86

72M/86

1268P/M

HAMPSHIRE

HAMPSHIRE MAGNETITE

KARA NORTH 1266 ZONE

KARA NORTH MAGNETITE ZONE

EASTERN RIDGE

BOBS BONANZA

KARA GRANITE STOCK

RINGWOOD GRANITE STOCK

SUTTONS SHARK

HOUSE TOP GRANITE

KARA N°2 MAIN ZONE

KARA N°2 EAST

KARA N°2 SOUTH

GEOLOGY

REFERENCE

River

Creek

Road

Track

Railway

Trig. Station

Geological Boundary

Base Map enlarged from 1:25,000 Kelgan N.T.M. Sheet 80/5 & Aerial Photographs

6916

87-2720

HAMPSHIRE

39 7000mE.

39 8000mE.

39 9000mE.

40 0000mE.

54 31000mN.

54 30000mN.

54 29000mN.

54 28000mN.

54 27000mN.

54 26000mN.

To Burnie

To Upper Natone

To Guilford

RIVER

Creek

Limestone

EMU

BAY

HAMPSHIRE MAGNETITE SKARN

RAILWAY

HAMPSHIRE SILVER MINE

WOLLASTONITE DEPOSITS

Loudwater Creek

COMPANION

Creek

Big

To Kara Mine

WESTERN SECTION

EASTERN SECTION

480 460 440 420 400 500 540 520 560

REFERENCE

- River
- Creek
- Road
- Track
- Railway

5 cm

87-2720

868035

TASMANIA MINES LIMITED

E.L.17/68 - KARA PROPERTIES

RETENTION LICENCE APPLICATION AREA LOCATION

DRAWN : C.H.W.

TRACED : T.G.D.S.

DATE : Sept. '87

REVISIONS :

FILE No.

SCALE: 1:10000 100 0 200 400 METRES

PLAN - 2/RL

U.T.M.

N

6917

HAMPSHIRE

39 7000mE.

39 8000mE.

To Burnie

39 9000mE.

40 0000mE.

54 31000mN.

54 30000mN.

54 29000mN.

54 28000mN.

54 27000mN.

54 26000mN.

480

RIVER

Creek

To Upper Natone

HAMPSHIRE MAGNETITE SKARN

Oc

RAILWAY

To Guilford

EMU BAY

EMU

400

HAMPSHIRE SILVER MINE

460

440

420

500

Limestone

WOLLASTONITE DEPOSITS

Oo

Loudwater Creek

A RIVER

A COMPANION

WESTERN SECTION

EASTERN SECTION

Big Creek

To Kara Mine

540

520

560

GEOLOGY

RECENT	A	Alluvium
TERTIARY	V V	Basalt
	Δ Δ	Conglomerate, breccias etc.
DEVONIAN	+ +	Granite
ORDOVICIAN — GORDON LIMESTONE	Log	Limestone
ORDOVICIAN — TRANSITION BEDS		Sandstone with calcarious members
ORDOVICIAN — MOINA SANDSTONE	Oc	Sandstone and quartzite
ORDOVICIAN — OWEN CONGLOMERATE	Oo	Conglomerates and grits
CAMBRIAN — HORNFELS GROUP	€b	Hornfels
CAMBRIAN — ACID VOLCANICS	€v	Acid volcanics
		Skarn zones

REFERENCE

- River
- Creek
- Road
- Track
- Railway
- Geological Boundary

868036

5 cm

87-2720

TASMANIA MINES LIMITED

E.L.17/68 – KARA PROPERTIES

RETENTION LICENCE APPLICATION AREA GEOLOGY

DRAWN : C.H.W.
TRACED : T.G.D.S.
DATE : Sept. '87
REVISIONS :
FILE No.

SCALE: 1:10000 — 100 0 200 400 METRES

PLAN-3/RL

U.T.M.

N

6918

6919

LOUDWATER CREEK

EMU RIVER

COMPANION RIVER

7800 E.

8000 E.

8200 E.

9000 N.

8800 N.

8600 N.

8400 N.

8200 N.

L4 LINE 9000 N.

L4 LINE 8900 N.

L4 LINE 8800 N.

L4 LINE 8700 N.

L4 LINE 8600 N.

L4 LINE 8500 N.

L4 LINE 8400 N.

L4 LINE 8300 N.

L4 LINE 8200 N.

L4 LINE 8100 N.

L4 LINE 8000 N.

LEGEND:

- >64,000 Gammas
- 63 - 64
- 62 - 63
- 61 - 62
- <61

866037

5 cm

87-2720 6919

TASMANIA MINES LIMITED

KARA TUNGSTEN PROJECT, TASMANIA

GROUND MAGNETIC SURVEY

LOCATION L5 TO LOUDWATER CREEK

DRAWN: C.H.W.	TRACED: T.G.D.S.	SCALE: 1:1000	DATE: Nov.'85	PLAN - 4/RL

6920

HAMPSHIRE SILVER MINE LOCATION

EMU RIVER

LOUDWATER CREEK

CAMBRIAN RIVER

LEGEND:

- >66000 Gammas
- 65 - 66
- 64 - 65
- 63 - 64
- 62 - 63
- 61 - 62
- 60 - 61
- <60

N

865038

5 cm

87-2720 6920

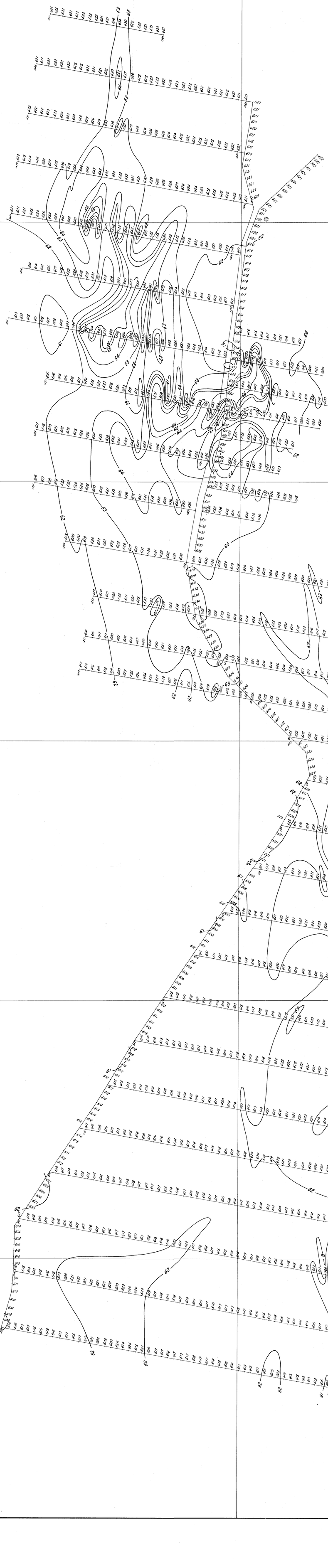
TASMANIA MINES LIMITED

KARA TUNGSTEN PROJECT, TASMANIA

LOUDWATER CK./HAMPSHIRE MAG. ANOM.
GROUND MAGNETICS

DRAWN: C.H.W.	TRACED: T.G.D.S.	SCALE: 1:1000	DATE: Nov.'85	PLAN-5/RL

6921



LEGEND

> 66,000 Gammas	62 - 63
65 - 66	61 - 62
64 - 65	60 - 61
63 - 64	< 60

868039

5 cm

6921

87-2720

TASMANIA MINES LIMITED

KARA TUNGSTEN PROJECT, TASMANIA

GROUND MAGNETIC SURVEY

HAMPSHIRE MAGNETITE SKARN

DRAWN: C.H.W.	TRACED: T.G.D.S.	SCALE: 1:1000	DATE: Nov. '85	PLAN - 6/RL

NOTE: Mapping based on work by D.G. Greene, Department of Mines, Tasmania. Modified from field mapping and aerial photographic interpretation by M.P.E.

868040

5 cm

LEGEND

- Qha — Quaternary deposits
- Tb — Tertiary Basalt
- Dg — Devonian Granite
- Ol — Ordovician - Transition series of Gordon Limestone
- Odm — Ordovician - Moina Sandstone equivalents
- Loc.1 = Locality where rock speciemen collected
- Major track or road
- Minor track
- Geological boundaries (inferred)
- Inferred Wollastonite Ck. Syncline in sub-basaltic sediments

Upper Natone Road
Dunns Road
Rogetta Road
Cartledge Road
Cameron's Road
Wollastonite Creek
Silver Mine Road
EMU RIVER
KARA ROAD
To Kara Mine
HAMPSHIRE
To Burnie
NORTH (approx. mag.)
Loc.1
Loc.2
Loc.3
Loc.4
Loc.5
Loc.6

6922

87-2720

TASMANIA MINES LIMITED

REGIONAL GEOLOGY OF THE WOLLASTONITE CREEK AREA (E.L.17/68)

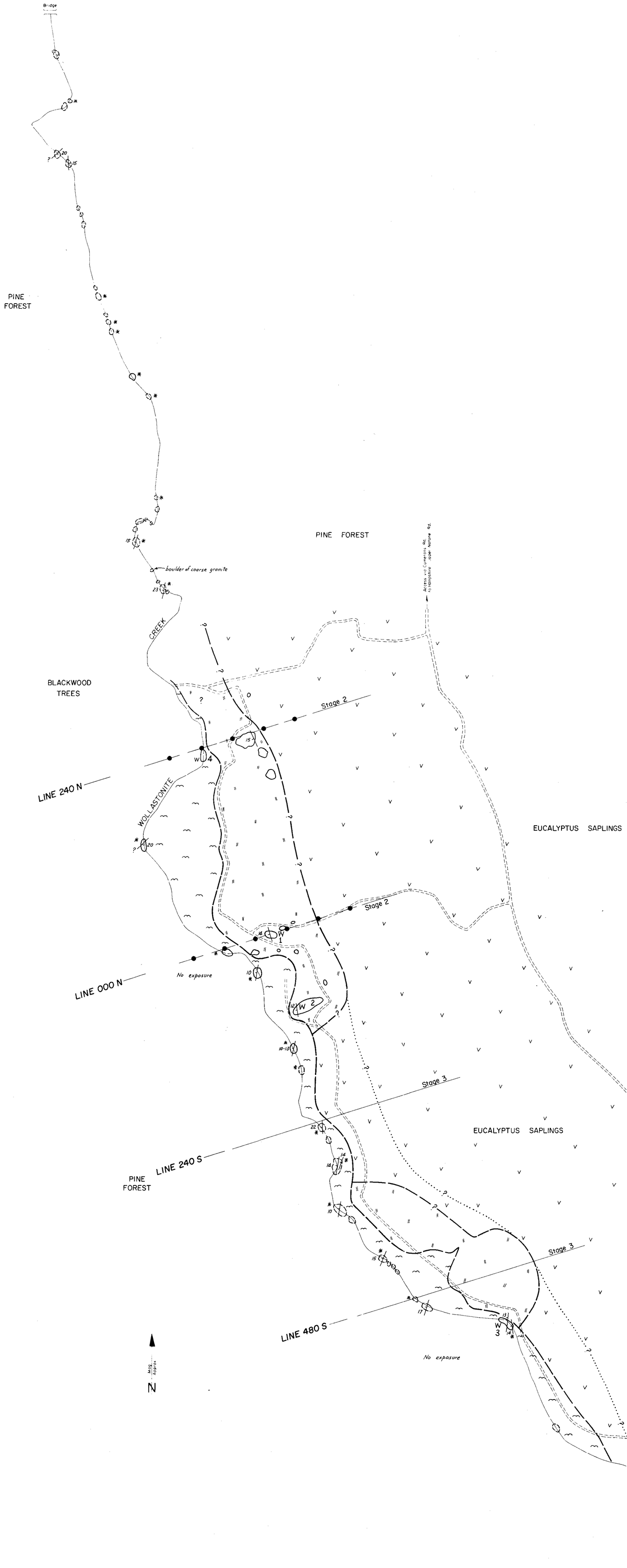
DRAWN BY : MPE
DRAFTSMAN: TGDS
DATE : Oct.85
REVISIONS :
FILE NO.

SCALE 1: 15 000 (150 0 150 300 Metres)

PLAN-7/RL

From M.J. Longman 1961 Tasmanian Department of Mines report, no. 6.

AREA ONE			
Sample Interval (cm)	Width (cm)	Wollastonite $CaCO_3$ %	Lithotype
0 – 53·34	53·34	32·7	Hornfels containing wollastonite.
53·34 – 91·44	38·10	5·6	Banded chert.
91·44 – 114·30	22·86	45·6	Hornfels composed dominantly of wollastonite.
114·30 – 121·92	7·62	—	No sample. Badly weathered limestone.
121·92 – 157·48	35·56	33·6	Hornfels with wollastonite.
157·48 – 167·64	10·16	13·4	Banded chert.
167·64 – 172·72	5·08	9·8	Impure limestone.
172·72 – 228·60	55·88	53·1	Hornfels with small lenses of limestone.
228·60 – 259·08	30·48	4·3	Banded chert.
259·08 – 304·80	45·72	42·6	Hornfels composed dominantly of wollastonite.
304·80 – 381·00	76·20	25·3	Hornfels containing wollastonite.
381·00 – 419·10	38·10	14·2	Alternating bands of chert containing wollastonite (?).
419·10 – 518·16	99·06	44·5	Alternating bands of hornfels, chert and limestone.
518·16 – 548·64	30·48	27·7	Chert bands containing wollastonite (poorly bedded).
548·64 – 571·50	22·86	31·3	Limestone and wollastonite hornfels.
571·50 – 586·74	15·24	20·6	Alternating bands of chert and hornfels.
586·74 – 678·18	91·44	20·8	Limestone and wollastonite hornfels.
Average grade 31·5 %. Grade rejecting chert bands 34·1 %			
AREA TWO			
0 – 96·52	96·52	60·0	Wollastonite hornfels
96·52 – 104·14	7·62	10·2	Banded cherts.
104·14 – 124·46	20·32	64·8	Wollastonite hornfels.
124·46 – 129·54	5·08	14·8	Banded chert.
129·54 – 177·80	48·26	46·3	Wollastonite hornfels with limestone lenses.
177·80 – 208·28	30·48	2·9	Banded chert.
208·28 – 243·84	35·56	18·8	Limstone with wollastonite hornfels.
243·84 – 264·16	20·32	10·4	Banded chert.
Average grade 42·5 %. Grade rejecting chert bands 52·0 %.			
AREA THREE			
0 – 91·44	91·44	12·1	Banded chert containing wollastonite.
91·44 – 182·88	91·44	16·3	Banded chert containing wollastonite.
182·88 – 274·32	91·44	24·5	Banded chert containing wollastonite.
Average grade 17·6 %			
AREA FOUR			
0 – 50·80	50·80	53·9	Wollastonite hornfels with limestone lenses.
50·80 – 63·50	12·70	9·2	Chert bands.
63·50 – 109·22	45·72	49·0	Wollastonite hornfels with limestone lenses.
Average grade 46·5 %. Grade rejecting chert bands 52·0 %.			



LEGEND:

- Recent Alluvium
- Tertiary Basalt
- Gordon Limestone (Transition Series). [Calc-silicates, re-crystallised ls., quartzites (cherts), hornfels.]
- Inferred Surface Geological Boundary
- Inferred Surface Geological Boundary (doubtful).
- Postulated sub-outcrop of Gordon Limestone (Transition Series) beneath Tertiary Basalt and basaltic scree.
- Dip and Strike.
- Dip and Strike approximate or validity of outcrop doubtful.
- Outcrop.
- Outcrop, Wollastonite observed in field.
- Outcrop number; 1-4 equals Longman's (1961) outcrop areas.
- Outcrop, specimen collected.
- Access tracks.
- Proposed drill holes. (Stage 2)
- Proposed stage 3 drill holes (holes not shown).

5 cm

868041 6923

TASMANIA MINES LIMITED

E.L. 17/68
WOLLASTONITE CREEK

GEOLOGICAL INTERPRETATION

DRAWN BY : M.P.E.
DRAFTSMAN : T.G.D.S.
DATE : Oct. 1985
REVISIONS :
FILE NO.

SCALE: 1:2500 (50 25 0 50 100 Metres)

PLAN – 8/RL

87-2720