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RIO TINTO AUSTRALIAN EXPLORATION PTY. LIMITED
MELBOURNE, AUSTRALIA

PROJECT:— PRP/7/103

REPORT No.:— 11/1957

REPORT ON AN INSPECTION OF ALLUVIAL AND
LODE MINERAL PROPERTIES,
SCAMANDER - ST. HELEN'S DISTRICT
N.E. TASMANIA.

by

J.H. RATTIGAN,
GEOLOGIST.

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DATE:— 17th Oct., 1957.

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Report Alluvial & lode mineral properties,
Scamander & St Helen Districts (Rio - ...
by J.H. Rattigan
17/10/57.

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Plate 4 Sketch of St. Helen's District	1 inch = 1 mile

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AMG REFERENCE POINTS ADDED

GENERAL

A syndicate composed chiefly of Tasmanian residents has been granted 3 Special Prospectors Licences and several mineral leases in the Scamander District, N.E. Tasmania. Two other areas in the St. Helens and Bicheno Districts have been applied for and another not yet granted covers a large area near Bridport adjacent to our Ringarooma SPL 323. Mr. R. J. McDermott, representing the syndicate approached R.T.A.E in September 1957 with an enquiry as to our possible interest in these properties. Subsequently an inspection was made between October 2nd and 7th by J.H. Rattigan.

The syndicate (known as Aero-Mineral Search) has 4 members with holdings listed below.

R. J. McDermott 21/60
 M.P. Holman 21/60
 A. Watt } 18/60
 R. Baker }

None of the syndicate members appear to have anything but the most rudimentary geological or mining knowledge but they have applied for about 700 square miles of country much of which is of some mineral interest. Their address for official communications is -
 C/- M.P. Holman, P.O., St. Helen's, Tasmania.

PROPERTIES HELD OR APPLIED FOR(1) Scamander District

<u>Type & No.</u>	<u>Holder or Applicant</u>	<u>Area</u>	<u>Reason taken up</u>
S.P.L 322	R.J.McDermott	4 sq.m.	To cover lode tin occurrences. Pinnacles area.
S.P.L 328	J.G. Watt	16 sq.m.	To cover alluvials in River flats along Scamander River.
S.P.L 333	W.Holman	4 sq.m.	To cover lode tin and copper deposits known from the Pyramid Area.
Mineral Lease	-	40 acres	Brock's Lode Tin Workings.
Mineral Lease	-	25 acres	Great Pyramid Lode Tin.
Mineral Lease	-	20(?) acs.	Orieco Copper Workings.

(2) St. Helens District

S.P.L	M.Holman	168 sq.m	To cover possible alluvial tin workings.
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(3) Bicheno District

S.P.L	E.J.Walshe	168 sq.m.	To cover possible alluvial tin workings.
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(4) Bridport District

S.P.L	R. Baker	320 sq.m (approx.)	To cover alluvial tin and gold prospects and lode deposits.
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The areas so far granted under S.P.L to the syndicate have somewhat liberal terms, requiring the employment of two men for prospecting purposes.

SCOPE OF THE INSPECTION

During October 2nd - 7th I made a brief inspection of the Scamander and St. Helen's properties. The most concrete proposition referred to me was an area of possible dredging ground along the Scamander River (Plate 2) and on this I spent most time examining the ground, doing some panning and outlining possible dredging ground from the incomplete set of aerial photographs in possession of the syndicate.

While in the vicinity the St. Helen's S.P.L was also inspected. The Bicheno S.P.L was not examined as the syndicate had no concrete prospect to refer to me and I informed the syndicate that I might look this area over provided they first show me the aerial photographs which they have ordered. Likewise the Bridport S.P.L was not examined as the application clashes with one made recently in the name of D. King on behalf of R.T.A.E.

SCAMANDER DISTRICTGeneral Description of the Area.

The town of Scamander is a small resort on the Tasmanian east coast at the mouth of the Scamander River. Access may be gained from Launceston by either of two good roads, which are sealed for the greater part, one via Scottsdale and Derby (120 miles) and one via Conara Junction, Avoca and St. Mary's (90 miles). Access from Hobart can be had via Conara (144 miles) or on a coast road through Orford and Swansea (154 miles). The nearest rail head is 11 miles distant at St. Mary's, a centre for coal mining industry of North eastern Tasmania.

In the Scamander district low dunes about 20' high fringe the shore line. Inland is a low coastal plain covered with aeolian sands with a vegetation consisting of grass and rushes. This gives place westwards to a raised grass covered plain about 60-100' high on which are preserved remnants of Tertiary and Quaternary deposits. This plain rises westwards and at a distance from one to two miles in shore meets the base of a low coastal range 600 to 800 feet high.

This coastal range is interrupted some two miles inland from Scamander by the valley of the Right Branch of the Scamander River, and ranges referred to as the Scamander Tier reaching to 1200' in height rise west of the valley. Prominences on this tier include features known as the Pinnacles, Pimple and Pyramid.

The Scamander River runs on a meandering easterly course through the district and drains approximately 150 square miles of country. Main tributaries include the Upper Scamander, Avenue River and Right Branch of the Scamander. As the main stream approaches the coast it has an estuarine character and has steep rocky banks marginal to its wide flats. The present main outlet is near Scamander Township where the mouth is barred by a sandbar. Overflow apparently occurs at times through Henderson's Lagoon, a sheet of water behind the coastal dunes which has a barred sea entrance at Falmouth 3 miles south of Scamander. The Scamander River is apparently tidal for as much as 5 miles upstream from the mouth when bar is open.

Geological Background.

The oldest rocks in the area are a sequence of quartzites and shale referred to the Mathina Group of Silurian (?) age. These cover the greater part of the area examined forming the hill masses of the coastal Range and the Scamander Tier. Granite; referred arbitrarily to the Devonian period intrudes the older quartzite shale sequences. In the small area inspected granite does not outcrop extensively, but occurs in coastal cliffs near Falmouth and inland to St. Mary's Pass, and also further north near St. Helen's. Old reports record granite porphyry between Cato's Creek and the Avenue River, and other localities near Scamander.

Some remnants of Permian strata may exist in the area but none were seen. The coastal areas are marked by a broad alluvial plain having Tertiary and Quaternary sediments covering bed rock. There is a theory that an old course of the Scamander River passed south of Scamander through Henderson's Lagoon and while this is quite possible it has not been fully substantiated by boring.

Mineral Prospects.

(1) Lodes

Occurrences of silver, tin, wolfram, copper and arsenopyrite are recorded in lodes in the Silurian sediments. The syndicate has shown some enthusiasm with respect to these and have pegged several deposits as mineral leases, and have re-opened roads to the Great Pyramid and Orieco Mines.

The syndicate's main interest as far as lodes are concerned, ^{are} in tin deposits in the Great Pyramid - Brocks - Pinnacles Area and copper at the Orieco Mine.

I paid a brief visit to the Great Pyramid Workings which are now easily reached by road from Scamander. Good specimen stone showing coarse cassiterite can be seen near old workings and narrow veins carrying cassiterite are developed throughout the country rock of quartzite and slate over a wide area. The deposits are ideally situated on an easily accessible high ridge for testing by drilling or adits and for either open cut or underground mining. However 2000' of prospect adits have been driven in the past and sampling by several investigators has been carried out and the results are on record. Nothing I saw during my brief inspection gave any reasons for departing from H. Keid's conclusions in an unpublished report to the Tasmanian Mines Department dated July, 26th 1957.

The Orieco (Eastern Proprietary) Copper Prospect is the most important of several copper prospects said in old reports to occur along a "lode" marked by a wide silicified slaty outcrop over a length of two miles. A "gossanous capping" is said to occur at the surface over sections of the lode. Some rich oxidised ore and secondary sulphides were bagged and sent to Mt. Lyell for treatment many years ago from the Orieco Mine. Some workings exist but are not all accessible. The Orieco Mine was not visited during my inspection.

A point of interest is that the Scamander Leases and S.P.L.'s held by the syndicate are entirely enclosed by the S.P.L.'s recently taken out by E.Z. Industries Limited and doubtless will be flown by that company during contemplated aerial geophysical surveys. The geological environment in the syndicate's areas is of course similar to that which caused E.Z. to take up permit areas. It is reputed that E.Z. had the Orieco Mine programmed for testing recently by reason of an option with a previous lease holder but this was never done. I cannot substantiate this.

Concerning the lode deposits it is doubtful whether any worthwhile preliminary appraisal could be made without a detailed geological survey of three square miles of country, with mapping and sampling of old workings.

(2) Alluvial Tin Deposits - Scamander Flats.

Alluvial tin deposits in which the cassiterite has probably been shed from lodes of the Great Pyramid type, have been worked in a small way from tributaries of the Scamander River.

The most interesting alluvials however occur along the course of the Scamander River where wide flats, possibly estuarine in character occur. A composite photograph of these flats is attached as plate 3.

A timbered flat some distance above river level occurs between Kelly's Creek and the Scamander River. Several prospecting shafts have been sunk in the past on this flat reputedly by Siamese Tin. The shafts may be 35' - 40' deep in alluvials and the presence of tin can be shown by panning of some of the excavated material left at the collars. I have sighted no records of value in these shafts.

About half a mile N.W. of the Upper Scamander road turnoff, low swampy flats of the order of $\frac{1}{2}$ mile in width occur along the course of the Scamander for a distance of three miles. Siamese Tin are reputed to have put in a few shallow pot holes to test this ground but no records of this have been sighted. The present syndicate have sunk a hand bore near the confluence of the Right Branch with the Scamander River and R.J. McDermott states that the alluvials ^{were} unbottomed at 60' and showed "tin all the way" though no proper assays were made.

This area, with the timbered flat first described, probably has at least 70,000,000 cubic yards of alluvials based on an average depth of 40 feet which is considered a conservative assumption. To the southwest lies higher but possibly dredgable country separating coastal flats near Henderson's Lagoon from the Scamander River Flats. This is an inferred old course of the Scamander

and a possible additional 80,000,000 cubic yards of alluvials can be estimated to the coast at Falmouth.

Under the supervision of J. Coldham, Consultant Mining Engineer for Consolidated Tin, a number of surface or near surface samples were recently panned throughout possible dredging ground from Kelly's Creek to Henderson's Lagoon. Sampling positions (1-14) are shown on Plate 2. All these dish prospects are said to have shown some tin, and I checked some at random with a pan and recovered cassiterite concentrate. The cassiterite shown by dishing is very fine, no course tin was seen in any samples I panned.

This Scamander dredging proposition was the most interesting proposition shown to me by the Syndicate. There is no doubt that a large volume of alluvials which could be dredged occur and that some tin exists in the alluvials. Whether values which could support a dredging operation exist is in doubt. Factors which are unfavourable are -

- (1) the shedding area contains little if any granite or greisenous rock although the quartzites carry narrow cassiterite veins.
- (2) the effect of estuarine sedimentation in diluting river alluvial material from a tin bearing source.
- (3) fineness of tin shown in dish prospects.
- (4) the lack of interest shown by early workers in the area. Local hearsay says that in the area Siamese Tin did not test the area to any extent beyond some surface pot holes which are reputed to have shown reasonable ^{tin} values. The area is said to have been abandoned along with others when sluicing ventures by Siamese Tin in other areas showed little working profit. This of course could only be substantiated by sighting Siamese Tin records.

If this was a virgin prospect in open ground I would have no hesitation in recommending a few scout holes to test the ground to bottom.

ST. HELEN'S DISTRICT

General Description of the Area.

The syndicate has pegged an area of about 168 square miles near St. Helen's which is a small fishing village and coastal tourist resort on the western extremity of a large inlet (George's Bay). St. Helen's lies about 11 miles north of Scamander and has similar convenient means of road access from either Launceston or Hobart and also has an unsealed airstrip suitable for light aircraft.

The greater part of the permit area consists of hilly country with two main drainage systems (the George and Anson's River) developed on the north eastern and southeastern fall from the Blue Tier which is formed of high ranges in the vicinity of the settlement of Lottah.

Flats generally of small extent occur along the creeks and rivers, but in coastal areas particularly near the mouth of the George River at St. Helen's are more extensive.

Geological Background

The greater part of the area is underlain by granite (Devonian ?) but small remnants of Permian sediments occur near the coast, and Tertiary and Quaternary deposits occur along river courses and in coastal areas.

The granite of the Blue Tier country formed the source for the important alluvial tin deposits on the northwest fall in the Ringarooma area where our present S.P.L 323 is located. Similar alluvial deposits have been worked on the eastern fall particularly along the Georges River system.

Mineral Prospects

Lode tin deposits are widespread throughout the Blue Tier country (Anchor Mine, Victory Mine,) and one (Priory) has been worked near St. Helen's, but no large production has been won from any existing mine.

As with the Ringarooma district, the bulk of tin produced has been won from alluvials particularly from Thureau's Deep Lead and its tributaries, which system is developed along the Tertiary course of the Georges River. Siamese Tin and other interests have carried out extensive testing of Thureau's Lead and much of the ground has been worked up to the present date by sluicing. Records of testing and production are now largely lost. Apart from this well defined lead there appears to have been no systematic prospecting or testing over the greater part of the area, probably because of difficulty in obtaining water for sluicing operations.

The syndicate seemed to be of the opinion that they could offer to us the S.P.L as a proposition, but I asked them to indicate specific areas which they regarded as definite prospects. They then drew to my attention several areas which I have commented on briefly.

(1) Georges Bay and Moulting Bay as a Dredging Proposition

A dredge is reputed to have once operated in submarine deposits of Georges Bay but I could not confirm this. The Bay is essentially an extensive shallow estuarine body of water into which the Georges River issues. Some marginal swampy flats occur. Siamese Tin is reputed to have bored to some depth in alluvials offshore from St. Helens.

Though a wide area of submarine alluvials may exist and possibly contain some tin I am particularly doubtful if such estuarine deposits would carry values sufficient to warrant dredging. Some fossickers have however apparently worked tin from coastal deposits in cliffs along part of the shores of the inlet.

(2) Flats north and west of St. Helen's.

A wide area of low country now largely under cultivation or other development occurs behind St. Helen's township. These flats are covered by Quaternary and Tertiary deposits. Apart from the Tertiary lead (Thureau's) I have a suspicion that much of this ground would be shallow. Although I have not sighted any records of testing. The Chief Geologist of the Tasmanian survey once remarked to me that tin deposits could well be developed under the St. Helen's airstrip.

Actually most of the ground considered here would be purchased land and not subject to the terms of any S.P.L granted.

(3) Thureau's Deep Lead

Siamese Tin and other operators have tested and worked much of this lead from the Groom River to the Golden Fleece River. All operations were by sluicing and while no doubt some ground remains to be tested this would be of no particular interest to us.

(4) Various Flats in granite Ranges and coastal areas.

Along many stream courses in the hilly country are open "flats" in which Quaternary and possibly Tertiary deposits occur. Most of these appear similar morphologically to many near the Banca Mine and Gladstone District in our permit area (S.P.L 323) and by analogy could be inferred to have shallow ground. While tin deposits might be located with testing, they would be probably limited in extent and only suitable for small scale sluicing operations.

The most extensive flats observed were those west of the prominence known as the Sugarloaf. These were not observed in detail, and might possibly warrant limited testing though it is doubtful whether any ground seen could be dredged.

Generally, the Syndicate's St. Helen's S.P.L may be said to have some potential as regards a alluvial tin deposits, but that no area shown to me as a prospect justifies great interest on our part.

COMMENTS ON TENURE AND TERMS

The syndicate has applied for approximately 700 square miles of ground under S.P.L. It appears to me that it has neither the resources or intention to thoroughly prospect this ground and members appear anxious to dispose of it to other interests for a consideration. Requirements imposed by the terms of S.P.L's already granted appear to be easily satisfied as they involve merely the employment of two men in prospecting. This proviso could easily be "got around" by a local syndicate with members living in the areas.

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The syndicate have approached Consolidated Tin regarding the Scamander properties and from what I gather have to date not had a final reply from that Company, negotiations still being in progress. It was put to me that the Consolidated Tin was favourably impressed by the area but that there is a division between Board members as to whether all idle funds of Consolidated Tin should be invested in income producing investments or whether some should be used to re-engage in active mining again. When this is resolved one way or another, the syndicate expect a final reply. In the meantime the syndicate are anxious about the delay in coming to terms with Consolidated Tin and are prepared to drop negotiations in favour of any other party who would take early action to test the Scamander ground under free option. I pass this on for information but cannot say whether it represents the true state of affairs or not.

About 600 acres of the Scamander ground is purchased land over most of which the Syndicate states it has options to purchase subject to mining operation being projected.

One point of interest is that S.P.L.'s are not transferable as such. However the syndicate members have said that they would be quite happy to peg leases and give a free option to anyone who tests any prospects or ground they hold.

CONCLUSIONS

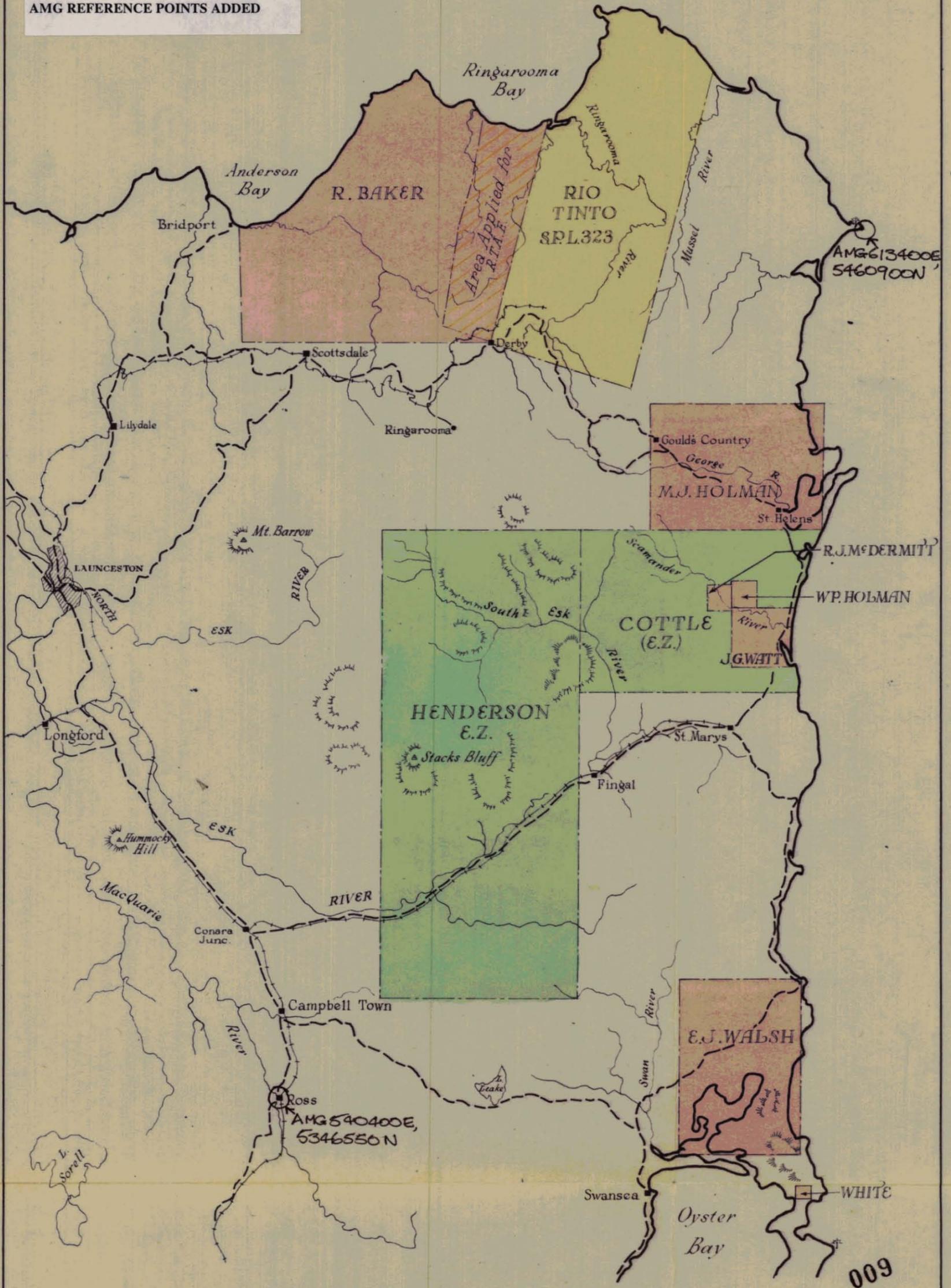
The Aero-Mineral Search Syndicate has pegged large areas of ground all of which has some mineral potential. The most concrete proposition relates to the dredging of the Scamander Flats which in the absence of recorded information on previous testing, would seem to justify a few trial holes to bottom. The Scamander prospect is fairly fully discussed in this report and if R.T.A.E on facts outlined sees no immediate interest in the property, I suggest that the syndicate be advised that while owing to other commitments R.T.A.E could not engage in testing at this juncture, it would suggest that under the terms of S.P.L the syndicate could at no great expense sink several trial holes to bottom and assay material recovered. The results of these would be of interest to us and might give cause for R.T.A.E to take an active interest in the property.

Regarding lode deposits in the Scamander District these are briefly discussed in this report and more fully in older reports. I cannot see that the information recorded could justify great immediate interest on our part, but if a free option would be available if R.T.A.E desired it.

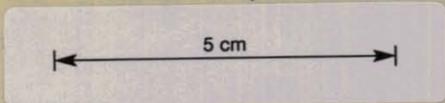
Regarding other areas held and applied for under S.P.L by the syndicate I saw no prospect that would justify our interest, though some wildcat testing might be warranted if the ground was open.

J. H. Rattigan.

AMG REFERENCE POINTS ADDED

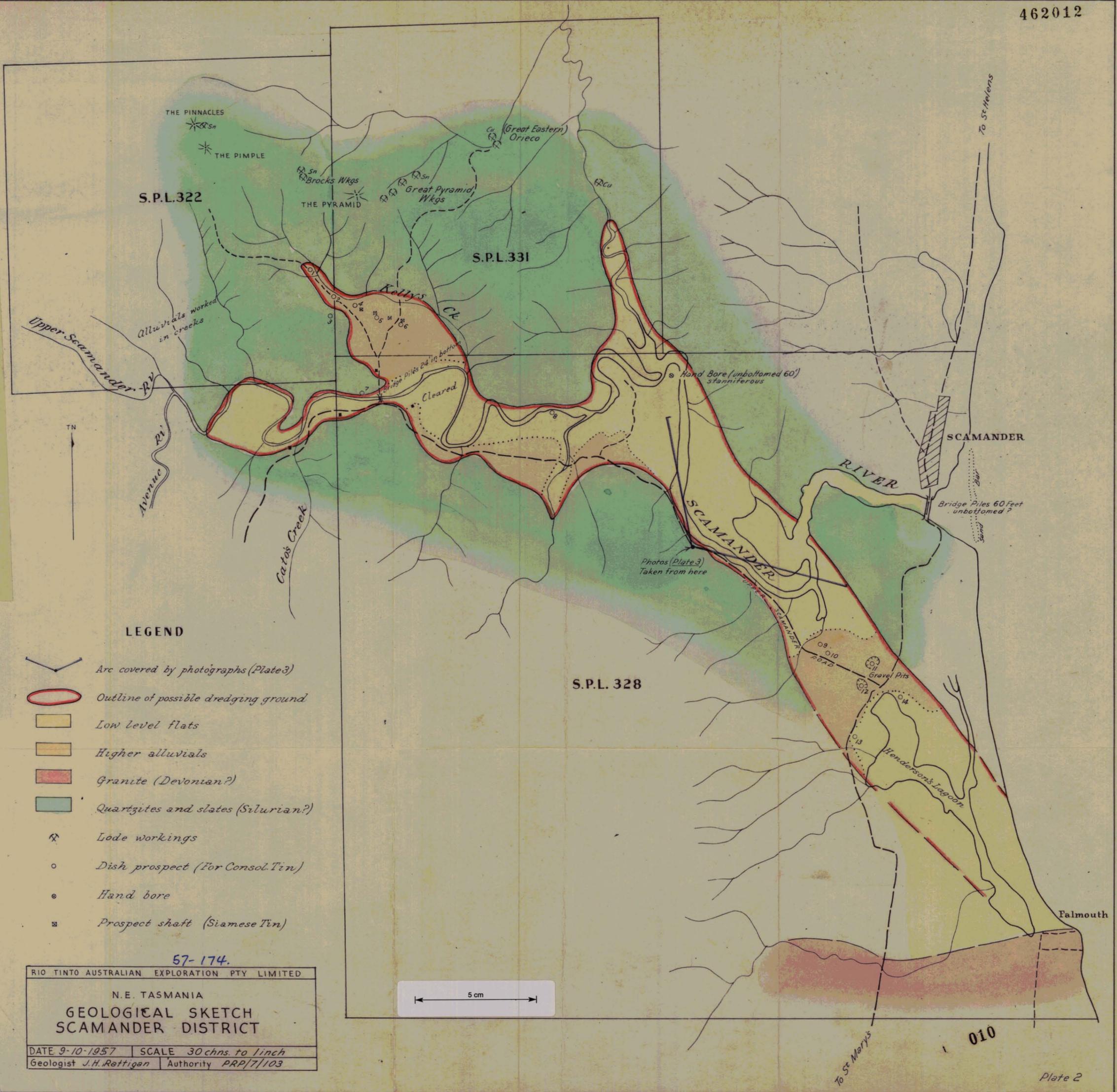


-  Area applied for R.T.A.E.
-  Areas applied for or held by Aero-Mineral Search Syndicate.



57-174.

RIO TINTO AUSTRALIAN EXPLORATION PTY. LIMITED	
N. E. TASMANIA - Showing - AREAS HELD & AREAS APPLIED FOR	
Scale : 1 inch = 8 miles	
Date : October - 1957	PLATE 1
Geologist : J. H. Rattigan	
Draftsman : D. J. L.	
Authority : PRP/7/103	



LEGEND

-  Arc covered by photographs (Plate 3)
-  Outline of possible dredging ground
-  Low level flats
-  Higher alluvials
-  Granite (Devonian?)
-  Quartzites and slates (Silurian?)
-  Lode workings
-  Dish prospect (For Consol. Tin)
-  Hand bore
-  Prospect shaft (Siamese Tin)

57-174.
 RIO TINTO AUSTRALIAN EXPLORATION PTY LIMITED
 N.E. TASMANIA
GEOLOGICAL SKETCH
SCAMANDER DISTRICT
 DATE 9-10-1957 | SCALE 30 chns. to 1 inch
 Geologist J.H. Rettigan | Authority PRP/7/103

5 cm

PLATE 3



1. PHOTOGRAPHS ILLUSTRATING SCAMANDER FLATS FROM LOCALITY
INDICATED ON PLATE 2.

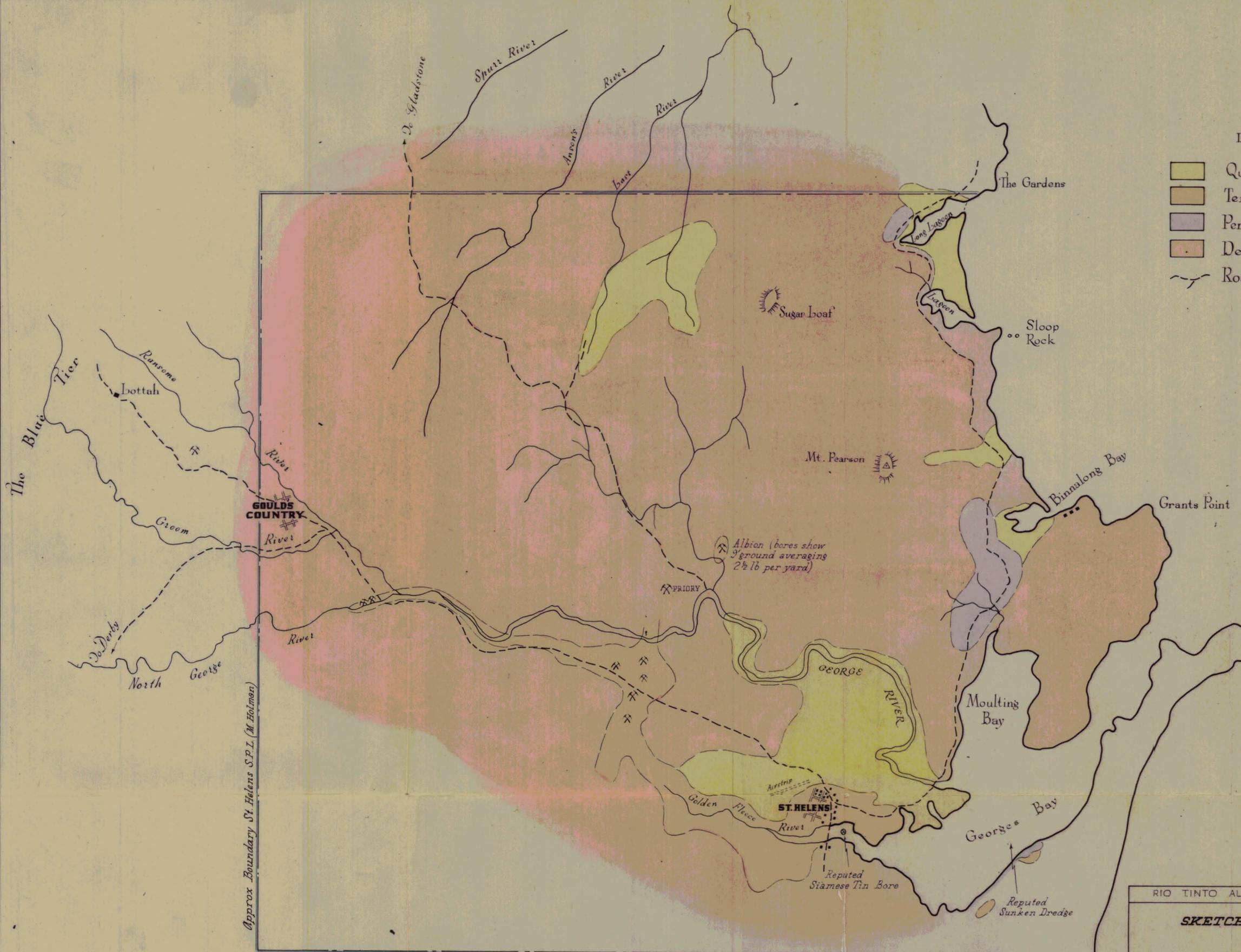
(PHOTOS BY CONSOL. TIN SUPPLIED BY R.J. McDERMOTT).

57-174.

PLATE 3

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- LEGEND
- Quaternary Deposits (Flats)
 - Tertiary Drifts
 - Permian Sediments
 - Devonian(?) Granite
 - Roads

Approx. Boundary St. Helens S.P.L. (M. Holman)

5 cm

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57-174.

RIO TINTO AUSTRALIAN EXPLORATION PTY. LIMITED	
SKETCH OF ST. HELENS DISTRICT N.E. TASMANIA	
Scale: 1 inch = 1 mile	
Date: 8 th October 1957	
Geologist: J. Rattigan	
Draftsman: D. Lawford	Authority: PRP/7/103
PLATE 4	