

RON GREGORY PROSPECTING

Mt Donaldson

EL36/2010

ANNUAL REPORT

for period

24th November 2011 to 24th February 2013

Ron Gregory

31 Adams St. George Town

Tas.7253

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Mt Donaldson

1. ABSTRACT

The Mt Donaldson EL36/2010 was granted on the 24th Nov 2011. The objective of the exploration licence was to locate the historic Donaldson and New Donaldson hydraulic workings and establish if there are any indications that the gold in the reported gravels has a local source.

Work to date has been restricted to a review of previous exploration and preliminary field visits. It is believed that the Donaldson Hydraulic workings have been located, but further work needs to be conducted to confirm.

2. INTRODUCTION

Ron Gregory Prospecting is a self-funded small business operated by Ron Gregory who operated a small alluvial gold mining operation at Sabbath (Sunday) Ck for a short time in 1987. Ron Gregory also worked as a field hand on the Goldstream/Titan JV in the district focussed on locating a Homestake-style Proterozoic iron-formation hosted lode gold deposit in 1996-98.

Goldstream/Titan proved that some of the gold in the tertiary gravels at Lucy Spur and Brookside was derived from local bedrock sources. The focus on the Mt Donaldson district is to see if a similar situation occurs.

EL36/2010 is located on the eastern slopes of Mt Donaldson, near Corinna in western Tasmania. It has an area of 16 sq km (Figure1.) and is located in an environmentally sensitive area.

3. REVIEW OF PREVIOUS EXPLORATION

Sabbath Ck was one of the first creeks worked for alluvial gold not long after gold was found at Middleton's Ck located near Corinna in 1879. Once the creeks were worked out attention was directed to the source of the gold which appeared to be the tertiary gravels that capped the low ridge between Sabbath and Guthrie's Creeks. The Donaldson Hydraulic Gold Mining Co. was formed and a water race was dug from the Donaldson River to bring water onto the field for hydraulic mining. This never eventuated as the "Hydraulic Mining" boom of the 1890's collapsed when Lucy Spur and other similar mines in the area failed due to poor returns.

A report by Dr Nic Haygarth (Appendix 1.) gives a full outline of previous exploration in the area. This report was focussed on the historical aspect of mining in the area although geology is briefly discussed.

4. EXPLORATION COMPLETED from Nov 2011-February 2013

4.1 Review of previous exploration by Ron Gregory.

4.2 Commissioning of a historical review of mining in the area from Dr. Nic Haygarth.

4.3 Field reconnaissance by a 3 man team (Ron, Nic & Robin) to locate the Donaldson Mine designated as being at Zone 55, 339800E, 5392300N MRT 1:25,000 Geology series map.

4.4 Commission maps from Gillian Bennett and geology report by Rowena Murcott. See Appendix 3

4.5. Field visit by prospectors Howard Armitage and Jordan Curle to locate and GPS the route of the Mt Donaldson water race.

4.6 Field inspection of Guthries Creek vicinity to search for old workings.

5. DISCUSSION OF RESULTS

5.1 The review of previous exploration downgraded the possibility of a hard rock source for the gold at the Donaldson Mine, in the opinion of the author. What the research did show however was that the Donaldson Mine has neither been located on the ground or prospected for many years, certainly not in modern times.

5.2 The historical review by Nic Haygarth also downgraded the likelihood of a local source for the gold at the Donaldson Mine. However the report did indicate that significant pyrites was found in the basal layers of the tertiary gravels. This is different to the basal layers observed by the writer at Lucy Spur or Brookside mines.

5.3 The attempt to locate the Donaldson Mine as charted was unsuccessful. The mine is not located as per the MRT Geology map.

5.4 Maps of the existing magnetics and geology available of the district were produced and will be utilised in future exploration.

See Figures 2, 3 & 4.

5.5 The Mt Donaldson water race was located and followed and its course is shown on Figure 6. It terminated at the head of a small north-south trending creek that runs into Guthries Ck. This implies to the writer that the proposed hydraulicing was directed to the gravels between Guthries and Sabbath Creeks. See Figure 5

5.6 Prospecting in of Guthries Creek located alluvial workings, with good gold in crevices. Significant iron pyrites was evident in panning. The source of the pyrites was traced to a 1 metre wide formation of pyrites trending north south across the main Guthries stream at approximately Z55, 340300E, 5392050N. A sample was submitted to Ralph Bottrill for examination and his report is at Appendix 2. There was no gold reported in the sample.

6. CONCLUSIONS

6.1 The Donaldson Mine was to be located on the low ridge of tertiary gravel between Sabbath and Guthries Creeks.

6.2 The gold in Guthries Creek does not appear to be sourced associated with the pyrites found in the creek.

6.3 The ability to navigate the area is severely hampered by the fallen timber and the consequent regrowth of baura and scrub, since the fire that went through the area in 2007. Track cutting will be required to locate the pitting of the gravels that was conducted in the 1890's.

6.4 Further work will involve:

6.4.1 Engagement of Phil Muir to obtain existing MRT geophysical data and report and recommend.

6.4.2 Continue prospecting to locate further old workings at Guthries/Sabbath Creeks.

6.4.3 Prospect Middleton's Creek.

7. ENVIRONMENT

All work conducted was by "bush bashing" and no tracks were cut, therefore no environmental impact was the result.

8. EXPENDITURE

Time by Ron Gregory has been allocated at the normal hourly rate of \$650/day.

8.1 Literature review and mapping	\$1,300
8.2 Geology review by Rowena Murcott	\$1000
8.2 Field trip to look for Donaldson Mine	\$5,100
8.3 Historical review by Nic Haygarth	\$2,000
8.4 Field prospecting by Armitage & Curle	<u>\$4,500</u>
TOTAL	\$13,900

APPENDIX ONE

Historical Review by Dr Nic Haygarth

Gold at Mount Donaldson, Tasmania: history and geology



October 2012

Nic Haygarth



Gold at Mount Donaldson: history and geology

Nic Haygarth
October 2012

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Geology

Early efforts to interpret the local geology were hampered by the steep terrain, thick vegetation and poor access. Interest at that time was solely in the gold-bearing gravels. In 1881 the first geologist to visit the Pieman River goldfield, Gustav Thureau, noticed a change in the geological conditions beyond the bauera at Browns Plain:

A lower stratum of quartzose deposits was here exposed to view which consisted of more extensive deposits of quartziferous gravels, with this difference, however, that same was formed of rounded (washed) quartz pebbles and boulders, besides a hard conglomerate of same underlying the quartzose gravel in places cropping out at the brows of the hills.

He compared the general outline of the landscape to that of Californian and mainland Australian goldfields, belonging to the tertiaries of the Pliocene epoch. Thureau identified a large white quartz reef on Browns Plain, where the Harvey brothers had driven a tunnel. He inspected the working at Middletons Creek, claiming the gold deposits found here were limited by the older tertiary deposits having only been partly encroached upon by disintegration and denudation. The older deposits of Tertiary gravels here had not been worked. The gold in Middletons Creek occurred in 'a kind of hard false bottom'

formed of an older drift, and...non-auriferous, I have since ascertained from inspections made not only at Middletons Creek, but also at Sunday [later Sabbath] Creek — which is situated nearly due north — contain, or rather are composed of fragmentary portions of siliceous stalactites, and possibly drifts mites, which occur undisturbed in a bed of considerable portions extent and thickness in situ as underlying the bedrock a dense indurated sandstone. Some of these stalactites fragments are very perfect, and variously coloured — from deep blue to snow white — are arranged around a common centre, frequently a narrow borehole or aperture.

Thureau revealed that gold from Sabbath Creek and some of the adjacent gullies had fetched a high price, the Mint in Melbourne having paid as much as £4/2/6 per ounce for it. The southern spurs of Mount Donaldson, he claimed,

exhibit some interesting geological features and several beds of distinctly marked rocks were examined. The lowest of the series comprises dark blue slates with cubic cavities; the pyrites at one time then enclosed having been totally removed by atmospherical action. These slates would be classed as Upper Silurian, but, owing to metamorphism, not the slightest vestige of petrification could be distinguished. A massive, and layer of indurated slates followed, encompassing nuclei of sandstones in the former, and rounded pebbles of a hard, quartzose character in the latter. The next higher bed consisted entirely of conglomerates composed of large round pebbles of quartz sandstone, serpentines, and the last mentioned, followed by a fine grained, indurated sandstones, and finally quartzies [sic] complete this metamorphic series of transformed sedimentary rocks.

In the bed of Sunday Creek Thureau observed that below a certain point

all the pebbles and boulders in the "wash" were encrusted with a hard brown, iron ore, whilst above that point the gravels were totally free from such a coating. This was explained by the discovery of a strong lode of pure iron sulphurets, from which an ochreous fluid exuded, thus eventually precipitating the harder iron casing. This lode is about 2½ feet wide, underlays west, with a north by south strike. It is a very peculiar formation, inasmuch as it belongs to the stalactities [sic] mode in occurrence, like the

siliceous beds already described and in this case probably due to infiltration.¹

Montgomery in 1894 was the first to suggest that stones in the alluvial gravels had come from the granite of the Meredith Range before the Whyte River assumed its present course. He believed this explained the presence of gravels on top of the ridge between the Savage and Whyte Rivers and on top of Lucy Spur, Frenchmans Spur, Long Plain, Browns Plain and other places: 'The main deposits of gravel may...be said to lie at a considerable and fairly uniform elevation, varying a little above and below an average of about 800 feet.'

From the top of Mount Donaldson he obtained a view which explained how the alluvial matter had been deposited:

The gentle uniform slope seaward from the foot of the ranges points to the plain being one of marine erosion, and I have little doubt that this is really the case. During some past period there has been a depression of the western portion of the island, or more probably of the whole of it, during which the sea encroached further and further inland, levelling the inequalities of the surface as it proceeded, until it reached the flanks of the Meredith Range, Mount Dundas, and the West Coast Range; the Norfolk, Donaldson, and Heemskirk ranges then forming island. During this period the gravels resulting from the disintegration of the shore rocks and those brought down from the ranges by streams were laid down in more or less regular strata on the bedrock. Doubtless a good deal of gold was distributed through these.

After a time the land began to rise again, and the shore-line to recede further and further westward. The marine deposits would then be attacked by streams running over them, and the gravels frequently sluiced over and re-arranged. As the elevation proceeded the streams would cut deeper and deeper into the bed-rock, ultimately forming the deep gorges and valleys in which we now find them running. According to this theory the deposits on the tops of the ridges would be the oldest, and the terraces at lower elevations successively more recent going downwards. It is confirmatory of this view that the highest gravels show the thoroughly water-worn, highly rounded pebbles characteristic of marine gravels rather than the more flattened shapes prevalent in river gravels. The fact that the 'wash' is often cemented to a hard conglomerate in the deposits at the highest elevations also goes to show that these are the oldest.²

Montgomery believed the gravels on creeks falling into the Whyte and Savage Rivers and at low levels along the Pieman River were derived from the older and higher deposits 'which have been broken down and redistributed by streams during the excavation of the valleys'.³

Reporting in 1900, WH Twelvetreves visited some of the Pieman sites and considered the geological conditions, concluding that the

low-level gravels are the result of the destruction of higher-level gravels, so that it is unreasonable to expect any uniformity of distribution throughout the mass. Besides gold, a little tin is present in the wash; but, as far as the country which is fed by rivers from the Meredith Range is concerned, much tin could not be anticipated. It is different however, with the country to the north. We may safely say that the gold is derived from the degradation of the country which is now watered by the Pieman, Whyte, and Savage rivers [sic], with their tributaries. These creeks and rivers all carry gold; and, before their

¹ Gustav Thureau, *West Coast: Progress Report on Mines*, Legislative Council Paper 77/1882, p.7.

² Alexander Montgomery, 'Report on the Corinna Goldfield', 1894 p.2.

³ Alexander Montgomery, 'Report on the Corinna Goldfield', 1894 p.2.

existence, the same auriferous country was sluiced partly by the sea, partly by other watercourses. The lenticular quartz patches in the schists, the auriferous magnetite, the serpentine country, all must have contributed their quota to the sum total, and account for the gold despite the singular absence of auriferous quartz reefs.⁴

In 1939 Acting Government Geologist Frank Blake gave a detailed description of the region's geological development:

Preceding the uplift of the region a broad slow moving stream system meandered across the peneplain in a south westerly direction towards the sea. The system had reached the base level of erosion and had deposited its sediment in huge quantities along its course.

The present style of erosion was introduced after the subsequent rise in strand line and an entirely new drainage system formed which dissected and partly eroded the deposits of pre-existing channels...

The Upper Tertiary gravels were deposited with a thickness of 60 feet or more...

An elevation of the land occurred which resulted in rejuvenation of streams accompanied by gorge cutting and river capture.

A relative depression of the land then commenced during which Pleistocene gravels and alluvium were deposited, up to 135 feet in thickness, along the course of the larger streams. The movement continued and eventually brought about the flooding of Pieman River valley by the sea, together with the lower valleys of Donaldson, Savage and Whyte Rivers...

Deposition of gravels and alluvium is still in evidence at the present time at certain localities along the course of the streams...⁵

Reviewing previous theories of alluvial gold deposition while considering the gold potential of EL37/82 in 1984, Longworth and McKenzie commented that:

The geomorphology of the area remains obscure and would require detailed work before a clear understanding could be obtained. Montgomery (1897) [sic] proposed that the gravels are the result of progressive uplifting of the land surface after planation, with the topographically highest gravel being the oldest and also the most strongly cemented. This view presupposes cementing of the gravel as a function of time, but does not incorporate the more recent understanding of the redox boundaries which can influence the precipitation of salts and cementing materials which may have been important in lithifying the gravels.⁶

Longworth and McKenzie believed that the alluvial gold in the area of the Brookside mine was derived from a series of old gravel beds stratigraphically below the sequence of younger gravels associated with silica flour:

⁴ WH Twelvetreets 'Report on the Mineral Fields Between Waratah and Corinna', Mines Dept, Launceston, 1900, pp.67-68.

⁵ F Blake, *Report on the Corinna Goldfield*, Unpublished Reports, Department of Mines, 1939, pp.28 and 33.

⁶ Longworth & McKenzie Pty Ltd, *Prospecting, Examination and Evaluation of Alluvial Gold in the South-East Portion of Exploration Licence 37/82 Savage River Western Tasmania for Monier Limited*, 1984, p.9.

Both gravel types were of surficial origin but were deposited under geologically different environments.

The gold-bearing gravels are clay-rich and contain well rounded to subrounded pebbles of quartz and lithic fragments. The gravels represent linear trending paleo drainages which have been subsequently incised by the current river system causing redistribution of the gold into the recent alluvial deposits.

Although the present program returned sub-economic gold grades, further evaluation of the silica flour deposits may yield further gravel which should be continually monitored for their gold content.⁷

General geology

In 1964 Alan Spry interpreted the Precambrian rocks of the Zeehan-Corinna area. He classed the Donaldson Group in the younger Precambrian rocks. Spry stated that the stratigraphic succession of the younger Precambrian rocks 'is not clear partly because of poor outcrop and thick vegetation and partly because the major structure is not well understood'.

Spry and Ford (1957) had already identified the sequence west of the Donaldson Fault and across the Donaldson River on to Mametz Ridge and Montgomery Ridge as Interview slate and quartzite. Spry describes the Donaldson Group east of this point as far as the Delville Fault as being dominated by massive white quartzites. He outlines the stratigraphic succession at Mount Donaldson:

Top	Nonesuch slate	200 feet +
	Guthrie quartzite	250 feet
	Longback conglomerate	40 feet
	Tikkawoppa quartzite	700 feet
	Gates conglomerate	40 feet
	Mametz quartzite	600 feet
Bottom	Montgomery conglomerate	40 feet
		1,870 feet ⁸

From bottom stratum to top:

1. Montgomery conglomerate

A massive white conglomerate with well-rounded quartzite pebbles in a sandy matrix outcrops on the northern slope of Montgomery Ridge 'conformably overlaying grey siltstone, cream slate and thin quartzite of the Interview formation...'

2. Mametz quartzite

White quartzite, a formation which thickens to the south and constricts to form Hells Gates on the Pieman River. Underlays greater part of the Tikkawoppa Plateau.

3. Gates conglomerate

Overlays Mametz quartzite at the eastern part of Hells Gates. Consists mainly of well-rounded quartzite boulders in a phyllitic matrix and is overlain by the laminated and slaty quartzites of the lower part of the Tikkawoppa quartzite.

4. Tikkawoppa quartzite

The Gates conglomerate is overlain by slaty quartzites and massive quartzites which extend from Hells Gates for about half a kilometre to the east.

⁷ Longworth & McKenzie Pty Ltd, *Prospecting, Examination and Evaluation of Alluvial Gold in the South-East Portion of Exploration Licence 37/82 Savage River Western Tasmania for Monier Limited*, 1984, p.1.

⁸ Alan Spry, 'Precambrian Rocks of Tasmania, Part VI, the Zeehan-Corinna Area', *Papers and Proceedings of the Royal Society of Tasmania*, vol.98, 1964, p.31.

5. Longback conglomerate

The basal formations around Mametz Ridge are separated from those of Mount Donaldson by a fault with several hundred feet throw which disturbs the unity of the stratigraphic sequence, but a comparatively unbroken sequence outcrops from the peak down to the Pieman River to the south. The white quartzite of the mountain top is thought to be the Tikkawoppa quartzite and this is overlain by the persistent band of conglomerate which outcrops around the southern flank of the mountain. This conglomerate is about 40 ft thick and consists of well-rounded quartzite pebbles and boulders in a sandy or slaty matrix and is named the Longback conglomerate.

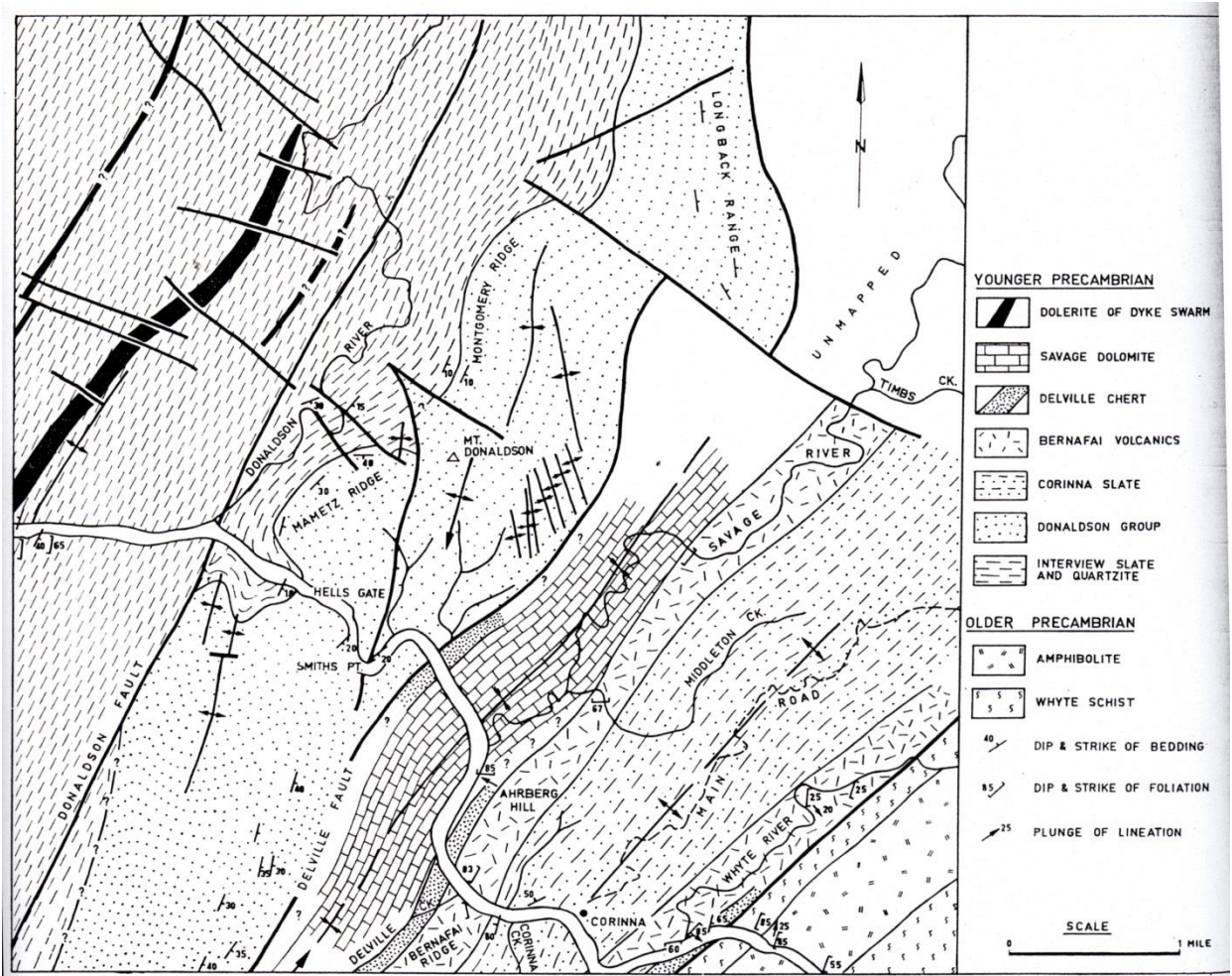
Most of the conglomerates outcrop badly and are represented mainly by soil containing rounded pebbles and boulders. A number of conglomeratic horizons occur towards the top of the Tikkawoppa quartzite, but the Longback conglomerate is more continuous than the others.'

6. Guthrie quartzite

Contains slate, pebbly slate bed and quartzite-conglomerate horizons.

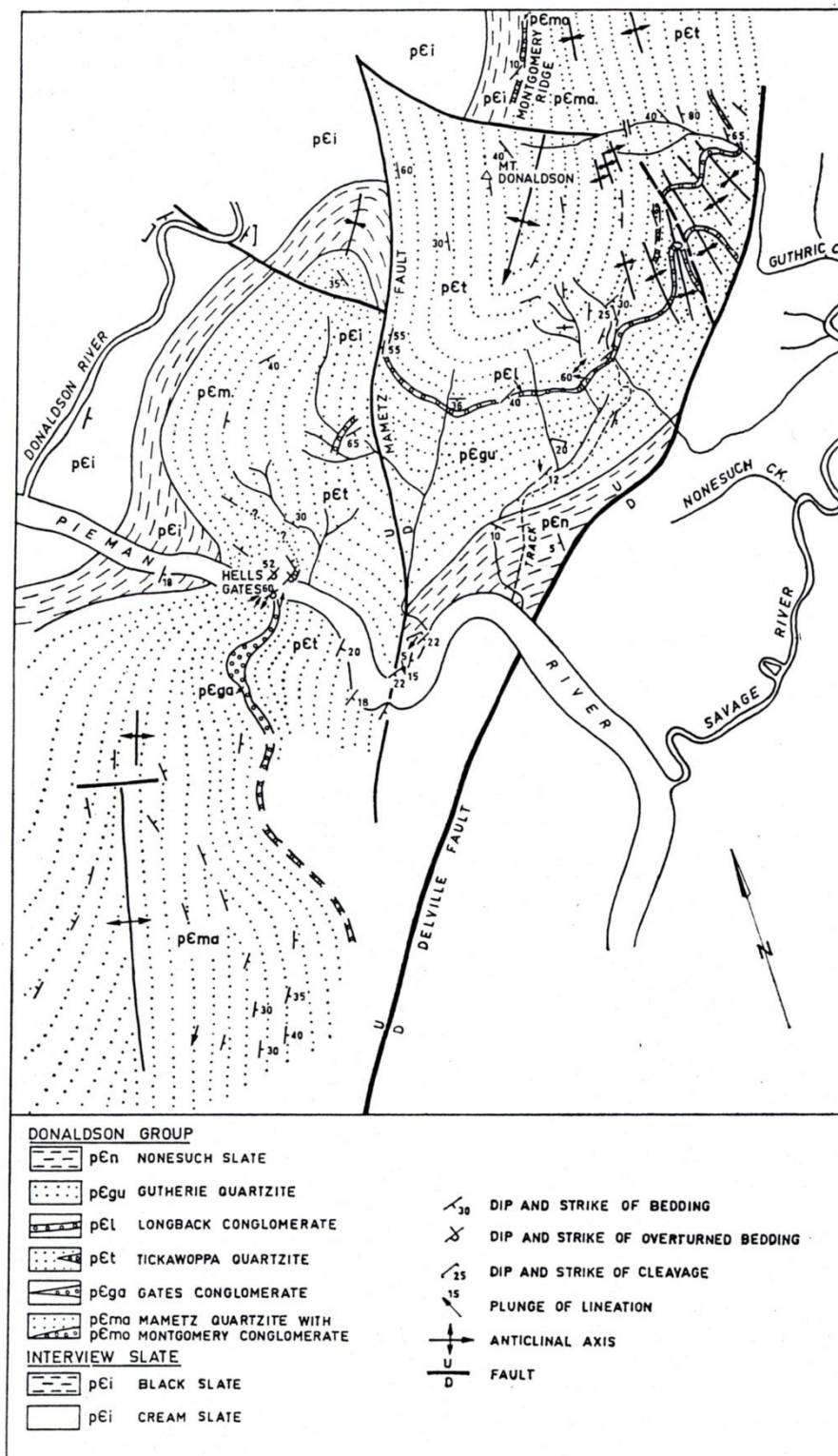
7. Nonesuch quartzite

The Guthrie quartzite is overlain by about 100 feet of black slate known as Nonesuch Quartzite, apparently the youngest formation of the Donaldson Group to be exposed. It is dark grey with bedding commonly obscured by an oblique cleavage, and about 200 feet thick.⁹

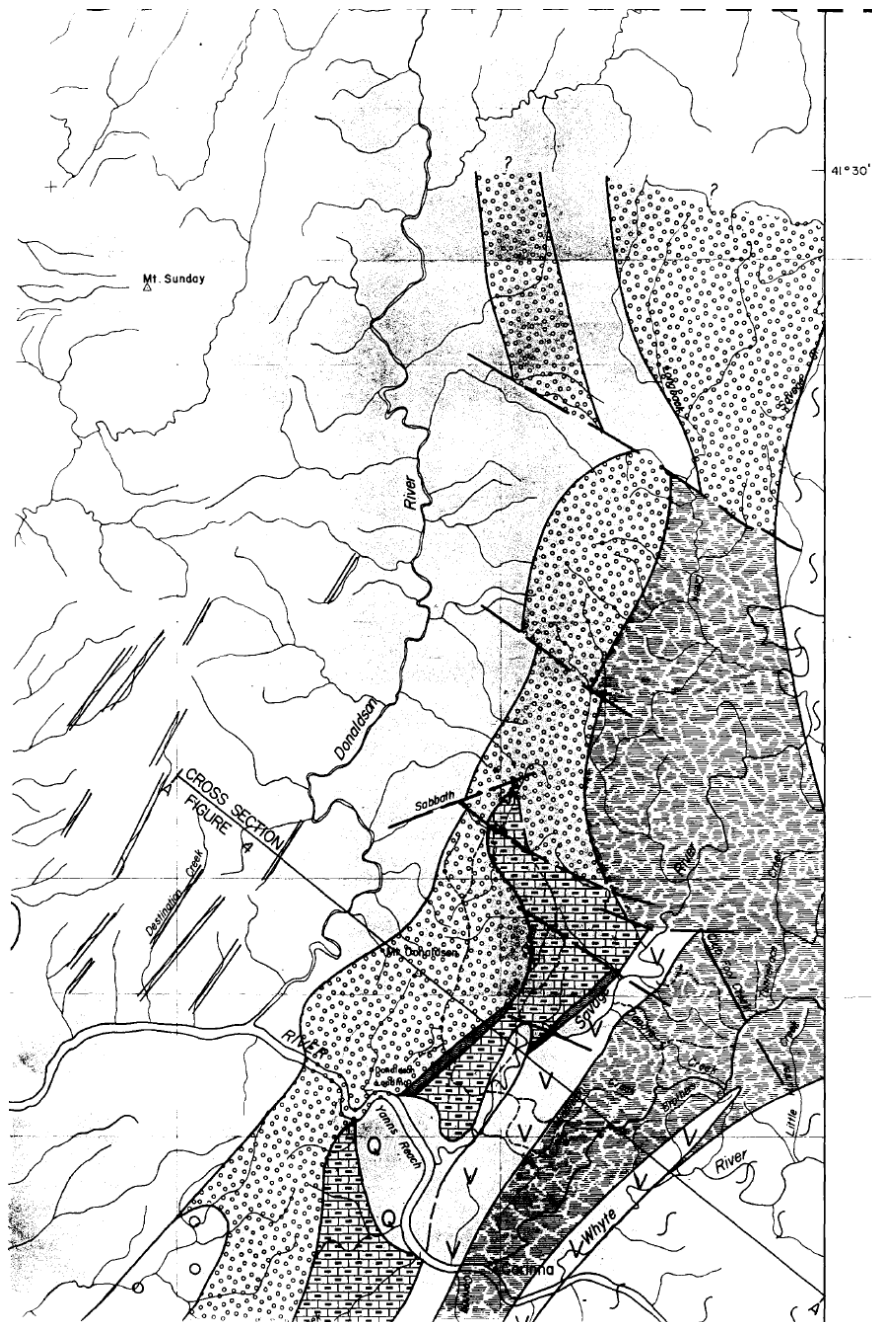


Geology of the lower Pieman by Alan Spry (1964)

⁹ Alan Spry, 'Precambrian Rocks of Tasmania', pp.31-36.



Geology of the Mount Donaldson area by Alan Spry (1964)



LEGEND

QUATERNARY	Q	Coastal sand dunes, alluvium
	T	Basalt
TERTIARY	O	Gravels
DEVONIAN	+ +	Adamellite
	⊞	Savage Dolomite
	■	Delville Chert
	V V	Bernafai Volcanics
PRECAMBRIAN	⊞	Corinna Slate
	⊞	Donaldson Group
	□	Interview Slate & Quartzite
	⊞	Whyte Schist
	///	Sodic Dolerite dyke swarm

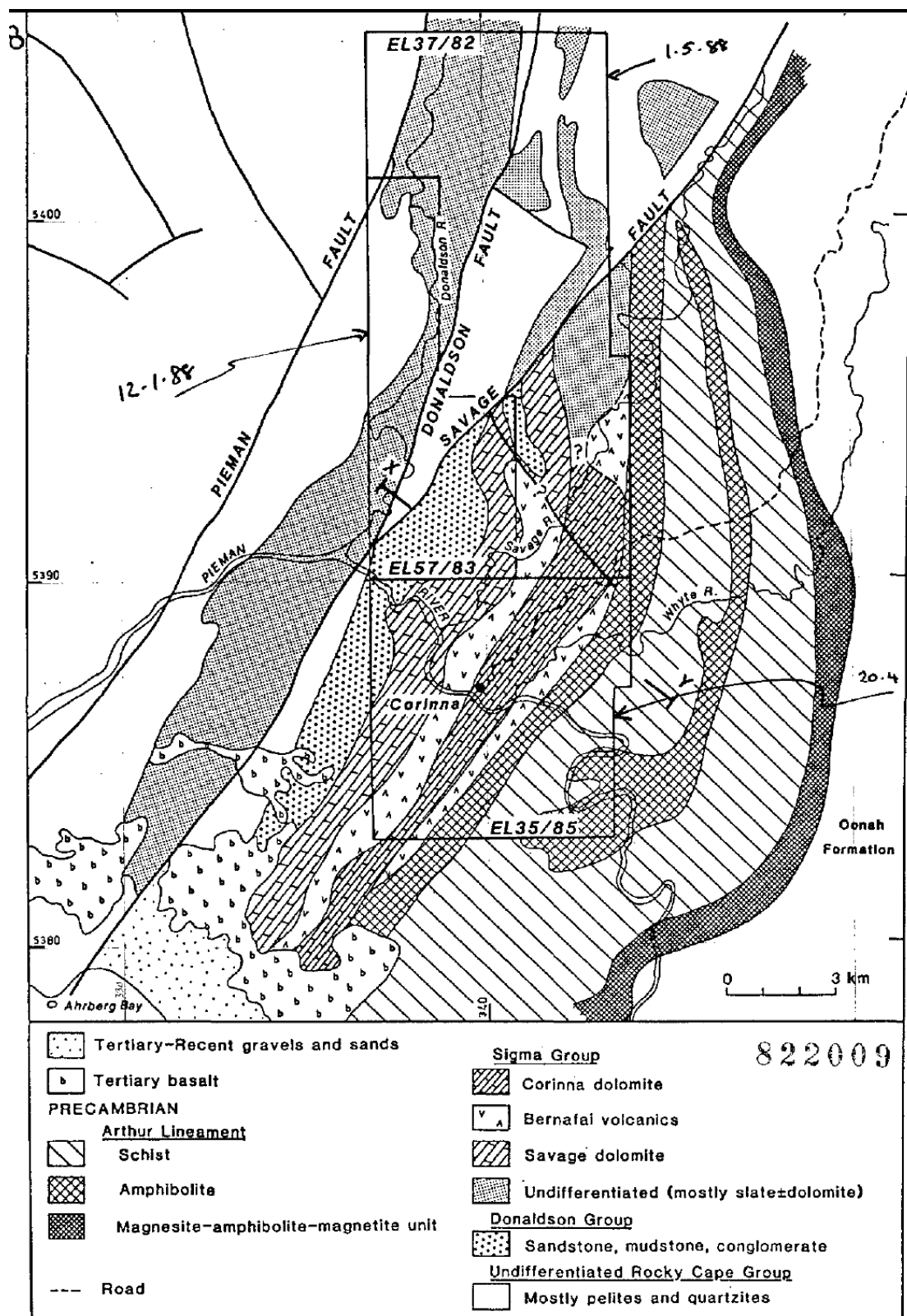
Geology, Mount Lyell Co's EL25/78 1979-81

Interpreting photo-interpretation of the country between the Arthur and Pieman Rivers for Geopeko, who were searching for base metals, S Warren Carey discussed six lithological groups within the Precambrian and Cambrian sequences to which he assigned the Greek letter names Sigma, Kappa, Phi, Epsilon, Alpha and Rho. He believed that all Cu, Son and W mineralisation was confined to the Epsilon Group and stated that deep fault corridors were significant loci of mineralisation.¹⁰

In 1987 Ross R Large reinterpreted the stratigrapher of the Protrusion rocks east of the Donaldson Group, establishing that there were two distinct dolomite horizons: 1 the upper Corinna Dolomite, which is bedrock to the high purity silica flour deposits; and 2 the lower Savage Dolomite, which is partly silicified and stromatolitic. He believed that the two dolomite formations were separated by altered meta mafic lavas and tuffs plus minor mudstones.¹¹

¹⁰ S Warren Carey, *Notes to Accompany the Photo-Interpretation of the Country Between the Arthur and Pieman Rivers, Tasmania*, Geopeko, 1981, pp.1-7.

¹¹ Ross R Large, *1987 Annual Report for EL57/83*, Cominex, 1988, pp.3, 4 and 5.



Reinterpretation of geology by Ross R Large in 1988, based on Alan Spry (1964), Sam Carey (1981), Nick Turner (in publication), discussions with Hugh Nolan (1986) and aeromagnetic interpretation.¹²

¹² Ross R Large, 1987 Annual Report for EL57/83, Cominex, Hobart, 1988, Figure 2.

In 1988 the available aeromagnetic data for the region was also reinterpreted by David Leaman for Norgold Ltd, which had become a joint venture partner with Savage River Resources investigating the anomaly identified by Esso at the Longback on EL37/82. Leaman predicted that any primary gold occurrences would be concentrated near the intersections of NNW-SSE trending features (such as the Brookside Fault) and unit boundaries or east-west offsets. Leaman believed that the so-called upper volcanics were in fact repeats of the Bernafai Volcanics in the area north of the Brookside Prospect. He stated that it was possible that there was no dolomite in the same area or at least none exposed, and that it was likely that the Donaldson Group had been incorrectly identified or, if present, had been overthrust onto the Corinna or upper dolomite unit.¹³

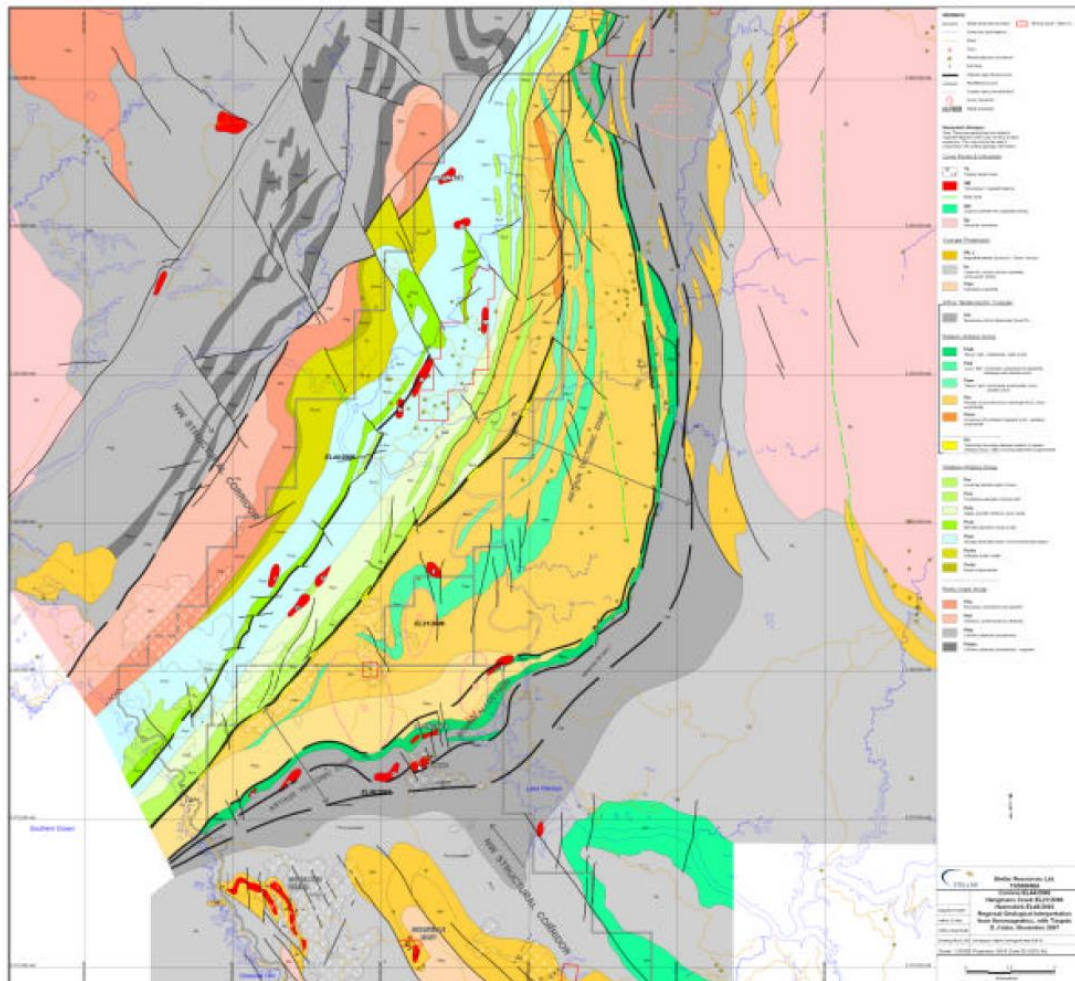
In 1989 Aberfoyle undertook geological mapping in conjunction with stream sampling in Guthrie and Unnamed Creeks. The geology of the two creeks was found to be virtually identical. The Savage dolomite outcropped near the Savage River. Further west

the Savage Dolomite grades into a massive to strongly cleaved black meta siltstone with occasional graphitic interbeds and quartz stockworks. Thin section analysis suggests this siltstone to be dolomitic sediment totally silicified during post-diagenetic alteration and is most probably a lateral facies variation of the Savage Dolomite. This, weakly brecciated, chert bands are also common within the siltstone. Further west the siltstones are in contact with strongly bedded, quartz-rich sediment of the Donaldson Group. Mostly sandstone and quartzites with occasional conglomerate units (seen only as a float) this unit can be traced to the summit of Mount Donaldson. Bedding appears to strike essentially north east with moderate to shallow dips in a south easterly direction.¹⁴

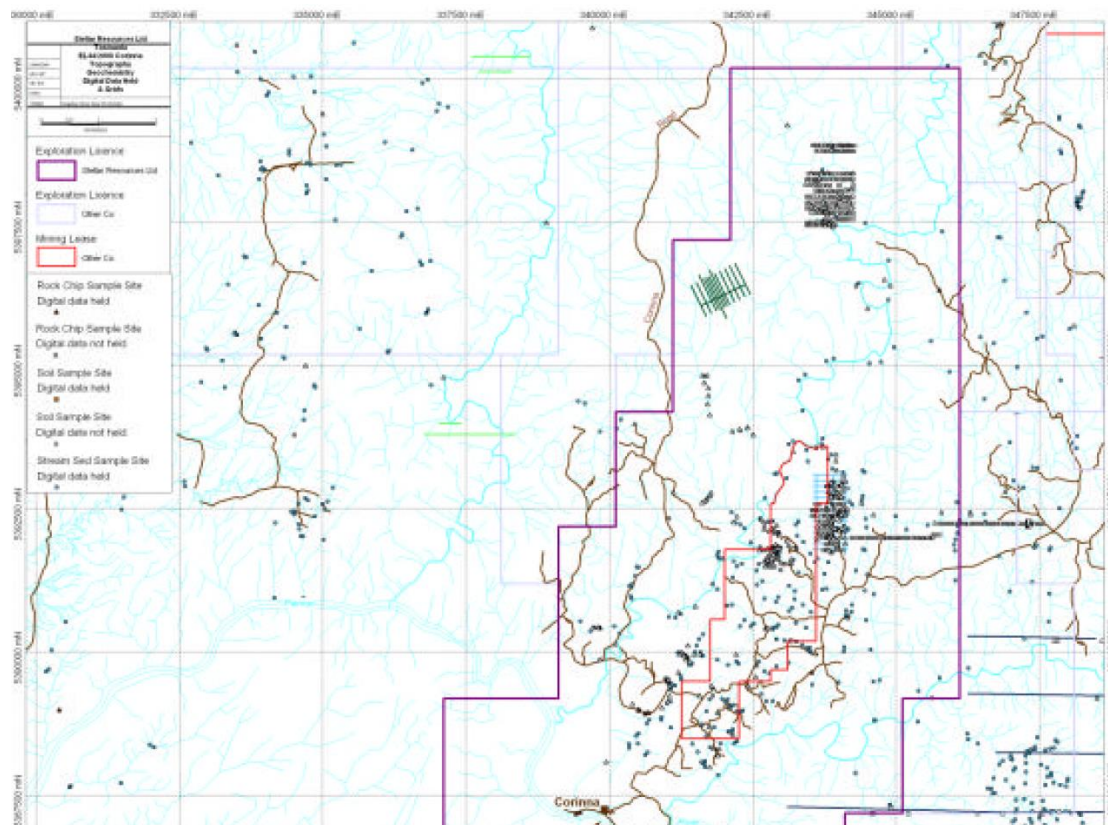
Little geological mapping has been conducted since. Rio Tinto, McDermott Mining and Stellar Resources all interpreted aeromagnetic or geophysical data.

¹³ DE Leaman, EL37/82 The Longback, Tasmania: Review of Magnetic and Gravity Data for Norgold Ltd, 1988.

¹⁴ RJ Henham, *Exploration Licence 57/83: Mount Donaldson, Tasmania: Report on Exploration to 12th January 1990*, pp.3, 6-10.



Geology of EL44/2006 interpreted by DJ Isles



Exploration work on the lower Donaldson and Savage Rivers up to 2006, showing stream sample, soil assay and rock chip collection sites. (Map is cropped from that which appears in RK Hazeldene, *EL44/2006 Corinna: Final Report Relinquishment*, Stellar Resources Ltd, Melbourne, 2009, p.16. The purple line denotes EL44/2006. the red line denotes the enclosed Cominex silica mining lease north-east of Corinna.)

Early gold mining at Sunday (Sabbath) and Guthrie Creeks

Gold exploration at the Pieman River pre-dates the landmark discovery of tin at Mount Bischoff in 1871, making it the earliest post-convict mining site on the West Coast.¹⁵ The first discovery of any significance was by the Slater brothers and Weber in 1874 when they sailed the cutter *Alma* up the Pieman River and spent a month prospecting near the Owen Meredith and Paradise Rivers. Believing they had found indications of a gold reef, the Slaters returned in 1879, forming the Lefroy Gold Mining Company, probably the first attempt at hard rock mining on the West Coast.¹⁶

The first prospecting at Mount Donaldson was probably done by the Emu Bay and Pieman River Prospecting Company, led by the brothers George and Owen Meredith. In January 1878 George Meredith noted in his diary that

in afternoon I and party go up Mount Donaldson and get a good view. See fire being lit by Timms [Timbs] in the direction of Mount Norfolk. Think that as he has been good enough to clear the ground that that will be the first scene [?] of my operation...Manning and Adlord [?] sink two holes in paint pot gully, but with no result.¹⁷

The 'paint pot' may have referred to the colours of pyritic ore in Sunday (later Sabbath) Creek, a tributary of the Donaldson River.

In August 1879 the *Mercury* reported that TB Moore and John Foster discovered gold about two miles from Middletons Creek, a tributary of the Savage River.¹⁸ Moore's diaries show that the pair had made the discovery in Sunday Creek, on 22 June, obtaining more than a grain, later 2.25 grains of gold, to the dish. Sluiciboxes were built from pine timber available locally, the creeks were dammed off and from 1 July their beds were stripped, the dirt being washed through the boxes.¹⁹ During the next few weeks, Moore seems to have regarded anything less than 6 dwts of gold as a poor daily return. The *Tasmanian Mail's* Pieman River correspondent claimed that the Sabbath Creek gold was of

a fine scaly description, and commanding the highest price of any obtained at the Pieman. The mineral was obtained in a bottom, apparently of decomposed limestone, discoloured by the action of iron pyrites, a great deal of which is met with in cleaning up.²⁰

By the end of July 1879, Pat Harvey and his mate had joined Moore and Foster. Early in August, Ted Peavor's party was there too, prompting Moore to secure a water right for his claim.²¹ Guthrie Creek was already being worked when Moore visited there to obtain signatures for a petition for a government store to be established at the Pieman. Perhaps he had tired of eating wombat:

18th [August 1879] Sun Wrote a petition to Commission in morning after we arrived at camp. Then started off for savage geting [sic] names all along our rout [sic] going down Gutheries Creek. They had been living on castor oil & Bread. Got to Stores [?] about dark but could not get a boat to cross so traveled down Savage to Pieman & Leslie came down in a boat

¹⁵ Convicts quarried limestone in the Gordon River during the days of the Sarah Island, Macquarie Harbour penal settlement. For early gold exploration at the Pieman, see, for example, 'Circular Head', *Launceston Examiner* 10 December 1870, p.3; and 'Pieman River', *Launceston Examiner* 31 December 1870, p.4.

¹⁶ 'A Cruise on the Tasmanian Coast', *Launceston Examiner* 30 June 1874, p.3; Job Savage, 'Pieman River Diggings', *Launceston Examiner* 20 December 1880, p.3.

¹⁷ George Meredith diary 1877–78, 31 December 1877 and 1 January 1878, NS718/1/2 (Tasmanian Archive and Heritage Office, Hobart).

¹⁸ 'Mount Bischoff', *Mercury* 8 August 1879, p.3

¹⁹ TB Moore diary entry 1 July 1879, AZM5617 (Tasmanian Museum and Art Gallery)

²⁰ 'The West Coast Goldfields', *Tasmanian Mail* 7 August 1880 p.7

²¹ TB Moore diary entry 4 and 5 August 1879, ZM5617 (Tasmanian Museum and Art Gallery)

for us. Got a lantern & made up to Allwrights from there had a nice trip up to Baileys & Cissen's [?] where we arrived about 1 o'clock finding Byrns camp there. Wet

Visiting Sabbath Creek in August, the captain of the *Foam* watched three men wash an ounce of gold in a day and another trio obtain 8 dwts in 3½ hours.²²

By September 1879, after replenishing supplies in Waratah, Moore was already looking around for a new gold show. He joined others at Badger Creek, under the Longback, where W Davis, F Sedgman and Fred Pink had made the first discovery.²³ Sabbath Creek remained popular almost a year later. The Pieman River correspondent related in August 1880 that

after the prospectors [Moore and Foster] left the ground two parties set in, and ultimately P[eter] Hunter and S[tephen] Stacks set to work. After getting a little in the banks of the creek, which, by the way, is worked wide all the distance up, the party decided to test the terraces. The dam put up by the prospectors was repaired, and its height increased, rendering it the best on the whole goldfield. A start was then made ground sluicing the terraces near the commencement of the prospectors' claim, the head race having to be carried a considerable distance. There was no depth of wash — hard white cement — so that in four weeks a considerable quantity of stuff was put through. It, however, gave only 2½ oz for the one man's work. The two continued the race right on until they found the bottom falling, and then met with a well-defined terrace, deepening as they cut into the hill. Cutting further up the creek they found the bottom again rising, giving them a terrace, however, 30ft wide and about 6ft deep, showing satisfactory prospects. Below the wash is a thin layer of decomposed vegetable matter upon a limestone bottom. The water was brought on a little higher than before and ground sluicing started. At the time of my visit they had been seven weeks at work, and intended to clean up in three weeks or a month. The party believe that their work will prove remunerative, and in that case the terraces at the Donaldson will have a number of diggers upon them shortly. On the hill above the terraces where P Hunter and his mate are at work is a large flat, in which the first named intends sinking a prospecting hole at an early date....

Guthrie Creek was also receiving attention:

In the afternoon I visited D[avid] Owen's workings, in Guthries Creek, a tributary of the Savage. This creek paid Guthrie's party most handsomely, and good returns have been obtained since by several parties from the banks. Owen is not obtaining much of the precious metal, but is hopeful of doing so. Further down the creek I came across H Evert and F Webber, who were at work in a blind gully leading into the main creek. The party had obtained good prospects, but the absence of water was a drawback to setting in. Not to be deterred, they set to work and brought in a sluice head from another creek, almost a mile distant, and are now at work with satisfactory results. The same party had tried the terraces in Guthries but abandoned it on account of there being insufficient water to ground sluice, by which process alone will terrace work pay....²⁴

Mining on the Pieman River catchment at this time was extremely difficult. The place was remote. Access from the sea was perilous, and from Waratah, the major staging post in the west, it consisted of a rough foot track as far as Middletons Creek. The establishment of stores, including a government store, at Corinna in 1880, did not solve the supply problem.

²² 'Tasmanian Telegrams', *Mercury* 30 September 1879, p.2

²³ TB Moore diary entry for September-November 1879, ZM5617 (Tasmanian Museum and Art Gallery); 'The West Coast Goldfields', *Mercury* 3 August 1880, p.3

²⁴ 'The West Coast Goldfields', *Tasmanian Mail* 7 August 1880 p.7.

The reservation of the Pieman pine forests in 1881 made it uneconomical for mariners who had previously backloaded with Huon pine to ship supplies through the Pieman heads.

Thureau's progress reports on the Pieman River goldfield 1881 and 1884

Consequently, only alluvial work was attempted at the Pieman in its first phase of mining. Thureau, in his progress report on the field in June 1881, encouraged the miners who had hitherto only worked the creeks to tunnel into the 'tertiary washes'. A year before the Long Plains rush, he advised establishing a government store at that place to supply the miners then working Middletons Creek, Quartz (Big Duffer?) and Browns Creek. He believed establishing a store would prompt exploration of the Meredith Range. He also recommended track cutting, hut building and the bridging of streams to aid miners, and the employment of a team of prospectors to tunnel under the hill between Donnelly's and Chinaman's Gullies at Browns Creek, and through Burnt Spur, a narrow neck formed by Savage River. Thureau saw a future for the goldfield:

The opening of the 'terraces' as some miners designate the tertiaries, would open a new era of gold mining in Tasmania, and, to judge from indications, promises to be a more permanent and successful undertaking as when the creeks were worked in the last few years.²⁵

He pointed out the natural advantages the field possessed for mining:

an unlimited supply of running water, which can be used both for sluicing (in boxes or hydraulically with hoses and jets) and as a motive power. Besides that an almost inexhaustible supply of useful timber can readily be obtained to work their mines economically and rapidly with fair promises of success.²⁶

Twelve years would pass before these resources really began to be utilised. The Pieman remained a poor man's goldfield. The Long Plains rush of 1882 led to the discovery of the West Coast's so-called first gold reef, the Specimen Reef, by Thunder and Greenaway later that year.²⁷ This in turn prompted upgraded facilities in the area. Robert Alford of Waratah built a store at the Long Plains.²⁸ Butchers Frank Harvey and James Gaffney built a boarding house and store at the 20-Mile mark on the Corinna Track, which was improved to enable machinery to be hauled to the Specimen Reef (near the present-day Savage River mine) in 1883.²⁹ Telegraph communication was established between Waratah and Corinna in 1882.³⁰ The remote Pieman River goldfield was now less isolated.

When Thureau returned to the area in 1884 to report on the Specimen Reef, he remained convinced that the coarse gold found by prospectors indicated the existence of a much larger goldfield than yet uncovered. Thureau observed new prospecting work in several places, but was unable to visit the recent gold strikes at the Rocky River (where Tasmania's record gold nugget weighing 7.6 kg had been washed by James McGinty in 1883) and other watercourses. He believed that the density of the scrub and the more recent gravels and hard conglomerates overlaying the auriferous gold drifts impeded the field's progress. Thureau stated that drawing a larger mining population to the Pieman River goldfield was essential to its development and would benefit Tasmania generally.³¹ In a few years time he would have that population surge. The general benefits of it, however, were debatable.

²⁵ Thureau, *West Coast*, p.7.

²⁶ Thureau, *West Coast*, p.9.

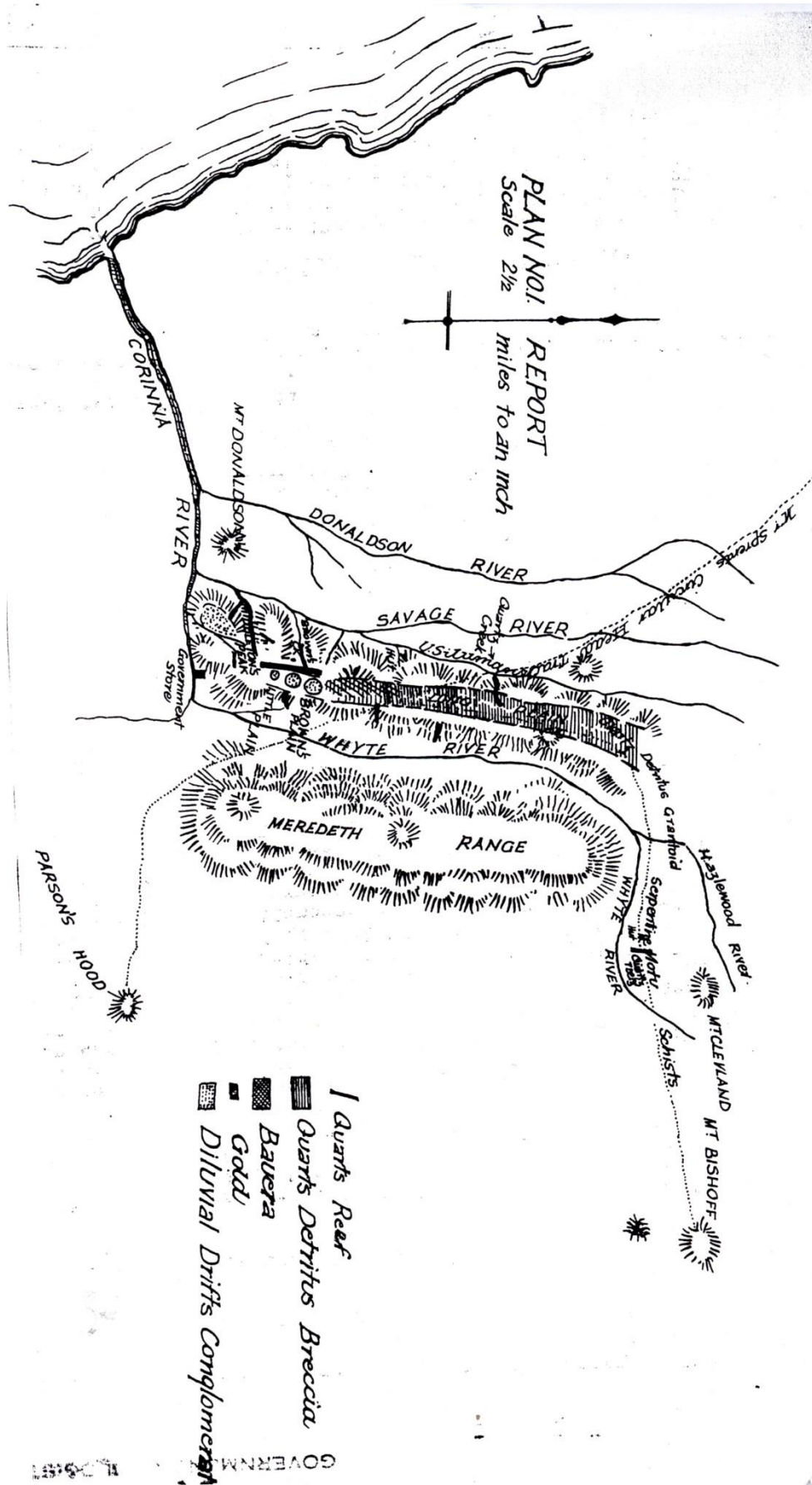
²⁷ See Gustav Thureau's *Mount Cleveland and Corinna Gold Fields (Report on the Specimen Reef, Near Mount Cleveland)*, Parliamentary Paper 104/1884, April 1884.

²⁸ 'Long Plains', *Tasmanian* 2 September 1882, p.973.

²⁹ 'The Owl', 'Notes from the West', *Launceston Examiner* 30 July 1883, p.3; 'Mining', *Mercury* 19 October 1883, p.3.

³⁰ 'Tasmania', *Launceston Examiner* 7 June 1882, p.2.

³¹ Gustav Thureau, *Mount Cleveland and Corinna Gold Fields*, pp.1 and 6.



Thureau's 1881 map of the Pieman River and Long Plains goldfield

The Donaldson/New Donaldson Hydraulic

The rise of hydraulic mining in Tasmania

Hydraulic sluicing came into vogue as a means of working poorer alluvial ground economically and of attacking deep leads. In 1882 Thureau advocated it as the means of working the tertiary deposits of the Lisle goldfield.³² The *Launceston Examiner* claimed that the Pieman River terraces 'can only be worked profitably by hydraulic sluicing'. To accommodate this mining method, the Government agreed to issue 20-acre leases and to swap the labour covenant with a requirement of expenditure of £2,500 on infrastructure within two years of taking up the lease.³³ Although the infrastructure needed for hydraulic sluicing was expensive to install, labour costs were afterwards minimal. One man manipulating the hose effectively replaced many armed with pick and shovel.

Mount Cameron tin companies such as the Esk Tin Mining and Hydraulic Sluicing Co (1881) were among the first to adopt hydraulic slicing. By 1883 this mining method had a permanent place in the north-eastern tin industry, although Thureau noted difficulties with both headraces and tailraces, that is, establishing sufficient water pressure and disposing of waste material. Nozzles that spread the water rather than concentrating it in a single jet were also a problem. In his report for 1883, Thureau demonstrated improved models of nozzles and hydraulic gravel elevators to address these issues.³⁴ Hydraulic mining by the Mount Cameron Hydraulic Company was central to the debate about the Government buying and extending the Mount Cameron Water Race in the period 1885-87.

The failure of the Black Boy (1887-89), Flannigans Flat (1891-92) and Mathinna (1891) Hydraulic Companies, and of this mining method at the Carisia gold mine — on the old Specimen Reef field, not far from Corinna — in 1891-92, would not have encouraged the adoption of hydraulic mining on goldfields.

Nor did 20-acre leases satisfy requirements. In August 1893 the prospector Tom McDonald advocated an amendment in the *Goldfields Act (1880)* to enable applicants to secure up to 200 acres in order to introduce hydraulic sluicing to abandoned alluvial gold workings. Large scale mining was needed to offset low grades and the expense of headrace and tailrace construction. McDonald claimed that

There are large tracts of alluvial gold-bearing country...lying neglected, though admirably suited to this type of mining [hydraulic sluicing]. For instance, there is a large belt of gold-bearing country from the Pieman River at Corinna, to near Table Cape on the North-West Coast, which, as everybody knows, was some years ago yielding thousands of ounces of alluvial gold annually, but recently has ceased to yield anything, the reason being that the small creeks which were in some places exceptionally rich, having been worked out by migratory diggers, chiefly from the other colonies, and who never stay long in one place, leaving the terraces and country where no water was convenient, untouched.³⁵

It took an infusion of New Zealanders to spark a hydraulic craze in Tasmania. In fact, by the time of Tom McDonald's letter, proponents of the Salisbury and Beaconsfield Hydraulic Company had already found a way to secure large areas for hydraulic sluicing. The Government could suspend the lease provisions of *The Mining Act (1893)*. In June 1893 the

³² Gustav Thureau, *Report on the Mineral Resources and on the Permanency of the Lisle Gold Field*, House of Assembly Paper 46/1882, p.1.

³³ Editorial, *Launceston Examiner* 7 November 1882, p.2.

³⁴ Gustav Thureau, *Report of Inspector of Mines for 1883*, Legislative Council Paper 60/1884, pp.8-10.

³⁵ Tom McDonald, 'Hydraulic Gold Mining', *Mercury* 21 August 1893, p.3.

Salisbury and Beaconsfield Company persuaded Minister of Mines William Hartnoll to withdraw 1,000 acres at the Blue Tier near Beaconsfield for 'a limited period'.³⁶

Rudolph Wachsmuth, a potato-growing, piano-tuning, violin-playing former engineer in the Prussian Army, utilised Victorian capital and New Zealand experience at the Salisbury and Beaconsfield Hydraulic Company operation. A head-race brought water 19km from the Supply River, achieving a fall of 90 metres and creating sufficient pressure to blast away the face. The Salisbury and Beaconsfield Hydraulic Sluicing Company was floated to fund the scheme at an estimated cost of £5,000 (most of it Victorian money), and a Melbourne civil engineer, CB Starr, engaged to do the work.³⁷

In August 1893, Wachsmuth, the company's managing director, recruited a suitable mine manager, John Watson, and an assistant, John Cormack, in New Zealand.³⁸ Both, the press was told, had worked at the famous Blue Spur mines in New Zealand and were well acquainted with hydraulic sluicing.³⁹ They were well known in the Tuapeka district. Watson had been doing the rounds of small mines at Tuapeka for some time, including another hydraulic claim.⁴⁰ Cormack was said to have been one of the first to bring water onto the Blue Spur, and more recently had been manager of the Rise and Shine claim at Pomahoka.⁴¹

Wachsmuth and his mate Robert Symmons were already looking much further afield, however, having an entrepreneurial eye on old Tasmanian gold shows. In October 1893 they checked out the suitability of the old Long Plains goldfield near Corinna on the West Coast for hydraulic sluicing.⁴² In November 1893 they took out a 500-acre lease including water rights on gold-bearing terraces above the Pieman River near Corinna, including the Lucy and Frenchmans Creeks, and were said to be in negotiation with companies to work these areas by hydraulic sluicing.⁴³ In the same month, the Corinna Hydraulic Mining Association applied for 1,000 acres which were withdrawn from mineral selection.⁴⁴

Montgomery's report 1894

In April 1894, the Government's Geological Surveyor, Alexander Montgomery, supported these efforts by reporting favourably on the old Corinna gold field. Montgomery had been principal of the Thames School of Mines in New Zealand before taking up his government post in Tasmania.⁴⁵ He concluded that 'there is undoubtedly an excellent field for hydraulic sluicing in the terraces along the Savage, Whyte, and Pieman Rivers, and on the plateau lying south of Mount Livingstone.'⁴⁶ In August 1894 the Minister of Lands revealed that 4,250 acres of Tasmanian Crown land had been withdrawn

by the Governor-in-Council from the operation of the Mining Act, 1893, for limited periods, under the authority of Section 190 of the Mining Act, 1893. These withdrawals had been made in order to facilitate the operations of companies and persons who were engaged in schemes of bringing in water at a very considerable expense for hydraulic sluicing purposes, and for the development of mining in several localities. No persons had any rights in the

³⁶ 'A Mining Deputation', *Mercury* 30 June 1893, p.3.

³⁷ 'Hydraulic Sluicing in Tasmania', *Launceston Examiner* 12 December 1892; 'Hydraulic Sluicing in Tasmania', *Launceston Examiner* 10 December 1894.

³⁸ *Launceston Examiner* 22 August 1893, p.6. Watson and Wachsmuth returned to Tasmania on the ss *Waihorn*, arriving 18 September 1893.

³⁹ Untitled article, *Tuapeka Times* 27 June 1894, p.3.

⁴⁰ 'Mining News', *Tuapeka Times* 17 June 1891, p.3; 'Mining Notes', *Tuapeka Times* 11 January 1893, p.5.

⁴¹ 'Social Gathering at Tuapeka West', *Tuapeka Times* 20 May 1891, p.3; 'The Rise and Shine Co's Claim, Pomahoka', *Otago Witness* 18 May 1892, p.3.

⁴² *Launceston Examiner* 23 October 1893, p.7.

⁴³ 'Mining', *Mercury* 7 November 1893, p.3.

⁴⁴ 'Mining by Hydraulic Sluicing: Large Undertakings', *Launceston Examiner* 14 November 1893, p.6.

⁴⁵ 'Death of a Tasmanian Geologist', *Evening Post* 27 June 1899, p.5.

⁴⁶ Alexander Montgomery, 'Report on the Corinna Goldfield', 1894 p.11.

said areas, or to any mineral discoveries made therein, and therefore no rents were charged or restrictions made as to the number of men to be employed. Holders of miners' rights or prospectors were in no way restricted in taking up claims within such areas. The areas withdrawn were as follows: 500 acres, Brown's Plains six months, from 3rd May 1894; 1,500 acres vicinity of Corinna, do., 17th May 1894; 1,000 acres Lucy Spur, do.; 1,000 acres vicinity of Salisbury, three months, from 27th May 1894; 250 acres Mount Murchison, six months, from 17th May 1894.⁴⁷

The Donaldson Hydraulic

The effect of Montgomery's report on the sparsely populated Corinna goldfield was electric. The Donaldson Hydraulic and Savage River Hydraulic (Pacific Prospecting Company) were already jockeying for position before the former was registered on 19th of April, the first of about a dozen Corinna hydraulic operations. The Donaldson Hydraulic directors were familiar Launceston investors, James Brickhill, proprietor of the *Daily Telegraph* newspaper, chemist WG Cox, J Morton and JM Cunningham, with RJ Sadler the legal manager.⁴⁸ Sadler objected to the Pacific Prospecting Co (later the Savage River Hydraulic) applying for two water rights on Guthrie Creek, which he claimed would interfere with the Donaldson Hydraulic's workings, and asked the Secretary of Mines to not grant the other company permission to erect a dam.⁴⁹

Tasmanian hydraulic gold companies 1888-1900

Company	Date Registered	Where registered	Legal/mine manager	Place of operation
Black Boy Hydr	1888	Hobart, Tas	EC Mace	Mathinna
Flannigans Flat Hydr	26 Feb 1891	Hobart, Tas	Henry Simpson	Flannigans Flat, Queen R
Mathinna Hydr	2 Dec 1891	Hobart, Tas	EC Mace	Mathinna
Salisbury & Bfld Hydr	22 August 1893	Melbourne, Vic	John Cameron/John Watson	Beaconsfield
Donaldson Hydraulic	19 April 1894	Lton, Tas	RJ Sadler/John Cormack	Fall of Donaldson Range to Savage R
Corinna Hydraulic	11 May 1894	Lton, Tas	Edward Gaunt	Corinna
Savage River Hydr	20 Sept 1894	Beaconsfield, Tas	TG Williams/John Cormack	Savage R
Lymington Gold Mining Co	5 Oct 1894	Hobart, Tas	HJ Wise	Lymington, near Cygnet
Lefroy Hydraulic	5 Nov 1894	Lton, Tas	Edward Gaunt	Lefroy
Brookside Hydraulic	19 Nov 1894	Lton, Tas	Edward Gaunt	Elizabeth Range, Savage R
New Donaldson Hydr	19 Dec 1894	Lton, Tas	Edward Gaunt/John Cormack	EPC 500 ac Guthrie Crk, Savage R
Nicholson Hydraulic	19 January 1895	Lton, Tas	Edward Gaunt/William Kirwan	EPC 450 ac, Pine Crk, Pieman R
Casket Gold Ming	28 January 1895	Lton, Tas	CHF Shearn	Corinna

⁴⁷ 'House of Assembly', *Mercury* 9 August 1894, p.4.

⁴⁸ 'Gold', *Launceston Examiner* 4 April 1894, p.7.

⁴⁹ RJ Sadler to Secretary of Mines, no.826, 7 April 1894, MIN4/1/1 (Tasmanian Archive and Heritage Office).

Co				
Lucy Spur Hydraulic	12 March 1895	Lton, Tas	Edward Gaunt	Lucy Crk, middle Pieman R
Paradise Crk Hydr	12 March 1895	Lton, Tas	Edward Gaunt	Sydney Toms Spur, Pieman R
Brooklyn Hydraulic	12 March 1895	Lton Tas	Edward Gaunt	Corinna
Nicholson No.1 Hydr	25 April 1895	Lton, Tas	Edward Gaunt/William Kirwan	Savage R fall of Donaldson Range
Harvey Hydr Prospg Assocn	8 May 1895	Lton, Tas	Edward Gaunt	Harveys Crk, Savage R
Mount Lyell Hydr	8 May 1895	Lton, Tas	Edward Gaunt	Mount Lyell
Frenchmans Spur	July 1895	London, Eng	Leslie Jolly (Tas)/Mark Ireland	Frenchmans Crk, Corinna
Campbells Hydr PA	1895?	Lton, Tas	Keith Ritchie	Arthur River
Mayday Gold Ming Co	19 October 1895	Lton, Tas	Edward Gaunt	Mackintosh Crk, Black Range
Bell Mount Mining & Hydr Sluicing Co	August 1900?	Edinburgh, Scotland	Masson Russell (Tas)/Rudolph Wachsmuth	Upper Forth R

Like all other Corinna hydraulic operations, the Donaldson reworked old alluvial ground. It appears to have taken up a 500-acre reserve abandoned by the Corinna Hydraulic Association.⁵⁰ The property worked was on a low divide between the Donaldson and Savage Rivers which was traversed by several small creeks. These had been panned and sluiced 15 years earlier. The company engaged a well-known prospector, 'Lack' (Lawrence) Harvey, one of four prospecting brothers, who had cut his teeth on the 1872 Arthur River gold rush.

Harvey had secured a water right of 15 heads on the Donaldson River by the time George Bottriell, a protégé of James 'Philosopher' Smith, inspected the property in July 1894. Bottriell discussed working the fall to both the Donaldson and Savage Rivers. He claimed that £2,550 would be needed to get the mine operating, including £1,700 for the head races and £350 for tailraces, one tailrace being needed for each side of the divide. The prospects on the Donaldson fall, he said,

are highly payable for hydraulic sluicing, judging by the prospects obtained by me by dish washing. In no instance did I fail to get gold...prospects were taken from different faces along the banks of the creeks, and points of the spurs were opened, running down to the creeks, and in my opinion are highly payable.

Some of the best prospects I got were taken from a depth of 4ft in the false bottom worked by the former diggers, this same bottom being a black cemented pug with wash drift and stones running through it. It can be well worked by hydraulic, and, as the prospects I washed are payable, it is hard to say what depth faces are to be got when properly opened up.

Running down to these creeks are made spurs and terraces, which in all probability are payable, but need prospecting. I have pointed out to your prospector the most likely places to sink in, which he is now doing.

Independent of these spurs and terraces, the basin through which the creeks I mention run is good enough to warrant the expenditure I recommend, as it is a large basin, and would take many years to work out.

⁵⁰ 'Corinna Alluvial Deposits', *Launceston Examiner* 10 April 1894, p.5.

With the exception of this basin my previous remarks will apply to the Savage River fall, the creeks on that side having been payable also.

In August tools and a rowboat arrived on the steamer *Dorset*.⁵¹ At least five shafts were sunk to a depth of between 12 and 18 feet to test the 'Donaldson River fall of the divide between Sunday and Nicholls Creeks', one on the bank of Nicholls Creek. These revealed 'deep wash'.⁵² Returning to the claim, Bottriell reported good returns from his dish in Guthrie Creek.⁵³ In November 1894, just in time for the Donaldson Company's re-float, Harvey reported the discovery of a large area of wash of great depth.⁵⁴

In 1872 Skelton Emmett had reported washing 'precious stones' or 'diamonds' in the Arthur River which were apparently the size of 'small pinheads'.⁵⁵ There are no known reports of diamonds being discovered in Tasmania again until December 1894, when Harvey found four diamonds in his dish on the Donaldson claim. One, weighing an eighth of a carat, and bearing 'a very high lustre', was passed on for identification to Launceston amateur geologist and investor William Petterd, and thence to Government Geologist Alexander Montgomery. According to the *Mercury*, the latter pronounced the geology of the Donaldson area conducive to the existence of diamonds:

It corresponds with the formation of the Transvaal diamond fields, and contains what is known as gabro rocks. Mr Montgomery is highly pleased with the discovery and attaches considerable importance to it, as it may be the first step towards the establishment of a diamond field in Tasmania.⁵⁶

Montgomery reportedly compared the Donaldson ground to 'the piorite porphyry of the Cape Colony which formed the Kimberley Blue Ground'.⁵⁷

⁵¹ 'Mining Telegrams', *Launceston Examiner* 5 September 1894, p.6.

⁵² 'Donaldson Hydraulic', *Mercury* 31 August 1894, p.4.

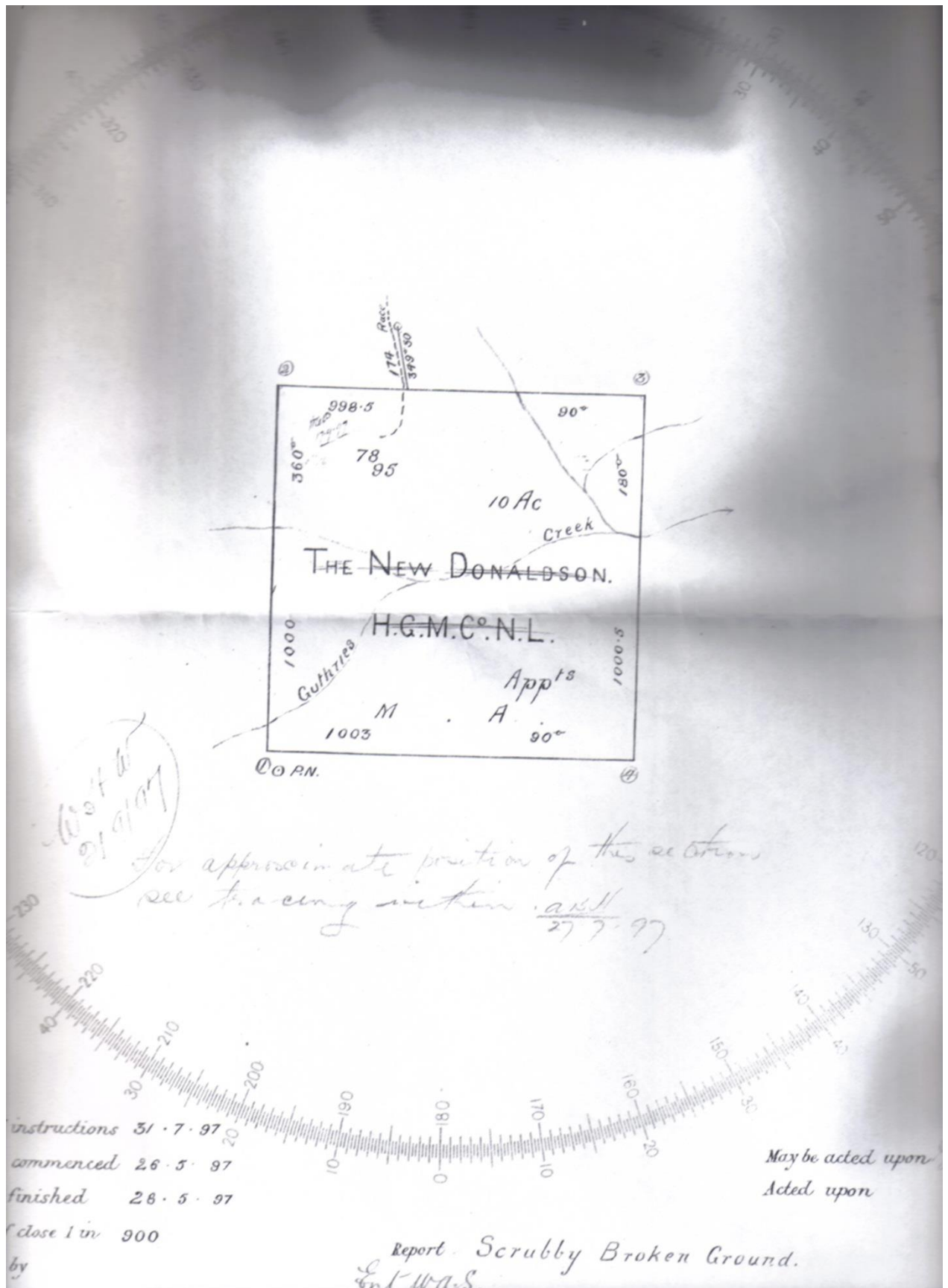
⁵³ George Bottriell, 'Supplementary Report', prospectus of New Donaldson Co, *Mercury* 9 November 1894, p.4.

⁵⁴ 'New Donaldson Hydraulic Gold Mining Company', *Launceston Examiner* 17 November 1894, p.7.

⁵⁵ See 'Exploration of the Hellyer River', *Launceston Examiner* 26 March 1872, p.5; JW Norton Smith to Van Diemen's Land Company Court of Directors, Outward Despatch 42, 9 April 1872, VDL175/5 (Tasmanian Archives and Heritage Office).

⁵⁶ 'Important Discovery: Diamonds on the West Coast', *Mercury* 10 October 1894, p.3.

⁵⁷ 'Recent Diamond Discovery', *Launceston Examiner* 18 December 1894, p.7.



Plan of the New Donaldson Hydraulic GM Co property, surveyed two years after the lease was taken out.

The Donaldson Hydraulic Co, meanwhile, had made five calls on shares in the space of a few months. It made at least one further call on shares, in May 1895, while the new company operated.

The New Donaldson Hydraulic Gold Mining Company

The new company consisted of 14,000 shares of 10 shillings each, half of which were offered to the public. Directors, all from Launceston, were chemist WG Cox, sharebroker Leslie Jolly, surgeon WG Maddox, merchants William Petterd and RS Scott, investor S Traill and commission agents Edward Gaunt and RJ Sadler. All but the last pair owned 100 shares in the company, with Gaunt holding 7,900 in trust and Sadler 5,500. Edward Gaunt was the legal manager.

The property consisted of about 500 acres held under reserve from the government. A water right of 25 sluiceheads on the Donaldson River had been secured. The prospectus boasted that, judging by the returns obtained by hydraulic sluicing in California and New Zealand, shareholders could expect a return of from 100% to 200% on their investment. The New Donaldson property, it reported, owned everything necessary in a hydraulic operation: 'payable gold, an abundant supply of water, and a good get away for tailings'.⁵⁸

The purpose of the re-float was to fund a mine manager and infrastructure. John Cormack, formerly assistant manager of the failed Salisbury and Beaconsfield Hydraulic, filled the position. Disappointed Beaconsfield shareholders had afterwards focused their remaining enthusiasm in the Beaconsfield-based Savage River Hydraulic Company, and appointed Cormack manager there. Perhaps it was Harvey's diamonds which now lured Cormack from the Savage to the Donaldson. He reported that

the ground to be worked consists of white quartz gravel, mixed principally with crystallized limestone, and runs from 3ft to 10ft deep in the shafts sunk. Below this is a dark brown material with quartz gravel through it, and carrying a large quantity of pyrites. I could scarcely believe it contained gold when told so, but every dish of it I washed showed a few specks, and as shafts have been sunk about 10ft through it without touching bottom, and the stuff is easily broken down and washed away, it will, I believe, give large returns when water is brought on to it. The white wash dirt gave splendid prospects, from a few specks to the grain and over to a dish. The ground on the Savage River side of the saddle gives the best prospects, but this may be owing to the fact that bedrock is reached, which has not yet been done on the Donaldson River side. The tests made by washing quantities of two of three cubic yards from different parts of the property give a more reliable idea of its value than can be got from dish washing.

Cormack calculated that an 8.5-mile race would be needed at £140 per mile. The latter's estimates were, naturally, based on New Zealand experience:

The quantity of water to be raised (20 heads) is equal to 18 cubic yards, or 3,000 gallons per minute, and if put all or mostly all through the nozzle, will send away over 10,000 cubic yards per week of 144 hours. You ought, at least, to average 6,000 cubic yards per week, and taking the lowest estimate per yard, viz, 1s, the return will be gold worth £300 per week. From what I have seen of the ground, I believe that, with proper management, more than this can be relied upon.

Cormack is reported to have claimed that 'the mine is a goldfield in itself', predicting that one nozzle would give a return of £300 worth of gold per week at an outlay of £30.⁵⁹

The infrastructure was guided by civil engineer John Power, who in January 1895 began surveying what was expected to be a 10.5-mile (16.8-km) headrace from the Donaldson River

⁵⁸ Prospectus, *Mercury* 9 November 1894, p.4.

⁵⁹ 'New Donaldson Hydraulic Gold Mining Company', *Mercury* 9 November 1894, p.3.

at least as far as Guthrie Creek. The centre of operations, where the race began, was 1.5 miles (2.4km) from Guthrie Creek.⁶⁰ It seems that at this time the intention was to use the hose at Guthrie Creek and on a face near Sunday Creek.⁶¹ A track was cut down Sunday Creek, which was cleared for use as the tailrace.⁶² The first contract for race construction, for 4 miles, was let to WC Grubb and Bros in February 1895.⁶³



New Donaldson water race today

In March 1895 Power increased the length of the race to 12 miles 15 chains (about 19.4km). This probably reflected a decision to contour around gullies, rather than using wooden fluming, susceptible to fire and decay, to cross them.⁶⁴ An investor in the Corinna field who examined the headrace at that time raised the old spectre of a water trust, declaring that

when the race is finished it will become a good source of revenue to the company commanding as it does a height of 550ft above the Savage river. The water could be supplied to different parties along the river for a distance of ten miles. The supply at the intake at the present time is between 50 and 60 sluice-heads.

'Long Back' reported that the headrace descended more than 5 ft 10 in to the chain through Guthrie Creek, suggesting that this was close to the centre of operations. 'Excellent' prospects had been obtained in the shafts and on the faces.⁶⁵ 'Good' prospects were obtained on the spurs on both sides of Guthrie Creek.⁶⁶

In March 1895, news of another Harvey diamond discovery even rippled across the Tasman, where it was reported in at least half a dozen newspapers. The discovery was not on the Donaldson discovery, but about 10 kilometres away at Harveys Creek, a tributary of the Savage River. New Donaldson shareholder and gem collector Petterd reported that the stone was

much like its co-patriot, of a pale straw colour, and the usual adamantine lustre, and shows acutely cut facets and all the cristallisation [sic] characteristic of the diamond.⁶⁷

⁶⁰ 'New Donaldson Hydraulic', *Launceston Examiner* 11 March 1895, p.7.

⁶¹ 'New Donaldson Hydraulic', *Mercury* 4 March 1895, p.4.

⁶² 'New Donaldson Hydraulic', *Mercury* 28 January 1895, p.3; 'New Donaldson Hydraulic', *Launceston Examiner* 11 February 1895, p.7.

⁶³ 'Corinna Mining Notes', *Tasmanian Mail* 16 February 1895.

⁶⁴ 'New Donaldson Hydraulic', *Launceston Examiner* 11 March 1895, p.7.

⁶⁵ 'Long Back', 'A Visit to the Corinna Goldfields', *Launceston Examiner* 20 April 1895, p.6.

⁶⁶ 'New Donaldson Hydraulic', *Launceston Examiner* 11 March 1895, p.7.

⁶⁷ 'Another Diamond', *Launceston Examiner* 23 March 1895, p.7.

Another report described 'white crystals' in a 'blueish kind of clay'.⁶⁸ Harvey's Hydraulic, floated soon after, presumably worked the ground that had produced this diamond.

In May 1895 a second construction contract, for 5 miles of race, was accepted, and tenders were sought to build a further 1.5 miles. A 'magnificent' bed of pine had been identified for the building of sluice-boxes.⁶⁹

Collapse of the hydraulic craze

In June 1895 the Corinna and Brookside Hydraulics cleaned up their boxes, returning only 80 oz and 34 oz of gold respectively. This effectively put the Corinna field on the slide.⁷⁰ Shares in the Corinna Hydraulic dropped from £8 to little over £1 literally overnight, and the Brookside suffered similarly. FC Brooks, mining manager of the Brooklyn Hydraulic recalled that

I had been sluicing just a fortnight, with three shifts, when I received from the legal manager [Gaunt] a wire — 'Clean up at once; the directors want to know the result.' I obtained 16 ozs of gold, which paid expenses for the actual time of sluicing, and proceeded to Launceston to meet a crestfallen lot of directors. Most of my directors were also directors in the companies that had cleaned up prior to the above wire.⁷¹

Yet companies survived and continued to make calls on shares through the winter and spring of 1895. The Savage River Hydraulic actually had at least 18 calls on shares over three years, and new shareholders picked up the forfeited ones.

Preparing the New Donaldson for action continued, the manager estimating that it would take a further £100 to install pipes, complete the tailrace and other work. Fifteen acres were said to have been prospected, the auriferous wash varying in value from 2 to 20 shillings per ton.⁷² In late August Cormack was within a day of 'turning the water onto the mine', the headrace all but finished. Pipes still needed to be installed. Sluicing a gully and tailrace formation would then begin.⁷³ A second call on shares was made in September 1895, a third early in October.⁷⁴ The attrition rate was appalling, however, with 7,380 forfeited shares being sold on Tuesday, 17 September and another 2,922 a few weeks after that.⁷⁵ No further manager's reports were published, and financial stringency or legal proceedings are suggested by a notice to the Secretary of Mines in October 1895 from the National Bank requesting that the New Donaldson's interest in section 78/95 not be transferred without the authority of the sheriff.⁷⁶ Yet in November 1895 legal manager Edward Gaunt applied for a six-month extension on the New Donaldson's Prospecting Area.⁷⁷

The property may have been abandoned in early 1896. In February 1896 John Godkin asked the Secretary of Mines whether the New Donaldson ground was leased, then applied for a 600-acre extended prospecting claim 'about ¾ mile NE of Mount Donaldson'.⁷⁸ By September

⁶⁸ Alfred J Taylor, 'Discovery of Diamonds', *Examiner* 26 June 1906, p.3.

⁶⁹ 'New Donaldson Hydraulic', *Launceston Examiner* 11 May 1895, p.6.

⁷⁰ 'Mining', *Mercury* 29 June 1895, p.1.

⁷¹ FC Brooks, 'The Corinna Hydraulic Boom', *Examiner* 28 November 1913, p.6.

⁷² 'New Donaldson Hydraulic', *Launceston Examiner* 2 July 1895, p.3.

⁷³ 'New Donaldson Hydraulic', *Mercury* 6 September 1895.

⁷⁴ Adverts, *Mercury* 2 September 1895, p.4 and 4 November 1895, p.4.

⁷⁵ 'Mining', *Mercury* 19 September 1895, p.3 and 16 October 1895, p.3.

⁷⁶ Will Hunt, National Bank, to Secretary of Mines no.2794, 22 October 1895, MIN4/1/2 (Tasmanian Archive and Heritage Office).

⁷⁷ Edward Gaunt to Secretary of Mines no.2783, 5 October 1895, MIN4/1/2 (Tasmanian Archive and Heritage Office).

⁷⁸ John Godkin to Secretary of Mines no.377, 4 February 1896; John and Norman Godkin to Secretary of Mines no.498, 14 February 1896, MIN4/1/2 (Tasmanian Archive and Heritage Office).

1896 John Cormack was on the Western Australian goldfields, and a year later at the Klondyke gold rush in Alaska.⁷⁹

The Corinna hydraulic field failed because the first operations to clean up their boxes proved uneconomical, that is, not enough gold was saved to pay for operating expenses. The rest of the field then collapsed in sympathy: 'all hope was abandoned', as Mark Ireland put it.⁸⁰ EM Thornily of the Frenchmans Spur mine blamed the failure on economy of scale, the mines that were tested putting too little washdirt through their boxes to cover labour and infrastructure costs. He reckoned that the Tasmanian companies put through 1,000 yards of dirt in a week, trying to get the same return that the New Zealand companies achieved putting 10,000 yards of dirt through their sluice boxes.⁸¹ Shareholders like those of the New Donaldson, who still faced heavy outlay on the field's longest headrace, opted out before their mine had been tested with the high-pressure hose. It was also claimed that the terraces worked were too high to enable sufficient water pressure to be gained for hydraulicizing.⁸²

Subsequent reports on the Pieman hydraulic claims

By the time Government Geologist John Harcourt Smith reported in 1897, all the hydraulic companies were idle, and he examined none of their properties. His pessimism was, therefore, hardly profound:

A good deal of money has been spent in constructing water-races, etc, and as far as I could judge in passing, a fair trial of the wash appears to have been made, but the results were very disappointing. At several of these claims one or two men are utilising the water brought in by the companies, but I could not hear of any of them getting much gold.⁸³

Reporting in 1900, WH Twelvetrees visited some of the Pieman sites and considered the geological conditions:

From some of the abandoned claims which I passed over, I should judge that the true bottom ought to yield payable gold in places where there was any action at work tending to arrest the current. There is such an extensive area of slightly auriferous wash, that there is not much hope of payable results outside certain selected spots. These low-level gravels are the result of the destruction of higher-level gravels, so that it is unreasonable to expect any uniformity of distribution throughout the mass.⁸⁴

⁷⁹ 'Current Topics', *Otago Daily Times* (New Zealand) 22 September 1896, p.2; 'The Klondyke Rush', *Poverty Bay Herald* (New Zealand) 4 September 1897, p.2.

⁸⁰ Ireland, *Pioneering on the North-East Coast and West Coast of Tasmania*, 1913?, p.34.

⁸¹ EM Thornily, 'Some Notes on Hydraulicizing and Ground Sluicing in New Zealand, and Comparisons with the Drift Gravel of the Corinna District in Tasmania', *Transactions of the Australasian Institute of Mining Engineers* (ed AS Kenyon), vol. IV, Melbourne, 1897, p.55

⁸² 'Gold at the Pieman', *Mercury* 9 November 1932, p.11. In 1939 Blake blamed insufficient water or water pressure, thick overburden and erratic gold distribution for the field's failure (F Blake, *Report on the Corinna Goldfield*, Unpublished Reports, Department of Mines, 1939, p.27).

⁸³ J Harcourt Smith, 'Report on the Mineral District Between Corinna and Waratah', *Report of the Secretary for Mines for 1896-97*, 1897, p.xliii.

⁸⁴ WH Twelvetrees 'Report on the Mineral Fields Between Waratah and Corinna', Mines Dept, Launceston, 1900, pp.67-68.

Post-hydraulic mining at lower Donaldson & Savage Rivers

With the failure of hydraulic mining, attention turned to dredging. A bucket dredge was used with little success on the Whyte and Rocky Rivers 1901-02. By 1910, the main interest in the Savage River area was osmiridium, which gold diggers had been washing since 1880 but not sending to market. The osmiridium boom in the period 1918 to 1923 and periodic interest in the iron ore deposits at Long Plains improved tracks in the area and brought a road suitable for horse and cart as far as the 19-mile mark on the Waratah-Corinna Road.

The source of the diamonds

Twelvetrees reported two further discoveries of diamonds during the hydraulic gold mining craze. These received lurid treatment in a 1904 book:

According to newspaper reports, a large number of stones were found at the end of the year 1894 in Corinna, one of the richest goldfields in the island. The reported occurrence caused a rush of diamond-seekers into Tasmania from the Australian mainland; many companies for the exploitation of deposits sprang up, but apparently with no marked results.⁸⁵

In 1906 Thomas Batty found another diamond in Harveys Creek.⁸⁶ Twelvetrees believed that the Bald Hill serpentine, heart of the Savage River osmiridium field, was the likely source of the diamonds — despite none ever being found in that area. Curiously, he also cited Bald Hill as the likely source of the diamonds discovered by Emmett on the Arthur River in 1872. Twelvetrees concluded:

Osmiridium is found associated with gold in some of the creeks around Mt Donaldson, and unless some as yet undiscovered serpentine exists here, it seems likely that the creeks are dissecting ancient gravels, to which the Bald Hill peridotites contributed. It is not probable, however, that many stones will come to light on the osmiridium itself; the chances are greater lower down the Savage. Whatever finds eventuate will certainly be casual ones. Prospecting for the gems would be an almost hopeless task.⁸⁷

William Petterd claimed that in all 16 to 18 diamonds had been found on the Savage River system. He recorded that a careful examination of Harveys Creek failed to reveal any diamonds bigger than Harvey's original find there.⁸⁸

Reporting on osmiridium in Tasmania in 1921, Alexander McIntosh Reid concluded that the diamonds found in Tasmania may be derived from a 'secret' source in the unexplored country between Long Plain and the Hellyer River. He did not discount Bald Hill as a possible source of diamonds, speculating that lack of observation may account for no diamonds being reported on the eastern side of Savage River or in the Heazlewood district. Reid stated that

A microscopical examination of slides cut from olivine-bearing rocks (peridotite) of Bald Hill shows the presence of diamond. This discovery of diamond in the parent rock, interesting though it be, does not set all doubt aside as to the origin of the stones found on Badger Plain [near the Longback]. It is possible that in the course of alluvial mining in the Heazlewood district diamonds have been overlooked and discarded, and probably a more careful examination of the pannings may result in some

⁸⁵ Max Bauer, *Precious Stones*, 1904, p.225; cited by WH Twelvetrees, *Diamonds in Tasmania*, Mines Department Circular No.4, Hobart, 1918, p.10.

⁸⁶ Alfred J Taylor, 'Discovery of Diamonds', *Launceston Examiner* 26 June 1906, p.3.

⁸⁷ WH Twelvetrees, *The Bald Hill Osmiridium Field*, Geological Survey Bulletin no.17, Department of Mines, Hobart, 1914, p.38.

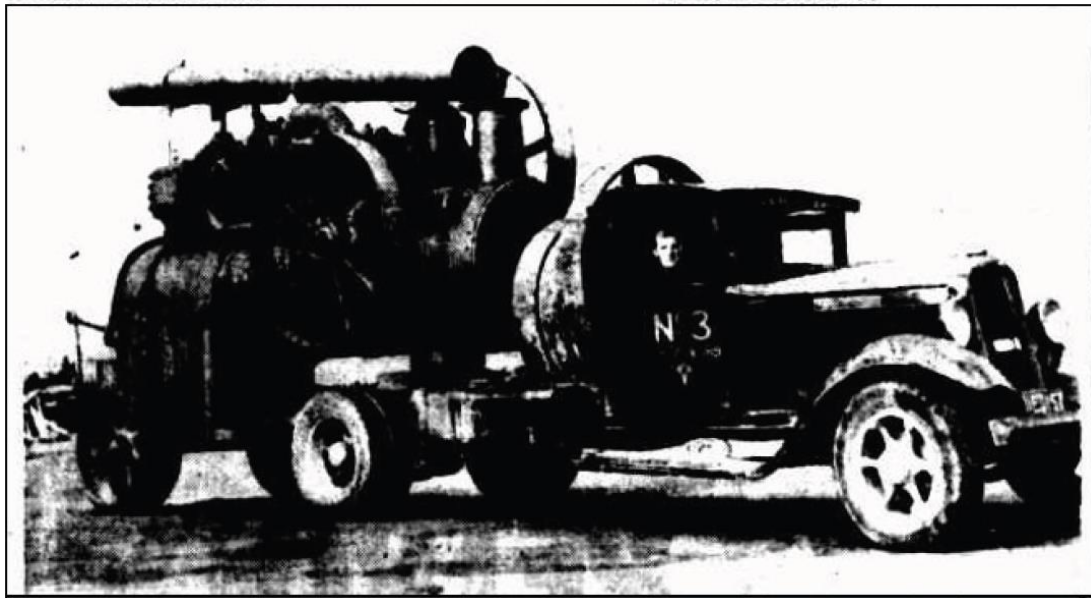
⁸⁸ WF Petterd, *Catalogue of the Minerals of Tasmania: With Notes on Their Distribution*, Department of Mines, Hobart, 1910, p.64; cited by WH Twelvetrees, *The Bald Hill Osmiridium Field*, Geological Survey Bulletin no.17, Department of Mines, Hobart, 1914, p.38.

being found there; but, in any case, it is not anticipated that they will be found in plenty.

The geologist noted that diamonds had also been detected in the sands of the Hellyer (actually the Arthur) River, where osmiridium had also been found. 'These minerals, in all likelihood,' he wrote, 'were derived from ultra-basic rocks exposed in that locality.'⁸⁹

CT Crabtree and West Coast Gold Mines

The strength of the gold price during economic depression attracts miners to old goldfields. Construction of a road to Corinna as unemployment relief from 1934 was probably another catalyst for large portions of the Pieman River goldfield to be placed under special prospecting licence during the mid 1930s. West Coast Gold Mines, a 20-member Launceston syndicate, sank bores at Lucy Spur and in the bed of the Pieman River near the Meredith and Paradise River. The pump sank in the river and was salvaged. The company also worked Middletons Creek, extracting 196 oz gold valued at £1,384. Intermittent hydraulic sluicing was conducted here 1935-38 and some boring conducted. Simultaneously, Gold Mines of Australia Pty Ltd worked an area between the Pieman River and the Waratah-Corinna Road. Neither company was successful. Crabtree held the old incomplete New Donaldson water-race under water right during this period, but whether he used it for mining purposes and whether he worked the old company's ground is unclear.⁹⁰



A 15-ton boiler being hauled to Corinna for gold-mining purposes in 1940. This would have been impossible before 1934, when work began on the Waratah-Corinna Road.

Blake's report 1939

Acting Government Geologist Frank Blake believed that, while geological mapping had shown the great potential of the Corinna district for gold deposits, most of the work had not been thorough. The largest deposits, he claimed, constituted a system of ancient river leads generally situated at high levels:

In the past it has been generally recognised that these represent filled valleys. In such valleys it is usually found that the gold concentration occurs a long a more or less central gutter forming the course of the stream before its valleys were occupied by sediments. Where workings

⁸⁹ Alexander McIntosh Reid, *Osmiridium in Tasmania*, Geological Survey Bulletin no.32, Department of Mines, Hobart, 1921, pp.15-16.

⁹⁰ 'Search for Gold on West Coast', *Examiner* 19 July 1939, p.3; F Blake, *Report on the Corinna Goldfield*, Unpublished Reports, Department of Mines, 1939, pp.35-36; 'New Companies', *Mercury* 11 February 1937, p.4.

have approached the central part of the main lead near the point where the gutter might be expected to exist, as at the head of Sailor Jack Creek, they have not reached bedrock.

Having reviewed the recent boring done, he recommended an extensive campaign of boring, with the series of holes sunk at right angles to the leads.

One of the best places for testing appears to be across the main lead near the junction with the subsidiary lead, to the south east of Brookside mine. Other lines of bores spaced at intervals across the lead further to the south-west would define the general direction of the gutter.⁹¹

Blake believed that the extensive deposits of high level gravels existing in Guthrie, Nonesuch and Brooklyn Creeks on the western side of the Savage River represented remnants of a lower Tertiary lead, and may junction with the tributary lead which crosses Savage River to the west of the Brookside mine.⁹²

⁹¹ F Blake, *Report on the Corinna Goldfield*, Unpublished Reports, Department of Mines, 1939, p.46.

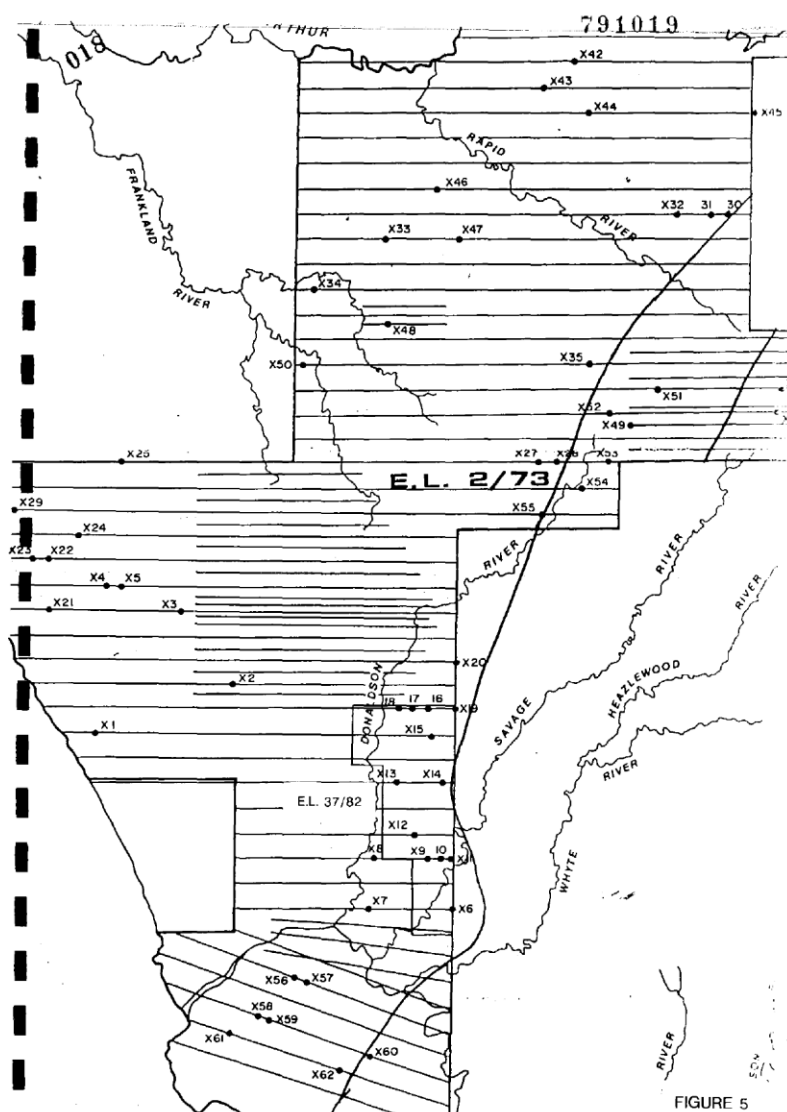
⁹² F Blake, *Report on the Corinna Goldfield*, Unpublished Reports, Department of Mines, 1939, p.39.

Post World War II mineral exploration

Discovery of magnetic anomalies

After airborne magnetic surveys by Rio Tinto in 1956, Pickands Mather International, holders of the Savage River iron ore mine, was the next to explore the Savage/Donaldson River area. It conducted stream sampling on the West Coast during the 1960s, discovering anomalies at Corinna which it did not follow up. From 1970 to 1972, Australian Consolidated Industries (ACI) and the Consolidated Syndicate (Mount Lyell, Renison and CGFA) prospected under EL48/70 and 49/70, but their interest was in tin and tungsten prospects.

In 1973 Esso conducted a regional geological survey in search of massive sulphide deposits of base metals. An airborne geophysical multi-instrumental search which was followed up by a field investigation. Three anomalies in the Donaldson River area were investigated, but the results did not warrant further work. Each anomaly was attributed to a black shale source.⁹³



Esso's EL2/73, including the anomalies X7 (Mount Donaldson), X8, X9, X10 and X11 (north of Sunday Creek).

⁹³ Exploration Licence 2/73, *Pieman River, Tasmania: Completion Report*, Esso Australia, 1974, p.1.

The continued search for diamonds

The Mount Lyell Mining and Railway Co's EL26/78 (1380 sq km) was taken out in 1979 specifically to search for diamonds in the catchments of the Donaldson, Heazlewood, Savage and Whyte Rivers, plus the lower reaches of the Pieman River. After airphoto interpretation and a literature review, 10 stream sediment samples (from Jones Creek, Roaring Meg Creek, Heazlewood River, Whyte River, Nineteen-Mile Creek, Loughnan Creek, Sabbath Creek, Middleton Creek, Harveys Creek and Longback Creek), one bulk tertiary gravel sample (from Browns Plains) and one bulk beach sand sample (from Pieman River heads) were collected from the area. The results convinced Mount Lyell that no further expenditure was warranted:

The samples were initially sieved at Mount Lyell to obtain the 1.68 mm to 0.30 mms size fractions. Gravity and magnetic separation were carried out in Perth, WA, prior to sizing and microscopic examination by an experienced observer...

The bulk sampling programme on EL26/78 has failed to detect a kimberlitic source for the diamonds reported to have been found during gold-sluicing operations around the turn of the century. Geologically, NW Tasmanian does not appear to be favourable for the formation of kimberlites, which require a stable, thick continental crust...Also the amount of erosion since the Mesozoic would have removed richer upper levels of a kimberlite pipe. The report of diamondiferous 'peridotite' from Bald Hill (Reid, 1921) may also suggest that the diamonds may not have come from a true kimberlite, but instead were formed in zones of high stresses created during folding of the ultramafics...Such occurrences would probably not yield any diagnostic heavy minerals apart from diamonds themselves.

It may also be possible that the grain size chosen for microscopical examination, which was based on Western Australian experience, was too coarse under the local conditions of high rainfall and steep terrain. However, examination of the -0.5 mm fraction would prove to be both difficult and time-consuming, and therefore costly.

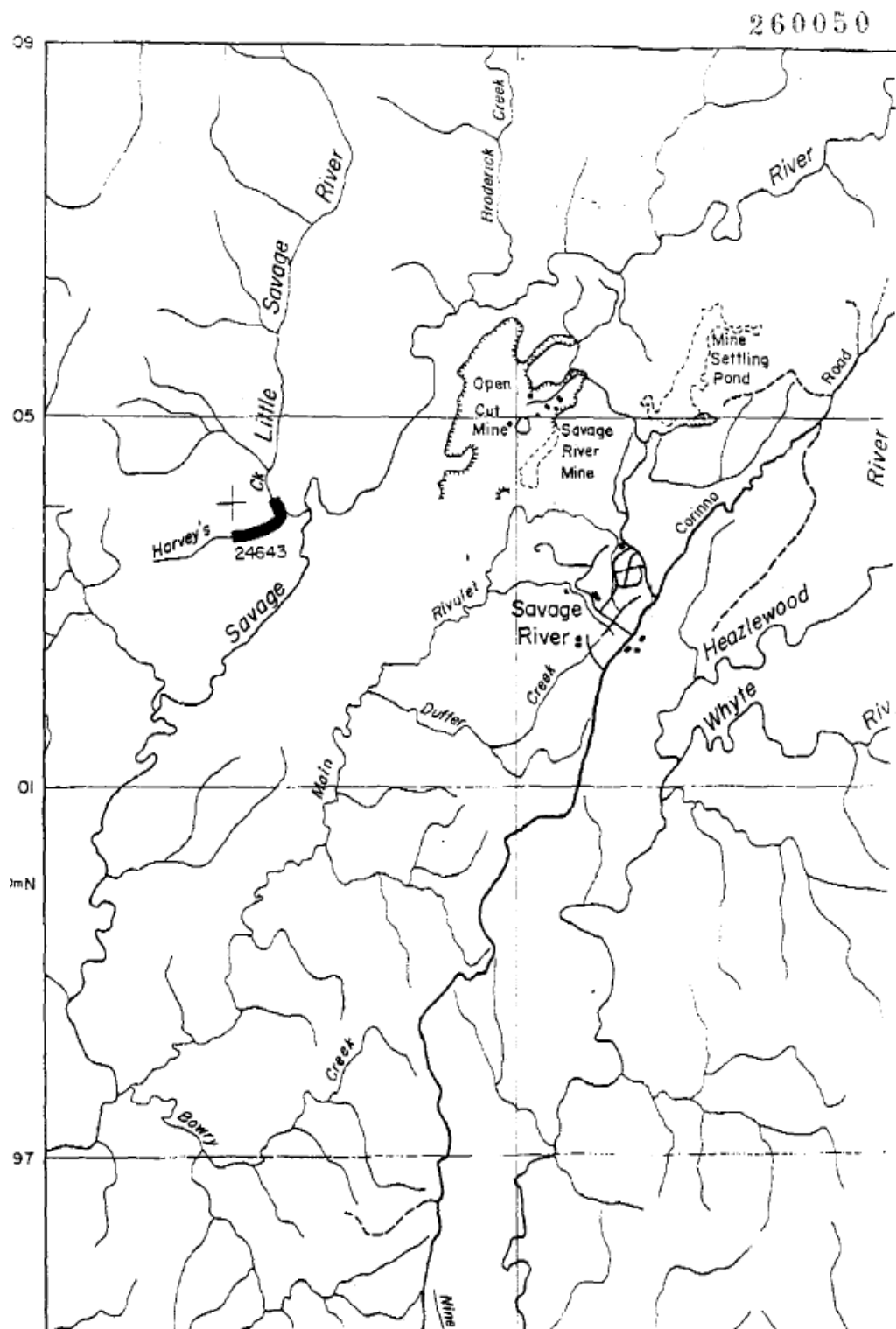
It appears then that the chances of discovering an economically viable diamond deposit in NW Tasmania is remote and any further exploration would be difficult and costly.⁹⁴

⁹⁴ MJ Hutton, *Exploration Licence 26/78 (Tasmania): Pieman: Precious Stones: Relinquishment Report*, Mount Lyell Mining and Railway Co Ltd, 1980, pp.2 and 8.

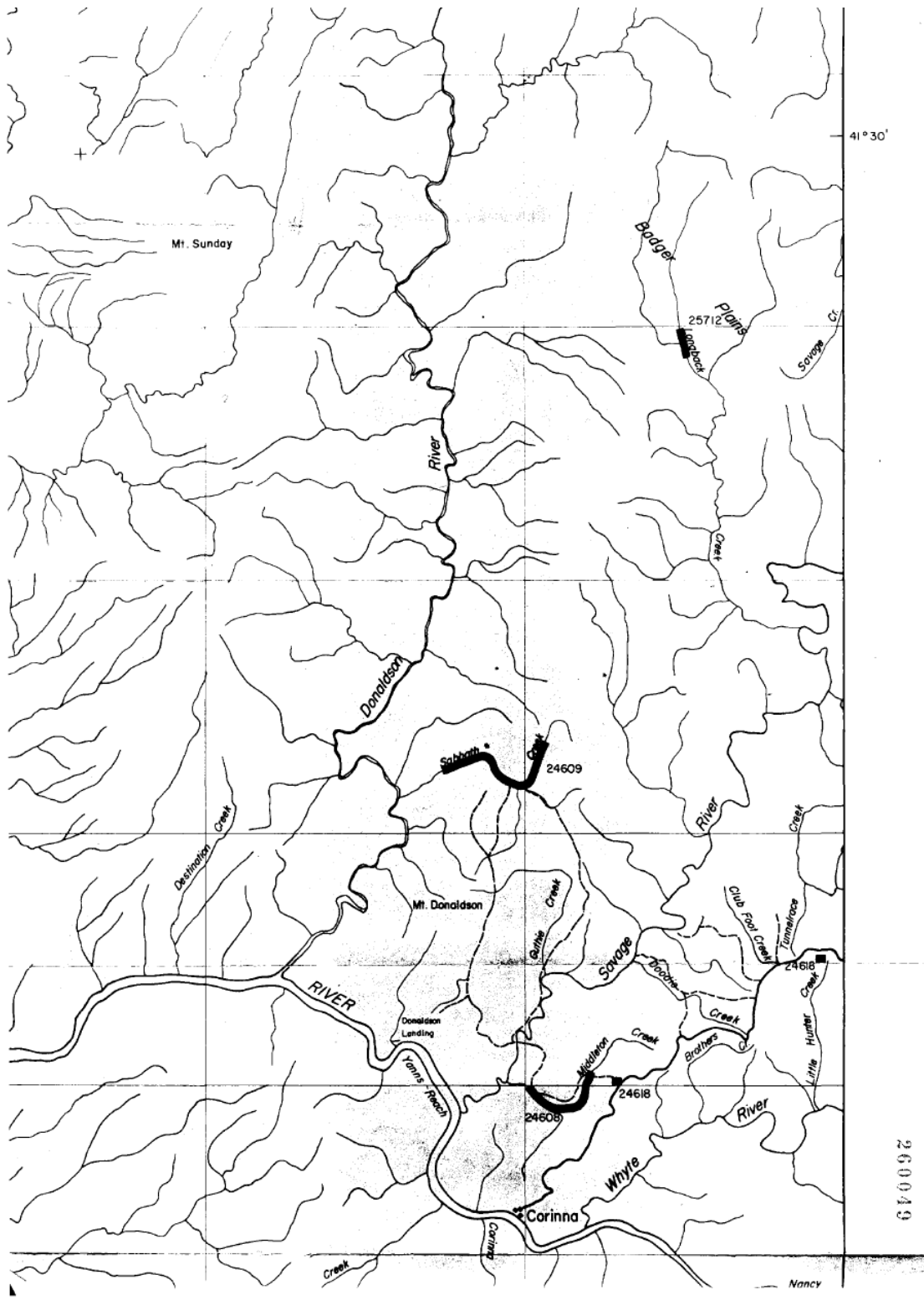
<u>Sample No.</u>	<u>Fraction</u>	<u>Observation</u>
24608 (Middleton Creek)	Non-mag, 0.8-0.5 mm	Chromite, probably kimberlitic, broken octahedron, lustrous centre, pitted surrounds, dull surface.
	9A mag, 0.8-0.5 mm	Predominantly chromite, many possibly kimberlitic. One grain looks like microilmenite.
24609 (Sabbath Creek)	Non-mag	Zircon-like grains, probably topaz.
	9A mag	Full of octahedra of chromite, many slightly rounded-pitted with lustrous core; could be kimberlitic.
24618 (Brown's Plains)	Entire sample	A great number of (probable) topaz. Chromites are mostly matte, pitted surfaces; could be kimberlitic.
24619 (Jones Creek)	All fractions	Numerous chromites
	Non-mag 0.8-0.5 mm	One grain which could be olivine.
24626 (Roaring Mag Creek)	Non-mag	Few chromites.
24637 (Heazlewood River)	Non-mag	Number of chromites, mostly octahedra and a few twin octahedra. No definite kimberlitic.
	5A mag	Number of chromites.
24639 (Whyte River)	Non-mag 0.8-0.5 mm	One bright green grain, like chrome diopside although possibly not emerald enough in colour. A few chromites.
	Non-mag 1.0-0.8 mm	One unknown grain, orange, blocky, no fluorescence.
	5A mag 2.0-1.0 mm	A few chromites.
24642 (Nineteen-Mile Creek)	Non-mag	A number of chromites
	5A mag	Few chromites
24643 (Harvey's Creek)	Non-mag	Small number of chromites One red grain, possibly pyrope?
	9A mag	A number of possibly kimberlitic chromites.
24650 (Loughnan Creek)	Non-mag 1.0-0.8 mm	One orange garnet, possibly pyrope.
	Non-mag 0.8-0.5 mm	Purple pyrope? One orange-pink pyrope? 3 garnets.
	5A mag	Few chromites.

NOTE: Identification of pyrope garnets not verified by G. Blackburn, Consultant Petrologist.

Mount Lyell Co sample results, diamond search 1979-81



Mount Lyell Co stream sediment sample sites for its diamond search 1979-81



Mount Lyell Co stream sediment sample sites for its diamond search 1979-81

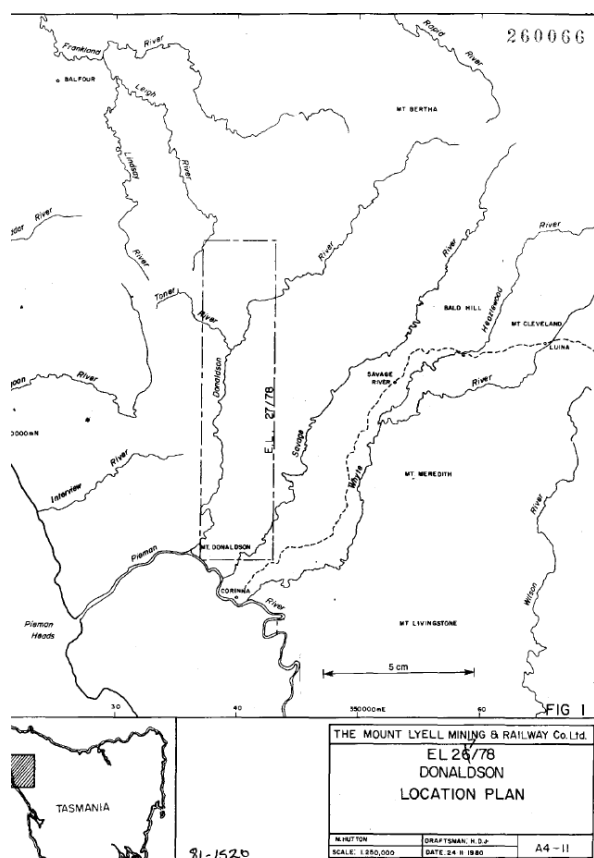
Geochemistry consultant NJ Marshall raised the possibility that the small alluvial diamonds were derived from 'erosion of the folded ophiolite sequence, rather than from any kimberlite intrusive, with its characteristic geochemistry and indicator minerals', and recommended an approach to testing EL26/78 for diamonds which is reproduced in Appendix 2.⁹⁵

In 1981 J Stephens pegged EL26/81 over Mount Donaldson. This was reduced to EL47/82 in the following year, but no work was reported. However, Stephens also took the 3-square-kilometre ML50/82 over the upper part of Sabbath Creek, possibly in search of diamonds.

For 7 years, ML50/82 was held by IH Gregory. In 1989 it was reduced to 30 hectares, and in 1996 it was relinquished.

Mount Lyell's search for all minerals

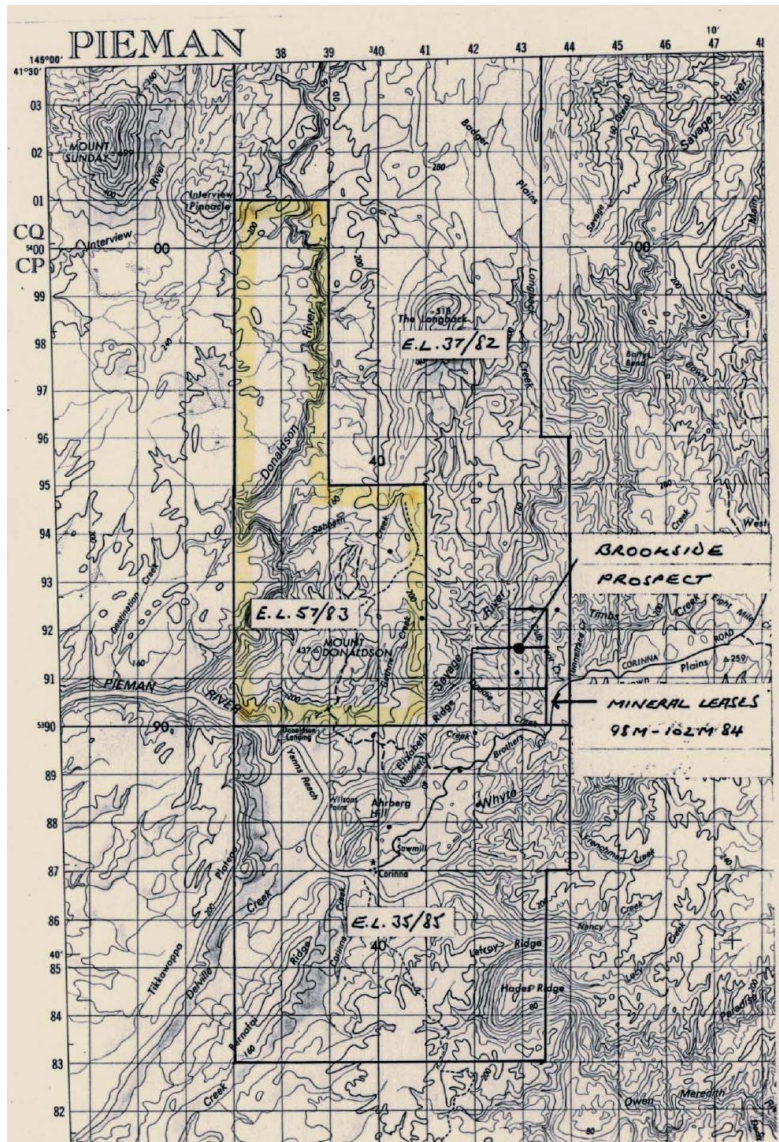
The Mount Lyell Mining and Railway Co Ltd (EL27/78) also took 71 stream sediment samples from the Toner River and Sabbath Creek in the period 1979-81, detecting no anomalous zones but being unable to conclude that the area held no potential for economic mineralisation. 'Massive grey to green dolomite' containing small lenses of pyrite was found in the bed of Sabbath Creek. A 1.2-metre-thick lens of massive pyrite was associated with a nearby float of gossanous ironstone which was traced along the strike for about 100 metres. Dolomite faulted against pyritic black shales probably belonging to the Donaldson Group was found in Guthrie Creek 300 metres upstream from the Savage River. Occasional black siliceous bands were found in the shale resembling the Delville Chert. Hutton concluded that the Sabbath Creek dolomite and Bernafai Volcanics near the Doodie Creek/Savage River confluence demanded more attention.⁹⁶ **Results of sampling are in Appendix 3.**



Mount Lyell Co's EL25/78 1979-81

⁹⁵ NJ Marshall, 'Suggestions for Kimberlite Exploration, EL26/78'; in SAJ Russell, *EL36/96 Pieman 1: First Annual Report for the 11 Month Period Ending 11 December 1997*, Rio Tinto Exploration Pty Ltd, 1997, Appendix 1.

⁹⁶ MJ Hutton, *Mount Lyell Mining and Railway Co Ltd: Exploration Licence 27/78: Progress Report*, Mount Lyell Mining and Railway Co Ltd, 1981, pp.4-5.



Location of Cominex's EL57/83, EL35/85, EL37/82 and Brookside silica prospect

Cominex's EL37/82

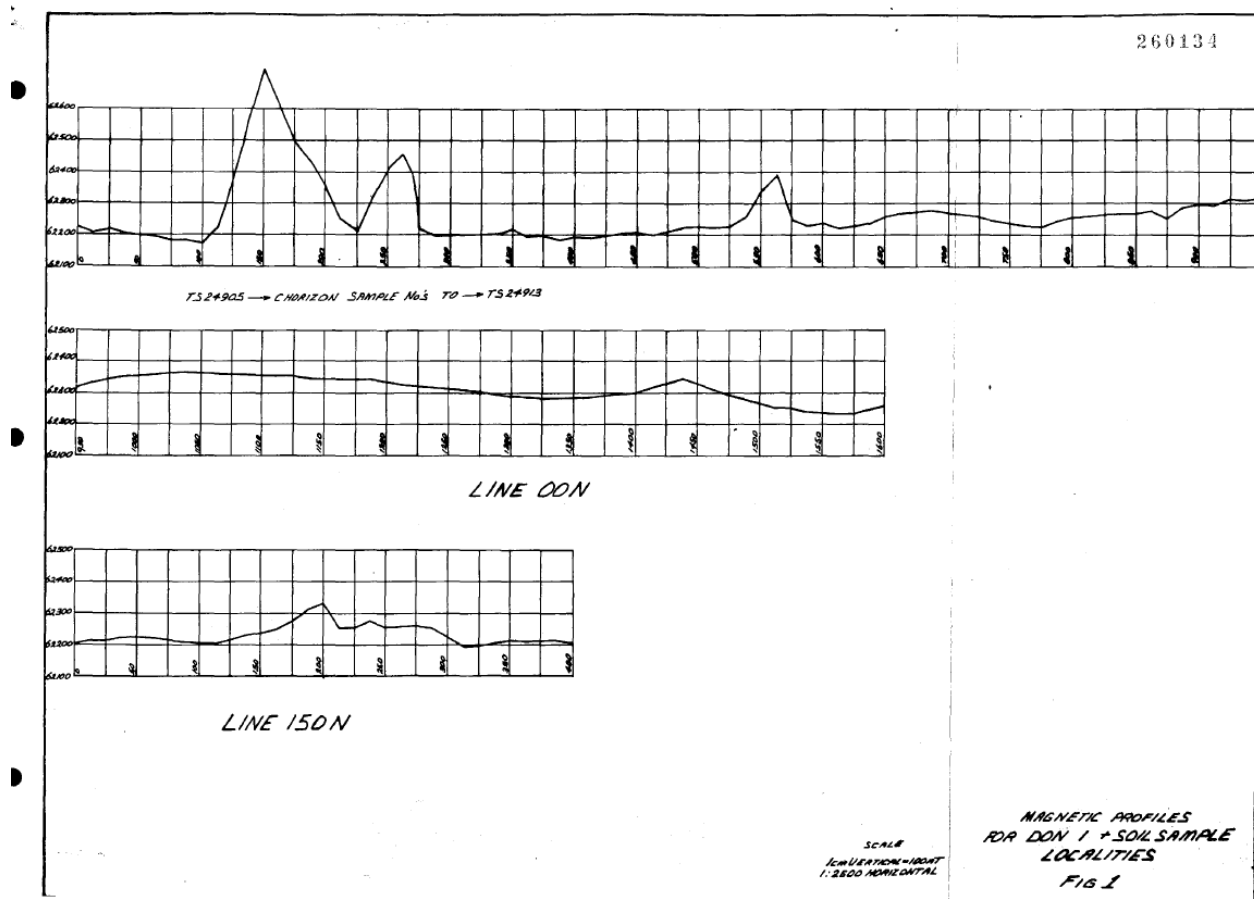
In 1982 the Department of Mines conducted a detailed aeromagnetic survey of north-western Tasmania, identifying a 400-metre-wide anomaly on the Longback. Hugh Nolan's Cominex pegged EL37/82 over the anomaly reportedly 'because they considered it might be kimberlitic'.⁹⁷

Geopeko tests magnetic anomalies: EL57/83 1983-84

In 1983 Geopeko tested the Longback anomaly as a joint venture partner with Cominex. The results were discouraging.

⁹⁷ JG Purvis and Associates Pty Ltd, *Mount Donaldson Diamond Occurrence Western Tasmania*, EL 36/96, 1997, p.3.

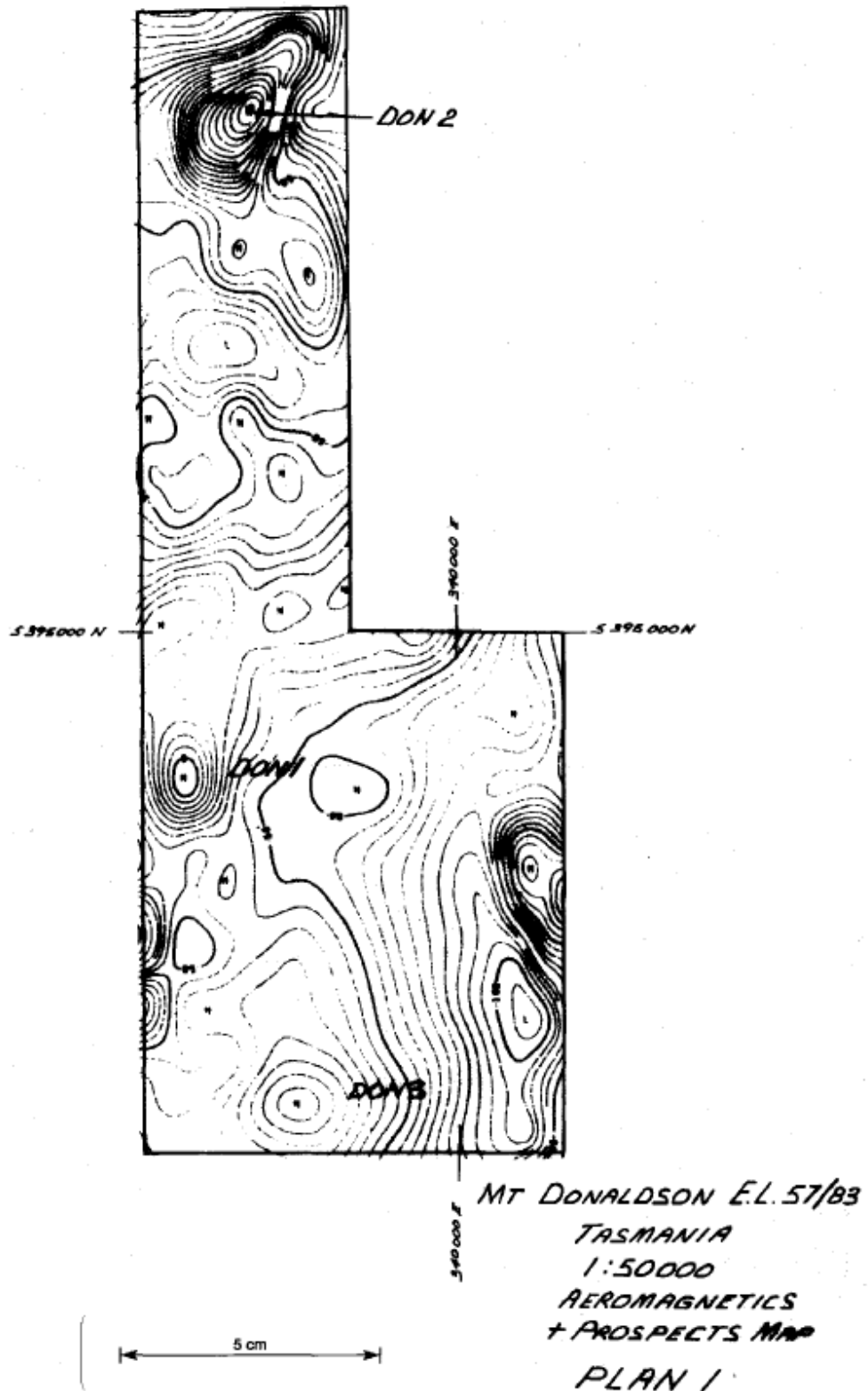
In January 1984, Geopeko also pegged EL57/83, which took in 29 sq km of EL37/82. This embraced the watershed between the lower Donaldson and lower Savage Rivers, including Sabbath Creek, Guthrie Creek and Mount Donaldson. Within its boundaries, Geopeko followed up two magnetic anomalies using a tin skarn model of pyrrhotite magnetite replacement mineralisation. Samples from both Don 1 and Don 2 anomalies were disappointing. The former anomaly was attributed to felsic amphibolite and magnetite bearing siltstone. The latter anomaly was explained by the abundant disseminated magnetite in the outcrop being investigated.⁹⁸



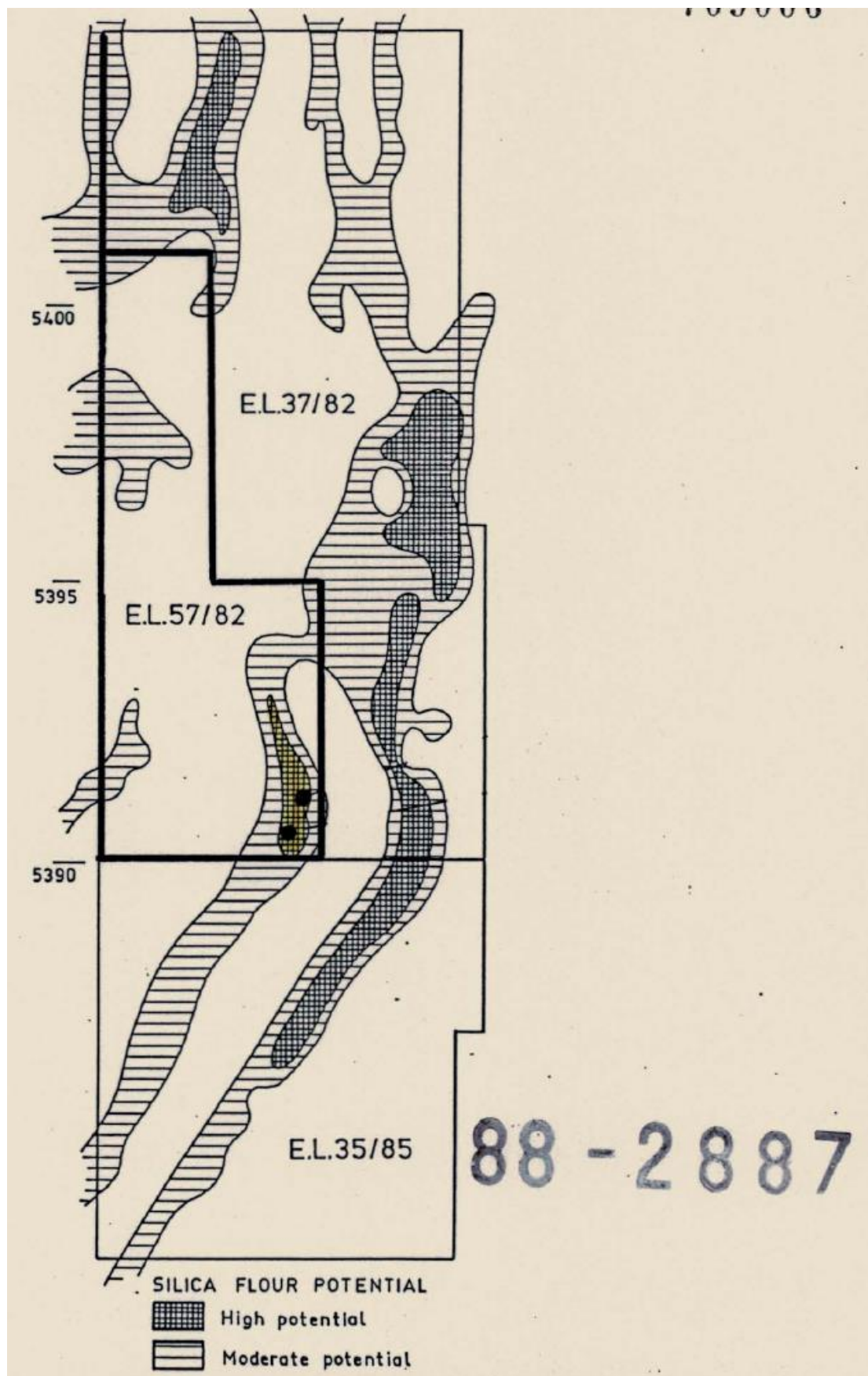
Magnetic profiles for Geopeko's Don 1 anomaly, EL57/83

⁹⁸ J Pemberton, *Annual Report on EL57/83: Mt Donaldson, Tasmania*, Geopeko, 1984, pp.2, 4 and 5.

403017



Location of Don 1 and Don 2 anomalies investigated by Geopeko



Aeromagnetic lows in ELs 57/83, indicating areas of good potential for dolomite bedrock and silica flour deposits.

EXPLORATION LICENCE 57/83
MT DONALDSON

(DATA SUPPLEMENTARY TO ANNUAL REPORT DEC 1988)

MICROSCOPE EXAMINATION OF FIVE
PANNED CONCENTRATE SAMPLES
GUTHRIE CREEK MT DONALDSON

Tertiary gravels hosting ilmanite, chromite, cassiterite, tourmaline and spinels etc, occur through out the area sampled. This heavy mineral suite dominates all five samples examined.

EXAMINATION PROCEDURE

All samples were dried and scanned in total. The samples, which averaged 10 grams were then panned down to a concentrate of approximately 2 grams and dried for a more detailed examination.

Examination was carried out using an Olympus 10-40X zoom binocular microscope.

SAMPLE - DPC101

Predominantly tertiary gravel heavy mineral suite accompanied by locally derived magnetite, hematite epidote, fine silica and minor, although above average quantity of iron, chalco and arseno pyrite.

Four grains of gold, One grain being well water worn, flattened and rich in colour consistent with tertiary gravel gold. The other three grains less rich in colour and less water worn. Their original angular form still evident although rounded on external exposed surfaces. Whilst not chrystalline, their form and colour and the accompanying sulphides suggest these grains may be of local derivation.

SAMPLE DPC 102

Predominantly tertiary gravel heavy mineral suite accompanied by a minor quantity of very fine iron pyrite.

Three grains of gold, Two being of tertiary gravel style, The third being very fine, slightly less rich in colour displaying angular form where intergrown with small quartz particle and water worn on exposed surfaces.

SAMPLE DPC 103

Predominately tertiary gravel heavy mineral suite accompanied by minor quantities of fine magnetite, hematite and epidote of local derivation.

Seven very fine grains of gold. Each being flattened, water worn and rich in colour. Consistent with tertiary gravel gold.

SAMPLE DPC 104

Predominately tertiary gravel heavy mineral suite accompanied by magnetite, hematite and epidote of local derivation.

Two grains of tertiary gravel type gold.

SAMPLE DPC 105

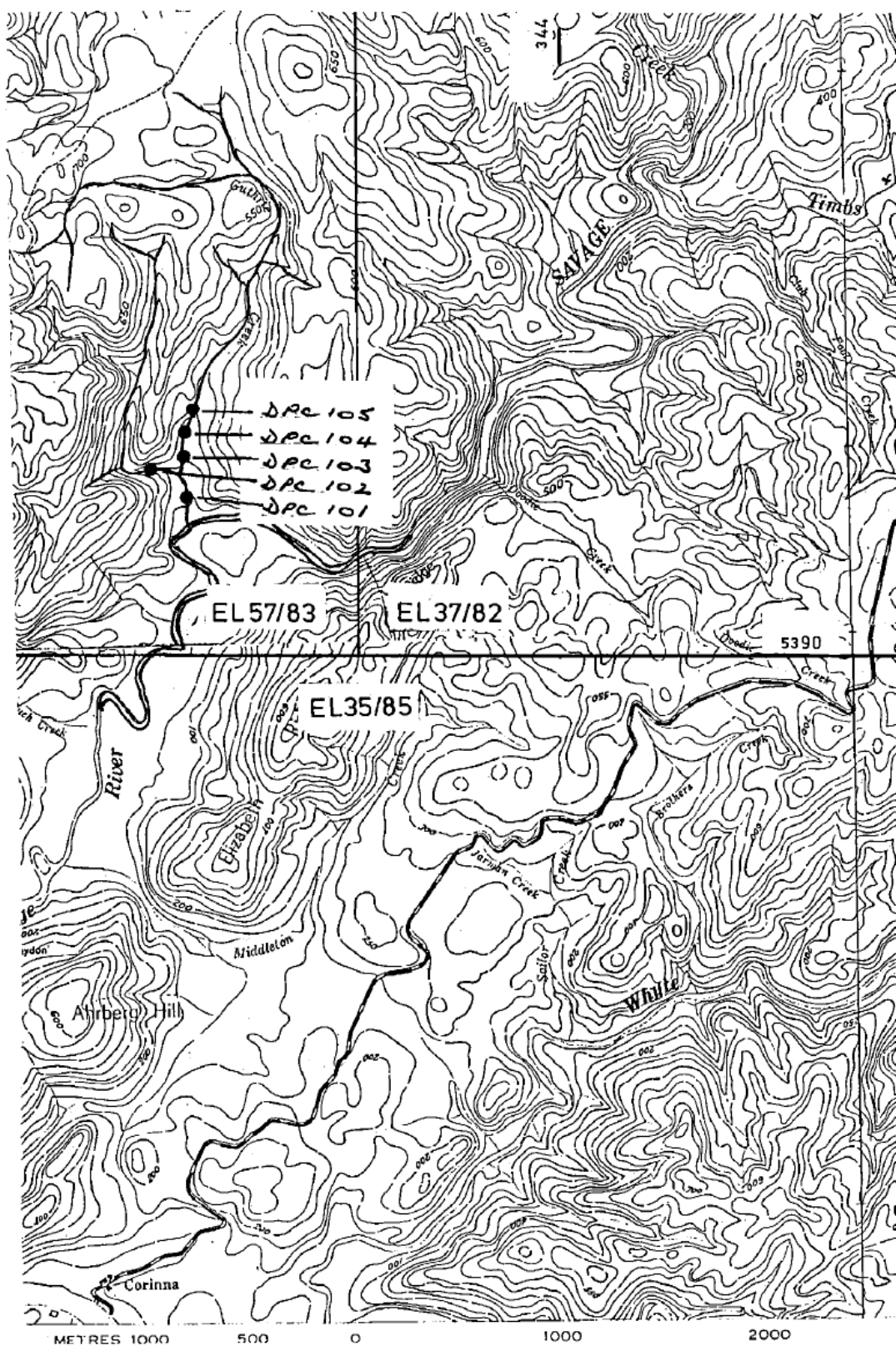
Predominately tertiary gravel heavy mineral suite accompanied by magnetite, hematite, and epidote of local derivation.

Four fine grains of tertiary gravel type gold.

008

E.L. 57/83 - MT DONALDSON
- PAN CONCENTRATE SAMPLING

709009



Cominex pan concentrate sampling sites on Guthrie Creek 1988, EL57/83

Potential of dolomite/mudstone contacts: Cominex and joint venture partners 1985-90

In November 1984, Geopeko transferred EL57/83 to Hugh Nolan of Cominex. Following the discovery of silica flour deposits at the site of the old Brookside gold mine in 1984, Cominex and its joint venture partners EZ (1987-89) and Aberfoyle (1989-90) concentrated on silica, gold and base metals on their EL35/85 (south of the Donaldson River) and EL37/82.

In 1987 high silver-bearing crystalline gold was discovered with an immediate bedrock source in Brookside Creek on EL37/82. This established the importance of the contact between the Savage dolomite and the mudstones of the Bernafai Volcanics and Donaldson Group for gold-arsenic-copper mineralisation.

The Esso magnetic anomalies X9, X10 and X11 were tested, but EZ withdrew from the joint venture in 1989 after no gold values were found. Working for Cominex, Large found that the lower part of EL57/83 consisted of Donaldson Group rocks overlain on the eastern side by Savage dolomite and Bernafai Volcanics. Tertiary gravels covered the majority of the dolomite area. This sequence was terminated by a major north-east trending fault known as the Savage Fault.⁹⁹

In the course of stream sediment and panned concentrate sampling of drainage at these potential contact positions during 1988 it became apparent that the geology was more complex than previously thought, and that the influence of the heavy tertiary gravel cover throughout the area would be detrimental to effective stream sampling. Stream samples taken were regarded as unreliable. It was determined to undertake more detailed geological mapping, followed by a more selective and thorough stream sample programme.¹⁰⁰

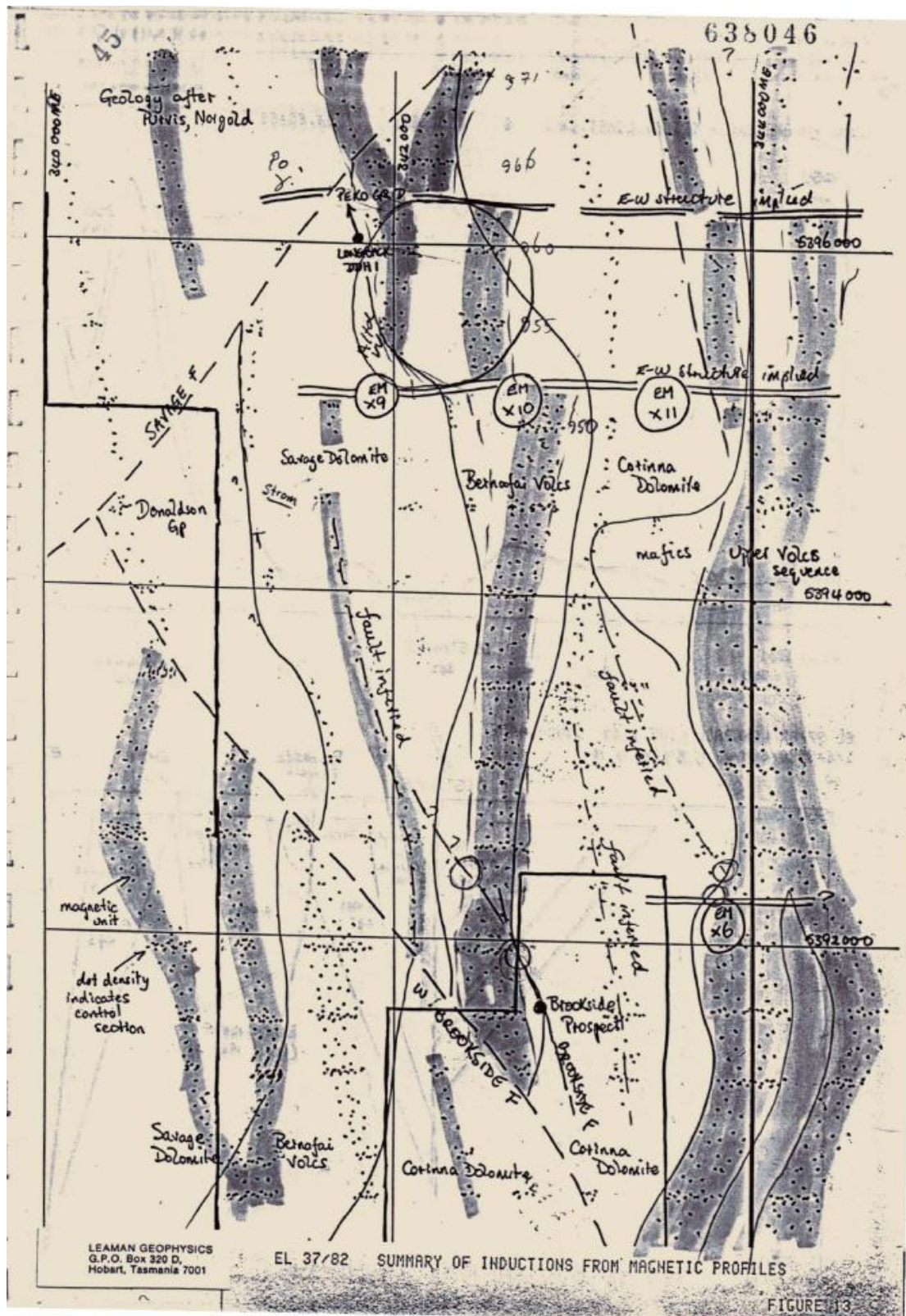
In 1988 the available aeromagnetic data for the region was also reinterpreted by David Leaman for Norgold Ltd, which had become a joint venture partner with Savage River Resources investigating the anomaly identified by Esso at the Longback on EL37/82.¹⁰¹

In the same year, the northern half of EL57/83 was relinquished.

⁹⁹ Ross R Large, *1987 Annual Report for EL57/83*, Cominex, 1988, pp.3, 4 and 5.

¹⁰⁰ HD Nolan, *Annual Report: Exploration Licence 57/83: Mt Donaldson*, Cominex, 1988, p.3.

¹⁰¹ DE Leaman, *EL37/82 The Longback, Tasmania: Review of Magnetic and Gravity Data for Norgold Ltd*, 1988.

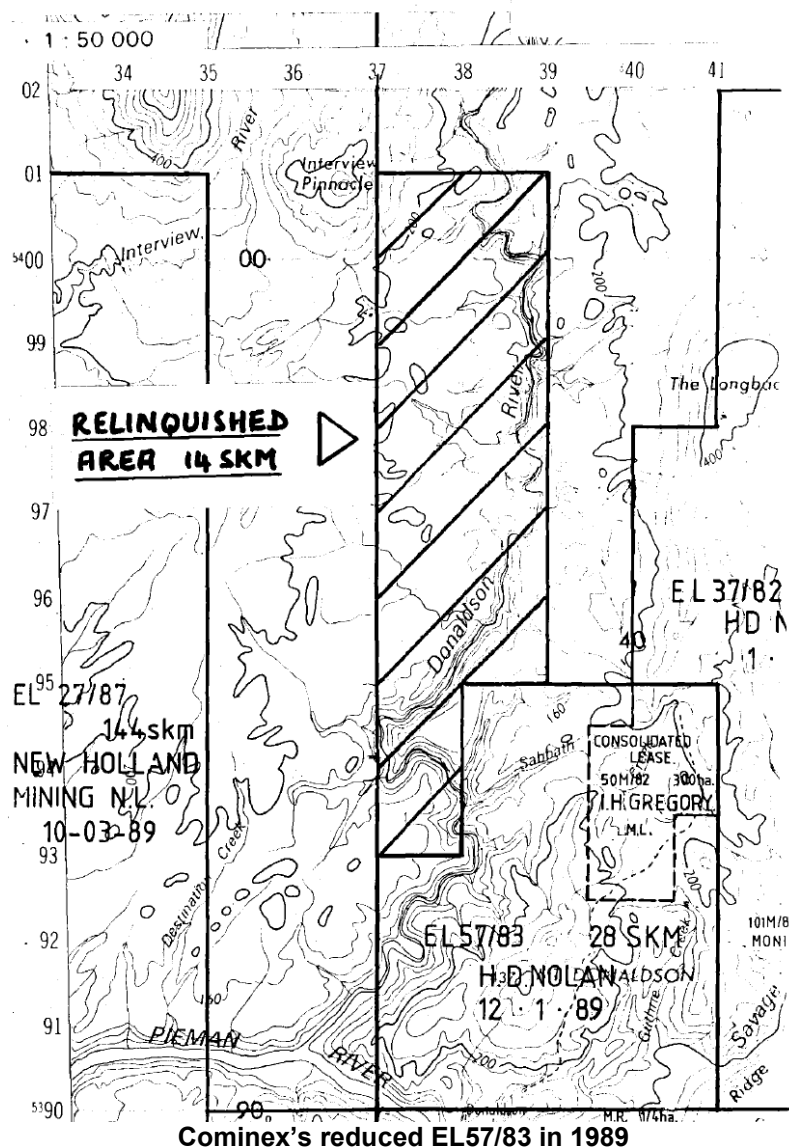


Inductions from magnetic profiles, from DE Leaman, *EL37/82 The Longback, Tasmania: Review of Magnetic and Gravity Data*, Norgold Ltd, 1988, showing Esso magnetic anomalies X6, X9, X10 and X11

In 1989 Aberfoyle conducted a limited stream sediment survey of the dolomite/mudstone contact on the south-eastern slopes of Mount Donaldson in search of Brookside-style gold. Samples were assayed for copper, gold, arsenic, silver and mercury. Anomalism for these elements, and the presence of primary crystalline gold in panned concentrate samples, were seen as positive indications for gold mineralisation similar to that of the Brookside prospect. **Results are in Appendix 4.**

Geological mapping was undertaken in conjunction with stream sampling in Guthrie and Unnamed Creeks. The geology of the two creeks was found to be virtually identical. The Savage dolomite outcropped near the Savage River. Further west

the Savage Dolomite grades into a massive to strongly cleaved black meta siltstone with occasional graphitic interbeds and quartz stockworks. Thin section analysis suggests this siltstone to be dolomitic sediment totally silicified during post-diagenetic alteration and is most probably a lateral facies variation of the Savage Dolomite. This, weakly brecciated, chert bands are also common with in the siltstone. Further west the siltstones are in contact with strongly bedded, quartz-rich sediment of the Donaldson Group. Mostly sandstone and quartzites with occasional conglomerate units (seen only as a float) this unit can be traced to the summit of Mount Donaldson. Bedding appears to strike essentially north east with moderate to shallow dips in a south easterly direction.



Cominex's reduced EL57/83 in 1989

'Weak stratabound pyrite mineralisation' was detected in samples of graphitic mudstone within the Savage dolomite. Apparently gossanous outcrops also appeared in the siltstone sequence of this dolomite. Close examination of these outcrops indicated a 'botryoidal accretionary filling texture indicate of a pseudogossan, formed during precipitation of Fe-rich groundwaters.' The absence of fresh sulphides or 'boxworks' was said to support this conclusion.

A weakly anomalous gold assay from a Guthrie Creek stream sample was related to the crystalline gold in panned concentrate taken from the same area. The crystalline nature of the gold grains suggested a close proximity to bedrock source. An anomalous zinc assay in pseudogossans taken from Unnamed Creek was attributed to secondary enrichment of supergene leaching. No explanation was arrived at for anomalous amounts of crystalline cassiterite being found in concentrate samples taken from None Such Creek. It was recommended that further stream sediment sampling be undertaken on the dolomite-mudstone contacts further north of the area sampled and east of Savage River and that further testing be conducted in the locations which produced the anomalous samples above.¹⁰²

From February 1989 lease 57/83 was held as a joint venture by Aberfoyle and HD and AN Nolan as the Brookside Joint Venture. Exploration from then until the surrender of the lease in 1990 was

primarily directed at the potential of calcareous rocks of the Precambrian sigma Group for possible carbonate hosted Au mineralisation, previously undiscovered in Tasmania. The occurrence of fine microscopic crystalline Au in weathered dolomite in close proximity to faulting were seen as evidence to support fault related model for possible Au mineralisation. This model was used as a basis for exploration...

Twenty-four samples of dolomite from the Corinna district, representing the different styles of silicification present in the area, were selected for low-level gold determination. Analysis was conducted by X-Ray Assay Laboratories in Toronto, Canada, using a radiochemical neutron activation technique. The same samples were also assayed for SiO₂ and CaO content. It was hoped that a positive correlation would be found between SiO₂ content, depletion in CaO content and increase in Au. Such a correlation could have been seen as evidence to suggest that the regional silicification of dolomites in the Corinna district may have also introduced precious metals during hydrothermal replacement of carbonate. No correlation was found.¹⁰³

Dolomite samples representing the various styles of silicification were also submitted to Khin Zaw at the Centre for Ore Deposit and Exploration Studies at the University of Tasmania in Hobart. These samples were to be examined for fluid inclusions and the temperatures of homogenisation and fluid chemistry determined. Results from this study confirmed earlier work by Allen (1988) which suggested fluid inclusion temperatures up to 313°C. Evidence of boiling however was not detected, precluding the possibility of an epithermal event causing the intense regional silicification of dolomite. Zaw described

a progressive cooling of the hydrothermal system in which earlier quartz/carbonate veins appear to have formed from higher temperature fluids of approximately 300°C. These veins were followed by pervasive silica replacement of carbonate at a somewhat cooler temperature range between 150-250°C. The disaggregation of the silicified dolomite to form silica flour

¹⁰² RJ Henham, *Exploration Licence 57/83: Mount Donaldson, Tasmania: Report on Exploration to 12th January 1990*, pp.3, 6-10.

¹⁰³ RJ Henham, *Brookside Joint Venture: Corinna District, Western Tasmania: ML's 98-102M/84 Brookside, EL35/85 Corinna, EL22/88 Newdegate Creek and EL57/83 Mt Donaldson: Final Report on Exploration, August 1990*; in RJ Elson, *Aberfoyle-Cominex Brookside Joint Venture: Final Report of Exploration on Surrender of EL57/83 Mt Donaldson and EL22/88 Newdegate Creek and Partial Relinquishment of EL35/85 Corinna, Aberfoyle/Cominex, October 1990*.

can be related to secondary inclusions which yielded filling temperatures of <150°C. These secondary inclusions were apparently misidentified as primary inclusions by Piaszczyk (1989) thus explaining his lower than expected homogenisation temperatures of 125±4°C.

The fluids were enriched in CO₂, suggesting a magmatic source to the fluids, although fluids of metamorphic origin cannot be ruled out.

Microscopic analysis of the gold grains results in average fineness of the crystalline gold of approximately 920. Only minor amount of Hg and As were detected.¹⁰⁴

Cominex relinquished EL57/83 in October 1990.

RioTinto's EL36/96

This 44-sq-km tenement was taken out to explore economic diamondiferous pipe-like structures. Work consisted of a literature review by RG Purvis & Associates Pty Ltd, and purchase and analysis of MRT's North West 1996 aeromagnetic survey data. No fieldwork was conducted. The survey data showed a bullseye anomaly near Longback Creek, north of Sunday Creek, which had apparently not been tested for diamonds. There were also two weak bullseye anomalies north of Sabbath Creek:

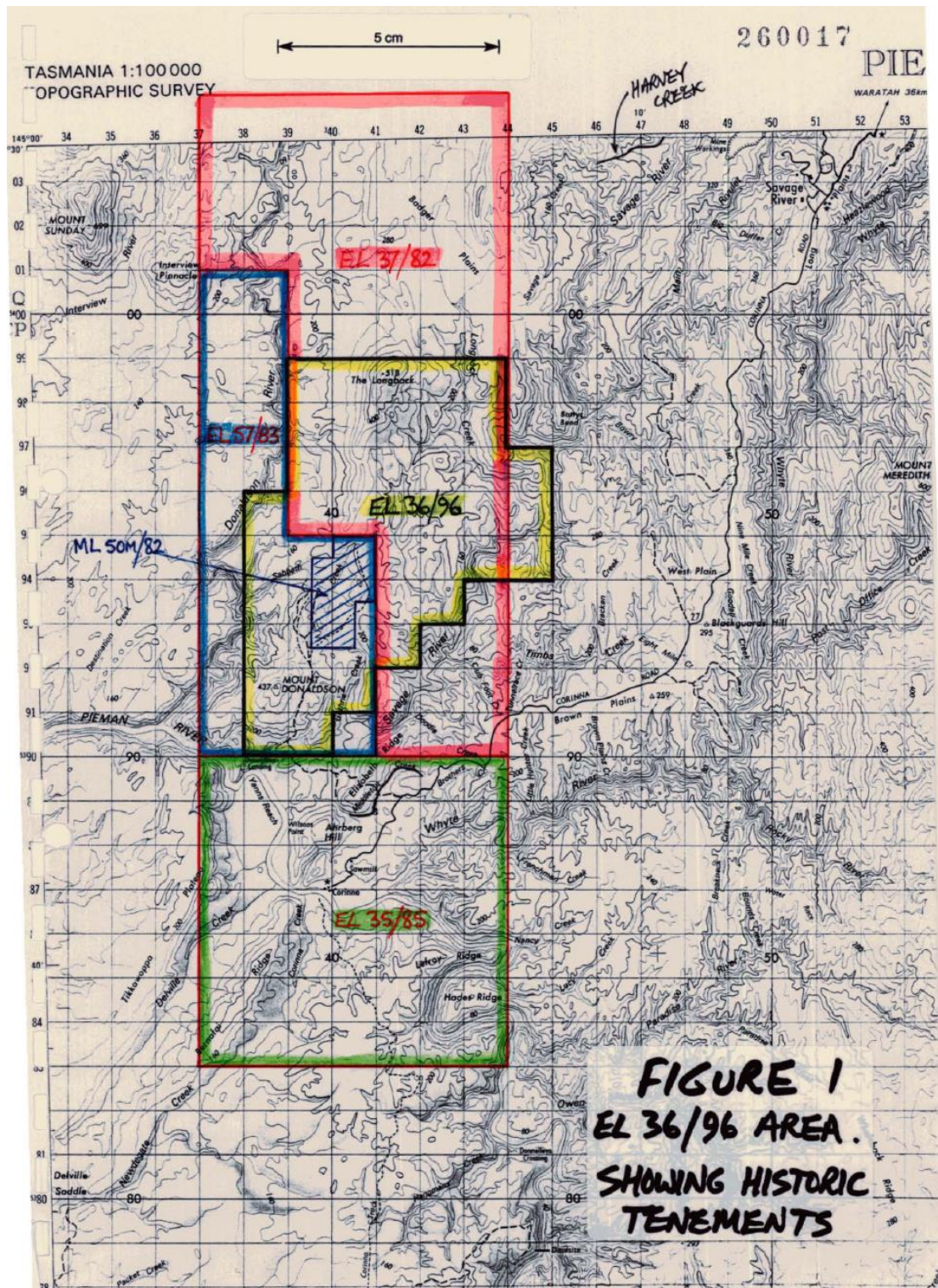
These were modelled as moderately east dipping cylindrical bodies, with depth to source from surface or near surface to 120-140m.

There was insufficient encouragement to test the anomalies further, and the lease was relinquished in 1998. It was concluded that

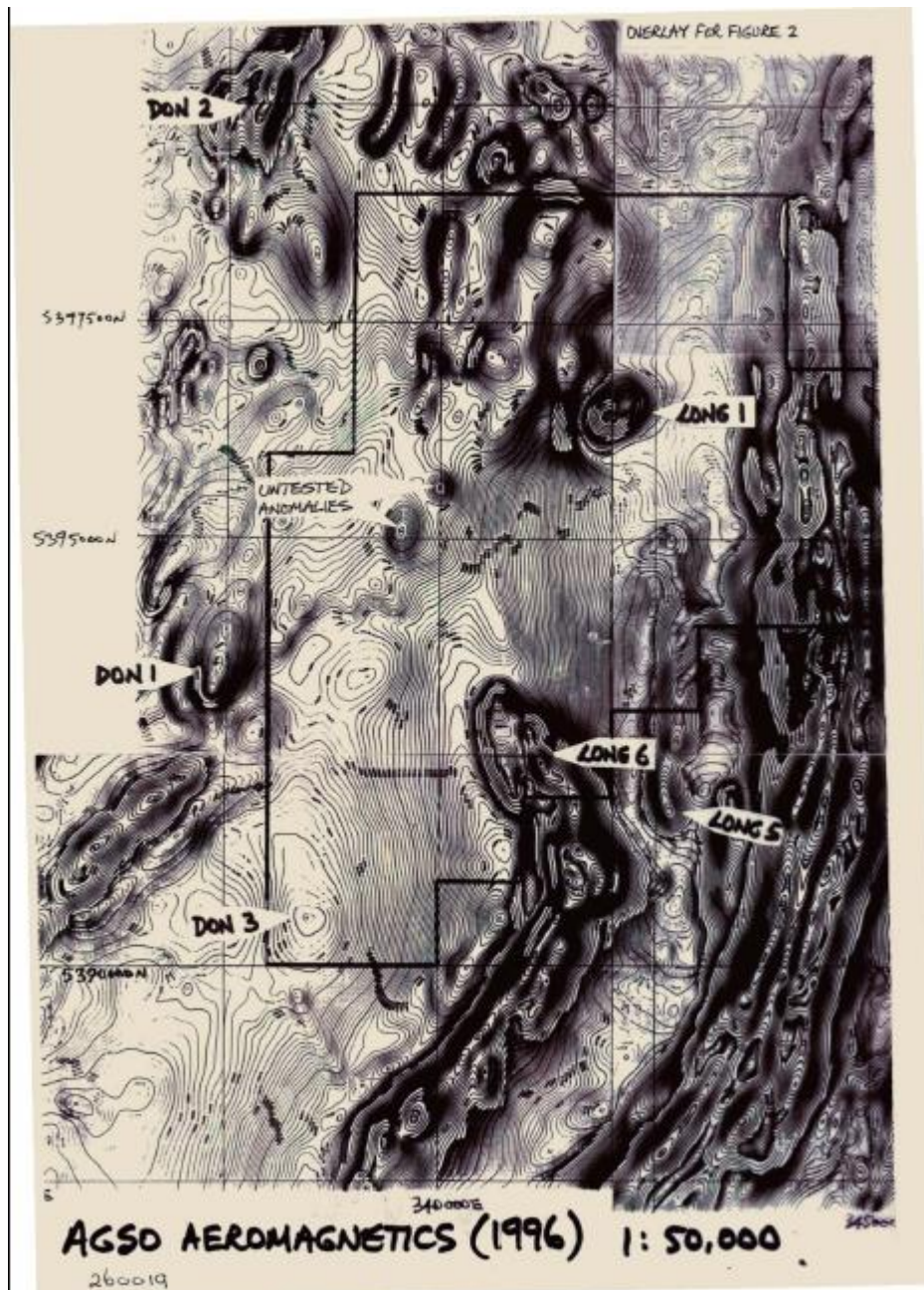
widespread auriferous Tertiary gravels contain a heavy mineral suite dominated by limonite, chromate, spinal and topaz, and are probably the source for diamond.¹⁰⁵

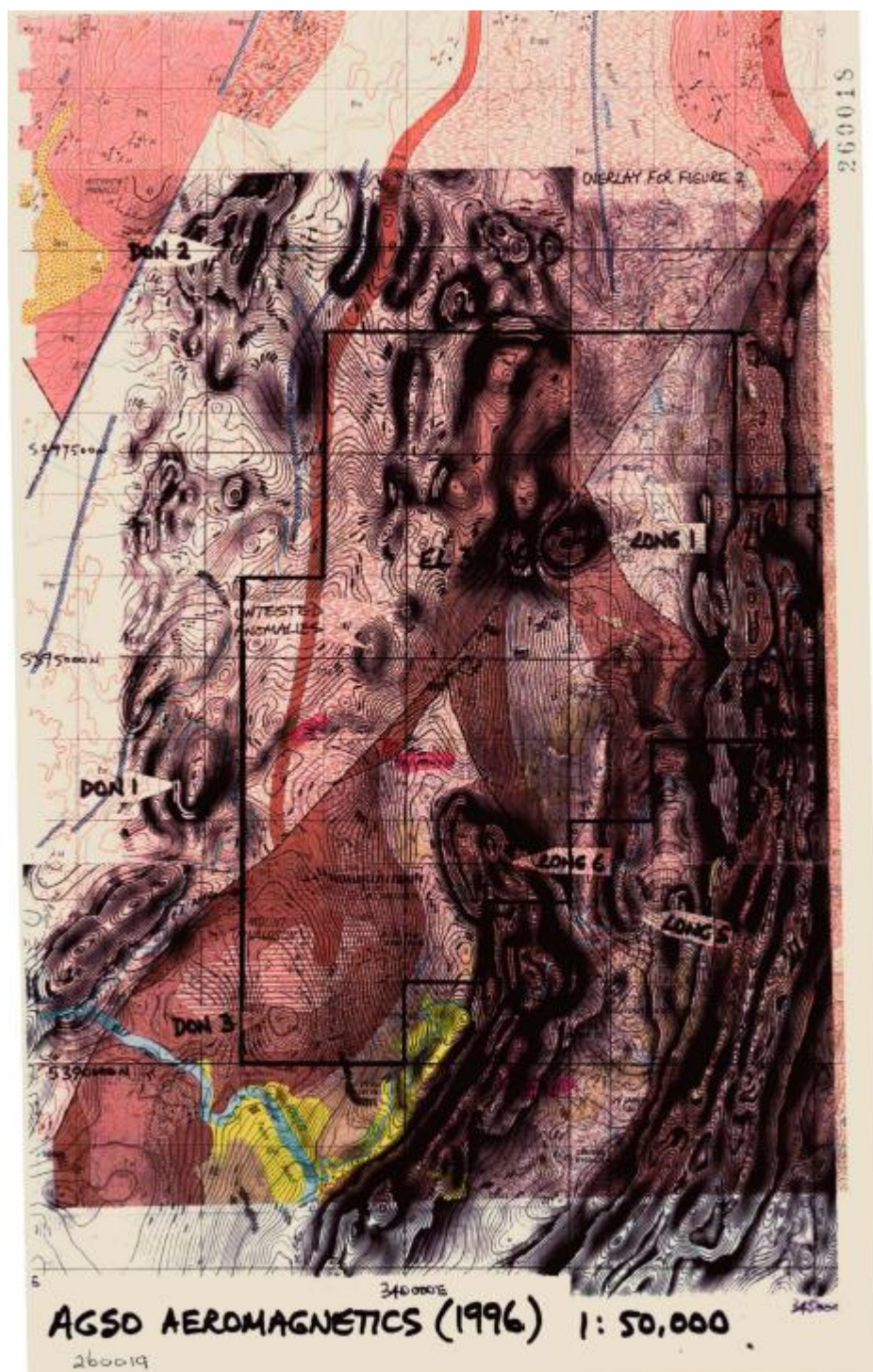
¹⁰⁴ Khin Zaw, 'Fluid Inclusion Study'; in RJ Elson, *Aberfoyle-Cominex Brookside Joint Venture: Final Report of Exploration on Surrender...*, Appendix B.

¹⁰⁵ TF McConachy, *EF36/96 Pieman 1: Final Report and Incorporating Work Done for the Period January to May 1988*, Rio Tinto Exploration Pty Ltd, Perth, 1998, pp.1-2. For the literature review, see SAJ Russell, *EL36/96 Pieman 1: First Annual Report for the 11 Month Period Ending 11 December 1997*, Rio Tinto Exploration Pty Ltd, Perth, 1997.



Rio Tinto's EL36/96 in relation to previous mining tenements.





McDermott Mining's EL26/2006

In 2006 McDermott Mining took out EL26/2006 covering 20 sq km of the Donaldson River area between Mount Donaldson and the Longback. The company was eager to follow up at least two significant anomalies identified by Cominex/Geopeko's drilling program during the 1980s. Interpretation of aero-magnetic data by Southern Geosciences Ltd revealed a further striking anomaly west of Sabbath Creek, but little on-ground field reconnaissance was undertaken. The exploration lease was relinquished reluctantly in 2009 because of financial constraints and the need for McDermott Mining to concentrate its efforts on a tin lease. The company concluded that a number of interesting drill sites remained on EL26/2006.¹⁰⁶

Stellar Resources EL44/2006

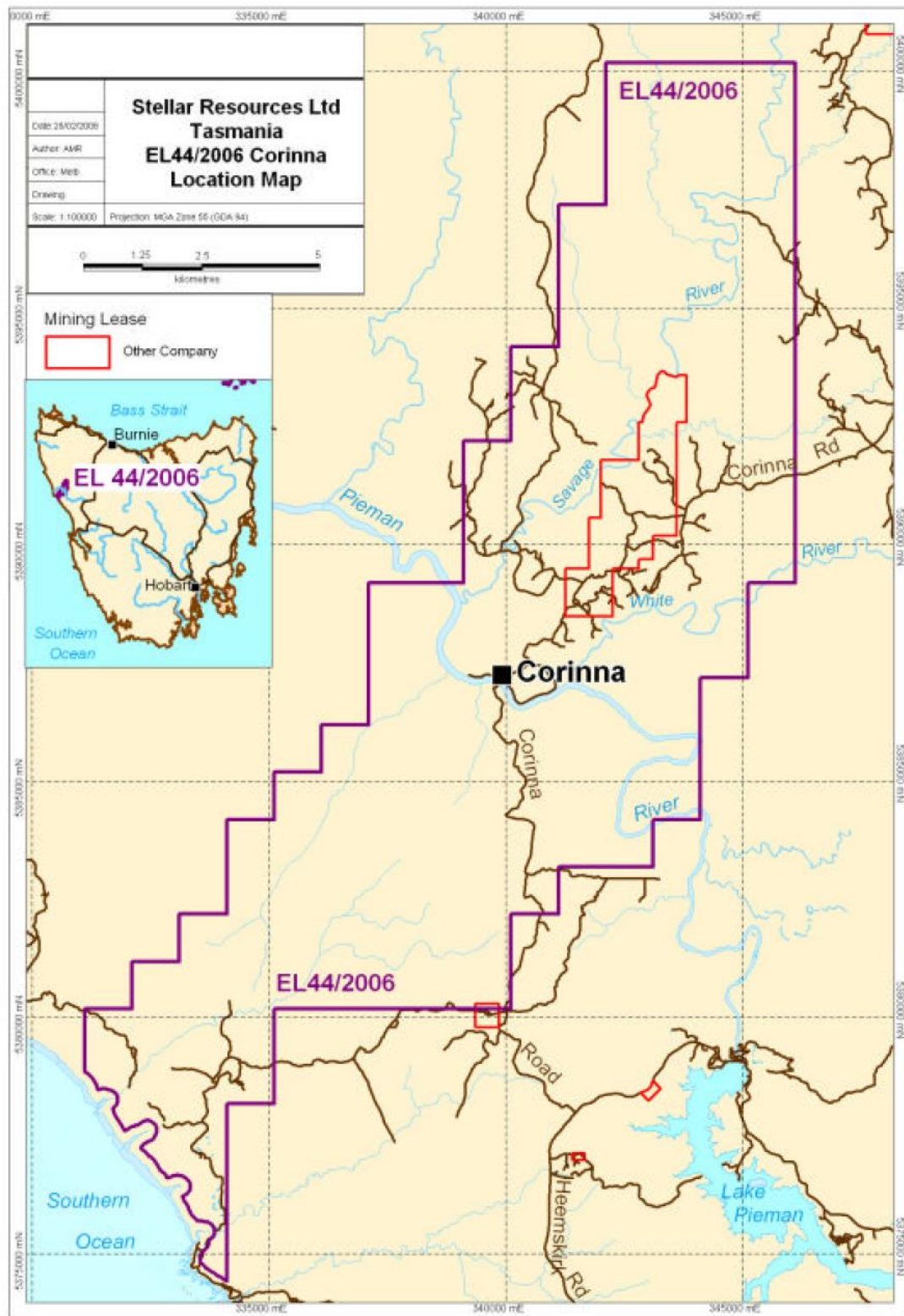
This lease, which enclosed Cominex's silica mining lease, was taken out to explore the gold, copper/magnetite, copper/gold and silica potential of the lower Pieman River area. A review of historical exploration data was conducted and geophysical data was interpreted. Little fieldwork took place.

The review revealed that most previous exploratory work had consisted of panned heavy mineral and stream silt sampling, followed by rock chip and soil sampling on cut grids. So far as the lower Savage and Donaldson Rivers were concerned, exploration had been targeted at alluvial gold mineralisation sourced mainly from Tertiary gravels overlying Savage dolomite in the Brookside area, and reported epithermal gold hosted in silicified Savage dolomite. Still, large areas in the lower Pieman region had received no attention.

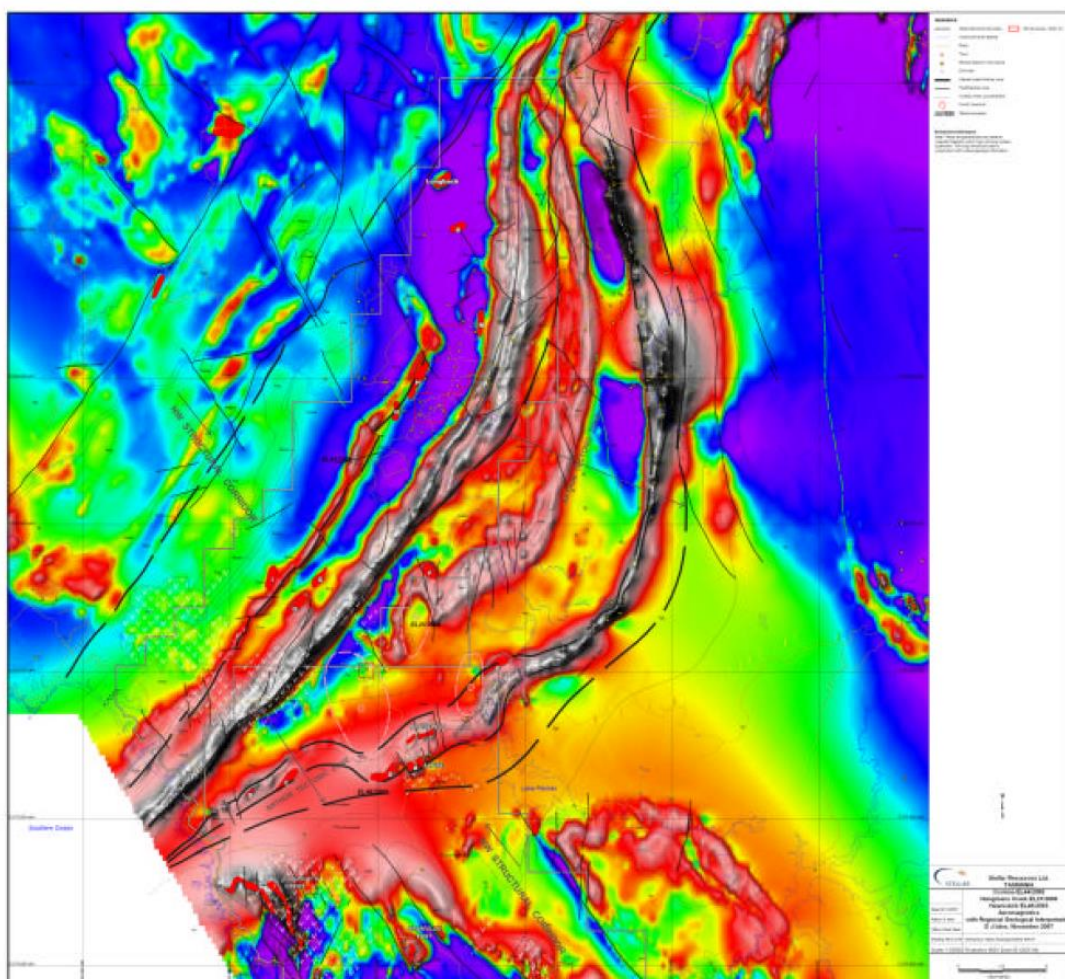
At the time of the Stellar Resources EL, the silica market became depressed and the company became aware of increasing sensitivity to mining in the Trine area. EL44/2006 was relinquished in 2009.¹⁰⁷

¹⁰⁶ Kim McDermott, *Annual Report for EL26/2006 Donaldson River*, McDermott Mining Pty Ltd, 2008, p.3; Kim McDermott, *Relinquishment Report for EL26/2006 Donaldson River*, McDermott Mining Pty Ltd, 2009, pp.1-4.

¹⁰⁷ RK Hazeldene, *EL44/2006 Corinna: Final Report Relinquishment*, Stellar Resources Ltd, Melbourne, 2009, p4.



Stellar Resources' EL44/2006 held 2006-09, showing Cominex's enclosed silica lease north-east of Corinna



Aeromagnetics, EL44/2006

Appendix 1: TB Moore at the Donaldson and Sunday (Sabbath) Creek 1879-80

Mon 3rd [Feb 1879] Started along Timb's track to Mt. Donaldson, prospecting creeks along course a little gold in most of them there being plenty of quartz in a slate country. Camped at stream which should be marked on the charts as the Donaldson only about five miles from the diggings, but most of the way being through bad horizontal. Very badly cut through. Had a feed of eels. Fine.

Tue 4th. Made the Savage R commonly known as the Donaldson prospecting as I went but do not like the formation of the country after passing the D.R. proper. Left timb's track after getting into open country by Mt. D. & took a more westerly course. Savage R runs between steep bank where I crossed had work to get a camp. Fine

Wed 5th Had a very steep pinch out of the Savage mostly through bauera & cutting grass then got into open country by Mt. Sunday which continues all the way to the Pieman Heads. About here are the greatest number of quartz reefs I ever saw running E & W, all being coarse stone, tried a few creeks but without success. Bogs caught three wombats. Camped three miles from Heads. Fine.

Thurs 6th Feby In at heads early trying a few creeks on...[?].a little...[?].that is all water very scarce all the creeks dry had to walk a mile to wash a prospect Speiro in River with the water lilly, Andrew gone the day before

Letters M.E.M and G.A via Bischoff with G Meredith Only Summers Allwright, Webster Speiro & Mate at township stopped Allwrights Fine Had some Pieman potatoes.

....21st [June 1879]

Struck N.W. for button grass came into some splendid looking creeks running into the Donaldson on one of which there is a splendid bed of pine some trees being quite four feet in diameter. Fine

22nd Mon Fine. Out prospecting wombat first creek got good payable gold sunk 7 holes getting over a grain to the dish...[?].

23rd Tues Out early in same creek up to the head good prospects 2¼ grains to dish obtained £169 [?]. Fine 2 Wombats.

24th Wed Prospected creek below our first holes but round it not so good, also another branch a regular duffer. Pine Creek turned out similar. Fine

25th Thurs Shifted camp to our creek & did a little clearing Raining.

26th Fri Went in for rations & tools which we obtained mostly from the Emu Bay Co Strong head wind & a good sea on going down. Postman Long and ...[?].(a constable) had just gone down before us. The latter had come to seize the Glenora tin & Emu Bay stores. Left boatman & E.Mathews the latter gave us the key & told us to help ourselves. Raining. Left dog behind with a good feed.

27th Sat Raining & blowing. Pointing pick & grinding spades etc

28th Sun Started back for camp with about 3 cwt. 3 hours to Donaldson Camp where we put the fly up, took good loads on with us, met Spero on the road quite well Fine Heavy frost

29th Mon Went back to fly for two more loads & returned by two oclock Found poor old Wanderer dead at the fly the heavy frost must have killed him together with the want of a bed to keep him warm We dug him a grave & I felt as I put him in as if I had lost one of my dearest friends. Back to the Camp by two & set to work cutting a box out of a tree. Fine frosty

30th Tue Up early [?] finished box & false bottoms. Fine

1st July Wed Finished box stripped a paddock, threw up some dirt & had about 2 pounds washing. Fine frosty. Very short of water —

2nd Thurs Washing all day water short Cleaned up 13 dwts with sand

3rd Fri Cleared the creek of scrub up to our first ground. Fine

4th Sat Went into the main diggings for letters, & brought the remainder of our things out Foster...[?].a place for hut. Fine frosty

5th Sun Put tent on logs etc Raining.

6th Mon Washing all day. Wet

7th Tues Fixing hut & striping [sic] Fine

8th Wed Washing Wet

9th Thurs Washing & stripping Fine

10th Fri Do [ditto?] Went into hut [?]

11th Sat Do. Good ground. Wet.

12th Sun. Fixing hut. Fine

13th Mon Stripping half day Washing with half sluice head Raining 5½ dwts Foster cleaned up all a little over 3½ ounces

14th Tues Washing all day on hut side 6½ dwts. Wet

15th Wed Washing all day 6 dwts 18g Wet

16th Thur Washing & stripping middle paddock 7 dwts Showery

17th Fri Stripping all day & Foster cleaning paddock up which we put through & through wash up. Fine. 4-16-9 [? – 4-16-oz?]

18th Sat Washing up all day on hut side paddock at junction of small creek, cleaned up without bottom 17dwts 9 grains. Harvey & mate came to our camp just as we finished dinner, had a long pitch, they being prospecting & are going to look round about us. Fine. All the gold 5 oz, 13-7

19th Sun Finished chimney & are comfortable at last. Harvey & mate at Camp about 12 o'clock leaving their tools & some tucker at our Camp Fine.

20th Mon Showery. Stripping & washing in afternoon, only washed 5 dwts.

[no entries for rest of July]

August

Behind hand in writing up [?]

1st Aug Dam making Fine

2nd Sat All hand dam making Fine

3rd Sun Fine

4th Mon Pevors party came about dinner time & measured ground off. Went down to the Heads to apply for water Right to secure our dam Meredith & Allwright away at N [?] Pieman Co Fine

5th Tue Wrote out form for Application & Back to Camp. Fine

6th Wed Over to Pieman at old Camp of Mt Donaldson. At dam in afternoon Fine

7th ...[?]...Light rain At Dam

8th Fri at Dam light rain

9th Sat Fine At Dam Cold

10th Sun Wrote to G.A.R. M.E.M. I.L.A.M. & K.H. Raining

11th Mon Stripping Plenty of water Wet

12th Tues Strip small lot of water

13th Wed Breaking dirt fine only 3 dwts

14th Thurs Went out with the dogs followed spur about in...[?]...course up Donaldson & Savage R...[?]...a very bad bit of bauera to break through & he hit a track running along top of spur to open country which seems to continue to the Arthur R. donaldson R has button grass flats running up the E side to open country a little timber being in the creeks. Spero caught one wombat. We all having had no meat or tobacco for more than a week. Slight showers.

15th Frid Stripping all day. Rainy...[?]...

16th Sat [Aug 1879] Webster & I went first to store on Savage, then down to the Heads in hope of finding the craft in but were disappointed. First trial on the Pieman had taken place this morning Judd brought before warden for selling grog. Wet

17th Sat Started track with some flour, had fair breeze up two reaches [?] but could not reach Tinto [?] camp before dark. Donaldson too flooded to pull up. So made a fire & camped till morning it raining all night. Got names to petition to G. Mered.

18th Sun Wrote a petition to Commission in morning after we arrived at camp. Then started off for savage geting [sic] names all along our rout [sic] going down Gutheries Creek. They had been living on castor oil & Bread. Got to Stores [?] about dark but could not get a boat to cross so traveled down Savage to Pieman & Leslie came down in a boat for us. Got a lantern & made up to Allwrights from there had a nice trip up to Baileys & Cissen's [?] where we arrived about 1 o'clock finding Byrns camp there. Wet

19th Tue Made up to GC Cuvers [?] where we found all the rest. Waiting G. Meredith Long. 11 in all. Made Browns plain & camp at Long's some of the others staying at the Chinaman's Hay's, Marney & Tim Mackey [?] came up in the evening having come from the Heads. Raining

20th Wed 16 of us started...traveling through 5 miles of bauera then geting [sic] on to the long plains over which we went 4 miles to Byrns camp. Left Judd & another behind.

21st Thur Had diner [sic] at the deep creek which is in the heart of the serpentine country. Hays, Mackey & myself left the mob after dinner, crossing the Hazelwood & White, we came to the road partys tents, where we were welcomed & had a good feed of bacon &c. great heat White is the contractor. Met Johnson of the Ann...[?]

22nd Fri Arrived at Bischoff about 12 o'clock & went in for porter & a good feed....The pack track from Bischoff I consider only a waste of money as it will not camp [?] horses for any length of time [?] if it does at all....

23rd Sat Feeding up & drinking porter also buying rations &c. Fine. Bought Marneys doz

24th Sun. Started back with about 70 lbs, made Byrnes (& sold gold 3 oz.72.6 [?] £52.2.2) Camp close to White. Met Judd & mate, also Pink & two others. Fine

25th Mon met two more men coming in for rations, made Byrnes camp on Long Plain. Very hot.

26th Tues Travelled along Long Plain for about two miles then took the Circular Head track through 3 miles of timber over the Heads of the Savage crossed three large branches all being in a deep gorge. Camped about a miles [sic] on the button grass. Fine

27th Wed Travelled along dividing spur between Donaldson & Savage in open country had a quarter of a mile of open timber...[?]... of Long back, where we got 3 wombats.

Travelled along Longback not reaching camp until an hour after dark. Fine

28th Thurs Took a spell. Wrote to the Minister of Lands about pine also G Meredith. Up at Hay's Camp to get "Spiro". Foster & Pat went to Heads to point picks about 3 oclock.

29th Fri Burning scrub off Hays' & Mat Sedgeman...[?]...Fine

30th Sat Stripping Fine

31st Sun Out with the dogs Hays Sedgeman Bailey Chissin [?] & myself only caught three. Fine. News of craft Foam dame in on Friday.

September

1st Stripping Fine

Sept Oct Nov & part of Dec working at Donaldson Sunday Creek & Badger Creek

Xmas. 1879 at Badger Creek, writing to friends. Boxing day up the Pieman, at Merediths Depot looking at Slaters reefing area & fishing for mullet & eels.

24th Jany 1880 merediths depot spelling not well

2nd Feby 1880 at the Heads not well. Saw a strange light like a comets tail towards the West, just after dark. Fine. Starlight last night.

3rd Felt a shock of earthquake whilst writing letters about four or five oclock. Find since it has been felt in numerous places on the Coast

[nothing for 4th Feb]

5th Feby Came up from the Heads with Monk & Kennedy, took a load out to old Camp. Fine.

6th Went from old Camp to new for load & took it out to Badger Creek. F [?] Brown brought one for me from River [?] Savage went in & took two letters for me. Hon M.L. & H.N.G.) Fine Fires

Did not quite make Badger. Camped in timber & saw strange light in sky like comets tail towards West, Felt a slight shock of earthquake. Dogs left me. [Written on edge of page: "Shock today felt in at the store"]

7th Brown brought a load out as Sprents old Camp. Went for it & then into the [?] Donaldson. Hot

8th Had to go down to store for dogs. Settled my share of Allwrights acct £5-3-8 Foster paying rest £18.13.4. Brought last load to SC. [Written at top of page: "Monk's felt a good shock of earth quake today"]

9th Very bad cold. Getting things for a start. Warm

Tues 10th Bad cold. Up at the terrace workings at head of Badger Creek. All ready for a start. Fine.

Wed 11th Off early. Very hot made end of open ground two or three miles from CH track Saw an old camp South of track & camped at another one N. of it on a sideling.

Thurs 11th [sic] Cut track in a N.E, course having a nasty little piece of baury to go through then into an open myrtle forest formation being basalt &c Camped by a small creek with no signs of anything but basalt on it. One porcupine

Fri 12th Fine. Did not move camp. Cut track through similar country. All day altering course one point toward N [?] NE & N had a sight of high open ranger spoken of by Sprent (unexplored). After having travelled a mile formation changed to slate & quartz crossed one or two small creeks. Sprent [?] must run NE & E. Killed 3 porcupines. Fine

Fri [sic] 13th Showery Not out at morning [?]. Cold being not much better, so I thought it best to lie up during the wet. Fine in the afternoon Went down creek I am camped on, which runs to the NW joining a large stream about ½ miles from the camp. The river being the Donaldson marked the Savage on Sprents chart the course of it being SW & after leaving the basalt on the spur formation changes into quartz conglomerates & slate & quartz. Tried creek but with no success.

Sat 14th "Spiro" killed a large tigre [sic] cat over three feet long from extremities.
Moved my camp to where I had cut to on Friday Fine.

Sun 15th Saw daylight come round without even fourty winks small kangaroo very bad. Cut on crossing numerous small creeks branches of the Donaldson, tried some of them, but without success, country slate & quartz. Timber & myrtle with patches of horizontal. Saw fires which appeared to be in the N & SE. Intend changing course tomorrow to hit the top of the divide between Savage & Donaldson R Fine — Feel rather bilious. porcupine too big fellow fat [sic]

Mon 16th Brought swag on & struck for top of spur which I followed it running all points of the compass, but general course being a little Easterly of SE Camped at head of small creek spur all basalt. Fine one porcupine.

Tuesd 17th Saw day light again without having slept. Off from camp later cut along top of spur very bad travelling fallen timber & thick horizontal quite flat. Fine two porcupine. Country & formation similar to yesterday.

Wed 18th. Shifted camp on as far as I cut today & yesterday very bad for water still following the spur general course NE & E Fine

Thurs 19th Cut along spur & went down another spur with a by [?] track to a good sized stream wherein appears to run lat 2 porcupines Fine

Fri 20th Shifted camp to large creek & a few holes in it obtained gold & a kind of iron. The creek or river runs from the N to S & from Camp takes a bend to the West. Suppose it to be the head of Donaldson. Fine

21st Sat At Camp mending & went out with the dogs & got 2 porcupine. Fine

22nd Sun Prospecting creek can get the color any where but the flats are large & flat. Fine porcupine

23rd Mon Went to continue main track but soon after starting out inj knee & came home & doctored it up Got a view of the Meredith Range — Peak S & E Mt Cleveland SSE

24th Tues Went into Badger Creek a good days work, with my cut knee but had a knee cap of bark which kept the sticks away. Nearly all left the Creek, only the Conroids working our old ground & old Joe sluicing Fine

25th Wed Very wet had a spell

26th Thurs Do

27th Fri Made a restart but did not get out, only making to 2 camp from depot very tired [tired?] fine

28th Frid [sic] Went to depot. Fine

29th Sat Cut the main track on, scrub very thick, cut to a creek on the Savage fall fine 3 porcupines

30th Sun Cooking & making depot shifted camp on as far as track is cut Fine 1 porcupine

March 1880

2nd Tue Prospected creek for a mile downwards but could not rise a color, plenty of iron. Country all basaltic Fine 1 porcupine

3rd Wed Cut main track in scrub plenty thick crossed the heads of two creeks. Fine 1 porcupine

4th Fri Raining all day at camp. Amusing myself making puzzles.

5th Fri [sic] Raining hard making pouch &c

6th Sat Raining all day at Camp

7th Sun Do — Do —

8th Mon Finer day cut main track on & prospected two creeks obtained colors but nothing more

9th Tue went to slush away Depot & brought my remaining supplies up, then struck camp & continued the track on passing through some very good land ferns & open myrtle, camped on a creek on Savage fall

Showery, Do as went after...[?]....have not turned up...[?]....

10th Wed Spent most of the morning looking for the dogs, blazing a track E. & as [sic] last found them looking miserable. Afternoon cut track on Got a sight of the country from a tree, but saw nothing but scrub to the west, two creeks running south & beond [sic] that like on running westerly —

To the east saw large creeks coming that place. N. the course of the spur I am on northing but scrub. Showery. Porcupine

11th thurs Showery. Did not go out. Wrote to Mary.

12th Sat [sic] Wet. Out rather late cut track on in N course came to a nasty patch of bauera where I formed track about ¼ mile don't know how far it continues Got very wet

13th Sat [sic] [Note in margin: "Wrong in date"] At Camp Showery.

14th Sun Took knapsack to where I had cut, then forced my way through about a mile of bauera got good sights of all mountains and camped on a small creek on savage fall in a small ravine had to build about two feet with logs to make bed level. Fine. 2 porcupines.

15th Mon prospected creek Fine

16th Tues Went to Slashaway depot

17th Went into Badger Creek Wet Found tent down a tree having fallen & smashed it to pieces only Conroid & Joe at Creek. Letters from Commonwealth B. L'ton Butler, John, Mary & Revd Hayward Minister of lands.

18th Thur Went into store wrote to John and answered others also to CB Hobart T. Sent Butler a receipt for execution [?] for engine share in £2000 from melb & saw new constable
North Star arrived in the river that morning with Savage & stores Fine

19th Fri Went out to Badger Creek & got ready for start Fine

20th Sat Made a start, dogs caught a badger, met Charley the Sweed who could not find the track to Bischoff went back with him & put him on it
Being delayed did not make far a thunder storm coming on got drenched made a good fire, managed to dry my clothes so lay by it all night.

Sun 21st Poor old Father birthday

Had to travel so was off early & camped when I got to where I had left fly about twelve oclock Very Wet

Mon 22nd Raining hard did not move felt stiff after my ducking reading papers

Tues 23rd Raining hard. made camp early, put fly up, cut two levels on the side of the hill so [diagram of tent with two levels above bank] For...[?]...& bed the creek being almost under me four feet down with a small fall. Got properly wet coming through the scrub & Bauera

Wed 24th Raining hard, did not care for another ducking so stopped at camp baking so[?] leven bread & dry all my things, my...[?]...being soaked & everything in my knapsack.

Thurs 25th Out early cut up to top of hill scrub very thick then broke through about a mile of bauera saw mountain & bare country lately burnt to west of North Fine

Fri 26th Poor Carry's birthday

Broke through about another 6¼ mile of bauera then into thick scrub. Camped by small creek Fine

Sat 27th Cut on timber a little north open camped ¼ mile from [?] track 2 porcupines

Sun 28th Wrote to John Fine
Strange halo around the moon

Mon 29 Cut on & came to open button grass plain a sight for sore eyes Formation since leaving the bauera basalt Fine on [sic] porcupine

Tues 30th Shifted camp to button grass, where I pitched it after having gone EW&N to find a confluence [?] of button grass or creeks to prospect, but without success one badger Fine ...[?] two hours before dark.

Wed 31st Pouring all night & all day without ceasing

April 1880

Thurs 1st Went to "Cut away" depot for the remainder of my tucker Fine back by five oclock put a loaf to rise also porcupine pudding and wrote to Mary —

Fri 2nd Followed button grass for about a ½ mile then cut up the spur leading to the range which is a long one scrub thick Fine

Sat 3rd Continued track & took knapsack on with me Cut right up on to the highest point of the range crossing many others Had a splendid view. Range Slate scrubbed thickly with low bauera &c. Had a splendid view. Sights viz

Bischoff (not certain) ESE

Cleveland S&E

Meredith P SSW

L Back SW

Hill on Coast NNW

Course of Spur

Saw course of Webster & Pink button grass burnt dense scrub ahead of me so gave up the idea of going further. Came back to the camp I left a wiser but sadder man Fine.

Sun 4th At Camp Wet

Mon 5th Went to the Clearing Camp, leaving...[?].tent [?] at Cutaway depot. Had a great benefit through the bauera the rain coming down all day soaked through & through Camped early got a good stock of wood put tent up like fly good Mr E [?] was a real black fellow [hollow?] nothing on, only a little bit of bread & rice, all meat being done five days ago, dogs not A1

Tues 6th Off at daylight Fine day scrub wet Made Harvey's camp, where I stayed all night then days washing over 2oz

Wed 7th Called in at Badger Creek only 4 men left. Went into the store & had quarters at Suttons. Got my knapsack packed Fine

Thurs 8th Wet had a spell

Fri 9th Went out to Badger Creek Smith camped in the tent, He & Old Joe being the only ones left

The Conroids went in today

Sat 10th Call [sic] in at Harveys Camp for dogs both looking very bad Made Porcupine Camp & lay by the fire all night which was fine

Sights taken on 15th Bischoff SE Cleveland SSE M Peak S&W Mt Pearce ESE
Hill taken as Bischoff the 3rd E&S

Sun 11th April 1880 Made on to Clearing Camp, where tent was left, & had another night out without one. Dogs caught a tigre about thirty yards in front of me just after I started & had it killed before I got up to them. They eat every thing but the skin which I took to make a cap of in remembrance of their first striped gentleman.

Rather Wet

Mon 12th Made Cut away depot by dinner. Fine but Showery Made frame for skin and cured with ashes

Tues 13th Cut along from depot E & S scrub very thick Fine
Made cap in evening

Wed 14th Similar to yesterday. Cut creek I am on twice. Fine

Thur 15th Took knapsack & pitched camp at Junction of two large creeks in a deep gorge formation slate & quartz Fine Prospected ...[?]

Fri 16th Pouring all day.

Sat 17th Similar yesterday wrote to MAD [?]

Sun 18th At Camp Fine

Mon 19th Cut track on & crossed five or six creeks, slate quartz, most washed bare, Fine

Tues 20th prospecting. No success. Fine little light rain.

Wed 21st A most miserable wet day, determined to prospect my way back enough for this summer must start for depot tomorrow having only a small piece of bread for breakfast. Dogs badly off

Thurs 22nd [no more: end of diary]

With fellow men he lives and toils
In lonely vales where gold is found
One faithful friend for ever coil
Beside a stream, beneath the ground
This best companion's dead & gone
The noble dog who saved his life
He'll never find a dearer one
To follow him through toil & strife
Oh! May you reach a happy land
Old Wanderer if such land there be
Where you may join a peaceful band
Where faithful canine spirits flee...[?]
When lakes & rivers all go dry
When plains replace the tangled jungle
When mountains rise where plains did lie
Old dog my pen can never tell
What here...[?] heart would trace
...tear for the dog he loved so well
Rolls slowly down his troubled face
Changed thus thee grand wild path....

Outstretched on bed of boughs I lay
Beneath the myrtles somber shade
I rose, one morn at break of day
And soon my simple meal was made
Then placed my knapsack on my back
A running stream I crossed on logs
Climed up a hill along the track
With Spero & Spiro my two dogs.
But soon the dogs a scent had found
Rushed on in front the game to find
With noses pointing to the ground
Left me some forty yards behind
When lo! I heard a savage sound
Among the ferns hard by
As some beast upon the ground
Yelled out its last its dying cry
In haste upon some mossy logs
My heavy load was flung
And quickly to the barking dogs
...[from?] stones and logs I sprung
Upon the turf there lay quite dead
A beast with stripes upon his coat

Young Spero bit about its head
While Spiro grasped it by the throat
So [?] there a noble tigre died
Just as the sun set golden rays [?]
Shed light upon the mountain [?] side
And victors of that savage fray¹⁰⁸

¹⁰⁸ TB Moore diary 1879-80, ZM5617 (Tasmanian Museum and Art Gallery, Hobart).

Appendix 2: NJ Marshall, Suggestions for Kimberlitic Exploration, EL26/78

APPENDIX I

260039

10

SUGGESTIONS FOR KIMBERLITE EXPLORATION, EL 26/78

N. J. MARSHALL - GEOCHEMISTRY CONSULTANT

As a cautionary note, there remains the possibility that the 16-18 small alluvial diamonds found in auriferous alluvials within EL 26/78 (Twelvetreets, 1918) were derived from erosion of the folded ophiolite sequence, rather than from any kimberlite intrusive, with its characteristic geochemistry and indicator minerals. See the later discussion on Pavlenko's paper, (enclosed). Classical kimberlites occur in pipes as groups or clusters, probably related to deep seated zones of weakness in stable continental platform areas. (Nixon, chapter 1).

1. Kimberlites are most likely to occur along, or nearer, to areas of greatest crustal fracturing, which may be expressed as zones of statistically greater fracture trace density.

Thus sampling density and field examination should be biased toward zones of increased fracture trace density, cross-cutting features and dykes. Other favorable loci are lithologic boundaries, particularly where unconformable.

Thus a prime recommendation is that a detailed photo-geologic study be carried out to define likely loci for kimberlitic intrusives.

Sampling should concentrate preferentially in these areas, which should be more directly related to a source area and therefore less likely to be diluted by barren components.

2. Kimberlitic dykes, if located, can be important tracers for pipes.

There are 3 types of kimberlitic dyke association, according to the associated heavy mineral suite. (Nixon, chapter 2).

- a) ilmenite + olivine.
- b) ilmenite + garnet.
- c) olivine.

Kimberlitic dyke wash produces olivine (yellow-green, glassy), + enstatite, bronzite, ilmenite, sporadic garnets of various colors (green, red, violet, orange), chrome diopside (green) and chromite, from disaggregated ultrabasic and eclogite nodules.

Thus it is important to examine all heavy mineral concentrate prior to magnetic separation, with a binocular microscope and also with a petrographic microscope, using refractive index oils, for mineral identification.

It would also be worth-while using UV light examination of heavy minerals under the binocular microscope, to look for scheelite and fluorescent diamond.

3. All stream cobble lithologies should be noted in the course of sampling, as well as the geology of adjacent outcrops. Sampling should be designed to collect material from drainage basins consisting, as much as possible, of only one rock type - mixed sources introduce contamination problems, dilution by more "barren" material, and complexities in interpretation.

4. Illustrations in the Nixon monograph show large (up to 30 cm diameter) rounded, gneissic xenoliths of basement rock.

Kimberlitic nodules can consist of ultrabasics containing olivine, enstatite, bright green chrome diopside, chromite and wine red pyrope garnet. Such nodules can weigh 10 kg. or more, are ovoid, and have resistant minerals (eg garnet) protruding from a worn, polished surface. They are in fact deep crustal xenoliths.

Monomineralic nodules usually of pyrope, also occur in the + 1 cm fraction; other nodules include pale, grass green enstatite, brown bronzite, olivine, and chromite octahedra.

It is emphasized that in the environment of W. Tasmania, a skilled geologist equipped with a hand lens should examine float samples for possible kimberlitic xenoliths, which would survive in the stream debris. ie) do not rely entirely on panned concentrates of the finer fractions.

Such detailed observation would also aid in interpreting drainage basin lithology, and hence in evaluating geochemical and petrological stream sediment results.

5. The whole heavy mineral fraction should be sized to several fairly narrow limits, prior to magnetic separation at Capel using a Cook separator.

The heavy mineral fraction should be analyzed by XRF methods for Nb, Ni, Cr, Ba, Sr, Th, Zr, P, and TiO₂. La and Ce analyses would form a useful back-up.

Unpulverized splits of each fraction should be retained for electron probe work if required at a later stage.

6. In addition, analyses for Sn, Mo and W are desirable for the possibility of detecting such mineralization in its own right.

7. Such chemical analysis is far cheaper than labor-intensive, and therefore expensive, petrological examination, and is sufficiently comprehensive, in my opinion, to identify source rocks of kimberlitic affinity. Petrological examination should then proceed as follow-up, on these.

It is also important to weigh the concentrates, and each representative fraction (various magnetic fractions), relative to the weight of original sample.

8. Prior to magnetic separation, the magnetite fraction should be removed with an Eclipse type magnet, weighed (to normalize data as percentage of total HM fraction) and analyzed for base metals, with a view to defining base metal mineralization. - see report by N.J. Marshall, April, 1979 "Geochemical Exploration for Base Metals, West Coast Tasmania, pages 2, and 10-12.
9. The ilmenite fraction from the Cook separator should be analyzed at Capel for Mg and Ti to identify picro-ilmenites. The garnet fraction should be analyzed to look for high Mg and Cr, and low Ca - pyrope garnet.
Chrome diopside is an important indicator of distinctive appearance, as is any lilac garnet exhibiting an alexandrite effect.
10. Interpretation of such chemical analyses is facilitated where sampling is within one rock type.
Where mixed source rocks occur, electron probe analyses (comparatively expensive) are required to identify, say, a few Mg rich ilmenite (picro-ilmenite) grains among a predominance of normal ilmenite grains from basalts and other mafic/ultramafic rocks.
11. When applying geochemical techniques, as suggested by Gregory and Tooms, (1969), we must bear in mind the anticipated contrast of elements relative to the rock types occurring in the area.

The following phased approach is suggested for consideration, on EL 26/78 bearing in mind problems of access, and the expense of heavy mineral sampling and subsequent treatment and data acquisition. Also significant, is the rapid dilution by barren material in this rugged terrain, requiring a comparatively high density (and hence cost) of even bulk heavy mineral samples if kimberlites of only a few tens of meters of surface exposure are to be located.

- 1) Areas of recorded diamond occurrence: Middleton's Ck., Sabbath Ck, Harvey's Ck. Heavy mineral bulked composites as described in letter of June 13th. These are high priority areas, in view of the documented occurrence of diamonds. Weigh concentrate, and relate to initial sample weight. Split into two halves - one to retain. Other half to be further split for pulverizing and chemical analysis for Ni, Cr, Zr, Nb, Ba, Sr, Th, P, TiO₂, La, Ce. Other portion to be put through magnetic concentrator - examine fractions petrologically, and electron probe the ilmenite and garnet fractions for picro-ilmenite and pyrope indicators.

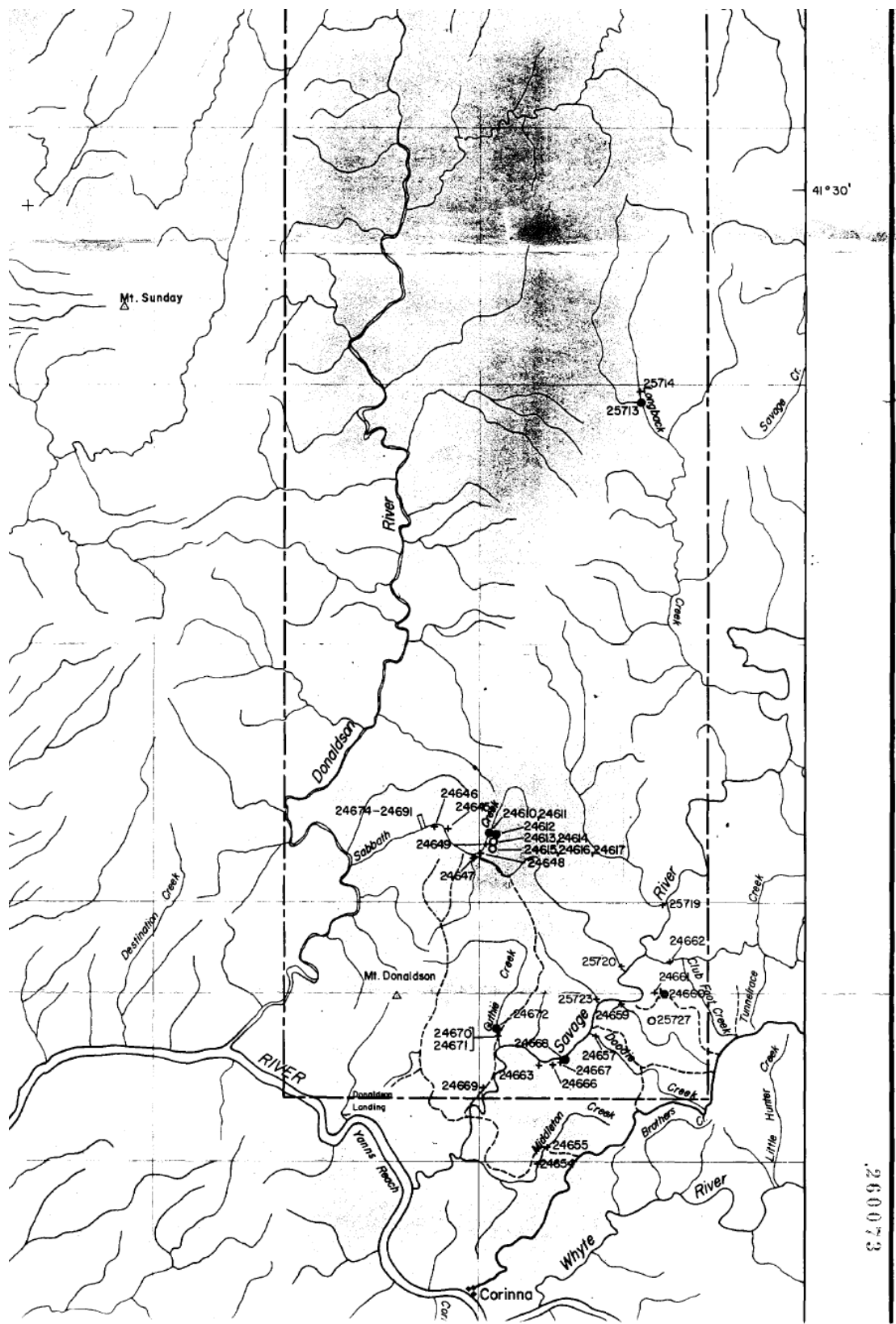
- 2) Mouth of Pieman R. and junctions of Donaldson R., Savage R., and Whyte R. - ie) 4 samples.
Large (100-200 kg.) bulk samples of -1 cm. collected over a km or so, to be treated as above.
The mouth of the Pieman R. should be sampled where there is some wave sorting and/or tidal sorting influence to concentrate placer minerals.
- 3) Remainder of EL 26/78, concentrating on photo-geologically anomalous zones.
 - a) -80# stream sediment (conventional) geochemistry for Ni and Cr to locate ultramafic associations away from the known, Heazlewood River Complex, area.
Sampling at 1 km intervals, or less where side tributaries are encountered in the course of sampling. If base metals are also of interest, then Cu, Pb, Zn should also be analyzed, or one could use the approaches advocated in my April 1979 report for base metal exploration in W. Tasmania.
 - b) subject to orientation studies from the Heazlewood River Complex drainage, one could sample Fe-Mn nodules in streams on a more regional basis, for Ni to define ultramafic source areas, rather than using conventional stream sediments.
 - c) Heazlewood River Complex and any other Ni-Cr source areas located by above approach:
Analyze stream sediment samples for P_2O_5 , Ba, Nb (+ Ni, Cr), La, Ce (XRF) (NB Ba may also accumulate in Mn coated stream pebbles).
In the absence of orientation data, to "play safe" both - 10 + 20#, and - 80# should be collected and analyzed.
I would expect P_2O_5 , Ba, Ni and the rare earths to be concentrated as hydrolyzates in the finer, clay dominated fraction, (also, to a certain extent Nb), and Nb, Ba and Cr should concentrate in the coarser fraction. At this stage, sampling at intervals of the order of $\frac{1}{2}$ km is advocated. (within outlined Ni-Cr source areas)
 - * Incidentally, any chromite rich nodules, or black, natural heavy mineral chromite accumulations, in streams, should be sampled and tested by fire assay for platinoids of the alpine ultramafic association.
 - d) Any areas of anomalous geochemistry in the above elements in association with Ni and Cr, should then be bulk sampled (as described in letter of June 13) for heavy minerals. These samples should then be examined petrologically, and magnetic separates of the ilmenite fraction and garnet fraction (checked petrologically) analyzed (XRF) to identify picro-ilmenite and pyrope.

If the drainage lithology is multiple, and petrological examination shows that magnetic separates are not virtually monomineralic, then electron probe analyses is required.

N.B. The magnetic response of picro-ilmenite should also be established - it may not report in the normal ilmenite fraction.

12. Finally, should any kimberlitic source be indicated, follow-up sampling would enter the next stage of exploration - base of slope and ridge and spur soil sampling, followed by grid sampling.
13. Rock chip samples of outcrop and float will, if kimberlitic, in this unweathered environment be recognizable by texture and mineral assemblage.
A useful field test for "ultramafic" rocks to check kimberlitic affinity might be to apply concentrated acid. Kimberlites are high in carbonate content, and narrowing down to carbonatites + kimberlites is sufficient at this stage of exploration.
A more diagnostic geochemical test would be a Ni-Cr-Nb-Zr-P etc. association, and, of course, petrology.

Appendix 3: Mount Lyell stream sampling results 1979-81



Sample locations for Mount Lyell's all minerals exploration EL25/78 1979-81

010

8.

APPENDIX A - DONALDSON STREAM SEDIMENTS

006011

SAMPLE NUMBER	-B [#] Tx. Values in ppm unless otherwise indicated									%
	Cu	Pb	Zn	Mn	Co	Sn	As	WO ₃	Mo	Fe
24645	6	10	5	-	-	-	-	-	25	0.3
24646	18	20	60	210	10	35	35	20	10	2.0
24647	7	10	40	30	-	20	40	-	15	0.5
24648	12	40	100	260	25	30	20	40	20	2.9
24649	14	30	65	280	15	10	15	-	30	2.3
24654	33	30	160	120	25	25	5	-	20	2.8
24655	17	10	65	250	25	50	40	-	45	2.1
24657	18	10	11	80	-	20	-	20	55	1.0
24659	15	10	58	210	-	15	35	-	35	1.5
24661	8	10	17	120	-	25	25	-	45	0.4
24662	50	30	65	620	25	25	25	-	70	3.2
24663	55	20	58	820	50	30	35	-	40	4.6
24666	57	10	49	580	30	25	15	40	55	3.9
24667	64	10	125	1250	30	30	-	-	25	4.8
24669	72	10	21	120	25	30	20	20	45	1.8
24670	10	-	22	600	10	15	20	-	15	1.9
24671	9	10	40	250	10	10	-	-	15	1.6
24697	7	-	-	110	-	35	-	-	5	0.5
25701	10	10	15	70	-	-	-	20	5	1.2
25702	11	-	12	70	-	10	10	-	5	0.8
25703	6	-	-	60	-	25	-	-	10	0.4
25704	5	10	-	60	-	25	30	-	20	0.4
25705	9	-	25	100	-	10	10	-	20	1.6
25706	7	10	10	70	-	25	5	-	15	0.8
25707	16	20	7	90	-	35	-	-	10	0.8
25708	12	20	8	60	-	30	-	-	15	0.5
25709	5	10	16	80	-	30	-	30	15	1.6
25710	-	10	6	70	-	30	5	-	10	1.1
25714	-	-	5	80	-	20	-	-	20	0.4
25719	95	70	180	870	45	35	45	30	10	4.65
25720	40	50	90	540	20	25	30	-	20	1.86
25723	70	10	60	1030	40	30	35	-	10	3.85

SAMPLE NUMBER	-80 [#] Cx Values in ppm unless otherwise indicated						-10 [#] + 80 [#] H/H ₂ O ppm in solution			
	Cu	Pb	Zn	Mn	Co	Fe%	Zn	Mn	Fe	Co
24645	-	-	-	-	-	.19	.17	.50	28.0	-
24646	-	-	32	140	7	.22	.37	13.2	9.5	.17
24647	-	-	24	20	-	.16	1.08	.98	24.0	.17
24648	-	10	47	160	18	.22	.15	9.6	5.7	.13
24649	-	-	37	200	16	.35	.26	10.6	20.7	.26
24654	12	-	38	30	6	.29	1.06	5.36	40.0	.24
24655	-	-	10	160	10	.27	.35	21.7	24.9	.96
24657	-	-	-	20	-	.07	.28	4.21	24.7	.07
24659	-	-	15	170	-	.23	.28	19.2	8.8	.11
24661	-	-	9	120	-	.13	.47	23.5	6.6	.15
24662	-	-	17	500	13	.49	.36	80	15.4	.81
24663	7	-	12	460	17	.48	.19	130	8.4	1.53
24666	7	-	10	250	7	.23	.27	110	7.9	.81
24667	-	-	6	360	-	.24	.31	190	15.1	1.04
24669	36	-	-	40	11	.17	.19	4.3	28.6	.57
24670	-	-	-	340	-	.39	.17	64	19.9	.48
24671	-	-	12	190	6	.29	.11	19.5	3.8	.11
24679/21	-	-	-	-	-	.07	.01	.30	26.0	-
25701	-	-	-	-	-	.10	.33	.72	21.0	-
25702	-	-	6	-	-	.12	.32	.61	18.4	-
25703	-	-	-	-	-	.08	.10	.42	19.3	-
25704	-	-	-	-	-	.05	-	.12	16.0	-
25705	-	-	-	-	-	.11	.22	.40	18.7	-
25706	-	-	-	-	-	.12	.09	.45	16.7	-
25707	7	-	-	-	-	.19	-	.16	33.5	-
25708	22	60	27	-	-	.08	.16	.43	12.4	-
25709	-	-	-	-	-	.24	.11	.43	36.8	-
25710	-	-	-	-	-	.14	-	.32	22.0	-
25714	-	-	-	-	-	.09	.04	.22	26.8	-
25719	30	50	50	650	15	.57	.34	49	4.0	.17
25720	10	20	20	380	5	.30	.38	85	5.0	.32
25723	15	-	10	440	5	.22	.27	280	6.0	1.05

APPENDIX A (cont.) - DONALDSON STREAM SEDIMENTS

006013

- = Less than detection limit

Tx, Cx: Cu-5 ppm; Pb-10; Zn-5; Mn-10; Co-5; Sn-5; As-5; WO₃-20; Mo-10;
Fe-0.01%H/H: Zn-0.01 ppm; Co-0.01. All Cu and Pb values < 0.01 ppm for 20g
in 40 ml.

APPENDIX B - DONALDSON SOIL ASSAYS

006014

SAMPLE NUMBER	-80° Tx. Values in ppm unless otherwise indicated									
	Cu	Pb	Zn	Ag	Mn	Co	Sn	As	WO ₃	Mo
24613	9	20	33	2	2900	45	-	10	-	15
24614	20	30	86	-	1.2%	40	15	-	-	15
24615	21	30	62	-	4700	25	-	30	-	30
24616	24	30	57	-	2.0%	40	35	20	-	40
24617	10	30	45	-	2200	50	5	25	40	30
24674 *	-	10	-	-	70	-	n.a.	n.a.	n.a.	n.a.
24675	-	20	14	-	110	-	n.a.	n.a.	n.a.	n.a.
24676	5	20	6	-	20	-	5	25	-	30
24677	91	50	36	-	380	25	10	25	20	50
24678	154	60	81	2	570	45	30	10	20	25
24679	127	130	92	2	400	45	10	30	-	5
24680	32	60	106	-	260	30	15	60	-	20
24681	144	50	64	-	310	35	10	25	-	10
24682	142	60	102	2	820	45	20	10	20	35
24683 *	13	10	16	-	50	-	5	30	-	20
24684	-	-	-	-	-	-	15	-	-	25
24685	-	10	-	-	20	-	-	-	-	25
24686	-	10	-	-	20	-	n.a.	n.a.	n.a.	n.a.
24687	43	10	17	-	50	10	n.a.	n.a.	n.a.	n.a.
24688	-	30	-	-	-	-	n.a.	n.a.	n.a.	n.a.
24689	-	10	-	-	-	-	n.a.	n.a.	n.a.	n.a.
24690	-	10	-	-	-	-	n.a.	n.a.	n.a.	n.a.
24691 *	-	10	-	-	10	-	n.a.	n.a.	n.a.	n.a.
25727	400	500	750	n.a.	200	40	n.a.	n.a.	n.a.	n.a.

* = "A" horizon sample

n.a. = not assayed

- = Less than detection limit (Cu-5 ppm; Pb-10; Zn-5; Ag-2; Mn-10; Sn-10; As-5;
WO₃-20; Mo-10; Co-10).24613 - 24617 come from the Sabbath creek area near an outcrop of massive pyrite
lens in dolomite.24674 - 24691 come from the access track cut from Sabbath Creek to an airphoto
circular feature. The track was sampled at 25m intervals (24674
at 00 on the north bank of Sabbath Creek, 24691 at 425m).

APPENDIX C - DONALDSON ROCK CHIPS

006015

SAMPLE NUMBER	Values in ppm unless otherwise indicated												
	Cu	Pb	Zn	Ag	Au	S%	Mn	Co	Fe%	Sn	As	WO ₃	Mo
24610	-	10	-	-	-	46.6	-	30	36.0	n.a.	n.a.	n.a.	n.a.
24611	25	90	10	-	-	0.2	1500	-	31.0	n.a.	n.a.	n.a.	n.a.
24612	460	20	35	0.3	-	0.3	1000	50	55.0	35	10	20	15
24668	430	20	100	0.2	-	0.1	740	80	8.5	n.a.	n.a.	n.a.	n.a.
24672	360	-	10	0.2	-	-	40	-	1.9	n.a.	n.a.	n.a.	n.a.
24692	0.12%	-	10	0.4	-	1.5	50	30	2.9	25	75	-	10
24693	1.50%	-	30	4.7	-	2.1	60	10	3.1	n.a.	n.a.	n.a.	n.a.
24694	6.40%	-	85	19	-	8.1	30	20	7.9	20	-	170	15
24695	1.06%	-	55	2.7	-	1.5	130	20	4.1	n.a.	n.a.	n.a.	n.a.
24696	12.2%	30	160	37	2.5	22.3	50	470	23.0	30	80	180	25
24698	2.32%	-	50	17	0.2	1.3	50	20	4.3	n.a.	n.a.	n.a.	n.a.
24699	6.0%	-	130	41	0.1	7.6	60	20	7.6	50	-	160	35
25713	360	30	45	-	-	4.2	90	50	5.0	n.a.	n.a.	n.a.	n.a.

- = Less than detection limit

Cu-10 ppm; Pb-10; Zn-10; Ag-0.1; Au-0.1; Mn-10; Co-10; Sn-5; As-5; WO₃-20; Mo-5;
S-0.1%; Fe-0.1%.

n.a. not assayed

24610 - Sabbath Creek. Pyrite lens in dolomite.

24611 - Sabbath Creek. Ironstone above 24610.

24612 - Sabbath Creek. Ironstone.

24668 - Savage River. Grey slate.

24672 - Savage River. Black shale

24692 - Toner River. Bulk dump at small trench.

24693 - Toner River. Copper reward shaft, bulk dump.

24694 - Toner River. Copper reward N-trench, picked dump.

24695 - Toner River. Copper reward N-trench, random chip.

24696 - Toner River. Copper reward N-trench, pyrite vein.

24698 - Toner River. Copper reward E-trench, bulk dump.

24699 - Toner River. Copper reward E-trench, picked dump.

25713 - Longback Creek. Pyrite black shale.

Appendix 4: Aberfoyle pan concentrate sampling, EL57/83 in 1989

Rock chips results

Aberfoyle Exploration GEOCHEMICAL SAMPLE FORM

PROJECT: **MR DONALDSON EL 57/83** LOCATION: **34034053911K0516104** SAMPLE TYPE: **Soil** ANALYST: **DL, PB, Zn, Au, Ag, As, Ba** DATE: **30/12/89** SHEET: **#1**

ANALYSIS: **or for Soil is known Ag, As, Ba, Pb, Zn**

544016

ANALABS									
ANALYTICAL DATA									
SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE					
	23.3.08.06105	11/04/89	6251	1 OF 1					
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	
2	516104	170	50	180	<0.5	<0.006	30	10	

544017

Full Download
 5/11/93
 0.1 (AMC) (AMC)

811140 #2

CONTENTS

3400005390950513885

UNNAMED

3397405390230513886

3397205390240513887

3397005390240513888*

3396955390240513889

3396355390230513890

3396105390230513891

— — — 513892*

alc

Al

alc (sol)

alc

Al

alc

alc

alc

Cu, Pb, Zn, Au, Ag, Fe, Bi, Sn, Sb, Hg

gy-lac Sil & sh facill staining

or-lr gross Se/Ox

or-lr soil & lac ch silholoch

lac-gy inter Sil & sil

or-lr limonite/gross

or-lr " " gross

or-lr limonite/gross

gy-lr Oxid la

* denotes Petrological Description Available

544018

ANALABS

A Division of Inspec Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		23.3.08.06651				24/11/89		7366		1 of 2	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Ba	Sb	Sn	
1	513885	<5	15	60	1.0	<0.008	-	30	<3	<3	
2	513886	200	25	1150	<0.5	<0.008	<0.008	<10	10	4	
3	513887	70	5	50	0.5	<0.008	-	20	7	<3	
4	513888	15	<5	35	1.0	<0.008	-	<10	<3	<3	
5	513889	195	25	1850	<0.5	<0.008	-	<10	7	4	
6	513890	20	20	670	<0.5	<0.008	-	<10	<3	<3	
7	513891	15	10	320	0.5	<0.008	-	<10	<3	<3	
8	513892	15	5	145	0.5	<0.008	-	45	4	4	
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23	DETECTION	5	5	5	0.5	0.008	0.008	10	3	3	
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
25	METHOD	101	101	101	101	309	309	401	401	401	

Results in ppm unless otherwise specified

T = element present, but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED OFFICER _____

ANALABS										
ANALYTICAL DATA										
SAMPLE NO.			23.3.08.06651		24/11/89		7366		2 OF 2	
LINE NO.	SAMPLE NO.	HP								
1	513885	0.020								
2	513886	0.045								
3	513887	0.030								
4	513888	0.030								
5	513889	0.020								
6	513890	0.055								
7	513891	0.020								
8	513892	0.020								
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.005								
24	UNITS	ppm								
25	METHOD	122								

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

AUTHORISED OFFICER _____

Stream sediments results

W. DOWNSON EL 37163 G2 (166) (M10)		stream sed										blinded #1		
TRANSVERSE DESCRIPTIONS														
EXAMINED CORE		-20#	Cu	Pb	Zn	Mn	As	Fe	Co	Sr	Hg	flow	incision	Major flood types
2402405390090513789		✓										S	M	slip on, vel. 1000 ft.
3402605390960513790		✓										S	M	slip on, vel. 1000 ft.
UNEXAMINED CORE														
3399505390290513791		✓										M	W	Se. v. 2000 ft. to 1000
3195505390210513792		✓										M	M	dist. v. 1000 ft. to 1000
3393705390260513793		✓										M	M	dist. v. 1000 ft. to 1000

544022

544022

ANALABS

A Division of Inductra Inspection and Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX		REPORT NUMBER		REPORT DATE		CLIENT ORDER No.		PAGE		
022		23,3,08,06642		17/11/89		7362		1 OF 2		
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	AuChk	Pd	As	Sn
1	513789	30	15	75	0.5	<0.008	-	310	2	6
2	513790	10	20	30	<0.5	<0.008	<0.008	240	4	6
3	513791	10	<5	5	<0.5	<0.008	-	25	<2	10
4	513792	10	<5	10	1.0	<0.008	-	120	<2	<3
5	513793	15	10	5	<0.5	<0.008	-	75	<2	4
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	0.008	10	2	3
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	101	101	101	101	309	309	401	401	401

Results in ppm unless otherwise specified
 Y = element present, but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER

[Signature]

ANALABS

A Division of Inscope Inspection and Testing Services, Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

02J		23.3.08.06642			17/11/89		7362		2 OF 2	
TUBE No.	SAMPLE No.	Sb	Hg	Wt						
1	513789	<3	0.055	56.7						
2	513790	<3	0.010	87.1						
3	513791	5	0.020	81.9						
4	513792	<3	0.010	66.3						
5	513793	<3	0.005	54.1						
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	3	0.005	0.1						
24	UNITS	ppm	ppm	gms						
25	METHOD	401	122	9807						

Results in ppm unless otherwise specified
 T = element present, but concentration too low to measure
 X = element concentration is below detection limit
 -- = element not determined

AUTHORISED OFFICER

R.H.

624

66 57/83

(b)(1)(A) (b)(1)(A)

GUYARD, COLIN

340215539015051319B

3403605391290513799

3403905391285513800

-80W

Cu, Pb, Zn, Au, Ag, As, Sb, Sn, Bi, W, Hg

✓

✓

2

544025

White #2

*2

! TRAPS IN DESCRIPTIONS

ANALABS

A Division of Metshape Inspection and Testing Services Australia Pty Ltd.

ANALYTICAL DATA

SAMPLE PREFIX		REPORT NUMBER				REPORT DATE		CLIENT ORDER No.		PAGE	
020		23.3.06.06656				23/11/89		7382		1 OF 2	
TUBE No.	SAMPLE No.	Cu	Pb	In	Ag	Au	AuChk	Ba	As	Sb	
1	513798	55	45	165	0.5	0.011	-	280	8	3	
2	513799	35	25	140	0.5	<0.008	-	430	3	3	
3	513800	10	15	85	0.5	<0.008	<0.008	50	<2	<3	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21	Weight of sample 513798 for Au/309 was 22.59gms										
22	Weight of sample 513799 for Au/309 was 13.87gms										
23	DETECTION	5	5	5	0.5	0.008	0.008	10	2	3	
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
25	METHOD	101	101	101	101	309	309	401	401	401	

Results in ppm unless otherwise specified
 T = element present but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED
OFFICER

544026

ANALABS

A Division of Jackson Laboratories, Testing Services Australia Pty Ltd

ANALYTICAL DATA

SAMPLE PREFIX		REPORT NUMBER		REPORT DATE		CLIENT ORDER NO.		PAGE	
026		23.3.08.06656		23/11/89		7382		2 OF 2	
TUBE No.	SAMPLE No.	Sn	Hg	Wt					
1	513798	3	0.040	52.3					
2	513799	10	0.050	45.8					
3	513800	<3	0.050	144.0					
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21	Weight of sample 513798 for Au/309 was 22.59gms								
22	Weight of sample 513799 for Au/309 was 13.87gms								
23	DETECTION	3	0.005	0.1					
24	UNITS	ppm	ppm	gms					
25	METHOD	401	122	9807					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER

544027

Panned concentrate examination - Cominex

TO: Rod Henhan - Aberfoyle Resources
FROM: Hugh Nolan - Cominex
DATE: December 1989
RE: E.L. 57/83 Mt. Donaldson
SUBJECT: MICROSCOPE EXAMINATION
PANNED CONCENTRATE SAMPLES
DPC 101 - DPC 110

Examination Procedure

Bulk samples of approximately 20 kg (two laden dishes) were taken from a drainage course. This material was panned down to a concentrate of approximately 10 grams in the field. After scanning by microscope this concentrate was further reduced by panning to approximately 2 grams and dried for more detailed examination.

Examination was carried out using an Olympus 10-40X zoom binocular microscope.

Panned Concentrate Descriptions

SAMPLE - DPC101

Predominantly Tertiary gravel heavy mineral suite accompanied by locally derived magnetite, haematite, epidote, fine silica and minor, although above average quantity of iron, chalco and arseno pyrite.

Four grains of gold, one grain being well water worn, flattened and rich in colour consistent with Tertiary gravel gold. The other three grains less rich in colour and less water worn. Their original angular form still evident although rounded on external exposed surfaces. Whilst not chrySTALLINE, their form and colour and the accompanying sulphides suggest these grains may be of local derivation.

SAMPLE - DPC 102

Predominantly Tertiary gravel heavy mineral suite accompanied by a minor quantity of very fine iron pyrite.

Three grains of gold, two being of Tertiary gravel style, the third being very fine, slightly less rich in colour displaying angular form where intergrown with small quartz particle and water worn on exposed surfaces.

SAMPLE - DPC 103

Predominantly Tertiary gravel heavy mineral suite accompanied by minor quantities of fine magnetite, haematite and epidote of local derivation.

Seven very fine grains of gold. Each being flattened, water worn and rich in colour. Consistent with tertiary gravel gold.

SAMPLE - DPC 104

Predominantly Tertiary gravel heavy mineral suite accompanied by magnetite, haematite and epidote of local derivation.

Two grains of Tertiary gravel type gold.

SAMPLE - DPC 105

Predominantly Tertiary gravel heavy mineral suite accompanied by magnetite, haematite, and epidote of local derivation.

Four fine grains of Tertiary gravel type gold.

SAMPLE - DPC 106

Note: This sample taken as follow up subsequent to results of DPC 101.

Predominantly Tertiary gravel heavy mineral suite accompanied by locally derived magnetite, haematite, green epidote, fine silica and minor, although anomalous quantities of fresh pyrite, chalcopyrite and arsenopyrite.

Ten grains of gold observed. Three grains being consistent in colour and form with Tertiary gravel gold. Three grains displayed angular form with rounding on exposed surfaces and were pale in colour. Four grains, very pale in colour, displayed little or no travel damage and displayed excellent crystalline form.

Of the ten grains of gold observed in this sample, seven grains are from a nearly primary source.

SAMPLE - DPC 107

Predominantly green to yellow granular epidote accompanied by magnetite and haematite. Minor Tertiary heavy mineral suite.

No gold observed.

SAMPLE - DPC 108

Predominantly Tertiary gravel heavy mineral suite accompanied by fine angular silica.

One grain of Tertiary gravel style gold observed.

SAMPLE - DPC 109

Predominantly Tertiary gravel heavy mineral suite.

Fine grains of tertiary gravel style gold observed.

SAMPLE - DPC 110

Predominantly fresh nascasite accompanied by pyrite and Tertiary gravel heavy mineral suite. Anomalous quantities of water worn and undamaged crystalline cassiterite.

Fifty six grains of Tertiary gravel gold were present in this sample. (20 kg wash material proceeded 0.1 grams Au, equivalent to 5 g/t).

Petrological reports by Dr A Crawford

032

544033

SAMPLE: 513888

SUMMARY:

This sample is probably a thoroughly silicified former dolomitic sandstone or micrite.

HAND SPECIMEN

This is a dark grey to black, extremely fine-grained massive, hard mudstone or siltstone with mottled black patches and fractures, and no visible sedimentary structures.

THIN SECTION DESCRIPTION:

In thin section, this sample is seen to be composed almost completely of a very fine-grained intergrowth of blebby secondary quartz. The only remnant of original structure or texture is a faint ghost outline of former larger grains to around 1mm long, giving in plane polarized light the impression of an open-framework sandstone precursor, although this is by no means certain. Several fractures through the sample are highly irregular and convoluted, and give the impression of being former stylolites. Supporting this is the observation that abundant fine-grained (insoluble?) Fe oxides are concentrated along these fractures.

This sample is exceptionally difficult to diagnose. My best bet is that it was a dolomitic sandstone or micrite/packstone of some type that was totally silicified during a post-diagenetic alteration phase or event.

SAMPLE: 513892

SUMMARY:

This is a chert cut by an intense fracture network, with dilational fractures being infilled an amorphous quartz-limonite (or goethite?) material.

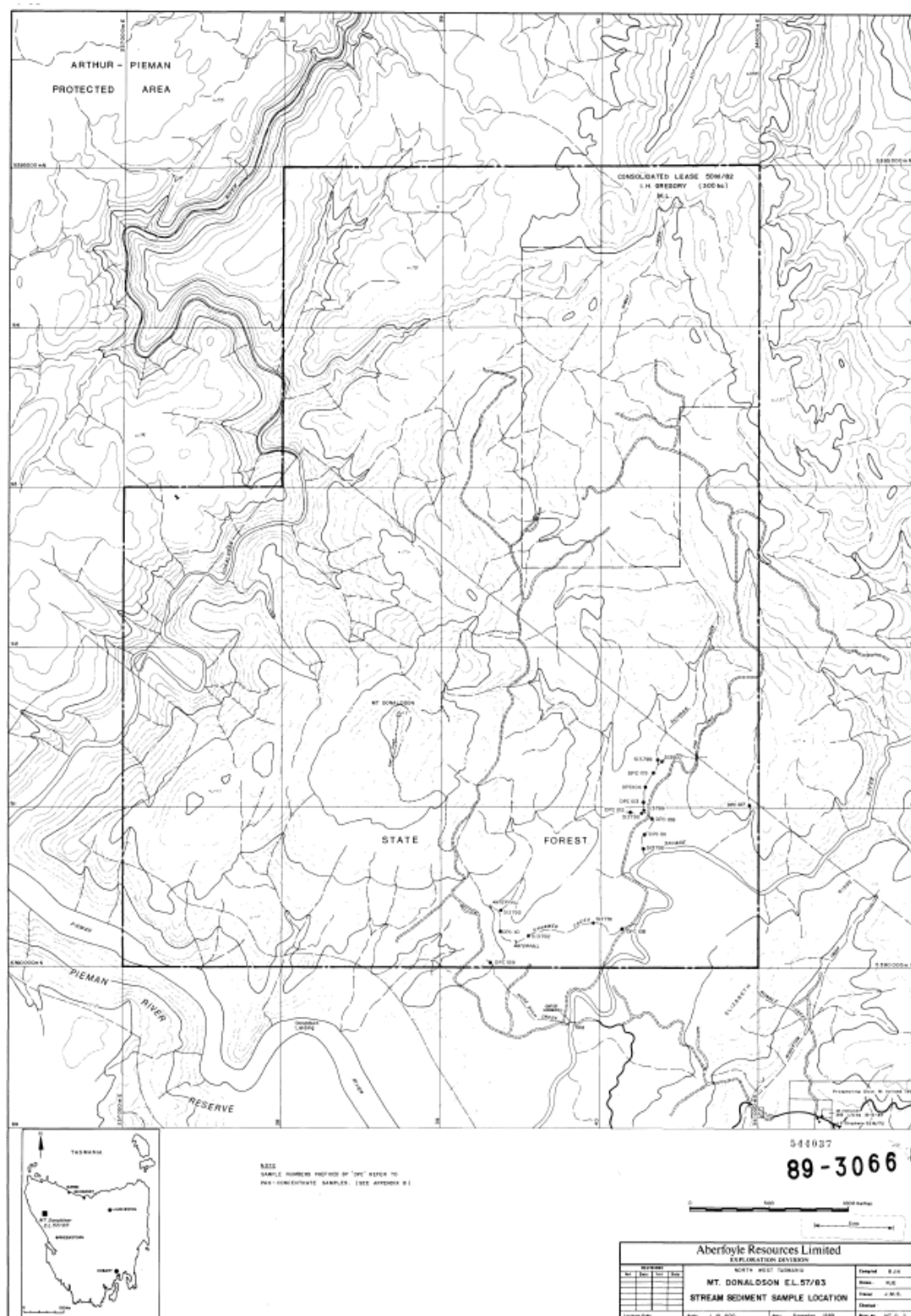
HAND SPECIMEN

This is a grey-brown very siliceous, cherty, fractured fine-grained sedimentary rock.

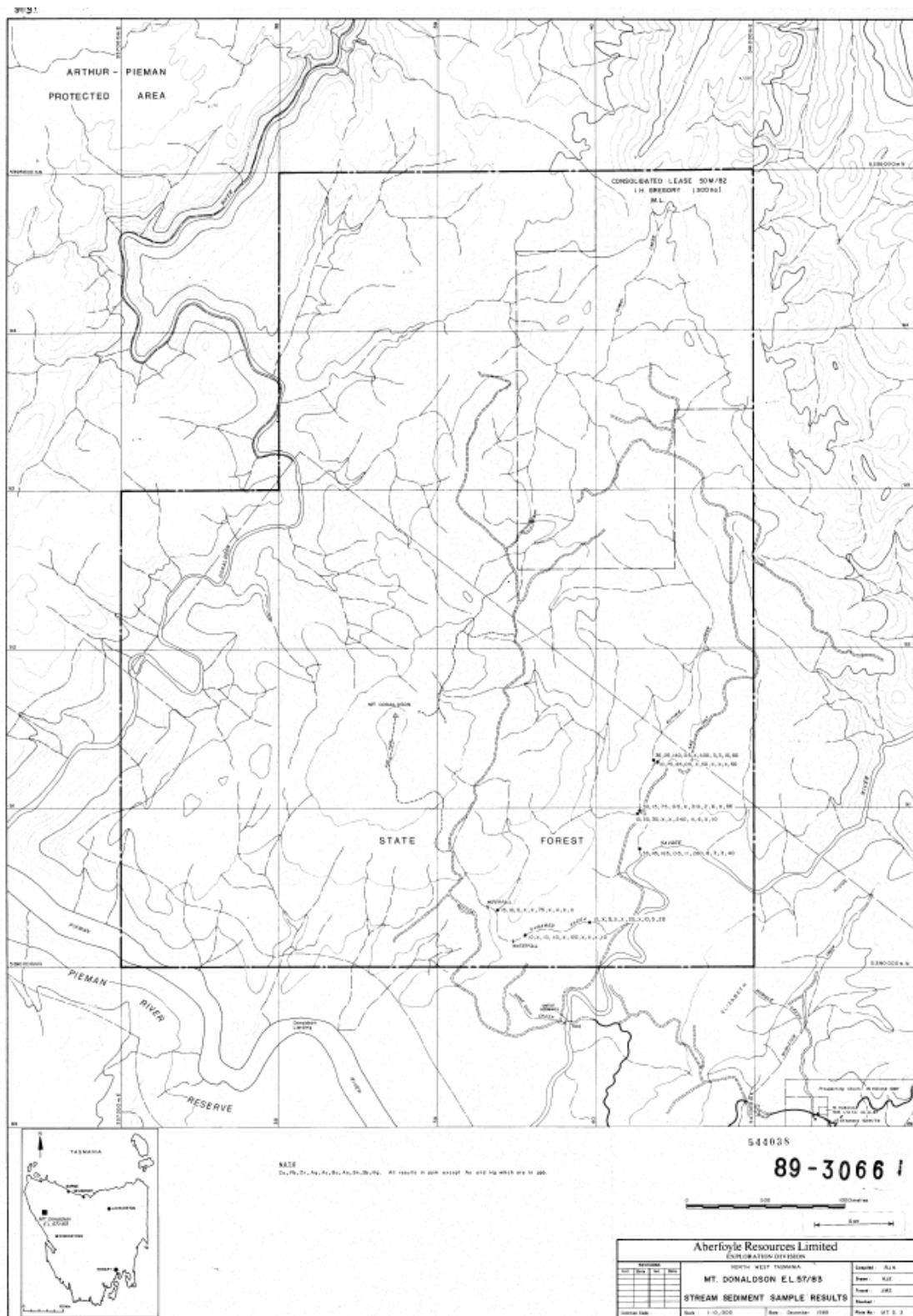
THIN SECTION DESCRIPTION:

This is a fine-grained cherty rock with a remarkably even texture, that is criss-crossed by a fairly intense fracture network. The rock is composed essentially of microcrystalline silica. Occasionally, quartz grains of somewhat larger size are crystallizing from high strain zones where fractures terminate or begin. Many of the fractures are dilational, and have filled with a brown material composed of microcrystalline quartz embedded in limonite or goethite, and possibly some dark manganese oxide. In a few places, this amorphous brown material invades the chert adjacent to the fracture fillings, producing a diffuse mottling of the chert.

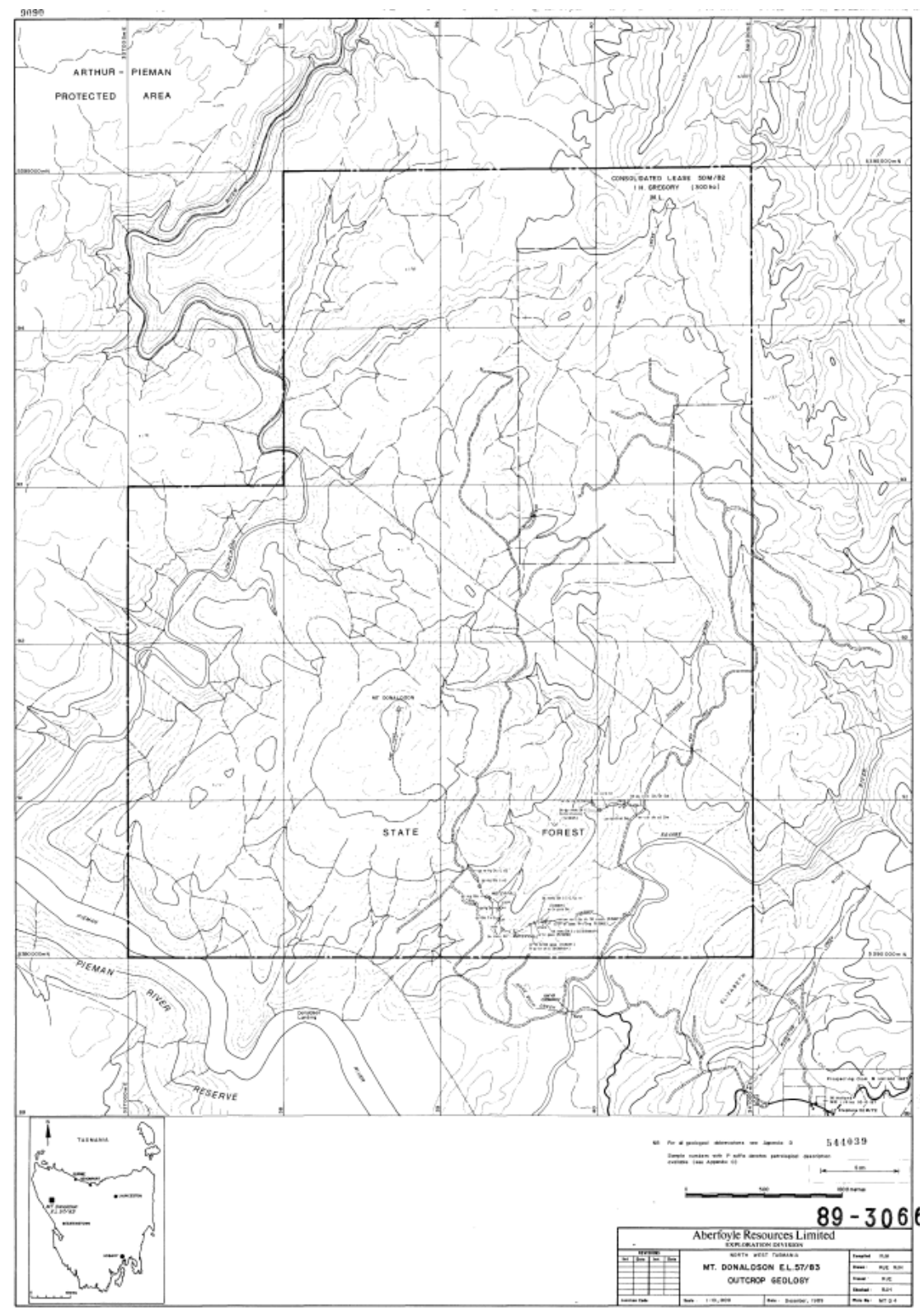
I have no evidence from this thin section that this sample was anything other than a chert. It may have had a dolomite precursor, but if it did, any trace of former texture and mineralogy has been obliterated by silicification.



Pan concentrate sampling sites on Guthrie and Unnamed Creeks, EL57/83 in 1989



Pan concentrate sampling sites on Guthrie and Unnamed Creeks, EL57/83 in 1989



Pan concentrate sampling sites on Guthrie and Unnamed Creeks, EL57/83 in 1989

Appendix 5: An 'Island' Within an Island: the Maritime/Riverine Culture of Tasmania's Pieman River Goldfield 1877–85

During its initial phase (1877–85), the Pieman River goldfield on Tasmania's West Coast had a maritime/riverine culture unique among Australian goldfields. That is, located on the lower and middle reaches of the river system within a few kilometres of the Southern Ocean, it was virtually an island within the island of Tasmania, served almost entirely by sea. With no proper land access, the Pieman miners relied upon coastal shipping for communication, passenger transport, stores and mining equipment from Launceston or Hobart. The goldfield had an unusual dependence on the only other major economic activity in the area, logging, which paid for the ships to visit the Pieman. Waterways were used as conduits, and the fish and birds these provided were a significant food source. Many miners on the field, such as 'Sailor Jack' Neul, were 'old salts' (sailors), who were sometimes pressed into navigating entry to the Pieman River over its dangerous sand bar.¹⁰⁹

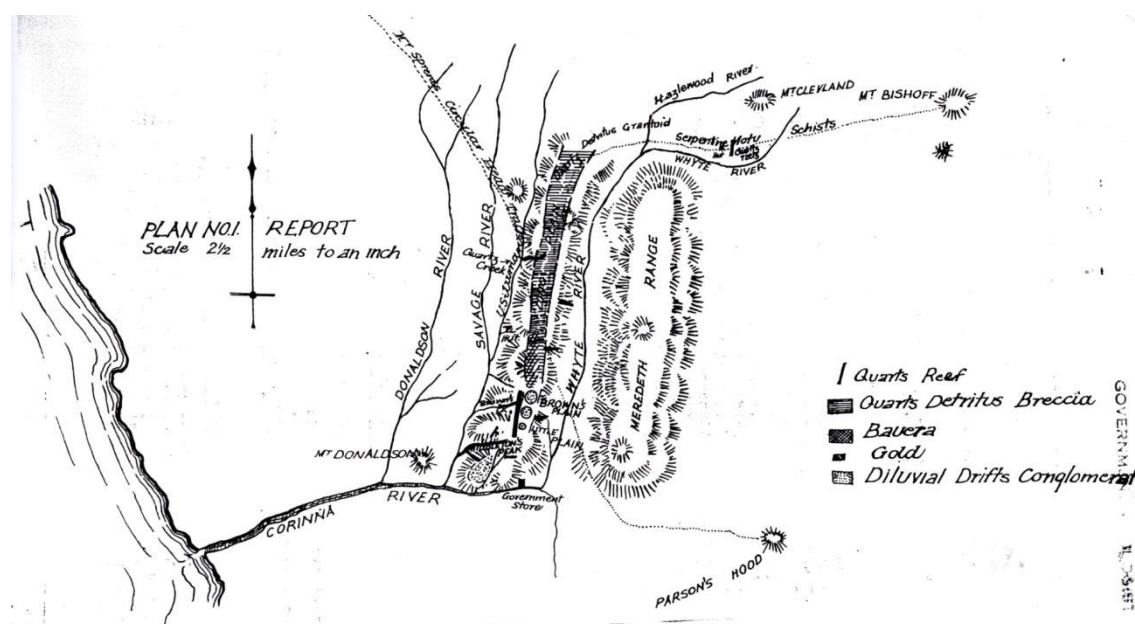


Figure 1: Inspector of Mines Gustav Thureau's impressionistic map of the Pieman River goldfield in 1881 shows the position of the Government Store, the workings north of there at Middletons Creek and the Savage River, which was the early thoroughfare between those diggings and the Pieman River. The designation 'Corinna River' instead of Pieman River reflects contemporary efforts by Tasmanians to distance themselves from the stigma of convictism, the pieman after whom the river was named having been an escaped convict.¹¹⁰ Map from Gustav Thureau, *Report on West Coast Mines: no. 1: Pieman River Goldfield*, House of Assembly Paper 82/1881.

¹⁰⁹ Neul came to Tasmania by accident. He was a crewman on the English vessel the *Cambridgeshire*, which struck a reef in the Furneaux Group of islands in Bass Strait in 1875. The crew escaped to Preservation Island, from which they were brought to Tasmania, see 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail* 14 May 1881, p. 11. Neul is probably recalled by Sailor Creek, a tributary of the Whyte River.

¹¹⁰ The escaped convict Thomas Kent, a baker by trade, gave the Pieman River its name by being arrested near its mouth in 1822. See Dan Sprod, *Alexander Pearce of Macquarie Harbour: Convict, Bushranger, Cannibal, Cat & Fiddle*, Hobart, 1977, pp. 106–18.

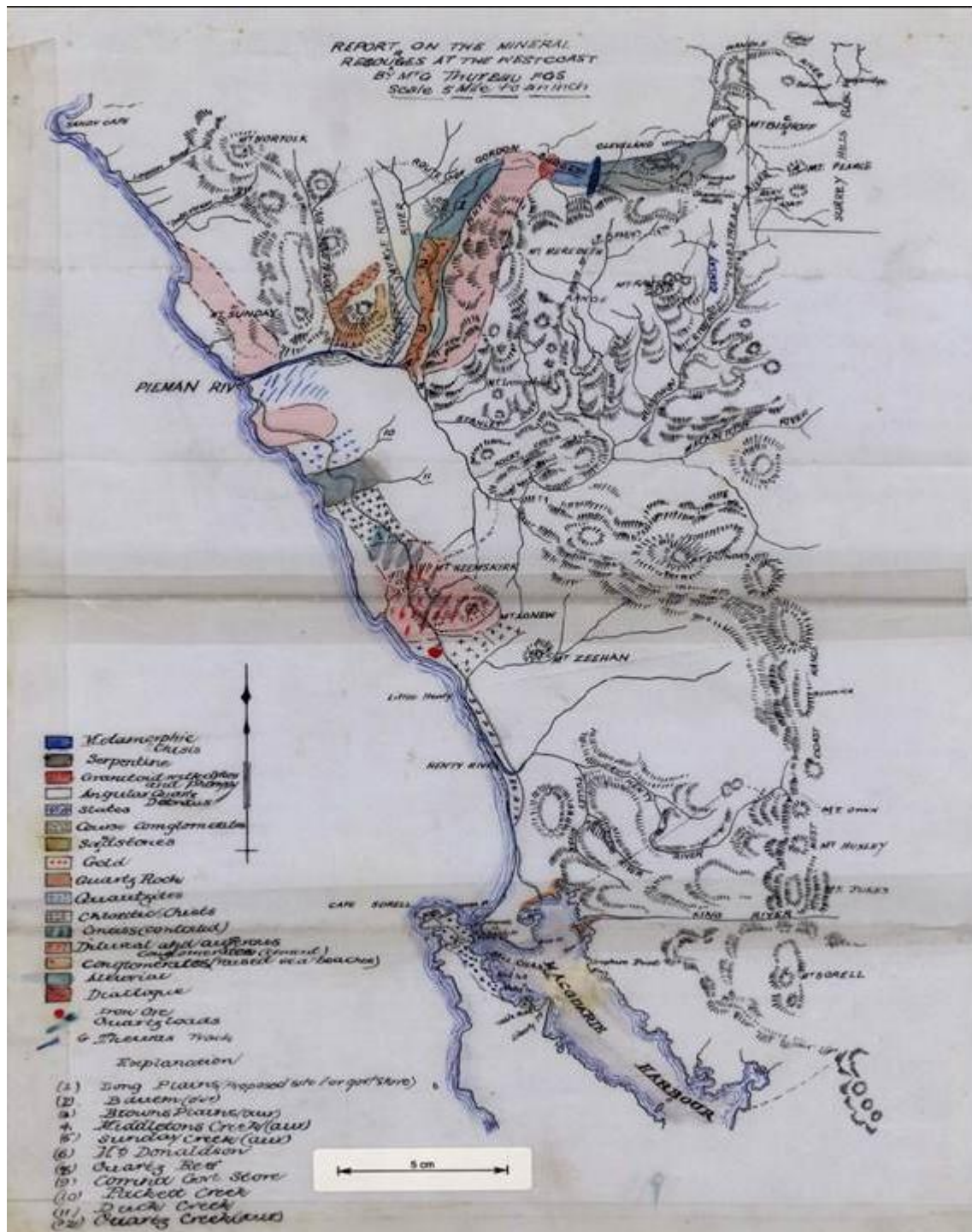


Figure 2: Gustav Thureau's 1881 map of the West Coast mining fields, including the Pieman River goldfield. From Report on West Coast Mines: no. 1: Pieman River Goldfield, House of Assembly Paper 82/1881.

This maritime/riverine culture was appropriate for the coastal fringe of Tasmania's West Coast mining province, in which water was all-pervasive. Mining in the wet environment of western Tasmania was very different to the mining experience in much of Australia. Water was so scarce on the 19th-century Western Australia's inland goldfields, for example, that discovering

it, not gold, became the prospector's primary concern, being so rare a commodity that the breeze or even lung power was used to separate red dust from ore.¹¹¹

By contrast, in western Tasmania water was pivotal to the separation of ore from detritus (by panning, cradling, sluicing and dredging) and the driving of machinery. As Geoffrey Blainey suggested in *The Rush That Never Ended*, the Mount Bischoff tin mine in western Tasmania possibly made more use of water power than any other Australian mine—and there were plenty more like it nearby.¹¹² Mining plants were driven by pelton wheels (for example, at the Magnet silver-lead mine and Cleveland tin mine), waterwheels (such as those used at Mount Bischoff, the West Bischoff, and the Specimen Reef and Princess gold mines) and hydro-electric power stations (Mount Bischoff, Mount Lyell copper mine, Federation tin mine and Magnet).¹¹³ The second phase of the Pieman River goldfield, the hydraulic sluicing craze in the years 1894–98, would be another expression of water's ubiquity, with long races being cut in order to blast the high gold-bearing terraces with water at high pressure. Unfortunately, hydraulic operations at Corinna were too small and the terraces too elevated to make the process economical.¹¹⁴

The Pieman River goldfield was also unsustainable in its first phase. There was enough gold to satisfy small parties, but extracting it was physically taxing and unprofitable except when a regular shipping service operated. The lush vegetation resulting from the high rainfall was very challenging. No mainland mining field had such thick, tangled scrub. In western Tasmania a legend arose about prospectors walking on an elevated platform of horizontal scrub (*Anodopetalum biglandulosum*) as the only means of progress.¹¹⁵ Prospectors drowned while crossing and boating rivers and creeks. In Mark Ireland's reminiscences of the pioneering days on the West Coast, water is a grim reaper which can be cheated once but which will ultimately claim its marked prey.¹¹⁶ A useful mainland Australian comparison is tropical northern Queensland, where a high rainfall and isolation presented the miner very similar challenges on goldfields like the Russell River and Starcke River.¹¹⁷ Even so, neither of these fields was served directly by ship the way that the Pieman River goldfield was.

First came the Huon piners

Gold exploration at the Pieman River preceded the landmark discovery of tin at Mount Bischoff in 1871, making it the earliest post-convict mining site on the West Coast of

¹¹¹ See, for example, David W. Carnegie, *Spinifex and Sand: a Narrative of Five Years' Pioneering and Exploration in Western Australia*, Penguin, Ringwood, Victoria, 1973 (originally published 1898), p. 126; or Leslie Robert Menzies, *A Gold Seeker's Odyssey*, John Long Ltd, London, 1937, p. 107.

¹¹² Geoffrey Blainey, *The Rush That Never Ended*, 4th edition, Melbourne University Press, 1963, p. 204.

¹¹³ For the Mount Bischoff water system, see Keith Preston, 'Mount Bischoff Tin Mines: Pioneers of Water Power in the Tasmanian Mining Industry', *Journal of Australasian Mining History*, vol.8, September 2010, pp. 148–71.

¹¹⁴ EM Thornily, 'Some Notes on Hydraulic and Ground Sluicing in New Zealand, and Comparisons with the Drift Gravel of the Corinna District in Tasmania', in A.S. Kenyon (ed.), *Transactions of the Australasian Institute of Mining Engineers*, vol. IV, Melbourne, 1897, p. 55.

¹¹⁵ See, for example, 'The Vagabond' (John Stanley James), 'Mount Bischoff', *The Age* 27 October 1894, p. 11.

¹¹⁶ Mark Ireland, *Pioneering on North-East and West Coast of Tasmania from 1876 to 1913*, the author, Launceston, 1913?, pp. 12, 22, 39 and 40.

¹¹⁷ See, for example, James Venture Mulligan, *On the Trail of Gold: the Story of James Venture Mulligan*, Glenville Pike, Mareeba, 1988. For the Russell River goldfield specifically, see Robert L. Jack, *Russell River Goldfield*, Geological Survey Office, Brisbane, 1893. For the Starcke goldfield, see Lionel C. Ball, *The Starcke Goldfield*, Queensland Geological Survey Publication no.223, Queensland Department of Mines, Brisbane, 1909.

Tasmania.¹¹⁸ From the beginning the Pieman goldfield had a culture based on water transport. The first discovery of any significance was by the Slater brothers and Weber in 1874 when they sailed the cutter *Alma* up the Pieman River and spent a month prospecting the dense horizontal scrub near the confluences of what were later named the Owen Meredith and Paradise Rivers.¹¹⁹

They were following in the footsteps of other adventurers and piners. The Pieman River catchment is the most northerly habitat of Tasmania's endemic Huon pine (*Lagarostrobos franklinii*). The state's oldest resident is thought to be a male Huon pine which germinated above the Pieman River near Mount Read 6,000 years before Egyptians celebrated their Great Pyramid.¹²⁰ With due care, this rare endemic species will also outlast its man-made children of the last two centuries—dug-out canoes, sailing ketches, cruisers, plus the bowls and furniture of today's expert craftsmen. The creamy yellow wood, soft, light and infused with rich, aromatic oil, is noted for its durability in water which makes it perfect for boat building.¹²¹

Yet while Huon pine built many ships, some were also lost obtaining the pine. From the 1850s, pining vessels including the *Dolphin*, *Rose Ann*, *Moyne* and *George Town Packet* perished on the sand bar at the entrance to the river.¹²² Stranded seamen defied starvation by trekking south on foot to Port Davey or north to Cape Grim.¹²³ Pining and gold mining at the Pieman became symbiotic, however, since only carting stores to the goldfield and backloading with the diminishing Huon pine made both enterprises profitable.

Exploration stimulated by success at Mount Bischoff

At the time of the momentous discovery of tin at Mount Bischoff in 1871, Tasmania had not yet established a stand-alone Department of Mines. Aside from appointing Charles Gould as Government Geologist in 1859, The Tasmanian government had so far left development of the mining industry to private enterprise. From 1872 to 1878 the isolated Mount Bischoff tin mine struggled unaided by the public purse to finally pay handsome dividends.¹²⁴ However, during these years, the government did respond usefully to the discovery of tin by facilitating mineral exploration by District Surveyor for Table Cape, Charles Sprent, whose second expedition in 1876 prompted the development of the Heemskirk tin field south of the Pieman River.¹²⁵ The future of mining in the Pieman River catchment could almost have been foretold

¹¹⁸ Convicts quarried limestone in the Gordon River during the days of the Sarah Island, Macquarie Harbour penal settlement. For early gold exploration at the Pieman, see, for example, 'Circular Head', *Launceston Examiner* 10 December 1870, p. 3; and 'Pieman River', *Examiner* 31 December 1870, p. 4.

¹¹⁹ 'A Cruise on the Tasmanian Coast', *Launceston Examiner*, 30 June 1874, p. 3; Job Savage, 'Pieman River Diggings', *Launceston Examiner* 20 December 1880, p. 3.

¹²⁰ See, for example, Graham Lloyd, 'The Oldest Tree', *The Australian*, 10 September 2011.

¹²¹ See Garry Kerr and Harry McDermott, *The Huon Pine Story: a History of Harvest and Use of this Unique Timber*, Marshall Books, Portland, Victoria, 2nd edn., 2004.

¹²² See 'The Discoverer of the Pieman River', *Launceston Examiner*, 22 June 1865, p. 2; 'The River Pieman', *Launceston Examiner*, 22 April 1865, p. 4; 'Wrecks on the Coast', *Cornwall Chronicle*, 24 April 1867, p. 2; S.B. Emmett, 'The Wreck at the Pieman, and Rescue of the Last Man', *Launceston Examiner*, 28 September 1867, p. 5; 'Wreck of the George Town Packet', *Cornwall Chronicle*, 13 January 1875, p. 2. The *Spy* also beached at the Pieman Heads in 1855, and a crew member of the *Dolphin* drowned in 1865, two years before the vessel was lost.

¹²³ See, for example, 'Wreck of the Moyne', *Launceston Examiner*, 29 June 1867, p. 3.

¹²⁴ See Nic Haygarth, *Baron Bischoff: Philosopher Smith and the Birth of Tasmanian Mining*, the author, Perth, Tasmania, 2004, pp. 91–110; and Glyn Roberts, *Metal Mining in Tasmania 1804 to 1914: How Government Helped Shape the Mining Industry*, Bokprint and Fullers Bookshop, Launceston, 2007, p. 118.

¹²⁵ C.P. Sprent, 'Western Country', House of Assembly Paper 27/1877. The most detailed account of Sprent's second 1876 expedition was written anonymously by his Assistant Surveyor, David Jones, 'An Exploration Trip to the Pieman River and West Coast', *Cornwall Chronicle*, 5, p. 2; 9, p. 3; and 19 June 1876, p. 3.

when, in addition, Sprent found iron ore at the Savage River and ‘platinum’ (osmiridium) on the Whyte River. Yet Sprent found no gold, and his prospecting track from Waratah to Mount Heemskirk via the Ramsay River, Yellowband Plain and the middle reaches of the Pieman was not a supply route, being too rough for pack horses.

The best approach—by sea—was taxing. In the summer of 1876–77 the Meredith brothers, sons of the east coast grazier/politician Charles Meredith and the artist/writer Louisa Ann Meredith, failed to emulate the party of the *Alma* two years earlier by sailing up the Pieman. Finding the bar across the river mouth too difficult to cross, the skipper of the schooner *Secret* disembarked the prospectors at Hells Gates, Macquarie Harbour, instead, leaving them to tramp about 50 kilometres up to the Pieman and raft upstream. George Meredith found the view from the river daunting:

The hills are as steep as gothic house roofs right to the water and are one mass of trees and scrub. Nothing would give a better idea of the course of the river than a gridiron made of iron hoop.¹²⁶

The Meredith brothers represented the Emu Bay and Pieman River Prospecting Company. Tom Moore worked for the Corinna Mining Company. At first, Moore’s principal interest was in the Mount Heemskirk tin field south of the Pieman, where he became apprised of the hardships of mining on the isolated West Coast. Even the durable Moore suffered scurvy at Heemskirk.¹²⁷ Any variation to a diet of tinned meat and damper was a plus, and the Pieman waterways were bountiful in this respect. Tables 1 and 2 demonstrate how the most was made of every opportunity to stockpile a food source—be it blackfish one day, eels the next, crayfish, swans, ducks and even platypus. Moore and Owen Meredith slaughtered swans with a waddy; speared crayfish; and caught, salted and smoked 40 or 50 eels at a time.¹²⁸ George Meredith developed a method of ‘tagging’ eels, attracting them with a feather or another form of lightweight lure attached to his fishing hook.¹²⁹ Ducks, swans and even platypus were shot for tucker.¹³⁰ The river was not yet stocked with trout, but blackfish and native graylings or herrings (*Protoroctes maraena*) were caught.¹³¹

Table 1: River and sea food caught by the Meredith brothers Dec 1876–Feb 1877¹³²

Date	Eels	Swans	Crayfish	Duck	Platypus
12 Dec 1876	11				
15? Dec 1876	yes		12		
20? Dec 1876		1			
24 Dec 1876		yes			
5 Jan 1877					2
6 Jan 1877	7				
10 Jan 1877					1

¹²⁶ George Meredith diary 1876–77, 22 December 1876, NS718/1/1 (Tasmanian Archive and Heritage Office, Hobart); also reproduced in Alice Meredith Hodgson, *Prospecting the Pieman; George Campbell Meredith’s Logbook November 1876 to March 1877*, the author, Sandy Bay, Tas, 2009, p. 41.

¹²⁷ T.B. Moore diary 21 April 1878, ZM5616, Tasmanian Museum and Art Gallery, Hobart [hereafter TMAG]

¹²⁸ T.B. Moore letter home from Macquarie Harbour 26 January 1878; quoted by RW Gowlland, *Some Van Diemen’s Land Affairs*, New Norfolk, 1980, pp. 74–78.

¹²⁹ Alice Meredith Hodgson, *Prospecting the Pieman*, p. 46.

¹³⁰ ‘Our Special Reporter’ (Fergus Scott), ‘The West Coast Goldfields’, *Tasmanian Mail* 9 October 1880, p.8; ‘Our Own Correspondent’ (Fergus Scott), ‘The West Coast Goldfields’, *Tasmanian Mail* 14 May 1881, p. 11.

¹³¹ ‘Our Special Reporter’ (Fergus Scott), ‘The West Coast Goldfields’, *Tasmanian Mail* 25 June 1881, p. 11.

¹³² George Meredith diary 1876–77, NS718/1/1, Tasmanian Archive and Heritage Office, Hobart. [hereafter TAHO] In addition, two wombats, a snake and ‘wild celery’ were eaten during this period. The word ‘yes’ used in this table denotes that the number caught is not specified in the diary.

14 Jan 1877		3		1	
21 Jan 1877	yes				
29 Jan 1877	8				
4 Feb 1877	3				
5 Feb 1877	8				

Table 2: River and sea food caught by Tom Moore Nov-Dec 1877¹³³

Date	Blackfish	Eels	Swans	Crayfish	Ducks
19 Nov 1877		yes			
20 Nov 1877					3
21 Nov 1877		yes	yes		
22 Nov 1877				yes	
23 Nov 1877			1		
29 Nov 1877		30–40	3		
1 Dec 1877		40			
8 Dec 1877		1			
9 Dec 1877	60	2			
12 Dec 1877	144	2			
13 Dec 1877				16	
14 Dec 1877		50			

Hunting for food and fishing were time consuming, energy sapping and unreliable. Although the Merediths and Moore caught ‘a mass of eels’ one night in early January 1878, within a week they were so short of food or bored with their diet that Owen Meredith and Moore set off for Whales Head (later Temma) in the hope of intercepting the supply vessel the *Pauline*.¹³⁴ Prospectors kept the coastal path open by burning, as the Aborigines had before them, but burning created its own hazard. Far from medical aid, Meredith had the misfortune to lose the sight in one eye:

Going along burnt ground Meredith ran a burnt stick in his eye had a great difficulty in pulling stick out but got about a quarter of an inch out of his eye leaving a little charchole [sic] still in. Wanted him to go back but would continue [?].¹³⁵

Crossing the Pieman River bar

The first gold rush came later that year. In December 1878 Jack Brown and his Chinese friend Ah Chow (‘Old John’ or ‘John Chinaman’) focused attention on the northern side of the Pieman River by washing gold in a creek at a place known henceforth as Browns Plains. Such was the ‘gold fever’ that some feared that the then profitable Mount Bischoff tin mine would be abandoned. One of the defectors from Bischoff planned to erect a boarding house and pub at Brown’s claim, where an area massed with diggers’ tents and enlivened by their foul language earned the name Blackguards Hill.¹³⁶ By February 1879, however, the pioneers Jack Brown and Ah Chow had Browns Plains to themselves again. The overland journey must have deterred many. ‘It seems very absurd carrying rations from Mount Bischoff a

¹³³ T.B. Moore diary 1877–78, ZM5616, TMAG. On 7 December 1877 Moore caught ‘5 or 6...’ (illegible). On 12 January 1878 he caught about 60 eels. The use of the word ‘yes’ in this table denotes that the number caught is unspecified.

¹³⁴ For the ‘mass of eels’, see George Meredith diary 1877–78, NS718/2, TAHO.

¹³⁵ T.B. Moore diary 14 January 1878, ZM5616, TAHO.

¹³⁶ Daniel Shine to JW Norton Smith 10 January 1879, VDL22/1/7, TAHO. The explanation given for the name Blackguards Hills was that the language used here ‘qualified [the diggers] for seats in the New South Wales legislature’, (see ‘Our Special Reporter’, ‘A Tramp on the West Coast: no.2’, *Launceston Examiner* 26 July 1890, p.7).

distance of over 40 miles over rough country to a spot within ten miles of the navigable waters of the Donaldson [sic: Pieman] River', the prospector WR Bell lamented.¹³⁷

Perhaps Bell had not experienced the Pieman River heads. Getting to the Pieman goldfield remained as much an ordeal as living there. Hearty cheers sent the ss *Pioneer* out of Launceston on its mission to be the first steamer to enter the Pieman (see Table 3). The round trip from Launceston took 11 days. The engineer did not make the voyage, allegedly preferring a bottle. Unfamiliar with the ship's engines, the ring-in engineer ran the *Pioneer* aground before it even reached open waters.¹³⁸ This inexperience may also account for the vessel running out of coal in heavy seas near Cape Grim, on the north-western tip of Tasmania, about half way to its destination. Captain Fitzgerald, apparently no teetotaler himself, disembarked the passengers on a sheep run, and returned to the nearest port, Stanley, for fuel. Stanley resident FW Ford described captain and crew as 'a lot of drunken cannibals' and the vessel's condition as 'the dirtiest I ever saw'. The pilot, Pearson, suffering severely from a syphilitic ulcer, chose this opportunity to refuse to proceed—whereupon the ring-in engineer refused to tackle the Pieman heads uninsured without a pilot. The substitute pilot, George Spiers, watched a huge roller break over the ship, smashing the wheel and knocking two men 'silly' as he crossed the dreaded Pieman bar. Inside the heads he was presented with a silver watch for his success by Owen Meredith, chairing the Pieman River welcoming committee.¹³⁹ It is unknown what congratulations the passengers received for surviving both the voyage and the crew. The diggers whom the chartered *Pioneer* had rescued from dietary boredom, if not starvation, presumably cared little about the vessel's dubious safety standards.

Table 3: Steamer services to the Pieman River goldfield 1878–89

Steamer/line	First Pieman trip	Regular service	Last Pieman trip	Master
<i>Pioneer</i>	May 1878	—	Sept 1878	Chartered. Carried mail. Fitzgerald, Lton.
<i>Amy</i> United Steamship Co	May 1878	Sept 1881–Apr 83 ¹⁴⁰	July 1883	John Reid, Hobt. James McNair, Hobt.
<i>Sarah</i> Henry & Co	Apr 1879	—	Apr 1879	Chartered. P Turner, Latrobe.
<i>Rosedale</i>	June 1879	—	June 1879	Anthony, Melbourne.
<i>Wakefield</i> United Steamship Co	Feb 1883	Oct 1886–Jan 88 ¹⁴¹	Feb 1889	John Reid, Hobt. James McNair, Hobt.

The cutter *North Star* once sat off the Pieman heads for 22 days before the captain risked entry.¹⁴² Some of the less patient or less fortunate came to grief here. Henry Chad Christian was the Pitcairn Island-born 26-year-old great-grandson of Fletcher Christian, leader of the

¹³⁷ WR Bell to JW Norton Smith 14 February 1879, VDL22/1/7 TAHO.

¹³⁸ 'Our Launceston Letter', *Mercury*, 27 May 1878, p. 2. The Launceston correspondent also accused Fitzgerald of being drunk when he set out from Launceston.

¹³⁹ 'Circular Head', *Launceston Examiner*, 12 June 1878, p. 3; F.W. Ford to J.W. Norton Smith, 5 June 1878, VDL22/1/6, TAHO.

¹⁴⁰ In April 1883 the *Amy* was switched to east coast trade, with the *Wakefield* beginning an irregular West Coast trade.

¹⁴¹ The *Wakefield* started a regular service to Macquarie Harbour, Trial Harbour and the Pieman River because of excitement about the discovery of rich gold at Mount Lyell in 1886.

¹⁴² 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 17 April 1880, p. 17.

mutiny on the *Bounty*. Arriving in Tasmania from Norfolk Island as a crewman on the whaling barque *Water Witch*, Christian was the first constable appointed to the Pieman River. Although an experienced sailor and strong swimmer, he drowned when his sailboat was swamped on the sand bar in 1879. Christian's grave on a green knoll overlooking the Pieman River heads afterwards served as a warning to mariners until nature reclaimed it.¹⁴³

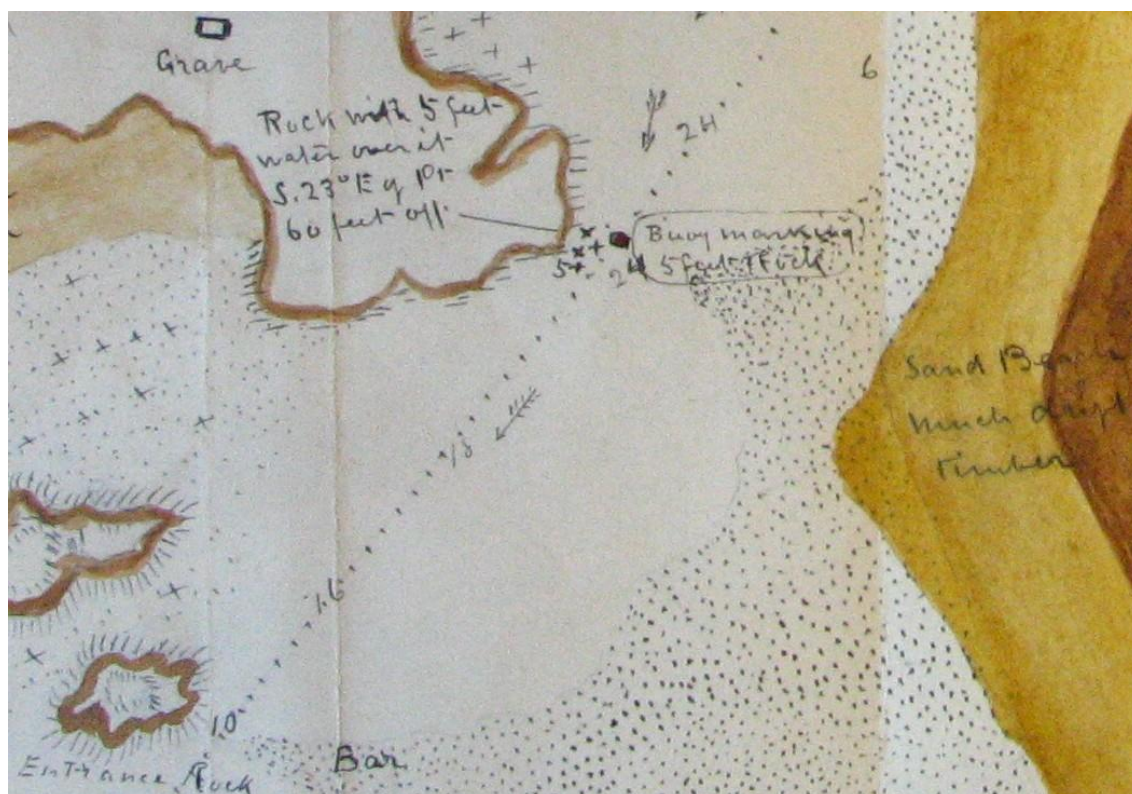


Figure 3: Marine engineer Theophilus Jones' 1887 survey of the Pieman River heads, showing the grave of Henry Chad Christian (left of centre), the bar across the entrance and the dangerous submerged rock on which Jones placed a buoy.
Courtesy of the Tasmanian Archive and Heritage Office, Hobart

Harry Middleton and Axel Tengdahl sent 250 diggers splashing in Middletons Creek, tributary of the Savage River, in the autumn of 1879.¹⁴⁴ Tengdahl was one of the most versatile Tasmanian prospectors. Like other Pieman diggers, the Swede was an 'old salt', which proved handy when his Latrobe (north-western Tasmanian) backers chartered the steamer *Sarah* to bring men and supplies to their diggings. Tengdahl took the helm when the vessel was engulfed by a 'long sea roller' on the bar:

The water poured on board the helpless craft in tons. Everything movable went by the board...The steamer was carried on the crest of an enormous breaker, but the wave rolling faster than the boat, she was left in the trough, and the following wave rose over the stern like a mountain, and raked her from stern to stern...The next roller left the struggling steamer aground on the fringe of the sandbank forming the bar, where, after a second or two for breathing time, an enormous green curling 'beauty' lifted her under the quarter, and with a sort of pitying contempt carried the waterlogged derelict at railway speed past the 'black rock'...the feeble

¹⁴³ 'The District Constable for Pieman River', *Mercury*, 7 February 1880, p. 2; 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 7 August 1880, supplement p. 5.

¹⁴⁴ Glyn Roberts, *The Role of Government in the Development of the Tasmanian Metal Mining Industry: 1803–1883*, Centre for Tasmanian Historical Studies, Hobart, 1999, p. 101.

stroke of the engine getting her out of the main current into the rocky basin on the north side of the entrance.¹⁴⁵

Moving upstream in search of gold

Diggers at the Middletons Creek rush included Tasmanians from Latrobe, New Norfolk, Circular Head and the Huon River; New Zealanders; at least one Queenslander; 'Sailor Jack' Neul from England; and a supposed Muscovite, Ernest Brevern.¹⁴⁶ Other notables included Frank McPartland, who had joined former Governor Sir John Franklin's exploratory party from Hobart to Macquarie Harbour in 1842; James Crotty, the future Mount Lyell tycoon; plus Jack Brown and Ah Chow. While the Chinaman had been accepted at Browns Plains as co-proprietor, he was sent packing from Middletons Creek.¹⁴⁷

Sunday (now Sabbath) Creek, a tributary of the Donaldson River, and 'The Badger' (now Longback Creek), under the hill known as the Longback, were the next to be rushed.¹⁴⁸ The nomenclature tells a tale of regular small rushes with an increasingly international cast. Hangmans Creek recalls 30 men working waist-deep in water in a near starving condition for little return 15 kilometres upstream from the Pieman stores.¹⁴⁹ Frenchmans Creek was probably named in honour of Nicholas St Dizier, a French prospector who chased gold high above the Pieman's middle reaches.¹⁵⁰ Lovers Falls (formerly True Lovers Falls) reputedly records the breach of trust when a lady's busy lips divulged the site of her lover's paydirt.¹⁵¹

Gradually the goldfield spread from Corinna on the lower Pieman River up to its middle reaches and to the head of tributaries such as the Savage River. An inlet once called Alma Cove on the middle Pieman recalled the original 1874 prospecting voyage. Believing they had found indications of a gold reef, the Slaters returned to Alma Cove in 1879, forming the Lefroy Gold Mining Company, probably the first attempt at hard rock mining on the West Coast of Tasmania.¹⁵²

Perhaps it was the Slaters who, remembering loved ones, had initiated the theme of female feature names, placing Nancy, Lucy, Amelia and Alice Creeks, plus the Elizabeth Range, on George Meredith's 'gridiron made of iron hoop'.¹⁵³ Above Alma Cove was Echo Vale (aka Bachelor's Hall), site of the Slaters' weatherboard and canvas miners' cottage which was

¹⁴⁵ C.J. Binks, *Pioneers of Tasmania's West Coast*, Blubber Head, Hobart, 1988, pp. 100–101.

¹⁴⁶ 'Flaneur' (T.G. Williams), 'Mount Bischoff Notes', *Launceston Examiner*, 18 June 1883, p. 3; 'CHC' (Con Curtain), 'A Reminiscence of 1879', *Zeehan and Dundas Herald*, 15 March 1911, p. 1.

¹⁴⁷ Con Henry Curtain, 'Old Times: West Coast Mining: no.14', *Examiner*, 5 January 1928, p. 3.

¹⁴⁸ For Sunday Creek see 'Mount Bischoff', *Mercury*, 8 August 1879, p. 3; and T.B. Moore diary entry 1 July 1879, AZM5617, TMAG. For 'the Badger' see T.B. Moore diary entry for September–November 1879, ZM5617 (Tasmanian Museum and Art Gallery, Hobart); and, for example, 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Mercury*, 3 August 1880, p. 3.

¹⁴⁹ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 4 September 1880, supplement p. 3. Hangmans Creek was originally known as Sydney Toms Creek, after the instigator of the gold rush there, 'Sydney Tom' Normoyle, a New South Wales digger who later became a police constable.

¹⁵⁰ St Dizier is also remembered by the name Frenchmans Beach in Otago, New Zealand, having been one of a party of Frenchmen who worked a claim there during the 1860s.

¹⁵¹ See H. Stuart Dove, 'A Romance of the Pieman', *Advocate*, 21 February 1935, p. 9.

¹⁵² 'A Cruise on the Tasmanian Coast', *Launceston Examiner*, 30 June 1874, p. 3; Job Savage, 'Pieman River Diggings', *Launceston Examiner*, 20 December 1880, p. 3.

¹⁵³ The Lucy Spur mine, at the head of Lucy Creek, was probably named after a prospector named Richard Spurr, who claimed to have discovered a gold reef there. See 'Mount Bischoff', *Mercury*, 5 November 1881, p. 3.

decorated with pen and ink caricatures and enlivened by concertina music.¹⁵⁴ Long before recreational kayakers tackled the Pieman from the Murchison Highway to its mouth in 1950, miners were pulling up river even further than the site of today's Reece Dam.¹⁵⁵ Dug-out canoes fashioned from Huon pine that grew along river banks were the regular mode of transport. Perhaps the most famous of these vessels was Job Savage's almost indestructible hotel ferry known promisingly as the *Sluicebox*, which made surprise reappearances after being swept away or sunk by floods.¹⁵⁶

The Pieman's tributary rivers were also important conduits. Until 1881 the Savage River was the thoroughfare between the Middletons Creek diggings and the Pieman River. Beautiful reflections of ferns and trees compensated for the snags and logs that had to be avoided in boating the Savage.¹⁵⁷

Tom Moore described building a river craft by utilising the remains of a Huon pine from which piners had taken only the butt. In three days, on the edge of the Pieman, he fashioned an outrigger canoe and two paddles, the typical prospector's vessel. On first sailing the canoe was 'too cranky' and capsized, necessitating a reshape. Next day it was being pulled over rapids of the middle Pieman.¹⁵⁸

Other prospectors were poorer sailors. Dan Griffin and David Denison nearly drowned in the Pieman in 1882 in a Huon pine dug-out capsize.¹⁵⁹ The owner of that dug-out, Melbourne digger Matthew Sedgeman, and his Hobart mate Charles McGill, drowned the very next day. Ironically, Sedgeman capsized their dinghy as he leaned over to remonstrate with a man who had 'borrowed' the difficult dug-out.¹⁶⁰

Not all the local forage was water based. Different parts of the field offered different diets. Paradoxically, 'The Badger' offered a smorgasbord of echidnas ('porcupines').¹⁶¹ Tom Moore lived on 20 of them over the period from 11 February to 13 March 1880. Four days into the all-porcupine diet he reported feeling 'rather bilious. Porcupine too big fellow fat [sic]', but next day he was 'back on the wagon'.¹⁶² Moore and Owen Meredith had learned early in their Pieman days how easy it was to secure 'porcupines', and also how to take honey from a 'bee-tree'.¹⁶³ Dogs would often bring home an edible marsupial. Moore described in verse the everyday event of his dogs hunting ahead of him while he tramped:

Climed [sic] up a hill along the track
With Spero & Spiro my two dogs.
But soon the dogs a scent had found
Rushed on in front the game to find
With noses pointing to the ground

¹⁵⁴ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 4 September 1880, supplement p. 3.

¹⁵⁵ Johnson Dean, *Shooting the Franklin: Early Canoeing on Tasmania's Wild Rivers*, 2002, pp. 27-33.

¹⁵⁶ See, for example, 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail* 29 May 1880, p. 8; 5 June 1880, p. 7 and 12 June 1880, p. 7.

¹⁵⁷ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 26 March 1881, p. 9.

¹⁵⁸ T.B. Moore diary 2-10 January 1891, ZMB5627 TMAG.

¹⁵⁹ 'Waratah', *Launceston Examiner* 8 February 1882, p. 2; 'The Tramp' (Dan Griffin), 'Deloraine Notes', *The Colonist*, 14 July 1888, supplement p. 3.

¹⁶⁰ 'Mount Heemskirk', *Mercury*, 8 February 1882, p. 2.

¹⁶¹ 'Badger' was the colloquial term for the wombat. Echidnas were commonly called 'porcupines'.

¹⁶² T.B. Moore diary entries February-March 1880, ZM5617, TMAG.

¹⁶³ T.B. Moore letter home from Macquarie Harbour 26 January 1878; quoted by R.W. Gowlland, *Some Van Diemen's Land Affairs*, New Norfolk, 1980, pp. 74-78.

Left me some forty yards behind
When lo! I heard a savage sound
Among the ferns hard by
As some beast upon the ground
Yelled out its last its dying cry

The only surprise was that on this occasion the prey was not a tasty echidna or wombat, but the much rarer thylacine:

In haste upon some mossy logs
My heavy load was flung
And quickly to the barking dogs
...[from?] stones and logs I sprung
Upon the turf there lay quite dead
A beast with stripes upon his coat
Young Spero bit about its head
While Spiro grasped it by the throat
So [?] there a noble tigre died
Just as the sun set golden rays [?]
Shed light upon the mountain [?] side
And victors of that savage fray¹⁶⁴

A photo staged by Moore bears out the importance of his working relationship with his dogs. The prospector went to the trouble to haul the dogs and his bush gear into a Hobart or New Norfolk photography studio, and there arranged for artificial snow to enliven the staid studio backdrop. In the photo, Moore proudly sports a cap fashioned from the thylacine killed by Spero and Spiro.

¹⁶⁴ T.B. Moore diary 1880, ZM5617, TMAG.



Image 1: Tom Moore wearing the cap fashioned from his dogs' 'first striped gentleman', the thylacine killed near the Pieman River in 1880.¹⁶⁵

Supply by sea: private and government efforts 1880–82

By 1880 the difficulty of survival at the Pieman had reduced a population of 250 to about 15.¹⁶⁶ A few beef cattle were probably driven to the Pieman River from Circular Head in 1881, but the West Coast stock route only proved economical when the Zeehan –Dundas silver-lead field boomed after 1888.¹⁶⁷ Local subscription had established a track from Waratah to the Middletons Creek diggings, but it was too rough for pack-horses, and, arguably, too rough for men.¹⁶⁸ It included the infamous 'Underground Railway', a stretch of almost a mile which compelled users to crawl under burnt spars.¹⁶⁹ On several occasions miners claimed to be

¹⁶⁵ T.B. Moore diary 11 April 1880, ZM5617, TMAG.

¹⁶⁶ Glyn Roberts, *Metal Mining in Tasmania 1804 to 1914*, p. 118.

¹⁶⁷ 'The West Coast Goldfields', *Tasmanian Mail* 7 August 1880, p.7; and 6 August 1881 p.10 respectively.

¹⁶⁸ See 'Mount Bischoff', *Examiner*, 18 July 1879, p. 3; and 'Gossan', 'Burnie to Corinna', *Examiner*, 29 June 1900, p. 7.

¹⁶⁹ See 'The West Coast to Bischoff', *Tasmanian Mail*, 26 March 1881, p. 3.

threatened by starvation as a result of infrequent shipping services.¹⁷⁰ Petitions to government to rescue the struggling goldfield asked for one of three things: the cutting of an access track; subsidisation of a regular shipping service; and the establishment of a government store.

Job Savage's colourful personality kept the Pieman in the news and in the minds of politicians who might authorise better access. His connection with the Pieman system had begun with a track-cutting exercise in 1864, at which time its tributary the Savage River was named after him.¹⁷¹ However, the portly, acerbic-witted, wood-chopping, home-brewing ex-ferryman made himself synonymous with the parent river as well.



Image 2: The wit of Job Savage: a concert was held at the Pieman heads In 1880 to raise money for a headstone and fence for Henry Chad Christian's grave.¹⁷²

Savage had learned that supplying other miners was more lucrative than digging for gold himself. He bought what became the Donaldson Inn from William Sutton in 1880 for 4 ounces of gold, then added a store to it.¹⁷³ From this position at the mouth of the Savage River—the thoroughfare from the Middletons Creek diggings—he supplied Pieman goldfield diggers and prospectors at Macquarie Harbour. Like the Corinna Hotel, the Donaldson Inn could only be approached by water. The standard entry to the inn was to cooe across the water for the

¹⁷⁰ See, for example, 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 18 September 1880, supplement p. 3.

¹⁷¹ For Savage's part in the cutting of the Burgess Track in 1864, see Gordon Burgess, 'From the Surrey Hills to the West Coast', *Launceston Examiner*, 27 December 1873, p. 2.

¹⁷² 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 1 May 1880, p. 5.

¹⁷³ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 1 May 1880, p. 8.

proprietor to come collect you in the *Sluicebox*.¹⁷⁴ One party yelled into the wind for three hours before giving up.

Gold digger and *Tasmanian Mail* newspaper correspondent Fergus Scott found a novel way to boat to Savage's in August 1880, when he awoke to find boxes, billies and the remains of his mouldy provisions bobbing about beneath his hammock, the Pieman River having risen waist-deep into his hut. A packing case served as an intermediary:

Got on the floor of the hut, and placing the largest case, with the open portion downwards, to ensure its bearing my weight, managed, with the aid of a paling, to float to the punts. This craft, which was full of water, sank beneath me, but fortunately managed I to scramble to the larger boat moored near, and after a tough struggle reached the inn.

To Scott's relief, the water in the Donaldson Inn was only calf-deep.¹⁷⁵

While awaiting supplies from Hobart in 1880, Scott claimed that many diggers subsisted on damper, kangaroo rats and 'badgers' (wombats), these men obviously lacking Moore and Meredith's fishing and birding skills.¹⁷⁶ In August 1880 Savage chartered the steamer *Amy* to bring enough supplies to last 100 men six months.¹⁷⁷ It was a long time coming. In the meantime, Scott supplemented tinned fish by scraping mouldy flour from a barrel to turn into a linseed meal cake:

That was too much; with no sugar to disguise the taste of the meal the cake was simply nauseous, and the stomach rejected it. Next made a hearty repast off boiled peas, which had been brought down to sow at the [Pieman River] Heads two years ago. The following day the careful pickings of a rice bag gave a relish to dinner; and for tea a small Johnny cake from the flour scraped off the inside of an old 50lb bag was a treat. When the steamer arrived I had only a handful of oats picked out of some horse feed, and about 2lb of damaged seed peas.¹⁷⁸

The population of the field at this time was only 27. Nevertheless, according to Scott, the arrival of the *Amy* on its third supply mission was celebrated heartily at the Corinna Hotel, with crew members joining in:

The least hirsute members of the company had to be substituted for ladies in the quadrilles and polkas, and they performed their parts as well as could be expected. Proceedings were brought to a close at about 3 o'clock in the morning by the singing of "Auld Lang Syne."¹⁷⁹

New arrival on the *Amy*, Mrs Foster, then pregnant with her eighth child, must have declined to 'bust a move'. Yet, optimistically, her arrival at the Pieman was heralded as the foundation

¹⁷⁴ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 17 April 1880, p. 17.

¹⁷⁵ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 4 September 1880, supplement p. 3.

¹⁷⁶ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 17 June 1880, p. 6.

¹⁷⁷ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 21 August 1880, p. 18; 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 18 September 1880, supplement p. 3.

¹⁷⁸ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 18 September 1880, supplement p. 3.

¹⁷⁹ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 9 October 1880, p. 8.

of permanent settlement. Her daughter Corinna was said to be the first European child born on the West Coast of Tasmania.¹⁸⁰

Understandably, Savage did not support the establishment of a government store at the Pieman in competition to his own. He accused Scott of concocting the 'Pieman famine' out of self-interest, that is, in order to get a job as Government Storeman.¹⁸¹ As Glyn Roberts has discussed, Scott used the example of similar ventures in New Zealand to petition for this 'very unwise business venture', one which Moore had originally broached.¹⁸² Scott's newspaper reports pushed the theme that government should step in where private enterprise had failed—but there was no sign of famine in the giant Job Savage.¹⁸³ 'We were shocked at his woe-begone and emaciated appearance,' the *Devon Herald* reported his home visit to the north-west coast in December 1880.

He weighed some 17 stone when he last left the bosom of his family at Torquay [East Devonport], and now we should imagine he did not weigh an ounce over 27 stone!¹⁸⁴



Image 3: The Government Store (right) and Fergus Scott's eight-berth accommodation house and storeroom (left), Corinna, 1881.
Sketch by O Jarman from the *Tasmanian Mail*.¹⁸⁵

Scott got his way with the Government Store. He was appointed Storekeeper, Postmaster and Registrar of Mines. The establishment of this store (on the site of today's Corinna

¹⁸⁰ 'Our Own Correspondent', 'The West Coast Goldfields', *Tasmanian Mail*, 9 October 1880, p. 7; 14 May 1881, p. 11.

¹⁸¹ Job Savage, 'Pieman River Diggings', *Examiner*, 20 December 1880, p. 3.

¹⁸² Glyn Roberts, *Metal Mining in Tasmania 1804 to 1914*, p. 118.

¹⁸³ For Scott pushing this theme see, for example, 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 21 August 1880, p. 18; 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 4 September 1880, p. 4.

¹⁸⁴ 'The Pieman Famine', *Devon Herald*, 22 December 1880, p. 2. Seventeen stone and 27 stone equal about 110 and 170 kilograms respectively.

¹⁸⁵ 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 14 May 1881, p. 11.

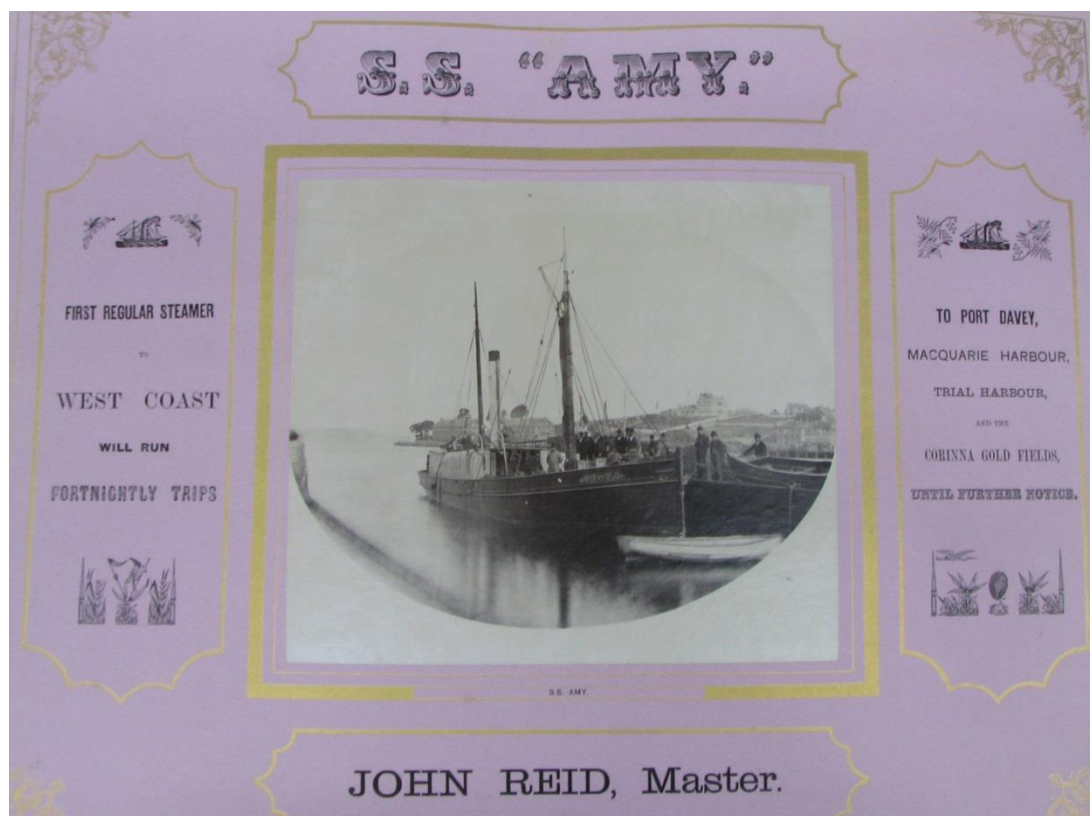
Wilderness Experience) and the completion of a track to it in 1881 diverted traffic away from Savage's inn and stores.

Savage, meanwhile, continued to demand a regular West Coast steamer service. He claimed to have gone straight to the top by striding unannounced into Government House, Hobart, to bail up Governor Sir Frederick Weld. Savage's account of the meeting had Weld rushing senior government ministers to his side and asking after the health of 'the old woman and the kids' before sitting Savage down with a cigar and plying him for mining investment advice. Savage obliged:

'All serene, your Honor, you hand over the spondulicks [money], and I'll do the ryeback [right] thing for you...if I don't put you in the way of making a pot of money, I hope I may grow thin.'

There was, of course, a trade-off:

'But you must promise me that you will get your coves to subsidise the Amy; that's the boat for the trade, Mister, and if you can only manage to work that little job for us, we are bound to come out straight. I can see a pile sticking out a foot for every one of us.'¹⁸⁶



*Image 4: The master of the ss Amy pledges regular services from Hobart to Tasmania's West Coast in 1881. These would cease when pining ceased in 1883 (see Table 4).
Courtesy of the Tasmanian Archive and Heritage Office, Hobart*

Potential profits must have 'stood out a foot' for the proprietor of the *Amy* too, because unaided regular 10-day West Coast services began immediately.

¹⁸⁶ 'A Trip to the West Coast', *Devon Herald*, 8 September 1881, p. 3.

The consignment of Savage's private enterprise to a slow death was presumably not the outcome sought with the establishment of the experimental Government Store. Perhaps Scott's management was also partly responsible for the store's closure after less than one year. According to Glyn Roberts, an inventory of stock taken before the store's close revealed among the mining supplies bottles of chloroform, brass buttons, bells and a cigar lighter.¹⁸⁷

Yet government still had a part to play in the progress of the Pieman. In March 1882, after visiting the Pieman and Gordon Rivers, Minister of Lands Christopher O'Reilly banned the issuing of further pine-cutting licences, establishing a West Coast Huon pine reserve.¹⁸⁸ The symbiosis between pinner and miner was thereby doomed, making shipping services to the Pieman uneconomical. It now seemed that a government which for two years had pondered propping up a marginal goldfield may have unwittingly killed it instead.

Hard rock mining on the Long Plain

Aside from the Lefroy Prospecting Association, only alluvial work was attempted at the Pieman until 1882. In his progress report on the field in June 1881, Inspector of Mines Gustav Thureau pondered the source of the alluvial gold, encouraging the miners who had hitherto only worked the creeks to tunnel into the 'tertiary washes'. This, he believed, was the future:

The opening of the 'terraces' as some miners designate the tertiaries, would open a new era of gold mining in Tasmania, and, to judge from indications, promises to be a more permanent and successful undertaking as when the creeks were worked in the last few years.¹⁸⁹

He pointed out the natural advantages the Pieman River goldfield possessed for mining:

an unlimited supply of running water, which can be used both for sluicing (in boxes or hydraulically with hoses and jets) and as a motive power. Besides that an almost inexhaustible supply of useful timber can readily be obtained to work their mines economically and rapidly with fair promises of success.¹⁹⁰

The Long Plains gold rush of February 1882 overtook Thureau's efforts to find the source of the alluvial gold. It also carried the focus of activity away from the lower Pieman River and its water-based culture. Soon 90 or 100 men were on the new alluvial field.¹⁹¹ Ted Peavor and George Johnson's coarse gold find anticipated the recovery of more than 4,000 ounces on the Long Plain. In 1883, James McGinty's efforts nearby at the Rocky River yielded Tasmania's largest-ever gold nuggets, weighing 243 and 144 oz respectively. Befitting the global free-for-all of gold rushes, there were New Zealand prospectors, such as Thomas 'Taranaki' McGrath, at Weetman and Crockford's ('Golden Ridge', or the Long Plains gold mine), near today's Savage River village, and the Swede, Axel Tengdahl. Russians were there too, forming the Second-to-None Company on the Specimen Reef, north of the site of the present-day Savage River iron ore mine.¹⁹²

¹⁸⁷ Glyn Roberts, *Metal Mining in Tasmania 1804 to 1914*, p. 119.

¹⁸⁸ See 'Tour of the Minister of Lands', *Mercury*, 29 March 1882, p. 3; and 'Ministerial Trip to the West Coast', *Launceston Examiner*, 28 May 1883, p. 3.

¹⁸⁹ Gustav Thureau, *Report on West Coast Mines: no.1: Pieman River Goldfield*, House of Assembly Paper 82/1881, 1881, p. 7.

¹⁹⁰ Gustav Thureau, *Report on West Coast Mines*, p. 9.

¹⁹¹ 'Tasmania', *Launceston Examiner*, 4 March 1882, p. 2; 'Tasmanian Telegrams', *Mercury* 15 March 1882, p. 2.

¹⁹² See, for example, 'Flaneur' (T.G. Williams), 'Mount Bischoff Notes', *Launceston Examiner*, 28 May 1883, p. 3.

These last two gold mines were the stayers on the field. Weetman and Crockford's claim produced many large, coarse, coral-like nuggets, the most famous being the 'New Guinea' nugget, star of the attempt to float a fraudulent gold mining company in New Guinea.¹⁹³ Unfortunately, however, tunnelling and open cutting would confirm that no gold reef underlay Thureau's 'auriferous sheets of quartz' on the Long Plain.¹⁹⁴ The Specimen Reef, discovered by Thomas Greenaway and Joseph Thunder in 1882, was heralded as the West Coast's first gold reef, a claim with which the Lefroy Prospecting Syndicate may have taken issue. More ambitiously, the Specimen Reef was the first mine beyond Bischoff to try to install machinery. The Corinna Track was improved to enable machinery to be hauled in from Waratah in 1883.¹⁹⁵

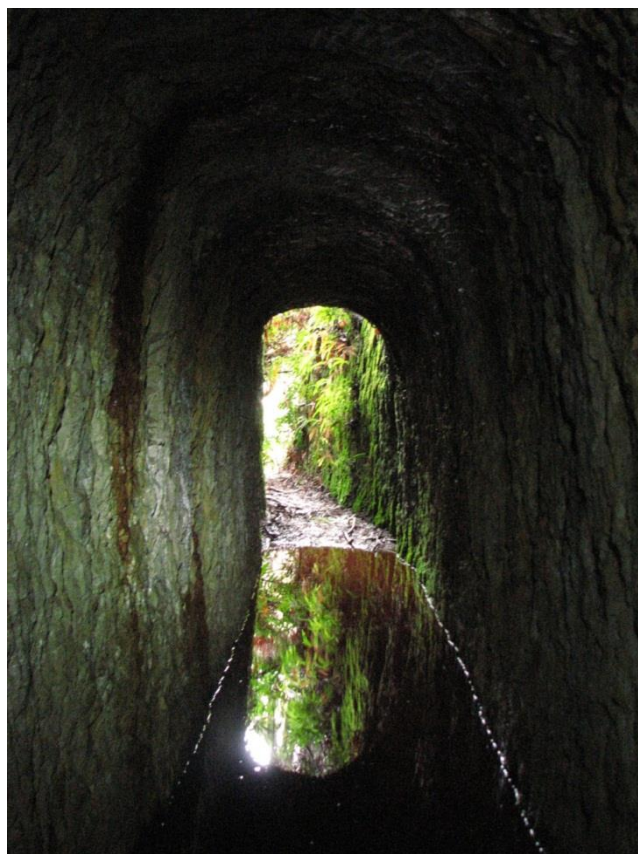


Image 5: One of the adits on the Long Plain goldfield today
Photo by Nic Haygarth

Gradually the Pieman goldfield's isolation and, therefore, its dependence on shipping, was eroded. The new stores on the Pieman goldfield—Robert Alford's at the Long Plains, and the boarding house and general store of butchers Frank Harvey and James Gaffney at the 20-Mile Mark on the Corinna Track—were served via land from Waratah, not by ship from Hobart or Launceston.¹⁹⁶ The telegraph line between Waratah and Corinna was established in 1882, and a West Coast cattle route from Circular Head was developed from 1880.¹⁹⁷

¹⁹³ 'A Nugget with a History', *Tasmanian Mail*, 1 August 1885, p. 22.

¹⁹⁴ W.H. Twelvvetrees, *Report on the Mineral Fields between Waratah and Corinna*, Department of Mines, Hobart, 1900, pp. 51–52.

¹⁹⁵ 'The Owl', 'Notes from the West', *Launceston Examiner*, 30 July 1883, p. 3; 'Mining', *Mercury*, 19 October 1883, p. 3.

¹⁹⁶ 'The Corinna Goldfield', *Mercury*, 21 January 1882, supplement p. 1; 'Long Plains', *Tasmanian*, 2 September 1882, p. 973.

¹⁹⁷ 'Tasmania', *Launceston Examiner*, 7 June 1882, p. 2.

Savage outlasted the Government store at the Pieman River, continuing to operate as long as a regular West Coast steamer service supplied him. In 1883 he was said to be contemplating buying his own very large steamer and blowing up the Pieman bar with dynamite.¹⁹⁸ In April 1883 some Huon pine logs he sent to Hobart on the *Amy* were seized on arrival in Hobart: 16 months later, after moving to Trial Harbour (Remine), Savage explained that it was the custom on the West Coast to cut the pines under licence and collect them at leisure after the licence had expired.¹⁹⁹ It did not do him much good because in June 1885 he was in the Bankruptcy Court.²⁰⁰

When Thureau returned to the Pieman catchment in 1884 to report on the Specimen Reef, he remained convinced that the coarse gold found here indicated the existence of a much larger goldfield than yet uncovered. He believed that the density of the scrub and the covering of auriferous drifts by more recent gravels and hard conglomerates impeded the field's progress. Thureau stated that drawing a larger mining population to the Pieman River goldfield was essential to its development and would benefit Tasmania generally.²⁰¹ In a few years' time, in the form of the hydraulic gold craze of the 1890s, he would have that population surge. However, the difficulty of bringing pressurized water to elevated terraces and the small amount of wash dirt available ensured that this would be one of Tasmania's most disastrous mining booms.²⁰²

The irony of the Pieman River goldfield is that it was a far better osmiridium field, but the early diggers could not exploit this alloy. Many reported finding 'iridium' or 'iridiosmium', particularly on tributaries of the Savage River.²⁰³ In 1876, after osmiridium was discovered in the Pieman River catchment at the Whyte River and Parsons Hood, James Smith was quoted £24 per oz as its value.²⁰⁴ Gold was then worth less than £4. Yet the Pieman diggers seem to have been unable to sell osmiridium at this time, no Tasmanian production of osmiridium being recorded until 1910. While the Corinna-Savage River area is estimated to have produced up to 31,500 oz of alluvial gold, osmiridium production on the Pieman River system of at least 14,000 oz, worth more than £300,000, would eventually eclipse it in value.²⁰⁵

When Matthew Sedgeman drowned in the Pieman River in 1882, he was carrying more than 2 oz of gold and 2.5 oz of osmiridium, apparently placing faith in that alloy's future.²⁰⁶ Similarly, James McGinty, discoverer of the great gold nuggets on the Rocky River, reputedly claimed that in the early days of the Pieman goldfield he stashed two pickle bottles full of osmiridium for safekeeping on a bend in the Savage River, hoping that it would one day amount to something. When it did, he could not relocate the bottles, making him twice a loser.²⁰⁷ Such was McGinty's 40 years as an alluvial miner on the Pieman River system,

¹⁹⁸ 'Mount Heemskirk', *Mercury*, 21 February 1883, p. 2.

¹⁹⁹ 'Seizure of Pine Logs', *Launceston Examiner*, 7 April 1883, p. 2; 'Country News: Heemskirk', *Mercury*, 11 August 1884, p. 3.

²⁰⁰ 'Commercial', *Launceston Examiner*, 1 July 1885, p. 2.

²⁰¹ Gustav Thureau, *Mount Cleveland and Corinna Gold Fields*, Parliamentary Paper 104/1884, 1884, pp. 1 and 6.

²⁰² EM Thornily, 'Some Notes on Hydraulic and Ground Suicing in New Zealand...', p.55.

²⁰³ See, for example, 'Our Special Reporter' (Fergus Scott), 'The West Coast Goldfields', *Tasmanian Mail*, 9 October 1880, p. 8.

²⁰⁴ James Smith to William Ritchie, 3 June 1876. NS234/2/3, TAHO. The average price during two of the Tasmanian osmiridium industry's peak years, 1919 and 1921, was £23.73 and £24.52 per ounce respectively.

²⁰⁵ Figures are from R.S. Bottrill, *Alluvial Gold*, Mineral Resources of Tasmania 11, Division of Mines and Mineral Resources, Hobart, 1991, pp. 5–6; and C.A. Bacon, *Notes on the Mining and History of Adamsfield*, Report 1992/20, Mineral Resources Tasmania, Hobart, 1992, p. 3.

²⁰⁶ 'Tasmanian Telegrams', *Mercury*, 6 March 1882, p.2.

²⁰⁷ 'A Town That Was', *Examiner*, 1 December 1932, p. 11.

battling the rain, the scrub and the isolation for a mere subsistence and a good hard luck story.

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APPENDIX TWO

Pyrite sample analysis by Ralph Bottrill

Mineral Resources Tasmania

**Mineralogical/Petrology Report
MPR2012/112**

Petrographic analyses, Mt Donaldson

An unpublished Mineral Resources Tasmania report for
Ron Gregory

by R. S. Bottrill & R. N. Woolley

22 February 2013

Mineral Resources Tasmania

INTRODUCTION

A sample of pyritic material was collected by yourself and submitted for petrographic analysis, with details listed in table 1 below.

TABLE 1: SAMPLE DETAILS.

MRT Reg. No.	Identification	Location	Description
G403814		Guthries Ck, Corinna	Pyrite

The samples were examined by reflected light polarised light microscopic techniques in the MRT petrology laboratories, Rosny Park.

SAMPLE DESCRIPTIONS

G403814 **Guthries, Corinna**

Under the stereomicroscope the sample contains almost pure, fine to very fine grained to colloform pyrite, with some probable carbonate grains and some small pores (Fig. 1).

DISCUSSION

The sample contains no visible gold, although there is possibly some “invisible” gold in the lattice of the pyrite. No other minerals of interest were observed. The colloform pyrite may be a diagenetic concretion; there is nothing to indicate a hydrothermal origin.

R.S. Bottrill
MINERALOGIST/PETROLOGIST

R.N. Woolley
TECHNICAL OFFICER

Disclaimers

While every care has been taken in the preparation of this report, no warranty is given as to the correctness of the information and no liability is accepted for any statement or opinion or for any error or omission. No reader should act or fail to act on the basis of any material contained herein. Readers should consult professional advisers. As a result the Crown in Right of the State of Tasmania and its employees, contractors and agents expressly disclaim all and any liability (including all liability from or attributable to any negligent or wrongful act or omission) to any persons whatsoever in respect of anything done or omitted to be done by any such person in reliance whether in whole or in part upon any of the material in this report.

Mineral Resources Tasmania

Appendix 2: Photomicrographs

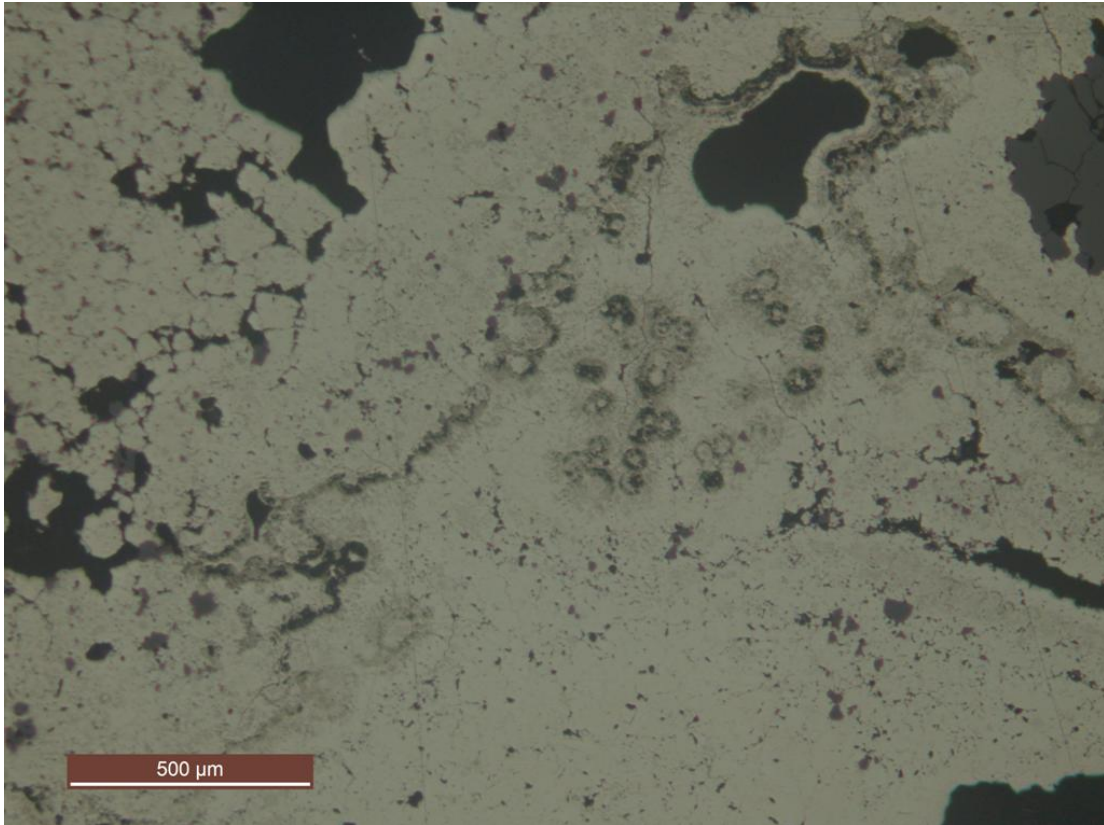


Fig.1. Granular to banded pyrite, G403814.

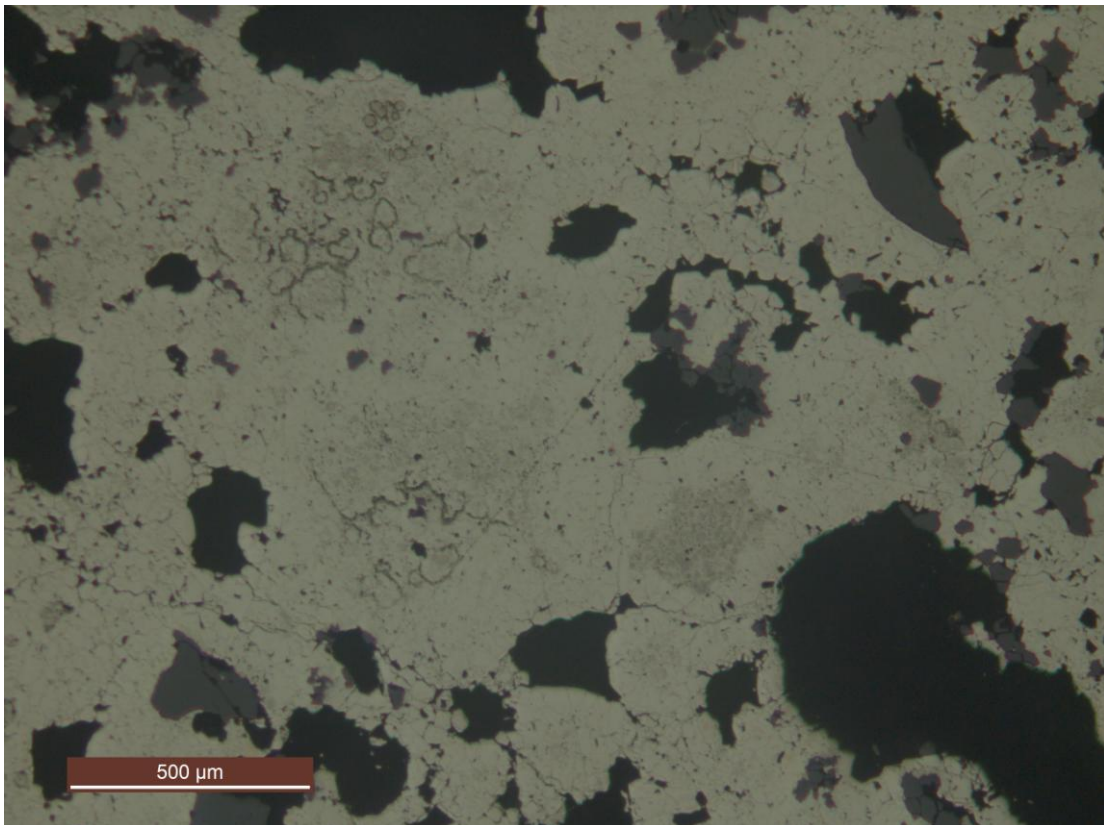


Fig. 2. Granular to banded pyrite, plus carbonates? G403814.

APPENDIX THREE

Geology Review by Rowena Murcott

Geology of EL36/2010

The geology of the Corinna licence EL 36/2010 is part of the Arthur Lineament which separates the western Ahrberg Group lithologies from the more easterly low strain zones of the Oonah Group.

Rocks within the tenement are part of a complex tectonic zone consisting of a linear belt of sheared and highly strained lithologies composed of Cambrian metasedimentary and mafic igneous lithologies of the eastern Ahrberg Group including Savage Dolomites, Bernafai Volcanics and sediments of the Donaldson Group.

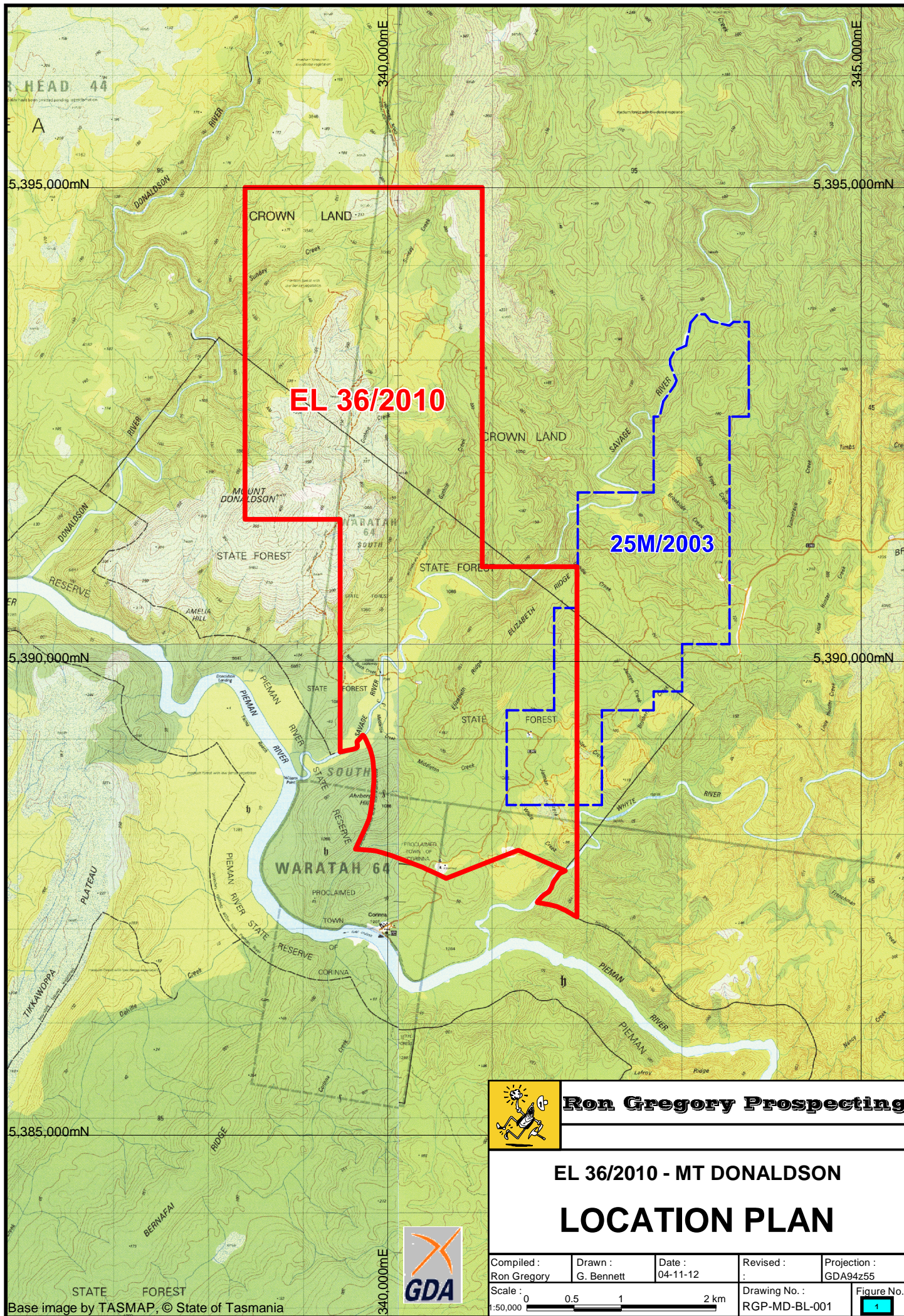
Within the tenement, the Savage Dolomites are mostly pale grey and cream fine grained oolitic dolomites with stromatolites, variable silicified dolomites and silica flour (Turner et al 1992). Overlying the dolomites in the vicinity of Elizabeth Ridge are found the Bernafai Volcanics. These volcanic are a sequence of mafic lavas and shallow intrusive, schistose volcaniclastics and volcanogenic mudstones (Henham 1990). In the vicinity of Mount Donaldson are the sediments of the Donaldson Group. These sediments consist of strongly bedded quartz rich sediments, sandstones, quartzites and occasional conglomerate units.

Accumulations of very pure, flour-like silica form residual deposits over silicified dolomite in the Ahrberg Group near Corinna.

The northeast trending Savage Fault system truncates the exploration licence.

Throughout the licence area large accumulations of Tertiary lead gravels appear. The recessive weathering characteristics of the Savage dolomite has resulted in the formation of depositional sub-basins that have consequently been filled in places by tens of meters of gravel (Henham, 1990). Gravels around Sabbath Creek in the north western area of the licence have been found to be auriferous.

The licence area remains prospective for gold, copper/magnetite, copper/gold, diamonds and silica mineralisation.



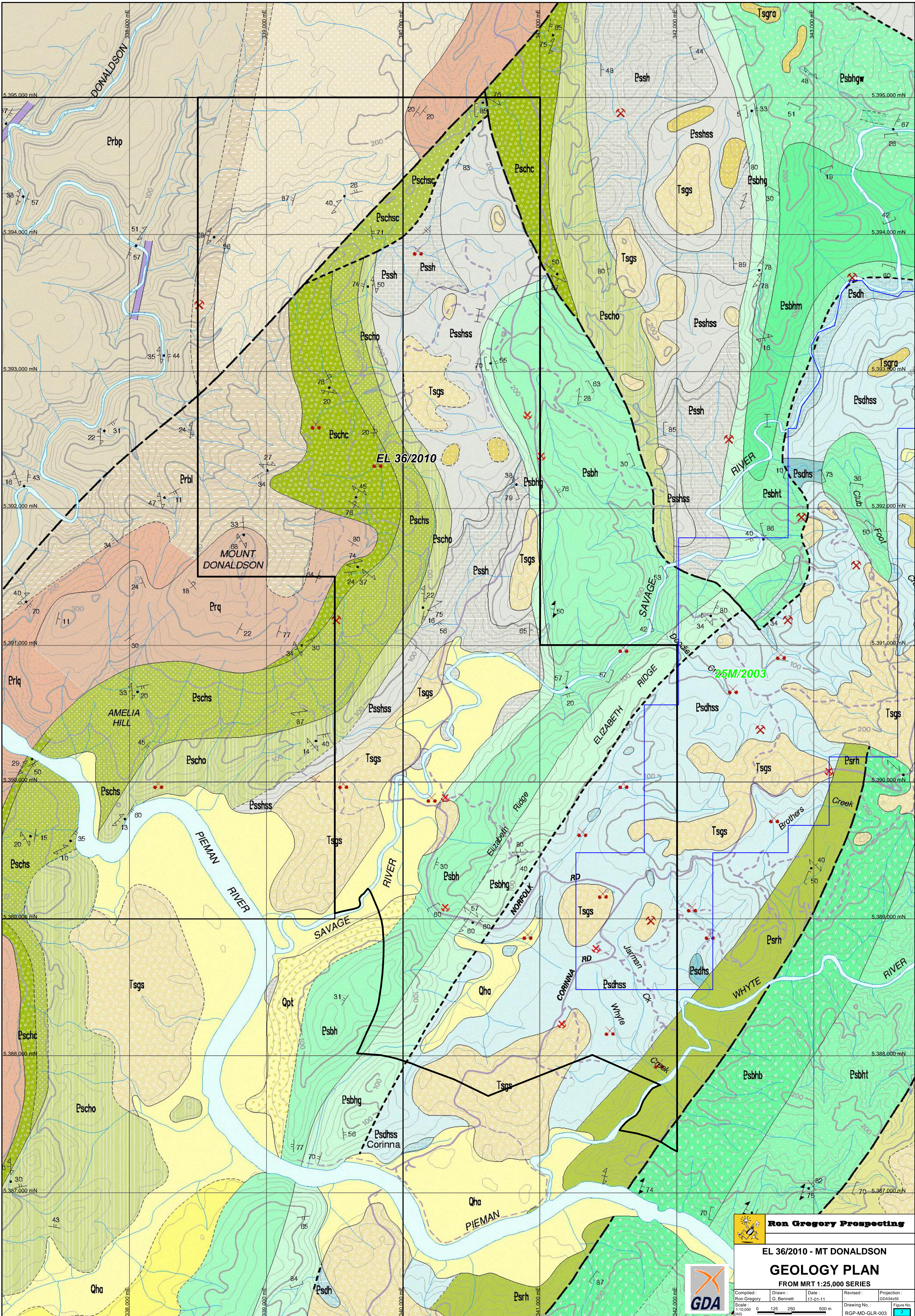
Ron Gregory Prospecting

EL 36/2010 - MT DONALDSON

LOCATION PLAN

Compiled : Ron Gregory	Drawn : G. Bennett	Date : 04-11-12	Revised : :	Projection : GDA94z55
Scale : 1:50,000			Drawing No. : RGP-MD-BL-001	Figure No. : <div>1</div>





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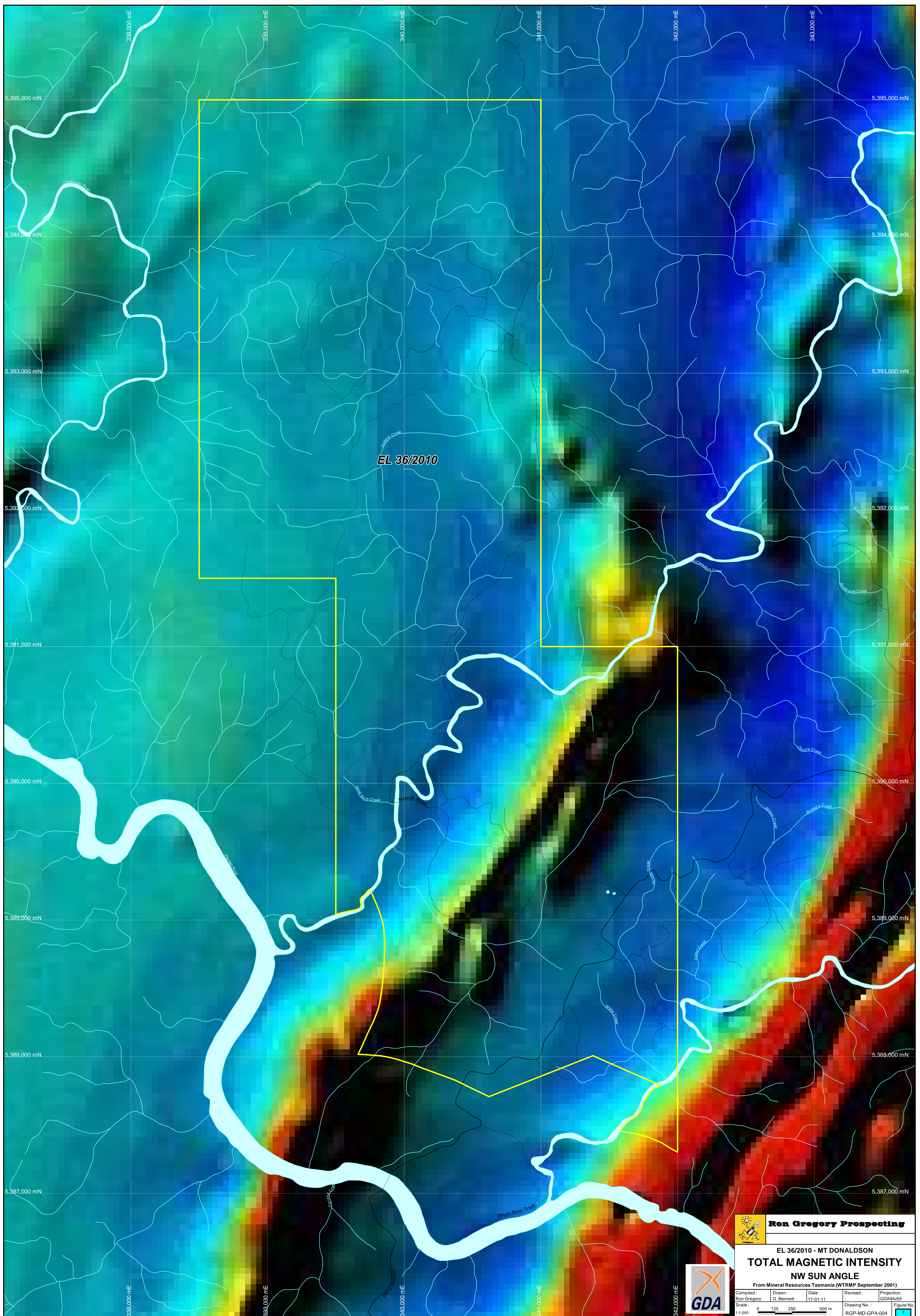
EL 36/2010 - MT DONALDSON

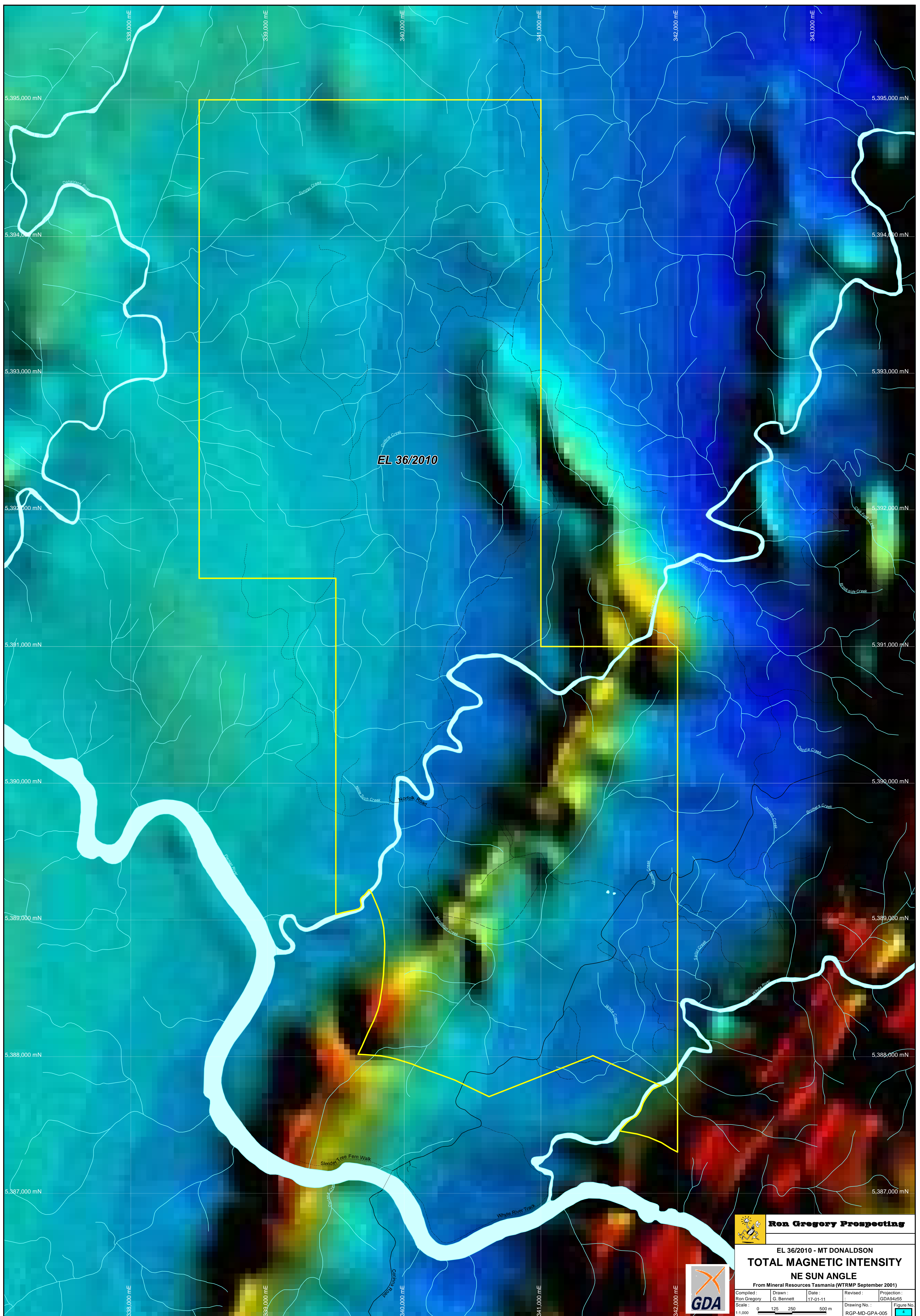
GEOLOGY PLAN

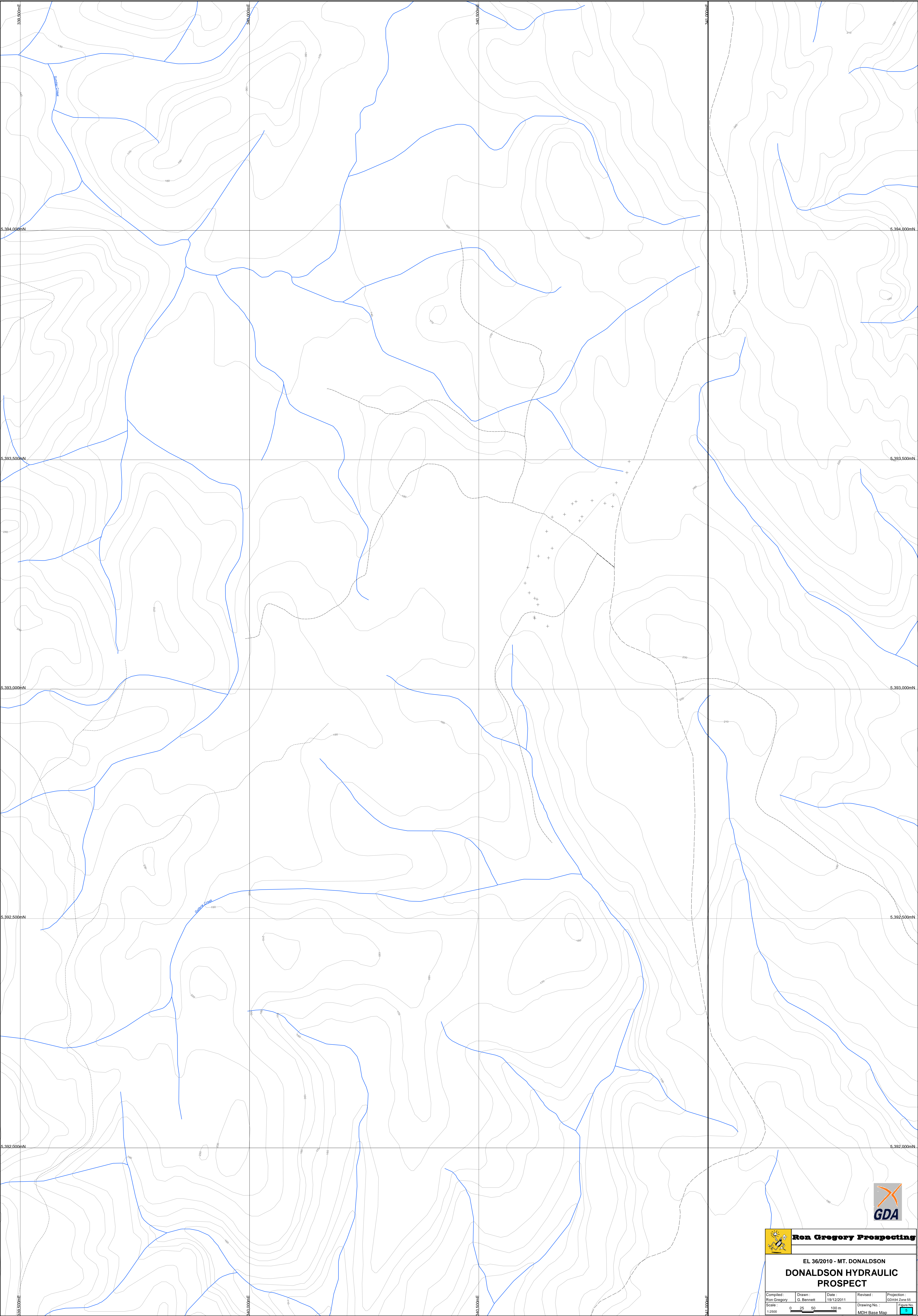
FROM MRT 1:25,000 SERIES


Compiled : Ron Gregory	Drawn : G. Bennett	Date : 17-01-11	Revised : GDA94:55
Scale : 1:10,000 (A0)	0 125 250 500 m	Drawing No. : RGP-MD-GLR-003	Figure No. : 2









**Ron Gregory Prospecting**

EL 36/2010 - MT. DONALDSON
DONALDSON HYDRAULIC PROSPECT

Compiled: Ron Gregory	Drawn: G. Bennett	Date: 19/12/2011	Revised:	Projection: GDA94 Zone 55
Scale: 1:2500	0 25 50 100 m		Drawing No.: MDH Base Map	Figure No.: 5