ANNUAL REPORT 2016/17 and 2017/18

EL16/2015 DIAMOND HILL

WESTERN TASMANIA

Exploration Licence held by: **Australian Mineral Resources**
4/88 Cumberland St
The Rocks, NSW 2000

Report compiled by: **Dean Delaney, March 2018**

EXECUTIVE SUMMARY

AMR has held Exploration Licence 16/2015 over the Diamond Hill area since 4 March 2016.

Exploration activities have included:

- desktop research, assessment and interpretation of available geological and geophysical records and reports;
- field mapping, stream sediment sampling, and logging and sampling of outstanding drill core; and
- draft model development.

The Licence area is prospective for gold in Devonian veins. Historically, gold and barite have been found in economic concentrations, but ore continuity and volume were found too unreliable for sustained mining. Gold exploration in the area has been incidental.

Mapping and geochemical sampling by AMR in the report period reveal the potential for vein-hosted gold shoots in addition to the historical Diamond Hill prospect.

Costs in 2016/2017 and 2017/2018 were $40 000 and $60 000 respectively.

AMR is pursuing an exploration program to locate and test near-surface gold concentrations, by:

- locating surface evidence of significant gold concentrations by developing a catchment-focused map of stream sediment gold concentrations, prior to hard rock source location and sampling; and
- testing the viability and feasibility of extracting this type of resource by drilling beneath Diamond Hill itself and/or any similar deposits identified.

Along with gold, the program will concurrently test for barite and metallic mineralisation.

Estimated expenditure for exploration in Year 3 of the Licence is $80 000.

Acknowledgement:

AMR is grateful to former licence-holder and EL16/2015 resident Rory Wray-McCann for providing access to his treasure trove of geological and geophysical information, freely sharing his experience in the area over almost 30 years, and for the invaluable contributions of knowledge, support and philosophy that have helped achieve and inspire our efforts.

Cover photo: View of Diamond Hill looking west from Madam Howards South Barite mine site.

CONTENTS

1. INTRODUCTION

Report Brief

Tasmanian Exploration Licence EL 16/2015 has been held in entirety by Australian Mineral Resources Pty Ltd (AMR) throughout the reporting period 4 March 2016 to 4 March 2018.

To satisfy Section 204A of the Mineral Resources Development Act, 1995 (MRDA), AMR submits this composite document to report on mineral exploration investigations and expenditure undertaken in the first two years of EL16/2015, and to update the nature of work proposed under the licence in the next three years.

Location

The area covered by Mineral Exploration Licence EL16/2015 Diamond Hill is a 13 km^2 block lying 3 km north west of Queenstown on Tasmania's west coast (shown as the faintly shaded block surrounding the yellow star on Figure 1.1 below). The Licence area lies around 220 km from Hobart on a west north-westerly bearing – about 4 hours' drive from Hobart along the Lyell Highway.

Queenstown Aerodrome is located immediately to the South, the Mount Lyell Mining Lease lies one to two kilometres to the East, and the Zeehan (Murchison) Highway bridge crossing of the Yolande River is immediately North. The yellow star on Figure 1.1 shows the location of Diamond Hill itself, for which the area has been named. In the south east of the block, the Lyell Highway proceeds south west onward towards Strahan from its intersection with the Murchison Highway, which tracks north to Burnie on the north coast.

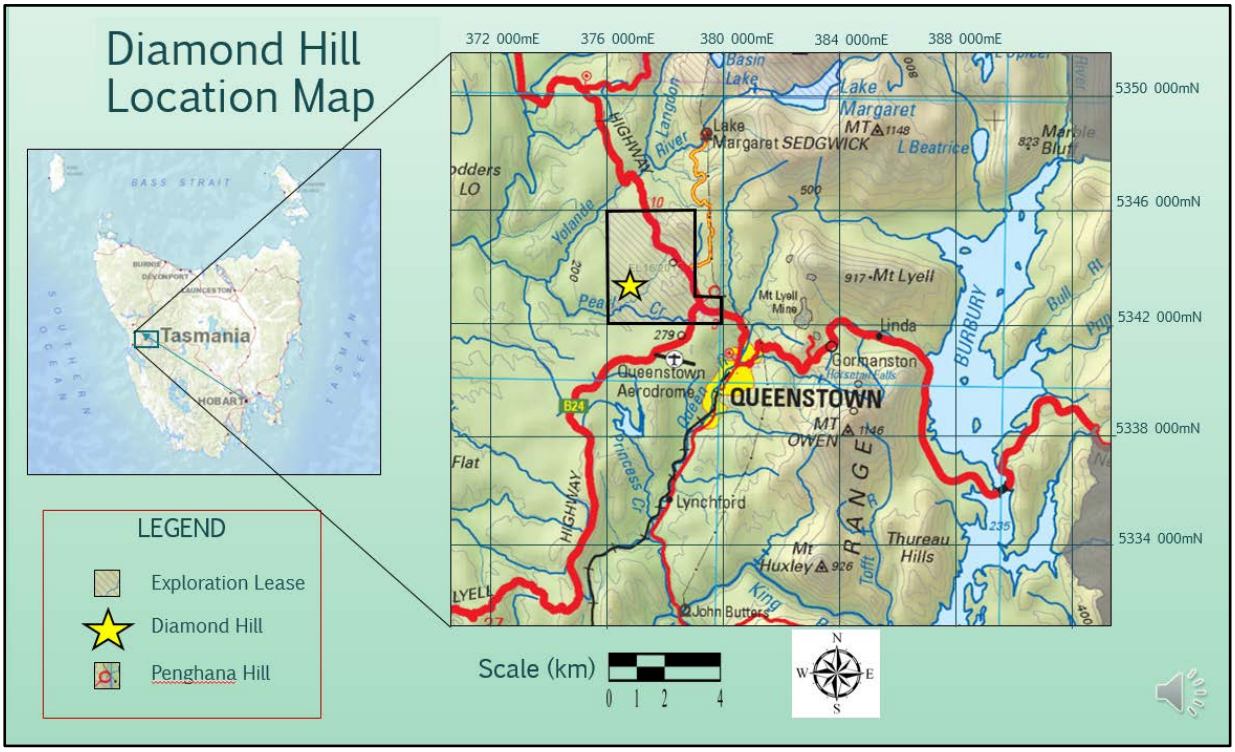

Figure 1.1: Location of EL16/2015 Diamond Hill

Map Conventions

Coordinates in this report and in digital data associated with this report are recorded as GDA94: UTM Zone 55. Note that the boundaries of the previous Diamond Hill Exploration Licence area (EL1/2006) were established under the Australian Map Grid 1966 coordinate set (AGD66) and have now been adjusted to be consistent with GDA 94.

Geographical setting

Compared to the nearby West Coast Range, the topographic relief of the Licence area is relatively flat, consisting of undulating hills with Diamond Hill standing out as a topographical landmark in the central south, and Davies Hill in the north east. Pearl Creek trends close to the full length of the eastern boundary of the Licence area and, to the south of Penghana Hill (AHD 300m) at the south-eastern corner, switches westward along the southern boundary. Diamond Creek runs diagonally across the block from Davies Hill (AHD 420m) in the north east to its intersection with Pearl Creek near the south-western corner. Topographically the catchments of these two creeks comprise the south eastern three-quarters of the block. The north-east quarter drains westward into the Yolande River. Topography is between AHD 250m and 300m, apart from at Davies Hill (AHD 420m), Diamond Hill (AHD 320m), and the Pearl Creek gully as it departs the area (AHD 120m).

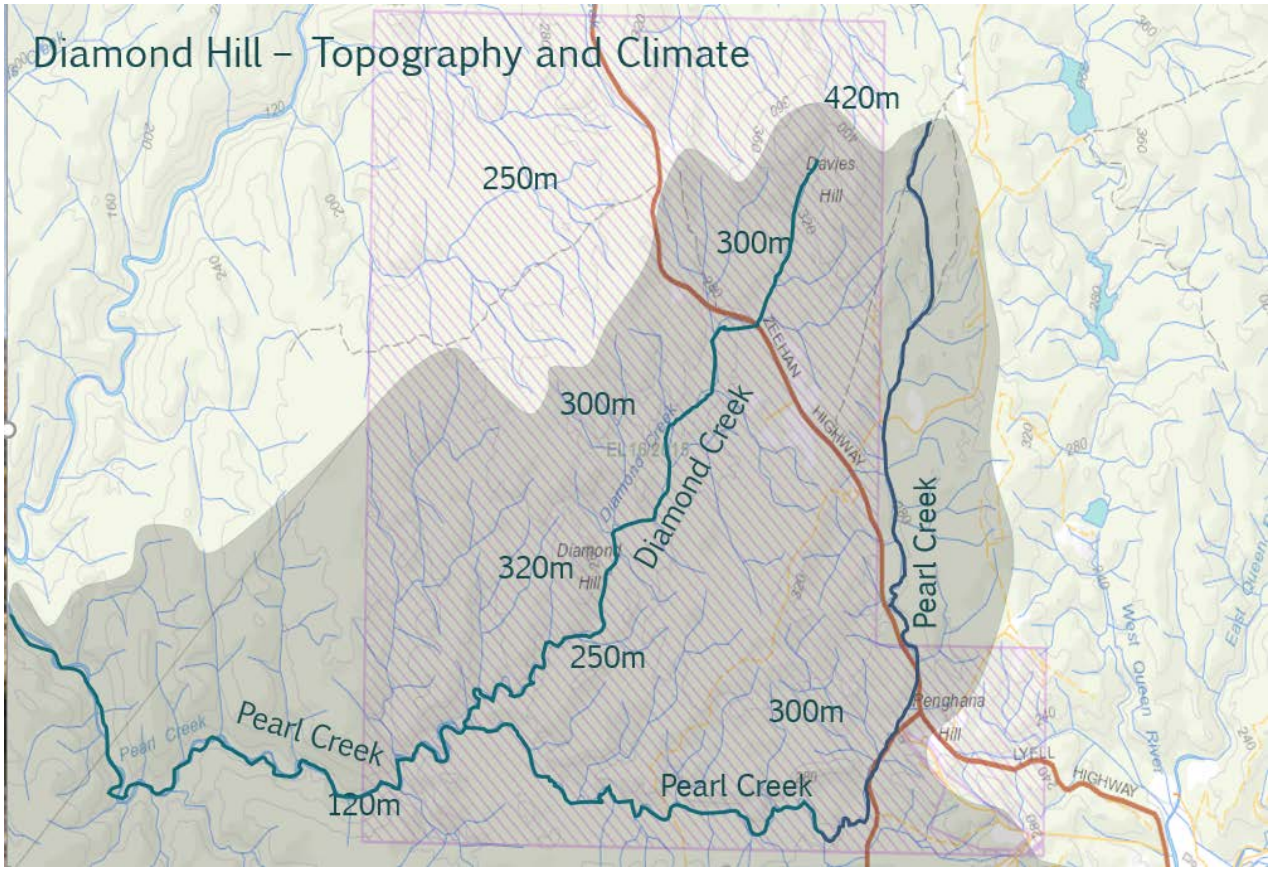

Figure 1.2: EL 16/2015 Topography and drainage pattern.

The vegetation in the area has been subject to regular wildfires over its history and was sourced exhaustively for fuel wood in the early part of the last century. Most of the licence is now covered by heath, native grass swamps and dense tea-tree re-growth. The bedrock is siliceous, and topsoil is generally less than 50 cm deep and leached, but the area is also boggy and peaty in parts.

The Queenstown area has an annual average rainfall of about 2400 mm, with less than 30 days of clear skies annually, and a maximum daily temperature range of 12 to 20 degrees C.

Access

The most southern 5 km of the Murchison highway diagonally transects the eastern half of the block. This eastern half can be accessed off the Murchison and Lyell Highways albeit through thickly regrown scrub. A deteriorating fire trail (shown in orange on Figure 1.2) accesses the south-east quadrant. Access to the western part is limited to a walking track coming off the Murchison Highway a kilometre below the northern boundary, through the north of EL 16/2015. From this trail the Diamond Hill prospect has in the past been accessed overland, reportedly following the route of the Queenstown to Zeehan trail used at the beginning of the twentieth century. Apart from in the far west, the parts of EL 16/2015 not accessible by road are not steep or heavily forested but access, especially in creek gullies, is becoming increasingly difficult following recent years of abundant tea-tree (manuka), cutting grass and bauera regrowth.

Historical setting and current land tenure

The Diamond Hill area was probably ranged by hunters and collectors from the Peternidic band (Ryan,1996 in Huys, 2010, see Appendix E) who probably travelled seasonally through the Queen River Valley to the east (Corbett, 1980). AMR acknowledges the ancestral first race inhabitants of the land and their descendants and undertakes exploration activities with due respect for Country.

The first European to explore the region on foot was Charles Gould who battled through the terrain in the 1860s. Gould named the relatively flat area consisting of Diamond Hill and the Queenstown Aerodrome area 'Honeysuckle Plains', although by the Twentieth Century the same area was known as Madam Howards Plains.

In 1881 Cornelius Lynch found alluvial gold in the Queen River valley and prospectors and miners migrated into the remote area. By the mid 1890's the alluvial deposits had been worked for over 40,000 ounces of gold. Source lodes generally had disappointed - 'did not live any depth' (Zeehan and Dundas Herald, 16th November 1891), yielding about 3,000 recorded ounces (The Mercury, 'West Coast Discoveries 1883'). Anecdotally, these yield figures are deemed minima, as miners achieved a better price for their gold by stowing it and cashing it in Victoria.

In 1893, the Mount Lyell Gold Mining Company was formed to mine copper. Interest and employment in gold, other than as a valuable accessory to copper, waned. In the 25 years from 1895, three million tonnes of timber were cut to fuel the smelter furnaces. The Queen River valley and hills were denuded by woodcutting and erosion, including the relatively accessible slopes and plains of the Diamond Hill area. It was a woodcutter who discovered the auriferous quartz reefs on Diamond Hill (Appendix A).

On the Diamond Hill Licence area, the creeks have been prospected for alluvial gold over the last 110 years. There is evidence of minor alluvial workings on Diamond Creek. In 1915 four adits were dug into Diamond Hill itself, to locate at depth and follow two gold-bearing quartz vein lodes, one that had been tracked on the surface for 300 metres and the other for 35 metres (Appendix A). Samples assayed in 1915 and 1916 at 1 to 3 oz/tonne (28 to 84 g/tonne), but such concentrations presumably did not persist underground as veins were only driven on for 15 metres either side of the exploration drives, at 15 and 25 m depth.

Two small open cut barite mines operated in the area between 1910 and 1920, winning 1300 tonnes (300 m^3) of high-grade (99.8%) barite.

Within the Diamond Hill exploration Licence area today there are six residential blocks under private freehold along the Zeehan Highway, but most of the area remains under the Crown. Roughly the western half of the Licence Area (see Figure 1.3) is DPIPWE Future Potential Production Forest Area (Lot 192 on the Central Plan Register). This is publicly managed land and remains available under the MRDA 1995. There are small stockpile and gravel quarry reserves, opposite the Lake Margaret road and at the beginning of the Strahan road.

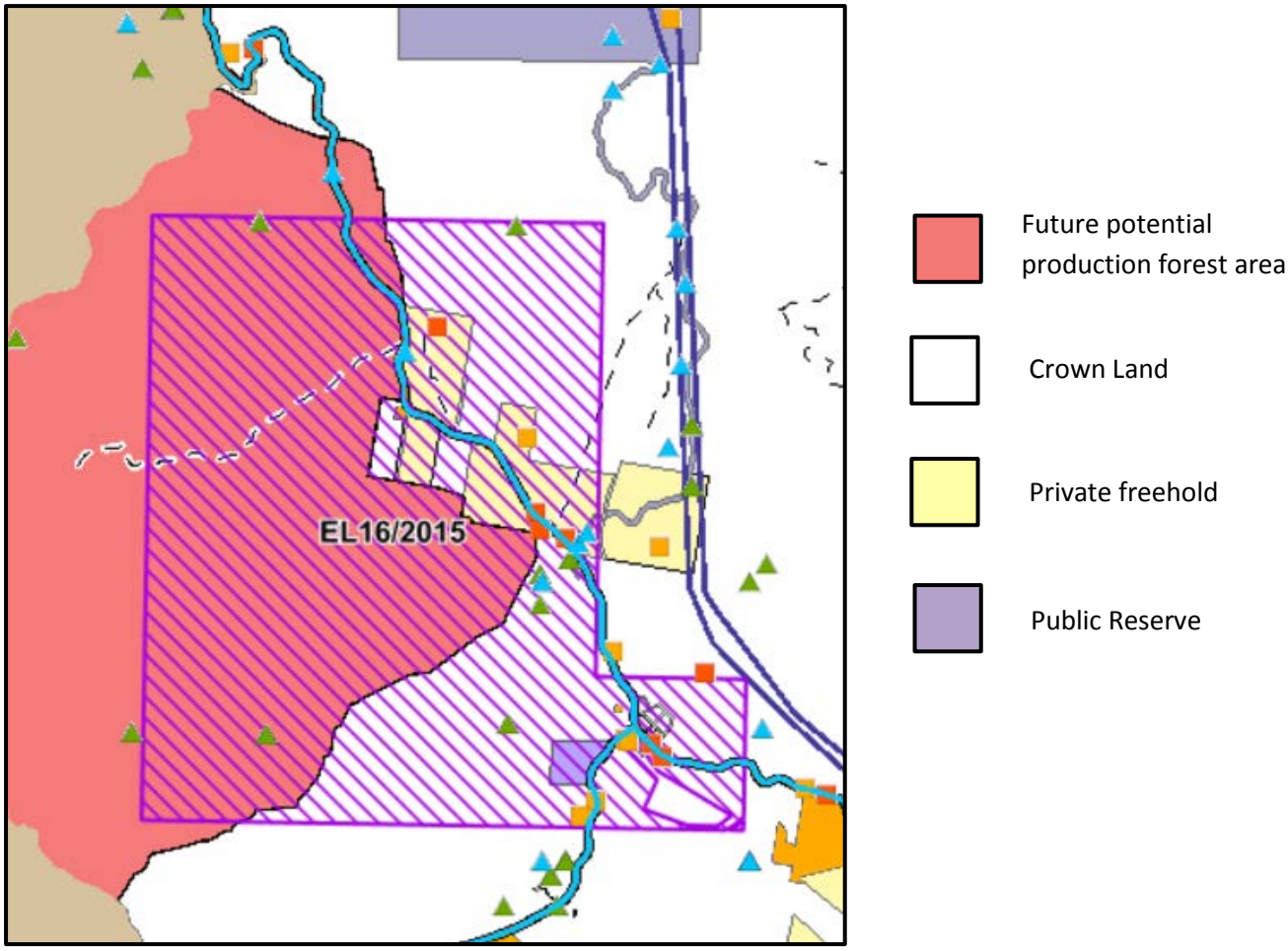

Figure 1.3: EL16/2015 Land tenure (Source MapList)

Regional Geological setting

The following notes can be referenced to the 1:250 000 South West Tasmania sheet (Brown et al, 2005) and the 1:25 000 Professor sheet (Vicary, M.J. 2004) compiled by Mineral Resources Tasmania MRT (see Figure 1.4).

EL 16/2015 covers the south eastern third of a discernible geological wedge, herein termed the 'Yolande wedge', located:

- to the west of the Mt. Read Central Volcanics Complex (CVC) that outcrops at Mounts Lyell and Sedgewick;
- south east of the South Henty Fault; and
- north of the Firewood Siding Fault.

Rock units that daylight in the wedge are part of Mount Read Volcanics (MRV) series deposited in the Dundas Trough in the middle Cambrian (Corbett & Turner, 1989, and others). The MRV series is dominated by rhyolitic, dacitic and andesitic volcanics and their derivative sedimentary equivalents (Corbett and Solomon, 1989).

The surface rocks on EL 16/2015 are predominantly equivalents of the Western Volcano-Sedimentary Sequence (WVSS - Corbett et al, 2014) lithological association of the MRV, here known as the Yolande River Sequence, abutting Central Volcanics Complex (CVC) sequences to the east and, probably, Tyndall Group rocks (McPhie & Allen, 1992; Corbett, 1992) to the west. The highly prospective horizon where the Tyndall Group overlies CVC rocks has not been shown to occur on the Licence area. Shallow marine sedimentary units of the Silurian Bell Shale and Florence Quartzite stages of the Eldon Group are present south of the Firewood Siding Fault in the far south of EL16/2015.

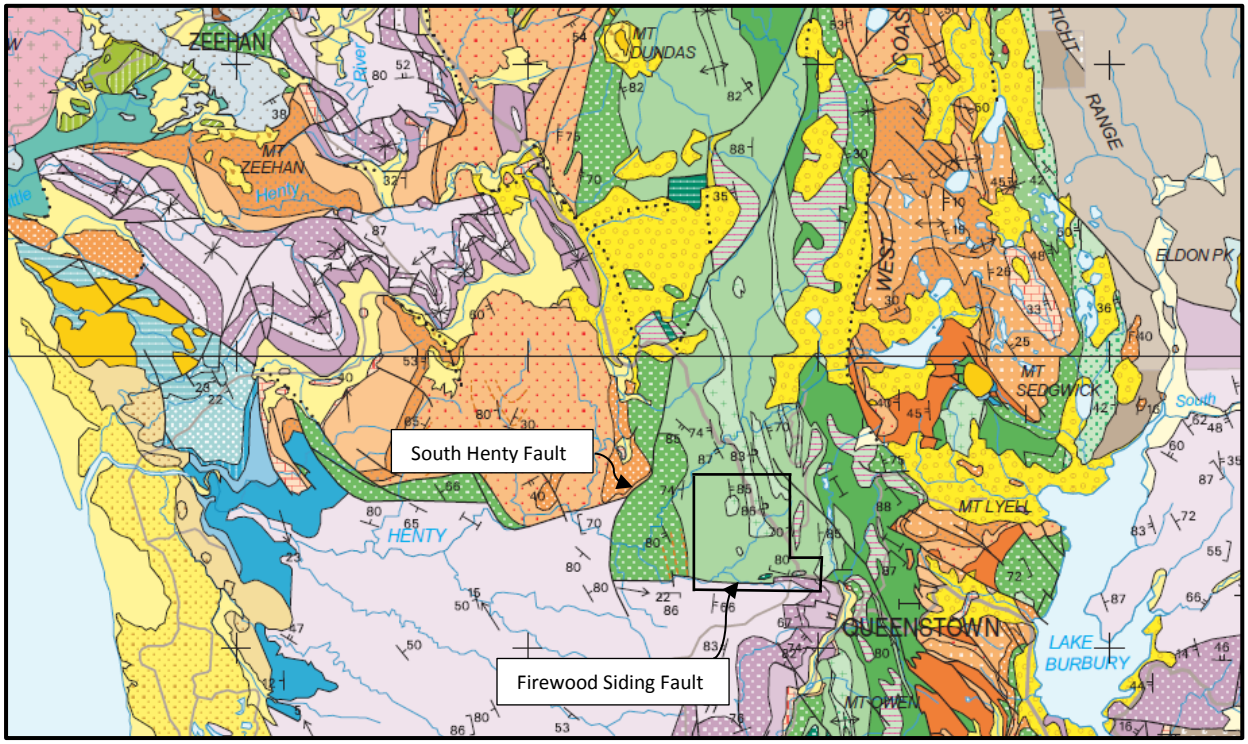

Figure 1.4: Regional Geology of EL 16/2015 (Excerpt from Brown et al, 2005)

SDb — Eldon Group – Bell Shale

SDf — Eldon Group – Florence Quartzite

Tyndall Group

Quartz feldspar porphyries

Cdsv — Yolande/Dundas Sequence

Cdv — Central Volcanics Complex

Local Geology

The following notes have been summarised from an investigation of source literature undertaken during the reporting period. Figure 1.5 shows the distribution of rock types and broad stratigraphy on EL 16/2015, sourced from TheList on the MRT website.

The pastel aqua colour (tinted blue in the Licence area) represents the undifferentiated felsic silts, ash falls and mass flow deposits of the Yolande River sequence. Stratigraphic relationships in the Yolande rocks are complex because of lateral facies changes, repetitious deposition, autochthonous debris flows, intrusion, past tectonics and structural disturbance. One undifferentiated sedimentary unit (cdsv: interbedded siltstone, sandstone mudstone), has been defined on the sheet, shown in light blue and trending NW along the Murchison Highway. Field observation has identified within it dark shales and siltstones striking north-south with a 75-degree dip to the west.

The NNW-trending dark yellow shapes express quartz-feldspar-phyric porphyries - 'rhyolitic' (white hatching – MRV igneous suite I) and 'dacitic' (grey hatching – MRV igneous suite II) (Morrison and Griffiths 1998) – that intruded the volcanoclastic sequence in the area. The work of Griffiths (1998) suggests convincingly that these lavas intruded wet, weakly-

consolidated sediments several million years after those host sediments were deposited. The two lava types were probably intruded at different times from different magma sources, forming sill-like flows parallel to the host bedding. The southernmost mapped outcrop of the rhyolitic porphyry hosts the Diamond Hill auriferous quartz veins.

Two outcrops of Cambrian basalt occur in the south, adjacent to the Firewood Siding Fault within or abutting the Yolande volcaniclastics. Griffiths categorised these as MRV suite III by petrology, possibly correlated with the Lynch Creek and Que-Hellyer sequences. The literature does not suggest if these bodies are intrusions or flows.

In the remaining 5% of the Licence area, the Silurian Eldon Group rocks crop out along the southern rim of the area, faulted against the Yolande River beds along the Firewood Siding Fault.

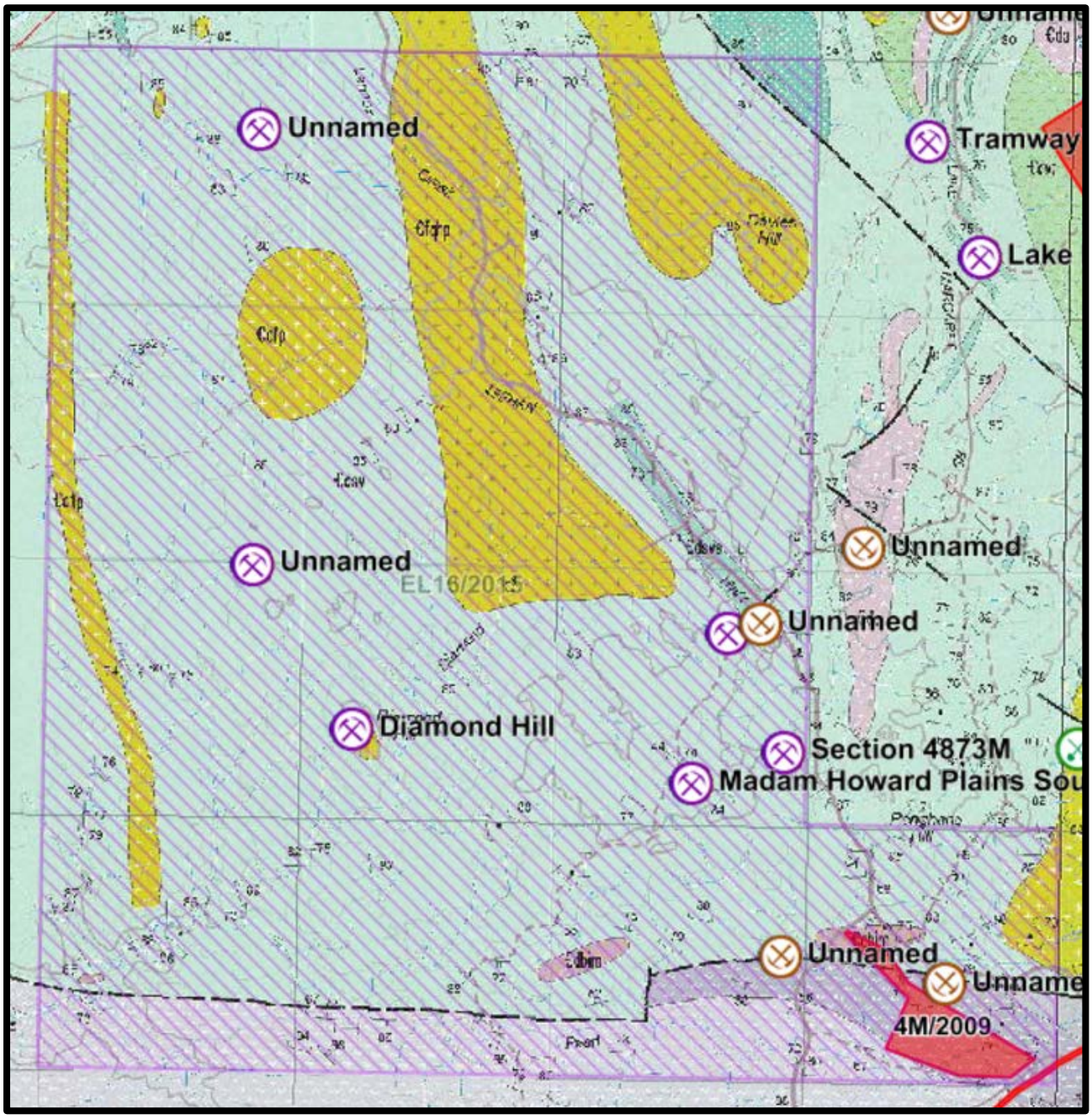

Figure 1.5 - 1: 25,000 mapped geology (Vicary, 2004. Sourced TheList – MRT)

Structurally, EL16/2015 lies in the north-south trending Dundas Trough that is generally expressed by northerly trending sub-vertical beds of Mount Read Volcanics either side of a subsurface Cambrian granite spine and located immediately west of the Tyennan Block stratotectonic element. In EL16/2015, the vertical stacks of Yolande River beds lie to the west of the CVC and granite spine. The western 'shoulders' of the Cambrian granite body might be present at 2 km depth (Leaman, 1993). The extrapolation of the northwest trending Owen Fault transects the far north-eastern corner of the area, and the enigmatic east-west Firewood Siding Fault is in the south. Other faults inferred by previous explorers include:

- the NE trending Yolande River fault immediately outside the NW corner of the Licence;
- northeast or NNE trending faults inferred by Wells (1976): Davies Hill Fault trending along Diamond Creek and immediately south of the Diamond Hill mineralisation; and Lightning Ridge Fault parallel and 500m to the south east, terminating the dacitic porphyry north of the Madam Howard Barite mineralisation;
- an ESE trending fault between the northerly and southerly adits at Diamond Hill inferred by Mt Lyell MRC in 1983; and
- a north-south fault tracing Pearl Creek, inferred by the geophysical analysis of Leaman (1993).

2. PREVIOUS EXPLORATION

Gold from Devonian quartz veins

During the late 19th and early 20th Century, Diamond and Pearl creeks and adjacent tributaries of the Queen and Yolande Rivers were prospected for alluvial gold. Hard rock mining commenced after the Diamond Hill reef was discovered in 1915 and was abandoned in (probably) 1917. The Madam Howards Plains barite mines operated from 1917 to 1919.

Between 1971 and 2005, regional rock chip and sparse stream sediment surveys by mid-tier explorers (see Table 2.1) determined the gold and barite-bearing quartz veins to be beneath the threshold of economic interest. Modern explorers could not replicate the concentrations of gold reported by pioneering prospectors.

VHMS

The mid-tier mining companies that held several licences over the greater Yolande block between 1971 and 2005 were primarily exploring for metallic sulphides, given the area's proximity to the Mt Lyell copper-silver-gold deposit. Explorers held the concept that splays off the bordering major faults might form fault-bound blocks with volcanic hosted massive sulphide (VHMS) potential. Several programs (see Table 2.1) of mapping, aerial and ground-based geophysics surveys, and stream sediment and rock chip sampling failed to locate prospective VHMS drilling targets. No CVC volcanic blocks were discovered, and it became progressively apparent that massive sulphides are unlikely to have been emplaced during deposition of the Yolande Sequence, because these volcaniclastic, mass flow and shelf deposit rocks were deposited under open-basin deeper marine conditions distal from the flanks of the VHMS-rich central belt of Mount Read CVC volcanics (Purvis, 1983).

Rhyolitic and dacitic porphyries

Quartz feldspar porphyry intrusions in the Yolande sequence were sampled during the same period (1971-2005), including core from the Department of Mines boreholes (Groves, 1964) at the Madam Howards South mine. The sampling found no economic concentrations of metallic sulphides or precious metals in the porphyries, and only sporadic low-grade albitic, chloritic, sericitic and sideritic alteration - probably caused by Devonian influx of hydrothermal fluids.

Remobilised VHMS gold (Henty-style)

The Licence holder over the Yolande block between 2003 and 2006, Glengarry Resources (Richards, 2005), explored for a Henty-style remobilised VHMS gold deposit. Surface sampling indicated that if such a deposit exists it would be deeply buried and not economically recoverable.

The most recent Licence holder over the area (LIDDS, 2006 – 2013) completed five boreholes with renewed interest in the potential for gold, sulphides and barite associated with structural features near the eastern boundary. Evidence of broad albite/sericite alteration in one of the porphyry types, trace base metals and low-level anomalous gold in veins, and several shear zones were considered encouraging (De Vries, 2010; Callaghan 2012). LIDDS was unable to continue exploration due to personal circumstances.

The following table, based on Morrison and Griffiths (1998) summarises the recorded exploration activities relevant to the Diamond Hill area up until 2013.

Summary of Exploration prior to EL 16/2015

Period	Company	Tenement	Activity and result
1915-1917	Diamond Creek Prospecting Association	Mining Licence	Adits were developed to explore two ESE trending gold-bearing quartz veins 40m apart at a depth of 25m. No further record of Company after March 1917. Possibly failure to raise capital to proceed further or deterioration of ore laterally and /or with depth.
1910-1920	Colonial Barite Company	Mining Licence	Trenched an ENE trending 600m-long quartz and barite lode up to 3m wide, developing 60m of it to 5m depth. 500m further to the NE three adits were developed on a discontinuous 400m-long NNE trending vein. 1336 t of 99% $BaSO_4$ were recovered altogether.
1962	Mines Department		3 shallow inclined cored drill holes in 'keratophyre' at Madam Howards Plains South barite mine targeted vertical extension of the barite lode. The lode, if vertical did not persist at 50m depth more than a thinly quartz-veined keratophyre interval 1-2m thick averaging 13-26% Ba.
1971-1983	Mt Lyell Mining & Railway Co.	EL47171 & EL 9/66 (Yolande area)	Rock chip geochemistry (ironstone gossans). 1973-1975 stream sediment geochemistry failed to deliver economic results but did not test for gold. 6 line km of gridding & IP survey over Madam Howards Plain (Howland Rose, 1984); 7 weak and 1 moderate IP anomalies; strongest anomalies coincided with mapped black shale units. The grid did not specifically intersect the main barite lodes. Follow-up soil geochemistry yielded one 200 ppm Pb anomaly. Quartz keratophyre host rocks intensely altered to clay. Rock chip assays - Diamond Hill (max 2 ppm Au). 1981-1983: Regional stream sediment (379 samples) and rock chip (72) geochemistry survey (only few sampling for Au): South of Madam Howards Barite 1.2 ppm Au; Pearl Ck (1050 ppm Cu, minor Pb, Zn); Gold Ck (1km north of EL 16/2015) 1.6 ppm in sediment but no significant Au from country rock. 1980 regional airborne EM (Dighem) survey - low confidence in inconsistent results (Morrison, 1998). A 1983 Yolande area review found small gold workings were centred on east-west quartz veins, in rocks varying from Cambrian acid-intermediate porphyries to Siluro-Devonian sandstones, the unifying feature being the ability of the host lithology to form open fractures. Alteration of the host rocks is generally absent, apart from moderate sericitization at Diamond Hill, adjacent to hydrothermal veins.
1984	Gold Fields Exploration Ltd	EL 9/66	Supplementary stream sediment and rock chip geochemistry confirmed anomalies at Pearl Ck (Cu), Madam Howards (Au), Gold Ck (Au, Zn) source undiscovered.

1985-90	Cyprus Minerals	EL 11/85	No work on Diamond Hill area.
1991-95	Pasminco & minor partners Hudspeth/ Norgold/Arimco	EL 25/91	Exploration for Tyndall / CVC contact - 'Holy Host' horizon. 1993 Geoterrex Helimag/radiometrics survey - regional structural geology interpretation. Results interpreted by Leaman (1993) revealed a major syncline, to the west of present EL 16/2016, shaped by NE, NW and subordinate E-W structures; structurally and magnetically distinctive volcanic units to the east with N-S trends.
1996 – 2002 Work ceased in 1998 and ground relinq'd in 2002.	Copper Mines of Tasmania (CMT)	EL 27/1995	Continued exploration for VHMS mineralisation associated with Tyndall group contact with Yolande sequence, east and west of Leaman's syncline. Surface quartz and barite veins were chip-sampled and assayed in the area around the Madam Howards Barite prospects - only one record of gold above 0.005 ppm (0.013). The quartz, carbonate, barite veins and felsic volcanic host rocks from the 1962 drill holes at Madam Howards were assayed for gold. Results only marginally higher than surface samples with best results 1m interval at 0.12 ppm and 2.5m at 0.11 ppm. At Diamond Hill prospect, 10 of 51 surface rock chip samples assayed >1ppm Au - maximum of 18.3 ppm. B/C horizon soil geochemistry traverse inconclusive. Pan concentrate drainage survey recorded gold anomalies around Diamond Hill and Madam Howards, in marked contrast to the earlier -80# survey. This contrast may reflect gold particle size distribution (Morrison and Griffiths, 1998). BSc Honours project on the Diamond Hill area included surface and adit mapping, ground magnetics and soil samples (Griffiths, 1998). A-horizon soil samples gave a stronger gold response than B/C-horizon samples.
2002-2005	Glengarry Resources		Mapping and soil sampling of 3 east-west lines traversing the westernmost 1.5 km of the central Diamond Hill area. 30 rock chip samples at Madam Howards Barite (highest 0.4 ppm Au in vein quartz); Diamond Hill (highest 1.4 ppm in quartz vein) and north and south Yolande tracks (0.008 and 0.010 ppm). Defined a NNW trending 'Au-prospective' corridor 250m wide.
1998	Wray McCann, Stringer	EL28/19995	Extensive field investigations in Davies Hill area including Diamond Creek tributary sluicing sample (~5g/t Au in sediments). Drillhole Davies Hill DDH 1 (length 150m, inclination 50^{o} to 255) intersected

			interbedded tuffaceous sandstones and dark grey shales consistent with the Cdsvs sequence.
2006 - 2012	LIDDS / Stebbo's Diamond Drilling	EL1/2006	LIDDS aimed to drill geophysical anomalies. MH04 (208.2m deep) 70^{o} inclination to 200^{o} grid azimuth: intersected 180m interbedded light grey vitric and dark grey volcaniclastic siltstones, and 28m 'pink' siltstone (no veins, slight bleaching). 3m interval of Qz veining @ 15m depth, 1m Qz vein @ 36m. 128-165m moderate stockwork quartz-carbonate-chlorite-sericite veining with minor base metals. Peak assay of 1.0 metre @ 7.9% Pb and 5.0 g/t Ag from 128.20m. No anomalous gold in alteration zone (<0.01 ppm). Veins not sampled. MH05 (200.2m) 55^{o} inclination to 280 grid azimuth: intersected 38m quartzite-sandstone, 33m rhyolitic porphyry/lava, 14m black shale, 5m sandstone, 66m fawn sericitic (vitric?) siltstone, 44m interbedded pale green siltstone/black shale. Quartz/siliceous veins throughout, shear zones, faults - spacing ~10m, and low-level sericitic alteration. 1.2m@2.5ppm Au at 90m depth in siltstone(?), 1m@1 ppm Au in Qz/carbonate vein at 159m. 0.5 ppm @ 135.7m. All other individual metre samples including veins <0.1 ppm. MH06 (140m deep, 55^{o} at 105 azimuth) targeted a sub-cropping quartz vein in porphyry 200m along strike NNE of the northern Madam Howard barite. Borehole intersected a broken 2.5m Qz-rich fault zone @ 25m depth (unsampled), above a 7.5m sericite/siderite-altered cream-brown porphyry with trace disseminated euhedral pyrite, 13m of Yolande sequence volcaniclastic mass flows and vitric siltstones, and a 94m pale-red albite-altered porphyry tending pale grey-green in phases, with fine disseminated pyrite to 0.5%, zones of weak sericite-chlorite alteration containing gold above detection (<0.6ppm) in small 2-10cm Qz-carbonate-pyrite stockworks. One 0.9m thick Qz-carbonate vein at 119m assayed 1.4 g/t Au. MH07 (length 99m, inclination 50^{o} to 105) drilled 20m across bedding strike from MH06 and 50m south. Although thinned – probably by faulting – the two porphyries were present, surrounded by siliceous volcaniclastic silts and mass flows. MH08 (44m, 50^{o} at 105 azimuth), 44m long 25m across strike and 28m north of MH06; intersected tuffaceous silts, sandstones and mass flows but no evidence of either porphyry. No significant alteration, faulting or quartz veining.

3. EXPLORATION RATIONALE

Philosophy

The objective of mineral exploration is to enable estimation of the quantity, quality and spatial dimensions of a resource to a defined level of confidence, prior to consideration for extraction. AMR believes that the most rigorous way to economically explore for mineral resources at regional, local and deposit/prospect scales is a scientific approach to mitigate uncertainty around the investment decision. There are three steps.

1. Integrate all accessible existing information and relevant evidence into a hypothesis and a preferred geological model.
2. Design and implement the exploration program itself, to test the premises of the hypothesis and fill information gaps in the draft geological model. The results of the exploration program prove, reinforce, adjust or discard the hypothesis and model.
3. If the premises can be assumed to be sufficiently true, then the hypothesis is supported, and the third stage is to apply the preferred model to the specific deposit(s) to reach a quantitative estimate of overall resources and economics (which might entail further proof by drilling).

Exploration objectives for EL 16/2015 Diamond Hill

AMR is exploring primarily for orogenic vein-hosted gold on the Diamond Hill block. The presence of high-grade barite in the same vein type offers synergistic value in exploring concurrently also for further barite. The potential for volcanogenic iron oxide copper gold (IOCG) ore and metallic sulphides in the east of the area will be concurrently assessed.

Regional geophysics and broad surface sampling for gold over the past fifty years has not led to the definition of prospective minerals targets other than Diamond Hill itself. It should be expected that more than a century of corporate and amateur gold prospecting and panning has scoured the surface effectively for obvious surface concentrations. None has been reported; but the area has been demonstrated to hold hard rock gold sources, present in the multiple quartz vein lodes at Diamond Hill purported to contain native gold concentrations of 1 to 3 ounces per ton in hand-selected samples (Appendix A). Nearby, the McCusicks prospect 1 km to the east and Madam Howards Plains Gold Mine 1 km to the south were both worked for hard rock gold.

AMR is undertaking a methodical exploration program to locate the sources of alluvial gold in creek catchments; and investigate the geometry, spatial persistence and gold concentrations of the veins.

The incentive to invest in such a program is the proliferation between about 1885 and 1905 of quartz reef prospects throughout the King and Queen River vallies. During this West Coast gold rush, prospectors tracked alluvial shows upstream to locate source ‘lodes’. Once the lode was pegged, tracked, trenched and assayed, money was sought to fund teams of usually less than five miners to chase the metre-scale reefs and gold shoots underground using hand tools, and to set up water-driven separation plants (‘stampers’). Few mines persisted below the water table, and not one lode lived up to expectations. The gold ‘shoots’, initially discovered at the surface at concentrations often exceeding an ounce of gold per ton (28 ppm) ‘petered out’ laterally and with depth. Today, technology, accessibility, ore treatment, and geological and mining knowledge have developed, exploration and logistical costs have decreased significantly, and gold price increased significantly in real terms over the 100 years during which the prospects have lain dormant. A reconsideration is due of the nature of these deposits - their extent, quality, the method of potential extraction, and their economics. The Diamond Hill block alone might not hold the resources to be cost-effectively developed, but if the area under Licence can be expanded to include other reefs in the area, then economies of scale could make development viable.

4. EXPLORATION RESULTS – Work completed in EL16/2015 for 2016/17 and 2017/18

Exploration during the first year of the Licence to 4 March 2017 consisted of:

1. lithology and stratigraphy - compilation and summary of exploration records to date;
2. tectonics and structure - research and application of regional structural geology from geological literature;
3. mineralisation - research into occurrences and theory of orogenic vein-hosted gold deposits;
4. research into historical records of mining, prospecting and exploration;

and in the field:

5. reconnaissance visits to the Licence area and regional overview;
6. scout geological mapping and chip sampling to validate existing map occurrences;
7. commencement of a comprehensive mini-catchment based stream sediment gold sampling program.

Exploration during the second year of the Licence to 4 March 2018 consisted of:

8. interpretation of research towards draft model - review and interpretation of electromagnetic, gravity and radiometric results to inform structural modelling;
9. purchase of equipment in anticipation of exploration program;

and in the field:

10. lithological re-log, photographing and structural logging of MH DDH 05 to DDH 08;
11. sampling and assay of cores
12. ground-truth mapping; and
13. continuation of the stream sediment gold sampling program (Pearl Creek and upper Diamond Creek catchments).

Lithology and Stratigraphy

Outcomes:

- Existing maps of EL16/2015 can be progressively improved, but:
  - Stratigraphic relationships in the Yolande rocks are complex because of lateral facies changes, repetitious deposition, intrusion, past tectonics and structural disturbance;
  - Outcrops are rare due to mechanical and chemical weathering, and made obscure and inaccessible by vegetation overgrowth, regolith, colluvium, alluvium and humic accumulation. Detailed mapping is not achievable without clearing and/or excavation;
  - Hand specimen features (e.g. bedding) and composition are difficult to interpret due to imposed foliations, weathering and alteration; and
  - Historical interpretations cannot be assumed to be correct (e.g. extrapolated rock units and boundaries).

Implications:

- Stratigraphy and lithology in the area remain of importance for achieving AMR's exploration objectives:
  - Sharp linear lithological discontinuities/boundaries in outcrop indicate faulting or bedding changes, both of which enable conditions for hydrothermal vein deposits. Stratigraphy can help identify marker beds and structural geometry.
  - Concentration of gold in veins can be associated with rheology of adjacent rock types. Brittle lithologies (e.g. rhyolite porphyry, silicified sandstones, quartzites)

are more likely to host hydrothermally emplaced ore bodies whereas the more ductile lithologies may have acted to seal the traps.

- In some areas (Victorian goldfields, Carolina Slate Belt) lithologies (eg graphitic shales) are thought to chemically catalyse gold deposition.

- More needs to be known about surface and sub-surface geology. Despite paucity of data sites AMR should continue to refine geological maps through mapping and evidence-based reinterpretation.

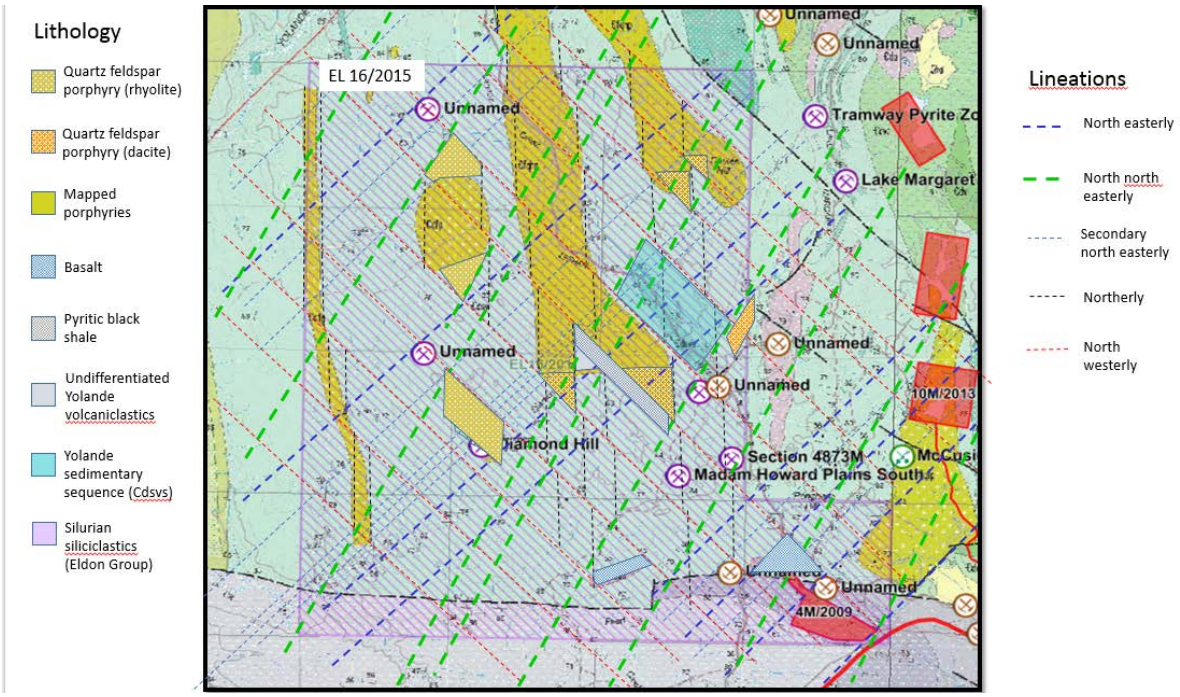

Figure 4.1: Preliminary detailed geological surface interpretative map

Tectonics and Structure

Outcomes:

- The block is comprised by mostly sub-vertical north-south trending beds of Cambrian volcaniclastic rocks. The vertical bedding could be tight folding or snapped thrust sheets of competent siliceous strata.
- These strata are dissected by no less than eight lineation orientations that may represent shears, thrusts, bedding, wrench faulting or combinations of these. There are almost certainly more faults than those already mapped or postulated.

Implications:

- Geological maps, cross-sections and models will be inherently speculative.
- Mapped curvilinear faults were probably caused by vectors of tectonic movement that exploited various pre-existing planes of weakness (e.g. NNW regional trend probably exploited a combination of northerly and north-westerly trending faults).
- The eight structural trends recognisable in geophysical, topographical and geological lineaments have resulted in a hash of surface polygons of rock, bound by probable planes of relative displacements (see Figure 4.1). In the vertical these planes dip at varying angles creating another dimension of complexity to the structure of the area.
- Fault traps probably trend at varying orientations that were extensional at hydrothermal injection (but could also have also been perpendicular to regional compression). That is, auriferous veins and gold shoots won't necessarily share a common trend.

Mineralisation mechanisms and patterns

Outcomes:

- There is gold on the Diamond Hill Licence area.
- In the Queenstown area, gold occurs in NNW-trending belts that can be related to trends in deep crustal gravity differentials ('gravity worms' of Murphy et al, 2004). At least one of these belts transects the Diamond Hill Licence. Also, regionally, the gold mineralisation rarely occurs beyond 5 km laterally from the northerly trending Great Lyell Fault.
- At one prospect on the Licence (Diamond Hill itself) economic concentrations of vein gold have been recorded.
- Similar Devonian vein gold prospects with historically recorded economic concentrations exist within 1 km of the Licence area (Madam Howards Gold Mine, McCusicks Creek, Raggedy Ann prospect) and regionally. These are closer to the southeast quadrant of EL16/2015.
- Narrow sub-vertical blocks of brittle rocks bound by faults (Diamond Hill, Davies Hill, Madam Howards Barite South) may have acted as conduits for hydrothermal ore deposition.
- The quartz vein geometry will reflect the hashed permeability architecture (faults and lithologies) that existed prior to the injection of Late Devonian hydrothermal pulses. The regional paleo-stress field presumably influenced crystallization/solidification in traps after the powerful surface-directed orogenic pulses dissipated. The preferential concentration of gold in the quartz into ore shoots probably depended on localised pressure (primarily) and temperature conditions.
- Previous explorers have sampled intersections of the quartz-feldspar-phyric porphyries, finding only low-grade alteration and gold registering at best barely above detection. Where gold is detected in the country rocks it appears to be associated with quartz or quartz-carbonate veins or stockworks.
- No other minerals (apart from barite) have been found in economic quantities or concentrations (eg 7.9% Lead in borehole MH05 was only a 1-metre interval).
- Existence of VHMS deposits in economic quantities or depths in Yolande Sequence rocks is highly improbable.

Implications:

- The prospective potential in EL16/2015 is gold or barite in the Devonian veins.
- The only currently-identified exploration target on the Licence is Diamond Hill, and perhaps Madam Howard South for barite.
- Other prospects might exist on the Licence, including the 'Porphyry Prospect' (Richards, 2005), 'creek south of Madam Howards Barite (Morrison and Griffiths, 1998)', Davies Hill, 'Stubbs Valley'; or blind deposits. AMR is searching for other prospects on the Licence and will try to predict locations of blind ore concentrations and define likely barren zones.
- The eastern and south-eastern part of the Licence area might hold the best potential for economic mineralisation.

Historical records of mining, prospecting and exploration

Outcomes:

- Extensive searches of the Trove database reveal records of gold exploration from the 'West Coast Gold rush' of 1893-1910. Up to 1895, 3,000 ounces of hard rock gold and 40,000 ounces of alluvial gold from the Queenstown area were reported in Tasmania (Appendix A).
- The historical Diamond Hill venture ceased operation, the implication being that the gold concentrations deteriorated laterally and with depth. Similar deteriorations were recorded throughout the State (e.g. Princess, May, Lefroy, Davie). Discontinuation of these ventures was most often because of ore shoots 'petering out', a lack of development capital (which implies that gold production wasn't paying its own way), costs (supplies, services, access and stamping plant), water ingress, lack of labour availability (War and Mt Lyell Copper), and poor reputation of the field (a Mt Huxley controversy, hardship, sporadic gold occurrences).
- Veins varied in orientation and, where auriferous averaged 2.5 feet wide.
- The obvious surface prospects in the region were discovered by searching creeks (e.g. McCusicks, Raggedy Ann) or chipping at outcropping quartz veins (e.g. Diamond Hill, Madam Howards').
- Subsequent exploration has not uncovered further economic mineralisation.

Implications:

- AMR's exploration target is to exceed 50,000 ounces of resource. To achieve this, AMR's exploration would need to demonstrate the same quantum of gold as recorded mined for the entire west coast goldfield in a decade.
- Proving more than 50,000 ounces of gold resources from Devonian veins will require:
    - discovery of the reason for spatial deterioration of auriferous ore concentrations in orogenic veins (coined here as 'the petering principle') to establish the potential for extensions or further ore bodies; and/or
    - evidence of larger Beaconsfield or Henty-style deposits; and/or
    - exploitation of economies of scale through securing further ground prospective for gold.
- AMR will need to consider all advantages offered by improvements in exploration and transport technology, local and regional infrastructure, geological knowledge, and geophysical and geochemical techniques.
- AMR must pursue a rigorous, methodical but inexpensive exploration program.
- The project should benefit from commissioning a research project into the reasons for apparent deterioration of surface concentrations of auriferous veins with depth (and laterally). Preliminary research suggests that chemical supergene enrichment does not concentrate gold in the top of quartz veins.

Catchment-based stream sediment pan-concentrate sampling program

Outcomes:

- During the reporting period, AMR commenced a stream sediment sampling program (Appendix B).
- The upper reaches of Diamond Creek, draining Davies Hill were sampled (locations at Appendix B). The fire assay/AAS 50g (Analabs Burnie, 2018) results of 13 samples and previous sampling by Morrison (1998) and Poltock (1992) were plotted on a 1:5000 field map dissected into over 200 mini-catchments each no greater than 0.125 km^2.
- Tributary Diamond1 directly drains the fault-bound gully that splits Davies Hill. A sample at the mouth of its catchment returned 1300 ppb. Diamond2, a tributary of Diamond1 draining southern Davies Hill returned 150 ppb. Diamond3, a northerly tributary intersecting Diamond1 at its mouth returned over 400 ppb downstream of a 30cm vein outcropping in the creek. A sample taken immediately upstream of the vein was not anomalous for gold (4 ppb). It transpired that this was the same creek as sluiced by previous Davies Hill Licenceholder Rory Wray-McCann averaging 5g/tonne.
- Catchments surrounding Diamond Hill showed values of 1000 and 800 ppb Au. Four modest results were sampled from beyond the Diamond Hill drainage apron.
- The catchments immediately south of Madam Howards South barite mine indicate a gold source (800 ppb).
- Sampling indicates the presence of a prospect in the central north of the area (perhaps the 'Porphyry Prospect' of Glengarry's tenure).
- The returns of 44 samples taken in Summer 2017/18 from mini-catchments feeding Diamond, Pearl and Stubbs creeks will be provided to MRT on receipt from the laboratory in a supplementary report in mid-2018. These samples are also being assayed down to trace level for barite, lead, copper, silver, iron and arsenic.
- No visible gold was detected in the 57 samples.

Implications:

- About 20% of the area has been sampled, some by only one sample per mini-catchment. AMR estimates that it needs another 600 samples to complete the map. At a rate of 6 samples per day = >100 field-days. The optimal level of detail for the map should be assessed on progressive receipt of assay results.
- Davies Hill should be considered a gold prospect, along with Diamond Hill and Madam Howards South (south). Others potentially exist in unsampled areas.
- Results adjacent to Diamond Hill catchment suggest that the gold mineralisation extends further north and east than previously postulated.
- Stream sediment sampling is an inexact analysis and values are relative only, not quantitatively comparable (see Appendix B). These samples are indicative of gold concentrations and will assist in locating such but should not be used to infer economic value.

Madam Howards series borehole logs

Outcomes:

- No drilling was undertaken in the reporting period, however, core from the last three holes MH06 – MH08 remains on site (also part of MH05 remains on site) and data collection continues.
    - **CORRECTION**: MH07 and MH08 hole data and the incomplete log of MH07 submitted previously to MRT were mislabelled.
    - Lithology of MH06 had been logged previously but information (mostly vein intersections) has been added in 2017/18 (see Appendix C). Core photographs of MH06 are appended (Appendix C).
    - Previously-drilled holes MH07 (99m) and MH08 (68m) were lithologically logged during 2017/18 (logs at Appendix C). Core photographs of MH07 and MH08 are also appended.
    - Samples have been taken for assay from MH07 and MH08. They have been despatched to Analabs at Burnie for fire assay and AAS along with three additional samples from the MH06 core (Appendix C).
    - One sample in MH06 returned 1.41 ppm gold over 1m. The measurement requires checking. Viewing the core and reviewing core tray photographs established that two other samples were inaccurately recorded.
    - Structural logging was commenced on MH07, with MH06 and MH08 yet to be completed.

Implications:

- New logs and hole data are supplied as follows to amend MRT data:
    - The existing TIGER record of location, depth etc labelled as MH08 (MRT ID Number: 36354) to be re-labelled ‘MH07’.
    - The existing records for MH09 (MRT ID: 36355) to be relabelled ‘MH08’. There is no MH09 borehole currently.
    - The appended correct MH07 (36354 above) and MH08 (36355 above) lithological logs should be scanned into the system, and any 2012 log of MH08 deleted.
    - The appended updated log of MH06 (MRT ID: 33373) should replace any scanned record in the database.
    - Additional data on MH05 (MRT ID Number: 50178) has become available for TIGER database:

Drill date:	August 2007
Hole Length:	200.2 metres
Azimuth:	265^{o} M, 280^{o} AMG
Dip:	-50^{o}

- Analytical results from bore core samples to be provided in supplementary report to MRT in mid-2018.
- Structural logging of MH06 – MH08 to be completed and assessed 2018/19. If found to be useful, MH04 and MH05 core will be accessed, reviewed and structurally logged.
- AMR to attempt to locate samples from MH05 previously submitted for analysis.

- AMR to attempt to locate the core from Davies Hill 1 drilled in 1998 for review and submission to MRT.
- AMR to check the GPS location of all boreholes.
- AMR to check measurement of MH06 1.41ppm sample at 119.0m, position of barren sample at 139.3m (should be 137.5-138.0m), and 1.9m sample at 0.67ppm at 78.8m (should be 0.9m from 79.8m).
- Upon completion, AMR will arrange for transport of part MH05, and entire MH06, MH07 and MH08 core from Queenstown to Mornington core store.
- In 2018 supplementary report, core photographs "must be submitted with an index file in tabular format containing: Photo name/number (corresponding to JPEG file name); Drill hole name/number; Tray number; Depth from and depth to; and core condition 'wet or dry'".

Interpretation and draft models

Outcomes:

- The preferred draft model for the entire Licence area is a block of north-south sub-vertical beds of Cambrian Yolande volcaniclastics and porphyry 'sills', multiply fractured by at least one late Cambrian and probably three Devonian orogenic stress episodes into a hash of irregularly-shaped and sized three-dimensional fault blocks. Auriferous orogenic hydrothermal fluids are injected into the fractured block along crustal-depth North to NNW-trending belts in the late Devonian, depositing predominantly quartz and sometimes quartz carbonate veins with 'shoots' containing concentrations of native gold and barite, controlled by minimum stress orientations (low pressure 'traps').
- Evidence for the model is drawn from geological mapping (Everard, Morrison and Griffiths, Corbett, etc), sub-surface lithologies and boundaries (8 boreholes in 3 locations; Diamond Hill adit mapping), near-surface lithological discontinuities (and K-rich lithologies) from radiometric images, dip declination and direction of some bedding, and veins and cleavage from mapping (Morrison adits, 1998; Vicary, 2004). Horizontal lineations have been interpreted from:

• Orientation ->	WNW	NW	NNW	N	NNE	NE	ENE	EW
Magnetics		**X**	X	**X**		X		
Total Mag Intensity		X	**X**	**X**	**X**	**X**		X
Geology Mapping	X		**X**	**X**	X	X		**X**
Radiometric	X	X	**X**	**X**	X	X		X
Topographic		?	**X**	**X**	X	**X**	X	X
Aerial photography		X	X	**X**	X	X	**X**	X

Bold indicates obvious trends; grey font indicates probable trends.

- Current gaps in knowledge that prevent definition of the regional model (in order of significance to minerals exploration) are:
    - Location, dimensions and orientation of quartz-rich deposits in the 'plumbing' of the fracture system and accurate fault/vein locations and orientations
    - Location and persistence of gold concentrations in the quartz-vein geometry
    - Stratigraphy of the Yolande volcanoclastics

    - Structure of beds (thrust slices vs plunging tight folds)
    - Accurate locations of key host lithologies
    - Mapping of fault strikes, trends and dips.
    - Net sense of faulting and accurate displacements on faults
    - Control of NNW trend (Cambrian tilt direction or bound by later faults)
    - Nature of the Firewood Siding Fault.

- The draft model for individual deposits such as Diamond Hill is a fault-defined sub-vertical pipe of brittle lithology, surrounded by ductile lithologies, that acted as a conduit for the explosive discharge of hydrothermal fluids under high pressure and temperature. On relief of the orogenic pulse energy, the regional tectonic stress regime was re-established, and remnant fluids condensed in tensional traps or structural pockets (e.g. transcurrent faults) forming quartz and quartz-carbonate veins containing mineralisation proximal to the conduit fault(s). This model can be expanded to include 'jog' traps where shear movement at transcurrent fractures along shear faults generates extensional pockets.
- An alternative but similar model proposed by Groves (1964) is that the porphyries outcrop as part of a plunging antiform structure, and that veins exploited axial cleavage in the brittle lithology.
- A third draft model sees the outcropping auriferous veins as 'leakage' from a larger 'Henty style' ore body at depth (Richards, 2005). Exploration for the near-surface expression of a Henty-style 'fault wedge' ore body is best targeted at the junction of two or more significant sub-parallel faults.
- Current gaps for generating deposit-scale models are:
    - Local surface geology (lithologies and faults)
    - Local location, dimensions and orientation of veins
    - Local location, dimensions and orientation of ore shoots
    - Gold concentrations in ore shoots/veins in three dimensions
    - Persistence of all features with depth (veins, shoots, concentrations, lithologies and structures)
- Four GIS/geological software packages were assessed for digitising of existing and future data.

Implications:

- Current evidence favours the orogenic/transcurrent faults model. Exploration should target the information necessary to close the information gaps for computer-modelling prospects based on this model.
- Axial cleavage and fault wedge models should not be discarded; therefore, exploration should inform the potential for these styles of deposits to be present.
- Further regional and Licence-scale information should be compiled on location, dimensions and orientation of veins.
- Further regional and Licence-scale information should be compiled on Yolande River Sequence expression and stratigraphy.
- Further regional and Licence-scale information should be compiled from sources on regional structure including presence of folding, and fault orientations.

- Prospects should be mapped in detail for veins, shoots, concentrations, lithologies and structures.
- The freeware Leapfrog, Grass GIS (US Government) or QGIS packages have sufficient functionality for initial spatial data management and presentation. The purchase of either a Maptek VULCAN, GeoSoft TARGET or Datamine licence is pending funding arrangements or a demonstrated need for full functionality (e.g. borehole logging and presentation, resource estimation).

Purchase of equipment in anticipation of exploration program

Outcomes:

- During the reporting period, AMR purchased, stored and restored two 900m-capable Boart Longyear cored drilling rigs; a second-hand field-capable vehicle and minor sundry drilling equipment.

Implications:

- Even with equipment, the further costs of drilling (access and set-up, consumables, labour, etc) will require funding. AMR is working on two strategies to fund the drilling phase of exploration.
- As finances are critical, optimal targeting of boreholes is a prerequisite for drilling - requiring more data acquisition, research and detailed analysis and modelling. This will consume resources including time. Drilling is likely to be delayed beyond the original two-year expectation (unless funding arrangements demand earlier).

5. PROPOSED WORK PROGRAM

Year 3:

1. Continue stream sediment sampling program (200 sites = 40 man-days):
    - Priorities are Davies Hill, Diamond Hill, Madam Howards South and Stubbs Valley
    - Engage cutters to expedite access (and grid for detailed mapping) (20 man-days)
    - Integrate with search for possible source lodes, vein outcrop mapping and rock samples.
2. Map Diamond Hill and Davies Hill prospects in detail (14 days)
3. Design shallow drilling program for Diamond or Davies Hill.
4. Research geochemical and mineralogical gold vectors other than ppm gold. Consider applying to existing samples and core.
5. Conduct preliminary research into gold ore concentration and deterioration; (10 days)
6. Design scope and arrange for academic (Hons) study of above (5 days).
7. Review structural interpretation to identify potential significant fault intersections.
8. Year 2 supplementary activities:
    - Prepare supplementary report to provide 2018 stream sediment assay results and core photographs in database-compatible format
    - Complete structural logging of MH06 – MH08
    - Locate assay samples from MH05, core from 1998 Davies Hill 1
    - Check borehole locations with GPS
    - Re-check measurement of MH06 core sample locations in core.
9. Structure the draft model in freeware packages and populate with preliminary data. Obtain quote for VULCAN, Target or Datamine.

Years 4 and 5:

10. Trench and assay prospective vein outcrops and drill the prospect(s)
11. Commission academic study
12. Complete full area stream sampling catchment map.
13. Resource assessment.

Estimated costs Year 3

Stream sediments	$	35,000
Mapping	$	10,000
Geology	$	25,000
Supplementary	$	7,000
Tenement Admin	$	3,000
Total Program	**$**	**80,000**

6. ENVIRONMENTAL, CULTURAL HERITAGE

No works as specified by the *Mineral Exploration Code of Practice* (Bacon & Pemberton, 2012) or 'controlled actions' (*EPBCA,* 1999) were undertaken during the period.

Field work on public land consisted of outcrop recording and chip sampling, and stream sediment panning only (process description in Appendix B).

Access was by two persons by foot during Summer months only from roadside or fire trails, with minimal damage to regrown common native species (predominantly manuka, bauera and cutting grass). No track cutting, or gridding was undertaken.

Both the geologist and field assistant searched and viewed images of plants of conservational significance (Appendix D) for familiarity prior to the program. Movement through scrub and swampy areas was undertaken to alert fauna including frogs, lizards and snakes.

The nearest record of aboriginal relics is from the Queen River valley (Corbett, 1980) 2 km to the east of the Licence area (West Queen). Aboriginal inhabitation of the slopes and exposed plains of Diamond Hill is unlikely (Appendix E). Apart from excavation depressions, trenching, six historical exploration tunnels and two known shafts, there is no evidence of white cultural heritage elements of historical value on EL16/2015.

7. EXPENDITURE 2016/17 and 2017/18

Exploration Expenditure EL16/2015	April to March **2016/2017**	April to March **2017/2018**
Field program	$15,160	$14,881
Geology	$13,077	$21,085
Exploration Equipment	$7,723	$21,555
Tenement Administration	$3,579	$2,152
Services	$432	Nil
TOTAL EXPENDITURE	**$39,971**	**$59,674**

8. REFERENCES

Bacon, C. A., Pemberton, J. (2012). *Mineral Exploration Code of Practice* (Fifth Edition). Mineral Resources Tasmania: Hobart.

Bottrill, R. S., Huston, D. L., Taheri, J. &Khin Zhaw (1992). *Gold in Tasmania.* In Geological Survey Bulletin 70: An island of potential. Tasmania Department of Mines.

Brown, A.V., Calver, C.R., Corbett, K. D., Everard, J. L. Forsyth, S. M., Goscombe, B. D., Green, G. R., McClenaghan, M. P., Pemberton, J., Seymour, D. B. & Vicary, M. J. (comp). (2005). *Geology of Southwest Tasmania*. Edition 2011.1. Digital Geological Atlas 1:250 000 Scale Series. Mineral Resources Tasmania.

Callaghan, T. (2013). *Annual report EL1/2006 Diamond Hill western Tasmania*. For Stebbo's Diamond Drilling. Unpublished annual report.

Corbett, K.D. (1979). *Stratigraphy, correlation and evolution of the Mt Read Volcanics in the Queenstown, Jukes-Darwin and Mt Sedgwick areas.* Department of Mines Tasmania, Geological Survey: Bulletin 58

Corbett, K. D. (1980) *A Record of Aboriginal Implement Sites in the Queenstown Area, Tasmania*. Papers and Proceedings of the Royal Society of Tasmania Vol. 114:35-39.

Corbett, K. D., Calver, C. R., Everard, J.L., & Seymour, D. B., **(**1989). *Queenstown:* 1:25,000 Geological Mapping Sheet. Tasmanian Department of Mines Geological Atlas.

Corbett, K. D., (1992). *Stratigraphic-volcanic setting of massive sulphide deposits in the Cambrian Mount Read Volcanics, Tasmania.* Economic Geology 87.

Corbett, K. D., Quilty, P. G. & Calver, C. R. (Eds). (2014). *Geological Evolution of Tasmania.* Special Publication No 24. Geological Society of Australia Inc.

Corbett, K. D., and Solomon, M. (1989). *Cambrian Mt Read volcanics and associated mineral deposits*. InGeology and Mineral resources of Tasmania. Geological Society of Australia Special Publication 15 pp. 84-153.

de Vries, P. J., (2008, 2009, 2010). (Five documents) *EL01/2006 - Diamond Hill Tasmania annual technical report 4th September 2009 - 3rd September 2010. EL01/2006 - Diamond Hill, Tasmania - annual technical report, 4th September 2008 - 3rd September 2009. Annual Report 2006 to 2007, Diamond Hill. Annual Report 2006 to 2007, Diamond Hill.* Low Impact Diamond Drilling Specialists Pty Ltd. Mineral Resources Tasmania Technical Reports

Griffiths, A. G., (1998). *The Geology, Geochemistry and Magnetics of Yolande River Sequence Porphyries, Northwest of Queenstown.* Unpublished BSc Honours thesis, CODES SRC/School of Earth Sciences, University of Tasmania.

Groves, D.I., (1964). *Madam Howard Plains Barite deposit*. Tasmanian Mines Department Technical Report No8.

Howland-Rose, A.W. (1974). *A Report on Gradient Array Electrical Induced Polarisation Reconnaissance Survey Over the Madame Howard Grid, Henty-Yolande Area E.L. 41/71, Queenstown, West Coast Tasmania*. Mt Lyell Mining and Railway Company Ltd.

Leaman, D. E., (1992). *Finding Cambrian keys:* An essay in controversy, prospectivity and tectonic implications. In Geological Survey Bulletin 70: An island of potential. Tasmania Department of Mines.

Leaman, D.E., (1993). *EL25/91 Yolande River Aeomagnetic Survey Acquisition*. Pasminco Exploration.

Morrison, K. C., (1997). *Exploration Licence 27/95 – Yolande River Year 1 Annual Report*. Unpublished annual report for Copper Mines of Tasmania Pty Ltd

Morrison, K. C. and Griffiths, A. G., (1998). *CMT Pty Ltd Exploration Licence 27/95 - Yolande River, Year 2 Annual Report.* Tasmanian Mines Department Technical Report

Morrison, K. C. (2002). *Relinquishment and Final Report - EL27/1995 - Yolande River.* Copper Mines of Tasmania Pty Ltd. Unpublished annual report.

Morrison, K. C. (2002). *Western Tasmanian Regional Minerals Program. Mount Read Volcanics Compilation.* Report on field investigations Mt Darwin - Mt Murchison region. Mineral Resources Tasmania, Tasmanian Geological Survey: Record 2002/18

Murphy, B., Denwer, K., Keele, R.A., Stapleton, P., Korsch, R., Seymour & D.B., Green, G.R. (2004). *Tasmania Mineral Province Geoscientific database, 3D geological modelling, mines and mineral prospectivity:* Project T3 Final Report. Mineral Resources Tasmania.

Poltock, R. (1992). *Pasminco Exploration Yolande EL 11/85 and Yolande River EL 25/91 Annual Report 1991-92.* Arimco Mining Pty Ltd, Leaman Geophysics, Pasminco Australia Ltd. Unpublished annual report.

Richards, D. (2005). *EL 21/2003 - Yolande River, Final Report for the period 12 July 2003 to 30 June 2005.* Glengarry Resources Ltd. Unpublished annual report.

Richards, D., Morrison, K.C. (2004). *Annual report for peiod ending 10 June 2004 - Yolande River - EL21/2003.* Glengarry Resources Ltd. Unpublished final report.

Vicary, M. J. (compiler) (2004). Digital Geological Atlas 1:25 000 scale series. *Sheet 3634 'Professor'.* Mineral Resources Tasmania.

Wells, K. (1971). *Annual Report on EL10/69 (Lake Dora-(Henty)-Mt Huxley Area.* Mt Lyell Mining and Railway Company Ltd. Unpublished annual report.

Wells, K. (1976). *Review of Exploration Tenements EL 9/66, EL 10/69 and EL 41/71*. Mt Lyell Mining and Railway Company Ltd. Unpublished annual report.