

LANCASTER RESOURCES LIMITED

Gladstone Project

EL14/2011

Gladstone, Tasmania

RELINQUISHMENT REPORT

Reporting Period

23/03/2012 – 30/05/2014

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ABSTRACT

Location: EL 14/2011 is located in the North East of Tasmania with the regional centre of Gladstone occurring in the central north area of the tenement.

Geology: Surface geology comprises Quaternary stream, marsh and marine terrace deposits as well as Tertiary gravel, sand, silt and clay deposits towards the north. Mathinna Beds and granitoids occur in the south.

Work Done: Surface mapping and interpretation, boundary surveying, literature review.

Results: A comprehensive review of the previous exploration and mining activities has identified a number of targets warranting further investigation including along strike of previous mining activity.

Conclusions: A systematic geochemical survey was proposed to be conducted across the identified targets in conjunction with geological mapping to get an understanding on the controls and extents of mineralisation.

However, the depressed state of the market and lack of funding available for exploration, change of corporate ownership and the consequent withdrawal of Lancaster Resources from the resource sector has led to the decision to surrender EL 14/2011 before being able to complete these plans.

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1. Gladstone Project Tenement Details

1. SUMMARY

This report has been prepared to accompany the surrender of EL 14/2011 (Gladstone Project) by Lancaster Resources Limited (“**Lancaster**” or “**the Company**”). The Gladstone Project is located in the Gladstone area of north eastern Tasmania and was originally acquired for its prospectivity for tungsten, tin and gold mineralisation. The location of the Project is shown in Figure 1 below.



Figure 1 – Map location of Gladstone project

2. GLADSTONE PROJECT

2.1 Location and Tenure

The Gladstone Project consists of an exploration licence application (EL14/2011) and covers an area of 7km². The Project is located in the Gladstone region of north-eastern Tasmania (Figures 1 and 2). The topography is predominantly gently undulating hills with several small streams deeply incised forming narrow channels in soft weathered lithologies. Vegetation consists of sparse, stunted eucalypts, minor sedge grass and stunted bottle brush.

Tenement details for the Gladstone Project are summarised in Table 1 below, while Figures 3-5 provide details of topography, land usage and excluded areas.

Table 1. Gladstone Project Tenement Details							
Tenement	Type	Holder	Size (Ha)	Grant Date	Expiry date	Expenditure Commitment	Rent
EL14/2011	Exploration Licence	Lancaster Resources Ltd	700	23/03/2012	22/03/2017	\$10,000	\$157.08

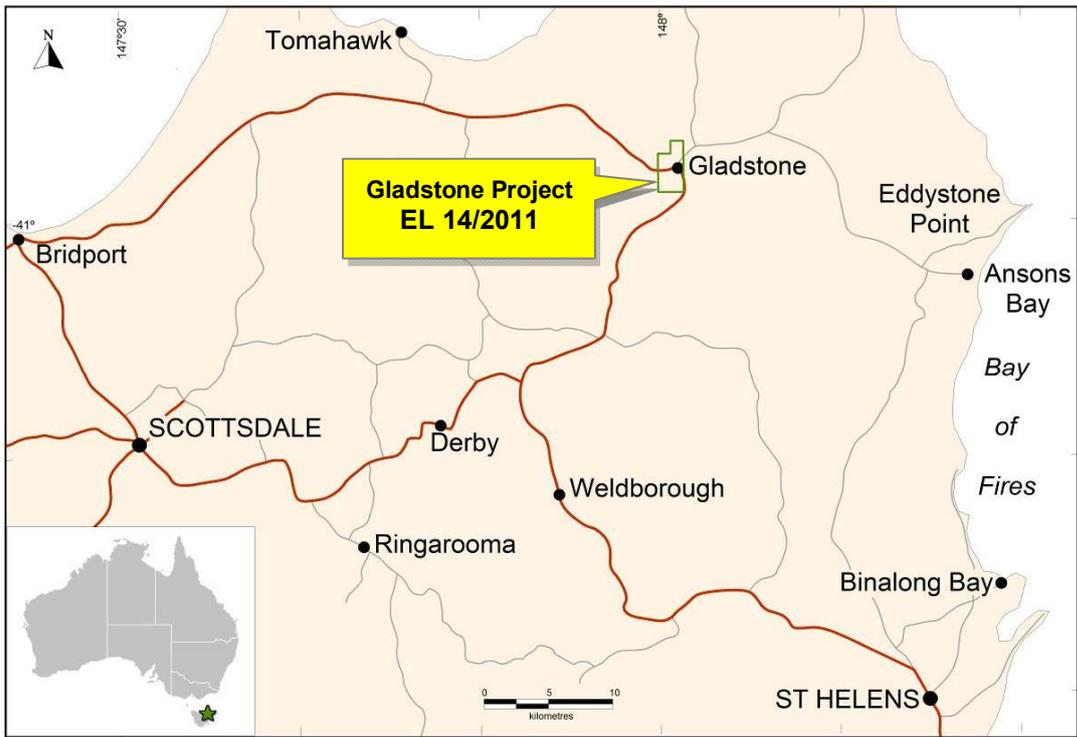


Figure 2 – Location of the Gladstone Project

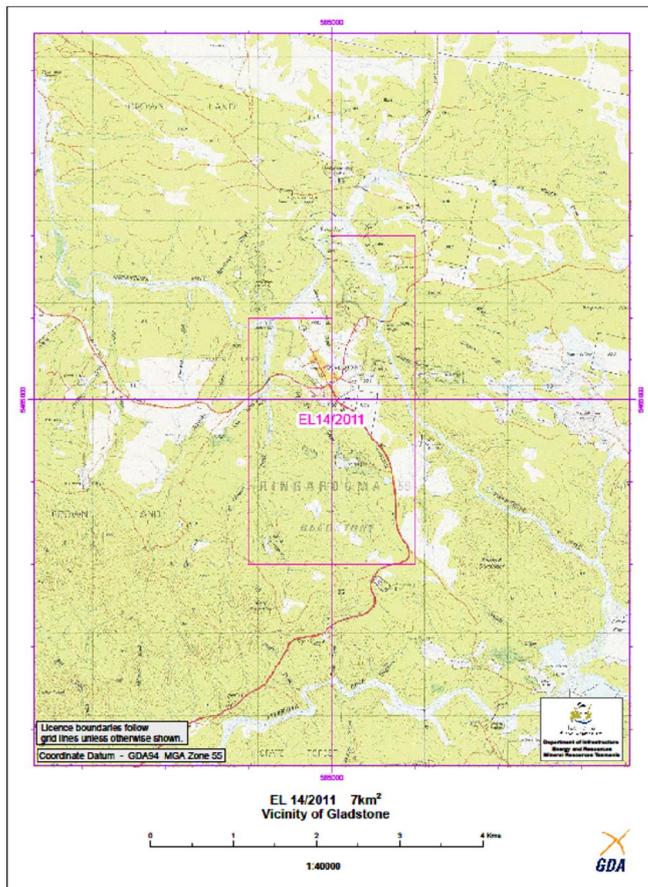


Figure 3 – Tenement outline and co-ordinates of EL 14/2011

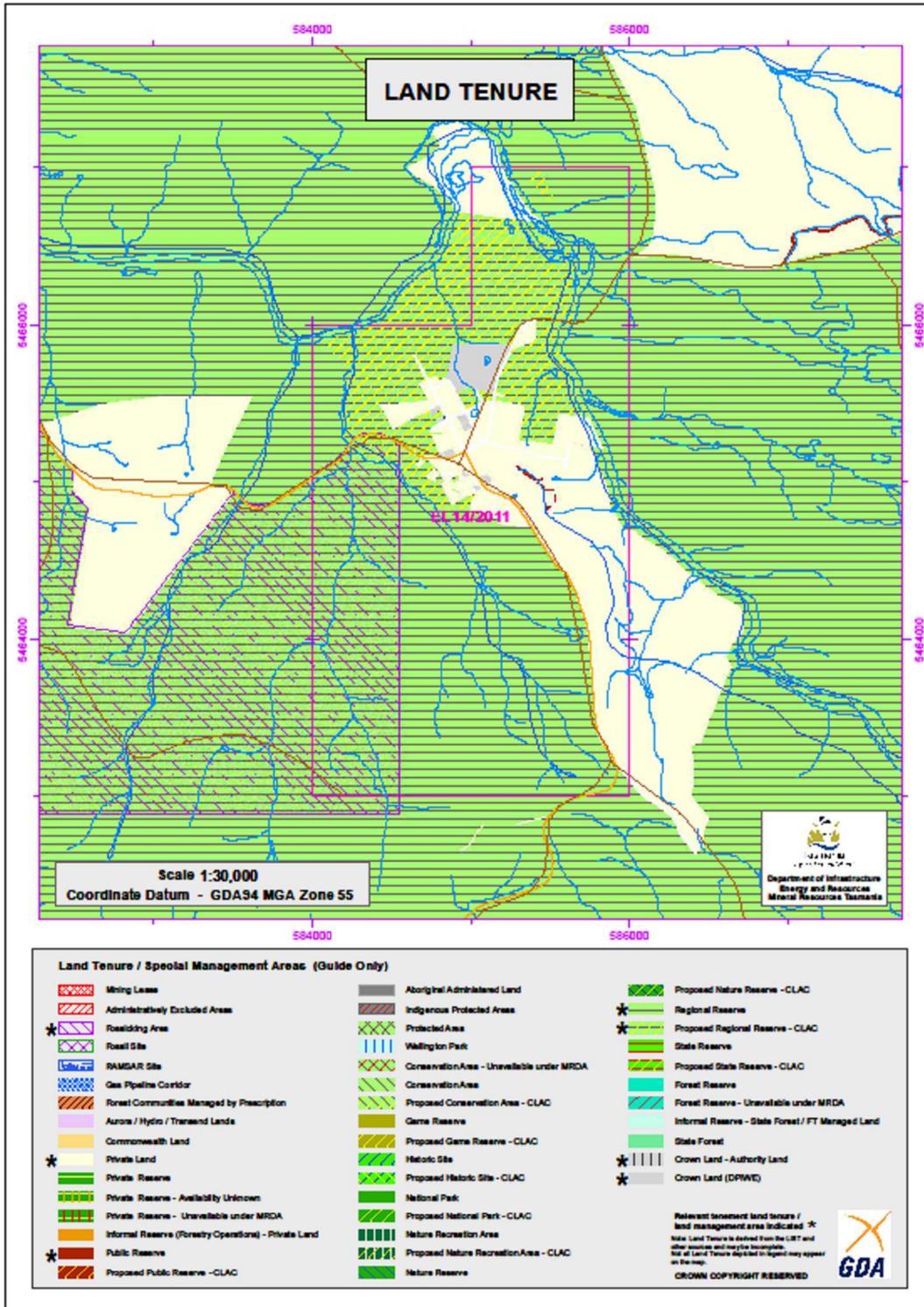


Figure 4 – Land tenure and usage in and around the Gladstone Project

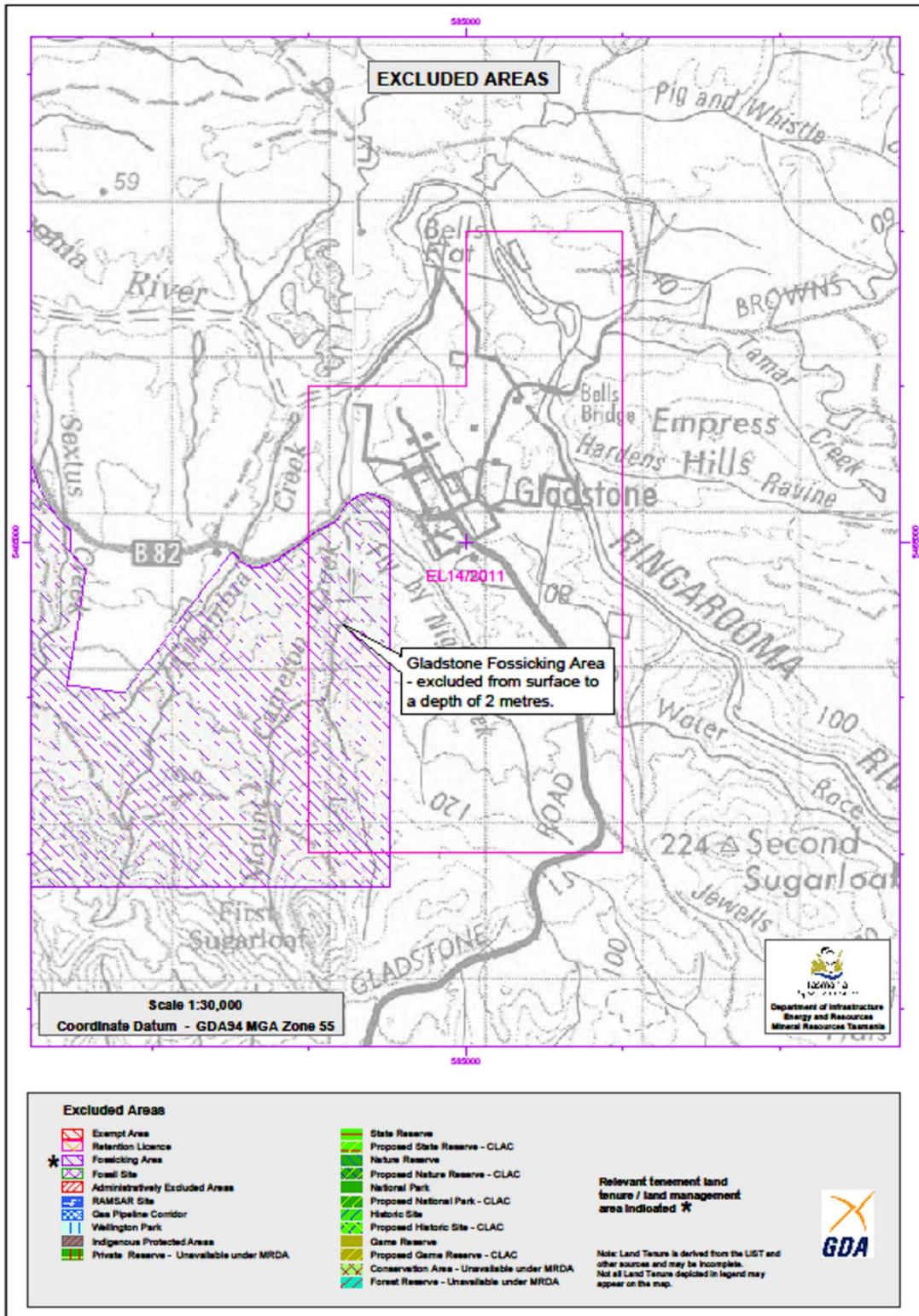


Figure 5 –Gladstone Project Exclusion zone (Fossicking area)

2.2 Geological Setting

Regional Geology

The Eastern Tasmanian Terrane (Banks and Baillie, 1989) is the southernmost Australian expression of the Lachlan Fold Belt in the north east of Tasmania where it is comprised of an early Ordovician to early Devonian folded succession of turbiditic quartzwackes and pelites, and Mathinna Group (Powell and Baillie, 1993) which have been correlated with the rocks of the Melbourne Trough in Victoria.

Mathinna Group rocks have undergone regional low-grade metamorphism, and thermal metamorphism where they have been intruded by calc-alkaline granitoid batholiths of Devonian age. Thermal alteration aureoles are commonly sharply defined and vary in width from about 800m to 500m.

Flat lying sediments of the Carboniferous/ Early Permian to Triassic Parmeener Supergroup unconformably overlie both the Mathinna Group sediments and the Devonian granitoids. The Parmeener Supergroup rocks are intruded by thick sheets of Jurassic dolerite. Areas of Tertiary basalt are associated. Tertiary sediments occur in north-eastern Tasmania and in some places have filled pre existing drainage to form deep leads, some of which contain alluvial gold. Quaternary alluvium occurs in river valleys, and in the near coast, Quaternary windblown sands obscure much of the bedrock.

Local Geology

Mathinna Group sediments outcrop over a considerable part of the Project and consist of regionally metamorphosed turbiditic sandstones, mudstones and lithic wackes (Baillie, 1984). Where contact metamorphism occurs they are comprised of spotted pelite, psammite and minor schists. Devonian granites associated with the Eddystone and Blue Tier Batholiths intrude the Mathinna Group in three phases to the northern and southern extents of the project area respectively.

To the north, a biotite-muscovite granite (Musselroe Pluton) outcrops and has produced a narrow (<1km) thermal aureole in the Mathinna Group lithologies. To the south, a biotite-hornblende granodiorite of the Gardens Pluton has produced a thermal aureole of up to 2km. The granodiorite outcrops in only a few localities and is largely covered by Tertiary gravels and sands.

Near to the Gladstone township, a biotite granite of the Poimena Pluton has been intruded by a later phase of biotite muscovite granite which contains a cassiterite bearing greisen responsible for the alluvial tin mineralisation found in the region. The thermal aureole in the Gladstone region is up to 5km wide.

To the west of the project area, large areas of bedrock are covered by Quaternary windblown sands. A small amount of Permian sediment and Jurassic dolerite are present.

Structure

The oldest lithologies in the Gladstone area are the Mathinna Group which are generally poorly exposed. Limited structural data indicates that the dominant fold trend is northerly with a gentle plunge to the north (Baillie, 1986). In addition to the dominant cleavage associated with the folding, a crenulation cleave is developed in many outcrops and the principle direction strikes at approximately 155 degrees. Gold bearing quartz veins occur in a zone trending north north-east from Gladstone. The zone of mineralisation is about 2km wide and 3km from the boundary of The Gardens Pluton, suggesting a relationship with the granodiorite. Most of the quartz veins in the immediate Gladstone area have a north west, south east trend which is approximately at right angles to the granodiorite boundary.

Mineralisation

Gold mineralisation occurs in the Mathinna Group sediments throughout the north east of Tasmania. At some locations the gold mineralisation appears to be granitoid related (e.g. Golden Ridge and Lisle-Golconda-Panama) and in other locations distal to granitoid (e.g. Lefroy).

The gold bearing reefs are predominantly orientated in a north west, south east direction and lie parallel to the course of the Fly by Night Creek, the Royal Mint on the southern side and Flemings, Royal Tasman No. 1, Royal Tasman No. 2 (North Tasman) and Royal Standard to the north. Coarse Gold Creek is another parallel reef north of the township. The reefs to the south of the town of Gladstone lie in close proximity to the granite contact and are known to contain small amounts of cassiterite.

Twelvetrees (1916) described the mines of the Gladstone district in detail. Royal Standard, Royal Tasman and Royal Mint were described as being in full production in 1881 and 1882, with at least two batteries obtaining very high assay returns from Royal Tasman No. 1 where average head grades in excess of 1 oz/tonne gold were being mined. Recoveries of gold declined with depth as a result of the ore becoming more refractory.

The primary sources of the tin mineralisation in the district are cassiterite-bearing greisenised granites confined to irregularities in the upper contact of younger muscovite-biotite granite with an older granite or sediment. The Fly by Night tin mine is located 700m to the south east of the Royal Tasman workings.

2.3 Previous Exploration

Gold and tin mining commenced at around 1880 with the discovery of the Royal Tasman gold reef and Fly by Night tin deposit immediately south of Gladstone. By 1883 production of gold had dwindled, further prospecting work was carried out in 1916. Approximately 55kg of gold was produced from the region of which more than 51kg of gold came from Royal Tasman No. 1 & No. 2.

The known Tasmanian mineral deposits and mineral occurrences of economic interest database contains 36 gold deposits, 18 tin deposits and 1 tungsten occurrence in the

Gladstone Project area (Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources, Tasmania).

The following are descriptions of some of the main gold and tin workings found in and around EL 14/2011. Figure 6 shows the location of historic workings, recent drill holes and other exploration activities at the Gladstone Project

Gold

North Tasman (584,700mE; 5,464,450mN) is a 1.8m wide lode reportedly averaging around 14 g/t Au. It outcrops over a strike length of 40m and was worked to a maximum depth of 33m. Workings consisted of a vertical shaft to 33m with levels at 11m, 20m and 33m (the latter being an adit which extends northwards for more than 100m). Stopping was conducted along lengths of approximately 18 to 24m down to the 20m level. Higher grade mineralisation is located in fine grained marble like quartz, sometimes with limonitic fractures. Anglo Australian Resources NL ("**Anglo**") returned several high grade assays from mullock samples in 1996 of 82.5g/t Au, 16.6 g/t Au and 28.2 g/t Au. The reef appears to be faulted at 30m and thrown to the north by 3.6m, dipping 60-70 degrees west.

Royal Tasman No. 1 (584,750mE, 5,464,680mN) was 0.6m wide, vertical mineralisation reportedly averaging around 17 g/t Au. It outcropped over a strike length of 73m and was worked to a depth of 22m. The workings consist of stopping to 76m to the 9m level and for 45m above the 22 level. Very high grade gold values were found at the surface (~612 g/t Au) but these appeared to decline with depth although Thureau (1881) suggested the old workings may have missed offset portions of the mineralised reef. It may also have been a factor of gold being contained within sulphides similarly to North Tasman as mentioned above. Two diamond drill holes by Anglo Australian in 1996 intersected the main reef at about 40m and a second zone of quartz veining at a shallow depth. No significant intercepts were returned from limited sampling of the drill core with all assays returning <0.05 g/t Au.

Royal Mint (584,680mE; 5,464,900mN), was worked to a maximum depth of 20m and contained a zone of mineralisation up to 1.2m wide which is much narrower in places. Strike length is uncertain.

Royal Standard (584,750mE; 5,464,900mN) lode width varied from 0.9m to 6.7m (average 4.5m) and dipped steeply to the north over a strike length of 300m. Workings extend to a maximum depth of 30m. The mineralogy of the mineralisation consists of visible gold with accessory cassiterite, arsenopyrite and chalcopyrite. At the northern extent of the mineralisation a lode (Wolfram Lode) cross cuts the reef and contains wolfram, cassiterite and minor gold. A number of smaller reefs were identified but many were abandoned at the prospecting stage because they did not appear to contain any appreciable quantity of gold.

Flemings Reef located immediately south of Royal Tasman has coarse arsenopyrite associated with gold and silver. Nye (1932) states that high gold assays (>20 ounces per tonne Au) from Flemings Reef indicate that although no free gold is visible arsenopyrite is probably not the principle source. Tests from two samples indicated that practically all of the gold could be extracted with mercury and all of it is soluble in cyanide solution.

More recent exploration at the Gladstone Project has been conducted by Santos Ltd (“**Santos**”) (1981-83), Anglo Australian Resources NL (1995-1996) and Macquarie Harbour Mining (“**Macquarie**”) (2007-2009).

Santos work included geological and geochemical sampling at 50m intervals using a hand auger. A number of anomalous gold samples from this work are located in close proximity to the granite-sediment interface south of the main workings. Follow up work conducted on these anomalies included infill geochemical sampling, geological mapping and trenching. Trenching consisted of three long (+100m) trenches across the old workings as well as three shorter (~50m long) trenches to investigate soil gold anomalies. All of the trenches recorded only low order results for gold (<1 g/t Au).

Tin

Limited hard rock tin mining has been conducted across the project area. The Fly by Night mine was discovered in approximately 1880 and at the commencement of mining was considered to be very successful. Production continued for approximately 40 years after. Both Geopeko Limited (“**Geopeko**”) and Santos have explored the Fly by Night greisen deposit for its bulk mining potential in more recent times.

In 1978 to 79, Geopeko conducted a program of gridding, surveying, geological mapping and RC drilling on 50m centres (95 holes totalling 536m with an average depth of 5.64m and deepest hole to 15m), percussion drilling, and a single diamond hole to 24.4m. Geopeko completed evaluation of the deposit and concluded that there was insufficient tonnage, low cassiterite grade, erratic distribution and recovery issues which meant that the mineralisation was not economic at that point in time.

Further drilling was conducted by Santos in 1981 with two diamond holes drilled totalling 150.5m. Further exploration including gridding, geological mapping and geochemical sampling across four prospects was conducted in 1982. Further exploration did not eventuate due to the emphasis shifting from tin towards gold targets. The four prospects included: Harden\$ Ravine, Flight by Night, 400m West of Fly by Night and Enterprise.

Harden\$ Ravine is a prospect resulting from two soil samples from a quartz-muscovite greisen body some 200m wide and of unknown strike extent which recorded assay values of 300ppm and 580ppm tin respectively. A recent sample, NE1818, collected by Macquarie in 2009 returned 8.87% tin demonstrating the existence of higher grade zones within the greisen.

Fly by Night is an area of muscovite greisen at least 200m wide and elongated north west, south east. Eight soil samples over the length of the prospect returned assays within the range of 210 to 460ppm tin.

Located 400m west of Fly by Night is a 250m wide sub circular feature containing anomalous tin grades which overlaps greisen developed at a contact between older porphyritic feldspar granite, younger altered granite and altered Mathinna Beds.

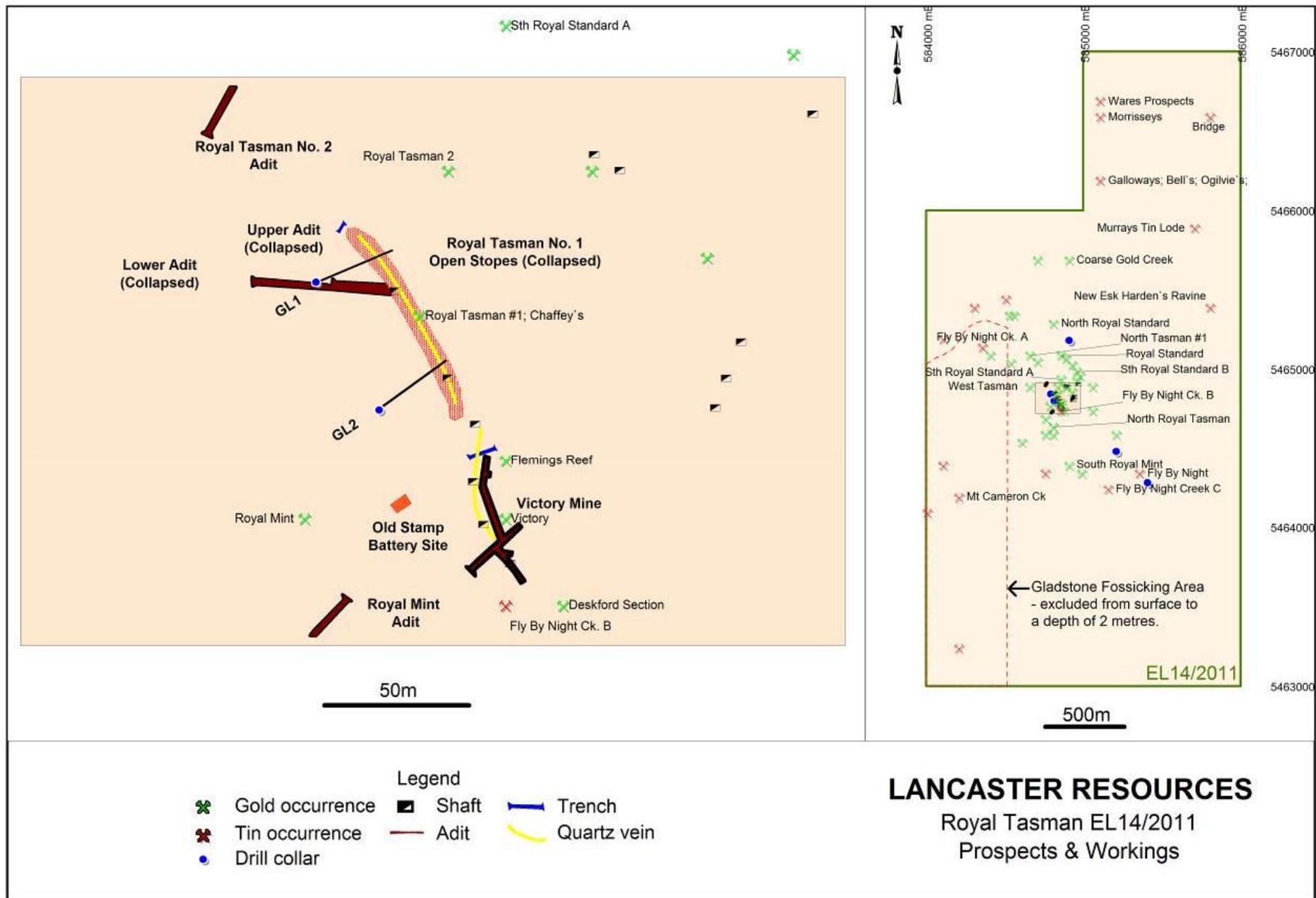


Figure 6 Historic Workings and Significant Anomalies at the Gladstone Project

2.4 Exploration Potential

Similar to Tungsten mineralisation, tin mainly occurs in pegmatite and greisens near the periphery of felsic granitoid intrusives and is produced by late magmatic hydrothermal activity. Tin deposits often contain accessory tantalum, lithium, niobium and gold.

The contact thermal aureoles associated with granite intrusions at the Gladstone Project contain tin and gold mineralisation as demonstrated by historic workings and more recent exploration. This mineralisation is typically spotty and contains high grades which pose difficulties in targeting exploration and the evaluation of results. Careful review of existing data sets is required before planning detailed field programs using the best modern methods available.

There has been limited systematic modern exploration to define potential significant ore bodies within the area for either tin or gold to date. Drilling appears to have been limited to shallow RC drilling and a further three diamond drill holes totalling only 174.9m (average depth 58m). This work has targeted only shallow mineralisation and not tested deeper targets around existing workings or geochemical and structural anomalies.

2.5 Exploration Program objectives

Lancaster proposed to commence its initial exploration activities at the Royal Tasman EL14/2011 with desk top studies and research in preparation for field programs. This would include the compilation of all available data sets into a Project data base. Purchase of other available remote sensing and geophysical data sets were also included in Lancaster plans for the Project.

Some drill ready targets appear to have been defined by work to date but these need to be confirmed and further exploration is necessary to refine other targets within the tenement. Surface geochemical soil and stream sediment sampling programs should better define geochemical anomalies outside of the known workings and prospects. Ground geophysics and detailed geological mapping will assist in areas of alluvial cover which may otherwise obscure bedrock mineralisation.

3. WORK COMPLETED TO MAY 2014

Notwithstanding initial exploration plans for Royal Tasman, by the time the tenement was granted the investment market had suffered a downturn and funding for junior miners had effectively dried up. Despite its merits, field exploration at Royal Tasman was unable to be completed and only literature research and desk top studies were initiated, the results of which are summarised in this report.

In late 2013, Lancaster Resources was acquired by another company and by early 2014 a decision was made to exit the mineral exploration sector. Consequently, despite the prospectivity of Royal Tasman, a decision was made to surrender all mineral tenements held by Lancaster Resources and its parent company.

Expenditure to date on EL 14/2011 was \$3,451 comprising mainly literature research and geological assessment.

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5. GLOSSARY OF TECHNICAL TERMS

<i>AAS</i>	Atomic Absorption Spectroscopy - a spectroanalytical procedure for the qualitative and quantitative determination of chemical elements employing the absorption of optical radiation (light) by free atoms in the gaseous state
<i>aeolian</i>	Formed or deposited by wind.
<i>aeromagnetic</i>	A survey undertaken by helicopter or fixed-wing aircraft for the purpose of recording magnetic characteristics of rocks by measuring deviations of the earth's magnetic field.
<i>Ag</i>	Silver
<i>aircore</i>	A drilling technique used for mineral exploration which utilises high pressure air, rotation and sometimes percussion hammer tools. Drill chips are collected via a 'closed sample return' similar to RC systems and are therefore less likely to be contaminated. A 'core' shaped sample is often returned in competent rock types.
<i>alluvial</i>	Pertaining to silt, sand and gravel material, transported and deposited by a river.
<i>alluvium</i>	Clay silt, sand, gravel, or other rock materials transported by flowing water and deposited in comparatively recent geologic time as sorted or semi-sorted sediments in riverbeds, estuaries, and flood plains, on lakes, shores and in fans at the base of mountain slopes and estuaries.
<i>alteration</i>	The change in the mineral composition of a rock, commonly due to hydrothermal activity.
<i>amphibolite facies</i>	An assemblage of minerals formed at moderate to high temperatures (450°C to 700°C) during regional metamorphism.
<i>andesite</i>	An intermediate volcanic rock composed of andesine and one or more mafic minerals.
<i>anomalies</i>	An area where exploration has revealed results higher than the local background level.
<i>anticline</i>	A fold in the rocks in which strata dip in opposite directions away from the central axis.
<i>antiformal</i>	An anticline-like structure.
<i>Archaean</i>	The oldest rocks of the Precambrian era, older than about 2,500 million years.
<i>Au</i>	Gold
<i>aureole</i>	A zone surrounding an igneous intrusion in which the country rock shows the effects of contact metamorphism
<i>basalts</i>	A volcanic rock of low silica (less than 55%) and high iron and magnesium composition, composed primarily of plagioclase and pyroxene.
<i>BIF</i>	A rock consisting essentially of iron oxides and cherty silica, and possessing a marked banded appearance.
<i>BLEG sampling</i>	Bulk leach extractable gold analysis; an analytical method for accurately determining low levels of gold.
<i>chert</i>	Fine grained sedimentary rock composed of cryptocrystalline silica.

<i>chlorite</i>	A green coloured hydrated aluminium-iron-magnesium silicate mineral (mica) common in metamorphic rocks.
<i>colluvium</i>	A loose, heterogeneous and incoherent mass of soil material deposited by slope processes.
<i>conglomerate</i>	A rock type composed predominantly of rounded pebbles, cobbles or boulders deposited by the action of water.
<i>Cu</i>	Copper
<i>dacite</i>	An extrusive rock composed mainly of plagioclase, quartz and pyroxene or hornblende or both.
<i>diamond drilling (DDH)</i>	A drilling technique used for mineral exploration which uses rotation and diamond bits to cut through rock. Produces a semicontinuous 'core' of rock.
<i>dilational</i>	Open space within a rock mass commonly produced in response to folding or faulting.
<i>dolerite</i>	A medium grained mafic intrusive rock composed mostly of pyroxenes and sodium-calcium feldspar.
<i>dykes</i>	A tabular body of intrusive igneous rock, crosscutting the host strata at a high angle.
<i>EM</i>	Electromagnetic – an electrical geophysics exploration survey method based on measuring alternating magnetic fields associated with currents artificially or naturally maintained in the subsurface.
<i>erosional</i>	The group of physical and chemical processes by which earth or rock material is loosened or dissolved and removed from any part of the earth's surface.
<i>fault zone</i>	A wide zone of structural dislocation and faulting.
<i>felsic</i>	An adjective indicating that a rock contains abundant feldspar and silica.
<i>foliated</i>	Banded rocks, usually due to crystal differentiation as a result of metamorphic processes.
<i>g/t</i>	Grams per tonne, a standard volumetric unit for demonstrating the concentration of precious metals in a rock.
<i>gabbro</i>	A fine to coarse grained, dark coloured, igneous rock composed mainly of calcic plagioclase, clinopyroxene and sometimes olivine.
<i>geochemical</i>	Pertains to the concentration of an element.
<i>geophysical</i>	Pertains to the physical properties of a rock mass.
<i>gneissic</i>	Coarse grained metamorphic rocks characterised by mineral banding of the light and dark coloured constituent minerals.
<i>g</i>	Gram
<i>granite</i>	A coarse-grained igneous rock containing mainly quartz and feldspar minerals and subordinate micas.
<i>greenschist</i>	A metamorphosed basic igneous rock which owes its colour and schistosity to abundant chlorite.
<i>greisen</i>	A highly altered granitic rock or pegmatite. Greisen is formed by autogenic alteration of granite and is a class of endoskarn.
<i>greenstone belt</i>	A broad term used to describe an elongate belt of rocks that have undergone regional metamorphism to greenschist facies.

<i>ha</i>	Hectare
<i>igneous</i>	Rocks that have solidified from magma.
<i>infill</i>	Refers to sampling or drilling undertaken between pre-existing sample points.
<i>intermediate</i>	A rock unit which contains a mix of felsic and mafic minerals.
<i>intrusions</i>	A body of igneous rock which has forced itself into pre-existing rocks.
<i>intrusive contact</i>	The zone around the margins of an intrusive rock.
<i>IOCG</i>	Iron Oxide Copper Gold – A geological model or group of deposits typically associated with magmatic hydrothermal gold and copper mineralisation
<i>IP</i>	Induced Polarisation – an electrical geophysics exploration survey method based on the production of electric charge displacement brought about by application of an electric or magnetic field
<i>ironstone</i>	A rock formed by cemented iron oxides.
<i>K Feldspar</i>	Potassium Feldspar, end member of the Alkali Feldspar group of tectosilicates
<i>km</i>	Kilometre
<i>laterite</i>	A cemented residuum of weathering, generally leached in silica with a high alumina and/or iron content.
<i>lineament</i>	A significant linear feature of the earth's crust, usually equating a major fault or shear structure.
<i>lithological contacts</i>	The contacts between different rock types.
<i>metamorphic</i>	A rock that has been altered by physical and chemical processes involving heat, pressure and derived fluids.
<i>m</i>	Metre
<i>Mg</i>	Magnesium
<i>Mozs</i>	Million ounces
<i>Mt</i>	Million tonnes
<i>Nickel (Ni)</i>	Silvery-white metal used in alloys.
<i>oz</i>	Ounces
<i>outcrops</i>	Surface expression of underlying rocks.
<i>palaeochannels</i>	An ancient preserved stream or river.
<i>Pb</i>	Lead

<i>pegmatite</i>	A very coarse grained intrusive igneous rock which commonly occurs in dyke-like bodies containing lithium-boron-fluorine-rare earth bearing minerals.
<i>playa lake</i>	Broad shallow lakes that quickly fill with water and quickly evaporate, characteristic of deserts.
<i>ppm</i>	Parts per million
<i>ppb</i>	Parts per billion, a measure of low level concentration
<i>porphyries</i>	Felsic intrusive or sub-volcanic rock with larger crystals set in a fine groundmass.
<i>pyrite</i>	An iron sulphide mineral also known as "fools gold."
<i>pyroxenite</i>	A coarse grained igneous intrusive rock dominated by the mineral pyroxene.
<i>quartz reefs</i>	Old mining term used to describe large quartz veins.
<i>RAB drilling</i>	A relatively inexpensive and less accurate drilling technique involving the collection of sample returned by compressed air from outside the drill rods.
<i>RC drilling</i>	A drilling method in which the fragmented sample is brought to the surface inside the drill rods, thereby reducing contamination.
<i>regolith</i>	The layer of unconsolidated material which overlies or covers in situ basement rock.
<i>residual</i>	Soil and regolith which has not been transported from its point or origin.
<i>rhyolite</i>	Fine-grained felsic igneous rock containing high proportion of silica and felspar.
<i>rock chip sampling</i>	The collection of rock specimens for mineral analysis.
<i>schist</i>	A crystalline metamorphic rock having a foliated or parallel structure due to the recrystallisation of the constituent minerals.
<i>sedimentary</i>	A term describing a rock formed from sediment.
<i>shale</i>	A fine grained, laminated sedimentary rock formed from clay, mud and silt.
<i>sheared</i>	A zone in which rocks have been deformed primarily in a ductile manner in response to applied stress.
<i>scheelite</i>	An ore mineral of tungsten, CaWO_4
<i>soil sampling</i>	The collection of soil specimens for mineral analysis.
<i>stratigraphic</i>	Composition, sequence and correlation of stratified rocks.
<i>stream sediment sampling</i>	The collection of samples of stream sediment with the intention of analysing them for trace elements.
<i>strike</i>	Horizontal direction or trend of a geological structure.
<i>sulphide</i>	A general term to cover minerals containing sulphur and commonly associated with mineralisation.

<i>supergene</i>	Process of mineral enrichment produced by the chemical remobilisation of metals in an oxidised or transitional environment.
<i>syncline</i>	A fold in rocks in which the strata dip inward from both sides towards the axis.
<i>t</i>	tonne
<i>tholeiitic</i>	A descriptive term for basalt with little or no olivine.
<i>ultramafic</i>	Igneous rocks consisting essentially of ferromagnesian minerals with trace quartz and feldspar.
<i>veins</i>	A thin infill of a fissure or crack, commonly bearing quartz.
<i>volcaniclastics</i>	Pertaining to clastic rock containing volcanic material.
<i>volcanics</i>	Formed or derived from a volcano.
<i>XRF</i>	X-Ray Fluorescence – a type of X-ray emission spectroscopy in which the characteristic X-ray spectrum of a substance is measured to identify the concentration of each element
<i>wolframite</i>	An ore mineral of tungsten, $(Fe, Mn)WO_4$
<i>Zn</i>	zinc