



# EL122009\_2017\_20180110\_Appendix1 Report on preliminary inspections at the historic King River Gold Mine near Lynchford, EL12/2009, Queenstown

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## Summary

In 2017 the mining lease formerly held by private interests covering the historic King River gold mine expired and became part of EL12/2009. This represented the first opportunity by modern exploration companies to directly assess the historical King River gold mine and surrounding area.

A small access grid was prepared over the historical King River Gold Mine (KRGM) in the Lynchford area of EL12/2009 in late December, with a view to assessing geological elements and historical work efforts conducted over the years.

The area is overgrown with invasive species; brambles broom, gorse etc., which makes access and exploration efforts more difficult. Leeches abound.

Limited outcrop exists in the area, but orange brown clays dominate the hilly portions in the vicinity of the KRGM, often with manganiferous boxworking and sometimes seamed or veined with quartz-MnO<sub>2</sub>-FeO (and an as yet unidentified hard white mineral which may be feldspar) stringers. Bucky white quartz float is common but none was seen in situ. Weathered to fresh dark grey-green hard

hornblende-plagioclase phyric andesites/basalts, sometimes seen with an unusual sub-angular moderately sorted white feldspar? rich crystal granule-pebble conglomeratic texture, and an unusual extremely siliceous and hard light grey olivine phyric rock can be found in creeks. Strongly to moderately weathered agglomeritic andesite can be found at the bottom of a major N-S trending open cut found at the top of the main hill on which the bulk of historical activity is found (herein referred to as Lynch hill). General strike of the intermediate-mafic unit is roughly NNE-SSW. Quartz phyric volcanoclastics ascribed to the Tyndall group are present to the west of the intermediate-mafic package and appear to strike NNE-SSW, and siltstones and sandstones ascribed to the Central Volcanic Complex are found to the east of the intermediate-mafic package and appear to strike NNW-SSE.

No obvious mineralisation was met with on this trip. Alluvial workings covering at least 600m strike of the Lynch Creek (alluvial gold is recorded throughout Lynch Creek and running into the Queen river as well where dredging operations were unsuccessfully attempted) was observed but no gold seen in limited pannings from the creek area. The alluvial efforts persevere upstream of the area where historical efforts have been observed. Predominantly vertically to steep easterly inclined N-S to NNE-SSW trending mangano-ferruginous quartz (chalcedonic in places?)-white feldspar? Veins of thickness no greater than 2 inches have been seen in limited exposures of the clay. Most surficial exposure is obscured by moss, brambles and all other manner of vegetation both native and alien.

Numerous adits, shafts, trenches, opencuttings and hydraulically mined areas from multiple efforts since 1881 have been mapped with most largely obscured by thick vegetation. Infrastructure efforts including road construction, processing facilities etc. have also been mapped. The area has seen the most work of all prospects within the Corona tenure. On review of limited historic documentation, it is unlikely that all historical workings have been mapped and it is quite likely that further workings exist on a possible different trend some 300m to the east of the current workings at the eastern limit of Lynch Hill. These workings are reported to be gold bearing by government geologists as well, and are likely the source of the alluvials in the eastern end of Lynch creek.

Rockchip samples were taken in various locations and have been dispatched to Intertek Genalysis Adelaide for multielement analysis. A sample of the mangano-feruginous-quartz-?feldspar veining and the clay has been sent to Mineral Resources Tasmania for determination of mineralogy by various methods.

An historic bulldozed track was discovered leading up Lynch Hill and to the opencut on the top from which historical records suggest some gold was produced. A fair amount of work using an excavator will be needed to reopen this track but it will be of great use if and when it comes to drilling.

## **Scope of work program**

The scope of this work program was to perform a preliminary assessment on access, infrastructure, vegetation, topography, geology and mining efforts at the historic King River Gold mine and surrounding areas. To facilitate the investigations access was prepared by RogEx between 11<sup>th</sup> and 15<sup>th</sup> of December 2017 as per the map attached and as per approval WPA1375. The Main area of recorded workings was to be accessed and mapped, as was the Specimen creek working (south of Lynch Hill), Oliphant asbestos working (north of Lynch hill) and regional geology 1-2km east and west of Lynch Hill, which was undertaken by C. Hughes between 13<sup>th</sup> and 20<sup>th</sup> of December 2017. Samples

were to be taken for mineralogical analysis and geochemical analysis. Samples 900531-900540 were taken by C.Hughes (sample details appended) and dispatched to Intertek-Genalysis Adelaide on the 22<sup>nd</sup> of December 2017 for multielement analysis as per quote Q170757.

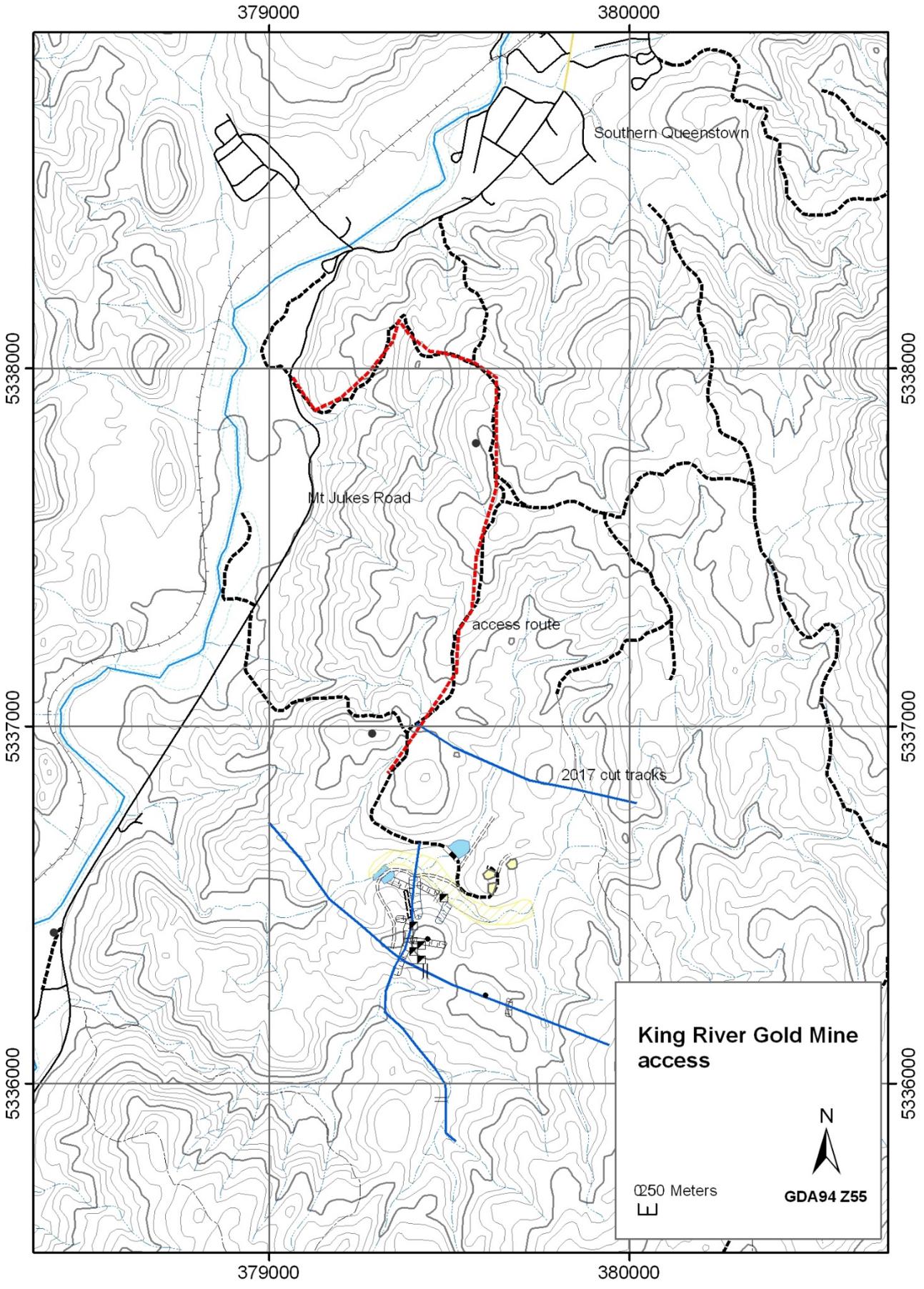
## **Access, infrastructure, vegetation and topography**

Access is by the track opposite the golf course on the Mount Jukes road, heading south out of Queenstown. This track is a 4WD track that is part of a larger network of tracks that accesses the Nasty Knob and Mt Huxley areas and serves as maintenance access for the power pylons that come from John Butters hydro power station. Numerous gates exist on this track network that have been locked in the past but presently appear to be open. Various sections of this track are in a state of disrepair and need maintenance if a larger work program is undertaken. Several quarries exist along the track. The track is not ideal for a number of reasons; dangerous entrance/exit onto the Mt Jukes road, a number of gates over which Corona has no direct control, general disrepair and encroachment of vegetation on track in certain areas, confusing network of interconnected tracks. There is a direct track that leads to the KRGM and exits/enters the Mt Jukes road in a safer manner closer to Lynchford. This track is in an extreme state of disrepair with strong alien vegetation overgrowth and is currently gated and locked. The lock can just be cut off the gate as Corona effectively owns the gate now. I recommend that this track be repaired and be used as it is the safer and simpler way to access the KRGM.

Much road development has been undertaken historically at the KRGM and in the immediate environs of it. This is mostly overgrown now. The purpose of much of this road work is unclear. A 40mx25m dam has been constructed with a concrete retaining wall as well as a concrete bridge over Lynch creek. The main road runs across the top of the retaining wall (currently inaccessible due to alien species growth further up the track). Presumably the dam was created to allow better access to the alluvials. The concrete is composed of local alluvial material which could be indicative of an old age for the pours. The bridge has been constructed in multiple horizontal pour phases. It is unclear who has constructed this infrastructure. Machinery footing is present at the top of a low hill adjacent to the north of Lynch Hill. Significant effort has been undertaken providing multilevel platforms here and it may have been the site of the concrete construction area and the gold plant. A derelict 80's-90's era small scale mobile alluvial plant is located at the top of this hill.

There is a large density of invasive alien vegetation species, which will cause issues with larger exploration programs due to the need to control the spread of the species. Gorse, Broome and Blackberry are the most noticeable offenders. Many paddocks have been cleared and fenced in the past and are now overgrown by blackberries. Obscured barbed wire from farming efforts poses a problem for track cutting. Blackberry's exist in more open areas with a mixture of native vegetation including extremely tall blackwoods and other native trees occupying the more densely vegetated areas.

The area is hilly with generally NNE trending hills except for Lynch Hill and Sovereign Hill which form a small broad North-West trending spur. Lynch creek and Specimen creek run approximately east-west with many of the feeder stream aligned with the NNE trending ridges. Topography is much steeper than anticipated due to dense and extremely tall vegetation obscuring aerial photograph topographical interpretation.



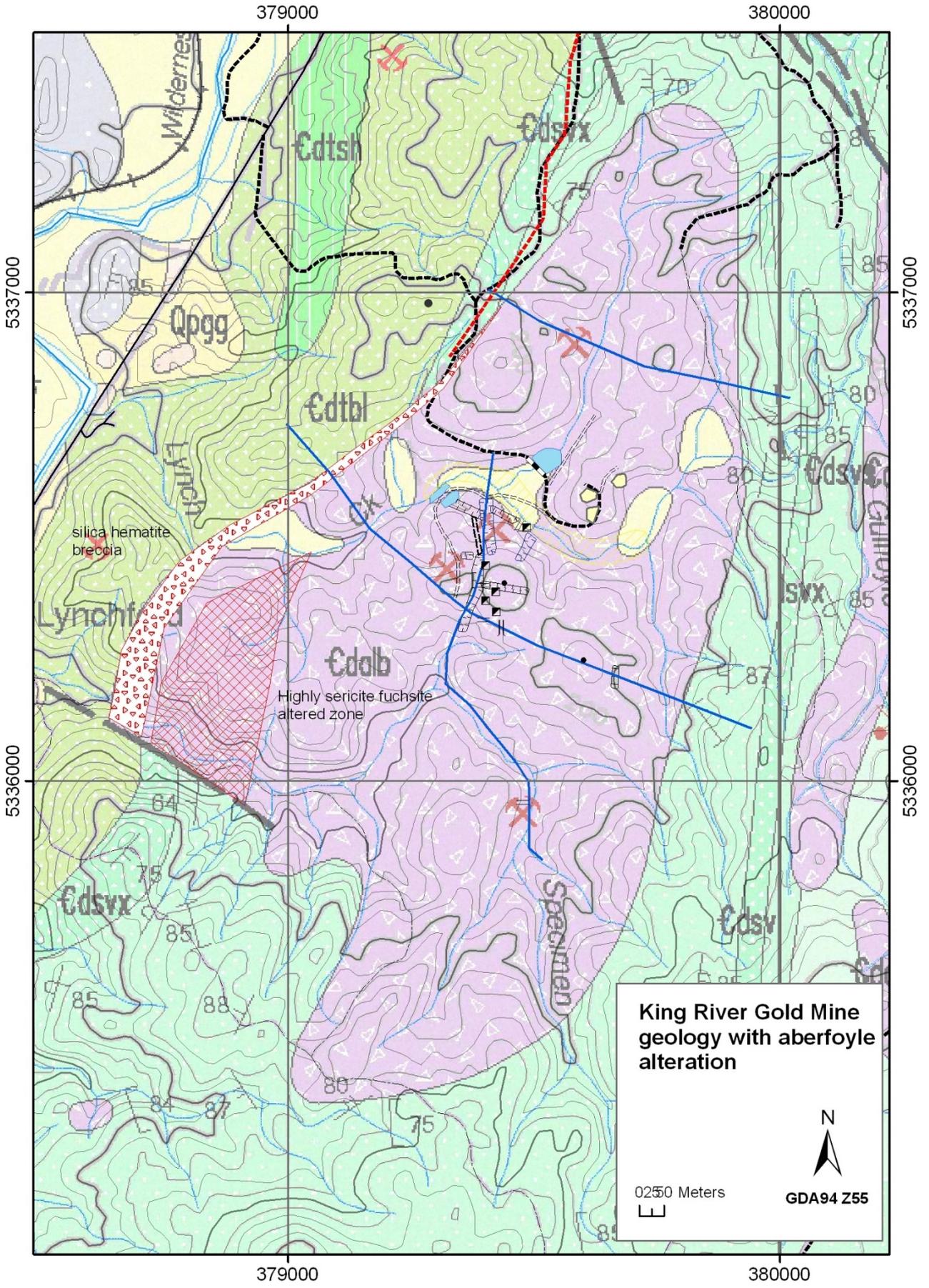
## History and past work summary

Conrad (or Cornelius?) Lynch discovered gold in a tributary of the Queen River - now named Lynch Creek - in 1881. This marked the first discovery of minerals in the West Coast district and sparked a prospecting rush that ultimately led to the discovery of the Mt Lyell mine. There is little detailed documentation of the hardrock mining efforts at the KRGM, with the mine reportedly abandoned by 1890 when the area was visited by government geologist A. Montgomery (Montgomery, 1890), subsequent to this several phases of tributary efforts were attempted (Finucane, 1932). Several reports exist that report on the KRGM: Glover, 1885; Montgomery, 1890; Montgomery, 1894; Twelvetrees 1900, In addition to this, activities at the KRGM are noted in the quarterly industry bulletins "Mineral Industry of Tasmania" Twelvetrees, W.H. 1901-1903. Modern exploration has focused on the ground surrounding the KRGM, principally due to access issues. No inspection or sampling of the old workings has been undertaken previously. Work on the immediate area of the KRGM has been restricted to two lines of 4 lines of IP/resistivity by Cyprus mines Ltd in the 1970's (original document not located- Bishop, 1982), and a helicopter EM survey (Bishop, 1982). The results of the Cyprus mines IP survey are currently not known, but it is interesting to note that the DIGHEM survey carries out has anomalies in roughly the same location as the Corona VTEM anomaly and in my view form a trend that runs with geology. The position of this anomaly corresponds to the contact between the Lynchford Member and the andesite-basalt package, and the intense sericite-fuchsite alteration (discussed below) mapped at surface by Aberfoyle geologists. IP ran by MLMR in 1980 (Howland-Rose, 1984) was reported by Bishop (1982) as bearing no particular anomalism, although on inspection of the data a clear east dipping chargeable anomaly can be seen in one of the two lines which roughly corresponds to the position of the workings as annotated on the chargeability/resistivity plot. This also corresponds with geological features observed by the author in the vicinity of the open cut on top of Lynch Hill. In addition to this, the chargeable anomaly corresponds to a general resistivity low corridor. It should be noted that the exact location of these traverses is not currently known and the chargeability/resistivity have not been adjusted to topography. Subsequent to the MLMR IP effort no company has had access to KRGM area although several companies have worked the surrounding areas (refer to Hughes (2010) for a summary of this).

## Geology summary

The immediate KRGM area is dominated by Cambrian aged intermediate to mafic package of volcanoclastics and coherent units belonging to the Mount Read Volcanics, with orange-brown clay formation developed on topographic highs and river gravels developed in topographic lows. Very little primary outcrop is visible. The wider geological setting is similar to that seen at Henty gold mine and the Comstock area of the Mt Lyell mine; with dacitic units ascribed to the CVC passing into the Lynchford member of the Tyndall group moving west, with andesitic-basaltic units developed at the contact. The main ore position at Henty is between the CVC and Lynchford Member, with other positions within the Lynchford Member (Callaghan, 2001). Extensive sericite-fuchsite alteration is recorded west of the KRGM at the boundary between the Lynchford member and the intermediate-mafic package with a silica-hematite rich breccia (at surface) developed at the base of the Lynchford Member (Noonan, 1989). sericite-fuchsite altered intermediate-mafic packages are seen in the hangingwall of the Hellyer polymetallic ore body - the Hellyer basalts - (Gifkins et. Al., 2005), but are also seen at the CVC-Lynchford contact position (which is footwall at Henty) south of the Henty mine (Callaghan, 2001).





## Historical workings

This prospect has seen the most historic efforts of any prospect within the Queenstown Project. Various historical trenches, adits, shafts ?declines, narrow benched open cuttings and hydraulic open cuts were mapped on Lynch Hill in a 200m x 300m area (as presented in Fig.x.). A trench was mapped on Sovereign Hill 300m east of the main workings on Lynch Hill and there may be further unrecorded workings there. An adit was recorded trending west into a small N-S trending hill west of specimen creek, roughly 500m south along strike of the workings on Lynch Hill. The main opencut on the crest of Lynch Hill runs roughly north south is about 2-5m wide, 5-20m deep with primitive benches and roughly 130m long. An east-west tunnel was observed intersecting the bottom of the cut at about the half way point. It is possible the opencut extends for another 150m to the north and joins with a separate NW-SE striking cutting which is possibly just a sluice channel. Within the open cut clay is present for the top 15m and weathered blocky dark green andesite passing quickly to hard siliceous dark green andesite can be seen in the bottom of the open cut. The andesite has a blocky joint set developed that dips gently to the northeast. In the near vicinity of the opencut there exist numerous shafts and adits within a small area. In general very little noticeable mullock is seen around the mouths of these workings, probably due to the soft nature of the ground there. Mullock exists outside the Specimen Creek adit, where a sample was taken for chemical analysis.



*Mobile Alluvial plant at KRGM*



*Open cut atop Lynch Hill*



*Hydraulic open cut on left hand side, footings for equipment on right hand side.*



## Sampling

Eight rock chip samples 900531-900537 and 900540, were taken from the KRGM area and specimen creek adit and sent to Intertek Genalysis for multielement analysis. An updated version of this report dealing with the sampling will be issued when those results are received. In addition to that, one sample was sent to R. Bottrill at MRT for mineralogical determination. This sample was a composite sample from three locations at the KRGM and the objective of the analysis is to determine the species of orange brown clay that pervades the area and the probable genesis of that clay, determine the genesis of the manganiferous vein material, and determine the genesis of the hard white vein mineral. None of the samples taken looked particularly promising for gold mineralisation.

## Recommendations

A full compilation of historical data should be undertaken and a map showing the various elements from these data should be produced. The Aberfoyle fact geology from 1988 (Noonan, 1989) is the most complete geological mapping for the area and an interpretation of this should be made. Data from Coronas VTEM and drilling should be included in this compilation and a review of the drilling done. The coincidence of geophysical anomalies (including Coronas) in what is now seen to be a prospective lithological unit, shouldn't be over looked.

An attempt to reprocess the historical IP data at King River should be made.

Further mapping of historical workings should be undertaken around Lynch Hill and Sovereign Hill and geological mapping west of the workings should be completed.

A tight soil sampling program should be undertaken over Lynch and Sovereign Hills to see if any identifiable gold anomalous trends can be determined.

A drilling program is needed to comply with tenement Conditions. The road discovered going up to Lynch Hill will greatly facilitate that. I am reluctant to recommend RC drilling, as soft clay, water and hard quartz veins have caused significant problems with that drilling style in the past (viz. Chamonix Zinc drilling). I am uncertain as to the ultimate orientation of mineralisation (although from the plan of workings it would appear to be roughly north) and RC drilling may be better suited