

**Leached Cap Pty Ltd  
E.L. 19/2012 Roger River  
Year 2 Annual Report**



Drill hole RRD001.

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Photo 1. RRD001 Banded sediments at 215.10 metres vertical depth

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## **SUMMARY**

**This report is based on the Annual Report for Year 1 by Morrison (2014).**

**Leached Cap Pty Ltd is exploring a 3 km long zone of outcropping silicification close to the Roger River Fault, to test the concept that the silicification is a heavily leached cap to an epithermal system which may be gold mineralised at depth. Low level soil and rock chip anomalism achieved by previous explorers, the presence of warm water springs and mounds along the faulted eastern margin of the Smithton Basin, and similarities between the geology at Roger River and established epithermal gold districts elsewhere, all support this model.**

**Re-interpretation of existing aeromagnetic data during the previous licence year indicated an easterly dipping gradient which was interpreted to possibly reflect the attitude of the Roger River Fault and/or the overlying basaltic rocks.**

**Zonge Engineering of Melbourne completed an IP survey in January – February 2014 which was aimed at determining the attitude of the “faulted” contact between the volcanic and sedimentary rocks as easterly dipping, and to determine the attitude and dimensions of the silica caps, and to map chargeable and resistive zones in the sedimentary stratigraphy.**

**A drill hole programme of 3 holes was initially designed based on the results of the IP survey which indicated large chargeable zones below the interpreted overlying basaltic rocks and which may have acted as a cap for hydrothermal solutions which at the surface are exemplified by extensive siliceous caps. The contact between the sediments and the basalt was interpreted as possibly a thrust zone.**

**Commencement of drilling using a purpose-built, crawler-mounted rig manufactured in the Philippines was delayed several months by the almost complete shut-down of Manila Harbour in the Philippines when trucking restrictions were enforced in June 2014. Drill hole RRD001 was commenced on 1 December and completed on 19 December at a depth of 270.6 metres. A second hole is in progress at 70 metres at 31 December. The programme is expected to be completed in February 2015.**

**Drill hole RRD001 (vertical) was drilled entirely through sediments and showed that the IP chargeable zones are due to a section of pyrite-rich sediments approximately 150 metres thick, and that the model for the initial planning of the drill holes is invalid. The drilling programme has subsequently been re-designed and permitted to drill closer to and under the silica caps which may dip steeply to the east.**

**Drill hole RRD002 (60° dip) was commenced on 24 December and at 8 January was at a depth of 175 metres targeting below the quarry prospect.**

**Detailed logging and sampling will be undertaken on completion of drilling.**

## **1. TENEMENT DETAILS**

EL 19/2012 is a 19 km<sup>2</sup> licence centred on the district of Roger River, approximately 25 km by road south of Smithton, NW Tasmania (Figure 1). The licence was granted to Leached Cap Pty Ltd (Leached Cap) by Mineral Resources Tasmania (MRT) for a 5 year term commencing on 16<sup>th</sup> January 2013.

Land tenure comprises mainly private land, with a minor block of State Forest in the SW of the licence, several small strips of forestry Informal Reserves, one small Private Reserve and two small Public Reserves (Figure 2). The northern Public Reserve includes the Edith Creek School and the southern Public Reserve covers a quarry, previously worked as a source of silica road gravel. No land has been excluded from the EL and the proposed exploration program for the first two licence years will be conducted on private land and the Public Reserve over the Roger River quarry site. Private land in the district is a mix of several beef and dairy cattle farms, and eucalypt plantation and remnant native bush owned by Gunns Ltd. All year round access to the area is via the bitumen roads Trowutta Road and Roger River Road which run through the centre of the licence for its entire length (Figures 1 and 2).

This report covers Year 2 exploration, which is on-going as part of the initial two year commitment on the EL.





## **2. GEOLOGY**

EL 19/2012 covers a portion of the Roger River Fault, a NNE trending major structure transecting Neoproterozoic rocks at the eastern margin of the Smithton Basin/Smithton Synclinorium (Smithton 1:50,000 Geological Atlas Series sheet, Roger and Togari 1:25,000 Digital Geological Atlas Series sheets). The Roger River Fault cuts through the eastern limb of a north-plunging synclinorium containing the Neoproterozoic Togari Group. The Togari Group consists of a basal dolomite-chert-lutite sequence (Black River Dolomite), overlain by an interstratified mixed sedimentary and volcanic sequence (Kunannah Subgroup), overlain in turn by the Smithton Dolomite and the Salmon River Siltstone. A distinctive member of the Kunannah Subgroup is a massive basalt unit (Spinks Creek Volcanics).

In the area covered by the EL the precise location of the Roger River Fault is masked by surficial sediment cover but it appears to be close to the contact between the Smithton Dolomite to the west and the Kunannah Subgroup to the east. Outcrop of the Smithton Dolomite is restricted to drainage ditches excavated into the flat lying farm land west of the fault and it is reasonable to interpret the fault location as being close to the persistent break in slope at the boundary between the well exposed Kunannah Subgroup on the eastern hill slopes and the largely regolith and soil covered Smithton Dolomite on the flat westerly side of the fault. The current dip direction on the Roger River Fault and the relationship between the fault and discrete zones of silicification are unclear and these are significant issues for the current exploration program, as will be discussed below. Although mapping suggests that the younger Smithton Dolomite appears to be down thrown to the west, implying a normal fault dipping to the west, Everard et al (2007) note that the Black River Dolomite and The Kunannah Subgroup thicken from west to east across the fault zone, suggesting syn-depositional growth faulting and the possibility of an easterly dip, at least during the Proterozoic. By comparison with other major basin bounding faults in western Tasmania it is likely that the Roger River Fault has been through at least two major orogenic deformation events during the Paleozoic and it may have been reactivated again during the regional Cenozoic rifting and volcanism associated with the development of the Bass Basin.

## **3. EXPLORATION AIMS & PHILOSOPHY**

Leached Cap is specifically targeting the zone of silicification which extends for approximately 3 km along the strike of the Roger River Fault (Figure 3). Prospectivity for epithermal gold mineralisation at depth beneath the outcropping silica has been established by previous mapping and exploration geochemistry (Turner, 2001, 2003, 2009) and the current exploration program is based on the concept that the outcropping silica represents heavily leached high level capping to an epithermal system analogous to some established gold epithermal provinces elsewhere on Earth (eg. Radtke and Davis, 1990). the presence of geologically juvenile mounds and warm water springs along the eastern margin of the Smithton Basin supports the model.

The aim for the first two year program was to confirm the relationship between the outcropping silicification and the Roger River Fault, to test the current dip direction on the fault and to test for mineralisation at depth. This was to be achieved by a combination of reinterpreting existing magnetics and gravity data, conducting a new IP survey and commencement of drilling of the best targets.

#### **4. SUMMARY OF PREVIOUS EXPLORATION**

Previous exploration which has direct relevance to the current program is restricted to mapping, rock chip and soil geochemistry and on-ground gravity and magnetics, conducted by Greenstone Resources NL and Morritt Holdings Pty Ltd, between 2001 and 2003, on ELs 61/1994, 11/1997, 12/1997, 13/1997, 14/1997 and 17/2001 (Turner, 2002, 2003). some further compilation and interpretation of results from this work was done for Manasia Mining and Metals Ltd on their EL 31/2005 (Turner, 2009).

Mapping demonstrated a series of outcropping bodies of erosion resistant micro crystalline cherty silica with a variety of textures ranging through massive, brecciated, banded, honeycombed and pitted. The outcrop is distributed along a narrow, 3 km long and up to 300 metres wide, zone conformable with the probable sub crop position of the Roger River Fault. The siliceous zone envelope as mapped by Turner (2002) is reproduced on Figures 3-5.

Selective rock chip sampling on outcrop and several east-west lines of soil sampling across the zone detected spotty low level anomalism for; gold (max 15 ppb), arsenic (max 1273 ppm), antimony (max 30 ppm), copper (max 886 ppm), zinc (max 510 ppm) and lead (max 302 ppm). One rock chip sample from outcrop in an abandoned road aggregate quarry at Roger River (approximate location 336550E, 5457600N MGA) included visible barite and assayed almost 6% barium and 1.5 ppm mercury (Turner, 2003).

No follow up field work had been conducted on this target prior to the current program.

#### **5. YEAR 2 EXPLORATION RESULTS**

##### **5.1 IP Survey**

Zonge Engineering from Melbourne were contracted to undertake 4 lines of IP. Consultant geophysicist Mr Phil Muir from Hobart was contracted to oversee the field programme as well as undertake the data processing and interpretations.

Muir, combined with modeling hypothetical data based on surface geology, determined that 1600 metres was the minimum line length needed to achieve reliable data down to approximately 200 metres.

Figure 3 shows the stacked IP chargeability pseudo sections over geology and Figure 4 shows stacked resistivity pseudo sections over geology.

## 5.2 IP Survey Interpretations

The following commentary has been extracted from email communications from consultant Mr Phil Muir (2014).

"STACKED" images

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*These show the four model sections with the local coordinates aligned. A local grid was used for collecting the data; the local grid reference point is on the western side of the road where line 1 ("L1") crosses, and was assigned coordinates 10000N, 50000E. Each section plot is annotated with the local easting at 100m intervals.*

*I've shown the lateral extent of the zone of silicification as two pink dots, plus the location of the road (exaggerated in width) as a brown rectangle.*

*I've shown the approximate position of the 30deg ESE dipping magnetic contact as a black line (at this stage I've only "eyeballed" the position from the mag models and plotted that onto the IP sections). The mag boundary is based on the quick mag modelling I did a while ago, and that mag modelling was only done on two flightlines near L3 and L4. The mag contact shown for L1/L2 is an extrapolation from L3/L4 and is probably plotted too far west for L1 in particular. I wouldn't rely too much on the plotted position of the mag contact for L1/L2 - it would need additional mag modelling on some of the more northern flight lines to get a more reliable estimate of the mag boundary there.*

*Lastly, I've duplicated the dip of the mag contact as a pair of grey lines and placed one end of each at the limits of the zone of silicification. These grey lines are just intended to be a visual aid.*

Figures 3 and 4

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*The same section plots shown in the stacked images have been shown as overlays on a geology basemap. The correct locations of the sections are vertically below the respective diagonal red lines which indicate the position of the survey lines on the ground - but the sections have been rotated about the red line into the plane of the map. The top of the solid colour section (not the red line) is the topo surface.*

CHARGEABILITY ("chg");

*All sections show a chargeability high that correlates with the zone of silicification. The chargeability anomalies on lines L3 and L4 are particularly nice; clean signal and moderate-to-strong responses. On L1/L2 the response is only about half the strength of that on L3/L4 and is also shallowest on L1/L2.*

*There's an interesting spatial relationship on L3 and L4. If you assume that the mag modelling's dip is correct then the chargeability highs occur west of the mag contact and appear to be directly*

*down-dip from the zone of silicification (use the pair of grey lines as your visual aid). We could well be seeing a leached cap at the surface with polarisable material, presumably disseminated sulphides, located deeper down in the dip direction?*

*The chargeability models L3 and L4, and to a lesser degree for L2, suggest an easterly dip for the chargeable zone. Note that dipole-dipole IP is generally not a good technique for determining accurate dips, but I think for these lines the indication is certainly for a dip towards the east.*

*The spatial relationship on L2 is similar but not quite as "directly down dip" as on L3/L4. On L1 we are just outside the mapped zone of silicification and the chargeability anomaly is vertically below the projected extension of the silicification zone.*

*The positions of these chargeability highs seems to reflect the change in strike that is apparent in the mapped zone of silicification that occurs between L2 and L3.*

*There is a second more easterly chargeable zone defined on L3. This is a little deeper, not as tightly defined, and not quite as strong as the main anomalous zone but nonetheless it is still a significant response. It is also coincident with the modelled magnetic boundary.*

*There is also a suggestion on L4 of a second elevated response on the eastern edge of the line; unlike L3 it doesn't appear as a separated high but rather as an elevated gradient extending off the main anomaly.*

*L1 and L2 also have suggestions of chargeable responses on the eastern extremities of the lines but the lines do not extend far enough east to show the full extent of those partial responses.*

**RESISTIVITY ("res");**

*There are a few features in the resistivity sections that could be noted, for example the conductive cover layer overlying resistive substrate west of the silicified zone on L1/L2 and to a degree on L4. However there doesn't appear to be much of note that relates directly to the zone of silicification and/or the chargeability anomalies.*

*Possibly the only pattern that may be of relevance here is that L3 and L4 show increased resistivity zones on either side of their respective chargeable anomalies, thus the chargeable anomalies appear to be coincident with a slightly more conductive zone separating each line's pair of resistive zones.*

*There also appears to be a slightly different relationship between the chargeable anomalies and resistivity on L1/L2. Here on each line there is a slightly more conductive and discrete anomaly offset below (L2) or down-dip (L1) from the respective chargeable anomaly.*

*Note that the colour scale is reversed, so that high resistivity (big numbers) are coloured blue - the colour scale is really more visually indicative of conductivity (mathematical reciprocal of resistivity) whereby hot colours are higher conductivity and blue colours are lower conductivity.*

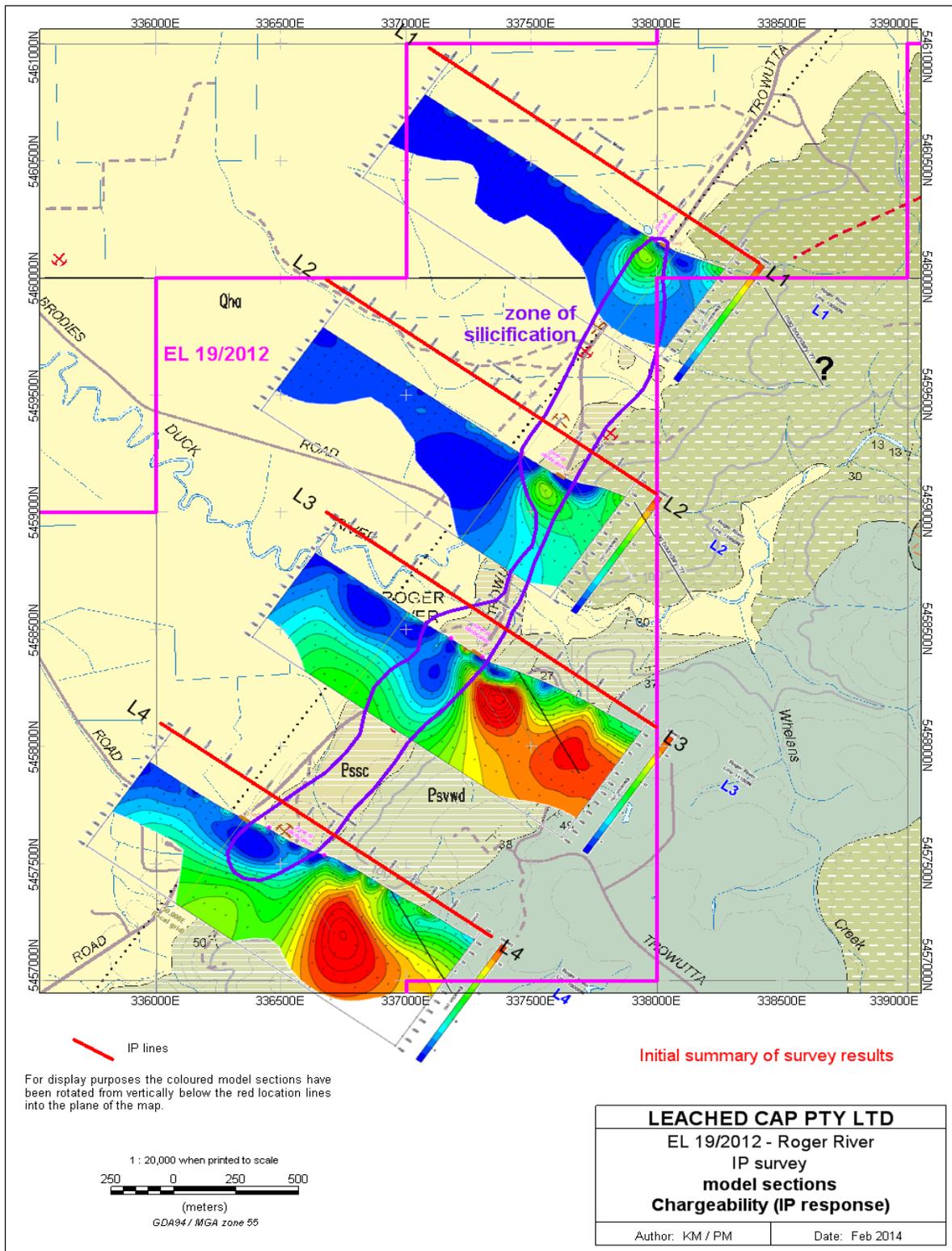


Figure 3. Stacked IP sections on geology (Muir, 2014). The low angle black line dipping to the east on each section is interpreted from aeromagnetics as the contact between basalt overlying sediments.

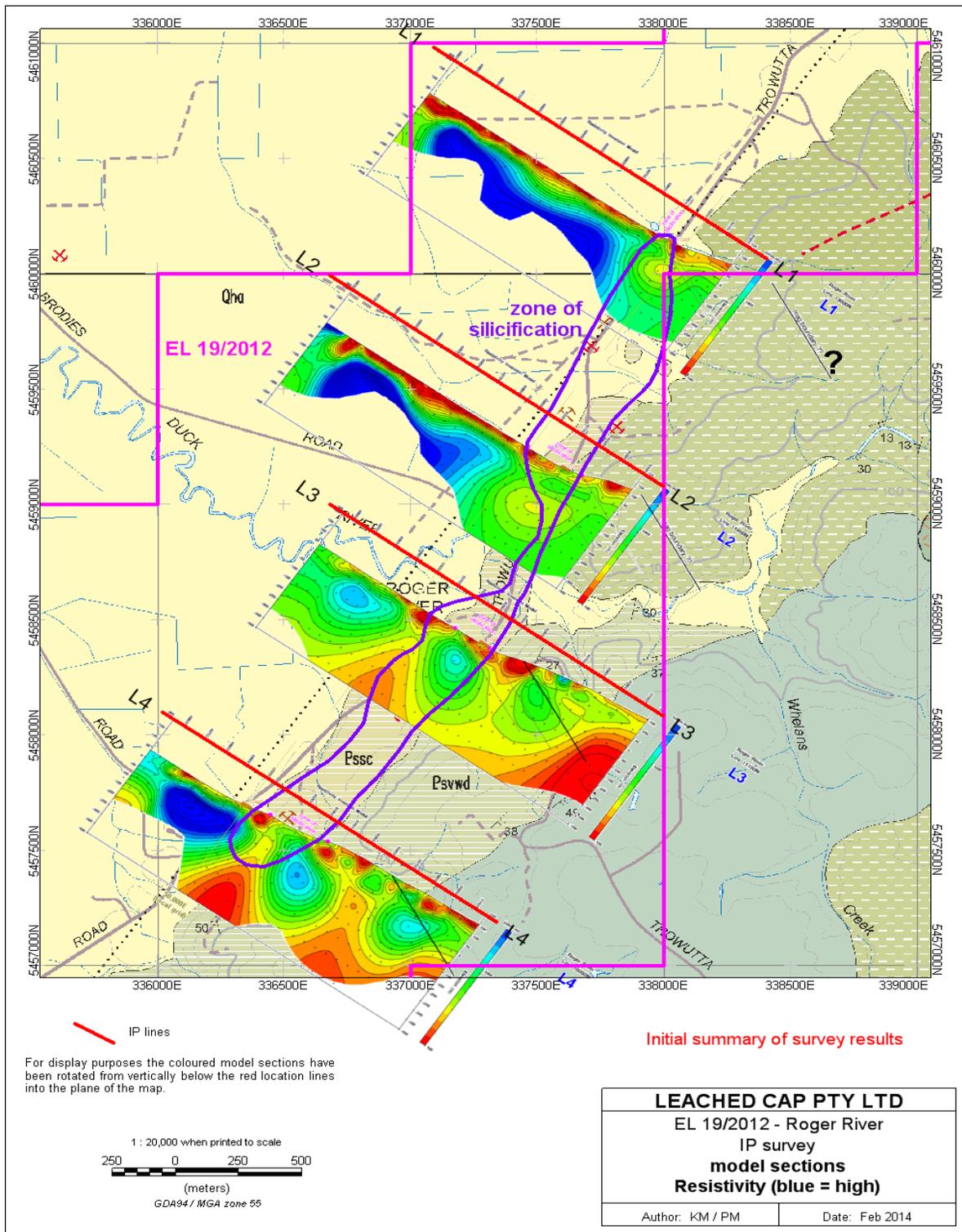


Figure 4. Stacked chargeability sections on geology (Note: colours reversed with red being low resistivity). The low angle black line dipping to the east on each section is interpreted from aeromagnetics as the contact between basalt overlying sediments.

### **5.3 Diamond Drilling**

The drilling company, Jansvooon Resources Pty Ltd, purchased a XT600 diamond coring machine and equipment from Bundok Drilling Services Corporation, Philippines. The drilling rig is tracked mounted and designed to be transported inside a standard shipping container or on the back of a flat-bed truck.

The rig is hydraulically operated and powered by two Kubota diesel engines which can be run independently or coupled to provide additional horsepower on demand. This enables the operator to operate with one or two engines depending on horsepower requirements, thus reducing fuel consumption and consequently carbon emissions.

The rig is mounted on a purpose designed high-slung chassis to enable the machine to traverse steep and rough terrain, without the need for clearing of tracks. The tracks utilise bull-dozer style grouser plates to enable better grip in steep terrain.

To enable diamond drilling within plantation and forest areas, there are few diamond drill rigs with the capacity of the XT600 that can be manoeuvred to the drill site without initial track access preparation which disturbs the vegetation.

The rig is thus a unique machine ideally suited for drilling in this environment.

In early 2014, the Mayor of Manila ordered a truck ban restricting access to and from the Port of Manila for all trucks above a certain dimension/payload.

The drilling rig was ready for shipping to Australia in June 2014. As a consequence of the imposed truck ban, the Port of Manila experienced considerable congestion, resulting in a large build-up of ships and containers at the port. By September, the build-up of ships and containers in the port forced the government to apply pressure to the Mayor who then lifted the truck ban on September 13.

Since then, the Port has been slowly reducing the build-up, however the drill rig was unable to be loaded and shipped until the 25th August, due to the back-log.

It eventually arrived in Tasmania on about the 22nd September 2014.

In addition, the drill rods and drilling accessories required for the drilling programme were timed to arrive at the same time in a second container from China. They were ordered on 15 August just before the rig was finally shipped after manufacturing delays, and finally arrived into Tasmania in early December 2014 at the commencement of drilling.

Drilling commenced on 1 December 2014. Up to 7 January 2015, 445 metres have been drilled. The programme should be completed in February following which assaying and interpretations will be undertaken.

The benefit of the drilling commencing in December is that drilling is being conducted in generally dry conditions, minimising ground disturbance due to wet and boggy conditions.

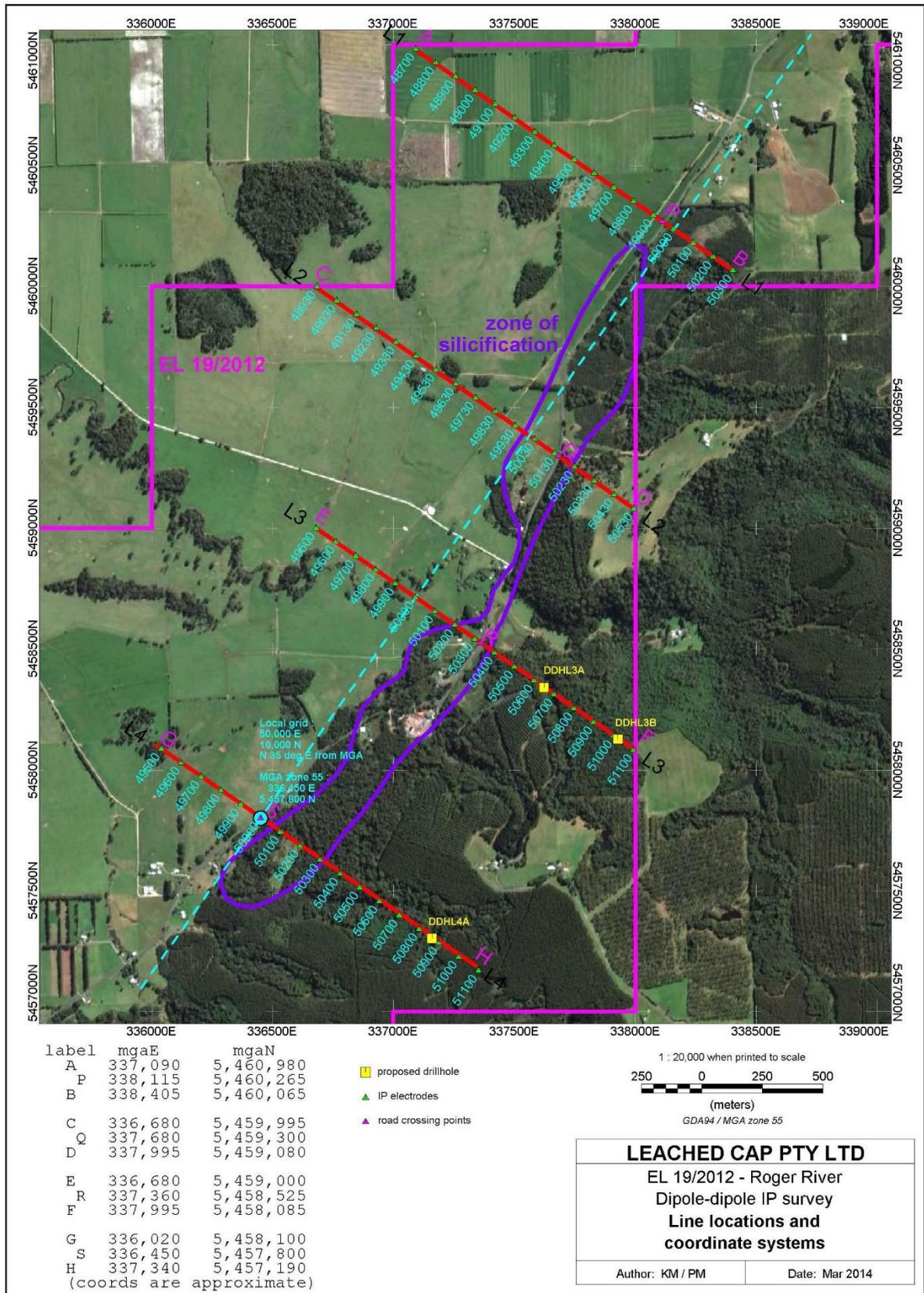


Figure 5. Location map of the 3 planned diamond drill holes based on IP (Muir 2014). Note position DDHL3B was drilled as vertical hole RRD001.

## 5.4 Drilling Results

As stated previously, the initial 3 hole drill programme as designed by Muir (2014) and Morrison (2014) was based on a model whereby the chargeability zones were interpreted as zones of sulphides below a shallowly east dipping cap of basalt which was thought to have been thrust over the sediments. This interpretation was discredited by RRD001.

RRD001 WGS84, Zone 55G, coordinates 337855mE, 5458235mS) was drilled vertically from the position DDHL3b shown on Figure 5. The hole was drilled by rock roller to refusal at 48 metres and then HQ coring was undertaken followed by NQ coring. The hole was collared in sediments and remained in sediments the whole length until the end of the hole at 270.6 metres. Detailed logging and sampling will be undertaken at the end of the drilling programme. A summary log is contained in Table 1.

The IP has identified a thick section of the sediments (black shales, calcareous siltstones and calcareous grits) within which approximately 120-150m thick is pyritic and acts a good IP marker zone within the sequence, as seen on sections L3 and L4 (Fig. 3). This chargeable zone is abruptly truncated on the west where it butts up against the interpreted down dip, steeply east dipping position of the silica zones mapped at surface. On both L3 and L4 the truncation of the chargeability zone against the interpreted down dip silica zone is very clear. Also clear is the possibility that the chargeable stratigraphy does not continue to the west of the silica zone within IP measurable depths, thereby indicating quite substantial displacements along this silica “filled” structure (the “Roger River Fault”?).

The resistivity sections on Figure 4 also show a possible resistivity zone continuing below the silica zones with approximately the same dip as the edge of the terminated chargeable zone.

RRD002 (Fig. 6) has commenced on de-stocked farming land with the permission of the farmer Mr Gerald Porteous. It is designed to test below the Quarry Prospect siliceous capping. At 31 December RRD002 was at a depth of 70 metres in broken ground, and at 7 January at 175 metres.

If results of RRD002 are encouraging, then a hole may be drilled behind RRD02 and maybe another hole under the silica cap at the Church prospect (Fig. 6).

A suitable safe storage site for the drill core is being sourced.

## 6. ENVIRONMENTAL ISSUES

Locations of the IP lines were designed to achieve the required buffer distance to eagle nests registered as existing in forest country further to the east. Liaison with landowners at Roger River to minimise environmental and economic impact has continued. Special attention was given to ensuring that no fires are possible due to live wires coming into contact with dry vegetation in the forest country along the eastern side of the grid during the IP survey.

Preparation of drill hole access and pads has been undertaken in a manner to minimize ground disturbance with RRD001 being drilled on an access track avoiding all vegetation disturbance. The use of a crawler mounted rig has minimised the need for heavy truck access and the construction of roads and vegetation disturbance. Drill sumps of minimum size were excavated using a 3 tonne excavator and backfilled after the water drained away to cover all dried sludge. Holes are capped and all rubbish is removed from each site.

The weather has been dry which has minimised working in wet and muddy conditions.

**TABLE 1. ROGER RIVER DIAMOND DRILL HOLE RRD001 SUMMARY LOG. Coordinates 337855mE, 5458235mS, vertical.**

DEPTH (m)	LITHOLOGY	DEPTH (m)	DESCRIPTION	DEPTH (m)	SULPHIDE CONTENT	DEPTH (m)	ALTERATION	SAMPLING INTERVAL		
0-48	Tri-cone roller through probably all weathered sediments									
48-270.60	Well banded, well bedded, inter-bedded black shales, siltstones, grits, minor sedimentary breccias, and rare conglomerates. Banding generally from <10mm wide to 1000mm, but most are <10mm to 50-60mm. Siltstone and grit bands generally the widest.  Grits generally contain common carbonate grains, as well as some siltstones.  Pyrite likely diagenetic most commonly within grits and siltstone bands, as disseminations and in bands.  Banding consistently indicates flat-lying sequence to about 5° dip, probably to the east.  All veining is white calcite. Very rare thin pyrite veins.					74.00-91.5	Weak hematitic alteration	Low priority sampling		
				91.50-155.60	Generally <1% pyrite, primarily in grit bands, also on fracture surfaces, increasing to >1%					
				192.20-192.6	Conglomerate band		Pyrite rare in hematic zones, mostly oxidised to hematite?	155.60-194.00	Medium hematitic alteration with some bands slightly silicified, possibly micaceous	Medium priority sampling
						194.00-212.60	Pyrite to 5% in bands			
				198.00-200.50	Sedimentary breccia, angular			212.60-214.00	Weak hematitic alteration	Low priority sampling
				214.00-229.00	Pyrite to 5% in bands					
						229.00-237.60	Medium hematitic alteration	Medium priority sampling		
		237.60-EOH	Grits decreasing, mainly shales & siltstones	237.60 – 270.60	Sulphides decreasing to <1%, clots, minor bands	237.60-EOH	Slightly chloritic?			

## 7. EXPENDITURE

Exploration costs from 1<sup>st</sup> January up until 31<sup>st</sup> December 2014 are as follows:

<b>Category</b>	<b>Cost</b>
Geology	\$34, 093
Geophysics	\$68,310
Drilling	\$244,981
Administration & Tenement Costs	\$26,940
<b>TOTAL</b>	<b>\$374,324</b>

Notes: (i) US\$151,540.80 drilling costs have been converted at US\$1 = A\$0.807 as at 8 January 2015.

(ii) Drilling since 31 December 2014 not invoiced (estimated at approximately +200 metres by 16 January)

## 8. PROPOSED YEAR 3 PROGRAM

The Year 3 programme will depend on the results of the current drilling. If this is successful in producing encouraging results, then additional exploration drilling would be planned and quantified once results are available and assessed.

The continuing drilling is part of the Year 3 expenditure.

The Company will advise the Department once the assessment process is completed and a future programme is formulated. An estimate of Year 3 expenditure will also be provided.

Further IP surveying is unlikely to be required.

Two proposed holes after RRD02 in this first round of drilling are shown on Figure 6. MRT has granted permission for the modified programme.

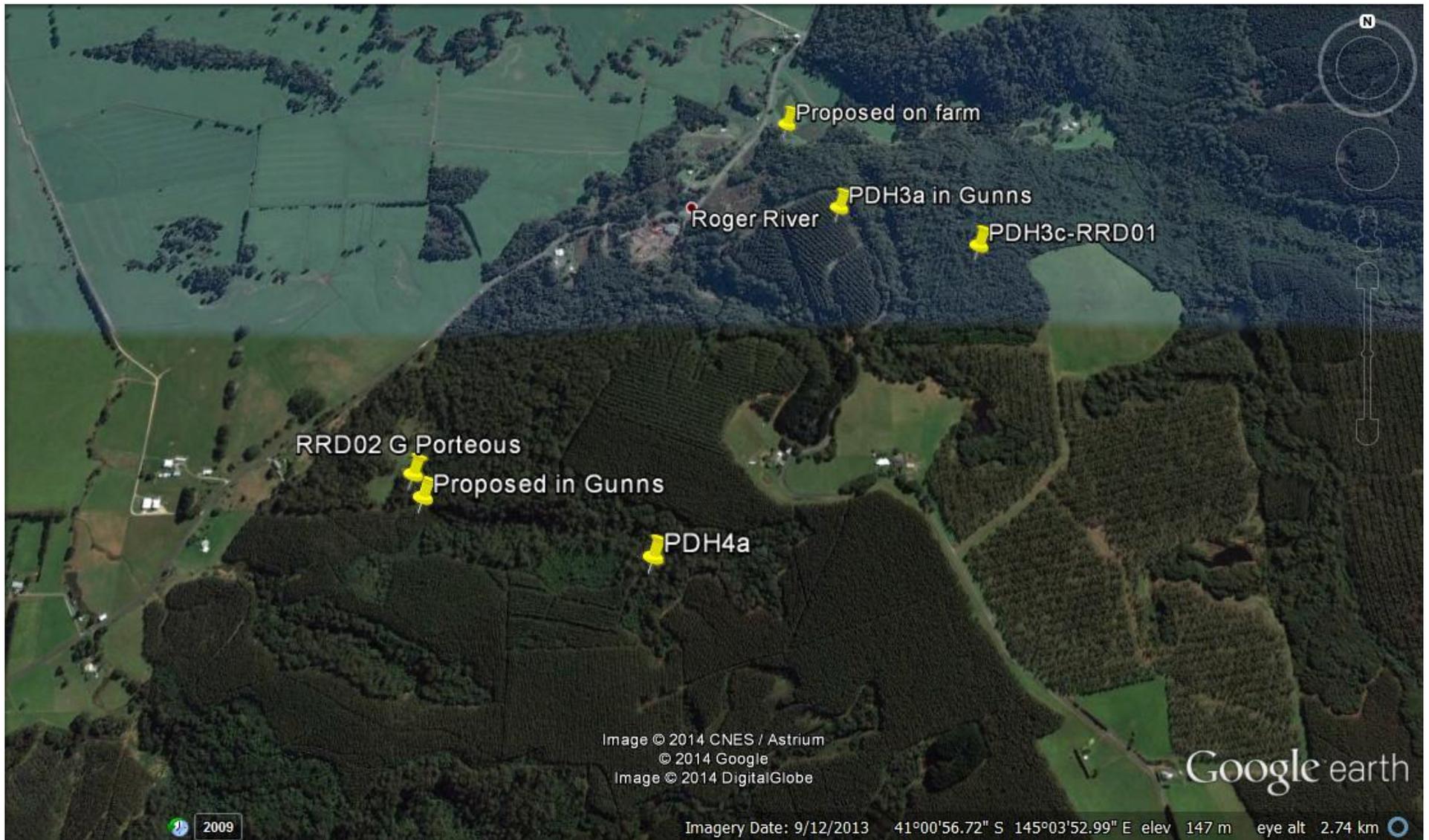


Figure 6. Modified proposed drilling locations on completion of RRD02 (dependent on results from RRD02). Note that positions PDH3a and 4a will not be drilled.

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Photo 1. Unaltered sediments hole RRD01.



Photo 2. Hematite-altered sediments displaying a reddish tinge in drill hole RRD01.