



# Encouraging Otago Pioneer Quartz Gold Target Soil Sampling Results

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## HIGHLIGHTS

- Follow up soil sampling program over the OPQ gold exploration target undertaken in September 2018 with the following anomalous gold values recorded:
- 0.66ppm gold value on a line located ~2,700m southeast and along strike of the OPQ historic mine and soil anomaly previously defined by Macraes Mining and ~2,000 m southeast and along strike of the 1.4ppm and 0.6 ppm gold soil results obtained by NAE in February 2018.
- Gold values of 0.55 and 0.25ppm on a line located north of Lake Mahinerangi ~3,000m northwest and along strike of the OPQ historic mine and soil anomaly previously defined by Macraes Mining.
- These results potentially extend the strike length of the OPQ gold exploration target significantly.
- Based on these encouraging results an application for an Exploration Permit over an area of 71.4 km<sup>2</sup> covering the OPQ target was lodged by NAE prior to the expiry of its Mahinerangi Prospecting Permit in October 2018, and as such has priority status.
- The next phase of exploration will focus on trenching and drilling of the OPQ Reef trend and also initial soil sampling to test a potential parallel structure identified to the east of the OPQ Reef trend.

*NAE Technical Director, Neil Hutchison, commented: "The initial first pass stages of soil sampling to the north and south of the historically mined OPQ Reef line has been successful in defining gold anomalism along a discontinuous strike length of at least 6km. The OPQ reef was mined over 100 years ago averaging 2m wide over a strike length of at least 1,200m, yielding an average of around 13 grams per tonne gold. This recent round of auger soil sampling has extended gold anomalism by ~2,700m to the southeast and 3,000m to the northwest across the lake, with several samples returning >0.5g/t and up to 1.4g/t Au from soil sampling. This suggests structurally controlled gold bearing veins exist within the schistose host rocks below the windblown cover, extending along strike in both directions away from the historic OPQ Reef. The next phase of exploration will focus on utilizing trenching and drilling to identifying parallel structures. In addition, a parallel zone to the east has been identified which will be mapped and soil sampled to test its prospectivity for addition gold bearing systems."*

## OTAGO PIONEER QUARTZ GOLD TARGET – SOIL SAMPLING RESULTS

### Otago Pioneer Quartz Historic Gold Mine

Historic records indicate that the Otago Pioneer Quartz (OPQ) reef was mined over 100 years ago averaging **2m wide over a strike length of at least 1,200m and yielding an average of around 13 grams per tonne Au.**

### Soil Au and As Anomaly over Historic OPQ Mine Defined by Macraes Mining

Exploration around the OPQ historic mine area by Macraes Mining Company between 1991 and 1997 further demonstrated As and Au soil anomalies over a distance of approximately 1km strike length above the area of the OPQ reef historically mined (see Figure 3 – legacy soil results (small circles).

### February 2018 NAE Soil Sampling Program over the OPQ Target

In February 2018, a soil sampling program using a man-portable drill and hand auger was undertaken by NAE comprising 6 lines and 73 soil samples targeting along strike extensions of the OPQ reef with soil samples analyzed using a portable XRF instrument. A further 2 sample lines were conducted on possibly similar strike targets in the far south of the permit. Selected samples were sent to the laboratory for Au analysis with results showing anomalous gold values at various distances along possible southeast and northwest strike extensions of the OPQ Reef.

In particular, two samples collected by man-portable percussion core drilling into the weathered schist through deep loess cover recorded **gold values of 1.4ppm and 0.6ppm**. These two samples are approximately 700m southeast and along strike of the OPQ anomaly as previously defined by Macraes Mining Company and potentially extend the strike length of the OPQ gold target (see Figure 3 – NAE soil results (large circles).

### September 2018 NAE Soil Sampling Program over the OPQ Target

A follow-up soil sampling program using a man-portable drill and hand auger (Figure 1) was completed by NAE in September 2018 comprising of 18 man-portable percussion core samples and 47 hand auger samples over the OPQ reef target, all of which were analysed for gold. Results included;

- 0.66ppm gold value on a line located ~2,700m southeast and along strike of the OPQ historic mine and soil anomaly previously defined by Macraes Mining and ~2,000 m southeast and along strike of the 1.4ppm and 0.6 ppm gold soil results obtained by NAE in February 2018.
- Gold values of 0.55 and 0.25ppm on a line located north of Lake Mahinerangi ~3,000m northwest and along strike of the OPQ historic mine and soil anomaly previously defined by Macraes Mining.

As shown in Figure 3, these results potentially extend the strike length of the OPQ gold target significantly and highlight the potential for one or more narrow zones of high-grade gold mineralization with the potential for along strike extension of up to 2,700 m to the southeast, and up to 3,000 m to the northwest of the OPQ historic mine area and soil anomaly previously defined by Macraes Mining.



Figure 1 – September 2018 Fieldwork -soil sampling with man-portable drill

### September 2018 NAE Soil Sampling Program on Teviot Prospecting Permit

28 hand auger samples were taken on the Teviot permit in September 2018 to follow up on previous anomalous stream sediment results however none of the Teviot follow up hand auger results were anomalous for gold. As a result, the Teviot Prospecting Permit has now been allowed to lapse.

### Exploration Licence Application over OPQ Target

Based on the encouraging results over the OPQ target obtained in February 2018 and in September 2018, NAE lodged an Exploration Permit application over an area of 71.4 km<sup>2</sup> covering the OPQ target prior to the expiry of its Mahinerangi Prospecting Permit which was allowed to lapse on 16<sup>th</sup> October 2018. As holders of the now lapsed Mahinerangi Prospecting Permit, NAE's Exploration Permit application has priority status (Figure 3).

### Work Programme for 2019

NAE's Technical Director has been working with the Company's NZ based consultants CRL Energy to design a suitable work program for the 2019 field season to effectively test the results derived to date, as well as advancing first pass exploration over a parallel structural zone identified in the east of the tenure (Figure 4). The surficial loess soil cover is thinner in the northern target area so trenching and sampling is planned over the anomalous trend to expose and sample for extensions of the OPQ structure to the north of the lake (Figures 2 & 4) were results of 245ppb & 551ppb Au have been returned.

In the central and southern target areas the soil cover is thicker and beyond the depth of trenching as demonstrated by the hand auger drilling. Aircore/RC drilling has been planned to intersect the bedrock and test for shearing/veining associated with gold mineralisation. The drilling is designed to access three

areas between the forestry and conservation areas to initially establish the geology and prospectivity of the trend.

In addition, a structural trend paralleling the OPQ structure has been identified in the east of the tenure from aerial photo imagery. This will be inspected, mapped and sampled using soil/auger sampling methods used to define the extensions of the OPQ trend.

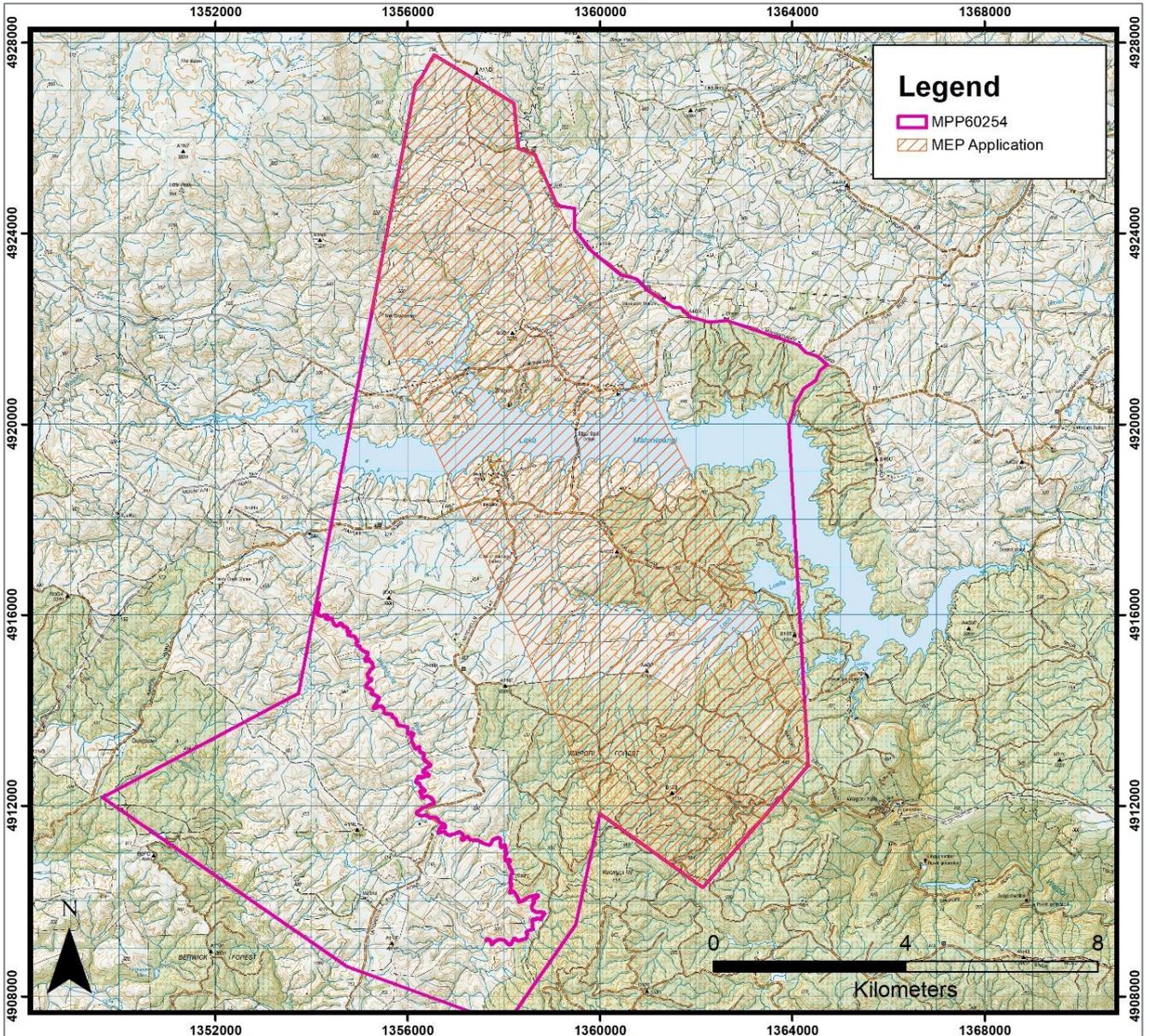


Figure 2 – NAE Exploration Permit Application Area (cross hatched area)

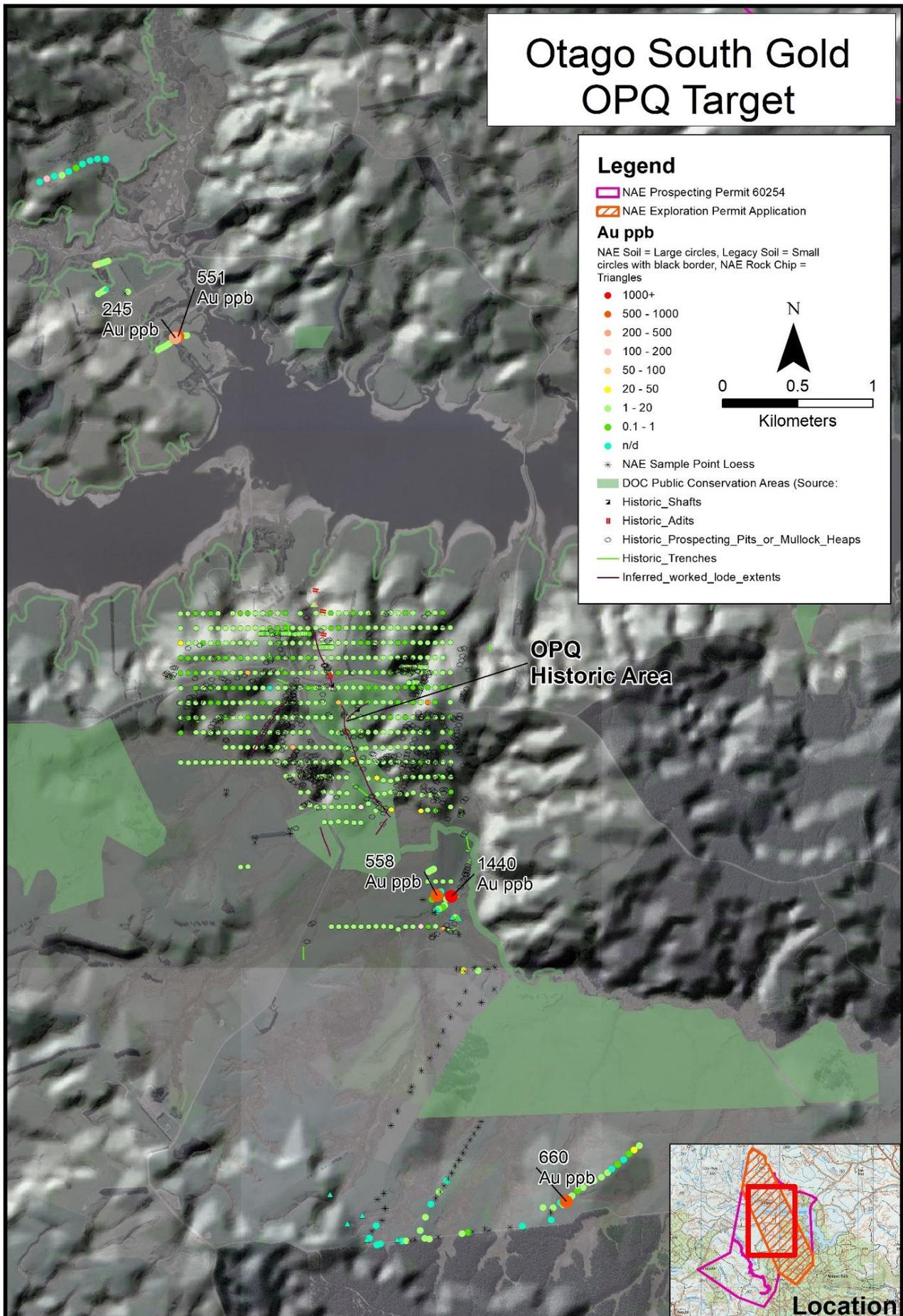


Figure 3 - Otago Pioneer Quartz Gold Exploration Target – Soil Au Results

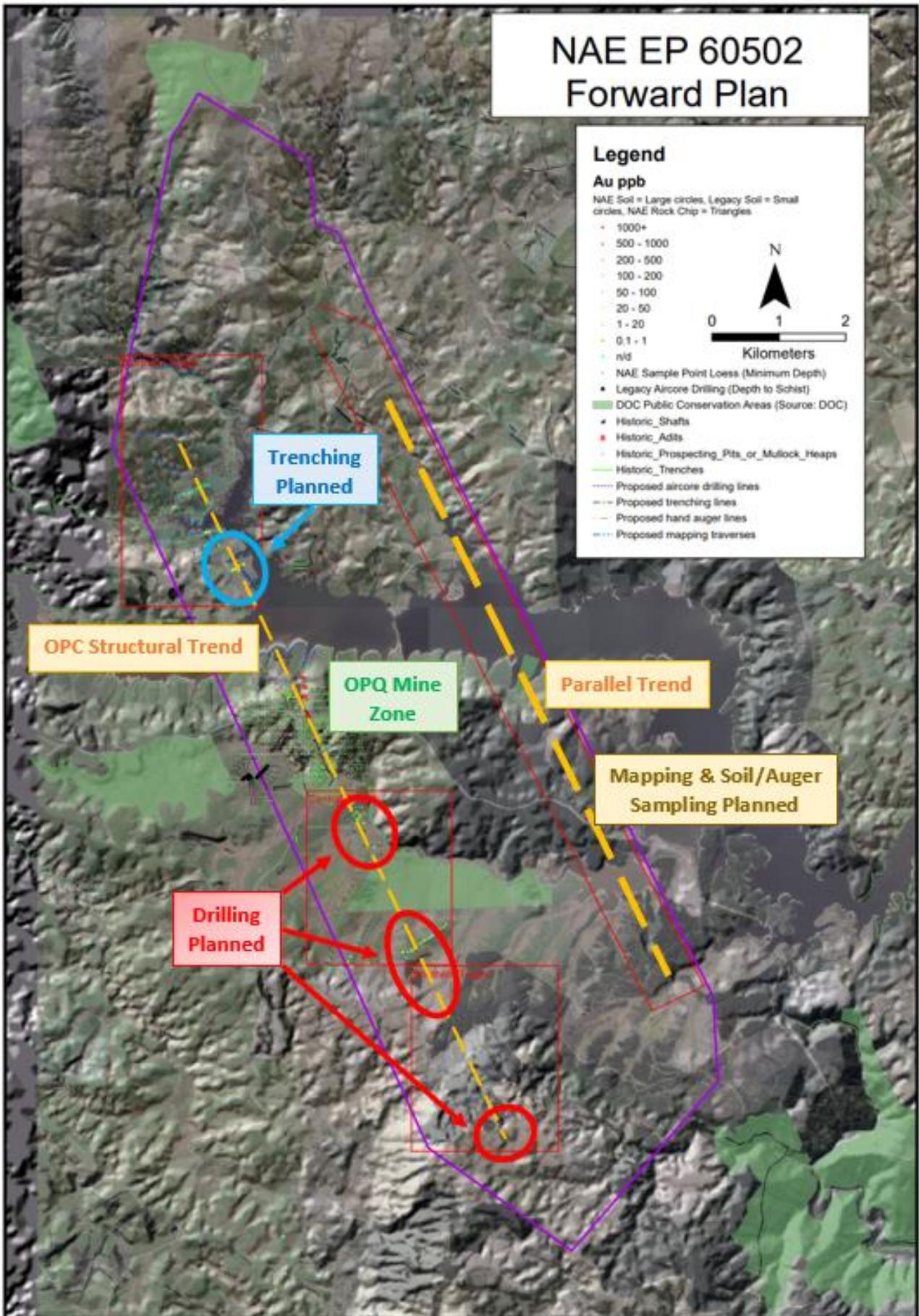


Figure 4 – NAE Exploration Otago Permit: Target zones and planned activities for 2019

# COMPETENT PERSON'S STATEMENT

The information in this report that relates to Exploration Results is based on information compiled and reviewed by Dr Doug MacKenzie, who is a Senior Research Fellow at the University of Otago, Geology Department and is a Member and Chartered Professional Geologist of the Australasian Institute of Mining and Metallurgy. Dr MacKenzie has over 20 years research experience in the Otago Schist and related rocks with emphasis on relationships between structure, metamorphism and gold mineralization. Dr MacKenzie has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr MacKenzie consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## FORWARD LOOKING STATEMENTS

This report contains "forward-looking information" that is based on the Company's expectations, estimates and forecasts as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to the Company's business strategy, plans, objectives, performance, outlook, growth, cash flow, earnings per share and shareholder value, projections, targets and expectations, mineral reserves and resources, results of exploration and related expenses, property acquisitions, mine development, mine operations, drilling activity, sampling and other data, grade and recovery levels, future production, capital costs, expenditures for environmental matters, life of mine, completion dates, commodity prices and demand, and currency exchange rates. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as "outlook", "anticipate", "project", "target", "likely", "believe", "estimate", "expect", "intend", "may", "would", "could", "should", "scheduled", "will", "plan", "forecast" and similar expressions. The forward looking information is not factual but rather represents only expectations, estimates and/or forecasts about the future and therefore need to be read bearing in mind the risks and uncertainties concerning future events generally.



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# JORC CODE, 2012 EDITION- TABLE 1

## Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<p><b>Soil Sampling</b> – A total of 381 soil samples were collected in 2017 and 2018 in the reduced size prospecting permits. These were analyzed using a portable XRF instrument. A further 106 sampling points were unable to penetrate overlying Loess windblown cover and were therefore not used. Soil samples were taken using a hand held auger which could penetrate up to 2 metres depth. Selected priority lines were then re-sampled with a man-portable drill capable which achieved depths of up to 8 meters, successfully penetrating loess cover. Where bedrock was shallow, soil samples were retrieved using trenching shovel and hand trowel to avoid auger refusal. Samples were bagged in zip lock, clear ~50 micron thick polyethylene bags. No samples were composited. Selected samples were submitted for fire assay gold.</p> <p><b>Rock Chip Sampling</b> – A total of 72 rock chip samples were collected in 2017 and 2018 in the reduced size prospecting permits. These were also analyzed using a portable XRF instrument. Samples were taken using rock hammer or trenching shovel. No samples were composited. Selected samples were submitted for fire assay gold.</p> <p><b>Stream Sediment Sampling</b> – A total of 9 stream sediment samples were collected in 2017 and 2018 in the reduced size prospecting permits. One of these was in the Mahinerangi permit and was a damp/unscreened grab sample analysed with the pXRF. The eight remaining samples were in the Teviot permit and were wet sieved &lt;2mm (~5kg damp) on stream bank from ~10-20kg material using Laboratory Test Sieves from Endecotts Ltd compliant with British Standard BS410.</p>
Drilling techniques	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	Not Applicable
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	Not Applicable
Logging	<ul style="list-style-type: none"> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and</li> </ul>	Not Applicable

Criteria	JORC Code explanation	Commentary
	<p><i>metallurgical studies.</i></p> <ul style="list-style-type: none"> <li><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> <li><i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	
<p><b>Sub-sampling techniques and sample preparation</b></p>	<ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<p><b>Soil pXRF samples</b> – These were approximately 150-400g. Samples were hand screened to remove any contaminant organic matter (e.g. roots). Samples were bagged in zip lock, clear ~50 micron thick polyethylene bags and whole samples analysed in the bags at field (in situ) moisture. In general the in-situ moisture content of the samples was very low due to hot, dry summer weather conditions (i.e. samples were dry to touch).</p> <p>In addition to pXRF analyses on whole samples at in-situ moisture in the field, a small selection of samples underwent size fraction splitting using Laboratory Test Sieves from Endecotts Ltd compliant with British Standard BS410. Screen sizes were 4mm and 2mm. The &gt;4mm, 2-4mm, and &lt;2mm fraction underwent repeat pXRF analyses.</p> <p><b>Stream sediment pan concentrate samples-</b> A 2kg (dry weight) split for each sample was collected using a riffle splitter at CRL Energy Ltd, Christchurch NZ. These splits were then pan concentrated – also at CRL Energy Christchurch. The pan concentrates were submitted for fire assay gold.</p> <p><b>Soil, rock and stream sediment fire assay samples-</b> All samples submitted for fire assay gold were dried and crushed to &lt;6mm then pulverised to &gt;75µm.</p> <p>The nature and quality of the sample preparation technique is considered appropriate. The sample sizes are considered appropriate to the grain size of the material.</p>
<p><b>Quality of assay data and laboratory tests</b></p>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li><i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<p><b>Soil and Rock Chip pXRF analysis</b> – All Soil and Rock Chip samples were analyzed by a Innov-X A 3500 portable XRF instrument supplied by CRL Energy Ltd with reading times of 30 seconds per sample using Soil Analysis Mode. The excitation source for this analyser is a 10–40 keV, 5–50 µA, W anode X-ray tube and the detector is a thermo-electrically cooled Si PIN diode with a resolution of &lt;280 eV. Portable XRF analysis was carried out for the following suite of metals for all samples; As, Cr, Cu, Ag, Cd, Co, Fe, Hg, Mn, Mo, Ni, Pb, Rb, Sb, Se, Sn, Sr, Ti, Ba, Bi, U, V, W, Zn, Zr, Th. The average As +/- was 4ppm with a max +/- of 14ppm and a min +/- of 3ppm for the Innov-X A3500.</p> <p>The Innov-X A3500 portable XRF instrumented was calibrated daily using Alloy Certified Reference Materials produced by Analytical Reference Materials International (ARMI), and the calibration verified using</p>

Criteria	JORC Code explanation	Commentary
		<p>Soil Certified Reference Materials produced by National Institute of Standards and Technology (NIST).</p> <p>Eleven duplicate or triplicate analyses were done randomly on samples within the reduced prospecting permit areas using the Innov-X A 3500 portable XRF in the field.</p> <p>Duplicate sample analysis of ~20 samples with the highest As levels were undertaken for check analysis using Otago University’s Innov-X XPD 4000 portable XRF instrument. This unit was also calibrated using Alloy Certified Reference Materials produced by Analytical Reference Materials International (ARMI), and the calibration verified using Soil Certified Reference Materials produced by National Institute of Standards and Technology (NIST).</p> <p>The excitation source for this analyser is a 10–40 keV, 5–50 µA, W anode X-ray tube and the detector is a thermo-electrically cooled Si PIN diode with a resolution of &lt;280 eV. Reading times were 30 seconds.</p> <p>Results from the Otago University pXRF were cross referenced against the original analyses results from the CRL Energy Ltd pXRF. The average variability of As results between instruments for soil samples was 5ppm with a maximum variability of 11ppm and a minimum variability of 1ppm. There were 4 soil samples where As was not detected by the Otago University pXRF but was detected by the CRL Energy instrument. In these cases the precision of the Otago University pXRF was on the same order of magnitude as the As result from the CRL Energy Ltd pXRF and all were less than 20ppm. In general the rock chip samples produced a larger variability. This is probably due to lower homogeneity of un-milled rock chip samples.</p> <p><b>Fire assay gold analysis</b> – A total of 159 samples were submitted for fire assay gold (141 soil samples, 10 rock chip samples and 8 pan concentrates). All samples for fire assay gold were analysed by SGS Laboratories, 43 Victoria Street, Waihi, NZ. Analyses were conducted to ppm level AAS (Gold analysis finish after Fire Assay 30g) or ppb level (ICP-MS Gold analysis finish after Fire Assay 30g). A total of twenty two duplicates (21 at ppb level, 1 at ppm level) were conducted. A total of eight triplicates (all at ppb level) were conducted.</p>
<p><b>Verification of sampling and assaying</b></p>	<ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	<p>pXRF results and relative GPS location points were downloaded onto a field laptop daily and cross referenced with written notes. During download the GPS locations were plotted for a qualitative check against georeferenced aerial photos raster files. The results and the corresponding location points were compiled into a single Excel spreadsheet. Precision for each element is recorded by the PXRF instrument and was uploaded into the results table. All fire assay gold results were entered into this spreadsheet and then imported into GIS</p>

Criteria	JORC Code explanation	Commentary
		software for plotting. Potted results were cross-referenced against field notes.
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>• Specification of the grid system used.</li> <li>• Quality and adequacy of topographic control.</li> </ul>	<p>All data has been compiled on map grid system NZGD 2000 - New Zealand Transverse Mercator.</p> <p><b>Airborne Resistivity Survey</b> - Locations have been obtained from the 2007 aeromagnetic survey flown by Fugro Airborne Surveys Pty Ltd. in Fugro; 2007; Airborne Geophysical Data; Unpublished Mineral Report MR4327.</p> <p><b>Soil and Rock Chip Sampling</b> – Locations of all soil and rock chip sampling were recorded using a handheld Garmin e10 GPS using the New Zealand Transverse Mercator projection based on the New Zealand Geodetic Datum 2000. In general, these points have an accuracy of +/-5m. Locations from this GPS were qualitatively cross-referenced in the field with GPS locations as located by a ASUS Zen Phone 2 which were digitally plotted at the time of sampling on Google Earth, Land Information New Zealand (LINZ) Rural Aerial Photo and LINZ Topo50 Topographic Map series imagery. Close spaced sampling points (less than 20m) were surveyed using tape and compass with reference to known features on georeferenced aerial imagery – in general these close spaced sample points have an accuracy of &lt;2m.</p> <p><b>Geological Mapping</b> – all mapping points have been recorded using Garmin GPSMAP 64s with expected accuracy of ± 2m using New Zealand Transverse Mercator 2000 projection based on the New Zealand Geodetic Datum 2000 using the GRS80 reference ellipsoid.</p>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>• Data spacing for reporting of Exploration Results.</li> <li>• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>• Whether sample compositing has been applied.</li> </ul>	<p>Airborne Resistivity Survey - Geophysical data used and interpreted in this report was sourced from the aeromagnetic survey flown by Fugro Airborne Surveys Pty. Ltd. for Glass Earth Gold Ltd. in Fugro; 2007; Airborne Geophysical Data; Ministry of Economic Development New Zealand Unpublished Mineral Report MR4327. Details of this survey including the data spacing are provided above in the Sampling Techniques section.</p> <p><b>Soil Sampling</b> – The first phase of soil sampling in 2017 was carried along lines planned by Dr MacKenzie to test conductivity highs. A wide line spacing has been used (in the order of 1km to 5km) given the early reconnaissance stage of exploration to date. Samples were collected at approximately 50m spacings along each line. The second phase of soil sampling conducted in 2018 was on lines designed to test the along strike extension of the OPQ system. A fixed line spacing was not used due to thick loess cover, intervening wetlands and Lake Mahinerangi. In general line spacing of the second phase of soil sampling was approximately 500m with some lines only</p>

Criteria	JORC Code explanation	Commentary
		<p>50-150m apart. Samples were collected at 50-25m along each line with infill samples at 2.5 to 5m spacing in areas of elevated Au.</p> <p><b>Rock Chip Sampling</b> – Rock Chip samples were taken irregularly at outcrops of interest identified during the soil sampling program. A systematic rock chip sampling program has not been undertaken.</p>
<p><b>Orientation of data in relation to geological structure</b></p>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<p>The east Otago Schist metamorphic basement contains a predominant geological and structural trend direction, northwest – southeast, related to pervasive polyphase metamorphic deformation.</p> <p><b>Airborne Resistivity Survey</b> - Flight direction lines in the aeromagnetic survey were therefore oriented perpendicular to this geological trend and flown NE - SW at an azimuth of 45° to maximize coverage of the metamorphic and structural features in the basement rocks. Northwest-southeast tie lines were flown every 3km to allow for levelling of the survey data.</p> <p><b>Soil Sampling</b> – Soil sampling lines designed to test conductivity high lineaments are oriented perpendicular to the lineaments being targeted – in most cases soil sampling lines are oriented NE (or ENE) targeting NW (or NNW) trending conductivity lineaments. Soil sampling lines targeting along strike extension of the OPQ lode system are oriented approximately perpendicular to the noted OPQ orientation of 160°/50°NE</p>
<p><b>Sample security</b></p>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<p><b>Soil and Rock Chip Sampling</b> – most samples were analysed in the field at the point of sampling with pXRF with a small selection of samples later analysed at CRL Energy Ltd, Christchurch, NZ. All samples were stored under supervision of field geologists in the field including in locked storage overnight. All soil and rock chip samples are currently stored in a locked and alarmed store room at CRL Energy Ltd, Christchurch, NZ</p> <p><b>Stream sediment sampling</b> - All samples were stored under supervision of field geologists in the field including in locked storage overnight. All stream sediment samples are currently stored in a locked and alarmed store room at CRL Energy Ltd, Christchurch, NZ</p>
<p><b>Audits or reviews</b></p>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<p>The Competent Person is unaware of any reviews or audits which may have been completed other than that undertaken by the Competent Person himself</p> <p>CRL soil sampling procedures in the field were reviewed by Dr Doug MacKenzie.</p>

**Section 2: Reporting of Exploration Results**

Criteria	JORC Code explanation	Commentary
<p><b>Mineral tenement and land tenure status</b></p>	<ul style="list-style-type: none"> <li>• <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></li> <li>• <i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></li> </ul>	<p>The following two Prospecting Permits for gold and other minerals in Otago, New Zealand were granted by New Zealand Petroleum &amp; Minerals (“NZP&amp;M”) on 17th October 2016 to New Age Exploration (“NAE”):</p> <ul style="list-style-type: none"> <li>• Mahinerangi Permit Number 60254 covering an area 418 km2</li> <li>• Teviot Permit Number 60255 covering an area 458 km2</li> </ul> <p>The Prospecting Permits are for an initial period of 2 years. On 27 July 2017 NAE lodged an application to NZP&amp;M for partial relinquishment of its Prospecting Permit areas as follows;</p> <ul style="list-style-type: none"> <li>• Mahinerangi Permit reduced from 418 km2 to 154 km2</li> <li>• Teviot Permit reduced from 458 km2 to 66 km2</li> </ul> <p>The 27 July 2017 application retained 25% of the total area of both permits and relinquished 75% of the total area of both permits. The partial relinquishment was accepted by NZP&amp;M and reduced the annual permit holding costs from NZ\$51,000 p.a to approx. NZ\$13,000 p.a.</p> <p>Prospecting Permits allow only minimum impact prospecting activities to be undertaken such as; geological mapping, soil and rock chip sampling and aerial surveys.</p> <p>An application for a subsequent Exploration Permit covering a portion of the Mahinerangi permit was lodged with NZP&amp;M on the 11<sup>th</sup> of October 2018. This application is currently being assessed. An Exploration Permit is required prior to any drilling being undertaken. Any Exploration Permit (which confers all or any of the same rights as a current Prospecting Permit in respect of all or part of the same land and the same minerals) may only be granted to a person other than the holder of the current permit with the prior written consent of the current permit holder.</p> <p>Surface land access consent from landowners is not required for the minimum impact exploration activities permissible under a prospecting permit however landowner notification prior to access is a requirement and has been provided prior to accessing properties for fieldwork undertaken.</p> <p>Activities greater than minimum impact activities, such as drilling under any subsequent Exploration Permit, require a formal access arrangement for private and public conservation land.</p> <p>Minor areas within the current exploration permit application area are covered by public conservation areas where regional council resource consent for mining may be challenging however these areas are only a very small percentage of the overall application area and are therefore not expected to be significant constraints. Permit holders require access consent (less strict than regional council resource consents and access arrangements) from the Department of Conservation (DOC) to conduct minimum impact activities on conservation land.</p>

Criteria	JORC Code explanation	Commentary
		<p>Government royalties on gold mined in New Zealand are the higher of:</p> <p>(a) an ad valorem royalty of 2% of the net sales revenue of the minerals obtained under the permit; and</p> <p>(b) an accounting profits royalty of 10% of the accounting profits, or provisional accounting profits, as the case may be, of the minerals obtained under the permit.</p> <p>A Land Minerals Status report has identified that all gold and silver (“statute minerals”) within the NAE Exploration Permit application area is owned by the New Zealand Government (the “Crown”) with exploration rights to these minerals able to be licensed through NZP&amp;M. Some land titles within the application area retain private mineral rights to minerals (“non-statute” minerals) other than gold, silver uranium and petroleum.</p>
<p><i>Exploration done by other parties</i></p>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<p>There has been some gold exploration undertaken over the prospecting permit areas and Mahinerangi exploration permit application area as described below.</p> <p><b><u>Mahinerangi</u></b></p> <p>Alluvial gold prospecting was conducted in the Waipori area by Alluvial Tin Ltd and British Developments Ltd in the 1930’s in Lammerlaw Creek and Waipori on the western boundary of the current application area.</p> <p>In the early 1970’s a joint venture between Lime and Marble Ltd and AHI Minerals conducted prospecting inside a permit ~300 sqkm over the for tungsten and antimony in the Waipori area (inside the current application) and Lammerlaw Ranges (outside the western boundary of the current application area) using panned concentrates, stream sediment sampling, channel sampling and soil sample lines.</p> <p>Homestake New Zealand Exploration Ltd held an exploration permit in the Waipori area of 351sqkm which covered a similar area to the licences owned by Lime and Marble / AHI Minerals. BHP Gold Mines Ltd bought Homestake and it’s exploration permit in the late 1980’s. After the exploration permit expired BHP was subsequently granted two prospecting permits (totaling ~74sqkm) on the southern shore of Lake Mahinerangi (inside the current application area) and in the headwaters of Stony Creek in the Lammerlaw Ranges (outside the western boundary of the current application area). BHP conducted stream and rock chip sampling in these areas. Macraes Mining Company Limited bought these two prospecting licences in 1990 and conducted geological mapping, rock chip and soil sampling (Au, As, Cu, Pb, Zn, Sb and Hg) throughout the early to mid 1990’s.</p> <p>Commonwealth Resources Ltd conducted prospecting over a ~32sqkm licence in the Waitahuna Heights area (southeastern corner of current application area) from 1996-1998 producing limited mapping and a small number of mineralised float assays.</p> <p>Recent exploration efforts in the area include alluvial gold prospecting by Kaipara Ltd at Mitchells Flat (~22sqkm immediately south of Lake Mahinerangi) and limited reconnaissance mapping by Hardie Resources Ltd</p>

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		<p>for Middle Island Resources Ltd over the wider Lake Mahinerangi area and Lammerlaw Ranges (579sqkm).</p> <p>Glass Earth held a prospecting permit over a very large area of Otago which included the Mahinerangi and the Teviot application areas (Glass Earth, 2010). Parts of the Mahinerangi Block within Glass Earth’s prospecting permit were surrendered at stages throughout the permit. Glass Earth compiled legacy data, conducted a regional geophysical survey (Fugro, 2007) and subsequently completed regional geochemical sampling. Glass Earth completed little geochemical sampling in the Mahinerangi area before selling and leaving it’s South Island permits in 2013. Glass Earth (2010) references stream sampling conducted over the application area by Newmont. NAE has, as yet, been unable to locate the source report for this data.</p> <p><b>Teviot</b></p> <p>There has been little other hard rock minerals exploration conducted in the Teviot Block application area.</p> <p>The Clutha River on the southern boundary of the Teviot Block has experienced small scale alluvial gold explorations and workings as has the Teviot River near the centre of the application area. There is little available data about these workings.</p> <p>Prospecting for alluvial gold was conducted near the northeast corner of the Teviot Block application area near Lake Onslow and the North Branch of the Teviot River in the 1930’s.</p> <p>Early in the 2000’s HPD New Zealand Ltd held a prospecting licence covering the Lake Onslow and Lammerlaw areas which included a small portion of the northeast corner of the Teviot Block application area. HPD commissioned a GIS analysis of historical rock chip, stream and soil sampling programs from earlier prospecting in the area. HPD was acquired by Glass Earth Ltd in 2006.</p>
<p><b>Geology</b></p>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<p><b>Original exploration rationale for prospecting permits-</b> MacKenzie and Craw (2016) proposed that the southwestern margin of the Otago Schist belt contains a block of Lower Greenschist Facies Schist containing NAE’s southern shear zone targets that is analogous to and a geological ‘mirror-image’ of the northeastern Lower Greenschist Facies schist block of the Otago Schist belt that hosts the HMSZ and the Macraes deposits. Orogenic gold mineralisation such as that found along the HSMZ on the northeastern side of the Otago Schist belt may therefore also be present on the southwestern side of the Otago Schist belt within the NAE application areas. Sampling and analysis by NAE on the prospecting permits initially targeted these possible large-scale shear zones but extensive soil sampling and portable X-ray fluorescence (pXRF) analysis of these conductivity lineaments were inconclusive.</p> <p><b>Exploration Licence Application Area –</b> Gold and antimony mineralisation in the Waipori – Lake Mahinerangi area is associated with historically mined, quartz vein filled, narrow fault systems such as Otago Pioneer Quartz (OPQ) that cross cut foliation within Lower Greenschist Facies schist from the Caples Terrane</p>

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		meta turbidites. The lodes cut the nose of the Lammerlaw Antiform at low to high angles and generally trend north west. The OPQ lode strikes 160° and dips approximately 50° to the north east. This mineralisation represents late stage gold bearing fluid emplacement in brittle schist.
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:                             <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	Not Applicable – no drillholes are included in the Exploration Results
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	Not Applicable
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	Not Applicable
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Appropriate maps, plans, sections and other views of the interpreted mineralisation are included in the announcement.
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	The announcement presents all of the salient exploration data that supports the results presented and where summarised is done so in such a way as to convey all of the results in a balanced manner.

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<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	All relevant information has been presented in the announcement.
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	The announcement summarises the work programs proposed by NAE in their prospecting permits