

ASX ANNOUNCEMENT

17 April 2024

Roe Hills Project, Eastern Goldfields WA

# Gravity survey identifies significant rare earth targets

Interpretation for more clay-hosted rare earth mineralisation 120km east of Lynas' Kalgoorlie Processing Facility

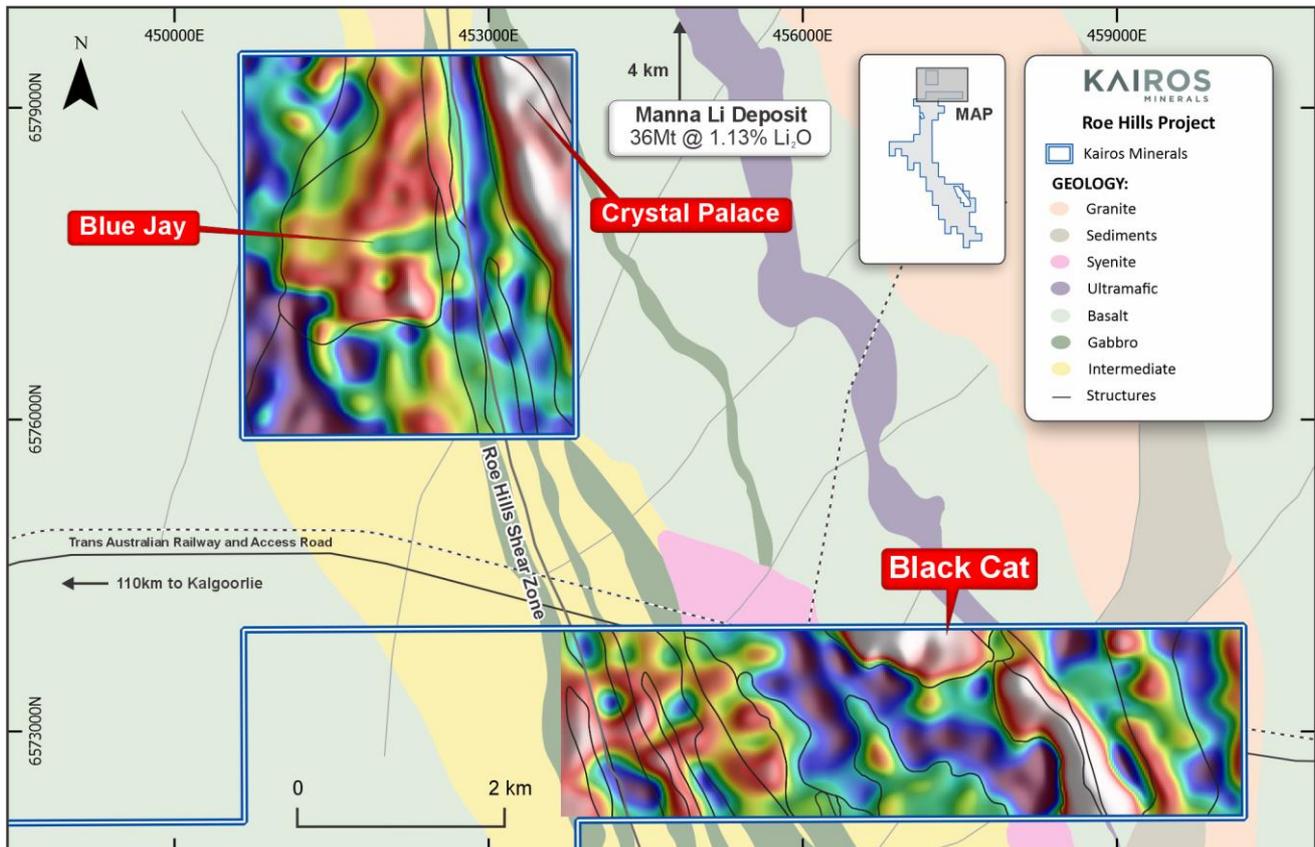
## Highlights

- A 200m x 50m spaced gravity survey over the Black Cat, Crystal Palace and Blue Jay target areas at Roe Hills has been completed
- The new data clearly maps-out coherent gravity lows at Black Cat. These are interpreted to be buried syenites. This is supported by limited previous drilling at Roe Hills which has provided firm evidence that the gravity lows are syenites
- Limited drilling has also supported the interpretation that syenites are the primary source of the overlying clay-hosted rare earth mineralisation; Previous drill has returned results up to 2.31% TREO in lower saprolite clays
- As a result of this evidence, gravity lows are believed to be a proxy for buried syenites and rare earths - only 10% of the potential syenite area tested to date at Black Cat and at Blue Jay
- Preliminary metallurgical testwork of drill composites underway to test characterisation and beneficiation of clay-hosted REE mineralisation
- Follow-up, cost-effective drill planning underway for resource estimation

Kairos Managing Director, Dr Peter Turner said: **"We believe that the survey has identified buried syenites which we know are sources to the clay-hosted rare earth mineralisation - and the area remaining to be tested is very large indeed.**

**"We will now undertake low cost aircore drilling to test for rare earths in these areas.**

**"The results from the drilling in December 2023 suggest we have a high-grade clay-hosted REE project on our hands in the right location. This coupled with the gravity interpretation suggests we have exciting scale too."**



**Figure 1:** Roe Hills North project area showing the location of the recent 200m x 50m spaced ground gravity survey. The gravity image displayed is the first vertical derivative Bouguer anomaly with a non-linear colour stretch. Gravity lows are represented by deep blues and are generally interpreted to be potential intrusions.

Kairos Minerals Limited (**ASX:KAI**) is pleased to announce the completion of a 2368-station ground gravity survey at its Roe Hills North Rare Earth Element ('REE') and Lithium project.

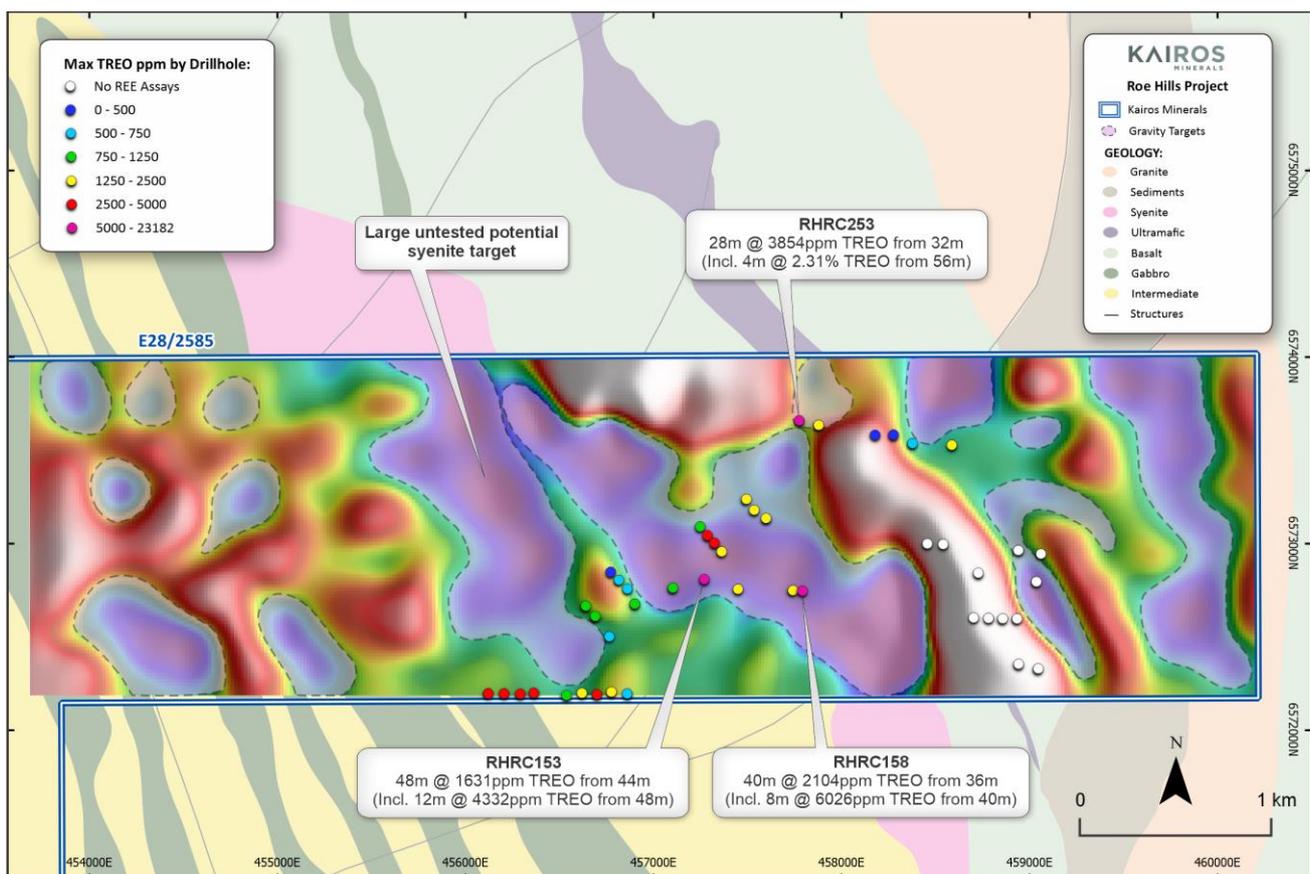
The gravity survey was designed to test the extent of buried REE-bearing syenite intrusions responsible for the Black Cat clay-hosted REE mineralisation identified in recent drilling (see ASX announcement 19 December 2023), to identify additional, buried intrusions that can be drill tested for REE mineralisation and to enhance the geological understanding of the project area.

The gravity survey was completed by Atlas Geophysics with gravity readings collected at 50m intervals along 200m spaced east-west lines in two separate 12km<sup>2</sup> blocks, with one block completed at the Black Cat prospect and a second block completed at the Crystal Palace and Blue Jay prospects (**Figure 1**). The data from the gravity survey has been processed by Southern Geoscience Consultants.

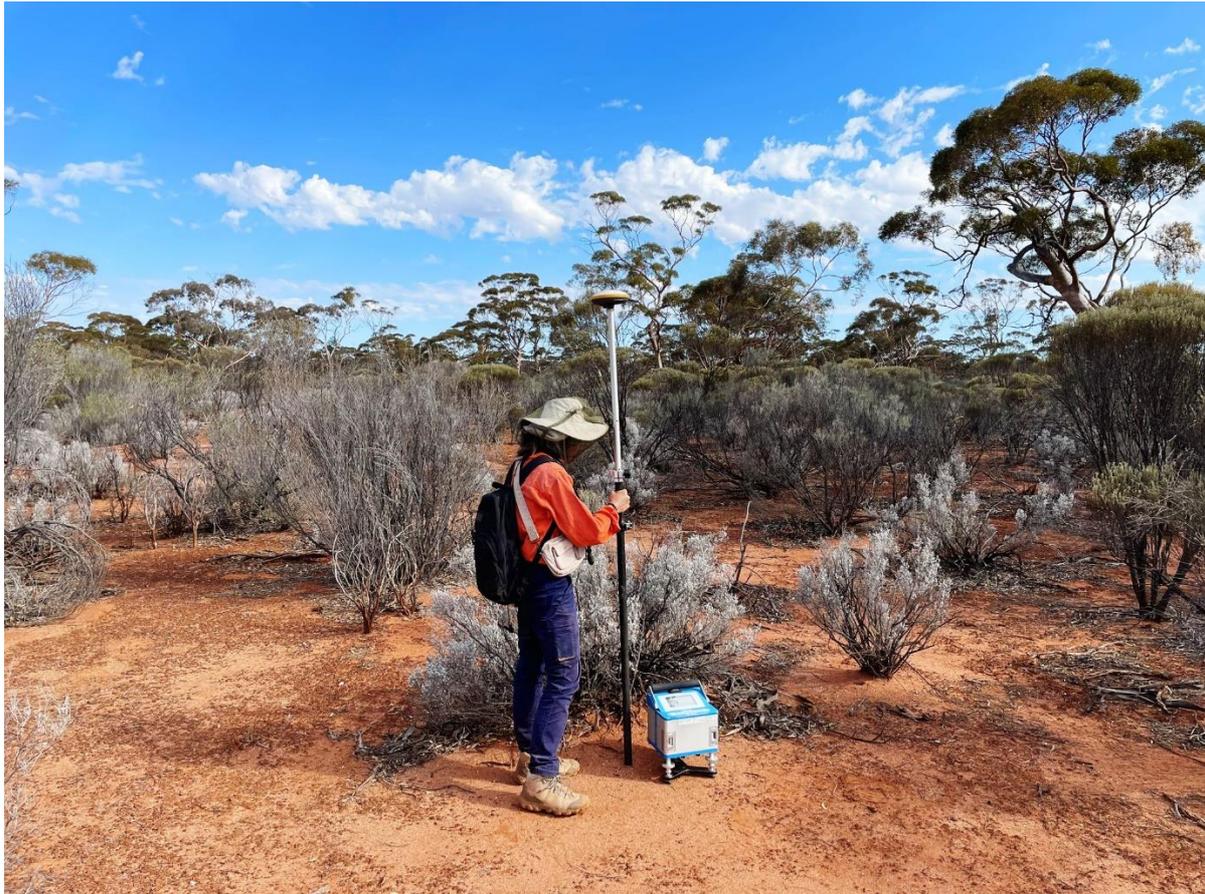
Results of the gravity survey show a significant 2.2km x 1.2km gravity low at Black Cat that aligns with a REE-bearing syenite intrusion intersected in recent RC drilling.

Additional gravity lows, also generally interpreted as low-density syenite intrusions within otherwise high-density mafic and intermediate rocks, can be observed both west and east of the recent drilling at Black Cat (**Figure 2**). This includes a significant coherent 1.9km x 0.9km gravity low immediately west of the recent drilling which appears similar in magnitude to the gravity low associated with the Black Cat syenite. A number of potential syenite targets have been generated using the gravity and previous drilling as a basis of interpretation. The presence of REE-bearing syenite in the previous drilling coincident with a significant coherent gravity low gives Kairos a high degree of confidence that additional gravity lows may also be associated with syenite and therefore associated with clay-hosted REE mineralisation.

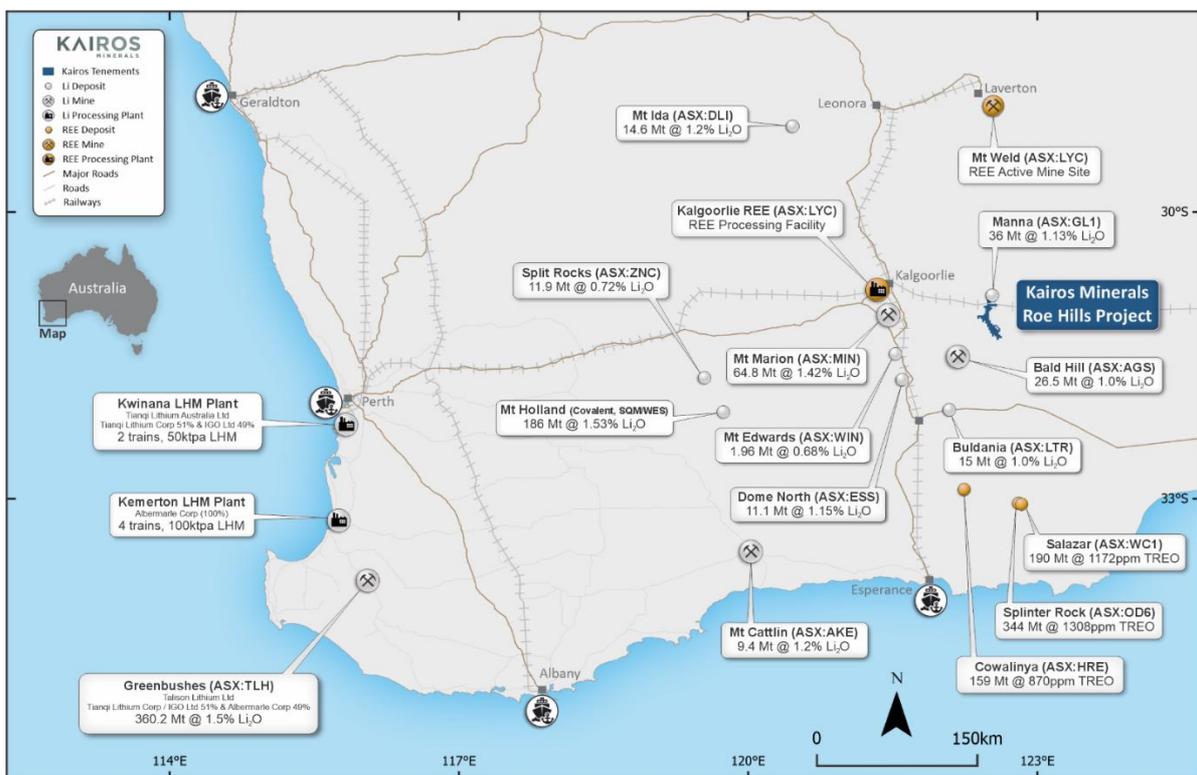
With the completion of the gravity survey and interpretation, a program of low-cost aircore drilling is being designed to extend the known mineralisation and test a number of the newly identified targets. Timing of the drilling is dependent on the results and assessment of ongoing metallurgical sighter testwork being undertaken on material from the previous drilling campaign. Heritage surveys for planned drilling activities at Roe Hills are also in the process of being arranged.



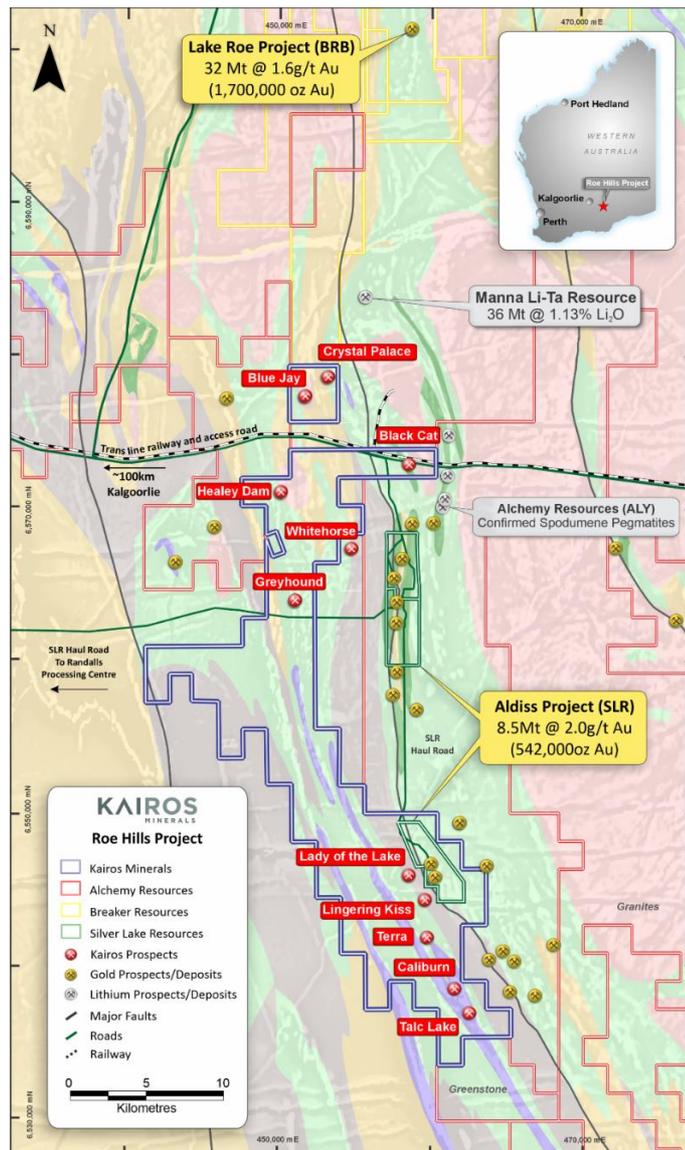
**Figure 2:** Black Cat area showing the location of previous drilling coloured by maximum TREO values in hole. Significant gravity lows can be observed that have not yet been drill tested. The gravity image displayed is the first vertical derivative Bouguer anomaly with a non-linear colour stretch.



**Figure 3:** Ground gravity survey underway at Roe Hills North.



**Figure 4.** Location of the Roe Hills project in relation to infrastructure and other known REE and Lithium deposits and process facilities.



**Figure 5:** Kairos' Roe Hills tenements in relation to neighbouring companies overlain on a magnetic image highlighting interpreted granites. Lithium mines and advanced projects with resources are shown with quoted mineral resources.

## Next Steps

- Assess the preliminary metallurgical test work (Sighter test work) being undertaken on composite drill samples
- Heritage surveys to be arranged ahead of a proposed 8,000m aircore program at Black Cat and surrounding targets (subject to board approval)
- Continuation of field mapping and sampling on the southern part of the Roe Hills tenement package
- Completion of auger soil sampling planned to extend southwards on the tenement package in conjunction with the field mapping targeting lithium, gold and REE's

## **About Kairos Minerals**

Kairos Minerals (ASX:KAI) owns 100% of the flagship 1.6 Mozs **Mt York Gold Project** that was partially mined by Lynas Gold NL between 1994 and 1998. Kairos has recognised that the resource has significant potential to grow further from its current 1.62 Moz base with significant exploration potential existing within the Mt York project area. Pre-feasibility work will progress rapidly underpinned by the resource expansion work that will collect important information for metallurgical testwork, mining and process engineering to determine viability and optimal pathway to develop a sustainable, long-lived mining project. Current resources at a 0.5 g/t Au cutoff grade above 325m depth are shown in the table below.

Deposit	Indicated			Inferred			Total		
	Tonnes (MT)	Au (g/t)	Ounces (kcozs)	Tonnes (MT)	Au (g/t)	Ounces (kcozs)	Tonnes (MT)	Au (g/t)	Ounces (kcozs)
Main Trend	20.25	1.06	690	22.83	0.95	697	43.08	1.00	1385
Iron Stirrup	1.28	1.72	70	0.71	1.54	35	1.99	1.66	106
Old Faithful	2.17	1.07	75	2	0.81	52	4.17	0.95	127
<b>Total</b>	<b>23.7</b>	<b>1.10</b>	<b>835</b>	<b>25.54</b>	<b>0.95</b>	<b>784</b>	<b>49.24</b>	<b>1.02</b>	<b>1618</b>

Kairos has recently discovered spodumene-bearing pegmatites adjacent to the Mt York Gold Project and is evaluating their potential to become part of a value-adding lithium project into the future.

Kairos's 100%-owned Roe Hills Project, located 120km east of Kalgoorlie in WA's Eastern Goldfields, comprises an extensive tenement portfolio where the Company's exploration work has confirmed the potential for significant discoveries of high-grade gold, nickel, cobalt, lithium and rare earth mineralisation. Kairos has recently discovered significant high-grade REE mineralisation at Black Cat within enriched lower saprolite clays overlying fertile REE-bearing syenite intrusions.

This announcement has been authorised for release by the Board.

**Peter Turner**  
**Managing Director**

**Zane Lewis**  
**Non Executive Director**

### **For Investor Information please contact:**

Paul Armstrong – Read Corporate  
 0421 619 084

### **COMPETENT PERSON STATEMENT:**

The information in this report that relates to Exploration Results is based on information compiled and reviewed by Mr Mark Falconer, who is a full-time employee of Kairos Minerals Ltd and who is also a Member of the Australian Institute of Geoscientists (AIG). Mr Falconer has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.' (the JORC Code 2012). Mr Falconer has consented to the inclusion in the report of the matters based on their information in the form and context in which it appears.

## Appendix A - JORC Code, 2012 Edition – Table 1

### Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>• <i>Nature and quality of sampling (eg 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.</i></li> <li>• <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li>• <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li>• <i>In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘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 (eg submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The ground-based gravity geophysical survey was conducted by Atlas Geophysics using two Scintrex CG-6 gravity meters and two ESVE300PRO GNSS Rover Receivers</li> <li>• Gravity meters had been recently calibrated at the Guildford Cemetery – Helena Valley Primary School calibration range (2010990117 – 2010990217)</li> <li>• An existing GNSS/gravity control station 202211700001 “Karonie” was used to control all field observations</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>• <i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).</i></li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable as no drilling was undertaken</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable as no drilling was undertaken</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Logging</b>	<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 metallurgical studies.</li> <li>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>• The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable as no drilling or logging was undertaken</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• 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.</li> <li>• Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable as no drilling or sampling was undertaken</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>• 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.</li> <li>• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable as no assay processes were undertaken</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>• The verification of significant intersections by either independent or alternative company personnel.</li> <li>• The use of twinned holes.</li> <li>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>• Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>• A total of 71 repeat readings representing 3% of the survey were acquired for quality control purposes</li> <li>• Data was stored and provided via a cloud-based secure digital storage with access provided to Kairos Minerals</li> </ul>
<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> </ul>	<ul style="list-style-type: none"> <li>• GNSS data was acquired with the ESVE300PRO GNSS rover receivers operating in post-process kinematic (PPK) mode with the GNSS rover sensors mounted to 2.000m walking poles.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>Quality and adequacy of topographic control.</li> </ul>	
<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>	<ul style="list-style-type: none"> <li>The gravity survey was conducted on two blocks, each approximately 12km<sup>2</sup> in area.</li> <li>Gravity stations were acquired on 200m spaced east-west lines with sample stations situated 50m along line.</li> <li>A total of 2,368 gravity stations were acquired</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Survey lines were aligned east-west which is approximately perpendicular to the prevailing structural and geological trends in the Roe Hills area in order to maximise across-strike coverage of known lithology and structures</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Data was collected and downloaded from the gravity meters and uploaded to cloud-based storage daily</li> <li>Kairos was provided regular updates of survey progress via online portal access</li> <li>Data was supplied to Southern Geoscience Consultants for data review and processing to produce gravity imagery for Kairos Minerals</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>The data was reviewed by Southern Geoscience Consultants and no issues were identified</li> </ul>

## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Roe Hills project consists of eighteen granted Exploration Licenses: E28/1935, E28/2117, E28/2118, E28/2548, E28/2585, E28/2594, E28/2695, E28/2696, E28/2697, P28/1292-P28/1300 inclusive.</li> <li>E28/2585 partially overlaps with Hampton Location 16 privately owned land north of the trans-australian railway line. The mineral rights to the upper 45.72 metres of Location 16 belong to the private land owners.</li> <li>Kairos is not aware of any existing impediments nor of any potential impediments which may impact ongoing exploration and development activities at</li> </ul>

Criteria	JORC Code explanation	Commentary
		the project site.
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Broad reconnaissance exploration for gold has been conducted on the northern and western parts of tenement E28/2585 in the past by Poseidon Exploration (1990), Normandy Exploration (1995) and Integra Mining (2009) in the form of shallow RAB/Aircore drilling.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<p><b>Regional Geology</b></p> <ul style="list-style-type: none"> <li>The Roe Hills project lies across granite-greenstones of the Archean Yilgarn Craton, with the local geology at Roe Hills consisting of a north-south trending ultramafic-mafic-volcaniclastic sequence intruded by granites.</li> <li>The mineralisation targets are intrusion/shear zone-hosted Au deposits, spodumene-bearing LCT pegmatite deposits (lithium), and rare earth element (REE) mineralisation associated with enriched granites and syenite.</li> <li>The Black Cat REE deposit consists of sub-horizontal REE mineralisation hosted in lower saprolite clays overlying and adjacent to weathered REE-bearing syenite intrusions.</li> </ul>
<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>	<ul style="list-style-type: none"> <li>No drilling was completed</li> <li>Drillholes displayed in images are for reference for comparison to earlier announcements</li> </ul>
<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</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no drilling was undertaken</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>be stated and some typical examples of such aggregations should be shown in detail.</i></p> <ul style="list-style-type: none"> <li><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li><i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li><i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li><i>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').</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Appropriate plans are included in this announcement that show the extent and results of the gravity survey performed at Roe Hills</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The information reported in this announcement is considered fair, balanced, and provided in context.</li> <li>All relevant information has been included in this announcement</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>All meaningful and material exploration data has been included in the body of this document.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Metallurgical testwork on REE-bearing clay intercepts from recent drilling is being undertaken for beneficiation and leach testing</li> <li>Mapping and sampling of areas with potential for REE-bearing intrusions and lithium-bearing pegmatites is currently underway.</li> <li>An aircore drill program has been planned to expand the footprint of REE mineralisation at Black Cat, pending results of the metallurgical testwork</li> <li>An auger soil sampling program has been planned to extend south of the previous auger soil program completed during 2023</li> </ul>