

## **Gravity survey highlights immense exploration upside at Mt Venn copper-nickel-cobalt project in WA**

### **Survey identifies an extremely large intrusive body which is coincident with surface copper-nickel-cobalt anomalism**

Great Boulder Resources (ASX: GBR) is pleased to announce that a gravity survey at its Mt Venn copper-nickel-cobalt project in WA has identified an extremely large intrusive body associated with the Eastern Mafic complex.

The intrusive body is extensive, measuring 4km long (north-south) by 3km wide (east-west), and extends several kilometres further along structures to the west and south (see Figure 1). The Eastern Mafic intrusion, located only 7km from Mt Venn, has more than doubled Great Boulder's exploration footprint at Mt Venn.

The gravity survey was initiated following positive exploration results from Mt Venn where extensive copper-nickel-cobalt sulphide mineralisation has been delineated over several kilometres. Previous exploration on the Eastern Mafic complex was limited to shallow RAB drilling for gold with no analysis for base metals or bedrock geochemistry.

Great Boulder Managing Director Stefan Murphy said the Company would now fast-track exploration of the Eastern Mafic complex.

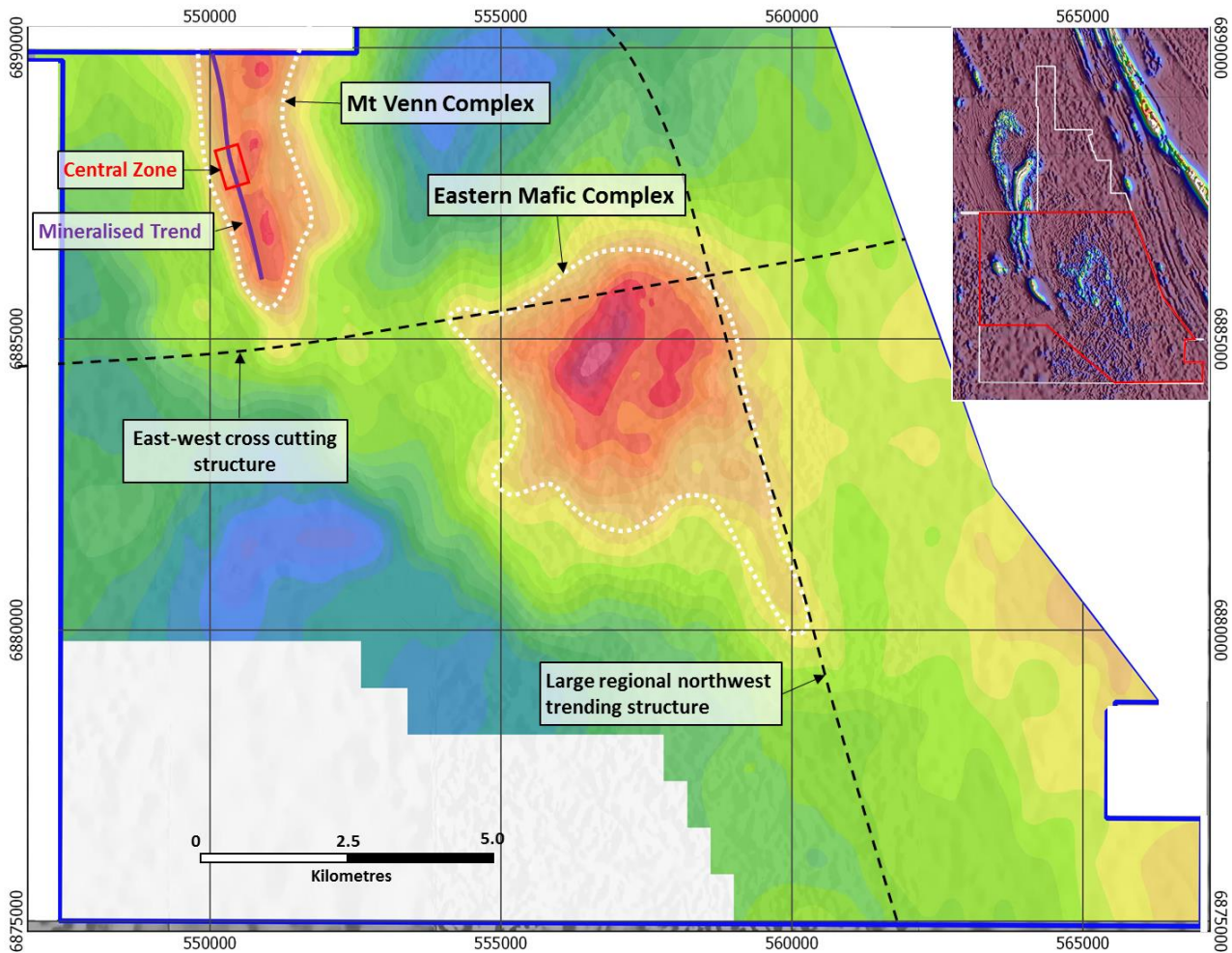
"These results have opened up immense new potential at Mt Venn and could prove to be a game-changer at every level," Mr Murphy said.

"From limited sampling completed over the Eastern Mafic complex, we can see distinct mafic units with evidence of nickel-copper depletion and a separate suite of mafic rocks with elevated nickel-copper-cobalt and MgO.

"This geochemistry provides evidence the Eastern Mafic complex is part of the broader Mt Venn complex, but located in a different setting. The results of the gravity survey have shown we are in a much larger system than previously thought, with the Eastern Mafic complex potentially representing an earlier-stage conduit or feeder structure that is prospective for nickel sulphide mineralisation."

Given the exploration potential, an extensive aircore drilling program will start as soon as possible to map the bedrock geology and identify prospective units for massive sulphide mineralisation. Planning is also underway for an airborne EM survey of the Eastern Mafic complex.

In addition to the new work programs, diamond drilling will shortly commence at Mt Venn, following significant flooding from ex-Tropical Cyclone Kelvin that restricted access to the project since mid-February. Metallurgical testwork is also underway with the first flotation tests to produce a copper concentrate.



**Figure 1.** Bouguer Gravity image showing Mt Venn and Eastern Mafic intrusive complexes with bounding structures  
Inset shows gravity survey area (red) and Yamarna tenement boundary (white)

## Eastern Mafic Complex

Resampling of cuttings from previous drilling and outcrop within the Eastern Mafic complex by Great Boulder highlighted several distinct mafic units that were not previously recognised. In particular, there is metal zonation with an outer mafic 'rim' that appears depleted in copper and nickel, and an inner core that is relatively enriched with copper, nickel and cobalt and is considered a priority target for nickel sulphide mineralisation (see Figure 2).

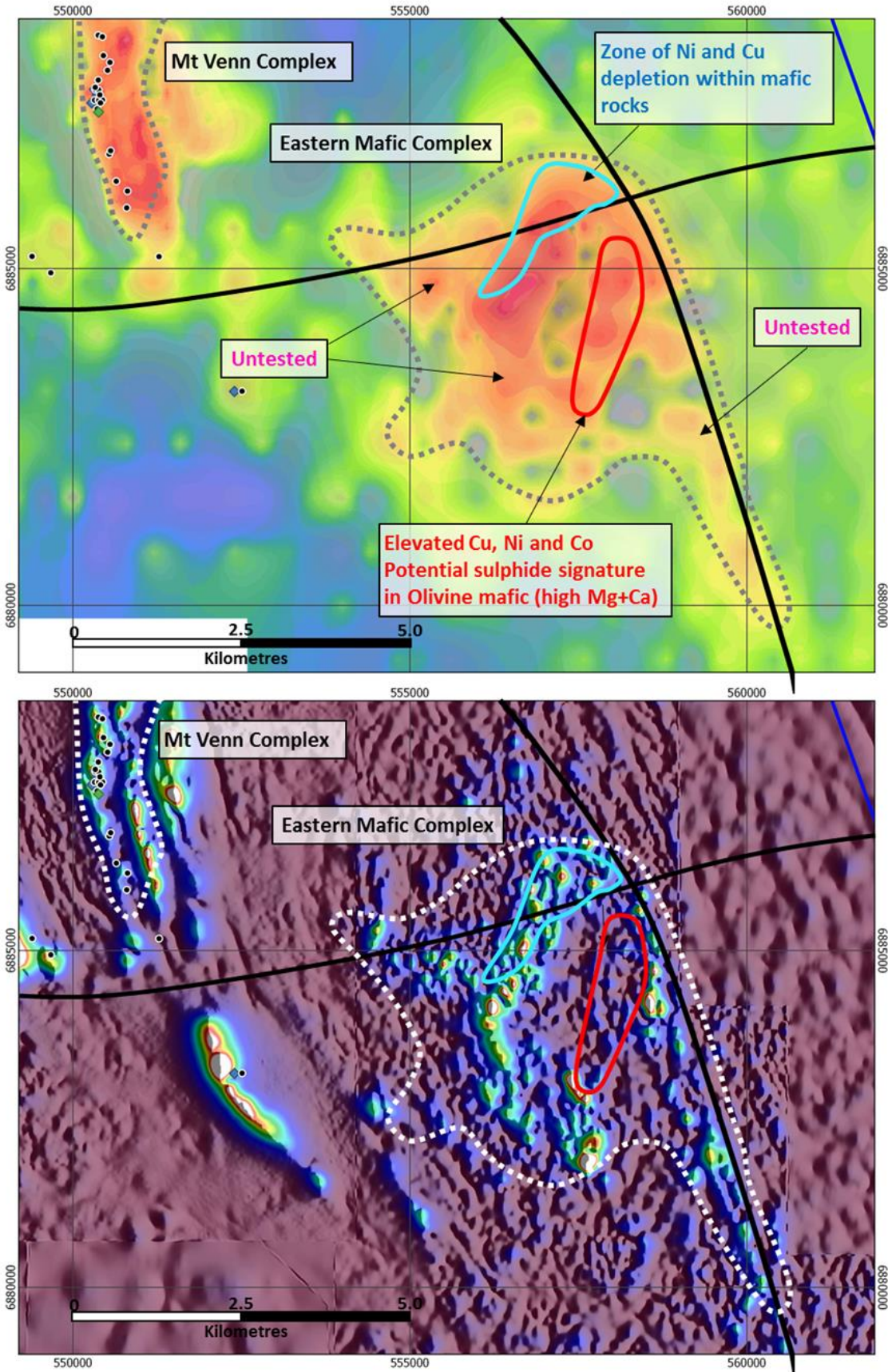
Results from the gravity survey in addition to the surface sampling and new knowledge of the ore forming system at Mt Venn indicates the Eastern Mafic complex formed during the same magmatic event as Mt Venn, but potentially at an earlier stage as a more mafic (MgO rich) melt.

Where the main Mt Venn intrusion appears to have formed as a layered mafic sill, with several pulses of magma that have injected into layered sedimentary rocks, the Eastern Mafic complex is a very large circular body with concentric zonation in the geochemistry and appears more similar to a pipe-like feeder structure.

The potential discovery of a feeder structure within the Mt Venn project is significant as many globally-significant magmatic nickel sulphide orebodies occur within these structures, where nickel rich magma first mixes with sulphur to produce massive sulphide deposits.

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**Figure 2** **Top:** 1VD Bouguer Gravity image showing Mt Venn and Eastern Mafic complex with elevated Cu-Ni-Co zone (red), depleted zone (blue) and bounding structures (black)  
**Bottom:** 1VD Magnetic image (analytic signal) showing Mt Venn and Eastern Mafic complex with elevated Cu-Ni-Co zone (red), depleted zone (blue) and bounding structures (black)

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## Next Steps

Great Boulder announced in February a multi-faceted approach to exploration and development at Mt Venn. Due to the highly encouraging results from the Eastern Mafic complex, exploration will now be fast-tracked over this area, commencing with an extensive aircore program and airborne EM survey.

The depth of cover over the Eastern Mafic complex ranges from outcrop to 40m deep. A basement geochemistry grid will be drilled over the intrusion to map the metal zonation, extending along the two main structures that are interpreted to also contain part of the intrusion.

Given the large area to cover, an airborne EM survey is the most efficient method to cover the intrusion, testing for possible conductors that reflect massive sulphide mineralisation. This method was successfully used over Mt Venn.

On the main Mt Venn mineralised trend, drilling is scheduled to start shortly as access from Laverton is now open and the drill sites have sufficiently dried for drilling. The Mt Venn project experienced a significant weather event which resulted in major flooding on the Yamarna Project and Great Central Road, delaying the drill program by 4 weeks.

Fortunately, during this period Great Boulder was still able to complete DHEM and gravity surveys using light vehicles and has incorporated this data into a revised drill program that now includes an initial diamond program followed by RC drilling.

Metallurgical testwork is now well underway. Diamond hole 17MVDD002 has been composited and initial rougher float tests undertaken to establish optimal grind size and reagent use. As results of the copper flotation and nickel-cobalt leach testwork become available over the coming months, further information will be provided.

## Competent Person's Statement

Exploration information in this Announcement is based upon work undertaken by Mr Stefan Murphy whom is a Member of the Australasian Institute of Geoscientists (AIG). Mr Stefan Murphy has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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' (JORC Code). Mr Stefan Murphy is an employee of Great Boulder and consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

## Forward Looking Statements

This Announcement is provided on the basis that neither the Company nor its representatives make any warranty (express or implied) as to the accuracy, reliability, relevance or completeness of the material contained in the Announcement and nothing contained in the Announcement is, or may be relied upon as a promise, representation or warranty, whether as to the past or the future. The Company hereby excludes all warranties that can be excluded by law. The Announcement contains material which is predictive in nature and may be affected by inaccurate assumptions or by known and unknown risks and uncertainties and may differ materially from results ultimately achieved.

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## Appendix- JORC Code, 2012 Edition Table 1

The following table relates to activities undertaken at Great Boulder's Yamarna project.

## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

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>	<p>This announcement, and table, reports the resent of the completion of a ground-based gravity survey at the Yamarna-Mt Venn project.</p> <p>Approximately 838 new gravity stations were acquired and processed. Stations were predominantly located 400m along lines spaced 800m apart. In a small section coincident with previous Mt Venn drilling, stations were located 200m along lines spaced 400m apart.</p> <p>This survey utilized a V100 lightweight GNSS receiver and CG-5 digital automated gravity meter. Gravity station located were collected by V100 DGPS.</p> <p>The sampling techniques used are deemed appropriate for the style of exploration.</p>
<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>	No drilling results are presented in this announcement.

<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>	No drilling results are presented in this announcement.
<b>Logging</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <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>	No geological logging was recorded as part of this programme.
<b>Sub-sampling techniques and sample preparation</b>	<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>	No drilling results are presented in this announcement.

<b>Quality of assay data and laboratory tests</b>	<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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></li> </ul>	<p>No drilling results are presented in this announcement.</p>
<b>Verification of sampling and assaying</b>	<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>No drilling results are presented in this announcement.</p>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<p>Station locations were collected using a V100 DGPS.</p> <p>The MGA94 UTM zone 51 coordinate system was used for all undertakings.</p>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>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</i></li> </ul>	<p>Approximately 838 new gravity stations were acquired and processed. Stations were predominantly located 400m along lines spaced 800m apart. In a small section coincident with previous Mt Venn drilling, stations were located 200m along lines spaced 400m apart.</p>

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	<p><i>procedure(s) and classifications applied.</i></p> <ul style="list-style-type: none"> <li><i>Whether sample compositing has been applied.</i></li> </ul>	The spacing and location of data is currently only being considered for exploration purposes.
<b>Orientation of data in relation to geological structure</b>	<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 gravity survey was oriented east-west (approximately perpendicular to lithological trends).</p> <p>The spacing and location of the data is currently only being considered for exploration purposes.</p>
<b>Sample security</b>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	No drilling results are presented in this announcement.
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	None completed.

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

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 license to operate in the area.</li> </ul>	<p>Great Boulder Resource Ltd (GBR) is comprised of several projects with associated tenements; Yamarna tenements and details;</p> <p>Exploration licences E38/2685, E38/2952, E38/2953, E38/5957, E38/2958, E38/2320 and prospecting licence P38/4178 where,</p> <p>GBR has executed a JV agreement to earn 75% interest through exploration expenditure of \$2,000,000 AUD over five years. Following satisfaction of the minimum expenditure commitment by GBR, EGMC (current tenement owner) will have the right to contribute to expenditure in the project at its 25% interest level or choose to convert to a 2% Net Smelter Royalty (NSR). Should EGMC choose to convert its remaining interest into a 2% NSR, then GBR will have a 100% interest in the project.</p>

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<p><b>Exploration done by other parties</b></p>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<p>Previous explorers included:</p> <ul style="list-style-type: none"> <li>– 1990's. Kilkenny Gold NL completed wide-spaced, shallow, RAB drilling over a limited area. Gold assay only.</li> <li>– 2008. Elektra Mines Ltd (now Gold Road Resources Ltd) completed two shallow RC holes targeting extension to Mt Venn igneous complex. XRF analysis only, no geochemical analysis completed.</li> <li>– 2011. Crusader Resources Ltd completed broad-spaced aircore drilling targeting extensions to Thatcher's Soak uranium mineralisation. XRF analysis only, no geochemical analysis completed.</li> <li>– In late 2015 Gold Road drilled and assayed an RC drill hole on the edge of an EM anomaly identified from an airborne XTEM survey, identifying copper-nickel-cobalt mineralisation.</li> </ul>
<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>Great Boulder's Yamarna Project hosts the southern extension of the Mt Venn igneous complex. This complex is immediately west of the Yamarna greenstone belt.</p> <p>The mineralisation encountered in the Mt Venn drilling suggests that sulphide mineralisation is prominent along an EM conductor trend, and shows a highly sulphur-saturated system within metamorphosed dolerite and gabbro sequence.</p> <p>Visual logging of sulphide mineralogy shows pyrrhotite dominant with chalcopyrite.</p>
<p><b>Drill hole Information</b></p>	<ul style="list-style-type: none"> <li>• <i>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:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> </ul>	<p>No drilling results are presented in this announcement.</p> <p>The location and context of the gravity survey is provided in grid images in the main report body.</p>

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	<ul style="list-style-type: none"> <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>	
<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>	No drilling results are presented in this announcement.
<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>	No drilling results are presented in this announcement.
<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>	Refer to figures in announcement.

<p><b>Balanced reporting</b></p>	<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>	<p>No drilling results are presented in this announcement.</p>
<p><b>Other substantive exploration data</b></p>	<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>	<p>In late 2015 Gold Road drilled and assayed an RC drill hole on the edge of an EM anomaly identified from an airborne XTEM survey, identifying copper-nickel-cobalt mineralisation. Great Boulder subsequently re-assayed the hole and confirmed primary bedrock sulphide mineralisation, with peak assay results of 1.7% Cu, 0.2% Ni, 528ppm Co (over 1m intervals) over two distinct lenses.</p> <p>Great Boulder completed a ground based moving loop EM survey in September 2017 and reported extensive strong EM conductors and co-incident copper-nickel mineralisation from aircore geochemistry (refer to announcement dated 5 October 2017).</p> <p>Great Boulder has also recently undertaken RC exploratory drilling with down hole EM surveys</p>
<p><b>Further work</b></p>	<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>	<p>Potential work across the project may include detailed additional geological mapping and surface sampling, additional geophysical surveys (either surface or downhole), and potentially additional confirmatory or exploratory drilling.</p>

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