



ASX ANNOUNCEMENT

8 June 2018

## HIGH RESOLUTION AERIAL GEOPHYSICAL SURVEY - PRELIMINARY DATA

### ***GBANE PROJECT, GHANA***

**Cassius Mining Limited** [ASX Code: CMD] (the **Company** or **Cassius**) announces receipt of the preliminary data from its airborne magnetics and radiometrics programme.

#### HIGHLIGHTS

- ❖ **Cassius has successfully completed a high resolution Magnetics and Radiometrics survey over its entire Gbane licence. The survey data is currently only in its preliminary form.**
- ❖ **An initial review of selected key data, when overlain on the company's license with drilling Phase 1-3 collar locations and mapped surface mineralisation shows:**
  - **Total Magnetic Intensity (TMI):**
    - major structural fault targets with intense gradient changes
    - a strong NE-SW structure
  - **Total Potassium (K): corridors with a distinct ridge of Potassium, reflecting lithology changes and potential alteration**
- ❖ **Much more detailed final survey data from the contractor (Geotech Ltd) is expected within 14 days. On receipt it will be imported to the company's Leapfrog database to:**
  - **correlate with existing Geological, Geochemical and Drilling data, to more accurately define the geology and structures and update the overall model to a significantly improved level of accuracy,**
  - **define and significantly improve target accuracy for the subsequent phase of advanced exploration,**
  - **locate and qualify additional geochemical exploration targets across the licence for future consideration**

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## SURVEY SUMMARY

Cassius engaged Geotech Ltd to fly a high resolution Helimag and radiometric survey over the entire Gbane licence (including perimeter excess for context). The survey was conducted on 50 metre spaced E-W flight lines over an area of approximately 33 km<sup>2</sup>. A total of 689 line kilometres were flown. The survey includes high resolution magnetometry and multi-channel radiometrics.

The survey will enhance structural and geological understanding of the project. Cassius already has a well developed understanding of controls on gold mineralisation based on the 2017 drilling programme (collar locations in **Figure 1**). Final survey data (when interpreted) will substantially refine the model to a higher degree of target accuracy for subsequent advanced exploration.

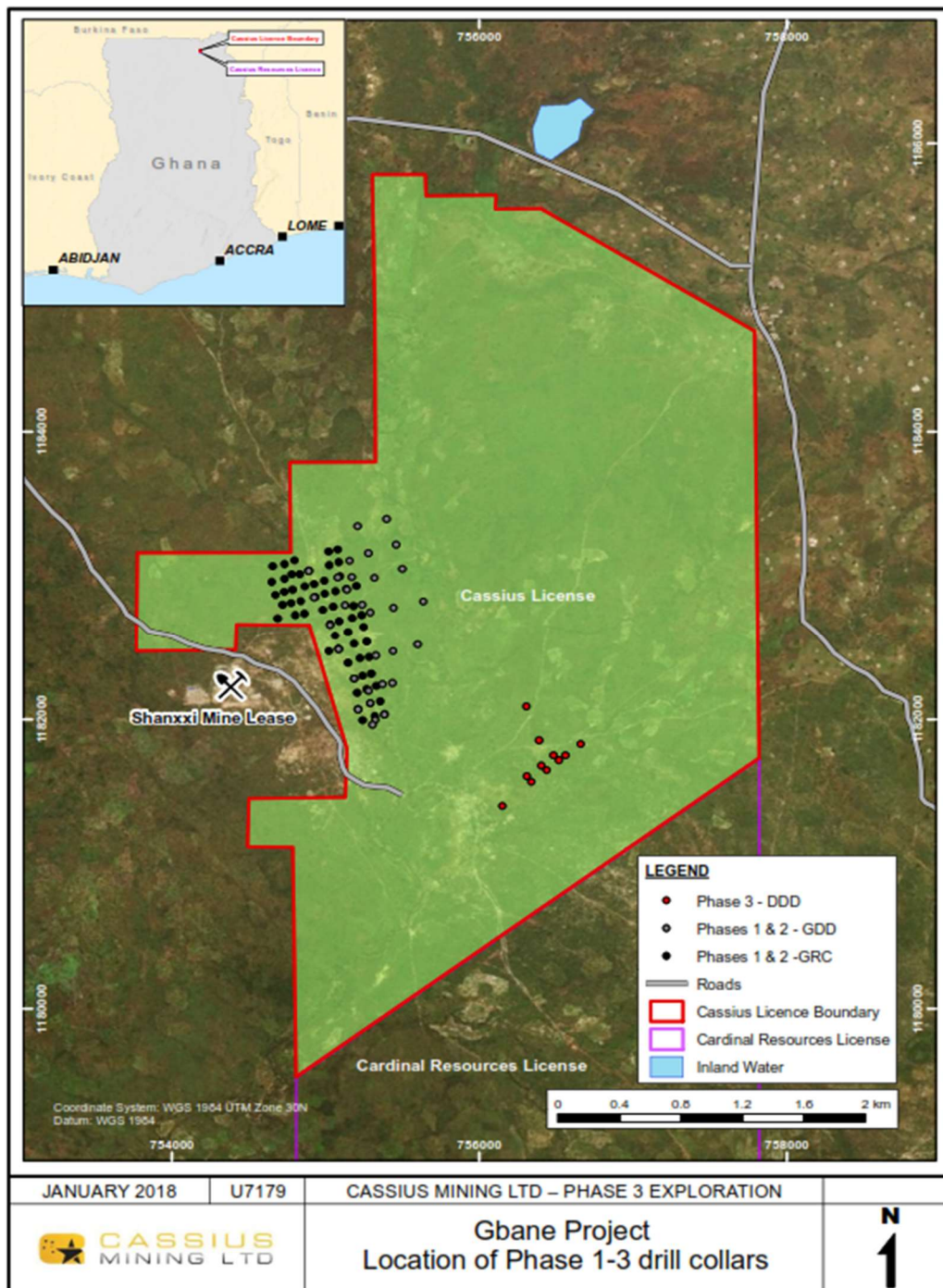


Fig 1: Drilling Phases 1-3 collars within the license area

# TOTAL MAGNETIC INTENSITY (TMI) – preliminary data, shown only within license area

Figure 2 shows intense TMI gradient changes, with a strong NW-SE structure prominent:

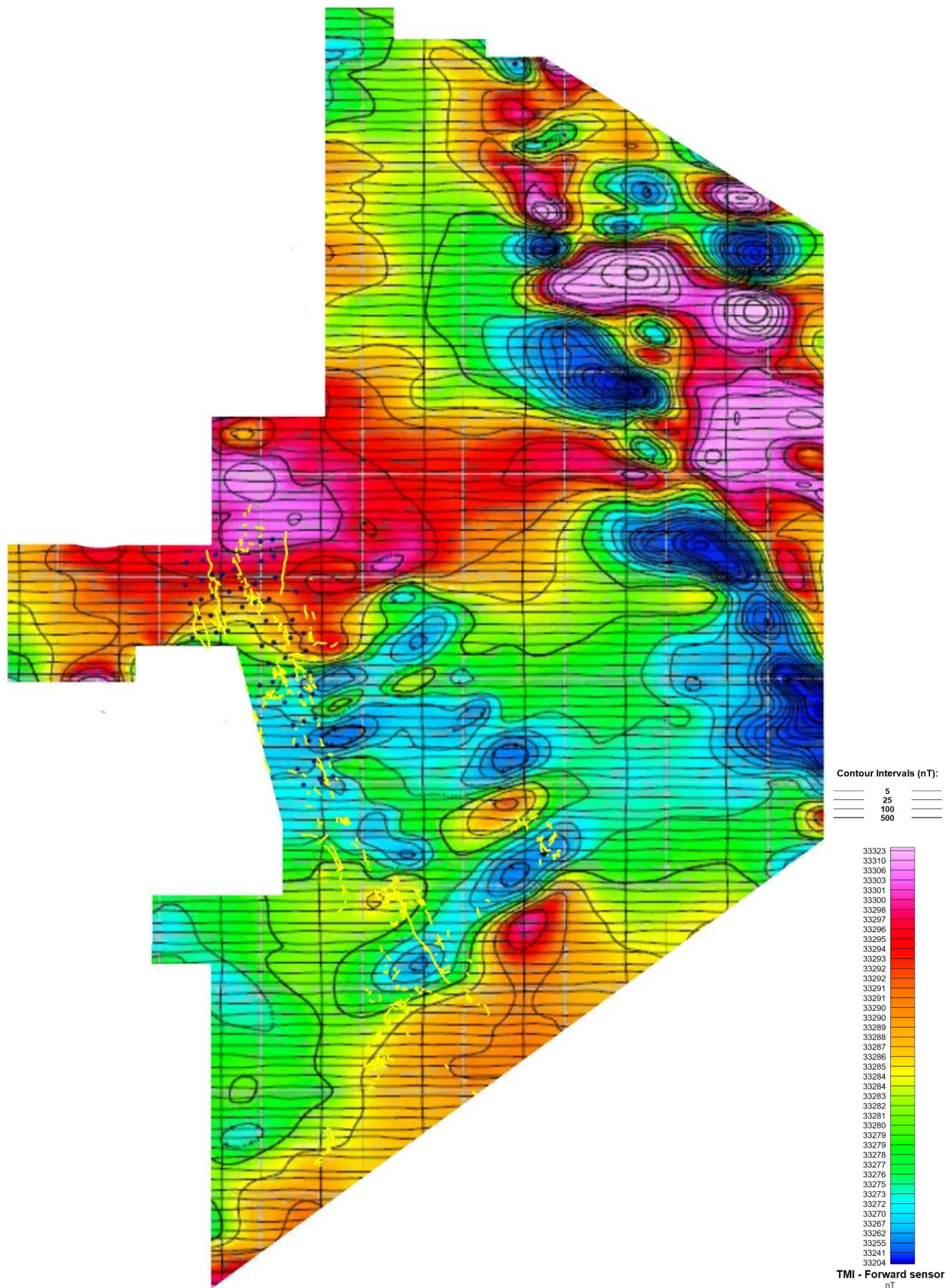


Figure 2: TMI overlain with the License (white line), Drill collars (blue dot) & surface mineralisation (yellow line)

## TOTAL POTASSIUM (K) – preliminary data, shown only within license area

Corridors show up in **Figure 3** with a distinct ridge of Potassium, reflecting lithology changes:

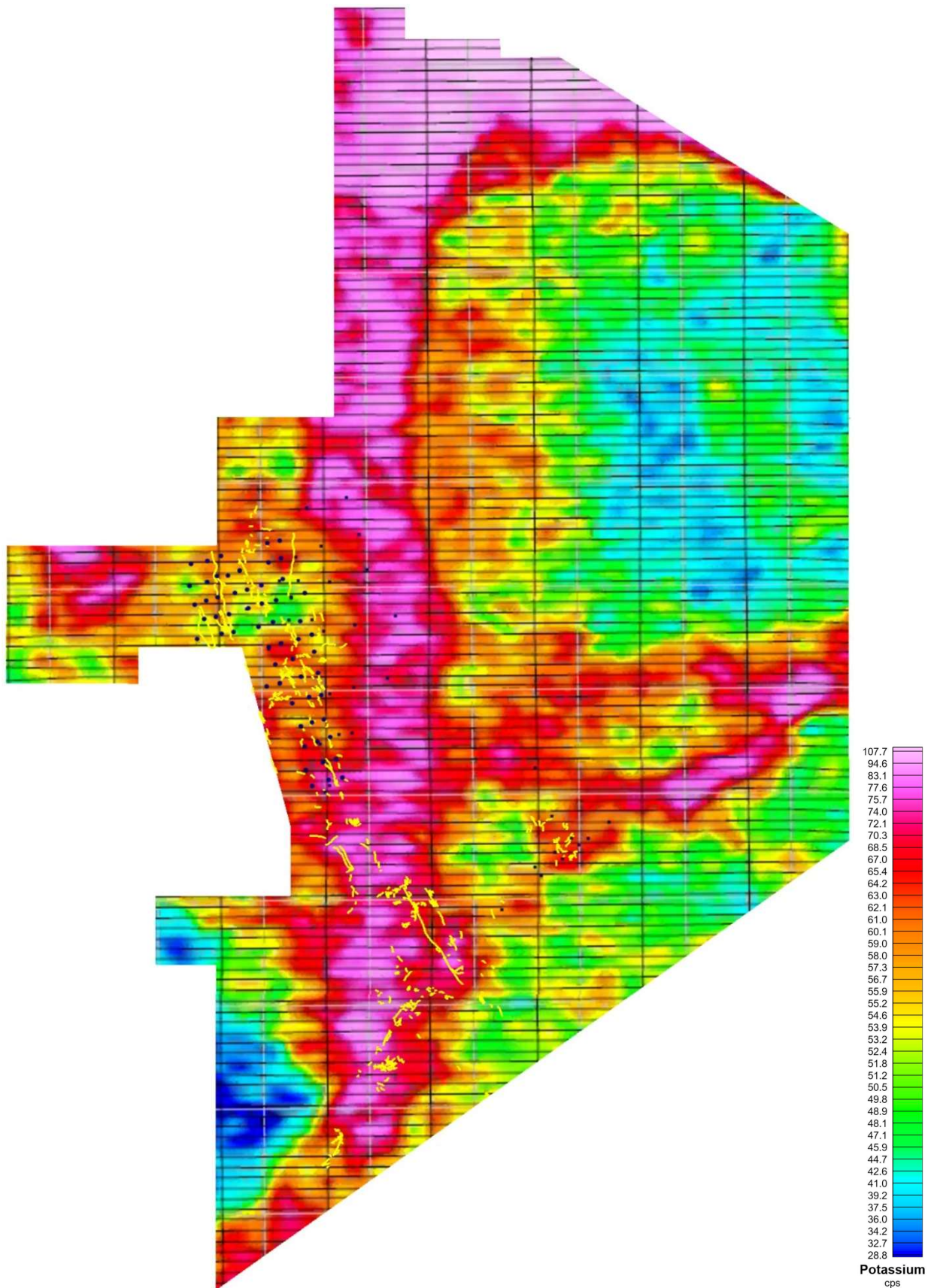


Fig 3: Total Potassium overlain with the License (white line), Drill collars (blue dot) & surface mineralisation (yellow line)

## **GEOPHYSICAL SURVEY – PRELIMINARY DATA OVERVIEW**

1. The survey clearly defines the main structural and geological units in the area.
2. Survey results have been field checked with the company's recent 1:5000 geological mapping, with structure and geology key in targeting the gold within the Birimian stratigraphy.
3. The multichannel radiometric survey (K, U, Th and Total Count) defines major lithological units and possible areas of alteration.
4. Substantially more detail will be available when the final data is received and analysed.

## **FURTHER EXPLORATION – pending review of final Geophysical survey data**

- Correlate recent additional geological mapping with Phases 1-3 drilling data and the high resolution magnetics and radiometrics survey final data across the whole license.
- Define Phase 4 advanced exploration programme based on the above correlation to more accurately target:
  - extensions to zones of higher grade mineralisation already identified
  - shallow lower grade mineralisation in stockworks associated with intrusives already identified
- Identify prospective new targets across the license based on a combined structural, geological and geophysical analysis, in preparation for future geochemical sampling

## **DATA QUALITY**

In order to assure data quality and control (“QA-QC”) Cassius has a programme of QA-QC for all data types collected. This includes but is not restricted to the following Geophysical data:

- All digital data is inspected on a daily basis to ensure that bad data is not present and to identify missing data sections.
- A preliminary flight path map is plotted and checked against survey specifications.
- All digitally acquired survey data is merged into a Geosoft Montaj database. Profiles are edited to ensure completeness of all data traces.
- The recorded magnetic data is corrected for the diurnal, using data recorded at the Magnetic Base Station.

Cassius monitors all data for QA-QC purposes at regular intervals.

## **COMPETENT PERSONS STATEMENT**

Information in this report that relates to the Gbane Project is based on information compiled by Mr Peter Gleeson, a full time employee of SRK Consulting (UK) Ltd, who is a member of the Australian Institute of Geoscientists and a member of the Institute of Mining Metallurgy and Materials UK. Mr Gleeson has sufficient experience which is relevant to the style of mineralisation 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.’ Mr Gleeson consents to the inclusion in this report of the statements based on his information in the form and context in which it appears.

## **DISCLAIMER**

This ASX announcement has been prepared by Cassius. It should not be considered as an offer to subscribe for or purchase any securities in the company or as an inducement to make an offer or invitation with respect to those securities. No agreement to subscribe for securities in the company will be entered into on the basis of this announcement.

This announcement contains summary information about Cassius, its subsidiaries and their activities which is current as at the date of the announcement. The information in this announcement is of a general nature and does not purport to be complete nor does it contain all the information which a prospective investor may require in evaluating a possible investment in Cassius.

By its very nature exploration for minerals is a high risk business and is not suitable for certain investors. Cassius securities are speculative. Potential investors should consult their stockbroker or financial advisor. There are a number of risks, both specific to Cassius and of a general nature which may affect the future operating and financial performance of Cassius and the value of an investment in Cassius including but not limited to economic conditions, stock market fluctuations, gold price movements, regional infrastructure, constraints, timing of approvals from relevant authorities, regulatory risks, operational risks and reliance on key personnel and foreign currency fluctuations.

Certain statements contained within this announcement, including information as to the future financial or operating performance of Cassius, are forward looking statements that:

- May include, among other things, statement regarding targets, estimates and assumptions in respect of mineral reserves and mineral resources, and anticipated grades and recovery rates, production, prices, recovery costs, results capital expenditure, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions;
- Are necessarily based upon a number of estimates and assumptions that, while considered reasonable by Cassius, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; and,
- Involve unknown and known risk and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward looking statements.

Cassius disclaims any intent or obligation to update publicly any forward looking statements, whether as a result of new information, future events or results or otherwise. The words “believe”, “expect”, “anticipate”, “indicate”, “contemplate”, “target”, “plan”, “intends”, “continue”, “budget”, “estimate”, “may”, “will”, “schedule”, and similar expressions identify forward looking statements.

All forward looking statements made in this announcement are qualified by the fore going cautionary statements. Investors are cautioned that forward looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward looking statements due to inherent uncertainty therein.

No verification: Although all reasonable care has been undertaken to ensure that the facts and opinions given in this Announcement are accurate, the information provided in the Announcement has not been independently verified.

## **FURTHER INFORMATION**

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Commentary on exploration, sampling and drilling techniques used at the Gbane Project is given in reference to JORC Code (2012 edition) Table 1 (Sections 1 and 2) in the following pages.

# JORC CODE 2012 EDITION TABLE

## SECTION 1 - SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Industry standard QA/QC procedures. One in every 20 RC samples have blanks and CRMs inserted. Diamond twins used to control RC drilling also have standards and blanks inserted in same ratio. Hand held XRF used on pulverized RC samples for general geochemical determination</li> <li>Three tier riffle splitter used for RC, and half core cut for diamond samples</li> <li>Gold mineralisation associated with altered and quartz – carbonate veins in low angled, altered, shear zones</li> <li>RC drilling was used (5") with samples taken every 1m. This was split to produce approximately 3 kg samples. The sample was crushed to provide a 50 g charge for analysis. 20% diamond drilling used to support RC. Sample half cut, crushed and a 50 g charge submitted for routine fire analysis</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Reverse circulation used (5") to obtain 1 m samples of approximately 3 kg prior to crushing to produce a 50 g charge for fire assay. Diamond core (HQ) for geological control and twinning of RC. Samples crushed to produce a 50 g charge for fire assay. Diamond core is oriented using reflex tool and structurally logged.</li> </ul>
<b>Drill sample recovery</b>	<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>	<ul style="list-style-type: none"> <li>Method of recording RC chips and diamond core was by paperlogs transcribed to digital logs for upload to electronic database</li> <li>RC Sample recovery maximized using cyclone and 3 tier riffle splitter. Recoveries monitored. Diamond core sampled to geological contacts</li> <li>No known relationship exists between recovery and grade. No obvious bias observed between grade and sample size</li> </ul>
<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>RC chips logged for geology, alteration and mineralization. Diamond core same as above with addition of structural logging from oriented core to support future MRE</li> <li>Logging is quantitative. Chips are stored and all core is photographed wet. RC chips not photographed</li> <li>All holes, RC and diamond holes logged in their entirety</li> </ul>



Criteria	JORC Code explanation	Commentary
<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>All mineralized intersections half cut with one half submitted for analysis. Other half stored</li> <li>The RC sub sampling is with a 3 tier riffle splitter</li> <li>Sample prep completed at SGS Tarkwa laboratories under controlled conditions using a jaw crusher to provide a 2 mm fraction. Reject sample is retained and split is pulverized to nominal 85% 75 µm fraction. A 200g sub sample is taken for analysis by Fire assay with AAS finish</li> <li>QA/QC procedures adopted for all sub samples using CRM and blanks</li> <li>Duplicates inserted every 20<sup>th</sup> sample. With reject material from splitter (10 kg) being retained at site for potential re-assay</li> <li>Sample size is appropriate to give representative samples of gold mineralisation</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>Pulverised sample is weighed prior to mixing with flux and fused to produce a lead button (Dore bead). Bead is digested and resulting solution submitted for analysis via AAS. Machine calibrated with each job. Industry standard fire assay technique</li> <li>Hand held XRF instrument used for determining associated pathfinder elements but not for assaying of gold.</li> <li>A range of CRMs are used that reflect grades of mineralization. Blanks are also submitted at every 20<sup>th</sup> sample. Duplicates take at approx. every 20<sup>th</sup> sample. External inter lab test also commenced using Intertek Tarkwa. Some 50 samples selected (approx 1 in 10) from mineralized zones</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>RC intersections verified by diamond core and independent consultants (SRK)</li> <li>Approx 20% of RC is twinned by diamond core</li> <li>SOPS set up for all stages of sampling and logging. Data captured and entered into a secure Access database off site and maintained by SRK.</li> <li>No adjustments to data</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> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>All holes collars picked up by Emlid GNSS DGPS with an accuracy of less than 0.5 m. Holes surveyed down hole every 30 meters using Reflex gyroscopic and magnetic instrument. Extension diamond collars calculated from EOH positions of surveyed RC holes</li> <li>UTM WGS 83 Zone 30N</li> <li>Quality and accuracy of topographic control is &lt; 1 m using Emlid GNSS GPS system.</li> </ul>

Criteria	JORC Code explanation	Commentary
<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 procedure(s) and classifications applied.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Data spacing is nominally 200 x 100 m for drilling</li> <li>• Data spacing is sufficient for understanding broader controls on geological continuity but not for grade continuity. No JORC compliant Mineral Resource estimated at this time.</li> <li>• No sample compositing has been applied</li> </ul>
<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>	<ul style="list-style-type: none"> <li>• Orientation of sampling is correct and orthogonal to the known dip and strike of mineralization and deposit type</li> <li>• As far as is known no orientation bias is present</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Samples are retained at Cassius secure compound in Bolgatanga prior to dispatch to SGS Tarkwa or Intertek Tarkwa. The Compound has 24 hour security.</li> </ul>
<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>	<ul style="list-style-type: none"> <li>• Cassius / SRK undertake a regular QA/ QC review of all assay data. To date no problems have been encountered with quality</li> </ul>

## 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 licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The Gbane licence is located in the Upper East Region of Ghana.</li> <li>Cassius own all titles to a large scale mining licence that covers the project area. Title granted 28 December 2016.</li> </ul>
<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>Earlier systematic exploration has been undertaken by Asia Intercept Mining providing exploration services to Cassius. This includes a mapping and soils sampling program</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Paleo Proterozoic Orogenic gold hosted in shallow dipping altered and veined shear zones. Gold associated with quartz – carbonate pyrite veins.</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>All drill data and results are tabulated in this report</li> <li>There are no exclusions of information</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>	<ul style="list-style-type: none"> <li>Only length weighting of some accumulated grade intervals has been undertaken to simplify reporting. No grade capping has been applied to the results</li> <li>No short lengths used. All samples are standard 1m lengths</li> <li>No metal equivalents used</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Relationship between mineralisation on 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>• The general relationship has been established between mineralization width and intercept lengths. Due to angle of drilling to main structures it is approximately ratio of 0.8 :1</li> <li>• The geometry of most of the mineralization to hole angle is known and all holes intersect the mineralized zones at 90 to 70°. Approximately orthogonal.</li> <li>• Only down hole lengths are reported but approximate to 0.8 of the true width.</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>• Map and sections of hole collars are provided in the report to visually describe the results</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>• A summary of results is provided in this announcement for both high grade and low grade material, and statement as to holes completed.</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>• No other significant data is reported due to the early stage of exploration. Earlier soil sample results have been included in previous releases</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>• Correlate recent additional geological mapping with Phases 1-3 drilling data and the high resolution magnetics and radiometrics survey data across the whole license.</li> <li>• Define a Phase 4 advanced exploration programme based on the above correlation to more accurately target: <ul style="list-style-type: none"> <li>• Extensions to zones of higher grade mineralisation already identified</li> <li>• shallow lower grade mineralisation in stockworks associated with intrusives already identified from earlier mapping</li> </ul> </li> <li>• Identify prospective new targets across the license based on a combined structural, geological and geophysical analysis, in preparation for geochemical sampling</li> </ul>
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