SOVEREIGN GOLD
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**ASX Release**
12 December 2013

# Hobbs Pipe – Mineral Resource Update

Sovereign Gold Company Limited (**Sovereign Gold**) (ASX: SOC) commissioned AMC Consultants Pty Ltd (**AMC**) to carry out a block model estimation and Mineral Resource estimate report for the Mount Adrah Hobbs Pipe deposit.

The updated Mineral Resource estimate is **923,400 ounces gold, from 26.3 Mt at 1.1 g/t gold at a minimum cut-off grade of 0.4 g/t gold**.

| Classification | Material | COG Au (g/t) | Tonnage (kt) | Au (g/t) | Au (oz) |
|---|---|---|---|---|---|
| Indicated Above 200m RL | Oxide | 0.4 | 250 | 1.1 | 9,000 |
| Indicated Above 200m RL | Primary | 0.5 | 3,187 | 1.2 | 121,400 |
| Indicated Below 200m RL | Primary | 0.5 | 6,688 | 1.3 | 278,500 |
| ***Total Indicated*** | | | ***10,125*** | ***1.3*** | ***408,900*** |
| Inferred Above 200m RL | Oxide | 0.5 | 270 | 0.7 | 6,100 |
| Inferred Above 200m RL | Primary | 0.9 | 2,392 | 0.9 | 67,400 |
| Inferred Below 200m RL | Primary | 0.9 | 13,448 | 1.0 | 441,000 |
| ***Total Inferred*** | | | ***16,110*** | ***1.0*** | ***514,500*** |
| **Total** | | | **26,235** | **1.1** | **923,400** |

Notes:
1 The Mineral Resource is reported in accordance with the JORC Code, 2012.
2 All Mineral Resources have been rounded to the nearest 1,000 tonnes.
3 Ounces have been rounded to the nearest 100 oz.
4 COG is defined as cut-off grade.
5 Top cut / top cap of 5 g/t gold has been used to reduce 8 composited samples to 5 g/t gold.
6 200 m RL is approximately 225 m below surface, COG increased for depth.

For the purpose of comparison with the last reported Mineral Resource estimate (ASX: 22 August 2013) the following is provided from the current block model estimation at a 0.75 g/t COG:

| Classification | Material | COG Au (g/t) | Tonnage (kt) | Au (g/t) | Au (oz) |
|---|---|---|---|---|---|
| *Total Indicated* | | 0.75 | *10,125* | *1.3* | *408,900* |
| *Total Inferred* | | 0.75 | *12,630* | *1.1* | *444,900* |
| **Total** | | | **22,755** | **1.2** | **853,800** |

Notes:
1 The Mineral Resource is reported in accordance with the JORC Code, 2012.
2 All Mineral Resources have been rounded to the nearest 1,000 tonnes.
3 Ounces have been rounded to the nearest 100 oz.
4 COG is defined as cut-off grade.
5 Top cut / top cap of 5 g/t gold has been used to reduce 5 composited samples to 5 g/t gold.
6 200 m RL is approximately 225 m below surface, COG increased for depth.

The Mineral Resource has been reported with a lower cut-off grade from surface to a depth of 225 m below surface. The different cut-off grades take into account possible different mining methods. Further mining concept study work will better define possible mining methods.

It is noted that the average grade of the deeper portion of the system may be amenable to bulk underground mining at 1 to 1.3 g/t gold. The pipe is currently open at depth and further strategic drilling may increase the Mineral Resource.

Dr Kris Butera, CEO of Gossan Hill Gold Limited, said "The increase in the Mineral Resource from holes GHD005 to GHD009 was achieved by drilling 1,870m within the pipe for an all inclusive cost of less than $600,000. This maintains our cost-effective approach of adding value to the project."

**Geology**

The Mount Adrah Gold Project is a Mesozonal to Epizonal Intrusion-Related Gold System (IRGS) in a dilational zone, located along the Gilmore Suture on the edge of a buried pluton, see Figure 1. The deposit is a structurally controlled micro-breccia within a diorite body that intrudes to the current topographic surface. The mineralisation in Hobbs Pipe is predominantly monzodiorite-hosted disseminated gold in arsenopyrite and pyrite, and also native gold in stockwork quartz veins. A cross section is shown in Figure 3.

**Mount Adrah Concept Study**

A conceptual mining study for the Mount Adrah Gold Project is to be commenced to provide an indication of the viability and economic potential of the Mount Adrah Gold Project. This work will be constrained to the currently available data, and assist Gossan Hill Gold Limited in prioritising and planning for future exploration and development of the Mt Adrah Gold Project.

The study will investigate the optimal depth and configuration of a conceptual open-pit based on the existing Hobbs Pipe Mineral Resource. The depth of any potential open-pit will include consideration of potential underground mining.

The output of the conceptual mining study will be used as a basis from which to plan resource infill drilling and exploration step out drilling on Hobbs Pipe 1 system, while also continuing to assess the potential for the Hobbs Middle East and Hobbs SE prospects, to add to the overall mine plan.

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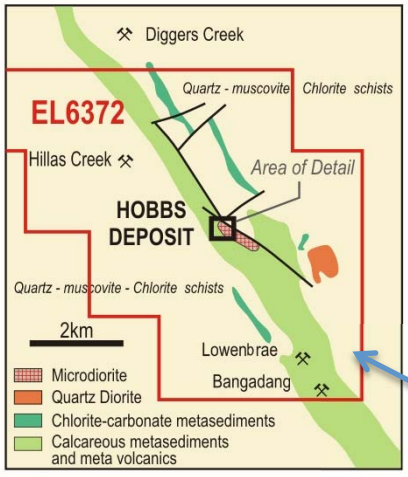


**Figure 1 – Location map and geological setting, EL 6372**

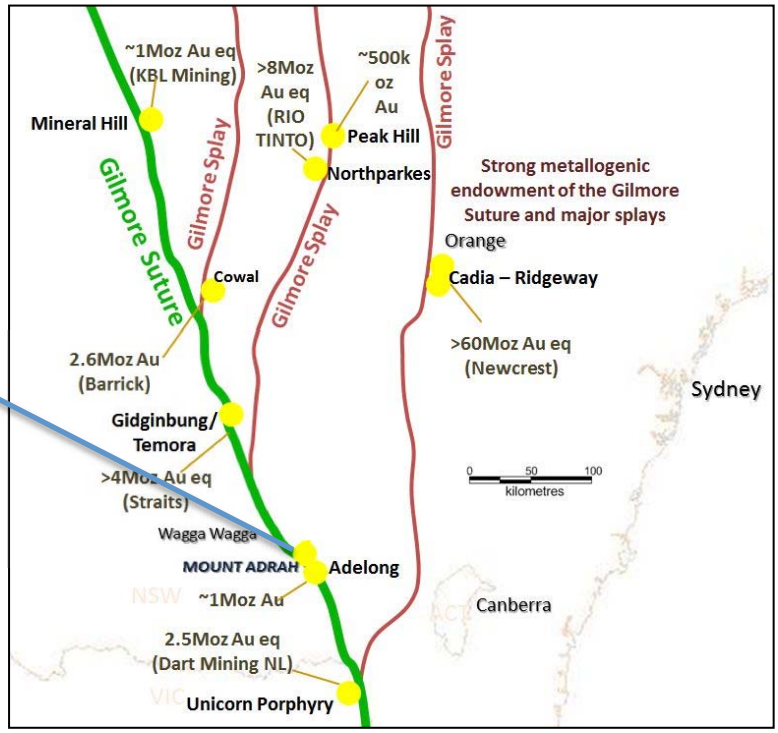


**Figure 2 – Location of Mount Adrah relative to several world- class gold deposits situated on the Gilmour Suture and associated splays.**

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## Qualifying Statements

### *Exploration Information*

The information in this report that relates to Exploration Information is based on information compiled by Michael Leu a Member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists together with Dr Andrew White, a Fellow of the Australian Institute of Geoscientists and Jacob Rebek and Dr Kris Butera, Members of the Australian Institute of Geoscientists.

Mr Leu and Jacob Rebek are qualified geologists and are directors of Sovereign Gold Company Limited; Dr White is a director of Gossan Hill Gold Limited; and Dr Kris Butera is CEO and director Gossan Hill Gold Limited.

Mr Leu, Jacob Rebek, Dr White, and Dr Butera have sufficient experience, which is relevant to the style of mineralization and type of deposit 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 Resources.

Mr Leu, Jacob Rebek, Dr White and Dr Butera consent to the inclusion in this report of the Exploration Information in the form and context in which it appears.

### *Mineral Resource Estimation*

The information in this report that relates to the Mineral Resource estimation is based on information compiled by Ms T Burrows, a Competent Person who is a Member and Registered Professional Geologist of The Australasian Institute of Geoscientists. Ms Burrows is employed by AMC Consultants Pty Ltd. Ms Burrows has been engaged as an external independent consultant by Gossan Hill Gold Limited. Ms Burrows has sufficient experience that 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'. Ms T Burrows consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

### About Sovereign Gold

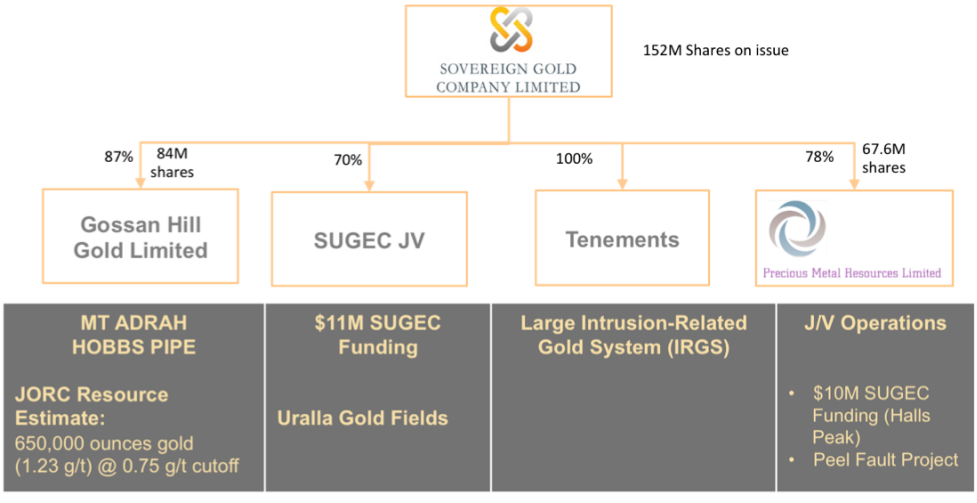
**Sovereign Gold** holds 11 Exploration Licences over 3,240km$^2$ near Armidale in NSW including the historic Rocky River-Uralla Goldfields. Sovereign Gold's aggressive exploration program in several of these licence areas for 2013 is fully funded via a joint venture (at the tenement level) with Jiangsu Geology & Engineering Co Ltd (**SUGEC**), a major Chinese State-owned geology enterprise.

SUGEC funded drilling, near Martins Shaft in the Uralla area, has recently confirmed the presence of another potentially large IRGS discovery.

Sovereign Gold holds 78% of Precious Metal Resources Limited (**PMR**) (ASX: PMR), an ASX listed exploration company. PMR holds 20 ELs and ELAs over prospective base and precious metal ground, many in close proximity to Sovereign.

Sovereign Gold holds 87% of **Gossan Hill Gold Limited**, an unlisted exploration company with numerous IRGS gold prospects in New South Wales.

Exploration indicates the potential for a significant gold resource presence at the Gossan Hill properties and in particular, the recently discovered Hobbs IRGS deposit which should enable Sovereign Gold to rapidly deliver resource growth and leverage off its experience exploring for IRGS in New South Wales.



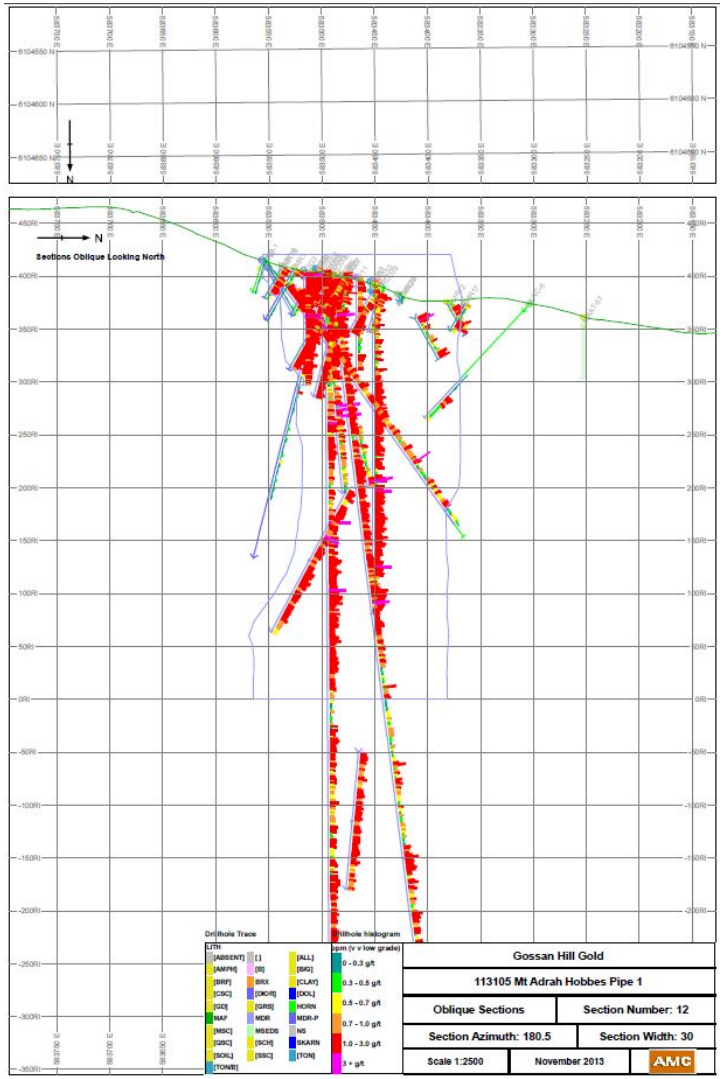



Figure 3 – Oblique section looking north, Section No. 12

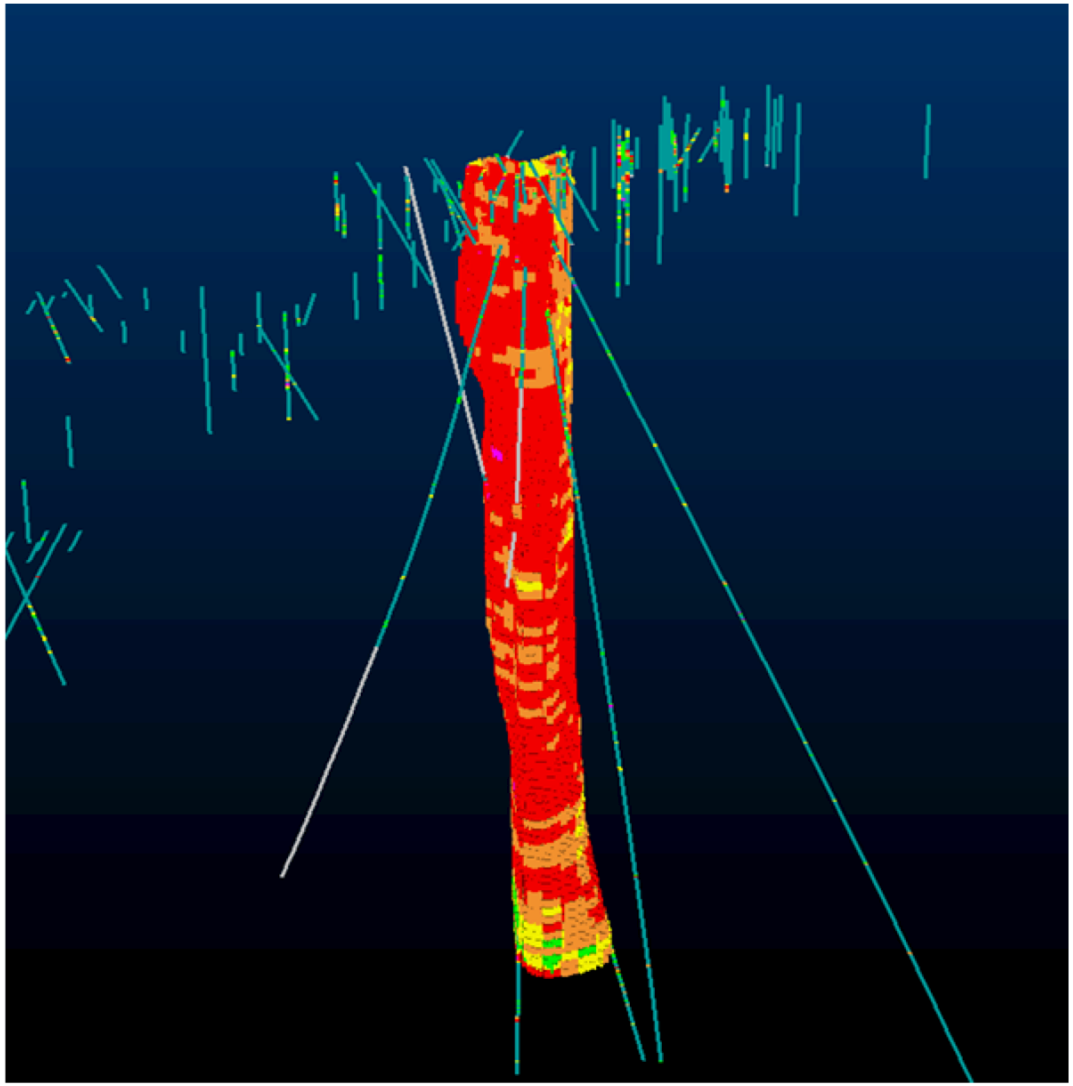


Figure 4 – 3D View of the Hobbs Pipe 1 block model and drill holes looking toward the south-west

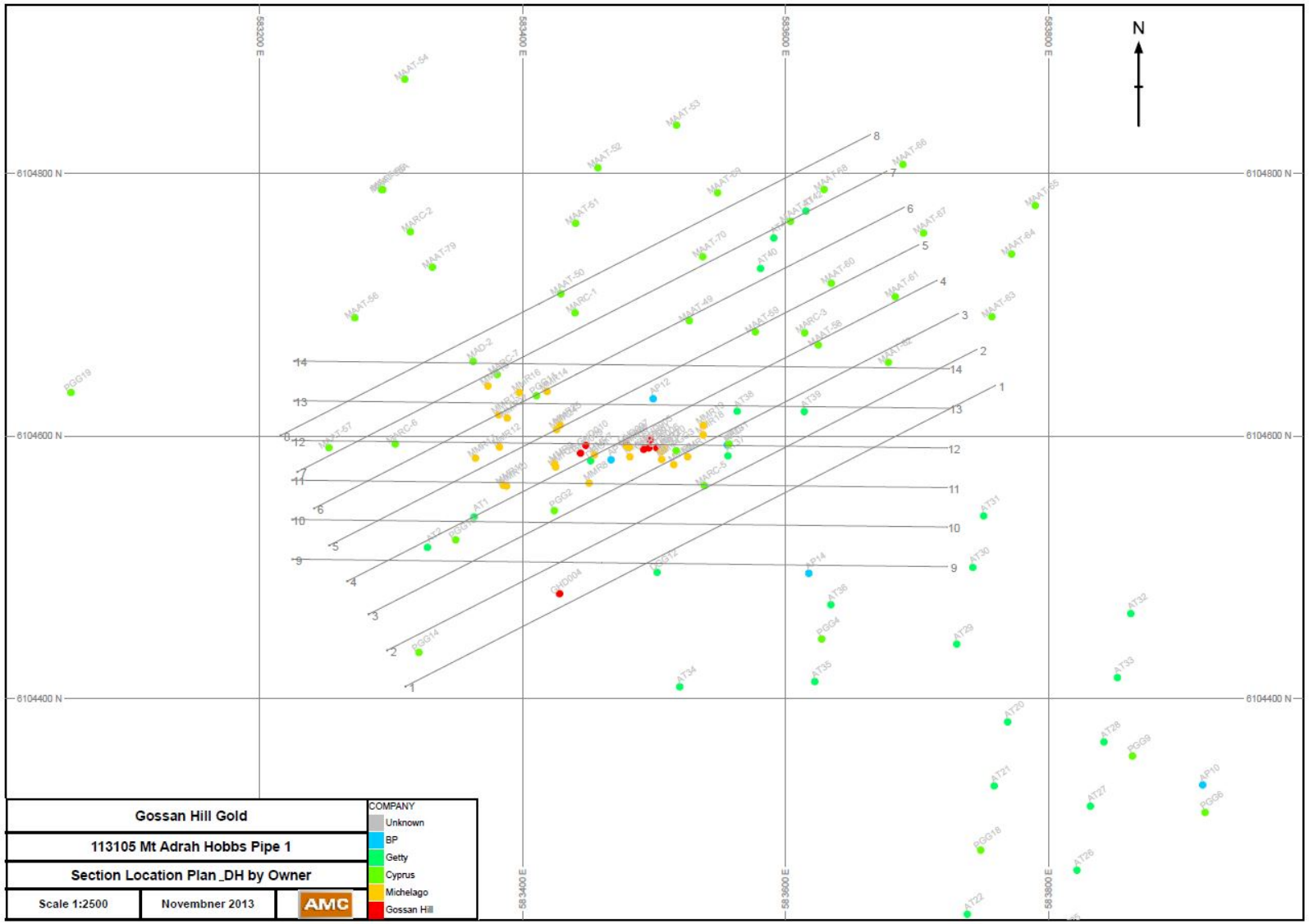



**Figure 5 – Section location plan**

# Table 1 for reporting in accordance with the JORC Code

## Section 1 – Sampling Techniques and Data

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Sampling techniques* | • *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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *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.* | • Diamond core HQ3 with ½ core samples.<br>• Diamond core HQ3 with ¼ core samples for some Screen Fire Assays.<br>• Consistent cut distance 1 cm to the right of the orientation or mark up line to reduce potential of bias, and to leave the orientation line in the tray<br>• Fire Assay and Screen Fire Assay Gold. Gold is predominantly held in sulphides within disseminated sericite - sulphide alteration. Gold is occasionally visible in quartz veins.<br>• ½ core HQ3 was sent to ALS laboratories on a 2m sample length basis and was pulverised to produce a 30g charge for fire assay (Au_AA25), and 4 acid digestion for 48 element ICP-AES and ICP-MS analysis (ME-MS61)<br>• Screen Fire Assay on visible gold intercepts, on either full 2m sample lengths or on individual quartz veins that are expected to carry high grade gold.<br>• Historic reverse circulation (RC) air track (percussion) drilling was undertaken. There are no records of sampling methods in the available reports. Assay was by fire assay and Aqua Regia. |
| *Drilling techniques* | • *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).* | • Diamond core, un-oriented HQ3 (Vertical hole)<br>• Diamond core, oriented HQ3<br>• Diamond core, un-oriented PQ3 for hole collars<br>• Historic drilling includes RC, diamond and air track (RAB equivalent). |
| *Drill sample recov-* | • *Method of recording and assessing core and chip sample recover-* | • Core is drilled by HQ triple tube (HQ3) to maximise recovery. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *ery* | *ies and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | • Recovery is approximately 99% based on 2,290 measured intervals.<br>• There is no relationship between recovery and grade in diamond drill holes, correlation coefficient is -0.03.<br>• There is no record of sample recovery for the historic drillholes. |
| *Logging* | • *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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | • Core has been logged for lithology and structural data, including recovery and RQD measurements.<br>• Core trays photographed and samples collected for specific gravity measurement.<br>• All core is logged, all core logged to the same standard.<br>• Historic holes have been logged for lithology and weathering / oxidation. |
| *Sub-sampling techniques and sample preparation* | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • ½ Core cut with a core saw.<br>• ¼ Core cut with a core saw for submission for metallurgical assessment.<br>• Sample preparation by accredited laboratory. High quality and appropriate preparation technique for assay methods in use.<br>• Consistent sampling of core at 2m intervals, this is appropriate given known grade homogeneity and observed mineralisation.<br>• At this time no field duplicates have been submitted, half or quarter core in storage if required for future analysis.<br>• Sample sizes are appropriate to the grain size of the material being sampled.<br>• Details of the historic RC sampling programme are not available. |
| *Quality of assay data and laboratory tests* | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* | • For diamond core fire assay for gold and ICP-AES and ICP-MS for multi-element analysis. Techniques considered total for the type of mineralization sampled.<br>• For diamond core Screen Fire Assay for visible gold intercepts or |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • *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.*<br>• *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.* | where coarse gold is predicted to occur.<br>• At this time no blanks, standards, field, course reject or pulp duplicates have been submitted to the laboratory for testing. A QA/QC programme is planned for submission of the above at a rate of 1:20 for all new holes. A blind repeat programme will be established for existing assayed intervals.<br>• Historic holes were assayed by a combination of Aqua Regia, Fire Assay and unspecified AAS.<br>• There is very little QA/QC available for the historic samples. |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • No twinned holes have been drilled. Historic RC drill data supports the grade ranges from new diamond drill holes.<br>• Review of the grade distribution between the diamond and the historic RC holes indicates that it is possible the RC holes are bias low compared to the diamond drill holes. This is in the process of being reviewed.<br>• There are no samples of the historic drill holes of sufficient size for re assay submission. Some sample remnants are in some chip trays at the Londonderry Core library.<br>• At this time there are no processes or procedures guiding data collection, collation, verification and storage. Implementation and development of procedures and documentation are currently being planned.<br>• There are no adjustments to the assay data. |
| *Location of data points* | • *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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • Current drilling sited using hand held Garmin GPSMAP® 62sc.<br>• Digital survey tool used for down hole surveying<br>• DGPS Collar location and RL data will be undertaken going forward.<br>• All recently drilled holes will where possible be re surveyed using DGPS at the completion of the next drilling programme.<br>• All current data is in MGA94 (Zone 55). |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • Historic data has been converted to in MGA94 (Zone 55).<br>• Historic data collar co-ordinates have been confirmed as being /in the correct position/ within 1m/ in MGA94 (Zone 55) by or is this yet to be done.<br>• Digital topographic data is available from a detailed DTM survey undertaken in 1997. The accuracy of the data at a project scale is yet to be assessed but is assumed to be reasonable. |
| *Data spacing and distribution* | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • There is sufficient data and it is sufficiently closely spaced to establish a reasonable geological interpretation in the area of interest. The data available also provided continuity of mineralization and a local scale.<br>• Current drill spacing of 200m x 200m down to 20m x 20m allows for the reporting of a Mineral Resource.<br>• Samples have not been composited but 2m half core sample lengths have been submitted for assay on the basis of the gold mineralization being homogenous. |
| *Orientation of data in relation to geological structure* | • *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*<br>• *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.* | • Current drilling has employed core orientation device for all holes with the exception of GHD001 which was a vertical hole.<br>• Significant orientated structural data on geological and structure features have been collected.<br>• The geological area of interest is vertical at approximately 180m x 160m in diameter. Diamond holes have been from numerous directions, vertical holes have also been drilled.<br>• Given the style and nature of the mineralization observed, drill angle relative to structure or vein orientation is not considered relevant at this stage with respect to sample bias. |
| *Sample security*<br>*Audits or reviews* | • *The measures taken to ensure sample security.*<br>• *The results of any audits or reviews of sampling techniques and data.* | • Current core samples are securely stored at a private facility.<br>• As part of the block model estimation and Mineral Resource report a high level review of data collection, collation, storage and procedures has been undertaken. The data has been found to be in good condition. The lack of documented procedures and QA/QC is has been commented upon and plans are being |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | generated to rectify outstanding issues going forward. Where practicable previous drilling and historic data will be validated as well. |

## *Section 2 – Reporting of Exploration Results*

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral tenement and land tenure status* | • *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.*<br>• *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.* | • EL6372 held 100% by Tasman Goldfields NSW Pty Ltd, a wholly owned subsidiary of Gossan Hill Gold Limited , itself a majority owned subsidiary of Sovereign Gold Company Ltd (ASX: SOC).<br>• Tenure is current and in good standing. There are no extraordinary impediments to obtaining a licence to operate in the area. |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | • Historic work undertaken by Getty Oil, Cyprus Australis, Michelago and Golden Cross Resources have contributed to the current project development. Soils, airborne magnetics, rotary air blast (RAB), Airtrack, RC, diamond drilling, and some resource estimation work has been completed previously. Work was undertaken to a high standard, there was a lack of conceptualization and testing of geological models for deeper targets and targets with a better understanding of modern day economic geology deposit models. |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | • Mesozonal to Epizonal Intrusion-Related Gold System (IRGS) located along the Gilmore Suture on the edge of a buried pluton. |
| *Drill hole Information* | • *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:*<br>o *easting and northing of the drill hole collar* | • No exploration results are being reported at this time. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>o *dip and azimuth of the hole*<br>o *down hole length and interception depth*<br>o *hole length.*<br>• *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.* | |
| *Data aggregation methods* | • *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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • No exploration results are being reported at this time. |
| *Relationship between mineralisation widths and intercept lengths* | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • Approximate true width from 110 m to 180 m, approximate minimum depth 900 m. |
| *Diagrams* | • *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.* | • See attached report. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Balanced reporting* | • *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.* | • No exploration results are being reported at this time. |
| *Other substantive exploration data* | • *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.* | • No exploration results are being reported at this time. |
| *Further work* | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • Test for lateral and depth extensions, resource defintion and for further mineralised monzodioritic pipes via geochemical orientation, geophysical survey and further drilling.<br>• Resource definition drilling proposed aim would be to drillholes capable of providing adequate geotechnical, and metallurgical samples to aid in project development.<br>• Further drill testing of Hobbs-proximal IP and geological targets. |

## *Section 3 – Estimation and Reporting of Mineral Resources*

*(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)*

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Database integrity* | • *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*<br>• *Data validation procedures used.* | • Drill data was loaded into CAE Datamine Studio and Visor and reviewed for<br>— The same number of records contained in the Excel file was in the Datamine files, after the data was imported.<br>— All collar co-ordinates were within the permit area.<br>— Duplicate drillholes. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | — Overlapping FROM and TO intervals values in the geology, oxidation state, assay, density, core size, and recovery tables.<br>— Downhole survey dip and bearing angles appear reasonable.<br>— Duplicate records.<br>— Any anomalous assay, density, of sample recovery values.<br>• To review alpha data field's lists of unique values were made for:<br>- Lithology.<br>- Oxidation state.<br>- Core size.<br>- Drillhole type.<br>• A review vertical collar positions against topography identified some issues with the GPS surveyed heights (Z position) of the drillholes. This issue will be dealt with by using a DGPS or surveyor where required at the end of the next drill programme. At this time the collars where married to the topographic surface provided. Due to the nature and style of the mineralization the tonnage and grade estimation will not be effected but the vertical movement of the drillholes. |
| *Site visits* | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | • The competent person has not visited the site. All relevant data was available digitally, no data collection activities have been undertaken since the competent person joined the project. The competent person has met with the exploration manager on numerous occasions to discuss geology, data collection and collation. Site visits are proposed as part of project development. |
| *Geological interpre-* | • *Confidence in (or conversely, the uncertainty of ) the geological* | • All data available has been used to generate a geological |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *tation* | *interpretation of the mineral deposit.*<br>• *Nature of the data used and of any assumptions made.*<br>• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*<br>• *The use of geology in guiding and controlling Mineral Resource estimation.*<br>• *The factors affecting continuity both of grade and geology.* | integration.<br>• It is understood the gold mineralization is confined to a quartz-monzonite intrusion.<br>• Gold mineralisation occurs is associated with disseminated pyrite and arsenopyrite within pyrite-sericite-albite alteration of the host.<br>• The mineralised stock is roughly circular in outcrop, 160m in diameter with near-vertical walls and reasonably sharp lithological contacts. At depth the stock becomes more elliptical and at a depth of 500 m below surface is interpreted to be approximately 180 m by 160 m in diameter.<br>• The interpretation has been undertaken in plan on 20m spaced sections and where the digital strings have been snapped to the drillholes.<br>• The sectional plan interpretation was wireframed to make a three-dimensional (3D) solid.<br>• Care was taken to not expand the intrusion beyond the know data and thus increase without support the total tonnage.<br>• There is no other geological interpretation. Additional detail or domaining of grade distribution within the intrusion may be able to be undertaken with the addition of more drill data.<br>• Data coverage though sparse at depth is reasonable and it is anticipated that additional drilling will support the current interpretation. |
| *Dimensions* | • *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.* | • The mineralised stock is roughly circular in outcrop, 160m in diameter. At depth the stock becomes more elliptical and at a depth of 500 m below surface is interpreted to be approximately 180 m by 160 m in diameter. Current depth of mineralization is approximately 900 m. |
| *Estimation and* | • *The nature and appropriateness of the estimation technique(s)* | • Gold was the only element estimated. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *modelling techniques* | *applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*<br>• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*<br>• *The assumptions made regarding recovery of by-products.*<br>• *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*<br>• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*<br>• *Any assumptions behind modelling of selective mining units.*<br>• *Any assumptions about correlation between variables.*<br>• *Description of how the geological interpretation was used to control the resource estimates.*<br>• *Discussion of basis for using or not using grade cutting or capping.*<br>• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.* | • Samples were composited to 1m the mean sampling length (historic samples average 1m assay intervals)<br>• Top-cap was applied to the composted samples, at 5 g/t, the 99.9$^{th}$ percentile, this removed 5 intervals from3,498 composite samples.<br>• The 3D intrusion wireframe solid has been filled with cells.<br>• An oxidation model has been made between an oxidation surface generated from drillhole logging and the topographic surface.<br>• The block model is cut to the topographic surface.<br>• Drill spacing is from 20m x 20m to 200m x 200m.<br>• The block model parent cells are 20m x 20m x 10m in X x Y x Z.<br>• Sub celling to 4m x 4m x 2m.<br>• Semi –variograms where generated which showed anisotropy, with the variance not reaching the sill in the X and Y directions. In Z the variance crosses the sill indicating possible layering in grade. Low grade bands are visible in the drillholes in three locations within the intrusion, these low grade bands are not visible in core and will be further investigated.<br>• A two-structure spherical model was fitted to the variogram.<br>• The search first search pass is 80m x 100m by 50m to encompass the drilling, this is the same ratio as the variogram ranges, with a rotation of -25,0,-85 in Z, Y and X directions.<br>• The second search pass is double and third search pass triple the original search.<br>• An octant search was used where 4 octants were required to be filled.<br>• The minimum samples 4 and maximum 18 with a minimum |

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| | | of 3 drillholes needing to be sourced for grade.<br>• Ordinary kriging was used with parent cell estimation.<br>• Discretisation of 4 x4 x 2 points.<br>• An inverse distance squared estimation was also undertaken, the global grades are within less then +/-3 of the ordinary kriged estimation.<br>• The volume of the intrusion solid was calculated and the volume of the block model was calculated, there is a difference of 1%.<br>• Swath plots (moving average plots) have been calculated in the vertical direction. These show reasonable correlation between the block model grades and the composite samples. |
| *Moisture* | • *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.* | • The rock is tight no allowance has been made for moisture. |
| *Cut-off parameters* | • *The basis of the adopted cut-off grade(s) or quality parameters applied.* | • A hard geological boundary has been used for the grade estimation. |
| *Mining factors or assumptions* | • *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.* | • It has been assumed that the deposit is able to be mined by open pit methods to a point at which a strip ratio exceeds 1:8. Without any supporting mine planning or geotechnical study it has been estimated that this will place the floor of an open pit at around 500m below surface. At this point it is assumed that any further mining will be done from underground using a bulk mining method at this time there are no supporting studies for mining potential. The competent person has reviewed other deposits of similar size formed the opinion that a bulk underground mining method may be applicable.<br>• A conceptual mining study is planned for the short to medium term. |
| *Metallurgical fac-* | • *The basis for assumptions or predictions regarding metallurgical* | • There is some historic and more recent test work that |

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| *tors or assumptions* | *amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.* | indicates that processing will be via a flotation and a BIOX route. Further mineralogical and processing test work is required to take place. |
| *Environmen-tal factors or assumptions* | • *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.* | • Mt Adrah is at the south-eastern end of a mining belt with historic mining nearby.<br>• To the competent persons knowledge at this time there is no reason to anticipate any more than the normal difficulties associated with the development of a new project. |
| *Bulk density* | • *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*<br>• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | • 97 bulk density measurements, using Archimedes method, have been made from recently drilled core. At this time is appears that only 3 samples lie within the 20m deep oxide domain at surface. These three samples indicate the oxide domain has the same bulk density as the fresh rock 2.7 t/$m^3$<br>• In the competent persons opinion it is reasonable to assume that the partially oxidised and oxidised material at surface may have a lower bulk density. Further bulk density samples in the partially oxidised and oxidised material will be collected as part of the next drilling programme.<br>• A bulk density of 2.7 t/$m^3$ has been used for fresh rock and 2.4 t/$m^3$ has been used for the partially oxidised and oxidised material within 20m of surface.<br>• The rock is tight and few voids are intersected in the drilling, no allowance has been made for voids or vugs. |
| *Classification* | • *The basis for the classification of the Mineral Resources into vary-* | • Where drilling is more closely spaced within 400m of surface |

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| | *ing confidence categories.*<br>• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | the Mineral Resource has been classified as Indicated where the grade is greater 0.5 g/t gold. This figure is selected based on:<br>— Potential open pit mining.<br>— Mineralization out cropping.<br>— Gold price of A$1,300 per ounce.<br>— Assumption of potential complex processing with a higher processing cost, and potentially lower recovery.<br>• Below 400m depth a shell has been generated around the close spaced drilling. Inside the shell is an indicate Mineral Resource where:<br>— The grade is above 0.5 g/t gold from 400m to 500m below surface.<br>• Outside the shell grade from 0.5 g/t gold from 400m to 500m is Inferred.<br>• At 500m below surface mining is assumed to move from open pit to a bulk underground method as such the minimum grade for inclusion in the Indicated Mineral Resource is 0.9 g/t gold.<br>• Below 750m below surface the Mineral Resource is all Inferred.<br>• The classification is somewhat spotted due to use of the cut-off grade and lower data density at depth. It is anticipated that with further drilling this will be resolved with increased data density and the use of solids to represent different classification areas |
| *Audits or reviews* | • *The results of any audits or reviews of Mineral Resource estimates.* | • No audits have been completed at this time. |
| *Discussion of relative accuracy/ confidence* | • *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For ex-* | • There are no historic production records.<br>• The tonnage and grade estimation is a global estimate to be |

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| | *ample, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | used for:<br>— Assessing whether there is a potential mining project and the project economics.<br>— Assessing a potential mining method.<br>— Targeting additional project development and resource infill drilling.<br>— The output of any potential mining assessment will be used as a basis to collect relevant technical information going forward.<br>The competent person anticipates that there is likely to be few difficulties in collecting data and additional understanding for the geological context which is relatively straight forward.<br>Further work is required to understand the grade distribution within the intrusion. With increased data it may be possible to domain areas of high and low grade. Grade distribution at a local scale will increase in importance if selective mining methods are proposed.<br>Further detailed work is required in the proposed processing method. Current testing indicates that processing with a reasonable recovery using known techniques is possible.<br>Work needs to commence on the collection of geotechnical information. |