**ASX Announcement | 16th September, 2024**

# MT DOREEN VTEM SURVEY REVEALS NUMEROUS HIGH PRIOTIY TARGETS: DRILL TESTING PLANNED

**Highlights**

- Tenement-wide Versatile Time-domain Electromagnetic (VTEM™ Max) survey complete with the collection of 2,254 line kilometres of data
- The survey has defined 5 strong late-time high priority VTEM conductors, including four targets untested by previous exploration
- Priority VTEM targets display conductive responses typically associated with semi-massive or massive sulphide accumulation

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Litchfield Minerals Limited (**"Litchfield"** or the **"Company"**) **(ASX:LMS)**, a company with a strategic emphasis on critical minerals, is pleased to announce the completion of a tenement-wide VTEM survey at the Mt Doreen project.

**Managing Director and CEO, Matthew Pustahya, commented:**

"We are absolutely thrilled by the preliminary results of the VTEM survey at our Mt Doreen project. The fact that we've identified five high-priority conductive targets, most of which have never been tested before, represents a groundbreaking opportunity for Litchfield Minerals and could significantly accelerate our path to a major discovery. VTEM technology is specifically designed to detect **massive sulphide accumulations** and these conductive responses are exactly what we hoped to uncover. That is, potential zones of semi-massive or massive sulphide accumulation that may host copper, lead, zinc and silver mineralisation.

The survey's ability to penetrate shallow sedimentary cover and pinpoint targets that are aligned with key structural and geological contacts sets us up for what could be a transformational phase in our exploration efforts. Given that these high-priority anomalies are located so close to known mineralisation zones, we are optimistic that we've tapped into something significant here. The

opportunity to now advance these targets into ground-based follow-up surveys and eventually drilling is an incredibly exciting next step. We look forward to providing further updates as we continue to unlock the immense potential of Mt Doreen."

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In September 2024, as part of Litchfield Minerals Limited commitment to using cutting-edge technology, UTS Geophysics collected 2,254 line kilometres (200m line-spacing) of Versatile Time domain Electromagnetic Data (VTEM™ Max) over the Mt Doreen project, Northern Territory. The VTEM system is sensitive to changes in subsurface conductivity and is increasingly becoming an effective exploration first-pass screening tool for detecting shallow conductive sources such as accumulations of sulphides. Airborne EM surveys were instrumental in discovering the Mt Hardy base metal sulphide deposit, located 35km east of the Mt Doreen tenement (2.6Mt @ 6.7% Zn, 0.9% Cu, 1.5% Pb, 35 g/t Ag[1]).

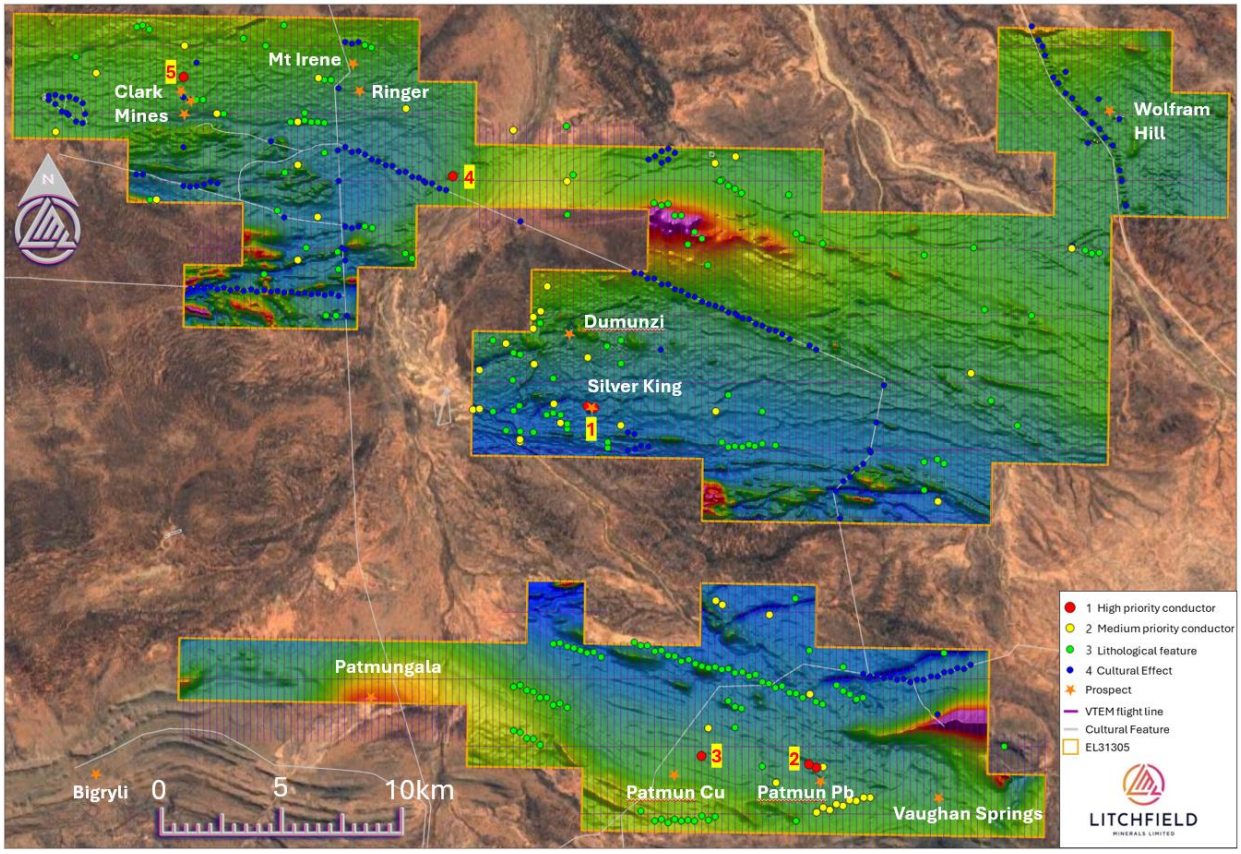



**Figure 1**. Mt Doreen project RTP_SunN_Lin magnetic image showing the location of five high-priority VTEM targets.

[1] *Todd River Resources, 2019. Correction to Maiden Hendrix Resource Announcement. ASX News Release 12 July 2019.*

Geophysical consultant, Mitre Geophysics (Rob Angus) has completed a preliminary assessment of the raw field data from the VTEM survey. The data revealed a total of fifty five VTEM conductive targets, which were ranked according to various characteristics (**Figure 1**). Of these fifty five targets, five high-priority targets were defined as strong late-time anomalies and fifty defined as medium priority mid- to late-time conductive anomalies. Low priority conductors are likely related to lithological features and very low priority conductors are related to cultural effects (fences, water tanks, gas pipeline). All five high-priority targets are located within 1km of known zones of base metal mineralisation (excluding target 4), are currently untested by previous surface geochemistry and drilling (except for target 1 at Silver King which has prior drilling) and hence represent compelling new exploration targets. Final anomaly identification and modelling will be completed upon receipt of the fully processed dataset within the next month.

All priority targets are positioned near well-defined geological structures and contacts identified during the lithostructural interpretation, which was announced to the market on August 28th, ahead of the VTEM survey's completion (Figure 2). Almost all high and medium priority targets are located within areas of shallow sedimentary cover (<10m) and do not have any surface expression, which explains why they were undetected by historic exploration.

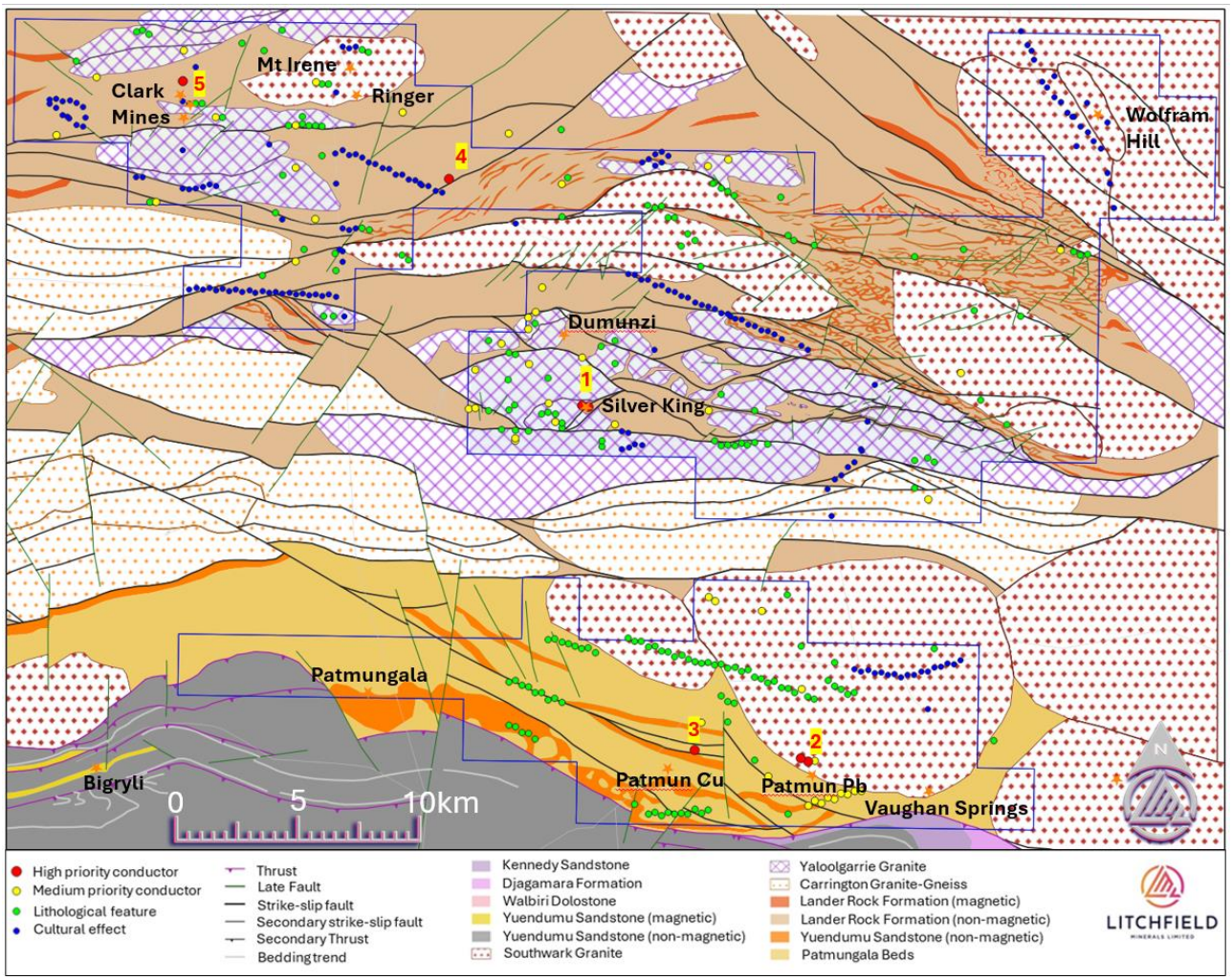



***Figure 2**. PGN Geoscience lithostructural interpretation announced the 28th August, showing the location of VTEM targets relative to known prospects.*

**Next Steps**

Litchfield is extremely confident about the preliminary results of the VTEM survey, which have generated multiple high-priority targets for exploration. However, it is important to note that these results are subject to change as the final fully processed data, expected within the next month, will better define the conductive anomalies. Following this, a ground-based moving loop EM ("MLEM") survey will be conducted to define conductor plates and further refine target prioritisation ahead of drilling this year.

**Cautionary Statement**

Conductive targets presented in this announcement are preliminary in nature and were identified using raw field data. Additional modelling is required on the final processed dataset to present a formal list of priority targets and to provide a higher confidence assessment of the source of conductive responses.

**Forward looking statement**

This announcement may include forward-looking statements, which are subject to risks and uncertainties. Actual results could differ significantly due to factors beyond LMS's control, including market conditions and industry-specific risks. These forward-looking statements are based on the Company's expectations and beliefs concerning future events No warranty is given regarding the completeness of the information provided. Please avoid placing undue reliance on forward-looking statements, as they reflect views only as of the announcement date.

**About Litchfield Minerals**

Litchfield Minerals is a critical mineral explorer, primarily searching for base metals and uranium out of the Northern Territory of Australia. Our mission is to be a pioneering copper exploration company committed to delivering cost-effective, innovative and sustainable exploration solutions. We aim to unlock the full potential of copper and other mineral resources while minimising environmental impact, ensuring the longevity and affordability of this essential metal for future generations. We are dedicated to involving cutting-edge technology, responsible practices and stakeholder collaboration drives us to continuously redefine the industry standards and deliver value to our investors, communities and the world."

The announcement has been approved by the Board of Directors.

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**Competent Person's Statement**

The information in this Presentation that relates to Exploration Results is based on, and fairly represents, information and supporting documentation compiled by Mr Russell Dow (MSc, BScHons Geology), a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (AUSIMM) and is a full-time employee of Litchfield Minerals Limited. Mr Dow has sufficient experience that is relevant to the style of mineralisation and types of deposits 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" (JORC Code). Mr Dow consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. With regard to the Company's ASX Announcements referenced in the above Announcement, the Company is not aware of any new information or data that materially affects the information included in the Announcements.

## JORC Code, 2012 Edition – Table 1 report

### 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.* | The instruments and parameters used for the VTEM survey are as follow:<br>• The VTEM survey was flown by UTS Geophysics Pty. Ltd.<br>• Heliborne electromagnetic data was acquired with VTEMTM Max transmitter frequency of 25Hz, loop diameter 35m and mean terrain clearance height of 35m.<br>• Line spacing was 200m across the full survey area. |
| *Drilling techniques* | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter,* | • Not applicable as no drilling is reported. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *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).* | |
| *Drill sample recovery* | • *Method of recording and assessing core and chip sample recoveries 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.* | • Not applicable as no drilling is reported. |
| *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.* | • Not applicable as no drilling is reported. |
| *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* | • Not applicable as no drilling is reported. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *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.* | |
| *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.*<br>• *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.* | • Transmitter loop diameter: 35m<br>• Peak dipole moment – 700,000 NIA<br>• Transmitter Pulse Width – 7ms<br>• VTEM Max Receiver – Z,X, coils (Y optional) |
| *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.* | • Data detailed in this report has been reviewed and processed by Mitre Geophysics. |
| *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.* | • The navigation system used was a UTS PC104 based navigation system utilizing a NovAtel WAAS (Wide Area Augmentation System) enabled GPS receiver, UTS navigate software, a full screen display with controls in front of the pilot to direct the flight and a NovAtel GPS antenna mounted on the helicopter tail. As many as 11 GPS and two WAAS satellites may be monitored at any one time. The positional accuracy or circular error probability |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | (CEP) is 1.8m, with WAAS active, it is 1.0m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.<br>• Altitude control used the FreeFlight Systems TRA-3000 radar altimeter with altitude range (40 to 2500ft), altitude accuracy (40 to 100 ft. ±5 ft., 100 to 500 ft. ±5%, 500 to 2500 ft. ±7%) and sample rate of 10Hz. |
| *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.* | • The full survey was flown at 200m line-spacing. |
| *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.* | • Flight lines were orientated north-south to run perpendicular to most of the structures and geology of the area. |
| *Sample security* | • *The measures taken to ensure sample security.* | • All data was collected under strict security measure by UTS Geophysics Pty Ltd. |
| *Audits or reviews* | • *The results of any audits or reviews of sampling techniques and data.* | • Data checks and processing reviews were undertaken daily and at the completion of the program by the contractor.<br>• Review of the data was undertaken by an independent |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | consultant Mitre Geophysics. |

## 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.* | • Refer to Section 4 in Independent Geologists Report (IGR) by Ross *et al.*, 2023 for further detail. In summary, the Mount Doreen project is secured by EL 31305 for total of approximately 388.35 square kilometres.<br>• All tenements within the Mt Doreen are 100% owned by Litchfield Minerals Ltd.<br>• The Mt Doreen Project is located 325km northwest of Alice Springs pastoral lease. The tenements are in good standing and there are no known impediments. |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | • Refer to Section 6 and 7 in Independent Geologists Report (IGR) by Ross *et al,*, 2023 for further detail. A summary of previous exploration and mining is presented below:<br>• 1930- 1956: Minor amounts of copper and tungsten extracted from Silver King, Clark, Mount Irene and Wolfram Hill.<br>• 1969: NT Mines & Water Resources diamond drilling at Clark workings.<br>• 1987 – 2006: White Industries/Mareeba Mining, Bruce and Mules, MIM Exploration/Roebuck Resources, Track Minerals, |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | Poseidon Gold/Yuendumu Mining, BHP, Homestake Gold, Rio Tinto Exploration and Tanami Gold completed geological mapping, geochemical sampling, airborne and ground geophysical surveys, and drilling programs. |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | • Refer to Section 5 in Independent Geologists Report (IGR) by Ross *et al.*, 2023 for further detail. In summary:<br>• Mount Doreen is located in the southern portion of the Paleoproterozoic Aileron Province of the Arunta Region.<br>• The oldest rocks at Mount Doreen are the multiply deformed and metamorphosed siliciclastic sediments of the Lander Rock Formation. The younger volcano sedimentary Patmungala Beds lie in the south of the tenement, and both are intruded by the Yarunganyi Granite. Numerous major faults strike close to east-west and often contain veins or vein swarms of quartz, forming ridges. Neoproterozoic to Palaeozoic sedimentary rocks of the Ngalia Basin overlie the Aileron basement in the southwest of the tenement and along the southern boundary.<br>• Mineralisation is considered to be epigenetic intrusion-related breccia and vein mineralisation with polymetallic copper-lead-zinc-silver-molybdenite and tungsten. Mineralisation is interpreted to be from varied sources and associations as evidenced from mineralisation dating. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • The most prominent mineralisation is supergene copper at Silver King with varying lead-zinc-silver in quartz veins and shear zones. |
| *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>  ○ *easting and northing of the drill hole collar*<br>  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>  ○ *dip and azimuth of the hole*<br>  ○ *down hole length and interception depth*<br>  ○ *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.* | • No drilling or assaying is reported in this report. |
| *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* | • No drilling or assaying is reported in this report. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | |
| *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').* | • No drilling or assaying is reported in this report. |
| *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.* | • Project location map and plan map of the drill hole locations with respect to each other and with respect to other available data are included in the text.<br>• Drill hole locations have been determined with hand-held GPS drill hole collar location (Garmin GPS 78s) +/- 5m in X/Y/Z dimensions.<br>• Refer to Section 6 and 7 of the Independent Geologists Report (IGR) by Ross *et al.*, 2023. |
| *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.* | • Individual gravity readings have not been reported, plans within this report provide an adequate overview of the ground gravity data. |
| *Other substantive* | • *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;* | • See the main body of this report for all pertinent observations and interpretations. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *exploration data* | *bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | |
| *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.* | Future planned exploration includes:<br>• Final fully processed VTEM and interpretation<br>• Ground-based moving loop EM (“MLEM”)<br>• Geological mapping and geochemical surveys/ sampling<br>• RAB/RC/DD drill testing. |