Orion Minerals

ASX/JSE RELEASE: 28 June 2021

Drilling to Commence on High Priority EM Target at Boksputs

Electromagnetic conductor detected straddling the boundary between Orion's Masiqhame Prospecting Right and the newly granted Boksputs North Prospecting Right

- **Orion receives grant of Boksputs North Prospecting Right.**
- **Follow up survey confirms EM anomaly straddling the boundary between Masiqhame and Boksputs North Prospecting Rights.**
- **Survey data modelled revealing an EM anomaly containing a highly conductive 3000s - 6000s plate.**
- **The conductor lies along the trend of recently drilled copper gold mineralisation associated with a 600 Siemens conductor.**
- **Diamond drilling to test the conductor will commence immediately.**

Orion's Managing Director and CEO, Errol Smart, commented:

"A fixed loop electromagnetic survey (FLEM) 2,500m north, along the trend of our recent Boksputs copper gold drill intersections has detected a conductor with nearly ten times higher conductance than the FLEM target previously drilled.

"We have also received notice of grant of a new Prospecting Right covering the area north of the new high priority target allowing the FLEM survey to cover the open extension to the north of this very exciting target.

"Our previous FLEM survey conducted in 2018 detected this anomaly, but the target was modelled to lie outside the survey loop requiring a new survey to provide data over the optimum area to model the target more accurately."

Orion Minerals Limited (**ASX/JSE: ORN**) (**Orion** or the **Company**) is pleased to announce that diamond drilling is to commence immediately on a high priority target detected by a fixed loop electromagnetic (**FLEM**) survey on the boundary of Orion's existing Masiqhame Prospecting Right and a newly granted Boksputs North Prospecting Right.

The Boksputs Prospect

The Boksputs Prospect, which is located on the northern boundary of the Company's Masiqhame Prospecting Right, has recently delivered very encouraging copper-gold intersections on the 600s B4 FLEM conductor, including a best section of 5m at 1.09% Cu and 0.13g/t Au, including 1.00m at 2.38% Cu and 0.29g/t Au (refer ASX release 25 January 2021). A follow up FLEM survey of the B1 conductors previously detected in two small survey loops located 2,500m to the north of B4, on the boundary of the prospecting right (**PR**) and continuing north of the PR, has now confirmed a very strong (3000s - 6000s) continuous conductor, DP1, that presents a compelling drill target (Figures 1 and 2).

The strike extension of this target is also now accessible to Orion after receipt of the grant notice for prospecting right NC12197PR, covering the northern extension of the target (Figure 3).

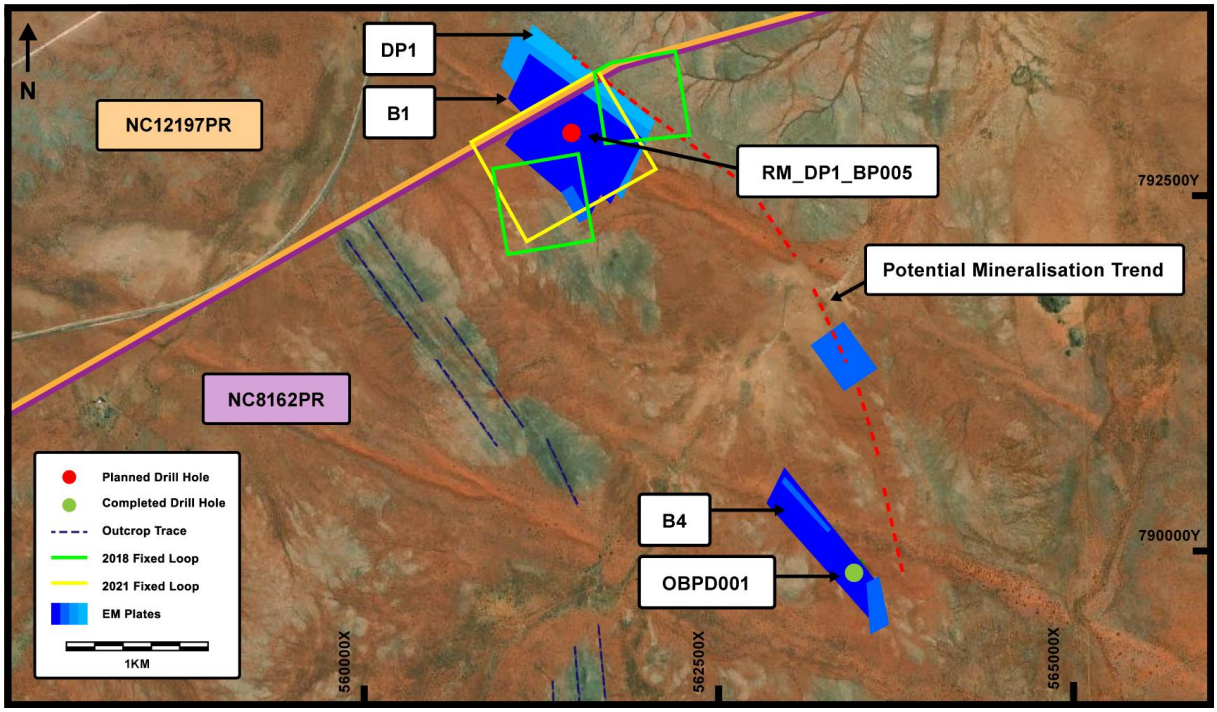


Figure 1: FLEM targets at Boksputs Prospect.

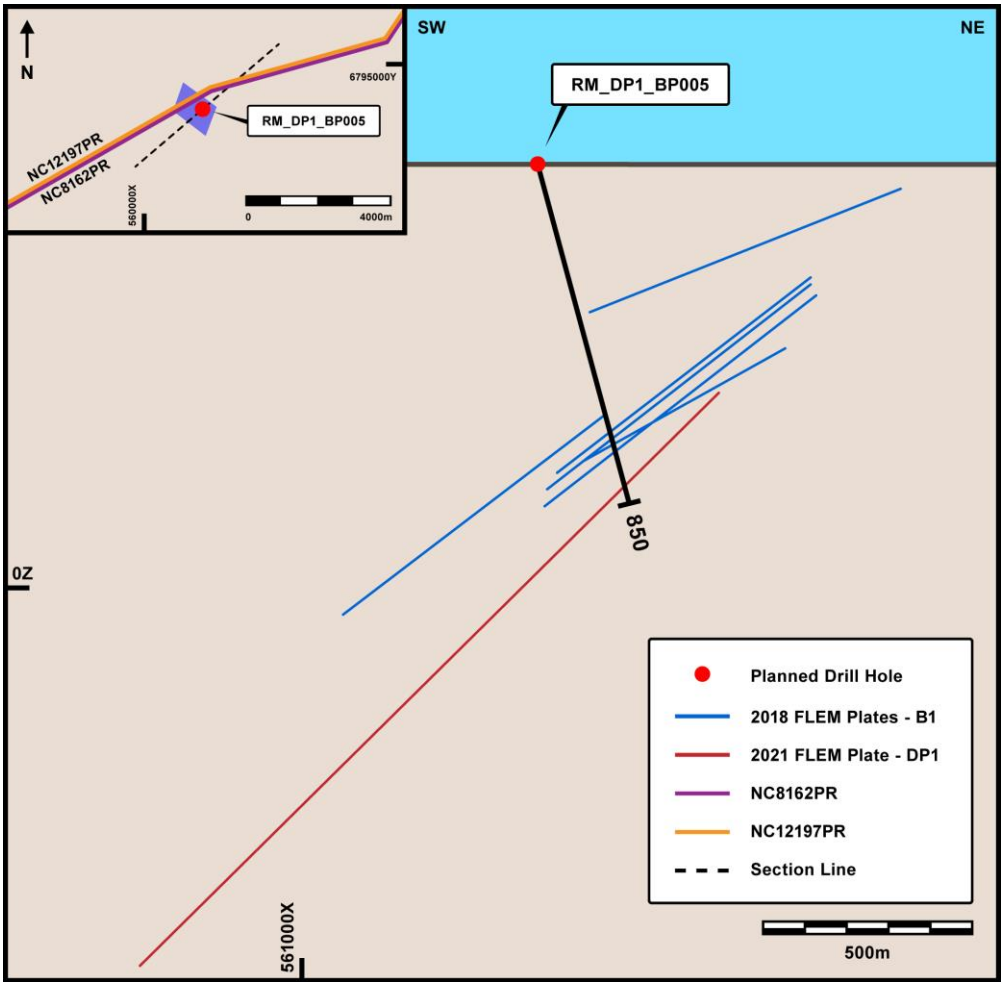


Figure 2: Planned diamond drill hole to target new high priority FLEM target.

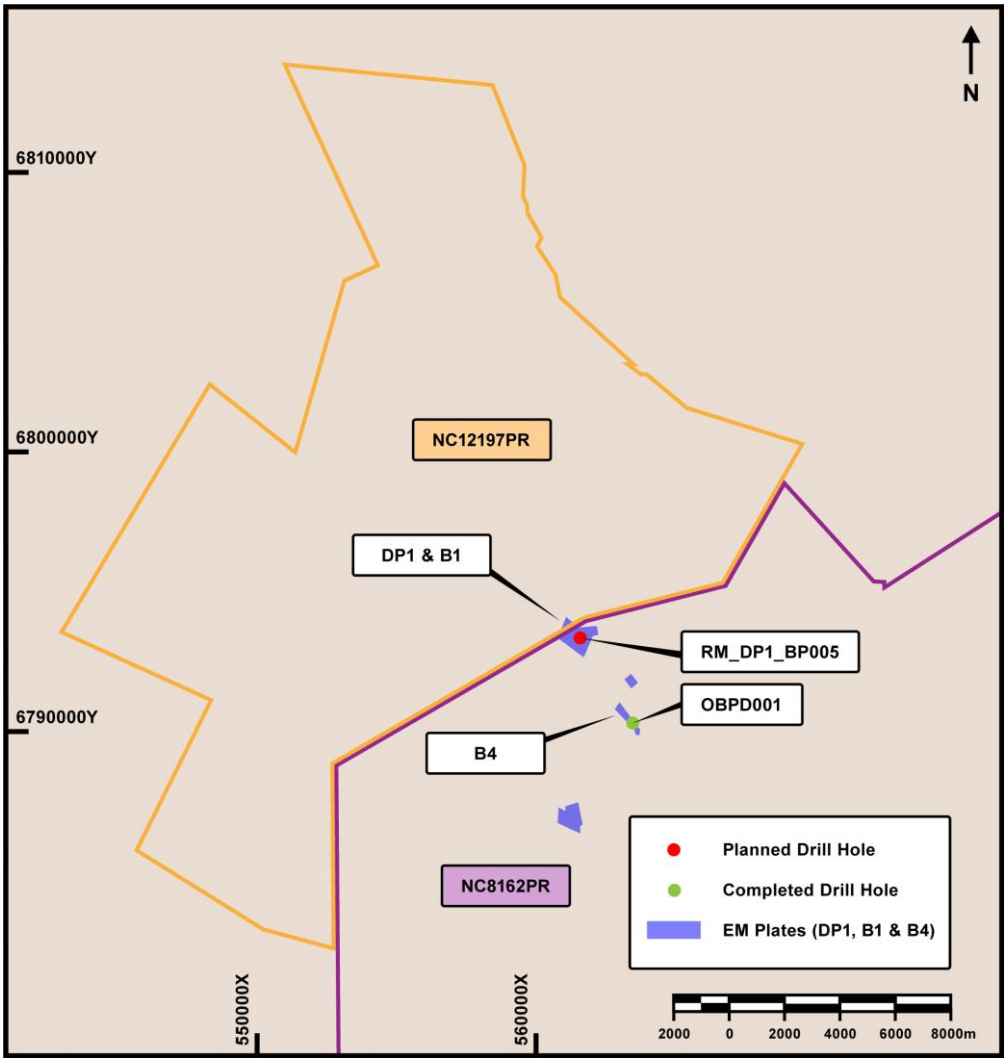
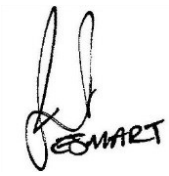


Figure 3: New Prospecting Right, NC12197PR, covering the Boksputs North target area.

For and on behalf of the Board.



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Competent Persons Statement

The information in this report that relates to Exploration Results has been compiled under the supervision of Mr Errol Smart, a Competent Person, who is registered with the South African Council for Natural Scientific Professionals, a 'Recognised Professional Organisation (**RPO**). Mr Smart is the Managing Director and CEO of Orion. Mr Smart 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. Mr Smart consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Disclaimer

This release may include forward-looking statements. Such forward-looking statements may include, among other things, statements regarding targets, estimates and assumptions in respect of metal production and prices, operating costs and results, capital expenditures, mineral reserves and mineral resources and anticipated grades and recovery rates, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. These forward-looking statements are based on management's expectations and beliefs concerning future events. Forward-looking statements inherently involve subjective judgement and analysis and are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Orion. Actual results and developments may vary materially from those expressed in this release. Given these uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. Orion makes no undertaking to subsequently update or revise the forward-looking statements made in this release to reflect events or circumstances after the date of this release. All information in respect of Exploration Results and other technical information should be read in conjunction with Competent Person Statements in this release (where applicable). To the maximum extent permitted by law, Orion and any of its related bodies corporate and affiliates and their officers, employees, agents, associates and advisers:

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Appendix 1: The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of Exploration Results for the Masiqhame Project and Boksputs North Prospect.

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 (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. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	• N/A
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).*	• N/A
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	• N/A

Criteria	JORC Code explanation	Commentary
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• N/A
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• N/A
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 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.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• N/A
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• N/A
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.* • *Specification of the grid system used.*	• N/A

Criteria	JORC Code explanation	Commentary
	• *Quality and adequacy of topographic control.*	
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• N/A
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.* • *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.*	• N/A
Sample security	• *The measures taken to ensure sample security.*	• N/A
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• N/A

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.* • *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.*	• The mineral rights to the properties are vested in the State and the Minerals and Petroleum Development Act, 2002, (**MPRDA**) regulates the exploration and mining industry in South Africa. • A prospecting right, NC30/5/1/1/2/8162PR, in accordance with section 17 of the MPRDA was granted to Masiqhame Trading 855 (Pty) Ltd (Masiqhame) to prospect for a period of five years effective from 12 March 2014. The prospecting right renewal application was timeously submitted in 2018 and in terms of the MPRDA, the right remains active. • The prospecting right was granted in respect of the farms Koegrabe 117 comprising Portions RE, 2 – 12; Boksputs 118 Portions RE,1,7,8,9,10; Kantien Pan 119 Portions RE, 1 and 2; Van Wyks Pan Portions RE,1-5; and Zonderpan Portions RE,1,5,6,7,8 situated in the Magisterial District of Kenhardt, Northern Cape Province. The total Area measures 98,435.8548Ha in extent.

Criteria	JORC Code explanation	Commentary
		• Orion, through a subsidiary, currently owns 50% of the project through an earn-In agreement. • A prospecting right, NC30/5/1/1/2/12197PR, in accordance with section 17 of the MPRDA was granted to Orion Exploration No. 1 (Pty) Ltd (**OE1**) to prospect for a period of five years effective from 14 January 2021. • The prospecting right was granted in respect of the farms Gemsbok Bult 120 Portion 2; Klein Begin 115 Portions RE and 2 and Zand Ruggens 116 Portions 1-4 and 9 situated in the Magisterial District of Kenhardt, Northern Cape Province. The total Area measures 34,419.4000Ha in extent. • Orion, through its subsidiary OE1, currently owns 70% of the project with 30% HDSA equity ownership in compliance with Mining Charter 2018 (20% HDSA entrepreneur, 5% community trust and 5% employee trust).
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Much of the background information in this announcement was sourced from: o Humphreys, H.C, 1986. Metamorphic imprints upon sulphide mineralisation at Boksputs, Northern Cape South Africa. Mineral. Deposita 21, p271 – 277; o Geringer, G.J, Pretorius, J.J and F.H. Cilliers, 1987. Strata-bound copper-iron sulphide mineralisation in a Proterozoic front arc setting at Boksputs, Northwest Cape, South Africa. Mineral. Deposita 22, p81 – 89; and o Council of Geoscience, 2008. Geological Map of the Republic of South Africa. • Previous exploration in the Areachap Belt, including at the Boksputs and Kantienpan deposits, were carried out by Shell South Africa, Anglovaal, Phelps Dodge, Anglo American and Iscor. • Exploration activities across the Project area included surface geochemical sampling, geophysical surveying, diamond core and air drilling.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Mineralisation at Kantienpan and Boksputs are of the Volcanogenic Massive Sulphide (**VMS**) type. • Mineralisation occurs in the Proterozoic Areachap Group that also host other VMS deposits including Areachap, Kielder and Prieska. • The mineralisation is strata-bound, and sulphide concentrations

Criteria	JORC Code explanation	Commentary
		range from disseminated to massive.

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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *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.*
		• N/A

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• N/A
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• N/A
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.*	• N/A
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.*	• N/A
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*	• Extensive geology mapping, geochemical sampling, and airborne and ground geophysical programmes were undertaken by previous explorers, using the equipment and methods available at that time.

Criteria	JORC Code explanation	Commentary
	method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Not all geophysical data is available. • In 2017 and 2018 Orion undertook a regional SkyTEM™ geophysical survey. The results are reported in ASX releases 1 February 2018 and 8 March 2018. • Ground fixed loop EM surveys were conducted in September 2018 as follow up to regional SkyTEM™ geophysical survey and again in May 2021, to further define results of 2018 ground EM survey. • Results of the 2018 ground fixed loop EM survey were reported in ASX release 24 September 2018. • The 2021 fixed loop EM survey was conducted with a tri-axial fluxgate electromagnetic (**EM**) receiver manufactured by Electromagnetic Technologies based in Perth, Western Australia. The current source is a custom-built, Time Domain Electro-magnetic (TDEM) transmitter, capable of transmitting 140 Amps into a 1km-by-1km aluminium wire loop with very low resistance (2-3 ohms). The system can detect moderate to super-conductors to depths of approximately 1,000m. Readings are taken every 50m - 100m on grid-lines spaced 200m apart.
Further work	1. *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* 2. *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• An inclined diamond core drillhole is planned to test the conductor from the recent May 2021 ground EM survey.