



## **DRILLING COMMENCES AT McARTHUR COPPER-ZINC PROJECT TO TEST STRONG EM CONDUCTORS**

***Initial 3-hole diamond drilling program designed to test outstanding SkyTEM conductors***

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Todd River Resources Limited (ASX: TRT; “Todd River” or “the Company”) is pleased to announce that **diamond drilling has commenced to test high-priority geophysical targets at its 100%-owned McArthur copper-zinc project** in the Northern Territory (Figure 1).

The drilling will be undertaken during a break in drilling at the Mount Hardy Copper-Zinc Project while the Company awaits statutory approval for additional drilling, outstanding assay results from the recently drilled holes and completes its interpretation of down-hole geophysical and geochemical data. Drilling at Mount Hardy will resume next month.

The drilling program at McArthur is **designed to test three strong conductor plate targets identified from the extensive SkyTEM survey** completed in late 2017. The holes will target base metal mineralisation in both the Woologorang Formation, which hosts part of the now-mothballed Redbank Copper Mine, located to the east of the Company’s Project, and the Mallapunyah Formation, which is part of the McArthur Group.

All holes will be cased with PVC and down-hole EM (DHEM) surveys will be carried out on these holes at the completion of the drilling program.

A Northern Territory-based drilling contractor has been engaged to complete this work. Diamond drilling will be conducted with a track-mounted rig to minimise ground disturbance, and utilise HQ and NQ core sizes.

Todd River Resources has secured Drilling Collaborative funding from the Northern Territory Government to partially fund this work (see ASX Announcement, 19 June 2018). This forms part of the Government’s \$26 million “Resourcing the Territory” initiative, to attract and support exploration activities. Todd River has secured \$85,000 in funding through this initiative, which includes a \$10,000 Territory Supplier Incentive, to support local contractors.

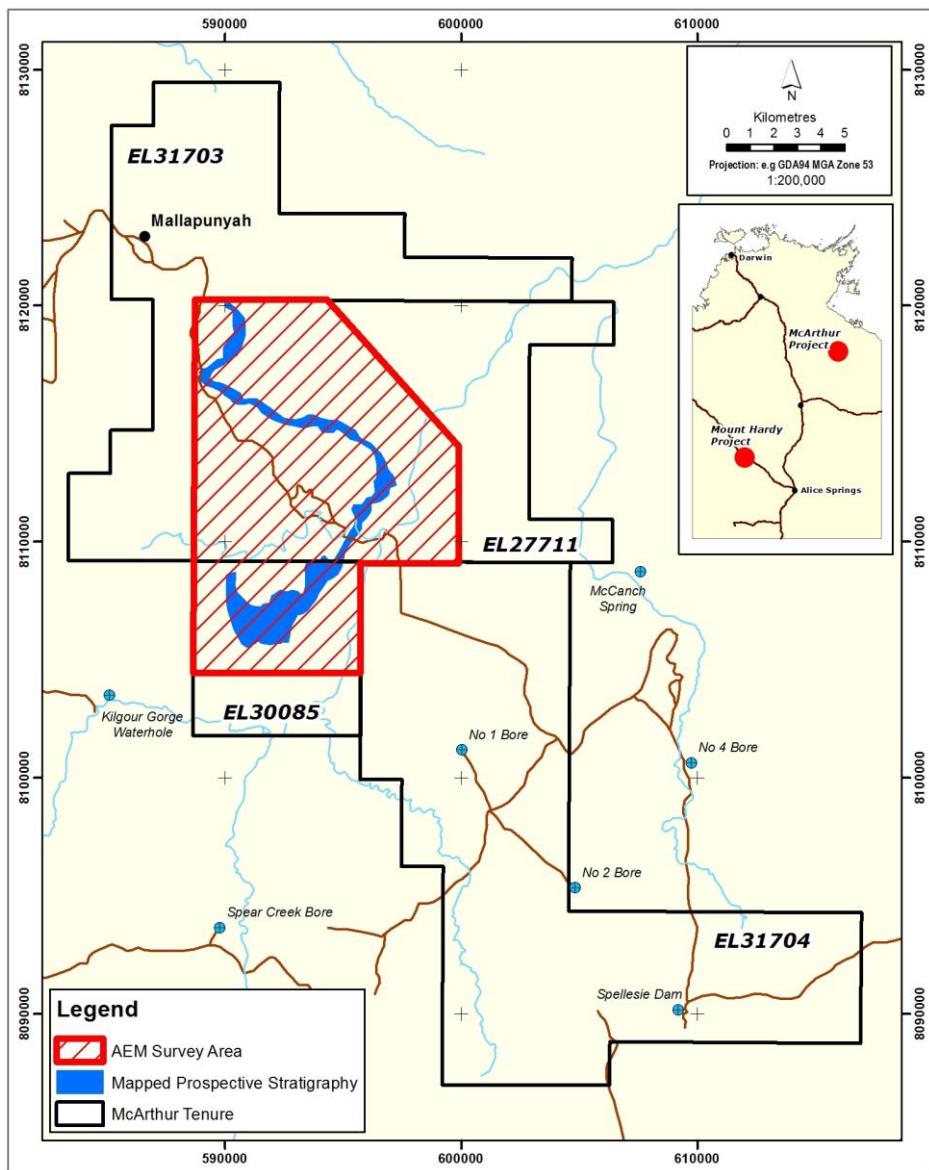
Commenting on the start of the drilling program, Todd River’s Chief Executive Officer, Will Dix, said:

*“We’ve been looking forward to getting up to McArthur for a while now and we are pretty excited to be putting some holes into three really interesting anomalies before getting the rig back to Mt Hardy to commence the next phase of drilling of our emerging high-grade base metals discovery.”*

*“A great deal of work has gone into the modelling of these conductors to ensure we give ourselves the very best chance of success over the next few weeks, and we look forward to seeing what is generating the EM responses we have modelled and informing the market of the outcomes in due course.”*



Figure 1 – McArthur Project showing the location of the three drill target areas.



## Technical Background

Assessment of the 600-line kilometre SkyTEM survey flown by Todd River last year (see ASX Announcement, 20 November 2017) outlined 10 strong conductor targets for further testing. Of these, three will be drilled over the coming month (Figure 2), and a further two shallow conductor targets will be further evaluated using mapping and sampling.

This geophysical work both confirmed the prospectivity of the Woologorang Formation (the focus of the TNG/TRT program from 2013 through 2017) and opened up the search space by outlining conductors above and below this stratigraphic level.

Strong conductors within the Mallapunyah Formation (Targets A, B, and I on Figure 2) are part of the lower



McArthur Group sequence, while Target D is well below the Woologorang Formation.

Figure 3 shows an east-west section through the conductor zones at **Target I**. The image background is the flight line conductivity profile, while the wireframe and magenta surface outline high and very high conductivity zones. The planned drill-hole trace tests two zones, one in the Mallapunyah Formation under resistive Amelia Dolomite cover.

The second deeper target conductor is interpreted to be in the Woologorang Formation of the Tawallah Group. Both units have anomalous base metal (Zn, Pb, Cu) geochemistry in the Todd River tenement package. The hole is adjacent to a significant fault zone, that is appears to have syn-sedimentary movement, and is identified in geological mapping as the NW/SE striking regionally significant Mallapunyah Fault. The conductors both have lateral extents of ~800m east-west and over 1km north-south.

The planned drill hole at **Target B** also is collared in Amelia Dolomite and targets a strong conductor in the Mallapunyah Formation at around 250m depth. These two Targets, together with Target A, define an area of 5km by 3km where the Mallapunyah Formation has both thick and extensive conductors under shallow cover.

**Target D** is on the southern side of the Mallapunyah Dome and has a strong conductor target at depth below the Settlement Creek Dolerite. Figure 4 shows the planned drill trace collared in the upper Woologorang Formation. Drilling will continue into the footwall Settlement Creek Dolerite and is designed to intersect the conductor target possibly in the underlying Sly Creek Sandstone.

## **Will Dix, CEO – Todd River Resources**

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### **Competent Person Statements**

The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation compiled by Exploration Manager Mr Kim Grey B.Sc. and M. Econ. Geol. Mr Grey is a member of the Australian Institute of Geoscientists, and an employee of Todd River Resources Limited. Mr Grey has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Grey consents to the inclusion in the report of the matters based on his information in the form and context in which it appear.

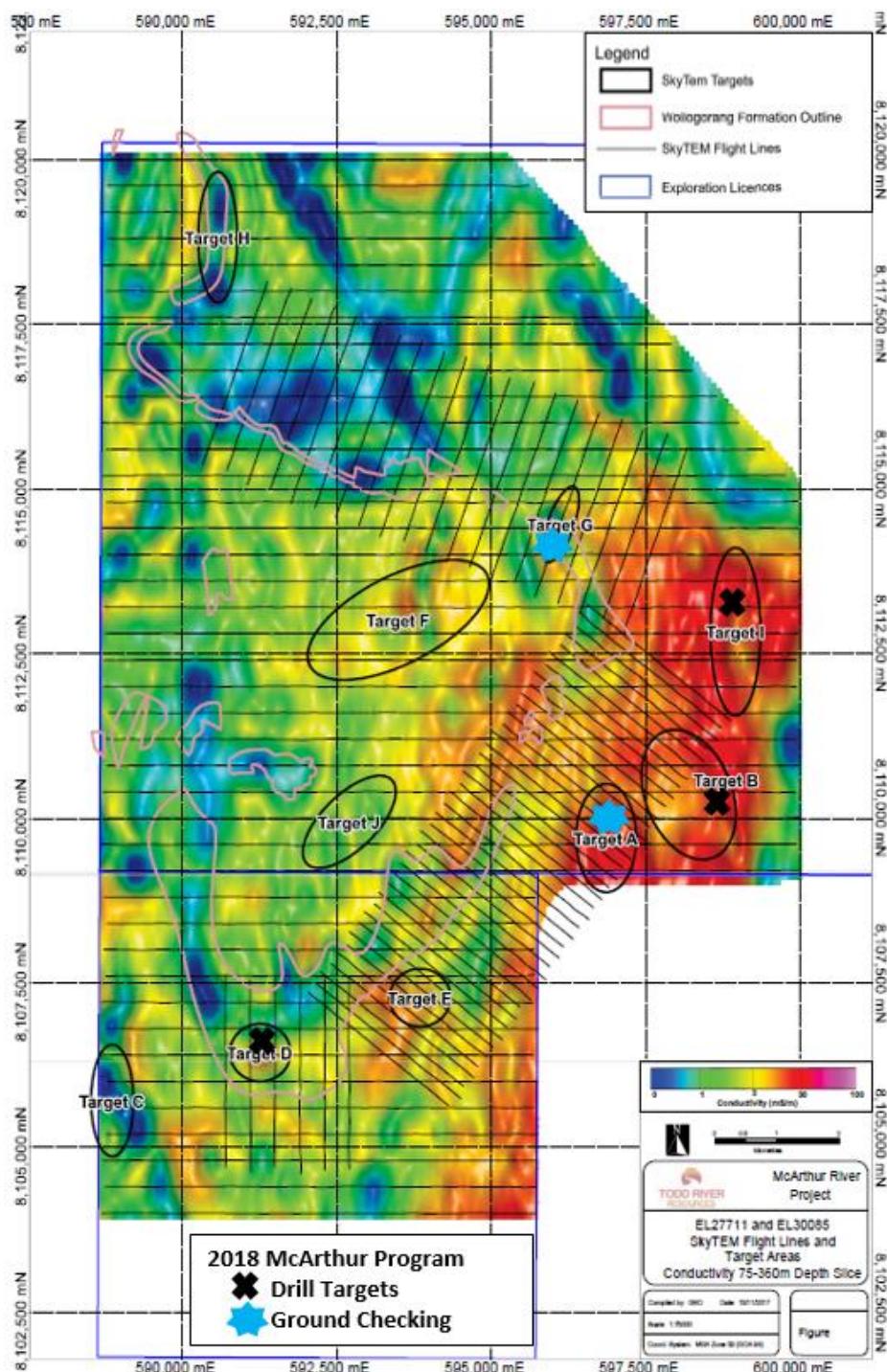
### **About Todd River Resources**

Todd River Resources (ASX: TRT) is an Australian-based resources company that holds a large, highly prospective zinc and base metals exploration portfolio in the Northern Territory. The Company was formerly a subsidiary of ASX-listed strategic metals development company TNG Ltd (ASX: TNG), and was spun-out of TNG in 2016 to advance and develop TNG's significant portfolio of non-core base metals assets.

With a strong management team and tight capital structure, Todd River is well placed to pursue exploration activities across its exploration portfolio, which are aimed at establishing the Company as a leading force in Australian zinc exploration and development. Todd River's extensive base metal portfolio includes the large Manbarrum Zinc Project, the Mount Hardy Copper-Zinc Project, the Stokes Yard Zinc Project and the McArthur Copper-Zinc project, as well as a number of other exploration projects covering base metals and other commodities.



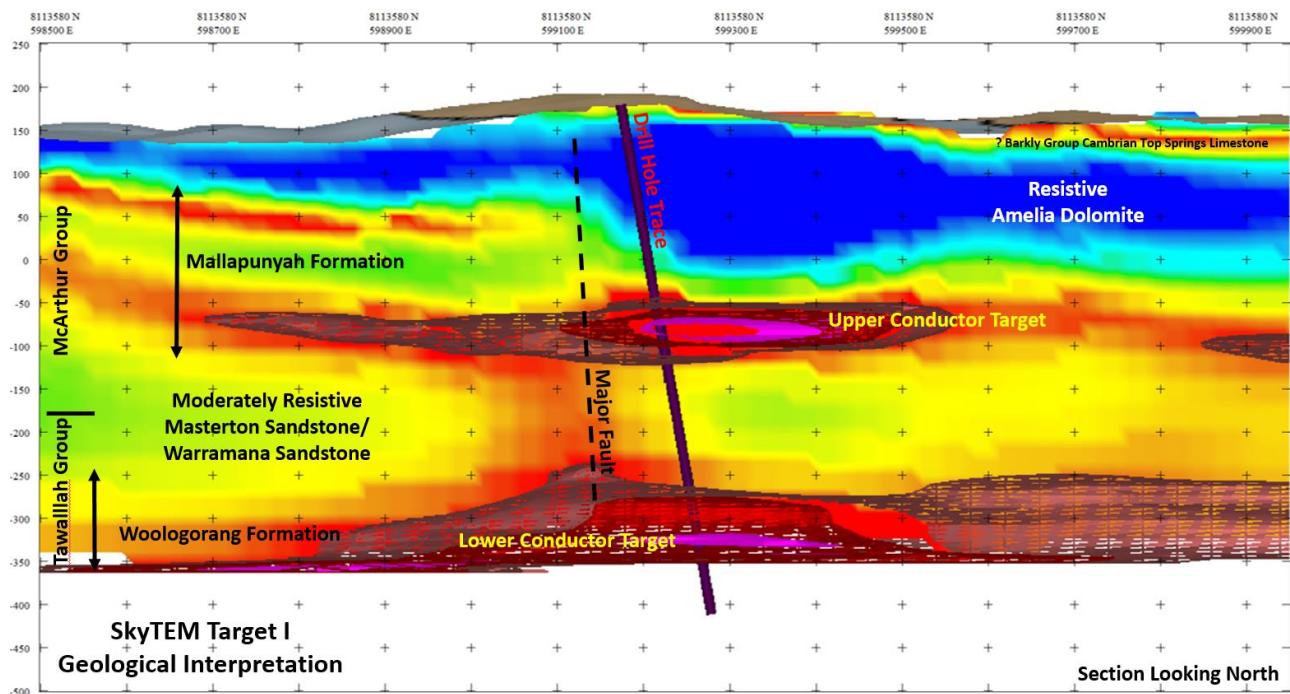
Figure 2 – McArthur Project SkyTEM AEM survey area, showing the location of the three drill target areas and areas for ground reconnaissance work.





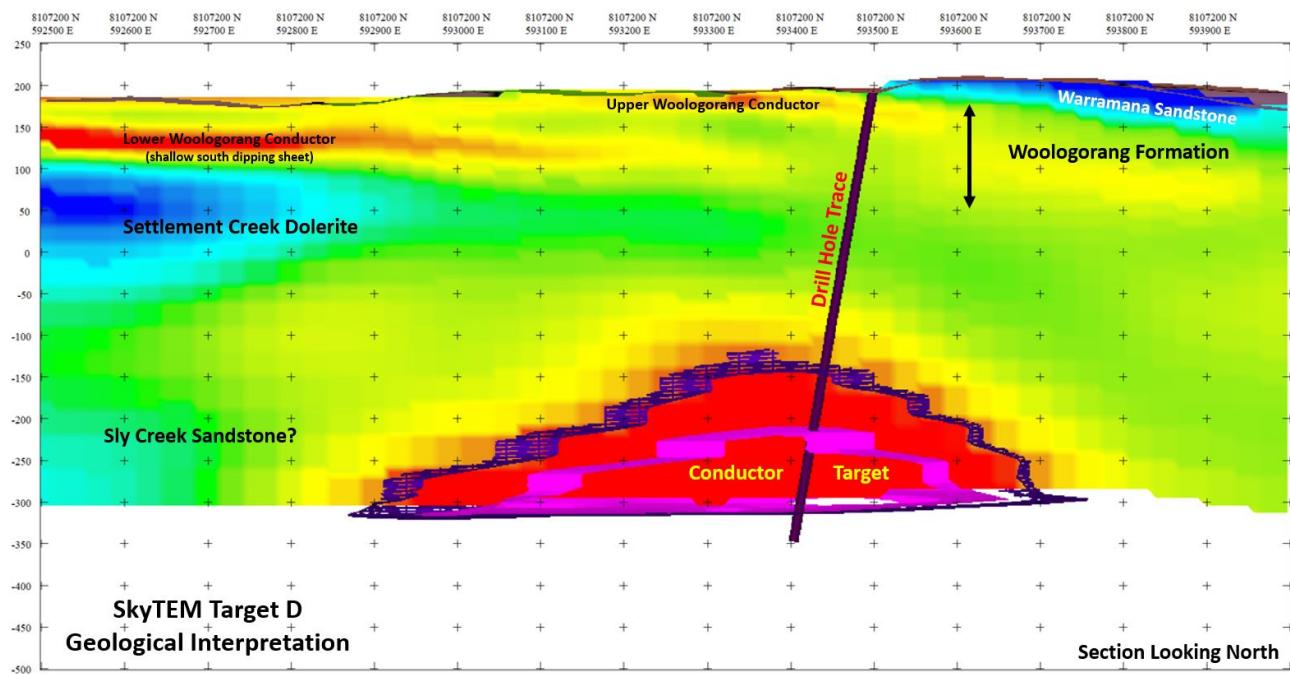
**Figure 3 – Drilling Target I. E/W SkyTEM modelled conductivity section showing the two targeted conductors and interpreted stratigraphy. (Imaged Conductivity).**

**Blue = low conductivity and high resistivity, warmer colours = high conductivity.**  
**Wireframe @ 50 ohm.m, magenta surface @ <20 ohm.m very high conductivity).**



**Figure 4 – Drilling Target D. E/W SkyTEM modelled conductivity section showing the targeted conductor and interpreted stratigraphy. (Imaged Conductivity).**

**Blue = low conductivity and high resistivity, warmer colours = high conductivity.**  
**Wireframe @ 50 ohm.m, magenta surface @ <20 ohm.m very high conductivity).**





## Appendix A – JORC Table One, Sampling Techniques and Data

### McArthur River – SkyTEM Geophysical Survey

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. 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.	Not relevant
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).	Not relevant Planned drilling will be diamond core of PQ/HQ and NQ size.
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.	Not relevant
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.	Not relevant
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.	Not relevant
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	The details of the geophysical survey were outlined in ASX Announcement of 20 November 2017.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Not relevant



	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.	
Locations 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. Quality and adequacy of topographic control.	Not relevant All coordinate data for the McArthur River project are in MGA_GDA94 Zone 53. SkyTEM data acquired with DGPS sub-metre accuracy.
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.	Not relevant
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.	Not relevant
Sample security	The measures taken to ensure sample security.	Not relevant
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Not relevant

## Section 2 Reporting of Exploration Results

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 McArthur River project is located on tenements EL 27711, 30085, 31703, and 31704, held 100% by Todd River Metals Pty Ltd, which is a wholly-owned subsidiary of Todd River Resources Limited. The tenement is in good standing with no known impediments.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The most significant previous work looking for base metals in the area was completed in the late 1960's by AGPL and is available on NTGS open file. Work from 2011 to 2016 by TNG is outlined in the Todd River Resources Prospectus.
Geology	Deposit type, geological setting and style of mineralisation.	The main target for this project is Zn-Pb-Cu-Ag mineralisation of a similar style to that found at the McArthur River Mine, some 60km NNE of the project location.
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: <ul style="list-style-type: none"> <li>○ Easting and northing of the drill collar</li> <li>○ Elevation of RL (Reduced Level – elevation above sea level in metres) of the drill collar</li> <li>○ Dip and azimuth of the hole</li> <li>○ Down hole length and interception depth</li> <li>○ Hole length</li> </ul>	Not relevant
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.  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.	No aggregation or averaging was conducted on the data reported here.



	The assumptions used for any reporting of metal equivalent values should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	<p>These relationships are particularly important in the reporting of Exploration Results.</p> <p>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</p> <p>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').</p>	Not relevant.
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 Figures 1, 2, 3, 4.
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.	Not relevant
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.	<p>No substantial new information is available other than that reported above.</p> <p>The SkyTEM survey assessment was reported in ASX Announcement on 20 November 2017.</p>
Further work	<p>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</p> <p>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</p>	Drilling to test three SkyTEM conductor targets will commence this month. Two targets identified from the SkyTEM survey with shallow conductors will have mapping and sampling conducted over the coming month.