# **ASX ANNOUNCEMENT**





# **Major Extensions of Bluebird Copper-Gold Discovery Intersected**

# Thick new copper intersections indicate mineralisation continues to greater depth

- The latest three diamond drillholes at the 100%-owned Bluebird copper-gold discovery have continued to intersect significant copper mineralisation to more than 250m below surface and extending to the west (Figure 1), highlighting the potential for the high-grade zone to continue to a much greater depth, in line with other major deposits in the Tennant Creek Mineral Field.
- The deepest hole drilled to date at Bluebird, **BBDD0015**, intersected <u>62m of hematite-silica</u> <u>alteration including a 20m zone of specular-hematite and copper mineralisation</u> (malachite, native copper, chrysocolla and copper sulphides) from 277m downhole (see Table 2, description).
- Significantly, the iron-oxide alteration and copper mineralisation intersected in BBDD0015 has changed orientation to dip steeply to the north (see cross section, Figure 2). This steepening of the mineralised zone at depth indicates that some previous holes may have stopped short of the main high-grade zone, which could extend much deeper than previously interpreted.
- ➤ Diamond drillhole BBDD0013 tested for extensions to the west of the previously announced 55m intersection of strong to intense hematite and copper mineralisation in BBDD0012¹ (assay results pending see Figure 1 for pierce point locations) and intersected a 46m zone of hematite alteration including 21m of intense hematite-magnetite and copper mineralisation (native copper and chalcocite) from 157m downhole (see Table 2, description).
- ➤ **BBDD0014** is interpreted to have tested the top of the Bluebird mineralised zone (Figure 1), intersecting **34m of hematite-silica alteration including a 16m zone with copper mineralisation** from 130m downhole (native copper and malachite, see Table 2 for description).
- ➤ The ongoing Stage 1² follow-up diamond drilling program is now focused on testing the Bluebird mineralisation to the west and down plunge, and will include a further two to three holes (see Figure 1). Down-hole electromagnetics (DHEM) will then be carried out from the deepest holes to determine the geometry of extensions to the Bluebird mineralisation, prior to the Stage 2 stepout drilling program² being initiated (see Figure 1).
- The intensely mineralised 55m zone intersected by BBDD0012<sup>1</sup> has been submitted to Intertek Laboratories in Alice Springs for sample preparation ahead of assaying in Townsville. Drillcore from BBDD0013, BBDD0014 and BBDD0015 is currently being logged and cut for sampling and will be submitted for copper, gold and other analyses shortly.
- Drone magnetics processing and modelling to define multiple additional copper-gold targets along the broader 5km Bluebird Corridor is nearing completion. New imagery and inversion models of the new magnetic data will be combined with the previous gravity inversion model to define priority drilling targets along this corridor.



## Tennant Minerals Chairman, Mr Matthew Driscoll, commented:

"We are delighted that the follow-up diamond drilling program at the Bluebird copper-gold discovery continues to intersect significant thicknesses of copper mineralisation.

"Critically, the latest drilling has intersected the mineralisation a further 100m down-plunge to the west on a steeper orientation. This has now opened-up the potential for the Bluebird discovery to continue to much greater depth.

"We look forward to finishing our Stage 1 follow-up drilling, receiving the assay results and completing the drone-magnetics modelling and targeting. The results of these critical programs will enable the Company to target Stage 2 step-out drilling at Bluebird, and test other key targets within the 5km Bluebird corridor, to unlock the true potential of what is clearly a very exciting copper-gold discovery in this historic and well-endowed mineral field."

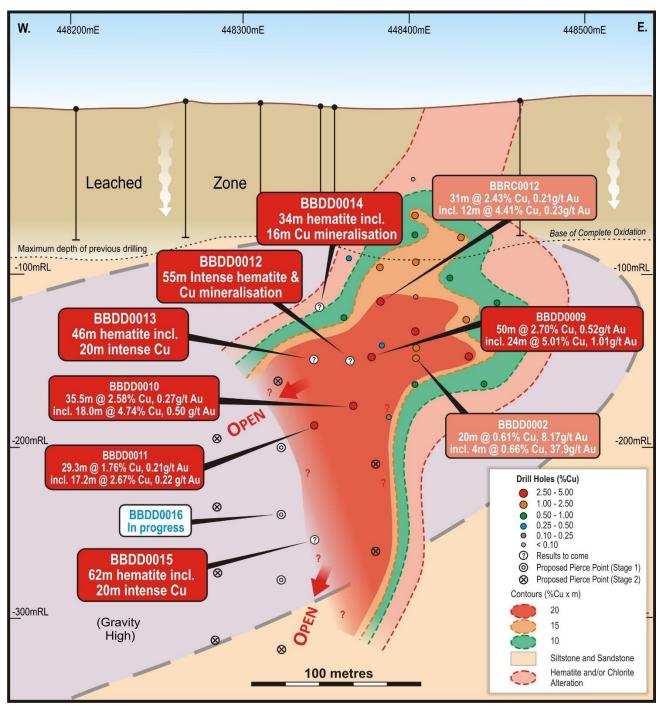


Figure 1: Bluebird longitudinal projection with previous high-grade copper-gold hits and recent intersections



Tennant Minerals Limited (ASX: TMS) ("Tennant" or "the Company") is very pleased to announce that another three diamond drillholes completed in the Stage 1 follow-up program at the Bluebird copper-gold discovery have intersected thick zones of hematite alteration and copper mineralisation, extending the Bluebird discovery to the west and a further 100m deeper to more than 250m below surface (see longitudinal projection, Figure 1 and cross sections, Figures 2, 3 and 4).

Bluebird is located within the Company's 100% owned Barkly Project, 45km east of Tennant Creek township in the Northern Territory, and at the eastern edge of the Tennant Creek copper-gold Mineral Field (see location, Figure 5).

The current drilling program at Bluebird is designed to scope out and expand the footprint of the high-grade copper-gold mineralisation in two stages, totalling up to 4,500m of diamond drilling (see proposed pierce points on longitudinal projection, Figure 1) comprising the:

- i) Stage 1 diamond drilling program of 6 holes for approximately 1,500m<sup>2</sup> targeting the central thickest part of the shallow, westerly plunging copper-gold shoot immediately down plunge from the previously reported thick and high-grade intersections<sup>3,4</sup> (Figures 1, 2, 3 and 4), and,
- ii) a **Stage 2 diamond drilling program of up to 10 step-out holes for 3,000m**<sup>2</sup> designed to significantly expand the footprint of the Bluebird discovery to over 300m strike length and over 300m vertical depth (see longitudinal projection, Figure 1).

## The current Stage 1 follow-up diamond drilling program at Bluebird:

The latest drilling has tested for extensions of the Bluebird mineralisation to the west and down-plunge of the previously announced **55m intensely copper mineralised intersection in BBDD0012**<sup>1</sup> (Figure 1). This new drilling, on section 448,340mE (see Figure 2), has tested above and below the previous western most hole in the program, BBDD0011 that intersected **29.3m @ 1.76% Cu and 0.21 g/t Au** from 195.7m including **17.2m @ 2.67% Cu and 0.22 g/t Au**<sup>4</sup> (Figure 4).

The first new hole on this section, BBDD0013 tested the mineralised zone approximately 40m above BBDD0011 (Figure 2), intersecting brecciated and chlorite/hematite altered siltstone with veinlets of copper mineralisation (native copper and malachite) from ~131m down hole then passed into a **21m zone of intense silica-hematite-magnetite alteration and copper mineralisation** (native copper, copper sulphide e.g., chalcocite) from 157 - 178m downhole (total 46m alteration and copper mineralisation, see Table 2).

A second, shallower hole on this section, BBDD0014, intersected the Bluebird mineralisation a further 25m above BBDD0013 (Figure 2), intersecting a 34m zone of chlorite and silica-hematite alteration from 134m downhole including a **16m zone of copper mineralisation** (native copper and malachite) from 130m downhole (Table 2). This is interpreted to represent the upper part of the Bluebird shoot (Figure 1).

The most significant new hole of the drilling program, BBDD0015, tested the down-dip extensions of the mineralisation below BBDD0011. BBDD0015 intersected fractured hematite altered siltstone with minor sulphides from ~235m down hole then passed into a **20m zone of brecciated, moderate to strong silica-specular hematite alteration and copper mineralisation** (malachite, chrysocolla, native copper and copper sulphides) from 277m to 297m downhole (total 62m alteration and copper mineralisation) (Table 2).

The hematite alteration and copper mineralisation intersected in BBDD0015 is deeper than expected and is associated with a steepening of dip of the mineralisation (Figure 2). **This new intersection has extended the Bluebird discovery a further 100m at depth, to 250m below surface**, extending down-plunge to the west where it remains open.

This steeper dip of the mineralised zone at depth indicates that some previous holes that were interpreted to have intersected the mineralisation down-dip may have stopped short of the main high-grade zone. In particular, previous hole BBRC018<sup>5</sup> on section 448,380mE (see re-interpreted cross section, Figure 3) that



was drilled below the BBDD0009 intersection of **50m** @ **2.70% Cu**, **0.52 g/t Au**, **29.8 g/t Ag** from 158m (down hole) **including 24m** @ **5.01% Cu**, **1.01 g/t Au**, **61.7 g/t Ag**<sup>3</sup> was interpreted to have tested the down-dip extensions of the mineralisation but only intersected weak to moderate mineralisation. The steeper orientation now interpreted means that the mineralisation may continue steeply to the north of BBRC018. **This opens-up potential for the Bluebird discovery to continue to much greater depth than previously anticipated** (see cross section, Figure 3).

Diamond drilling is currently testing the Bluebird mineralisation to the west and down-plunge of the drillholes described in this release. A further two holes will be carried out on section 448,320mE to complete Stage 1 of this follow-up program (total 6 holes for ~1,500m)<sup>2</sup> (see Figure 1).

Down-hole electromagnetics (DHEM) will be carried out from the deepest holes to determine the orientation of extensions to the Bluebird mineralisation, prior to the Stage 2 step-out drilling program<sup>2</sup> being initiated (see Figure 1).

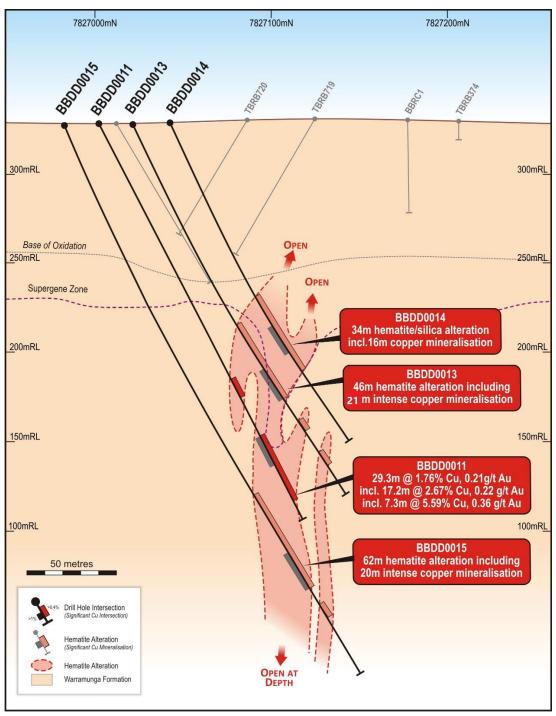


Figure 2: Cross-section 448,340mE with BBDD0013, 0014 and 0015 intersections and previous BBDD0011 drill-hit



## **Proposed Stage 2 Bluebird Drilling Program**

Bluebird has similar dimensions, geometry and mineralogy to Castille Resources' (ASX: CST)<sup>6</sup> Rover 1 discovery in the southwestern part of the Tennant Creek Mineral Field. Like Bluebird, the Rover 1 mineralisation has a moderate to steep plunge that continues for over 500m down plunge from 300m to 850m depth below surface. Castile recently announced a resource of **4.7Mt @ 1.63% Cu and 1.73 g/t Au** for the Rover 1 deposit<sup>6</sup>.

Other examples of typical Tennant Creek style deposits include the Warrego discovery of Peko-Wallsend that produced **6.75Mt** @ **1.9%** Cu, **6.6** g/t Au<sup>7</sup> from 1972 to 1989 and the Peko deposit, only 20km west of Bluebird, that produced **3.67Mt** @ **4%** Cu, **3.5** g/t Au<sup>7</sup> from 1954 to 1976 (see location, Figure 5).

The Bluebird discovery starts at only 60m below surface (see Figure 1), has only been tested to ~250m depth and is completely open at depth and down-plunge to the west. There is significant potential for the Bluebird discovery to continue at depth and to be of similar scale to the aforementioned deposits.

The 55m intersection of strong to intense hematite and copper mineralisation from BBDD0012<sup>1</sup> has been submitted to Intertek Laboratories in Alice Springs for sample preparation ahead of assaying in Townsville. Drillcore from BBDD0013, BBDD0014 and BBDD0015 is currently being logged and cut for sampling and will be submitted for analyses shortly.

Following receipt of drilling results from this Stage 1 follow-up program and the results of the DHEM, Stage 2 step-out drilling will be initiated. The Stage 2 holes will be designed to extend the testing of the Bluebird discovery at depth and along strike in order to scope the extent of the high-grade copper-gold mineralisation, that has the potential grow into one of the most significant new discoveries in the Tennant Creek Mineral Field.

## **Previous Drilling Programs at Bluebird**

The Bluebird copper-gold discovery was initially drilled by the Company in 2014<sup>8</sup> when RC and diamond drilling tested below a near surface RAB geochemical-drilling anomaly and intersected significant copper-gold mineralisation below a leached saprolite layer up to 80m deep. The 2014 program produced several high-grade intersections, including:

BBDD0004: 16m at 3.02% Cu, 0.65g/t Au from 139m, incl. 4m at 6.49% Cu, 0.74g/t Au<sup>8</sup>
BBRC0012: 31m at 2.48% Cu, 0.21g/t Au from 116m incl. 12m at 4.41% Cu, 0.23g/t Au<sup>8</sup>
BBDD-2: 20m at 0.61% Cu, 8.17g/t Au, from 157m incl. 0.66% Cu, 4m at 37.9g/t Au<sup>8</sup>

Further follow-up RC drilling in November 2020<sup>5</sup> extended the mineralisation at depth and produced significant intersections that included:

BBRC0015 20m @ 1.67% Cu, 1.79g/t Au from 156m, incl. 10m @ 2.32% Cu, 2.87 g/t Au<sup>5</sup>

**15m @ 3.46% Cu, 0.61g/t Au** from 172m, incl. **4m @ 6.28% Cu, 0.24g/t Au from 175m**<sup>5</sup>

The Company recently completed a very successful, five diamond drillhole for 1,048m program in December 2021<sup>3,4</sup>. That program tested for extensions to the identified mineralisation below previous RC holes such as BBRC0019<sup>5</sup> that was abandoned in high-grade copper-gold mineralisation, with the last metre assaying 4.81% Cu and 3.9 g/t Au. The recent drilling tested well into the footwall below BBRC0019<sup>7</sup>, intersecting a greater than 50m thickness of high-grade copper-gold mineralisation in BBDD0009<sup>3</sup> (see longitudinal projection, Figure 1), that intersected:

- o 50m @ 2.70% Cu, 0.52 g/t Au, 29.8 g/t Ag from 158m (down hole)<sup>3</sup>
  - including **24m @ 5.01% Cu, 1.01 g/t Au, 61.7 g/t Ag** from 159m.



A further two step-out holes to the west of BBDD0009 intersected down-dip and westerly, down-plunge extensions of this zone. This included **BBDD0010** that intersected **35.5m** @ **2.58% Cu**, **0.27 g/t Au** from 194m<sup>4</sup>, below BBRC0019 (see cross section, Figure 4 below) and the deepest hole of the recent program, **BBDD0011**, a step-out of 30m down plunge, that intersected **29.3m** @ **1.76% Cu** and **0.21 g/t Au** from 195.7m, that is open up and down dip as well as down plunge to the west<sup>2</sup> (see Figure's 1 and 2).

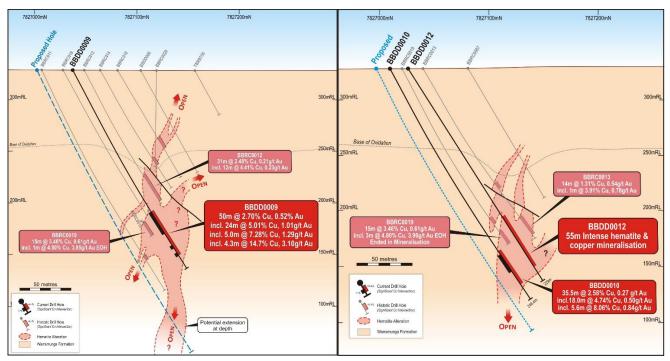


Figure 3: Cross-section 448,380mE with BBDD0009

Figure 4: Cross-section 448,360mE with BBDD0011

The drilling to date has identified a steep westerly plunging zone of copper-gold mineralisation that extends from 60m to >250m below surface (Figure 3) and at-least 150m along strike in an east-west orientation (see longitudinal projection, Figure 1), dipping steeply to the south.



Photo 1: Diamond drilling rig on the BBDD00121 site at the Bluebird Copper-Gold discovery



#### **ABOUT THE BARKLY PROJECT**

The Bluebird discovery is within the Company's 100%-owned Barkly Copper-Gold Project, located approximately 45km east of Tennant Creek, and comprising two Exploration Licences: EL 28620 (Barkly Prospect) and EL 30701 (Babbler Prospect) (see location, Figure 5 below).

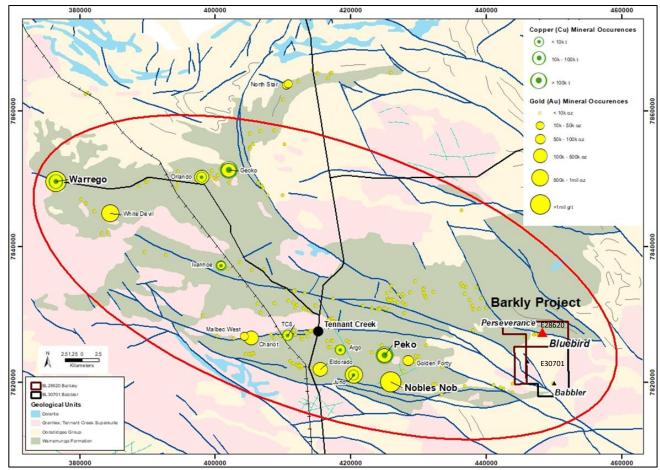


Figure 5: Location of the Barkly Project and major historical mines in the Tennant Creek Mineral Field

The Barkly and Babbler tenements are both considered highly prospective for magnetite-hematite (iron-oxide) copper-gold (IOCG) mineralisation, similar to other major deposits found elsewhere in the Tennant Creek Mineral Field such as the **Peko deposit** (Figure 5), only 20km to the west of the Barkly Project, that produced **147,000 tonnes of 4% Cu and 414Koz at 10 g/t Au** between 1934 and 1981<sup>7</sup>.

The high-grade Bluebird copper-gold discovery is associated with a gravity high, that is part of a 5km long gravity anomaly or "corridor" (see Figure 6). This gravity corridor reflects high-density, iron enrichment in the primary zone below the near surface leaching that penetrates to >60m depth at Bluebird.

Detailed gravity modelling indicates that the high-density zone iron enrichment zone extends strongly to the west of Bluebird, potentially linking with the Perseverance high-grade gold deposit 1.5km to the west, (Figure 6). Previous drilling under the historical gold workings at Perseverance produced shallow high-grade gold intersections such as 3m @ 50.0 g/t Au from 42m in PERC015<sup>9</sup> and 3m @ 43.2 g/t Au from 72m in PERC001<sup>9</sup>.

Previous ground magnetics indicates that Bluebird is associated with a linear, west-southwest trending magnetic anomaly and coincident gravity high. The Company has identified another 12 magnetic features along the 5km gravity trend (see gravity image, Figure 6) that have not been effectively tested. In order to better define these magnetic anomalies the Company completed a high-resolution drone magnetics survey over the entire 5km Bluebird gravity corridor in April/May 2022.



Processing of the drone magnetics survey data has been finalised and modelling and imaging by Southern Geoscience (SGC) is nearing completion. This new imaging and modelling is expected to better define key drilling targets for the discovery of additional copper-gold deposits within this highly prospective corridor.

Further RC and/or diamond drilling will be planned to test the multiple targets along the Bluebird Corridor that are prospective for the discovery of additional copper-gold deposits.

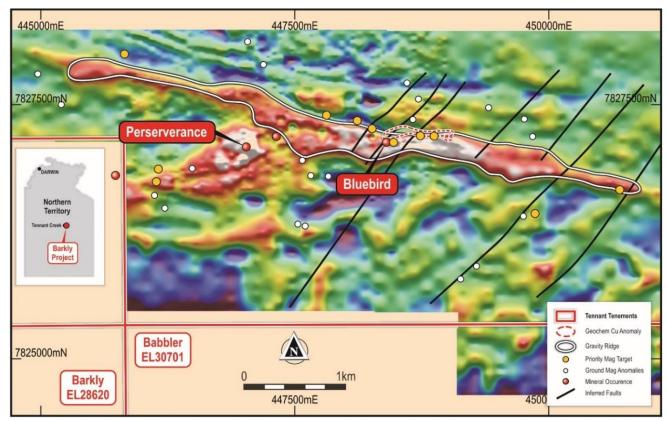


Figure 6: Bouguer 1VD gravity image with Bluebird Prospect and targets along the 5km Bluebird Corridor

Table 1 includes Stage 1 follow-up drillhole details to date.

Table 2 includes descriptions of the mineralisation intersected in BBDD0013, BBDD0014 and BBDD0015. Appendix 1 is JORC Table 1, Sections 1 and 2.

#### **REFERENCES**

- <sup>1</sup> 06 June 2022. Tennant Minerals (ASX.TMS):"55m Intensely Copper Mineralised Intersection at Bluebird"
- <sup>2</sup> 24 March 2022. Tennant Minerals (ASX. TMS): "Exploration Fast-Tracked at Bluebird Copper-Gold Discovery".
- <sup>3</sup> 08 March 2022. Tennant Minerals (ASX. TMS): "Spectacular 50m @ 2.70% copper intersection at Bluebird".
- <sup>4</sup>15 March 2022. Tennant Minerals (ASX. TMS): "More Exceptional Copper Intersections from Bluebird".
- <sup>5</sup> 18 March 2020. Blina Minerals (ASX: BDI): "High-Grade Copper and Gold Intersected in Drilling program at Bluebird".
- 6 08 March 2022. Castile Resources (ASX:CST):"Large Increases in Gold, Copper and Cobalt at Rover 1"
- <sup>7</sup> Portergeo.com.au/database/mineinfo. Tennant Creek Gecko, Warrego, White Devil, Nobles Nob, Juno, Peko, Argo.
- <sup>8</sup> 09 December 2014. Blaze International Ltd (ASX: BLZ): "High Grade Copper Sulphide Intersection at Bluebird".
- <sup>9</sup> Feb 1995, Posgold. Final Report for Exploration Licence 7693 for the Period 2/6/92 to 25/11/94. NTGS Report CR19950192.

\*\*\*ENDS\*\*\*

This release was authorised by the Board of Tennant Minerals Ltd.

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## **CAUTIONARY STATEMENT REGARDING FORWARD LOOKING INFORMATION**

This release contains forward-looking statements concerning Tennant Minerals Ltd. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes.

Forward looking statements in this release are based on the company's beliefs, opinions and estimates of Tennant Minerals Ltd as of the dates the forward-looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.

#### **COMPETENT PERSONS DECLARATION**

The information in this report that relates to exploration results is based on information compiled or reviewed by Mr Nick Burn who is Exploration Manager for Tennant Minerals Ltd and a member of the Australian Institute of Geoscientists. Mr Burn has sufficient experience which is 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 of Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Burn consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

#### **ASX LISTING RULES COMPLIANCE**

In preparing this announcement the Company has relied on the announcements previously made by the Company and specifically dated 09 December 2014, 24 September 2019, 18 March 2020, 06 December 2021, 13 December 2021, 21 December 2021, 8 March 2022, 15 March 2022, 24 March 2022, 4 April 2022, 13 May 2022 and 06 June 2022. The Company confirms that it is not aware of any new information or data that materially affects those announcements previously made, or that would materially affect the Company from relying on those announcements for the purpose of this announcement.

Table 1: Drilling details, current Stage 1 follow-up program to date:

Hole #	Dip°	Azi_Grid°	GRID_E	GRID_N	RL	Mud-rotary (m)	DDC (m)	Total Depth (m)
BBDD012	-60	0	448,360	7,827,032	332	86.7	142	228.7
BBDD013	-65	0	448,340	7,827,052	332	80.7	161.8	242.5
BBDD014	-65	0	448340	7,827,072	332	56.8	150.9	207.7
BBDD015	-65	0	448340	7,827,012	332	56.8	297.9	354.7
Total						281	752.6	1033.6



Table 2. Descriptions and visual estimates of mineralisation intersected, BBDD0013, 0014, 0015:

BBDD00	BBDD0013			
From	То	Lith Zone	Alteration	Visible mineralisation
0.0	80.7		Rotary PCD pre-collar	
80.7	138.6		Weakly fractured; scattered zones of irregular to cross- cutting qtz veining	129.4-131.05m: 0.1% native Cu in veinlets & blebs  131.05-131.19m: 0.1% malachite in veinlets & blebs  131.19-131.8m: 0.1% native Cu in veinlets & blebs  131.8-138.6m: nil
138.6	145.5		Weakly chloritic	
145.5	147.65	IUpper Ironstone	Intensely altered brecciated FeOX ironstone	
147.65	152.05	Hanging Wall metasiltstone	Unaltered	
152.05	157.0		Weakly chloritic	
157.0	164.5		* *	Disseminated copper sulphides (Chalcocite?) 1 to 5%
164.5		MAIN SILICA-FeOX ALTERATION ZONE		Disseminated copper sulphides (Chalcocite?) 1 to 5%
168.75	178.0		Strong to intense silica- hematite alteration: jasper-FeOX	0.1% blebby native Cu
178.0	242.5	motaciltatono	Pervasive weak hem alteration,  Patchy weak chlorite alteration	



BBDD00	BBDD0014				
From	То	Lith Zone	Alteration	Visible mineralisation	
0.0	56.8		Rotary PCD pre-collar		
56.8		metasiltstone	weakly fractured; scattered zones of irregular to crosscutting qtz veining		
110		MAIN SILICA-FeOX ALTERATION ZONE	· ·	one 1m zone of 1% Cu, native copper &/or malachite	
130		,	FeOX alteration	Two 1m to 2m zones of 1 to 5% native copper and/or malachite.	
160			Inferred weak hem &/or chlorite alteration		

BBDD00	BBDD0015			
From	То	Lith Zone	Alteration	Visible mineralisation
0.0	56.8		Rotary PCD pre-colla	r
56.8	276.9	Hanging Wall metasiltstone	84.9-96.5m: abundant fault breccia with clay infill  169.2-193.8m: abundant fault breccia, minor vein quartz below 177.6m  231.5-234.2m: abundant distorted vein quartz  234.2-246.9m: minor distorted vein quartz;  260.7-272.3m: some strongly fractured zones	<1% fine disseminated (Cu) sulphides



BBDD0015				
From	То	Lith Zone	Alteration	Visible mineralisation
276.9	296.75	Main alteration (mineralised) zone	276.9-283.6m: fractured & brecciated moderately to strongly silicified & FeOX zone scattered specular hematite & black hematite alteration	1% malachite & chrysocolla on fractures
			283.6-285.2m: Mylonite & sheared deformed quartz	trace <1% malachite
			285.2-287.6m: patchy irregular shiny black hematite (sulphides?); dark matrix may be silicified vfg tectonic 'flour'	1% fine malachite stockwork
			287.6-291.65m: brecciated	289.8-291.65: patchy 1% chrysocolla on fractures
			291.65-293.25m: moderate pervasive red hematite alteration; brecciated in part	trace <1% malachite on fractures
			293.25-294.75m: moderate dark hematite alteration; brecciated	patchy 1% chrysocolla on fractures
296.75	354.7	Foot Wall metasiltstone	294.75 to 342.3m: Pervasive reddish hematite alteration, scattered fracturing	294.75-296.0m: trace <1% malachite on fractures
			342.3-354.7 (EOH): pervasive moderate silica alteration & minor patchy hematite alteration	

# Cautionary note regarding visual estimates:

In relation to the disclosure of visual mineralisation in the table above, the Company cautions that visual estimates of oxide, carbonate and sulphide mineralisation material abundance should never be considered a proxy or substitute for laboratory analyses. Laboratory ICP-MS and ICP-OES analyses are required to determine widths and grade of the elements (e.g., copper, Cu) associated with the visible mineralisation reported from preliminary geological logging. The Company will update the market when laboratory analytical results are received and compiled.



# APPENDIX 1 JORC 2012 Edition - Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (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.</li> </ul>	<ul> <li>Exploration results are based on industry best practices, including sampling, assay methods, and appropriate quality assurance quality control (QAQC) measures.</li> <li>Core samples (2021) are taken as half HQ3 core and sampled on nominal 1m intervals, with sampling breaks adjusted to geological boundaries where appropriate.</li> <li>Reverse Circulation (RC), 2020 program: RC drill chips were collected at 1m intervals via a cone splitter in pre-numbered calico bags. The quantity of sample was monitored by the geologist during drilling.</li> <li>RC samples of between 3-4kg were sent to the laboratory where they were pulverised to at least 85% passing 75 microns. The pulp sample is then split to produce a sample for analysis.</li> <li>Diamond drill samples submitted to the laboratory are crushed and pulverised followed by a four-acid total digest and multi-element analysis by inductively coupled plasma optical emission spectrometry (ICP-OES) and inductively coupled plasma mass spectrometry (ICP-MS). Gold and precious metal analysis are completed by a 50g fire assay collection with inductively coupled plasma optical emission spectrometry (ICP-OES) finish.</li> </ul>
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).	<ul> <li>RC drilling (2020) was conducted using a 5<sup>1</sup>/<sub>4</sub>" face sampling hammer, with holes drilled -60 degrees.</li> <li>Rotary mud (RM) drilling (2021-22) was completed with 126mm PCD hammer with holes drilled between -60 and -65 degrees.</li> <li>2021-22 Diamond drillholes were collared using RM drilling and switched to HQ3 approximately 30m before the target position is intersected. All coordinates are quoted in GDA94 datum unless otherwise stated.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>RC sample recovery is monitored by the field geologist. Low sample recoveries are recorded on the drill log. The geologist is present during drilling to monitor the sample recovery process. There were no significant sample recovery issues encountered during the drilling program.</li> <li>RM sample recovery was monitored by the site geologist, logged and a sample record was retained for future interpretation. No analysis of rotary mud collars was undertaken.</li> </ul>



Criteria	JORC Code explanation	Commentary
		The quality of diamond core samples is monitored by the logging of various geotechnical parameters, and logging of core recovery and competency.
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>All logging is completed according to industry best practice.</li> <li>RC chips are logged at 1m intervals using a representative sample of the drill chips.         Logging records include lithology, alteration, mineralisation, colour and structure.</li> <li>RM chips are logged at 2m intervals using a representative sample of the drill chips.         Logging records include lithology, alteration, mineralisation and colour</li> <li>Detailed diamond drillcore information on lithology, sample quality, structure, geotechnical information, alteration and mineralisation are collected in a series of detailed self-validating logging templates.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being</li> </ul>	<ul> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique is considered adequate as per industry best practice.</li> <li>RC samples of 3-4kg are collected at 1m intervals using a cone splitter. The sample size is appropriate for the style of mineralisation and the grain size of the material being sampled.</li> <li>RC samples are dried at the laboratory and then pulverised to at least 85% passing 75 microns.</li> <li>RM samples were not analysed. A sample was retained for future interpretation.</li> <li>Core is cut using an Almonte automated core cutting saw. Half core is taken for sampling.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>sampled.</li> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.</li> </ul>	<ul> <li>All samples were submitted to the Intertek Laboratories sample preparation facility at Alice Springs in the Northern Territory where a pulp sample is prepared. The pulp samples are then transported to Intertek in Townsville Australia for analysis.</li> <li>Pulp sample(s) were digested with a mixture of four Acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric Acids for a total digest.</li> <li>Analysis of 2020 RC drilling; Cu, Pb, Ag, Bi, Co Ni, Sb have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry (MS-OES).</li> <li>Analysis of 2021 core drilling; Ag, Al, As,Ba,Bi,Ca,Cd,Ce,Co,Cr,Cu,Fe,K,La,Li,,Mg,Mn, Mo,Na,Ni,P,Pb,S,Sb,Sc,Sn,Sr,Te,Ti,Tl,V,W,Zn</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry (MS-OES).</li> <li>Gold was analysed by Fire Assay with a 25g charge and an ICP-MS finish with a 5ppb Au detection limit.</li> <li>A Field Standard, Duplicate or Blank is inserted every 25 samples. The Laboratory inserts its own standards and blanks at random intervals, but several are inserted per labely regardless of the size of the batch.</li> </ul>
Verification of	The verification of significant intersections	<ul><li>batch regardless of the size of the batch.</li><li>All significant intercepts are reviewed and</li></ul>
sampling and assaying	<ul> <li>by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>confirmed by at least two senior personnel before release to the market.</li> <li>No adjustments are made to the raw assay data. Data is imported directly to Datashed in raw original format.</li> <li>All data are validated using the QAQCR validation tool with Datashed. Visual validations are then carried out by senior staff members.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All drill hole collars were located with a handheld GPS with an accuracy of +/-5m. At the completion of the drilling program all holes were surveyed by DGPS.</li> <li>Downhole surveys (2020 RC) were taken at 30m intervals using a Reflex single shot camera. The camera records azimuth and dip of hole.</li> <li>Downhole surveys for the 2021 diamond drilling were taken at 6-12m intervals by solid state gyro to maintain strong control of drill direction</li> <li>Survey co-ordinates: GDA94 MGA Zone 53.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Data spacing and distribution used to determine geological continuity is dependent on the deposit type and style under consideration. Where a mineral resource is estimated, the appropriate data spacing, and density is decided and reported by the competent person.</li> <li>For mineral resource estimations, grades are estimated on composited assay data. The composite length is chosen based on the statistical average, usually 1m. Sample compositing is never applied to interval calculations reported to market. A sample length weighted interval is calculated as per industry best practice.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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</li> </ul>	<ul> <li>Orientation of sampling is as unbiased as possible based on the dominating mineralised structures and interpretation of the deposit geometry.</li> <li>If structure and geometry is not well understood, sampling is orientated to be perpendicular to the general strike of stratigraphy and/or regional structure.</li> </ul>



Criteria	JORC Code explanation	Commentary
	material.	
Sample security	The measures taken to ensure sample security.	<ul> <li>All samples remain in the custody of company geologists and are fully supervised from point of field collection to laboratory drop-off.</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	None yet undertaken for this dataset

# **JORC 2012 Edition - Section 2 Reporting of Exploration Results**

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

Criteria	deceding section also apply to this section.)  JORC Code explanation	Commentary
	•	•
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	The Company controls two contiguous Exploration Licences, EL 28620 and EL30701 located east of Tennant Creek. All tenure is in good standing at the time of reporting. There are no known impediments with respect to obtaining a licence to operate in the area.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Several other parties have undertaken exploration in the area between the 1930s through to the present day including Posgold, Meteoric Resources and Blaze Resources.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	The Barkly Project covers sediments of the Lower Proterozoic Warramunga Group that hosts all of the copper-gold mines and prospects in the Tennant Creek region. At the Bluebird prospect copper-gold mineralisation is hosted by an ironstone unit within a west-northwest striking fault. The ironstone cross cuts the sedimentary sequence that mostly comprises of siltstone.
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>For drilling details of the 2020 RC drilling program refer to Appendix 1 of the ASX announcement of 18 March 2020 by Blina Minerals (ASX: BDI): "High-Grade Copper and Gold Intersected in Drilling program at Bluebird"</li> <li>For drilling details of the 2014 Diamond and RC programs refer to Appendix 1 of the ASX announcement of 24 September 2019 by Blina Minerals (ASX: BDI): "Strategic Acquisition of High-Grade Gold-Copper Project".</li> </ul>
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	All exploration results are reported by a length weighted average. This ensures that short lengths of high-grade material receive



Criteria	JORC Code explanation	Commentary
	<ul> <li>usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	less weighting than longer lengths of low-grade material.  No high-grade cut-offs are applied
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul> <li>Mineralisation at Bluebird is interpreted to be striking east-west true azimuth with a dip of 70-80 degrees towards 180 degrees true azimuth.</li> <li>All holes are drilled as perpendicular as practical to the orientation of the mineralised unit and structure. Intersection lengths are interpreted to be close to true thickness.</li> </ul>
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.	<ul> <li>Refer to Figures 1, 2, 3 and 4 for appropriate sections though the Bluebird mineralisation including pierce point locations, and Figures 5 and 6, plan views showing location of the Bluebird prospect and Barkly Project respectively.</li> </ul>
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 avoiding misleading reporting of Exploration Results.	<ul> <li>All background information is discussed in the announcement.</li> <li>No new results are reported in this announcement.</li> <li>Refer to Tables in previous referenced releases for details of previous results.</li> </ul>
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 other data is material to this report.
Further work	<ul> <li>The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Additional drilling in progress to extend mineralisation along strike and in particular to the west of BBDD011.</li> <li>Regional targeting including modelling of gravity and a drone magnetic survey will be carried out to drill target repeats of the high-grade Bluebird copper gold shoot within the 5km Bluebird Corridor.</li> </ul>