Superior Resources | **ASX** Announcement

**12 April 2023**

# Discovery of a large porphyry-style alteration and Cu-Au-Mo mineralisation system with significant Mo at Bottletree


## SUMMARY:

- **Significant breakthrough at Bottletree with confirmation of a concentrically zoned porphyry style hydrothermal alteration and copper and molybdenum mineralisation system characterised by features typically recognised within the wall rocks near porphyry copper-molybdenum intrusions, extending from surface to at least 850m down-dip depth.**
- **Central alteration system is a broad (>1km diameter) outer propylitic alteration shell, zoning inward to several inner propylitic and potassic alteration zones, which reflects increasing temperature of hydrothermal fluids westwards and with depth towards the centre of the Bottletree Prospect.**
- **Western-most hole BTDD010 and deeper part of BTDD005 potentially drilled within close proximity to a targeted porphyry core.**
- **Discovery of high-grade molybdenum mineralisation associated with late-stage tonalite porphyry intrusions with up to a spectacular 5.2% Mo (1m assay) encountered in BTDD010.**
- **At least two distinct mineralising events recognised, with early-stage copper-gold-molybdenum mineralisation associated with prograde potassic alteration and a late-stage molybdenum-dominant event likely associated with a separate porphyry intrusion.**
- **The concentrically zoned propylitic-potassic alteration and the style of Cu-Mo veins recognised in the wall rocks are typical exploration pathfinders used to vector towards blind porphyry mineralisation. As typical of porphyry systems, the prograde propylitic-potassic alteration is overprinted by retrograde phyllic alteration with which, most prominent Mo mineralisation is associated.**
- **BTDD010 drilled to 1,065m down-hole depth, encountered regularly-spaced copper-mineralised veins over almost entire length of core.** Most of the mineralisation within the hole is considered to represent low grade leakage from the central porphyry-style source. **The presence of copper mineralisation over such a large area provides an early indication of the potential scale of the central porphyry system.**
- **A 270m-wide interval of copper mineralisation near the bottom of Hole 10 and 850m down dip from surface, considered to have intersected wall rock hosted, structurally-controlled copper mineralisation within potassic, grading out to inner propylitic alteration, close to the source of the alteration and mineralisation.**
- **Exploration focussed primarily on vectoring to the central porphyry potassic core in the search for a mineralised porphyry Cu-Mo intrusion. A separate program will delineate the extent of mineralisation within the wall rocks to determine the potential for an economic Wallrock Porphyry style Cu-Mo deposit such as in the Cadia Valley, NSW.**

**Superior's Managing Director, Peter Hwang commented:**

*"With an enormous amount of work completed over the last six months at Bottletree, we are especially pleased to see several significant outcomes being delivered at this very early-stage of exploration drilling.*

*"The independent assessment of Bottletree as a copper-gold-molybdenum porphyry system by internationally recognised porphyry-epithermal expert, Dr Greg Corbett, provides a solid foundation for the project and together with the identification of several porphyry pathfinders, we feel greater confidence in discovering a nearby mineralised porphyry core.*

*"The several deep holes that were drilled in the last program have demonstrated the extensive effects of a porphyry alteration system with associated copper mineralisation that has been traced for at least one kilometre, both in horizontal and down-hole extent.*

*"Of particular interest is the newly discovered late-stage molybdenum mineralisation system that has so far, demonstrated ability to carry spectacular molybdenum grades of up to 5.2% Mo. With molybdenum spot prices currently above USD60,000 per tonne, Bottletree's molybdenum potential could be transformational in terms of its overall economic potential.*

*"We are also pleased to have incidentally extended the wall rock hosted "out of porphyry" alteration and mineralisation from surface to at least 850 metres down-dip depth. With only four holes in this zone, we are yet to test its full potential.*

*"The recently completed program has provided almost 5,000 metres of valuable information and enabled significant breakthroughs that have implications for the greater Greenvale Copper Project. Importantly, the information validates Greenvale as a newly recognised porphyry province containing several porphyry systems with Tier-1 deposit potential. This province extends for at least 65 kilometres, includes at least five known or suspected additional porphyry prospects and is 100 percent owned by the Company.*

*"We are now even more confident that the province represents the northern remnants of the New South Wales Ordovician-age Macquarie Arc, which hosts the world-class Cadia and Ridgeway porphyry deposits. The discovery of a copper-molybdenum porphyry system in this part of Queensland is remarkably significant, as metallogenically-fertile Ordovician-age porphyries similar to those in NSW were not previously known to exist in Queensland.*

*"Although chasing copper grade is not the focus at this stage of the program, each of Holes 4, 5, 6 and 10 have confirmed extensive dispersion of copper mineralisation at Bottletree. We expected large intervals in Holes 5, 6 and 10 to be barren, but instead, the holes demonstrated that low grade copper veining, typical of porphyry-altered wall rock zones, is present over almost the entire 933 metre, 732 metre and 1,065 metre respective lengths of those holes.*

*"The value and significance of the project have now been elevated considerably and with only eight porphyry-targeted holes drilled so far, we believe we are on the pathway to a significant porphyry discovery.*

*"As our confidence and excitement at Bottletree grows amidst an inevitable increasing global demand for copper, it is strategically prime and necessary to double our exploration efforts by enlivening our most advanced porphyry prospect, Cockie Creek. We are investing to strengthen our teams and resources to drive an even stronger value presence in the future metals sector."*

## Summary – Discovery of a Cu-Au-Mo porphyry system at Bottletree

- **Porphyry System**

  **Confirmation within Bottletree drill core of extensive wall rock-hosted hydrothermal alteration and Cu-Mo mineralisation, typical of that used to vector towards blind buried Cu-Au-Mo porphyry deposits as the source(s).** Extensive copper-in-soils over **a 2km x 1.5km area** is centred over several porphyry targets.

  Spatial zonation of **prograde hydrothermal alteration that typically envelopes a mineralised porphyry system has been identified** and modelled from the main line of deep drill holes (from west to east: BTDD010, 005 and 004). The zonation pattern maps out progressively "hotter" alteration mineral assemblages with "cooler" outer propylitic alteration at the eastern edge of the prospect to **"hotter" potassic alteration at the western limit of the current drill line**. This zonation (and other factors) enables the vectoring of exploration towards a more mineralised porphyry potassic core.

  **Of particular note is the discovery of high grade molybdenum mineralisation and the concentration of that mineralisation towards the central part of the Bottletree prospect area.**

  **Drilling to date has highlighted a general broad one kilometre-diameter outer propylitic alteration shell, zoning inward to several inner propylitic and potassic alteration zones.** BTDD010 was drilled to 1,065m down-hole depth and encountered regularly-spaced copper-mineralised veins over almost entire length of core. The hole was not drilled for copper grade. However, the broad alteration envelope together with the very broad distribution of copper vein mineralisation, may be an indication of the size-potential of the underlying magmatic source.

  With only one line of three holes providing the main pathfinder information, 3D analysis of the data has been limited. Nevertheless, the pathfinders based on prograde hydrothermal alteration, porphyry vein characteristics and extensive structural data **indicate that the latest drill holes are potentially in close proximity to a source intrusion located at depth and generally westerly, towards the centre of the prospect area** (Figure 1).

- **Wall Rock-Hosted Mineralisation**

  Previously reported drill holes BTDD004[1] and SBTRD006[2] are **now confirmed to have intersected extensive vein mineralisation within the wall rocks** (Figure 1).

  **In some settings (e.g., Cadia Valley, NSW) porphyry-style vein mineralisation developed within the wall rocks may attain economic Cu-Mo-Au grades and be regarded as Wallrock Porphyry deposits** (Newcrest, 1996)**.**

  The mineralised zone intersected by BTDD004 and SBTRD006 was also intersected in the lower portions of BTDD005, BTDD006 and BTDD010. BTDD010 is currently the western-most hole and extends the wall rock mineralisation **from surface to at least 850 metres down-dip**. From the sparse drilling to date, the zone appears to continue over a **strike length of at least 250 metres**. At surface, the zone is associated with a gossan envelope that has been mapped over a strike length of 500 metres.

  **Continued exploration will evaluate the Cu mineralisation within the wall rocks for its potential to develop into Wallrock Porphyry style ore systems. The gossan envelope that continues over a distance of up to 800 metres at the southern margin of the prospect area, now warrants further consideration.**

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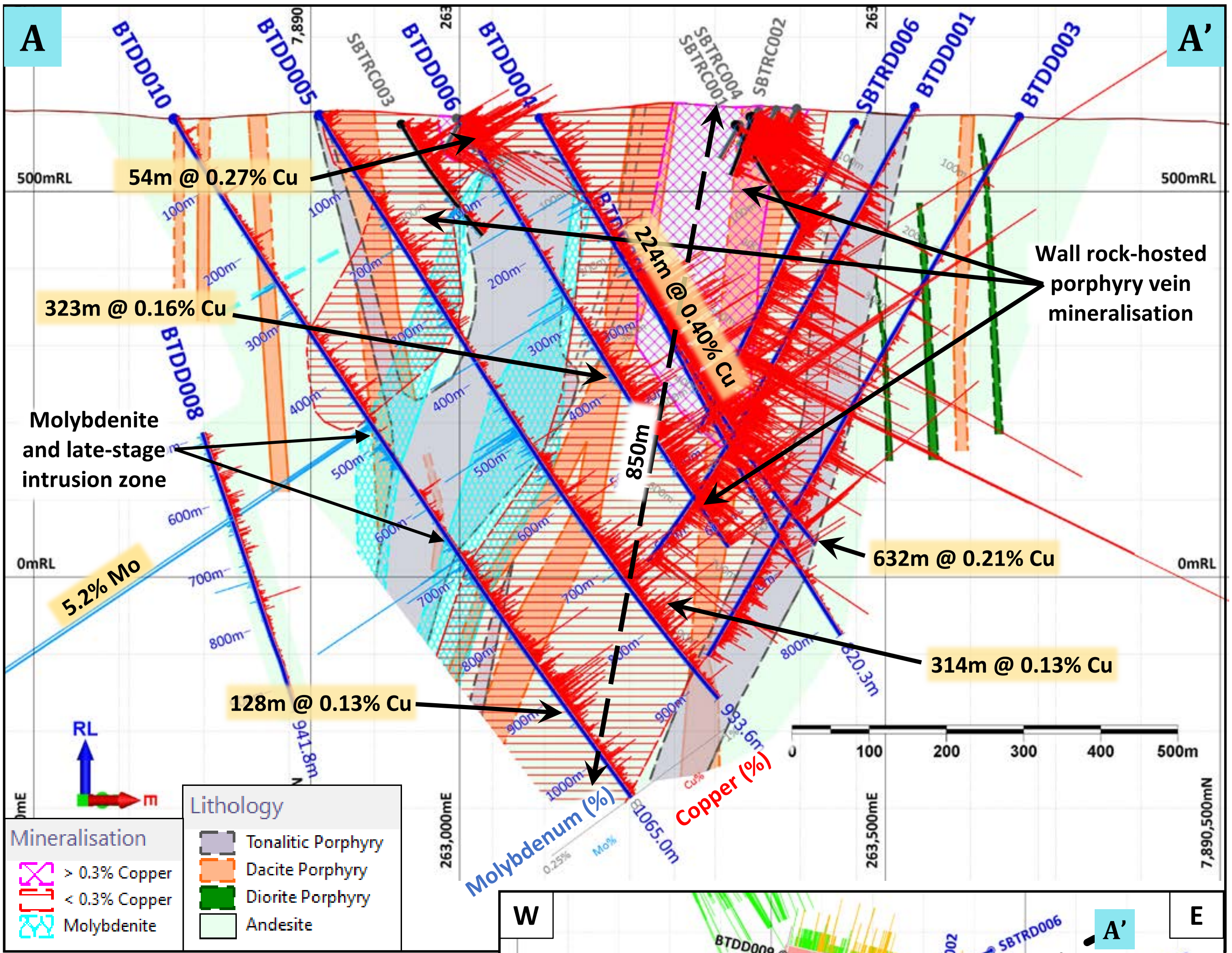
[1] Returned 224m @ 0.40% Cu, within an overall 632m @ 0.21% Cu, incl 103m @ 0.53% Cu, 0.05g/t Au; refer ASX announcement dated 2 June 2022.

[2] Returned 292m @ 0.22% Cu, including 18.7m @ 1.12% Cu; refer ASX announcement dated 25 October 2018.



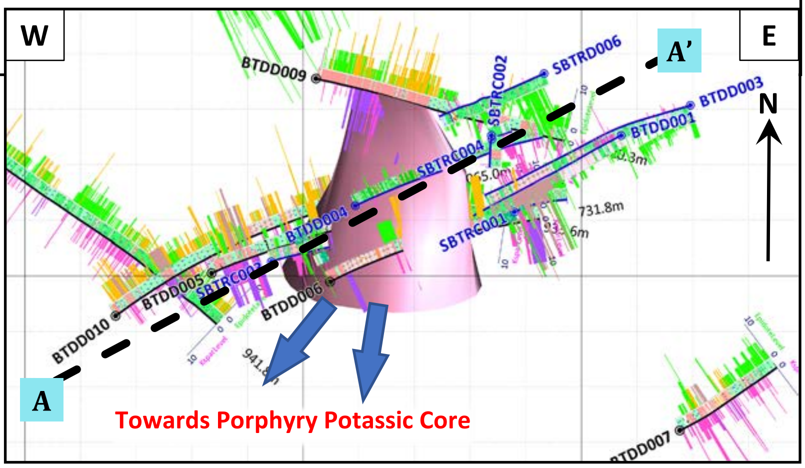




*Figure 1. Cross section A-A’ (top) showing geology, Wallrock Porphyry Zone and averaged Cu and Mo grades. Hydrothermal fluid flow, porphyry core and Wallrock Porphyry Zone potentially sourced from off the section line towards the SSW. I.e.* ***Holes BTDD005 and 010 are likely to have intersected the margin of a zone of higher grade mineralisation within the wall rocks.***

- Exploration has focussed upon drilling holes to map porphyry pathfinder indicators such as alteration, geochemistry, porphyry vein characteristics and structure in order to develop an exploration model that will vector towards the discovery of one or more mineralised porphyry cores. This process has been remarkably successful, as indicated above, with the identification of a large, zoned wall rock-hosted porphyry-style hydrothermal alteration body possibly caused by a porphyry-style intrusion at depth.
- Projected to surface, vein and disseminated Cu mineralisation is present over a very broad area, resulting in part, from the exploitation of regional foliation fabric and other structures by the hydrothermal mineralising fluids. Copper mineralisation in holes BTDD005, BTDD006 and BTDD010 is variably present within veins and veinlets over almost the entire 933.6 metre, 731.8 metre and 1,065 metre respective lengths of those holes.

## Bottletree porphyry targets

Following the drilling of an extensive MIMDAS IP chargeability anomaly (approx. 500m diameter, extending from near surface to 1km depth) at the north-eastern edge of the prospect in 2021, which led to the identification of porphyry-style mineralisation to the west of the anomaly, six soil geochemistry targets were selected across the Bottletree area. The **six targets, designated Porphyry Targets "A" to "F"**, were selected on the basis of highly anomalous and coincident levels of soil copper and molybdenum values (Figures 2 and 3).

Drilling of **Porphyry Target F** has resulted in the **discovery of the Bottletree wall rock-hosted porphyry vein mineralisation and hydrothermal alteration**.

The 2022 program focussed primarily on **Porphyry Target A**, which resulted in the definition of the large porphyry propylitic to potassic prograde hydrothermal alteration system.

Porphyry Targets B, C, D and E potentially represent separate alteration zones that may provide exploration vectors towards additional porphyry intrusion targets.

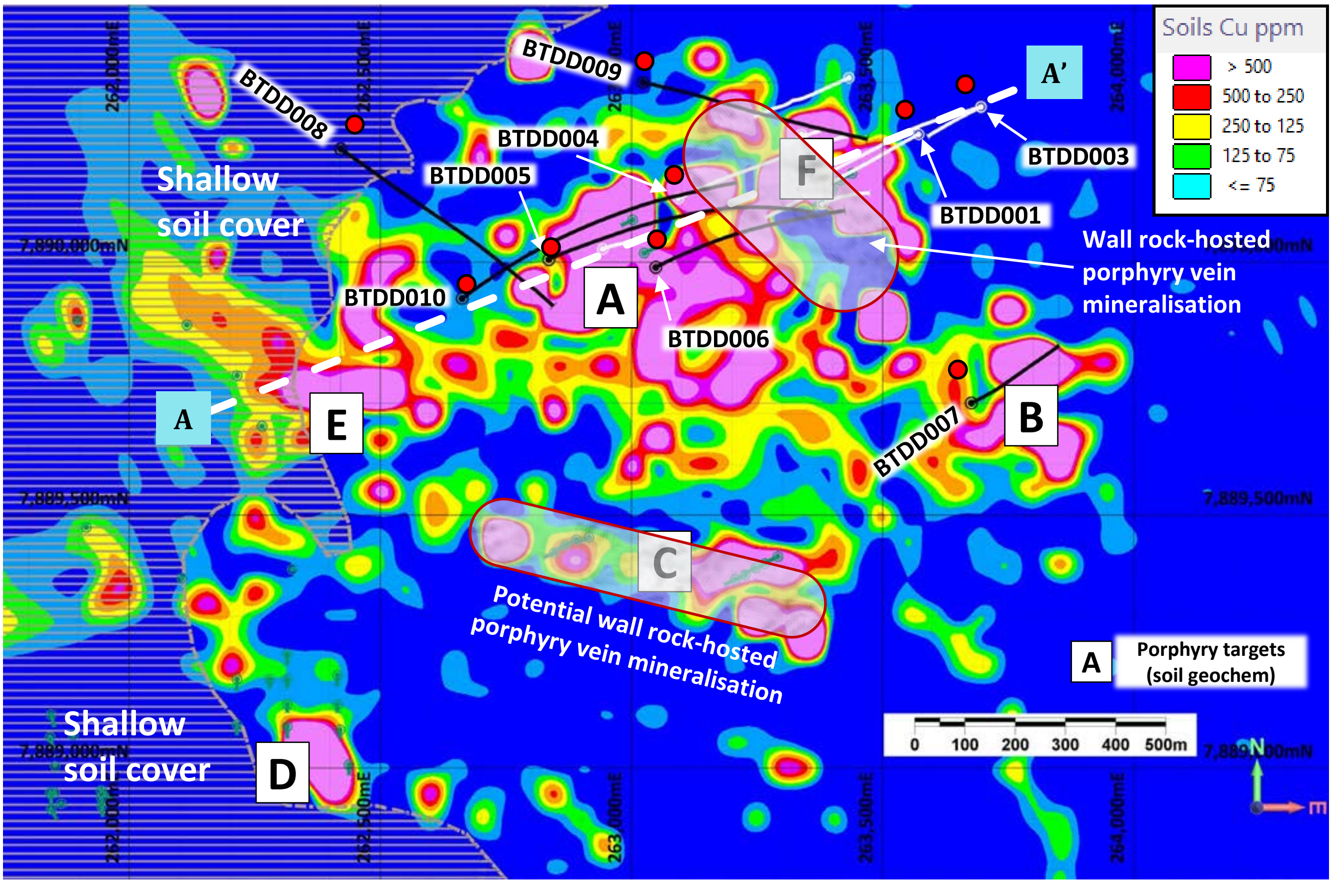



*Figure 2. Plan of Bottletree diamond core drill holes over gridded soil copper geochemistry. Porphyry Targets A to F with highlighted zones of more intense wall rock-hosted porphyry vein mineralisation and alteration zones are indicated. Cross-section profiles in other figures are based on the dashed line A-A'. Area of recent alluvium and colluvium is shown as a hashed area over the western part of the image.*

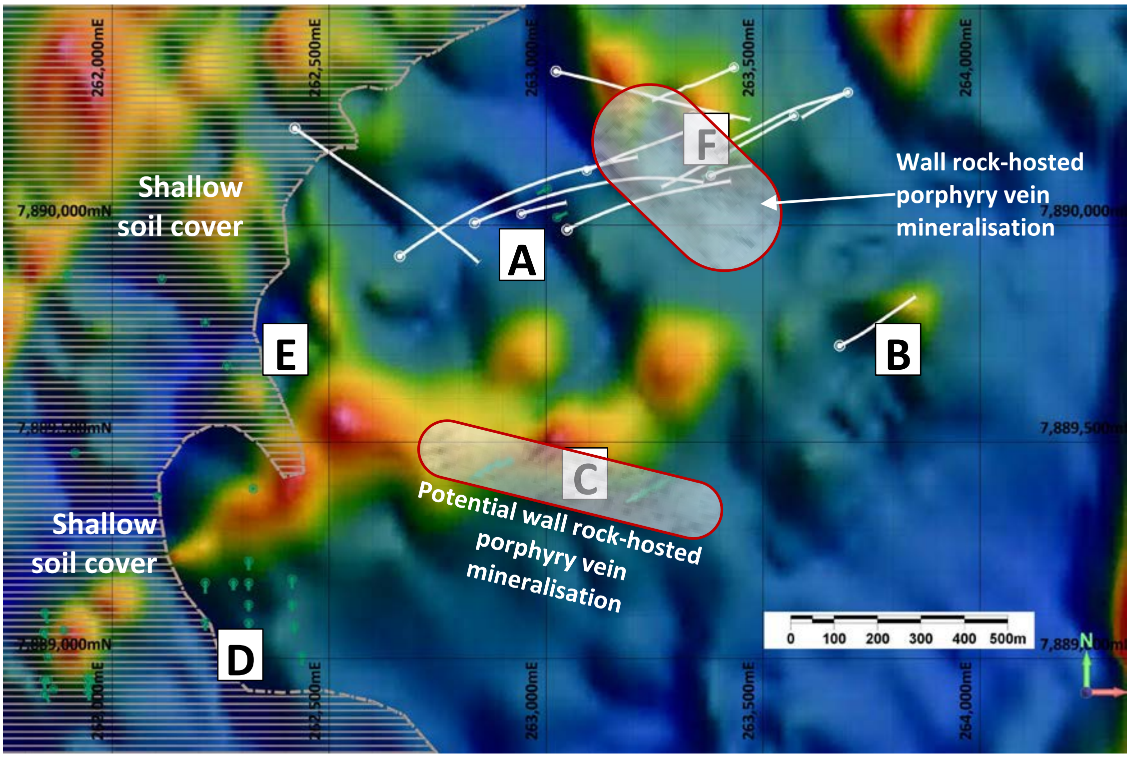



*Figure 3. Plan of Bottletree diamond core drill holes over TDr Vi NSSF processed aerial magnetometer survey data. Porphyry Targets A to F with highlighted zones of more intense wall rock-hosted porphyry vein mineralisation and alteration zones are indicated.*

## Porphyry alteration system

As mentioned above, the objective of the recent drilling program was to clarify the nature of porphyry-related hydrothermal alteration and vein mineralisation hosted in the wall rocks at the Bottletree prospect area. Prograde alteration is caused by the injection of high temperature magma and associated magmatic fluids into pre-existing rock. The migration of hot magmatic fluids into the surrounding rock and resulting thermal progression from high temperature inner-most potassic alteration mineral associations (closest to the core of a mineralised porphyry intrusion) through to progressively cooler and more distal inner, then outer propylitic alteration zones, outwards from the hot core. Late-stage development of a porphyry system involves the cooling of the overall system, which is associated with an overprinting of the earlier prograde alteration assemblages with progressively lower temperature, retrograde assemblages (Figure 4).

At Bottletree, numerous dacite, diorite and tonalitic porphyry intrusions, marginal to the porphyry core, were intersected by the 2022 drill holes (Figures 5 and 8). However, the intrusions do not clearly evidence a causative link to the copper mineralisation and do not appear to relate to the porphyry alteration system. For the purpose of obtaining an independent opinion on the complex geology observed at Bottletree, the Company engaged internationally recognised porphyry-epithermal expert, Dr Greg Corbett, to conduct a close examination of drill core from holes BTDD010, 005, 006, 004 and 2018-hole SBTRD006. A report prepared by Dr Corbett will be available at www.superiorresources.com.au under the “Investors” tab.

Drilling to date has confirmed a broad one kilometre-diameter outer porphyry propylitic alteration shell, zoning inward to several structurally-controlled inner propylitic and potassic alteration zones (Figure 6). The alteration system developed from many hydrothermal fluid pathways that are substantially controlled by the regional metamorphic foliation and structural features such as fault and shear zones. The influence of the regional foliation on copper-mineralised veins is also pervasive and prevalent, although significant populations of cross-cutting veins are also observed. Porphyry B and D-type veins, mineralised with copper, developed within the main area of wall rock-hosted porphyry alteration and mineralisation, grade to lower temperature deep epithermal quartz-pyrrhotite-pyrite-chalcopyrite veins to the east. **As exploration progresses, the wall rock-hosted porphyry-style alteration and vein mineralisation are expected to provide improved vectors towards a possible porphyry source** (Figure 4).

**The overall alteration trend observed across the Porphyry Target A area is one of increasing temperature of hydrothermal alteration towards the west and towards deeper levels with increasing abundance of biotite-chalcopyrite mineralisation as the dominant potassic mineral assemblage.**

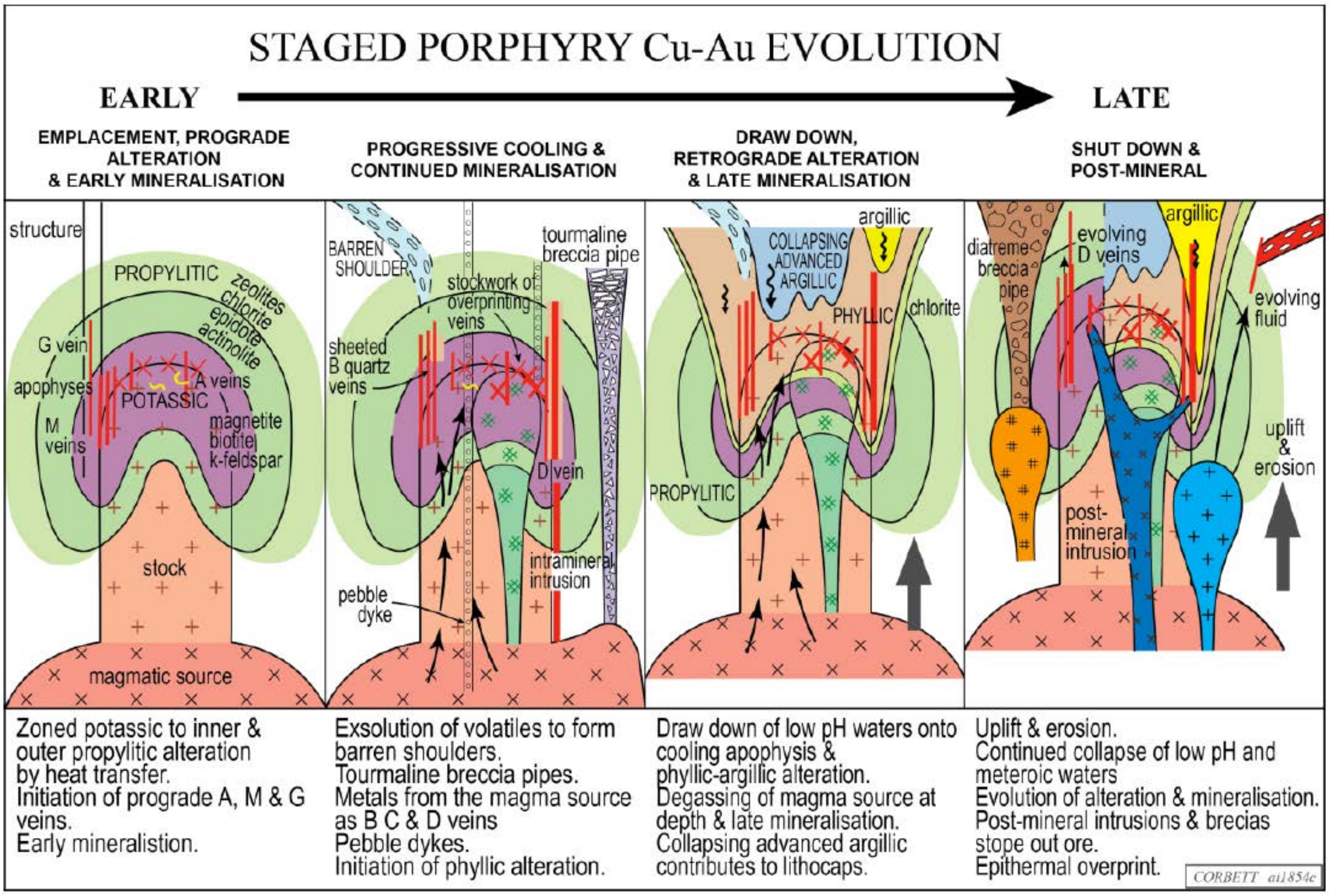



*Figure 4. Conceptual model of a porphyry copper-gold deposit system showing the progressive development of the system over time, zonation of alteration outwards from the core of a porphyry intrusion and other features associated with porphyry Cu-Au deposits (from Corbett, 2019). Potassic alteration is developed both within the main porphyry intrusion and within the wall rock.*

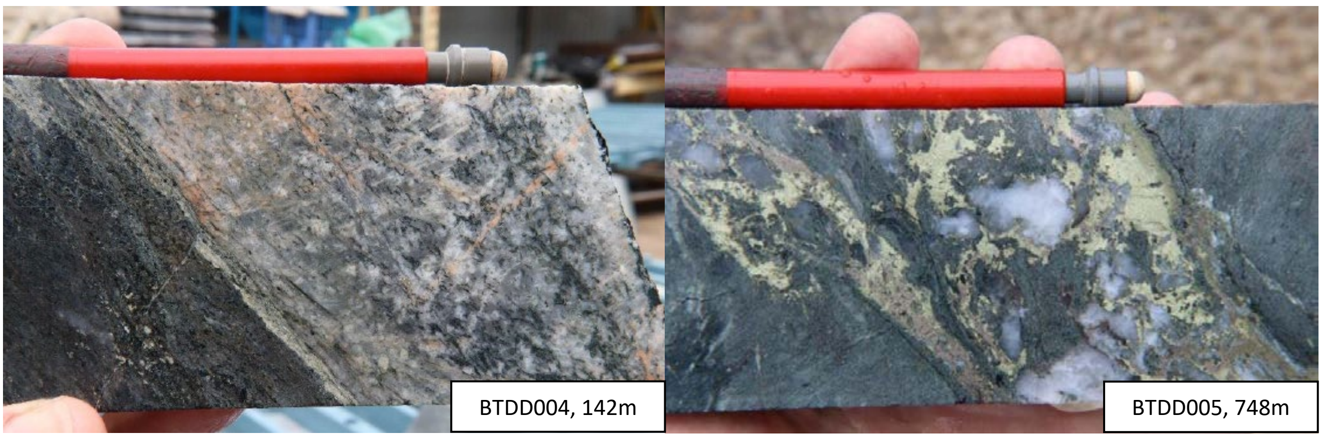



*Figure 5. Feldspar porphyry dyke (light coloured) with actinolite alteration intruded parallel to foliation (Left) and porphyry quartz-chalcopyrite-pyrrhotite D vein cross-cutting chlorite (photos from Corbett, 2023).*

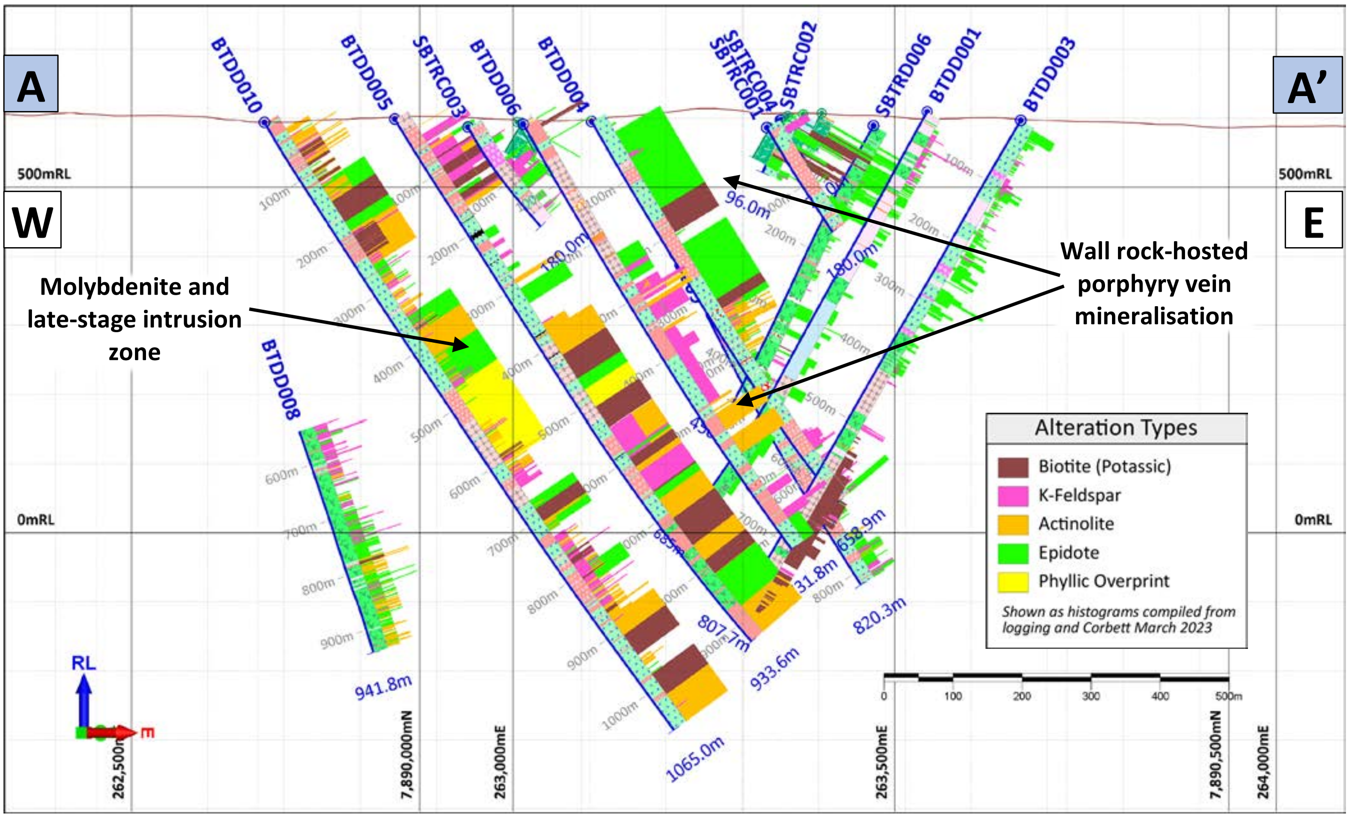



*Figure 6. Down-hole intersections of porphyry alteration presented as key alteration minerals with histograms representing generalised alteration intensities. Modelling of the main potassic alteration fluid pathway (shown in 2-D), together with structural and other data, enables vectoring of the pathfinders towards a possible intrusion source for zoned alteration at depth to the west.*

**SUMMARY NOTES – PORPHYRY ALTERATION SYSTEM**

- **The zonation of hydrothermal alteration within wall rocks to a porphyry system is a key pathfinder indicator used to vector towards the potassic core of the system.**
- **A broad one kilometre-diameter outer propylitic alteration shell, zoning inward and at depth to several inner propylitic and potassic alteration zones has been identified at Bottletree.**
- **Alteration grade increases progressively towards the centre of the Bottletree prospect area, from cooler epithermal mineralisation in the east to hotter porphyry potassic alteration towards the west and with depth over Porphyry Target A.**
- **Porphyry D-type veins are developed within the wall rocks and are pathfinder indicators that assist with vectoring towards the source porphyry core.**
- **The Bottletree alteration profile is typical of an "out of porphyry" wall rock porphyry environment and is considered to be located at a marginal position to the core of a mineralised porphyry system.**
- **The persistence of the key potassic biotite-chalcopyrite mineralisation pathfinder westwards and to deeper levels may be an indication that BTDD010 is close to the main porphyry potassic zone.**

## Mineralisation

Drilling to date along the main drill line A-A' across Porphyry Target A has identified two distinct mineralising events that appear unrelated in terms of timing of mineralisation style and the source of the mineralisation fluids. Although Bottletree is characterised as a copper-gold-molybdenum porphyry, a separate and later molybdenum-dominant mineralising event post-dates the main copper event, which may vary to Cu-Mo mineralisation in the west.

### Porphyry Target A – Copper(-gold-molybdenum) mineralisation

Copper mineralisation is best developed as high temperature biotite-chalcopyrite (potassic) mineralisation, which dominates at depth in the west of the section and grades through D style (with lesser A, B and C style) chalcopyrite-pyrite dominant porphyry veins, some with sericite selvages, to lower temperature quartz-chalcopyrite-pyrrhotite deep epithermal mineralisation in the east. Veins more commonly exploit the foliation than cross cut it.

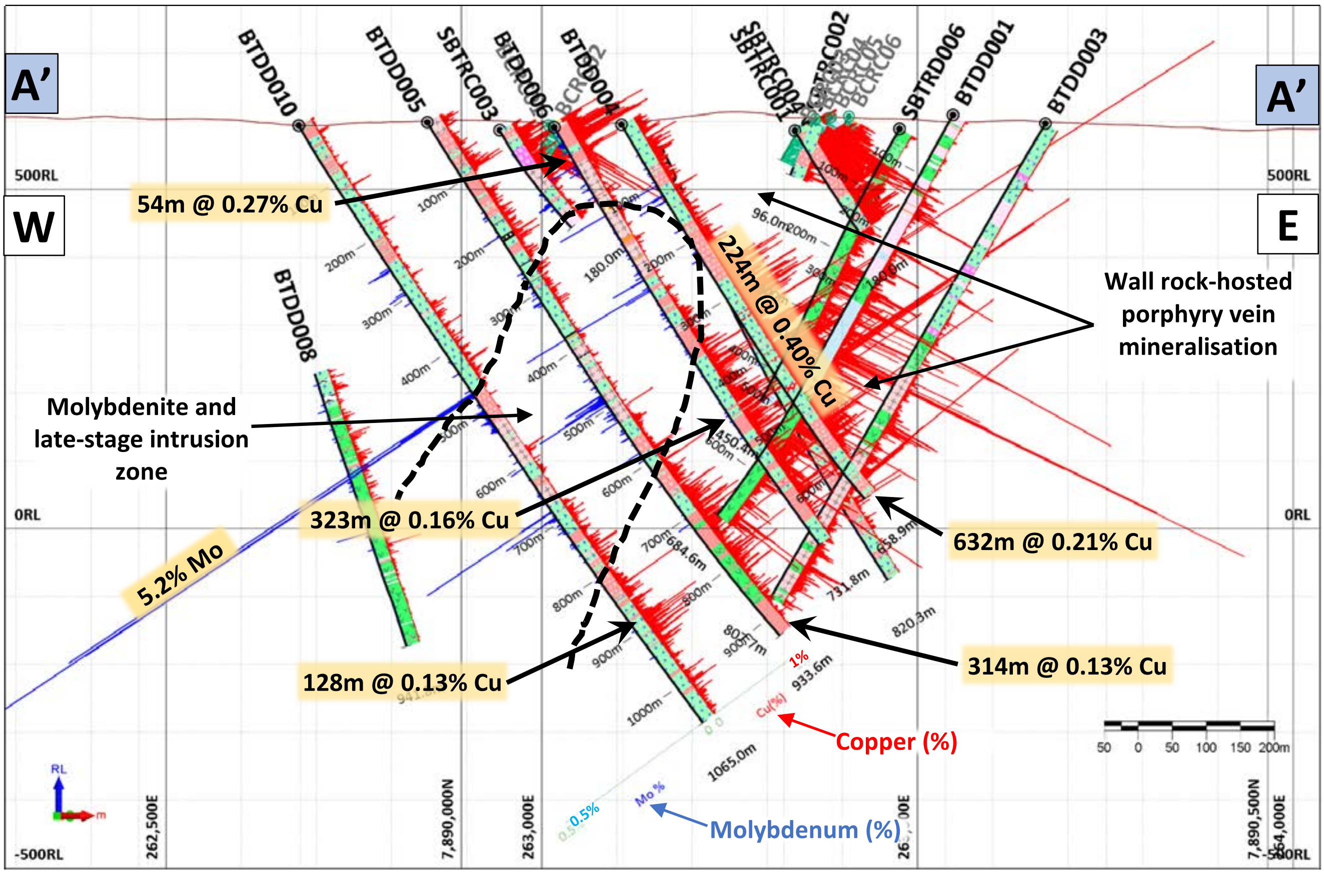



*Figure 7. Cross section A-A' showing logged rock type and Cu (red) and Mo (blue) grades (%) as histograms along drill hole traces. Dashed black line represents a generalised delineation of late-stage intrusions associated with molybdenite, which may have stoped-out some of the wall rock-hosted porphyry Cu-Au-Mo mineralisation. Note the extensive presence of copper mineralisation in each of the holes.*

**Each of holes BTDD005, 006 and 010, targeting Porphyry Target A, intersected variable amounts of vein copper mineralisation over almost the entire 933.6 metre, 731.8 metre and 1,065 metre respective lengths of the holes. The very broad presence of copper is significant and potentially indicative of the size-potential of the source porphyry intrusion at depth** (Figure 7).

Copper-molybdenite veins are rare. **However, one well-developed early-stage Cu-Mo vein that cross-cuts the foliation and is deformed by it, in the western limit of exploration in the upper portion of BTDD010, may vector towards a different style of mineralisation in that direction (Figures 9 and 11).**

Copper grades decline in the vicinity of the tonalite intrusions within which, early potassic alteration may display a strong sericite overprint with associated molybdenite mineralisation. **These intrusions are interpreted to overprint the main copper mineralisation event, locally stoping out the copper (Figures 6 to 8).**

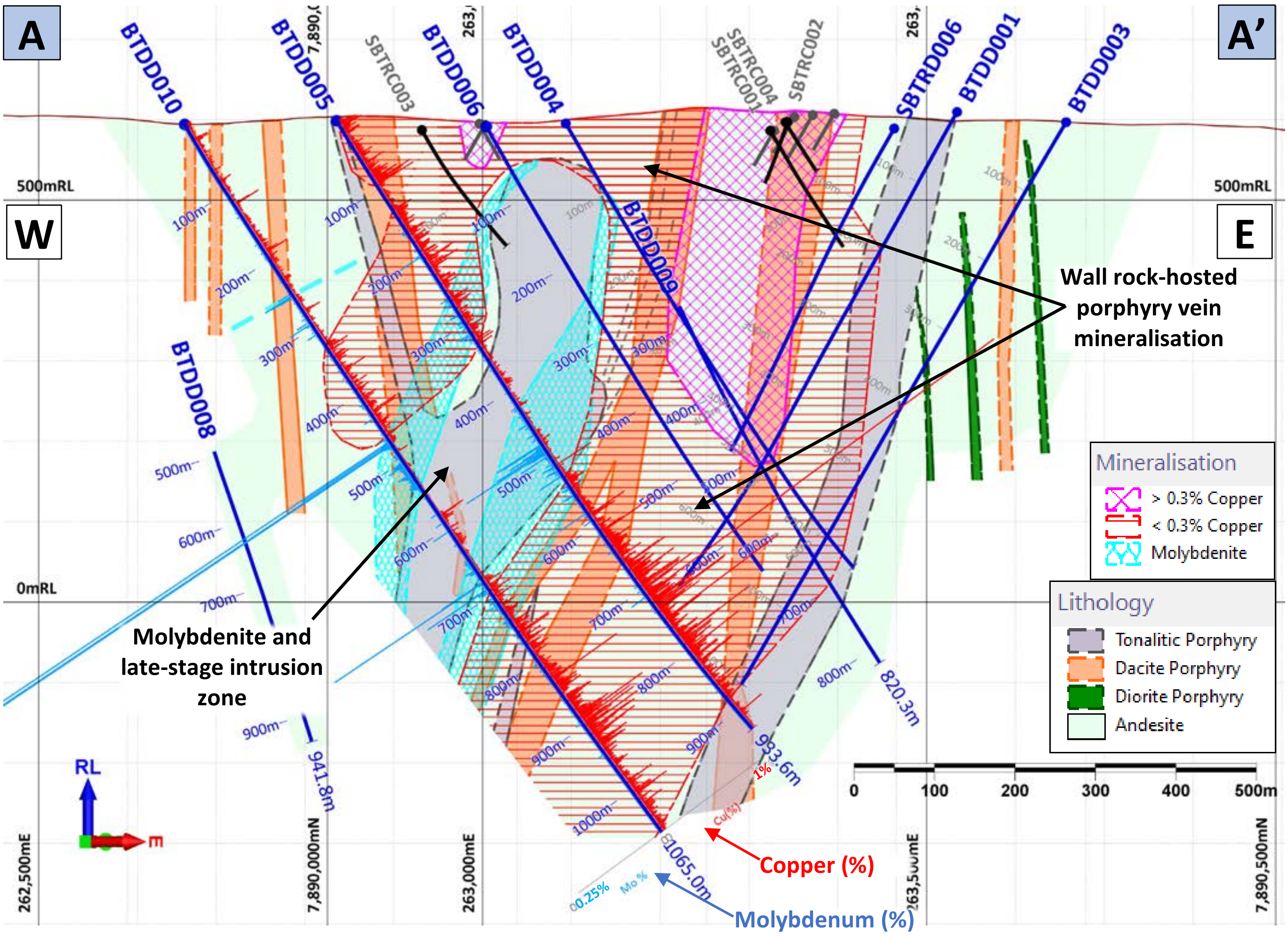



*Figure 8. Cross section A-A' showing the initial Bottletree geological model. Higher grade zones of copper and zones of strong molybdenite mineralisation are also shown.*

## Porphyry Target A – Molybdenum mineralisation

In contrast to the copper mineralisation, molybdenum mineralisation appears to be spatially associated with tonalitic porphyry intrusions nearer to the centre of the prospect area, with grade gradually increasing towards the west and at depth (Figures 7 to 9). The mineralisation is mainly developed in veins and zones of structural weakness up to 50 centimetres in thickness along the margins and within the tonalite porphyry. **Grades up to 6m @ 1.39% Mo from 470m in BTDD010, including a spectacular 1m @ 5.2% Mo from 474m have been returned (Figures 9 and 10, Tables 2 and 3).**

Contrasting copper and molybdenum mineral associations in which chalcopyrite is commonly associated with biotite, indicating potassic alteration, whereas molybdenite is more often associated with sericite as phyllic alteration, indicate that **a significant proportion of the molybdenite mineralisation is a later event and possibly from a different source**. **As a result and as indicated above, the tonalitic porphyry may have stoped-out part of the wall rock-hosted porphyry Cu-Au-Mo mineralisation.** Alternatively, the molybdenum mineralisation may originate from the same magmatic source as the copper mineralisation, but represent mineralisation during the late-stage development of the porphyry system where the hydrothermal fluids are more reduced and acidic, prompting late precipitation of the molybdenum (e.g. Bingham Canyon, USA; Seo, et al., 2012).

Although the temporal and spatial separation of copper and molybdenum mineralisation is common within porphyry systems, **the separation observed at Bottletree is likely to indicate the existence of at least two different porphyry source intrusions.**

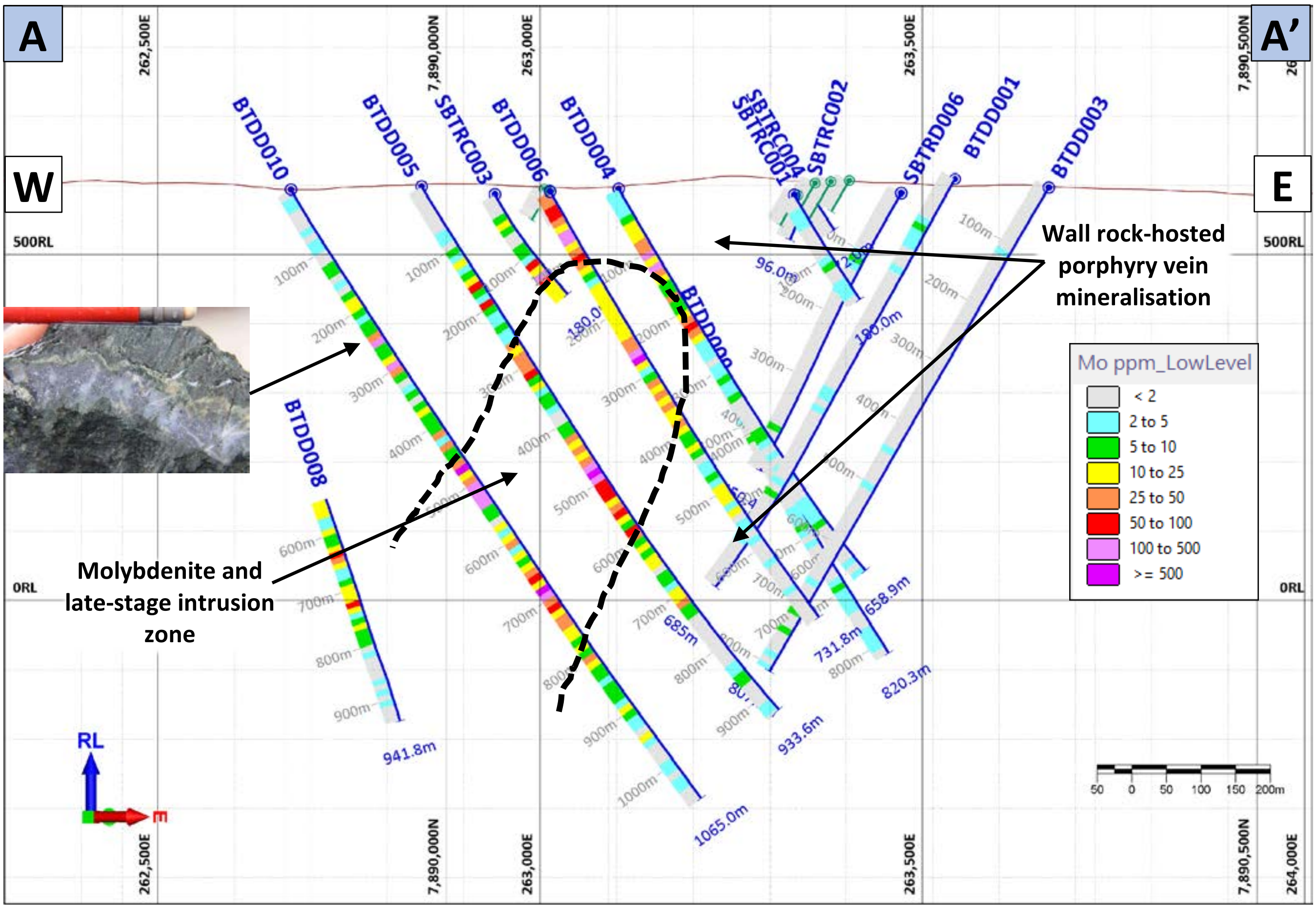



*Figure 9. Cross section A-A' showing down-hole Mo assay grades (ppm) along drill hole traces. Molybdenum mineralisation trends westwards with increasing abundance and grade. Dashed black line represents a generalised delineation of late-stage intrusions associated with molybdenite, which may have stoped-out some of the wall rock-hosted porphyry Cu-Au-Mo mineralisation. Location of significant early-stage quartz-molybdenum vein also shown.*

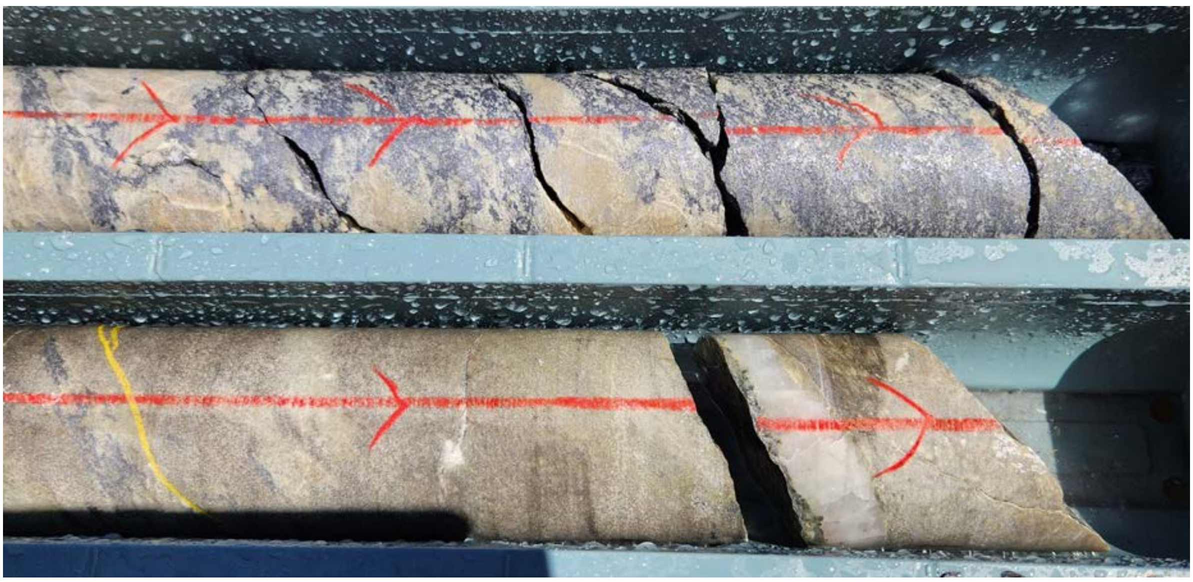


*Figure 10. Intense molybdenum mineralisation within tonalite porphyry (**1m @ 5.2% Mo** within **6m @ 1.39% Mo, BTDD010, 474m – 476m**).*

Disseminated molybdenite is observed within a late-stage aplite dyke near a major shear zone at BTDD005, 500m (Figure 11), which is proximal to abundant high grade fracture-controlled molybdenite veining. **The aplite dyke cross-cuts the regional foliation, which supports the interpreted later origin of molybdenum and its association with a different intrusive source.**

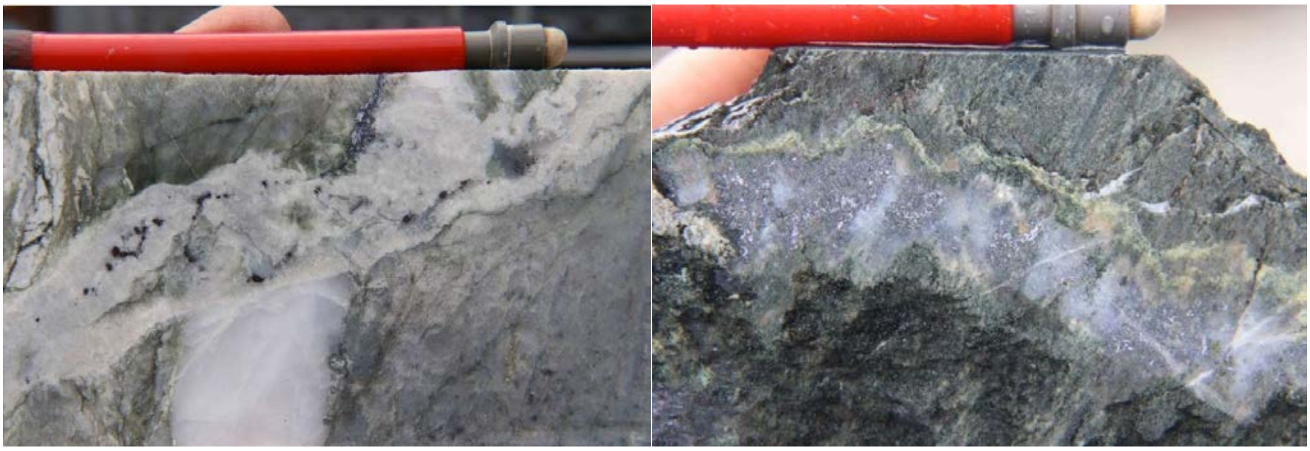


*Figure 11. Disseminated molybdenite (left) within an aplite dyke that cross-cuts the regional foliation (BTDD005, 510.7m) and an early-stage syn-deformation porphyry quartz-molybdenite vein with prograde epidote selvage (right) cross-cutting foliation and appears to be also cut by the foliation (BTDD010, 252.5m) (photos from Corbett, 2023).*

**The cross-cutting aplite dyke in BTDD005 and the early-stage quartz-molybdenite vein in BTDD010 are exploration vectors that are important pathfinder indicators.**

The Mo soil geochemistry indicates that a significant molybdenum zone lies about 250 metres to the south of BTDD010 (Figure 12). This zone will be tested for the possibility of a shallow molybdenum resource and a potential causative porphyry intrusion. **With the current molybdenum spot price at above US$60,000 per tonne, the presence of one or more zones of high Mo grades is likely to have a significant upgrading effect on the overall economics of the system, particularly as an average global grade of porphyry copper deposits has been reported as 0.018% Mo (John, et al., 2010).**

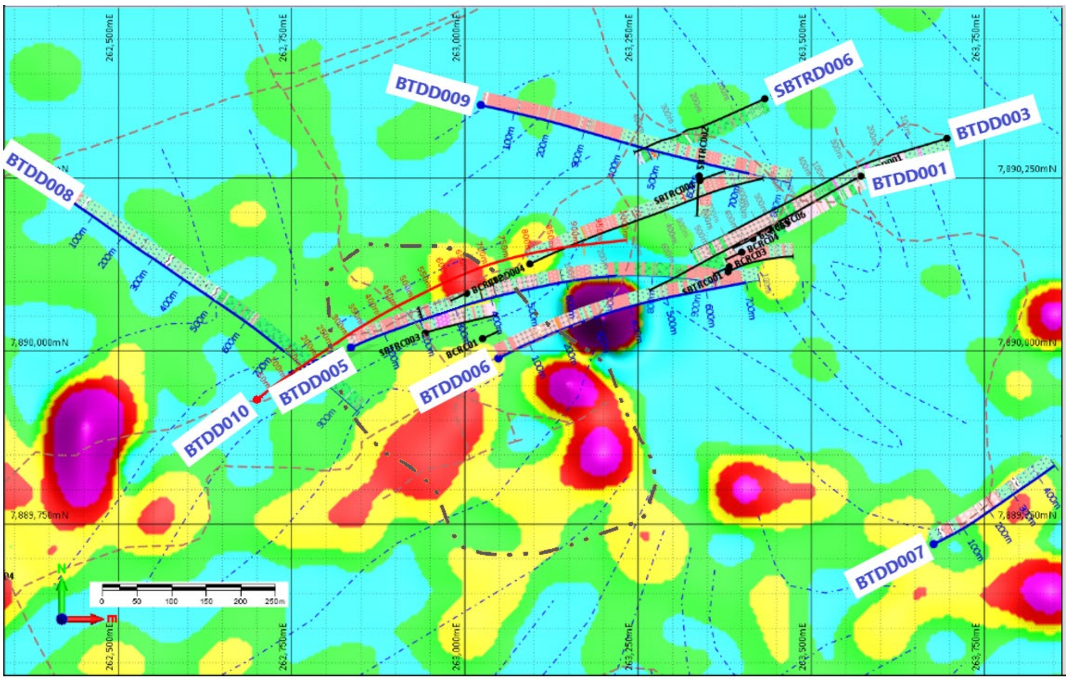



*Figure 12. Mo soil geochemistry data showing zones of high Mo relative to current drill holes. Significant Mo to the south of current drilling warrants drill testing for shallow molybdenum mineralisation.*

## Wall Rock-Hosted Mineralisation

Holes BTDD005, BTDD006 and BTDD010 also intersected one or more zones of intense wall rock-hosted porphyry-style vein copper and molybdenite mineralisation displaying similar characteristics to the high grade zone in 2021 hole **BTDD004, which returned 224m @ 0.40% Cu**[3]. Each of the zones in holes BTDD004, 005, 006 and 010 are considered to be the down-dip extensions of the extensive copper mineralisation observed in surface outcrop. **Hole 10 effectively extends this copper zone from surface to at least 850 metres down dip.**

The more intense zones of copper mineralisation within Holes 4, 5, 6, 10 and 2018 hole SBTRD006 define a large, more intensely-mineralised zone of wall rock-hosted porphyry-style vein mineralisation. **The zone remains open in most directions and is considered likely to extend to, or close to the targeted potassic core of a porphyry system.**

On the basis of detailed geological mapping of a gossan envelope, soil geochemical data and historical drilling, potential exists for **a second zone of wall rock-hosted mineralisation that continues over a distance of up to 800 metres at the southern margin of the prospect area**.

**The full extent in terms of size and grade of the two currently identified wall rock-hosted mineralised zones will be investigated in a separate drilling program.**

Some examples of the wall rock-hosted vein mineralisation are shown in Figure 13. Summaries of some mineralised intersections are set out in Tables 2 and 3.


*Figure 13. Examples of wall rock-hosted vein mineralisation: BTDD005 – 699.9m (left); BTDD005 – 708.5m (middle) – buck quartz vein with chalcopyrite-pyrite-pyrrhotite infill; and BTDD006 – 531.7m (right) – quartz-pyrite-chalcopyrite-pyrrhotite.*

[3] Refer ASX announcement dated 2 June 2022

## Porphyry Target B – potential second porphyry system

Porphyry Target B, located 900 metres east-southeast of BTDD005 (Porphyry Target A), is an area defined by anomalously high copper and molybdenum soil geochemistry that is coincident with an anomalous IP chargeability target at depth. Surface copper mineralisation (malachite) and historical diggings are also present.

Diamond core hole BTDD007 tested this target to a moderate total depth of 460.3 metres. Several porphyry intrusions were intersected amongst metavolcanic host rocks. The presence of copper mineralisation was extensive, although low grade, which is consistent with expectations on the basis of a probable deep porphyry source.

A summary of the best mineralisation intersections from BTDD007 includes:

- **23m @ 0.13% Cu, 0.05 g/t Au, 0.3 ppm Ag and 28.9 ppm Mo** from 72 metres;
    - Including**, 6m @ 0.34% Cu, 0.09 g/t Au, 0.8 ppm Ag and 70.3 ppm Mo** from 73.00 metres.

Other intersections include:

- 14m @ 0.11% Cu, 0.02 g/t Au, 0.6 ppm Ag and 1.3 ppm Mo from 160 metres;
- 6m @ 0.12% Cu, 0.11 g/t Au, 0.3 ppm Ag and 2.4 ppm Mo from 211 metres; and
- 6m @ 0.13% Cu, 0.08 g/t Au, 0.2 ppm Ag and 2.9 ppm Mo from 273 metres.

Petrographic analysis of a dacite porphyry intrusion that was intersected at approximately 95 metres depth identified clusters of sulphide minerals, including an association of chalcopyrite-bornite-molybdenite (Figure 14). Although an interesting association of sulphide minerals from a porphyry system point of view, the overall wall rock hydrothermal alteration is dominated by epidote alteration and likely to be more distal to a porphyry source than the potassic alteration of Porphyry Target A.

Porphyry Target B is currently considered lower priority than the other Bottletree targets due to the lower temperature propylitic alteration indicating possibly a more distal position to a source intrusion. Follow-up work will be considered after further analysis of the higher priority targets.

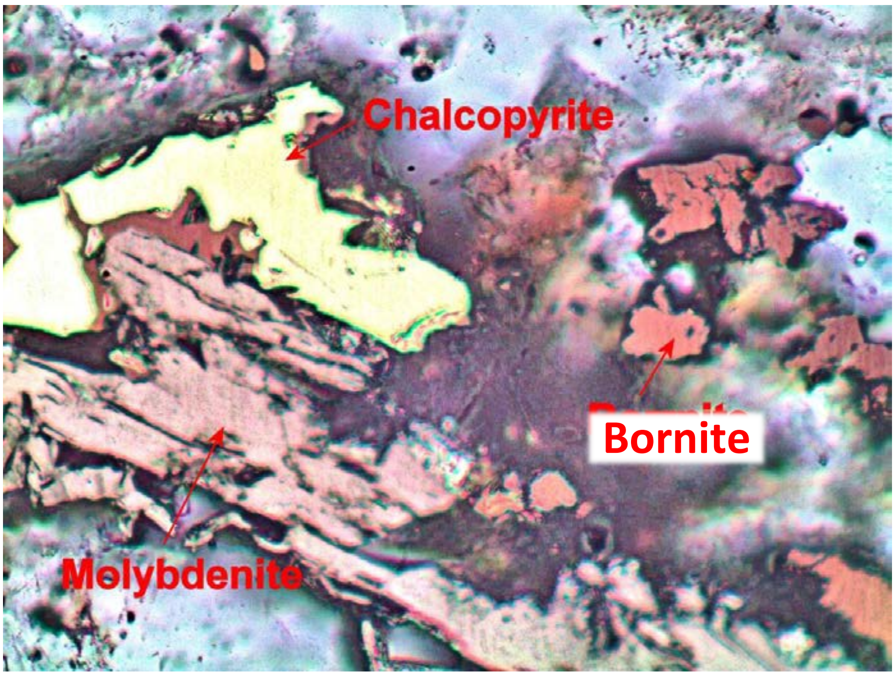



*Figure 14. Thin section of highly altered dacite/tonalite porphyry (BTDD007, 95.30m) showing a chalcopyrite, bornite, molybdenite cluster. Reflected light. Width of frame: 200 microns (Taylor, 2022).*

# Vectoring to a porphyry core

The current Bottletree alteration and mineralisation model provides alteration and mineralogical pathfinders that together with in-core structural information, vector towards a source located generally to the west. However, from structural data and limited 3D interpretation of the alteration and mineralogy information, it appears that **the main copper-mineralising fluid flow pathways are likely to be moving off the section line A-A’ (as defined by Holes 4, 5 and 10) towards either a north-westerly or south-westerly direction** (Figures 15 and 16). In other words, BTDD010 and possibly BTDD005 may have intersected the margins of the higher-grade wall rock-hosted copper zones and potassic alteration zone (Figures 15 and 16).

The Company considers that the latest drilling has reached a point that is potentially within “close” proximity to a source potassic zone of a mineralised porphyry system.

The 2023 program will be designed on the basis of the vectoring information and will include additional holes to the north and south of the current line of drilling with the aim of discovering the core of a significant Cu-Au-Mo porphyry system.

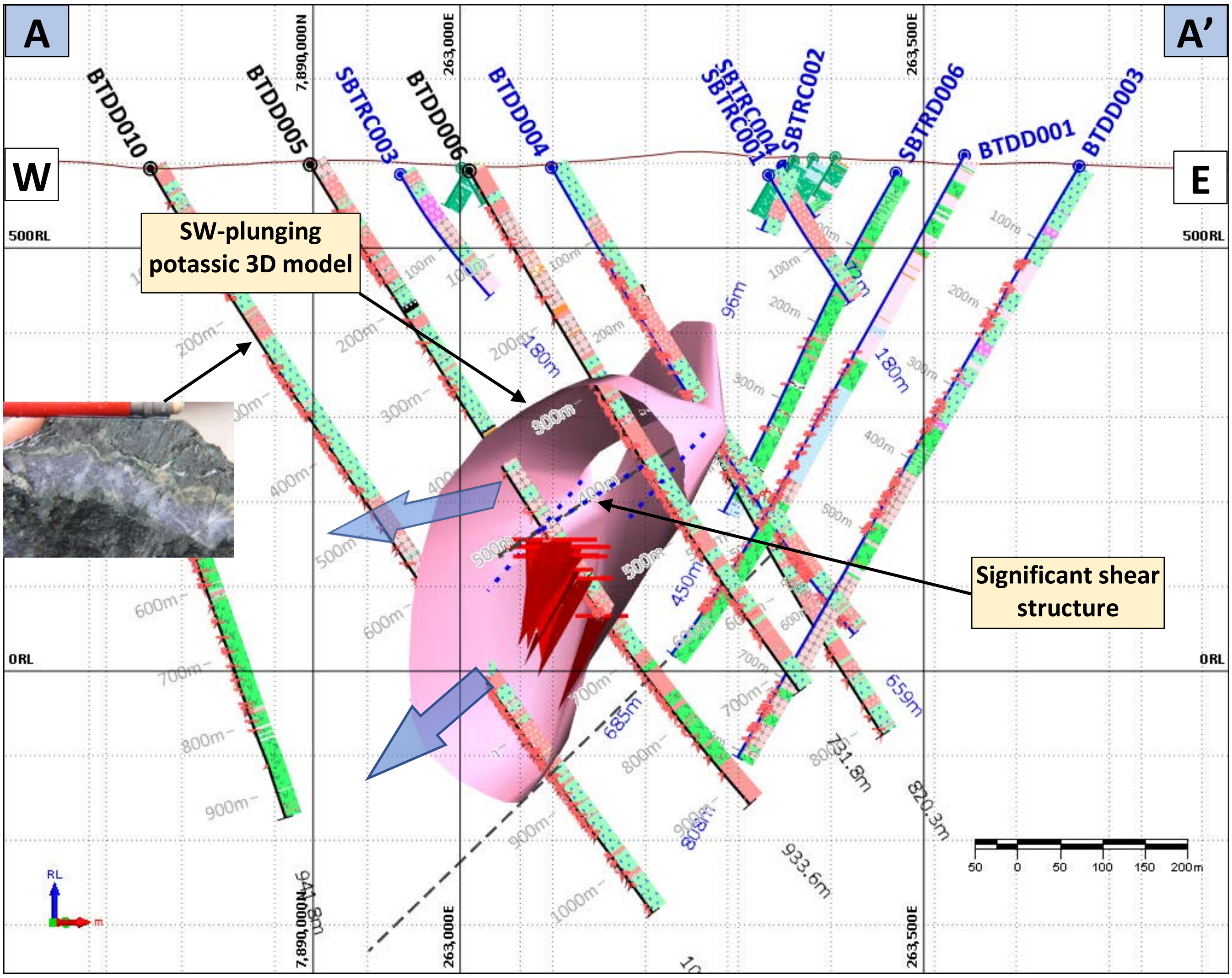



*Figure 15. Cross section A-A’ showing 3D model of the general zone of main potassic alteration which, based on alteration and structural information, plunges with a range of dips towards the south-southwest. Large blue arrows indicate possible vector directions towards a porphyry potassic core. A significant shear zone considered to be one of several possible fluid pathways and the early-stage quartz-chalcopyrite vein are also shown.*

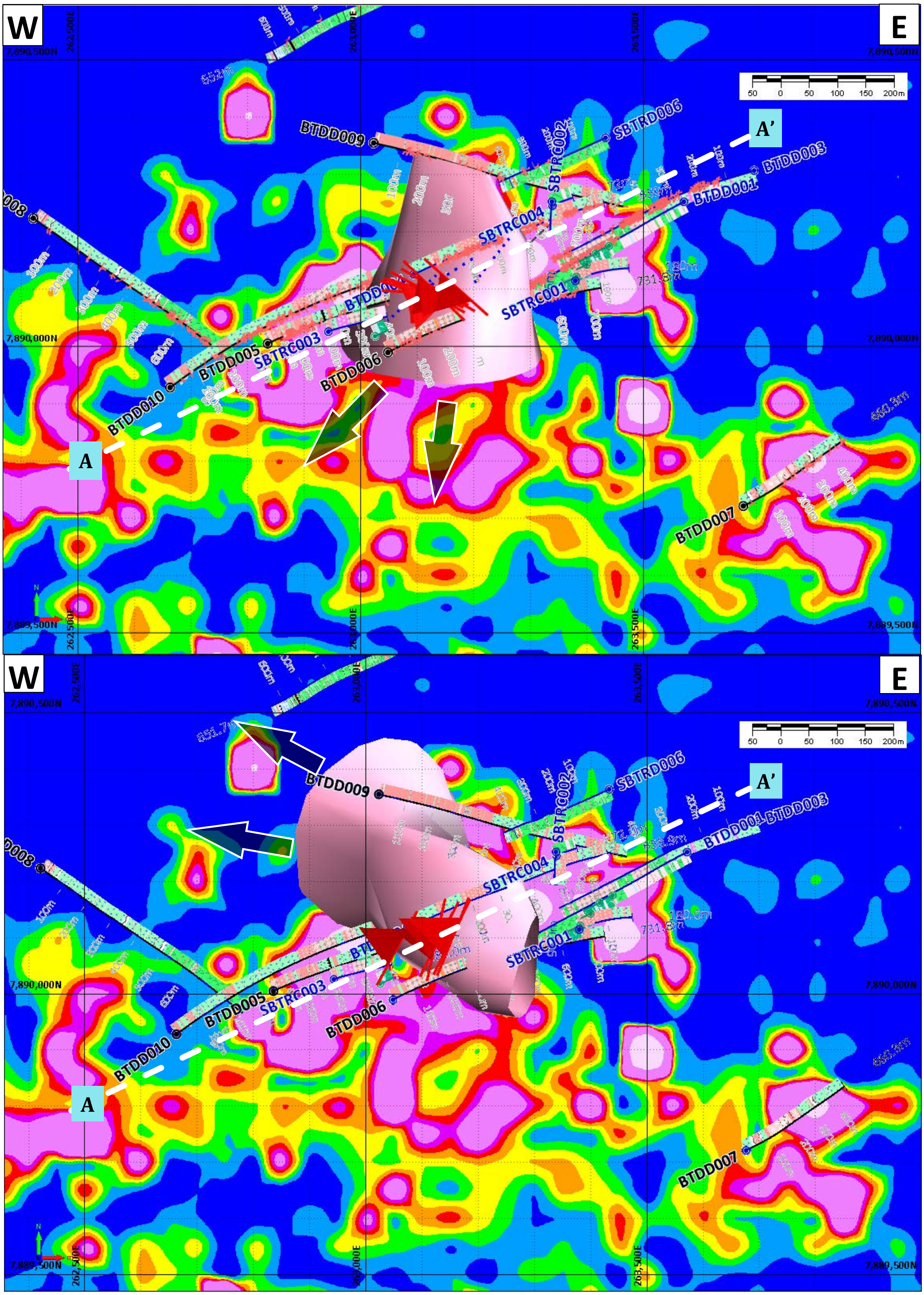



*Figure 16. Plan views of Bottletree Prospect showing 3D models of the general zone of main potassic alteration on soil Cu data. SSW potassic model (top) with enlarged dip triangles representing larger chalcopyrite veins that cross-cut foliation and WNW potassic model (bottom) with enlarged dip triangles representing chalcopyrite veins aligned with foliation.*

## Next Steps

**Targeting Porphyry Cores**

The immediate and primary objectives are to further develop the porphyry pathfinder vectors and continue modelling of the exploration results. This work will refine the exploration vectoring information and assist with the preparation of a follow-up drilling program targeting the main potassic core.

The drilling of high priority Porphyry Targets E and C is also planned for the 2023 season. Porphyry Target E is considered to be of particular interest as it lies about 100 metres west of the BTDD010 collar and is defined by a potentially large and high order copper soil anomaly that despite being covered by soil, persists for up to 500 metres westwards under the soil cover. In addition, the soil copper anomaly is coincident with a distinct aerial magnetic feature.

Other planned exploration activities that will enable better understanding of the prospect include:

- Drilling of the main Mo targets that were not targeted by the 2022 program Gravity and/or 3D seismic reflection surveys;
- Extension of the multi-element soil geochemistry survey area westwards over shallow sedimentary cover over areas of anomalously high soil-Cu recorded in historical data;
- Uranium-Lead radiometric dating of zircon and Rhenium-Osmium radiometric dating of molybdenite to confirm the age of the porphyry system;
- Extension of MIMDAS IP survey westwards; and
- Down-hole IP surveys.

**Wall Rock-Hosted Mineralisation**

- Drilling to define the extent of the main wall-rock-hosted porphyry-style mineralisation zone; and
- Drilling of a second potential wall-rock-hosted mineralisation zone at the southern margin of the prospect area.

## Background and Summary – 2022 Bottletree drilling program

The 2022 Bottletree drilling program was completed on 9 December 2022 and comprised a total of six HQ-diameter diamond core drill holes (BTDD005 to BTDD010) for 4,952.8 metres of core (Figures 2 to 3, Table 1).

The objective of the program was to obtain down-hole alteration, mineralogical, structural and geochemical data to enable confirmation of a porphyry alteration and mineralising system as the causative system for the widespread and intense copper mineralisation at Bottletree. If a porphyry system is confirmed to be the source of the copper mineralisation, the drilling program will be optimised to enable delineation of a zoned porphyry hydrothermal alteration system.

An initial drill line (A-A', Figure 2) was established across the high-order MIMDAS induced polarisation (IP) chargeability anomaly drilled during 2021 and Porphyry Target A located to the west of the IP anomaly (Figure 2; Table 1). The objective was to establish an initial geological profile across drill line A-A' to enable the development of geological (lithological) and alteration models, which are important tools for targeting the potassic-altered core of a porphyry system.

Porphyry Target A was prioritised as it appeared central to the overall and larger Bottletree geochemical anomaly and was considered to be potentially associated with the wall-rock-hosted mineralisation zone and now displays the best possibility for discovery of a mineralised porphyry intrusion at depth.

As drilling progressed along line A-A’, copper veining was observed to be present over increasingly broad intervals, although this is partly a result of longer overall lengths of the drill holes (deeper) (Figures 7 to 9, Table 2). Of particular note are the persistence of porphyry potassic-style biotite-chalcopyrite vein mineralisation and the increasing abundance of molybdenite associated with late-stage tonalitic porphyry intrusions and as an early-stage porphyry-style quartz-molybdenite vein.

**Modelling in 3D of the alteration and mineralisation indicates that the porphyry fluid pathways and the copper mineralisation are likely to trend away from the A-A’ drill line (I.e., BTDD005 and particularly, BTDD010 is interpreted to have only intersected the margins of the main mineralised zone).**

**Table 1. Summary of 2022 Bottletree program drill holes, setting out hole parameters and objectives.**

| Target | Hole ID | Azimuth (mag) | Dip (deg) | EOH depth (m) | Objectives |
|---|---|---|---|---|---|
| **Porphyry Target A** | **BTDD005** | 58 | -60 | 933.6 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate the down-dip continuation of the wall-rock-hosted mineralisation zone. |
| | **BTDD006** | 56 | -60 | 731.8 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate the down-dip continuation of the wall-rock-hosted mineralisation zone. |
| | **BTDD010** | 48 | -60 | 1,065 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate the down-dip continuation of the wall-rock-hosted mineralisation zone. |
| **Porphyry Target B** | **BTDD007** | 58 | -60 | 460.3 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate the cause of anomalous soil Cu and Mo geochemical anomalies. |
| **IP chargeability anomaly** | **BTDD008** | 118 | -60 | 941.8 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate an IP chargeability anomaly. |
| **Porphyry Target F** | **BTDD009** | 97 | -60 | 820.3 | Identify porphyry alteration and geochemical pathfinder indicators.<br>Investigate the northern extent of surface-mapped phyllic alteration and wall-rock-hosted mineralisation zone. |

**Table 2. Examples of the broad distribution of mineralisation within the wall-rock propylitic zone. 2021 hole, BTDD004 is also included. Note that BTDD005 and BTDD010 are the primary and most significant holes in terms of progress towards discovery of the porphyry system core.**

| Hole ID | | From (m) | To (m) | Interval (m) | Cu (%) | Au (g/t) | Ag (g/t) | Mo (ppm) |
|---|---|---|---|---|---|---|---|---|
| BTDD004 | | 5 | 637 | 632 | 0.21 | 0.03 | 0.6 | 18.0 |
| | Including | 242 | 466 | 224 | 0.40 | 0.05 | 0.9 | 3.5 |
| | Including | 363 | 466 | 103 | 0.53 | 0.05 | 1.4 | 3.3 |
| BTDD005 | | 5 | 96 | 91 | 0.07 | 0.03 | 0.1 | 1.9 |
| | Including | 63 | 95 | 32 | 0.11 | 0.01 | 0.2 | 2.4 |
| | Including | 89 | 95 | 6 | 0.23 | 0.03 | 0.7 | 1.8 |
| | | 131 | 331 | 200 | 0.06 | 0.01 | 0 | 22.1 |
| | Including | 199 | 207 | 8 | 0.11 | 0.04 | 0.2 | 79.5 |
| | | 313 | 319 | 6 | 0.03 | - | - | 129.0 |
| | | 447 | 554 | 107 | 0.03 | - | - | 141.4 |
| | Including | 447 | 495 | 18 | 0.02 | - | - | 586.6 |
| | Including | 486 | 489 | 3 | 0.01 | - | - | 1330.7 |
| | | 568 | 882 | 314 | 0.13 | 0.02 | 0.2 | 10.4 |
| | Including | 584 | 821 | 237 | 0.15 | 0.02 | 0.3 | 8.7 |
| | Including | 661 | 751 | 90 | 0.23 | 0.03 | 0.5 | 10.9 |
| | Including | 693 | 735 | 42 | 0.31 | 0.03 | 0.6 | 18.9 |
| | Including | 694 | 709 | 15 | 0.41 | 0.03 | 0.9 | 7.9 |
| BTDD006 | | 1 | 55 | 54 | 0.27 | 0.04 | 1.4 | 40.6 |
| | Including | 7 | 52 | 45 | 0.31 | 0.04 | 0.8 | 44.2 |
| | Including | 9 | 33 | 24 | 0.43 | 0.06 | 1.1 | 58.3 |
| | Including | 26 | 33 | 7 | 0.58 | 0.09 | 1.5 | 131.2 |
| | | 65 | 79 | 14 | 0.03 | - | 0.1 | 156.8 |
| | | 247 | 280 | 33 | 0.01 | - | - | 227.3 |
| | Including | 276 | 280 | 4 | 0.01 | - | - | 1279.7 |
| | | 286 | 689 | 403 | 0.14 | 0.03 | 0.3 | 10.3 |
| | Including | 333 | 656 | 323 | 0.16 | 0.03 | 0.3 | 10.1 |
| | Including | 391 | 400 | 9 | 0.21 | 0.03 | 0.6 | 21.6 |
| | Including | 413 | 433 | 20 | 0.22 | 0.06 | 0.6 | 14.3 |
| | Including | 422 | 428 | 6 | 0.33 | 0.12 | 1.0 | 23.7 |
| | Including | 463 | 605 | 142 | 0.21 | 0.02 | 0.4 | 6.8 |
| | Including | 478 | 506 | 28 | 0.31 | 0.04 | 0.7 | 9.1 |
| | Including | 531 | 541 | 10 | 0.42 | 0.08 | 1.2 | 18.1 |
| | Including | 640 | 655 | 15 | 0.29 | 0.03 | 0.8 | 1.5 |
| BTDD010 | | 249 | 255 | 6 | 0.01 | - | - | 330.0 |
| | | 291 | 295 | 4 | 0.01 | - | - | 220.1 |
| | | 405 | 463 | 58 | 0.05 | 0.01 | 0.1 | 13.6 |
| | | 465 | 538 | 73 | 0.01 | 0.01 | 0.1 | 1229.5 |
| | Including | 465 | 479 | 14 | 0.02 | 0.01 | 0.3 | 6000.7 |
| | Including | 470 | 476 | 6 | 0.02 | 0.02 | 0.2 | 13900.3 |
| | | 676 | 1060 | 384 | 0.08 | 0.01 | 0.3 | 33.2 |
| | Including | 650 | 743 | 99 | 0.04 | 0.01 | 0.2 | 121.1 |
| | Including | 680 | 692 | 12 | 0.06 | 0.02 | 0.4 | 662.0 |
| | Including | 742 | 748 | 6 | 0.11 | 0.03 | 0.4 | 38.6 |
| | Including | 816 | 944 | 128 | 0.13 | 0.02 | 0.4 | 7.7 |
| | Including | 883 | 918 | 35 | 0.22 | 0.03 | 0.8 | 7.6 |
| | Including | 888 | 893 | 5 | 0.32 | 0.03 | 1.2 | 5 |

Table 3. Weight-averaged copper, gold, silver and molybdenum assay values for select intervals of the 2022 drill holes.

| Hole ID | | From (m) | To (m) | Interval (m) | Cu (%) | Au (g/t) | Ag (g/t) | Mo (ppm) |
|---|---|---|---|---|---|---|---|---|
| BTDD005 | | **5** | **96** | **91** | **0.07** | **0.03** | **0.1** | **1.9** |
| | Including | 5 | 14 | 9 | 0.10 | 0.03 | 0.1 | 1.8 |
| | Including | 63 | 95 | 32 | 0.11 | 0.01 | 0.2 | 2.4 |
| | Including | 89 | 95 | **6** | **0.23** | 0.03 | 0.7 | 1.8 |
| | | **131** | **331** | **200** | **0.06** | **0.01** | **0** | **22.1** |
| | Including | 132 | 137 | 5 | 0.10 | 0.02 | 0.2 | 3.0 |
| | Including | 199 | 207 | 8 | 0.11 | 0.04 | 0.2 | **79.5** |
| | Including | 212 | 219 | 7 | 0.12 | 0.05 | 0.2 | 3.1 |
| | | **313** | **319** | **6** | 0.03 | - | - | **129.0** |
| | | **447** | **554** | **107** | 0.03 | - | - | **141.4** |
| | Including | **447** | **495** | **18** | 0.02 | - | - | **586.6** |
| | Including | **486** | **489** | **3** | 0.01 | - | - | **1330.7** |
| | | **502** | **510** | **8** | 0.06 | 0.02 | 0.5 | **79.6** |
| | | **528** | **547** | **19** | 0.07 | 0.01 | 0.1 | **30.0** |
| | | **568** | **882** | **314** | **0.13** | **0.02** | **0.2** | **10.4** |
| | Including | 584 | 821 | **237** | **0.15** | 0.02 | 0.3 | 8.7 |
| | Including | 661 | 751 | **90** | **0.23** | 0.03 | 0.5 | 10.9 |
| | Including | 693 | 735 | **42** | **0.31** | 0.03 | 0.6 | **18.9** |
| | Including | 694 | 709 | **15** | **0.41** | 0.03 | 0.9 | 7.9 |
| | Including | 779 | 791 | 12 | 0.22 | 0.02 | 0.6 | 1.1 |
| | Including | 852 | 858 | 6 | 0.10 | 0.00 | 0.2 | 3.9 |
| | | From (m) | To (m) | Interval (m) | Cu (%) | Au (g/t) | Ag (g/t) | Mo (ppm) |
| BTDD006 | | **0** | **58** | **58** | **0.26** | **0.04** | **1.9** | **38.8** |
| | Including | 1 | 55 | **54** | **0.27** | 0.04 | 1.4 | **40.6** |
| | Including | 7 | 52 | **45** | **0.31** | 0.04 | 0.8 | **44.2** |
| | Including | 9 | 33 | **24** | **0.43** | 0.06 | 1.1 | **58.3** |
| | Including | 26 | 33 | **7** | **0.58** | 0.09 | 1.5 | **131.2** |
| | | 65 | 79 | **14** | **0.03** | - | **0.1** | **156.8** |
| | | 75 | 82 | 7 | 0.06 | 0.07 | 0.5 | **100.3** |
| | | 116 | 124 | 8 | 0.06 | 0.03 | 0.4 | **51.8** |
| | | **247** | **280** | **33** | **0.01** | - | - | **227.3** |
| | **Including** | **276** | **280** | **4** | **0.01** | - | - | **1279.7** |
| | | **286** | **689** | **403** | **0.14** | **0.03** | **0.3** | **10.3** |
| | Including | 333 | 656 | 323 | 0.16 | 0.03 | 0.3 | 10.1 |
| | Including | 391 | 400 | 9 | 0.21 | 0.03 | 0.6 | **21.6** |
| | Including | 413 | 433 | 20 | 0.22 | 0.06 | 0.6 | 14.3 |
| | Including | 422 | 428 | 6 | 0.33 | 0.12 | 1.0 | **23.7** |
| | Including | 463 | 605 | 142 | 0.21 | 0.02 | 0.4 | 6.8 |
| | Including | 478 | 506 | 28 | 0.31 | 0.04 | 0.7 | 9.1 |
| | Including | 531 | 541 | 10 | 0.42 | 0.08 | 1.2 | **18.1** |
| | Including | 640 | 655 | 15 | 0.29 | 0.03 | 0.8 | 1.5 |
| | | From (m) | To (m) | Interval (m) | Cu (%) | Au (g/t) | Ag (g/t) | Mo (ppm) |
| BTDD007 | | 18 | 56 | 38 | 0.05 | 0.02 | 0 | **36.3** |
| | | 72 | 100 | 28 | 0.12 | 0.04 | 0.2 | **24.8** |
| | Including | 72 | 95 | 23 | 0.13 | 0.05 | 0.3 | **28.9** |
| | Including | 73 | 79 | 6 | 0.34 | 0.09 | 0.8 | **70.3** |
| | | 160 | 299 | 139 | 0.06 | 0.05 | 0.3 | 2.6 |
| | Including | 160 | 174 | 14 | 0.11 | 0.02 | 0.6 | 1.3 |
| | Including | 211 | 217 | 6 | 0.12 | 0.11 | 0.3 | 2.4 |
| | Including | 273 | 279 | 6 | 0.13 | 0.08 | 0.2 | 2.9 |
| | | 397 | 411 | 14 | 0.06 | 0.01 | 0.1 | 5.3 |
| | | 438 | 454 | 16 | 0.07 | 0.02 | 0.1 | 8.5 |
| | | From (m) | To (m) | Interval (m) | Cu (%) | Au (g/t) | Ag (g/t) | Mo (ppm) |
| BTDD008 | | 325 | 337 | 12 | 0.06 | 0.01 | 0 | 6.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 409 | 431 | 22 | 0.05 | 0.01 | 0.5 | 7.7 |
| | | 472 | 481 | 9 | 0.08 | 0.03 | 0.1 | 9.1 |
| | | 523 | 530 | 7 | 0.05 | 0.01 | 0.1 | **17.6** |
| | | 558 | 570 | 12 | 0.08 | 0.02 | 0.3 | **20.7** |
| | | 587 | 629 | 42 | 0.05 | 0.02 | 0.1 | 9.7 |
| | | 648 | 658 | 10 | 0.06 | 0.01 | 0 | **23.4** |
| | | 678 | 686 | 8 | 0.05 | 0.01 | 0.1 | **10.3** |
| | | 748 | 765 | 17 | 0.05 | 0.03 | 0.1 | **16.2** |
| | | **From (m)** | **To (m)** | **Interval (m)** | **Cu (%)** | **Au (g/t)** | **Ag (g/t)** | **Mo (ppm)** |
| **BTDD009** | | **375** | **697** | **322** | **0.06** | **0.00** | **0.2** | **2.3** |
| | Including | 428 | 446 | 18 | 0.11 | 0.01 | 0.2 | 1.1 |
| | Including | 428 | 432 | 4 | 0.31 | 0.03 | 0.9 | 1.0 |
| | Including | 590 | 597 | 7 | 0.11 | 0.01 | 0.3 | 2.7 |
| | Including | 682 | 697 | 15 | 0.13 | 0.02 | 1.8 | 4.6 |
| | | **From (m)** | **To (m)** | **Interval (m)** | **Cu (%)** | **Au (g/t)** | **Ag (g/t)** | **Mo (ppm)** |
| **BTDD010** | | 249 | 255 | 6 | 0.01 | - | - | 330.0 |
| | | 291 | 295 | 4 | 0.01 | - | - | 220.1 |
| | | **465** | **538** | **73** | 0.01 | 0.01 | 0.1 | **1229.5** |
| | **Including** | **465** | **479** | **14** | 0.02 | 0.01 | 0.3 | **6000.7** |
| | **Including** | **470** | **476** | **6** | 0.02 | 0.02 | 0.2 | **13900.3** |
| | | **676** | **1060** | **384** | **0.08** | **0.01** | **0.3** | **33.2** |
| | Including | **650** | **743** | **99** | **0.04** | **0.01** | **0.2** | **121.1** |
| | Including | **680** | **692** | **12** | **0.06** | **0.02** | **0.4** | **662.0** |
| | Including | 742 | 748 | 6 | 0.11 | 0.03 | 0.4 | 38.6 |
| | Including | 751 | 766 | 15 | 0.10 | 0.02 | 0.6 | 15 |
| | **Including** | **816** | **944** | **128** | **0.13** | **0.02** | **0.4** | **7.7** |
| | **Including** | **883** | **918** | **35** | **0.22** | **0.03** | **0.8** | **7.6** |
| | **Including** | **888** | **893** | **5** | **0.32** | **0.03** | **1.2** | **5** |
| | Including | 987 | 993 | 6 | 0.11 | 0.02 | 0.2 | 2.3 |
| | Including | 1002 | 1008 | 6 | 0.16 | 0.02 | 0.6 | 3.3 |

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# Background (Bottletree)

Superior has long recognised the significance of Bottletree, which is expressed at surface as a large, zoned copper mineralised system that extends over several square kilometres (Figure 17). As a result of the Queensland native title regime during important commodity boom periods, Bottletree (and other areas in Qld) was effectively quarantined from the exploration sector. Apart from a small number of shallow historic drill holes over the anomalous area, Superior conducted the only deep investigation of the area with three drill holes during 2017 and 2018.

During September 2021 the Company announced[4] the commencement of deep drilling of a large high-order 3D-modelled MIMDAS IP chargeability anomaly located adjacent to a regionally distinct 1.5km by 1km copper and gold soil anomaly (Figure 17). Drilling during 2018 intersected the northern edge of the chargeability anomaly, which returned 292m @ 0.22% Cu, including 18.7m @ 1.12% Cu[5].

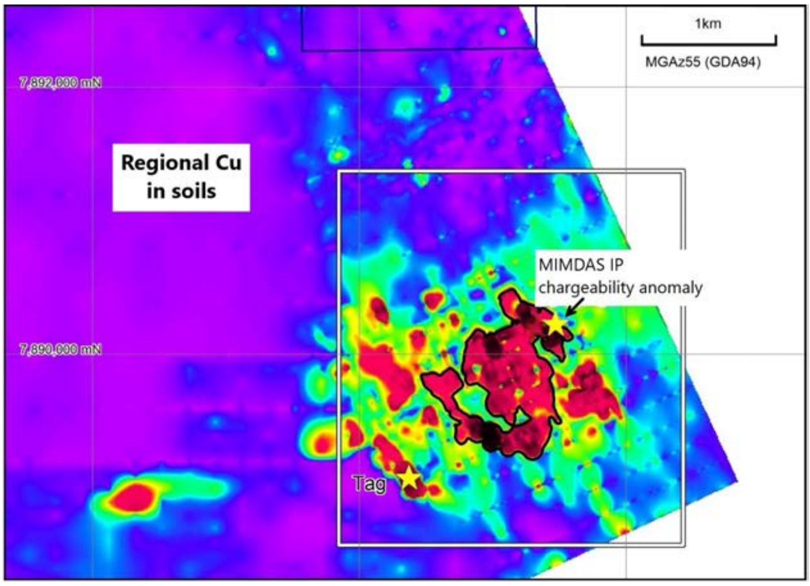


*Figure 17. Regional Cu-in-soil processed image showing the large scale Bottletree copper anomaly and location of the MIMDAS IP chargeability anomaly that has been targeted with drilling in 2021.*

## 2021 Drilling Program

The 2021 drilling program commenced with the drilling of two holes (BTDD001 and BTDD003) targeting the modelled centre of the chargeability anomaly at different depth levels (Figure 18). BTDD001 was drilled using NQ rods to 684.6m with a RC pre-collar to about 160m. BTDD003 was cored using HQ diameter rods from surface to an end of hole depth of 807.7m, which was the capability limit of the drill rig. BTDD002, located in the same position as BTDD003, was a RC pre-collar hole that was terminated as a result of exceeding hole deviation limits.

BTDD004 was collared approximately 200m west of the IP chargeability anomaly and drilled in an east-north-easterly direction to a total depth of 658.9m. Planned as a 'scissor hole' to BTDD001 and BTDD003, BTDD004 was designed to test part of the large soil copper anomaly located west of the IP chargeability anomaly and closer towards the interpreted porphyry target zone for porphyry-related mineralisation and vectoring indicators.

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[4] Refer ASX announcement dated 17 September 2021
[5] Refer ASX announcement dated 25 October 2018

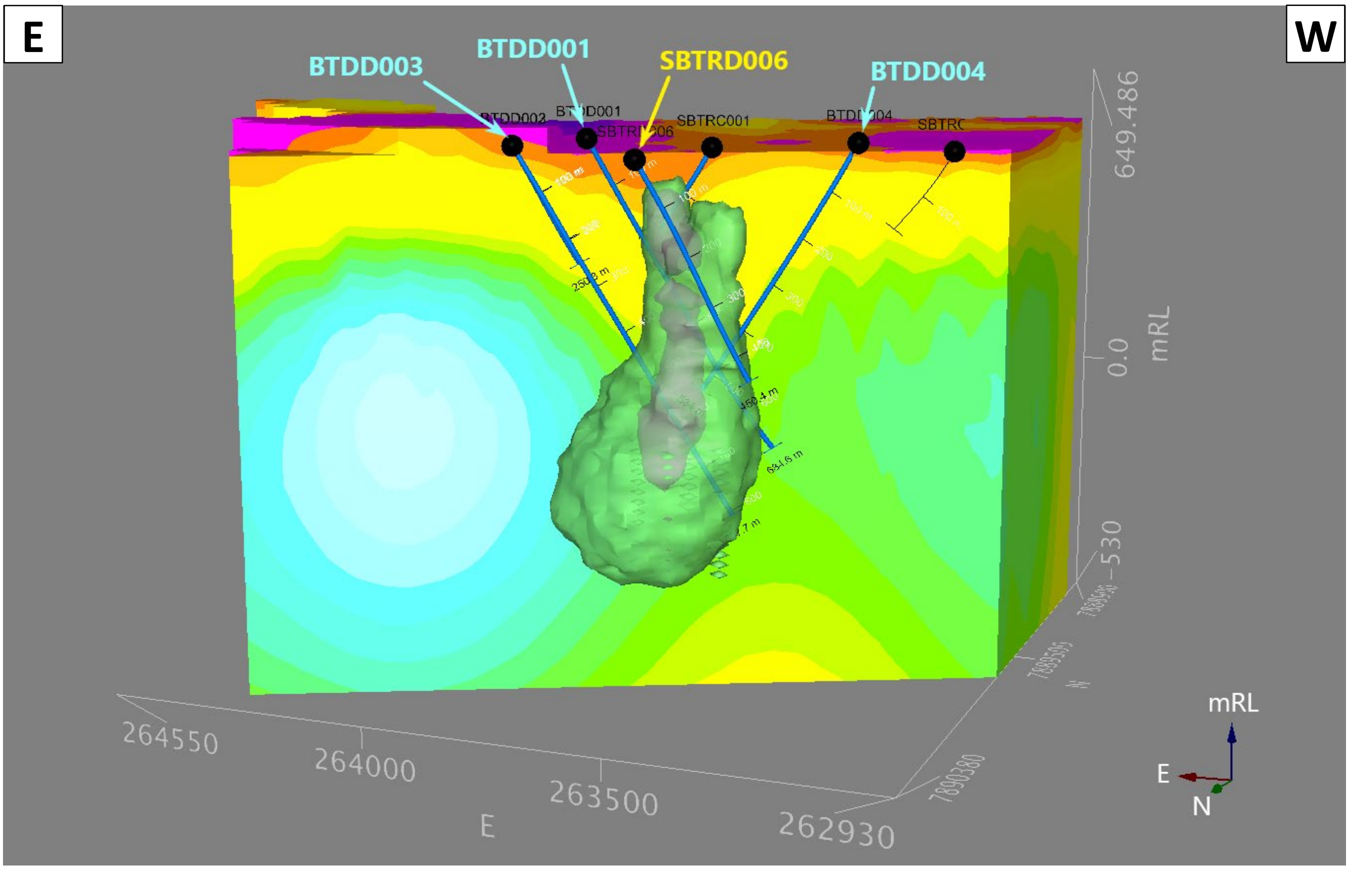


*Figure 18. 3D-modelled MIMDAS IP high chargeability iso-surfaces representing the Bottletree IP chargeability anomaly, viewed looking southwest. Recently completed BTDD001, BTDD003, BTDD004 and 2018 drill hole SBTRD006 shown.*

## About Superior Resources

Superior Resources Limited (ASX:SPQ) is an Australian public company exploring for large lead-zinc-silver, copper, gold and nickel-copper-cobalt-PGE deposits in northern Queensland which have the potential to return maximum value growth for shareholders. The Company is focused on multiple Tier-1 equivalent exploration targets and has a dominant position within the Carpentaria Zinc Province in NW Qld and Ordovician rock belts in NE Qld considered to be equivalents of the NSW Macquarie Arc. For more information, please visit our website at www.superiorresources.com.au.

***Reporting of Exploration Results:*** *The information in this report as it relates to exploration results, geology, geophysical imagery and drilling was reviewed and compiled by Peter Hwang, Managing Director and shareholder of Superior Resources Limited. Mr Hwang is a Member of the Australasian Institute of Geoscientists and 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 for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Hwang consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.*

***Reliance on previously reported information:*** *In respect of references contained in this report to previously reported Exploration Results or Mineral Resources, Superior confirms that it is not aware of any new information or data that materially affects the information, results or conclusions contained in the original reported document. In respect of previously reported Mineral Resource estimates, all originally reported material assumptions and technical parameters underpinning the estimates continue to apply and have not been materially changed or qualified. The form and context in which the relevant Competent Person's findings are presented have not been materially modified from the original document.*

***Forward looking statements:*** *This document may contain forward looking statements. Forward looking statements are often, but not always, identified by the use of words such as "seek", "indicate", "target", "anticipate", "forecast", "believe", "plan", "estimate", "expect" and "intend" and statements that an event or result "may", "will", "should", "could" or "might" occur or be achieved and other similar expressions. Indications of, and interpretations on, future expected exploration results or technical outcomes, production, earnings, financial position and performance are also forward-looking statements. The forward-looking statements in this presentation are based on current interpretations, expectations, estimates, assumptions, forecasts and projections about Superior, Superior's projects and assets and the industry in which it operates as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made. The forward-looking statements are subject to technical, business, economic, competitive, political and social uncertainties and contingencies and may involve known and unknown risks and uncertainties. The forward-looking statements may prove to be incorrect. Many known and unknown factors could cause actual events or results to differ materially from the estimated or anticipated events or results expressed or implied by any forward-looking statements. All forward-looking statements made in this presentation are qualified by the foregoing cautionary statements.*

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# APPENDIX 1

## REPORTED DRILL HOLE COLLAR DETAILS

| Hole ID | Easting (m) | Northing (m) | RL (m) | Depth (m) | Dip° | Azimuth° |
|---|---|---|---|---|---|---|
| BTDD005 | 262835.5 | 7890004.9 | 598.7 | 933.6 | -60 | 65 |
| BTDD006 | 263048.3 | 7889989.4 | 591.3 | 731.8 | -60 | 63 |
| BTDD007 | 263676.6 | 7889721.3 | 590.2 | 460.3 | -60 | 65 |
| BTDD008 | 262421.1 | 7890223.6 | 606.8 | 941.8 | -60 | 125 |
| BTDD009 | 263023.0 | 7890355.0 | 601.5 | 820.3 | -60 | 104 |
| BTDD010 | 262663.0 | 7889928.0 | 594.0 | 1065.0 | -60 | 55 |

# APPENDIX 2

## JORC Code, 2012 Edition – Table 1

*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.*<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 (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.* | • Drilling from surface comprised HQ diameter diamond core drilling to end of hole.<br>• Diamond core samples were obtained by splitting core in half using a core saw.<br>• The drill bit sizes used in the drilling are considered appropriate to indicate the degree and extent of mineralisation.<br>• 1m representative samples were assayed for base metals, gold, silver and other elements at SGS laboratories in Townsville.<br>• Assaying for gold was via fire assay of a 50-gram charge.<br>• Sample preparation at SGS laboratories in Townsville for all samples is considered to be of industry standard. |
| ***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.).* | • Drilling from surface was performed using standard diamond drilling techniques.<br>• Drilling was conducted by AED (Associated Exploration Drillers) using a UDR1000 drill rig.<br>• All holes were surveyed using a Reflex Gyro north-seeking gyroscopic instrument to obtain accurate down-hole directional data. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***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.* | • Sample recovery was performed and monitored by Terra Search contractor and Superior Resources' representatives.<br>• The volume of sample collected for assay is considered to be representative of each 1m interval.<br>• Diamond drill core recovery was logged. Recovery overall was close to 100%. |
| ***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.* | • Geological logging was conducted during the drilling of each hole by a Terra Search geologist having sufficient qualification and experience for the mineralisation style expected and observed at each hole.<br>• All holes were logged in their entirety at 1m intervals.<br>• All logging data is digitally compiled and validated before entry into the Superior database.<br>• The level of logging detail is considered appropriate for resource drilling.<br>• Magnetic susceptibility data for each 1m sample interval was collected in the field.<br>• All core was logged for structure with structures being recorded in relation to a bottom line marked on the core and established using Reflex equipment. Logging included both and Alpha and Beta angles. Data from structural logging of planar features was converted to grid dips and dip directions as well as plan parameters to allow structures to be plotted on sections and allow structures to be projected to the ground surface by software. |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results* | • The sample collection methodology is considered appropriate for diamond drilling and was conducted in accordance with standard industry practice.<br>• Diamond drill core was split in half using a diamond saw with half of the sample being sent for assay and the remainder retained for reference. Core halving was done along the bottom line marked on the core for structural logging.<br>• The sample sizes are considered appropriate to the style of mineralisation being assessed.<br>• Quality Assurance (**QA**)/Quality Control (**QC**) protocols were instigated such that they |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *for field duplicate/second-half sampling.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | conform to mineral industry standards and are compliant with the JORC code.<br>• (QA) processes with respect to chemical analysis of mineral exploration samples includes the addition of blanks, standards and duplicates to each batch so that checks can be done after they are analysed. As part of the (QC) process, checks of the resultant assay data against known or previously determined assays to determine the quality of the analysed batch of samples. An assessment is made on the data and a report on the quality of the data is compiled.<br>• Quality control included determinations of duplicate samples every 50 samples or so to check for representative samples. There was a conscious effort on behalf of the samplers to ensure consistent weights for each sample. Comparison of assays of duplicates shows good reproducibility of results.<br>• The above techniques are considered to be of a high quality and appropriate for the nature of mineralisation anticipated. The 2-3kg sample size is appropriate for the rock 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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | • All samples were submitted to SGS laboratories in Townsville for gold and multi-element analysis.<br>• Samples were crushed, pulverised to ensure a minimum of 85% pulp material passing through 75 microns, then analysed for gold by fire assay method GO FAA50V10 using a 50 gram sample.<br>• Multi-element analyses were conducted using a four acid digestion followed by an ICP-OES/MS finish for the following 31 elements: Ag, Al, As, Ba, Ca, Ce, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Se, Sn, Sr, Ti, U, V, W, and Zn.<br>• Certified gold, multi-element standards and blanks were included in the samples submitted to the laboratory for QA/QC.<br>• Additionally, SGS used a series of its own standards, blanks, and duplicates for the QC of the elements assayed. |
| ***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* | • No holes were twinned.<br>• Logs were recorded by Terra Search field geologists on hard copy sampling sheets which were entered into spreadsheets for merging into a central database. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • Laboratory assay files were merged directly into the database.<br>• The data is routinely validated when loading into the database.<br>• No adjustments to assay data were undertaken. |
| ***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.* | • Drill hole collars have been recorded in the field using handheld GPS with three metre or better accuracy. The collar locations have been further defined using DGPS to give sub-one metre accuracy.<br>• The area is located within MGA Zone 55.<br>• Topographic control is currently from DGPS point data that has been merged with RL-adjusted contours. |
| ***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.* | • Further drilling is necessary to establish a Mineral Resource. |
| ***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.* | • The majority of holes have been designed to drill normal to interpreted mineralisation trends. However, there has been insufficient drilling and geological interpretation to determine if there is a bias to sampling as a result of drilling oblique to or down dip on mineralised structures.<br>• No orientation sample bias has been identified at this stage. |
| ***Sample security*** | • *The measures taken to ensure sample security.* | • Samples are delivered directly to the SGS assay laboratory in Townsville by Terra Search or Superior Resources' employees.<br>• Sample security measures within the SGS laboratories are considered adequate. |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • No audits or reviews of the sampling techniques and data have been undertaken to date. |

## *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.* | • The areas reported for the Bottletree Prospect lie within Exploration Permit for Minerals 25659, which is held 100% by Superior Resources.<br>• Superior Resources holds much of the surrounding area under granted exploration permits.<br>• Superior has agreements or other appropriate arrangements in place with landholders and native title parties with respect to work in the area.<br>• No regulatory impediments affect the relevant tenements or the ability of Superior Resources to operate on the tenements. |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • All historical drilling reported in this report has been completed and reported in accordance with their current regulatory regime.<br>• Previous work on the prospect has been completed by Pancontinental Mining.<br>• Soil geochemical survey data compiled by Pancontinental Mining was used in this report for the purpose of part characterising the Bottletree mineralisation.<br>• Compilation in digital form and interpretation of the results of that work in digital form has been completed by a Competent Person. |
| ***Geology*** | • *Deposit type, geological setting and style of mineralisation.* | • The Bottletree Prospect is hosted in Lower Palaeozoic deformed mafic meta-volcanic lavas and volcaniclastics.<br>• Mineralisation style is disseminated and vein sulphide of probable intrusion-related hydrothermal origin.<br>• On the basis of observations made in holes BTDD001, BTDD003, BTDD004, BTDD005, BTDD006 and BTDD010, the mineralisation at the Bottletree Prospect is considered to be porphyry-related. More geological, geochemical and drill data is required to fully understand the mineralisation system. |
| ***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:* | • A drill hole collar table is included in the main body of the report. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | o *easting and northing of the drill hole collar*<br>o *elevation or RL (Reduced Level) of the drill hole collar*<br>o *dip and azimuth of the hole*<br>o *down hole length and interception depth*<br>o *hole length.*<br>• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | |
| ***Data aggregation methods*** | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • Exploration results are reported as a length weighted average of all assays.<br>• No metal equivalent values are reported. |
| ***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 (e.g. 'down hole length, true width not known').* | • Downhole length, true width not known until further drilling provides more information on the nature of the mineralised body. |
| ***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.* | • Included. |
| ***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.* | • Significant intersections have been included within the report. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***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.* | • Publicly available and historic soil geochemical data and airborne magnetic survey data was compiled, examined and interpreted to aid in the interpretation of geological observations made from the available drill core. |
| ***Further work*** | • *The nature and scale of planned further work (e.g. 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.* | Specific upcoming activities include:<br>• plan and execute drilling programs based on porphyry pathfinder vectors identified from the 2022 drilling program, targeting potential porphyry intrusions and to delineate areas of near-surface copper and gold mineralisation;<br>• conduct a MIMDAS IP extension survey over the Bottletree Prospect area;<br>• conduct MMI soil geochemistry extension survey over shallow recent cover areas within the prospect area; and<br>• conduct geochronological dating on intrusions and molybdenite for age correlation with intrusions in the Macquarie Arc in NSW, which hosts the world class Cadia and North Parkes porphyry Cu-Au deposits. |