Site Visit Technical Presentation

**July 2022** 

# A Growing VHMS Deposit With Significant Upside





### **Important Information**

#### **DISCLAIMER**

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#### **COMPETENT PERSON (EXPLORATION)**

The information in this document that relates to mineral exploration and exploration targets is based on work compiled under the supervision of Mr Glenn Whalan, a member of the Australian Institute of Geoscientists (AIG). Mr Whalan is QMines' principal geologist and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that 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' (JORC 2012 Mineral Code). Mr Whalan consents to the inclusion in this document of the exploration information in the form and context in which it appears.

#### **COMPETENT PERSON (RESOURCE)**

The information in this report that relates to mineral resource estimation is based on work completed by Mr. Stephen Hyland, a Competent Person and Fellow of the AusIMM. Mr. Hyland is Principal Consultant Geologist with Hyland Geological and Mining Consultants (HGMC), who is a Fellow of the Australian Institute of Mining and Metallurgy and holds relevant qualifications and experience as a qualified person for public reporting according to the JORC Code in Australia. Mr Hyland is also a Qualified Person under the rules and requirements of the Canadian Reporting Instrument NI 43-101. Mr Hyland consents to the inclusion in this report of the information in the form and context in which it appears.

#### **COMPLIANCE STATEMENT**

QMines confirms that it is not aware of any new information or data that materially affects the information included in the Mt Chalmers Resource Upgrade ASX announcement lodged on 1 December 2021 (Announcement) and that all material assumptions and technical parameters underpinning the estimates in the Announcement continue to apply and have not materially changed.

#### MT CHALMERS PROJECT

The historical exploration results in relation to the Mt Chalmers project contained in this document have been reported in accordance with the JORC 2012 Mineral Code and the Competent Person has undertaken sufficient work to disclose the historical exploration results in accordance with the JORC 2012 Mineral Code.

#### LIMITED HISTORY

The Company was incorporated on 4 August 2020 and has only limited operating history and limited historical financial performance. Exploration and production has previously been conducted on the area of land the subject of the tenements, however, the Company is yet to conduct sufficient exploration activities or had the opportunity to confirm the historical information in relation to these tenements.

#### **FUTURE PERFORMANCE**

This document contains references to certain targets and plans of QMines which may or may not be achieved. Any forward-looking statements are necessarily based upon a number of estimates and assumptions that, whilst considered reasonable by QMines and the Competent Person, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies, involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward-looking statements.

The performance of QMines may be influenced by a number of factors, risks and uncertainties, many of which are outside the control of QMines and its directors, officers, employees, advisers, agents and consultants.

### **Executive Summary**

# "Growing Copper & Gold Resource Moving Towards Development..."

#### **Right Deposit Style**



VHMS deposits are known to cluster and have a high metal value.

#### **Strong Growth Profile**



Mineral Resource Estimate (101,000t CuEq) and three Exploration Targets (JORC 2012).

#### **Right Commodity Mix**



Copper to support the energy transition and precious metals to deal with market volatility.

#### **Exploration Upside**



Four large soil anomalies demonstrating significant SCALE and untested gold potential.

#### **Right Geology**

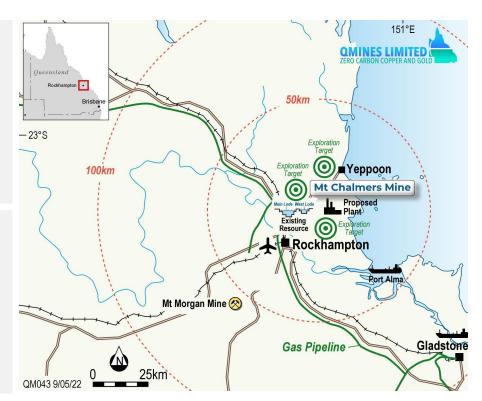


Similar style and setting to the world-class Mt Morgan Deposit (8.5Moz Au & 400,000t Cu)<sup>1</sup>.

#### **Location Upside**



Historic mine site, close to infrastructure and proximity to end users.



<sup>&</sup>lt;sup>1</sup> Carbine Resources, Investor Presentation, December 2017, https://carbineresources.com.au/wp-content/uploads/2017/12/171204\_RRS\_FINAL.pdf

<sup>&</sup>lt;sup>2</sup> Mt Chalmers Resource Upgrade, <a href="https://wcsecure.weblink.com.au/pdf/QML/02460632.pdf">https://wcsecure.weblink.com.au/pdf/QML/02460632.pdf</a>, 1 December 2021. Metals price assumptions for copper equivalent estimates are US\$6,655/t Cu, US\$1,900/oz Au, US\$1,900/oz Au, US\$3,450/t Zn and US\$2,450/t Pb Exchange rate is AUD\$0.70. Assumed metallurgical recoveries of 97% for copper, 86.5% for gold, 70.5% for silver, 77.5% for zinc and 85% for lead. Exploration Targets are reported in accordance with the JORC 2012 Code & Guidelines.

### Why Queensland?

#### **Well Endowed District**

- Mt Chalmers Kuroko style VHMS (277.1 Ma);
- · Mount Morgan World class VHMS / Intrusion Related Au deposit (390 ± 5 Ma);
- · Cracow Low Sulphidation epithermal Au (291 ± 5 Ma); and
- Mt Rawdon Late Triassic intrusion related gold system (233 Ma).

### **Mining Jurisdiction**



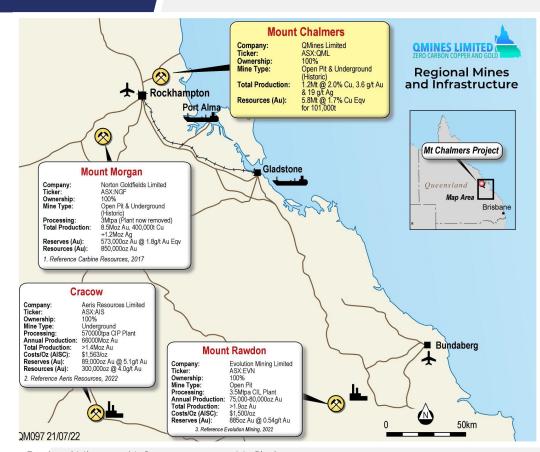
Power, deep-water ports, airport and rail infrastructure.



Significant number of active copper and gold mines in region.

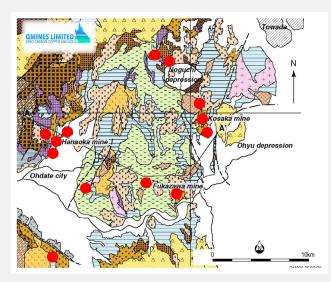


Skilled workforce – both metalliferous and coal mining, open cut and underground.

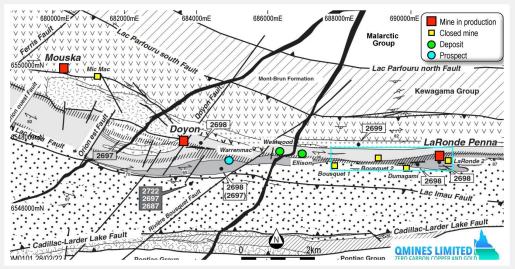


Regional Mines and Infrastructure near Mt Chalmers.

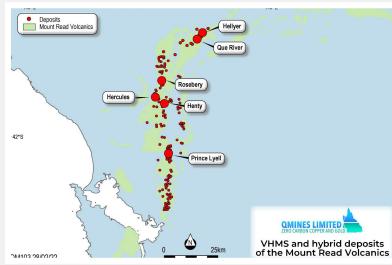
### Why VHMS Deposits? They Cluster...



Hokuroko District, Yamata Basin, Honshu, Japan. (mostly Middle to Late Miocene rift-related Kuroko style VHMS deposits)<sup>1</sup>



Doyon-Bousquet-LaRonde Mining Camp, Abitibi Greenstone Belt, Quebec, Canada<sup>2</sup>



VHMS and Hybrid Deposits of the Mt Read Volcanics<sup>3</sup>

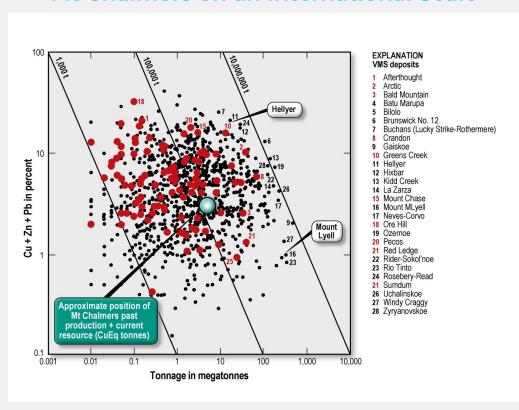
<sup>&</sup>lt;sup>1</sup> Yamada & Yoshida, 2011.

<sup>&</sup>lt;sup>2</sup> Dubé, Mercier-Langevin, Hannington, Lafrance, and Gosselin, 2007.

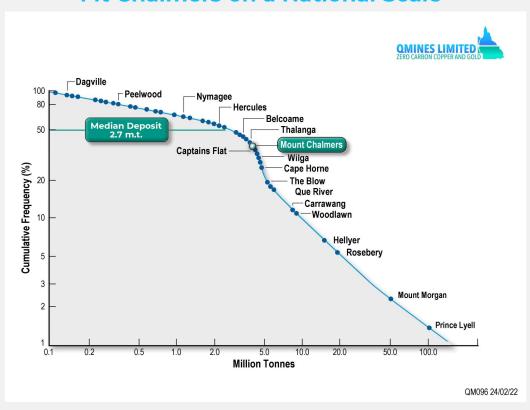
<sup>&</sup>lt;sup>3</sup> Seymour, Green, & Calver, 2006.

### Why VHMS Deposits? The Scale of Mt Chalmers

#### Mt Chalmers on an International Scale<sup>1</sup>



### Mt Chalmers on a National Scale<sup>2</sup>

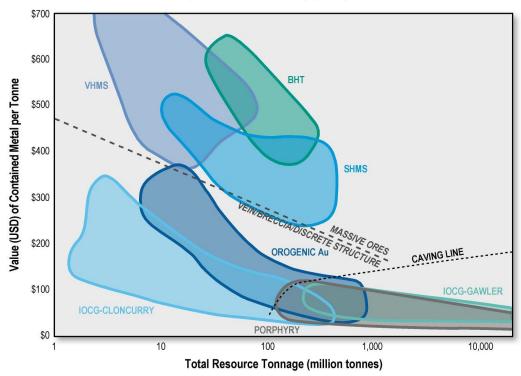


<sup>&</sup>lt;sup>1</sup> Koski & Mosier, 2010

<sup>&</sup>lt;sup>2</sup> Large, Herrmann & Corbett, 1987

### Why VHMS Deposits? High Value



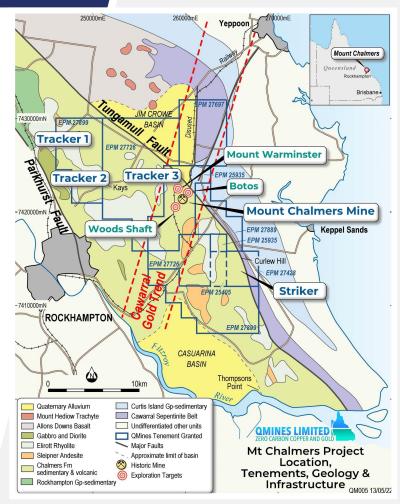


"VHMS Deposits are one of the Highest Value Deposits per Tonne..."

<sup>&</sup>lt;sup>1</sup> Murphy, Pratt, Hinman, Donohue, Pirlo & Jones, 2016

### **Regional & Local Geology**

- New England Orogen (youngest of the Tasman Orogenic Zone). Host to Au-Cu Intrusion related and VHMS deposits, porphyry Cu-Au, epithermal Au-Ag, Orogenic Au and granite Sn;
- Yarrol Province (forearc setting);
- Hosted within the Early Permian (268.2 277 Ma) Berserker Group. 600m to 800m thick fault bounded back-arc basin;
- Mt Chalmers Formation (271.1 277 Ma): Siltstone, lithic sandstone, rhyolitic to andesitic volcaniclastic breccia, rhyolitic and dacitic tuff, minor andesitic tuff;
- Mine Sequence (top down):
  - Hangingwall Pumiceous, polymictic lithic mass flow breccia, peperite, bioturbated turbidites, andesitic flows and dykes, and quartz – feldspar porphyry;
  - Mineralisation Massive Sulphides and sulphide stringer mineralisation hosted within volcaniclastic turbidites; and
  - Footwall Polymictic lithic & pumice rich breccias, massive to autobrecciated rhyolite intrusions and flows, dacitic-andesitic breccias.

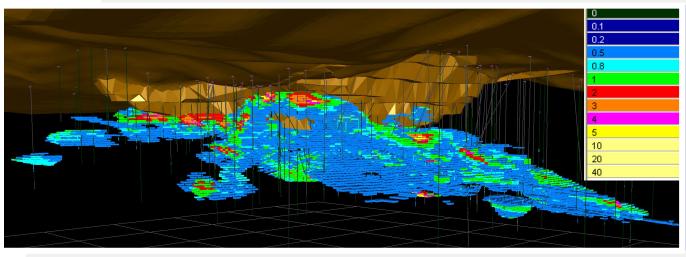


Mt Chalmers Location, Tenements, Geology and Infrastructure.

### Mt Chalmers Mineralisation

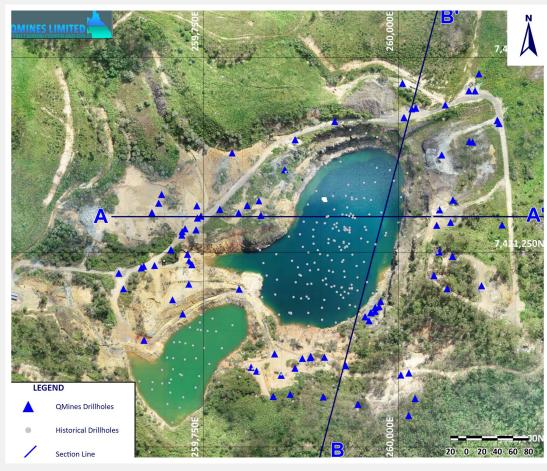
### **Overview**

- Typical metal association, alteration and zonation of a Cu – Au type VHMS deposit, comprising an upper massive Zn-Pb sulphide zone, in part layered and fragmental, which is underlain by a more extensive silicified alteration cut by stringer Cu-sulphide veins;
- The stringer zone is dominated by pyrite and contains copper and gold with only traces of zinc, silver and lead; and
- Mineralised lenses are separated by a dolomite – sericite alteration zone and the orebody is overlain by an intensely sericitized horizon which extends well away from the orebody in the same stratigraphic horizon.

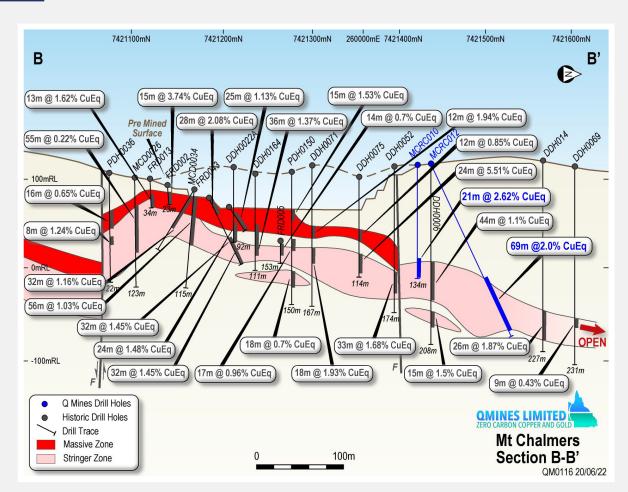


Mt Chalmers Mineral Resource Estimate block model (0.5% CuEq). Oblique view looking towards 315°, dip 05°.1

### **Mt Chalmers Mineralisation**



Mt Chalmers QMines and Historical Drillholes and Sections AA' and BB'.

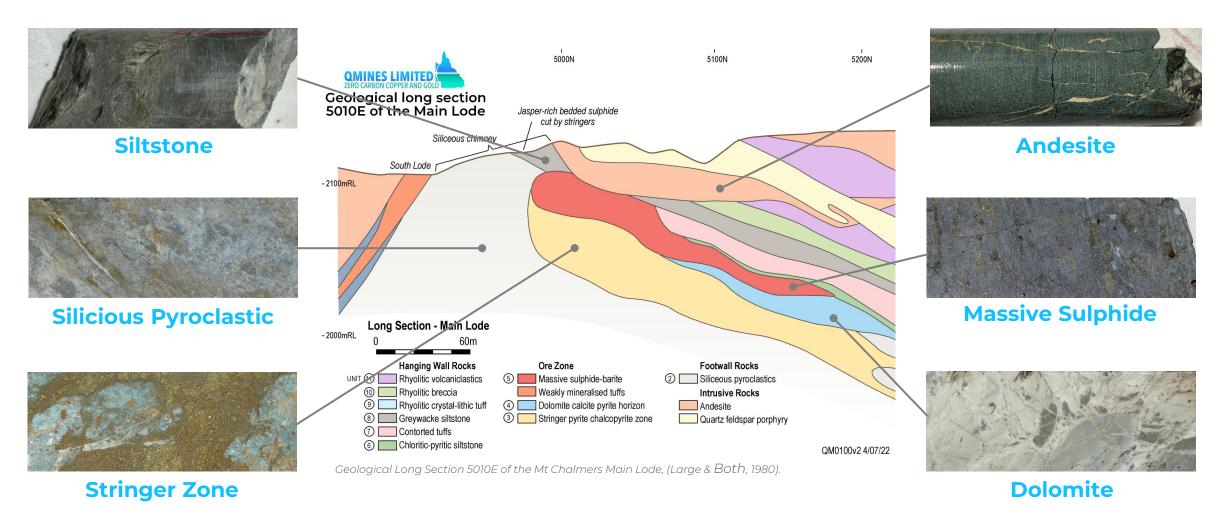


Mt Chalmers Section B-B'1.

<sup>&</sup>lt;sup>1</sup> ASX Announcement – <u>More Outstanding Copper & Gold Results at Mt Chalmers</u>, 16 June 2022

### **Local Geology**

# "Extensive Upside with Seven Prospects yet to be Drilled..."



### Metallurgical Test Work<sup>1</sup>

### **Preliminary Metallurgical Results**

• Copper **97.0**%

• Gold **86.5%** 

• Zinc **77.5**%

• Silver **70.5**%

• Lead **85.0%** 

### **Discussion**

- Results based on two mineralisation types: Cu-Au stringer mineralisation and Cu-Pb-Zn exhalite mineralisation;
- Expected to be indicative of maximum recoveries; and
- Additional tests are being conducted to improve recoveries.

<sup>&</sup>lt;sup>1</sup> ASX Announcement – Mt Chalmers Resource Upgrade, 1 December 2021.

### **Exploration Upside**

### **Mineralisation**

- The Mineral Resource at Mt Chalmers remains open;
- · Down-dip extensions are expected; and
- Some gaps in the resource are to be infilled.

### **Three Exploration Targets<sup>1</sup>**

Exploration Target	Tonnes (Mt)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)
Woods Shaft	1.0 - 1.5	0.2 - 0.3	0.6 – 1.0	_	_	_
Botos	1.5 – 2.5	0.1 – 0.2	0.5 – 0.8	30 - 50	1.1 – 1.4	0.5 – 0.7
Mt Warminster	1.5 – 1.8	0.1 – 0.2	_	8 - 12	0.5 – 0.7	0.25 – 0.35

### **Soil Anomalies**

- · Historic soil sampling data digitised for the first time;
- Anomalies include Tracker 1, Tracker 2, Tracker 3 and Striker;
- Multiple historic prospects and workings yet to be assessed.

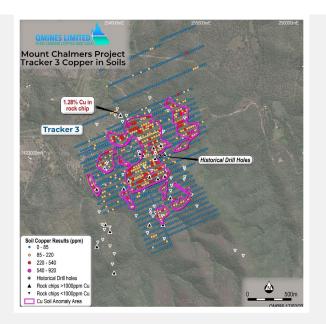
Mt Chalmers Tenure, Exploration Targets and Soil Anomalies.

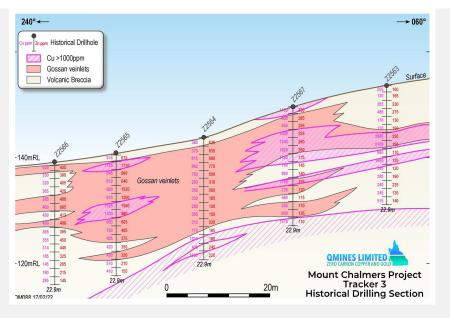
Historical Soils by Cu (ppm) • 85 - 220 • 220 - 540 >540 EPM 25935 **Mount Warminster** Tracker 2 racker 3 EPM 27899 **Mt Chalmers Mine** Woods Shaft Sand (Holocene) Unconsolidated Sediments(Holocene) Alluvium (Quaternary) Colluvium (Quaternary) Mount Hedlow Trachyte (Cretaceous) Yarrol Gabbro (Early Triassic) Yarrol Andesite (Early Triassic) Yarrol Rhyolite (Early Triassic) Warminster Sandstone (Late Permian) Sleipner Member (Early Permian) Chalmers Formation (Early Permian) Elrott Rhyolite (Early Permian) Balnagowan Volcanics (Devonian) Wandilla Formation (Devonian) Serpentinite (Neo Proterozoic) Structure **QMINES LIMITED** QMines Granted ➤ Fault Historic Mine **Mount Chalmers Project** - Fault approximate New Geochemical Discoveries Exploration Targets Fault concealed

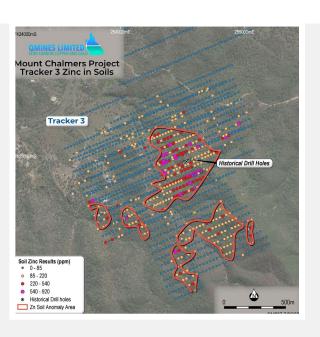
### Tracker 3 Anomaly<sup>1</sup>

### "Potential Mt Chalmers Look-a-Like"

- Large (750m by 750m), coincident Cu and Zn in soil anomaly;
- Rock chip samples up to 1.28% Cu and 2.5% Zn;
- Historic drilling Drilled in 1969. Five 75 ft (22.9m) deep drill holes;
- Bounded by a set of NE trending structures (arc-normal control?) with N-S trending intrusions and magnetic feature; and
- Mt Chalmers Formation and intrusive andesite.





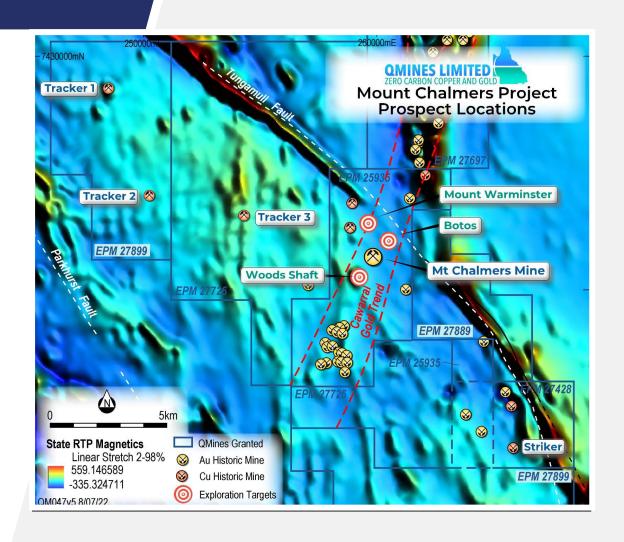


<sup>&</sup>lt;sup>1</sup> ASX Announcement – QMines to Drill First of Four Large Soil Anomalies, 21 February 2022.

### **Gold Potential**

### **Overview**

- Mt Chalmers is a gold-rich VHMS deposit having produced 67,992.3 Oz Au;
- Listed as a gold-dominant deposit in the Queensland Mineral Resources (MINOCC) database;
- Hard-rock gold production from at least 13 deposits (excluding Mt Chalmers) in the Cawarral Gold Trend;
- Mines produced ~24,900 Oz Au mostly before WWII;
- Annie, Helena, Last Chance and Galawa produced ~ 21,772.47 Oz Au;
- Northern group of workings on quartz veins associated with a trachyte plug within serpentinite; and
- New Zealand Gully workings (southern group) quartz reefs within volcanic and sedimentary rocks of the Berserker Group – High Ag:Au.



### What's Next?

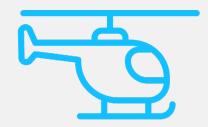
### "The Mt Chalmers Resource Remains Open with Seven Additional Prospects yet to be Drilled..."

## RC Drilling Campaign



- Test extremities of Mt Chalmers;
- Convert Woods Shaft to Resource;
- Drill test Tracker 3; and
- Complete 30,000m drilling program.

## Airborne EM Survey



- Scheduled for H2-2022;
- Covering the Mt Chalmers Project; and
- Downhole EM orientation survey in progress.

# Updated Geological Model



- New insights from drilling providing a better understanding of the geological framework; and
- Improved model for updated resource and targeting.

## **Updated Resource**



- Expected H2-2022;
- Increasing Measured and Indicated Resource; and
- Preparing to complete a scoping study.

### Why Invest?

# "An Exciting New Copper & Gold Development Company..."

#### **Right Deposit Style**



VHMS deposits are known to cluster and have a high metal value.

#### **Strong Growth Profile**



Mineral Resource Estimate (101,000t CuEq) and three Exploration Targets (JORC 2012).

#### **Right Commodity Mix**



Copper to support the energy transition and precious metals to deal with market volatility.

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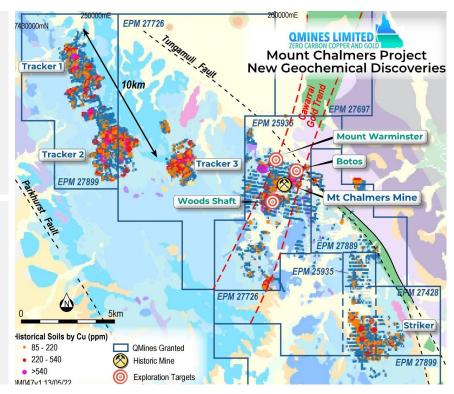


Similar style and setting to world-class Mt Morgan Deposit (8.5Moz Au & 400,000t Cu)<sup>1</sup>.

#### **Location Upside**



Historic mine site, close to infrastructure and proximity to end users.



<sup>&</sup>lt;sup>1</sup> Carbine Resources, Investor Presentation, December 2017, https://carbineresources.com.au/wp-content/uploads/2017/12/171204\_RRS\_FINAL.pdf

<sup>&</sup>lt;sup>2</sup> Mt Chalmers Resource Upgrade, <a href="https://wcsecure.weblink.com.au/pdf/QML/02460632.pdf">https://wcsecure.weblink.com.au/pdf/QML/02460632.pdf</a>, 1 December 2021. Metals price assumptions for copper equivalent estimates are US\$6,655/t Cu, US\$1,900/oz Au, US\$1,900/oz Au, US\$3,450/t Zn and US\$2,450/t Pb Exchange rate is AUD\$0.70. Assumed metallurgical recoveries of 97% for copper, 86.5% for gold, 70.5% for silver, 77.5% for zinc and 85% for lead. Exploration Targets are reported in accordance with the JORC 2012 Code & Guidelines.

### **Appendix**

### Historic Production, Mineral Resource & Exploration Targets<sup>1 2 3</sup>

#### Historic Production<sup>1</sup>

Project	Tonnes (Mt)	Grade (% Cu)	Grade (g/t Au)	Grade (g/t Ag)
Mt Chalmers	1.24	2.0	3.6	19

#### Mineral Resource<sup>2</sup>

Project	Category	Tonnes (Mt)	Cu (%)	Au (g/t)	Zn (%)	Ag (g/t)	Pb (%)	Cut Off
Mt Chalmers	Measured, Indicated & Inferred	5.8	1.03	0.6	0.19	5.1	0.08	0.5% Cu

### **Exploration Targets<sup>3</sup>**

Exploration Target	Tonnes (Mt)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)
Woods Shaft	1.0 - 1.5	0.2 - 0.3	0.6 – 1.0	_	_	_
Botos	1.5 – 2.5	0.1 – 0.2	0.5 – 0.8	30 - 50	1.1 – 1.4	0.5 – 0.7
Mt Warminster	1.5 – 1.8	0.1 – 0.2	_	8 - 12	0.5 – 0.7	0.25 – 0.35
Silverwood	0.8 – 1.0	0.3 – 0.5	_	15 - 25	3.2 – 3.7	0.3 – 0.5

<sup>&</sup>lt;sup>1</sup> ASX Announcement – Prospectus, Pages 89 – 241, 4 May 2021.

<sup>&</sup>lt;sup>2</sup> ASX Announcement – Mt Chalmers Resource Upgrade, 1 December 2021.

<sup>&</sup>lt;sup>3</sup> ASX Announcement - Prospectus, Annexure A Independent Geologists Report, 4 May 2021. Note: The potential quantity and grade of the exploration targets is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

An Opportunity to Own a Rapidly Expanding Australian Copper & Gold Development Company...





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This announcement has been approved and authorised by the Board of QMines Limited.