QMINES Sustainable Australian Copper

30 APRIL 2024

ANNOUNCEMENT

MT CHALMERS PFS SUPPORTS VIABLE COPPER & GOLD MINE

Highlights

The Mt Chalmers Pre-Feasibility Study is now complete;

Study demonstrates Mt Chalmers is a technically and financially robust project;

Highlights from the study include:

- Supports stand-alone 1Mtpa process plant;
- Capital cost estimate of A$191 million;
- Initial mine life estimate of 10.4 years;
- Life of mine revenue of A$1.64 billion;
- Life of mine free cashflow of A$636 million; and
- Net Present Value (NPV[8]) of $373 million, 54% IRR.

Metal produced during the initial life of mine include:

- 65,000t copper;
- 160,000oz gold;
- 30,600t zinc;
- 1.8Moz silver; and
- 583,000t pyrite.

Mt Chalmers Maiden Ore Reserve of 9.6Mt (Proved & Probable) also declared; and

Significant growth options identified with the Sulphide City, Scorpion and Woods Shaft deposits not currently in the mine plan.

Cautionary Statement

The Pre-Feasibility Study (PFS) is based on the material assumptions outlined below. These include assumptions about the availability of funding. While QMines considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this PFS will be achieved. To achieve the range of outcomes indicated in the PFS, funding in the order of $191 million will likely be required. Investors should note that there is no certainty that QMines will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of QMines existing shares. It is also possible that QMines could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce QMines proportionate ownership of the project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the PFS.

Overview

QMines Limited **(ASX:QML)(Company** or **QMines)** is pleased to announce the results of a Pre-Feasibility Study (**PFS**) completed at its flagship Mt Chalmers project, located 17km north-east of Rockhampton in Queensland (Figure 1). All PFS results are reported from modelling of mining and processing of the Mt Chalmers Resource (only) situated at the Mt Chalmers project. Resources at Develin Creek (Sulphide City & Scorpion) and Woods Shaft have not been considered at this stage and are considered upside potential.

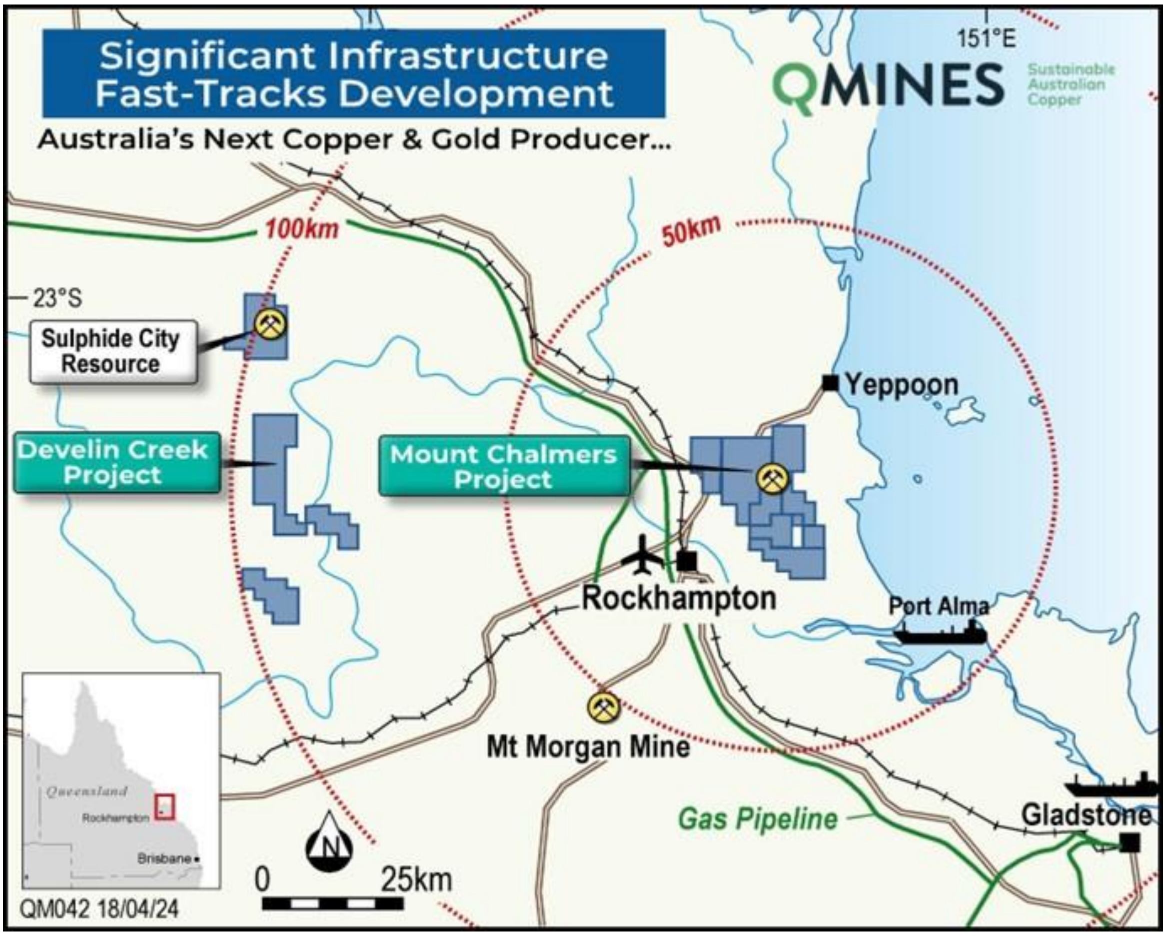


Figure 1: Location and Infrastructure at the Mt Chalmers project.

Management Comment

"The completion of the Pre-Feasibility Study represents a significant milestone for the business and our shareholders as we continue to demonstrate Mt Chalmers is a project with scale and potential for development.

"The Company has demonstrated that Mt Chalmers can be commercialised using industry standard treatment processes and techniques. With improving base metals prices associated with supply constraints, Mt Chalmers represents a low cost, high margin and long-life project with immediate upside from three satellite deposits and a large exploration package.

Andrew Sparke
Executive Chairman

Key Outcomes

The PFS assesses the development of a standalone copper and gold mining and processing operation at Mt Chalmers, utilising a three-stage open pit operation and processing that material onsite. COMO Engineers have designed a flow sheet and process facility to treat one million tonne of ore per annum (**1Mtpa**). The process plant design uses industry standard crushing, grinding and flotation circuits producing three concentrate types being copper/gold, zinc/silver and pyrite/gold.

The parameters for the process plant design are based on the two types of material to be mined at Mt Chalmers being Volcanic Hosted Massive Sulphide (**VHMS**) and Stringer material. The plant design also considers the metallurgical recovery, throughput rates and ore composition. The ore types are the VHMS exhalate material with copper, gold, zinc, lead, silver and sulphur and a Stringer material with copper, gold, silver and sulphur. The ratio of composite material to flow through the process plant is 30% VHMS and 70% Stringer material which equals the percentage of each material defined by the geological domains for the project.

It is the conclusion of the PFS that the Mt Chalmers project is technically achievable and commercially viable. The proposed development of Mt Chalmers presents an opportunity for QMines to establish and grow a mining and processing business within the critical metals sector with an attractive risk-return profile and clear potential to further enhance project returns through the expansion of production rates and extensions to the project life.

Key PFS outcomes and assumptions are shown Table 1.

Table 1: Key PFS outcomes and assumptions.

Parameter	Units	Base Case
Production		
Mill throughput	ktpa	1,000
Life of Mine	years	10.4
Ore Mined and Processed	kt	10.39
Cu grade	%	0.63
Au grade	g/t	0.48
Zn grade	%	0.29
Ag grade	g/t	5.4
Py Mass Pull	%	5.6
Contained Metal		
Cu contained	kt	65.3
Au contained	koz	160
Zn contained	kt	30.6
Ag contained	koz	1,821
Py contained	kt	583
Metal Recovered for Sale		
Cu	kt	62.9
Au	koz	130
Zn	kt	28
Ag	koz	1,612
Py/S/Fe	kt	583
Metallurgical Recovery		
Cu	%	96.4
Au	%	81.1
Zn	%	91.7
Ag	%	88.5
Py/S/Fe	%	62.0
Financial		
Mining & Processing	A$M	649.2
Treatment & Refining	A$M	35.1
Concentrate Transport	A$M	12.6
General & Administration	A$M	40.0
Royalty	A$M	72.3
C1 Cost (Copper Equivalent)	US$lb	2.14
CAPEX	A$M	191.9
OPEX	A$/t	32.85
Revenue	A$M	1,639
Pre-Tax Cash Flow	A$M	827.7
Cumulative Cash Flow	A$M	635.8
Net Present Value (8%) Discounted	A$M	373.4
IRR	%	54
Payback	Years	1.84
Metal Price Assumptions		
Cu price	US$/t	9,850
Au price	US$/t	2,350
Zn price	US$/t	2,850
Ag price	US$/t	28
Py/S/Fe price	US$/t	200
Exchange Rate	**$AU/$US**	**0.63**

Background

The Mt Chalmers project is located approximately 17km northeast of Rockhampton in Queensland (Figure 1). The Mt Chalmers project comprises five exploration permits, EPMs 25935, 27428, 27726, 27697 and 27899. Access from Rockhampton is by sealed road using either Emu Park or Yeppoon Roads. Driving time from Rockhampton airport to site is approximately 40 minutes.

Mt Chalmers consists of a polymetallic VHMS mineral deposit with recoverable copper, gold, silver, zinc metal and sulphur that QMines intends to mine and process, which is the subject of this PFS. The Mt Chalmers deposit was discovered in 1860.

Modern exploration from 1960 has been extensive culminating in open pit mining by GEOPEKO Limited carting the ore to Mount Morgan for processing from 1979-1982. Total historical production at Mt Chalmers by 1982 was 1.2Mt @ 3.6g/t Au, 2.0% Cu and 19g/t Ag. From April 2021 through December 2023 QMines have delivered several Mineral Resource Estimate's (**MRE**) for the Mt Chalmers project totalling 11.3Mt @ 0.75% Cu, 0.42g/t Au, 0.22% Zn, 4.5g/t Ag and 4.5% S. Contained metal estimates are 85,600t copper, 153,000oz gold, 24,400t zinc and 1.65Moz silver. [1]

QMines commissioned COMO Engineers to deliver the PFS and evaluate the commercial viability of the Mt Chalmers project as a stand-alone mining and processing operation. The Company updated the November 2022 MRE for the Mt Chalmers project to include sulphur based on the ability to deliver a pyrite concentrate as part of the PFS. The updated April 2024 MRE now includes 484,000t of sulphur as a resource to be processed and marketed as a pyrite concentrate containing gold.

Ore Reserve Estimate

The Mt Chalmers open pit has been designed as a three-stage mining operation delivering ore to the proposed process plant located at site. The Mt Chalmers open pits, designed by Minecomp, uses Measured, Indicated and Inferred material in the design parameters for the production target (Table 2).

Table 2: Mt Chalmers production target including Measured, Indicated and Inferred material.

Mt Chalmers Open Pit Design	Production Target, Mt Chalmers Project						
	Volume	Tonnes	Cu Grade	Zn Grade	Au Grade	Ag Grade	S Grade
	(BCM)	(t)	(%)	(%)	(g/t)	(g/t)	(%)
Stage 1	1,020,318	3,364,715	0.91	0.24	0.76	6.3	5.3
Stage 2	586,630	1,929,355	0.45	0.52	0.48	7.0	4.6
Stage 3	1,615,102	5,115,931	0.50	0.25	0.27	4.3	3.6
Total	**3,222,050**	**10,410,001**	**0.65**	**0.28**	**0.49**	**5.4**	**4.3**

Cautionary Statement

The production target (Table 2) and forecast financial information referred to in this announcement comprise Measured and Indicated Mineral Resources (approximately 91%) and Inferred Mineral Resources (approximately 9%). There is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be achieved.

1 https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf

Table 3: Ore Reserve Estimate converts only Measured and Indicated material JORC 2012.

Mt Chalmers Open Pit Design	Ore Reserve Estimate							
	Ore Volume	Ore Tonnes	Waste Volume	Cu Grade	Zn Grade	Au Grade	Ag Grade	S Grade
	(BCM)	(t)	(BCM)	(%)	(%)	(g/t)	(g/t)	(%)
Stage 1	961,938	3,162,457	5,919,793	0.91	0.24	0.76	6.3	5.3
Stage 2	534,062	1,755,404	3,669,324	0.45	0.52	0.48	7.0	4.6
Stage 3	1,471,712	4,655,128	9,696,683	0.50	0.25	0.29	4.3	3.6
Total:	**2,967,711**	**9,572,990**	**19,285,800**	**0.63**	**0.29**	**0.48**	**5.5**	**4.3**

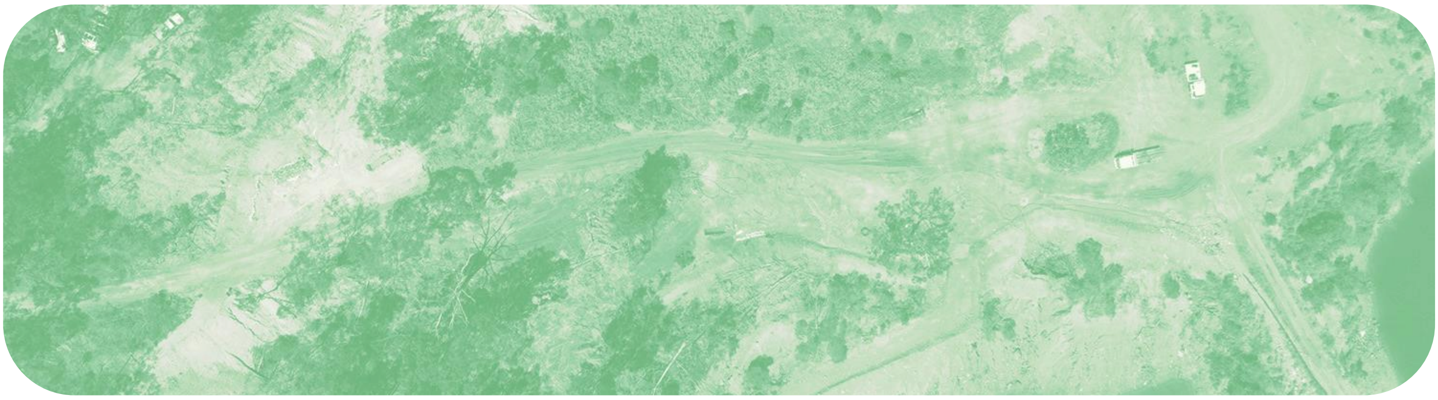
**Rounding errors may occur.*

After the application of modifying factors determined from the PFS, an Ore Reserve Estimate (Table 3) was declared through the conversion of some or all of the Measured and Indicated material from the MRE to the Proved and Probable categories consistent with JORC 2012 Mineral Code for reporting.

Table 4: Mt Chalmers JORC 2012 Ore Reserve Estimate, Proved and Probable category contained metal and grades.

Reserve Category	Tonnes (Mt)	Cu (t)	Cu Grade (%)	Zn (t)	Zn Grade (%)	Au (oz)	Au Grade (g/t)	Ag (oz)	Ag Grade (g/t)	S (t)	S Grade (%)
Proved	5.1	37,000	0.72	12,700	0.25	95,000	0.58	763,000	4.7	246,000	4.8
Probable	4.5	25,600	0.57	13,000	0.29	52,600	0.37	790,500	5.5	172,300	3.6
Total:	**9.6**	**62,600**	**0.65**	**25,700**	**0.27**	**147,600**	**0.48**	**1,553,500**	**5.2**	**418,300**	**4.3**

**Rounding errors may occur.*



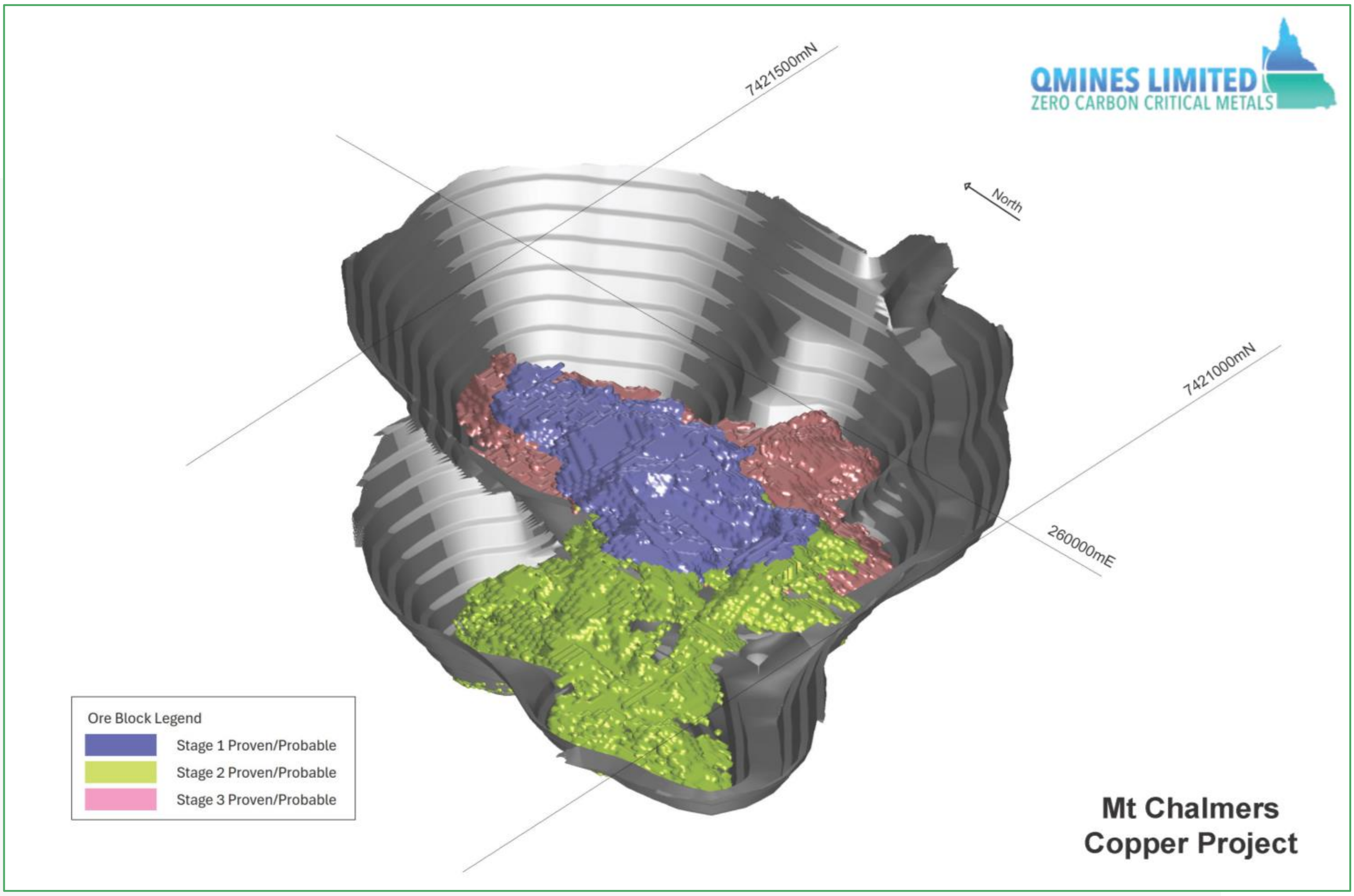


Figure 2: Isometric view of the three staged open pit at Mt Chalmers.

The PFS concluded that the Mt Chalmers deposit could be profitably extracted to an estimated depth of 220m. The production target schedule that forms the basis of the economic analysis for the Mt Chalmers open pit project is shown in Table 2. The production target contains Inferred Resources representing 9% of the overall tonnage mined and processed over the Life of Mine (**LOM**) and the MRE is seen in Table 5. The Company is satisfied that the Inferred Mineral Resources included in the production target are not the determining factors of the viability of the Project.

Table 5: Mt Chalmers Mineral Resource Estimate using 0.3% copper cut-off grade, March 2024, with sulphur.

Mt Chalmers	Tonnes (Mt)	Grade(s)					Contained Metal(s)				
		Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	S (%)	Cu (kt)	Au (kOz)	Ag (kOz)	Zn (kt)	S (kt)
Measured	4.2	0.89	0.69	4.97	0.23	5.37	38	94	675	10	226
Indicated	5.8	0.69	0.28	3.99	0.19	3.77	40	51	742	11	218
Inferred	1.3	0.6	0.19	5.41	0.27	2.02	8	8	228	3	39
Total	**11.3**	**0.75**	**0.42**	**4.6**	**0.23**	**4.3**	**86**	**153**	**1,645**	**24**	**483**

Sulphur Modelling

As a result of the metallurgical testing and market analysis, it was determined that the Mt Chalmers deposit hosted a significant pyrite resource that could be recovered to form a marketable concentrate. The existing MRE at Mt Chalmers was upgraded to include sulphur. No additional drilling was undertaken and no changes were made to the Cu, Ag, Zn and Ag estimates.

HGMC considered that the use of the available and relatively uniformly distributed sulphur assays (11,600 composites) could be used as a proxy tool for estimating the zones with likely high pyrite (FeS2) content except perhaps where high grade copper is located which would likely be associated with chalcopyrite (CuFeS2). Chalcopyrite remains the primary sulphide mineral, and its presence indicates the potential for economically viability of copper extraction and not necessarily indicate of the amount of pyrite that could be recovered.

As a general observation, the highest Sulphur grades tend to be towards the center of the deposit area with the very highest grades nearer to the topographic surface inside historically mined open cut pit.

It is envisaged that using the Cu and minor lower level Pb and Zn grades in conjunction with the sulphur grades that an estimate of the amount of Pyrite might be possible. Some actual material / mineral content analysis test-work based on a representative set of samples from the deposit would be required before a reliable calibrated pyrite volume and recovery estimates could be derived.

Further detail on the modelling of sulphur can be found in the JORC Table and attached PFS Study report.

Table 6: Updated Mineral Resource Estimate with Sulphur.

	CUT-OFF	VOLUME	SUMMARY	Copper	Lead	Zinc	Gold	Silver	Sulphur *
	(Cu %)	Cubic Metres	Tonnes	(Cu %)	(Pb %)	(Zn %)	(Au g/t)	(Ag g/t)	(S %)
Measured	0.15	1,955,115	6,254,960	0.672	0.099	0.247	0.516	4.379	4.802
	0.20	1,697,766	5,438,196	0.747	0.096	0.235	0.571	4.539	4.995
	0.30	**1,312,671**	**4,212,846**	**0.893**	**0.092**	**0.230**	**0.686**	**4.928**	**5.372**
	0.40	1,051,346	3,379,094	1.028	0.088	0.228	0.793	5.254	5.693
	0.50	869,130	2,796,250	1.149	0.086	0.226	0.893	5.508	5.980
	0.60	726,734	2,338,925	1.267	0.081	0.221	0.987	5.668	6.249
Indicated	0.15	3,157,048	10,009,032	0.487	0.068	0.184	0.215	3.720	3.457
	0.20	2,594,918	8,249,032	0.554	0.070	0.192	0.234	3.870	3.567
	0.30	**1,813,575**	**5,786,122**	**0.686**	**0.074**	**0.206**	**0.276**	**4.141**	**3.777**
	0.40	1,316,866	4213915	0.812	0.076	0.210	0.318	4.363	3.960
	0.50	967,711	3109037	0.942	0.078	0.212	0.360	4.689	4.144
	0.60	728,419	2346093	1.071	0.081	0.217	0.401	4.995	4.333
Inferred	0.15	915,709	2939491	0.384	0.120	0.250	0.170	4.683	3.133
	0.20	677,200	2179463	0.458	0.129	0.269	0.178	5.058	3.132
	0.30	**399,213**	**1284591**	**0.608**	**0.135**	**0.281**	**0.188**	**5.591**	**3.029**
	0.40	274,293	882796	0.726	0.150	0.311	0.204	6.109	2.985
	0.50	202,231	649670	0.826	0.150	0.308	0.208	6.074	2.929
	0.60	148,082	475235	0.927	0.158	0.325	0.209	6.264	2.886
Total	0.15	6,027,871	19203483	0.532	0.086	0.215	0.306	4.082	3.846
	0.20	4,969,883	15866691	0.607	0.087	0.217	0.342	4.263	3.996
	0.30	**3,525,459**	**11283560**	**0.754**	**0.088**	**0.223**	**0.419**	**4.600**	**4.287**
	0.40	2,642,505	8475805	0.889	0.088	0.228	0.495	4.900	4.550
	0.50	2,039,072	6554957	1.019	0.088	0.227	0.572	5.176	4.807
	0.60	1,603,235	5160253	1.146	0.088	0.229	0.649	5.417	5.068
	0.70	1,278,621	4122828	1.273	0.088	0.230	0.734	5.661	5.343

**5 x 8 x 2.5m blocks within defined majority Cu wireframes above a nominal ~0.2% Cu cut-off and from surface down to - 240mRL.*
**No rounding used.*
**Refer also to JORC Table 1 in Appendix 1.*

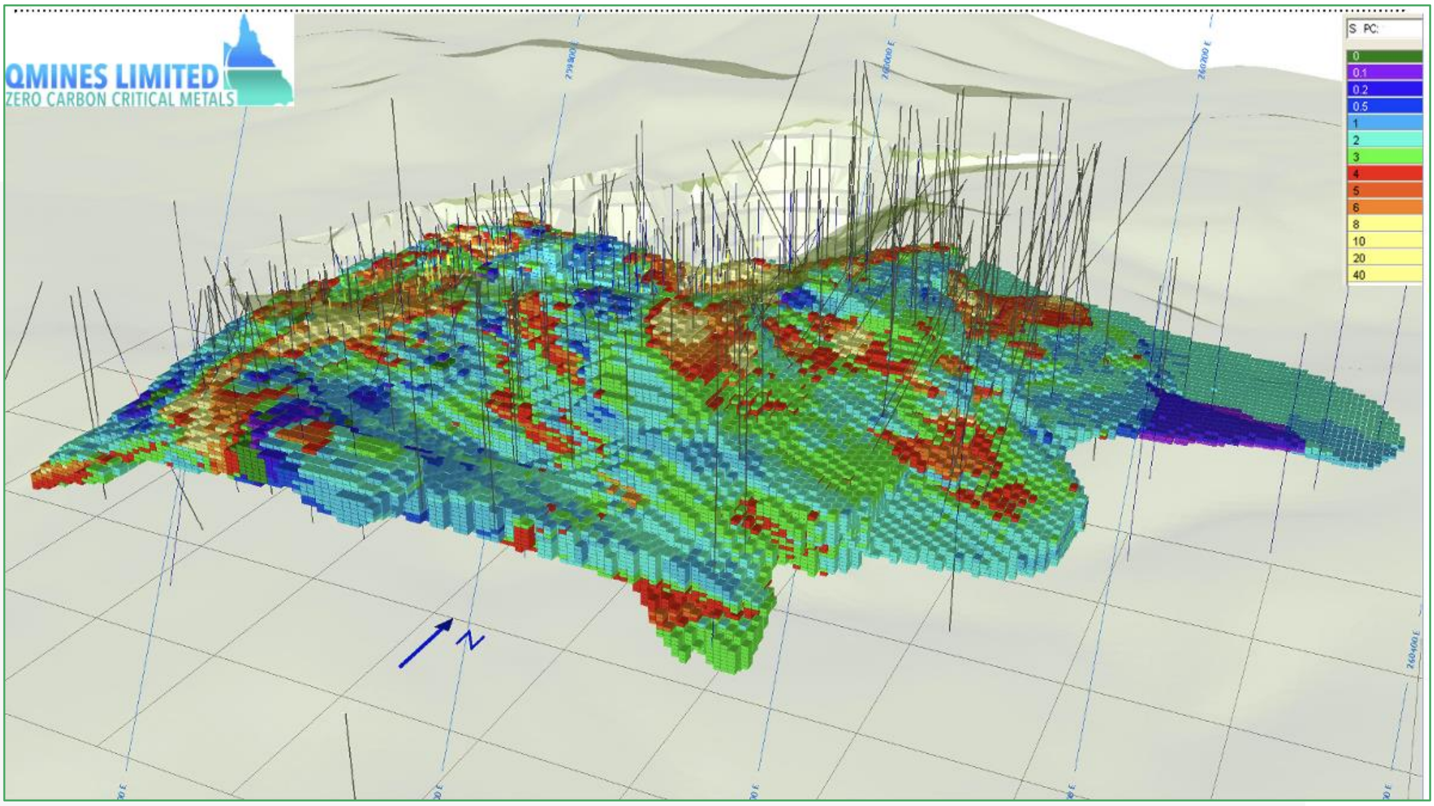


Figure 3: Isometric view of the Mt Chalmers Sulphur block model as percentage blocks with assayed drillholes.

Financial Analysis

The Mt Chalmers project is truly unique. It's a shallow, high grade, open pit project with high recoveries, located close to the coast and infrastructure. It is these qualities that drive the strong financial returns of the project.

The proposed Mt Chalmers mining and processing operation is a low cost, high margin and long-life project with immediate opportunities to grow scale and improve upon already robust financial returns.

The project has been optimised to mine higher grade material early in the mine life (Figure 4).

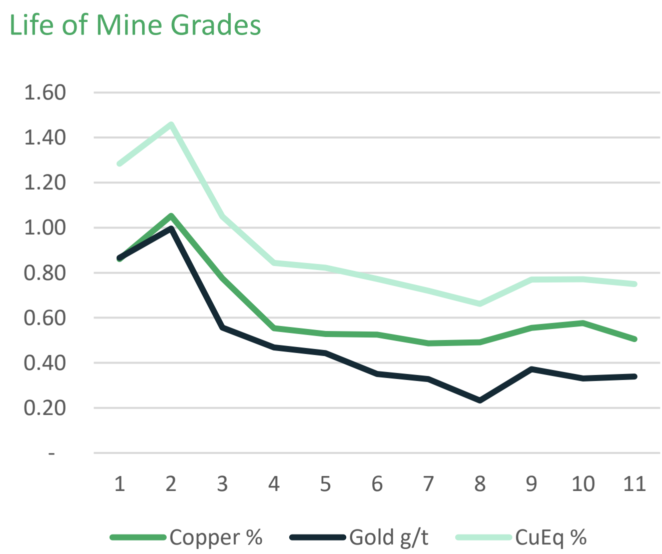


Figure 4: Life of mine copper, gold and copper equivalent grades at Mt Chalmers.

This has several obvious benefits including the rapid payback of capital, just 1.84 years, and the generation of immediate financial returns for its owners (Figure 5).

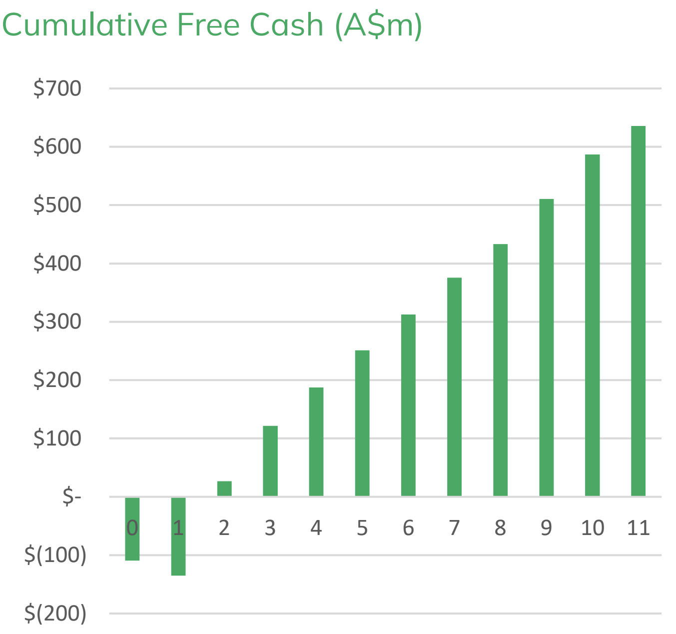


Figure 5: Cumulative Free cashflow generated from the Mt Chalmers operation.

Low Cost

The CAPEX of the project is estimated at just **A$191.9 million** with an OPEX estimate of just **A$32.86/t**. The financial model provides a C1 costs of just **US$2.14/lb CuEq** over the Life of Mine (**LOM**). With a NPV to CAPEX ratio of approximately 2:1, the Mt Chalmers project appears readily financeable.

High Margin

The project delivers strong margins, even at current spot prices. The pre-tax Net Present Value (**NPV**) of the project, using an 8% discount rate is **$373.4 million** and an Internal Rate of Return (**IRR**) of an impressive **54%.** This demonstrates the cost benefits of shallow, open pit mining.

The average life of mine C1 costs are just US$2.14/lb providing strong margins throughout the project life. Figure 6 shows the life of mine C1 cash cost against the current spot price of US$4.5/lb, throughout the life of mine.

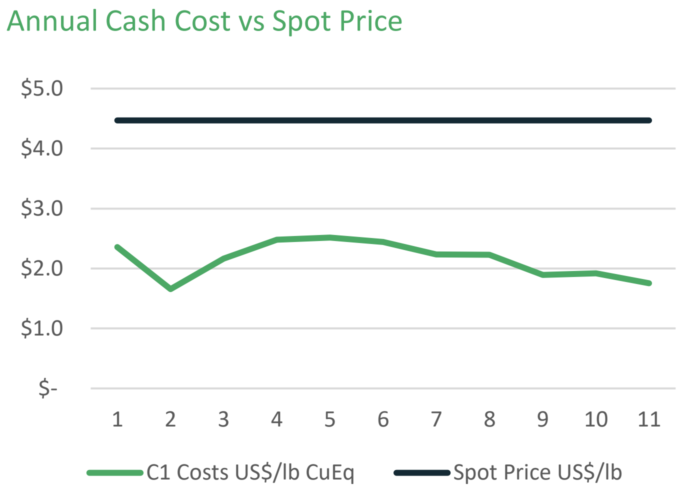


Figure 6: Annual cash cost vs spot copper price.

Long Life

The proposed Mt Chalmers mining operation is supported by a Maiden Ore Reserve of 9.5Mt (Proved and Probable) and 837,011t of potential mining material (Inferred). This demonstrates an initial mine life of 10.4 years. The incorporation of additional known deposits provides immediate expansion opportunities.

Immediate & Known Upside

The PFS demonstrates significant upside potential with three additional deposits at Sulphide City and Scorpion, located at the Company's Develin Creek project, and the Woods Shaft deposit, located just 800m from Mt Chalmers, yet to be incorporated into the mine plan.

The metals price assumptions used for the PFS were based on spot prices derived from April 2024. As seen in the sensitivity table below, the Mt Chalmers project provides significant leverage to increasing metals prices.

Timing

The timing of the delivery of the Mt Chalmers PFS couldn't be more important with the forecast rise in global copper demand associated with the global energy transition and the significant supply issues facing global copper production.

Subject to environmental approvals, the Mt Chalmers project has the potential to supply critical metals towards the start of the next cycle. This provides significant leverage to the higher predicted prices associated with the energy transition.

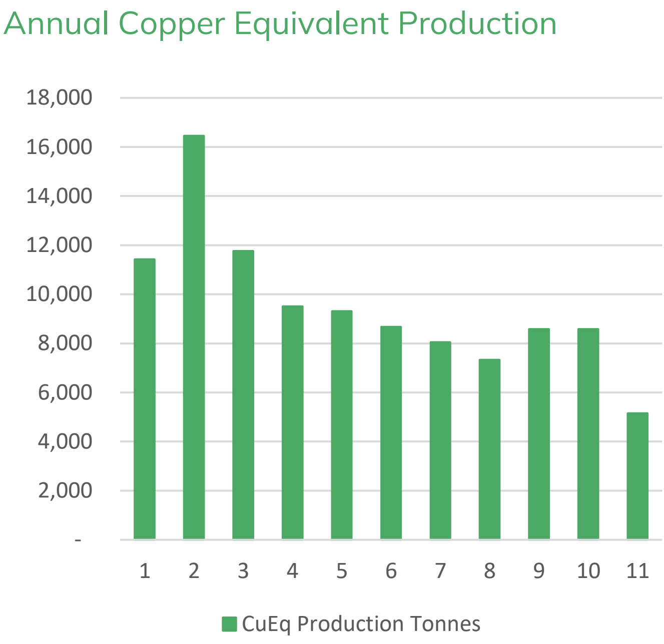


Figure 7: Annual copper equivalent production at Mt Chalmers.

Sensitivities

As can be seen in Figure 8 below, the Mt Chalmers project is highly sensitive to metals prices and the discount rate used.

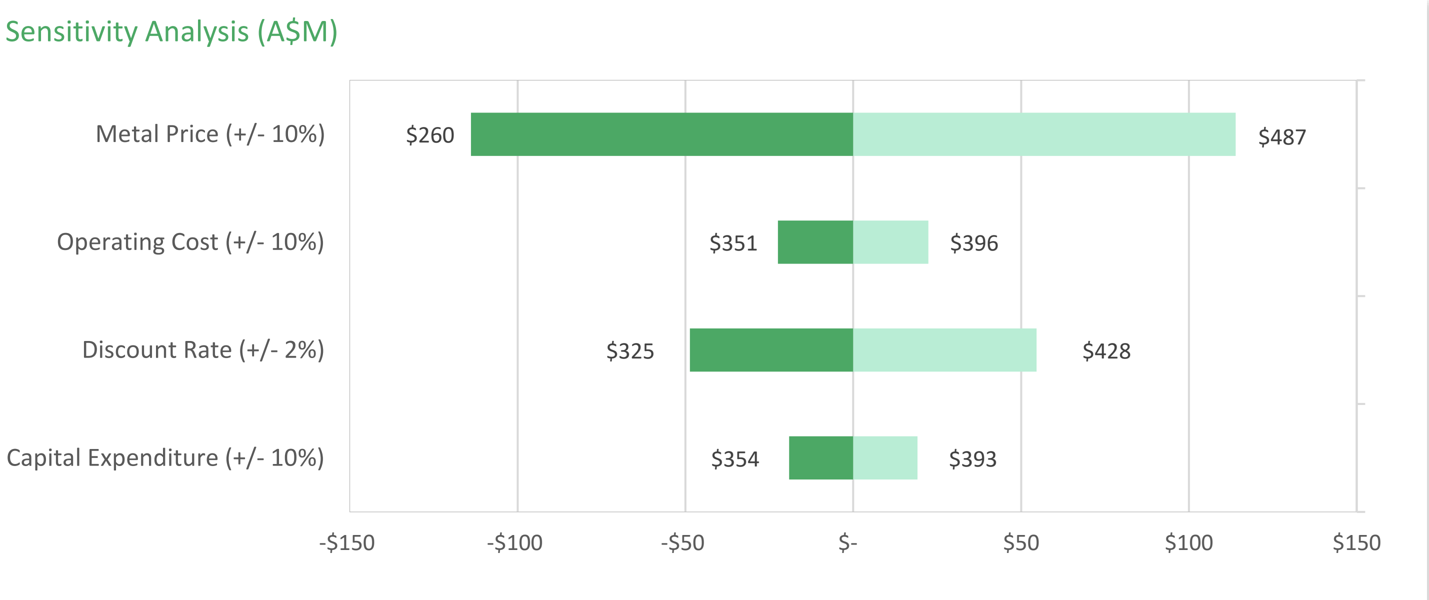


Figure 8: Metal Prices Sensitivity Analysis.

Statements and Disclaimer

Competent Person Statement (Mineral 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.

Competent Person Statement (Ore Reserve)

The Information in this Report that relates to the Open Pit Optimisation and Ore Reserve Estimate and is based on information compiled by Mr Gary McCrae, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr McCrae is a full-time employee of Minecomp Pty Ltd. Mr McCrae has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr McCrae consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Exploration Results, Mineral Resources & Ore Reserves

References in this announcement may have been made to certain ASX announcements, including exploration results, Mineral Resources and Ore Reserves. For full details, refer to said announcement on said date. The Company is not aware of any new information or data that materially affects this information. Other than as specified in this announcement and other mentioned announcements, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement(s), and in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant announcement continue to apply and have not materially changed other than as it relates to the content of this announcement. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original announcement.

Inclusion of Inferred Mineral Resources

The production schedule and forecast financial information referred to in this announcement is underpinned by Measured and Indicated Mineral Resources (approximately 91%) and Inferred Mineral Resources (approximately 9%). The Company draws attention to there being a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be achieved in operation. The Company is satisfied that the Inferred Mineral Resources included in production target will ultimately be mined and is not the determining factors of the viability of the Project.

Forward Looking Statements

Some statements in this announcement are forward-looking statements. Such statements include, but are not limited to, statements with regard to capacity, future production and grades, projections for sales, sales growth, estimated revenues and reserves, the construction cost of a new project, projected operating costs and capital expenditures, the timing of expenditure, future cash flow, cumulative negative cash flow (including maximum cumulative negative cash flow), the outlook for minerals and metals prices, the outlook for economic recovery and trends in the trading environment and may be (but are not necessarily) identified by the use of phrases such as "will", "would", "could", "expect", "anticipate", "believe", "likely", "should", "could", "predict", "plan", "propose", "forecast", "estimate", "target", "outlook", "guidance" and "envisage".

By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside the Company's control. Actual results and developments may differ materially from those expressed or implied in such statements because of a number of factors, including levels of demand and market prices, the ability to produce and transport products profitably, the impact of foreign currency exchange rates on market prices and operating costs, operational problems, political uncertainty and economic conditions in relevant areas of the world, the actions of competitors, suppliers or customers, activities by governmental authorities such as changes in taxation or regulation.

Given these risks and uncertainties, undue reliance should not be placed on forward-looking statements which speak only as at the date of this announcement. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, the Company does not undertake any obligation to publicly release any updates or revisions to any forward-looking statements contained in this material, whether as a result of any change in the Company's expectations in relation to them, or any change in events, conditions or circumstances on which any such statement is based.

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About QMines

QMines Limited (**ASX:QML**) is a Queensland based copper and gold exploration and development company. The Company owns rights to 100% of The Mt Chalmers (Cu-Au) and Develin Creek (Cu-Zn) deposits. The Company's Mt Chalmers and Develin Creek projects are located within 90km of Rockhampton in Queensland. Mt Chalmers is a high-grade historic mine that produced 1.2Mt @ 2.0% Cu, 3.6g/t Au and 19g/t Ag between 1898-1982.

The Mt Chalmers and Develin Creek projects now have a Measured, Indicated and Inferred Resource (JORC 2012) **of 15.1Mt @ 1.3% CuEq for 195,800t CuEq.**[1, 2]

QMines' objective is to make new discoveries, commercialise existing deposits and transition the Company towards sustainable copper production.

Project & Ownership

Mt Chalmers	100%
Develin Creek (with right to 100%)[2]	51%
Silverwood	100%
Warroo	100%
Herries Range	100%

QMines Limited

ACN 643 312 104

ASX:QML

Unlisted Options

9,950,000 ($0.375 strike, 3 year term)

Shares on Issue

216,743,018

Directors & Management

Andrew Sparke
Executive Chairman

Peter Caristo
Non-Executive Director (Technical)

Glenn Whalan
Geologist (Competent Person)

James Anderson
General Manager Operations

Elissa Hansen
Non-ExecutiveDirector & Company Secretary

Compliance Statement

With reference to previously reported **Exploration results** and **mineral resources**, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of **Mineral Resources or Ore Reserves**, that all material assumptions and technical parametres underpinning the estimates in the **relevant market announcement** continue to apply and have not materially changed. **The company confirms** that the form and context in which the Competent Person's findings are **presented have not been materially** modified from **the original market announcement**.

1. *ASX Announcement - Mt Chalmers Resource Upgrade. 22 Nov 2022*
2. *ASX Announcement - QMines Delivers Fight Resource at Develin Creek. 22 Sept 2022*

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ASX:**QML**

QMINES Sustainable Australian Copper

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JORC CODE, 2012 EDITION – TABLE 1 MT CHALMERS MINERAL RESOURCES

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling Techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• The Mt Chalmers deposit was drilled with a combination of percussion drilling ("PDH" open hole percussion, reverse circulation drilling ("RC") and diamond core holes ("DD") amounting to 535 drill holes for 47,234.86 metres.

Drill Hole Table - QMines	Mt Chalmers		
Hole Type	**Number**	**RC (m)**	**Diamond (m)**
Diamond	20		2466.4
RC Precollar Diamond Tail	24	1714.2	1721.47
RC Only	71	11,319	
RC Precollar - diamond tails incomplete	9	513.1	
Sub Total:	**124**	**13,546.2**	**4,187.87**
Drill Hole Table - Historic			
Hole Type	**Number**	**PDH (m)**	**Diamond (m)**
Diamond	32		3,393.95
PDH Precollar Diamond Tail	72	4,106.81	3,894.82
PDH Only	237	11,824.43	
Sub Total:	**341**	**15,931.24**	**7,288.77**
Total:	**465**	**29,477.44**	**11,476.64**

Criteria	JORC Code explanation	Commentary
		• Sampling consists of either 1 m intervals of chip material sub-sampled to 2 kg for RC samples or 1 m sawn or split half core samples yielding approximately a 3-5 kg sample. • At the laboratory, all sample material from each diamond core and RC sample submission is crushed and pulverized to give a 200 g representative sample from which a sub-sample of 30 g is taken for base metal analysis and a 30 g charge for gold. • There is no documentation concerning the analytical method used by Geopeko, but the work was completed at the Mt Morgan ("MML") mine site laboratory and presumably the analysis was to industry standard for the time. The Federation sample prep and analysis was completed by a commercial laboratory using a mixture of ICP and 50 g charge fire assay with atomic absorption spectroscopy ("AAS") for base metals and gold, respectively. • Diamond drilling utilised HQ triple tube with diamond core sampling consisting of between 0.3 m and 1.5 metre intervals of core. Samples were cut with a Sandvik wet core saw yielding 1-5 kg core samples (dependent on sample intervals) into calico sampling bags. RC samples were collected at 1m intervals from an on-rig cyclone cone splitter with 2-3kg, or approximately 10% of the split sample saved in calico bags except for duplicate samples with each being 1-2kg, or approximately 5% of the total sample. In each case 4 individual calicos are placed in polyweave bags and sealed for delivery to the assay lab. Samples are sent by road to ALS Laboratories in Brisbane, crushed, pulverised and riffle split delivering 200 g pulp for base metal and precious metal assay. • Handheld portable XRF (pXRF) measurements of base metals i.e. Cu, Pb and Zn were taken of unsieved RC drilling material at appropriate horizons to check for fine grained disseminated base metal mineralisation. Anomalous readings resulted in these samples being submitted for conventional assay.
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).	• In 2021 percussion drilling was with a Mayhew 1000 or a Mayhew 1500 rig with 114.5 mm down hole hammer bit and 140mm percussion face sampling hammer. In early 2022 QMines acquired a KWLRC350 rig with booster and auxiliary compressor and using 5 m, 102 mm diameter RC rods and a 143 mm percussion face sampling hammer and this was used to drill all RC holes in 2022 and 2023. • For the Peko diamond drilling core sizes ranged from NQ to BQ whereas for Federation diamond drilling was mostly HQ size with some NQ where needed. • In 1995 Great Fitzroy Mines NL drilled eight vertical RC holes at Woods Shaft using a Schramm RC rig. No sampling or procedural data is available however the program was managed by Alex Taube, former chief geologist with Geopeko at Mt Chalmers. • Many historical holes were initially drilled using an open hole percussion or RC drilling method and tailed with a DD hole. • The vast majority of drillholes were vertical. • QMines diamond drilling was undertaken using a multi-purpose UDR 650 track mounted rig, and a Hydco 1000 Dual purpose truck mounted rig. Diamond tails were drilled by a track mounted Hyundai Dasco 7000 diamond core rig. • Coring was by HQ triple tube with the core sample being orientated using REFLEX ACT111 core orientation tool. No historical core orientation data is available.
Drill Sample Recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• No historic sample recovery data is available for either the DD or the RC drilling. Historical reports indicate 90% recovery from the Geopeko drilling except for weathered and oxide zones (these zones have been mined out). • No documentation of historical RC sampling procedures is available • Geopeko investigated the risk of sample bias due to loss of fines. Only a small number of samples were collected, too few for anything conclusive, but there were indications of a small preferential concentration of sulphides in

Criteria	JORC Code explanation	Commentary
		the samples of retained drill cuttings with an associated increase in Cu, Ag and possibly Au grade (results for Au were reported as erratic). • The drilling methods are considered to be of industry standard at the time of drilling and would normally have been expected to give reliable results suitable for resource estimation. • With a lack of recovery data it is not possible to establish if there is a relationship between sample recovery and metal grade. • QMines diamond core recovery was excellent with between 93 - 95% of all diamond core recovered from both the mineralised and unmineralised zones. RC chips from each metre were collected in chip trays and logged. The majority (>95%) of RC samples were dry. Calico sample bags were of a sufficiently fine weave as to retain almost all of the sample fine fraction even when saturated. • Drilling methods are consistent with current industry practices with no sample bias and are representative in nature.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All historical drilling was competently logged with the production of hardcopy logs and cross sections. All hardcopies had appropriate levels of information for a resource estimate to be completed. • McDonald Speijers Pty Ltd ("MS"), consultant resource geologists, built the current digital database in 1995 from sighting the original drill logs and kept records. John Macdonald, Principal Geologist with MS, transcribed and compiled some of the hardcopy data including visual verification into digital data. • Logging consisted of a series of codes that were a mixture of quantitative and qualitative data. • Geological information originally consisted of lithology descriptions, alteration, mineralisation, and oxidation levels. Not all of this data is available in a digital format. • QMines drilling output has been competently logged by Company geologists with all logging data digitised electronically into Panasonic Toughbook. • Logging codes were established prior to commencement of drilling operations by H & S Consultants and were a mixture of quantitative and qualitative data. • Geological information originally consisted of lithology descriptions, alteration, mineralisation and oxidation levels. All data is available in a digital format. • All core and chip trays have been digitally photographed and stored in the Company NAS drive.
Sub-Sampling Techniques & Sample Preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Geopeko diamond core was sampled under geological control, but generally averaged about 1 m in sample length. Most of it was sampled using a mechanical core splitter with 50% taken for sample prep and assay. Some mineralised intervals were cut with a diamond saw with 50% of the interval sent to the MML laboratory at the Mt Morgan mine site for preparation and assay. No information is available about sample prep procedures used for this work. • Geopeko percussion drilling involved dry cuttings being collected via cyclones and riffled to give a sample of about 2 kg for submission to the laboratory. The RC samples were submitted to the MML laboratory at the Mt Morgan mine site for preparation and assay. No information is available about sample prep procedures used for this work. • Wet samples were collected in 2 ways. In the West Lode area samples were collected in a fine gauze catcher and mixed on a groundsheet before being coned and quartered. Sample intervals ranged from 1-2m. This sample collection method would have led to large losses of fines. In the Main Lode area wet samples were collected in half 44-gallon drums and transferred to hessian bags. When dry they were riffle split. This was a better method, but fines would still have been lost when water flows were high and the collecting drum overflowed. Sample collection methods from Woods Shaft drilling are unknown.

Criteria	JORC Code explanation	Commentary
		• The larger core from the 1995 Federation diamond holes was logged and mineralised intervals were selected on the basis of visual assessment. Quarter core samples (HQ core size) were collected using a diamond saw with the samples sent for sample prep and assay. • The Federation core samples were submitted to Australian Laboratory Services P/L for preparation at their Rockhampton facility and assay at their Townsville laboratory. The sample preparation scheme involved jaw crushing to an unknown size followed by pulverisation of the total sample in a Labtechnics LM5 mill to a nominal 90% passing -75um. • A barren quartz flush was used after each set of sulphide-rich samples at an unknown insertion ratio. • QMines Operations – All recovered diamond core was cut using a Sandvik core cutting wet saw. • Core was cut in half (parallel to the long-core axis) for submission with duplicates cut in quarters (parallel to the long-core axis) • ALS Laboratories dry the samples prior to crushing and pulverising. All sample material from each diamond core and RC sample submission is crushed and pulverized to a nominal 90% passing 75 µm giving a 200 g representative sample from which a sub-sample of 30 g is taken for base metal analysis and a 30 g charge for gold. • RC sampling was collected using a cyclone with a cone splitter delivering 10% representative sampling per metre drilled. Duplicate samples were collected every 25 m and 75 m drilled in the drilling sequence with duplicate samples being 50-50% split sample from the same cone splitter. • Drill core sample size was based on lithological, mineralisation or recovery boundaries and the minimum 30-centimetre core length is generally considered adequate. The RC sample weights of 3-5 kilograms exceed Gy's minimum.
Quality of Assay Data & Laboratory Tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• Geopeko samples were submitted to the MML laboratory at the Mt Morgan mine site for analysis. No technical details have been located regarding sample preparation procedures or assaying methods. The Mt Morgan operation has since shut down and the laboratory no longer operates. • Federation initially used an ICP method (1C587) for Cu, Pb, Zn, S, Ag, As, Ba, Fe and Mn. After about the first 3-4 batches of samples the laboratory introduced an AAS method (A101) to check Cu, Pb, Zn and Ag assays for higher grade samples. Fire assaying of a 50 g charge with an AAS finish (PM209) was used for gold. • Great Fitzroy submitted drill samples to the ALS laboratory at Townsville for analysis of Cu Pb Zn and As by method G001 and Au by method PM209. No sampling or QAQC data is available. • Peko submitted 352 samples for check assaying to Australian Laboratory Services (ALS) in Brisbane on a regular basis during their drilling programmes, although results for Au, Ag and Pb in particular were not always available. The drill logs recorded the results for these "duplicates" and MS were able to compile and analyse. They concluded there was no significant bias for Cu, Au, Ag and Zn. However, there was a significant positive bias with the check laboratory for Pb but this was not significant for the resource as Pb is not treated as an economic commodity. The MML silver results were adjudged to have poor precision but for relatively low silver values. • Federation undertook check assaying at an independent laboratory, but the results are not available. • There are no reports from any of the drilling campaigns of any standards being used to assess the accuracy of the analysis. • Despite the lack of documentation describing the analytical methods and the lack of QAQC it is reasonable to assume that the analysis was to an industry standard for the time and that the results would be reasonable, especially for the level of classification of the resource estimate. • QMines Operations – All samples for assay were submitted to ALS Laboratories in Brisbane.

Criteria	JORC Code explanation	Commentary
		• Ag, As, Ba, Cu, Pb, S and Zn were determined by ALS (ME-ICP61) by ICP-AES on a four-acid digest, Au was determined using ALS method AA25 (fire assay with AAS on a 30 g pulp). Sample preparation and base metal analysis was undertaken in Brisbane and Fire Assay undertaken by ALS in Townsville. • The Company submits batches to ALS from drill programs as they come to hand. Reporting on QAQC results for all drillhole samples submitted since February 2021 has been undertaken by Lisa Orr of Orr and Associates, who found that QMines QAQC is consistent with current industry practice for a drill program. • Duplicate samples of riffle splits (RC samples) and quarter core (diamond drilling samples) are utilised to monitor laboratory reproducibility. With coefficients of variation under 17% there is no significant bias in assayed results from duplicates assayed. • Certified Reference Materials (CRM) and blanks (supplied by OREAS and GEOSTATS Pty Ltd) are inserted at regular intervals with suitable CRMs being used to monitor laboratory accuracy. With 275 out of 294 CRMs reporting within 2 standard deviations of certified values a success rate of 94% was achieved. • Blank samples of barren gravel are inserted at 33 m intervals. 194 of 196 blanks reported within 2 SDs for 99% success. • Internal laboratory QAQC reports are delivered by ALS with certification of assay method used and certified assay results. These results are delivered to the project Geologist, Drill hole data base manager and the Company. • A Thermo Scientific Niton XL3t handheld portable pXRF unit was used as a first pass check for fine grained disseminated base metal mineralisation in RC drilling material. Reading times were 20 seconds. The device has automatic calibration after switch on, and 4 CRM standards were also used to test for precision.
Verification of Sampling & Assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Historical drillhole intersections have now been digitised and viewed by QMines Geologists and by the HGMC resource Geologist. • QMines has cross checked selected data, while building a new geological database, based on scanned open files held by the Queensland Dept of Mines, all drillhole collars were checked and random drill logs checked. No issues were noted. • QMines state that all available data was compiled and verified by John Macdonald, Principal Geologist with McDonald Speijers Pty Ltd and documented in "MOUNT CHALMERS DEPOSIT UPDATED MINERAL RESOURCE ESTIMATE & REVIEW OF ASSOCIATED DATA COLLECTION PROCEDURES" • John Macdonald used a complete set of original drill logs, plus mine records which at the time were available at the MML mine site offices. • There is no documentation of any adjustment to the data that has included inserting half lower detection limit values into the database, insertions of blank values where no sample recorded etc. • QMines Operations – Significant intersections have been validated by the Company's project geologist. • A number of historical holes at Mt Chalmers and at Woods Shaft have been twinned as part of the validation process of historical data. • Documentation and digitisation of historical data has been undertaken by Lisa Orr of Orr and Associates the Company geological data base manager with all historical data verified. Drill hole data base is stored in an Access database and housed independently in an external NAS drive and backed up in a cloud storage system.
Location of Data Points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used.	• The earliest grid shown on plans was an exploration grid established by CEC which originated at the North Shaft, which was assigned coordinates of zero for both easting and northing. • Geopeko subsequently established a mine grid, again using the North Shaft as the origin, which was assigned coordinates of 5,000 m E & 5,000 m N. A network of local control stations was set out by MML staff surveyors.

Criteria	JORC Code explanation	Commentary
	• Quality and adequacy of topographic control.	• All previous data (such as drill collar locations) were converted by Geopeko to mine grid which appears to have been used consistently for both exploration and production work. This includes Woods Shaft. • Control points for the Geopeko mine grid survive and this grid was also used for all Federation and MS work. A Rockhampton based surveyor (R E Harris) who previously worked as a mine surveyor on the project with MML conducted all surface surveys for Federation. • Local mine control survey points are still in existence, and these have been re-surveyed by QMines using a Differential Global Positioning System. • QMines has converted the Local Grid to GDA94 MGA Zone 56 grid using ArcGIS software, using a combination of local mine control survey points and landmarks. • The current topography was defined using a photogrammetric survey conducted by Capricorn Survey Consultants Pty Ltd on behalf of Federation in May-June 1995. This was based on photography flown in November 1992 and used ground controls established by MML in the 1970's to provide a tie in between AMG and mine grid coordinates. • Pre-open pit topography was available as photogrammetric contour plans dated November 1978, generated by Geo-Spectrum (Aust) for MML. These were presented at 1:500 and 1:1000 scale over the mine area with contour intervals of 1 m and 2 m, respectively. They were apparently based on photography flown in 1973. • MS digitised the 1:1000 scale plan over the area of the resource model to allow volumes to be estimated for the Peko pit and for subsequent excavations at the south end of the pit, pit backfill and surface dumps • Percussion holes, which make up 73% of the total number of holes available, were not surveyed downhole. However, it should be noted that virtually all of them were vertical and are considered by QMines to have had very limited deviation. • For pre-Federation diamond drill holes, logs and sections only showed evidence of down hole surveying for 1 hole but the survey details are not recorded in the log. The remainder of the diamond drill holes are assumed not to have been surveyed downhole. • Federation drill holes were surveyed at intervals of approximately 50 m using an Eastman single shot borehole survey camera supplied by the drilling contractors. • QMines have assumed that all pre-1995 holes were straight, simply using the recorded collar bearings and dips for downhole surveys. This will no doubt result in some errors in the 3D location of samples, but since hole depths are typically about 50-150 m and most holes are vertical into flat-dipping rocks, serious hole deviations are not expected to have been common. • QMines has implemented a complete conversion of all historical drill collar surveys and local gridding utilised by previous explorers with Rockhampton based mine surveyors undertaking the conversion with the local work being validated by MINECOMP Surveying. • Conversion from local grid to GDA 94 MGA Zone 56. • All drill hole collars are picked up by and validated by the site surveyors. • The Company has flown a new Digital Terrain Model (DTM) over Mt Chalmers using drone survey technology. • The quality and accuracy of the DTM has been validated and processed independently of the data capture by MINECOP Surveying. • Queensland Government Lidar has been used as the DTM at Woods Shaft.
Data Spacing & Distribution	• Data spacing for reporting of Exploration Results.	• The Geopeko drilling was initially on a nominal pattern of 40 m x 40 m which was subsequently infilled to a nominal 20 m x 20 m over most of the deposit, but with considerable local variation in hole spacings.

Criteria	JORC Code explanation	Commentary
	• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• Federation locally infilled or extended the 40 m x 40 m pattern, but on an irregular basis because of the access difficulties presented by the water-filled open pit. • At the northern end of the stringer zone where the mineralisation becomes deeper the pattern ranges from about 40 m x 40 m to 40 m x 80 m. • Geopeko drilling at Woods Shaft covered a nominal 25 metre x 50 metre grid with gaps and extensions that were partly infilled by Great Fitzroy. • Historical downhole sampling was between 1 m and 3m intervals. • The data point spacing is appropriate for the use in generating Mineral Resources at the appropriate levels of confidence. • No sample compositing has been undertaken. • QMines drill programs have been designed to validate historical drill hole data, expand the resource envelope and make new discoveries. • Line and drill hole spacing is not applicable • No composite sampling has been applied
Orientation of Data in Relation to Geological Structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The Mt Chalmers deposit is generally flat-lying and virtually all drillholes are vertical thus giving a good intersection angle with the mineralisation. • QMines angled holes have been oriented such to reach otherwise inaccessible targets. • Downhole intersections in drill holes with for example ~60-degree dip represent approximately 87% true width of the assayed mineralised intersections. • At Woods Shaft the known extent of the deposit dips at 40 degrees to the southeast. Further drilling there will clarify the overall geometry. • There is no obvious sampling bias with the drilling orientation.
Sample Security	• The measures taken to ensure sample security.	• There is no documentation describing the process of securing historical samples at site and their transportation to the laboratory. • QMines core samples were cut onsite by Company workers and inserted into individual numbered calico sample bags. RC samples were collected directly from the cone splitter into individual numbered calico sample bags. In each case 4 calico bags were inserted into sealed, cable tied polyweave bags, which were numbered in sequence and placed in large bulka bags. • The bulka bags were then delivered by Company staff to a commercial freight depot in Rockhampton and shipped directly to the ALS Laboratory in Brisbane overnight.
Audits or Reviews	• The results of any audits or reviews of sampling techniques and data.	• MS essentially completed an audit of the sampling techniques with the 2005 Mineral Resources. The audit concluded that "After extensive validation and editing MS are satisfied that the drill hole database files used for resource estimation are reasonably complete and free of serious errors, within the practical limitations imposed by the age of some of the data". • QMines sampling techniques have been established by the Company Geologist. Results are reviewed and validated by the Company database geology manager. • Exploration results are not audited independently.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral Tenement & Land Tenure Status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• QMines Pty Ltd has two 100% owned subsidiaries, Dynasty Gold Pty Ltd and Rocky Copper Pty Ltd, through which the Company has a 100% beneficial interest in the Mt Chalmers Project. The Mt Chalmers Project is held in EPMs 25935, 27428, 27697, 27726 and 27899 and is located 17 kilometres east of the City of Rockhampton in coastal central Queensland, Australia. The project covers an area of historic gold and copper mining, which comprises an area of 334 km^2. • The Project is free and unencumbered by either joint ventures or any other equity participation of the tenement. • QMines has yet to negotiate any landowner provisions or Government royalties or yet to commence environmental studies within the project area. Currently the Queensland Department of Natural Resources & Mines is conducting remediation works on minor acid mine waste draining from a mineralised mullock dump. • Future generation of acid generation waste, particularly from the pyrite content in the mineral processing stream will be significantly mitigated by selling a pyrite concentrate to an established market. • All the tenements are for "all minerals" excepting coal. • Note that the granted tenements allow QMines to carry out many of their planned drilling programs under relevant access procedures applying to each tenement. • All the EPMs are subject to the Native Title Protection Conditions with respect to Native Title. • Declared Irrigation Areas, Declared Catchment Areas, Declared Drainage Areas, Fossicking areas and State Forest, are all land classifications that restrict exploration activity. These are not affecting QMines' main prospects but may have impact on regional programs in places. • All annual rents and expenditure conditions have been paid and fully compliant
Exploration Done by Other Parties	• Acknowledgment and appraisal of exploration by other parties.	• CEC and Geopeko are generally recognized as competent companies using appropriate techniques for the time. Written logs and hardcopy sections are considered good. • Federation was a small explorer that was entirely focused on defining the Mt Chalmers resource. They used a very competent geologist, Alex Taube, for the drilling program. Alex Taube is widely respected for his knowledge about VHMS deposits in North Queensland. • Great Fitzroy was also a small explorer that focused on Mt Chalmers as well as Woods Shaft and satellite VHMS targets. They also employed Alex Taube to manage the drilling program at Woods Shaft.
Geology	• Deposit type, geological setting and style of mineralisation.	• Mineralisation at both Mt Chalmers and Woods Shaft is situated in the early Permian Berserker Beds, which occur in the fault-bounded Berserker Graben, a structure 120 km long and up to 15 km wide. The graben is juxtaposed along its eastern margin with the Tungamull Fault and in the west, with the Parkhurst Fault. • The Berserker Beds lithology consists mainly of acid to intermediate volcanics, tuffaceous sandstone and mudstone, (Kirkegaard and Murray 1970). The strata are generally flat lying, but locally folded. Most common are rhyolitic and andesitic lavas, ignimbrites or ash flow tuffs with numerous breccia zones. Rocks of the Berserker Beds are weakly metamorphosed and, for the most part, have not been subjected to major tectonic disturbance, except for normal faults that are interpreted to have developed during and after basin formation. • Late Permian to early Triassic gabbroic and dioritic intrusions occur parallel to the Parkhurst Fault. Smaller dolerite sills and dykes are common throughout the region and the Berserker Beds.

Criteria	JORC Code explanation	Commentary
		• Researchers have shown that the Mt Chalmers mineralisation is a well-preserved, volcanic-hosted massive-sulphide ("VHMS – Kuroko style") mineralised system containing zinc, copper, lead, gold and silver. Mineral deposits of this type are syngenetic and formed contemporaneously on, or in close proximity to, the sea floor during the deposition of the host-rock units deposited from hydrothermal fumaroles, direct chemical sediments or replacements (massive sulphides), together with disseminated and stringer zones within these host rocks. • The oldest rocks in the area, the 'footwall sequence' of pyritic tuffs, are seen only in the Mt Chalmers open pit and in drill holes away from the mine. The rock is usually a light coloured eutaxitic tuff with coarse fragments, mainly of chert, porphyritic volcanics and chloritic fiamme (fiamme are aligned, "flame-like" lenses found in welded ignimbrite and other pyroclastic rocks and indicate subaerial deposition. Eutaxitic texture, the layered or banded texture in this unit, is commonly caused by the compaction and flattening of glass shards and pumice fragments around undeformed crystals). The alteration (silicification, sericitisation and pyritisation) of this basal unit becomes more intense close to mineralisation. • The 'mineralised sequence' overlying the 'footwall sequence' consists mainly of tuffs, siltstones and shales and contains stratiform massive sulphide mineralisation and associated exhalites: thin barite beds, chert and occasionally jasper, hematitic shale and thin layers of bedded disseminated sulphides. Dolomite has been recorded in the mineralised sequence close to massive sulphides. This sequence represents a hiatus in volcanic activity and a period of water-lain deposition. • The 'hanging wall sequence' is a complex bedded series of unaltered crystal and lithic rhyolitic tuffs and sediments with breccia zones and occasional chert and jasper. • A mainly conformable body of andesite, ranging from 10 m to 250 m thick, intrudes the sequence; it usually occurs just above the 'mineralised sequence'. A quartz-feldspar porphyry body intrudes the volcanic sequence and in places intrudes the andesite. • The rocks in the mine area are gently dipping, about 20° to the north in the Main Lode mine area and similarly dipping south at the West Lode: the predominant structure is a broad syncline trending north-north-west. Slaty cleavage is strongly developed in some of the rocks, notably in sediments and along fold axes. Such cleavage is prominent in areas close to the mineralisation. • Doming of the rocks close to the mineralisation has been interpreted by detailed work in the open cut to be largely due to localised horst block-faulting (Taube 1990), but the doming might also be a primary feature in part. Steep dips are localised and usually the result of block faulting. The Main Lode outcrop and West Lode outcrop are variably silicified rocks which, by one interpretation, may have been pushed up through overlying rocks in the manner of a Mont Pelée spine (Taube 1990), but in any case, form a dome of rhyolite / high level intrusions of the Ellrott Rhyolite. The surrounding mineralised horizon is draped upon the flanks of domal structures.
Drill Hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ▪ easting and northing of the drill hole collar ▪ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ▪ dip and azimuth of the hole ▪ down hole length and interception depth ▪ hole length.	• No exploration results are presented in this release.

Criteria	JORC Code explanation	Commentary
	• 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. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• **QMines Operations -** In reported exploration results, length weighted averages are used for any non-uniform intersection sample lengths. Length weighted average is (sum product of interval x corresponding interval assay grade), divided by sum of interval lengths and rounded to two decimal points. • No top cuts have been considered in reporting of grade results, nor was it deemed necessary for the reporting of significant intersections. • Mt Chalmers VHMS is a polymetallic base and precious metal mineral system, cut off grades used by the Company in calculating mineralised intersections are 2,500 ppm Cu, 0.1 ppm Au and 1 ppm Ag, 0.5% Zn and 0.5% Pb or 2,000 ppm Cu, 0.1 ppm Au, 1 ppm Ag, 2,000 ppm Zn and 2,000 ppm Pb (mid-2022 change).
Relationship Between Mineralisation Widths & Intercept Lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• **QMines Operations – 2021** • At Mt Chalmers, the drilling has generally intersected the mineralisation at high angles. • The majority of holes drilled at Mt Chalmers Copper Project are vertical in nature. • Holes drilled on other dips are reported in the Significant Intercepts table. True widths in e.g. 60-degree dipping holes are not reported. True width at 60 degrees is approximately 87% of the down hole intersection.
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.	• Maps, sections, mineralised intersections, plans and drill collar locations are included in the body of the relevant announcement.
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.	• No exploration results are presented in this release
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.	• CEC and Geopeko completed some brownfields exploration to assist with defining the resource including Induced Polarisation surveys and Sirotem (electromagnetic method) surveys. • Federation concentrated on defining the resource estimates. • Great Fitzroy compiled known geophysics and collected magnetic data which has not been made public. • In 2021 QMines digitized the results of soil geochemical grids obtained from the Geological Survey of Queensland consisting of 19,000 samples collected by various workers for its use in ongoing target generation. • Mitre Geophysics Pty Ltd completed a downhole EM survey for QMines in June 2022. • No other exploration data is considered meaningful at this stage.
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). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Mining studies are planned to continue • Infill and resource drilling at nearby exploration target Woods Shaft is planned to continue • Evaluation of other QMines VHMS prospects in the Berserker Basin is underway.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database Integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• The drill hole database for Mt. Chalmers is maintained by QMines (In conjunction with Orr & Associates). • The Competent Person has verified the internal referential integrity of the databases use in resource modelling and resource estimation. • Some historic drill holes required elevation adjustment to the 'pre-mining' topographic surface. • No other significant errors or concerns were encountered.
Site Visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The Competent Person consolidating the drilling and sampling data is a contractor to QMines and has not visited the site. • A site visit to Mt. Chalmers deposit area has been undertaken by the Competent Person responsible for the resource estimation on October 3rd to October 5th, 2022. The competent person has also relied upon reports from various different personnel that have visited and worked at the Mt. Chalmers Mine and nearby exploration area.
Geological Interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• Comprehensive Pit mapping at Mt. Chalmers to capture both the geological and structural information used to guide resource modelling has been carried out with a comprehensive structural mapping study carried out by Dr Brett Davis of Olinda Gold Pty Ltd. Mineralisation modelling has been guided by the combined geological and structural information as is currently available. • Only a limited amount of mapping and geological interpretation information is available for the Woods Shaft deposit area. • Mineralisation envelopes developed for both Mt. Chalmers and Woods Shaft were interpreted in section from drill hole data. A nominal 0.2-0.3% Cu edge lower cut-off was initially developed. The mineralisation developed was also locally adjusted to capture and delineate the majority of significant and related Zinc, Lead, Gold and Silver mineralisation where possible. • The mineralisation envelopes are contained within a reliably interpreted geological and structurally mapped package that is confirmed to correlate with the majority of sulphide mineralisation.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The majority of the geologically interpreted Mt. Chalmers mineralised occurrence has an approximate >1.2 km strike length. • The mineralisation thickness ranges from approximately 5 m to 50 m, with average thickness being approximately 10-30 m. Mineralisation in the majority of deposit areas extends to approximately 200 m below topographic surface. • Mineralisation has been modelled both above pre-existing pit excavation surface to ensure mineralisation modelling continuity. • The approximate dimensions for the historic pit area is480 m long, 200 m wide and 80 m deep.
Estimation & Modelling Techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer	• All available RC and Diamond drilling data was used to build the Mt. Chalmers mineralisation model and for guiding Mineral Resource estimation. Recent verification RC and Diamond drilling carried out by QMines at Mt. Chalmers has also enabled consolidation of some of the estimated resources designated to a higher level of resource category.

Criteria	JORC Code explanation	Commentary
	assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• QMines has acquired new assay information from recent drilling programs (up to end September 2023). An updated drilling, geological logging and assay database was used to define and model the mineralised domains for Cu, Pb, Zn, Au,Ag, and S. • The majority of drill collar positions at Mt. Chalmers have been surveyed. Newly drilled holes were accurately surveyed by QMines. Some of the collar positions were adjusted according to LiDAR acquired Topographic DTM surface data. Some historical un-surveyed drill hole collar elevations were draped onto a 'pre-mining' topographic DTM surface and were checked in order to match the known surveyed drilling. The survey control for collar positions is considered adequate for the estimation of resources as stated. • The mineralised domains at Mt. Chalmers were interpreted from the drilling data provided by QMines. Sets of cross- sectional 3D strings were generated throughout the deposit area. These were then linked to generate 3D wire-frames. Mineralised wire-frame domains were used for statistical analysis and grade estimation. The development of wire-frames was tightly controlled and were mostly not extended (extrapolated) beyond 1 average section spacing from the last drill-hole 'point of observation'. • All known (small scale) remnant mining stope volumes below the current Mt. Chalmers pit have been removed from the mineralisation coding wire-frames. These volumes are not included in the resource estimate. • A set of wire-frame weathering surfaces and broad material type wire-frames at the Mt. Chalmers deposit area were also modelled to highlight lithological and bulk density characteristics and differences that overprint the mineralised zones. These codes are used to flag bulk density differences and preliminary metallurgical domains. • At Mt. Calmers a series of nine (9) mineralisation AREA domains were also defined to segregate major changes in mineralisation zone orientation. These AREA domains were used to define localized mineralisation distribution characteristics and search ellipsoid orientation for block model interpolation. • Spatial statistical analysis was carried out on the main assay data items. Sample data was composited to one metre down-hole intervals initially based on the Copper item. This also included equivalent compositing for the Pb, Zn, Au, Ag and S items at Mt. Chalmers. Additionally at Mt Chalmers the available sulphur analyses have been used as a proxy to estimate the pyrite (FeS) content in the mineralisation stream as it is observed to be the most common and abundant sulphide species within the deposit area. • All interpolation for the Sulphur item was aligned to the same mineralisation domain constraints (same search ellipsoids and appropriate semi-variogram parameters) as was used for the interpolation of the main metal elements, Cu, Pd, Zn, Au & Ag. • Composites in each AREA domain were used to generate both down-hole and where possible longer range between hole semi-variograms models to establish interpolation ranges and relative nugget and sill ratios used in Ordinary Kriging interpolation for block model grade assignment. • One (1) block model was constructed for the total deposit area at Mt. Chalmers, combining geology and mineralisation modelling for the Cu, Pb, Zn, Au, Ag and S elements. The Block model was constructed using a 3D array of blocks with dimensions of using 5.0 m x 8.0 m x 2.5 m (E-W, N-S, Bench) block cells coded with the mineralisation wire-frames. • The Block Model coordinate boundaries at Mt. Chalmers (GDA94 MGA Zone 56) are; 259,200 m E to 260,600 m E – (280 x 5.0 m blocks) 7,420,400 m N to 7,421,800 m N - (175 x 8.0 m blocks) -240 m RL to 160 m RL - (160 x 2.5 m benches) • The Ordinary Kriging (OK) interpolation method was used for the estimation of Cu, Pb, Zn, Au, Ag and S items using variogram parameters defined separately from the geostatistical analysis if each element. A minor outlier 'distance of restriction' approach was applied during the interpolation process for all items in selected domains in order to reduce the unwanted spatial influence of very high-grade outlier composite samples. The distance of

Criteria	JORC Code explanation	Commentary
		restriction was set at 16m and when the local AREA domain threshold value was at approximately the 99th percentile level. • The kriging interpolated grades for each element used different interpolation parameters as determined from an independent 'AREA' domain variography analysis and was contained within the main mineralised zone wire-frame. No extrapolation of grades outside the mineralisation wire-frame was permitted. • At Mt. Chalmers Dry Bulk Density ("density") was assigned by using a nearest neighbour precursor interpolation pass before subsequent The average bulk density values were applied in the main material types and oxidation state with the designation of vales assigned representing the average bulk density for each material type. All bulk density measurements used for assignment in the block model were taken from the available measured bulk density measurements from the historic drilling database and the new diamond core samples acquired during all the recent QMines drilling programs. • The average bulk density assigned values used at Mt. Chalmers are : Stringer Zone = 3.10 t/m^3, Exhalite Zone 3.20 t/m^3, Massive Sulphide/Exhalite zone = 3.80 t/m^3, Weathered/Oxide = 2.20 t/m^3, Transition = 2.50 t/m^3 and Fresh (Sulphide) = 3.00 t/m^3. •
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• All tonnages at Mt. Chalmers are reported on a dry basis.
Cut-Off Parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• A 0.3% Cu cut off has been applied to reported tonnes and grade. This cut-off is considered in line with current copper price in conjunction with associated beneficial elements Pb, Zn, Au & Ag and favourable mineral processing considerations.
Mining Factors or Assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• It is assumed the majority of the Mt. Chalmers deposit will be mined using open pit mining methods with some limited underground mining in deeper locations as may be necessary as per previous small scale underground mining carried out historically. • Detailed grade control at the Mt. Chalmers deposit will refine resource geometry and grade distribution prior to any mining activity.
Metallurgical Factors or Assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Metallurgical Recovery Assumptions used for the Mt. Chalmers area are as follows : • **Copper 96.4%** • **Gold 81.1%** • **Zinc 91.7%** • **Silver 88.5%** • **Lead 85.0%** • **Sulphur 62.0%** • Metal recovery parameters are as yet not known for the Woods Shaft deposit mineralisation. • Metallurgical recovery assumptions at Mt. Chalmers have been based on an early-stage metallurgical sighting study currently being undertaken by the Company. In August 2021 QMines delivered ~230 kg of diamond core from holes drilled at Mt Chalmers Copper Project to ALS Metallurgical Laboratory in Balcatta Western Australia. • Under the supervision of COMO Engineers drill core representing the copper/gold stringer ore and the copper, lead and zinc exhalite ore were prepared as two master composites to generate bench scale flotation testwork.

Criteria	JORC Code explanation	Commentary
		• Initial results from this float testwork are indicative of metallurgical recoveries for Mt Chalmers base and precious metals ore and have been used as recovery data in the copper equivalent Resource Estimate calculation. The metallurgical sighting study has not been completed in entirety with several additional tests now being undertaken to potentially improve recoveries and is expected to be finalised early in Q1 2022. • Initial metallurgical test work shows that most of the pyrite in the mineral processing stream is likely to be recovered using conventional floatation methods to produce significant volumes of saleable pyrite concentrate which may be used in the Sulphuric Acid manufacturing sector.
Environmental Factors or Assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• The Mt. Chalmers aresource is located in an area of historic mining which included waste dump and tailings disposal it is assumed no environmental factors would prevent reactivation/extension of these disposal options. • QMines as part of additional environmental impact reductions has investigated separating and retaining pyrite material from the normal tailings disposal stream. Pyrite is relatively abundant within Mt. Chalmers mineralised material. The removal of excess pyrite from tailings will substantially reduce the burdens of Acid Rock Drainage (ARD) control for the mining and mineral processing operations. • QMines has assessed the overall Sulphur content in the Copper mineralised zones using geostatistical analysis and related resource modelling an estimation procedures to help gauge the approximate total recoverable pyrite. Further investigation is required to refine sulphur analyses in conjunction with comprehensive Iron analyses to better determine the total pyrite content and spatial distribution characterises. • An added benefit of extracting and retaining the pyrite as a part of processing operation is that the pyrite concentrate product itself is likely to be saleable and have a significant monetary value which will offset some of the normal mineral processing costs.
Bulk Density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Dry Bulk Density (DBD) has at Mt. Chalmers been determined from both historical and new Archimedes and densitometer measurements taken from core samples from the recent QMines drilling programs. Additionally, some rock chip samples and bulk samples acquired during recent exploration activity have also been used. • Laboratory based Archimedes methods have been used to determine bulk density from RC Chip and diamond core samples. The bulk densities derived appear appropriate for the rock material and mineralisation types described and for the main weathering and oxidation material states present. • The density measurements have been averaged in all deposit areas according to the geologically logged domains and according to their weathered (oxidized or fresh) characterization. Some bulk density values were retained from previous (historic) block model. • The Mt Chalmers 'overprint' bulk density assignments by material type are as follows: Stringer zone = 3.10 t/m^3, Exhalite Zone = 3.20 t/m^3, Massive Sulphide Zone = 3.80 t/m^3, Weathered/Oxide = 2.20 t/m^3, Transition = 2.50 t/m^3; Fresh (Sulphide) = 3.00 t/m^3.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• The classifications or resources arrived at for Mt. Chalmers a is considered appropriate on the basis of drill hole spacing, sample interval, geological interpretation, history of mining, and representativeness of all available assay data. • The classification criteria have employed multiple 'ancillary' interpolation parameters including 'distance of composite to model block' (DIST1), 'number of composite available within the search ellipsoid' (COMP1) for each block interpolation and the local kriging variance' (KERR1) for each block. • The DIST1, COMP1 and KERR1 item values are 'condensed into a 'quality of estimate' (QLTY) or resource estimation confidence item which is in turn the used a guide to help define the 'resource category. • From the final QLTY item a set of 3D 'consolidated' Resource Category wireframes were developed. These are refined where necessary and then applied to the RCAT Resource Reporting Item in the block model.

Criteria	JORC Code explanation	Commentary
		• Classification of the resources has been assigned by the Competent Person and includes a series of project specific 'modifying factors' appropriate for the Resource estimation.
Audits or Reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The mineral Resource models and associated resource estimations for Mt. Chalmers and Woods Shaft has been reviewed in comparison with the previous preliminary resource estimation and mineralisation target work as defined and estimated by QMines Ltd. No major unexpected changes, discrepancies or issues have been identified.
Discussion of Relative Accuracy/ Confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The Competent Person considers the mineral resource to be a robust and accurate global estimate of the contained metal as the estimation has been constrained within defined mineralisation wire-frames. • The Resource classification applied to the Resource reflects the Competent Person's confidence in the estimate.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource Estimate for Conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• Independent consulting firm Hyand Geological Mining Consultants delivered an updated JORC 2012 Mineral Resource Estimate (MRE) in November 2022 for the Mt Chalmers project which was reported to ASX and can be seen on the QMines Company website. • https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf • The MRE was updated in the PFS to include sulphut in the estimate. • The MRE is reported in summary in the body of the announcement and is inclusive of the Ore Reserve.
Site Visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Site visit was undertaken by the Competent Person Mr Gary McCrae Minecomp Pty Ltd in November 2023. •
Study Status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out	• QMines have completed a Pre-Feasibility Study (PFS), with the results presented in this release. • Work completed is at pre-feasibility level or higher.

Criteria	JORC Code explanation	Commentary
	and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	• The company has received, amongst other things, detailed metallurgical study work, processing flowsheet and plant design, TSF design, and a mine plan and mine schedule. • Work to date has demonstrated that the project is technically achievable, economically viable and has considered all the modifying factors for the project. •
Cut-Off Parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• The cut-off grade is calculated as part of the mine optimisation analysis. For Ore Reserve estimates the cut-off grade was a diluted, recoverable, payable CuEq grade of 0.32%.
Mining Factors or Assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • • The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling. • The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). • The mining dilution factors used. • The mining recovery factors used. • Any minimum mining widths used. • The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. • The infrastructure requirements of the selected mining methods.	• The Ore Reserve has been estimated by the completion of a detailed open pit mine design. • • The mining method is conventional open pit with drill and blast, excavate and load and haul. The mineralised zone geometry coupled with the low stripping ratio indicate that Mt Chalmers is most suited to mining by conventional open pit mining methods. • Pit slope angles and berm configurations are based upon the existing Mt Chalmers open pit as well as the geotechnical recommendations from the PFS. • Mining dilution was applied at the rate of 5%. This figure being based upon industry standards for the proposed fleet size and geological spatial characteristics. • Mining recovery was applied at the rate of 95%. being based upon industry standards for the proposed fleet size and geological spatial characteristics. • A nominal minimum mining width of 20m was applied to the open pit mine design. • Any contained inferred material included within the mine design have been treated as waste for the purposes of the Ore Reserve estimate. The Ore Reserve remains technically and economically viable without the inclusion of Inferred Mineral Resource material. • The infrastructure required for the proposed Mt Chalmers Open Pit operations have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. Planned infrastructure includes: - • Offices, workshops and associated facilities; • Access and Haul Roads; • Waste Storage Facilities • ROM Pad • Explosive Magazine • Ore Processing Plant • Tailing Storage Facilities • Mine Water Storage Facility
Metallurgical Factors or Assumptions	• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	• COMO Engineers designed a base metal flotation concentrator style process plant delivering concentrates appropriate for the Mt Chalmers VMS style mineralisation. • The metallurgical flotation process uses well understood methods and has been well tested in multiple locations globally. • The process circuit is designed for sulphide ores of varying mineralogical content and geological domains. The two primary domains consist of massive sulphide and stringer sulphide the two geological domains have

Criteria	JORC Code explanation	Commentary
	• Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	differing recovery percentages and concentrate grades. Testwork undertaken over an eighteen month period tested all domains individually and as composite sampling in ratios specific to each geological domain percentage of the ore body. • There are no major significant deleterious elements in the concentrates. Lead is present in minor amounts in the copper concentrate at 11%. Further locked cycle testwork is being undertaken to suppress the lead content to 6% or below. • There has been no bulk sampling or pilot scale testwork. • COMO considers sampling to be representative of the Mt Chalmers ore body. • The ore reserve estimate is based on appropriate mineralogy.
Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• The Company has completed the preliminary environmental assessment undertaken by Coffee-Tetra Tech pursuant to the PFS level and identified the relative studies needed to be undertaken to progress the project to mining and processing approval. • Mt Chalmers is an existing disturbed historical open pit site managed by the Queensland Abandoned Mines Department with existing waste dumps onsite. • Additional waste rock characterisation study has been undertaken by EGI Consultants. • Mine site design, mill design and flow sheets, Tailings Storage Facility, waste dumps, site administration, workshops and infrastructure have been designed by Minecomp Pty Ltd • The approval pathways for TSF, waste dumps and process plant have been identified by Coffee Tetra Tech as part of the PFS.
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• Mt Chalmers Project is located within 20km, via sealed road, of Rockhampton in central Queensland. Rockhampton is the major service Centre for the southern Bowen Basin. Direct rail infrastructure servicing the Gladstone and Townsville ports is located 18 kilometres from site. • All service industries, steel, concrete, bulk transportation, mining equipment, heavy vehicles, construction and mining labour force, permanent accommodation are within 20 kilometre radius of the site. • Ergon Energy are the primary power supply, 22kV overhead power supply is available from the Tanby regional substation. • Additionally, there is a 4MW/8MW battery storage at Tanby substation as part of the wider battery rollout by Energy Queensland further enabling access to green energy. • Bulk concentrate is costed as shipped to the port of Gladstone via road haulage to the Rockhampton rail head and rail to Gladstone. • Queensland Government Stillwater power station is located in Gracemere on the Stillwater rail line 20 kilometres southwest of Rockhampton. • The Company has purchased several properties surrounding the historic operation. It is envisaged that this land is sufficient for plant development.
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. • The source of exchange rates used in the study. • Derivation of transportation charges.	• CAPEX estimates have been derived from COMO Engineers and based on EPC contract construction for treatment plant and additional services to site with owners' costs estimated by independent consultants and the Company. • OPEX estimate methodology has been derived from Minecomp Pty Ltd and Aurelia Mining Consultants based on current established open pit mining, drill and blast, haulage, TSF construction, dewatering, infrastructure

Criteria	JORC Code explanation	Commentary
	• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	and other general site and labour cost metrics from contract mining companies, suppliers and other contractors. • COMO Engineers have applied standard costing methodology relating to the process plant cost estimates using current metallurgical testwork flow sheet design metrics, consumable, labour and power costs per Kw hour based on those design parameters. • The Mt Chalmers process plant is designed to produce three concentrates being copper, zinc and pyrite. The production of pyrite concentrate delivering less than 1% S by volume to tailings significantly reduces the environmental impact associated with Acid Mine Drainage (AMD). • Allowances for deleterious elements have been estimated by Transamine concentrate trader and a Table of Deleterious elements produced by ALS Laboratory Perth by XRF scan is included in the PFS. • Exchange rate estimate is derived from independent global and Australian finance institution forecasting. • Concentrate transport costs are estimates from industry haulage contractors and calculated using kilometre/ore tonne metrics for road transport and concentrate/tonne per kilometre metrics for road and rail haulage. • TC and RC costs for concentrate are derived from cost metrics supplied by Transamine for benchmark TC and RC charges established each year between smelters and Freeport McMoran. • Current TC RC charges have been applied to the models and no forward forecasting has been applied for TC RC charges. • Royalties are derived from the Queensland Treasury Department and were applied at the rate of 5% for all concentrate products. There are no private royalties payable for the Mt Chalmers project.
Revenue Factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• Metal Commodity prices have been projected in USD to 2027 and are derived from independent sources and are consensus based from multiple independent forecasting global financial institutions. • Ore Reserve head grades have been established by Minecomp and derived from recent open pit optimization studies and pit design work undertaken in conjunction with metallurgical testwork results produced by COMO Engineers. • Transportation metrics have been derived from industry haulage contractors and calculated using kilometre/ore tonne metrics for road transport and concentrate/tonne per kilometre metrics for road and rail haulage. • Rail haulage has been predicated on Queensland Rail Bulk Ore haulage costs Rockhampton to Gladstone port. • Treatment and Refining Charge have been supplied by Transamine based on current TC RC benchmark pricing with a minimal discount applied by Transamine based on concentrate grades. • Concentrate metal commodity payable price have been derived from consultation with Transamine for base and precious metals contained in concentrate and the payable scale for the metal estimated and derived from Transamine. • Processing recoveries, head grades and metal price assumptions used in the Ore Reserve calculation are shown below.

Processing Recoveries	
Copper	96.4%
Gold	81.1%

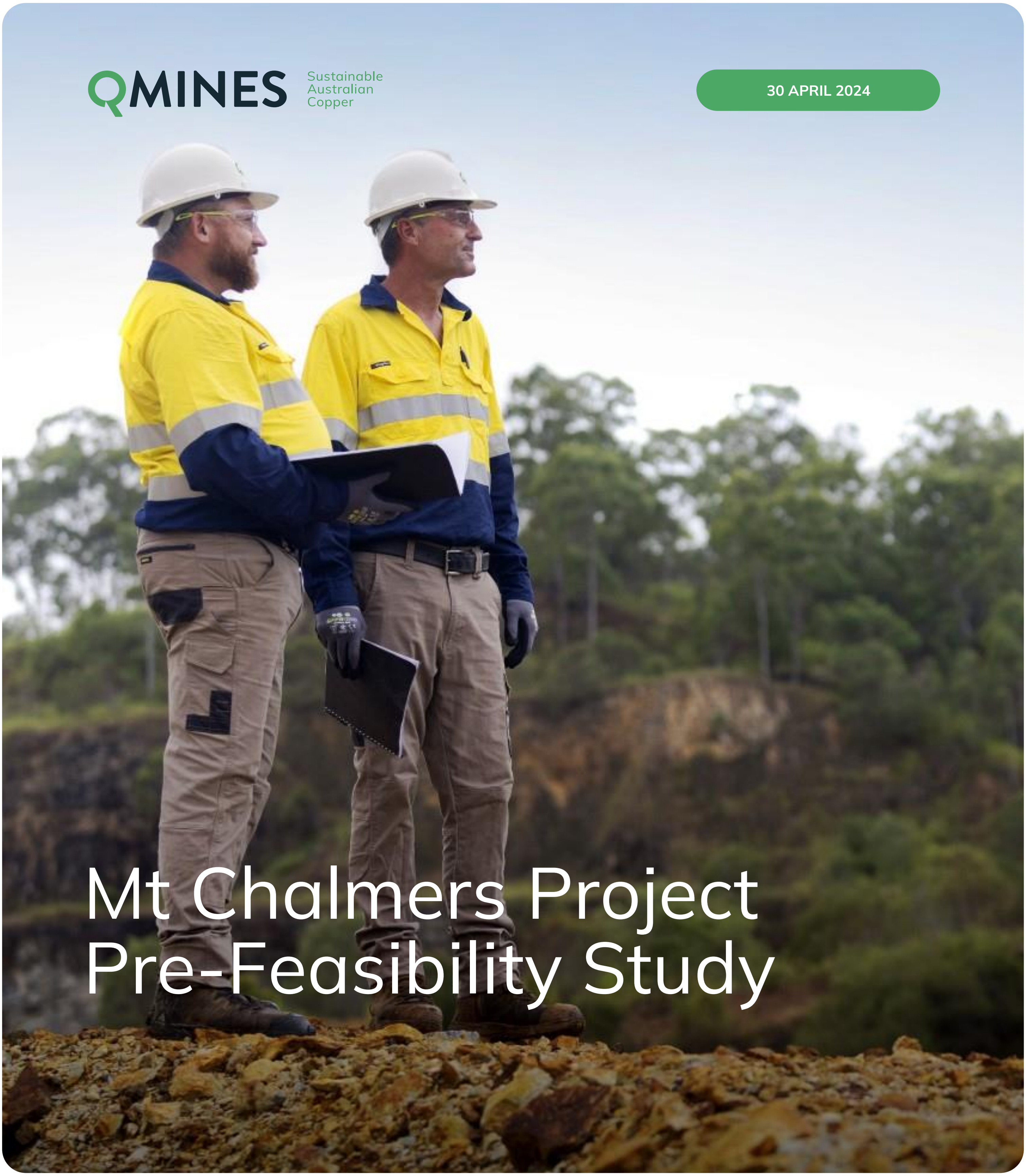
Criteria	JORC Code explanation	Commentary
		Silver: 88.5% Sulphur: 62.0% Zinc: 91.7% **Mill Head Grade** Copper: 0.65% Gold: 0.49g/t Silver: 5.3g/t Zinc: 0.22% **Metals Price Assumptions $US** Copper Tonne: $9,210 Gold Ounce: $2,019 Silver Ounce: $25 Zinc Tonnes: $2,722 Sulphur/F Tonne: $200 Exchange Rate USD$>AUD$: $0.63
Market Assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• The demand for copper concentrate appears slowly increasing with supply chain constrained in China. Current benchmark TC RC rates have fallen dramatically over the past 12 months as smelters compete for concentrates. Concentrate traders are seeking advance offtake agreements for future projects demonstrating development potential. Global forecast predictions for copper remain very robust relative to supply chain shortfalls as the energy transition progresses. These factors indicate a robust market for high quality coper concentrate. • Zinc concentrate market remains consistent with the price of zinc being stable in the 2200-2600 USD per tonne range. Zinc smelter TC rates have fallen over the past 12 months however the forecast for zinc concentrate is more opaque when compared to the copper concentrate market. Zinc remains a strategic commodity in the energy transition market with supply and demand forecasting predictions remaining steady. China, Korea and Japan are primary zinc smelting locations. Korean group Sun Metals operate a large zinc and by product smelter in Townsville Queensland. • Glencore operate the Mt Isa smelter and represent one of the significant concentrate trading groups operating in Queensland and globally, however Glencore do not process zinc concentrate. • There have been supply chain constraints in Queensland for zinc with closures of several operating zinc mines and process plants.

Criteria	JORC Code explanation	Commentary
		• QMines market window for concentrates form Mt Chalmers is projected to commence 4th quarter 2027 and first concentrate to market Q1 2028 with timeline for permitting and construction detailed in the PFS documents. • Metal price forecasting used in the PFS are as above and the basis for the forecast metal prices are consensus based average prices published by multiple independent global financial institutions. • The PFS financial modeling factors CPI increase in metal price assumptions and a CPI increase in OPEX estimations on a per annum basis. • No peer group analysis has been undertaken on the basis no comparable open pit copper projects are currently under development in the Australian market to benchmark against.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• The key inputs of the economic analysis include the CAPEX (AUD$165 million), the OPEX (AUD$34.40/t), the grade, tonnes, waste, dilution and recoveries outlines in the ore reserve statement, treatment, refinement costs and playabilities supplied from a respected metals trader, an AUD/USD exchange rate of $0.63, metals price assumptions of Cu US$9,210/t, Au US$2,019/oz, Ag US$25/oz, Zn US$2,722/t and Py US$200/t, a discount rate of 8%, Queensland government royalties of 5% for all metals and various production costs outlines in the PFS. • The NPV of the project are undiscounted. Discounting will occur as part of the detailed financial model being derived for the pre-feasibility study. • Economic inputs have been sourced from independent sources where possible or generated from database information relating to the relevant area of discipline and are considered appropriate for a PFS level study. • The Ore Reserve estimate is based on a financial model that has been prepared to a "pre-feasibility study" level of accuracy. • No sensivities other than metal prices have been conducted at this stage but are intended to be completed for the release of the PFS.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• The Company maintains close relations with key stakeholders and is a significant freehold land owner in the region. The Company holds five parcels of land totalling approximately 300 acres at Mt Chalmers. Mt Chalmers was an operating mine site run by GEOPEKO in the early 1980's.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• A formal process to assess and mitigate naturally occurring risks is being undertaken as part of the PFS. From what is currently known, all naturally occurring risks are assumed to have adequate prospects for control and mitigation. • At this stage, the Mt Chalmers project is a largely unencumbered asset, that is 100% owned with no metals marketing arrangements, royalties or other typical encumbrances in place. • On the 30th January 2024, QMines announced that it had entered into two loan agreements with existing shareholders where one of those parties has security over the five rural properties owned by the company. The loan amount with security over the land is for a total of $1 million. • The Mt Chalmers project is situated on granted exploration licences. The Company intends to apply for a mining license over the Mt Chalmers mine following completion of the PFS. The Company will require environmental, heritage and native title approvals before construction were to commence. This has been reviewed by Coffey-Tetra Tech and other industry expert consultants as part of the PFS. As the Mt Chalmers mine is an existing mine and QMines has purchased a significant quantum of land surrounding the known resource, from what is known today, the Company is of the view that such permits have a reasonable prospect of being granted.

Criteria	JORC Code explanation	Commentary
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• The Proved Ore Reserve is based on that portion of the Measured Mineral Resource within the mine designs that may be economically extracted and includes allowance for dilution and ore loss. • The Probable Ore Reserve is based on that portion of the Indicated Mineral Resource within the mine designs that may be economically extracted and includes allowance for dilution and ore loss. • The results appropriately reflect the Competent Persons view of the deposit. • Approximately 55% of the Ore Reserve is derived from Measured Mineral Resource.
Audits or Reviews	• The results of any audits or reviews of Ore Reserve estimates.	• No external reviews or audits of the Ore Reserve estimate haves been undertaken. • An internal Peer Review of the estimate has been undertaken.
Discussion of Relative Accuracy/ Confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The design, schedule and financial model upon which the Ore Reserve is based has been completed to a "pre-feasibilty study" standard, with a corresponding level of confidence. • All modifying factors have been applied to on a global scale. • The mining and ore processing utilise proven and widely used technology and methods. • Pyrite concentrate values may have a material impact on the Ore Reserve viability. • No production data is available.

QMINES Sustainable Australian Copper

30 APRIL 2024



Mt Chalmers Project Pre-Feasibility Study

ASX:QML

qmines.com.au

CONTENTS

KEY OUTCOMES

Mt Chalmers Open Pits, Looking Southwest.

Highlights

9.6 million tonnes

Maiden Ore Reserve Estimate (Proved and Probable)

$373 million

Pre-Tax Net Present Value (NPV8)

10.4 years

Mine Life Estimate

1 Mtpa

Annual Processing Rate

$828 million

Pre-Tax Cashflow

Recovered Metal

65,000t	copper
160,000oz	gold
30,600t	zinc
1.8Moz	silver
361,000t	pyrite

The PFS supports the development of a standalone copper mining and processing operation at Mt Chalmers.

QMines Limited (**QMines** or **Company**) Pre-Feasibility Study (**PFS**) assesses mining the Mineral Reserves from a three-stage open pit operation and processing that material onsite at Mt Chalmers. COMO Engineers have designed a flow sheet and process facility to treat one million tonnes of ore per annum (**1Mtpa**). The process plant design uses industry standard crushing, grinding and flotation circuits producing three concentrate types being copper/gold, zinc/silver and pyrite/gold.

The parameters for the process plant design are based on the two types of material to be mined at Mt Chalmers, the metallurgical recovery, throughput rates, and ore composition. The two types of ore have been defined based on mineralogy; Volcanic Hosted Massive Sulphide (**VHMS**) exhalate mineralisation (copper, gold, zinc, lead, silver and sulphur), and Stringer mineralisation (copper, gold, silver and sulphur). The ratio of composite material to flow through the process plant is 30% VHMS and 70% Stringer material which equals the percentage of each material defined by the geological domains for the project.

It is the conclusion of the PFS that the Mt Chalmers project is technically achievable and commercially viable. The proposed development of Mt Chalmers presents an opportunity for QMines to establish and grow a mining and processing business within the critical metals sector with an attractive risk-return profile and clear potential to further enhance project returns through the expansion of production rates and the addition of other known deposits including Sulphide City, Scorpion and Woods Shaft into the mine plan. Key Project statistics are shown in Table 1.

Table 1: Key financial outcomes and assumptions.

Parameter	Units	Base Case
Production		
Mill throughput	ktpa	1,000
Life of Mine	years	10.4
Ore Mined and Processed	kt	10.39
Cu grade	%	0.63
Au grade	g/t	0.48
Zn grade	%	0.29
Ag grade	g/t	5.4
Py Mass Pull	%	5.6
Contained Metal		
Cu contained	kt	65.3
Au contained	koz	160
Zn contained	kt	30.6
Ag contained	koz	1,821
Py contained	kt	583
Metal Recovered for Sale		
Cu	kt	62.9
Au	koz	130
Zn	kt	28
Ag	koz	1,612
Py/S/Fe	kt	583
Metallurgical Recovery		
Cu	%	96.4
Au	%	81.1
Zn	%	91.7
Ag	%	88.5
Py/S/Fe	%	62.0
Financial		
Mining & Processing	A$M	649.2
Treatment & Refining	A$M	35.1
Concentrate Transport	A$M	12.6
General & Administration	A$M	40.0
Royalty	A$M	72.3
C1 Cost (Copper Equivalent)	US$lb	2.14
CAPEX	A$M	191.9
OPEX	A$/t	32.85
Pre-Tax Cash Flow	A$M	827.7
Revenue	A$M	1,639
Cumulative Cash Flow	A$M	635.8
Net Present Value (8%) Discounted	A$M	373.4
IRR	%	54
Payback	Years	1.84
Metal Price Assumptions		
Cu price	US$/t	9,850
Au price	US$/t	2,350
Zn price	US$/t	2,850
Ag price	US$/t	28
Py/S/Fe price	US$/t	200
Exchange Rate	**$AU/$US**	**0.63**

** CuEq calculation = Metal Recovered for Sale @ Assumed Metal Price $US*tonnes (Cu+Au+Zn+Ag+Py)/$US Cu Assumed Metal Price*
*** Cash Cost calculation is total $US Recovered Metal CuEq metric tonnes @ Assumed Metal Price converted at 2024.62 lbs per metric tonne / $US total production cost including operating, refining and royalty cost.*

Cautionary Statement

The production target and forecast financial information referred to in this announcement comprise Measured and Indicated Mineral Resources (approximately 91%) and Inferred Mineral Resources (approximately 9%). There is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be achieved.

Table 2: Mt Chalmers estimated production target using 0.35% CuEq cut-off grade as at March 2024 with sulphur. Rounding errors may occur.

Mt Chalmers Open Pit Design	Production Target, Mt Chalmers Project						
	Volume	Tonnes	Cu Grade	Zn Grade	Au Grade	Ag Grade	S Grade
	(BCM)	(t)	(%)	(%)	(g/t)	(g/t)	(%)
Stage 1	1,020,318	3,364,715	0.91	0.24	0.76	6.3	5.3
Stage 2	586,630	1,929,355	0.45	0.52	0.48	7.0	4.6
Stage 3	1,615,102	5,115,931	0.50	0.25	0.27	4.3	3.6
Total	**3,222,050**	**10,410,001**	**0.65**	**0.28**	**0.49**	**5.4**	**4.3**

Table 3: Mt Chalmers Mineral Resource Estimate using 0.3% copper cut-off grade including sulphur, March 2024.

Mt Chalmers MRE	Tonnes (Mt)	Grade(s)					Contained Metal(s)				
		Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	S (%)	Cu (kt)	Au (koz)	Ag (koz)	Zn (kt)	S (kt)
Measured	4.2	0.89	0.69	4.97	0.23	5.37	37.8	93.8	675.5	9.8	226.3
Indicated	5.8	0.69	0.28	3.99	0.19	3.77	39.9	51.5	741.9	11.1	218.5
Inferred	1.3	0.60	0.19	5.41	0.27	2.02	7.90	8.0	228.1	3.5	39.0
Total:	**11.3**	**0.72**	**0.40**	**4.80**	**0.23**	**4.28**	**85.6**	**153.2**	**1,645.6**	**24.4**	**483.8**

INTRODUCTION

QMines Limited (**QMines** or **Company**) is a Queensland based copper and gold development company listed on the Australian Stock Exchange (**ASX:QML**). QMines is assessing the potential to develop the Mt Chalmers project (**Project**) in the Rockhampton region, Queensland.

The Company has completed a Pre-Feasibility Study (**PFS**) on the Mt Chalmers deposit at its flagship Mt Chalmers Project, located 17 km north-east of Rockhampton in Queensland (Figure 1). The PFS is based on the Mineral Resource Estimate (**MRE**) announced by the Company on 22 November 2022 and updated here with the inclusion of sulphur.

The inclusion of sulphur in the MRE supports the addition of a pyrite concentrate to the proposed processing, with the mine optimisation and scheduling supporting a large, three-stage open pit operation feeding a one-million tonne per annum processing plant to be located on site at Mt Chalmers.

On the back of the PFS, the Company is also announcing a maiden Ore Reserve Estimate of 9.6Mt @ 0.63% Cu, 0.48g/t Au, 0.29% Zn, 5.5g/t Ag and 4.3% S. The Maiden Ore Reserve Estimate comprises 62.6k/t Cu, 147,600 oz Au, 25.7k/t Zn, 1.54Moz Ag and 418k/t S.

The PFS assessed, to the appropriate level, the technical, environmental, economic and social aspects of the project and confirms the projects financial robustness.

Neither the Woods Shaft deposit (Mt Chalmers Project), nor the Sulphide City and Scorpion deposits (Develin Creek Project) form part of this PFS, demonstrating future growth potential.

This report is a summary of the material aspects of the underlying studies that together form the Pre-Feasibility Study.

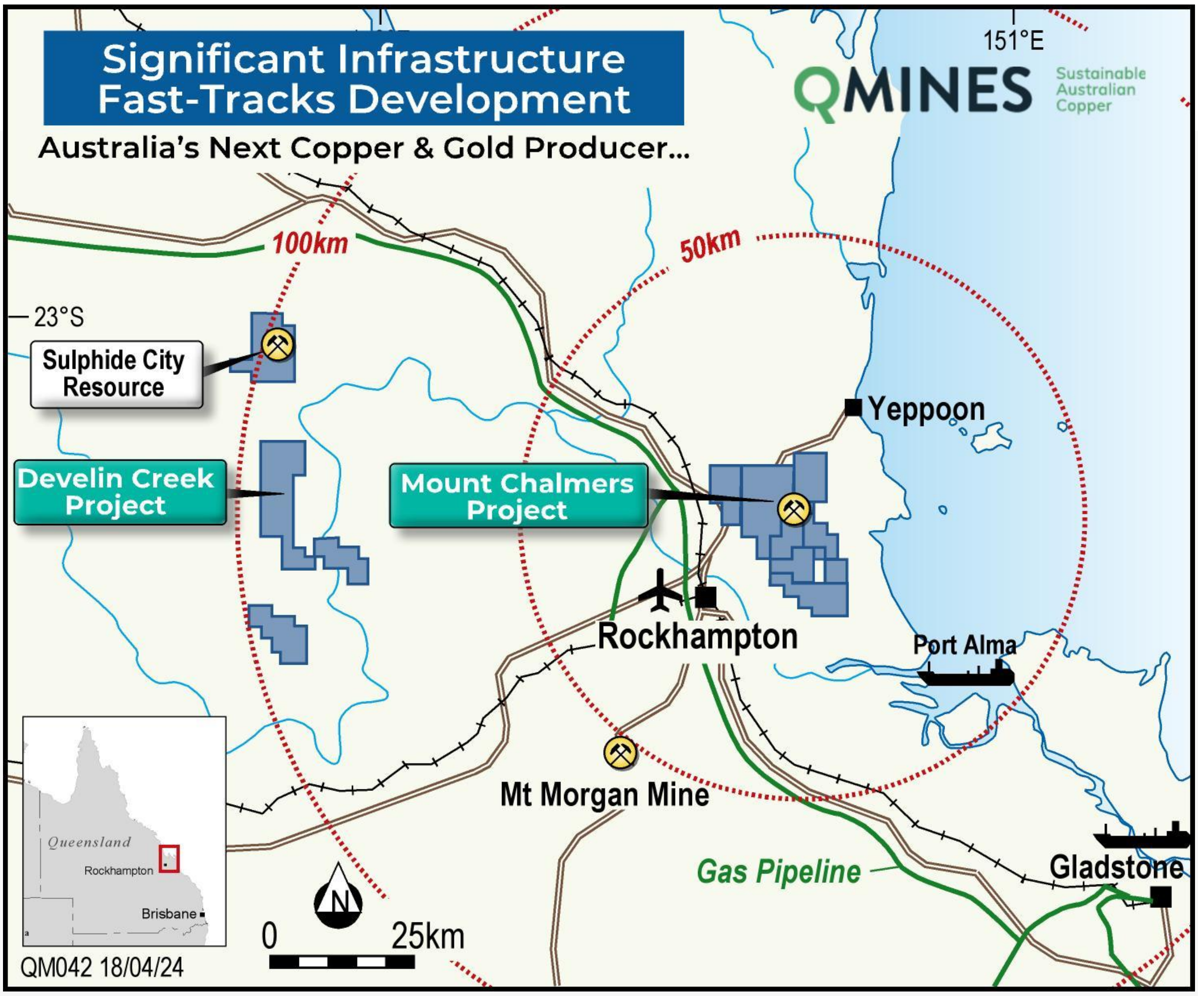


Figure 1: Location and Infrastructure at the Mt Chalmers Project.

STATEMENTS & DISCLAIMER

Exploration Results, Mineral Resources and Ore Reserves

References are made to certain ASX announcements, including exploration results, Mineral Resources and Ore Reserves. For full details, refer to the appropriate announcement. Other than as specified in this announcement and other mentioned announcements, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement(s), and in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant announcement continue to apply and have not materially changed other than as it relates to the content of this announcement. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original announcement.

Inclusion of Inferred Mineral Resources

Approximately 9% of the production schedule referred to in this announcement is based on Inferred Resources. The Company draws attention to there being a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production inventory will be achieved in operation. The Company is satisfied that the Inferred Mineral Resources included in the Production Target will ultimately be mined and that including Inferred Mineral Resources is not a factor in determining the financial viability of the Project.

Forward Looking Statements

Some statements in this announcement are forward-looking statements. Such statements include, but are not limited to, statements with regard to capacity, future production and grades, projections for sales, sales growth, estimated revenues and reserves, the construction cost of a new project, projected operating costs and capital expenditures, the timing of expenditure, future cash flow, cumulative negative cash flow (including maximum cumulative negative cash flow), the outlook for minerals and metals prices, the outlook for economic recovery and trends in the trading environment and may be (but are not necessarily) identified by the use of phrases such as "will", "would", "could", "expect", "anticipate", "believe", "likely", "should", "could", "predict", "plan", "propose", "forecast", "estimate", "target", "outlook", "guidance" and "envisage".

By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside the Company's control. Actual results and developments may differ materially from those expressed or implied in such statements because of a number of factors, including levels of demand and market prices, the ability to produce and transport products profitably, the impact of foreign currency exchange rates on market prices and operating costs, operational problems, political uncertainty and economic conditions in relevant areas of the world, the actions of competitors, suppliers or customers, activities by governmental authorities such as changes in taxation or regulation.

Given these risks and uncertainties, undue reliance should not be placed on forward-looking statements which speak only as at the date of this announcement. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, the Company does not undertake any obligation to publicly release any updates or revisions to any forward-looking statements contained in this material, whether as a result of any change in the Company's expectations in relation to them, or any change in events, conditions or circumstances on which any such statement is based.

Disclaimer

No representation or warranty, express or implied, is made as to the fairness, accuracy, or completeness of the information, contained in this material or of the views, opinions and conclusions contained in this material. To the maximum extent permitted by law, the Company, and its respective directors, officers, employees, agents and advisers disclaim any liability (including, without limitation any liability arising from fault or negligence) for any loss or damage arising from any use of this material or its contents, including any error or omission there from, or otherwise arising in connection with it.

Study Team

The Company commenced the PFS in July 2023. The Company has engaged multiple independent consultants to deliver various aspects required to complete and deliver the PFS. The PFS study team contributing to the PFS consists of members in Table 4.

Table 4: Study Team Members & Deliverables

PFS Study Team	Deliverables
COMO Engineers	Metallurgical Studies
COMO Engineers	Treatment Plant Design / Flow Sheet
COMO Engineers	Process Plant CAPEX
COMO Engineers	Power Study
Minecomp Pty Ltd	Pit Optimisations and Design
COMO Engineers	Process OPEX
Minecomp Pty Ltd	Mine Site Design and Layout
Auralia Mining Consultants	Mining Scheduling
PSM Geotechnical	Open Pit Geotechnical
EGI Pty Ltd	Environmental Geochemistry
LMGS Pty Ltd	Tailings Storage Facility
LMGS Pty Ltd	Water Balance Study
UTM Global	Heritage and Native Title
Steinepreis Paganin	Legal Tenement Report
Tetra Tech Coffee	Environmental
Tetra Tech Coffee	Permitting Pathway
Transamine / QMines	Marketing Inputs

Representative study members from Como Engineers, Minecomp, Auralia Mining Consulting, PSM Geotechnical, EGI Pty Ltd and Land & Marine Geological Services undertook site visits in Q4-2023. The group inspected multiple potential treatment plant locations onsite at Mt Chalmers and two offsite located in Rockhampton.

BACKGROUND

Resource Drilling Operations at Mt Chalmers, View Looking Southwest

The Mt Chalmers project is located approximately 17km northeast of the regional centre of Rockhampton in central Queensland (Figure 1). The Mt Chalmers Project comprises five exploration permits, EPMs 25935, 27428, 27726, 27697 and 27899. The site can be accessed entirely by sealed roads from Rockhampton via either Emu Park Road or Yeppoon Road. Driving time from Rockhampton airport to site is 40 minutes.

The polymetallic VHMS Mt Chalmers deposit, the subject of this PFS, contains recoverable copper, gold, silver, zinc, and sulphur. QMines intends to mine and process this deposit. The Mt Chalmers deposit was discovered in 1860 with small-scale underground gold then copper mining undertaken periodically until 1943. Total estimated extraction during that period was 434,899 tonnes, yielding 10,220 tonnes of copper, 1,587 kilograms of gold and 5,630 kilograms of silver.

Since 1960, extensive exploration culminated in open pit mining by Geopeko Limited between 1979-1982, with ore transported to Mount Morgan via rail for processing. Total historical production at Mt Chalmers by 1982 was 1.2 Mt @ 3.6 g/t Au, 2.0% Cu and 19 g/t Ag. From April 2021 through December 2023, QMines Limited has undertaken approximately 20,000 metres of confirmation and resource drilling, the outcome of which has resulted in delivery of a Mineral Resource Estimate (MRE)[1] for the Mt Chalmers project of 11.3Mt @ 0.75% Cu, 0.42g/t Au, 0.22% Zn and 4.5g/t Ag. The Resource boasts contained metal of approximately 85,600t Cu, 153,000oz Au, 24,400t Zn and 1.65Moz Ag.

In March 2024, the Company updated the November 2022 Mineral Resource Estimate (**MRE**) for the Mt Chalmers project to include sulphur which enables the production of a pyrite concentrate. The updated MRE (outlined in this report) now includes 484,000 tonnes of sulphur as a resource to be processed and marketed as a pyrite concentrate containing gold.

QMines commissioned COMO Engineers to manage this PFS to evaluate the commercial viability of the Mt Chalmers Project as a stand-alone mining and processing operation.

[1] *https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf*

PROJECT HISTORY

Mining Operations at Mt Chalmers, 1981

Modern mineral exploration commenced in 1960-1963, when Consolidated Zinc Pty Limited (in EPMs 161M and 162M) investigated the Mt Chalmers area with geological mapping and Induced Polarisation (**IP**) surveys. Carpentaria Exploration Company Pty Ltd explored the area during 1962-1970. Reports for EPM 206M discuss the outcomes of diamond drilling at the Mt Chalmers West Lode.

Between 1973-75, in EPM 1232 M, the Electrolytic Zinc Company of Australasia Limited explored at Mount Warminster and Woods Shaft prospects, undertaking ground magnetics, an IP survey and limited drilling. Three percussion drill holes at Mount Warminster did not find mineralisation.

During 1976-1982, Geopeko Ltd, in joint ventures (EPM 1896, EPM 1700) carried out extensive exploration programs involving geological mapping, rock and soil sampling, IP and ground magnetic surveys, followed by some percussion and diamond drilling in the Berserker Beds. Prospects examined in detail were the Mt Chalmers mine area, Woods Shaft, Mount Warminster, Mount Warminster South, Botos, Jasper Hill and Tungamull prospects.

Newmont Holding Pty Limited explored EPMs 3408M, 3842M and 4020M between 1983 and 1985, focussing on the Tungamull, Hunter 1, 4 and 5 (New Zealand Gully) prospect areas in order to follow up Geopeko's work, with re-interpretation of the data and some drilling.

During 1986-90, CRAE Pty Ltd explored several prospects, including Mount Warminster and Botos.

Between 1992 and 1999, Troy Gold Investments Pty Limited (**Troy**) (a subsidiary of Copper Mines and Metal NL formerly Great Fitzroy Mines NL) managed exploration on EPM 8640M, held by a joint venture between Outokumpu Exploration Australia Pty Limited and Pancontinental Mining Limited. The Joint Venture lasted only a year and executed very little field work apart from a gravity survey at the Tungamull Prospect. Troy acquired all rights and interests in 1993. After carrying out geological mapping geochemical work and airborne magnetic and radiometric surveying, in 1994-1995, Troy drilled 18 RC percussion holes at Mount Sleipner–Aquila (Hunter 6 and 14), south-east of New Zealand Gully and at the Woods Shaft Prospect. In 1995-1996 another 10 RC percussion holes were drilled at New Zealand Gully.

Queensland Gold Pty Limited and Marlborough Resources NL (1996-2002) held the area around the Mt Chalmers leases and explored for gold at the Cawarral, Mount Wheeler and Constitution Hill gold workings to the north as well as for VHMS mineralisation in the Berserker Beds. Numerous targets were generated and rated, but none were tested.

EPM 14096M was granted to Quadrio Resources Pty Ltd in 2003 (expiring 2010). Lodestone Exploration Limited earned joint venture equity by completing 1,200m of drilling in December 2005. Three diamond-cored holes were drilled at the Tungamull Prospect, 2.5km south-east of the Mt Chalmers open pit and a large disseminated pyritic system was identified.

Federation Resources NL (Federation) held MLs 5771, 5789 and 6606 over the Mt Chalmers Mine and completed a feasibility study in March 1997, which included the drilling of a further 27 percussion / diamond holes for 2,754m in and around the immediate mine area.

Echo Resources Limited acquired the project in 2006, but undertook no exploration. Traprock Resources Pty Ltd (Dynasty Gold) similarly acquired the project in 2016 and undertook limited work.

QMines acquired Traprock's interest in 2021. QMines commissioned Orr and Associates to compile and digitise all historic data, which included digitising historical maps and cross sections, plus the compilation of all historic soil sampling. QMines completed an airborne VTEM survey in 2023 which identified 34 further targets, most notably the Artillery Road skarn discovery. Since acquiring the project, QMines has undertaken multiple diamond core and RC drilling programs. The Company has delivered suitable quality control data (QAQC), further reinforcing the confidence in the historical drilling undertaken by Geopeko and other explorers at Mt Chalmers.

GEOLOGY

Inspecting diamond drill core at Mt Chalmers.

Regional Geology

The geology of the Mt Chalmers area is relatively well-known with the Mt Chalmers mineralisation being identified as a well-preserved, VHMS mineralised system containing copper, gold, zinc, lead and silver.

Mineral deposits of this type are deemed syngenetic and formed contemporaneously on, or close to, the sea floor during the deposition of the host-rock units. The mineralisation is understood to have been deposited from hydrothermal fumaroles, or direct chemical sediments or sub-seafloor massive sulphide replacement zones and layers, together with footwall disseminated and stringer zones within the host volcanic and sedimentary rocks.

Mineralisation is hosted by the early Permian Berserker Group, formed within the fault-bounded Berserker Graben, a structure now 120km long and up to 15km wide. The graben is bounded in the east by the Tungamull Fault and in the west with the Parkhurst Fault (Figure 2 below).

The Berserker Group (formerly Berserker Beds) is predominantly comprised of acid to intermediate volcanics, tuffaceous sandstone, and mudstone (Kirkegaard and Murray 1970). The strata are generally flat lying, but locally folded. Most common rock types are rhyolitic and andesitic igneous rocks, ignimbrites, or ash flow tuffs with numerous breccia zones. Rocks of the Berserker Group are weakly metamorphosed and, for the most part, have not been subjected to major tectonic disturbance, except for normal faults and localised high strain zones that are interpreted to have developed during and after basin formation.

Recent geological work by the Queensland Department of Natural Resources and Mines places volcanic and sedimentary units of the prospective Chalmers Formation, the host unit to the Mt Chalmers copper-gold mineralisation, at the base of the Berserker Group. The Ellrott Rhyolite and the Sleipner Member andesite were emplaced synchronously with the deposition of the Chalmers Formation.

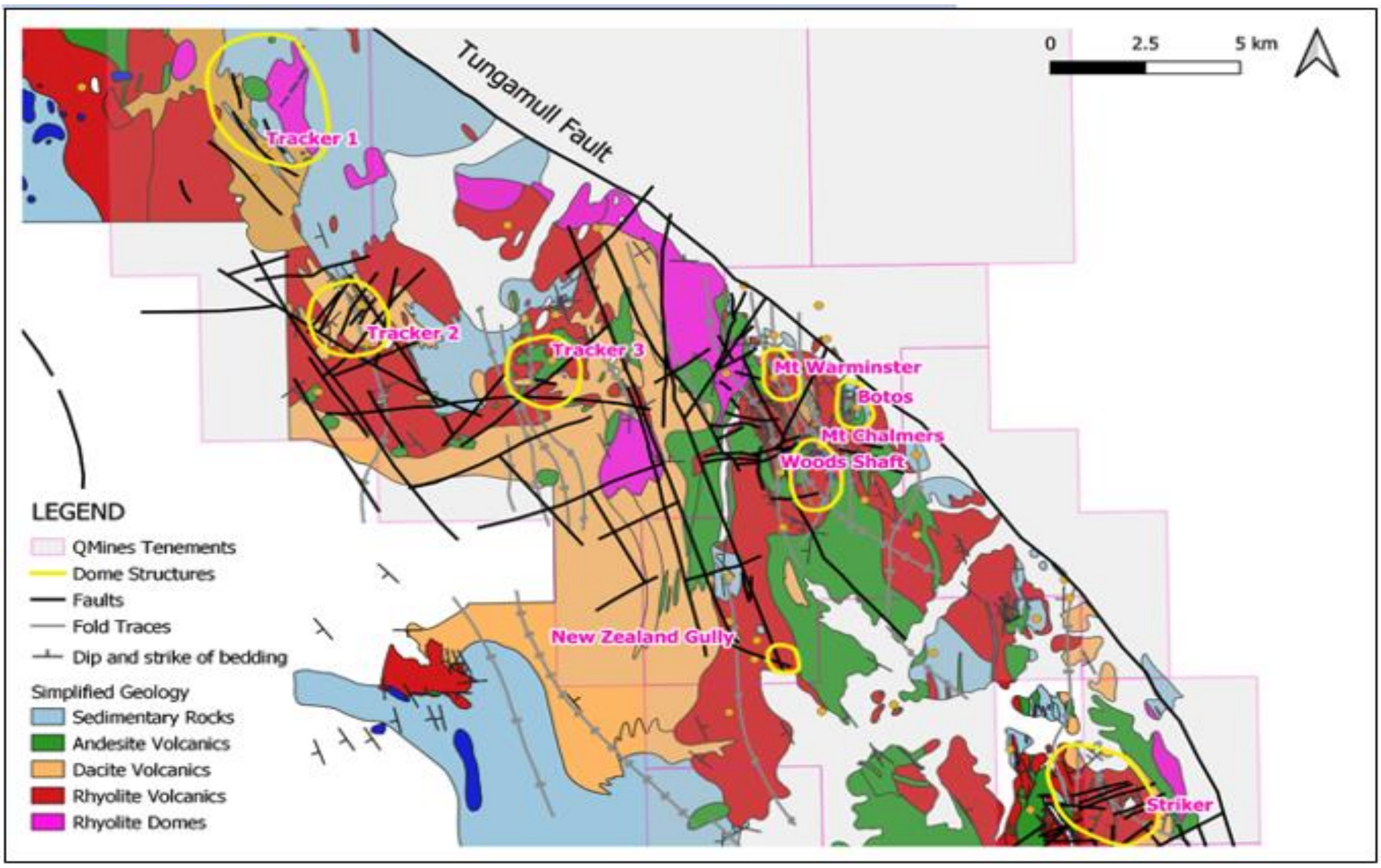


Figure 2: Regional geology of the Mt Chalmers mine area showing the location of the Tungamull fault in relation to other mineralised locations.

Local Geology: Mt Chalmers Mine Area

The informal stratigraphic subdivisions in the mine area are after Large and Both (1980) and were adopted by Taube (1990). The oldest rocks in the area, the 'footwall sequence' of pyritic tuffs, are seen only in the Mt Chalmers open pit and in drill holes away from the mine. The rock is usually a light coloured eutaxitic tuff with coarse fragments, mainly of chert, porphyritic volcanics and chloritic volcaniclastics. The associated alteration comprising silicification, sericitisation and pyritisation of this basal unit becomes more intense close to mineralisation.

The 'mineralised sequence' overlying the 'footwall sequence' predominantly comprises tuffs, siltstones and shales and contains stratabound massive sulphide mineralisation and associated exhalites: thin barite beds, chert and occasionally jasper, hematitic shale and thin layers of bedded disseminated sulphides. Dolomite has been recorded in the mineralised sequence close to massive sulphides. This sequence represents a hiatus in volcanic activity and a period of water-lain sediment and chemical deposition.

Low grade mineralisation extends several hundred metres beyond the pit in places (Taube 1990).

Figure 3 shows a 1:500 scale geology map of the mine area compiled from the best available historical mapping. The surface mapping was compiled from a pre mine map produced by Mount Morgan Limited in 1975 while the pit geology is taken from an undated plan (circa 1980) produced by Geopeko Ltd.

A Schematic long-section through the Mt Chalmers deposit prior to open-cut mining is shown in Figure 4.

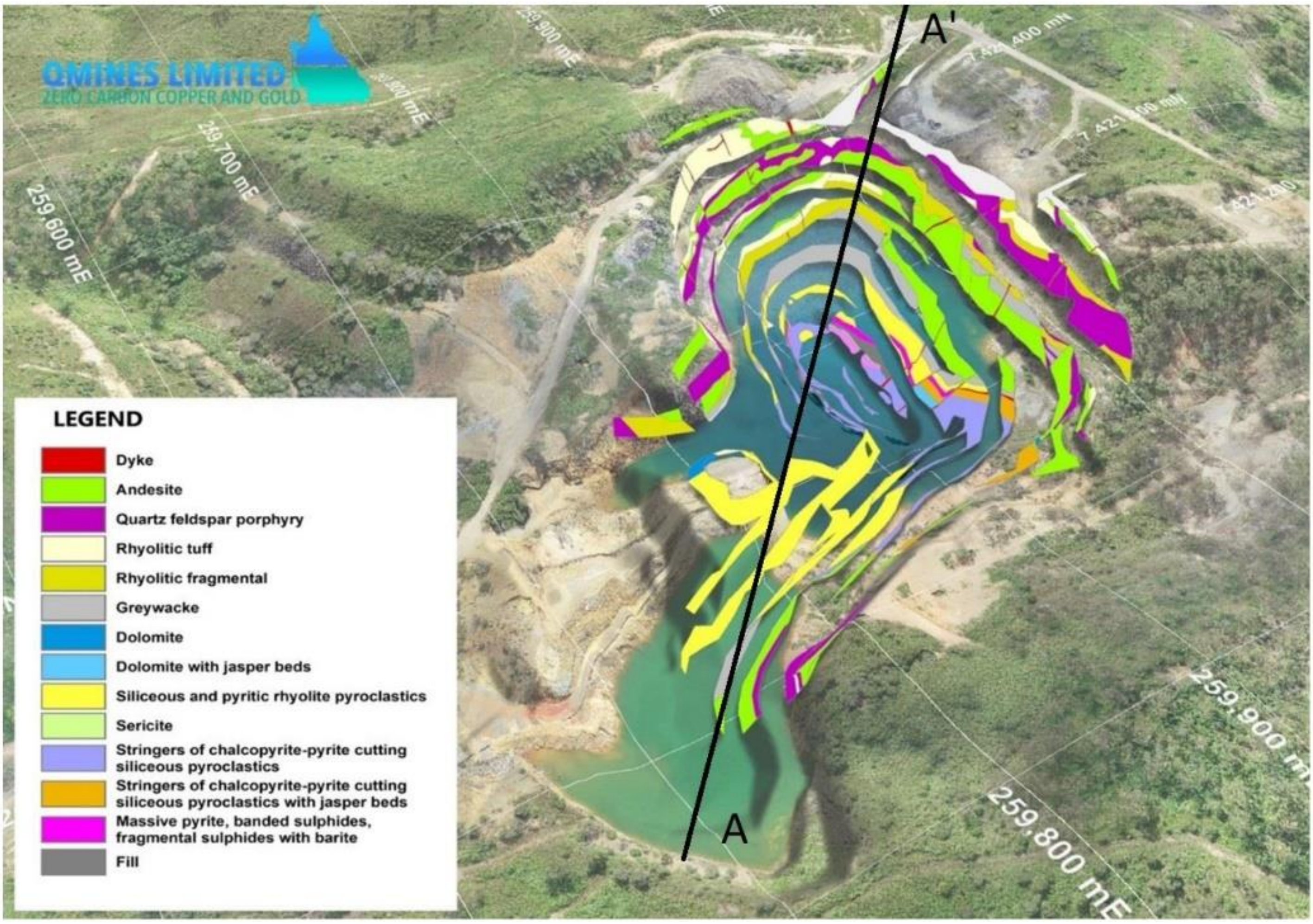


Figure 3: Local mine geology of the M. Chalmers mine area showing mapped geology and fault zones within the historic open pit area.

The rocks in the mine area are gently dipping, about 20° to the north-northeast, in the Main Lode mine area and similarly dipping south for the West Lode. Note that the predominant structure is a broad anticline trending north-north-west. Slaty cleavage is strongly developed in some of the rocks, notably in sediments and along fold axes. Such cleavage is prominent in areas close to the faults but is weak elsewhere.

Detailed work in the open pit has interpreted the doming of the rocks to be close to the mineralisation has seen to be largely due to localised horst block-faulting (Taube 1990), but the doming might also be a primary feature in part. Steep dips are localised and usually the result of block faulting. Where the Main and West Lode crop out, they are defined as variably silicified rocks which, by one interpretation, may have been pushed up through overlying rocks in the manner of a Mont Pelée spine (Taube 1990), but in any case, form a dome of rhyolite / high level intrusions of the Ellrott Rhyolite. The surrounding mineralised horizon is draped upon the flanks of domal structures.

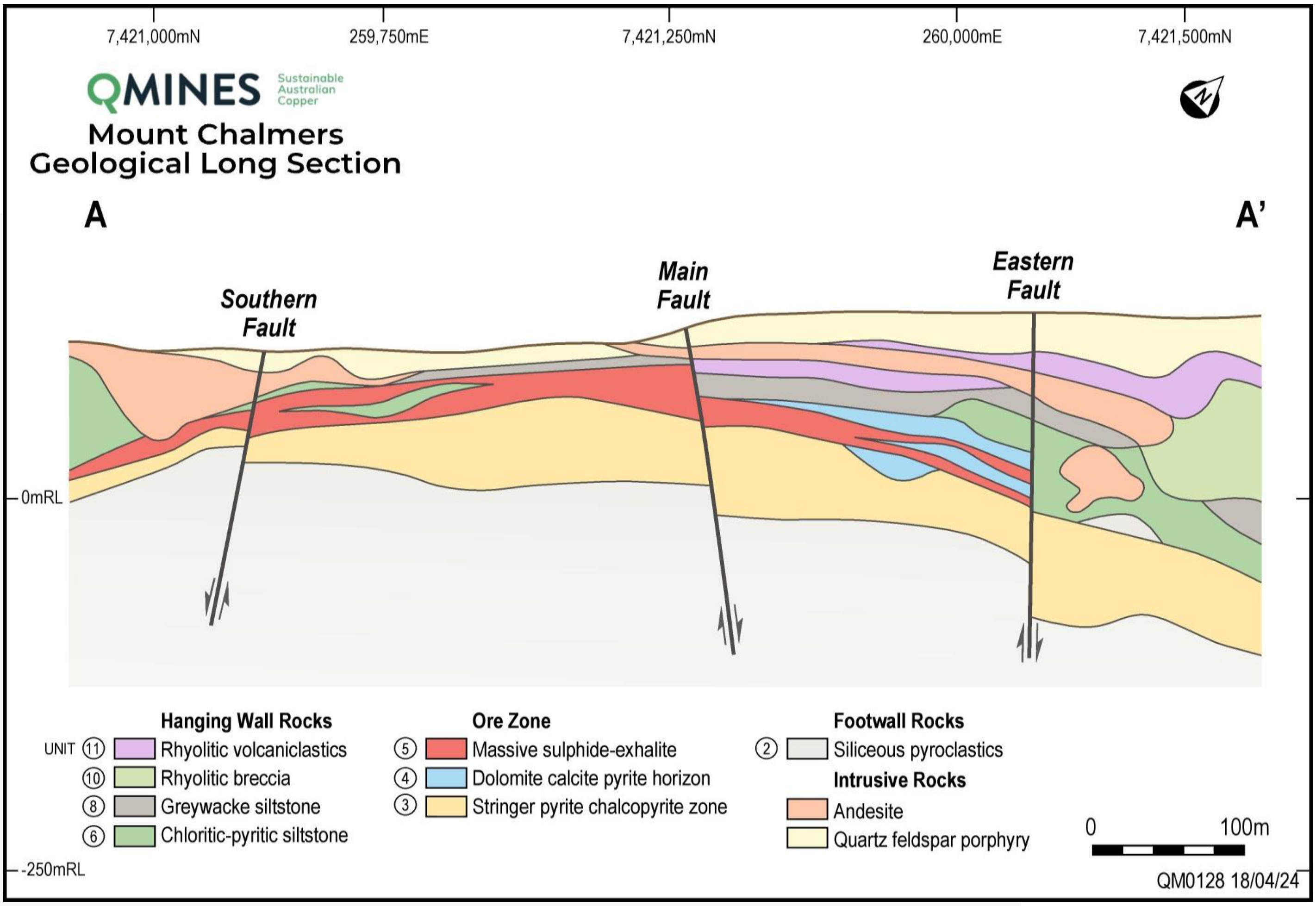


Figure 4: Mt Chalmers Geological Long Section AA'.

Deposit Type

The Mt Chalmers project is identified as a Volcanic Hosted Massive Sulphide (**VHMS**) deposit. Mt Chalmers is considered to be a close analogue to the Kuroko VHMS deposits in Japan (Figure 5).

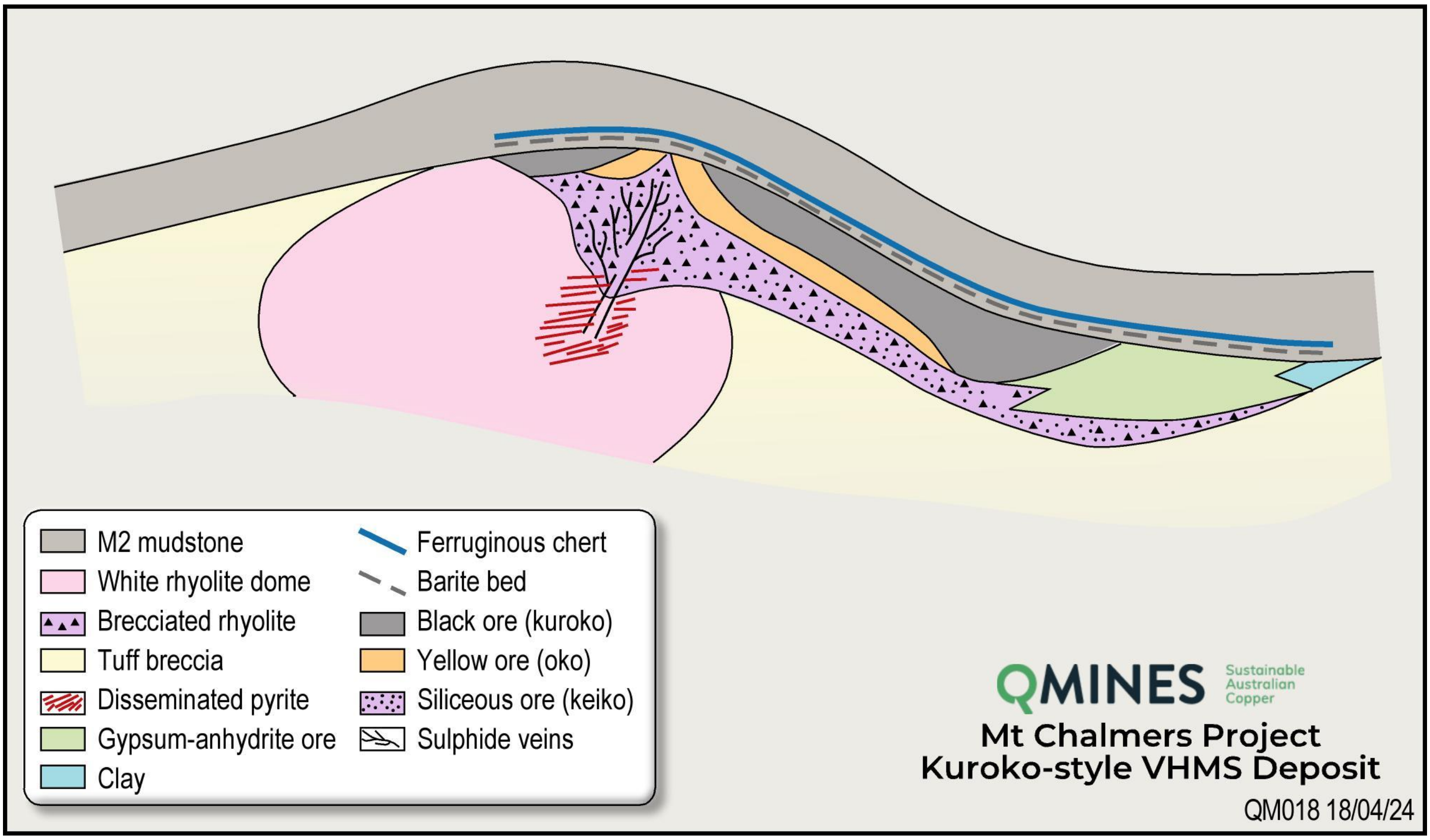


Figure 5: Kuroko Volcanic Hosted Massive Sulphide model (Lambert, 1973).

A Kuroko deposit is generally defined as a strata-bound polymetallic sulphide-sulphate deposit containing economic to sub-economic Cu-Pb-Zn-Ag-Au and an abundance of Ba and Ca sulphates. In the Kuroko district, the deposits occur in Miocene rocks and are typically zoned from laminated black Zn-Pb-Ag-Au ores to layered Cu-rich ore to a siliceous stockwork zone at the base. The "classic" Kuroko orebody has six mineralogical zones that are common between deposits (Shimazaki, 1974) and are described below in ascending stratigraphic order:

- Siliceous ore (***keiko***) - stockwork mineralisation characterised by disseminated and veined pyrite and chalcopyrite distributed within an irregular funnel shape in felsic lavas and pyroclastics,
- Gypsum and/or anhydrite (***sekkoko***) occur as lenticular or irregular mass between the stockwork and stratiform ore bodies or adjacent to the stratiform ore body,
- In the stratiform ore body the top half is rich in sphalerite, galena and barite - black ore (***kuroko***), while in the lower half is chalcopyrite and pyrite dominate - yellow ore (***oko***).
- Stratified barite mineralisation overlies the kuroko zone.
- Small lenses or thin beds of ferruginous chert often occur directly overlying the stratiform ore lens (***tetsusekiei bed***).

Mt Chalmers and the Japanese Kuroko deposits have many similarities including alteration mineralogy, with one significant difference being the absence of gypsum beds and the presence of dolomite at Mt Chalmers, and the Kuroko deposits tend to have zoned pipe-like alteration halos (Hunns, 2001).

DRILLING & SAMPLING

The Mt Chalmers deposit historically has been drilled with a combination of percussion drilling including open hole percussion, Reverse Circulation (**RC**) drilling and diamond core holes (Table 5). A Mayhew 1000 or a Mayhew 1500 rig with 114.5mm down hole hammer bit was used for the percussion drilling. Core drilling by Geopeko ranged from NQ to BQ in size, while Federation mostly drilled HQ size with some NQ where needed.

Many holes were collared with open hole percussion or RC drilling method and completed with a diamond core tail. The vast majority of drillholes were vertical. No core orientation data is available from historical records.

QMines 2021 drilling was undertaken using a multi-purpose UDR 650 track mounted rig, and a Hydco 1000 dual purpose truck mounted rig. RC drilling utilised 114.5mm diameter RC rods and 140mm percussion face-sampling hammer with onboard air and auxiliary air packs.

Diamond core tails (HQ) were completed with a track mounted Hyundai Dasco 7000 diamond core rig. A triple tube system was utilised to maximise recovery, and the core was orientated using a REFLEX ACT111 core orientation tool. In early 2022, QMines acquired a KWLRC350 rig with booster and auxiliary compressor (Figure 6) using 5m, 102mm diameter RC rods and a 143mm percussion face sampling hammer which was used to drill all RC holes in 2022 and 2023.

Figure 6: QMines RC Drilling at the Mt Chalmers project (October 2022).

No historical sample recovery data is available for either the diamond drilling or the RC drilling. Historic reports indicate 90% sample recovery from the Geopeko drilling except for weathered and oxide zones (these zones have now been mined out). No documentation for any RC sampling procedures was found in historical reports available to the Company.

Since acquiring the project, QMines has undertaken several diamond core and RC drilling programs. Drill programs were designed to validate historical drilling completed by Geopeko and others, infill existing drilling where required, and determine the limits of mineralisation. QMines have delivered suitable quality control data (**QAQC**) further reinforcing the confidence in the historical drilling undertaken by Geopeko and other explorers at Mt Chalmers.

Both the historical and current drilling methods used are considered to be reliable, delivering results suitable for resource estimation. The lack of historical sample recovery data has been remedied by the recent diamond and RC drilling work undertaken by QMines, where sample recovery in diamond core and RC drilling is on average between 93-95% recovery of all metres drilled in the mineralised and unmineralised zones. It is now possible to establish the relationship between sample recovery and metal grade.

The Mt Chalmers deposit is a generally flat-lying mineral deposit. The majority of drillholes were drilled vertically providing a good intersection angle with the mineralisation. Holes drilled on sixty-degree dip are estimated to represent 87% of the down hole intersection.

Table 5: Mt Chalmers project drill hole database.

Hole Type - QMines	Number	RC (m)	Diamond (m)
Diamond	20		2,466.4
RC Pre-collar Diamond Tail	24	1,714.2	1,721.47
RC Only	72	11,299.0	
RC Pre-collar - Diamond Tails Incomplete	9	513.1	
Sub Total:	**125**	**13,526.3**	**4,187.87**
Drill Hole Table - Historic			
Hole Type	**Number**	**PDH (m)**	**Diamond (m)**
Diamond	32		3,393.95
PDH Pre-collar Diamond Tail	72	4,106.81	3,894.82
PDH Only	237	11,824.43	
Sub Total:	**341**	**15,931.24**	**7,288.77**
Total:	**466**	**29,457.54**	**11,476.64**

Sampling

Historical sampling of RC chips was on 1m intervals with a 2kg sub-sample collected, while core samples were collected over 1m intervals and were either sawn or split lengthways to yield approximately a 3-5kg sample. All sample material submitted to the laboratory were crushed and split, with 200g pulverized. A 30g sub-sample was taken for base metal analysis and a 50g charge for gold analysis by fire assay.

There is no documentation concerning the analytical method used by Geopeko, but the work was completed at the Mount Morgan mine site laboratory and presumably the analysis was to an acceptable level. The Mt Morgan operation has since shut down and the laboratory no longer operates.

In 2021-2022, QMines drilled HQ triple tube with diamond core samples of between 0.3m and 1.5m in length. Samples were cut with a Sandvik wet core saw yielding 1-5kg core samples (dependent on sample intervals) into calico sampling bags. Four individual calicos are placed in poly weave bags and sealed for delivery to the assay laboratory. Samples are sent by road to Australian Laboratory Services (**ALS**) in Brisbane, crushed, pulverised and riffle split delivering 200g pulp for base metal and precious metal assay. Figure 7 below shows a typical HQ core (half) sample taken from withing the 'Stringer' zone at Mt Chalmers in half diamond core from drill hole MCDD040.

For RC drilling, a cone-splitter attached to the sample cyclone was used to collect 1m RC samples for the entire RC portion of drill holes. Each sample ranged in weight between 2-5kg or approximately 10% of the split sample saved in calico bags except for duplicate samples with each being 1-2kg, or approximately 5% of the total sample. Each drill hole was blanket sampled although only selected intervals where assayed, these being selected by the geologist based on the lithology, alteration, and visible mineralisation.

Figure 7: Drill-Core from Recent Drill Hole MCDD040 Showing Clear Brecciation and Semi-Massive Chalcopyrite Stringer.

The Company submits batches to ALS, from all drill programs, as they come to hand. An analysis of duplicate sample assays suggests there is no significant bias. Certified Reference Materials (**CRM**) and blanks are inserted at regular intervals (1 in 12 samples or 8.5%) with suitable CRMs being supplied by OREAS Pty Ltd and GEOSTATS Pty Ltd. Duplicate samples are prepared by splitting RC samples or from quarter-core and are submitted at a rate of 1 in 36.5 samples (3%). Internal laboratory QAQC reports are delivered by ALS with certification of assay method used and certified assay results. These results are delivered to the project geologist, drillhole data base manager and the Company.

QAQC data for each assay reporting batch is reviewed as they are received. Batches deemed to have failed the QAQC analysis are re-assayed.

Sample Preparation, Analysis and Security

Historical Sampling

There is no documentation concerning the analytical method used by Geopeko, but the work was completed at the Mt Morgan (MML) mine site laboratory and presumably the analysis was to industry standard for the time. The Federation sample preparation and analysis was completed by a commercial laboratory using a mixture of ICP and 50g charge fire assay with atomic absorption spectroscopy (AAS) for base metals and gold, respectively.

QMines Sampling

All QMines samples were sent to ALS, Brisbane. At the laboratory, all sample material from each QMines diamond core and RC sample submission was crushed. After the whole sample was crushed, a 200g sample was split off and pulverized to 85% passing 75µm. A 30g sub-sample was taken for base metal analysis and a 30g charge for gold.

The ALS laboratory in Brisbane received all the drilling samples which were analysed using:

- Fire assay fusion with an Atomic Absorption Spectroscopy (AAS) finish (Au-AA25) for gold.
- Four-Acid digest with Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP - AES) finish (ME-ICP61) for Ag, As, Ba, Cu, Pb, S and Zn.
- Base-metal results that exceeded the upper detection limits for ME-ICP61 were analysed with method OG62.

Fire assay fusion is considered a total digest, and four-acid digest is considered near-total digestion.

Sample Security

There is no documentation describing the process of securing historical samples at site and their transportation to the laboratory. QMines core samples were cut onsite by Company staff and inserted into individual numbered calico sample bags. RC samples were collected directly from the cone splitter into individual numbered calico sample bags. In each case, 4 calico bags were inserted into sealed, cable tied poly weave bags, which were numbered in sequence and placed in large bulka bags. The bulka bags were then delivered by Company staff to a commercial freight depot in Rockhampton and shipped directly to the ALS Laboratory in Brisbane overnight.

Drillhole Database

QMines supplied Mr Steve Hyland, principal resource consultant of Hyland Geological and Mining Consultants (**HGMC**) with a comprehensive recently digitised drillhole database for the Mt Chalmers deposit. The database was managed and prepared by Orr and Associates under the direction of QMines. All historical drilling completed and logged by Geopeko was extracted from hardcopy logs and cross sections and incorporated into the QMines databases. All hardcopies of historical drillhole data compiled from reports submitted to the Geological Survey of Queensland (GSQ) were compiled by the Company with appropriate levels of information supplied to Orr and Associated to deliver a comprehensive drillhole database for a resource estimate to be completed.

QMines drilling programs have been competently logged by Company geologists with all logging data digitised electronically into Panasonic Toughbook. Logging codes were established prior to commencement of drilling operations by H & S Consultants and were a mixture of quantitative and qualitative data. Geological information originally comprised lithology descriptions, alteration, mineralisation and oxidation levels. All data is available in a digital format. All core trays have been digitally photographed with the images stored in the Company's Network Attached Storage (NAS) drive.

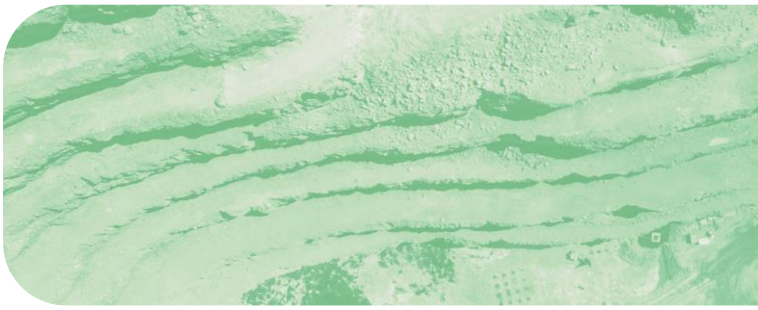
HGMC has reviewed and accepted the databases as an accurate, reliable and complete representation of the available data. HGMC imported the data into a 'resource' Microsoft Access database that was then transferred to HGMC's mining software package for viewing and modelling in 3D. HGMC performed limited validation of the data including error checking. The drillhole database for the Mt Chalmers deposit is satisfactory for resource estimation purposes. Overall responsibility for the data and data quality resides solely with QMines.

Digital geology data and a Digital Terrain Model (**DTM**) were supplied to HGMC by QMines and by Orr and Associates. Additional structural and geological mapping information compiled by Dr Brett Davis of Olinda Gold Pty Ltd was also incorporated. A review of this information by HGMC resulted in an assessment that the data confirms the mineralisation spatial distribution and is a useful component for resource estimation.

There is substantial documentation on the validation of the database completed by Orr and Associates and reviewed and confirmed by HGMC. QMines state that all available data was compiled and verified by Lisa and Tom Orr of Orr and Associates.

Topography

A DTM of the current topography was captured by a drone survey commissioned by QMines. The quality and accuracy of the DTM data capture has been validated and independently processed by Minecomp Surveying.



Drill Hole Survey

All work was completed in the Geopeko local grid which was an orthogonal grid rotated approximately 9° anti-clockwise i.e. a magnetic north grid. Percussion holes (Geopeko) were not surveyed downhole; however, it should be noted that virtually all of them were vertical and are considered by QMines to have had very limited deviation. For pre-Federation diamond drill holes, logs and sections only showed evidence of down hole surveying for one hole but the survey details are not recorded in the log. The remainder of the diamond drill holes are assumed not to have downhole surveys. Federation drill holes were surveyed at intervals of approximately 50m using an Eastman single shot borehole survey camera supplied by the drilling contractors. QMines have assumed that all pre-1995 holes were straight, simply using the recorded collar bearings and dips as downhole surveys. This will no doubt result in some errors in the 3D location of samples, but since these holes are typically 50-150 m deep and most holes were vertical into relatively flat-dipping rocks, material hole deviations are not expected to have been common.

The Geopeko drilling was initially on a nominal pattern of 40m x 40m which was subsequently infilled to a nominal 20m x 20m pattern over most of the deposit, but with considerable local variation in hole spacings. Federation locally infilled or extended the 40m x 40m pattern, but on an irregular basis because of the access difficulties presented by the water-filled open pit. At the northern end of the stringer zone where the mineralisation becomes deeper the pattern ranges from about 40m x 40m to 40m x 80m. Downhole sampling was at 1m intervals. The data point spacing is appropriate for the use in generating Mineral Resources at the appropriate levels of confidence.

QMines have implemented a complete conversion of all historical drill collar surveys and local gridding utilised be previous explorers with local mine surveyors undertaking the conversion with the local work being validated by Minecomp Surveying. The Company has converted from local historical grid to GDA 94 MGA Zone 56. All drill hole collars are picked up and validated by DGPS by the site surveyors.

QAQC

QMines submits batches to ALS from all drill programs as they come to hand. An analysis of duplicate sample assays suggests there is no significant bias. Certified reference materials (CRM) and blanks are inserted at regular intervals (1 in 12 samples or 8.5%) with suitable CRMs being supplied by OREAS Pty Ltd and GEOSTATS Pty Ltd. Duplicate samples are prepared by splitting RC samples or from quarter-core and are submitted at a rate of 1 in 36.5 samples (3%). Internal laboratory QAQC reports are delivered by ALS with certification of assay method used and certified assay results. These results are delivered to the project geologist, drillhole data base manager and the Company.

QAQC data for each assay reporting batch is reviewed as they are received. Batches deemed to have failed the QAQC analysis are re-assayed. During the period QMines have drilled 149 drillholes for a total of 20,992.17m of drilling. As of the 30/10/2023, 9,035 assays (8,136 primary samples and 899 QAQC samples) from all assayed drill holes have been received.

All samples have been analysed by ALS in Brisbane. QMines QAQC is in line with industry common practice for drilling programs. The same QAQC procedures used by QMines have been maintained for all samples submitted to ALS. There are no observed or reported QAQC issues or concerns.

A number of QAQC tools have been applied to the analytical data, which are listed below:

- Blind samples of known concentration (CRM or "Standards") submitted by QMines.
- Field duplicates of drill hole samples, core and RC samples (cone and riffle splits).
- Standards submitted by the assay laboratory in each batch.
- Blanks submitted by the assay laboratory in each batch.
- Screen sizing of pulverised sample.

The practice used for QAQC sample insertion was as follows:

- RC Drilling
  - CRM every twentieth sample.
  - Blanks every thirty-third sample.
  - Field Duplicates every fiftieth sample.
- Diamond Drilling
  - Standards, blanks and field duplicates are inserted at the geologist's discretion based on the lithology and visible mineralisation. A blank is also inserted at the start of each diamond hole.

A summary of the various QAQC types submitted to ALS between February 2021 and November 2022 and their frequency are listed in the Table 6 below. A summary of the various QAQC types for the 2023 drilling program assays submitted to ALS and their frequency are listed in the Table 7.

Table 6: QAQC data types and frequency (previous programs, Feb 2021 to Nov 2022).

	Total Primary Samples	Standards	Blanks	Field Duplicate	Total Site QAQC
ALS	5,768	294	196	145	635
QAQC percentage of samples submitted		4.59%	3.06%	2.26%	9.92%
Number of non-conforming QAQC		19	2		21

Table 7: QAQC data types and frequency (Recent 2023 Drilling Program)

	Total Primary Samples	Standards	Blanks	Field Duplicate	Total Site QAQC
ALS	2,368	128	81	55	264
QAQC percentage of samples submitted		4.86%	3.08%	2.09%	10.03%
Number non-conforming QAQC		1			1

Certified Reference Materials and Blanks

A variety of CRMs are used to monitor laboratory accuracy. They are sourced from commercial suppliers Ore Research and Exploration Pty Ltd (**OREAS**) and Geostats Pty Ltd (**GEOSTATS**). Assaying performance of both CRM and Blanks are monitored by QMines personnel. The elements of concern are Au and Cu. Blanks have been produced from material sourced from Bunnings in Rockhampton (Bunnings gravel).

Standards used are:

- G316-7, Geostats - high grade Au standard (Au expected 5.86 ppm).
- GBM321-6, Geostats – high grade Cu standard (Cu expected 69,389 ppm).
- GBM908-16, Geostats – high grade Cu standard (Cu expected 70,180 ppm).
- OREAS 620, OREAS, - low grade Au standard (Au expected 0.685 ppm), low grade Cu (Cu expected 1,730 ppm).
- OREAS 623, OREAS, - low grade Au standard (Au expected 0.827 ppm), medium grade Cu (Cu expected 17,300 ppm)
- OREAS 624, OREAS, - medium grade Au standard (Au expected 1.16 ppm), medium grade Cu (Cu expected 3,100 ppm)
- OREAS 924, OREAS, - low grade Cu Standard (Cu expected 5,120 ppm).

Gold values have been certified for use with fire assay with AAS finish, copper is certified for a mixture of 4-acid digestion and Aqua Regia digest with ICP-MS or AAS finish. All CRM certificates are available from the OREAS or GEOSTATS web sites.

Certified Reference Material Performance

If a laboratory assay for a CRM fall more than three standard deviations from the mean of the expected value, or if two consecutive CRMs in the dispatch read outside 2 standard deviations, the batch is deemed to fail. Blanks fail if its assay value is greater than 0.1 ppm Au. All CRMs used in 2021-2022 and the number of “failures” are detailed in the tables below (Table 8 and Table 9).

Table 8: Standard Summary ALS Gold.

Standard ID	Expected Value Gold (ppm)	SD (ppm)	Failed Low	Accepted	Failed High	Total Number
BLANK	<0.1			194	2	196
G316-7	5.86	0.19		22		22
OREAS 620	0.685	0.021	8	76	2	86
OREAS 623	0.827	0.39	6	60		66
OREAS 624	1.16	0.053	2	43		45
Total			**16**	**395**	**4**	**415**

Gold standards had a 4.8% failure rate which is within acceptable limits.

Table 9: Standard Summary ALS Copper.

Standard	Expected Copper Value	SD (ppm)	Failed Low	Accepted	Failed High	Total Number
GBM321-16	69,389	2,531		19		19
GBM908-16	70,180	1,891	1	26		27
OREAS 620	1,730	40		86		86
OREAS 623	17,300	640		66		66
OREAS 624	31,000	790		45		45
OREAS 924	5,120	280		56		56
Total			**1**	**298**		**299**

Copper standards had a 0.003% failure rate.

Copper

One copper standard failed being greater than 3 standard deviations lower than expected.

All QAQC was reviewed as the lab batches were received. The failed standards where from 21 despatches. On average the company submitted 20 CRMs (including blanks) in each lab batch. There was only one failed copper standard. Given the number and nature of these failures the despatches were accepted with no further action taken.

One despatch (BR2217309) was found to have sample switch in the fire assay during the preliminary stage which was corrected before the final results were released.

Gold

There was a total of twenty (20) gold failures with 16 being 3 standard deviations lower than expected, two being 3 standard deviations higher than expected and two blanks reporting above 0.1 ppm. Fourteen of the twenty failures were from low gold grade standards, two from an intermediate gold grade standard (1.16ppm) and two from blanks.

2023 Drilling Program

The CRMs used and the number of "failures" are detailed in the tables below (Table 10 and Table 11).

Standards ORES 620, OREAS 623 and OREAS 624 are both gold and copper standards.

Table 10: Standard Summary ALS Gold.

Standard ID	Expected Value Gold (ppm)	SD (ppm)	Failed Low	Accepted	Failed High	Total Number
BLANK	<0.1			71		71
OREAS 620	0.685	0.021	1			1
OREAS 623	0.827	0.39		19		19
OREAS 624	1.16	0.053		12		12
Total			**1**	**102**		**103**

Table 11: Standard Summary ALS Copper.

Standard	Expected Copper Value	SD (ppm)	Failed Low	Accepted	Failed High	Total Number
BLANK	<200			80		80
GBM321-16	69,389	2,531		15		15
OREAS 112	51,300	2,300		14		14
OREAS 554	15,700	430		8		8
OREAS 620	1,730	40		19		19
OREAS 623	17,300	640		19		19
OREAS 624	31,000	790		15		15
OREAS 924	5120	280		34		34
Total				**124**		**124**

Gold

There was only one gold failure, this being sample MCR13160 in ALS batch BR23173131. This batch had a total of three blanks, four CRMs, and two duplicates. All other QAQC was acceptable including the multi-element analysis QAQC for sample MCR13160. Gold standards had a 0.9% failure rate which is an excellent result. Details of the failed standard for gold is in Table 12.

Copper

No copper CRMs samples failed.

Table 12: Details of "failed" standards and blanks.

Sample Number	Standard ID	Sample Comment	ALS Lab Batches	Received Weight	Au (ppm)	STD Value	Au Z-score
MCR13160	OR620	Au high - other elements OK	BR23173131	<0.02	0.47	0.685	-10.238

All QAQC was reviewed as the lab batches were received.

MINERAL RESOURCE ESTIMATE

Geological and Resource Modelling

The topographic surface was generated from available topographic contours, historic pit surveys, localised airborne drone survey and LiDAR surface scanning to generate a new DTM (Figure 8). A geological surface was created for the base of complete oxidation from current QMines logs and the historical Geopeko logs. The recent QMines drilling programs have provided more specific information, validation of historical drilling undertaken by previous companies and QAQC for all holes drilled by QMines at the project.

The current drill hole geology and mineralisation interpretation work done by QMines was checked and modified in 3D where necessary by HGMC. The interpretation was confirmed to fit the 3D drill hole assay grades with no significant issues being noted. The geological understanding of the deposit appears to be significantly improved through work done by Brett Davis and Tom Orr and is appropriate for resource estimation. The style of mineralisation and the deposit type means there is a strong lithological control to the grade and geological continuity.

The Mt Chalmers mineralised occurrence extends over a 1.2km strike length. The mineralisation thickness ranges from approximately 5m to 50m, with average thickness being approximately 10-30m. Mineralisation in the majority of deposit areas extends to approximately 200m below topographic surface. Mineralisation has been modelled both above pre-existing pit excavation surface to ensure mineralisation modelling continuity.

Some of the historic collar elevations were adjusted according to LiDAR acquired topographic DTM surface data. The survey control for collar positions is considered adequate for the estimation of resources as stated. Within the deposit area a total of four mineralisation domains, with different orientation or dip, were also defined to segregate major changes in mineralisation orientation.

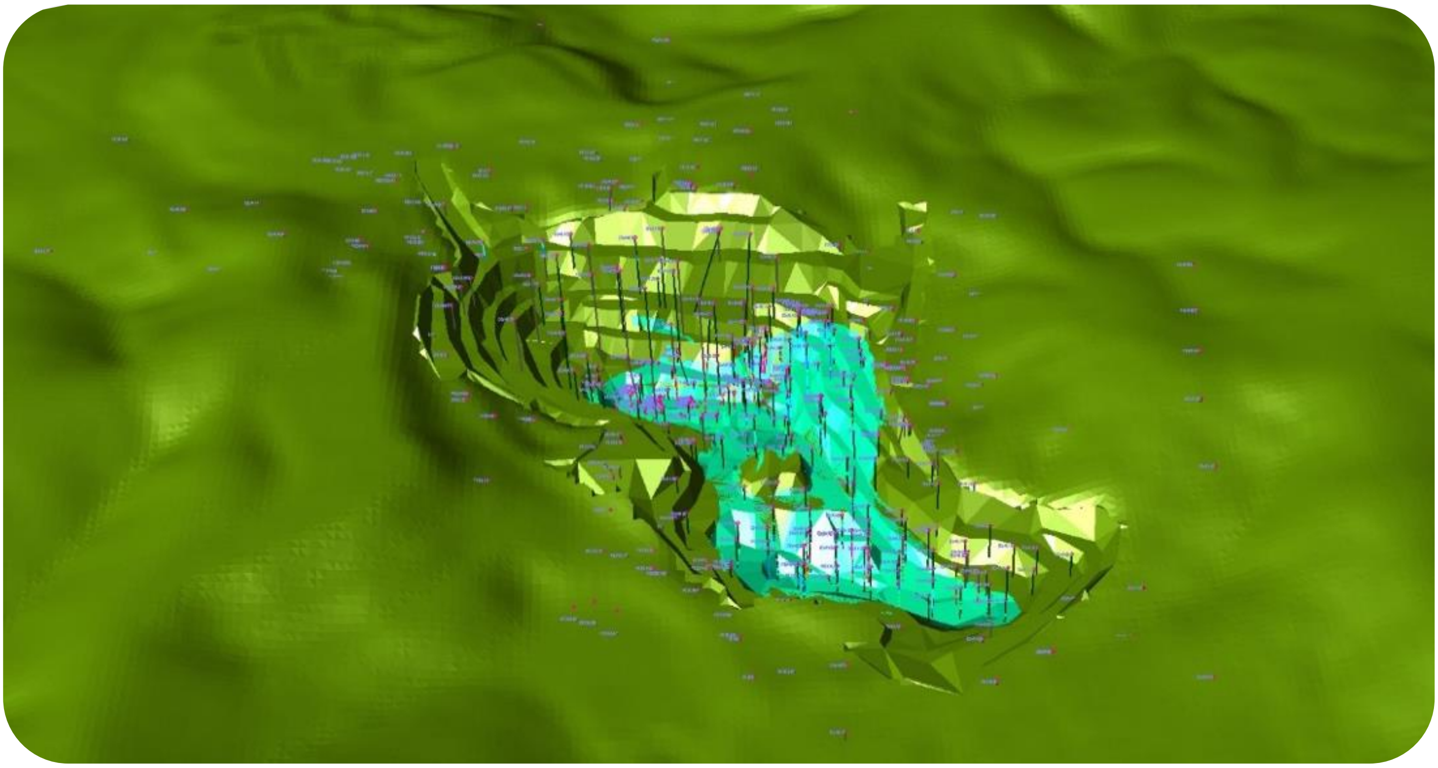


Figure 8: Mt Chalmers digital terrain model with historic pit looking North East – Azim 95 degrees, Dip -40 degrees.

Geological Interpretation

At Mt Chalmers, a structural geological interpretation was completed by Dr Brett Davis, an independent structural geologist. Geology and mineralisation interpretations were compiled by Mr Glenn Whalan, QMines Senior Geologist, and Mr Tom Orr of Orr & Associates. These interpretations were supplied to HGMC as a series of 2D and 3D DXF files, which were imported into Surpac. The digitisation of the drillhole database by QMines allowed for the generation of a 3D geological model populated at 20m and 40m spaced sections.

The resource is divided into three mineralisation types, namely Massive, Exhalite and Stringer and their oxide equivalents. The deposit has an overall strike length of approximately 700m north-south and an east-west extent ranging between 250m and 350m. There are zones up to 50m of thickness for the stringer zone and 5m to 20m for the massive sulphide domains. Mineralisation is exposed in the pits and defined to a vertical depth of 200m below surface. The extent of the deposit is constrained by the limit of resource drilling undertaken at the project.

The massive sulphide and exhalite zones are relatively flat lying, flanking a rhyolite dome with a varying dip between 10° and 40°. These zones are part of an encompassing exhalite horizon that immediately overlies a footwall stringer mineralised zone. Four massive sulphide mineral zones within the encompassing exhalite horizon were defined using logged geology with reference to copper, gold and sulphur assay grades.

There is no evidence of gold enrichment or depletion in the oxide zone at the Mt Chalmers deposit area but there is some evidence of copper depletion in the oxide zone and possibly some minor super gene copper enrichment locally.

A nominal 0.15-0.20% Cu edge lower cut-off was initially developed. The mineralisation wireframes developed were also locally adjusted to capture and delineate the majority of significant copper, gold and to a lesser extent the lead, zinc and silver mineralisation. The mineralisation envelopes are contained within a reliably interpreted geological and structurally mapped package which correlates with the majority of observed sulphide mineralisation.

Mapping

In October 2021, QMines engaged Dr Brett Davis to undertake a detailed study of the structural geological constraints of the Mt Chalmers VHMS deposit. Dr Davis spent several days reconnaissance mapping at Mt Chalmers with the primary aim of providing a detailed structural geology interpretation to better inform the resource model. Structures comprising the architecture of the deposit have been divided into seven populations and summarised. Of these, four main structure sets are considered important for potential shape modification of mineralisation:

- Population #2 – Associated with intense zones of approximately N-S trending cleavage development;
- Population #3 – The structures have localised mafic dyke emplacement and been active post-dyke, creating sheared intrusions that occupy the same planar structures;
- Population #4 – These structures are inferred as occurring at the southern end of the Mt Chalmers Main Pit and traversing the West Pit. They are interpreted as a bounding structure to the interpreted geometry of the porphyritic rhyolite unit and potentially associated with Population #5; and
- Population #5 – Visually obvious, moderately-dipping structures in the eastern wall of the main pit and causing SE – side down displacement.

The presentation details the fault populations in terms of inferred kinematics, morphology, relative ages, orientations and potential.

Geology Modelling

Both the massive sulphide / exhalite horizon and the sulphide stringer zones were modelled from the drilling data to produce separate mineralisation envelopes (Figures 9 and 10). Domaining at 5 metre sections then wireframing formed the basis of these high-quality models, which were delivered to HGMC as 3D string and DXF files, which were then imported into Surpac. Ongoing drilling continues to expand the model, which is regularly updated.

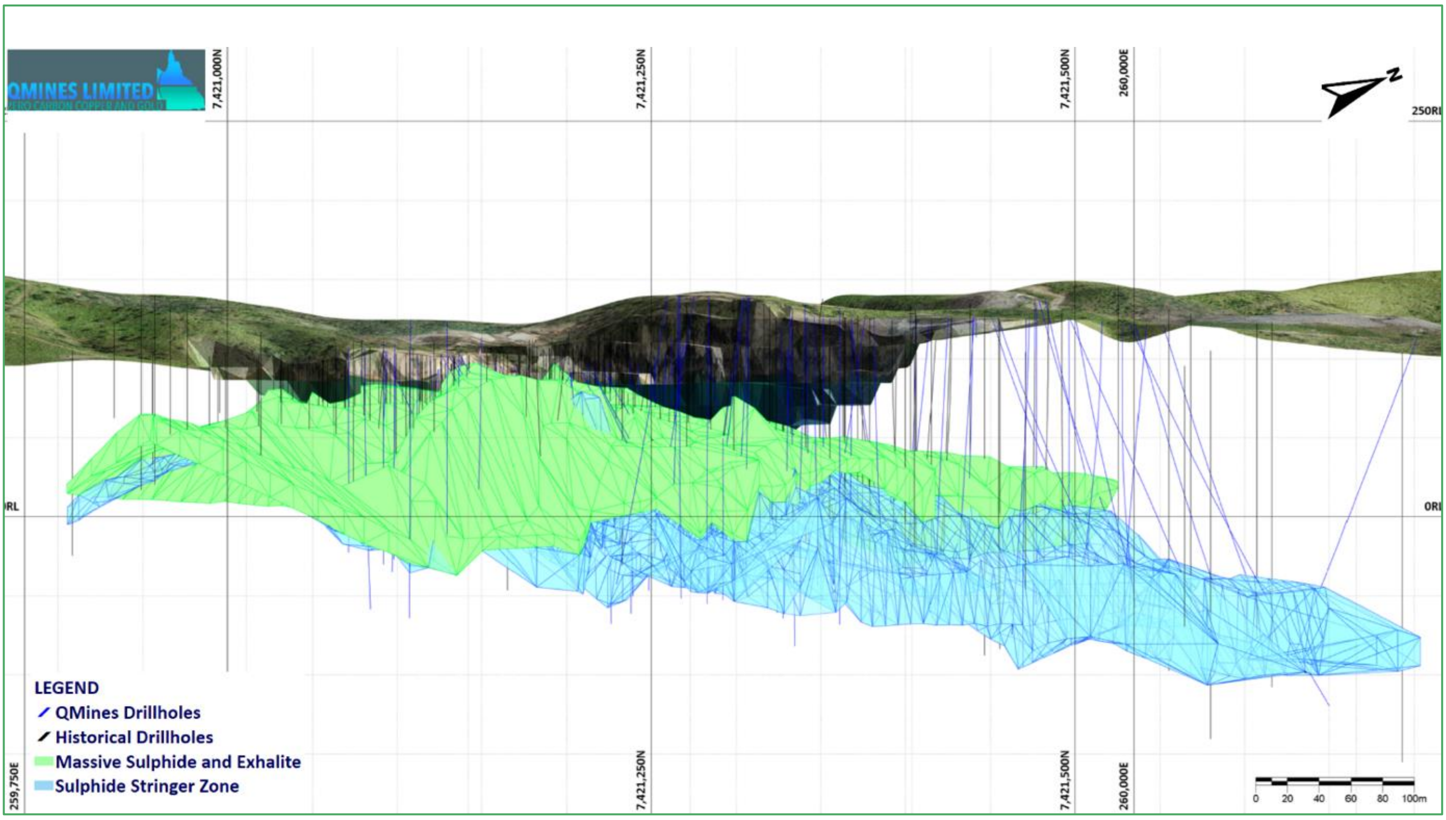


Figure 9: QMines wireframing of the Mt Chalmers mineralisation zones. Long section looking WNW.

Estimation Methodology

Resource estimation for Mt Chalmers was initially completed by McDonald Speijers Pty Ltd (MS) in 1996 and revisited in 2005 using different assumptions for the cut-off grade. An updated block model was constructed by H&S Consulting (H&S) in February 2021. These studies formed the basis of further updates and refinements possible after new information was acquired from recent QMines drilling programs. All available diamond, RC drilling data was used for the Mineral Resource estimation. Drilling collar positions have been accurately surveyed. Some historical drill hole collars were draped onto a 'triangulated' topographic DTM surface and were checked in order to match the drill holes with actual collar surveys. The survey control for collar positions was considered adequate for the estimation of the reported resources for Mt Chalmers as stated.

The mineralised domains were interpreted from the drilling data by QMines as 3D strings, using Micromine software, which were then linked to generate 3D wire-frames using MineSight by HGMC (Figure 10).

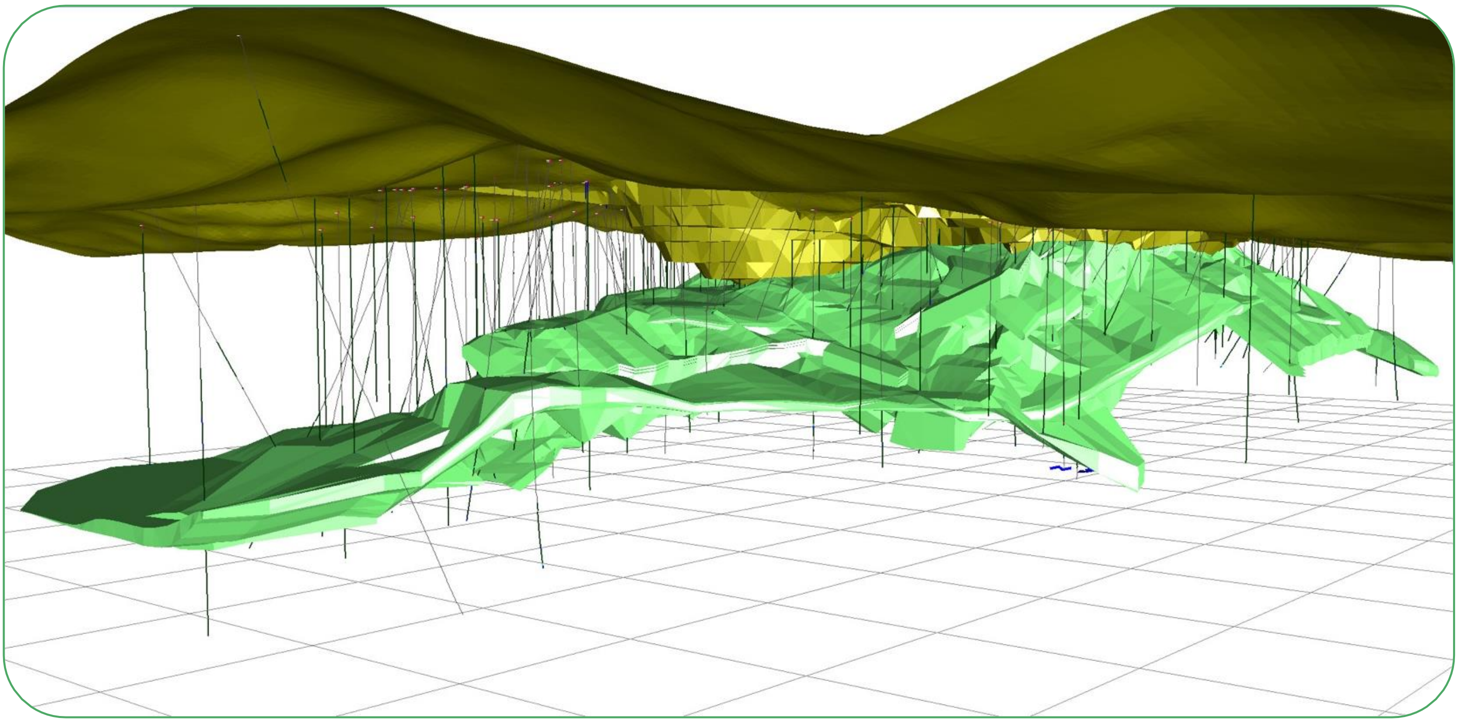


Figure 10: Mt Chalmers Main Deposit (Majority Copper Mineralisation) Wire-Frame Model – Side Oblique View (Looking Grid Azim 140 degrees, Dip -5 – 'South-East' – Grid 250x250m) (Dark Green surface = Current DTM – Light Green-Blue Area = Approximate Mineralisation Zone Contact with Pit Surface).

These mineralised wire-frame domains were used for statistical analysis and grade estimation. Similar wireframe or boundary surfaces were used to flag different geological (rock type) domains and weathering and oxidation state zones. Material types broadly designated as the 'stringer', 'exhalite' and 'massive sulphide' zones which were further sub-divided if necessary, according to being oxidized, transitional or fresh/sulphide material. These different material type zones were primarily used to designate deposit profile bulk density differences.

Dry bulk density (Density) was assigned by material type with values assigned representing the average measured bulk density derived from the available Archimedes and Densiometer based bulk density measurements as recorded along with the drilling database information. The bulk density values applied in the deposit are detailed in Table 13 :

Table 13: Bulk Density Values

Zone	Bulk Density (t/m3)
Stringer Zone	3.00
Exhalite Zone	3.20
Massive Sulphide Zone	3.80
Weathered/Oxide	2.20
Transition	2.50
Fresh (Sulphide)	3.00

General statistical analysis and localised spatial geostatistics for Mt Chalmers were analysed using the composited drilling data. Composites for all zones were set to 1m (based on the main copper analytical item) and were used to generate semi-variogram models to analyse the spatial continuity of Cu, Zn, Pb, Au, Ag, and S in the main mineralisation domains.

A block model was constructed for the Mt Chalmers deposits using 5.0m x 8.0m x 2.5m block cells covering the entire extents of the mineralisation.

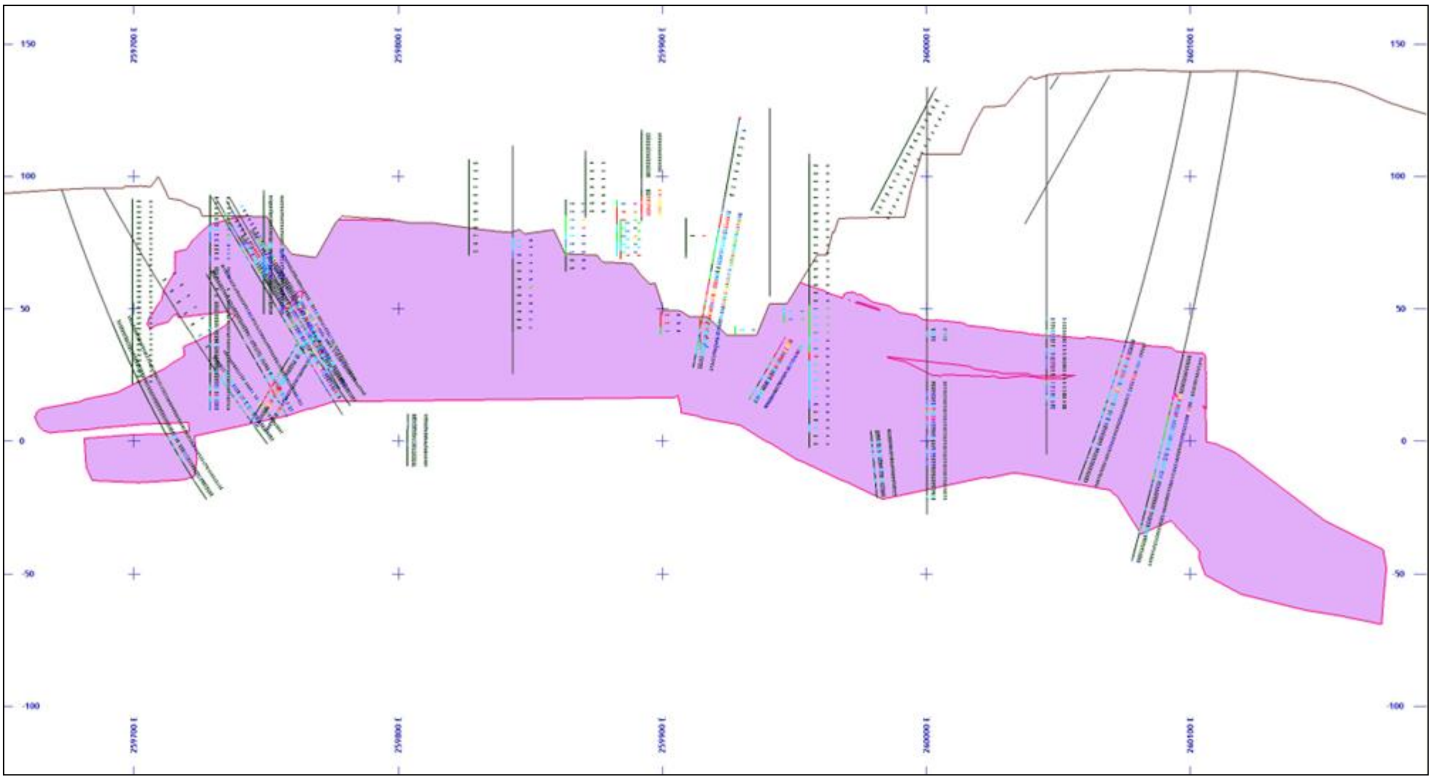


Figure 11: Mt Chalmers – Majority Copper Mineralisation Zone – E-W Cross Section 7421240mN. (Pink Mineralisation Zone = Nominal ~0.15% Cu Delineation Cut-Off – DH Assay intervals shown, Cu, Au and Ag – Brown Poly-line is current topographic / pit surface profile).

The block model coordinate boundaries for the Mt Chalmers block model (UTM Grid System) are presented in Table 14.

Table 14: Mt Chalmers block model coordinate boundaries (Model Area MGA94 Zone 56)

XYZ Coordinate Range	No. Blocks & Size
259200 → 260600m E	- (280 x 2.5m blocks)
7420400 → 7421800m N	- (175 x 8.0m blocks)
-240 → 160m RL	- (160 x 2.5m benches)

The Ordinary Kriging (**OK**) interpolation method was used for the estimation of the Cu, Pb, Zn, Au, Ag, and S using variogram parameters defined from the geostatistical analysis. The kriging interpolated items used different interpolation parameters as determined from the independent variographic analysis.

There was some geostatistical review carried out to check correlation between the various element items. The H&S resource modelling study confirmed that there is little correlation between gold and any other elements e.g. Cu, Ag, Pb and Zn. An outlier 'distance of restriction' approach was applied to the various elements during the interpolation process and were set individually to each of the nine designated AREA mineralisation geometry domains. The outlier restriction level is determined based on analysis of the observed localised geostatistics and is intended to reduce the influence of very high-grade outlier composite samples. The outlier restriction ranges applied at Mt Chalmers during Kriging interpolation to each AREA domain are presented in Table 15.

Table 15: Outlier restriction ranges

Element	Grade Range
Copper	1 - 11.4%
Lead	0.4 - 6%
Zinc	1.2 - 15.4%
Gold	1 - 28g/t
Silver	15 - 100g/t.

Bulk Density Estimation

At the Mt Chalmers deposit, the historical default density values utilised by both H&S Consulting and McDonald Speijers on their resource estimates were derived for the mineral domains from limited measured data.

For recent measurement programs, carried out by QMines, a series of suitable diamond core and RC drill-holes were used to acquire multiple Dry Bulk Density (**DBD**) measurements across all lithological domains using water displacement (Archimedes) for both RC chip and diamond core samples. These were complimented with a recent program of down-hole densitometer measurements made during the QMines diamond and RC drilling programs. The bulk densities derived by all methods generally concur and appear appropriate for the rock material and mineralisation types described and for the main weathering and oxidation material states present.

For use in the block model, the bulk density measurements have been averaged, where appropriate, according to the geologically logged domains and according to their weathered (oxidized or fresh) characterisation. Some bulk density values were retained from previous (historic) block models.

The average Mt Chalmers 'overprint' bulk density assignments by material type are presented in Table 16.

Table 16: Bulk Density by material type

Mineralisation Type	Bulk Density
Stringer Zone	3.00 t/m³,
Exhalite Zone	3.20 t/m³,
Massive Sulphide Zone	3.80 t/m³,
Weathered/Oxide	2.20 t/m³,
Transition	2.50 t/m³;
Fresh (Sulphide)	3.00 t/m³.

The following bulk density values have been applied to the H&S Consulting and McDonald Speijers resource estimates:

- 3.00 t/m³ for stringer mineralisation.
- 3.2 t/m³ for exhalite mineralisation.
- 3.8 t/m³ for massive sulphide mineralisation.
- Default bulk densities for unmineralised material was set at 2.2, 2.5 and 3.0 t/m³ for oxidised transitional and fresh zones respectively.

At the local scale, the down-hole bulk density measurements were interpolated and assigned to the block model using nearest neighbour interpolation to 'overprint' the default assignment where actual data is available to help improve modelling accuracy.

Mineral Resource Classification & Reporting

Following final block model validation, a series of block model statistics summaries were generated to aid with determination or resource estimation modifying factors and the final resource classification criteria.

The classification criteria have employed multiple 'ancillary' interpolation parameters including 'distance of composite to model block' (DIST1), 'number of composite available within the search ellipsoid' (COMP1) for each block interpolation and the 'local kriging variance' (KERR1) for each block. The DIST1, COMP1 and KERR1 item values are condensed into a 'quality of estimate' (QLTY) block item which is used as a guide to refine a 'resource category' (RCAT) item to assist with final resource reporting.

HGMC prepared summary estimates using a cut-off grade of between 0.2% and 0.5% Cu. Table 17 is a consolidated summary of resources based on a copper lower cut-off basis of 0.3% Cu. The Company considers the 0.3% Cu lower cut-off is an appropriate grade for reporting the Resource Estimate as it reflects the current base and precious metal prices and likely mining approach.

The resource estimates were also tabulated using a copper equivalent cut-off grade for reference. These were done for total project value considerations at single points in time. They were based on nominal 2022 metal price, metallurgical recovery assumptions, exchange rate and copper equivalent values for associated elements within the pit including Cu, Pb, Zn, Au, S and Ag.

The reporting of a Mineral Resource must satisfy the requirement that there are reasonable prospects for eventual economic extraction of at least part of the resources as classified. HGMC has excluded significant volumes of mineralised material that is informed by only relatively sparse drilling and consequently contains relatively low numbers of samples thereby reducing the confidence of estimation in those areas. All other areas are adequately informed by reasonable drilling and sampling densities.

With all modifying factors considered, HGMC was able to classify part of the Mt Chalmers resource as 'Measured' with the bulk of the remainder as 'Indicated' and then some 'Inferred'.

Table 17: Mt Chalmers Deposit – Mineral Resource Estimate as at 22nd November 2022 (0.30% Cu lower cut-off).

Mt Chalmers	Tonnes (Mt)	Grade(s)				Contained Metal(s)			
		Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Cu (t)	Zn (t)	Au (Oz)	Ag (Oz)
Measured	4.2	0.89	0.23	0.69	4.97	37,800	9,800	93,770	675,550
Indicated	5.8	0.69	0.19	0.28	3.99	39,900	11,100	51,510	741,940
Inferred	1.3	0.60	0.27	0.19	5.41	7,900	3,500	7,960	228,100
Total	**11.3**	**0.75**	**0.23**	**0.42**	**4.60**	**85,600**	**24,400**	**153,240**	**1,645,590**

Table 18: Mt Chalmers Deposit – Updated Mineral Resource Estimate as at March 2024 with sulphur (0.30% Cu lower cut-off).

Mt Chalmers	Tonnes (Mt)	Grade(s)					Contained Metal(s)				
		Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	S (%)	Cu (kt)	Au (kOz)	Ag (kOz)	Zn (kt)	S (kt)
Measured	4.2	0.89	0.69	4.97	0.23	5.37	38	94	675	10	226
Indicated	5.8	0.69	0.28	3.99	0.19	3.77	40	51	742	11	218
Inferred	1.3	0.6	0.19	5.41	0.27	2.02	8	8	228	3	39
Total	**11.3**	**0.75**	**0.42**	**4.6**	**0.23**	**4.3**	**86**	**153**	**1,645**	**24**	**483**

Resource Summary Notes:
**5 x 8 x 2.5m blocks within defined majority copper wireframes above a nominal ~0.15% Cu cut-off, from surface down to -240 mRL. *Rounding errors may occur.*
**Refer also to JORC Table 1.*

As at March 2024, the Mt Chalmers project Mineral Resource Estimate (**MRE**) based on a 0.3% Cu lower cut-off (Table 18) contains a combined 11,290,000t @ 0.75% Cu, 0.42g/t Au, 0.23% Zn, 4.6g/t Ag and 4.3% S. The MRE is reported in accordance with the JORC code (JORC 2012). The resource estimate at different cut-off grades is presented in Table 19.

Table 19: Mt Chalmers Main Deposit – Updated Mineral Resource Estimate as at March 2024.
(Selected Lower Cut-Off Range 0.15-0.60% Cu lower cut-off).

	CUT-OFF	VOLUME	SUMMARY	Copper	Lead	Zinc	Gold	Silver	Sulphur *
	(Cu %)	Cubic Metres	Tonnes	(Cu %)	(Pb %)	(Zn %)	(Au g/t)	(Ag g/t)	(S %)
Measured	0.15	1,955,115	6,254,960	0.672	0.099	0.247	0.516	4.379	4.802
	0.20	1,697,766	5,438,196	0.747	0.096	0.235	0.571	4.539	4.995
	0.30	**1,312,671**	**4,212,846**	**0.893**	**0.092**	**0.230**	**0.686**	**4.928**	**5.372**
	0.40	1,051,346	3,379,094	1.028	0.088	0.228	0.793	5.254	5.693
	0.50	869,130	2,796,250	1.149	0.086	0.226	0.893	5.508	5.980
	0.60	726,734	2,338,925	1.267	0.081	0.221	0.987	5.668	6.249
Indicated	0.15	3,157,048	10,009,032	0.487	0.068	0.184	0.215	3.720	3.457
	0.20	2,594,918	8,249,032	0.554	0.070	0.192	0.234	3.870	3.567
	0.30	**1,813,575**	**5,786,122**	**0.686**	**0.074**	**0.206**	**0.276**	**4.141**	**3.777**
	0.40	1,316,866	4213915	0.812	0.076	0.210	0.318	4.363	3.960
	0.50	967,711	3109037	0.942	0.078	0.212	0.360	4.689	4.144
	0.60	728,419	2346093	1.071	0.081	0.217	0.401	4.995	4.333
Inferred	0.15	915,709	2939491	0.384	0.120	0.250	0.170	4.683	3.133
	0.20	677,200	2179463	0.458	0.129	0.269	0.178	5.058	3.132
	0.30	**399,213**	**1284591**	**0.608**	**0.135**	**0.281**	**0.188**	**5.591**	**3.029**
	0.40	274,293	882796	0.726	0.150	0.311	0.204	6.109	2.985
	0.50	202,231	649670	0.826	0.150	0.308	0.208	6.074	2.929
	0.60	148,082	475235	0.927	0.158	0.325	0.209	6.264	2.886
Total	0.15	6,027,871	19203483	0.532	0.086	0.215	0.306	4.082	3.846
	0.20	4,969,883	15866691	0.607	0.087	0.217	0.342	4.263	3.996
	0.30	**3,525,459**	**11283560**	**0.754**	**0.088**	**0.223**	**0.419**	**4.600**	**4.287**
	0.40	2,642,505	8475805	0.889	0.088	0.228	0.495	4.900	4.550
	0.50	2,039,072	6554957	1.019	0.088	0.227	0.572	5.176	4.807
	0.60	1,603,235	5160253	1.146	0.088	0.229	0.649	5.417	5.068
	0.70	1,278,621	4122828	1.273	0.088	0.230	0.734	5.661	5.343

**5 x 8 x 2.5m blocks within defined majority copper wireframes above a nominal ~0.2% Cu cut-off and from surface down to – 240 mRL. *No rounding used. *Refer also to JORC Table 1.*

Sulphur Modelling

Pyrite is one of the identified products from Mt Chalmers at the mineral processing stage. Mt Chalmers is a VHMS mineral system and as such various sulphide minerals are present in the mineralised material particularly chalcopyrite ($CuFeS_2$), galena (PbS) and sphalerite (ZnS) as well as Iron Pyrite (FeS_2).

COMO Engineers have undertaken extensive laboratory scale metallurgical test-work specifically to determine pyrite content. The test results are shown in the metallurgical tables of this report. The Mt Chalmers deposit and processing facility has been designed with various flotation cells to produce copper, zinc and pyrite concentrates.

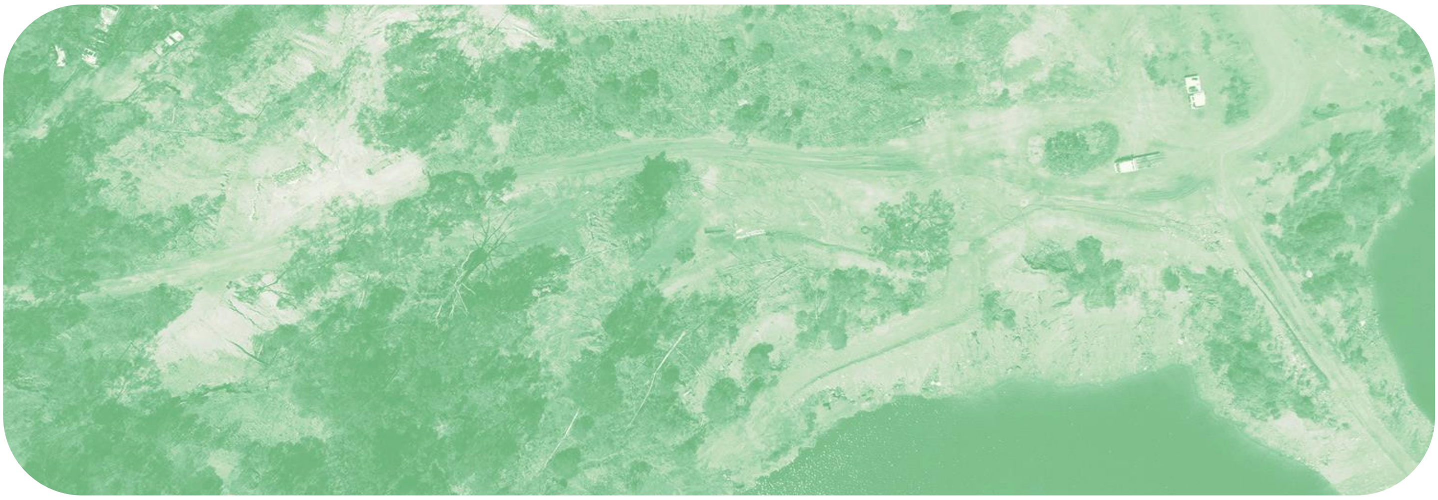
HGMC considered that the use of the available, and relatively uniformly distributed, sulphur assays could be used as a proxy tool for estimating the zones with likely high pyrite (FeS_2) content except perhaps where high grade copper is located which would likely be associated with chalcopyrite ($CuFeS_2$). Chalcopyrite remains the primary sulphide mineral. Its presence indicates the potential for economically viable copper extraction and not necessarily indicative of the amount of pyrite that could be recovered.

The total number of sulphur composites within the copper mineralisation domains is approximately 11,600 using a 0.01% sulphur lower cut-off level. The corresponding average grade of sulphur throughout the copper domains is 4.94%. Approximately 50% of all composites are above 3% sulphur level, with a corresponding average grade of 6.15% sulphur. This indicates relatively abundant pyrite throughout the Mt Chalmers deposit.

As a general observation, the highest sulphur grades tend to be towards the centre of the deposit area. The highest grades are also nearer to the topographic surface inside the historically mined open pit.

HGMC has used sulphur assay data at Mt Chalmers to assess the sulphur content for each of the main copper mineralisation domains modelled. The sulphur statistics and related spatial distribution statistics from variography for each area domain have been used directly to inform the block model interpolation of a sulphur item. The sulphur item values have been applied to each block with the previously interpolated Cu, Pb, Zn, Ag and Au grade items and are shown in Figure 12 below.

It is envisaged that, using the copper and lower level lead and zinc grades in conjunction with the sulphur grades, an estimate of the amount of pyrite might be possible. Subtracting the sulphur content estimated to be from chalcopyrite from the total sulphur content to determine the sulphur content likely attributable to pyrite. Knowing the stoichiometry of pyrite (FeS_2), where each mole of pyrite contains two moles of sulphur, one can theoretically estimate the amount of pyrite in the deposit. Some actual material / mineral content analysis based on a representative set of samples from the deposit would be required before a reliable calibrated pyrite volume and recovery estimates could be derived.



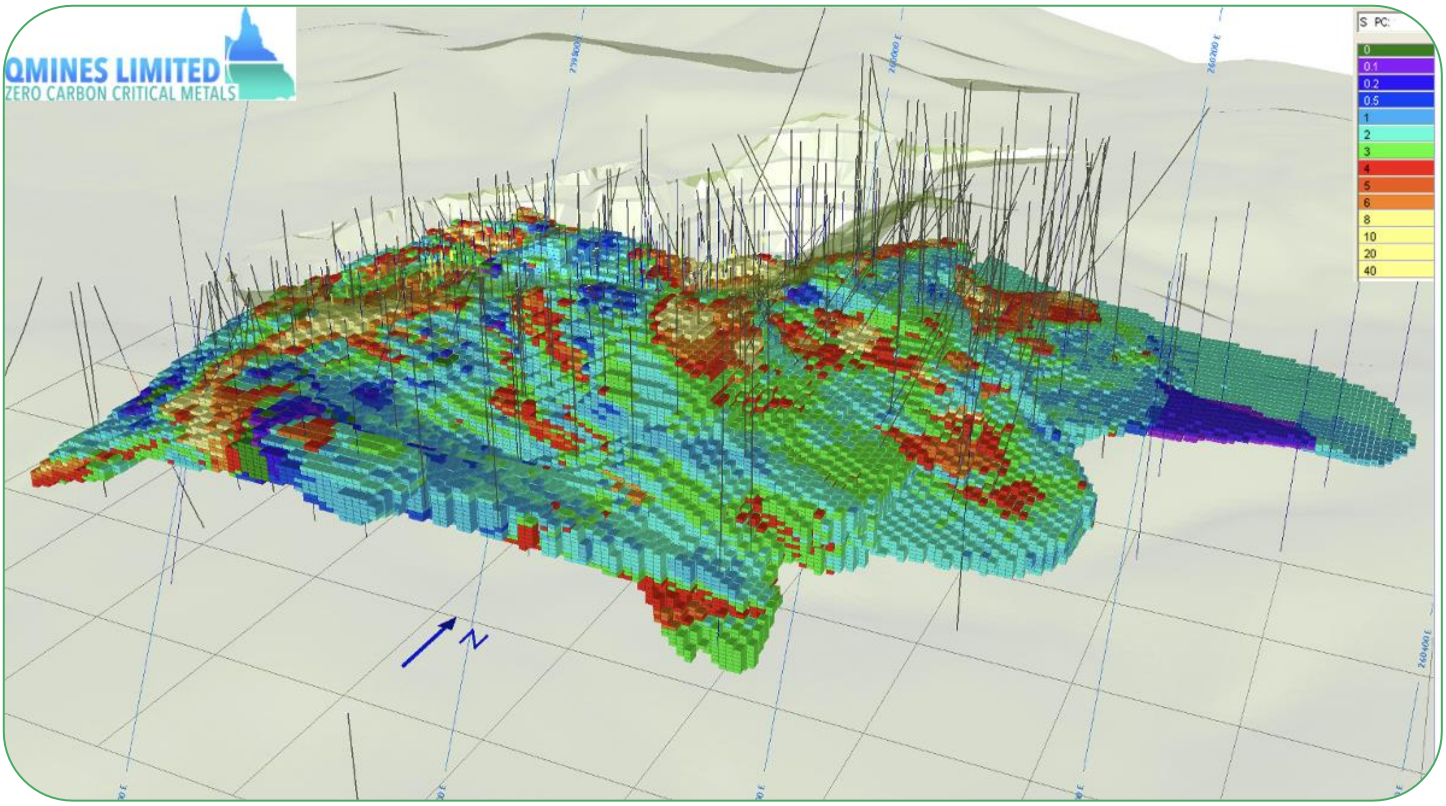


Figure 12: Isometric view of the Mt Chalmers sulphur content block model as percentage blocks with assayed drillholes.

Mineral Grades Shells

A visual description of the copper, zinc, silver and gold distribution at Mt Chalmers (from block model grade items CU1PC, PB1PC, ZN1PC, AG1 & AU1) is shown in Figure 13 to Figure 16 below. The 3D shells in each image represents mineralised material as a '3D contour' at selected representative lower grade cut-off's as noted in the figure descriptions.

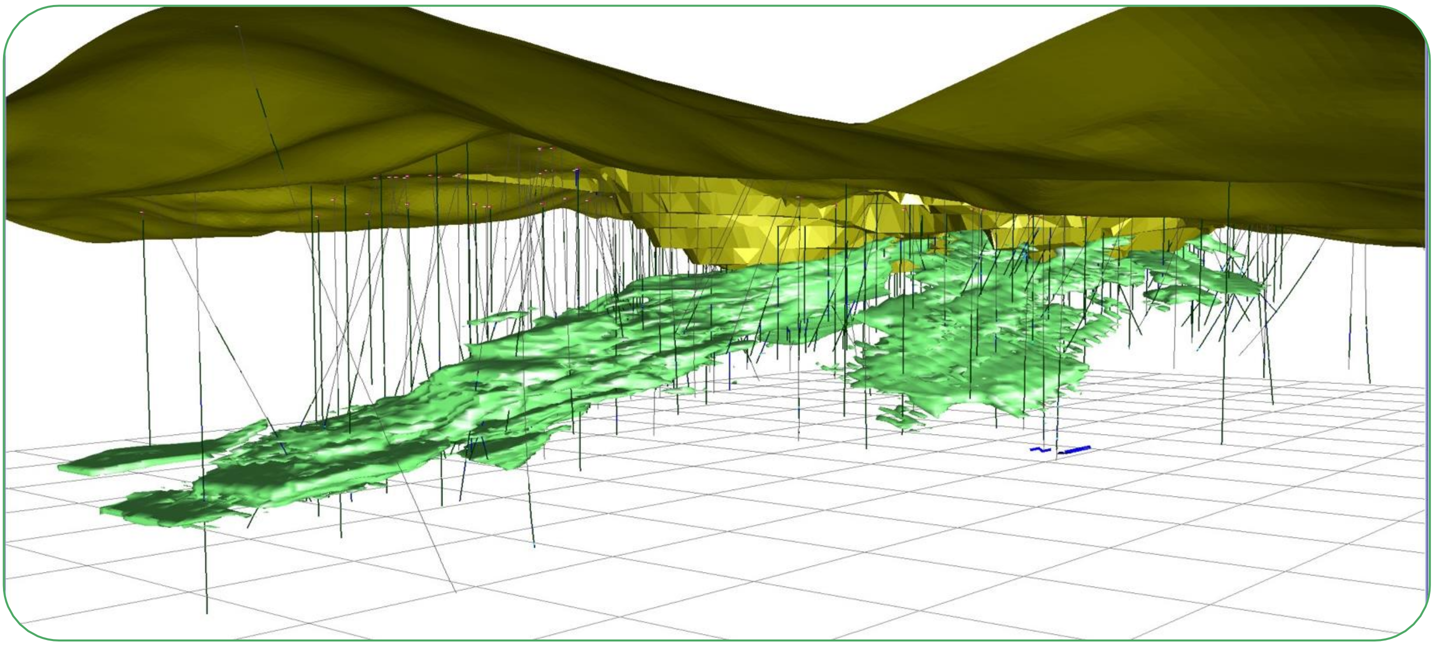


Figure 13: Copper Mineralisation Grade Shell - (Cu >0.30%) - From Block Model – Oblique View.

** View Direction: Azim=140 degrees, Dip=+0 degrees - approximately south-east.*
*** Historic Mt Chalmers Pit / Topographic Surface – (Brown).*

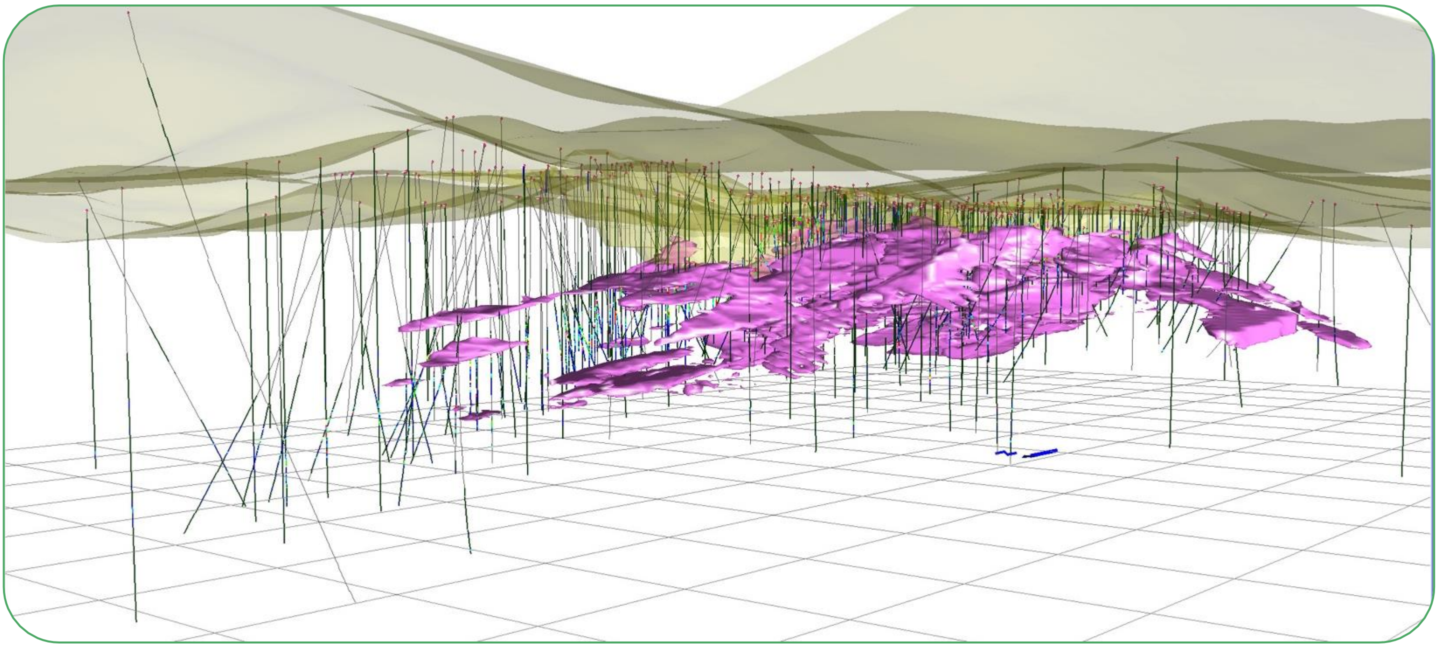


Figure 14: Zinc Mineralisation Grade Shell - (Zn >0.30%) - From Block Model – Oblique View.

** View Direction: Azim=140 degrees, Dip=+0 degrees - approximately south-east.*
*** Historic Mt. Chalmers Pit / Topographic Surface – (Brown).*

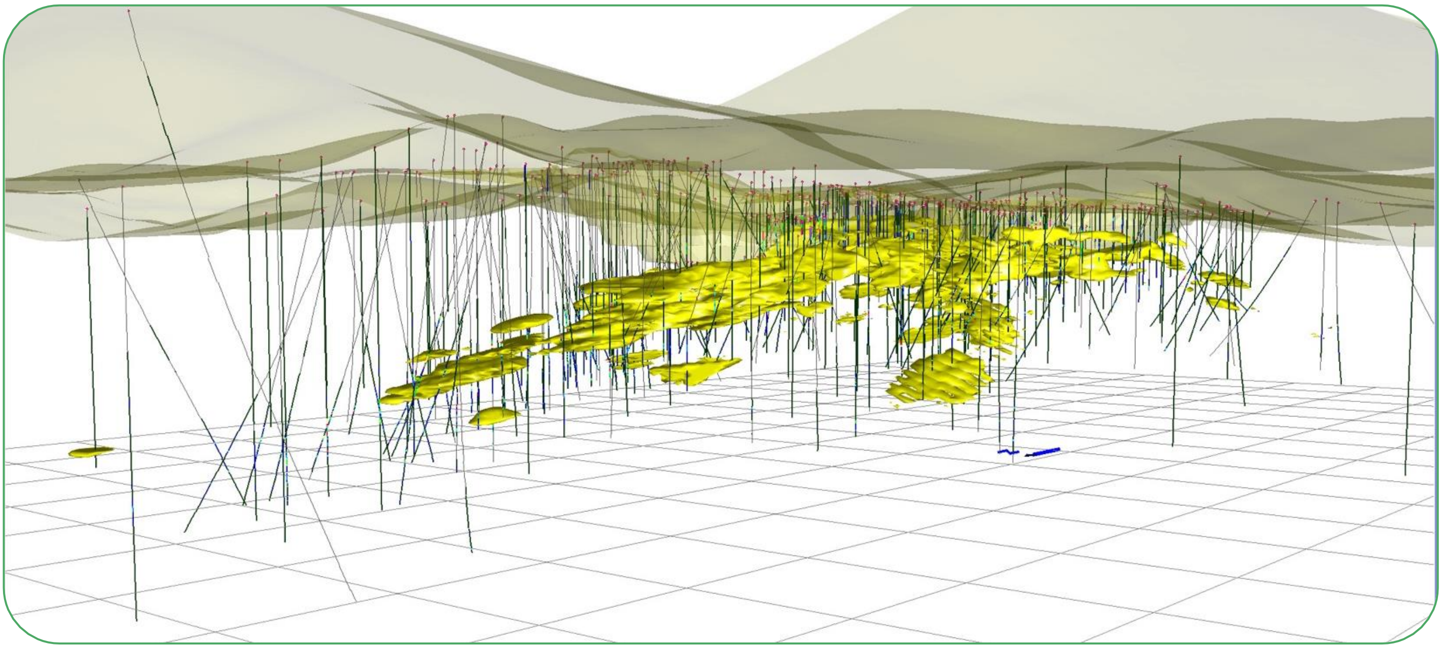


Figure 15: Gold Mineralisation Grade Shell - (Au >0.50g Au/t) - From Block Model – Oblique View.

** View Direction: Azim=140 degrees, Dip=+0 degrees - approximately south-east.*
*** Historic Mt. Chalmers Pit / Topographic Surface – (Brown).*

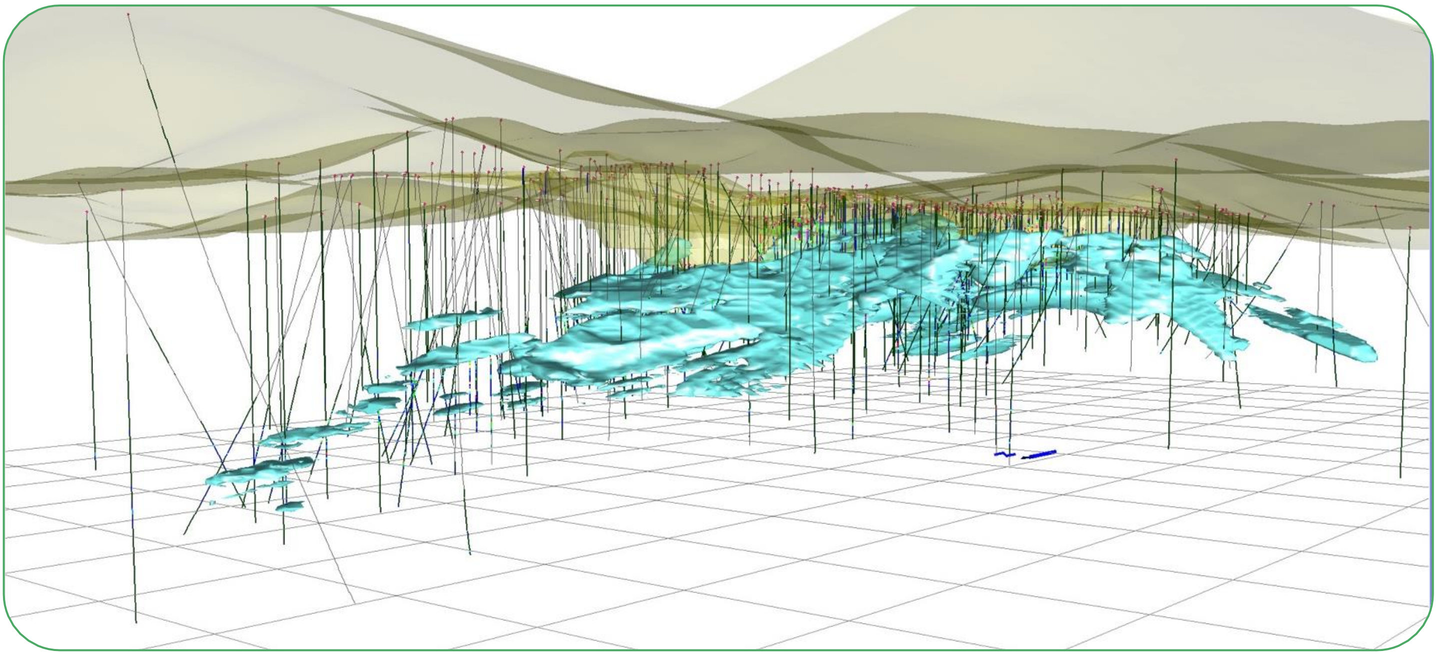


Figure 16: Silver Mineralisation Grade Shell - (Ag >5.0g Au/t) - From Block Model – Oblique View.

** View Direction: Azim=140 degrees, Dip=+0 degrees - approximately south-east.*
*** Historic Mt. Chalmers Pit / Topographic Surface – (Brown).*

Reasonable Prospects of Eventual Economic Extraction

The MRE update has been reported under conditions where the Company believes there are Reasonable Prospects of Eventual Economic Extraction (RPEEE) through standard open pit mining methods along with the recovery of economic elements (copper, gold, zinc, silver and pyrite) to saleable products through the application of industry standard processing routes producing concentrates via flotation. Resources available for open pit mining have been reported above a cut-off grade of 0.3% Cu and within 220 vertical metres of surface topography.

Costs determined from optimisation have been used to set cut-off grades. The Pre-Feasibility Study considers open pit mining by truck and shovel with processing of mined ore onsite at Mt Chalmers as well as allowances for tailings placement and waste rock disposal. The open pit cut-off grades accounts for metallurgical recovery and covers the cost associated with ore mining, processing, general and administration and royalties. No allowance for dilution or mining recovery has been made in the Mineral Resource Estimate.

Compliance Statement - JORC 2102 Mineral Resource Estimate

The Estimate of Mineral Resources for Mt Chalmers (Cu, Pb, Zn, Au, Ag and S), located in Queensland, Australia, presented in this report have been carried out in accordance with the Guidelines of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves", (The JORC Code), December 2012, prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy (AusIMM), the Australian Institute of Geoscientists (AIG) and Mineral Council of Australia (MCA).

The information in this report that relates to Mineral Resources is based on information compiled by Stephen Hyland who is a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM). Stephen Hyland has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves".

Stephen Hyland consents to the inclusion of such information in this report in the form and context in which it appears. Stephen Hyland is employed by Hyland Geological and Mining Consultants (HGMC), U1/30 Bristol Ave, Bicton WA 6157, Australia (ABN: 16 328 389 616). The relationship between HGMC and QMines is solely one of professional association between client and independent consultant.

GEOTECHNICAL STUDY

The northern pit wall at the historic Mt Chalmers mine.

Introduction

The following section is a summary of the geotechnical design for a Pre-Feasibility Study (**PFS**) for the expansion of the Mt Chalmers pit. The primary objectives of the geotechnical study are:

- Development of a geotechnical model based on the site-specific geotechnical data collected in the 2023-2024 site investigation and other provided data.
- Undertake appropriate slope stability analyses and develop slope design recommendations.
- Assess uncertainties in the geotechnical model and provide recommendations for future works.

Existing Pit Observations

The existing open pit at Mt Chalmers was inspected by PSM Geotechnical (**PSM**) in late 2023, with the following observations noted.

The existing pit is about 500m long and 250m wide and comprises two lodes (Main Lode and West Lode) separated by a backfill land bridge and filled with water.

The typical slope geometry is:

- Batter face angle: 60° – 70°
- Berm widths: 7m – 9m
- Bench height: 10m – 15m.

No signs of significant slope instability were observed.

Minor bench-scale failures were observed in areas of higher weathering/alteration, or at the location of major structures.

Geotechnical Data

A site investigation was undertaken for this PFS, which was aimed at collecting site specific geotechnical data, particularly for the tallest slopes of the proposed pit expansion. The site investigation was completed between 2023-2024 and comprised:

- Three diamond drillholes (Figure 17), which were geotechnically logged and photographed.
- Collection of oriented core structural measurements.
- Geomechanical laboratory testing.
- Collection of hydrogeological data, including observations of standing water levels and seven packer tests.

Additional information provided by QMines for the study included:

- QMines modelled geological and major fault wireframes.
- Existing topography, including interpretation of the as-built pit shape below the water level.
- Proposed pit design wireframes (v1 and v3).

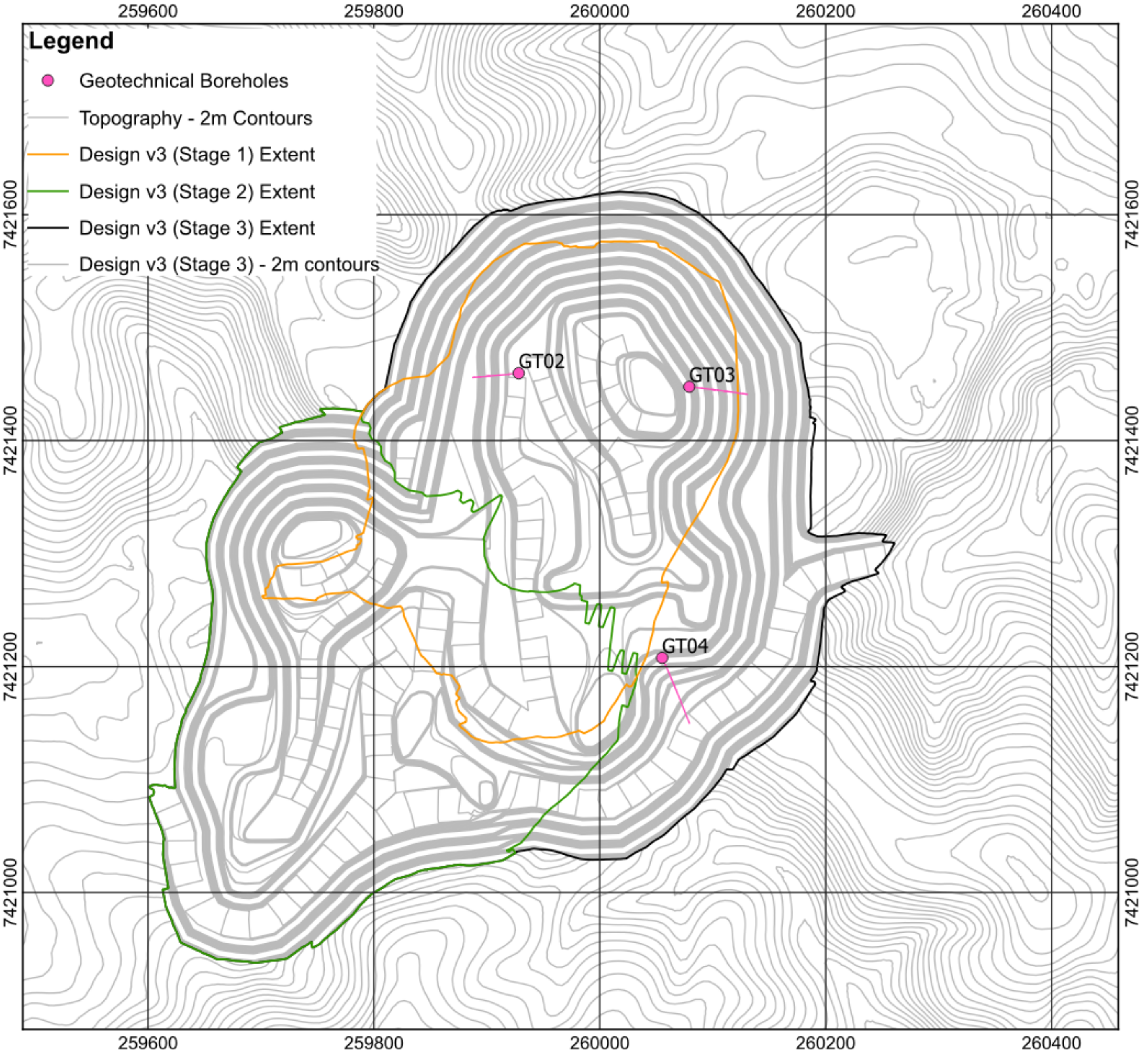


Figure 17: Proposed Mt Chalmers Pit Design v3 (Stages 1-3) and 2023-2024 Geotechnical Drillholes.

Geotechnical Model

The geotechnical model for open pit slope design comprises four key components, the geology, structure, rock mass and ground water. The Mt Chalmers mineralisation is hosted by early Permian Berserker Group rocks which comprise layered / lensed sequences of sedimentary and volcanic rocks. The modelled geological unit wireframes provided for this study do not cover the proposed pit slopes. As such, the sequences intersected by the 2023-2024 drillholes were used as the basis for the geotechnical assessment. The typical stratigraphy intersected by the 2023-2024 drillholes comprises:

- Variable fill to 8m – 15m depth.

- Extremely to moderately weathered sediments and volcanics to ~25m.
- Hanging wall comprising inter-layered andesite sills, siltstones, breccias and tuffs.
- Footwall pyroclastics at depth.

The QMines revised fault model provides the most up to date major fault framework interpretation for the Mt Chalmers deposit. The major fault model comprises four major structure wireframes. Historic pit mapping shows that there are numerous lower order faults located between these modelled structures. Several major faults were also intersected in the 2023-2024 drillholes that are not part of the 3D model.

The structural fabric of Mt Chalmers is characterised by a broad dome shape, resulting in a dominant joint fabric dipping shallow to moderately towards the north. Joint patterns are relatively diffuse in the oriented core data collected in the 2023-2024 site investigation. It is interpreted that structural patterns on either side of the Main Fault differ slightly, meaning two main structural domains are present. No drillholes were completed to the south of Main Fault during the 2023-2024 site investigation, and there is limited mapping data from this area. As could be expected, there is also a lithological control observed on the structure patterns.

Defect shear strengths were assessed from direct shear testing undertaken as part of the 2023-2024 site investigation. The following strengths were adopted for the stability assessment:

- Joints and veins with a cohesion of 0 kPa and a friction angle of 33°.
- Faults and shears with a cohesion of 0 kPa and friction angle of 18 to 20°.

The rock mass model (Table 20) divides the deposit into five rock mass units (**RMU**) based on similar weathering, rock mass characteristics and stratigraphic relationships. The rock mass units are:

1. Weathered zone (RMU 1 - WEATH);
2. Greywacke & Quartzose Tuffs (RMU 2 - GW, QTUFF);
3. Andesite (RMU 3 - AND);
4. Siltstone, Volcanic Breccia & Welded Tuffs (RMU 4 - SST, BX, WTUFF); and
5. Footwall Pyroclastics (RMU 5 - FWPY).

The groupings of rock type are appropriate for a PFS level rock mass model, particularly given the quantity of data available. Hoek-Brown rock mass shear strengths were assessed considering the geotechnical logging and laboratory testing data from the 2023-2024 site investigation. The rock mass strengths adopted for this study are presented in the table below.

Table 20: Mt Chalmers Rock Mass Units

Rock Mass Units (RMU)	Unit Weight (kN/m^3)	Generalised Hoek-Brown Inputs			
		UCS (MPa)	GSI	*mi*	D
RMU 1 (WEATH)	27	30	50	16	0.7
RMU 2 (GW, QTUFF)	27	90	60	16	0.7
RMU 3 (AND)	29	105	70	25	0.7
RMU 4 (SST, BX, WTUFF)	27	25	45	13	0.7
RMU 5 (FYPY)	27	55	40	19	0.7

No pore pressure monitoring data was available for this study. Groundwater levels were evaluated from the water levels in the existing pit (about 88 mRL), and water level observations in the 2023-2024 site investigation drillholes (about 115 mRL to 120 mRL, which is about 25m below ground level).

The packer test results were interpreted for this study to characterise the hydraulic characteristics of the rock mass and structures. Overall, the tests indicate:

- The general rock mass is of relatively low permeability, and groundwater flow is likely controlled by fracture flow.

- Increased potential inflows can be expected around major structure zones, the test in borehole GT04 at ~85-90m depth identified higher lugeon values proximal to an interpreted major structure.
- Potential major structures expressing as zones of increased alteration, brecciation and clay (such as those in GT02) may also present barriers to flow rather than pathways due to high clay content and associated reduced permeability.

Slope Stability Assessment

Slope stability analyses was also undertaken comprising:

- Deterministic assessment of the location and orientation of major structure zones relative to the pit slopes and possible consequences for slope stability.
- Kinematic and statistical analysis of structural data to assess appropriate bench face and inter-ramp angles for structurally controlled slopes.
- 2D limit equilibrium slope stability analyses as a check of the design in both weathered material and the overall slope.

From our understanding of the ground conditions and slope stability analyses, the critical failure mechanisms at Mt Chalmers include:

- Planar sliding due to unfavourably oriented defects. This is the highest risk in the southern slopes due to the pervasive, north dipping fabric.
- Wedge failure due to intersection of two joint sets in west facing slopes.
- Planar sliding along discrete unfavourably oriented major structures. Note that this is sensitive to the position of the major structure relative to the slope face.

North facing and northwest facing slopes will require flatter slope geometries to mitigate the risk of undercutting by defects dipping towards the northwest. In addition, the overall slope stability is sensitive to pore pressure assumptions and the presence of lower quality Rock Mass Units (**RMU's**) within the lower slope (RMU's 4 and 5)

Slope Design Recommendations

The recommended slope design parameters were developed considering the geotechnical model, failure mechanisms, slope stability analyses, slope heights and engineering experience. The design has been developed for four slope design sectors, which are shown in Figure 18. The design recommendations for each sector are listed in Table 21.

Table 21: Mt Chalmers Slope Design Parameters

Slope Design Sector	Depth Below Surface (m)	Slope Aspect Range (°)[2]	Batter Face Angle (°)	Berm Width (m)	Bench Height (m)	Inter-ramp Angle
A	0 - 10	All	55	7	10	-
B	> 10	070 - 219	70 (60)[3]	7	20	55 (47)[4]
C		220 – 309[5]	60	7	20	47
D		310 - 069	60	7	20	44

[2] Slope aspect refers to the direction the slope is facing. i.e. an east facing slope has a slope aspect of 090°.
[3] 70° batter face angle and 55° inter-ramp angle assumes installation of horizontal drain holes (at least 25m long) at 30 mRL, 10 mRL and -10 mRL. If no drain holes are installed, the recommended batter face angle is 60° resulting in an inter-ramp angle of 47°.
[4] 70° batter face angle and 55° inter-ramp angle assumes installation of horizontal drain holes (at least 25m long) at 30 mRL, 10 mRL and -10 mRL. If no drain holes are installed, the recommended batter face angle is 60° resulting in an inter-ramp angle of 47°.
[5] Slope aspects of 220° to 260° in Sector C have an elevated risk of planar instability due to an adverse joint set.

The following comments and recommendations are also provided:

1. Where fill is present it should be pre-stripped or cut to a batter face of 45°.
2. Design Sector A is defined as the top 10m of in-situ rock. For illustrative purposes, this has been represented as 10m below the pre-mining topographic surface in Figure 18.
3. Bench geometries were formulated primarily with consideration to kinematic and statistical analysis results and operational risk management such as adequate berm width / catch capacity for rock fall.
4. Inter-ramp and overall slope geometries were formulated with consideration to both the statistical assessment of structures and the limit equilibrium analysis results.
5. Stability analyses for Design Sector B were sensitive to elevated pore pressures. Two options are provided that meet the acceptance criteria:
    a. Flattening the overall slope by reducing batter face angles to 60°.
    b. Installation of 50m long horizontal drain holes at 30 mRL, 10 mRL, and -10 mRL.
6. Reduced batter face angles (60°) are proposed for Design Sector C and D due to the presence of an adversely oriented structure set. These sectors (C and D) have an elevated rock fall risk due to an adverse structure set dipping towards the north. It is recommended that berm widths should be reviewed as new information becomes available in future studies to ensure that there is adequate catch capacity to mitigate operational rockfall risk in these sectors.
7. Slope aspects between 220° and 260° have an increased risk of planar sliding due to an adverse structure set (indicated by an asterisk in Figure 18). Steepening of these slopes is not recommended based on available structural data.
8. Bull-nose geometries can have a higher risk of instability where adverse structure are present compared to a straight or concave curved slope. It is recommended that bull-nose type geometries are removed from pit designs or the design flattened on the nose. Where this cannot be economically achieved additional slope monitoring will be required in these areas to operationally manage the risk.

The slope designs were developed on the assumption that good pit slope management processes would be undertaken, including:

- Good wall control blasting practices are implemented.
- Scaling is undertaken immediately after bench excavation.
- Pit slope structural mapping should be undertaken regularly and used for ongoing verification of the geotechnical model and design assumptions. This could be from traverse mapping or photogrammetry.
- Slope displacement monitoring be undertaken, including regular visual and drone inspections and prism installation at appropriate spacing on all benches.

It is recommended that Vibrating Wire Piezometer (**VWP's**) are installed behind the main pit slopes to monitor pore pressures as mining progresses and to measure the effectiveness of horizontal drain installations.

Appropriate surface water management is undertaken to minimise groundwater recharge and reduce erosion.

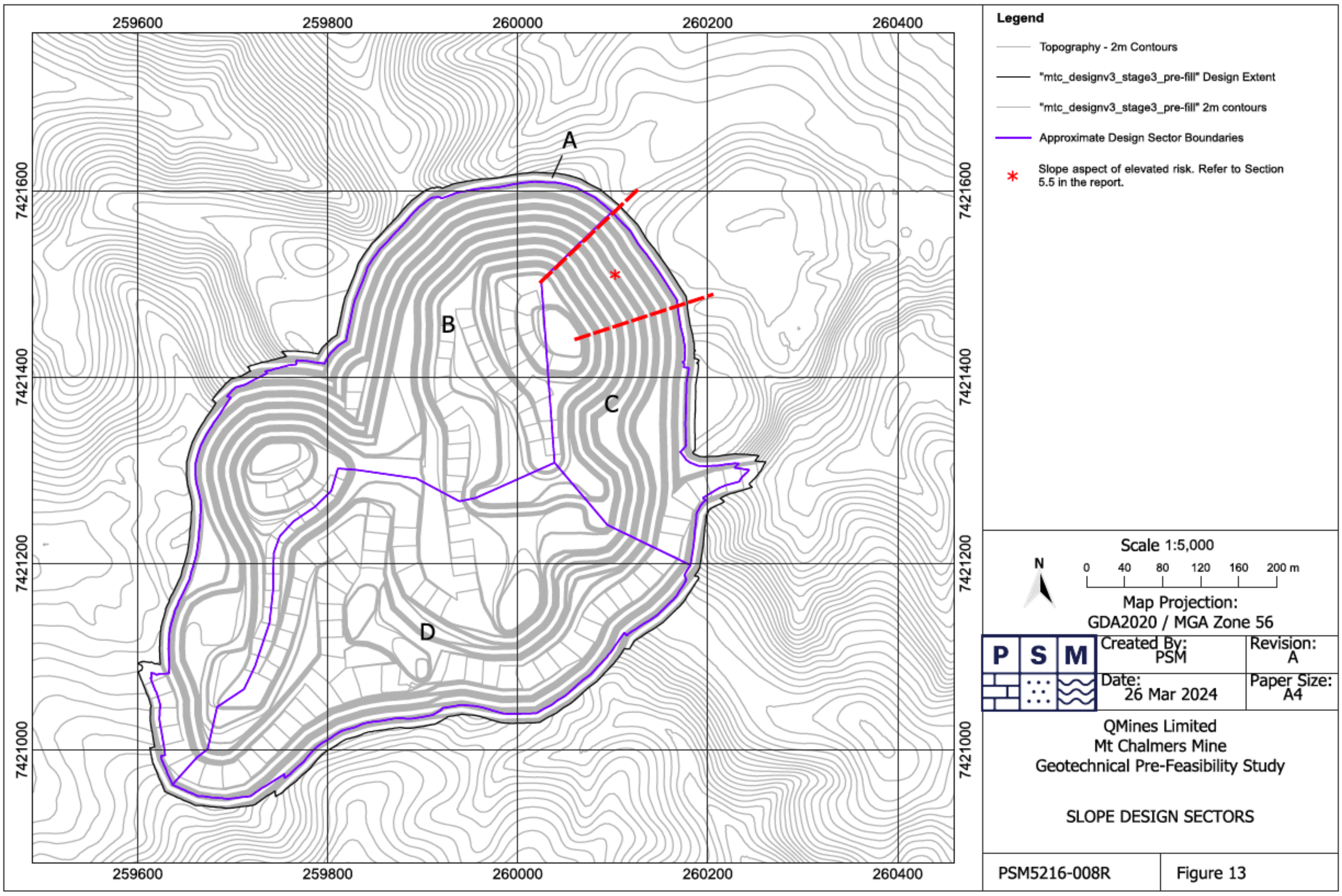


Figure 18: Mt Chalmers pit slope design sectors.

Uncertainty & Future Work

The assessments and recommendations provided by PSM Geotechnical are considered appropriate for a Pre-Feasibility level study and considering the available data. Uncertainties and recommendations for future work to improve model confidence have been discussed throughout the final report and are summarised in Table 22. The recommendations are primarily aimed at addressing the uncertainties and improving confidence in the geotechnical model and slope design.

Table 22: Summary of geotechnical uncertainties and recommended work.

Model	Uncertainty / Confidence	Recommended Future Work
Geology	Distribution in various lithologies within the proposed pit walls.	3D modelling of lithological units.
Rock Mass Model	Distribution away from geotechnical drillholes.	Refine with updates to the geological model.
	Distribution of talc and other adverse alteration such as sericite.	3D modelling of extents using mapping, resource drilling and geotechnical drillholes. Development of shear strengths for these units and slope stability analyses considering these.
	Uncertainty in the rock mass strengths of RMU4 and RMU5.	Increased geomechanical testing, with a focus on these units.
	Intact strength anisotropy.	Additional geomechanical testing (laboratory or point load) to assess anisotropy in units such as the siltstones and tuffs.
Structure Model	Major structure orientations and impact of on slope stability.	Additional data collection and 3D modelling of identified major structure zones.
	Improve model confidence.	Increased structural data quantity, particularly in current areas of low density (e.g. south of Main Fault). This should include collection of televiewer data to increase understanding of the orientation of faults and shears.
	Structural domains.	Further refinement of structural domains with any additional data collected. This should consider both spatial and lithological controls. With additional data available the statistical assessment of structures should be undertaken on a domain basis.
Ground Water	Pore pressures in pit walls.	Installation of vibrating wire piezometers proximal to the proposed pit walls to allow assessment of pore pressures and provide monitoring during mining. Review pore pressure assumptions used in stability analyses once this data becomes available. With additional data collection, appropriate horizontal drain hole lengths and spacing should be reviewed.

ORE RESERVE ESTIMATE

The Mt Chalmers open pit has been designed as a three-stage mining operation with each stage of the mine schedule delivering between 2.8Mt and 3.9Mt to the proposed process plant located at site. The Mt Chalmers open pit designed by Minecomp factors Measured, Indicated and Inferred material in the design parameters for the production target (Table 23).

Table 23: Mt Chalmers optimised pit shell 15 open pit design including Measured, Indicated and Inferred material.

Mt Chalmers Open Pit Design	Production Target - Mt Chalmers Project						
	Volume	Tonnes	Cu Grade	Zn Grade	Au Grade	Ag Grade	S Grade
	(BCM)	(t)	(%)	(%)	(g/t)	(g/t)	(%)
Stage 1	1,020,318	3,364,715	0.91	0.24	0.76	6.3	5.3
Stage 2	586,630	1,929,355	0.45	0.52	0.48	7.0	4.6
Stage 3	1,615,102	5,115,931	0.50	0.25	0.27	4.3	3.6
Total	**3,222,050**	**10,410,001**	**0.65**	**0.28**	**0.49**	**5.4**	**4.3**

Cautionary Statement

The production target (*Table 23*) and forecast financial information referred to in this announcement comprise Measured and Indicated Mineral Resources (approximately 91%) and Inferred Mineral Resources (approximately 9%). There is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be achieved.

Table 24: Ore Reserve Estimate converts only Measured and Indicated material, JORC 2012.

Mt Chalmers Open Pit Design	Ore Reserve Estimate							
	Ore Volume	Ore Tonnes	Waste Volume	Cu Grade	Zn Grade	Au Grade	Ag Grade	S Grade
	(BCM)	(t)	(BCM)	(%)	(%)	(g/t)	(g/t)	(%)
Stage 1	961,938	3,162,457	5,919,793	0.91	0.24	0.76	6.3	5.3
Stage 2	534,062	1,755,404	3,669,324	0.45	0.52	0.48	7.0	4.6
Stage 3	1,471,712	4,655,128	9,696,683	0.50	0.25	0.29	4.3	3.6
Total:	**2,967,711**	**9,572,990**	**19,285,800**	**0.63**	**0.29**	**0.48**	**5.5**	**4.3**

On application of relevant modifying factors, an Ore Reserve was estimated (Table 24 and Figure 23) by converting only Measured and Indicated material from the Mineral Resource Estimate (**MRE**) to the Proved and Probable category as required by the JORC 2012 Mineral Code for reporting.

Table 25: Mt Chalmers JORC 2012 Ore Reserve Estimate, Proved and Probable category contained material and grades.

Reserve Category	Tonnes (Mt)	Cu (t)	Cu Grade (%)	Zn (t)	Zn Grade (%)	Au (oz)	Au Grade (g/t)	Ag (oz)	Ag Grade (g/t)	S (t)	S Grade (%)
Proved	5.1	37,000	0.72	12,700	0.25	95,000	0.58	763,000	4.7	246,000	4.8
Probable	4.5	25,600	0.57	13,000	0.29	52,600	0.37	790,500	5.5	172,300	3.6
Total:	**9.6**	**62,600**	**0.65**	**25,700**	**0.27**	**147,600**	**0.48**	**1,553,500**	**5.2**	**418,300**	**4.3**

**Rounding errors may occur.*

Based on the open pit design converting Measured and Indicated material, the total Mt Chalmers Ore Reserve Estimate is 9.1 million tonnes of which 5.03 million tonne falls in the Proved category and 4.07 million tonne in the Probable category as shown in Table 25. The total contained metal from the Mt Chalmers three stage pit design is 61,000t Cu @ 0.65%, 145,000oz Au @ 0.49g/t, 24,000t Zn @ 0.28%, 1.5Moz Ag @ 5.4g/t and 404,000t S @ 4.4%.

The Mt Chalmers Ore Reserve has been calculated by Minecomp using a diluted, payable copper equivalent (**CuEq**) grade of 0.32% CuEq (note the MRE is reported at a copper cut-off grade of 0.30% Cu). The modifying effect of applying a CuEq grade draws material from the optimised pit shell grading below the MRE reporting cut-off grade of 0.30% and may form part of the Ore Reserve due to payable calculation for gold, zinc, silver and sulphur.

Economic inputs have been sourced from independent sources as applicable or generated from database information relating to the relevant area of discipline and are considered appropriate for a PFS level study. The Ore Reserve Estimate is based on a financial model that has been prepared to a PFS level of accuracy. No sensitivities other than metal prices have been conducted at this stage and are contained in the PFS.

Material Assumptions - Pit Optimisation & Pit Designs

Open pit optimisations were carried out using modifying factors and estimated mining, processing and administration costs. Price assumptions for copper, gold, zinc, silver and pyrite (S/Fe) were selected as the base case for the project and based on consensus economic forecasting from a range of global financial institutions and are presented in Table 26, "Material Assumptions". The material assumptions for the project arise from economic analysis conducted in the PFS which has been reviewed and updated where appropriate. The relevant material assumptions and economic parameters have been applied in the Mt Chalmers open pit optimisation study and the Ore Reserve Estimate. The Mt Chalmers isometric pit shell is shown in Figure 19 and assumptions are presented in Table 26. The MRE grade shell block model used to calculate the base, precious metal and sulphur content can be seen in isometric view in Figure 19.

Optimised pit shell 15 was selected for the open pit design used in the estimation of the Production Target and the Ore Reserve Estimate based on improved grades across the base and precious metals and that these grades are more representative of the composite material grades delivered to ALS laboratories during the metallurgical testwork programs undertaken by COMO Engineers and reported in this PFS.

Revenues were adjusted for metallurgical recoveries, concentrate payabilities and royalties as applicable. The pit optimisation was then run by Minecomp using these assumptions. The optimum pit shell was selected for the final open pit design limit and used as the basis for Life of Mine (**LOM**) design. Final pit designs were determined by analysing multiple cutback options to execute the best value in terms of strip ratio, cost estimate, tonnes and grade from the optimum pit shell and final concentrates produced by the process plant using mass pull estimates from the metallurgical study and the free cashflow. The result from the Mt Chalmers optimisation resulted in a three-stage cut back open pit design as seen in Figure 20-Figure 22.

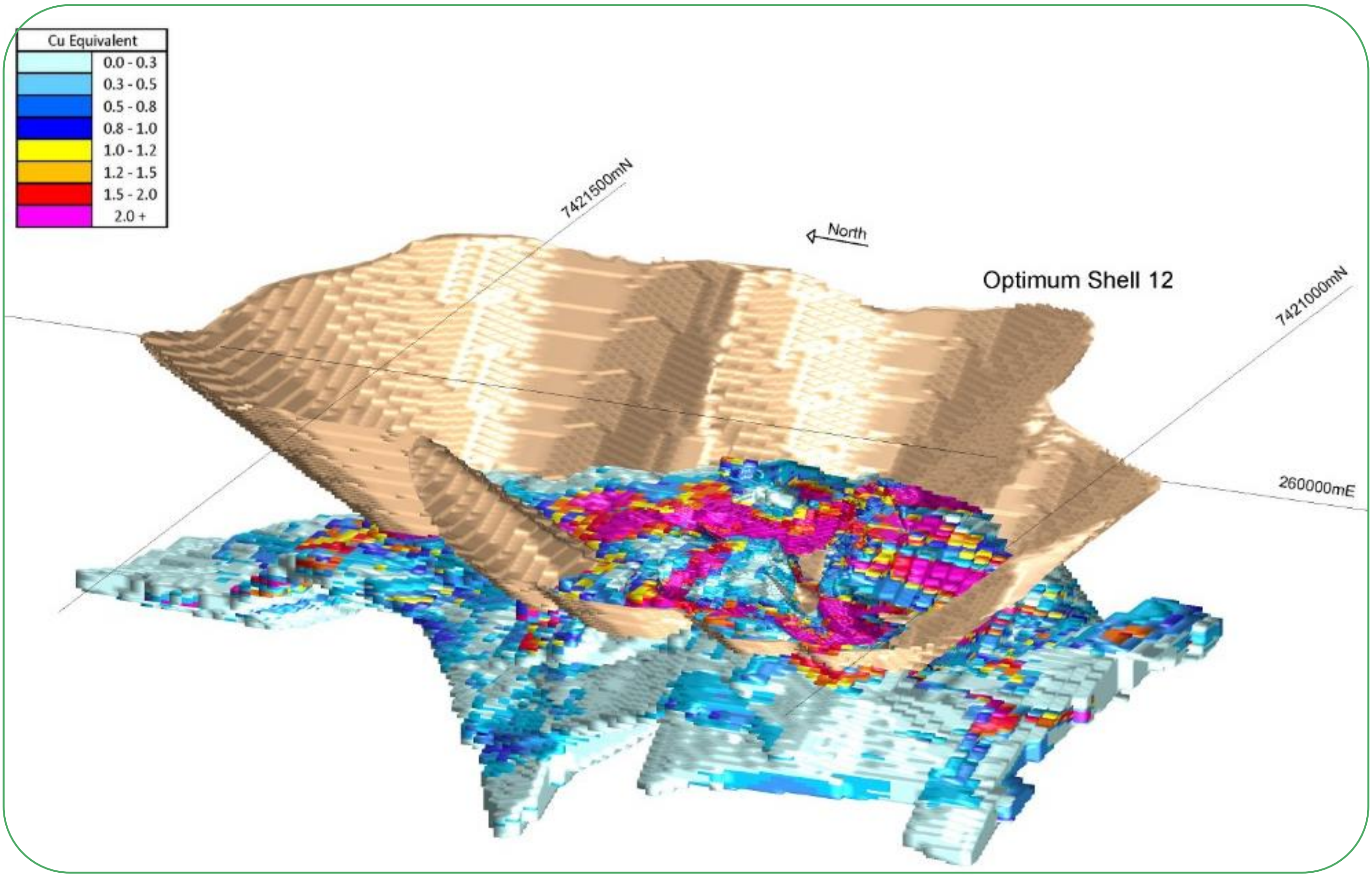


Figure 19: Isometric view of the Mt Chalmers optimised pit shell 15 with block grades.

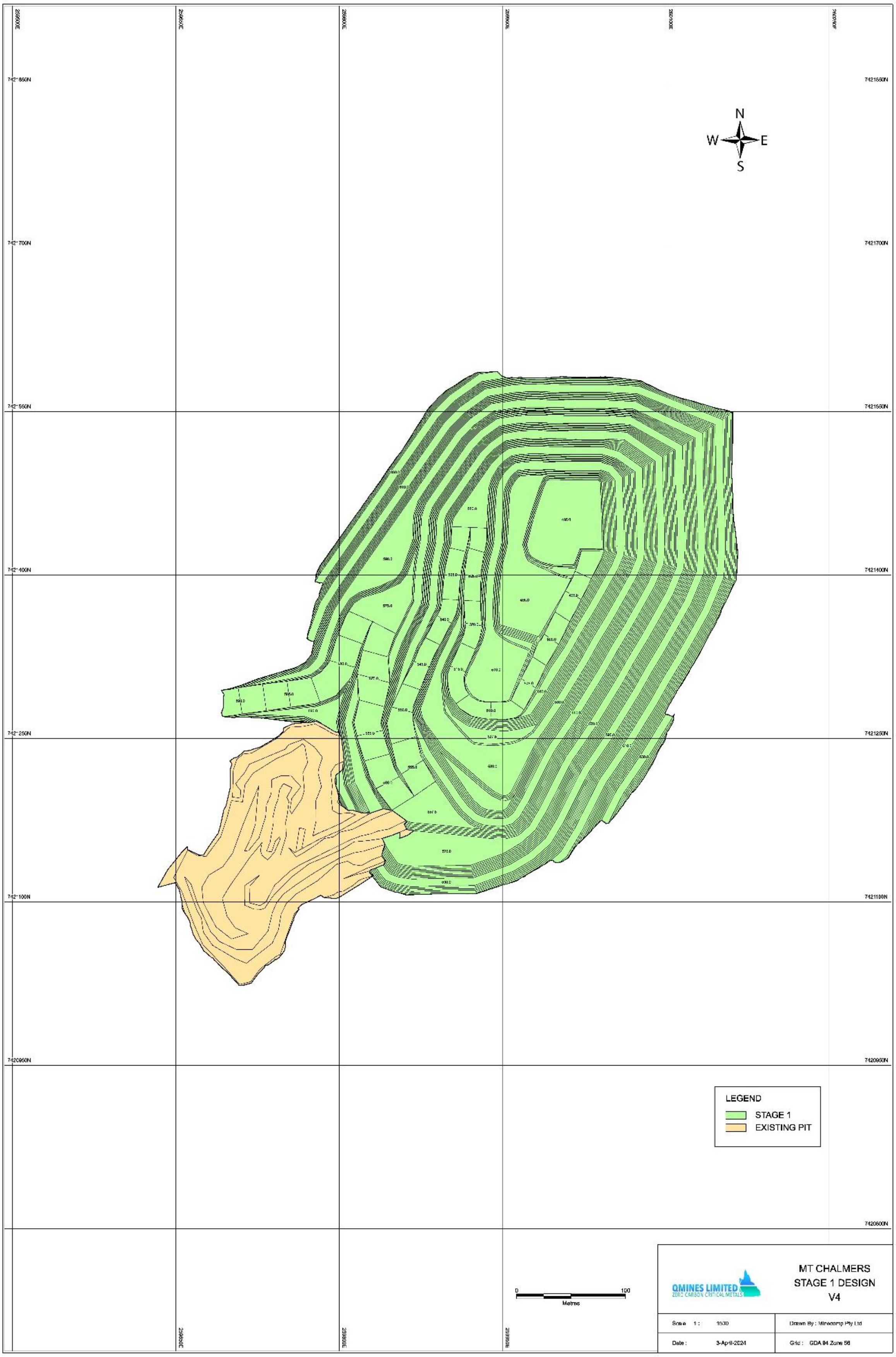


Figure 20: Stage one open pit design for the Mt Chalmers ore reserve estimate.

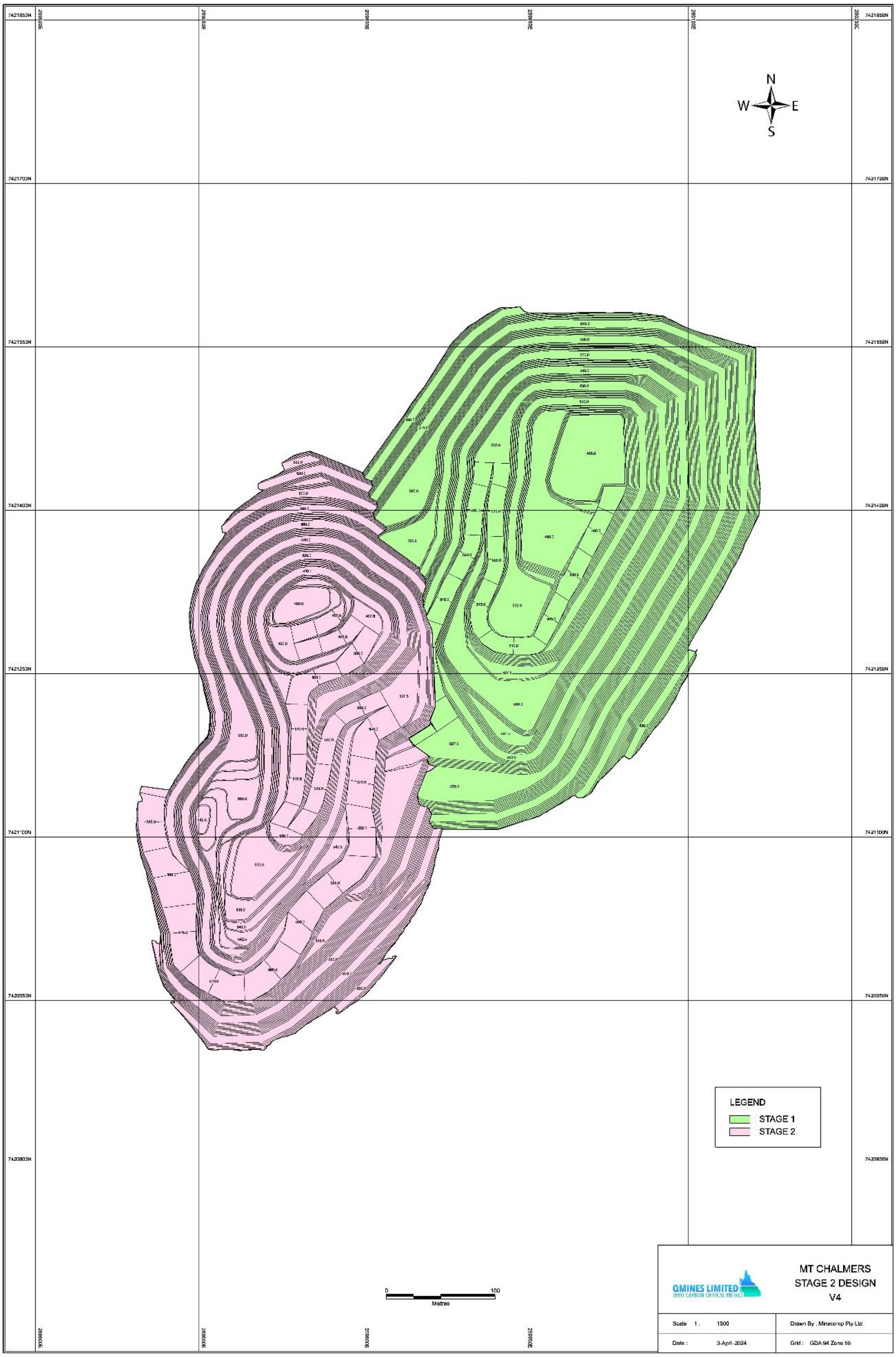


Figure 21: Stage two open pit design for the Mt Chalmers ore reserve estimate.

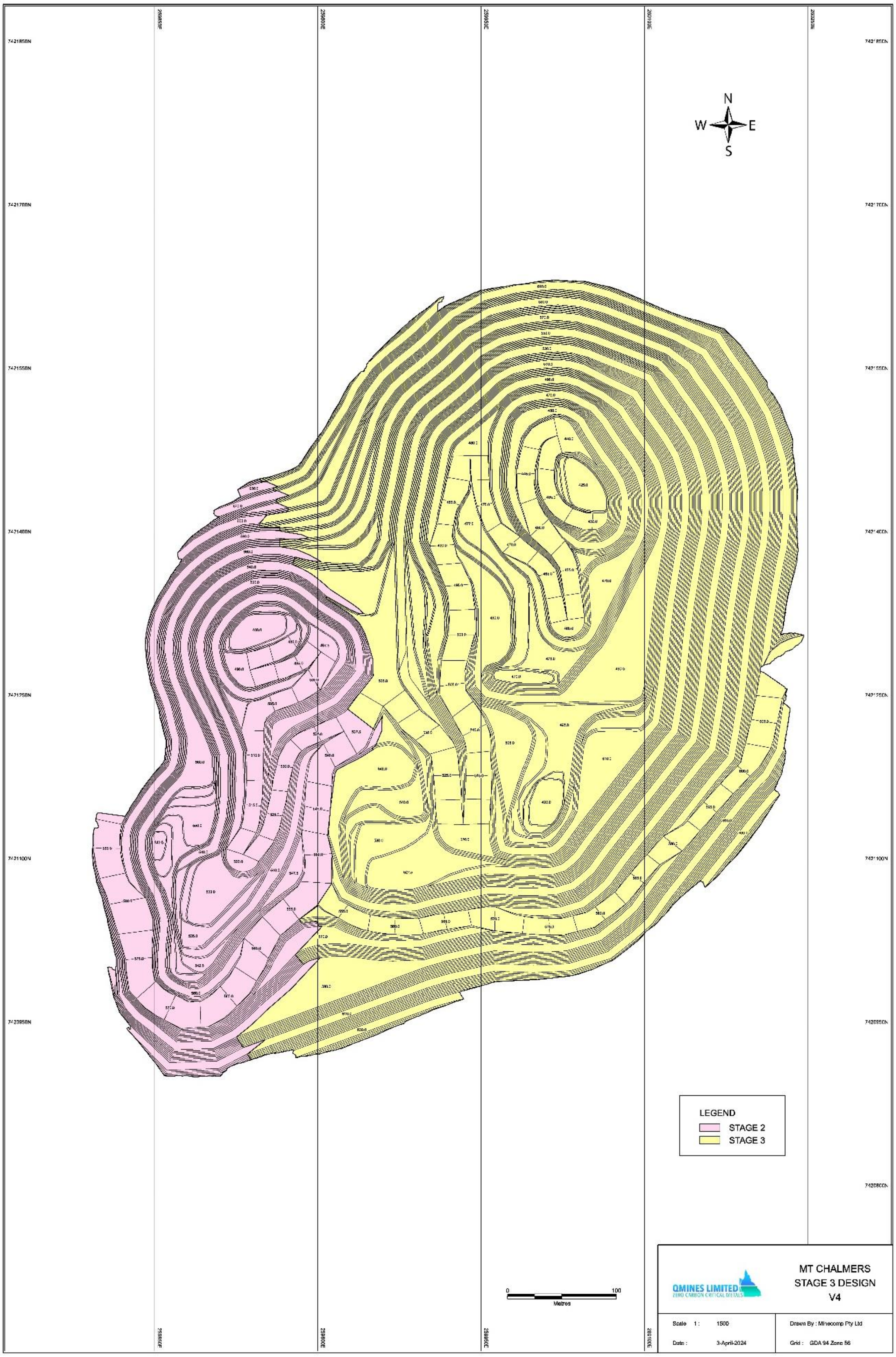


Figure 22: Stage three open pit design for the Mt Chalmers ore reserve estimate.

Table 26: Material Assumptions for the Mt Chalmers Ore Reserve Estimate, March 2024.

Production Costs	
Mining Ore (BCM)	$11.95
Mining Waste (BCM)	$7.37
Blasting (BCM)	Oxide $1.60, Transition $3.00, Fresh $4.20
Grade Control (t Ore)	$1.40
Processing (t Ore)	$34.40
Concentrate Transport (t Con)	$14.70
General & Administration (t Ore)	$4.50
Dewatering (BCM)	$0.25
Rehabilitation (BCM Waste)	$0.20
Mining Extras (BCM)	$0.35
State Royalty	Cu 5.0%, Zn 5.0%, Au 5.0%, Ag 5.0%, Py 5.0%
Processing Recoveries	
Copper	96.4%
Gold	81.1%
Silver	88.5%
Zinc	91.7%
Sulphur	62.0%
Mill Head Grade	
Copper	0.63%
Gold	0.48g/t
Silver	5.40g/t
Zinc	0.29%
Sulphur	4.30%
Optimisation Metals Price Assumptions	
Copper ($/t)	$9,210
Gold ($/oz)	$2,200
Silver ($/oz)	$25
Zinc ($/t)	$2,722
Pyrite ($/t)	$200
Exchange Rate ($USD-$AUD)	$0.63
Pit Depth (m)	220m
Volume Ore Mined (BCM)	2.96m BCM
Volume Ore Mined (t)	9.6Mt
Volume Waste Mined (BCM)	19.3m BCM
Stripping Ratio	6.5:1

Dilution & Mining Recovery

The grades and metal stated in the Ore Reserves Estimate includes dilution and allowances for losses which may occur when the material is mined or extracted. These factors are defined by this study at a PFS level and are considered appropriate.

The Ore Reserve is derived entirely from Measured and Indicated Mineral Resources. Inferred Resource was assigned 0% grade and therefore assumed to be waste. Mining modifying factors have been incorporated in the Ore Reserve Estimate at a rate of 5% mining dilution and 95% mining recovery.

Criteria Used or Classification

The Mineral Resource Estimate on which the Ore Reserve Estimate is based was prepared previously for the Company by independent resource geologists HGMC and published by the Company on the 22nd November 2022 and further updated in this report.

Mining Method

The Mt Chalmers deposit is proposed to be mined as a three-stage open pit using conventional mining methods. The final pit is designed to a nominal vertical depth of 220m and incorporates 60-70° batter angles and 7m berm widths. Ramps are either 15m wide (single lane) or 24m wide (double lane) and have a gradient of 1 in 9. The PFS proposes a conventional drill and blast, load and haul open pit mining operation to supply ore to a processing plant with an annual throughput of 1 million tonnes per annum.

Each of the three stages of the open pit at Mt Chalmers will deliver between 2.8Mt and 3.9Mt to the proposed process plant located at site.

Pit Design Parameters

The open pit design is based on the optimised pit shell and incorporates the geotechnical parameters (Table 27) determined in this PFS and proposed mining equipment.

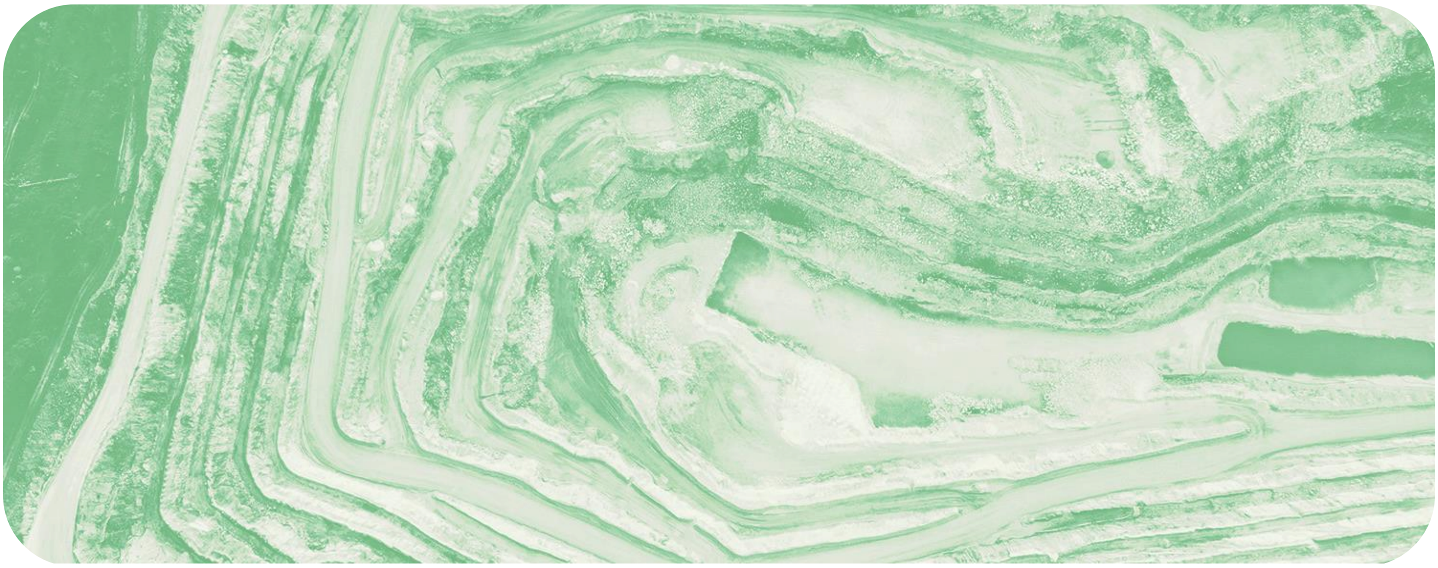
Table 27: Pit design parameters.

Pit Design Parameters	Value
Bench Height (m)	20 metres based on geotechnical guidelines.
Berm Width (7)	7 metres based on geotechnical guidelines.
Batter Angle (degree)	60-70 degrees based on geotechnical guidelines.
Double Lane Ramp Width	24 metres.
Single Lane Ramp Width	12 metres.
Ramp Gradient	1 in 9.
Goodbye Cut	Maximum 5 metres.

Ore Reserve Cut-Off Grade

The cut-off grade was calculated as part of the mine optimisation analysis used to estimate the Ore Reserve. The cut-off grade used for the reporting of the Ore Reserve Estimate was a diluted, payable copper equivalent (**CuEq**) grade of 0.35% CuEq. This figure was derived from metal prices, metallurgical recoveries, smelter payabilities, and Queensland state government royalties.

The Mineral Resources Estimate was converted to an Ore Reserves Estimate by the application of Whittle optimisation software to generate a series of nested pit shells. An optimum shell was then selected which not only achieved an attractive rate of return but also the desired process plant throughput and design parameters derived by COMO through comprehensive metallurgical testwork.



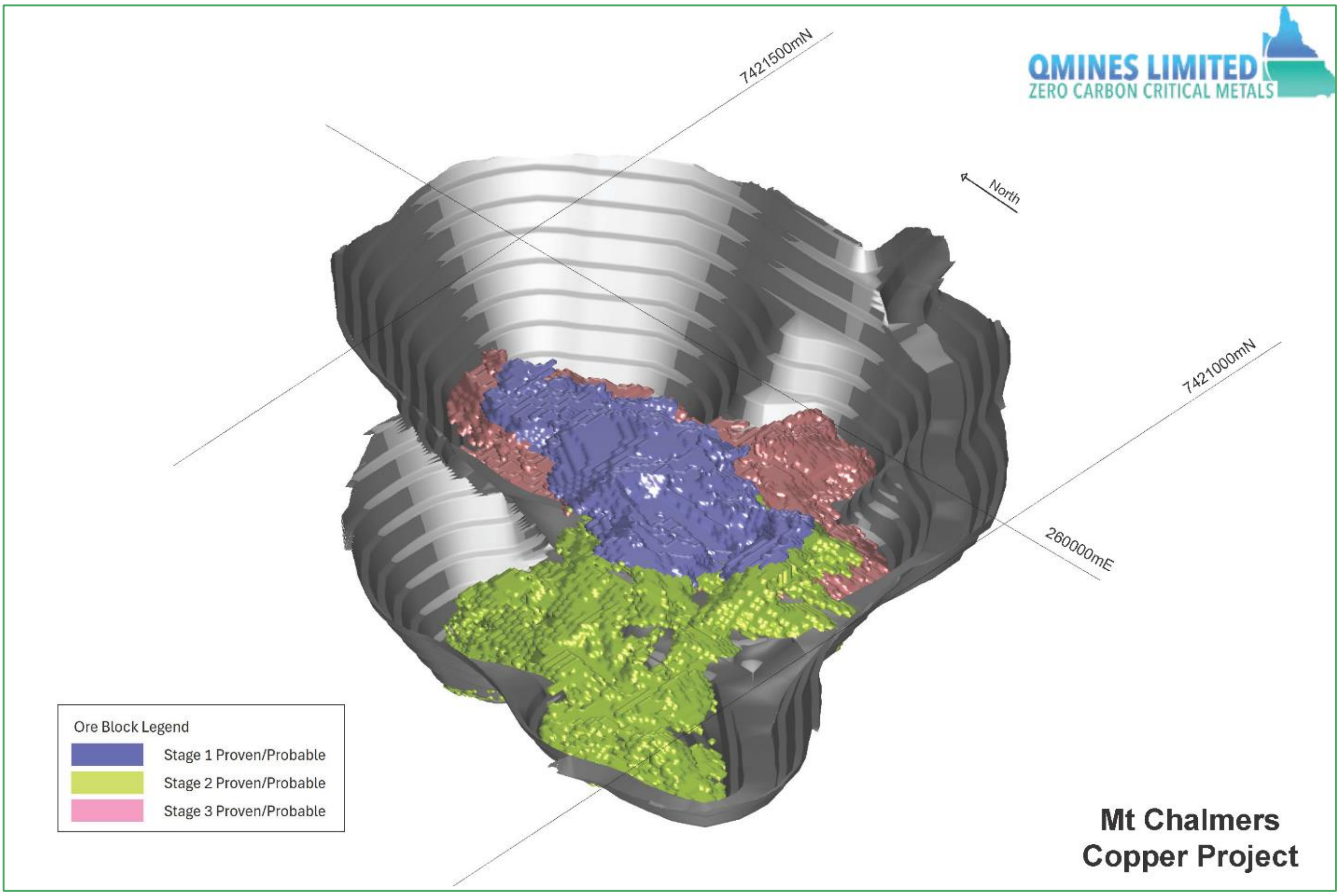


Figure 23: Isometric view of the three staged open pit at Mt Chalmers.

Compliance Statement - JORC 2102 Ore Reserve Estimate

The Ore Reserve Estimate for Mt Chalmers (Cu, Pb, Zn, Au, Ag and S) project, located in Queensland, Australia presented in this report have been carried out in accordance with the Guidelines of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves", (The JORC Code), December 2012, prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy (AusIMM), the Australian Institute of Geoscientists (AIG) and Mineral Council of Australia (MCA).

The Information in this Report that relates to the Mt Chalmers Ore Reserve Estimate and is based on information compiled by Mr Gary McCrae, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr McCrae is a full-time employee of Minecomp Pty Ltd. Mr McCrae has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

Mr McCrae consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

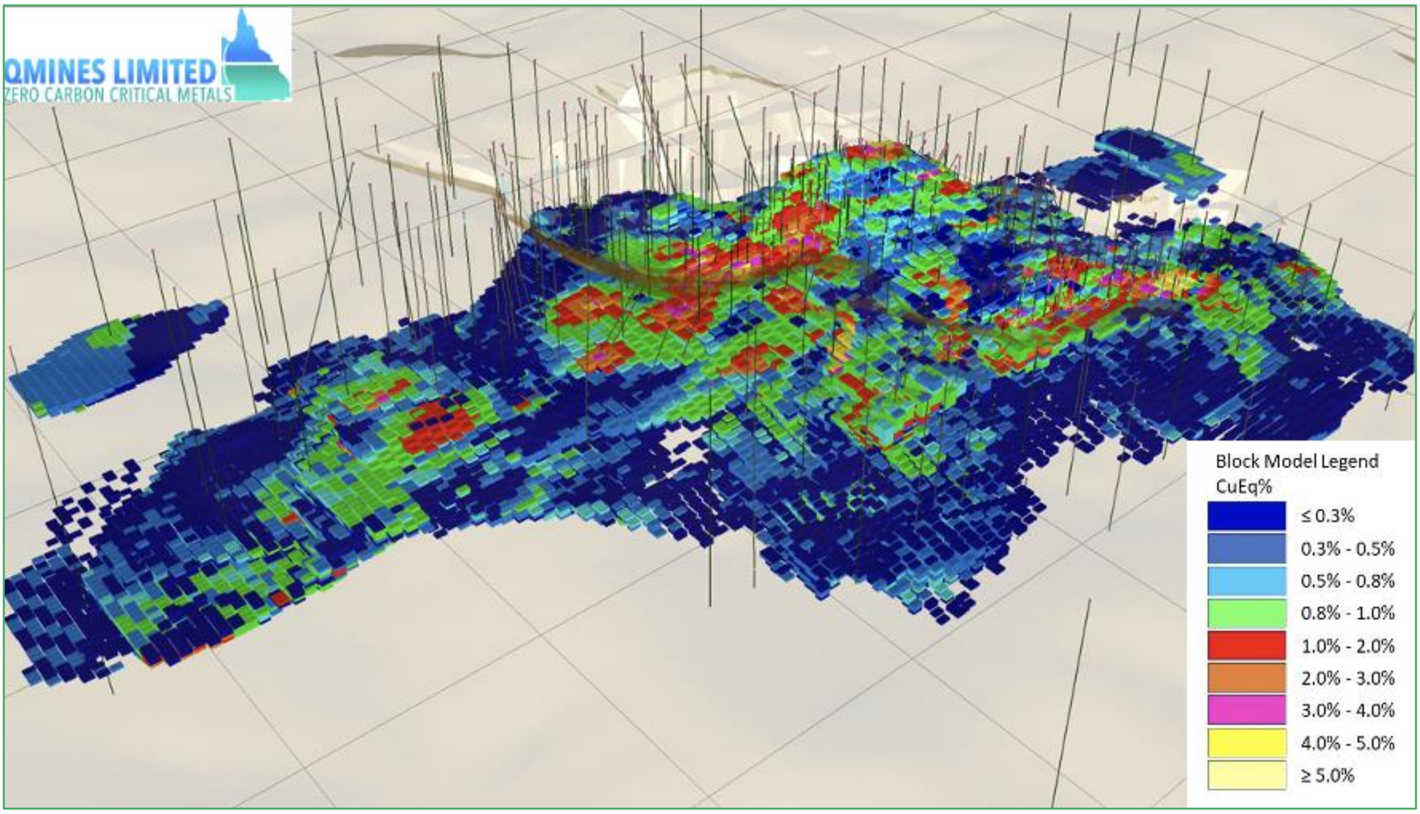


Figure 24: Mt Chalmers block model showing copper equivalent resource by category (yellow = Measured, pink = Indicated, blue = Inferred). Looking towards 140°, 30° dip. Grid cells are 200m x 200m.

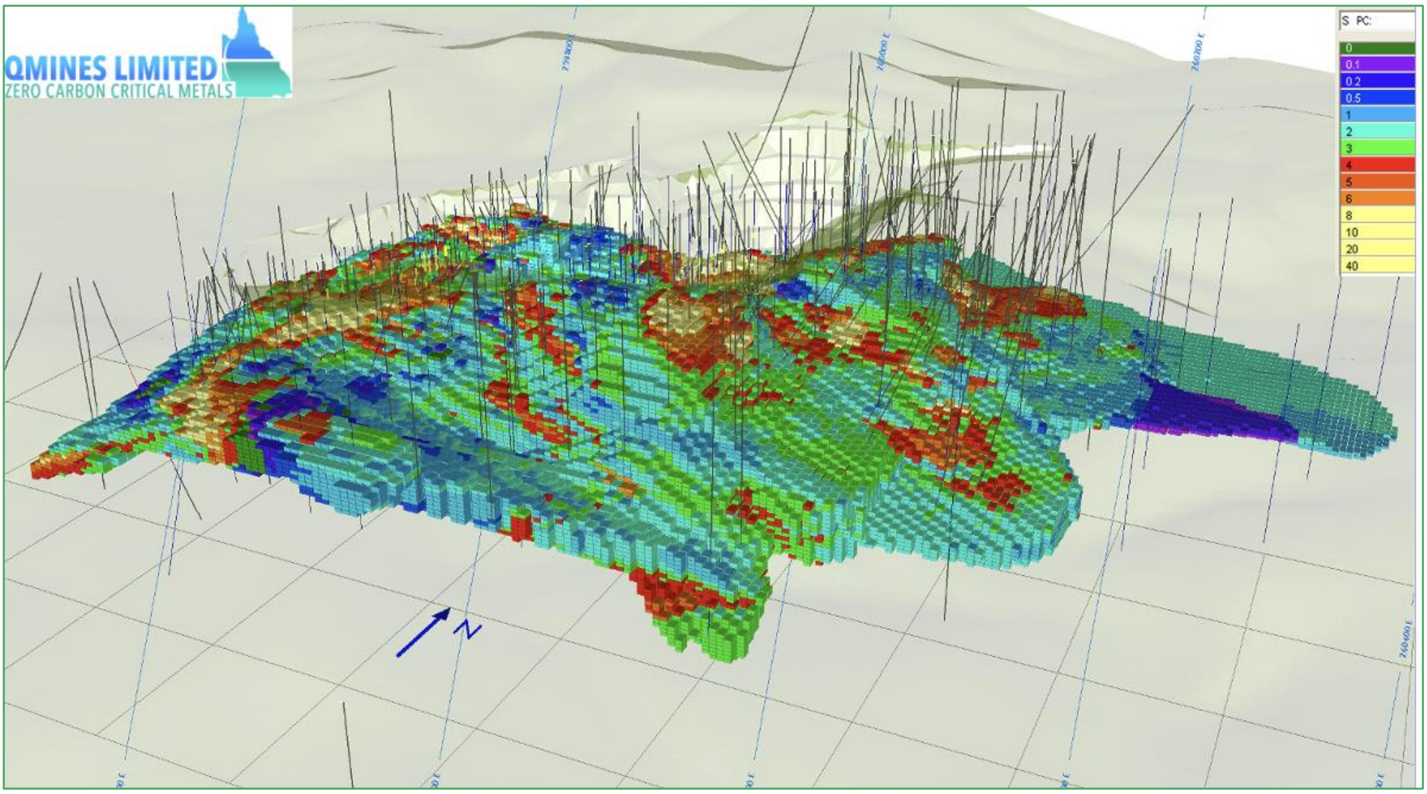


Figure 25: Isometric view of the Mt Chalmers sulphur content block model as percentage blocks with assayed drillholes.

MINING PRODUCTION COSTS

Mt Chalmers open pit mining production cost estimates were prepared by Minecomp using first principles for load and haul, mining services and overhead costs for the open pit mining operations and confirmed by estimates provided from operational contractors. Drill and blast costs were estimated using contract service provider quotations for a similar drill and blast practice at other similar operations in Australia. The costs have been validated and adjusted where necessary to align with similar sized Australian open pit mining projects. The open pit mining and production costs are presented in Table 28.

The mining cost estimation for the Mt Chalmers deposit is based on the selected mining fleet and supporting resources required to extract the orebody providing feed to the proposed one million tonne per annum process plant, which in turn relies on the mineralisation characteristics and potential size of the mineable resource. A diesel price of $1.53/litre is considered for diesel fuel usage as supplied by QMines and is based on current discounted wholesale costs including Federal Government Fuel Excise Rebate, freight costs and site storage. The mining cost for the pit optimisation was estimated for each 5m bench height increment.

Open pit mining cost estimates for mining waste rock and mining ore have been calculated as bank cubic metres (**BCM**) and it is estimated over the Life of Mine (**LOM**)(Table 29). The project will mine 3.2 million BCM of ore and 16 million BCM of waste material. Grade control and General and Administration (**G&A**) costs are estimated using ore tonnes.

Table 28: Mining production cost parameters.

Description	
Mining Ore (BCM)	$11.95
Mining Waste (BCM)	$7.37
Blasting (BCM)	Oxide $1.60, Transition $3.00, Fresh $4.20
Grade Control (t Ore)	$1.40
General & Administration (t Ore)	$4.50
Dewatering (BCM)	$0.25
Rehabilitation (BCM waste)	$0.20
Mining Extras (BCM)	$0.35

Table 29: Mining production cost estimate.

Description	Unit	Volume	Cost ($)
Mining Ore (BCM)	BCM	3,222,050	$38,503,498
Mining Waste (BCM)	BCM	20,962,825	$154,496,020
Blasting (BCM)	BCM	24,184,875	$77,149,751
Grade Control (t Ore)	t/Ore	10,410,001	$14,574,001
General & Administration (t Ore)	t/Ore	10,410,001	$46,845,005
Dewatering (BCM)	BCM	24,184,875	$6,046,219
Rehabilitation (BCM waste)	BCM	20,962,825	$4,192,565
Mining Extras (BCM)	BCM	24,184,875	$8,464,706
Total			**$350,271,765**

Pit Dewatering

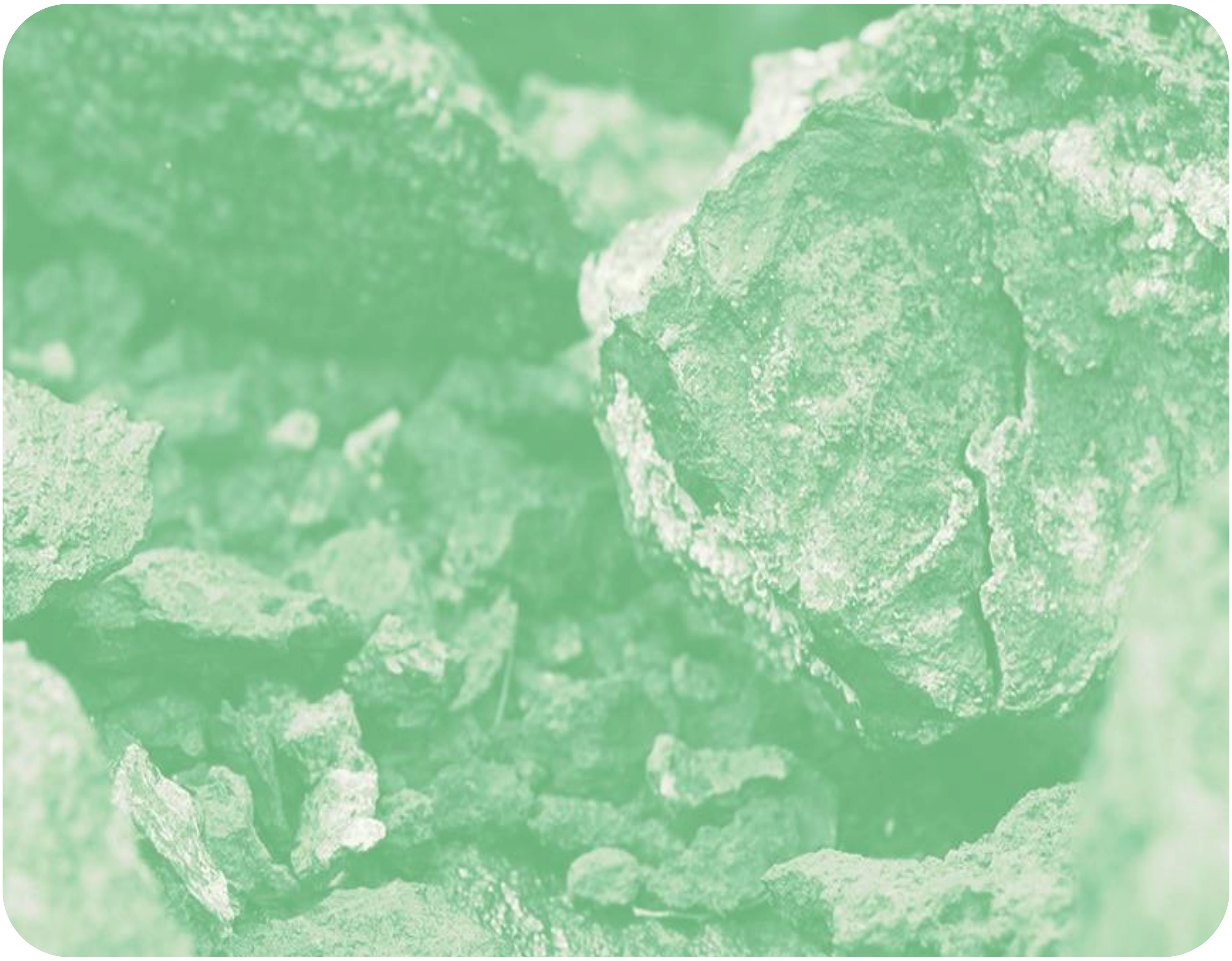
The dewatering design comprises two overarching phases for the purpose of the PFS. The primary pit dewatering phase comprises staged pumping stations which transfer the Mt Chalmers pit water up to the lined Tailings Storage Facility (**TSF**) to be utilised as process water. Secondary dewatering involves catchment of rain / ground water into the pit during mining operations and transferring it to the TSF. The cost estimate has been calculated to install suitable industry standard water lines and pump hire to dewater the open pit on completion of the TSF and maintain the status once dewatered.

Waste Rock Deposition

The project schedule envisages a total of 16 million BCM of waste rock material over approximately 9.8 years LOM. Mine waste material will be deposited within Integrated Waste Rock Landforms (**IWRL**) specific to site and topography. Mt Chalmers is an existing mine site with waste dumps. QMines intends to integrate the existing waste dumps during Stage 1 of the mine plan.

It has been calculated that 2.7 million BCM of material from the first stage pre-strip overburden will be utilised in the construction of the TSF. The remainder of the waste material is designated to be deposited into the northern waste dump and to a southern site later in the mining cycle. The dumps are planned to be terraformed during operations specific to the local topography.

The proposed above ground IWRL dumps have been planned for construction central to the open pit for minimum haulage costs. The TSF construction and tailings material information can be seen in the TSF summary.



MINE SCHEDULE

Production Schedule

QMines engaged Aurelia Mining Consultants to study the potential of mining the Mt Chalmers deposit as an open pit project.

Operating Hours

Mining

In order to generate a positive relationship with the local community, QMines mining operations are currently proposed to operate on a single 10-hour shift per day for 6 days per week (Monday to Saturday). This will limit the impact of noise, light and dust on the local community.

QMines plans to investigate and implement noise, dust and light suppression options that may allow an increase in operating hours. This could have a significant impact on the equipment requirements.

Maintenance

Maintenance of mobile equipment may occur 24 hours per day, 7 days per week subject to maintenance requirements and manning. All planned maintenance will take place outside mining operating hours to ensure equipment availability is maximised during mining operating hours. Unplanned or emergency maintenance will be undertaken as required during mining operating hours.

Processing

Primary crushing operations will follow the same work calendar as the mining operations with all further processing operations being undertaken for a nominal 24 hours a day, 7 days a week.

Mining Rate

The mining production rate used in the study was based on, and secondary to, the processing target of 1Mtpa. Mining will commence at an annualised rate of approximately 12Mbcm / year, which, given the work calendar, equates to an actual production rate of approximately 1.04Mbcm / quarter. This production rate will be maintained for 13 quarters before reducing to an actual production rate of approximately 650kbcm / quarter for a further 12 quarters before reducing again to 230kbcm / quarter for 7 quarters and 130kbcm / quarter for the final 12 quarters of mining operations.

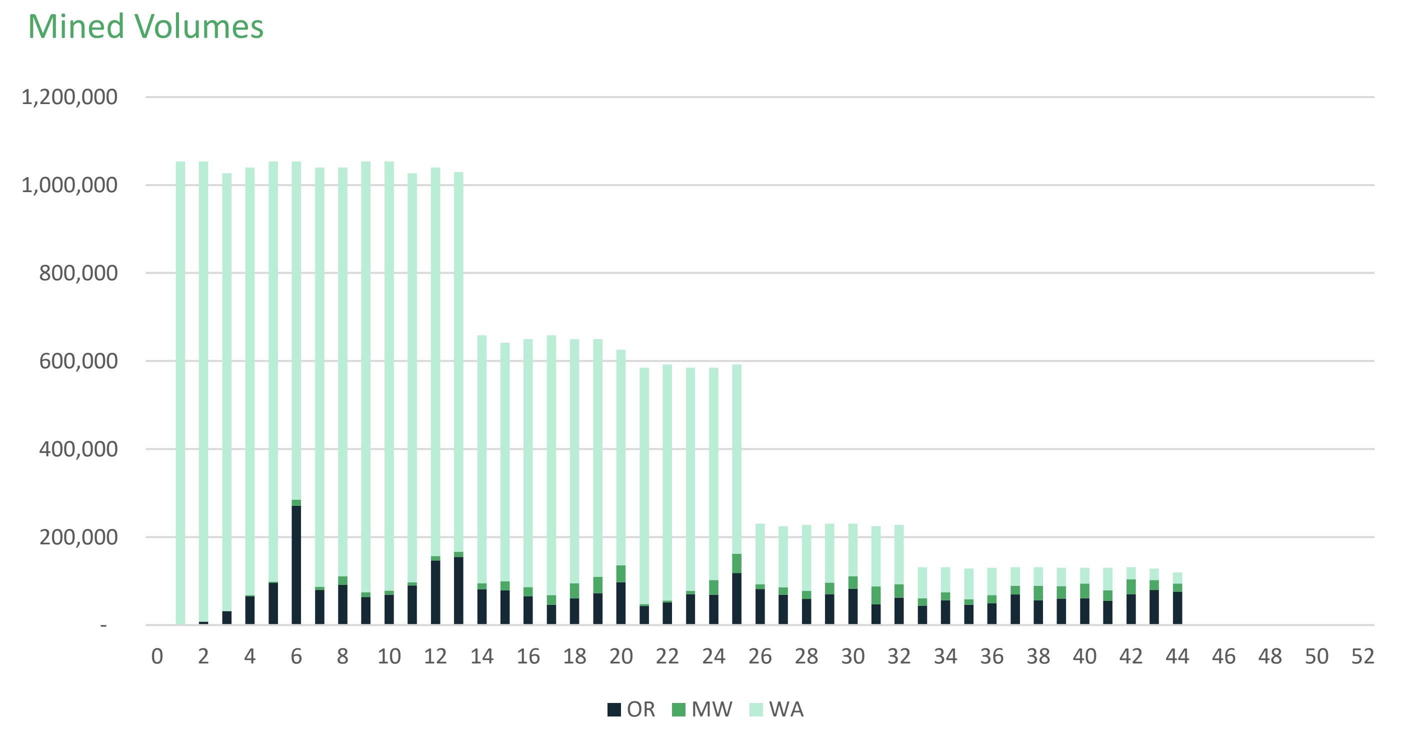


Figure 26: Mined Volumes

Equipment Requirements

To achieve the previously stated production rates, it is anticipated that three 110t - 140t class excavators (Komatsu PC1250, Caterpillar 6015B or similar) will be required. These excavators would load either rigid 90t capacity trucks (Cat 777 or similar) or articulated 55t capacity trucks (Volvo A60H or similar).

As the production rate reduces, so too will the equipment required, with two excavators required for the second phase of production and a single excavator for the last phase of production (with significant excess digging capacity towards the end of production).

Equipment of different capacities may be utilised subject to discussions with potential mining contractors or possible purchase of equipment by QMines.

The primary load and haul fleet will be supported by dozers, graders, water carts and front end loaders to maintain production rates and suitable operating conditions.

Mining Sequence

The Mt Chalmers pit has been designed as a three-stage pit to aid in maintaining reasonable strip ratios and processing blend targets. Mining operations will commence in the central stage 1. The initial three quarters of production will be almost exclusively waste material above the water level in the pit. The approximate 3Mbcm of waste mined during this period will be used to construct the tailings dam wall of a similar capacity. The tailings dam will double as the main water storage on site and as such will need to be constructed to a suitable level prior to dewatering the existing pit.

Mining during the first six quarters will be exclusively in stage 1, with the sixth quarter scheduled to generate a large tonnage of ore. With a suitable stockpile and low strip ratio within stage 1, mining operations extend to both stage 2 (southern extension) and stage 3 (northern extension) concurrently, with all three stages in operation until the first reduction in production rate. Stage 2 and 3 will be mined at similar rates until stage 2 is exhausted with mining continuing in stage 3 alone until completion.

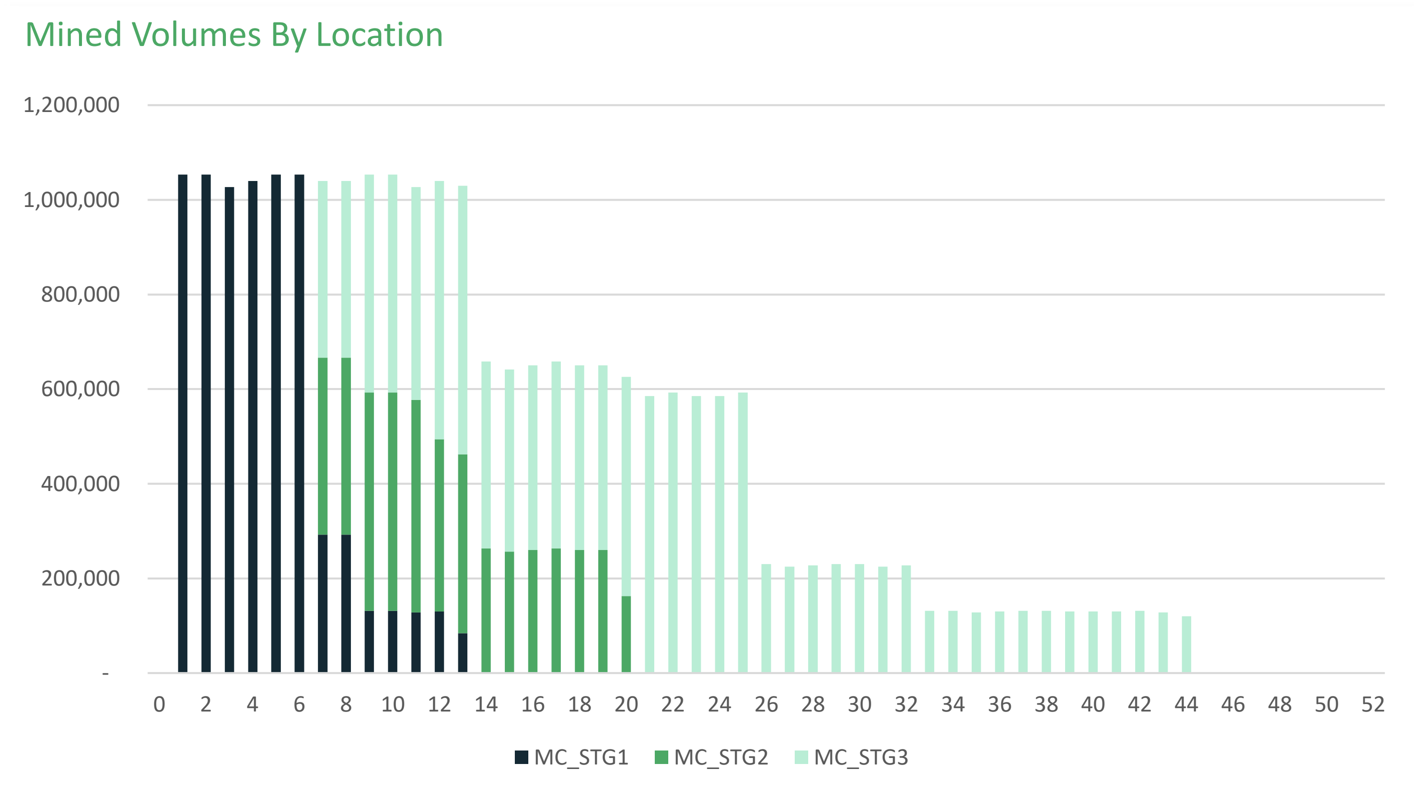


Figure 27: Mined Volumes By Location

Processing

The small tonnage of ore mined in the first three quarters will be supplemented by ore mining in Q4 to allow commissioning of the process plant using Volcanic Massive Sulphide (**VMS**) ore. With insufficient Stringer material mined to allow for the target material blend in the first four quarters, Stringer material fed to the process will ramp up in Q4 and Q5 with the process reaching nameplate capacity of 1Mtpa and at the desired blend ratio of VMS and Stringer material of 1:2 from Q6.

As seen in Figure 28, Inferred material isn't included in the processing schedule until quarter 22 (5.5 years). As is typical, the Company plans to complete grade control drilling prior to mining taking place.

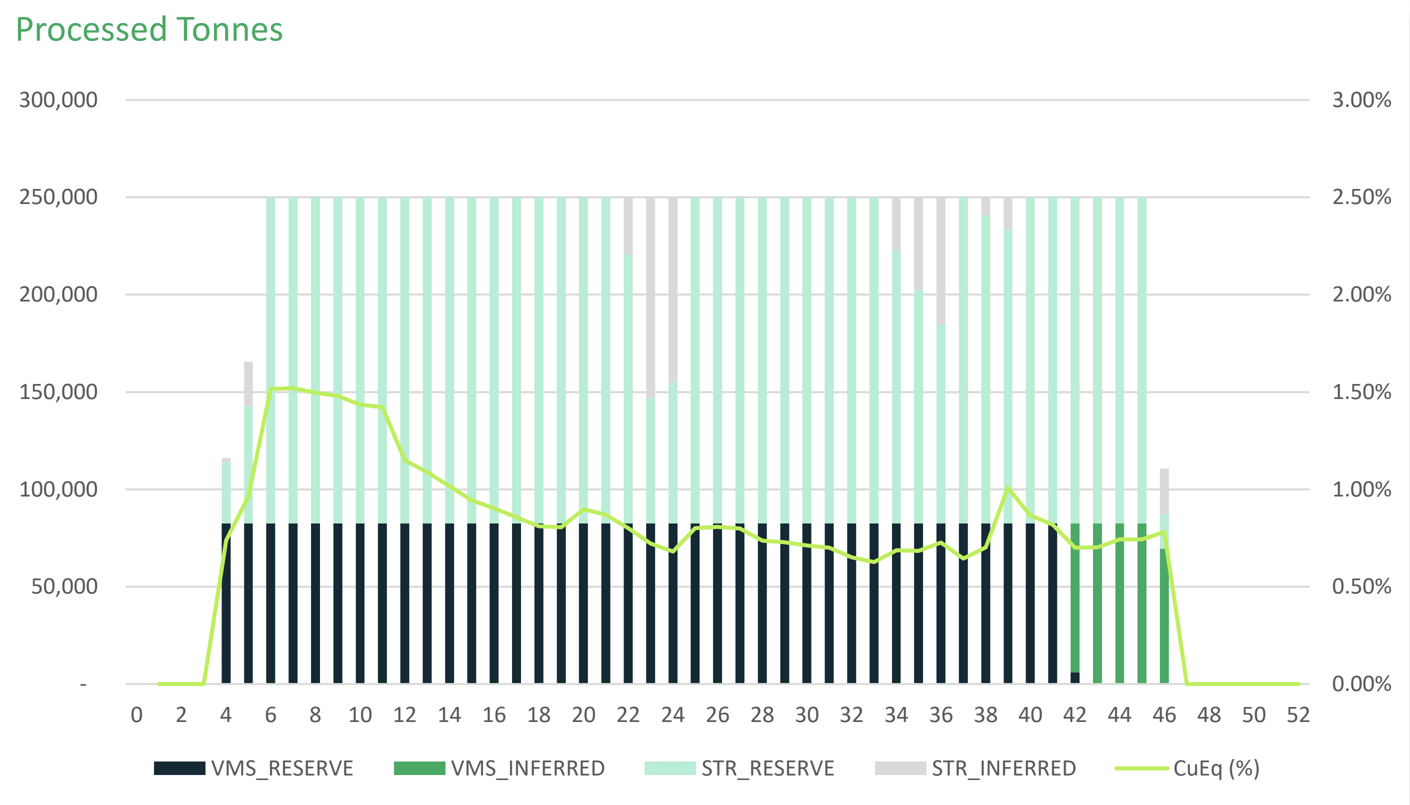


Figure 28: Processed Tonnes

Material Classification

The production schedule includes both the Probable Ore Reserves (converted from Measured and Indicated Mineral Resources) and Inferred material. The proportion of Inferred material included in the production schedule over the life of the project is approximately 9%. Inferred Stringer material is processed at a few points during the project life, however all Inferred VMS material is processed once all VMS Ore Reserves are exhausted.

1.7 Stockpiles

The schedule was generated using four stockpiles, “Reserve” and “Inferred” for both VMS and Stringer material. Due to the spatial distribution of the VMS and Stringer ore, and a preferred blend ratio of 1:2, a large VMS (Reserve) stockpile is generated, with a noticeable increase in size in Q6. The combined VMS Reserve and Inferred stockpiles reach a maximum of approximately 1.2Mt in Q14 and remains fairly consistent until regular drawing down of those stockpiles commence in Q26. The Stringer stockpiles fluctuate over the life of the project, also reaching its maximum size in Q14 at 350kt. It is at this point that the mining production rate reduces.

A further stockpile was allowed for in the production schedule being for mineralised waste. Mineralised waste was deemed to be material above 0.2% Copper Equivalent (**CuEq**) and below the Reserve cut-off grade of 0.35% CuEq and totals 2.6Mt from the pit design. No mineralised waste has been included in the processing schedule, only being reported to provide information for forward planning in case future economic conditions deem this material suitable for processing.

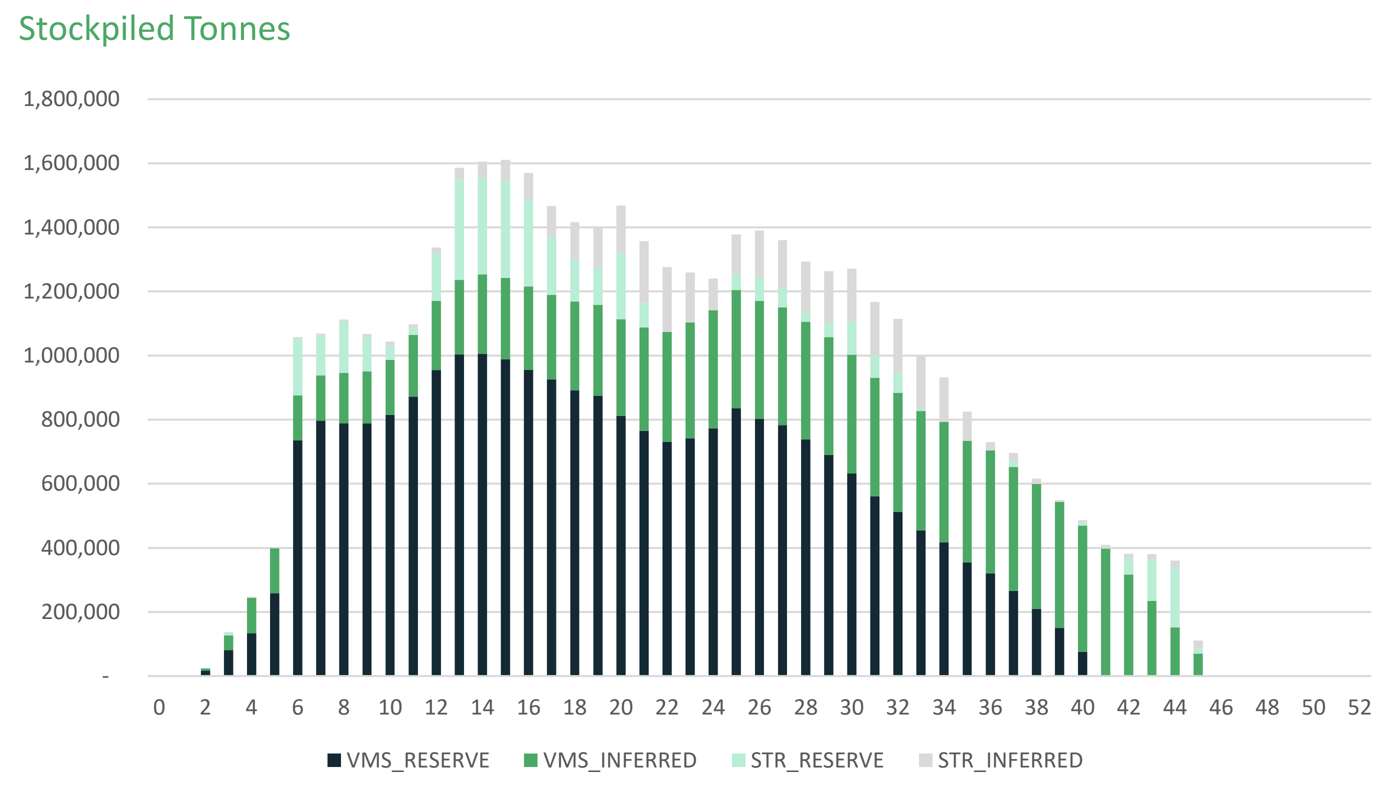


Figure 29: Stockpiled Tonnes

TAILINGS STORAGE FACILITY

Land & Marine Geological Services Pty Ltd (**L&MGS**) was engaged by QMines to prepare a Pre-Feasibility Study (**PFS**) Concept Design of the Tailings Storage Facility (**TSF**) and Water Storage Facility (**WSF**) for the Mt Chalmers project.

The TSF comprises a valley storage which is to be constructed by downstream techniques. This option was selected as the most favourable from a risk ranking perspective from various other TSF options. The facility has an embankment crest at RL 111m, maximum height of 51m and is to be HDPE-lined to mitigate seepage and potential for contamination from the tailings. The perimeter containment embankments are to be constructed using in-situ materials and mine waste. The TSF has a total storage volume of 8.44 Mm^3. It is designed to accommodate pit dewatering of 0.75 Mm^3, prior to the commencement of mining, the current LOM tailings, as well as 11.925Mt of tailings solids, approximately 7.69 Mm^3, over a period of 13.25 years (allowance made for additional ore sources), at an in-situ dry density of 1.55 t/m^3, determined from the results of geotechnical tailings tests. The WSF also provides a storage capacity of 0.75 Mm^3.

The PFS design has been executed in accordance with regulatory requirements applicable in the State of Queensland and International Standards, the Global Industry Standard for Tailings Management (**GISTM**), and the Australian National Committee on Large Dams (**ANCOLD**) 'Guidelines on Tailings Dams - Planning, Design, Construction, Operation and Closure'. The preliminary evaluation of the TSF in accordance with Queensland DEHP1 *'Manual for Assessing consequence categories and hydraulic performance of structures'* (**DEHP Manual**) is High, whilst the GISTM Dam Failure Consequence Classification (**DFCC**) indicates a classification of 'Very High', with the hazard category assessment according to ANCOLD being 'Significant'.

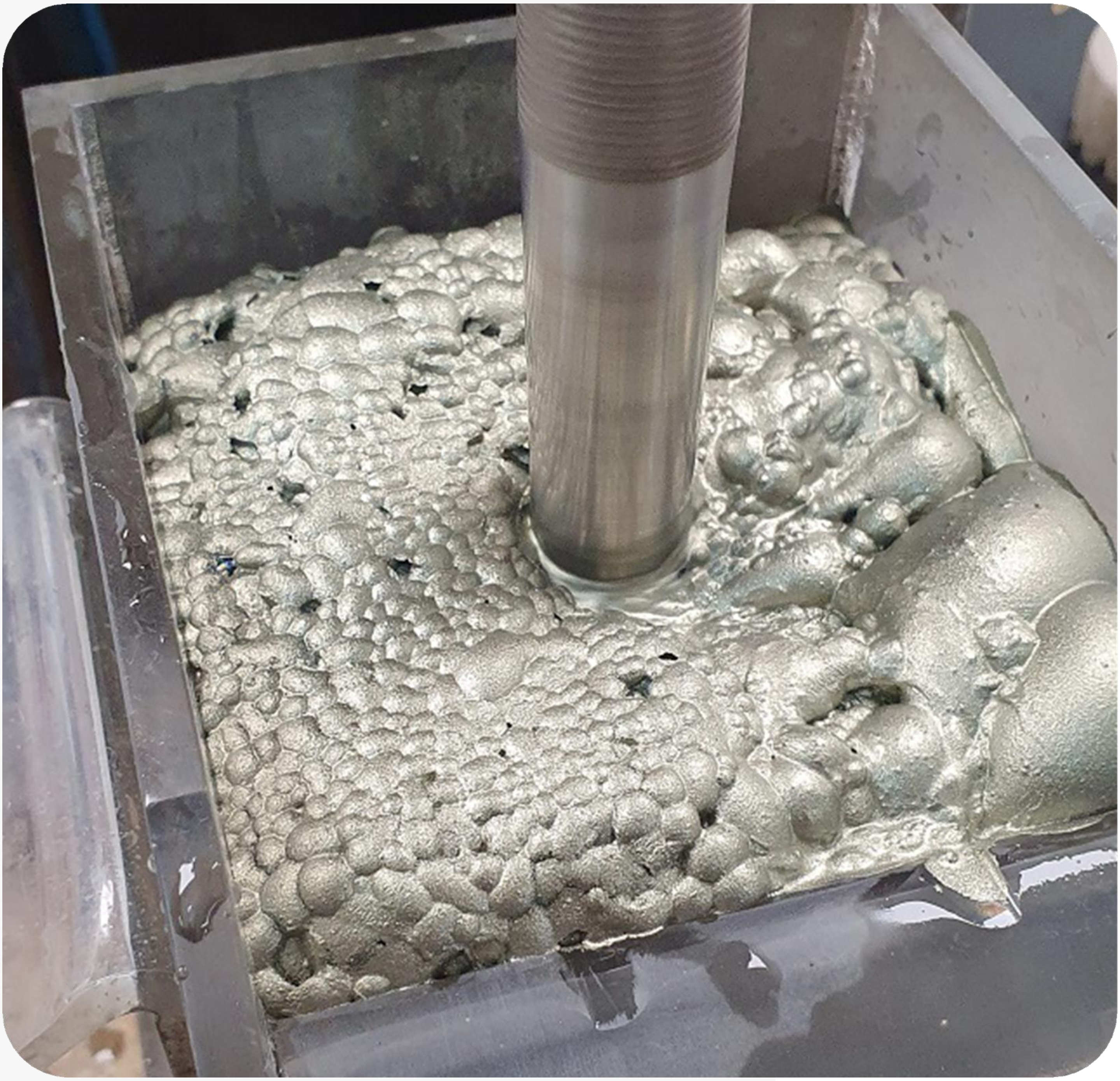
The style of downstream construction, with upstream and downstream slopes of 3.0:1.0 H:V is very robust and the preliminary stability analyses indicate that the factors of safety of the proposed structures are comfortably above the minimum requirements using assumed conservation material parameters in the absence of detailed geotechnical site investigation work. Preliminary water balance studies indicate that it is unlikely that external water resources will be required for the project. Spillways are also provided in the preliminary design.

During a site visit in November 2023, the depth of soil overlying weathered rock was determined to vary in thickness from less than 100mm to about 1m, with alluvial sediments derived from the weathering and erosion from the adjacent hills in the base of the valleys.

The topsoil materials, where present, will be removed and stockpiled for rehabilitation works with the underlying residual soil and extremely weathered rock materials removed from the TSF footprint and mine waste will be utilised in the construction of the TSF and WSF embankments. The in-situ materials and non-acid forming (**NAF**) mine waste will be used in the construction of the downstream zone of the embankment.

The construction of the embankments will be typical earthworks construction with QA/QC required to ensure compliance with the design. The operation of the TSF will be typical of wet tailings with spigots deposition and decant water recovery where the water recovery system (pumps and pipes) must be sized for an operating capacity of not less than 70% of the slurry water volume to achieve the target in-situ dry density in the deposited tailings. Instrumentation and ground water requirements to manage the operation of the facility are specified. Given the large volume of mine waste to be removed from the pit there is scope to execute the construction and progressive rehabilitation and establishment of vegetation on the downstream slopes of the embankments.

METALLURGY



Floatation Testwork, Mt Chalmers Mineralisation

Summary Metallurgy Outcomes

The Volcanic Massive Sulphide (**VMS**) and Stringer hard rock mineralisation at the Mt Chalmers mine site is amenable to the proposed flotation concentrate flowsheet.

- The VMS ore produces saleable copper, zinc and pyrite concentrates.
- The Stringer ore produces saleable copper and pyrite concentrates.
- Flotation recovery from blends of VMS (semi-massive to massive base metal sulphides, gold and silver) and stringer (disseminated and vein hosted copper sulphides, gold and silver) were consistent with results from 100% VMS and 100% Stringer ore.
- There are no fatal flaws identified in the current strategy by QMines.
- The ore type is classified as 'complex Cu-Pb-Zn', and requires regrinding and differential flotation of concentrates, to achieve saleable concentrate grades.
- Copper recovery to rougher concentrate is consistently in the range of 90-95% for all samples tested.
- Lead tends to report to the copper concentrate, due to the fine size distribution of the galena particles. A strategy of blending lead content in the ore feed, and lead depression by dextrin has been developed to maintain a lead content less than 6% in the final concentrate.
- Perfect separation of zinc from copper is difficult due to ultrafine chalcopyrite particles within sphalerite particles.
- Production of a pyrite concentrate from the Cu-Zn flotation tailings is potentially economically viable with the sulphur concentration in the pyrite concentrate sufficiently high in sulphur to be regarded as an energy source, and a potential feedstock for sulphuric acid production.
- Testwork demonstrates that the pyrite concentrate may be cyanide leached to recover approximately 75% of the gold within the pyrite concentrate.
- Gravity testwork is encouraging, with single test producing a recovery of 36% of the gold in the ore to concentrate, of which 68% was cyanide soluble.
- Calculated gold grades in the leach tests were higher than the assay grades, indicating the potential for coarse gold in the ore.
- Tailings sulphur grades of consistently less than 1% sulphur demonstrating a low environmental risk in terms of potential acid mine drainage.

Concentrates

Flotation test-work carried out on both the VMS and Stringer ore types at Mt Chalmers demonstrated a high recovery to concentrate for all metals of interest (Au, Ag, Cu, Zn). Utilising the planned mill feed grades and test-work recoveries, the indicated recovery of desired metals to saleable concentrate are presented in Table 30 to Table 32.

Table 30: Calculated Copper Concentrate Composition.

Mining Stage	Mass (%)	Cu (%)	Au (g/t)	Ag (g/t)
1	3.07	26	11.33	101.6
2	1.27	26	15.08	302.3
3	1.52	26	6.36	83.1
Total	**1.87**	**26**	**10.22**	**133.2**

Table 31: Calculated Zinc Concentrate Composition.

Mining Stage	Mass (%)	Cu (%)	Au (g/t)	Ag (g/t)
1	0.37	1.5	24.60	222.14
2	0.72	1.5	6.95	140.45
3	0.22	1.5	11.60	152.70
Total	**0.40**	**1.5**	**12.38**	**162.62**

Table 32: Calculated Pyrite Concentrate Composition.

Mining Stage	Mass (%)	S (%)	Au (g/t)	Ag (g/t)
1	6.36	32.1	4.58	41.3
2	5.15	32.1	3.13	63.1
3	4.24	32.1	1.91	25.1
Total	**5.05**	**32.1**	**3.16**	**41.5**

It is to be noted that the pyrite concentrate shown above is the total pyrite recovered to concentrate and, depending on the economics of selling pyrite, the flotation plant may produce any one of the three flotation products as shown in Table 33:

Table 33: Pyrite Flotation Results.

Concentrate	Mass (%)	S (%)	Fe (%)	Au (g/t)	Ag (g/t)
High Grade Pyrite	5.95	47.3	41.5	2.76	15
Mid Grade Pyrite	1.54	34.9	32.3	3.01	20
Low Grade Pyrite	3.61	6.89	10.1	0.81	9

The above demonstrates that the pyrite may be optimised during operation, to produce any one of three possible products, depending on the optimal cashflow from either of:

- Maximum pyrite recovery;
- Produce pyrite at a target grade to produce 'premium' pyrite and maximise pyrite revenue; and
- Maximise gold revenue.

The pyrite concentrate results are based on a two-stage locked cycle flotation test on the 'copper-zinc' flotation tailings stream and demonstrates that there is an opportunity to produce a payable pyrite product from the Cu-Zn flotation tailings. Further locked cycle test-work is currently underway to confirm the pyrite concentrate composition for both the VMS and Stringer ore.

Samples Tested

Drill core from holes MCDD017 and MCDD044 (Table 34) was segregated into the two mineralisation types (VMS and stringer).

Table 34: Composite Makeup.

Hole	Interval (m)	Weight (kg)
MCDD017 Comminution comp	23.4 - 45	8
MCDD017 VMS	22 - 60.8, 69.6 - 78	8
MCDD017 Stringer	60.85 - 69.65	18
MCDD044 VMS	71.7 - 90.1	60.7
MCDD044 Stringer	48.2 - 55.1, 61.8 -65, 107.8 - 111.2	47.9

Composites were prepared (Table 35) to represent the two principal mineralisation types. These drill holes are both within the open pit shell and represent the two ore types 'Stringer' and 'VMS'.

Table 35: Composite Makeup.

Composite	VMS Ore	Stringer Ore
VMS	100%	0%
Master Comp 1	20%	80%
Master Comp 2	16%	84%
Stringer	0%	100%

These composites (Table 36) were prepared to determine if the flotation performance of the separate mineralisation types was affected by blending the two types. The results indicated that blending of VMS with Stringer improved the copper flotation recovery, due to the reduced impact of pyrite dilution from the VMS ore.

Table 36: Composite Assays.

Sample	Cu (%)	Au (g/t)	Ag (g/t)	Pb (%)	Zn (%)
VMS	1.28	4.31	16	1.42	3.51
Stringer	1.22	1.05	<2	0.02	0.02
Master Comp 1	0.69	0.56	<2	0.11	0.47
Master Comp 2	0.82	1.35	9	0.39	1.10

- Master composite #1 approximated the average grade from the production schedule, however the sample was exhausted prior to the completion of the test-work program.
- Master composite #2 was prepared utilising the remaining VMS ore from hole MCDD044. The metal grades for this composite were slightly higher than for the Master composite #1, with similar flotation results obtained as for Master composite #1.

Mineralogy

In terms of minerals of value, both the VMS and Stringer ores contain chalcopyrite, sphalerite, galena and pyrite. In both lithologies the chalcopyrite and sphalerite particles are intimately intergrown with pyrite, with the sulphide particle liberation sizes varying from 20 microns to 100 microns. Based on these mineralogical associations, the flowsheet implications are:

- At the selected grind size of 75 microns, the target minerals have been demonstrated to be highly amenable to concentration via conventional froth flotation techniques.
- Although the orebody is mineralogically complex, the processing flowsheet utilises conventional equipment and conventional operating practices.
- It is necessary to achieve a high percentage mass pull to copper concentrate, to maximise the copper, gold, and silver recovery to a saleable Cu-Au-Ag concentrate.
- It is critical to regrind the copper concentrate, to liberate sphalerite particles from chalcopyrite particles. This will then allow differential flotation of chalcopyrite and sphalerite concentrates, to produce a saleable zinc concentrate.
- In addition to the chalcopyrite and sphalerite, significant quantities of pyrite are present, that are recoverable to a saleable concentrate.

Test Programs

The first two test programs were conducted by ALS, and the remainder by Auralia.

These test programs were:

- 2021 – ALS: Sighter testing and reagent variability testing on VMS and stringer ores.
- 2022 – ALS and JKTech / UQ in Qld: Physical testing (abrasion indices, and Bond Work indices.
- 2023 – Auralia: Differential flotation and reagent optimisation.
- 2023 – Auralia: Locked Cycle test on VMS/Stringer composite sample.
- 2023 – Auralia: Concentrate Leach Tests.

Metallurgy tests that have been completed include:

- Grind optimisation.
- Sequential Cu-Zn flotation testing.
- SMC Tests.
- Abrasion Index testing.
- Bond Ball Mill Work Index testing.
- Crusher Work Index.
- Liberation study on copper concentrate.
- Leaching of flotation tailings.
- Concentrate upgrading to maximise recovery and grade to concentrate.
- Regrind concentrate to liberate middling particles.
- Locked cycle testing on a blended composite.
- Optical and QEMSCAN mineralogical testing.

Sample preparation was initially carried out by ALS at their Balcatta Laboratory in Perth and subsequently at Auralia. Comminution testing was carried out under ALS supervision at University of Queensland in Brisbane by SMC. Flotation tests were carried out at ALS for program one, and Auralia for the remaining programs.

Primary Grind Size

As the metals of value are present as sulphide minerals, it is possible to achieve a high sulphide recovery to concentrate at a coarse grind size of 150-106 microns, however gold recovery was poor at this grind size due to the gold being partially locked in gangue minerals (e.g. dolomite). Gold recovery to flotation concentrate was determined to be the highest at a 75-micron grind size, therefore a grind size of 75 microns was nominated as the design grind size for recovery of valuable metals and minerals to flotation concentrate.

Flotation Tests

Early froth flotation tests involved a series of sequential rougher-cleaner tests producing a copper concentrate, followed by a zinc concentrate. The recovery of copper to copper concentrate was high however, the copper grade was diluted by co-floating particles of sphalerite, galena and pyrite. A cleaner step was introduced where the rougher concentrate was refloated with the intent to improve the concentrate grades by selective depression of pyrite, galena and sphalerite. This strategy resulted in obtaining a high copper concentrate grade at the expense of copper recovery due to the depressed minerals containing poorly liberated (or non-liberated) chalcopyrite particles.

Various reagent combinations were trialled to increase selectivity between copper and zinc minerals, with the following results:

- Depression of zinc minerals. Depression of zinc minerals resulted in a cleaner copper concentrate, however the copper recovery decreased due to the depression of binary chalcopyrite / sphalerite particles. The recovery of zinc-to-zinc concentrate increased however the copper content was high in the zinc concentrate.
- Depression of pyrite. Pyrite depression resulted in a lower copper and zinc recovery to payable concentrate, due to poorly liberated chalcopyrite and sphalerite particles being depressed.
- Recovery of galena into a lead concentrate. No test produced a saleable lead concentrate, however the tests demonstrated that Dextrin is a suitable depressant to selectively separate liberated chalcopyrite from liberated galena.

As a result of this preliminary tests, a regrind step was introduced prior to the cleaner copper flotation to improve the liberation of chalcopyrite and increase the selectivity of flotation between chalcopyrite and sphalerite.

This strategy was successful and resulted in the production of higher-grade copper concentrates in the range of 15-25% copper at copper recoveries varying between 85-95%.

A significant amount of the sphalerite present in the feed (~45-55%) reported to a moderate grade (in terms of zinc) copper cleaner scavenger tailings stream. A locked cycle flotation test was required to determine the equilibrium mass flows and assays for this process stream.

Flotation Circuit Design

A single locked cycle test was then carried out on a composite sample of VMS / Stringer, with the following parameters:

- 34% pulp density
- Natural pH
- 20 g/t P3418A promoter
- 120 g/t frother
- 70 g/t PAX
- 2 kg/t SMBS
- 200 g/t $CuSO_4$
- Copper Concentrate: 26% Cu at 89% recovery.
- Zinc Concentrate: 48% Zn at 81% recovery.
- Pyrite Concentrate: 11% Mass Pull and 32% Sulphur grade.

This test confirmed that the selected flowsheet was technically appropriate for the Mt Chalmers ore and that saleable flotation concentrates of chalcopyrite, sphalerite and pyrite may be achieved utilising conventional froth flotation practices.

Recovery of Gold & Silver

Gold and silver report to each of the flotation concentrates in varying proportions depending on the mineralisation types and grade. Payability of the gold and silver in concentrates depends on smelter offtake agreements. Further optimisation work is required to maximise gold and silver payability once indicative concentrate offtake terms are agreed.

Gravity concentration and Cyanidation leach testing of flotation concentrates should be considered for the pyrite concentrate.

Gold Leaching Test Results

The gold grade in the reserve is less than 1g/t, therefore cyanidation on the bulk ore was considered to be uneconomic as a stand-alone operation. The concentrates however, demonstrated potentially economic amounts of gold and silver, which are recoverable in an 'add-on' cyanide leach circuit.

Flotation Tail Gold Leach

In test ALS A2974, a single flotation test was carried out at a grind size of 75 microns to produce a rougher copper concentrate, a rougher zinc concentrates and a flotation tailings sample for cyanidation leaching.

The single leach test was carried out to determine the viability of recovering gold from the flotation tailings by conventional cyanidation. This sample was leached for 48 hours at a pulp density of 50% solids with oxygen sparging; and a cyanide concentration maintained at 200ppm. Samples were taken at 2, 4, 8, 24, 48 hours to determine the recovery versus time curve.

The flotation tailings assay for the above test A2974 was 0.85g/t gold.

Rate of Gold Extraction

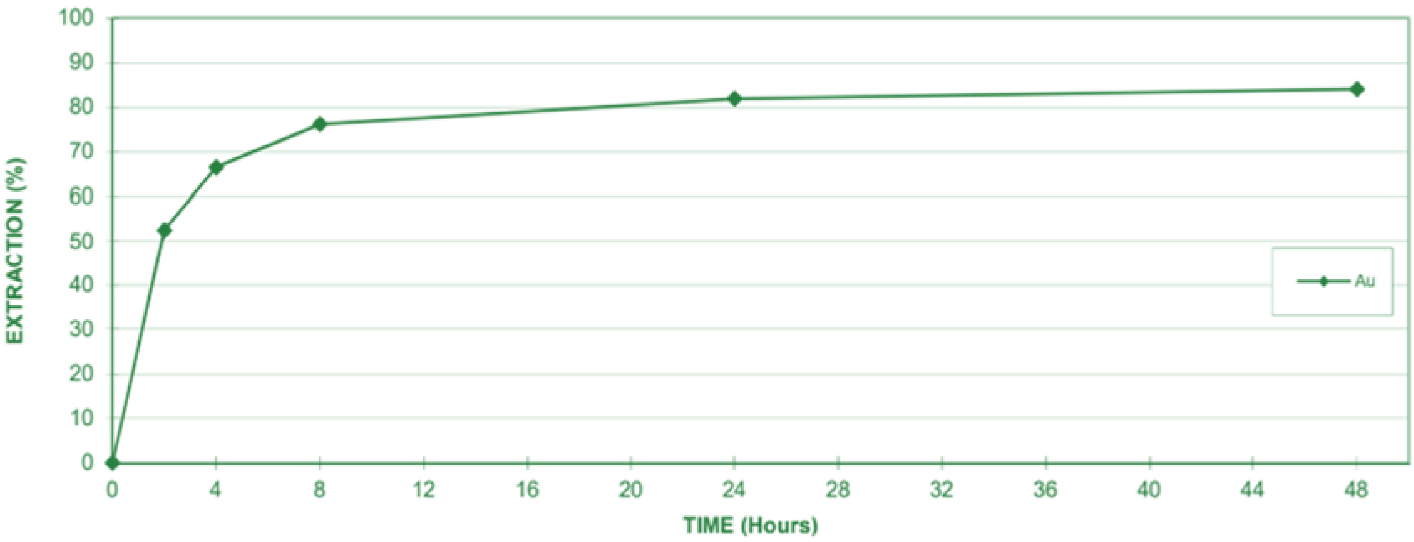


Figure 30: Flotation Tailings Leach Curve.

The gold was readily leachable, and did not appear to be refractory in nature, with a final leach residue assay of 0.12 g/t. This equates to an approximate leach recovery of 82%.

Concentrate Leaching

Leaching testwork was carried out on the zinc, and pyrite concentrates from the locked cycle flotation test, in order to develop parameters for assessment of a potential 'add-on' cyanidation plant for leach concentrates, prior to sale of concentrates. The results are tabulated below:

Table 37: Leach Test Results.

Concentrate	Zinc	Pyrite
Gold Grade (g/t Au)	3.52	8.27
Gold Recovered (g/t Au)	2.5	6.6
Gold Recovery (%)	71.3	79.6
Cyanide Consumed (kg/t)	2.88	2.91

The copper concentrate is not viable for leaching due to the high cyanide consumption, and dissolution of 1.5% of the copper into an unrecoverable form. In addition, gold is potentially payable in the concentrate at a rate of 92-97%, depending on sale terms negotiated.

- Zinc and pyrite leaching is potentially viable, however, the concentrates would have to be leached in separate leach trains to not mix the concentrates.
- Zinc and pyrite concentrates deliver approximately 80,000 tonnes annually which would indicate the potential to include a Carbon in Leach (**CIL**) or a Carbon in Pulp (**CIP**) leach circuit as a cost-effective addition to the Mt Chalmers process facility.
- Benefits of leaching gold and silver onsite prior to concentrates being sold improves the payability of gold and silver from loss to smelters under typical treatment and refining charges.

The addition on a CIL/CIP circuit represents an additional $17.4 million CAPEX requirement including elution, carbon regeneration and gold room (Table 38) below.

Table 38: Gold Plant CAPEX Estimate (CIL)

	Summary	Materials & Equipment	Labour	Freight	Sub-Total	Contingency	Total
1	EPCM	$754,029	$1,740,102	$0	$2,494,131	$249,413	$2,743,545
2	General	$679,556	$978,291	$47,520	$1,705,367	$170,537	$1,875,904
3	Electrical	$1,134,458	$283,614	$74,874	$1,492,947	$149,295	$1,642,241
4	Site Infrastructure	$221,400	$24,840	$14,612	$260,852	$26,085	$286,938
6	Concentrate Leaching	$3,366,961	$1,463,415	$88,043	$4,918,420	$491,842	$5,410,262
7	CIL Detox	$984,114	$286,621	$22,215	$1,292,950	$133,253	$1,426,203
8	Elution, Carbon Regeneration and Goldroom	$2,792,694	$375,846	$91,476	$3,260,017	$326,002	$3,586,019
9	Reagents	$304,700	$95,611	$15,530	$415,841	$41,584	$457,426
Sub-Total		**$10,237,913**	**$5,248,342**	**$354,271**	**$15,840,526**	**$1,588,011**	**$17,428,536**

Over the Life of Mine (**LOM**) an estimated $91 million is lost through smelting penalties for gold and silver and payability deductions exercised by smelters in the sale of zinc and pyrite concentrates.

Based on preliminary leach testing of the Mt Chalmers zinc and pyrite concentrates, gold and silver is recoverable at approximately 71% for the zinc concentrate and 80% for the pyrite concentrate in a standard CIL circuit representing approximately $71 million in additional revenue.

The OPEX estimate per tonne of ore treated in the CIL circuit is estimated at A$3.03.

Strategy to Produce Marketable Concentrates

The final flowsheet is a three-stage flotation circuit, producing a copper concentrate, a zinc concentrate, and a pyrite concentrate. Key points to ensure a suitable concentrate grade are:

- Blend VMS and Stringer ore whenever practically possible, to minimise pyrite dilution in the copper and zinc flotation circuit. High levels of pyrite will cause excessive circulating loads and may require slowing the feed rate if the pyrite exceeds 25% weight/weight in the feed.
- Ensure the copper feed grade to the ball mill is three times the feed grade of lead. In most instances, this will prevent lead in the copper concentrate exceeding the China Inspection & Quarantine Service (**QIC**) imposed 6% 'saleability' trigger.
- Stockpile any occurrences where the lead grade in copper concentrate exceeds 6% into an 'off-spec' stockpile, and blend concentrates accordingly to meet specification limits.
- Utilise process control system to alert the flotation operator when the lead content in the copper concentrate grade exceeds 5%; to allow corrective actions to be taken before exceeding specification limits.

Penalty Metals

The Mt Chalmers ore is classified as 'clean', with no elements or compounds in the concentrates exceeding normal penalty levels. The lead content will be controlled at less than 6% by adding Dextrin to the copper cleaner two concentrate to depress lead if the levels in the concentrate exceed 5.5%.

Potentially Deleterious Elements

In addition to the revenue streams from the three concentrates, analysis of concentrates demonstrates that there are low levels of deleterious elements, apart from lead, which reports to the copper concentrate and silica in the zinc and pyrite concentrates. Testing demonstrates that the lead content in the copper concentrate may be managed by:

- Maintaining a copper to lead ratio in the plant feed of three copper to one lead.
- Utilising Dextrin to selectively depress galena from chalcopyrite.

In addition, off-spec copper concentrate may be stored onsite, and blended with low-lead concentrates to meet smelter specifications and avoid concentrate rejection or incurring penalty costs.

Concentrates produced during the testing were further tested for deleterious elements, by the following two methods:

1. Low levels (ppm) by AAS, by ALS Global.
2. All other elements/compounds by XRF by ALS Global.

Minor metals in concentrates are listed in Table 39.

Table 39: Minor metal elements in concentrate.

Analyte	Detection Limit	Copper Concentrate	Zinc Concentrate	Pyrite Concentrate
As (%)	0.01%	0.03	0.03	0.03
BaO (%)	0.01%	0.22	1.11	1.35
Bi (%)	0.00%	0.026	0.004	0.009
Cr (%)	0.01%	0	0.06	0.06
Hg (ppm)	0.002	<0.002	0.03	0.024
MgO (%)	0.01%	0.44	1.42	1.51
P2O5 (%)	0.01%	<0.01	<0.01	0.02
SiO2 (%)	0.01%	2.85	8.43	12
Sb (%)	0.01%	0.02	<0.01	<0.01
Sr (%)	0.00%	0.005	0.018	0.023
U (%)	0.00%	<0.002	<0.002	<0.002
V (%)	0.00%	0.001	0.002	0.004

PROCESSING PLANT CRITERIA

Explaining the geology of the Mt Chalmers deposit during an investor site visit.

Design criteria are based on data sources which are referenced below.

- QMines requirements.
- COMO Engineers database.
- Assumed value - typical of similar operations.
- Vendor data or recommendation.
- Calculated data derived from above.
- Metallurgical testwork data.

Where specific data is not available, assumptions have been made based on generally accepted practice and Como Engineers' experience.

Units of Measure

System International (SI) units are used for this project, unless noted otherwise.

Tonnage Basis

All tonnages quoted are reported on a dry basis unless otherwise noted. For the purpose of this study, dry is defined as heated at 105°C maximum until no further weight loss is recorded.

Basis of Design

A summary of the key design criteria is presented in Table 40. The design criteria is based on information supplied by QMines and is current as at Q4-2023. Feed blend weighted design values are calculated based on proportions of 80% VMS and 20% stringer ore in the mill feed. Changes to the mill feed blend based on mine scheduling will affect the weighted design value.

Table 40: Design Criteria Summary.

Operating Schedule		
Project Life	years	10.4
Annual Throughput	t/a	1,000,000
Crusher Capacity	t/h	360
Crusher Utilisation		Dayshift Only
Flotation Circuit	t/h	125
Physical Ore Characteristics		
One Source		Open Pit
Ore Type		Sulphide
Mineralisation Type 1		Massive Sulphide (VMS)
Mineralisation type 2		Stringer Ore
Abrasion Index (Master Composite)		0.244
Crushing Work Index (Master Composite)	kWh/t	4.0
Bond Ball Mill Work Index		
- VMS	kWh/t	9.63
- Stringer	kWh/t	20.3
Design	kWh/t	12.3
Crushing		
Circuit Type		Three Stage
Primary Crusher		Jaw Crusher
Secondary & Tertiary Crushers		Cone Crusher
Feed Size F_{100}	mm	600
Product Size P_{80}	mm	12
Grinding		
Single Stage	type	Ball Mill
Nominal Grind Size	P_{80}	75 microns
Copper Flotation		
Stages		Rougher + 2 Cleaner
Concentrate Handling		Thickener + filtration
Copper Recovery to Copper Concentrate	% Cu	90
Copper Concentrate	% Cu	26
Zinc Flotation		
Stages		Rougher + 2 Cleaner
Concentrate Handling		Thickener + Filtration
Zinc Recovery to Zinc Concentrate	% Zn	81
Zinc Concentrate	% Zn	48
Pyrite Flotation		
Stages		Rougher + 2 Cleaner
Concentrate Handling		Thickener + Filtration
Sulphur Grade in Concentrate	%	30-45

Process Description

The Mt Chalmers sulphide mineral concentrator has been designed to process a nominal one million tonnes per annum of copper-zinc-lead sulphide ore to produce the following concentrates for sale:

- Copper sulphide concentrate containing 15% - 26% copper.
- Zinc sulphide concentrate containing a minimum of 50% zinc.
- Pyrite concentrates for sale.

These concentrates will each contain gold and silver, with the process operated to maximise the value of payable metals (Au, Cu, Ag, Zn), and minimise the cost of penalty metals (e.g. low levels of Pb) in the concentrates.

The project comprises a single site for the crushing and processing facilities:

- Crushing and milling ore adjacent to the Mt Chalmers mine.
- Milling, concentrate production and loadout.
- Area for future ore sorter adjacent to the crushing plant.
- Area for future gold leaching facility adjacent to the flotation circuit.
- Allowance for future installation of a gravity recovery circuit.

The processing flowsheet comprises:

Three stage crushing, with major equipment within buildings.

- Milling within an enclosed building.
- Copper flotation including concentrate regrind and cleaning.
- Zinc flotation including concentrate regrind and cleaning.
- Pyrite flotation including concentrate cleaning.
- Separate copper, zinc and pyrite concentrate filtration and storage prior to dispatch.
- Tailings stored in a purpose-built lined tailings storage dam.
- Concentrator water supply from tailings dam, thickener overflows and potable water from reticulated scheme supply.

Mineralisation Types

There are two specific ore types for the Mt Chalmers Copper Project:

- Mt Chalmers Massive Sulphide Ore; and
- Mt Chalmers Stringer Ore.

Mt Chalmers Massive Sulphide Ore

The Mt Chalmers massive sulphide orebody is a complex copper-zinc-lead-pyrite orebody with finely intergrown mineral particles that require fine grinding to liberate the particles into separable minerals for production of saleable concentrates.

The predominant sulphide mineral present in the massive sulphide is pyrite, which is required to be depressed (prevented from reporting to flotation concentrate), to produce a marketable copper concentrate (>15% Cu) and a marketable zinc concentrate (>50% Zn). The pyrite is then reactivated (re-enabled to report to concentrate) and floated to produce a pyrite concentrate. Sale of the pyrite minimises the potential for production of acid mine drainage from the mine tailings.

Although the principal target commodity is copper sulphide concentrate and to a lesser degree zinc sulphide concentrate, gold, silver, and lead will report to each of the concentrates, providing opportunities for precious metal credits. Lead is not present in sufficient quantities to produce a marketable concentrate.

Mt Chalmers Stringer Ore

The Stringer ore is not metallurgically complex and processing by flotation demonstrates a high copper recovery at a high copper concentrate grade (>20% Cu). The stringer ore flotation concentrate (from samples tested) contains minimal lead and a lower zinc grade than the VMS ore. The pyrite content of the stringer ore is also lower than for the VMS ore. Minor gold and silver report to the stringer concentrates providing a potential precious metal by-product credit.

Mt Chalmers Oxide Ore

Exposed ore in pit walls, along near surface shear systems and proximal to the pit floor may be potentially oxidised. This must be tested for flotation response, and either processed, or stockpiled as subgrade ore, until a controlled potential sulphidisation plant (which is outside the scope of this PFS study) is constructed and commissioned.

Blending Considerations

- It is recommended to stockpile the stringer ore separately from the massive sulphide ore and blend as required to achieve operational targets.
- It is recommended to stockpile low-grade material to blend down high pyrite levels as required to maintain stability in the flotation circuit.

Massive Sulphides

Stringer ore would be required for blending in the following scenarios:

- In the event of processing 100% massive sulphide ore, it may be possible for the circuit to become overloaded with pyrite. In this situation, blending of stringer ore will be utilised to blend down the pyrite content to maintain a stable mass balance in the circuit.
- If there is excessive lead in the copper concentrate that exceeds the concentrate specification, then stringer ore or low-grade ore may be used to blend the lead grade in the copper concentrate down to a saleable value.

Operating Strategy

To minimise noise levels, the crushers, screen and mill will be located within buildings. Crushing is to be performed on dayshift only, with a planned crushing timeframe of twelve hours per day, or as otherwise advised by regional stakeholders. For this reason, the crusher will operate at significantly higher throughput rates (360 t/h) than the milling circuit (125 t/h), with crushed ore reporting from the screen undersize, to the mill feed bin which has a live capacity of 50 cubic metres.

To minimise environmental emissions, all major process equipment will be housed within buildings, with 24/7 sound, dust, and noise monitoring to ensure that any fugitive emissions are rapidly detected and rectified. The overall process flowsheet is shown in Figure 31.

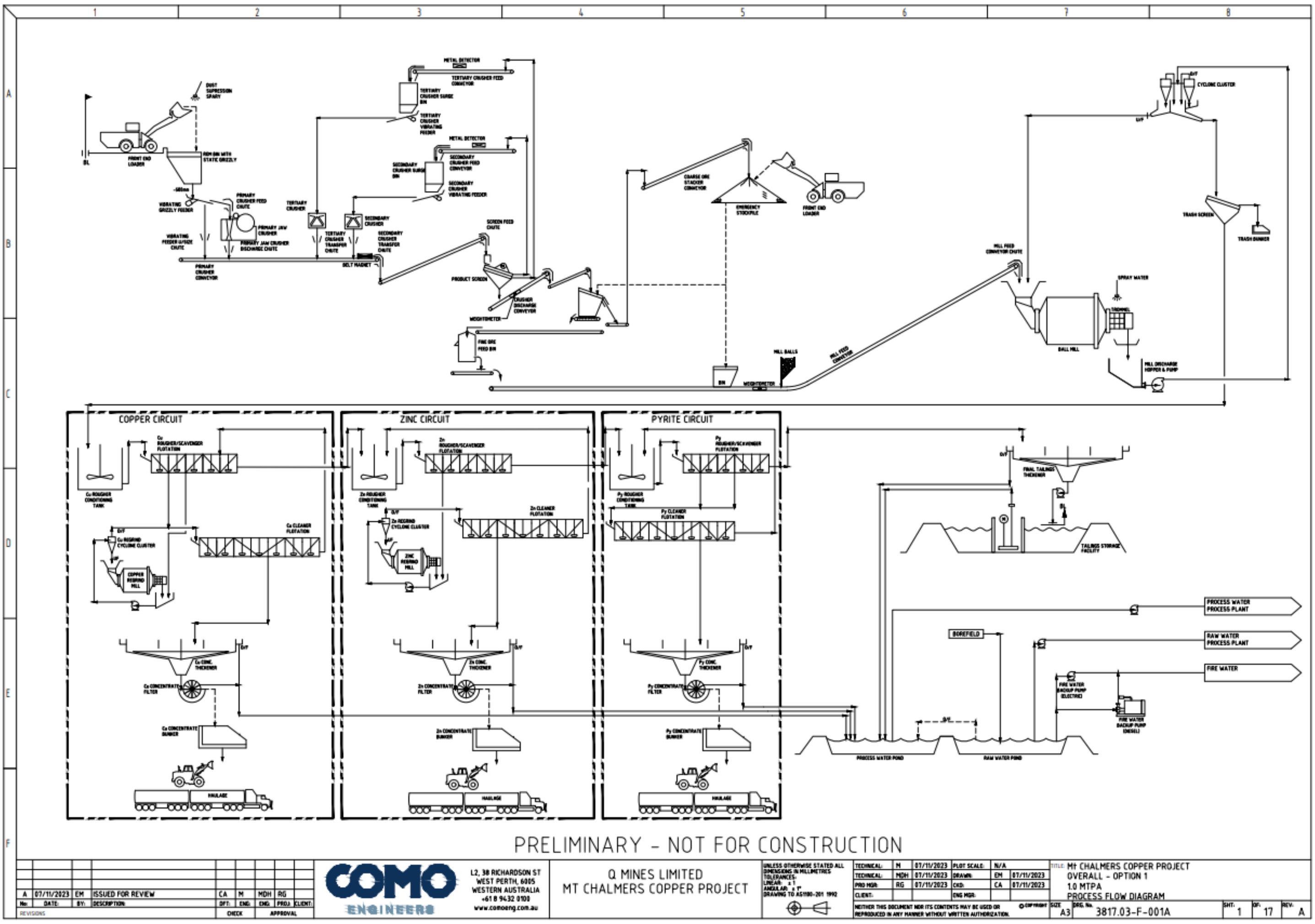


Figure 31: Mt Chalmers process plant flow sheet.

Process Control

The circuit will be controlled in the operations control room by a Supervisory Control and Data Acquisition (**SCADA**) system with process variables displayed on the Human Man Interface (**HMI**) at the control room. A metallurgist and process operator ensuring that appropriate setpoints and parameters are maintained. There will be individual start / stop sequences to control all critical process equipment. All reagent additions and process setpoints will be adjusted by the control room operator as required to achieve safe production at optimised productivity rates.

The process control room will also function as a permit centre to ensure all maintenance and isolation activities are carried out safely.

Major features of the process control system are:

- On stream analysers (Courier 8X SL) will assay the major process streams for the elements Au, Ag, Cu, Pb, Zn, Fe, S on a continuous basis to provide guidance for process control and optimisation in real time. All tonnage and flow setpoints will be maintained at target values by PID controllers.
- Concentrate target grades of percent copper, percent zinc and percent sulphur will be input to the SCADA system, and control loops will adjust flotation parameters to achieve the required flotation concentrate setpoints.
- Reagent dosage will be ratioed by cascade control, to the feed composition based on the on-stream assays. This will ensure that the flotation reagents are not overdosed.

Product Quality

- Composite assays will be analysed on a shift basis and weekly calibration checks will be taken against the on-stream analysers.
- Concentrate assays and moisture checks will be carried out daily to confirm concentrate quality and ensure all concentrate specifications are met prior to concentrate leaving site.
- Concentrate tonnage will be calculated from the plant assays and mass flows.
- Concentrates leaving site will be photographed and logged.
- Concentrates leaving site will pass over a weighbridge to confirm tonnages.

Moisture Content Control

Concentrates will be managed to ensure that the Transportable Moisture Limit (**TML**) target is achieved. It is recommended that a contract laboratory be based onsite to certify all shipments of concentrate.

Crushing Circuit

The crushing circuit is a conventional three-stage hard rock crushing circuit in closed circuit with a double deck screen to produce a product size of nominally minus 12mm product. The Run of Mine (**ROM**) bin will have a traffic light system installed, with a red light actuated via SCADA when the bin level exceeds a setpoint level (this setpoint can be set to zero for maintenance activities).

ROM Bin

Ore is fed by front end loader onto the 600mm static grizzly, scalping out oversize material to prevent jaw crusher blockages. The minus 600mm rocks fall into the ROM bin prior to being drawn from the bin via the apron feeder. Any retained oversize rocks on top of the grizzly are to be broken by a rock breaker. The grizzly will be slightly inclined, to facilitate self-cleaning as much as is possible.

The ROM bin is designed with a live residence time of 30 minutes and holds up to 179 tonnes of ROM ore. This allows for efficient bin loading, refuelling of the loader and allowing for minor servicing of the ROM loader.

Dust Control

All conveyor transfer points and chutes on the circuit are fitted with high pressure atomising water sprays for dust suppression to prevent fugitive dust emission. Dust suppression water will be used as required however water quantities will be minimised to prevent chute slippage and mud buildup on conveyors and loadout points.

Primary Crusher

The ore at Mt Chalmers varies from moderately competent to highly competent rock, with negligible clay content, which is sourced from open pit mining.

- All crushing will be inside a building to prevent fugitive dust emissions.
- Dust sprays will be utilised wherever required.

Provision for removal of tramp metal is made with the use of overhead belt magnets and metal detectors. The moisture content of the ore is expected to be in the range of 3-6%, with a maximum of 10%. The rock is free draining, and the climate is generally dry. Therefore the ore is expected to free flow at all times.

The ore is withdrawn from the ROM bin at a design rate of 360 t/h by a variable speed apron feeder. The speed of the variable speed controller is controlled by a PID controller to meet the tonnage setpoint based on the crusher weightometer data. The ore falls from the apron feeder onto a vibrating scalping grizzly. The scalping grizzly removes fines from the jaw crusher feed, with the coarse rocks overflowing the vibrating grizzly and flowing into the single toggle jaw crusher. The jaw crusher selected has a closed side setting of 125mm. The fines from the vibrating grizzly fall onto the primary crusher sacrificial conveyor.

Secondary and Tertiary Crushing

The secondary and tertiary crusher are located within a separate building. Crushed product from the primary crusher falls onto the primary crusher sacrificial conveyor, passing under a self-cleaning belt magnet, and discharges onto the screen feed conveyor. The belt magnet removes drill bits and Ground Engaging Tools (**GET**) such as loader teeth.

The screen feed conveyor transports the ore to the sizing screen feed chute where the ore flows onto the double deck sizing screen. The screen is located within a separate building to minimise environmental impact from noise, dust and light. A weightometer is installed on the screen feed belt for determination of the crushing circuit circulating load and to allow decisions as to when to adjust the closed side setting of the secondary and tertiary crushers.

The top deck of the sizing screen has an aperture size of 48mm and scalps the coarsest material to minimise wear on the lower screen deck. The oversize from the 48mm screen deck flows to the secondary crusher feed conveyor where it passes over a weightometer and ultimately flows to the secondary crusher feed surge bin. The second screen deck of the two-deck vibrating screen has an aperture size of 18mm, with the screen fines of nominally 80% passing 12mm.

The oversize from the 18mm screen deck flows onto the tertiary crusher feed conveyor and passes over a weightometer before discharging into the tertiary crusher feed bin. The secondary and tertiary crusher feed weightometers provide real time data regarding circulating loads and crushing efficiency and are used to optimise crusher settings.

The purpose of the secondary and tertiary crusher feed bins is to ensure that both the secondary and tertiary cone crushers run in the choked feed condition which saves power, maximises crushing efficiency and minimises crusher wear rates. Once the feed bin (from either crusher) reaches a setpoint level (controlled by SCADA setpoint), the crusher starts. Then the vibratory pan feeder starts and ore is fed into the appropriate crusher at a controlled rate. Discharge from the secondary and tertiary crusher discharges onto the primary crusher sacrificial belt and returns to the sizing screen. The fines from the sizing screen (-12 mm material) fall onto the screen undersize conveyor and pass to the mill feed bin.

Mill Feed Bin

Feed bin one is a surge bin for crushed ore product with an overflow chute. If feed bin one is full or the withdrawal rate from the fine ore feed bin is lower than the rate feeding the mill feed bin, ore will overflow and be conveyed to the emergency ore stockpile. The emergency ore stockpile may be re-fed to the mill if there is an extended crusher shutdown.

Feed bin one has an apron feeder to feed ore to the fine ore bin (otherwise known as the mill feed bin). When the mill feed bin is full, or the mill feed bin conveyor stops, feed bin one continues to fill until it overflows. The overflow falls by design onto the feed conveyor for the conveyor stacker to form the emergency feed stockpile. During prolonged crusher shutdowns, the emergency stockpile ore will be fed to the mill via the emergency feeder.

Fine Ore Stacker

The overflow from Feed Bin One is conveyed to a radial stacker and is stacked onto the fine ore emergency stockpile. Ore is reclaimed as required and fed to the mill emergency feed chute via front end loader.

Mill Feed

Crushed ore will be drawn from the fine ore bin by two variable speed belt feeders which discharge onto the mill feed conveyor. The two variable speed belt feeders are controlled via a variable speed motor to ensure that the mill is always fed at the setpoint feed rate. If required, emergency feed is fed to the mill via the emergency feed bin. This bin has a variable speed controller and is controlled by setpoint to maintain the mill feed rate whilst emergency feed is being utilised. Mill balls are added to the mill feed conveyor via the feed kibble system.

Grinding & Classification

The grinding mill is located within a separate building to minimise surrounding visual and auditory impacts. The grinding and classification circuit is a single stage ball mill in closed circuit with a hydrocyclone cluster to achieve a grinding size of 80% passing 75 microns. The ball mill is sized to process one million tonnes of VMS ore at 125 t/h, with the ball charge dictated by the ore competency. When processing VMS ore, the mill throughput may be limited by the pyrite content of the VMS ore overloading the flotation circuit. When processing Stringer ore, the mill throughput may be limited at 120-125 t/h, depending on the competency of the stringer ore. Blending of VMS and Stringer ore is recommended for optimal mill throughput and process stability.

Ore is drawn from the Fine Ore Bin (**FOB**), via the two FOB discharge belt feeders onto the mill feed conveyor.

If the crushing circuit is offline, ore may be fed to the milling circuit via the emergency feed bin and emergency belt feeder.

The mill feed conveyor weightometer outputs a signal to the SCADA system to provide instantaneous tonnes per hour for reagent ratio control as well as shift totals and monthly tonnes milled for reconciliation purposes. The mill feed rate in tonnes per hour is controlled at a setpoint that provides stable milling and flotation performance. To ensure a stable circuit, the FOB belt feeders and emergency belt feeder are both controlled by Variable Speed Drive (**VSD**) to deliver the setpoint t/h for the mill.

Ball Mill

The grinding mill is a single ball mill which will be enclosed within a shed to minimise visual and sound impact on the surrounding area. The ball mill is a fixed speed overflow mill with an installed power of 2,100kW. To maintain the mill power control at the optimum level, mill balls are added to the ball mill as required via the mill ball kibble and mill ball addition chute.

As there are significant differences between work indices for massive sulphide ore and stringer ore, it is not recommended to suddenly change the blend without ensuring the grinding mill charge is appropriate for the ore. Maintaining the same blend for prolonged periods will deliver the optimal grind. The mill feed water will be process water. Mine water will be added to the process water blend via the tailing's storage facility. The mine water pH will vary depending on seasonality and bacterial activity and may be as low as a pH of 2.4.

Flotation testing has demonstrated high copper recovery rates in the range of pH 5, to pH 7. The grinding circuit pH will be controlled to a setpoint by the mill feed water composition with pH adjustment by lime. Acid will not be added to process water, and in the absence of mine water, flotation will be at 'natural pH' of approximately pH 6-7. In addition to the raw water, Sodium Metabisulfite (**SMBS**) is added to the grinding circuit in a controlled ratio to the ore feed to assist in the depression of sphalerite and pyrite.

The ball charge in the ball mill will typically be maintained in the range 35-38%, and grinding will be carried out at a pulp density of 75% solids by weight. Product from the grinding mill will pass over a rotating polyurethane trommel screen with 12mm apertures. Any large rock scats and ball chips are screened out of the mill discharge product. These rock scats and chips fall into the scats chute and into the scats bunker, which is periodically emptied by a front-end loader.

Trommel undersize material flows by gravity into the ball mill discharge hopper. Process water is added to the ball mill discharge hopper in a controlled ratio to maintain the setpoint cyclone feed density. Flowrate to the cyclones is measured by a mass flowmeter in the cyclone feed pipe. Cyclone feed rate is controlled by variable speed drive cyclone feed pumps to maintain a nominal cyclone pressure of 100-110kPa, with a secondary control loop to maintain the mill discharge hopper level within appropriate control bands.

Hydro-Cyclone Cluster

The cyclone cluster is a pack of sixteen 250mm diameter CAVEX cyclones. There are eleven cyclones online at any time and five standby cyclones. The design spigot diameter is 44mm and the vortex finder of 80mm with a nominal circulating load of 300%. The cyclone underflow stream reports back to the grinding mill.

The cyclone overflow stream reports to a vibrating trash screen with apertures of 1.0mm, to remove foreign material prior to the flotation circuit. The cyclone overflow trash screen undersize flows by gravity to the copper rougher flotation conditioning tank. The trash screen overflow flows to a trash bunker prior to disposal.

Head Assay

A bleed stream of the cyclone overflow flows into the onstream analyser which determines the concentration of Cu, Fe, Zn, Pb, S in the feed to the plant in real time. The head assay is used to determine the flow rates of reagents to the copper conditioning tank.

Flotation

The flotation circuit is located within a separate building to minimise surrounding visual and auditory impacts.

Copper Flotation

The copper rougher-scavenger circuit is where the copper recovery to copper concentrate (chalcopyrite mineral) is maximised. It is critical in this part of the circuit to pull as much to concentrate as the circuit will handle whilst remaining stable. The higher the amount of concentrate produced, the higher the copper recovery to rougher concentrate. The cleaner circuit and the regrind circuit will separate most of the unwanted minerals from the chalcopyrite (copper) by decreasing the particle size to improve liberation, then re-floating the desired minerals to a higher-grade concentrate.

Reagents are added to the copper conditioning tank to activate chalcopyrite whilst maintaining zinc and pyrite depression. These reagents are:

- Lime to ensure the pH is maintained at the setpoint level (pH 5-7).
- Zinc Sulphate. Zinc sulphate assists in the depression of pyrite.
- Frother. Varying the frother addition rate allows fine tuning of bubble stability.
- Flotation Collector. The collector choice depends on the feed blend, with the design collector 3418A, which is a dithiophosphinate. As the blend trends towards Stringer, A3894 collector (thionocarbamate) may be more beneficial as it is potentially more selective towards gold. Final collector specification will be based on the mine reserve, final testwork and feed blend prior to commissioning.

Slurry from the copper rougher conditioning tank flows to the first stage in the copper rougher flotation cells. The copper rougher / scavenger cells produce a low-grade concentrate (5-10% Cu) with a targeted recovery of 90-95% copper to concentrate. This low-grade concentrate is pumped to the copper regrind mill to improve the liberation of fine chalcopyrite particles from the pyrite particles and facilitate upgrading of the concentrate to a saleable value.

The reground ore is then pumped to the copper cleaner bank number one, where the copper concentration is further upgraded. Tailings from the copper cleaner bank number one contain particles of sphalerite and pyrite which have become liberated in the copper regrind circuit and are pumped back to the copper roughers. This enables the non-chalcopyrite particles, which have been liberated in the regrind mill, the opportunity to report to the zinc and pyrite flotation circuits.

Copper cleaner concentrate is pumped to the copper recleaner circuit where further cleaning of the concentrate occurs. The final copper concentrate is pumped to the concentrate thickener, and the tailings from the copper recleaner flowing back to the copper cleaner circuit as a circulating load. Tailings from the copper flotation circuit will contain minimal levels of chalcopyrite and flow to the zinc flotation circuit.

Recirculating Load

In addition to the raw feed from the cyclone overflow, the copper cleaner scavenger tailing reports to the copper rougher / scavenger conditioning tank. This process stream contains the zinc rejected from the copper cleaner circuit. The zinc minerals that have been reground in the copper cleaner circuit will be depressed in the copper circuit and will pass to the copper tails and into the zinc recovery circuit.

Copper Tails Assay

A bleed stream of the copper flotation tails stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the feed to the zinc flotation circuit in real time. Reagent additions in the zinc conditioning tank will be ratioed to the assay content of the zinc flotation feed stream to minimise the risk of reagent overdosing.

Copper Rougher Concentrate Assay

A bleed stream of the copper rougher concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the copper rougher concentrate in real time. Reagent addition to the copper cleaner circuit is ratioed to the assay content of the copper rougher concentrate stream to minimise the risk of reagent overdosing.

Copper Concentrate Regrind Mill

The copper regrind mill is a single stage 250kW ball mill. The mill will decrease the average particle size from a nominal 60 microns to a nominal 40 microns, further liberating chalcopyrite particles from the pyrite and sphalerite particles. The product from the copper regrind mill is pumped to eight 150mm diameter CAVEX cyclones, with the cyclone underflow reporting back to the regrind mill, and the overflow reporting to the copper cleaner conditioning tank.

Copper Cleaner Flotation

The copper cleaner flotation circuit comprises a cleaner and recleaner bank of flotation cells which sequentially increase the copper grade in the concentrate whilst maintaining as much copper recovery as is practically possible.

Final copper concentrate from the copper recleaner circuit report to the copper final concentrate thickener, and the tailings from the copper cleaners report back to the copper rougher flotation circuit. The concentrate specification is a minimum 15% copper however tests show that a concentrate grade as high as 26% can be achieved at a high copper recovery. During operations, the metallurgist determines the optimal concentrate or recovery target on a daily basis.

Copper Final Concentrate Assay

A bleed stream of the copper concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the copper concentrate in real time as well as calculating the mass pull and copper recovery to concentrate.

Copper Final Concentrate Thickening

The copper concentrate is pumped to the copper concentrate thickener. Flocculant is added to the copper concentrate thickener feed stream to assist in the settling of the concentrates. The copper concentrate thickener increases the density of the copper concentrate to 65% solids weight / weight prior to being pumped to the copper filter.

If the copper concentrate thickener becomes overloaded due to excess concentrate production, then the copper concentrate grade setpoint should be increased to reduce the amount of concentrate, or else the blend should be changed to a lower copper content. Copper concentrate thickener overflow and copper filter filtrate are pumped to the process water dam for recycling to the circuit.

Copper Filtration

The thickened copper concentrate is pumped to the copper concentrate filter, where the moisture content is reduced to less than the transportable moisture content. The copper filter is designed to maintain a utilisation rate of 80%, allowing changeouts of filter media and any other routine maintenance during the remaining 20% of the time.

The copper filter design capacity is 10 t/h, with a nominal duty of 6.5 t/h. This rate is sufficient to filter concentrates produced at 125 t/h mill feed rate with an average copper grade of less than 1.00% copper and a recovery of 90% and a utilisation of 80%. Filter cake flows by gravity from the filter press into the copper concentrate bunker and is then loaded by front-end loader into concentrate trucks or loaded into a dedicated copper concentrate storage bay. Copper concentrate thickener overflow and copper filter filtrate are pumped to the process water dam for recycling to the circuit.

Zinc Rougher Flotation

The copper flotation circuit tailings stream feeds to the zinc flotation circuit. Prior to zinc flotation, the sphalerite particles must be reactivated whilst maintaining depression of pyrite particles. Lime is added to the zinc conditioning tank to increase the pH to the required setpoint level of between 5-7 pH units. Reagents are added to the zinc flotation conditioning tank to activate the zinc minerals (sphalerite particles):

- Copper Sulphate. Copper sulphate is a sulphide activator.
- Lime. Lime will increase the pH, whilst assisting in depressing pyrite.
- SIBX. Once activated, sphalerite is strongly hydrophobic and suitable for collection by xanthates. The SIBX assists in pyrite depression, and the dosage added will vary with the pyrite level in the ore.
- Frother.
- Additional frother is added as required.

From the zinc conditioning tank, the slurry flows to the zinc rougher/scavenger cells, where a medium grade zinc concentrate is achieved, at a high zinc recovery. The zinc concentrate is then pumped to the zinc regrind mill, and the zinc flotation tailings are pumped to the pyrite recovery circuit.

Zinc Rougher Concentrate Assay

A bleed stream of the zinc rougher concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the zinc concentrate in real time, and calculates the zinc recovery and mass pull to rougher concentrate.

Zinc Regrind Mill

Mineralogical testing carried out to date indicates that a significant percentage of the sphalerite particles are intimately intergrown with pyrite particles. It is not possible to produce a clean concentrate without further liberation from the pyrite particles. For this reason, a 'polish' regrind is required to further liberate pyrite particles from sphalerite particles. Mineralogical assessment indicates that a grind in the range of 30-40 microns will be sufficient to liberate the majority of the sphalerite from pyrite.

The zinc regrind mill is a 250 kW overflow ball mill. The product from the zinc regrind mill is pumped to a bank of eight, 150 mm diameter CAVEX cyclones. Four cyclones will be in duty at any time, with the remaining two cyclones on standby. The cyclone overflow flows to the zinc cleaner circuit and the cyclone underflow flows back to the zinc regrind mill feed chute.

Zinc Cleaner Flotation

The zinc cleaner flotation circuit comprises a cleaner and recleaner bank of flotation cells, which sequentially Increase the zinc grade in the concentrate, whilst minimising pyrite recovery. The concentrate specification is 50% zinc or higher.

Zinc Final Concentrate Assay

A bleed stream of the zinc final concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the zinc concentrate in real time, and calculates the zinc recovery to final concentrate.

Zinc Final Concentrate Handling

The zinc concentration in the feed is approximately 0.2-0.3% Zn, thus the concentrate production rate will be in the range of 0.25-0.5 t/h. The concentrate is pumped to the zinc concentrate thickener. Flocculant is added to the thickener feed stream, and the zinc concentrate settles in the thickener to produce a pulp of 65% solids by weight.

The thickened zinc concentrate is pumped to the zinc filter and batch filtered as required. Filter cake drops into the zinc concentrate bunker and is then loaded by front-end loader into concentrate trucks or moved to the zinc concentrate storage bay.

Pyrite Flotation

The final stage in the Mt Chalmers flotation circuit is the pyrite flotation circuit. The purpose of this circuit is to recover as much sulphide mineral as possible to a saleable concentrate and minimise the amount of potential future acid drainage from the tailings dam. In addition to pyrite, a significant portion of the gold present in the ore reports to the flotation concentrate, thus adding a potential byproduct value to the pyrite if gold payability threshold are met.

Pyrite Rougher Flotation

The zinc flotation tailings stream is pumped to the pyrite flotation conditioning tanks where copper sulphate and collector (**PAX**) are added to the slurry to render the pyrite hydrophobic and amenable to flotation. Rougher flotation is focused on maximising the pyrite recovery to concentrate. Pyrite content in the ore may be as high as 40% in certain portions of the massive sulphide orebody. Therefore if blending of pyrite in the flotation feed is not carefully planned, pyrite flotation and filtration may become a process bottleneck. The current design criteria specifies that 10% of the plant feed reports to final pyrite concentrate.

The pyrite cleaner flotation circuit comprises a cleaner and recleaner bank of flotation cells which sequentially increase the pyrite grade in the concentrate whilst minimising carry over of gangue minerals.

Pyrite Rougher Concentrate Assay

A bleed stream of the pyrite rougher concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the pyrite rougher concentrate in real time, and also estimates the sulphur recovery and mass pull to pyrite rougher concentrate.

Pyrite Final Concentrate Assay

A bleed stream of the pyrite final concentrate stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the pyrite rougher concentrate in real time, and calculates the estimated pyrite content in the concentrate.

Final Tailings Assay

A bleed stream of the pyrite tailings stream flows into the on-stream analyser. This analyser determines the concentration of Cu, Fe, Zn, Pb, S in the pyrite tailings stream for assessment of the potential environmental acid forming capacity of the tailings impoundment.

Pyrite Concentrate Handling

The pyrite concentrate is pumped to the pyrite thickener. Flocculant is added to the thickener feed stream and the pyrite settles in the thickener to produce a pulp of 65% solids by weight. The thickened pyrite concentrate is pumped to the pyrite filter and filtered on a continuous basis. Filter cake drops into the pyrite concentrate bunker and is then loaded by front end loader into pyrite trucks or moved to the pyrite concentrate storage bay.

Reagents

The reagents for the flotation plant consist of the following:

- Flocculant
- Frother
- SIBX
- PAX
- SMBS
- Lime
- Copper Sulphate
- Zinc Sulphate
- Copper Collector

Flocculant

The flocculant mixing plant is a vendor package comprising of the flocculant hopper, screw feeder, blower, mixing tank and storage tank. Flocculant powder will be delivered and stored in 25kg bulk bags. The bags will be lifted into the hopper located above the mixing tank by overhead crane. The flocculant will be transferred to the mixing tank by screw feeder and blower. Water will be introduced to the powdered flocculant in a 'jet wet' head to ensure good water-flocculant contact. The mixture will be gravity fed into the hydration tank. Water will be added to the concentrated flocculant solution in the agitated mixing tank to produce solution with a concentration of 0.25% solids (m/v). The flocculant will be stored in a storage and distribution tank from which it will be dosed to the thickeners. Flocculant pumps will be both running and standby and will be fitted with a variable speed drive to allow automated flocculant dosing. Make-up spillage will report to the final tailings thickener.

Frother

Frother will be delivered in liquid form to the plant in 1kL bulk containers. The containers will attach directly to a distribution manifold. Variable speed pumps will be used to dose the concentrated reagents to the required dosing points. Make-up and dosing spillages will be pumped to the flotation reagents area sump pump, pumping to the pyrite flotation tails thickener.

SIBX

Sodium Iso-Butyl Xanthate (**SIBX**) collector pellets will be delivered and stored in 1t bulk bags. The make-up facility will comprise a mixing tank and a dosing tank. In the mixing tank, pellets will be mixed with reagent water to produce a collector solution with a concentration of 15% (w/v). Dosing to flotation tanks will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to the pyrite flotation tailings hopper. A safety shower will be installed in this area.

PAX

Potassium amyl xanthate (**PAX**) collector pellets will be delivered and stored in 1t bulk bags. The make-up facility will comprise of a mixing tank and a dosing tank. In the mixing tank, pellets will be mixed with reagent water to produce a collector solution with a concentration of 15% (w/v). Dosing to flotation tanks will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to flotation tailings disposal.

SMBS

Sodium Metabisulfite (**SMBS**) will be delivered to site and stored in 1t bulk bags. The make-up facility will comprise a mixing tank and a dosing tank. In the mixing tank, pellets will be mixed with raw water to produce a solution with a concentration of 10% (w/v) of SMBS. Dosing will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to flotation tailings thickener. A safety shower will be installed in this area.

Lime

Hydrated Lime will be delivered to site by 2t bulk bags and stored in a shed. The make-up facility will comprise a feed hopper, mixing tank and a dosing tank. In the mixing tank, lime will be mixed with raw water to produce a solution with a concentration of 10% (w/v). The lime solution will be pumped over a DSM screen to remove undissolved grit, with the grit reporting to a grit bunker, and disposed of according to site practice. Lime will be principally used to pH modify mine water as it is dewatered from the mine.

If required, dosing of lime to the flotation circuit tanks will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to the pyrite tailings hopper. A safety shower is installed in this area.

Copper Sulphate

Copper sulphate will be delivered to site in 25kg bags, which will be manually emptied into the copper sulphate mixing tank and made up to 15% $CuSO4$ by weight. The mixing plant comprises a manual mixing tank and a holding tank prior to the copper sulphate dosing pumps.

Zinc Sulphate

Zinc Sulphate will be delivered to site and stored in 1t bulk bags. The make-up facility will comprise a mixing tank and a dosing tank. In the mixing tank, zinc sulphate dust will be mixed with raw water to produce a solution with a concentration of 20% (m/v). Dosing will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to the pyrite flotation tailings hopper. A safety shower will be installed in this area.

Copper Collector

There are two favoured collectors for the Mt Chalmers project being A3894 and 3418A. Both collectors have demonstrated that they are amenable to the Mt Chalmers ore with the 3418A (slightly) more favourable for VMS ore and the A3894 (slightly) more amenable for Stringer ore. Final reagent selection will be made prior to commissioning. Potassium amyl xanthate (**PAX**) collector pellets will be delivered and stored in 1t bulk bags. The make-up facility will comprise a mixing tank and a dosing tank. In the mixing tank, pellets will be mixed with reagent water to produce a collector solution with a concentration of 15% (m/v). Dosing to flotation tanks will be via dedicated dosing pumps. Make-up and dosing spillages will report to a dedicated spillage pump pumping to flotation tailings disposal. A safety shower will also be installed.

Raw and Process Water

The site water balance comprises four different types of water, each with a specific purpose:

1. Mine Water. The mine water is dewatered to the TSF and becomes part of the process water supply.
2. Raw Water. Potable from the regional water supply. This will be used in the fire water distribution system, as gland water and wherever high-quality water is required.
3. Reverse Osmosis water. This is the potable water for office use, sanitary use and drinking water.
4. Tailings return water. This water is used as process water.

Compressed Air

Compressed process and instrument air will be supplied via dedicated compressors. Two dedicated compressors (duty-standby) with filters, driers, and accumulators, will supply instrument and plant air requirements for the entire plant.

Air requirements for general use in the plant and workshops will be tapped-off before the instrument air driers. Two blower units will supply low-pressure blower air for flotation.

Power Supply

The power supply will be by owners to three Motor Control Center (**MCC**) units:

- Crusher Control. One transformer and one MCC.
- Milling and Flotation. Two transformers and one MCC.
- Reagents and dewatering. One transformer and one MCC.

CAPITAL COST ESTIMATE (CAPEX)

The estimation of costs associated with the development of the Mt Chalmers process plant has been a collaborative effort between QMines and its consultants, principally COMO Engineers, Minecomp and Aurelia Mining. Costs have been estimated to a nominal accuracy of +/- 25%. The cost estimate for a 1.0Mtpa base metal concentrator and all direct and indirect costs excluding owners cost is A$134.4M (Table 43). The estimate includes a contingency factor of 10% on all elements. The process flow sheet diagram can be seen in Figure 32.

QMines has provided inputs for local labour hire, concrete, building and site construction, heavy vehicle earthmoving plant and equipment procurement, TSF construction, earth works, lifting, diesel fuel, flights and accommodation that feed into the third-party estimates of capital and operating costs as they relate to the financial analysis of the project. The COMO brief for the Mt Chalmers process plant based on the metallurgical testing undertaken by the Company since April 2022 was to design and deliver a process plant to a PFS level cost estimates under EPCM type conditions for a copper concentrator style plant to treat Mt Chalmers VMS and Stringer ore.

Plant Estimate Basis

The process plant CAPEX has been prepared based on a detailed equipment list compiled by Como Engineers as part of the PFS, general arrangement drawings developed by Como Engineers, and electrical single line diagram developed by Como Engineers. The preliminary design has been developed to comply with the relevant Australian Standards.

The Basis for the CAPEX estimation is detailed in Table 42.

Table 42: Basis of CAPEX.

Item	Qualification
Equipment list	Vendor quotations, single source.
Mechanical work Labour & material estimates	Como database.
Structural work Labour & material estimates	Estimates from sketches.
Piping & Instrumentation	Percentage of equipment.
Electrical work	Percentage of equipment.
Indirect costs Labour & material estimates	Estimated.
CIL Circuit	Estimated.

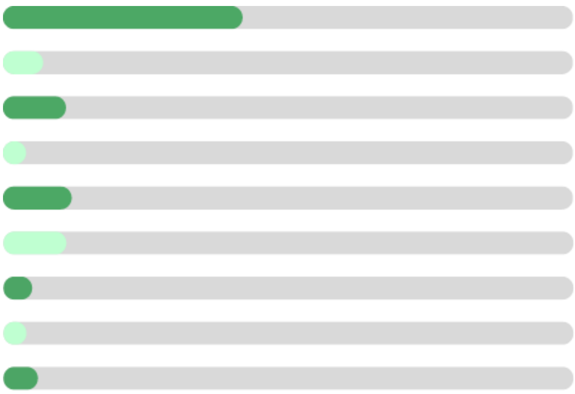
Table 41: Gold Plant CAPEX Estimate (CIL)

	Summary	Materials & Equipment	Labour	Freight	Sub-Total	Contingency	Total
1	EPCM	$754,029	$1,740,102	$0	$2,494,131	$249,413	$2,743,545
2	General	$679,556	$978,291	$47,520	$1,705,367	$170,537	$1,875,904
3	Electrical	$1,134,458	$283,614	$74,874	$1,492,947	$149,295	$1,642,241
4	Site Infrastructure	$221,400	$24,840	$14,612	$260,852	$26,085	$286,938
6	Concentrate Leaching	$3,366,961	$1,463,415	$88,043	$4,918,420	$491,842	$5,410,262
7	CIL Detox	$984,114	$286,621	$22,215	$1,292,950	$133,253	$1,426,203
8	Elution, Carbon Regeneration and Gold Room	$2,792,694	$375,846	$91,476	$3,260,017	$326,002	$3,586,019
9	Reagents	$304,700	$95,611	$15,530	$415,841	$41,584	$457,426
Sub-Total		**$10,237,913**	**$5,248,342**	**$354,271**	**$15,840,526**	**$1,588,011**	**$17,428,536**

Table 43: COMO capital cost estimate, Mt Chalmers process plant.

1.0 Mtpa Cu/Zn/Py Flotation Plant							
#	Summary	Materials & Equipment ($)	Labour ($)	Freight ($)	Sub-Total ($)	Contingency (%)	Total ($)
1	EPCM Contract Rate	$767,880	$13,025,837	$0	$13,793,717	10%	$15,173,088
2	General	$1,874,282	$956,788	$24,300	$2,855,370	10%	$3,140,907
3	Electrical	$10,377,331	$3,454,447	$223,560	$14,055,338	10%	$15,460,872
4	Site Infrastructure	$15,523,010	$75,084	$5,618	$15,603,712	10%	$17,164,083
5	Crushing	$16,983,005	$2,013,919	$898,013	$19,894,937	10%	$21,884,431
6	Grinding And Classification	$12,672,580	$2,676,076	$662,451	$16,011,107	10%	$17,612,217
7	Copper Flotation Circuit	$8,677,323	$2,029,071	$398,031	$11,104,426	10%	$12,214,869
8	Zinc Flotation Circuit	$5,954,273	$1,499,662	$341,797	$7,795,732	10%	$8,575,306
9	Pyrite Flotation Circuit	$4,415,492	$922,537	$183,076	$5,521,105	10%	$6,073,216
10	Copper Concentrate Thickener and Filtration	$2,170,693	$513,456	$176,574	$2,860,723	10%	$3,146,795
11	Zinc Concentrate Thickener and Filtration	$1,539,624	$416,069	$176,574	$2,132,266	10%	$2,345,493
12	Pyrite Concentrate Thickener and Filtration	$2,270,709	$528,891	$176,574	$2,976,174	10%	$3,273,791
13	Tailings	$1,272,738	$293,968	$156,285	$1,722,991	10%	$1,895,290
14	Reagents	$2,818,149	$777,943	$88,822	$3,684,914	10%	$4,053,405
15	Services	$1,635,016	$482,355	$78,085	$2,195,456	10%	$2,415,001
	Total	**$88,952,106**	**$29,666,102**	**$3,589,760**	**$122,207,968**		**$134,428,765**

Capital Cost Breakdown



42% EQUIPMENT
7% PIPING
11% ENGINEERING. PROCUREMENT, CONSTRUCTION MANAGEMENT
3% GENERAL
12% ELECTRICAL
11% BUILDINGS
5% CONCRETE
3% STRUCTURAL STEEL
6% PLATEWORK

Figure 32: Capital cost breakdown by percentage excluding mining, geology and non-process related labour costs.

Owner Pre-Production Cost Estimate

Pre-production cost estimates (Table 44) include bulk earthworks for site preparation, road construction, Tailings Storage Facility (**TSF**) construction and lining and construction of the site administration and site-specific workshops. Due to the nature of the Mt Chalmers pit and dewatering requirement the Company has planned to utilise the pre-strip material from the Stage 1 open pit cut-back as TSF construction grade material. The TSF construction, lining and the dewatering process is estimated at nine months from approval and commencement of operations.

The Mt Chalmers overburden material to be used in the TSF construction is estimated at 2.7M bank cubic metres and utilising non-acid forming (**NAF**) Andesite material from the Mt Chalmers Stage 1 pre-strip. The internal perimeter embankment of the TSF and Water Storage Facility (**WSF**) will comprise a starter embankment with a compacted clay-rich material sourced from within the TSF footprint or oxide mine waste, forming the upstream low permeability zone, which will be placed against the adjacent waste rock, also sourced from within the TSF footprint or adjacent open pits forming the downstream zone.

Current indications are that adequate volumes of mine waste are available from pre-strip mining operations, supplemented by materials sourced from within the TSF and WSF footprints or the open pit for the current Life of Mine (**LOM**) and all construction material for the TSF can be sourced from within the tenements owned by the Company.

Heavy vehicle, earthmoving and lifting equipment cost estimates have been calculated using available market data for pricing of good condition used equipment fit for purpose pursuant to the project requirements to implement the stated objectives.

Administration and site workshop cost estimates have been supplied by local Rockhampton building contractors to supply and build and relocate existing workshop facilities already onsite at the project. Power construction cost estimate is based on Ergon Energy delivery of dedicated 22 kV power line to site from the Tanby substation nearby.

Table 44: Mt Chalmers Owners Capital Estimate.

Description	Unit	Estimate
Tailings Storage Facility	2.7M BCM	$6,750,000
Tailings Lining (HDPE 1.5mm)	1,600	$7,130,000
Site Road Construction	1	$800,000
Pit Dewatering	1	$1,700,000
Admin Construction	1	$180,000
Workshop Construction	1	$350,000
Grader	1	$140,000
Loaders	2	$250,000
Compaction	1	$120,000
Water Truck	1	$120,000
Excavators	2	$500,000
Articulated Haul Trucks	4	$1,000,000
Light Vehicles	6	$320,000
Franna Crane 25t	1	$140,000
Mobile Crane 50t	1	$220,000
Mobile Crane 100t	1	$980,000
Power Connection	1	$3,050,000
Consumables	1	$250,000
Labour Hire	8	$1,040,000
Total		**$25,040,000**

Commissioning & First Fill Cost Estimate

At the commissioning stage the cost estimate relating to first fill and procurement of critical spares (Table 45) has been estimated by COMO Engineers. The Company has not included the commissioning first fill and critical spare costs in the CAPEX for the project with the view that these costs will be via equity as working capital as the project reaches the commissioning start up stage.

Table 45: Cost estimate for first fill and critical spares.

Commissioning Cost Critical Spares	Materials & Equipment ($)	Sub-Total ($)	Contingency (%)	Total ($)
First Fills		$3,343,533	10%	$3,677,886
Lime	$140,175			
Copper Sulphate	$79,500			
Frother W22	$119,000			
Zinc Sulphate	$562,500			
Aerophine 3418A	$535,000			
PAX	$32,250			
SIBX	$24,000			
SMBS	$693,750			
Flocculant	$25,550			
Grinding Balls - Primary	$851,360			
Grinding Balls - Regrind	$280,448			
Commissioning Spares	$1,779,042	$1,779,042	10%	$1,956,946
Warehouse & Critical Spares	$4,306,931	$4,306,931	10%	$4,737,624
Total	**$9,429,506**	**$9,429,506**		**$10,372,457**

Assumptions

- All pricing is in Australian dollars.
- Diesel price delivered from IOR petroleum quote 13/07/2023.
- Power from grid – Ergon Energy.
- DIDO ex regional towns Rockhampton, Yeppoon and surrounds.
- Single shift crusher operation and 3 x 8hr shift on milling.
- Roster 4 days on/ 4 days off, 8 hour shift.
- Crushing, milling and flotation circuits to be inside buildings for noise reduction and dust suppression.
- Concentrate trucked to Gladstone Port for export via road and rail bulk haulage.

Infrastructure & Civil Costs

Areas captured in the owners cost estimate include pre-production, site preparation and civil earthworks, site roadworks, pre strip, TSF construction, pit dewatering and heavy plant and equipment acquisition. Mt Chalmers is an existing brownfield open pit project currently held by the Queensland Governments Abandoned Mines Department.

The capital cost estimate includes an estimated total volume of 3,468 m3 of concrete required for pedestals, footings and slabs. The cost of concrete was provided by the client based on a first principle cost buildup for all required materials and labour.

- Reinforcement steel delivered to site;
- Duty and customs on imported steel;
- Batch concrete delivered to site from Rockhampton;
- Formwork;
- Labour;
- Consumables;
- Freight;

On this basis the concrete cost per cubic meter installed used in the capex is $1,812/m³ including a contractor markup of 8%.

EPCM Related Costs

- Detailed engineering design for the plant, including crushing, grinding, flotation, thickening, filtration, and concentrate storage and all tie-in points as required.
- All engineering design and drafting requirements to produce drawings to sufficient detail to allow procurement / fabrication of vendor packaged components required for the installation of the plant.
- Concrete drawings for all new slabs, plinths, footings, bund walls and loader ramps as required for the plant.
- Procurement of all material, equipment and labour required to complete the plant.
- Management of all fabrication and procurement activities as required to complete the plant construction.
- The on-site construction management and supervision of all construction activities for the duration of the construction phase.
- Technical expertise and supervision of the dry and wet commissioning of the plant.

Global Costs

The capital cost estimate includes the following site construction costs required during the construction phase of the project:

- Mobilisation of all construction related labour and equipment to site.
- General insurances.
- Use of safety equipment and cutting / grinding / welding equipment required during the construction phase of the project.

The following construction costs are captured in the owners overhead project costs:

- Use of mobile and construction equipment as required during the construction phase of the project including all light vehicles, lifting equipment, elevated work platforms and forklifts agreed to be provided by the project owner.
- Construction offices, ablutions and crib rooms required during the construction phase of the project agreed to be provided by the project owner.

Sustaining CAPEX

No allowance is made for sustaining CAPEX.

Project Schedule

A preliminary project construction schedule was developed as part of this study.

The following are major critical path items for the project schedule:

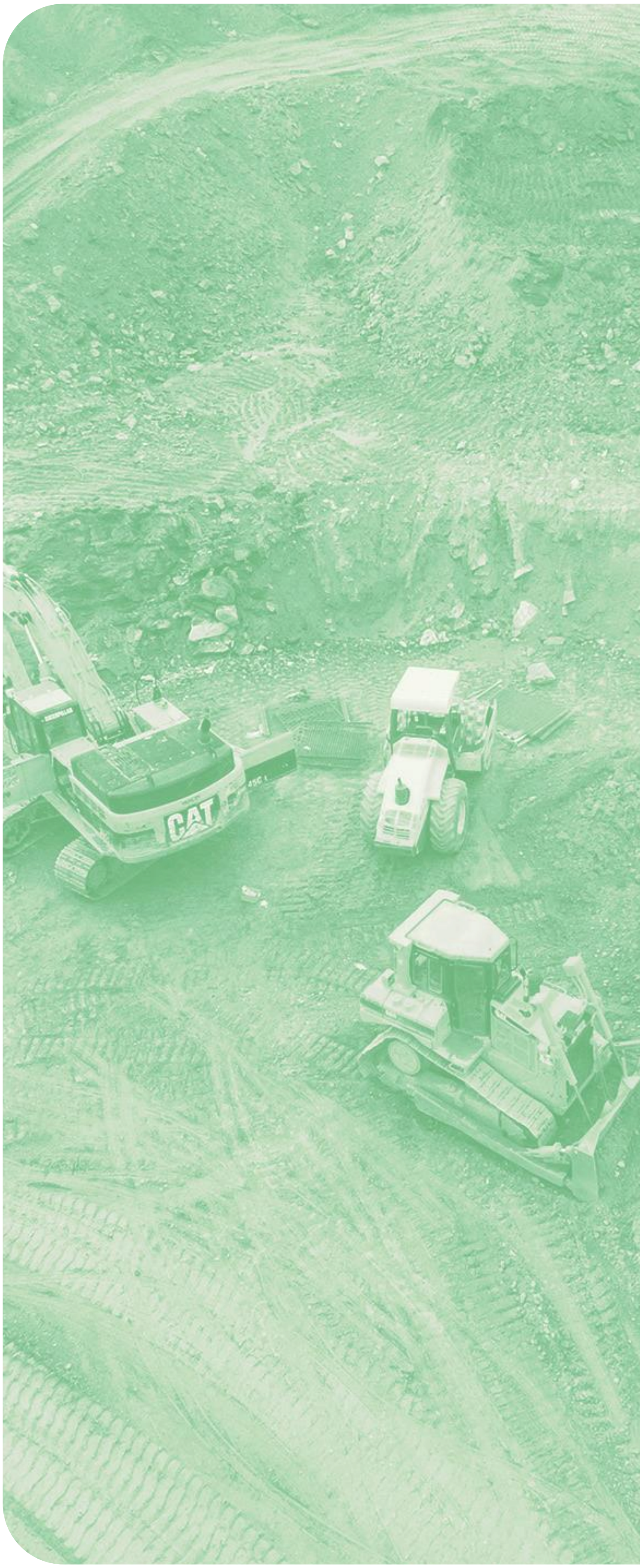
- Contract signing and commencement of detailed design phase;
- Finalising design criteria;
- Securing the major equipment (long lead items);
- Civil contractor site mobilisation;
- SMP site mobilisation;
- Construction of flotation plant;
- Electrical mobilisation to site;
- Electrical works; and
- Commissioning.

Based on the preliminary schedule, the total project duration is estimated to be approximately 22 months, encompassing detailed engineering design completion, procurement of long lead items, construction activities and commissioning. Throughout the construction phase, the peak manpower requirement is anticipated to be 68 individuals.

Project Milestones

The following activities are:

- Overall product duration – 664 days comprising:
  - Detailed Engineering Design – 257 days
  - Procurement – 427 days
  - Construction – 432 days
  - Commissioning – 66 days
  - Demobilisation – 14 days



PROCESS PLANT OPERATIONAL COSTS (OPEX)

The process plant operating costs for the Mt Chalmers project were prepared using the design criteria, the equipment lists, vendor quotations and historical data from Como Engineer's database. The operating costs for processing have been calculated from the Run of Mine (**ROM**) bin to the production of concentrates, and the pumping of slurry to the Tailings Storage Facility (**TSF**).

Costs associated with head office overheads, direct mining costs and royalties are not included in these estimates.

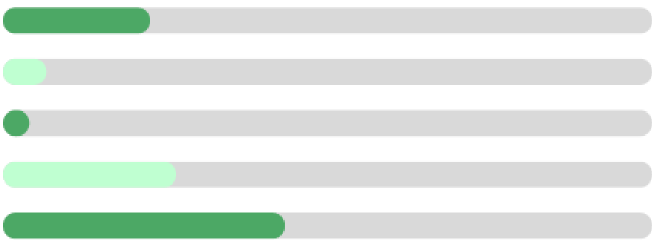
The estimated plant operating costs per tonne of ore treated are A$32.86. The operating cost has been estimated to an accuracy of (±25%) for processing 1.0Mtpa. The costs have been calculated utilising power cost supplied by Ergon Energy. The processing operational expenditures include accommodation and process department administration. A summary of the operating cost for the concentrator is shown in Table 46.

Table 46: Summary of OPEX, COMO PFS Report.

	Quantity	$/tonne
Nominal Throughput (t/h)	125	
Days	365	
Plant Availability (Grinding)	91%	
Ore Processed (tpa)	1,000,000	32.86
Combined Concentrate (tpa)	152,182	

COST AREA	Fixed Costs		Variable Costs		Total Costs		
	Year	$/tonne	Year	$/tonne	Year	$/tonne	% Breakdown
General and Administrative	$275,600	0.28		0.00	$ 275,600	0.28	0.8%
Process and Maintenance Labour	$ 8,731,800	8.73		0.00	$8,731,800	8.73	26.6%
Reagents and Consumables	$761,791	0.76	$13,488,478	13.49	$14,250,268	14.25	43.4%
Power	$711,564	0.71	$6,725,642	6.73	$7,437,206	7.44	22.6%
Maintenance	$1,037,562	1.04	$1,129,232	1.13	$2,166,794	2.17	6.6%
Total	**$ 11,518,316**	**11.52**	**$21,343,351**	**21.34**	**$32,861,668**	**32.86**	**100%**

Operational Cost Breakdown



22.6% POWER
6.6% MAINTENANCE
0.8% GENERAL & ADMINISTRATIVE
26.6% PROCESS & MAINTENANCE LABOUR
43.4% REAGENTS & CONSUMABLES

Figure 33: Operational breakdown by percentage excluding mining, geology and non-process related labour cost (OPEX), COMO PFS.

Exclusions

- The processing operational expenditures does not include allowance for onsite safety, environmental, and security.
- The costs do not include overall site administration and mining costs.
- Site accommodation and messing not included due to the project's proximity to Rockhampton.

The operating costs have been calculated based on the following parameters:

- Processing rate of 1.0Mtpa.
- 4/4 roster for shift personnel.
- Residential hours for senior management (Mon-Fri 10hrs).
- Allowance for operations and maintenance staff.
- Reagent consumption from recent testwork.
- Grid power cost of $0.15813/kWh.
- Costs from feeding ROM bin to copper concentrate loaded onto truck for delivery to customer.

Reagents & Operating Consumables

Reagent costs are based on consumption rates as per the design criteria. Costs in this area include all reagents and wear liners. The estimated reagents and operating consumable cost is:

- $14.25 per tonne of ore treated or $14.2 million AUD per annum.

Reagent Pricing

Budget pricing for reagents has been provided from sole quotations. **Error! Reference source not found.** b elow shows the prices used in the cost estimates.

Table 47: Reagent consumables.

Consumable / Reagent	Price	Units	Delivery
Copper Sulphate	5,500	t	To site
Frother W22	6,150	t	To site
Zinc Sulphate	1,700	t	To Site
3418A	26,950	t	To Site
PAX	4,500	t	To Site
SIBX	3,400	t	To Site
SMBS	950	t	To Site
Flocculant	3,850	t	To Site
Lime	600	t	To Site

Laboratory Consumables

Laboratory sample numbers have been estimated based on 12 hourly sample composites. In addition, QA/QC samples including On Stream Analyser (**OSA**) calibration samples, moisture contents and concentrate assays will be taken. Online assaying by the OSA will be the primary process control strategy, with the calibration samples to confirm the OSA is working within tolerable parameters. An assay consumables allowance of $0.13 per tonne has been included for onsite assaying costs.

Diesel

The plant will be operated on mains and renewable power generated onsite with the grid being highly reliable. Minor backup diesel power is required to allow for cleanup and office power and ablutions in the instance of a power failure. An allowance of $0.41 per tonne has been calculated for the loaders and light vehicle fleet. This is expected to be supplied from the mine fleet diesel supply. The Company plans to convert the fleet to electric once the appropriate vehicles become available at competitive prices.

Front End Loader & Light Vehicles

Maintenance and fuel costs for mobile equipment are included in the OPEX. This includes a front-end loader to feed the crusher / mill, skid steer loader, integrated tool carrier and forklift. Capital cost for the mobile equipment is captured in the owners fleet costs. The crusher will be fed on dayshift only. On nightshift, the fine ore bin will draw down with the loader available for emergency feed if required. A skid steer loader and an integrated tool carrier and a forklift will be available for reagent mixing and minor duties.

Plant Administration

The administration costs allow for a variety of miscellaneous administration activities relating to the plant office. These costs are based on in-house Como Engineers data relating to plants of similar size and process methodology to the one proposed in this study. The administration costs equate to AUD$0.28/t (Table 48).

Six light vehicles and a station wagon will be required for the plant operations staff, including an ambulance. Maintenance and fuel costs for the light vehicles are included in the OPEX. The cost of acquiring light vehicles is captured in the owner's fleet cost. Administration costs only include costs for the process plant. Site administration and management labour, environmental and occupational health and safety staff are not included.

Table 48: Administration cost summary per annum.

Description	$/year	$/t
Telecommunications	$10,000	$0.01
Cleaning	$15,600	$0.02
Stationery	$6,000	$0.01
Postage, Courier & Light Freight	$2,500	$0.00
Computer / IT Support	$5,000	$0.01
Metallurgical Testing	$150,000	$0.15
Vendors	$30,000	$0.03
PPE & Clothing	$28,500	$0.03
Training Budget	$25,000	$0.03
Total	**$275,600**	**$0.28**

Maintenance

Maintenance costs comprise maintenance spares and wear consumables for items other than crusher liners. The costs are allocated as a proportion of the installed capital cost based on an assessment of the typical costs incurred in a plant of this size. These costs do not include site labour costs which are covered separately. Plant maintenance costs for the Mt Chalmers concentrator is A$2.17 million pa ($2.17/t).

Process Salaries

The workforce required to operate and maintain the processing plant is shown in Table 49.

Table 49: Process plant workforce salaries per annum.

Description	No.	Base Salary	Base Salary + 20% Overheads	Total
Admin				
Process Manager	1	$224,000	$268,800	$268,800
Plant Superintendent	1	$160,000	$192,000	$192,000
Metallurgists	3	$126,500	$151,800	$455,400
Safety Officer	2	$112,000	$134,400	$268,800
Admin Clerks	2	$83,500	$100,200	$200,400
Processing Plant				
Shift Supervisors	6	$121,000	$145,200	$871,200
Mill Operators	6	$106,000	$127,200	$763,200
Flotation Operators	6	$106,000	$127,200	$763,200
Dewatering Operators	6	$106,000	$127,200	$763,200
Day Crew / Relief Operators	6	$106,000	$127,200	$763,200
Laboratory				
Chemist	1	$133,000	$159,600	$159,600
Lab Technicians	6	$83,500	$100,200	$601,200
Maintenance				
Maintenance Superintendent	1	$200,000	$240,000	$240,000
Maintenance Supervisor	1	$165,000	$198,000	$198,000
Electrical Supervisor	1	$165,000	$198,000	$198,000
Fitters	4	$125,000	$150,000	$600,000
Boilermakers	2	$120,000	$144,000	$288,000
Electricians	4	$125,000	$150,000	$600,000
Crushing Operation (Mt Chalmers)				
Primary Crusher Operators	2	$112,000	$134,400	$268,800
Loader Operators (ROM)	2	$112,000	$134,400	$268,800
Total	**63**		**$3,237,000**	**$8,731,800**

POWER SUMMARY

Load List & Power Cost

The power costs are based on the preliminary electrical load list. The average continuous power draw has been calculated for each major piece of equipment using the installed capacity multiplied by a relevant demand factor and the planned utilisation of each drive. Total installed power is estimated at 8,540 kW and the average demand is 6,090 kW. Power cost of $0.15813 per kWh is based on the figure provided by Ergon Energy.

A summary of the power draw and cost are presented in Table 50 and Table 51.

Table 50: Summary power draw per annum, Mt Chalmers project.

Description	Average Utilised kW	kWh / Year	Annual Cost
Plant Facilities	57	499,105	$78,924
Mine Facilities	13	114,474	$18,102
Mill HV VSD	2,021	16,183,158	$2,559,043
Crushing	1,036	4,141,340	$654,870
Flotation	2,152	17,224,285	$2,723,676
Thickening	810	5,814,717	$919,481
Tails Dam	0	1,579	$250
Total	**6,090**	**43,978,658**	**$6,954,345**

Table 51: Summary Mt Chalmers power costs per annum.

Power Costs	Unit Cost	Units	Annual Cost
Demand Charge	$4.28	$/kVA	$321,743
Capacity Charge	$3.96	$/kVA	$298,159
Supply Charge	$254.62	$/day	$91,661
All Usage	$0.16	$/kWh	$6,954,345
		Total Annual Cost	**$7,665,909**

Power Delivery Overview

The Mt Chalmers process plant electrical load is approximately 6MW on a 24/7 operation basis with a mine lifespan in excess of 10 years. Estimated power consumption is ~50,000 MWh / year.

The process plant ball mill is the largest electrical load and will have a low harmonic multipulse Variable Speed Drive (**VSD**). This drive technology eliminates motor inrush currents, provides smooth grid load growth as the mill accelerates and has a high-power factor. These attributes are all favourable to connection to a regional power distribution system, minimising power quality problems to other local power consumers.

The base case power supply is a hybrid grid / embedded generation power supply comprising:

- 22kV overhead power supply connected to the existing regional grid.
- Notional 5MW embedded solar PV.

The base case power supply envisages a 22 kV supply from the Tanby substation which is fed from a 66 kV regional supply. The Mt Chalmers process plant is located approximately 17km line length from this substation.

The Rockhampton 66 kV local transmission network supplies regional substations distributing typically at 11 kV. The recently constructed Tanby substation is designed with 22 kV distribution, which is preferable for large loads (i.e. compared to 11 kV) and is advantageous to this project.

The base assumption is that the upstream 66 kV and 132 kV networks have sufficient capacity to supply additional load at Tanby. The upstream capacity will be verified via network studies required through the network application process.

Publicly available data from ERGON Energy Annual Planning Report indicate that there is sufficient capacity currently available at the Tanby substation.

The Tanby substation also has network power factor correction, and a recently installed 4 MW/8 MWh battery, part of a wider battery roll out by Energy Queensland to soak up the solar generated from household and business rooftops, storing it for use during evening demand peaks. As such Tanby appears to be well equipped to optimise electrical power supply in the region.

QMines will need to approach ERGON Energy to assess overhead line power supply options from Tanby. Grid utility operators usually require upfront payments for initial assessment, options studies, load flow / protection studies, option cost estimates and detailed engineering costs. A separate network supply agreement will be required.

Regional load studies will also identify periods of grid overload (e.g. high temp, high humidity, 100% cloud cover, minimal solar PV capacity) where large consumers may be required to load shed to maintain grid security. Load shedding may in fact be a revenue stream if agreed load shedding is included in the energy / network supply agreements.

QMines has a project objective of being a carbon neutral project. Initially, embedded Solar PV will provide approximately 15% of the total power consumption and the majority of electrical power requirement will be grid sourced. QMines is currently investigating alternate options to increase its renewable energy generation. This could be achieved by several ways including purchasing renewable energy from the grid or installing additional renewable energy at the mine site. Further information on its plans will be provided as it comes to hand.

For the next phase of the project development, QMines will need to engage with energy retailers within the MEM to secure energy supply meeting sustainability objectives. There are opportunities to engage with an energy supplier that will also co-ordinate the proposed 5 MW embedded Solar PV into one energy supply agreement.

Project Implementation

A project implementation plan has been developed with COMO and assumes an Engineering, Procurement and Construction Management (**EPCM**) contract-based project implementation strategy for the construction of the process plant and associated infrastructure. QMines will be responsible for pre-production operations engaging workers and contractors to complete bulk earthworks, installation of ancillary infrastructure, preparation and commencement of TSF construction and all preparations for the transition from construction to operations. This is consistent with the approach used in development of the project capital cost estimate.

QMines has established a small team to manage the initial start-up phase of development of the project.

The owner's team will include key members of the study team. QMines will ensure that its in-house skills include employees with appropriate project management, operations management and accounting experience with sufficient technical capability to review and approve engineering prepared by QMines consultants and contractors.

The Company has based cost estimation around a hybrid contractor and owner-operator strategy with respect to the management and operation of the project. Costing is based on QMines securing contractor services, particularly as it relates to mining. QMines will employ its own people to operate and maintain the process plant, in senior management and site services positions.

ENVIRONMENTAL AND SOCIAL

Tetra Tech Coffey Pty Ltd (Tetra Tech) has been engaged by QMines to provide input into completing various sections of the Pre-Feasibility Study (**PFS**).

In December 2014, the Mt Chalmers mine site was disclaimed after the former mine owner (Affinis Pty Ltd) closed its operations. The former Department of Environment and Heritage Protection managed the site until November 2017 when the responsibility was transferred to the former Department of Natural Resources, Mines and Energy (now the Department of Resources). Water management has been identified as one of the key challenges on site, with the Department of Resources carrying out drainage remediation works during their management of the site. Environmental improvement activities, specifically to reduce concentrations of mine-related contaminants reporting to downstream receiving waters that have been implemented at the site include:

- Installation of diversion drains to direct clean water around the mine facilities thereby reducing the volume of water reaching contaminated areas such as the pits.
- Installation of a solar-operated pump system in the seepage sump to pump contact water back to the southwest pit.
- A trial water treatment investigation undertaken by Virotec in 2019 under Department of Resources direction.

These measures indicate that since June 2017, there has been a significant improvement in water quality downstream of the site in the Nankin Creek. The Department of Resources continues to manage the site including monitoring of pit water levels and water quality monitoring.

Pit Dewatering

Prior to commencement of mining at the Mt Chalmers mine, approximately 0.75 million cubic meters (Mm^3) of water will need to be removed from the historic open pits. QMines propose to construct a valley Tailings Storage Facility (**TSF**) adjacent to the Mt Chalmers Mine, to store tailings. The TSF will be approximately 54ha and have a total storage volume of approximately 8Mm^3. The TSF will have the capacity to hold the volume of water generated by the initial pit dewatering activities.

During operations, water from the TSF can be removed and discharged via a decant system directly to the process water pond at the process plant. The Mt Chalmers TSF has been designed to hold water from the historic Mt Chalmers open pit and is planned as the initial phase of construction and stripping to provide material for the construction and subsequent lining of the TSF. Subject to confirmation of the stored water quality, a water treatment system will be established to manage the quality of any water discharged from the TSF in line with the relevant ANZG (2018) guidelines.

Key Environmental Considerations

Much of the detail of these aspects will be the subject of comprehensive investigations during environmental and social baseline studies for the project as part of the Definitive Feasibility Study (DFS) and approvals process. This is an overview of the key environmental aspects relevant to the PFS for the project.

Landform

The project area is situated within the Brigalow Belt bioregion, which is characterised by diverse landforms and vegetation types, including isolated volcanic and limestone peaks with relict rainforest, dry vine rainforest, open woodlands, eucalypt forests and sclerophylls. Development and mining operations in the region have modified the landscape through the construction of roads, tracks, residential area, agriculture production and grazing.

Terrestrial Fauna & Flora

This section describes the key terrestrial biodiversity aspects relevant to the project area. A desktop review of publicly available environmental databases was conducted to identify ecological communities, flora and fauna species known to occur in the area. The desktop review considered the project area plus a 2km buffer from the tenement boundaries (referred to as the area of interest). The databases used include:

- Protected matters search tool (**PMST**) for matters listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Environmental reports online by the Queensland Department of Environment and Science (**DES**), which provides information on mapped:
    - Regional ecosystems.
    - Matters of state environmental significance (**MSES**).
    - Terrestrial biodiversity & conservation values.

Targeted flora and fauna surveys of the site is required to confirm the presence (or absence) of species within the project areas.

Native vegetation has been extensively cleared in the region, mainly for agriculture, mining and other anthropogenic uses. The major vegetation types comprise predominantly dry and open woodlands, eucalypt forest, semi-evergreen vine thickets on various substrates and wet sclerophylls. This vegetation occurs in patches of forest, on ridges, slopes, stream banks or as scattered trees in cleared settings, such as paddocks.

Flora

No threatened ecological communities listed under the EPBC Act are known to occur within the Mt Chalmers area of interest. One threatened flora species, *Cycas ophiolitica*, listed as Endangered under the EPBC Act was identified as known to occur within the Mt Chalmers area of interest.

Fauna

Two records listed under the Nature Conservation Act 1992 (**NCA**) and EPBC Act were identified, black-breasted button-quail (*Turnix melanogaster*) and ghost bat (*Macroderma gigas*), however these records are more than 20 years old and may no longer be present on site. The DES environmental report also identified this area as a suitable habitat for the ornamental snake (*Denisonia maculate*) which is listed as Vulnerable under the NCA.

Surface Water

The project area is located across the Fitzroy Catchment and the Waterpark Catchment. The Fitzroy River is a major river that flows through Rockhampton to the coast. At its nearest point, the river is approximately 12.5km from the Mt Chalmers mine site. A total of 28 waterways occur in proximity to the project area. These waterways are considered non-perennial (intermittent or random flows), with most water flows expected to occur after substantial rainfall.

No wetlands of international significance, such as Ramsar wetlands, were identified within the project area. Natural waterways identified as high ecological value (maintain) freshwater and estuarine areas under the Environmental Protection (Water & Wetland Biodiversity) Policy 2019 (EPP (Water)) occur adjacent to the Mt Chalmers mine site. The project area will need to consider surface water management design and management to avoid impacts on these areas.

Mt Chalmers

The Mt Chalmers mine site is located within the headwaters of the Nankin Creek catchment, which flows in a south easterly direction before reaching the Fitzroy River. The Mt Chalmers site is located within the Water Resource (Fitzroy Basin) Plan 2011, which sits under the Water Act 2000. The plan contains general and specific ecological outcomes, and performance indicators and objectives detailed in the plan which will apply to the project.

Groundwater

The project area intersects with the Fitzroy groundwater management area. No groundwater extraction is anticipated as part of the project. A database search identified a number of registered and privately owned groundwater bores within the Mt Chalmers mine site. Groundwater quality and quantity data was unavailable for the identified groundwater bores. Groundwater monitoring is required to further characterise existing groundwater conditions.

Air Quality & Noise

Baseline studies for noise and air quality will need to be undertaken as part of the forward work plan. Potential current pollutants include dust from roads arising during dry conditions, as well as emissions from local mining, industrial and agricultural operations. Amongst other initiatives, QMines plans to house major processing facilities within enclosed buildings to minimise any impacts on air quality and noise.

Socioeconomic Context

Data in the following section was gathered from the Australian Bureau of Statistics (2021). The project area is located in the Livingstone Shire and Rockhampton Regional local government areas which have an estimated population of approximately 39,000 and 82,000, respectively. The closest residential areas are Rockhampton (63,000 people) and Yeppoon (19,000 people).

Rockhampton is home to several education institutions within the Central Eastern Queensland region, including primary and secondary schools and vocational and tertiary education facilities. Approximately 60% of individuals aged over 15 years old are reported to be part of the labour force. It is the main service centre for the southern Bowen Basin coal fields.

A diverse range of industries exist in the regional area, including mining, agriculture, industrial operations, health care and food services and hospitality. In 2020/21, the total value of agricultural production in the Livingstone Shire and Rockhampton Regional government areas was $172 million and $68 million, respectively. This was primarily from the production of beef. Tourism is also a key industry in the area, and in 2021/22 the tourism industry added a total value of $263 million combined for both local government areas.

Regional infrastructure includes rail connections to Gladstone's deep-water port, a commercial airport, industrial services in Rockhampton, a gas pipeline, and national highway access.

Cultural Heritage

No records of Aboriginal or Torres Strait Islander cultural heritage sites were found within the project area, however, site specific cultural heritage surveys would be required to investigate this further.

Mt Chalmers

Mt Chalmers is located on the land of the Darumbal People. Following contact with the first European settlers in the early 1800s, the Darumbal People were dispersed from their land and moved to government-run missions. In 1997, a Native Title Claim was registered by the Darumbal People and in 2016 the Federal Court recognised the Darumbal People as the Traditional Owners of land in and around Rockhampton, Raglan, Yeppoon and Marlborough areas. In 2016, the Darumbal People Aboriginal Corporation Registered Native Title Body was established to work for and on behalf of the Darumbal People.

QMines has commenced a right to negotiate process with the Darumbal People Aboriginal Corporation.

QMines is committed to achieving positive environmental, social and governance (ESG) outcomes by integrating sustainability into its decision-making process for the project.

The following sections describe the ESG aspects relevant to the design, construction and operation of the project.

Carbon Neutrality

QMines is Australia's first carbon neutral copper developer (QMines, 2023). The project is well placed to meet the increasing demand for ethically sourced copper, driven by the global energy transition towards Net Zero. QMines is investigating onsite renewable power generation, including solar and wind and a battery backup system.

QMines is committed to an 80% reduction in scope 1 and scope 2 greenhouse gas emission by 2030 and is considering the following options:

- Prioritise Climate Active carbon neutral products and services in procurement processes.
- 100% onsite renewable electricity production and onsite rainwater capture and reuse.
- Procurement of renewable fuel for our mining fleet including utes, trucks, drill rigs and generators.
- Installing further renewable solar systems onsite to increase renewable electricity usage.
- Hiring contractors and employees locally to decrease travel emissions whilst delivering social and economic benefits to the region.
- Ongoing research into technological innovations that minimise emissions across the business as operations expand.
- Installation of five environmental monitoring stations onsite that will track noise, dust and vibration data so we can understand and implement initiatives that minimise the impact of our operations on the local community.
- Transition the business to the use of electric vehicles, trucks, excavators, drill rigs, and other equipment as they become available at competitive pricing.

Processing Plant Design

As part of the project's conceptual design, three processing plant locations were considered. Based on a review of ESG principles, the Mt Chalmers mine site was identified as the most suitable due to:

- Low population density in proximity to the processing site.
- Lowest possible carbon footprint due to significantly reduced materials movement.
- Tailings storage facility is located away from a population centre, with few residents located within 1km of the site.
- Existing environmental monitoring stations for noise, dust and vibration thus providing a reference baseline to measure impacts.
- Employment opportunities for residents of Mt Chalmers and Rockhampton with a short commute to site.

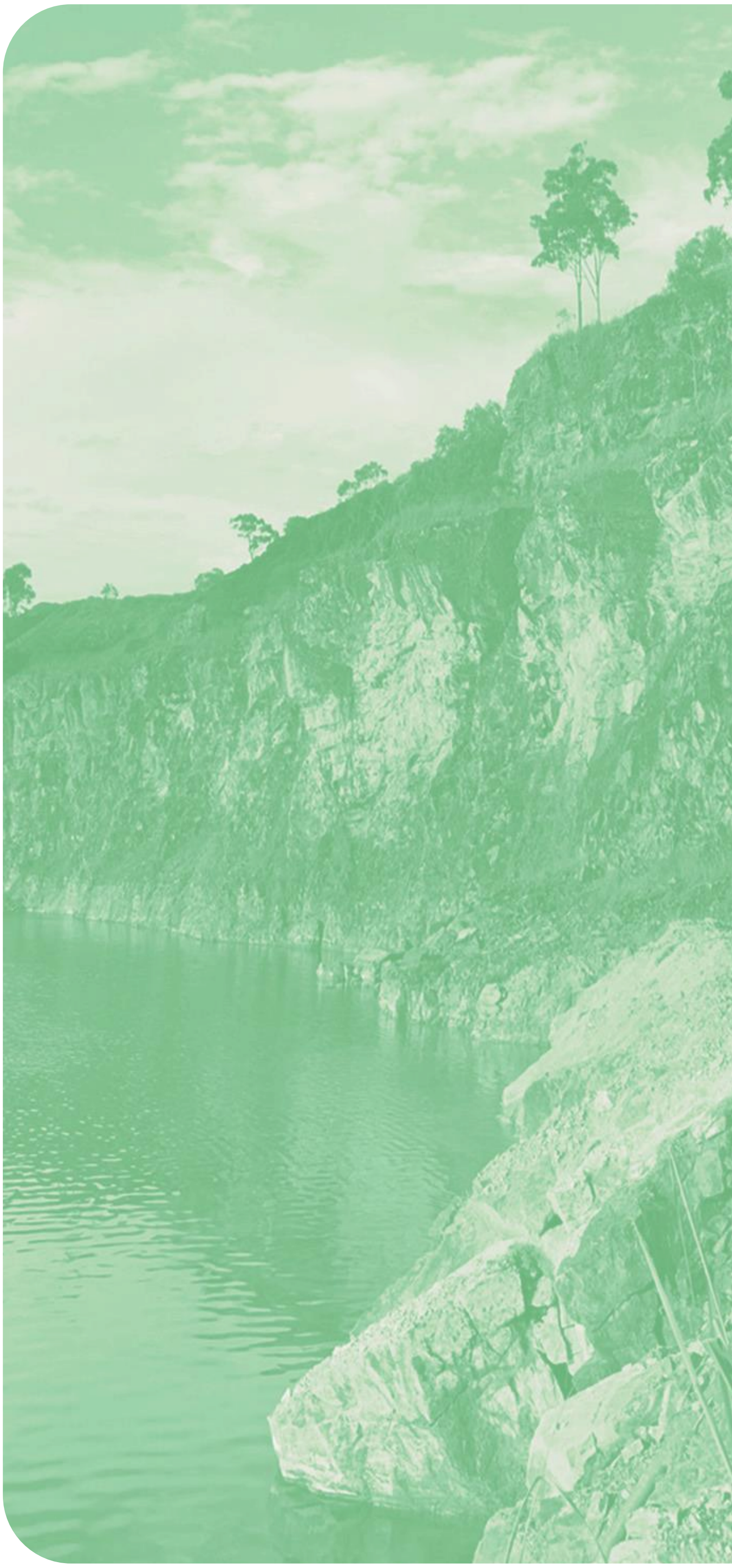
In addition to the location of the processing plant, QMines has incorporated a number of ESG principles into the overall plant design. This includes incorporation of noise attenuation into the design of facilities such as enclosing the crushing and milling substations within buildings to reduce noise, dust and vibration emissions as well as using sound barriers and scrubbing stations to eliminate odours from chemicals.

Pyrite Concentrate

After extensive investigation, QMines has identified that it would be possible to recover pyrite from mine tailings which can improve environmental management by avoiding potential impacts from acid metalliferous drainage and improving rehabilitation outcomes. By recovering and selling pyrite, the percentage of sulphur entering the TSF will be less than 0.8%.

Waste Rock Characterisation

Sulphide mineralisation, particularly pyrite, is present across the ore zone, footwall, and hanging wall rock types, except for the shallow oxide zone. Although mostly present in the massive and stringer ore zones, it is often present in small to moderate amounts in disseminated form, in both the hanging wall rock package and within the intrusive andesite. As part of the DFS, the Company plans to complete a sampling program targeting the hanging wall, ore zone and footwall rocks to determine if these rocks have potentially acid-forming (PAF) and non-acid forming (NAF) materials.



REGULATORY APPROVAL PATHWAY

The proposed activities and scale of a development determines the applicable level of assessment under Queensland Government legislation. Resource projects with a high environmental risk in Queensland typically undergo assessment through the Environmental Impact Statement (**EIS**) process. Given the current understanding of the project and its potential environmental and social impacts, it's likely that the EIS process will be applied.

There are two types of EIS assessment processes in Queensland. These are:

- EIS under the *Environmental Protection Act 1994* (**EP Act**), administered by DES.
- EIS under the *State Development and Public Works Organisation Act 1971* (**SDPWO Act**), administered by the Coordinator-General, Department of State Development, Manufacturing, Infrastructure and Planning.

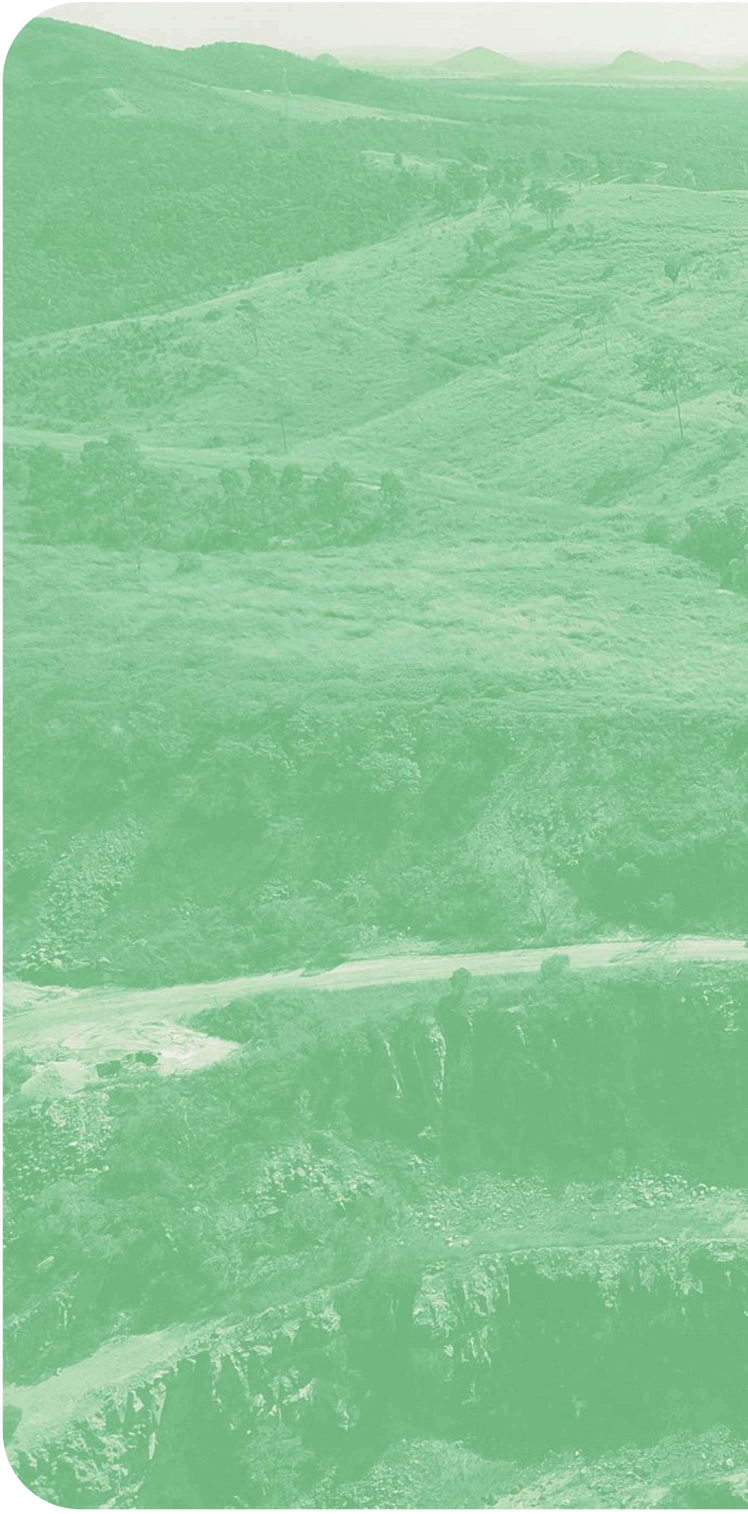
If a project is declared a 'coordinated project' it will be assessed under the SDPWO Act. A project can be declared a coordinated project under the SDPWO Act if it has one or more of the following characteristics:

- Complex local, state or federal government approval requirements.
- Strategic significance to the locality, region or state, including for the infrastructure, economic and social benefits, capital investment or employment opportunities it may provide.
- Significant environmental effects.
- Significant infrastructure requirements.

While the process for preparing an EIS is the same under both acts, the governing agencies differ. Assessing the project under the EP Act allows a more focused terms-of-reference, narrowing down to the key potential impacts associated with the project. However, if assessed under the SDPWO Act, a holistic assessment will be required, which may include additional technical studies, increasing costs, and potentially extending the timeframe.

Prior to initiating the approvals process and as soon as QMines has a reasonable level of detail on the project, it is recommended that at least one, if not several, pre-lodgement meetings are held with DES and the Coordinator-General Office to seek advice regarding the approval's pathway.

Precedent suggests that the project will be assessed under the EP Act, which is generally used for mining projects.



Permitting Approval Forward Work Plan

Recommended forward works for environmental and social studies to support the approvals and permitting for the project include the preparation, submission and assessment of the EIS. Environmental and social studies will need to be completed to support assessment and management of the site. These studies need to characterise both environmental and social aspects. The studies need to determine values, develop management and mitigation measures and assess project and cumulative impacts for construction, operations and closure.

Studies that are recommenced to be completed include:

- Ground water;
- Hydrology and fluvial geomorphology;
- Surface water (water quality and sediment transport);
- Landform, geology and soils, terrestrial, aquatic and subterranean ecology (flora and fauna, assuming wet and dry season surveys);
- Air quality (including greenhouse gases);
- Noise and vibration;
- Waste management;
- Hazard and risk;
- Socio-economic baseline characterisation and impact assessment;
- Aboriginal and non-Indigenous cultural heritage;
- Traffic and transport; and
- Mine Closure and Rehabilitation.

The studies will further support the need to develop an overarching Environmental Management Plan for the project area which will need to also be completed as part of EIS preparation.

Cost Estimate

An indicative cost estimate for the activities to be completed for the Mt Chalmers sites is provided in Table 52. This cost estimate is preliminary and not supported by a confirmed project description from QMines and without conceptual design, detailed proposals from internal and external subconsultants, or advice from the Queensland and Australian governments on their expectations and requirements.

This cost estimate should be considered indicative of the likely cost of preparing and submitting an EIS under the EP Act. Given the high level of uncertainty at this stage of the project, we recommend applying 25% contingency to the cost estimate to account for unforeseen and unknown requests from the Queensland and Australian governments.

Table 52: Indicative cost estimate for nominated scope of work

Task	Cost Estimate (AUD)*
Fees associated with EIS lead's scope of work	
Phase 1: Baseline studies scoping and management, project description and EPBC referral (if required), including engagement with key stakeholders (i.e., State and Commonwealth agencies).	$300,000
Phase 2: Management of specialist impact assessments, and preparation of environmental management plans *(Note: that this cost is for studies management only. Costs to undertake specialist studies are listed below).*	$300,000
Phase 3: Preparation of draft EIS and final EIS.	$550,000
Estimated cost (excluding GST)	**$1,150,000**
Costs associated with technical studies (inc. baseline and impact assessment)**	
Groundwater	$150,000
Surface water (water quality and sediment transport)	$150,000
Landform, geology and soils	$100,000
Terrestrial and subterranean flora and fauna	$200,000
Hydrology and flooding	$150,000
Aquatic ecology (assuming wet and dry season surveys)	$150,000
Cultural heritage (Indigenous and non-Indigenous)	$100,000
Traffic and transport	$100,000
Socioeconomic	$110,000
Progressive rehabilitation and closure plan	$250,000
Noise and vibration	$80,000
Air quality	$80,000
Estimated Cost (excluding GST)	**$1,620,000**
Total Estimated Cost (excluding GST)	**$2,770,000**

Notes:
** Costs are indicative only and accuracy should be considered +/- 25%.*
*** Assumes that required mine water balance and geochemistry for waste rock and tailings characterisation will be undertaken as part of mining/engineering team scope of work.*

NATIVE TITLE & ABORIGINAL CULTURAL HERITAGE

Mt Chalmers mine showing the main load (foreground) and the West Lode (background).

Tenement Title

Legislative Regime

The *Mineral Resources Act 1989* (Qld) (**MR Act**) establishes a tenure regime that governs the exploration for and production of minerals in Queensland.

The public resource authority reports confirm that the Company directly or indirectly holds a 100% beneficial interest in the EPMs as set out below.

It is noted that:

a. *1 EPM (EPM 25935) is held by Dynasty Gold Pty Ltd (ACN 604 136 558), a wholly owned subsidiary of Traprock Resources Pty Ltd (ACN 164 765 842) (**Traprock**). Traprock is a wholly owned subsidiary of the Company;*

b. *2 EPMs (EPM 27428 and EPM 27697) are held by Rocky Copper Pty Ltd (ACN 636 974 859), a wholly owned subsidiary of the Company; and*

c. *2 EPMs (EPM 27726 and EPM 27899) are held by the Company.*

Native Title Act

The *Native Title Act 1993* (Cth) (**NT Act**) recognises the traditional rights and interests of Aboriginal and Torres Strait Islander peoples in Australia.

The NT Act provides:

1. for the determination of Native Title rights and interests;
2. for the extinguishment of Native Title by certain acts;
3. for the validation of certain acts which would otherwise be invalid because of their effect on Native Title;
4. that acts that may affect Native Title rights (such as the grant of a mining tenement) carried out after 23 December 1996 must comply with certain requirements of the NT Act to be valid (**Future Act Requirements**); and
5. compensation for extinguishment or impairment of Native Title rights and interests.

Native Title processes will not be required where Native Title has been 'extinguished' over the land the subject of the tenement (for example, by an earlier vesting of freehold in the land). If Native Title has not been extinguished, the grant of a tenement will trigger the need for compliance with the Future Act Requirements.

Exclusive Land & Predominantly Exclusive Land

Public searches indicate that EPM 27697 and EPM 27428 have been granted as or applied for over ‘predominantly exclusive land'. This suggests that land over which Native Title has not been extinguished is excluded from the area of the relevant tenements. In that case, the holder of those tenements does not have the right to access or conduct any activities on the areas of land that have been excluded.

The MR Act provides a process by which the holder of those tenements may apply to have those areas of excluded land included into the tenements, following the relevant Native Title process.

Indigenous Land Use Agreements

An Indigenous Land Use Agreement (**ILUA**) is a contractual arrangement governed by the NT Act. Under the NT Act, an ILUA must be negotiated with all registered Native Title claimants for a relevant area. The State Government and the applicant for the tenement are usually the other parties to the ILUA.

An ILUA must set out the terms on which a tenement can be granted in relation to land use for the purposes of the NT Act. An ILUA will also specify conditions on which activities may be carried out within the tenement. The applicant for a tenement is usually liable for any compensation that the parties agree to pay to the registered Native Title claimants and holders of Native Title in return for the grant of the tenement being approved. These obligations pass to a transferee of the tenement.

Once an ILUA is agreed and registered, it binds the whole Native Title claimant group and all holders of Native Title in the area (including future claimants), even though they may not be parties to it.

Public searches indicate that the land under several of the Tenements is subject to ILUAs. Due to standard confidentiality provisions, the terms and conditions of an ILUA are not available for public access, however an excerpt of each ILUA has been obtained in order to confirm who the applicants are.

The Company and its subsidiaries are not parties to these ILUAs. Accordingly, there are currently no conditions imposed on the Company under any of these ILUAs prior to conducting any exploration activity on the Tenements.

Right to Negotiate

The right to negotiate is a process under the NT Act that must be followed to ensure certain Future Acts are lawfully done. The right to negotiate applies to the grant of exploration and mining tenements (including oil and gas interests) and some compulsory acquisitions, unless the 'expedited procedure' or fast-tracking process applies.

If the right to negotiate applies, then the 'negotiation parties' must negotiate in good faith to get the consent of the 'Native Title party' (i.e. the registered Native Title claimant or registered Native Title body corporate) to the Future Act being done, with or without conditions applying.

The right to negotiate gives Native Title parties a chance to discuss the effect of the proposed Future Act, with the aim of reaching agreement about the act.

If the party thinks that the right to negotiate might apply to a proposed future act, it must give notice of its intention to do that act in the way required by the NT Act.

If a person or group thinks they hold Native Title on the area, relating to the Future Act but do not have a registered claim or determination, they can lodge a Native Title application with the Federal Court within 3 months from the notification day specified in the notice.

The Native Title Registrar must then endeavour to apply a registration test (a set of conditions in the Native Title Act which must be met) to that application. If the application passes the registration test, it is then placed on the Register of Native Title Claims (**RNTC**). The application must be on the RNTC within 4 months of the notification date for the applicants to secure the right to negotiate.

Under the NT Act, the National Native Title Registrar (**NNTT**) must keep a record of Section 31 agreements that the Registrar receives from the NNTT. This requirement applies to agreements received on or after 25 March 2021.

A Section 31 agreement records the agreement of the parties to the doing of a future act (for example, the grant of a mining tenement) to which the 'right to negotiate' applies.

Public searches indicate that Section 31 agreements apply to EPM 27726 and EPM 27899.

Current Native Title Applications

We have undertaken a search of the register maintained by NNTT in relation to the Tenements. The results indicate that registered Native Title claims and determinations currently overlap Tenements.

Aboriginal cultural heritage

The *Aboriginal Cultural Heritage Act 2003* (Qld) (**ACHA**) recognises, protects, and conserves Aboriginal cultural heritage. In part, it achieves this protection by providing that any person who undertakes an activity has a 'Duty of Care' to take all reasonable and practicable measures to ensure that the activity does not harm Aboriginal cultural heritage.

Under the ACHA, the 'Duty of Care' can be discharged in a number of ways, including:

1. at a minimum, adhering to the Duty of Care Guidelines (which form part of the ACHA);
2. entering into a voluntary cultural heritage management agreement with an 'Aboriginal Party' for the given area pursuant to section 23(3)(a)(iii) of the ACHA; or
3. entering into a cultural heritage management plan under Part 7 of the ACHA.

Penalties apply for failing to comply with the 'Duty of Care' of up to $154,800 for an individual and $1,548,000 for a corporation.

Aboriginal Parties

Search results obtained from Department of Aboriginal and Torres Strait Islander Partnerships (**DATSIP**) indicate that the Aboriginal cultural heritage party for the area in respect of the Tenements is the Darumbal People (NNTT number: QCD2016/006).

Recorded Aboriginal Cultural Heritage

DATSIP maintains a register of recorded Aboriginal cultural heritage sites. Searches obtained on 19 March 2024 indicate that there are no specific Aboriginal cultural heritage sites recorded in the area of the Tenements.

Agreements

We have not been provided with any cultural heritage agreements that apply to the Tenements. As referred to herein, many of the Tenements are either granted with, or the application has been made subject to, the Native Title Protection Conditions (**NTPC**). The ACHA provides that acting in compliance with the NTPCs will constitute compliance with the ACHA 'Duty of Care'.

CONCENTRATE SALES & MARKETING

Generic sales data relating to marketing and payability for the Mt Chalmers concentrates were provided to the Company from concentrate trading houses and industry professionals. The AusIMM handbook was also supplied by COMO Engineering.

The concentrate market globally for copper has been significantly impacted recently by supply disruptions and new smelting projects coming online in Asia.

Treatment Charges (**TC**) and Refining Charges (**RC**) are discounts to the exchange's copper prices. They are essentially payments to the smelters for processing the concentrates and turning them into refined metals. TC/RC's usually decline when supplies are tight.

The 2024 benchmark, a price set by large copper miners, of US$80 per tonne of concentrate, was agreed between Chilean miner Antofagasta and China's Jinchuan Group in November 2023.

TC/RC's for copper concentrate ex China smelters has fallen dramatically in 2024 as smelters globally compete for concentrates.

According to industry sources, copper concentrates TC, CIF Asia Pacific were at US$11.20 per tonne on March 11, down from US$19.80 per tonne on February 23, the lowest level since recording began in June 2013.

Given this significant change in pricing, Benchmark TC/RC rates have not been applied in the calculation of the copper concentrate TC/RC for the purpose of this study. The Company has applied a TC of US$40 per Dry Metric Tonne (**DMT**)and US$0.04 per pound payable copper, a significant premium to current prices. Based on industry feedback, the Company has also applied US$5/oz Au and US$0.50/oz for Ag as the RC for precious metals. Zinc concentrate TC have been set at US$159/t.

Copper concentrate is the primary revenue from the Mt Chalmers project representing approximately 65% of the projected revenue stream.

Currently additional locked cycle testing is underway to further refine the zinc concentrate to port contained gold and silver into the copper concentrate where pyabilities are higher. The current payable calculations for concentrates are factored using the current base and precious metal content as at the date of this report. Further refinement of concentrate content through additional locked cycle testing will be released in future studies or announcements.

Table 53: Baseline estimate for concentrate treatment/refining charges and base case playability estimate "Transamine 2024"

Copper Concentrate In a concentrate with market acceptable Lead, the Precious Metal content is recoverable and makes it an attractive concentrate to specific refiners. If the Lead cannot be reduced to 6% by volume the concentrate can be sold as a blend of the material however the payables will need to be reviewed.	CIF FO Main Chinese, Japanese or Korean ports, or parity. Additional options are the sale of concentrates to Townsville zinc refinery and dependent on Mt Isa smelter operation, copper concentrate could be shipped to Townsville for delivery to Mt Isa.
Metal Payables	Cu: 96.5% of copper content shall be payable, subject to a minimum 1 unit deduction, at daily LME official cash settlement quotation for Copper, averaged over the Quotational Period. Au: Pay 90% if the final gold content is above 1.00g/ dmt up to 3.00 g/dmt Pay 92% if the final gold content is above 3.00 g/dmt and below 5.00 g/dmt Pay 93% if the final gold content is above 5.00 g/dmt and below 10.00g/dmt Pay 94% if the final gold content is above 10.00 g/dmt and below 15.00 g/dmt Pay 95% if the final gold content is above 15.00 g/dmt at the LBMA spot price for gold, averaged over the Quotational Period. Ag: Pay 90% if the final silver content is above 30.00 g/dmt at the LBMA spot price for gold, averaged over the Quotational Period.
Treatment and Refining Charges:	Treatment and Refining Charges (TCRC) for copper shall be the International Benchmark TCRC agreed between major miners and Chinese smelters. 2024 Benchmark Treatment Charges for Copper: US$80 per dry metric ton of Concentrate 2024 Benchmark Refining Charges for Copper: US$0.08 per payable Lb of Copper Refining Charge for Au: US$5.00 per payable Oz Refining Charge for Ag: US$0.50 per payable Oz

Zinc Concentrate	CIF FO Main Chinese, Japanese or Korean ports, or parity.
Metal Payables	Zn: 85% of the final zinc content, subject to minimum deduction of 8%, at daily LME official cash settlement quotation for special high grade zinc and averaged over the Quotational Period. Ag: After deducting 3 Oz, 70% of the balance shall be paid, at the LBMA spot price for silver, averaged over the Quotational Period. Au: After deducting 1 gram per DMT, 70% of the balance shall be paid, at the LBMA spot price for gold, averaged over the Quotational Period.
Treatment Charges:	Annual Asian Benchmark Treatment Charge for Zinc Concentrate is US$159 per DMT. Treatment Charge Escalators and Descalators may apply.
Penalty charge examples China zinc content	<48; >45 3RMB for each 0,1% Zn below 48% <45; >43 5RMB for each 0,1% Zn below 45% <43; >40 10RMB for each 0,1% below 43%

Table 53 provides a baseline for the determination of first pass revenue estimates. Using the recovery values, mass to concentrate estimate and concentrate composition for concentrate traders for first pass guidance on the acceptable concentrate compositions. The Company considers flexibility with concentrate composition during production will be a key factor in optimising the revenue stream for the Company.

The concentrate trading market is considered as being opaque and can be volatile depending on global economic conditions, global geopolitics, declining mining rates for base metals, freight and supply chain constraints. As such, predictive cost metrics from the supply and sales of concentrate through trading houses can only be considered speculative. Supply and demand are key drivers for copper and zinc concentrate pricing with current forecasting indicating significant supply constraints expected in the copper market over the coming decade.

Pyrite Concentrate

The Mt Chalmers ore body is a polymetallic Volcanic Hosted Massive Sulphide (**VHMS**) mineral system and contains consistently high pyrite (S/Fe) content. The Company elected to produce a pyrite concentrate to minimise potential environmental impacts from Potential Acid Forming (**PAF**) materials created by the discharge of sulphur into the Tailings Storage Facility (**TSF**) from the process plant. The strategic advantage of a pyrite concentrate from an environmental permitting perspective cannot be overstated.

The Company has included the pyrite concentrate in its projected revenue stream on the basis that the plant can produce high quality sulphur and iron concentrates with minor gold which is considered a marketable commodity for the production of sulphuric acid and high purity iron ore with gold credits.

As part of the metallurgical testwork completed to date, COMO Engineering has undertaken leach testing of the pyrite and zinc concentrates that can be produced from the Mt Chalmers process plant. By adding a Carbon In Leach (**CIL**) and/or gravity circuit to the process, the gold and silver content from the two concentrates can be removed on site prior to shipping the concentrates to traders. This additional step has the potential in increase the payability of the precious metals. CIL CAPEX and OPEX can be seen on page 81 of the PFS.

FINANCIAL ANALYSIS

Financial Analysis

The Mt Chalmers project is truly unique. It's a shallow, high grade, open pit project with high recoveries located close to the coast and infrastructure. It is these qualities that drive the strong financial returns of the project.

The proposed Mt Chalmers mining and processing operation is a low cost, high margin and long-life project with immediate opportunities to grow scale and improve upon already robust financial returns.

The project has been optimised to mine higher grade material early in the mine life (Figure 34).

Life of Mine Grades

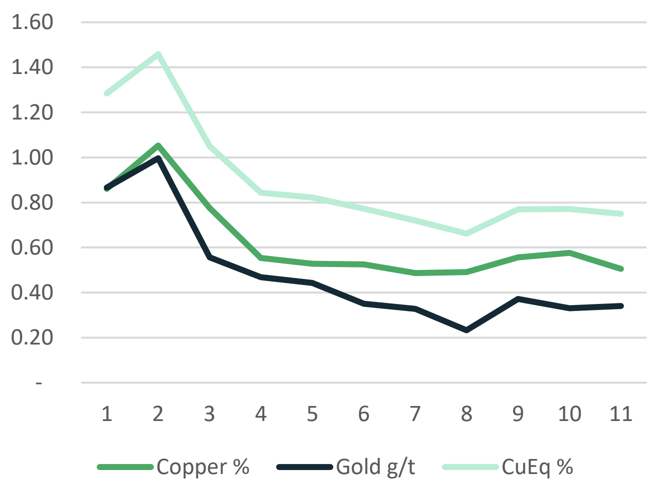


Figure 34: Life of mine copper, gold and copper equivalent grades at Mt Chalmers.

This has several obvious benefits including the rapid payback of capital, just 1.84 years, and the generation of immediate financial returns for its owners (Figure 35).

Cumulative Free Cash (A$m)

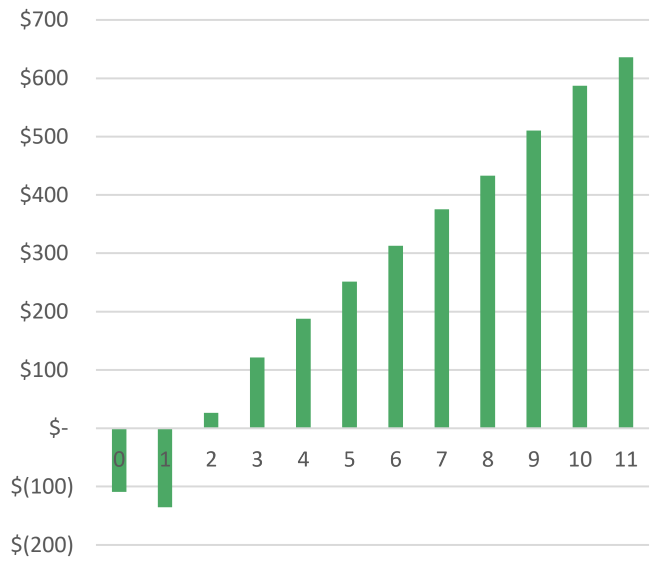


Figure 35: Cumulative Free cashflow generated from the Mt Chalmers operation.

Low Cost

The CAPEX of the project is estimated at just **A$191.9 million** with an OPEX estimate of just **A$32.86/t**. The financial model provides a C1 costs of just **US$2.14/lb CuEq** over the Life of Mine (**LOM**). With a NPV to CAPEX ratio of approximately 2:1, the Mt Chalmers project appears readily financeable.

High Margin

The project delivers strong margins, even at current spot prices. The pre-tax Net Present Value (**NPV**) of the project, using an 8% discount rate, is **$373.4 million.** The Internal Rate of Return (**IRR**) is an impressive **54%.** This demonstrates the cost benefits of shallow, open pit mining.

The average life of mine C1 costs are just US$2.14/lb providing strong margins throughout the project life. Figure 36 shows the life of mine C1 cash cost against the current spot price of US$4.5/lb, throughout the life of mine.

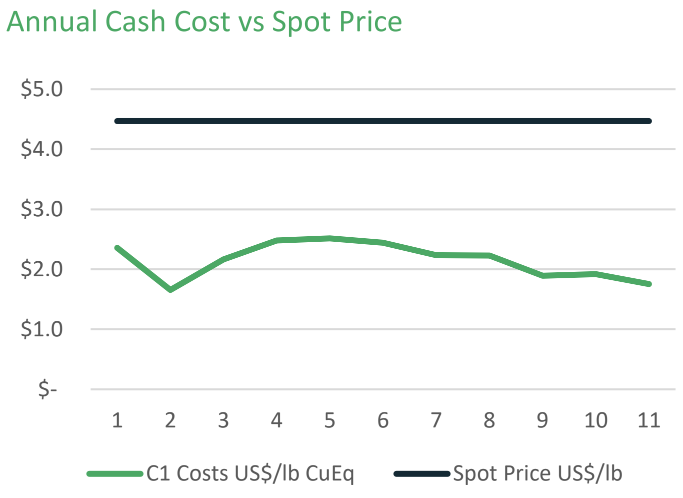


Figure 36: Annual cash cost vs spot copper price.

Long Life

The proposed Mt Chalmers mining operation is supported by a Maiden Ore Reserve of 9.5Mt (Proved and Probable) and 837,011t of potential mining material (Inferred). This demonstrates an initial mine life of 10.4 years. The incorporation of additional known deposits provides immediate expansion opportunities.

Immediate & Known Upside

The study demonstrates significant upside potential with three additional deposits at Sulphide City and Scorpion, located at the Company's Develin Creek project, and the Woods Shaft deposit, located just 800m from Mt Chalmers, yet to be incorporated into the mine plan.

The metals price assumptions used for the PFS were based on spot prices derived from April 2024. As seen in the sensitivity table below, the Mt Chalmers project provides significant leverage to increasing metals prices.

Timing

The timing of the delivery of the Mt Chalmers PFS couldn't be more important with the forecast rise in global copper demand associated with the global energy transition and the significant supply issues facing global copper production.

Subject to environmental approvals, the Mt Chalmers project has the potential to supply critical metals towards the start of the next cycle. This provides significant leverage to the higher predicted prices associated with the energy transition.

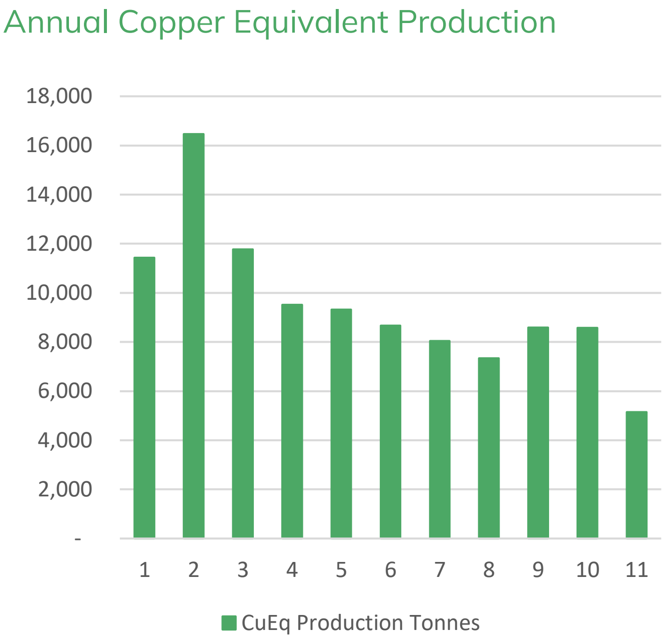


Figure 37: Annual copper equivalent production at Mt Chalmers.

Sensitivities

As can be seen in Figure 38 below, the Mt Chalmers project is highly sensitive to metals prices and the discount rate used.

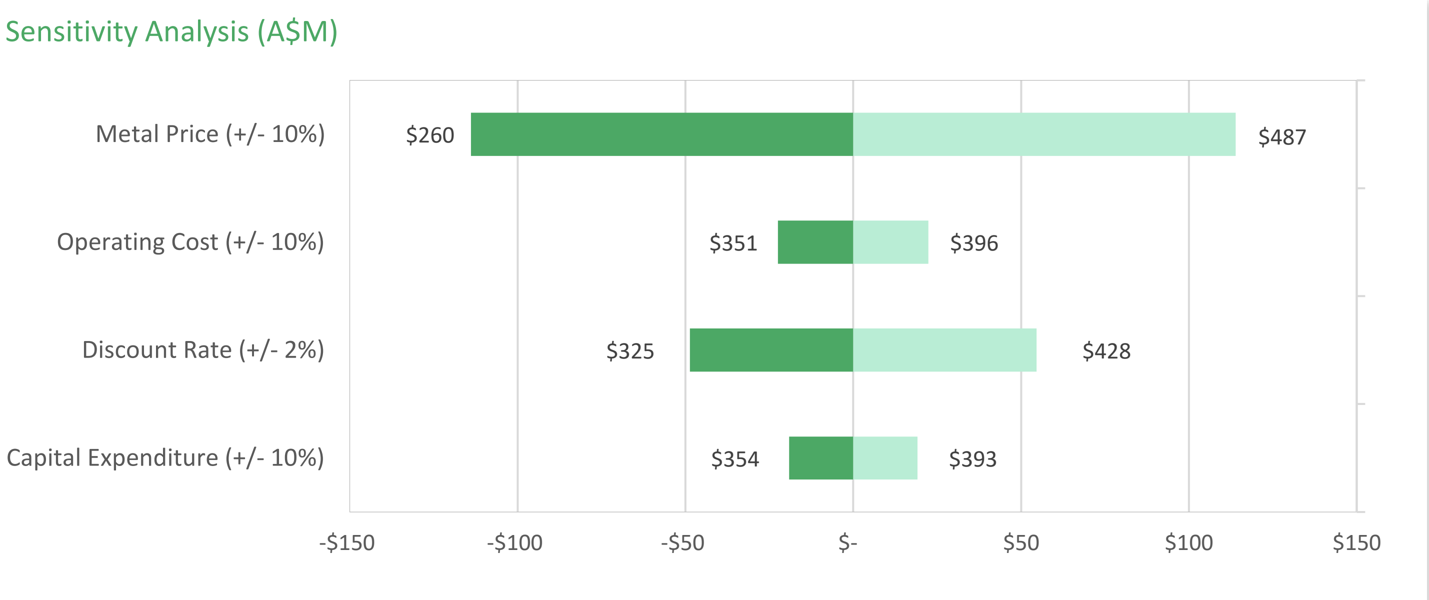


Figure 38: Metal Prices Sensitivity Analysis.

Economic Analysis

The financial model is based on processing 10.4Mt ore over an 10.4 year mine life, including processing 0.78Mt in Year 1 and 1.0Mt per annum in Years 2 to 10.

Average life of mine grades of ore being processed include 0.63% Cu and 0.48 g/t Au. The project has been optimised so that the average grades in the first three years of the project are 0.9% Cu and 0.8 g/t Au.

The project generates three concentrates. The copper concentrate will be marketed to third parties. The zinc and pyrite concentrates will be processed through a Carbon in Leach (**CIL**) circuit to extract gold and silver before being marketed to third parties.

Total recoveries to the initial concentrates including 96.4% of the copper, 81.1% of the gold and 88.5% of the silver. These recoveries are then broken down to establish what portion of each of the metals report to each concentrate.

Estimated metals reporting to the copper concentrate include 88.8% of the copper in the ore processed and 47.5% of the gold. Some 43.6% of the silver contained in the processed ore also reports to the copper concentrate.

An estimated 81.3% of the zinc, a further 12.4% of the gold and 14.1% of the silver are expected to report to the zinc concentrate.

The project is expected to generate 582,000 tonnes of pyrite concentrates with an average grade of 5.6% pyrite. Some 21.2% of the gold and 20.8% of the silver are expected to report to the pyrite concentrate.

Initial testing indicates that 71.3% of the gold and silver in the zinc concentrates and 79.6% of the gold and silver in the pyrite concentrates can be extracted through a CIL circuit to produce gold-silver doré containing 41,000oz gold and 484,000oz silver over the life of the project.

Payabilities for the copper concentrate are assumed to be 93.3% for the copper, 95% for the gold and 90% for the silver. In the zinc concentrate, payabilities are assumed to be 85% for the zinc, 71% for gold and 70% for silver. Payabilities in the pyrite concentrate are estimated at 100% for pyrite and 80% for gold.

The economic analysis is based on current spot market prices (rounded for simplicity) including US$9,850/t copper, US$2,350/oz gold, US$28/oz silver and US$2,850/t zinc. The average pyrite price is estimated at US$200/t.

The project is expected to generate life of mine revenues of A$1.64bn. Copper represents approximately 52% of total revenues, with gold and silver representing approximately 31%.

The project is expected to generate total copper equivalent (**CuEq**) production of 105,000 tonnes over the life of the mine.

KEY OPPORTUNITIES

Potential Mine Life Extension

This PFS only assesses the Mt Chalmers project however it is important to note that QMines has several other deposits that it intends to incorporate into the mine plan.

The Develin Creek deposit is located approximately 90km from Rockhampton in Queensland. Develin Creek currently has an Indicated and Inferred Mineral Resource of **3.2Mt @ 1.05% Cu, 1.22% Zn, 0.17g/t Au and 5.9g/t Ag**[6]**.** Further resource definition drilling and optimisation of the open pit and underground at Develin Creek has the potential to expand the existing Resource and generate a maiden Ore Reserve Estimate for this project.

Develin Creek represents a key future opportunity for the Company to extend mine life or increase the processing rate of the Mt Chalmers operation. This also has the potential to significantly improve the economics of the operation.

The Woods Shaft deposit is a satellite deposit located within 1km from the Mt Chalmers deposit. Work on expanding the Inferred Mineral Resources of **540,000t @ 0.5% Cu, 0.94g/t Au, 0.2% Zn and 4.2g/t Ag**[7] at Woods Shaft and upgrading the quality of the resource is ongoing.

Both projects represent near term opportunities to deliver additional ore to the Mt Chalmers processing plant. This has potential to increase the life of mine or the processing rate at the project.

Downstream Processing Opportunities

As part of the QMines investigations into downstream processing initiatives, the Company has commenced a Study to consider the development of an additional roaster and a hydrometallurgical plant in Rockhampton.

This would provide the infrastructure required to further refine the Company's concentrates to produce sulphuric acid and potentially base metals. The plant could produce numerous critical metals including copper cathode, refined zinc, gold, silver, sulphuric acid and iron. The Company has engaged COMO Engineers to undertake this Study.

If successful, this study has the potential to increase the economics of a potential operation at Mt Chalmers and Develin Creek by reducing concentrate haulage costs, state government royalties and treatment and refining charges paid to traders and smelters. It also has the potential to significantly improve the payabilites of all metals, particularly from the zinc and pyrite concentrates.

Exploration & Discovery

The Company is an active explorer with a large and highly prospective tenement package. Following a recent airborne Electromagnetic (**EM**) survey, the Company has identified approximately 40 regional targets representing opportunities for new discoveries. The recent discovery at the Artillery Road prospect, the first of the EM anomalies QMines drilled, is an example of the regional potential of this belt scale project.

At Artillery Road, the Company has completed 13 RC drill holes for 2,373 metres at this previously undrilled EM target. Laboratory results have confirmed copper-zinc mineralisation within a semi-massive pyrite-pyrrhotite skarn.

The drilling delivered several intersections with copper equivalent grades up to **1.46 % CuEq in hole** ARRC013 with individual grades of up to **2.43 g/t Au, 4.9 g/t Ag, 1.02% Cu, 0.12% Pb and 5.12% Zn** over 1 metre intervals. The Company is developing a growing understanding of the base metal distribution within this large system and plans to conduct further drilling throughout the year.[8]

[6] https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf
[7] https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf
[8] https://wcsecure.weblink.com.au/pdf/QML/02601236.pdf

KEY RISKS

Economic Assumptions

Project economics are most sensitive to those economic assumptions that affect project revenues. Approximately 65% of gross revenue is generated from copper concentrate sales. A prolonged suppression of the copper price or a substantial increase in the TC/RC rates and the potential strengthening of the AUD has the potential to significantly reduce the project NPV and free cash flow generation of the project.

The financial model is based on flat USD denominated commodity prices and AUD:USD exchange rate of $0.63. At the time the Study was completed represented an approximate to spot prices in AUD terms. Multiple factors may impact on the AUD denominated price of saleable products and other assumptions in the financial model.

Mineral Resources & Production Target Estimates

Mineral Resource Estimates (**MRE**) and production inventory estimates are expressions of judgement based on knowledge, experience and industry practice at the time of the estimate. Estimates which were valid when originally calculated may alter significantly when new information or techniques become available. In addition, by their very nature, MRE's are imprecise and depend to some extent on interpretations, which may prove to be inaccurate, in particular the grade or tonnage of payable commodities estimated in the MRE. As further information becomes available through additional drilling, mining, or analysis, the estimates are likely to change. This may result in alterations to development and mining plans which may, in turn, adversely affect the Company's operations.

The production target and forecast financial information referred to in the PFS comprise Measured and Indicated Mineral Resources (approximately 91%) and Inferred Mineral Resources (approximately 9%). The production inventory has been scheduled such that approximately 3% of the material mined and processed over the first 3 years of the project life is represented by Inferred Mineral Resources. The Inferred Mineral Resources included in the production inventory does not have a material effect on the technical or commercial viability of the Project. There is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production inventory will be achieved.

Mining Risks

The operational aspects of development and production as they relate to mining at Mt Chalmers are generally considered low risk. Geotechnical assessment of the Mt Chalmers open pit and how the conditions may affect the mining process are considered adequate for this PFS level of Study however further work is required to inform more advanced studies.

Mining is intended to be undertaken by selected mining contractor(s) for open pit which brings a layer of complexity and risk as the mining contractor is biased by its own profitability and may have competing demands from other clients. The terms of the contract(s) to manage unforeseen issues will be considered by QMines, in particular any incentives to deliver production, manage dilution and to enable sufficient flexibility in the mining schedule.

The mining costs are material in value and are derived from a first principles cost model based on a ground-up build approach considering key physical drivers, volumes and consumption rates with a contractor margin applied in addition to first principal costs. The mining costs were verified against a database supplied by reputable mining contractors specialising in mine design and mine cost estimation. There is a risk that these rates may not reflect market rates, or market rates may change before rates are negotiated into a contract. There is a risk that key physical drivers, volumes or consumption rates may vary from that anticipated.

Metallurgical Risks

QMines has completed a range of metallurgical tests and mineralogical analysis. This metallurgical testwork was supervised by COMO Engineers and has been summarised and reported to the ASX over several years since the testing began in April 2022. As part of this PFS, COMO has recommended additional metallurgical testwork should be completed on composite VHMS material to further improve the recovery to concentrate and processing assumptions. There is a risk that future tests results may differ from, and therefore modify, the metallurgical performance of the production inventory as currently scheduled.

Laws, Regulations, Rules, Approvals, Licences & Permits

The Company's operations will be subject to various Federal, State and local laws and plans, including those relating to mining, development permit and licence requirements, industrial relations, environment, land use, taxation, royalties, water, native title and cultural heritage, mine safety and occupational health. No assurance can be given that new rules and regulations will not be enacted or that existing rules and regulations will not be applied in a manner which could limit or curtail exploration, production or development.

Approvals, licences and permits required to comply with such rules and regulations are subject to the discretion of the applicable government officials. No assurance can be given that QMines will be successful in obtaining any or all of the various approvals, licences and permits or maintaining such authorisations in full force and effect without modification or revocation. To the extent such approvals are required and not retained or obtained in a timely manner or at all, the Company may be curtailed or prohibited from continuing or proceeding with mining or development. There can be no assurance that the costs involved in retaining or obtaining such approvals will not exceed those estimated by QMines.

Mining operations can be subject to public and political opposition. Opposition may include legal challenges to development permits or approvals, political and public advocacy, electoral strategies, media and public outreach campaigns and protest activity, all which may delay or halt development or expansion.

Operational Risks

The Company's planned operations will be subject to uncertainty with respect to (among other things): ore tonnes, mined grade, ground conditions, metallurgical recovery or unanticipated metallurgical issues, infill resource drilling, the level of experience of the workforce, operational environment, regulatory changes, accidents and other unforeseen circumstances such as unplanned mechanical failure of plant or equipment, or the health and safety of its workforce, storms, floods, bushfires or other natural disasters. Mining operations could also suffer from poor design or poor reliability of equipment, impacts to supply chain, and transport of plant equipment and the workforce to and from site.

The occurrence of any of these circumstances could result in QMines not realising its operational or development plans, or plans costing more than expected or taking longer to realise than expected. Any of these outcomes could have an adverse effect on the Company's financial and operational performance. As the project is the only planned operating asset at this stage, any operational risks which materialise at the project will have a greater effect on QMines than a diversified company with multiple operations.

Capital Required & Timing of Commercial Production

The majority of the pre-production capital is associated with processing plant construction costs. The construction and commissioning schedule is conservatively assumed to be executed over a 22-month period. A key risk to the pre-production capital expenditure estimate is ensuring the project engages a capable and experienced EPCM contractor when required in the event COMO Engineers are unavailable. For plant construction costs, a contingency of 10% has been assumed.

Another key risk is a delay in ramp-up from first production due to the inability to access capable and experienced mining staff, inability to achieve estimated productivity rates or other operational issues which may affect production (including geotechnical, hydrogeology, health and safety). An increase in the amount of capital to commercial production or a delay in achieving commercial production levels will result in additional funding requirements, and if adequate funding requirements are not available, the cost of the additional funding or dilutionary impacts of equity funding could be significant.

Financing Risks

QMines is yet to seek to secure financing for the development of the project. The Company is confident that with the completion of the DFS and completed testwork, environmental studies and permitting to inform more advanced studies, that it will be able to obtain financing on acceptable terms. Notwithstanding, there is no guarantee that funding will be available or that it will be available on acceptable terms. Financing will be dependent on numerous factors, including the quantum of funding required, equity market sentiment; the share price of QMines, interest rates, the final cost, availability and terms of debt, the outcomes of further studies and the outcomes of the approvals process. Obtaining sufficient financing for the development of the project may result in the dilution of the Company's shareholders in the event that equity financing is required.

Availability of Labour

The resources sector is experiencing limited availability of skilled and professional staff, especially following the lifting of restrictions on travel following the COVID-19 pandemic. Since lifting of these restrictions, the labour market has eased somewhat, however, there remains a risk that suitable and adequately trained and experienced staff cannot be recruited in a timely fashion prior to project development and commissioning and/or when needed in the future as a result of normal staff turnover. The project's location and amenity, proximal on a relative basis to Rockhampton makes the project labour hire reasonable in real terms. Rockhampton as a regional centre is the primary service town for the southern Bowen Basin coal fields and the requirement for skilled mine site and construction labour may be competitive.

Climate Change

Climate change risk to QMines principally relates to the emergence of new or expanded regulations associated with the transitioning of Australian to a lower carbon economy and market changes related to climate change mitigation. The Company may be impacted by changes to local or international compliance regulations related to climate change mitigation efforts, or by specific taxation or penalties for carbon emissions or environmental damage. The Company has initiated substantial climate active measures and associated cost metrics within the scope of the PFS relating to process plant design and operations factoring in a low carbon footprint.

Climate change may cause certain physical and environmental risks that cannot be predicted by QMines including events such as increased severity of weather patterns and the possibility of extreme weather events.

About QMines

QMines Limited (**ASX:QML**) is a Queensland focused copper and gold development company. The Company owns rights to 100% of the Mt Chalmers (copper-gold) and Develin Creek (copper-zinc) deposits which are located within 90km of Rockhampton in Queensland.

Mt Chalmers is a high-grade historic mine that produced 1.2Mt @ 2.0% Cu, 3.6g/t Au and 19g/t Ag between 1898-1982.

The Mt Chalmers and Develin Creek projects now have a Measured, Indicated and Inferred Resource (JORC 2012) of **15.1Mt @ 1.3% CuEq for 195,800t CuEq.**[1, 2]

QMines' objective is to make new discoveries, commercialise existing deposits and transition the Company towards sustainable copper production.

Project & Ownership

Mt Chalmers	100%
Develin Creek (with right to 100%)[2]	51%
Silverwood	100%
Warroo	100%
Herries Range	100%

QMines Limited

ACN 643 312 104

ASX:QML

Unlisted Options

9,950,000 ($0.375 strike, 3 year term)

Shares on Issue

216,743,018

Directors & Management

Andrew Sparke
Executive Chairman

Peter Caristo
Non-Executive Director (Technical)

Glenn Whalan
Geologist (Competent Person)

James Anderson
General Manager Operations

Elissa Hansen
Non-ExecutiveDirector & Company Secretary

Compliance Statement

With reference to previously reported Exploration results and mineral resources, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parametres underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

1. *ASX Announcement - Mt Chalmers Resource Upgrade. 22 Nov 2022*
2. *ASX Announcement - QMines Delivers Fight Resource at Develin Creek. 22 Sept 2022*

Contacts

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QMINES Sustainable Australian Copper

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