

**AMC Consultants Pty Ltd**  
ABN 58 008 129 164

Level 1, 1100 Hay Street  
West Perth WA 6005  
Australia

T +61 8 6330 1100  
E perth@amcconsultants.com  
W amcconsultants.com



# Report

## Celsius Competent Person's Report

Prepared for:

Celsius Resources Limited

Nominated Adviser:

Beaumont Cornish Limited

Broker:

SP Angel Corporate Finance LLP

AMC Project 222036\_2  
28 November 2022

## Executive summary

AMC Consultants Pty Ltd (AMC) was requested by Celsius Resources Limited (Celsius) to prepare a Competent Person's Report (CPR) required to be included in an Appendix Document for Celsius' proposed listing on AIM, a market operated by The London Stock Exchange. A CPR presents an independent review of a company's mineral assets. Celsius is a public company listed on the Australian Securities Exchange (ASX).

This CPR provides details of Celsius' projects: Maalinao-Caigutan-Biyog (MCB) and Sagay in Philippines, and the Opuwo Cobalt Copper Project (Opuwo) in Namibia (Projects). AMC is advised that Mineral Resources have been estimated for the MCB and Opuwo, and preliminary mineralization model developed for the Sagay project.

This CPR does not include a valuation of any of Celsius' tenements or Projects.

AMC Principal Geologist Mr Dimitry Pertel undertook site visits to the Projects as follows:

- Mr Pertel visited the MCB site in the Philippines between 18 April and 22 April 2022 for a total of three days at the site. During the visit Mr Pertel visited the deposit site, inspected drill core, reviewed current drilling activities and inspected core logging and sampling facilities.
- Mr Pertel visited the Opuwo site in Namibia between 3 May and 7 May 2022 for a total of two days at the site. During the visit Mr Pertel visited the deposit site, inspected drill core, reviewed proposed drilling activities and inspected core logging and sampling facilities.
- No site visit was deemed necessary for the Sagay project as there was no ongoing drilling activity at the time of preparation of this CPR.

This CPR is addressed to Celsius and its Nominated Adviser, Beaumont Cornish Limited (BCL), and its broker SP Angel Corporate Finance LLP (SP Angel). AMC is responsible for this CPR and declares that it has taken all reasonable care to ensure that the information contained in this CPR is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import that would require any amendment to this CPR.

AMC consents to the inclusion of this CPR, and reference to any part of this CPR, in the Appendix Document. Any inclusion of this CPR in other documentation must be in full. This CPR presents the following key technical information as at the Effective Date in relation to the Projects:

- Mineral Resource statements prepared by others.
- Comments on the reliability of data acquisition, geological interpretation, and Mineral Resource estimation.
- Comment on compliance with the JORC Code.
- Comment on exploration potential
- A summary of the key technical risks and opportunities.

This CPR has been prepared by AMC in accordance with The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition, published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Mineral Council of Australia, (the JORC Code).

This CPR has been prepared in accordance with the JORC Code and the rules and guidelines issued by the London Stock Exchange (LSE) for the requirements of a Competent Person's Report as outlined in London Stock Exchange AIM Note for Mining and Oil & Gas Companies – June 2009 (AIM Note).

Currency is expressed in United States dollars (US\$).

The effective date of this CPR is 28 November 2022.

## Philippines Projects

AMC is advised that Celsius holds 100% of the exploration permit for the MCB project in the Philippines through its wholly owned subsidiary Makilala Holdings Ltd (a company incorporated in the Philippines).

AMC is advised that Celsius holds 100% of the exploration permit for the Sagay project in the Philippines through its wholly owned subsidiary Tambuli Mining Company, Inc.

The geological setting for the MCB and Sagay copper-gold mineralization is typical of a porphyry copper-gold deposit style. The mineralization and associated alteration occur across the contact between the genetically related intrusive bodies and the surrounding host rock material.

The MCB project area is located approximately 320 km north of the capital of Philippines, Manila, on the country's main island of Luzon. The exploration permit for the MCB project was first granted in 2006 under the ownership of Makilala Mining Company, Inc., then a subsidiary of Freeport-McMoRan. Historical exploration work includes surface mapping and sampling (2007), ground magnetic survey (2007), induced polarization (IP) geophysical surveys (2010), and an extended period of diamond drilling from 2006 to 2013. The database comprises 46 drill holes with a total drilled length of 25,547 m.

Celsius has completed exploration work, including drilling, compiled analytical data, and completed Mineral Resource estimation for the MCB project leading to public reporting on the ASX of a Mineral Resource reported in accordance with the JORC Code.

The Mineral Resource estimate for the MCB deposit<sup>1</sup> prepared by Celsius is summarized in Table I

Table I MCB Mineral Resources as of 30 December 2020

Domain	Classification	Tonnes (Mt)	Copper Grade (%)	Gold Grade (g/t)	Copper Metal (kt)	Gold Metal (koz)
Total	Indicated	290.3	0.48	0.15	1,387	1,387
	Inferred	23.5	0.48	0.1	113	79
<b>Total</b>		<b>313.8</b>	<b>0.48</b>	<b>0.15</b>	<b>1,500</b>	<b>1,467</b>

Source: Celsius ASX Release 12 January 2021.

Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.2% Cu has been applied.
- A bulk density was interpolated into the block model.
- Rows and columns may not add up exactly due to rounding.
- MCB is 100% owned by Celsius through its subsidiaries.

Celsius undertook a scoping study and preliminary economic assessment (Scoping Study) during 2021 to consider further investment in the MCB Project. The Scoping Study, while prepared under the JORC Code, is set out in the manner of a Canadian National Instrument 43-101 technical report, allowing reporting under either code.

The Scoping Study is not a sufficient basis to support public reporting of an Ore Reserves under the JORC Code, or any other major mineral reporting code.

The scope of work undertaken was to a typical industry standard and is considered appropriate, by AMC, for a scoping level assessment. The level of detail of the assessment of options was appropriate to determine economic potential to facilitate a decision on additional funding for a pre-feasibility study. Forecast metal prices used by Celsius in the Scoping Study of US\$4.00/lb

<sup>1</sup> Celsius Resources Limited, 2021: MCB Copper Gold Project Maiden JORC Mineral Resource. ASX Release 12 January 2021

Cu and US\$1,695/oz Au may be towards the high end of metal price forecasts for long-term prices (real) for a project of 25 years duration.

Further drilling was completed subsequent to the Scoping Study. Six diamond drillholes were drilled to improve the confidence in the Mineral Resource estimate and focussed on defining higher-grade areas. Recent drilling demonstrated that:

- Copper mineralization starts at the surface and is now confirmed to depths of over 700 m below surface.
- Shallow higher-grade copper mineralization and areas for future resource expansion have been confirmed.
- The resource drilling may result in an updated Mineral Resource estimate which will result in a revised mine plan and estimation of an Ore Reserve as a basis for a pre-feasibility study.
- Confirmation of the shallow high-grade mineralization will improve the mine plan, and the overall cash flow early in the mine life.

The Sagay project area is located at the north-eastern part of Negros Island within the cities of Sagay and Escalante Negros Occidental. It includes Namiga-a Hill and Sherman Hill deposits.

The database for the Namiga-a Hill deposit comprises 29 diamond drill holes drilled between 2012 and 2021 with the total drilled length of 23,690 m. Total number of assays includes 10,565 assay results for copper, lead, zinc, silver, molybdenum, arsenic, and antimony.

The Mineral Resource estimate for the Nabiga-a deposit has been reported by Mr Steven Olsen as Competent Person as defined in the JORC Code and has been publicly release in an ASX Release by Celsius dated 7 November 2022. The Mineral Resource estimate is reported by classification in Table II as of 7 November 2022 above a cut-off grade of 0.2% Cu.

Table II Nabiga-a Mineral Resource – 07 November 2022

Domain	Classification	Tonnes (Mt)	Copper Grade (%)	Gold Grade (g/t)	Copper Metal (kt)	Gold Metal (koz)
Total	Indicated	15	0.45	0.11	68	53
	Inferred	287	0.41	0.11	1,175	993
<b>Total</b>		<b>302</b>	<b>0.41</b>	<b>0.11</b>	<b>1,244</b>	<b>1,046</b>

Source: Celsius ASX Release 7 November 2022.

Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.2% Cu has been applied.
- A bulk density was interpolated into the block model.
- Rows and columns may not add up exactly due to rounding.
- Nabiga-a is 100% owned by Celsius and its subsidiaries.

No Mineral Resources are currently reported at the Sherman Hill deposit. Further exploration and relevant studies are required for the development of a Mineral Resource estimate.

### Namibia Project

AMC is advised that Celsius holds a 95% interest in three Exclusive Prospecting Licences (EPL) in Namibia, comprising the Opuwo project, through its wholly owned subsidiary Gecko Cobalt Mining (Pty) Ltd. The remaining 5% interest is owned by a local company Namibian Former Robben Island Political Prisoners Trust. AMC understands that there is no legislation that require local shareholding, but the ministry view if with favour if there is.

The Opuwo cobalt-copper project is located about 730 km northwest of the Namibian capital city, Windhoek. Exploration at Opuwo was started by Celsius in 2017, and to date it has drilled 110 diamond holes and 198 reverse circulation (RC) holes with the total drilled length of 53,559 m with over 10,000 assayed samples.

The cobalt-copper-zinc mineralization of the Dolostone Ore Formation at Opuwo is strongly stratabound mineralization hosted by marly siltstones, carbonaceous black shales as well as silty and shaley carbonates.

Celsius has completed exploration work, including drilling, compiled analytical data, and completed Mineral Resource estimation for the Opuwo project leading to public reporting on the ASX of a Mineral Resource estimate reported in accordance with the JORC Code.

Metallurgical test work was carried out in 2022. Approximately one tonne of a blended sulphide ore composite was retrieved from historical RC samples. A 36kg concentrate sample was produced by rougher flotation. The bulk sulphide concentrate was submitted for roasting and tank leach test works. The roasting and tank leach test work results showed recoveries up to 95% for cobalt and 98% for copper for this processing step. This was an improvement from the 2018 autoclave leaching test results with recoveries of 72.6% cobalt and 74.1% copper.

In 2022 Celsius completed nine large diameter (PQ) diamond drillholes for metallurgical test work for a total of 1,089 m drilled. Samples from the drilling programme have been submitted to complete metallurgical test work

The Opuwo Mineral Resource<sup>2</sup> is summarized in Table III.

Table III Opuwo Mineral Resources as at 1 July 2021

Category	Mining Method	Cut-off (CoEq%)	Tonnes (Mt)	Cobalt (%)	Copper (%)	Zinc (%)	Contained Cobalt (kt)
Indicated	Open Pit	0.06	38	0.11	0.45	0.51	40.6
	Underground	0.155	7.3	0.11	0.41	0.49	8.0
	Total Indicated			45.3	0.11	0.44	0.51
Inferred	Open Pit	0.06	28.8	0.09	0.38	0.44	26.8
	Underground	0.155	151.4	0.12	0.44	0.57	183.2
	Total Inferred			180.2	0.12	0.43	0.55
<b>Total</b>			<b>225.5</b>	<b>0.12</b>	<b>0.43</b>	<b>0.54</b>	<b>259.3</b>

Source – summarized by AMC from Mining Plus MRE report, 2021.

Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.06% cobalt equivalent (CoEq) has been applied for open cut Mineral Resource and 0.155% CoEq for underground Mineral Resource.
- A bulk density was directly assigned to block model using average values for each domain which were between 2.68 and 2.98 t/m<sup>3</sup>.
- Cobalt equivalent was calculated using metal prices: US\$10,159/t Cu, US\$45,200/t Co, and US\$3,054/t Zn.
- Metallurgical recoveries used in the cobalt equivalent formula were 81% for Co, 93% for Cu and 57% for Zn.
- Cobalt equivalent formula was:  $CoEq\% = (Co\% \times Co\ recovery) + ((Cu\% \times Cu\ recovery \times (Cu\$/Co\$)) + ((Zn\% \times Zn\ recovery \times (Zn\$/Co\$)))$ .
- Rows and columns may not add up exactly due to rounding.
- Opuwo is 95% owned by Celsius through its subsidiaries. The Mineral Resource for the project is reported in 100% terms and it is not considered material to present separate tables in relation to Celsius' 95% net attributable interest.

The Mineral Resource estimate for Opuwo includes potential for open cut mining, but the deposit is considered primarily suitable for an underground mining method.

<sup>2</sup> Celsius Resources Limited, 2021: Celsius doubles Mineral Resource at Opuwo Copper-Cobalt Project. ASX Release 1 July 2021.

## **Future work**

In AMC's opinion, the MCB, Sagay and Opuwo projects have potential for economic exploitation, and for further exploration success and discovery. The projects are at different stage of exploration and evaluation as follows:

- The MCB project being most advanced with a Mineral Resource estimate and in-house scoping study completed.
- The Sagay project is at an exploration stage. A Mineral Resource estimate classified as Inferred Mineral Resource could be completed with additional exploration.
- The Opuwo project has reported Mineral Resources. AMC considers that better continuity could be defined in that part of the estimate classified as Indicated Resource. Sampling for metallurgical test work is currently being undertaken. A scoping study assessment of mining and processing options will follow. The scoping study is planned for completion in early 2023.

In AMC's opinion the Mineral Resource estimates for MCB, Sagay and Opuwo have potential for extension and improved Mineral Resource classification with additional drilling to increase the level of confidence in the estimates, and, with additional economic studies, to progress towards the eventual reporting of Ore Reserves.

In AMC's opinion further exploration work is required to achieve the Mineral Resource estimate at the Sherman Hill deposit of the Sagay project.

## Quality control

The signing of this statement confirms this report has been prepared and checked in accordance with the AMC Peer Review Process.

**Project Manager**

The signatory has given permission to use their signature in this AMC document



Dean Carville

28 November 2022

Date

**Peer Reviewer**

The signatory has given permission to use their signature in this AMC document



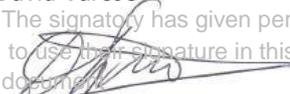
David Varcoe

28 November 2022

Date

**Author**

The signatory has given permission to use their signature in this AMC document



Dmitry Pertel

28 November 2022

Date

## Important information about this report

**Confidentiality**

This document and its contents are confidential and may not be disclosed, copied, quoted or published unless AMC Consultants Pty Ltd (AMC) has given its prior written consent.

**No liability**

AMC accepts no liability for any loss or damage arising as a result of any person other than the named client acting in reliance on any information, opinion or advice contained in this document.

**Reliance**

This document may not be relied upon by any person other than the client, its officers and employees.

**Information**

AMC accepts no liability and gives no warranty as to the accuracy or completeness of information provided to it by or on behalf of the client or its representatives and takes no account of matters that existed when the document was transmitted to the client but which were not known to AMC until subsequently.

**Precedence**

This document supersedes any prior documents (whether interim or otherwise) dealing with any matter that is the subject of this document.

**Recommendations**

AMC accepts no liability for any matters arising if any recommendations contained in this document are not carried out, or are partially carried out, without further advice being obtained from AMC.

**Outstanding fees**

No person (including the client) is entitled to use or rely on this document and its contents at any time if any fees (or reimbursement of expenses) due to AMC by its client are outstanding. In those circumstances, AMC may require the return of all copies of this document.

**Public reporting requirements**

If a Client wishes to publish a Mineral Resource or Ore / Mineral Reserve estimate prepared by AMC, it must first obtain the Competent / Qualified Person's written consent, not only to the estimate being published but also to the form and context of the published statement. The published statement must include a statement that the Competent / Qualified Person's written consent has been obtained.

## Contents

1	Introduction .....	1
1.1	Background.....	1
1.2	Reporting standard .....	1
1.3	Technical information and effective date .....	2
1.4	Reliance on information .....	2
1.5	Declaration .....	2
1.6	Consent.....	3
1.7	Qualifications of consultants and Competent Persons.....	3
2	Maalinao-Caigutan-Biyog .....	5
2.1	Background.....	5
2.1.1	Overview of the asset location, access and infrastructure .....	5
2.1.2	Climate, topography and vegetation .....	7
2.1.2.1	Climate .....	7
2.1.2.2	Topography .....	7
2.1.2.3	Vegetation .....	8
2.1.3	Tenement status and ownership .....	8
2.1.4	Mining history.....	11
2.2	Project history .....	12
2.3	Geological setting and mineralization .....	13
2.3.1	Regional geology .....	13
2.3.2	Deposit geology .....	14
2.3.2.1	Stratigraphy and alteration.....	14
2.3.2.2	Structure .....	15
2.3.3	Deposit type.....	16
2.3.4	Mineralization .....	19
2.4	Site visit.....	20
2.5	Exploration, sampling techniques, and data .....	20
2.5.1	Exploration scope completed .....	20
2.5.2	Exploration grid .....	20
2.5.3	Exploration methods .....	21
2.5.4	Sampling methods .....	23
2.5.5	Density.....	28
2.5.6	Sample preparation.....	28
2.5.7	Assaying .....	28
2.5.8	Topography.....	29
2.5.9	QA/QC overview .....	29
2.6	MCB Mineral Resource estimate .....	31
2.6.1	Mineral Resource overview .....	31
2.6.2	Reasonable prospects for eventual economic extraction .....	34
2.6.3	Mineral Resource classification.....	34
2.6.4	Mineral Resource statement .....	34
2.7	MCB scoping study.....	35
2.7.1	Purpose of the scoping study.....	35
2.7.2	Scoping study work and responsibilities .....	36
2.7.3	Scoping study summary.....	36
2.7.4	Key findings .....	37
2.7.5	Material risks and opportunities .....	38
2.7.6	AMC analysis and conclusions .....	38
2.8	Exploration potential and planned work .....	38
2.9	Geological risks .....	39
3	Sagay .....	41
3.1	Background.....	41
3.1.1	Overview of the asset location, access and infrastructure .....	41
3.1.2	Climate, topography and vegetation .....	42

3.1.2.1	Climate .....	42
3.1.2.2	Topography .....	42
3.1.2.3	Vegetation .....	42
3.1.3	Tenement status and ownership .....	43
3.1.4	Mining status .....	44
3.2	Project history .....	44
3.3	Geological setting and mineralization .....	45
3.3.1	Regional geology .....	45
3.3.2	Deposit geology .....	46
3.3.2.1	Nabiga-a Hill .....	46
3.3.2.2	Sherman Hill .....	48
3.3.3	Deposit type .....	49
3.3.4	Mineralization .....	49
3.3.4.1	Nabiga-a Hill .....	49
3.3.4.2	Sherman Hill .....	49
3.4	Site visit .....	49
3.5	Exploration, sampling techniques, and data .....	49
3.5.1	Exploration scope completed .....	49
3.5.2	Exploration grid parameters .....	50
3.5.3	Exploration methods .....	51
3.5.4	Sampling, sample preparation and assaying methods .....	51
3.5.5	Density .....	51
3.5.6	Topography .....	52
3.5.7	QA/QC overview .....	52
3.6	Nabiga-a Mineral Resource estimate .....	52
3.6.1	Mineral Resource overview .....	52
3.6.2	Reasonable prospects for eventual economic extraction .....	56
3.6.3	Mineral Resource classification .....	56
3.6.4	Mineral Resource statement .....	56
3.7	Exploration potential and planned work .....	57
3.8	Sagay Technical risks .....	57
4	Opuwo .....	58
4.1	Background .....	58
4.1.1	Overview of the asset location, access and infrastructure .....	58
4.1.2	Climate, topography and vegetation .....	59
4.1.2.1	Climate .....	59
4.1.2.2	Topography and vegetation .....	60
4.1.3	Tenement status and ownership .....	60
4.2	Project history .....	61
4.3	Geological setting and mineralization .....	62
4.3.1	Regional geology .....	63
4.3.2	Deposit geology .....	64
4.3.3	Deposit type .....	66
4.3.4	Mineralization .....	66
4.4	Site visit .....	69
4.5	Exploration, sampling techniques, and data .....	69
4.5.1	Exploration scope completed .....	70
4.5.2	Exploration grid parameters .....	70
4.5.3	Exploration methods .....	71
4.5.4	Sampling methods .....	73
4.5.4.1	Core samples .....	73
4.5.4.2	RC samples .....	75
4.5.5	Density .....	76
4.5.6	Sample preparation .....	76
4.5.7	Assaying .....	76
4.5.8	Topography .....	76
4.5.9	QA/QC overview .....	76

4.6	Mineral Resource estimate .....	77
4.6.1	Mineral Resource overview .....	77
4.6.2	Metallurgical test work.....	81
4.6.3	Reasonable prospects for eventual economic extraction .....	82
4.6.4	Mineral Resource classification .....	82
4.6.5	Mineral Resource statement .....	83
4.7	Exploration potential and planned work .....	84
4.8	Technical risks.....	84
5	Conclusions and recommendations .....	86
5.1	Conclusions.....	86
6	References.....	87
7	Glossary .....	89
8	Abbreviations and units of measurements.....	93

## Tables

Table 2.1	Technical description of the MMCI exploration permit area .....	11
Table 2.2	2021 – 2022 drilling results at MCB.....	13
Table 2.3	MCB Mineral Resource – 30 December 2020.....	35
Table 2.4	Preferred case economic evaluation .....	37
Table 3.1	Technical description of the Sagay exploration permit area .....	44
Table 3.2	Nabiga-a Mineral Resource – 07 November 2022 .....	57
Table 4.1	Summary of available database .....	78
Table 4.2	Opuwo MRE by classification – 1 July 2021 .....	83

## Figures

Figure 2.1	Regional location diagram of the MCB project.....	5
Figure 2.2	Map with typical travel route from Manila to the MCB project .....	6
Figure 2.3	Concrete road .....	6
Figure 2.4	Unsealed Road .....	7
Figure 2.5	View of the MCB project area .....	8
Figure 2.6	MMCI Tenement Map surrounding the claim area of BBGMI (compressed map).10	
Figure 2.7	Regional Structural map (left) and Regional geological map (right) of the Northern Luzon area.....	14
Figure 2.8	Plan view slice at 400 m level of the geological interpretation of the host rocks at MCB.....	16
Figure 2.9	Schematic representation of the geological model for the formation of porphyry copper-gold style of mineralization.....	17
Figure 2.10	View to the MCB project site .....	18
Figure 2.11	Stockwork in tonalite with quartz veinlets .....	18
Figure 2.12	Brecciated and silicified basalt .....	19
Figure 2.13	Exploration grid at MCB (plan view) .....	21
Figure 2.14	Exploration grid at MCB (looking east).....	21
Figure 2.15	Operating rig – Atlas Copco CS1400.....	22
Figure 2.16	Hole collar MCB-002.....	23
Figure 2.17	Logging site in Tabuk .....	25
Figure 2.18	Diamond saw .....	25
Figure 2.19	Labelled core boxes .....	26

Figure 2.20	Core wrapped with plastic before cutting .....	26
Figure 2.21	Sampled interval .....	27
Figure 2.22	Grouped five samples .....	27
Figure 2.23	Core storage .....	28
Figure 2.24	Logbook with sample and QA/QC sample numbering .....	30
Figure 2.25	Blank tuff.....	30
Figure 2.26	Mineral Resource wireframes (looking north-west) .....	32
Figure 2.27	Histogram for gold grades.....	33
Figure 3.1	Regional location diagram of the Sagay project .....	41
Figure 3.2	Panoramic view of Nabiga-a Hill (top, looking east) and Sherman Hill (bottom, looking north-east) .....	42
Figure 3.3	Location of the Exploration Permit EP-000003VI .....	43
Figure 3.4	Regional geological setting of the Sagay project area .....	46
Figure 3.5	Lithology map of the Sagay project area .....	47
Figure 3.6	Alteration map of the Sagay project area .....	48
Figure 3.7	Exploration grid at Sagay (plan view) .....	50
Figure 3.8	Exploration grid at Sagay (looking north-east).....	51
Figure 3.9	Histogram for unrestricted copper grades .....	53
Figure 3.10	Wireframes for grade domains, Sagay (looking north) .....	54
Figure 3.11	Histogram for sample length withing wireframed grade domains.....	54
Figure 3.12	Histogram for gold grades.....	55
Figure 4.1	Regional location diagram of the Opuwo deposit .....	58
Figure 4.2	Gravel road.....	59
Figure 4.3	Dirt road.....	59
Figure 4.4	View of the Opuwo deposit area.....	60
Figure 4.5	Opuwo Project Location and Tenements.....	61
Figure 4.6	Rio Tinto Geological Map highlighting the DOF Horizon .....	62
Figure 4.7	Schematic geological cross section through points A, B, C and D .....	63
Figure 4.8	Regional geological setting of the north-western Namibia .....	64
Figure 4.9	Schematic cross section of the project area.....	65
Figure 4.10	Model of the sedimentary basin architecture of productive basins hosting SEDEX deposits.....	66
Figure 4.11	Black shale with disseminated sulphides .....	68
Figure 4.12	Black shale with veins of sulphides (pyrite, pyrrhotite) .....	68
Figure 4.13	Handheld portable XRF .....	69
Figure 4.14	Exploration grid (plan view) .....	70
Figure 4.15	Exploration grid (looking east).....	71
Figure 4.16	Diamond rig at the site – Bohrmeister .....	72
Figure 4.17	Hole collar DOFD0187 .....	72
Figure 4.18	Core shed in Opuwo .....	74
Figure 4.19	Diamond saw .....	74
Figure 4.20	Labelled core boxes .....	75
Figure 4.21	Histograms and probability plots for main grades.....	79
Figure 4.22	Oblique view of the Opuwo project wireframe models.....	80
Figure 4.23	Histogram for sample length .....	80
Figure 4.24	Plan view with Mineral Resource categories .....	82

## Distribution list

1 e-copy to Celsius Resources Limited

1 e-copy to AMC Perth office

**OFFICE USE ONLY**

Version control (date and time)

221128

1030

## 1 Introduction

### 1.1 Background

AMC Consultants Pty Ltd (AMC) was requested by Celsius Resources Limited (Celsius) to prepare a Competent Person's Report (CPR) required to be included in an Appendix Document for Celsius' proposed listing on AIM, a market operated by The London Stock Exchange. A CPR presents an independent review of a company's mineral assets. Celsius is a public company listed on the Australian Securities Exchange (ASX). AMC understands that Celsius is intending to publish an AIM Appendix Document and seek admission of Celsius' shares to trading on AIM as required under the AIM Rules and that, as part of this process, the Celsius is required to include a CPR on material projects.

This CPR provides details of the Celsius' projects: Maalinao-Caigutan-Biyog (MCB) and Sagay in Philippines, and the Opuwo project in Namibia (Projects). Mineral Resources have been estimated for the MCB and Opuwo, and preliminary mineralization model developed for the Sagay project.

This CPR does not include a valuation of any of Celsius' tenements or Projects.

AMC Principal Geologist Mr Dimitry Pertel undertook site visits to the Projects as follows:

- Mr Pertel visited the MCB site in Philippines between 18 April and 22 April 2022 for a total of three days at the site. During the visit Mr Pertel visited the deposit site, inspected drill core, reviewed current drilling activities and inspected core logging and sampling facilities.
- Mr Pertel visited the Opuwo site in Namibia between 3 May and 7 May 2022 for a total of two days at the site. During the visit Mr Pertel visited the deposit site, inspected drill core, reviewed proposed drilling activities and inspected core logging and sampling facilities.
- No site visit was deemed necessary for the Sagay project as there was no exploration activity at the time of preparation of this CPR.

This CPR is addressed to Celsius and its Nominated Adviser Beaumont Cornish Limited (BCL), and its broker, SP Angel Corporate Finance LLP (SP Angel). AMC is responsible for this CPR and declares that it has taken all reasonable care to ensure that the information contained in this CPR is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import that would require any amendment to this CPR. Subsequent to the site visits, AMC received further information on Opuwo drilling on 17 August 2022 and MCB drilling on 30 September 2022. To the best of AMC's knowledge, no material change has occurred from 30 September 2022 to 28 November 2022 that would require any amendment to this CPR.

AMC consents to the inclusion of this CPR, and reference to any part of this CPR, in the Appendix Document. This CPR presents the following key technical information as at the Effective Date:

- Mineral Resource statements prepared by others.
- Comments on the reliability of data acquisition, geological interpretation and Mineral Resource estimation.
- Comment on compliance with the JORC Code.
- Comment on exploration potential
- A summary of the key technical risks and opportunities.

Certain units of measurements, abbreviations, and technical terms are defined in the glossary of this CPR. Unless otherwise explicitly stated, all quantitative data as reported in this CPR are reported on a 100% basis.

### 1.2 Reporting standard

This CPR has been prepared by AMC in accordance with The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition, published by the Joint

Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Mineral Council of Australia, as amended (the JORC Code).

This CPR has been prepared in accordance with the JORC Code and the rules and guidelines issued by the London Stock Exchange (LSE) for the requirements of a Competent Person's Report as outlined in London Stock Exchange AIM Note for Mining and Oil & Gas Companies – June 2009 (AIM Note).

### **1.3 Technical information and effective date**

The effective date of this CPR is 28 November 2022 (Effective Date).

The Mineral Resource estimates and the technical information have been prepared as at the Effective Date relying on:

- A Mineral Resource estimate reported for the MCB project in an ASX release by Celsius dated 12 January 2021.
- A Mineral Resource estimate reported for the Opuwo project in an ASX release by Celsius dated 1 July 2021.
- A Mineral Resource estimate reported for the Nabiga-a deposit of the Sagay project in an ASX release by Celsius dated 7 November 2022.
- Other information provided to AMC by Celsius at the time of the site visits to MCB and Opuwo.
- Metallurgical test results released by Celsius on 17 August 2022.
- Drilling results for MCB provided by Celsius on 30 September 2022.

All currency in this CPR is expressed on a cash basis in terms of United States dollars (US\$).

### **1.4 Reliance on information**

AMC has relied upon the accuracy and completeness of technical, and legal information and data provided by, or through, Celsius and its representatives.

Celsius has confirmed to AMC that, to its knowledge, the information provided by it (when provided) was complete and not misleading in any material respect. AMC has no reason to believe that any material facts have been withheld. Whilst AMC has exercised all due care in reviewing the supplied information, AMC does not accept responsibility for errors or omissions contained therein and disclaims liability for any consequences of such errors or omissions.

AMC's assessment of the Mineral Resources is based on information provided by Celsius through the course of AMC's investigations, which in-turn reflect various technical and economic conditions prevailing at the date of this CPR and at the date of preparing the Mineral Resource estimates. These can change significantly over time.

This CPR specifically excludes all aspects of legal issues, marketing, commercial and financing matters, insurance, land titles and usage agreements, and any other agreements and/or contracts Celsius might have entered into.

### **1.5 Declaration**

AMC will receive a fee for the preparation of this CPR in accordance with normal professional consulting practices. This fee is not dependent on the findings of this CPR and AMC will receive no other benefit for the preparation of this CPR. AMC does not have any interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to Celsius' projects and assumptions included in the various technical studies completed by Celsius, opined upon by AMC and reported herein.

While some employees of AMC and its subconsultants may have small direct or beneficial shareholdings in Celsius or associated companies, neither AMC nor the contributors to this CPR nor members of their immediate families have any interests in Celsius that could be reasonably construed to affect their independence. AMC has no pecuniary interest, association, or employment relationship with Celsius.

None of the AMC consultants who are contributors to this CPR is an officer, employee, or proposed officer or employee of Celsius or any group, holding or associated company of Celsius, BCL, or SP Angel.

AMC and the Competent Persons consider themselves to be independent of Celsius, its directors, senior management, BCL and SP Angel.

## **1.6 Consent**

In compliance with AIM Note, AMC will give its written consent to the inclusion of this CPR in the AIM Appendix Document and all of the information to be contained in the AIM Appendix Document which has been extracted directly from this CPR.

## **1.7 Qualifications of consultants and Competent Persons**

AMC is a firm of independent geological, geotechnical, hydrogeological, mining engineering, metallurgical engineering, and business improvement consultants offering expertise and professional advice to exploration, mining, and mining finance industries from our offices in Australia, Canada, Russia, Singapore, and the United Kingdom.

AMC's experience-base covers all facets of mining from exploration and planning through to production and senior management roles. AMC has conducted a substantial number of evaluations of open-pit and underground mining projects and operations over a wide range of mineral commodities and is widely recognized as a technical leader in the global mining industry.

The Competent Person who conducted the site visits and reviewed geology, data collection, Mineral Resource estimation and exploration potential is Mr Dmitry Pertel, AMC Principal Resource Geologist. Dmitry Pertel has more than 34 years geological experience in mining, exploration and field work, office and operations establishment and management together with specific skills in mining and geological computer applications using Datamine, Micromine and other software. He has been involved in database management, resource modelling and evaluation, economic analysis, consulting, due diligence studies, audits, software promotion and sales. He has a strong working knowledge of exploration and mining projects around the world. Dmitry Pertel is a Member of the Australian Institute of Geoscientists.

The Competent Person who reviewed the MCB scoping study is Mr Glen Williamson AMC Operations and Corporate Consulting Manager and Principal Mining Engineer. Glen Williamson has more than 39 years of experience in the mining industry working for mining companies, a mining contractor, and in consulting across a range of commodities and locations. His experience includes mine planning, operations management, technical management, feasibility studies, due diligence reviews and Ore Reserve estimation, and includes operations experience in iron ore, coal, gold, copper, tin, and industrial minerals. Glen Williamson is a Member of the Australasian Institute of Mining and Metallurgy.

Project management for the CPR was undertaken by AMC Principal Geologist Mr Dean Carville. Dean Carville has over 40 years of industry experience. His primary areas of expertise are exploration and resource geology, resource estimation, technical due diligence, and exploration valuation. He has completed technical reviews and exploration valuations for independent technical reports for finance, specialist reports related to transactions, administration of companies, and stamp duty and capital gains tax assessments. Dean Carville is a Member of the Australasian Institute of Mining and Metallurgy.

This CPR has been peer reviewed in accordance with AMC's peer review policy. The peer reviewer was Mr David Varcoe AMC Principal Mining Engineer. David Varcoe has more than 30 years' experience in the mining industry. He has extensive mine technical and managerial experience across a number of commodities including gold, iron ore, copper, diamonds, coal, uranium and rare earths. David has managed and or been part of a team for many technical reviews for independent technical reports for finance, specialist reports related to transactions, administration of companies, and stamp duty and capital gains tax assessments. David Varcoe is a Member of the Australasian Institute of Mining and Metallurgy.

In preparing this CPR, AMC has relied on the accuracy and completeness of the data provided to it by Celsius or its subsidiaries. Celsius has undertaken that it has made AMC aware of all material information in relation to the projects. The CPR presents a review of the mineral assets of Celsius but should not be considered an audit.

AMC has not conducted verification of the standing of the tenure for exploration at any of the projects and has relied on Celsius that it will hold adequate security of tenure for exploration and assessment of the projects to proceed. Full details on the tenements are provided elsewhere in the Appendix Documents.

## 2 Maalinao-Caigutan-Biyog

### 2.1 Background

#### 2.1.1 Overview of the asset location, access and infrastructure

The MCB project is located in the Barangay of Balatoc, Municipality of Pasil which is situated in the Province of Kalinga on the Island of Luzon, Philippines. The project is located in the geographic co-ordinate system at Latitude 17°21' N and Longitude 121°4' W (Figure 2.1).

Figure 2.1 Regional location diagram of the MCB project



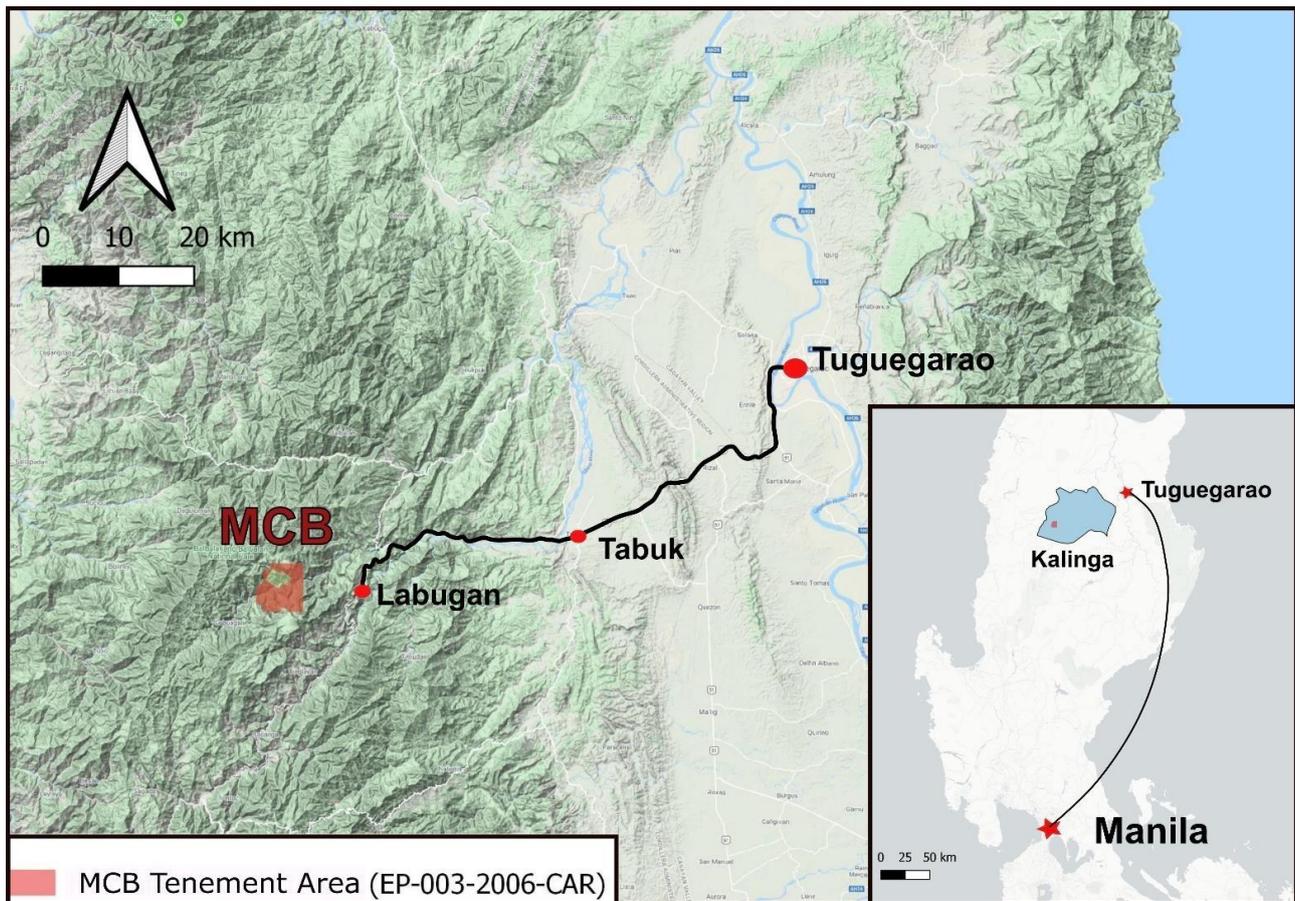
Source – Celsius

Access to the project from Manila includes a 45-minute flight to Tuguegarao airport, then driving for about one hour to Tabuk city, which is a capital of the Kalinga province. The project site is in about 43 km direct distance from the Tabuk city, which takes about three to four hours to drive.

The closest township is Pasil, which is about 11.5 km east from the project. The closest village (Barangay) to the site is Balatoc, which is about two to three kilometres from the project. Access from Tabuk to Balatoc village is by all year-round road, the majority of which is sealed or concrete (Figure 2.3), and the last 10 km of the road (Figure 2.4) is suitable for four wheel drive vehicles only. The roads are subject to landslides due to the mountainous topography and rain in the project area.

The Kalinga and Mountain Province area is remote and there is a general lack of infrastructure. Road access is currently being upgraded by the national government however it is a long-term project. The local roads are passable by four-wheel drive vehicles and multi-wheel drive truck and trailer vehicles. Celsius' subsidiary Makilala Mining Company, Inc. (MMCI) has rented accommodations and office at the village of Balatoc.

Figure 2.2 Map with typical travel route from Manila to the MCB project



Source – Celsius

Figure 2.3 Concrete road



Figure 2.4 Unsealed Road



## 2.1.2 Climate, topography and vegetation

### 2.1.2.1 Climate

The climate at MCB is classified as tropical monsoon, with significant annual rainfall (approximately 1.7m), particularly from June through to October. The winter months are cooler and less humid from November through to March, with averages ranging from 15°C or 16°C up to 21°C to 23°C. A hot period typically extends from March to May, which is followed by the high-rainfall months of June through to October. The high topographic relief make the area susceptible to land slide events and high levels of erosion in the more mountainous regions, particularly during the high-rainfall months.

The higher elevation makes the climate at MCB and in the surrounding mountains consistently cooler by approximately 5°C throughout the year in comparison to the low-lying areas on the island of Luzon.

### 2.1.2.2 Topography

MCB is located in the central portion of an extensive mountain range known as the Cordillera Central.

The Cordillera Central is a massive mountain range situated in the northern central part of the Island of Luzon. The mountain range encompasses all provinces of the Cordillera Administrative Region (Abra, Apayao, Benguet, Ifugao, Kalinga and Mountain Province), as well as portions of eastern Ilocos Norte, eastern Ilocos Sur, eastern La Union, northeastern Pangasinan, western Nueva Vizcaya, and western Cagayan.

The Cordillera Central is the highest mountain range in the Philippines. It comprises about one sixth of Luzon Island with a total area of 18,300 km<sup>2</sup>. The highest mountain in the range, Mount Pulag, is also the highest mountain on Luzon Island at 2,922 m.

Three volcanoes with no historical eruptions but which are still thermally active are located within the Cordillera Central. This includes Mount Binuluan, which rises to 2,329 m in Kalinga province and has active solfataras and thermal springs.

More locally at MCB, the project area has steep and mountainous terrain (Figure 2.5), ranging from 800 m above sea level in the valleys and rivers, up to over 1,300 m above sea level at the surrounding mountain peaks.

Figure 2.5 View of the MCB project area



Source: Celsius

### 2.1.2.3 Vegetation

The mountains of the Cordillera Central support a number of different types of habitats. Elevations above 1,000 m are covered in Luzon tropical pine forests except in the north of the range where the high slopes consist of Luzon montane rain forests. Elevations below 1,000 m are in the Luzon rain forests ecoregion.

The mountain slopes at MCB have been largely deforested and a significant portion are bare of forest cover. Isolated areas of tree cover remain along some steep slopes. The cleared locations are mostly covered by shrubs, cogon, herbs and grasses. Rice fields and terraces, cash crops and small vegetable farms are located near settlements in the river valleys and plateau ridge tops.

### 2.1.3 Tenement status and ownership

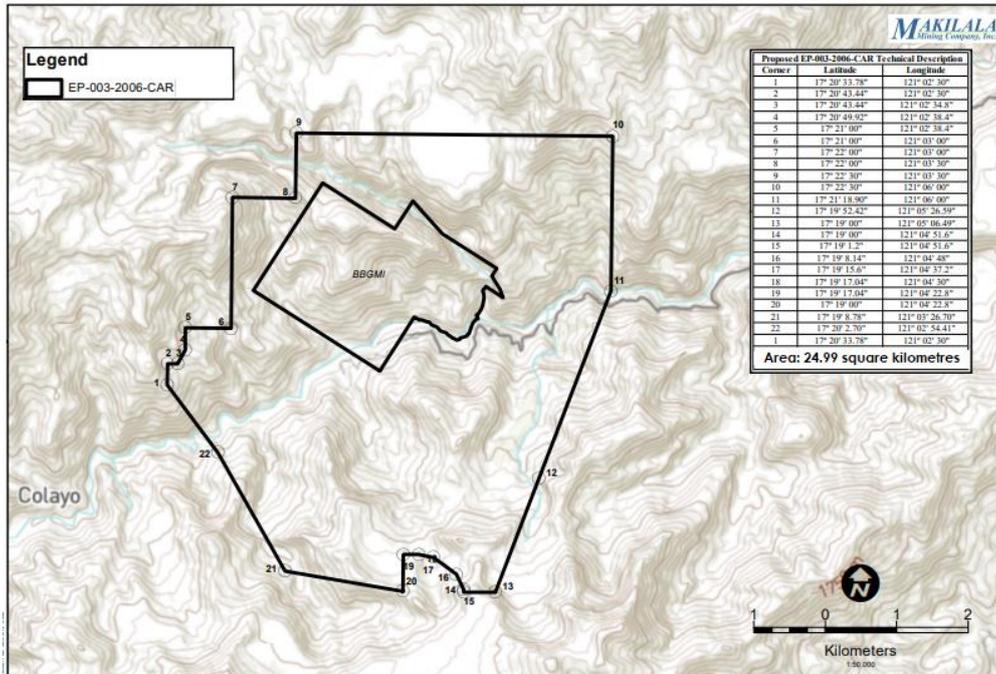
AMC is advised that the MCB project consists of a single exploration permit with the title number EP-003-2006-CAR. The underlying title is in the name of the Philippines-registered corporation Makilala Mining Company, Inc which is wholly owned by a private company Makilala Holdings Ltd (Makilala Holdings). Makilala Holdings is a wholly-subsiary of Celsius.

The exploration permit was originally approved in 2006 and had its third renewal approved by the Mines and Geoscience Bureau (MGB) on 24 September 2020. The permit was renewed for a period of two years and will expire on 24 September 2022. It is stated in the permit that it is non-renewable, but that the Permit shall be deemed automatically extended until such time that the Mineral Agreement or FTAA application is approved (FTAA – Financial and Technical Assistance Agreement). According to Celsius, the permit was extended until 20 May 2023. The original permit area was 2,719.57 ha (27.20 km<sup>2</sup>). Part of the exploration permit was relinquished in 2022 and the current permit area is 2,498.88 ha (24.99 km<sup>2</sup>).

The exploration permit at MCB is located on open public land which is administered by Department of Environment and Natural Resources (DENR), via oversight by the MGB. The site of the MCB project is within the territorial jurisdiction of the Ancestral Domain of Balatoc located at Barangay Balatoc within the Municipality of Pasil, Kalinga Province. The project has secured Free and Prior Informed Consent (FPIC) from the Balatoc Indigenous Cultural Community to carry out exploration within the tenement covered by EP003-2006-CAR (Figure 2.6 and

Table 2.1). Prior to developing the site into an operating mine, a further FPIC agreement would need to be negotiated with the Balatoc Indigenous Cultural Community. As part of the FPIC process, the pre-FPIC conference was completed in May 2022 and the first Community Consultative Assembly is expected in early June 2022.

Figure 2.6 MMCI Tenement Map surrounding the claim area of BBGMI (compressed map)



Source: Makilila

Table 2.1 Technical description of the MMCI exploration permit area

Corner	Latitude	Longitude
1	17° 19' 00"	121° 03' 00"
2	17° 19' 30"	121° 03' 00"
3	17° 19' 30"	121° 02' 30"
4	17° 20' 43.44"	121° 02' 30"
5	17° 20' 43.44"	121° 02' 34.8"
6	17° 20' 49.92"	121° 02' 38.4"
7	17° 21' 00"	121° 02' 38.4"
8	17° 21' 00"	121° 03' 00"
9	17° 22' 00"	121° 03' 00"
10	17° 22' 00"	121° 03' 30"
11	17° 22' 30"	121° 03' 30"
12	17° 22' 30"	121° 06' 00"
13	17° 21' 18.90"	121° 06' 00"
14	17° 19' 52.42"	121° 05' 26.59"
15	17° 19' 00"	121° 05' 06.49"
16	17° 19' 00"	121° 04' 51.6"
17	17° 19' 1.2"	121° 04' 51.6"
18	17° 19' 8.14"	121° 04' 48"
19	17° 19' 15.6"	121° 04' 37.2"
20	17° 19' 17.04"	121° 04' 30"
21	17° 19' 17.04"	121° 04' 22.8"
22	17° 19' 00"	121° 04' 22.8"
1	17° 19' 00"	121° 03' 00"

Source: MCB Project Scoping Study, 2021

AMC is advised that there are no known current environmental liabilities or encumbrances that have been identified pertaining to the exploration permit or MMCI.

As part of the application for the exploration permit, the applicant should comply with a range of requirements which include among others the following:

- Documents demonstrating technical and financial capability to undertake exploration work General Information Sheet (GIS) along with a certification from the Securities and Exchange Commission (SEC). SEC is a national agency responsible for company registrations in the Philippines.
- Submit exploration, environmental and community development work plan.

MMCI has complied with these requirements. The renewal of the exploration permit for MCB is ready to be issued but MMCI requested that renewal of permit be delayed to avoid potential cancellation due to inactivity. When the permit has been granted, the company is required to carry out activities in accordance with the approved workplan.

#### 2.1.4 Mining history

Gold was first discovered in the district at the adjacent Batong Buhay Property in 1932. This led to the first claims in the region which were sold in the newly established company, Batong Buhay Gold Mines, Inc. in 1934. From 1936, exploration and development work commenced leading to commercial gold production in 1940, suspended a year later due to the start of World War II.

In 1984, a short-lived 3,500 t per day operation was established at the Dickson porphyry copper-gold deposit before its closure in 1985.

There is no current mining activity at the project.

## 2.2 Project history

The exploration permit for the MCB project was first granted in 2006 under the ownership of MMCI, then a subsidiary of Freeport-McMoRan. Historical exploration work includes surface mapping and sampling (2007), ground magnetic survey (2007), induced polarization (IP) geophysical surveys (2010), and an extended period of diamond drilling from 2006 to 2013.

As of July 2013, an aggregate meterage of 25,547m had been drilled consisting of 46 completed diamond drill holes. Further research and technical work were completed leading to an updated interpretation of the local geology and associated copper-gold mineralization (Escasio, 2016). This was followed up with an internal mineral resource estimate (not reported in accordance with the JORC Code), which was documented within an internal Freeport-McMoRan report (Taningco and Madera, 2017).

Further drilling was completed between 2021 and 2022 when six diamond holes were drilled to improve the confidence in the existing Mineral Resource estimate in addition to focusing on defining higher-grade areas at the deposit (Table 2.2). Recent drilling demonstrated that:

- Copper mineralization starts at the surface and is now confirmed to depths of over 700 m below surface.
- The latest drill hole results have confirmed shallow higher-grade copper mineralization and areas for future resource expansion.
- The culmination of the resource drilling will likely result in an updated Mineral Resource estimate which will result in a revised mine plan and estimation of an Ore Reserve as a basis for a pre-feasibility study.
- It is expected that the confirmation of the shallow high-grade mineralization will improve the mine plan, and the overall cash flow early in the mine life.

Table 2.2 2021 – 2022 drilling results at MCB

Hole Name	Total Length (m)	Depth From (m)	Depth To (m)	Length (m)	Cu grade (% Cu)	Au grade (g/t Au)
MCB-033	731	17	636	619	0.41	0.08
	<i>including</i>	230	604	374	0.51	0.11
	<i>including</i>	305	393	88	1.24	0.36
	<i>including</i>	340	392	52	1.58	0.53
MCB-034	607	20	627	607	0.44	0.06
	<i>including</i>	28	94	66	0.53	0.03
	<i>including</i>	349	425	76	0.93	0.14
MCB-036	860	19	691	672	0.43	0.12
	<i>including</i>	27	150	124	0.92	0.24
	<i>including</i>	89	102	13	3.69	0.39
MCB-037	548	20	548	529	0.55	0.19
	<i>including</i>	20	35	16	1.02	0.07
	<i>including</i>	93	135	42	0.87	0.05
	<i>including</i>	360	510	150	0.86	0.47
MCB-038	644	33	644	611	1.39	0.75
	<i>including</i>	207	358	151	1.9	1.57
	<i>including</i>	232	310	78	2.47	2.12
	<i>including</i>	392	626	234	1.9	0.87
	<i>including</i>	574	624	49	2.46	1.33
MCB-039	409	18	111	93	0.59	0.05
	<i>including</i>	18	65	47	0.79	0.07
	<i>including</i>	349	357	7	0.65	0.41

Source: Celsius Investor Presentation, September 2022

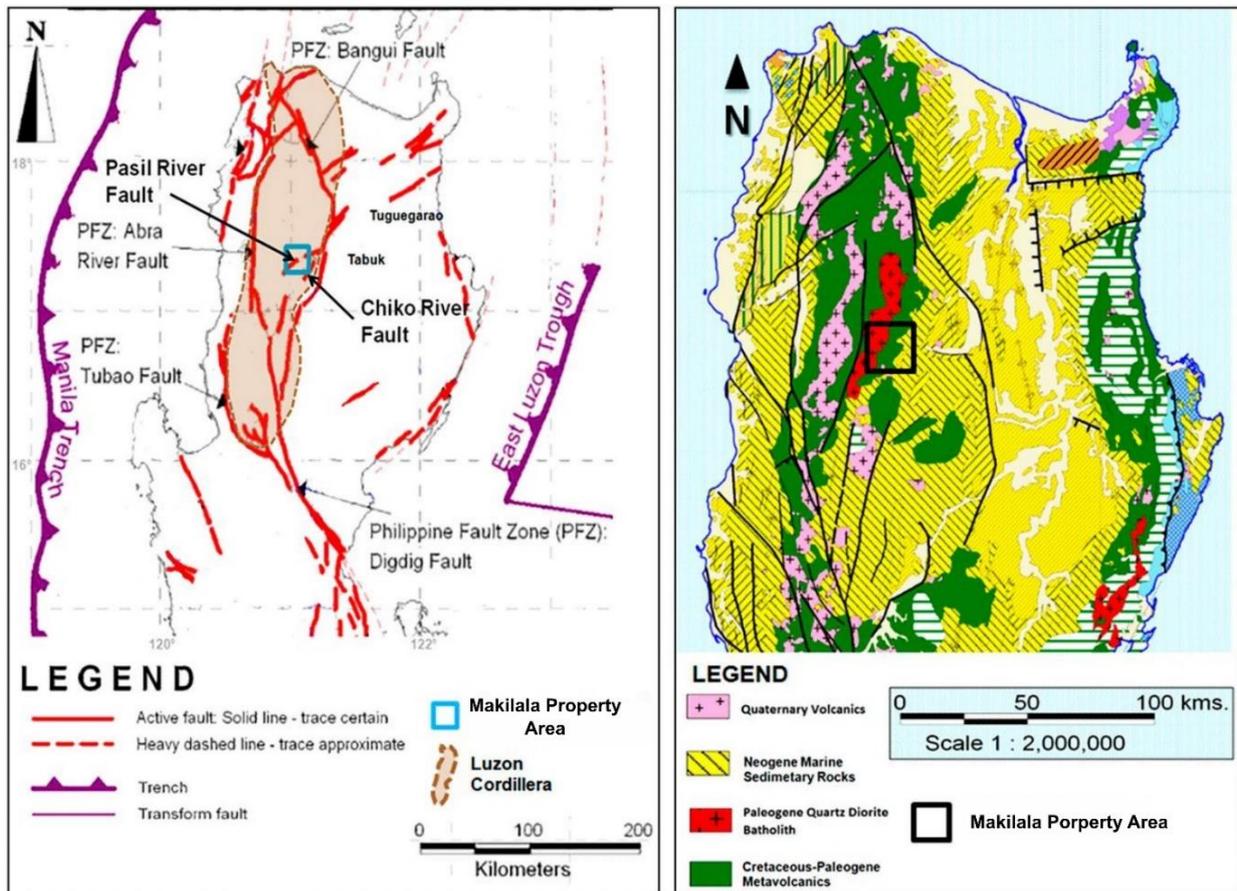
## 2.3 Geological setting and mineralization

### 2.3.1 Regional geology

The geology in the MCB project area is part of the Central Cordillera range in Northern Luzon which is a 300 km long north-south trending mountain range separating the Ilocos foothills to the west and the Cagayan Basin to the east. The Central Cordillera range was initially formed during the Oligocene as a result of subduction along the Manila Trench (Bellon and Yumul, 2000). The tectonic activity resulted in the formation of a magmatic arc causing uplift and intrusion of numerous large plutons collectively referred to as the Central Cordillera Diorite Complex (CCDC) (MGB, 2010). Throughout the Cordillera range, the CCDC intruded into basement lithologies made up of mafic flows, agglomerates and some thin greywackes and conglomerates (Durkee and Pederson, 1961).

A later stage of intrusive activity has occurred in the late Miocene to Pliocene which is interpreted to be related to host the more significant porphyry copper-gold and epithermal gold mineralization (Subang, et. al., 2006) in the Central Cordillera.

Figure 2.7 Regional Structural map (left) and Regional geological map (right) of the Northern Luzon area



Source: MCB Project Scoping Study, 2021

### 2.3.2 Deposit geology

A technical report by Escasio (2016) documented the details for each rock type, alteration assemblages and associated copper mineralization at MCB which is based on a detailed petrographic analysis from the diamond drill core samples. The results and interpretations led to a process of re-logging the diamond drill core to provide for a more consistent approach to the drill hole logging data and subsequent three-dimensional geological interpretation which is also the basis for the Mineral Resource estimate as documented in this CPR.

#### 2.3.2.1 Stratigraphy and alteration

The oldest rocks at MCB are an extensive basement complex of basalt lava flows. The basaltic rocks exist as a dark fine-grained unaltered rock or as strongly altered versions which are distinctly lighter in colour due to the presence of intense silica-sericite-albite clay alteration minerals which overprint the original rock mineralogy.

The extensive basement rocks have been intruded by both the older quartz diorite rocks of the CCDC and later-stage intrusive rocks. The later-stage intrusive rocks which are logged as tonalite intrusive rocks are interpreted to be related to the copper-gold mineralization.

Earlier logging and subsequent petrographic analysis have not been able to clearly distinguish between the earlier and later intrusive bodies, which are all recorded as a tonalite rock type. The tonalite rocks are medium to coarse grained (0.5 mm to 5 mm) porphyritic texture with euhedral to subhedral quartz eyes, plagioclase, and hornblende crystals. Some primary internal zoning and textural changes occur in the tonalite rocks in addition to the effects of overprinting

alteration. As the alteration increases, the mafic crystals (mostly hornblende) are replaced by biotite+magnetite-chlorite with overprints of anhydrite. The mafic crystals become less conspicuous with increasing quartz-sericite and clay alteration.

In some locations there are also outcrops of a dacitic volcanic rocks, which blanket the older basaltic lava flows and tonalitic intrusive rocks. In some places, the dacite has formed large columnar jointing.

#### **2.3.2.2 Structure**

The major structures at MCB run parallel to the major regional structures that exist throughout the Central Cordillera.

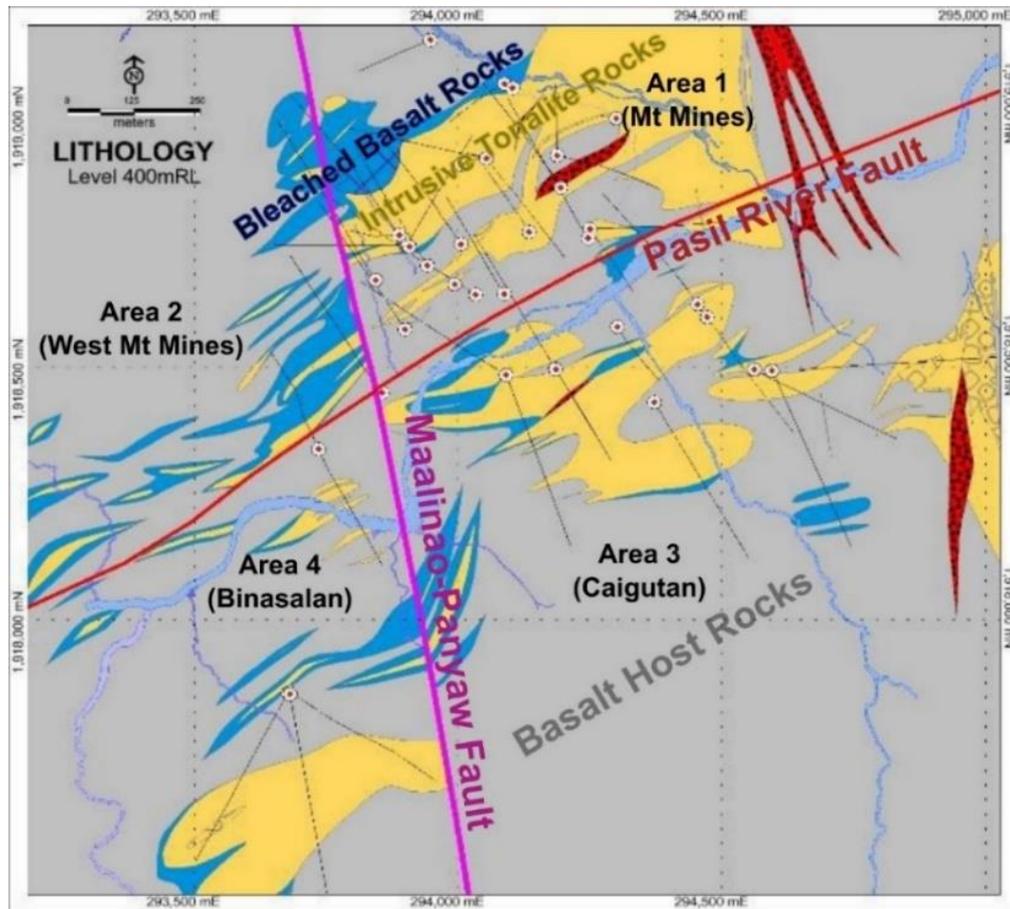
A series of faults is parallel to the interpreted northern extensions of the major Philippine Fault Zone, which, in the central section of the Central Cordillera, strikes in a north-north-west direction of approximately 350°.

The faults appear to be long lived, having had a significant influence on the location of the higher-grade sections of the copper-gold mineralization and which in some cases are late cross-cutting features. The defined Maalinao-Panyaw Fault is interpreted to be a bounding fault to the high-grade copper-gold mineralization, with the rocks and interpreted mineralization downthrown to the west. The location of any possible high-grade copper-gold mineralization is yet to be determined on the western side of the fault.

Further to the east, the Maalinao-Panyaw sub-parallel fault called the Caigutan Fault, appears to have had a strong influence on the location of the alteration and copper-gold mineralization. Further to the east outside the exploration permit, the original Batong Buhay deposit is similarly influenced by a north-north-west striking breccia and alteration zones.

There is a dominant trend to the intrusive rocks and associated alteration features at depth which run parallel to a major fault trend of approximately 50° (Figure 2.8). This trend is coincident with the Pasil River Fault, which has resulted in the location of the Pasil River due to favorable erosion along the fault. The trend of the alteration and the interpreted copper-gold mineralization is interpreted to be parallel to this dominant local trend which is striking at approximately 50° and is dipping close to vertical.

Figure 2.8 Plan view slice at 400 m level of the geological interpretation of the host rocks at MCB



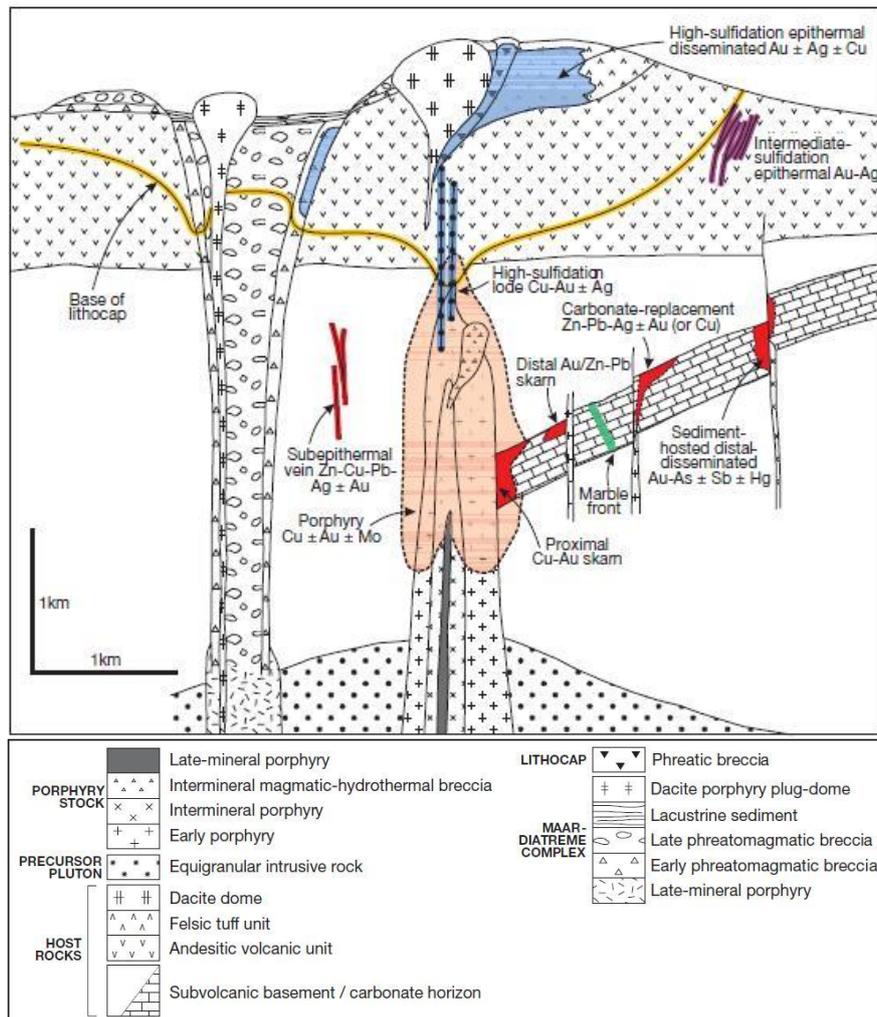
Source: MCB Project Scoping Study, 2021

### 2.3.3 Deposit type

The geological setting for the MCB copper-gold mineralization is typical of a porphyry copper + gold + molybdenum deposit as commonly defined in many academic papers (Hedenquist and Lowernstern, 1994; Sillitoe, R. H., 2010; and Corbett and Leach, 1997). The mineralization and associated alteration occur across the contact between the genetically related intrusive body (tonalite) and the surrounding host rock.

In most cases, the surrounding host rock is a mafic volcanic. However, in some instances, the older (not genetically related to copper-gold mineralization) intrusive bodies also exist in contact with the younger intrusive resulting in broad sections of mineralization and alteration within a series of intrusive bodies. There is also evidence for epithermal vein-style mineralization in proximity to the large-scale porphyry copper-gold mineralization. At this stage, the only deposit type that is defined in the Mineral Resource estimate is a porphyry copper-gold style (Figure 2.9).

Figure 2.9 Schematic representation of the geological model for the formation of porphyry copper-gold style of mineralization



Source: Sillitoe, R. H. 2010

The site visit by the Competent Person confirmed that the deposit is a typical porphyry type with copper and gold mineralization. Visible gold was not observed, but presence of copper mineralization was apparent from both core and outcrops. Visible chalcopyrite and more often bornite were present in drill core, and oxidized copper minerals (malachite and azurite) were often visible in outcrops. Most of the mineralization was observed in core with significant silicification and stockwork with quartz veining with 0.7% Cu to 1.2% Cu and sometimes brecciated basalt with about 3% Cu (Figure 2.11 and Figure 2.12).

The deposit geology was explained and discussed, and the deposit area was observed from the valley of the river (Figure 2.10).

Figure 2.10 View to the MCB project site



Figure 2.11 Stockwork in tonalite with quartz veinlets



Figure 2.12 Brecciated and silicified basalt



### 2.3.4 Mineralization

The copper mineralization and associated alteration mineralogy has been interpreted from the core relogging data and petrographic work completed in 2016. For the dominant high-grade porphyry copper mineralization, there are four mineralizing events identified by a series of overprinting porphyry veins that contain distinct alteration minerals and copper-gold mineralization.

The vein types in order of formation are:

- Vein 1 – Fine grained tremolite-biotite-anhydrite-quartz (magnetite in the basalt host rock) and associated chalcopyrite-bornite.
- Vein 2 – Granular (1 mm to over 2 cm) grey quartz veins with associated magnetite-bornite-chalcopyrite and/or biotite-chlorite-actinolite-tremolite.
- Vein 3 – Dominated by crystalline anhydrite with pods of biotite-chalcopyrite-pyrite.
- Vein 4 – Massive chalcopyrite (+ bornite + pyrite) often accompanied by widespread quartz-sericite-clay alteration.

Specific characteristics for two stages of veining and alteration which overprint the porphyry copper-gold mineralization were identified and are interpreted to be closely related to the high-sulphidation epithermal mineralization.

The earlier stage of veining is characterized by high-copper species sulphides (bornite, chalcopyrite, covellite and chalcocite) associated with quartz-sericite-chlorite-clay-pyrite alteration.

The later-stage high-sulphidation event is confined along structures (veins and faults) and is characterized by the presence of copper sulphur arsenates and associated quartz-anhydrite-alunite-kaolinite veining and alteration. Sulphide minerals are mostly enargite-luzonite with some chalcocite, covellite and digenite. Other associated minerals are sphalerite and molybdenite.

## 2.4 Site visit

The Competent Person Dmitry Pertel (AMC Principal Resource Geologist) visited the MCB deposit site from 18 April to 23 April 2022.

The purpose of the site visit was to review the MCB deposit site, access, and infrastructure, and assess the geology and mineralization geometry, and review the diamond core. One diamond rig was operating at the deposit site during the site visit.

The local chief geologist (Mr Francis Benedict Escasio of MMCI) was involved in the visit. The local geologist explained the deposit geology, protocols and methods employed in the current exploration programmes, including assay quality control and quality assurance (QA/QC), which are considered appropriate and consistent with industry good practice.

Drill collars were checked in the field and located with handheld global positioning system (GPS) instrument. The sampling and logging procedures were observed and reviewed, and samples were secure.

The sample preparation and analytical laboratory (Intertek's laboratory in Manila, Philippines) was not visited. Intertek is an internationally recognised analytical laboratory company. Intertek demonstrated validity and competence as an ISO/IEC 17025:2005 and ISO/IEC 17020:2004 Accredited Testing and Calibration Laboratory. The lack of a laboratory visit is not considered to adversely affect the Competent Person's confidence in procedures and quality of data.

## 2.5 Exploration, sampling techniques, and data

Although drilling was under way at the time of the site visit, no exploration results were available for the current drilling. Comments on exploration results in this CPR are based on all historical information which was available at the time of the Mineral Resource estimate which had an effective date of 30 December 2020. There are no further material exploration results that have been included in this CPR.

### 2.5.1 Exploration scope completed

Exploration diamond drilling which started from December 2006 to July 2013 was contracted to DrillCorp Philippines, Inc., completing 46 drill holes with an accumulative meterage of 25,547 m. Four prospect areas were drilled. Thirty holes (MCB-001 to MCB-030) were collared at Mt Mines (Area 1), located north of Pasil River, and the adjoining West Mt Mines (Area 2), with a total drilling length of 15,237 m. Sixteen holes (CBG-001 to CBG-016) were drilled at Caigutan (Area 3) and Binasaan (Area 4), located south of Pasil River, for a total of 10,244 m.

All of the diamond drilling utilised a triple tube core barrel for the entire length to ensure maximum sample recovery.

### 2.5.2 Exploration grid

The current understanding of the geological features of the MCB deposit structure and the nature of the topography predetermined the application of a drilling method for its study. Mineralization was traced to the total depth of about 950 m from the surface using inclined diamond drilling on a very irregular grid of approximately 100 m by 100 m or 150 m by 200 m (Figure 2.13, where green wireframe is a grade shell based on 0.2% Cu cut-off grade, and the dark red is based on 0.5% Cu cut-off grade).

Exploration lines were driven by the steep topography terrain where each drill pad required an access road for the drill rig. The exploration lines were laid mostly in the north-west to south-east direction to intersect mineralization.

The main mineralized body was traced along the strike for about 670 m, for 450 m across the strike and about 950 m down dip.



were fanned in opposite directions along the grid lines due to accessibility constraints and/or to target specific geochemical and geophysical anomalies.

The size of the drill hole core samples in the drill hole database are summarized as follows:

- PQ sized drill core with a core diameter of 83.1 mm, for a total of 3,234 m, which covers 13% out of the cumulative meterage.
- HQ sized drill core with a core diameter of 61.1mm, for a total of 11,308 m, which covers 44% of the cumulative meterage.
- NQ sized drill core with a core diameter of 45.1 mm, for a total of 10,938 m, which covers 43% of the cumulative meterage.

At the time of the site visit, MMCI used diesel-operated diamond rig Atlas Copco CS1400 operated by a contractor DrillCorp from Manila. One rig was operating at the time of the site visit, and another one was prepared for drilling. The operating rig (Figure 2.15) was drilling with oriented PQ diameter core with the depth of over 200 m. Further drilling was done mostly with HQ diameter core, and some deep holes down to the depth of 800 m had NQ diameter core at the ends of the holes.

Drilling usually employed 3 m runs and triple tubes to maximize core recovery, but some holes for geotechnical purposes and with oriented core were drilled using 1.5 m runs.

Drilling was supervised by an MMCI geologist.

Figure 2.15 Operating rig – Atlas Copco CS1400



All holes were surveyed using Reflex Ez-A™ instrument every 50 m which provides industry standard accuracy of downhole inclination.

The Competent Person inspected several drillhole collars and completed measurements of the collar location using a GPS. The measured geographic coordinates were converted to WGS84 coordinates. The calculated coordinates were then compared with the corresponding ones in the database.

Most of the drillhole collars could be located (Figure 2.16), although some of the collars had been destroyed by the local exploration or due to ground movement. Most collar coordinates were

found to be within several metres of the database records, but some had differences of more than 10 m. The difference could be explained by the terrain of the deposit site. In general, the collar position accuracy is acceptable.

MMCI reported that all collars were surveyed by a local surveyor using a differential GPS (DGPS) instrument, which provides industry-standard accuracy for the collar locations.

Figure 2.16 Hole collar MCB-002



#### 2.5.4 Sampling methods

Samples from the diamond core drilled were generally collected on 2.0 m intervals starting from below the overburden. In cases where geological and mineralogical characteristics changed, sample lengths were reduced to fit the geological contact, with a minimum sample length of one metre. The selected samples were wrapped in plastic (Figure 2.20) and then halved with diamond saw (Figure 2.18). One half was taken for sampling, and the second was stored for reference.

Prior to the core cutting and sampling, preliminary measurements were completed using a handheld Thermo Niton XLT XRF<sup>3</sup> Analyzer and an SAIC Exploranium Kappameter KT-9 magnetic susceptibility meter. The former was employed in determining the elements present, in ppm, such as Cu, Pb, Zn, As and Mo. The XRF reading interval followed the sampling interval, with ten readings every sample length. The magnetic susceptibility meter determined the relative amount of magnetite present. Ten to twenty readings were taken for each sample interval depending on the core recovery.

Sample intervals were marked for future reference. The core was photographed both dry and wet. All core photographs are available. A colour palette was not used when photographs were taken in Tabuk, although colour palette was used to take core photos at the drill site.

Sample intervals were marked by the geologist, and core was cut by the core house technician following the marked guides, usually across the prominent mineralized planes. Split core was

---

<sup>3</sup> X-Ray Fluorescence

returned to its respective core tray. After splitting, the core cutter was cleaned by removing core remnants and slurry with water.

A half core sample generally weighing 3 kg was collected in a numbered calico bag with a numbered tag inserted. For solid core, samples were collected from the same side of the split, then placed inside the bag and broken. For broken core, half of the cuttings were taken using a hand shovel. Samples were weighed.

A list of samples was recorded in the transmittal form submitted to Intertek Testing Services Philippines, an internationally recognized and ISO/IEC 17025:2005 & ISO/IEC 17020:2004 certified independent laboratory. A transmittal form includes one batch of samples composed of 40 core samples and four certified reference material (CRM) samples for QA/QC purposes. An internal transmittal form including sample intervals and sample weight was checked against the sample weight reported by Intertek upon receipt of the samples.

Initial geological logging, including core recovery and rock quality designator (RQD) was completed by a geologist at the drill site. Core boxes were closed, secured with plastic strips and transported to the logging site in Tabuk (Figure 2.17). Logging included the following:

- RQD.
- Lithology.
- Ore type.
- Alteration.
- Mineralization.
- Sulphides.
- Veining.
- Oxidation.

Linear core recovery was measured for all holes and MMCI reported that core recovery was industry standard.

The selected samples were placed into numbered calico bags (Figure 2.21), which had also sample number tag (plastic paper) placed inside the bag together with the sample. Groups of three to five samples were then bagged into poly weave bags (Figure 2.22), labelled, sealed and transported to the main sample preparation and analytical laboratory in Manila (Intertek).

All bags were zipped and secured. One dispatch included an average of 50 samples.

All core boxes were labelled with hole identifiers and intervals (Figure 2.19), and plastic tags in core boxes were replaced with alumina ones after sampling.

Remnant core is retained in the core boxes at Tabuk at the logging site (Figure 2.23). All core boxes were covered with thick plastic for protection against weather.

AMC considers that sampling, geological logging, sample security and chain of custody are being carried out to accepted industry standards.

Figure 2.17 Logging site in Tabuk



Figure 2.18 Diamond saw



Figure 2.19 Labelled core boxes



Figure 2.20 Core wrapped with plastic before cutting



Figure 2.21 Sampled interval



Figure 2.22 Grouped five samples

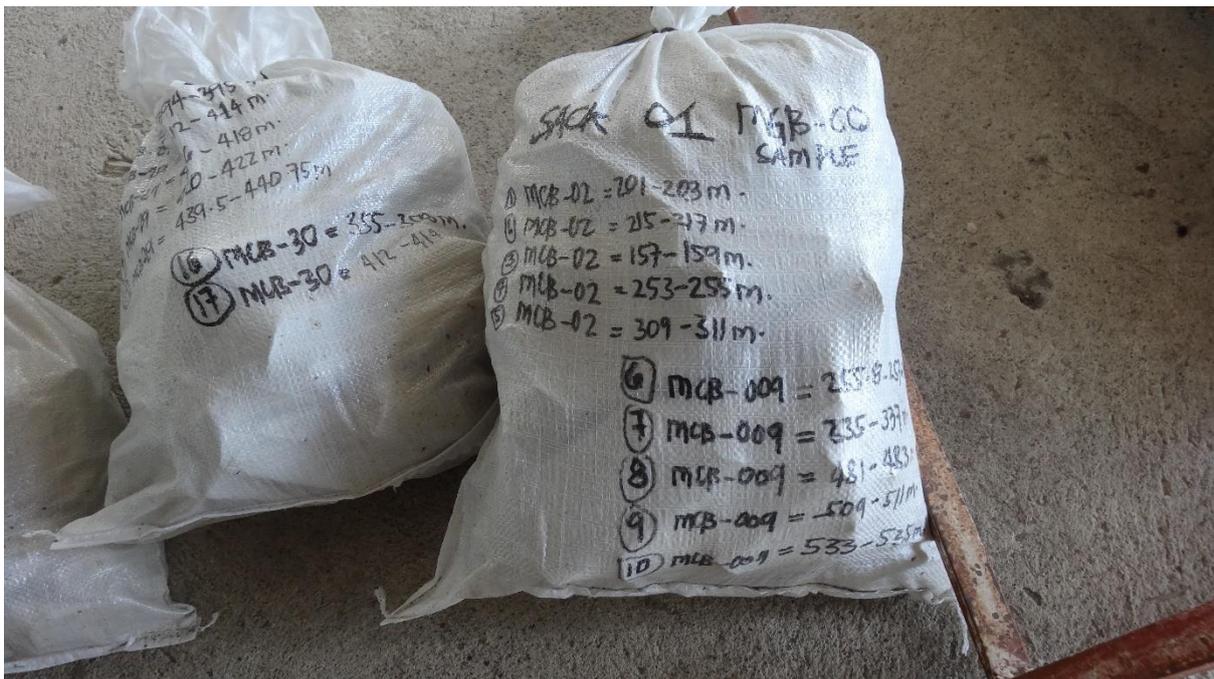


Figure 2.23 Core storage



### 2.5.5 Density

MMCI reported, that two samples for density determination were taken for each 2 m interval during 2006-2013 exploration programme. Each sample was 10 cm to 15 cm of core interval, which were subject to standard water immersion Archimedes' method of density determination.

### 2.5.6 Sample preparation

The following were the established standard procedures for all collected samples:

- **Drying and weighing:** Samples were weighed, dried in an oven at 105° C for six to eight hours. For samples with high clay content, drying time was extended up to 16 hours. After drying, samples were weighed again to calculate the moisture content.
- **Crushing:** Samples were primary crushed to a size of <4mm then crushed to <2 mm using a Boyd crusher. 1 kg of crushed material was retained for final preparation.
- **Pulverizing:** The 1 kg split was pulverized to -200 mesh with a grinding time of 4 to 6 minutes.

**Splitting:** 1 kg pulp was split successively to obtain four samples of 250 g each. Out of the four pulp samples, one sample was dispatched for the laboratory analysis. Other pulp samples were retained for duplicate assays and inter-laboratory checks.

### 2.5.7 Assaying

After sample preparation, all samples were sent for final analysis to the Intertek laboratory in Manila.

Copper values were analysed by means of geochemical digest using four acid digestion (hydrochloric acid, nitric acid, hydrofluoric acid and perchloric acid), ICP-OES<sup>4</sup> and AAS<sup>5</sup> finish. Samples were fire assayed for gold (Au) using a 50 g charge and AAS finish, with a detection

---

<sup>4</sup> Inductively coupled plasma-optical emission spectrometry

<sup>5</sup> Atomic absorption spectrometry

limit of 0.005 ppm Au. Gold values greater than 50 ppm Au were re-assayed by gravimetric fire assay.

### 2.5.8 Topography

The Mineral Resource model and surface infrastructure plans are supported by a topographic surface generated from the SRTM<sup>6</sup>. This was checked against the topographic maps from the NAMRIA (National Mapping and Resource Information Authority). To achieve a greater level of precision, MMCI commissioned a local contractor to perform a LiDAR<sup>7</sup> survey in February and March 2022. Data processing is nearing its completion at the time of preparing this CPR. The updated topographic surface will be used to optimize the current bulk earthworks plan, processing plant location, and infrastructure set-up.

### 2.5.9 QA/QC overview

QA/QC CRMs and blank samples making up just under 10% of all samples sent to the laboratory were routinely submitted to check the quality of the assay data used for the MCB Mineral Resource estimate. The QA/QC data has been reviewed by the Competent Person for the Mineral Resource estimate as defined in the JORC Code and referred to in Celsius' ASX Release of 12 January 2021 from the original assay laboratory reports with no systematic bias or random errors identified.

The procedures for the submission of samples to the assay laboratory also include the regular insertion of commercial CRMs provided by ORE Research and Exploration Pty Ltd as QA/QC samples in every sample batch, which consisted of 44 samples. For each batch, 40 samples came from core samples and an additional four samples were included for QA/QC checks, as follows:

- Three CRM samples (including one CRM blank) at a rate of 1 in 20 samples (5%).
- Barren/blank sample inserted at a rate of 1 in 44 (2.27%).
- Field core duplicate taken from the quartered core at a rate of 1 in 44 samples (2.27%).

Three CRMs were used including one blank, and one coarse blank to assess sample preparation precision. Un-mineralized tuff was used (Figure 2.25) for blank samples. All blanks and CRMs were included into the batches with routine samples to assess the performance of the primary laboratory. The numbering of QA/QC samples was continuous with routine samples (Figure 2.24).

After sample preparation, the pulp was returned to MMCI for the insertion of CRMs. The sample numbers were checked and supplied with corresponding bar code stickers. This ensured that the laboratory could not distinguish between routine samples and CRMs. All samples were then sent to Intertek Laboratory in Manila for final analysis.

The available data from the laboratory test reports were reviewed, and the analysis of these results show that:

- CRMs were within the established lower and upper bound limit.
- No contamination was indicated in the blank samples.
- Comparison of results between the original samples and replicate samples were within acceptable ranges.

It was reported by MMCI that 25 samples were selected and prepared for shipping to the umpire laboratory at SGS Laboratory in Didipio Mine (Oceana) in Nueva Viscaya, Philippines.

---

<sup>6</sup> Shuttle Radar Topography Mission

<sup>7</sup> Light detection and ranging

Figure 2.24 Logbook with sample and QA/QC sample numbering

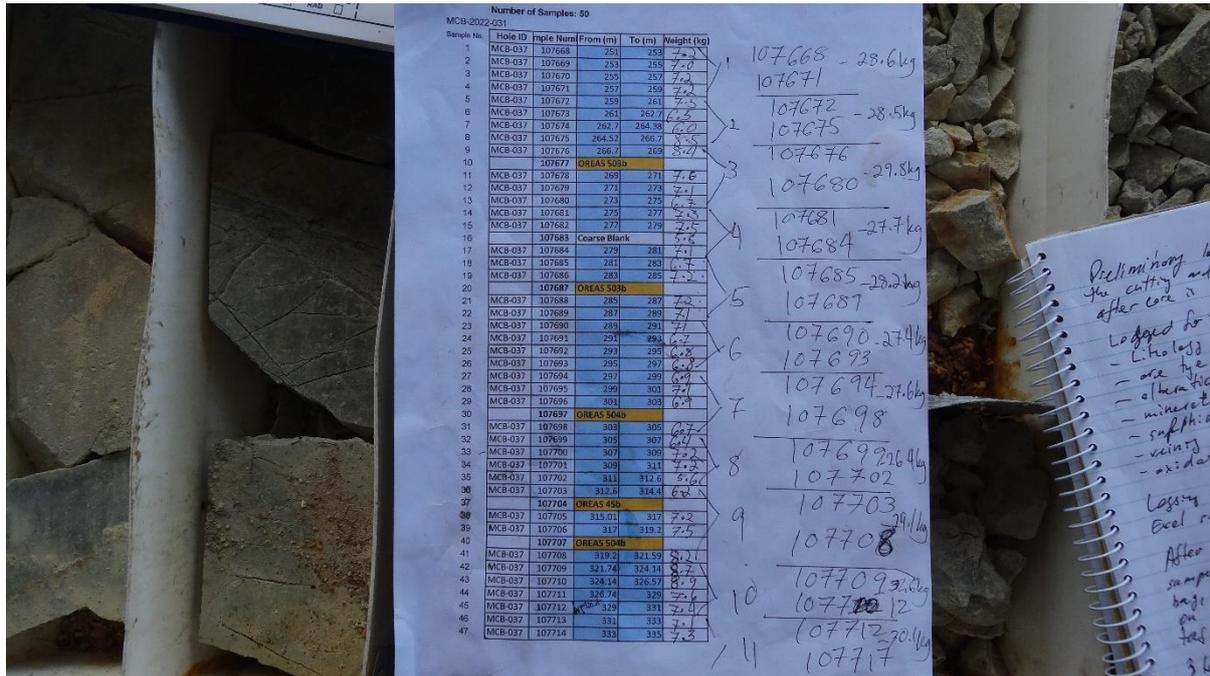


Figure 2.25 Blank tuff



AMC has concluded that generally, the exploration methodology, sampling, sample security, sample preparation and analytical procedures follow accepted industry practice. AMC recommends that:

- An umpire laboratory is routinely employed to assess potential analytical bias. 3% to 5% of sample pulps within representative grade ranges should be selected and analysed in the umpire laboratory.
- Pulp duplicates should be submitted at a rate of at least 5% of total sample submissions and submitted with the routine samples to assess laboratory precision. Pulp duplicates can also be selected after initial assay and submitted in batches to the primary laboratory to measure laboratory drift.

## 2.6 MCB Mineral Resource estimate

The Mineral Resource estimate for the MCB deposit reported under the JORC Code was prepared for Celsius in December 2020 by Mr Steven Olsen from consultant REX Minerals Ltd (REX). Mr Steven Olsen is the Competent Person as defined in the JORC Code for the Mineral Resource estimate and referred to in Celsius' ASX Release of 12 January 2021.

### 2.6.1 Mineral Resource overview

The MCB copper-gold deposit Mineral Resources were estimated using Leapfrog mining industry software.

Celsius provided the drillhole database including drillhole logging, sampling, analytical results and collar locations. REX completed the QA/QC evaluation and prepared the Mineral Resource estimate. The Competent Person for the Mineral Resource estimate considered the quality of drilling, sampling, logging, core recovery, and geological description to be of a reasonable standard sufficient for Mineral Resource estimation.

AMC reviewed and validated the database provided. No material issues or critical errors were identified.

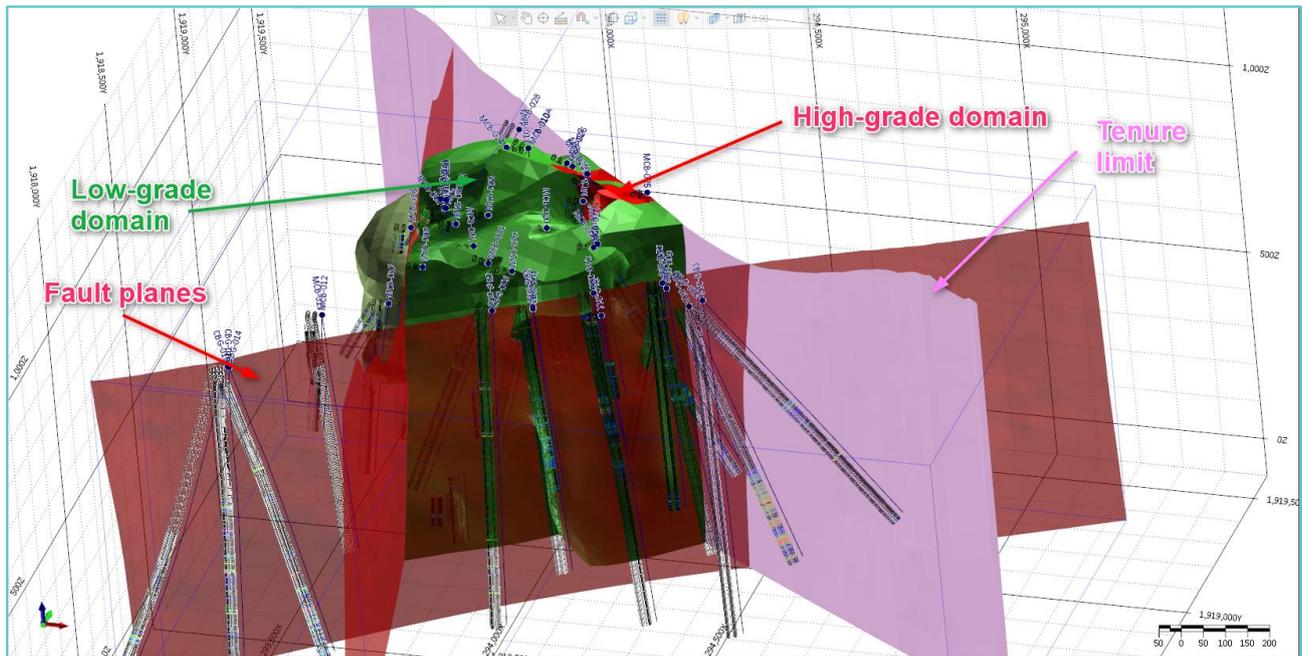
The database comprises 46 drill holes which included 16 holes of the CBG series and 30 MCB series drillholes with the total length of 25,547 m. Total number of assays includes 12,653 assay results for copper and 12,652 assay results for gold. 13,130 drilled intervals were logged for geology and state of oxidation. These were used to define the geometry of the mineralization.

The classical statistical analysis completed by AMC suggests that copper mineralization has a single grade population that approaches normal distribution in logarithmic scale. For the Mineral Resource estimate, the deposit was domained for a high-grade domain using 0.5% Cu cut-off and a low-grade domain above 0.2% Cu cut-off grade. Hard boundaries between the grade domains were applied. The grade domaining was justified by the level of alteration, magnetic susceptibility, and copper grades, which is considered a reasonable approach.

The database with geological logging was used to generate a set of wireframes that represented the tonalite intrusion, that is directly associated with copper-gold mineralization, and the surrounding basalt host rock. There are potentially more phases of intrusions, but the available data was not sufficient to model additional phases. The geological model was used to support the main trends of mineralization for creating wireframe models of copper mineralization, and subsequently for grade estimation parameters.

Leapfrog software was used for implicit modelling of copper mineralization using search constraints, mineralization trends and fault planes. The wireframes generated were clipped by a vertical plane that represents permit boundary (Figure 2.26).

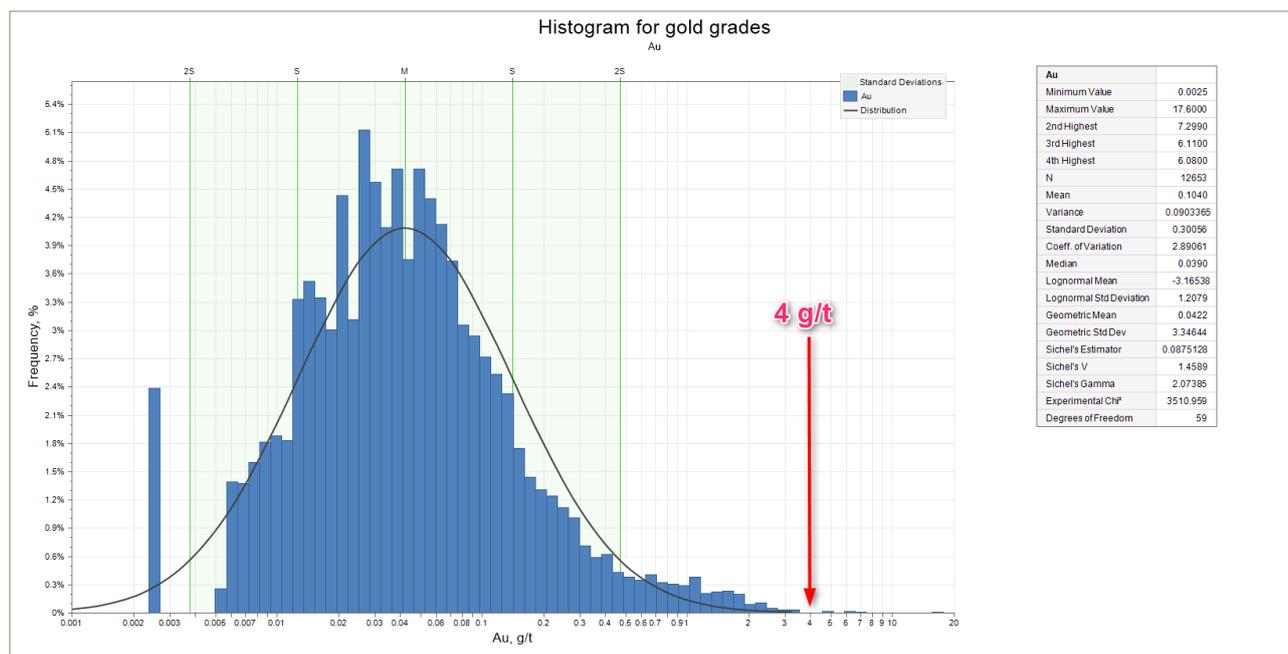
Figure 2.26 Mineral Resource wireframes (looking north-west)



The wireframe models for both high and low-grade domains were used to select corresponding samples from the analytical database, which were then used for geostatistical analysis. The dominant direction assessed was parallel to the dominant geological strike of approximately 50° and vertical dip. Downhole and directional semi-variograms in the low-grade and high-grade domains indicated a consistent nugget effect of less than 20%. The modelled ranges were from 190 m to 300 m along the major and semi-major directions in the plane of the dominant geological trend. In the minor direction, the total sill was mostly reached at a distance of 190 m for the high-grade and 120 m for the low-grade domains respectively.

The selected samples were composited over two-metre intervals as the dominant sample length. The average sample length was 1.94 m. A review of composite statistics did not identify significant high-value outliers that were considered likely to result in an overestimation of grade in the block model either locally or globally. Therefore, no top cuts were applied to the composite for grade estimation. AMC reviewed the top-cutting approach and agrees that there are no high-grade outliers for copper grades. There are several outliers for gold grades that could be considered for top-cutting (Figure 2.27).

Figure 2.27 Histogram for gold grades



The block model used parent cells of 10m (E) by 10m (N) by 5 m (RL) without subcelling. The relatively small cell size was selected to maintain the resolution of the boundaries of the deposit. The model was coded by the grade domains and oxidation surface.

Copper and gold grades were interpolated into the block model using ordinary kriging (OK) interpolation method, and the density values were interpolated using inverse distance weighted method with the power of two. Based on the results of the geostatistical analysis and considering geological factors, a maximum distance of 200 m was applied to the major and semi-major axis positions and 100 m in the minor direction for the limits of the Indicated Mineral Resource (first pass), with a minimum of 4 composites and maximum of 20 composites accepted for estimation. Hard boundaries between the grade domains were used.

The block model comprised the codes for the level of oxidation, copper and gold grades and it was limited by the permit boundaries. AMC considers that the applied modelling methodology is reasonable and does not have any material flaws or issues.

AMC recommends:

- Presence of two grade domains is justified from the geological point of view, but statistically copper has only one grade domain. An alternative approach is to use soft boundaries between the grade domains.
- The deposit is likely to have multiple phases of intrusions that are not currently possible to model. AMC recommends that additional phases are logged and modelled if possible. Continued focus should be placed on the improvement of the geological model. In particular, gaining a more detailed understanding of the controls to the mineralization and intrusion phases is required to validate the existing domaining approach.
- Top-cutting for gold grades should be considered.
- The current parent block size should be increased as 10 m cells are not supported by the exploration grid density. The resolution at boundaries could be maintained using subcelling.
- Further density measurements should be taken.
- Further exploration at the flanks and depth of the deposit should be completed that may result in an increase in the Mineral Resource.

### 2.6.2 Reasonable prospects for eventual economic extraction

Clause 20 of the JORC Code requires that Mineral Resources must have reasonable prospects for eventual economic extraction.

The basis for the reasonable prospects for eventual economic extraction for the MCB Mineral Resource estimate are:

- All mineralization bodies are relatively close to the surface and exposed at outcrops with presence of copper mineralization.
- The cut-off grade adopted for reporting (0.2% Cu) is considered reasonable given the average copper grades in the reported Mineral Resource are close to 0.5% Cu and 0.15 g/t Au.
- The topography at the deposit area is favourable for the development of the deposit using an underground mining method.
- The Scoping Study (Scoping Study, Celsius Resources, 15 November 2021) demonstrated positive NPV of US\$449 million for the life of mine with 31% internal rate of return.
- Metallurgical test work has confirmed that the MCB mineralization is amenable to conventional flotation process with 94.2% copper and 79.0% gold recoveries.
- A marketing study (Scoping Study, Celsius Resources, 15 November 2021) confirmed that there is an opportunity to produce a clean and marketable copper concentrate.

To the best of AMC's knowledge, at the time of estimation, there were no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact the eventual economic extraction of the Mineral Resource.

### 2.6.3 Mineral Resource classification

The Mineral Resource estimate was classified as Indicated Mineral Resource where the geology and associated copper-gold mineralization, within a constrained high-grade or low-grade domain, could be confidently estimated based on the understanding of the mineralization deposit type, the current distribution of the drilling information, and the information obtained from the geostatistical analysis.

Based on a combination of geology and the statistics, the Mineral Resource estimate was classified as Indicated Mineral Resource where estimation was completed in the first pass (a search ellipse of 200 m by 200 m by 100 m). The Mineral Resource estimate was classified as Inferred Mineral Resource where estimation was completed in the second pass (a search ellipse of 400 m by 400 m by 200 m).

AMC generally agrees with the adopted Mineral Resource classification strategy.

### 2.6.4 Mineral Resource statement

The Mineral Resource estimate has been reported by Mr Steven Olsen as Competent Person as defined in the JORC Code and has been publicly release in an ASX Release by Celsius dated 12 January 2021. The Mineral Resource estimate is reported by classification in Table 2.3 as of December 2020 above a cut-off grade of 0.2% Cu.

Table 2.3 MCB Mineral Resource – 30 December 2020

Domain	Classification	Tonnes (Mt)	Copper Grade (%)	Gold Grade (g/t)	Copper Metal (kt)	Gold Metal (koz)
Total	Indicated	290.3	0.48	0.15	1,387	1,387
	Inferred	23.5	0.48	0.10	113	79
<b>Total</b>		<b>313.8</b>	<b>0.48</b>	<b>0.15</b>	<b>1,500</b>	<b>1,467</b>

Source: Celsius ASX Release 12 January 2021.

Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.2% Cu has been applied.
- A bulk density was interpolated into the block model.
- Rows and columns may not add up exactly due to rounding.
- MCB is 100% owned by Celsius and its subsidiaries.

The block model was validated using statistical means, visual review and swath plots. All validation routines returned acceptable results.

AMC reviewed the block model and the modelling methodology applied and believe that the reported Mineral Resource estimate has been prepared using accepted industry practice and has been classified and reported in accordance with the JORC Code.

## 2.7 MCB scoping study

### 2.7.1 Purpose of the scoping study

Celsius undertook a scoping study and preliminary economic assessment (Scoping Study) during 2021 to evaluate the development of the MCB project and to consider further investment in the project. The Scoping Study was prepared by a team of independent consultants appointed by Celsius and had an effective date of 15 November 2021. It was based on the January 2021 Mineral Resource statement. The results released to the ASX on 1 December 2021<sup>8</sup>.

To determine technical and economic viability of the MCB project, the Scoping Study assessed the following:

- Determine a suitable mining method for mine development and operations.
- Estimate the quantity, grade, and production rate of ore for mining and processing.
- Determine a suitable process flow sheet and metal recovery for the target process rate.
- Estimate capital and operating costs to an accuracy of +/-30%.
- Develop a financial discounted cashflow model incorporating Philippines tax regime.
- Identify high level risk and opportunities.
- Provide recommendations to advance the MCB project.

The Scoping Study was prepared based on a number of material assumptions, including availability of funding for development of the MCB project. It included a preliminary economic analysis based on a number of production targets and assumptions on modifying factors that might be used to convert a Mineral Resource to an Ore Reserve.

AMC notes that while Celsius considered the material assumptions to be based on reasonable grounds, there is a low level of confidence in those assumptions and therefore, the range of outcomes identified by the Scoping Study. The opinions, findings and estimates contained in the Scoping Study reflect economic assumptions at 15 November 2021, such as metal prices, currency exchange rates and product demand, that can change over a relatively short period of time and with new information.

<sup>8</sup> Celsius December 2021, "MCB Project Scoping Study", ASX release, 1 December 2021.

### 2.7.2 Scoping study work and responsibilities

The Scoping Study included work in the following functional areas by the stated independent consultants:

- Mine design - Mining Plus Pty Ltd.
- Metallurgical and process design - BMECS Pty Ltd (Strathalbyn).
- Paste backfill plant design - Metso Outotec (Philippines).
- Metallurgical test works - ALS Pty Ltd (Perth).
- Hydrogeology – PSM.
- Dam Design - Macaferri (Philippines).
- Geology/Mineral Resource - Steve Olsen (Philippines).
- Infrastructure - Simon Baldo Jr (Philippines).
- Financial assessment - Blackbird Partners (Perth).

Celsius also contributed analysis and documentation for the Scoping Study on marketing, environmental studies, permitting, and social/community impact.

The Scoping Study is not a sufficient basis to support public reporting of an Ore Reserve under the JORC Code, or any other major mineral reporting code. However, a number of “production cases”, or schedules of mining, ore processing and product physicals, operating and capital costs, product prices, realization and selling costs, government royalties, and taxation were prepared and used for economic assessment.

### 2.7.3 Scoping study summary

The January 2021 Mineral Resource for the MCB project comprises 314 Mt of Indicated Mineral Resource and Inferred Mineral Resource at a grade of 0.48% Cu and 0.15g/t Au<sup>9</sup> for contained metal of 3,300 Mlb(1,500 kt) Cu and 1.5 Moz Au at a cut-off grade of 0.2% Cu. This includes a higher-grade core of 94 Mt at 0.80% Cu and 0.28 g/t Au for contained metal of 1,650 Mlb Cu and 0.84 Moz Au at a cut-off grade of 0.5% Cu.

The Scoping Study investigated block caving, sublevel caving, and sublevel open stoping (SLOS) underground mining and proposed SLOS with paste backfill as the preferred method. This resulted in an undiluted cut-off grade of 0.56% Cu equivalent and a potential mining inventory of 49 Mt of ore at 1.07% Cu equivalent for contained metal of 1,150 Mlb Cu equivalent over 25 years at a throughput of 2.28 Mtpa of ore. Capital costs for mine development were estimated at US\$339m and operating costs averaged US\$28/t of ore.

The Scoping Study reports the ore processing flowsheet is a conventional single processing train, with primary crushing, grinding, flotation, concentrate loadout, tailings filter plant, and dry stack tailings (a source for the paste backfill plant). Plant throughput was designed to allow up to 2.4 Mtpa, with metal recovery of 94% Cu and 79% Au. Concentrate production is forecast to average 80 kt per year with average grades of 26% Cu and 6.5 g/t Au. No potential penalty elements were identified in concentrates.

---

<sup>9</sup> Celsius January 2021, “MCB Copper-Gold Project Maiden JORC Mineral Resource”, ASX release 12 January 2021

The Scoping Study reports infrastructure proposed for the MCB project included:

- Upgrades to existing roads and a new mine access road to transport concentrate 180 km to port and a port laydown area.
- Power transmission lines from the national grid to the mine.
- Process plant and mine facilities, including workshops, paste plant, explosive storage, workshops and laydown areas.
- Water management structures, including freshwater dam, underground water collection pond, water treatment plant, and sedimentation ponds/drains/silt traps.
- Slope stabilization works on the southern part of the mine.

The MCB project is located within the Ancestral Domain of the Balatoc Indigenous Cultural Community. The Scoping Study reports ground investigations indicate that development of the MCB project will not cause physical or economic displacement that will necessitate resettlement and livelihood restoration. Structures (residential or non-residential) and farm areas or features that may have social, cultural, and economic significance to the local community were avoided in siting mine facilities. AMC is advised that standard Philippine Government approvals grant Celsius a term not exceeding 25 years, renewable for not more than 25 years.

The Scoping Study reports economic evaluation of the production cases identified a significantly positive net present value, with the evaluation of the preferred case shown in Table 2.4.

Table 2.4 Preferred case economic evaluation

Item	Preferred Case (First 10 years)	Preferred Case (Life-of-mine)
Underground Ore		
- Ore Mined (Mt)	20	49
- Copper grade (%)	1.18	0.85
- Gold grade (g/t)	0.56	0.41
- Copper recovery	94%	94%
- Gold recovery	79%	79%
Mine life (years)	10	25
Process Plant throughput (Mtpa)	2.28	2.28
Ave Annual Copper production – payable (kt pa)	22	16
Ave Annual Gold production – payable (koz pa)	27	19
Copper Price (US\$/lb)	4.00	4.00
Gold Price (US\$/oz)	1,695	1,695
Initial Capital (US\$m)	253	253
NPV post-tax, 8% real (US\$m)	NA	449
IRR	NA	31%
Payback (years)	NA	3
LOM C1 Cost net by-product credit (US\$/lb Cu)	0.73	1.29

#### 2.7.4 Key findings

The following were nominated by Celsius as the key outcomes of the Scoping Study:

- A 2.0 Mtpa process plant was proposed, with the ability to operate 20% above design capacity over a 25-year mine life with an average recovery of 94% copper and 79% gold.
- Annual average concentrate production of 80 ktpa was estimated.
- Initial capital cost was US\$253m, including underground pre-production cost of US\$23m.
- Estimated total revenue was US\$1,000m.
- Internal rate of return was 31% and payback period was 3 years.
- Net present value (post-tax, 8% real) was US\$449m.

- Underground sub-level stoping mining with paste fill was proposed. The mining contractor will provide all mobile mining equipment, except for light vehicles.
- 12 MW power requirement will be sourced from the existing national grid.
- Fresh water supply was proposed from a freshwater dam and underground water collection pond. Surface water runoff and underground dewatering will be utilised in the process plant or go into the collection pond.
- Personnel can be sourced locally with some specialized skills sourced internationally.

### **2.7.5 Material risks and opportunities**

Material risks were identified in the Scoping Study as:

- Lack of detailed geotechnical and hydrogeological information requiring a design change for the mine and surface infrastructure.
- Ability to secure social and statutory approvals and permits within the timeline required by the mine plan.
- Decrease in commodity prices and/or demand affecting revenue.
- Lack of detailed topographical survey information affecting infrastructure design and cost.

Opportunities identified in the Scoping Study were:

- Drilling and metallurgical test work indicates a potential Mineral Resource increase and metallurgical recovery upside.
- Geothermal and hydro power projects may be a potential source of cheaper power.
- The proposed road upgrade connecting the mine site to the port may be funded by the government and reduce capital cost.
- Caving options in some mining areas may lower operating costs.
- Economic ore from slope stabilization may provide additional cash flow in years 1 or 2.

### **2.7.6 AMC analysis and conclusions**

The role of a scoping study is to determine whether a project has sufficient potential value for funding to be sought for the next level of evaluation at pre-feasibility study (PFS) level. The scoping study should enable a number of development options and production scenarios to be developed to be studied in the PFS.

The Scoping Study, while prepared under the JORC Code, is set out in the manner of a Canadian National Instrument 43-101 (NI 43-101) technical report, allowing reporting under either code. In AMC's opinion the scope of work undertaken in the Scoping Study was typical industry standard for a polymetallic project and was considered appropriate for a scoping study level of assessment. The level of detail of the assessment of options was appropriate to achieve the aim of determining economic potential to facilitate a decision on whether to allocate additional funding for evaluation at a PFS level.

Forecast metal prices used by Celsius in the Scoping Study of US\$4.00/lb Cu and US\$1,695/oz Au may be at the high end of the range for long term price forecasts for a project of 25 years duration.

## **2.8 Exploration potential and planned work**

There are potential extensions for the high-grade zones at depth, and to the west of the Maalinao-Panyaw fault.

Celsius is currently implementing its Forward Work Program for the MCB which includes the following activities:

- Resource drilling (five diamond drill holes up to 850 m deep each) to confirm the shallow high-grade mineralized zones to the east and north-east of the mineralized body.
- Update the Mineral Resource estimate based on the additional resource definition drilling.
- Geotechnical and hydrogeological drilling (eight shallow diamond drill holes up to 270 m deep each).
- Feasibility-level geotechnical model to confirm the design of underground mine and overall site surface infrastructure.
- Hydrogeological models to develop a surface water management plan (freshwater dam, sediment/silt ponds, sumps, storm drains, etc.).
- Additional metallurgical studies to optimize plant design (to recover lower-grade ore) and tailings paste-fill studies.
- Infrastructure/plant layout optimization to optimize current bulk earthworks plan, and plant and infrastructure set-up based on LiDAR survey.
- Update of overall mine plan (including processing and infrastructure) for a feasibility study.
- Updated cost model as a requirement for submission of Declaration of Mining Project Feasibility (DMPF) and a feasibility study.

In parallel to the technical work, Celsius is currently preparing the reports and prerequisite documentations for the submission and approval of the DMPF which is a requirement prior to the application and approval of the MPSA (Mineral Production Sharing Agreement).

## 2.9 Geological risks

The level of geological risk is defined as the likelihood of variation of Mineral Resource tonnage and or grade from the stated values. AMC considers that geological risks are as follows:

- **Geology:** The deposit geology is well understood. The deposit is likely to have multiple phases of intrusions which were not possible to model at this stage. It is recommended that additional phases are logged and modelled if possible. Continued focus should be placed on the improvement of the geological model. In particular, gaining a more detailed understanding of the controls to the mineralization and intrusion phases is required to validate the existing domaining approach
- **Drilling method:** Diamond drilling was used for the exploration. This is the best technique for Mineral Resource definition for the deposit. Drilling at the deposit is challenging due to the ground conditions and steep hills, however, further drilling is recommended for better understanding of the deposit geology and upgrade in confidence and Mineral Resource classification. The progression of Mineral Resources to increasing levels of confidence is dependent on the outcome of infill drilling. There is no guarantee that additional drilling will lead to progressive upgrades in resource confidence or higher grades. The geological risks are low.
- **Sampling techniques:** The drilling method allowed detailed sampling which has allowed the definition of the Mineral Resources. Associated risk of a difference in grade or tonnage is low.
- **Analytical techniques:** The analytical techniques used are appropriate for the material and the expected range of concentration. The laboratory is a recognized industry laboratory and suitable accredited. Associated risk of a difference in grade or tonnage is low.
- **Block modelling:** The conventional block modelling method was used to model the deposit volume and tonnage with estimated grades. Associated risk of a difference in grade or tonnage is moderate to low.
- **Bulk density:** Sufficient bulk densities have been determined to allow a reasonable estimation of the density. Further samples should be taken for density measurements. Associated risk of a difference in the tonnage is low.

- **Geological interpretation:** The geological interpretation is based on recognising the grade signature. The interpretation will need to be transferred to a workable mining approach using underground mining methods. Associated risk of a difference in grade or tonnage is low.
- **Search parameters:** The estimation used a conventional search ellipse in line with identified trends and grade domains. The risk associated with the search parameters in grade is moderate to low.
- **Estimation:** Recognized estimation technique (OK) and parameters were used to estimate the grades in the block model. These were verified against both the drillholes and other estimation techniques. Top-cutting for gold grades should be considered. The current parent block size should be increased. Associated risk of a difference in grade is low.
- **Mineral Resource classification:** AMC considers that the Mineral Resource classification is appropriate, and that associated risk related to Mineral Resource classification is low.
- **Mineral Resource reporting:** The selected cut-off grade for Mineral Resource reporting is appropriate, although it should be supported by further mining and economic studies, as the deposit will be subject for underground mining. Associated risk of Mineral Resource reporting using the selected cut-off grade is moderate.
- **Other risks:** The metallurgy of polymetallic deposit such as MCB might be complex, and additional geometallurgical modelling and metallurgical testing will be required to refine recoveries, and to eventually support a robust metal equivalence calculation. Marketing of the concentrate products will require further study.

The overall geological risk for the MCB project is considered to be low.

## 3 Sagay

### 3.1 Background

#### 3.1.1 Overview of the asset location, access and infrastructure

The Sagay project area is located at the north-eastern part of Negros Island within the Cities of Sagay and Escalante Negros Occidental. Access to the project area is through Bacolod City, the provincial capital of Negros Occidental, which is serviced by regular daily scheduled air flights or through an inter-island vessel from Manila and Cebu City.

From Manila, traveling to the area is through the city of Bacolod, about 490 km south-west, which is serviced by several airline companies and domestic shipping lines. From Bacolod City, the project is accessible to vehicles via a well-paved highway over 81 km passing through the Cities of Cadiz and Silay and other municipalities to the City of Sagay. Local access is mainly by sugar cane transport dirt roads, trails or footpaths and drainage channels.

The areas of interest are centred on two prominent hills that stand out on the project area: the Nabiga-a Hill and Sherman Hill.

Nabiga-a Hill is within Barangay Lopez Jaena about 9 km south of Sagay City. From the city, the area is connected by an all-weather national road, thence, from the national road, through a 2 km barangay road to Nabiga-a Hill. Sherman Hill is within Barangay Baviera four kilometres west of Nabiga-a Hill (Figure 3.1).

Figure 3.1 Regional location diagram of the Sagay project



Source – Celsius Resources Ltd.

### 3.1.2 Climate, topography and vegetation

#### 3.1.2.1 Climate

The island of Negros has a pronounced dry and rainy season. The dry season lasts for six months starting from the month of November and ends in April. The climate in Sagay is hot, windy, and overcast. Over the course of the year, the temperature typically varies from 24°C to 32°C and is rarely below 23°C or above 34°C.

Sagay experiences extreme seasonal variation in monthly rainfall. The most rain falls during the 31 days centred around June, with an average total accumulation of 20.5 cm. The least rain falls around March, with an average total accumulation of 3.8 cm.

#### 3.1.2.2 Topography

The project area is located on the north-eastern part of Negros Island in Western Visayas. The permit area is characterized by an almost flat, gentle, and rolling topography. It is bounded by the foothills of Mt Silay to the south and the coast to the Visayan Sea to the north. There are two prominent hills within the area, namely Sherman Hill and Nabiga-a Hill with maximum elevations of 360 m and 315 m, respectively (Figure 3.2).

The Himoga-an River and its tributaries drain the permit area and flow to the Visayan Sea, west of the Sagay City Port. The Himoga-an River flows northward through the central part of the applied area while its tributaries are oriented in east-west direction.

Figure 3.2 Panoramic view of Nabiga-a Hill (top, looking east) and Sherman Hill (bottom, looking north-east)



Source: F. Escasio "Sagay Project Situationer\_Steve Comments.docx", 2022.

#### 3.1.2.3 Vegetation

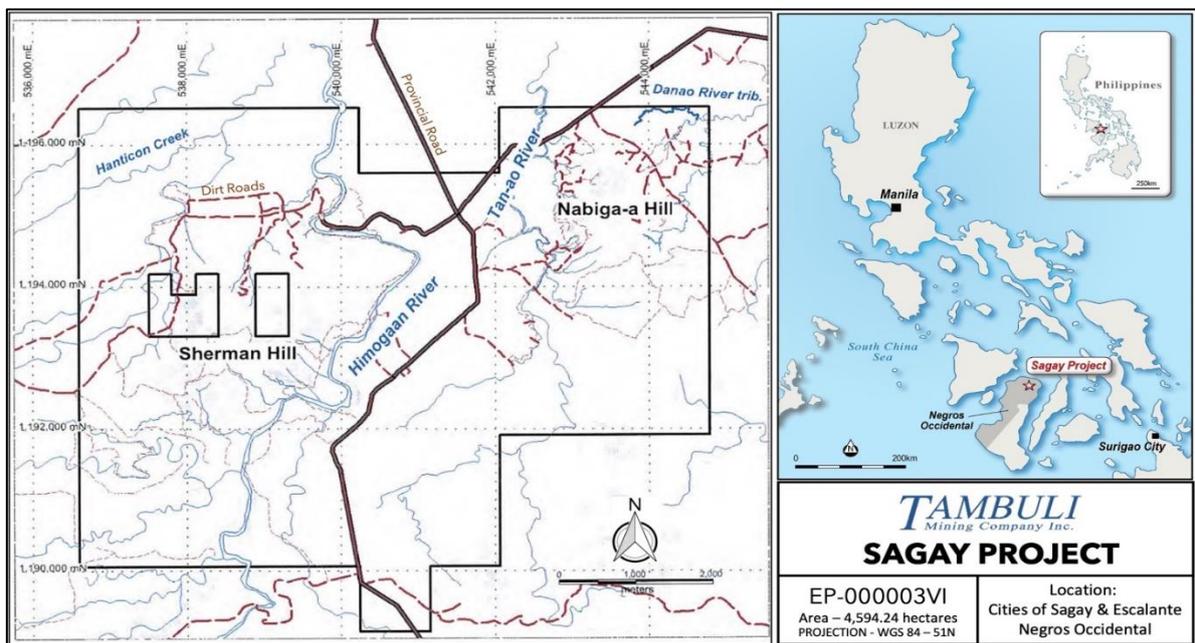
The areas with flat to rolling topography are mostly planted with sugar cane with small, isolated rice fields while the hilly portions have small industrial tree plantations, small plots of various agricultural crops and bushland.

**3.1.3 Tenement status and ownership**

AMC is advised that Tambuli Mining Company, Inc. (TMCi) was first granted an exploration permit denominated as EP-000003VI on 6 May 2008 under Phelps Dodge Exploration Corporation (PDEC), which was later acquired by Freeport-McMoRan Exploration Corporation (FMEC) in 2007. The permit area covers a total of 45.93 km<sup>2</sup> (Figure 3.3 and Table 3.1).

AMC is advised that on 11 August 2021, TMCi, now a subsidiary of Celsius, was granted a fourth exploration permit renewal (extension) which is valid until 10 August 2023. The current two-year renewal period allowed the resumption of resource definition drilling activities aimed to define the deep mineralized zone (two drill holes), its shallow near-surface extensions (three drill holes), and test possible near-surface chalcocite zones (three drill holes). Part of the current drilling programme is the collection of metallurgical samples from representative mineralized zone targets.

Figure 3.3 Location of the Exploration Permit EP-000003VI



Source: F. Escasio "Sagay Project Situationer\_Steve Comments.docx", 2022.

Table 3.1 Technical description of the Sagay exploration permit area

Corner	Latitude	Longitude
1	123° 22' 00"	10° 45' 30"
2	123° 22' 00"	10° 46' 00"
3=19	123° 20' 00"	10° 46' 00"
4=8=18	123° 21' 15.6"	121° 02' 30"
5	123° 21' 30"	10° 47' 45.6"
6	123° 21' 30"	10° 48' 14.3"
7	123° 21' 15.6"	10° 48' 14.3"
8=4=18	123° 21' 15.6"	10° 47' 45.6"
9=17	123° 21' 00"	10° 47' 45.6"
10	123° 21' 00"	10° 48' 14.3"
11	123° 20' 50.2"	10° 48' 14.3"
12	123° 20' 50.2"	10° 48' 4.6"
13	123° 20' 39.8"	10° 48' 4.6"
14	123° 20' 39.8"	10° 48' 14.3"
15	123° 20' 30"	10° 48' 14.3"
16	123° 20' 30"	10° 47' 45.6"
17=9	123° 21' 00"	10° 47' 45.6"
18=4=8	123° 21' 15.6"	10° 47' 45.6"
19=3	123° 20' 00"	10° 46' 00"
20	123° 20' 00"	10° 49' 30"
21	123° 22' 00"	10° 49' 30"
22	123° 22' 00"	10° 49' 00"
23	123° 23' 00"	10° 49' 00"
24	123° 23' 00"	10° 49' 30"
25	123° 24' 30"	10° 49' 30"
26	123° 24' 30"	10° 47' 00"
27	123° 23' 00"	10° 47' 00"
28	123° 23' 00"	10° 46' 00"
29	123° 22' 30"	10° 46' 00"
30	123° 22' 30"	10° 45' 30"
1	123° 23' 00"	10° 45' 30"

Source: TMC I 2021 Annual Exploration Accomplishment Report\_Final\_20220124.docx

### 3.1.4 Mining status

There is no current mining nor known historical mining activity at the Sagay project.

### 3.2 Project history

The first phase of geological exploration work commenced in June 2008 and completed on 20 December 2008. Activities were geological mapping, gridline preparations, soil and rock sampling and geophysical surveys that consisted of induced polarization, resistivity, and ground magnetics.

Several mineralization styles are observed in the exploration area, but most of the drilling activities are focused in Nabiga-a Hill, with significant intercepts of porphyry copper-gold mineralization.

Surface exploration activities commenced in June 2008, starting at Nabiga-a Hill and later at Sherman Hill. Part of the activities undertaken were gridding, geochemical soil and rock sampling, creek, road cut and creek mapping, and geophysical surveys (IP and ground magnetics). IP chargeability and resistivity surveys were conducted by McPhar Geoservices (Philippines), Inc., and by Austhai Geophysical Consultants in two separate programmes in 2008 and 2015, respectively. Ground magnetics survey was done by an in-house survey team in 2008.

Results of the initial exploration studies recognized the porphyry copper-gold mineralization potential in the area and epithermal gold targets from the previous exploration efforts. This became the major target for the proposed diamond drilling programme.

Activities were suspended in January 2009 pending landowner negotiations for the main target, Nabiga-a Hill. TMCI was able to secure consent for exploring surrounding secondary targets.

Drilling commenced at Sherman Hill in June 2012. The results were not encouraging. The three drill holes did not hit the geophysical targets. However, mapping along the eastern flanks of Sherman Hill, along the Himugaan River led to the discovery of exposed quartz veins, adding to future targets in the exploration area.

Consent was given for access to the primary targets at Nabiga-a Hill, prompting drilling activities to commence early 2013.

### **3.3 Geological setting and mineralization**

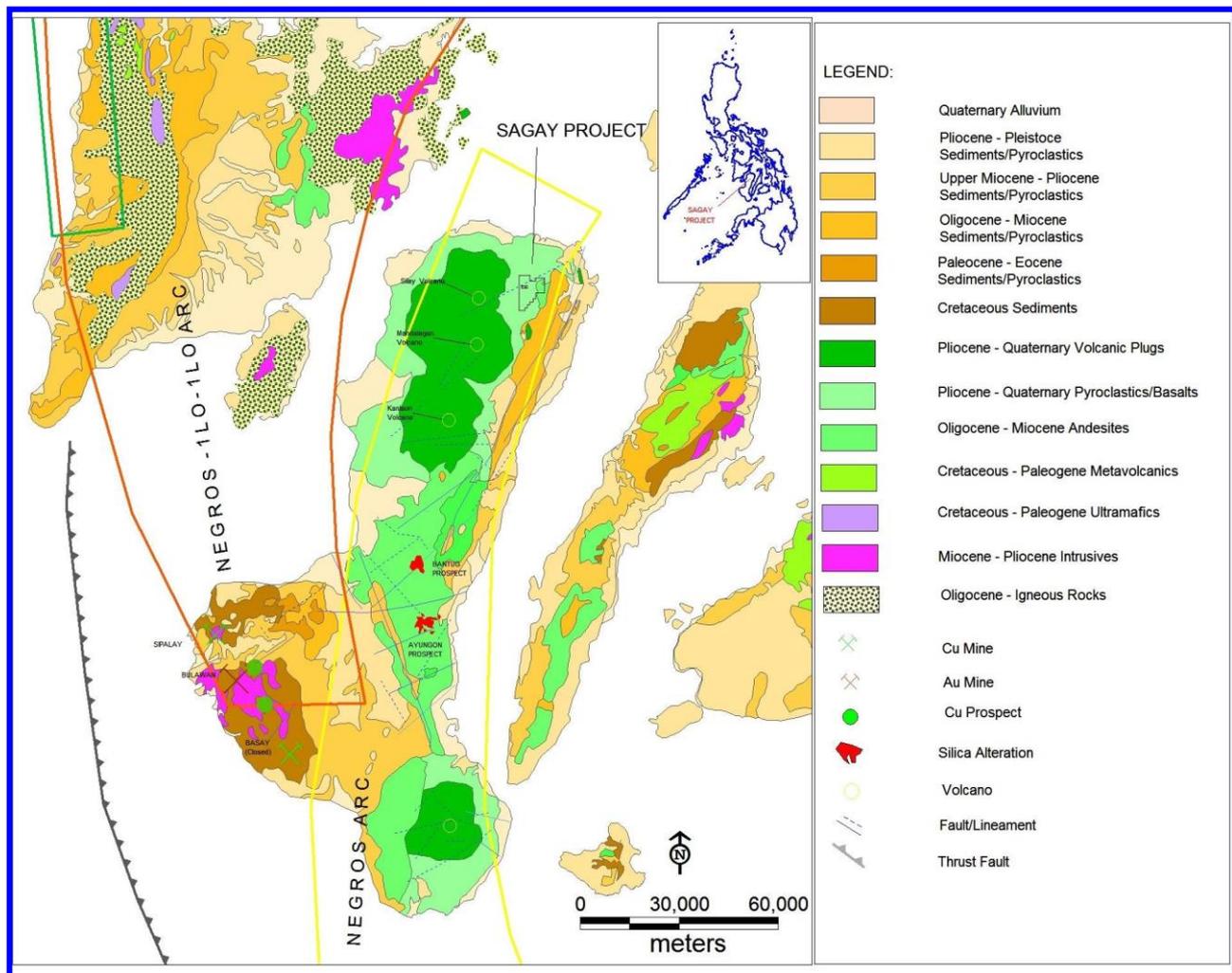
#### **3.3.1 Regional geology**

Negros Island lies in a central physiographic province of the Philippines. The island consists of mountain ranges. The highest peaks are volcanoes.

The eastern part of the island comprises a north-north-east trending volcanic arc related to the eastward subduction beneath the Negros Trench in the southwest offshore of Negros Island (Figure 3.4, where the orange box shows the Paleogene Negros-Iloilo arc and the yellow box the Negros arc). The same subduction trench that produced the older Paleogene arc in south-west Negros but since Miocene time the arc magmatism has shifted to eastern Negros. There are three major episodes of magmatism in Eastern Negros depicted by Miocene-Pliocene volcanics and sediments, by Pliocene volcanics and the Quaternary volcanics exemplified by Canlaon and Magdalagan Volcanoes in the north and Cuernos De Negros in the south.

The oldest pre-volcanic arc rocks in Eastern Negros consist of Eocene limestone and sedimentary rocks exposed on the north of the island. These were followed by the Lower Miocene Macasilao Formation composed of carbonaceous shale and sandstone, conglomerate, coal and limestone. The next younger stratigraphic unit is the Panghumayan Formation which consists of tuff, tuff breccia, wacke, siltstone, andesitic lava, pyroclastics and debris flow. A widespread unit of sandstone and conglomerate overlies the Panghumayan Formation and is in turn overlain by the Talave Limestone. Pliocene volcanics and sediments occur extensively in the north surrounding the Quaternary volcanic centre of Canlaon and Magdalagan.

Figure 3.4 Regional geological setting of the Sagay project area



Source: Tambuli report on Sagay Project Phase 1 Exploration, 2009

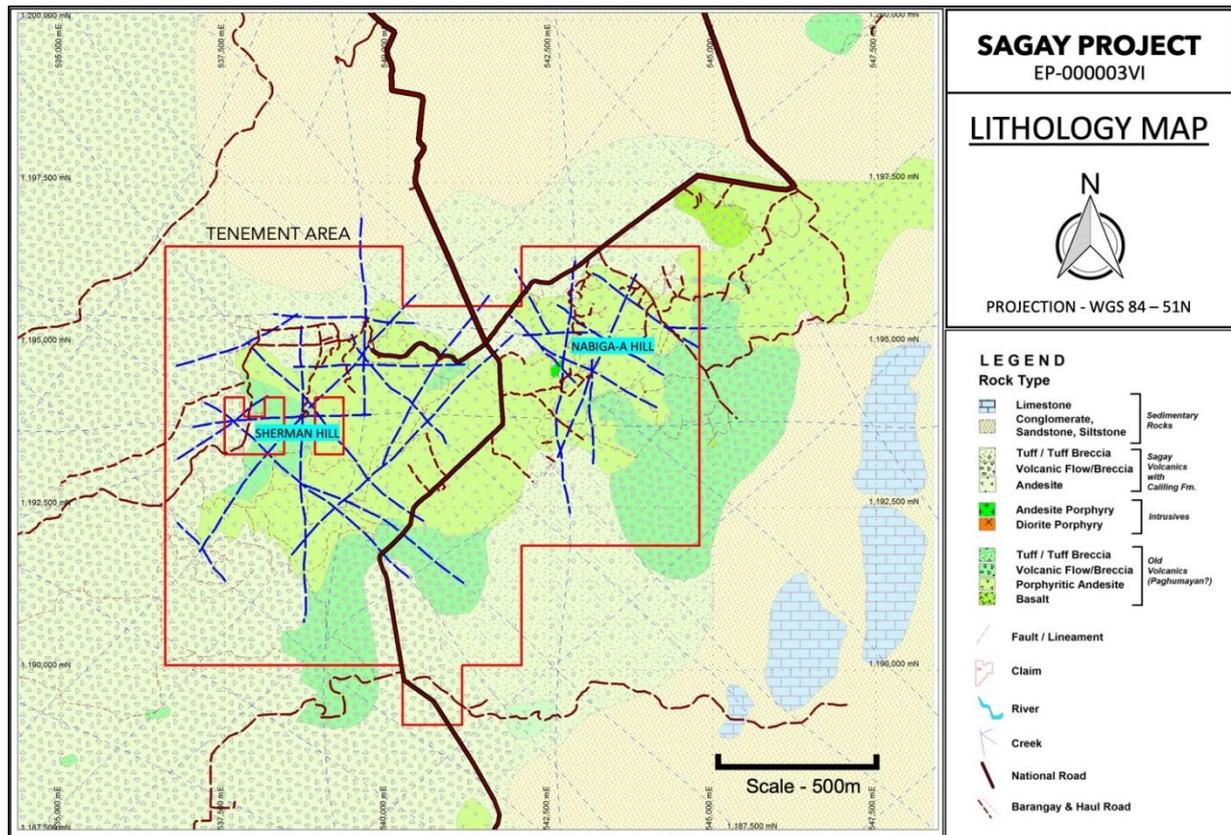
### 3.3.2 Deposit geology

Middle Miocene porphyritic andesite, volcanic breccia/flow breccia and minor fine-grained andesitic lava are the dominant host rocks in both Nabiga-a Hill and Sherman Hill, where widespread strong silica-clay, clay, and chlorite alteration is observed. This 8 km by 4 km alteration zone is indicative of a large magmatic hydrothermal system (Figure 3.5). Several porphyry and epithermal mineralization targets belong in this underexplored mineralization trend along the eastern side of the island.

#### 3.3.2.1 Nabiga-a Hill

At Nabiga-a Hill, the surface alteration is approximately 1.7 km by 1.7 km, which tends to extend southwest along possible controlling structures (Figure 3.6). The top of the hill consists of silica and acid alteration minerals (part of an eroded lithocap) resulting to a resistant rock edifice. This is supported by a number of cryptocrystalline to vuggy silica-clay altered boulders along the slopes of the hill. The general alteration zonation with the presence of high-temperature clays (alunite, pyrophyllite, dickite, and diaspore) and superimposed anomalous geochemistry distribution, and relationship of porphyry related elements (Cu, Au, Mo, Ag, Sb, Pb, and Zn) indicates the presence of a mineralized porphyry system.

Figure 3.5 Lithology map of the Sagay project area

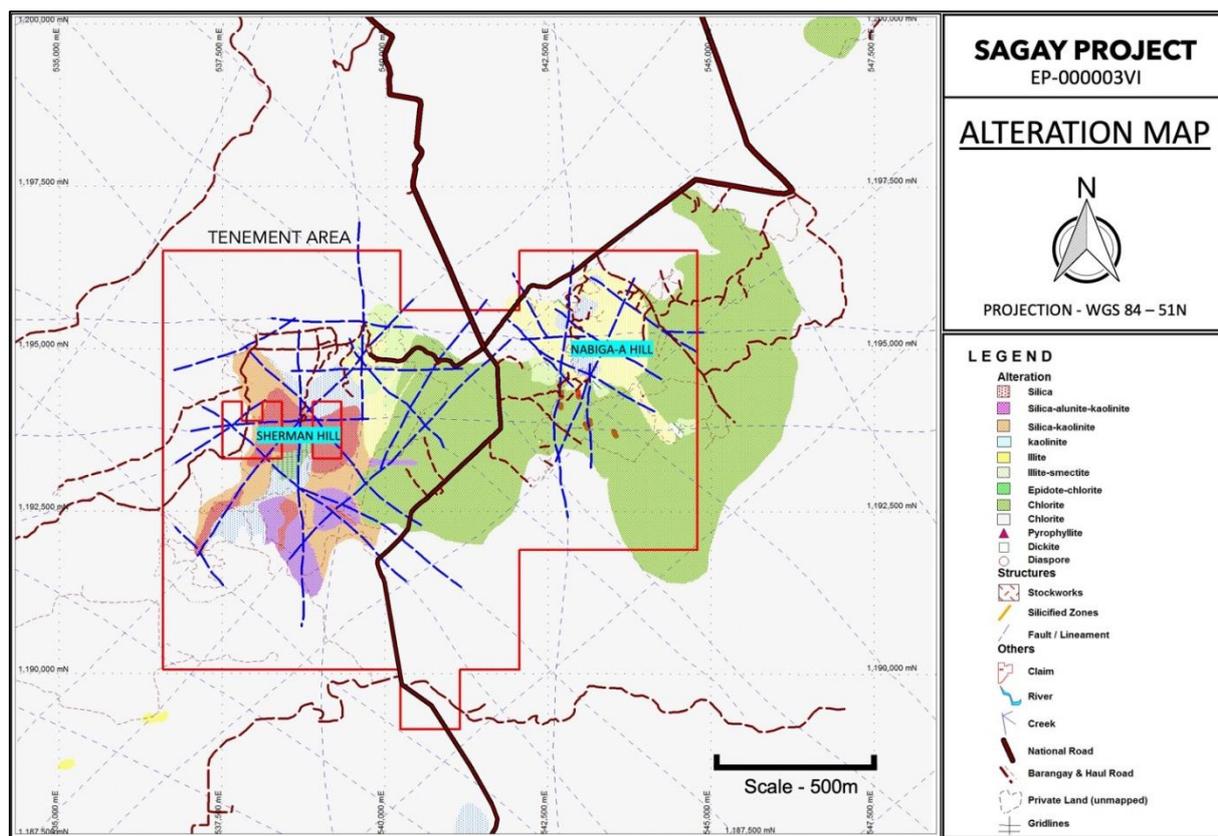


Source: Tambuli internal report on Sagay geology, February 2022.

Extensive drilling programmes from 2013 to 2016 led to the discovery of a deep porphyry copper-gold mineralization system. This is associated to the diorite intrusive complex at Nabiga-a Hill consisting of at least three distinct mineralizing intrusive phases. These diorite porphyries can be distinguished primarily from phenocryst composition, texture, and cross cutting relationships. In general, two major north-east trending mineralization styles were observed towards the southeast section of Nabiga-a Hill:

- Early porphyry mineralization associated with potassic alteration with quartz-chalcopyrite±bornite veining.
- High-sulfidation mineralization with sericitic to advanced argillic mineralization with quartz-chalcopyrite-chalcocite-covellite veining.

Figure 3.6 Alteration map of the Sagay project area



Source: Tambuli internal report on Sagay geology, February 2022.

Shallow expressions of these mineralization zones were observed in some of the diamond drill hole sections.

Post-mineral andesite porphyry can be fresh and unaltered with varying pervasive clay, sericite-chlorite, to chlorite-epidote alteration. Mineralization is dominated by pyrite, with traces of chalcocite and covellite, and occasional chalcopyrite, or molybdenite as disseminations.

Quaternary pyroclastic rocks cover most of the project area, particularly the flat and gently rolling topography.

### 3.3.2.2 Sherman Hill

The surface alteration at Sherman Hill covers an area of about 3.2 km by 2 km and exhibits coherent and partially eroded advanced argillic alteration (Figure 3.5).

The ridge top is dominated by massive cryptocrystalline silica to locally porous and saccharoidal textured silica. The silica is porous to saccharoidal with alunite in places. This type of silica is very similar to the type of silica being mined in Ayungon, Negros Oriental used as raw materials for the production of cement and other industrial purposes such as smelter flux and fly boards.

Silica-alunite-kaolinite alteration envelops a narrow elongate silica zone at the southern part of Sherman Hill. This zone is well exposed at Himogaan River which is highly fractured and disseminated with fine pyrite of up to 10%.

The silica zones and silica-alunite-kaolinite zones are in turn enclosed by silica-kaolinite zone. Sporadic alunite occurs in places with strong silicification. This alteration type is well exposed on the barangay road at Barangay Baviera.

The kaolinite zone is well observed on the lower elevations on the north and south side of Sherman Hill. It is probably not apparent on the lower elevation on the west side because it well covered by younger tuff. The illite alteration zone is exposed on Himogaan River on the north side of Sherman Hill. Narrow zones with up to millimetre-sized quartz veinlets occur in this alteration zone. The chlorite-altered zone is apparent on the east side and well exposed on the Himogaan River and adjoins the chlorite zone on Nabiga-a Hill. Epidote-chlorite alteration is seen locally. It occurs at the fringes of andesite porphyry.

### **3.3.3 Deposit type**

The geological setting for both Nabiga-a and Sherman Hills mineralization suggests a typical porphyry copper+gold+molybdenum deposit type. The mineralization and associated alteration exist across the contact between the genetically related intrusive body (porphyritic medium and fine-grained diorite at the Nabiga-a Hill or andesite porphyry at the Sherman Hill) and the surrounding host rocks.

### **3.3.4 Mineralization**

#### **3.3.4.1 Nabiga-a Hill**

The mapped surface mineralization is commonly associated with quartz stringers with open-space textures, which can be attributed to the epithermal gold mineralization. Panning along the creeks draining from Nabiga-a Hill recovered specks, and occasional nuggets of fine gold. Chalcopyrite, galena, and sphalerite are also noted sporadically as fine specks in quartz veins. Surface exposures of chalcocite enrichment along fractures (below the creek water level) occur along creeks draining the at the western flanks of the hill.

#### **3.3.4.2 Sherman Hill**

The mineralization is associated with the more brecciated and silicified zones, within quartz stringers and hydrothermal breccias. Pyrite is common up to 10% in the rock volume particularly in silica-alunite-kaolinite zones.

Pyrite occurs as dissemination and fracture filling in illite-altered porphyritic andesite laced with quartz stringers. The quartz stringers show open-spaced textures lined with quartz druse. This is usually observed in the slide area on the north side of Sherman hill.

Chalcopyrite and pyrite is seen in outcrops in the epidote-chlorite-albite-magnetite altered porphyritic andesite and andesite porphyry. Some of the outcrops show magnetite±anhydrite veining. Petrographic analysis indicated two types of veining. One contains various proportions of quartz, magnetite, analcime, epidote and andradite. The other one is a later quartz vein that contains chalcopyrite, bornite and chalcocite.

### **3.4 Site visit**

The Competent Person for this CPR considered that a site visit would not provide useful additional information considering there were no ongoing drilling activity at the Sagay project at the time of preparing this CPR.

### **3.5 Exploration, sampling techniques, and data**

There was no current drilling nor exploration activity at the Sagay project at the time of preparing this CPR. This CPR is based on all historical information which was made available to AMC. There are no further material exploration results that have been included in this CPR.

#### **3.5.1 Exploration scope completed**

From June 2012 to November 2016, a total of 28 drill holes were completed at Nabiga-a Hill and three drill holes in Sherman Hill, totalling to an aggregate of 25,076 m.

All of the diamond drilling utilised a triple tube core barrel for the entire length to ensure maximum sample recovery. Most of the core size was either PQ, HQ or NQ diameter.

### 3.5.2 Exploration grid parameters

Mineralization was traced to the total depth of about 1,480 m from the surface using inclined diamond drilling on a very irregular grid of approximately 200 m by 200 m (Figure 3.7, where green wireframe is a grade shell based on 0.2% Cu cut-off grade). The exploration lines were laid mostly in the north-west to south-east direction to intersect mineralization.

The main mineralized body was traced along the strike for about 1,100 m, for 850 m across the strike and about 1,480 m down dip.

The diamond drill holes at Nabiga-a Hill follow a grid pattern generally oriented 45° azimuth and 315° azimuth, spaced at 200 m. Most of the drill holes have declination of 60°. A few of the holes were drilled oblique to the grid pattern due to accessibility constraints (Figure 3.8).

Figure 3.7 Exploration grid at Sagay (plan view)

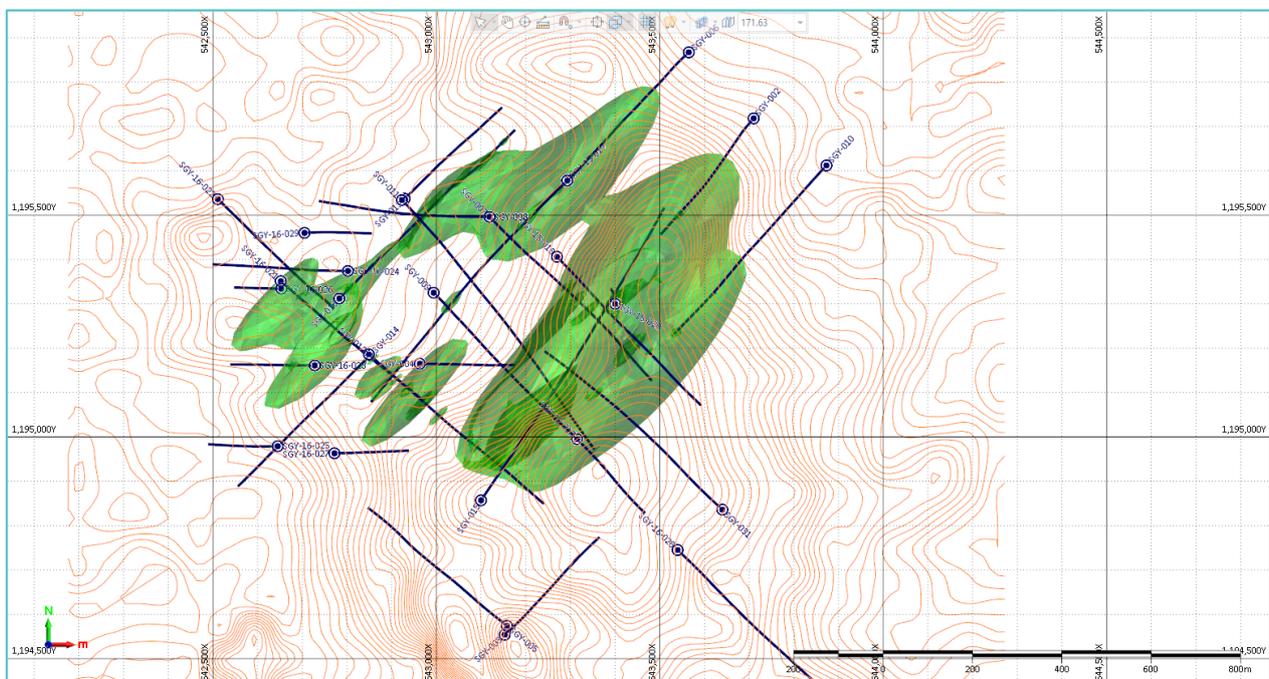
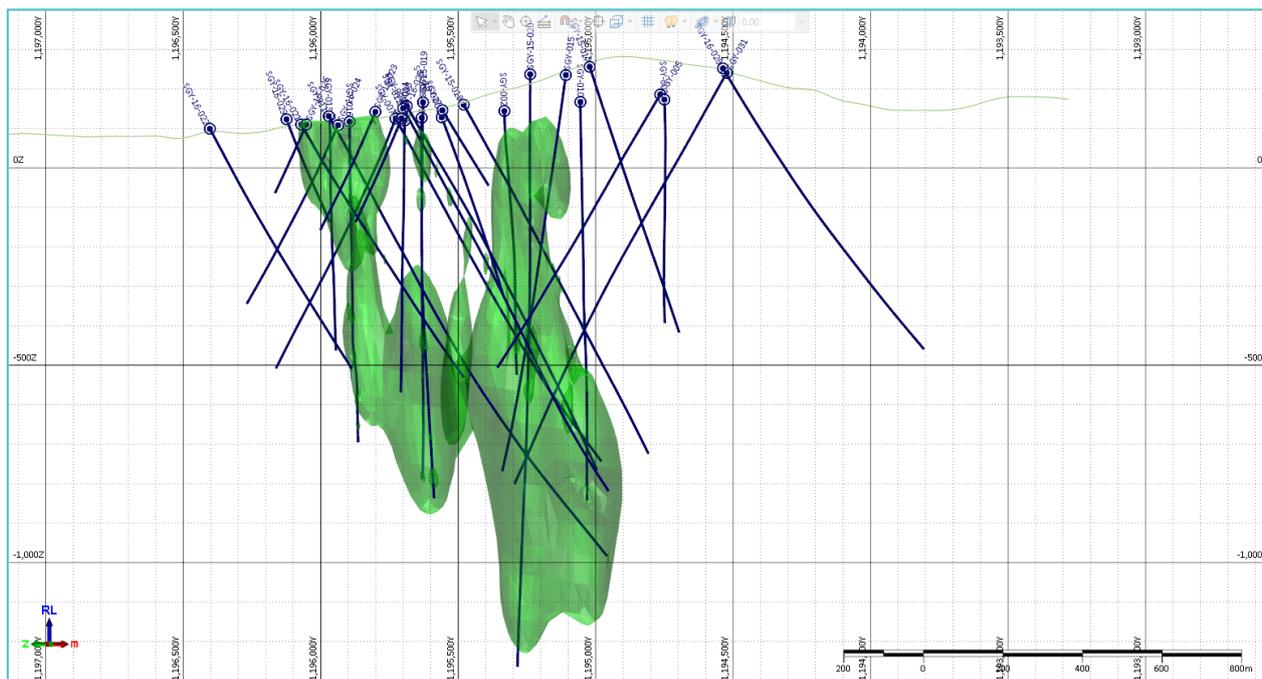


Figure 3.8 Exploration grid at Sagay (looking north-east)



### 3.5.3 Exploration methods

The core drilling uses a triple-tube core barrel from collar to end-of-hole to ensure optimum core recovery. The deepest hole is at 1,400 m from the surface.

The drilling programme in Nabiga-a Hill led to the discovery of a large, deep porphyry copper-gold target, with potential shallow extensions. Patchy near-surface supergene chalcocite enrichment zones were also discovered, which may add value for future development.

The project hosts high-grade shallow and deep porphyry copper mineralization including the following highlights from the historical drilling information at Sagay:

- 77.22 m grading 0.69% Cu and 0.19 g/t Au, within 521.37 m grading 0.47% Cu and 0.13g/t Au.
- 113.96 m grading 0.68% Cu and 0.20 g/t Au, within 461.38 m grading 0.49% Cu and 0.14 g/t Au.
- 23.93 m grading 1.03% Cu and 0.51 g/t Au, within 207.48 m grading 0.44% Cu and 0.12g/t Au.
- 26.74 m grading 0.89% Cu and 0.02 g/t Au, within 80.28 m grading 0.64% Cu and 0.03g/t Au.
- 25.79 m grading 0.98% Cu and 0.01g/t Au, within 56.86 m grading 0.58% Cu and 0.02g/t Au.
- 390.09 m grading 0.46% Cu and 0.11 g/t Au.

### 3.5.4 Sampling, sample preparation and assaying methods

Celsius reported that the sampling and sample preparation methods were the same as used at the MCB deposit, which are described in the Sections 2.5.3 and 2.5.4 of this CPR.

### 3.5.5 Density

The density determination method at Sagay was similar to the one used at MCB using the water immersion method. Density determinations are recorded in the drill logs.

### 3.5.6 Topography

The existing topographic surface is based on five-metre contours. AMC generated a digital terrain model from the contours and compared the resultant surface with the collar elevations in the available database. AMC concluded that the current topographic surface is not accurate and should be updated for any subsequent studies. AMC was advised that a high-resolution surface is also available based on SRTM.

### 3.5.7 QA/QC overview

Celsius reported that the applied QA/QC protocols and procedures at the Sagay prospect were the same as used at the MCB deposit, which are described in the Section 2.5.9 of this CPR.

## 3.6 Nabiga-a Mineral Resource estimate

The Mineral Resource estimate for the MCB deposit reported under the JORC Code was prepared for Celsius in October 2022 by Mr Steven Olsen from consultant REX Minerals Ltd (REX). Mr Steven Olsen is the Competent Person as defined in the JORC Code for the Mineral Resource estimate and referred to in Celsius' ASX Release of 7 November 2022.

### 3.6.1 Mineral Resource overview

The Nabiga-a copper-gold deposit Mineral Resources were estimated using Leapfrog mining industry software.

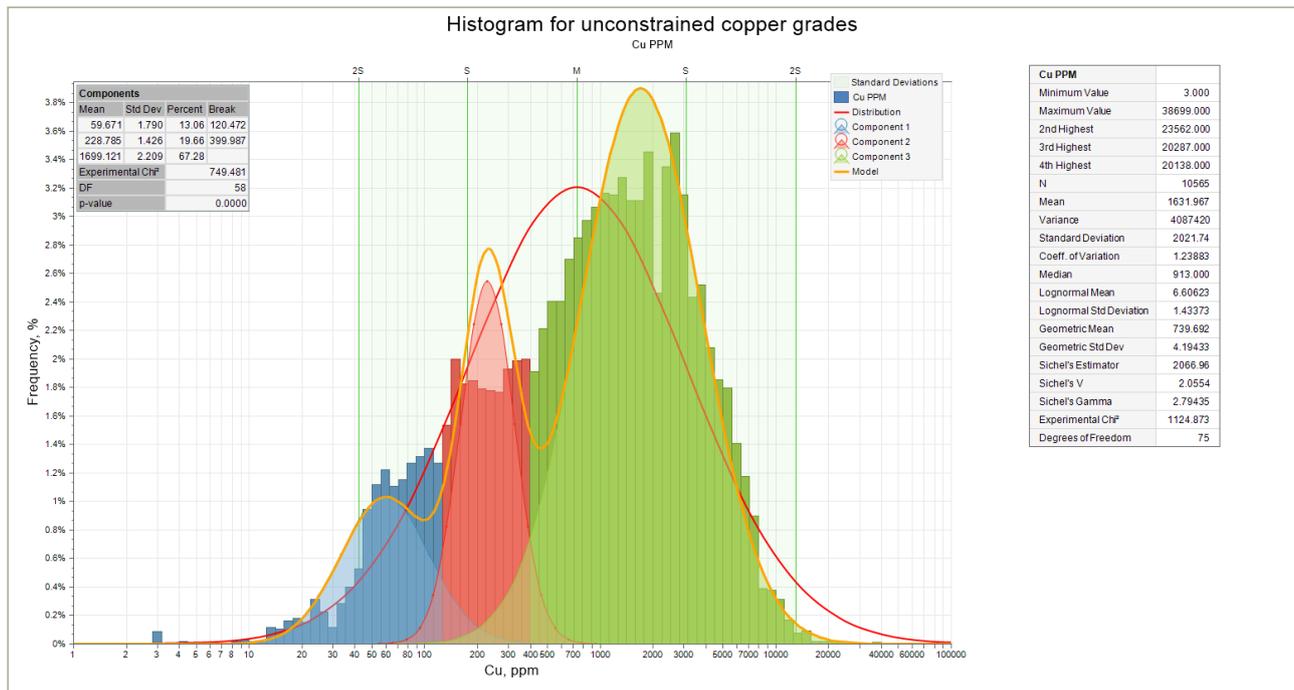
Celsius provided the drillhole database including drillhole logging, sampling, analytical results and collar locations. REX completed the QA/QC evaluation and prepared the Mineral Resource estimate. The Competent Person for the Mineral Resource estimate considered the quality of drilling, sampling, logging, core recovery, and geological description to be of a reasonable standard sufficient for Mineral Resource estimation.

AMC reviewed and validated the database provided. No material issues or critical errors were identified.

The database comprises 29 drill holes drilled between 2012 and 2021 with the total length of 23,690 m. Total number of assays includes 10,565 assay results for copper, lead, zinc, silver, molybdenum, arsenic and antimony. 11,379 drilled intervals were logged for geology and stratigraphy. These were used to define the geometry of the mineralization. The assays are of sufficient industry standard and considered appropriate for the mineralization estimate.

The classical statistical analysis completed by AMC (Figure 3.9) suggests that copper mineralization has multiple grade populations below the cut-off grade of approximately 0.04% Cu and the main population approaches normal distribution in logarithmic scale. In developing the mineralization estimate, the deposit was domained for a high-grade domain using nominal 0.5% Cu cut-off grade and a low-grade domain above the nominal 0.2% Cu cut-off grade. Hard boundaries between the grade domains were applied.

Figure 3.9 Histogram for unrestricted copper grades



The database with geological logging was used to generate a set of wireframes that represented simplified main geological formations of the deposit: basalt, fine-grained diorite, medium-grained diorite, porphyric diorite, other volcanics and sediments. The geological model was used to determine the main trends of mineralization to model the low-grade. No manual interpretation for copper mineralization was used. Leapfrog software was used for implicit modelling of copper mineralization using search constraints and mineralization trends (Figure 3.10). The volumes for the modelled wireframes were 202.5 m<sup>3</sup> for the low-grade domain and 11.7 m<sup>3</sup> for the high-grade domain. The global average grades were 0.31% Cu and 0.08 g/t Au for the material within the low-grade domain (excluding assays from the high-grade domain) and 0.68% Cu and 0.16 g/t Au within the high-grade domain.

The wireframe models for both high and low-grade domains were used to select corresponding samples from the analytical database, which were then employed for a global estimate of expected average grades. No geostatistical analysis was employed.

Composite length was set to 4 m, although the average sample length was 1.98 m, and the standard sample length was 2 m (Figure 3.11). No top-cutting was used.

The block sizes set at 10 m by 10 m by 10 m. Inverse distance weighting with the power of three was used to interpolate copper and gold grades, with search radius of 125 m by 125 m by 100 m for the high-grade domain and 100 m by 100 m by 100m for the low-grade domain.

Figure 3.10 Wireframes for grade domains, Sagay (looking north)

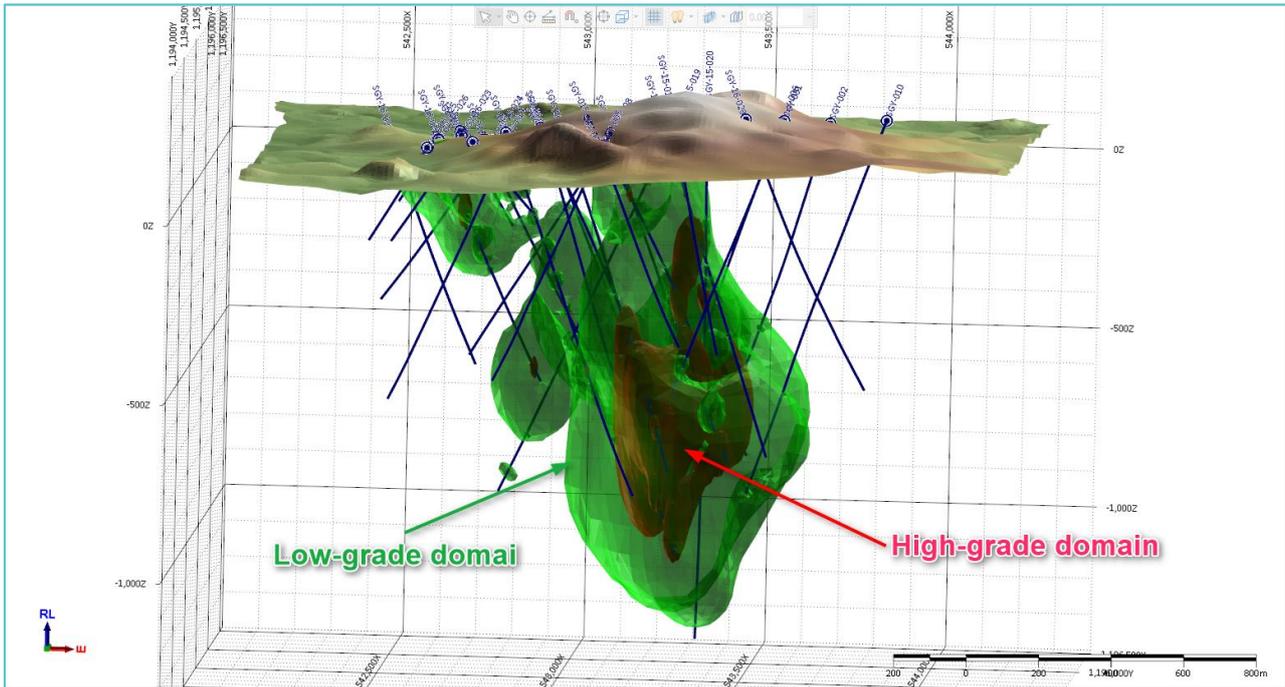
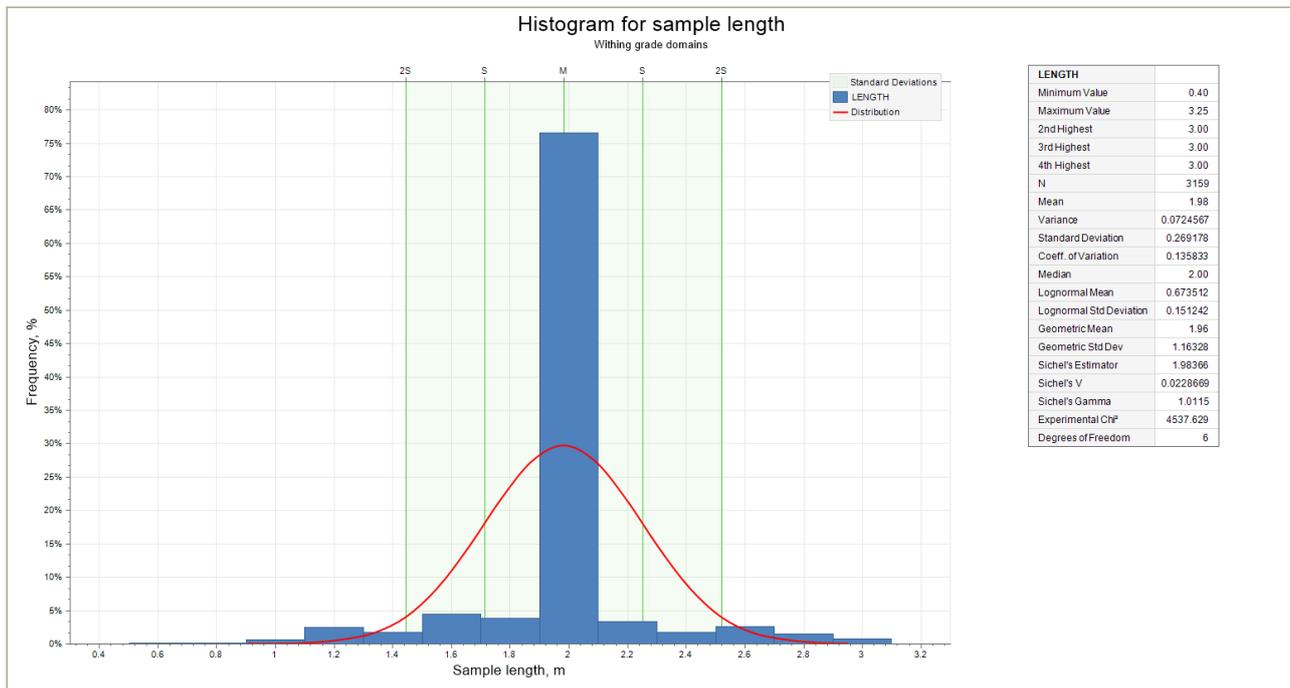


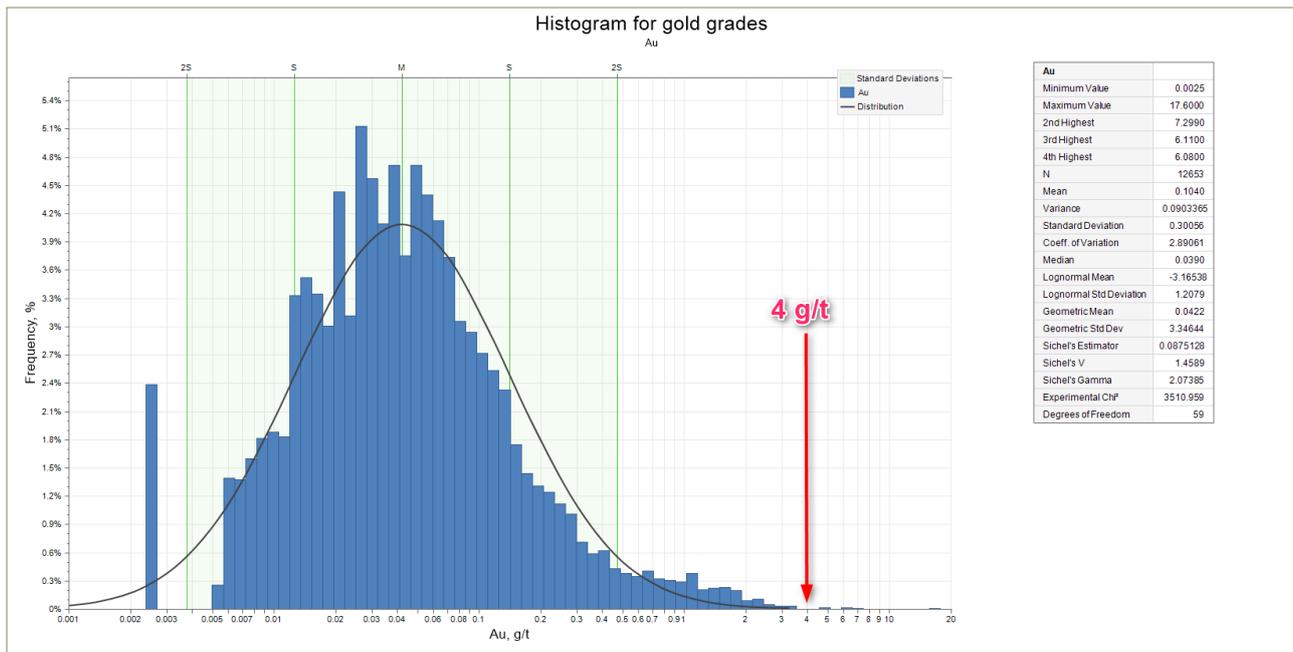
Figure 3.11 Histogram for sample length with wireframed grade domains



The wireframe models for both high and low-grade domains were used to select corresponding samples from the analytical database, which were then used for geostatistical analysis. The dominant direction assessed was parallel to the dominant geological strike of approximately 50° and vertical dip. Downhole and directional semi-variograms in the low-grade and high-grade domains indicated a consistent nugget effect of less than 20%. The modelled ranges were from 190 m to 300 m along the major and semi-major directions in the plane of the dominant geological trend. In the minor direction, the total sill was mostly reached at a distance of 190 m for the high-grade and 120 m for the low-grade domains respectively.

The selected samples were composited over two-metre intervals as the dominant sample length. The average sample length was 1.94 m. A review of composite statistics did not identify significant high-value outliers that were considered likely to result in an overestimation of grade in the block model either locally or globally. Therefore, no top cuts were applied to the composite for grade estimation. AMC reviewed the top-cutting approach and agrees that there are no high-grade outliers for copper grades. There are several outliers for gold grades that could be considered for top-cutting (Figure 2.27).

Figure 3.12 Histogram for gold grades



The block model used parent cells of 10m (E) by 10m (N) by 5 m (RL) without subcelling. The relatively small cell size was selected to maintain the resolution of the boundaries of the deposit. The model was coded by the grade domains and oxidation surface.

Copper and gold grades were interpolated into the block model using ordinary kriging (OK) interpolation method, and the density values were interpolated using inverse distance weighted method with the power of two. Based on the results of the geostatistical analysis and considering geological factors, a maximum distance of 200 m was applied to the major and semi-major axis positions and 100 m in the minor direction for the limits of the Indicated Mineral Resource (first pass), with a minimum of 4 composites and maximum of 20 composites accepted for estimation. Hard boundaries between the grade domains were used.

The block model comprised the codes for the level of oxidation, copper and gold grades and it was limited by the permit boundaries. AMC considers that the applied modelling methodology is reasonable and does not have any material flaws or issues.

AMC recommends:

- Presence of two grade domains is justified from the geological point of view, but statistically copper has only one grade domain. An alternative approach is to use soft boundaries between the grade domains.
- The deposit is likely to have multiple phases of intrusions that are not currently possible to model. AMC recommends that additional phases are logged and modelled if possible. Continued focus should be placed on the improvement of the geological model. In particular, gaining a more detailed understanding of the controls to the mineralization and intrusion phases is required to validate the existing domaining approach.
- Top-cutting for gold grades should be considered.

- The current parent block size should be increased as 10 m cells are not supported by the exploration grid density. The resolution at boundaries could be maintained using subcelling.
- Further density measurements should be taken.
- Further exploration at the flanks and depth of the deposit should be completed that may result in an increase in the Mineral Resource.

### **3.6.2 Reasonable prospects for eventual economic extraction**

Clause 20 of the JORC Code requires that Mineral Resources must have reasonable prospects for eventual economic extraction.

The basis for the reasonable prospects for eventual economic extraction for the Nabiga-a Hill Mineral Resource estimate are:

- The main mineralization bodies are large enough for underground caving methods, with possible shallow extensions that are relatively close to the surface.
- The cut-off grade adopted for reporting (0.2% Cu) is considered reasonable given the average copper grades in the reported Mineral Resource are close to 0.4% Cu and 0.11 g/t Au.
- The topography at the deposit area is favourable for the development of the deposit using an underground mining method.

To the best of AMC's knowledge, at the time of estimation, there were no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact the eventual economic extraction of the Mineral Resource.

### **3.6.3 Mineral Resource classification**

The Mineral Resource estimate was classified mostly as Inferred Mineral Resource where the geology and associated copper-gold mineralization, within a constrained high-grade, low-grade and supergene ore domains, could be confidently estimated based on the understanding of the mineralization deposit type, the current distribution of the drilling information, and the information obtained from the geostatistical analysis.

Based on a combination of geology and the statistics, the Mineral Resource estimate was classified as Indicated Mineral Resource where estimation was completed in the first pass (a search ellipse of 150 m by 85 m by 25 m). The Mineral Resource estimate was classified as Inferred Mineral Resource where estimation was completed in the second pass (a search ellipse of 300 m by 150 m by 50 m).

AMC generally agrees with the adopted Mineral Resource classification strategy.

### **3.6.4 Mineral Resource statement**

The Mineral Resource estimate has been reported by Mr Steven Olsen as Competent Person as defined in the JORC Code and has been publicly release in an ASX Release by Celsius dated 7 November 2022. The Mineral Resource estimate is reported by classification in Table 3.2 as of 7 November 2022 above a cut-off grade of 0.2% Cu.

Table 3.2 Nabiga-a Mineral Resource – 07 November 2022

Domain	Classification	Tonnes (Mt)	Copper Grade (%)	Gold Grade (g/t)	Copper Metal (kt)	Gold Metal (koz)
Total	Indicated	15	0.45	0.11	68	53
	Inferred	287	0.41	0.11	1,175	993
<b>Total</b>		<b>302</b>	<b>0.41</b>	<b>0.11</b>	<b>1,244</b>	<b>1,046</b>

Source: Celsius ASX Release 7 November 2022.

Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.2% Cu has been applied.
- A bulk density was interpolated into the block model.
- Rows and columns may not add up exactly due to rounding.
- Nabiga-a is 100% owned by Celsius and its subsidiaries.

The block model was validated using statistical means, visual review and swath plots. All validation routines returned acceptable results.

AMC reviewed the block model and the modelling methodology applied and believe that the reported Mineral Resource estimate has been prepared using accepted industry practice and has been classified and reported in accordance with the JORC Code.

### 3.7 Exploration potential and planned work

Additional confirmatory and resource drilling is being completed in Nabiga-a Hill in order to update a Mineral Resource. In parallel to this, metallurgical samples are being collected and will be submitted to ALS Laboratory in Perth, Australia for future metallurgical test work. VWP's were installed, with data collected for future engagement with geotechnical and hydrogeological consultants. These data will form the basis to develop a scoping study for the Sagay project.

### 3.8 Sagay Technical risks

AMC considers the Sagay technical risks are:

- Geology: The deposit geology is well understood, although additional drilling is required to improve the geological model.
- Drilling method: Diamond drilling was used for the exploration. This is the best technique for the deposit and to best define mineralization intersections. The geological risks are low.
- Sampling techniques: The drilling method allowed detailed sampling which should be sufficient for definition of the Mineral Resources.
- Analytical techniques: The analytical techniques used are appropriate for the mineralization and the expected range of concentration. The laboratory is a recognized industry laboratory and suitable accredited. Associated risk of a difference in grade or tonnage is low.
- Volume modelling: The wireframe and block models were developed for the low and high-grade domains. Their definition should be improved after additional drilling. Associated risk in the current estimation of the volume is moderate.
- Mineral Resource estimation: The current understanding of the Sagay deposit's geology and mineralization suggests that the deposit is likely to be larger than MCB, with relatively lower average grades. Preliminary assessment of the feasibility of the project should be considered in a scoping study.

The overall geological risk for the Sagay project is therefore considered to be moderate.

## 4 Opuwo

### 4.1 Background

#### 4.1.1 Overview of the asset location, access and infrastructure

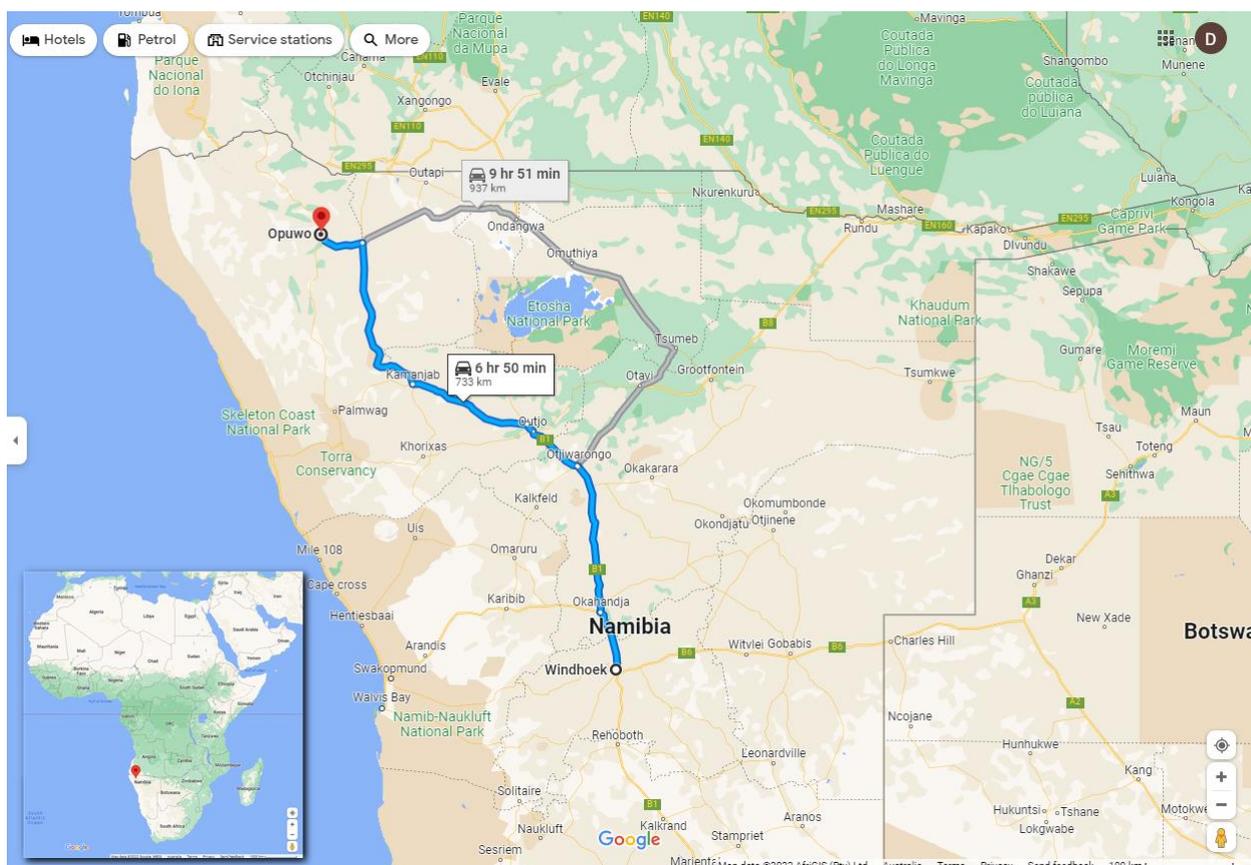
The Opuwo cobalt-copper project is located about 730 km north-west of the Namibian capital city, Windhoek (Figure 4.1). Access to the deposit from Windhoek includes about 8 to 9 hours driving to the regional town of Opuwo, which is a capital of the Kunene Region with the population of about 7,600 people. The town is connected to the national telecommunications, electricity and transport infrastructure. The Ruacana hydro power station (320 MW), which supplies the majority of Namibia's power, is located close by, with a 66 kV transmission line passing through the eastern boundary of the project area.

All roads between Windhoek and the town of Opuwo are good-quality sealed highways suitable for all types of vehicles. The deposit site is in about 25 km to 28 km from the town. Access from the town to the deposit site is by all year-round gravel road (Figure 4.2), and the access between the drill pads are dirt roads suitable for four-wheel drive vehicles only (Figure 4.3). Rain is rare in the area, but when it rains the dirt roads become impassable.

Celsius operates the project through a locally-owned company Gecko Exploration (Pty) Ltd (Gecko Exploration). Gecko Exploration has rented shed for core storage at the town of Opuwo.

There is no current mining activity at the deposit, and no historical mining is known.

Figure 4.1 Regional location diagram of the Opuwo deposit



Source – Google maps

Figure 4.2 Gravel road



Figure 4.3 Dirt road



#### **4.1.2 Climate, topography and vegetation**

##### **4.1.2.1 Climate**

The western coastal area in Namibia is dominated by the effects of the Atlantic anticyclone (high pressure) system and the cold Benguela current. It has a temperate and subtropical climate characterized by hot and dry conditions with little rainfall along the coast. Temperatures are controlled by the cold Benguela current while periods of winter drought alternate with excessive summer rainfall between November and April with the interior experiencing slightly higher rainfall. Opuwo is considered to have a desert climate. During the year, there is virtually no rainfall. The Köppen-Geiger climate classification is BWh. The least amount of rainfall occurs in

June. In January, the precipitation reaches its peak, with an average of 76 mm. The average temperature in Opuwo is 21.6°C. The temperatures are highest on average in October, at around 23.9°C. At 17.1°C on average, July is the coldest month of the year (en.climate-data.org). These average temperatures are typical of the north-western coastal-to-inland area which has an average elevation of approximately 1,200 m.

#### 4.1.2.2 Topography and vegetation

The Kunene (former Kaokoland) region is characterized by a series of north-north-west trending ridges and valleys. It is largely mountainous, with the northern Baynes Mountains reaching the maximum elevation at 2,039 m. Other notable mountain ranges of Kunene include the Otjihipa Mountains (to the north) and the Hartmann Mountains (to the east). The land is generally dry and rocky, especially to the south, where it borders on the Namib Desert. Nevertheless, it has several rivers as well as falls. The most notable falls in Kunene are the Ruacana Falls (120 m high, 700 m wide) and the Epupa Falls, both formed by the Kunene River. The northern part of Kunene is greener, with vegetation thriving in valleys such as the Marienfluss and Hartmann Vallies. Vegetation is dominated by thorny brush of various types. Mopani trees are locally common. Vegetation is thickest along perennial watercourses. Flash floods are common during the rainy season (wikivisually.com).

The area is characterized by broad flat valleys (Figure 4.4) punctuated by steep-sided linear ridges up to 500 m high. Overall vegetation density ranges from sparse to moderate depending on local soil conditions and on the season.

Figure 4.4 View of the Opuwo deposit area



#### 4.1.3 Tenement status and ownership

Namibia has a well-organized framework for mineral tenure. Exclusive Prospecting Licences (EPL) in Namibia are governed by the provisions of the Minerals Act, 1992, Part 10. The Act provides for the granting of an EPL over an area not exceeding 1,000 km<sup>2</sup>. The holder of an EPL is entitled to carry out prospecting operations related to the minerals as specified in the licence. A geological evaluation, work plan and an environmental impact assessment report must be submitted prior to issuing of the licences. The EPL holder must submit quarterly and annual reports. EPLs are subject to renewal after the first three years and subsequently every two years.

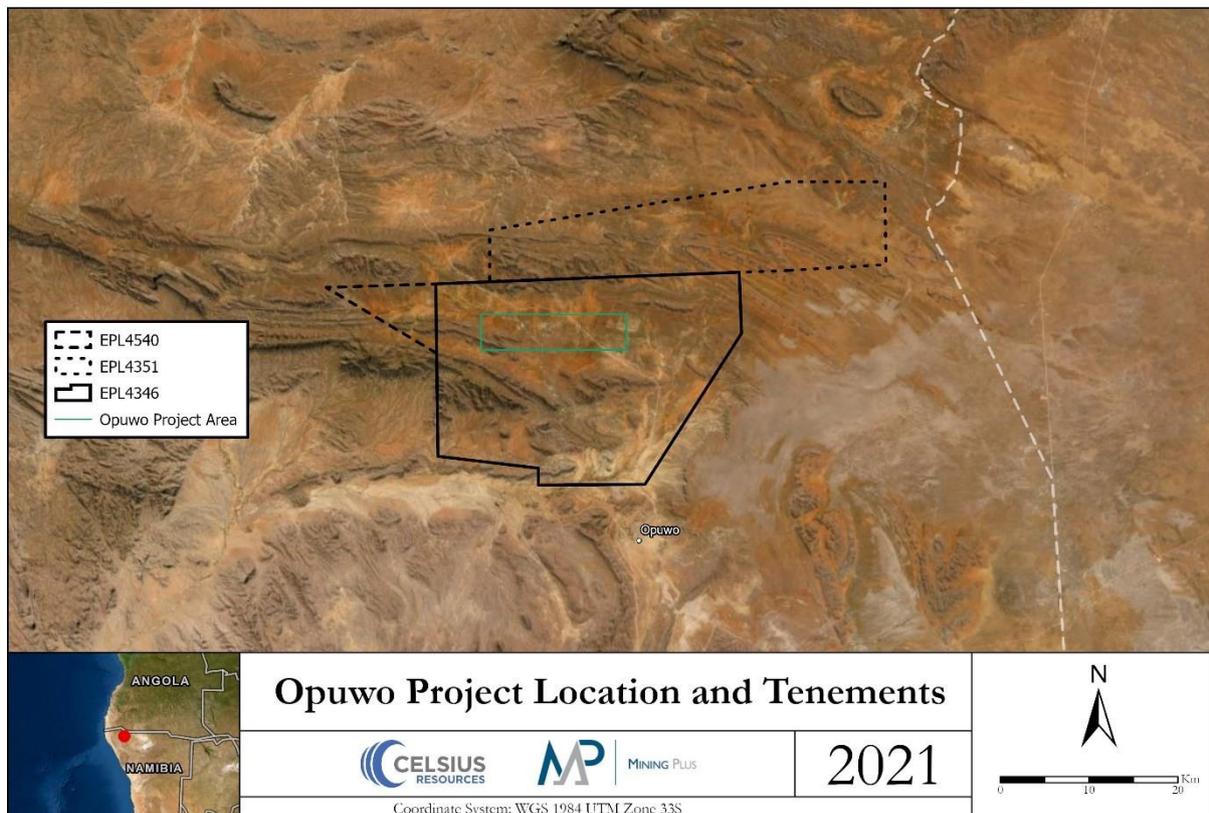
At the first renewal, the EPL may have to be reduced by 25% and in subsequent renewals by 50%. Renewals after the first two are subject to ministerial discretion.

The Opuwo mineralization is located on three EPLs (EPL4346, EPL4351 and EPL4540), as shown in Figure 4.5, which covers approximately 1,094 km<sup>2</sup>. The Opuwo Mineral Resource is completely located within EPL4346, which Celsius advises has valid tenure until March 2023.

Celsius has 95% ownership of the project through Gecko Cobalt Mining (Pty) Ltd, which is 100% owned by Celsius, and the remaining 5% is owned by a local company Namibian Former Robben Island Political Prisoners Trust (NFRIPPT).

Royalties of 4% are payable on the sale of copper and cobalt to the Namibian government for production exported as concentrate. No royalty is payable if metal is refined in Namibia. There are no known current environmental liabilities or encumbrances that have been identified pertaining to the EPLs.

Figure 4.5 Opuwo Project Location and Tenements



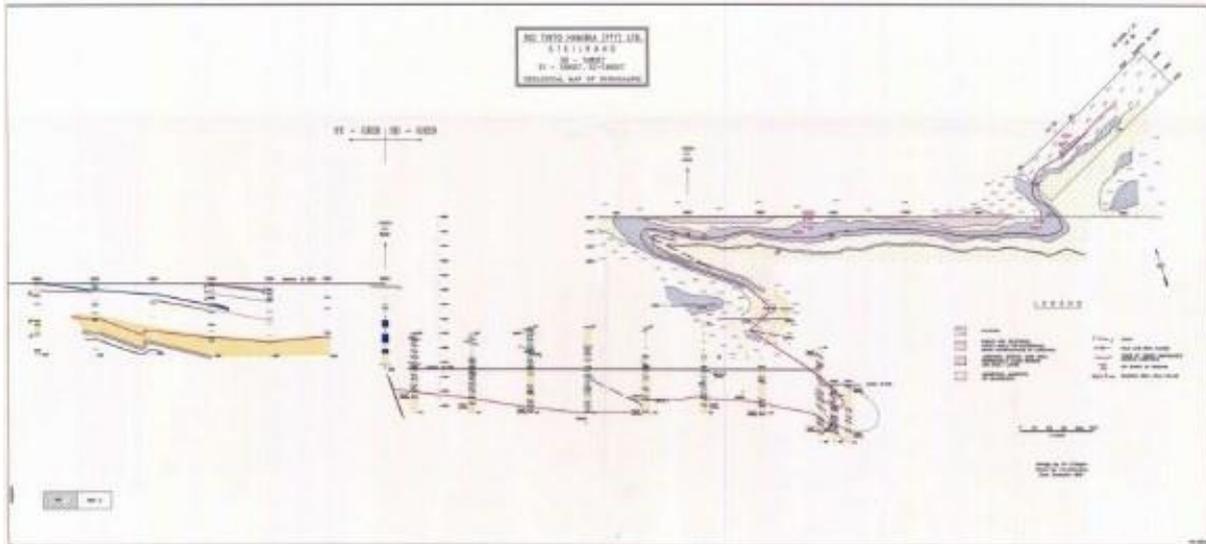
Source – Mining Plus MRE Report, 2021.

## 4.2 Project history

The history of the project is summarized as follows:

- 1960s: Goldfields, Anglo, African Selection Trust carry out regional exploration.
- Late 1960s to late 1980s: The independence war in northern Namibia precludes exploration activity.
- 1990s: Erongo Minerals, Rio Tinto Zinc and Mount Isa Mines Limited undertook mapping of the Opuwo property and surrounding region, discovering and mapping 11 km of the Dolostone Ore Formation (DOF) horizon. Five drillholes were completed and analysed for Cu and Zn, but not for Co.

Figure 4.6 Rio Tinto Geological Map highlighting the DOF Horizon



Source – Mining Plus MRE Report, 2021.

- 2004: Tech Cominko Namibia Ltd carried out extensive exploration south of Opuwo.
- 2009 to 2012: Tech Cominko Namibia Ltd and INV Metals carried out regional geological compilation, regional geological mapping, reconnaissance geochemical surveys, geophysical surveys and extensive diamond and reverse circulation drilling identifying approximately 200 individual copper occurrences in the region.
- 2012: The initial cobalt discovery, now on the Celsius EPLs, was made by Gecko Exploration's general manager Dr Ellmies in 2012. Mapping and sampling revealed that Namibia's first cobalt deposit was of very large scale. Cobalt as cobalt sulphide occurs in only one specific stratigraphic horizon in a dolomitic marlstone (the DOF).
- 2017: Celsius signed an option agreement over the Opuwo project and began exploration.
- 2018: Maiden Mineral Resource estimate released by Celsius.
- July 2021: Mineral Resource estimate prepared by Mining Plus Pty Ltd (Mining Plus) for Celsius.

### 4.3 Geological setting and mineralization

While stratabound and vein-hosted copper mineralization is widely known in the Kaokobelt, the discovery of the cobalt-dominated DOF is the first recognition of cobalt mineralization in Namibia. Besides the high-cobalt tenor, there are several similarities to the Central African Copperbelt in Zambia and Democratic Republic of the Congo such as the location of the mineralized horizon at the southern rim of the Congo Craton, its stratigraphic position below the Chuos Formation/Grand Conglomerate, and the strongly stratabound mineralization in a pyrite-rich, siltstone-shale-dolostone transition.

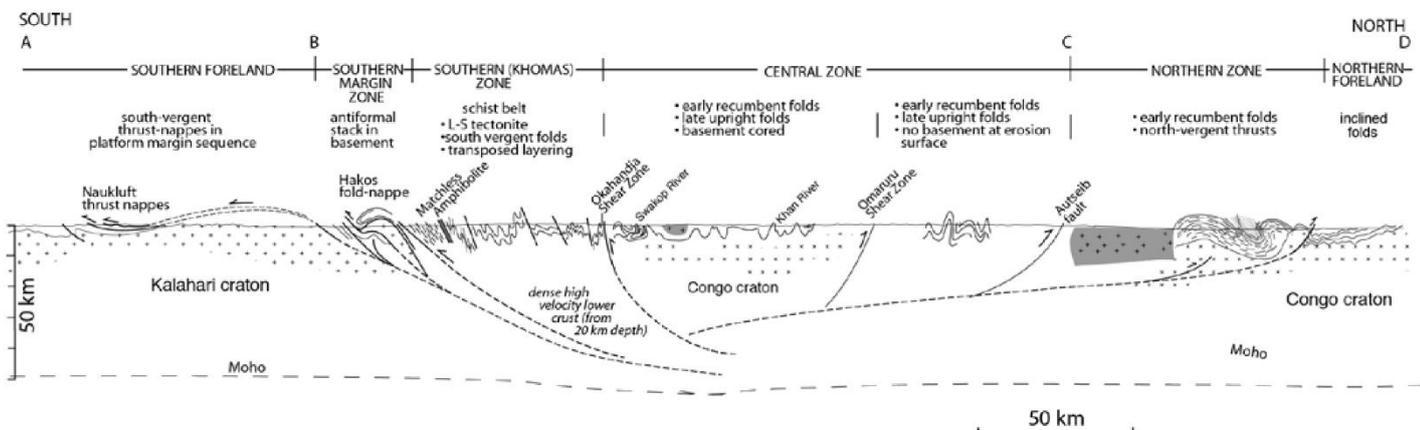
### 4.3.1 Regional geology

The Kaoko Orogen (Kaokobelt) consists of metasedimentary rocks of the Damaran Supergroup deposited on the passive margin of a Late Proterozoic continental rift system. The Damaran sediments overlie the Congo Craton with its Archean to Early Proterozoic basement rocks of the Epupa and Huab Complexes (Figure 4.8).

The deposition of the Damaran Supergroup spans a period between about 1050 Ma (breakup of Rodinia) and 550 Ma (amalgamation of Gondwana). The key tectonic and sedimentary events in the Opuwo project area are (Figure 4.7):

- Rifting at the southern Congo Craton between 900 Ma to 840 Ma with local rift-related continental magmatism (e.g. Oas syenite and Lofdal carbonatites 840 Ma to 756 Ma).
- Deposition of a 1 km to 4 km thick siliciclastic transgression sequence: Nosib Group including Ombombo Formation in the upper part with increasing carbonate sedimentation (and the DOF horizon), 880 Ma to 712 Ma.
- Chuos glaciation with deposition of tillites and cold-water shales and marlstones 712 Ma to 692 Ma.
- Deposition of carbonate dominated sediments on the shallow Kunene Platform: Otavi and Tsumeb Groups.
- Collision of Kalahari and Congo Craton 550 Ma, formation of thrust belt with nappe structures.  
Peak metamorphism 530 Ma.

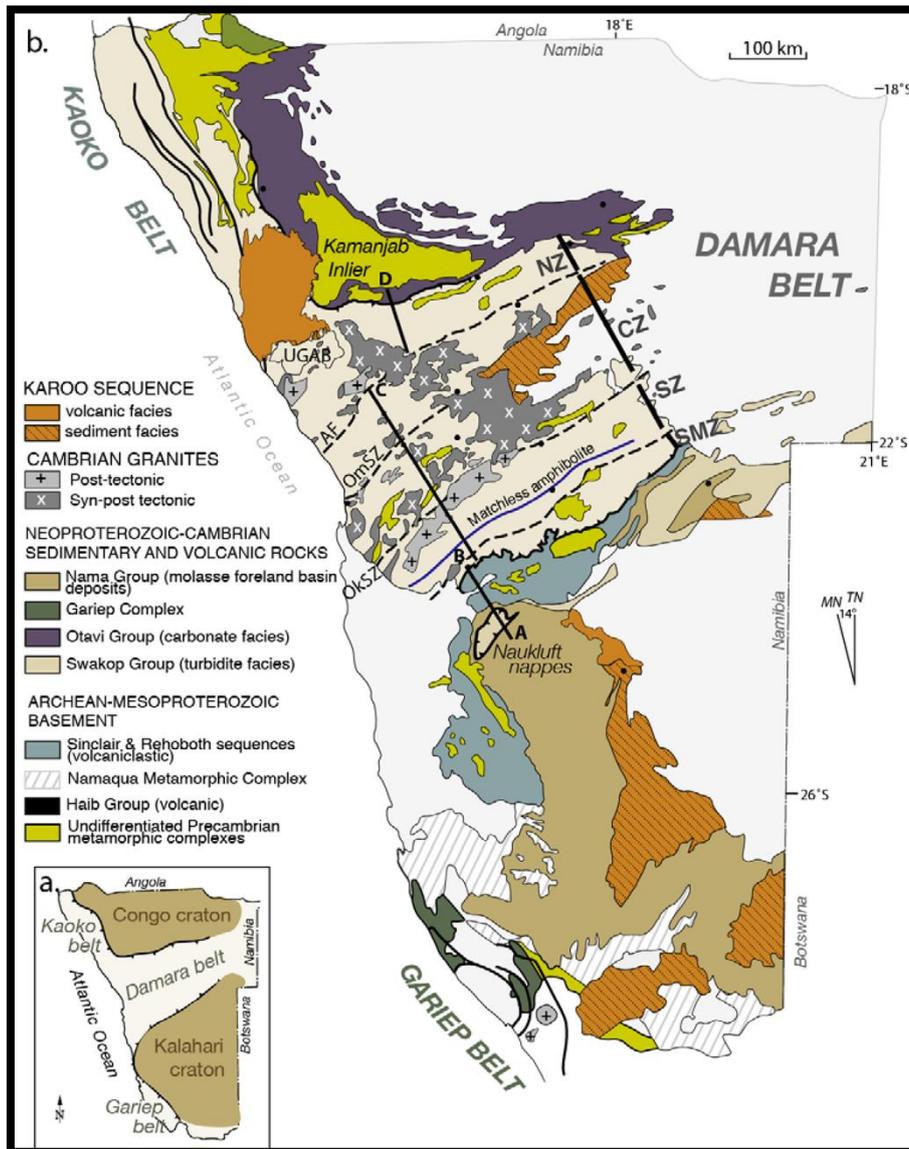
Figure 4.7 Schematic geological cross section through points A, B, C and D



Source – commons.wikimedia.org

In Figure 4.8 showing the crustal architecture of the Damara Belt of the Damara Orogen.

Figure 4.8 Regional geological setting of the north-western Namibia



Source – commons.wikimedia.org

### 4.3.2 Deposit geology

The oldest rocks in the Opuwo project area are granitoid gneisses and migmatites of the Epupa Metamorphic Complex. The gneisses form the southwestern margin of the Congo Craton and are about 1860 Ma in age.

The Epupa Metamorphic Complex forms the western and northern margin of the prospective area and is unconformably overlain by stratified rocks of the Damaran Orogen, which in this area form part of the Kaoko Belt or the Northern Platform of the Damaran Orogen. In the Kunene Co-Cu project area, the Damaran rocks are disposed in a series of synclinoria that expose Nosib Group clastic sedimentary rocks on the limbs and Abenab SubGroup rocks in the cores.

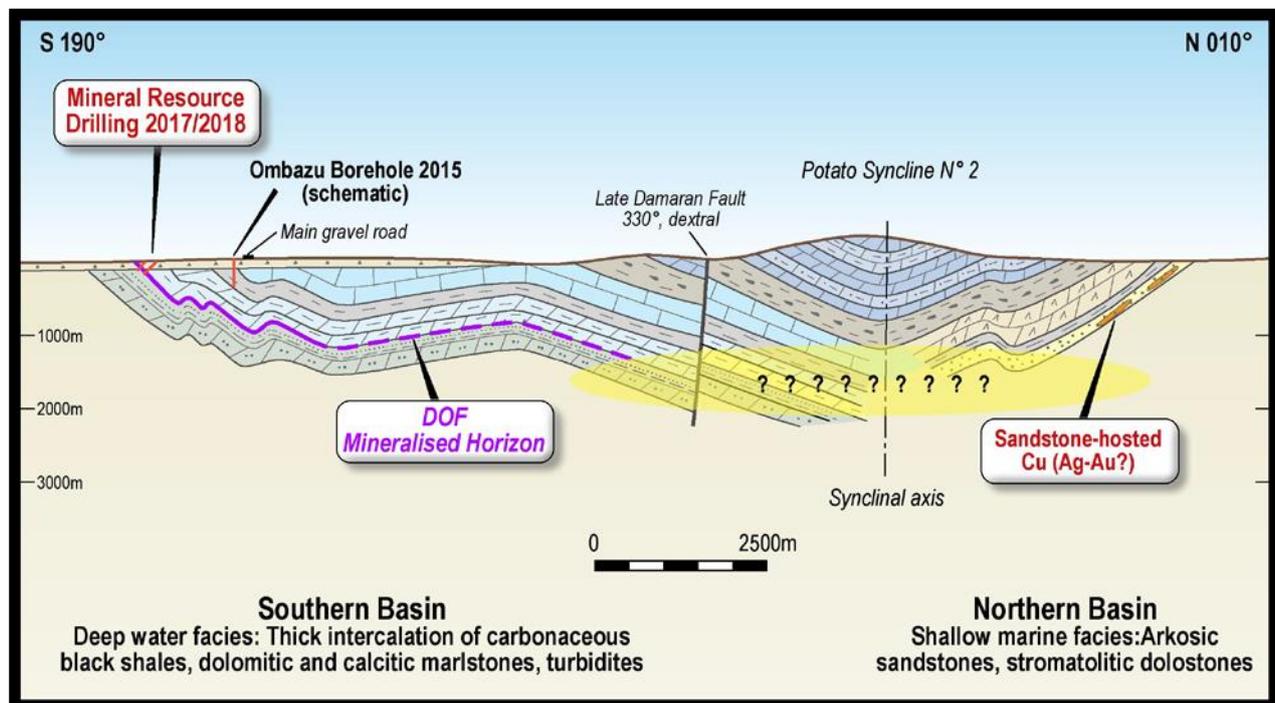
Quaternary cover is present through substantial parts of the recessive, low-lying geology and becomes dominant in the east of the area. Copper mineralization with and without cobalt is widespread throughout the project area. There are numerous showings exhibiting multiple styles of mineralization in a variety of host rocks and stratigraphic settings.

The basal sedimentary rocks of the Damara Orogen, the Nosib Group siliciclastic rocks unconformably overlie the Epupa Metamorphic Complex. The Nosib Group is the basal siliciclastic unit of the Kaoko Belt succession. In this area, the Nosib Group comprises a thick succession of dominantly siliciclastic rocks, principally quartzite and arkose with intercalated siltstone/shale, conglomerate, limestone and dolomite. Igneous rocks are found in the Nosib Group on the margins of the Damara Basin.

The DOF is stratabound within a low-grade metamorphic siltstone-shale-carbonate succession within the upper Ombombo Formation (Upper Omao Formation) (Figure 4.9). It was traced at surface over a strike length of about 43 km. Over about half of the strike length the DOF is covered by thick calcrete or alluvial cover.

The DOF is a stratabound unit of Co-Cu-Zn mineralization internally defined by a 500 ppm cobalt cut-off grade. While the footwall contact is sharp, the hanging wall contact is gradual. A low-grade Cu-Zn-Co mineralized zone several metres thick (5 m to 15 m) in the hanging wall of DOF is named "Wider DOF" which shows a further gradually decreasing base metal anomaly. About 15 m above the Wider DOF occurs a carbonaceous marlstone with a distinct vanadium anomaly (100 ppm to 800 ppm V) over several metres.

Figure 4.9 Schematic cross section of the project area



Source – Celsius Resources ASX media release, 2018.

In the 15 km long central part of the Opuwo cobalt project, the DOF is usually between 4 m and 8 m thick. To the west, the DOF is intensely sheared, and its thickness decreases steadily from 5 m to about 0.3 m (proportionally to the decrease of the sedimentary sequence of the Upper Ombombo Formation) towards central EPL4540. In the east, the thickness of DOF decreases to about 2 m to 3 m and abruptly disappears eastward of a fold zone. In the west, the footwall is made of a sequence of seven units of coarse quartzitic sandstone intercalated by siltstones and carbonaceous shales. In the east, the footwall is formed by calcareous siltstones and marly, partly carbonaceous carbonate rocks. The gradual facies changes of the footwall rocks in east-west direction points to a high-energy sedimentary environment in the west and a low-energy deeper part of the same sedimentary basin in the east.

Pyrrhotite and pyrite-rich carbonaceous shales below and above the central DOF underline the existence of a narrow, deep basin trough (Ombazu Trough) or failed rift structure which seems to have directly or indirectly controlled the DOF mineralization.

The hanging wall rocks are mainly grey dolostones and limestones with several intercalations of carbonaceous shales and siltstones.

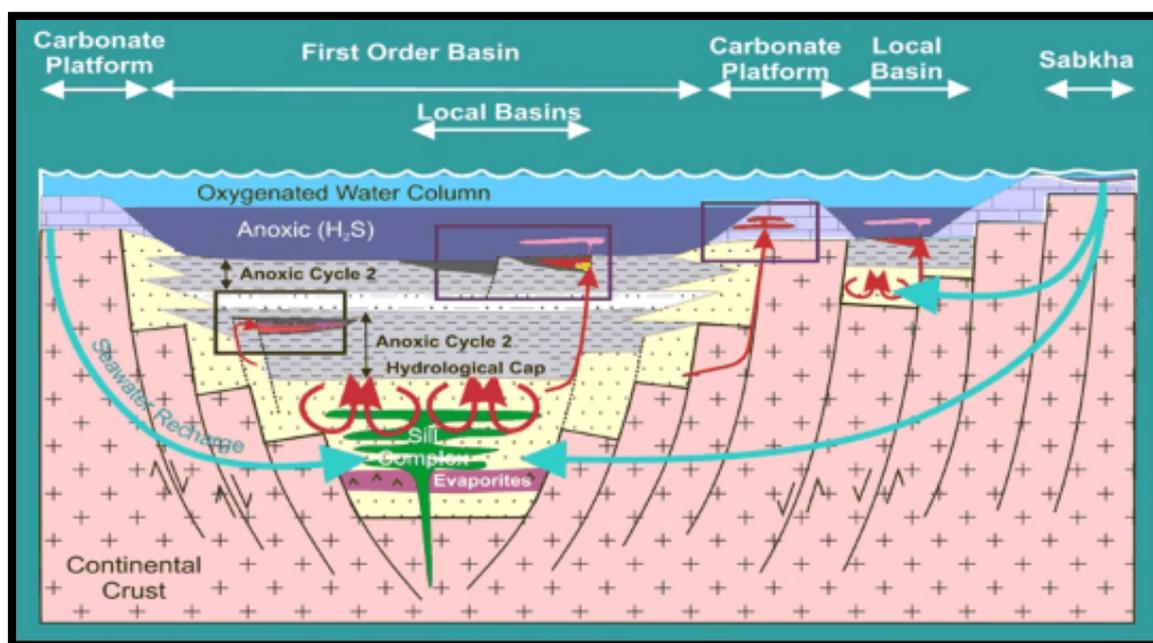
#### 4.3.3 Deposit type

The cobalt-copper-zinc mineralization of the DOF is strongly stratabound mineralization hosted by marly siltstones, carbonaceous black shales as well as silty and shaley carbonates. It shows similarities to the Ore Shale of the Zambian Copperbelt like the host black shales with transition of the mineralization into dolostones in the hanging wall. However, the Ore Shale represents the "first reductant" in the sedimentary sequence of the Katangan, and therefore is grouped into deposits which were formed by ascending oxidised base metal brines reduced in contact with the first reducing lithology.

The DOF, however, is underlain by numerous carbonaceous black shale layers none of which show base metal anomalism but would have had acted as "first reductant". The DOF is regarded as either:

- Largely sedimentary-exhalative nature (SEDEX) (Figure 4.10) in the local Ombazu Trough with metasomatic replacement of primary carbonates and Fe-sulphides.
- Epigenetic mineralization, structurally controlled by Damaran thrust faults.

Figure 4.10 Model of the sedimentary basin architecture of productive basins hosting SEDEX deposits



Source – 911metallurgist.com.

#### 4.3.4 Mineralization

The main ore minerals of the primary DOF are linnaeite ( $\text{Co}_3\text{S}_4$ ), chalcopyrite ( $\text{CuFeS}_2$ ) and sphalerite ( $\text{ZnS}$ ). The sulphide minerals usually occur finely disseminated ( $50\ \mu\text{m}$  to  $500\ \mu\text{m}$ ) in the sedimentary host rocks.

Coarse sulphide accumulations of early origin are limited to the footwall "DOF event" and semi-massive sulphide layers intercalated with black shales mainly found towards the north (down-dip of the DOF). Calcite-sulphide-quartz veins represent products of local remobilization of the primary mineralization during the late stages of the Damaran Orogeny. Besides the typical sphalerite-chalcopyrite-pyrrhotite-pyrite association, these veins can carry galena.

At surface, the DOF horizon and its sulphides are oxidised. While the cobalt and copper grades are similar to the primary DOF, it is assumed that cobalt and copper are largely bound to FeOOH and MnOOH phases. Malachite occurs very rarely along fracture planes or in small quartz veins. The oxidised DOF is usually between 5 m and 30 m thick.

Between the primary and oxidised DOF, the DOF is partly oxidised. It is assumed that chalcopyrite and linnaeite were not affected by this early oxidation.

The mineralization was examined by AMC during the site visit. The mineralization is stratigraphically controlled and fairly uniformly 5 m to 10 m thick, stratabound within a dolomitic, pyritic shale horizon, averaging around 0.5% Cu and between 0.1% Co and 0.2% Co. Stratiform mineralization was traced in the carbonaceous horizon enriched with black shales (Figure 4.11 and Figure 4.12) for about 50 km along the strike, out of which 12 km was drilled. The mineralized horizon has 50° to 55° dips to the north. The oxidation zone includes 30 m to 40 m of totally oxidized zone and then from 40 m to 60 m of transition zone. Most of the deposit is covered with overburden clay material with very rare outcrops.

Cobalt minerals were not observed, but presence of copper mineralization was apparent in core. Visible chalcopyrite ( $\text{CuFeS}_2$ ) and bornite ( $\text{Cu}_5\text{FeS}_4$ ) were present in the core examined. Sphalerite ( $\text{ZnS}$ ) was not visible as it is finely disseminated (20  $\mu\text{m}$  to 200  $\mu\text{m}$ ).

One outcrop was observed during the site visit. It was relatively oxidized black iron-rich siltstone or mudstone with some quartz veinlets. Several grab samples were taken from the outcrop and tested using handheld portable XRF (Figure 4.13). The results were as follows:

- Sample 1: 0.20% Co, 0.51% Cu, 0.75% Zn.
- Sample 2: 0.20% Co, 0.20% Cu, 0.42% Zn.
- Sample 3: not shown, 0.20% Cu, 0.29% Zn.
- Sample 4: not shown, 0.36% Cu, 0.17% Zn.
- Sample 5: 0.76% Co, 1.02% Cu, 0.96% Zn.

The deposit geology was explained and discussed, and the deposit area was inspected by the Competent Person.

Figure 4.11 Black shale with disseminated sulphides



Figure 4.12 Black shale with veins of sulphides (pyrite, pyrrhotite)



Figure 4.13 Handheld portable XRF



#### 4.4 Site visit

Dmitry Pertel (Principal Resource Geologist) from AMC Consultants visited the Opuwo project site from 2 May to 7 May 2022. The sample preparation and analytical laboratories (Actlabs laboratories in Windhoek and Canada) were not visited.

The purpose of the site visit was to review the Opuwo project site, access and infrastructure, and assess the geology and mineralization geometry, and review the diamond core and reverse circulation (RC) samples. One diamond rig was at the site but it was not operating at the time of the site visit.

The local general manager (Mr Rainer Ellmies of Gecko Exploration) and two geologists were also involved in the visit. The local geologists were able to explain the deposit geology, protocols and methods employed in the current and historical exploration programmes, including QA/QC, which are considered appropriate and consistent with industry good practice.

Drill collars were checked in the field and picked up with handheld GPS. The sampling and logging procedures were observed and reviewed, and samples were secure.

The sample preparation and analytical laboratories was not visited. The sample preparation and analyses were done at Activation Laboratories Ltd. (ACTLABS), which is a recognized laboratory with ISO/IEC 17025 accreditation. The lack of a laboratories visit is not considered to adversely affect the Competent Person's confidence in procedures and quality of data.

#### 4.5 Exploration, sampling techniques, and data

The drilling programme at the time of the site visit was set up to drillholes for metallurgical testing but the rig was not operating at the time of the site visit in April 2022. Celsius subsequently reported that nine large diameter (PQ) diamond drillholes for a total of 1,089 m drilled were drilled for metallurgical purposes after the site visit was completed. Samples from the drilling programme have been submitted to Maelgwyn Mineral Services Laboratory in Johannesburg to complete metallurgical test work.

Subsequent to the site visit, Celsius also retrieved historic RC samples to produce a blended sulphide ore composite sample of approximately one tonne. This sample was used to produce a

36 kg concentrate sample by rougher flotation at Maelgwyn Mineral Services Laboratory. The bulk sulphide concentrate was submitted for roasting and tank leach test works at Mintek Laboratories. Results of this test work were publicly reported in an ASX Release (Celsius, 2022).

Therefore, this CPR is based on all historical information which was available at the time of the Mineral Resource estimate which had an effective date of October 2021 and metallurgical test work completed to 17 August 2022. There are no further material exploration results that have been included in this CPR.

#### 4.5.1 Exploration scope completed

AMC is advised that exploration diamond and RC drilling was started from March 2017 and was ongoing until March 2019. A total of 299 drillholes were drilled in the project area, including 190 RC drillholes with the total length of 25,523 m and 110 diamond drillholes with the total length of 28,037 metres.

All of the diamond drilling utilised a double tube core barrel for the entire length to ensure maximum sample recovery. Most of the exploration holes were initially drilled with HQ diameter, then cased, and completed with NQ diameter.

#### 4.5.2 Exploration grid parameters

The geological features of the deposit structure predetermined the application of a drilling method for its study. Mineralization was traced to the total depth of about 800 m from the surface using inclined diamond and RC drilling on a relatively regular grid of approximately 200 m by 100 m (Figure 4.14).

Exploration lines were set up from the south to the north across the strike of the main mineralized body, and most of the drillholes were inclined to the south with an average dip of 60° for optimal intersection of the mineralization (Figure 4.15). The maximum depth of drilling was 1,204 m and the average hole depth was 300 m.

Main mineralized body was traced along the strike for about 13,300 m. Most of the holes traced the mineralized zone down the dip to 200 m to 300 m, but some deep holes intersected mineralization at the depth of 1,150 m.

Figure 4.14 Exploration grid (plan view)

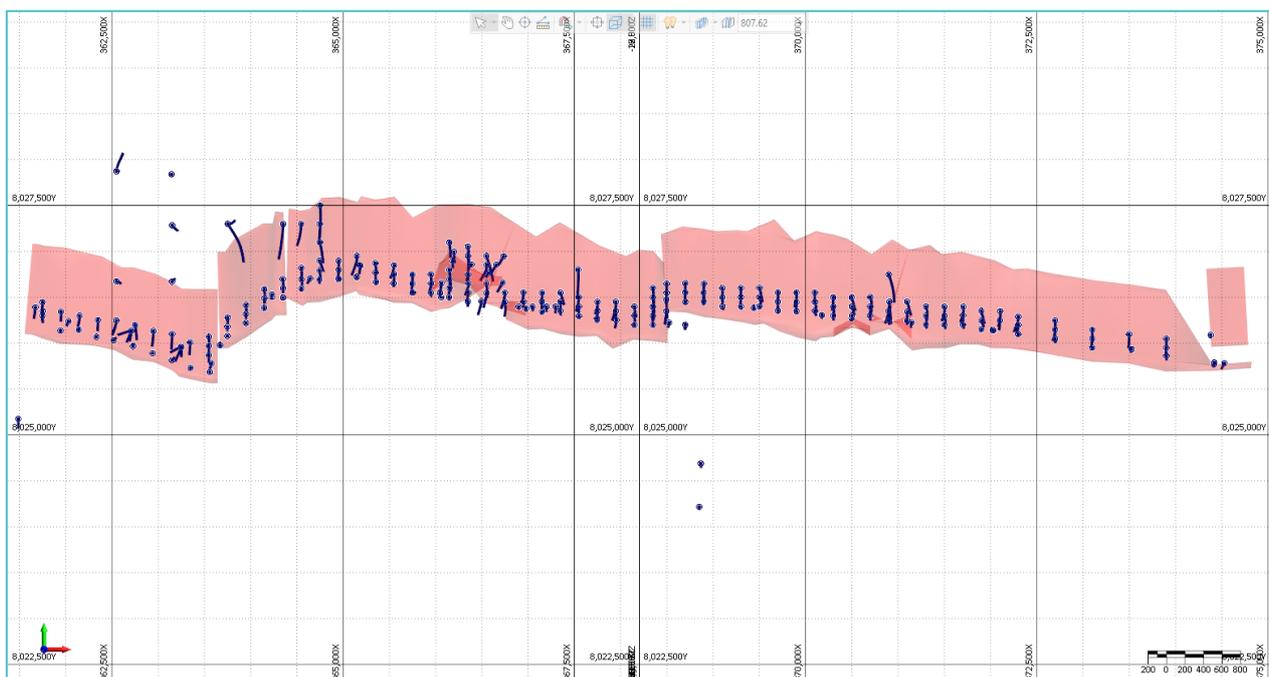
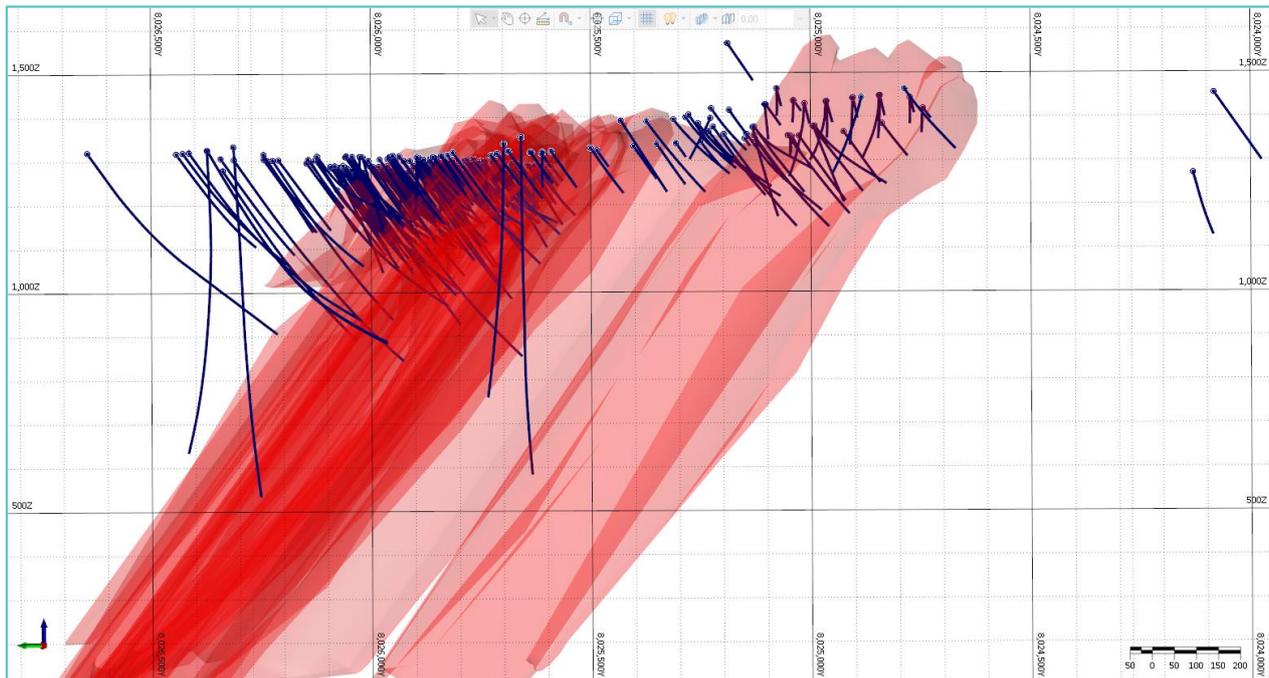


Figure 4.15 Exploration grid (looking east)



### 4.5.3 Exploration methods

Gecko Exploration used a truck mounted Bohrmeister diamond rig operated by a local contractor. The rig was not operating at the time of the site visit. The rig (Figure 4.16) was set up with PQ diameter rods to drill core for metallurgical testing.

It was reported that most of the drill holes were initially drilled with HQ diameter for casing the upper parts of the holes, and then completed with NQ diameter drilling.

Drilling usually employed 3 m runs and double tubes to maximize core recovery.

Drilling was supervised by Gecko Exploration's geologist, who did all the initial logging at the drill site, linear core recovery measurement and core photos.

RC drilling used 3 m runs with 1 m sampling. There was a cyclone splitter attached to the rig, which divided each 1 m sample into three samples. Two of those samples were collected into plastic bags, and the remaining material was collected into a 50 kg poly weave bulk sample.

Figure 4.16 Diamond rig at the site – Bohrmeister



All holes were surveyed every 5 m by a local geophysical company Terratec/GSG which provides industry-standard accuracy of downhole inclination.

The Competent Person inspected several drillhole collars and completed measurements of the collar location using a GPS. The measured geographic coordinates were converted to WGS84 (UTM 33S). The calculated coordinates were compared with the corresponding coordinates in the database.

Figure 4.17 Hole collar DOFD0187



Most of the collar locations could be found (Figure 4.17), although some of the collars had been destroyed by the local exploration. Some collar coordinates were found to be within several metres of the database records, but some had differences in level of more than 10 m.

Gecko Exploration reported that all collars were surveyed by a contracted local surveyor using DGPS instrument, which provides industry standard accuracy for the collar locations

#### **4.5.4 Sampling methods**

##### **4.5.4.1 Core samples**

The core was taken out from the rod and then boxed into plastic boxes. Initial geological logging, including core recovery and RQD was done by a geologist at the drill site. Boxes with core were then stacked on top of each other with an empty tray on top. All boxes were secured with plastic strips and transported to the logging site in the town of Opuwo (Figure 4.18) with rented trucks, where core was logged and sampled by a company geologist. Initial logging at the drill site was done on paper, and the detailed logging at the core shed was done in electronic form in Excel database. All core was oriented.

Logging included the following:

- RQD.
- Lithology.
- Alteration.
- Veining.
- Mineralization.
- Structure.
- Oxidation.

Linear core recovery was measured for all holes and Gecko Exploration reported that core recovery was industry standard.

Core was initially analyzed with handheld portable XRF instrument to identify mineralized interval using a cut-off of 500 ppm Cu. Once mineralized intervals were established, mineralized core was sampled including 5 m of host rocks on each side of the interval. The company geologist marked all selected intervals for sampling, which were generally not more than one metre and not less than 20 cm. All main lithological boundaries were honoured when sampling.

Once core samples were selected and marked, each sample was entered into a sample sheet together with QA/QC samples, and all sample numbers were continuous. The selected samples were then halved with diamond saw (Figure 4.19). One half was taken for sampling, and the second one was stored for reference.

The second halves of core were photographed both dry and wet and all photographs were available, though no colour palette was used.

The selected samples were placed into numbered plastic bags, which had also sample number tag placed inside the bag together with the sample. Groups of up to 10 samples were then bagged into poly weave bags, labelled, sealed with cable tie and transported to the main sample preparation laboratory in Windhoek to Activation Laboratories Limited (ACTLABS). After the sample preparation, all pulps were transported to the analytical laboratory in Canada (ACTLABS).

All bags were zipped, secured and transported with the company vehicle to Windhoek once or twice a week. All batches included sample sheets and dispatch forms. Sample security was acceptable.

All core boxes were labelled with hole identifiers and intervals (Figure 4.20), and the core in boxes had plastic tags.

Once sampling was done, the second halves of core were stored at the town of Opuwo. All rejects and remaining pulps were collected and stored in Windhoek.

The Competent Person considers that core sampling, geological logging, sample security and chain of custody are all to industry standard.

Figure 4.18 Core shed in Opuwo



Figure 4.19 Diamond saw



Figure 4.20 Labelled core boxes



#### 4.5.4.2 RC samples

The RC rig was equipped with cyclone splitter. The outlet from the splitter was used to collect one-metre samples. Each one-metre interval was divided into three samples: two samples ("A" and "B") were collected into pre-numbered plastic bags, and the remaining material was collected into a bulk poly weave bag.

One sample was initially taken from the bulk sample and analysed using handheld portable XRF for the presence of mineralization.

Another sample was taken from the same bulk sample and sieved and washed for chips, which were then logged by geologists.

Both samples "A" and "B" in plastic bags were sealed and stored separately.

All bags were pre-numbered with QA/QC sample numbers inserted into the sample numbering scheme. All sample numbers were verified by the company's geologist at the drill site.

All bags were initially layered near the hole at the drill site. Once a drill hole was finished, and each interval tested with portable XRF:

- All mineralized intervals were identified by geologist using portable XRF.
- All first samples ("A") in plastic bags with mineralization and five one-metre samples on each side from mineralization interval were grouped into a poly weave bag, labelled, sealed and transported to the sample preparation laboratory in Windhoek. Each group contained on average five samples.
- The second samples ("B") in plastic bags were used for field duplicates.
- Both remaining "A" and "B" samples were stored in the town of Opuwo for further reference.
- The remaining bulk samples were divided into mineralized and un-mineralized samples. Mineralized samples were transported to the town of Opuwo and stored, and unmineralized samples were emptied on the ground at the drill site and used in a rehabilitation process.

The Competent Person considers that RC sampling, geological logging, sample security and chain of custody are all conducted to acceptable industry standard

#### 4.5.5 Density

Density was measured at the core handling facility. Gecko Exploration reported that one sample for density determination was selected for each one-metre core interval, or more often if the lithology changed. Each sample was either entire core or 20 cm core interval, which were subject to standard water immersion Archimedes' method of density determination.

The available database included 1,809 measurements of bulk density with an average value of 2.78 t/m<sup>3</sup>.

In the latest Mineral Resource estimate, that was prepared by Mining Plus in 2021, average density values were assigned to different modelled geological domains. Mining Plus used six domains with densities that varied from 2.68 t/m<sup>3</sup> to 2.98 t/m<sup>3</sup>.

The applied density values are reasonable for the purposed of the Mineral Resource estimate.

#### 4.5.6 Sample preparation

All samples were prepared at ACTLABS Windhoek laboratory. The following were the established standard procedures for all collected samples:

- Drying and weighing.
- Crushing.
- Pulverizing.
- Splitting.

#### 4.5.7 Assaying

Prepared, pulp samples were air freighted to ACTLABS in Ancaster, Canada, for digestion and analysis. A four-acid digestion sample preparation method and ICP-MS/OES<sup>10</sup> finish were utilised. This digestion method acts as a near-complete digest for many elements. Samples were routinely assayed for 36 elements, namely Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Te, Ti, Tl, U, V, W, Y, Zn and Zr.

#### 4.5.8 Topography

The topography has been acquired via a total station survey and includes the collar surveys of the drillholes.

#### 4.5.9 QA/QC overview

CRMs, field duplicates, pulp and field blanks were routinely used by Gecko Exploration. Three different CRMs for different grade ranges were sourced from the ORE Resource and Exploration Pty Ltd in Perth (OREAS 902, 903 and 45D), while the pulverized white unmineralized quartz was used as blank.

Field duplicates were selected from the quarters of the core or from the "B" RC samples.

The QA/QC samples were inserted to each batch of 20 samples with the following rate:

- 1 blank.
- 1 CRM.
- 1 field duplicate.

---

<sup>10</sup> Inductively coupled plasma, mass spectrometry. optical emission spectrometry.

In addition, the ACTLABS laboratory in Canada used internal pulp duplicates, which were also reported to Gecko Exploration.

Selected samples were shipped to the umpire laboratory (ALS laboratory) in South Africa.

The numbering of all QA/QC samples was continuous with routine samples. All blanks and CRMs were included into the batches with routine samples to assess the performance of the primary laboratory.

The available database included:

- 10,568 original samples.
- 494 field duplicates (4.7% of the database).
- 317 laboratory duplicates (3.0% of the database).
- 606 results for CRMs (5.7% of the database).
- 453 assays for blanks (4.3% of the database).

The Competent Person considers that:

- The rate of insertion of the QA/QC samples is appropriate.
- Pulp duplicates are recommended at a rate of at least 5% of the total routine samples submitted. Pulp duplicates should be selected after sample preparation at a rate of approximately 5% of the routine samples and submitted with the routine samples. Pulp duplicates should be used to control the analytical precision or sample representativity.
- Pulverized quartz is visually different from black shale with high iron content which could be identified by the analytical laboratory.
- It is recommended that umpire laboratory is employed to control potential analytical bias. 3% to 5% of sample pulps with representative grade ranges should be selected and analysed in the selected umpire laboratory.

A review of the QA/QC programme by the Competent Person concluded that the data set was acceptable for the purpose of Mineral Resource estimation.

In AMC's opinion the exploration methodology, sampling, sample security, sample preparation and analytical procedures follow acceptable industry practice.

#### **4.6 Mineral Resource estimate**

The last Mineral Resource estimate for the Opuwo deposit reported in accordance with the JORC Code was prepared for Celsius by Mining Plus in July 2021.

##### **4.6.1 Mineral Resource overview**

The Opuwo cobalt-copper-zinc deposit Mineral Resources were estimated using Leapfrog and Surpac mining industry software.

Celsius provided database including drillhole logging, sampling, analytical results, QA/QC results, core and RC samples recovery and collar locations. Mining Plus completed the QA/QC evaluation and prepared the Mineral Resource estimate. The Competent Person as defined in the JORC Code for the Mineral Resource estimate (Mr Kerry Griffin of Mining Plus) considered the quality of drilling, sampling, logging, core recovery, and geological description to be of a reasonable standard sufficient for the purpose of Mineral Resource estimation.

The Competent Person for this CPR reviewed and validated the database. No material issues or critical errors were identified.

The available database was imported by AMC and summarised Table 4.1. This database was used by Mining Plus to define the geometry of the mineralization.

Table 4.1 Summary of available database

Category	Diamond Drillholes	RC	Total
Holes	110	189	299
Metres drilled	28,037	25,523	53,559
Downhole survey records	5,873	8,577	14,450
Assays records	3,870	6,698	10,568
Including assayed intervals	3,846	6,428	10,274

The classical statistical analysis completed by Mining Plus (Figure 4.21) suggests that all main grades (Co, Cu and Zn) have single grade populations that approach normal distribution.

No manual interpretation for copper or cobalt mineralization was used. Leapfrog mining industry software was used for implicit modelling of DOF mineralization using search constraints, mineralization trends and fault planes.

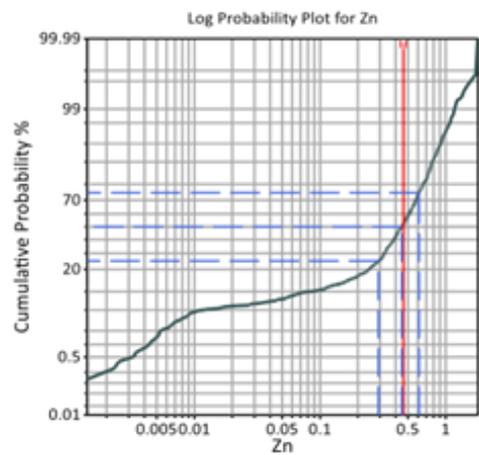
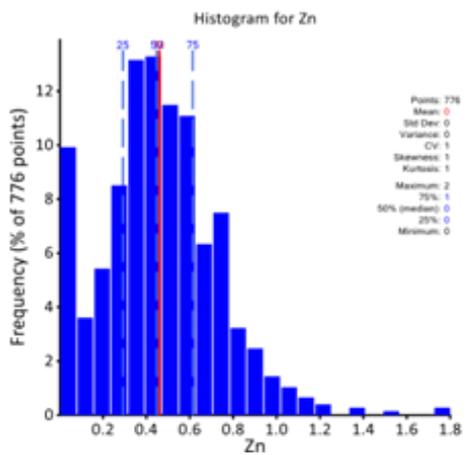
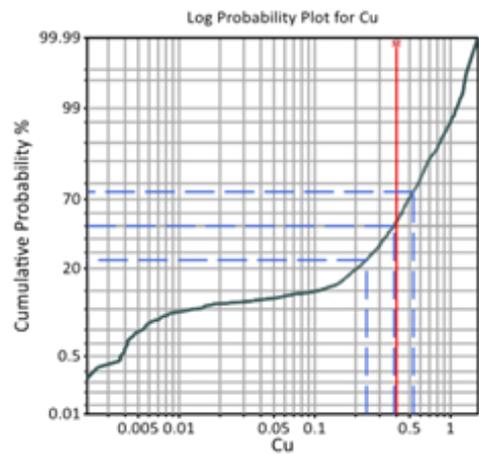
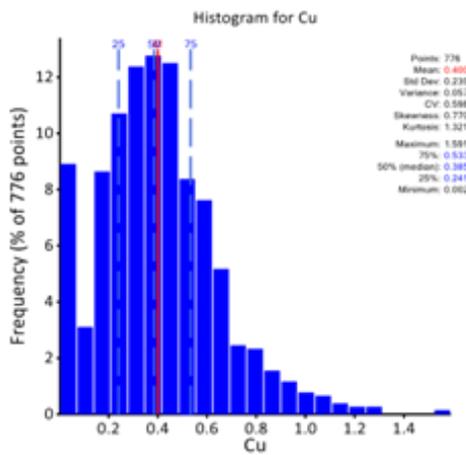
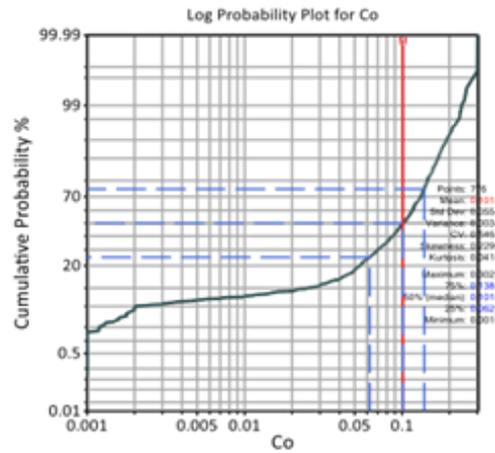
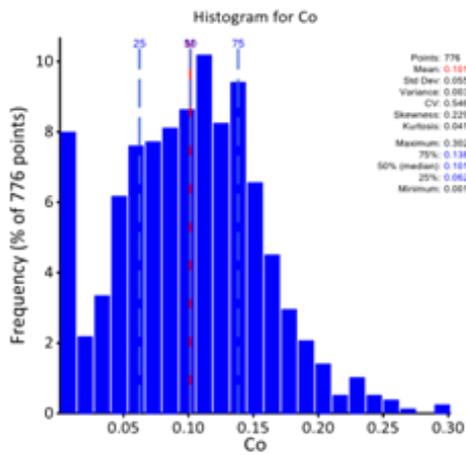
The database with geological logging was used to generate a set of wireframes that represented the fault planes and DOF mineralization zones. The DOF mineralization zone was cut by the modelled fault planes into fault blocks. The faults had been interpreted from surface geology, magnetic data and downhole drilling intercepts. The wireframes created in Leapfrog software were exported directly into Surpac software for the Mineral Resource estimation. The wireframing is shown in Figure 4.22.

The wireframe models for DOF mineralization were used to select corresponding samples from the analytical database, which were then employed for a geostatistical analysis that was conducted along the transformed coordinates, as the composite points were unfolded and unfaulted into their original locations so that they would represent a coherent mineralization body. Traditional semi-variogram models were generated in Snowden Supervisor software using the following approach:

- All variograms have been standardised to a sill of one.
- The nugget effect has been modelled from the true downhole variogram.
- Variograms have been modelled using two-structure nested spherical variograms.

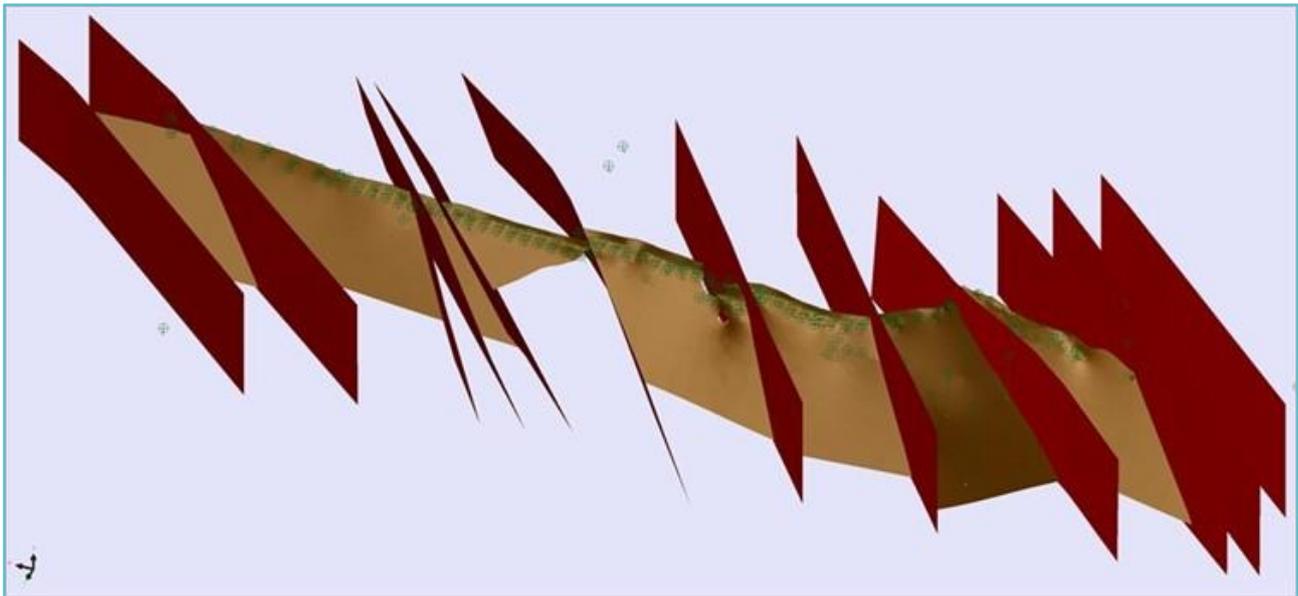
The modelled nugget effect was in order of 4% of the total sill, and the modelled long ranges for the second structure of semi-variograms were 566 m along the strike, 249 m down dip and 37 m across the strike. The modelled short ranges for the first structure were 129 m along the strike, 91 m down dip and 11 m across strike.

Figure 4.21 Histograms and probability plots for main grades



Source – Mining Plus MRE report, 2021.

Figure 4.22 Oblique view of the Opuwo project wireframe models

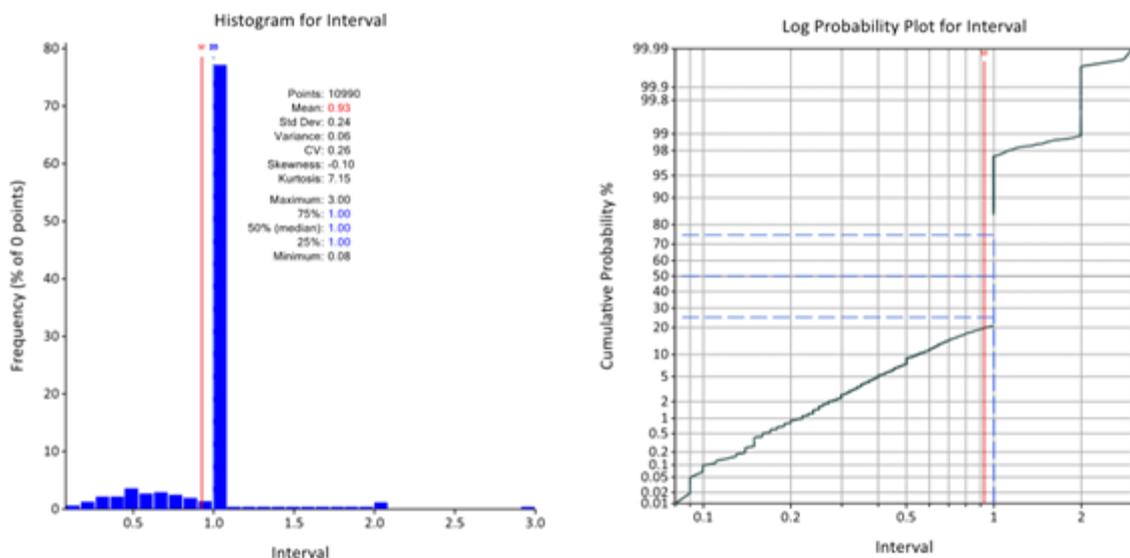


Source – Mining Plus MRE report, 2021.

The selected samples were composited over one-metre intervals as the majority of routine samples had a length of one metre. The average sample length was 0.93 m. Mining Plus reported that review of the statistics for all sample for each domain after length compositing did not identify significant high value outliers for all grades that were considered likely to result in an overestimated either locally or globally to the grade distribution within the block model. Therefore, no top cut was applied to the composited samples for the purposes of the Mineral Resource estimate.

AMC reviewed the top-cutting approach and noted that histograms produced by Mining Plus (Figure 4.21) have high-grade outliers for all values, which could be subject for top-cutting. However, the coefficient of variation was close to 0.6 for copper and cobalt, and equal to 1.0 for zinc, which indicates that the absence of top cuts is not material.

Figure 4.23 Histogram for sample length



Source – Mining Plus MRE report, 2021

The block model file had parent cells of 1€(E) by 5m (N) by 2m (RL) with the maximum subcelling down to 5 m by 1.25 m by 1m. The relatively small cell size was selected to maintain the resolution of the boundaries of the deposit and its selection was supported by the kriging neighbourhood analysis. The model was coded by the fault blocks.

Cobalt, copper and zinc grades were estimated into the block model using the OK estimation method. Density values were directly assigned to the block model using average values for each domain of the deposit. Based on the results of the geostatistical analysis and considering geological factors, it was considered appropriate to apply a search ellipse of 590 m by 225 m by 35m. The search ellipse size has been selected based on consideration of it covering two to three times the drill spacing and greater than any variography range. A minimum of one composite and a maximum of 32 composites was allowed for successful estimation. Only composites occurring within each of the wireframed structural blocks were allowed to inform that block's estimate. A hard boundary was applied for each wireframe block.

The block model comprised the codes for the level of oxidation, density, fault block, cobalt, copper and zinc grades and was limited to the topography surface. AMC considers that the applied modelling methodology is reasonable and does not have any material flaws or issues.

AMC recommends the following:

- Top-cutting for all grades should be considered or studied to estimate its impact to the overall results.
- The current parent block size should be increased as 10m(E) by 5m(N) cells are not supported by the exploration grid density of 200 m by 100 m. The block model boundary resolution could still be maintained using subcelling.
- Further exploration at the flanks of the depth of the deposit should be completed and may result in an increase in the Mineral Resource.

#### **4.6.2 Metallurgical test work**

Celsius released an ASX Release on 17 August 2022 (Celsius, 2022) with the results of metallurgical test work.

Previous metallurgical test work was halted in 2019 due to low cobalt prices. In the recent test work programme, approximately one tonne of a blended sulphide ore composite was retrieved from historical RC samples. A 36kg concentrate sample was produced by rougher flotation at Maelgwyn Mineral Services Laboratory. Optimisation of flotation was not included in the current scope of work.

The metallurgical test work programme was designed to examine and enhance the commercial viability of the Opuwo project through the application of tailored metallurgical processing. Celsius is examining two downstream processing methods: a hydrometallurgical route and a roasting and tank leach route.

The bulk sulphide concentrate was submitted for roasting and tank leach test works to Mintek Laboratories. The potential cobalt and copper extraction was determined after roasting at about 680°C and leaching using sulphuric acid.

The roasting and tank leach test work results showed recoveries up to 95% for cobalt and 98% for copper for this processing step. This was an improvement from the 2018 autoclave leaching test results with recoveries of 72.6% cobalt and 74.1% copper and demonstrates that Opuwo is amenable for simple roasting and tank leach downstream processing.

Celsius is undertaking further test work to delineate the roasting and tank leach parameters which may further improve cobalt recovery. Celsius is also continuing test work for a hydrometallurgical downstream processing method. Samples for hydrometallurgical testing from

recently completed diamond drilling have been dispatched to Australia so that test work can commence.

#### 4.6.3 Reasonable prospects for eventual economic extraction

Clause 20 of the JORC Code requires that all reports of Mineral Resources must have reasonable prospects for eventual economic extraction, regardless of the classification of the resource.

The Competent Person as defined by the JORC Code for the Mineral Resource estimate considers that there are reasonable prospects for eventual economic extraction on the following basis:

- The main mineralization body is either outcropping or relatively close to the surface.
- The cut-off grades adopted by Mining Plus for reporting (0.06% Co equivalent for open cut mining and 0.155% Co equivalent for underground mining) are considered reasonable.
- The topography at the deposit area is favourable for the development of the deposit using open cut methods, though the morphology of the mineralized body and its steep dipping suggests that the majority of the deposit is likely to be developed using underground mining methods.

AMC is advised that the Competent Person considered that, at the time of estimation, there were no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact the eventual economic extraction of the Mineral Resource.

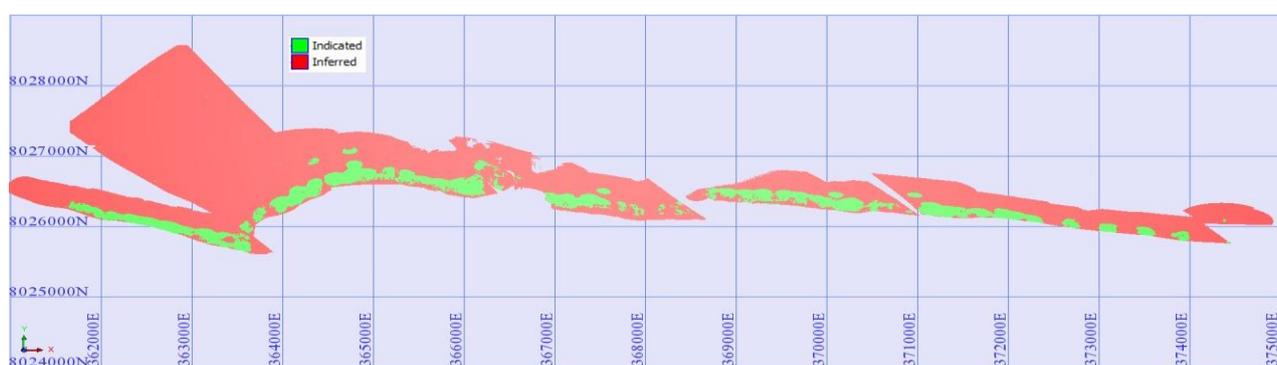
#### 4.6.4 Mineral Resource classification

In AMC's opinion the classification of the Opuwo cobalt-copper-zinc project Mineral Resource estimate has been completed by Mining Plus in accordance with the JORC Code. The categories of Mineral Resource as outlined by the JORC Code are as follows:

- Measured Mineral Resource: Tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence.
- Indicated Mineral Resource: Tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence.
- Inferred Mineral Resource Tonnage, grade, and mineral content can be estimated with a reduced level of confidence.

The Mineral Resource classification was completed by weighting key contributors of the estimate including, confidence in drillholes and wireframe location, number of contributing samples, the estimation pass, the number of contributing drillholes, kriging variance, kriging efficiency, and the slope of regression of the estimate to produce a weighted resource category score that was used as a basis of classification. The Mineral Resource classification strategy is shown in Figure 4.24. No part of the Mineral Resource estimate is classified as Measured Resource.

Figure 4.24 Plan view with Mineral Resource categories



Source –Mining Plus MRE report, 2021

AMC considers that the discontinuous nature of Indicated Mineral Resource should be reviewed and generalized where possible. The current classification implies a low confidence in continuity of the higher confidence Indicated Mineral Resource classification. AMC considers that parts of the Mineral Resource estimate drilled with the grid not exceeding 200 m by 100 m could be classified as Indicated Mineral Resource given the consistent nature of mineralization.

AMC also considers that parts of the estimate classified as Inferred Mineral Resource are based on drilling at a spacing up to 600 m by 600 m. However, the western block is based on six deep diamond holes with 38 composited intersections, that demonstrated reasonable continuity of mineralization at depth. It is apparent that diamond drillholes indicated that the mineralization has considerable down-dip and along-strike continuity, which supports classification of widely spaced drilling as Inferred Mineral Resource for this deposit type, and therefore considered by AMC as appropriate.

#### 4.6.5 Mineral Resource statement

In AMC's opinion the Mineral Resource estimate has been classified and reported in accordance with the JORC Code and is suitable for public reporting.

For the reporting of the Mineral Resource estimate, a cobalt equivalent (CoEq) grade was calculated and applied to the Mineral Resource model. For the open pit Mineral Resource, a cut-off grade of 0.06% CoEq was applied to the model within a notional constraining shell based on pit optimization. For the underground Mineral Resource, a calculated cut-off grade of 0.155% CoEq was applied based on expected mining and development costs as well as typical dilution in mining of this type.

Costs were estimated using a database of costs for similar mining operations in Africa. Metal prices for the cut-off grade calculations were the same prices used in the CoEq grade calculation. These were the London Metal Exchange spot metal prices as of 31 May 2021:

- Copper: US\$10,159/t.
- Cobalt: US\$45,200/t.
- Zinc: US\$3,064/t.

Mining Plus used these element process to calculate the cobalt equivalent grade values in the block model, and then applied economic parameters to calculate the marginal cut-off grades that should be used for Mineral Resource reporting. Metallurgical recoveries used in the cobalt equivalent calculation were 81% for Co, 93% for Cu and 57% for Zn.

The Mineral Resource estimate is reported by classification in Table 4.2 with the effective date of 1 July 2021 above a cut-off grade of 0.06% CoEq for the open cut mining and above 0.155% CoEq for the underground mining. The Mineral Resource estimate for open cut mining was restricted by a notional constraining shell, and the Mineral Resource estimate for underground mining was reported below the notional constraining shell.

Table 4.2 Opuwo MRE by classification – 1 July 2021

Category	Mining Method	Cut-off (Co eq%)	Tonnage (Mt)	Cobalt (%)	Copper (%)	Zinc (%)	Contained Cobalt (kt)
Indicated	Open Pit	0.06	38	0.11	0.45	0.51	41
	Underground	0.155	7	0.11	0.41	0.49	8
	Total Indicated		45	0.11	0.44	0.51	48
Inferred	Open Pit	0.06	29	0.09	0.38	0.44	27
	Underground	0.155	151	0.12	0.44	0.57	183
	Total Inferred		180	0.12	0.43	0.55	211
<b>Total</b>			<b>225</b>	<b>0.12</b>	<b>0.43</b>	<b>0.54</b>	<b>259</b>

Source – summarized by AMC from Mining Plus MRE report, 2021  
Celsius Notes:

- Mineral Resource classifications are based on JORC Code definitions.
- A cut-off grade of 0.06% CoEq has been applied for open cut mining and 0.155% CoEq for underground mining.
- A bulk density was directly assigned to block model using average values for each domain which were between 2.68 and 2.98 t/m<sup>3</sup>.
- Cobalt equivalent was calculated using metal prices: US\$10,159/t Cu, US\$45,200/t Co, and US\$3,054/t Zn
- Metallurgical recoveries used in the cobalt equivalent formula were 81% for Co, 93% for Cu and 57% for Zn.
- Cobalt equivalent formula was:  $\text{CoEq\%} = (\text{Co\%} \times \text{Co recovery}) + ((\text{Cu\%} \times \text{Cu recovery} \times (\text{Cu\$/Co\$})) + ((\text{Zn\%} \times \text{Zn recovery} \times (\text{Zn\$/Co\$})))$ .
- Rows and columns may not add up exactly due to rounding.
- Opuwo is 95% owned by Celsius through its subsidiaries. The Mineral Resource is reported in 100% terms.

Mining Plus validated the block model using visual comparison of modelled grades with composited samples, a global comparison of the average composite versus the estimated block grades and using moving window averages/swathe plots comparing the mean block grades to the composites. The reported global differences were within 3% to 4% on a relative basis which is acceptable.

AMC reviewed modelling methodology applied and considers that the approach to Mineral Resource estimation is reasonable but that Mineral Resource classification could be re-assessed.

#### 4.7 Exploration potential and planned work

The Opuwo deposit is a mineralized body with at least 25 km strike length, out of which only 13 km has been drilled. It is believed that the mineralization at the flanks of the deposit is thinner and lower grades. However, the deeper parts of the structure have not been drilled. It is possible that mineralization at depth has some potential for economic extraction that could be subjected to further exploration.

Celsius is currently focusing work on metallurgy and development of an in-house scoping study which is planned for completion in early 2023. The immediate forward work plan is to drill eight PQ diameter diamond drillholes for metallurgical samples. Once the scoping study is completed, Celsius plans for infill drilling to improve the Mineral Resource categories of the central part of the deposit. No expansion of the Mineral Resource at the flanks is planned at this stage.

#### 4.8 Technical risks

The level of technical risk is defined as the likelihood of material variation of resource tonnage and/or grade from the stated values. AMC considers that that technical risks are:

- **Geology:** The deposit geology is well understood. Further exploration at the flanks and at depth may improve the understanding of the deposit. The geological risks are considered to be low.
- **Drilling method:** Diamond and RC drilling methods were used for the exploration. These are the most common drilling techniques that allow industry standard sampling methods.
- **Sampling techniques:** The drilling method allowed detailed sampling of mineralized zone which has allowed the definition of the Mineral Resources. Associated risk of a difference in grade or tonnage is low
- **Analytical techniques:** The analytical techniques used are appropriate for the material and the expected range of concentration. The laboratory is a recognized industry laboratory and suitable accredited. Associated risk of a difference in grade or tonnage is low.
- **Block modelling:** The conventional block model was built to represent the volume of mineralization. Associated risk of a difference in tonnage is moderate to low.
- **Bulk density:** Sufficient bulk densities have been determined to allow a reasonable estimation of the density. Associated risk of a difference in the tonnage is low.
- **Geological interpretation:** The geological interpretation is based on geological logging and sampling, which is appropriate for this deposit type. Associated risk of a difference in grade or tonnage is moderate to low.
- **Search parameters:** The estimation used a conventional search ellipse in transformed coordinates. The block model and composites were flattened and de-faulted to form the

coherent model of mineralization. The risk associated with the search parameters in grade estimation is moderate to low.

- Estimation: Recognised estimation techniques and parameters were used to determine the grades in the block model. This was verified against both the drillholes and other validation techniques. Top-cutting for all grades should be considered. The current parent block size should be increased as it is not supported by the exploration grid density. Associated risk of a difference in grade is moderate to low
- Mineral Resource classification: AMC considers that the Indicated Mineral Resource category could be assigned so that it is not discontinuous and better continuity of the category is defined. The classification should be generalized to avoid its discontinuous nature.
- AMC considers that classification of part of the estimate as Inferred Mineral Resource is appropriate for this deposit type with very continuous nature of mineralization. Associated risk related to Mineral Resource classification is moderate.
- Mineral Resource reporting: The selected cut-off grades for Mineral Resource reporting were based on cobalt equivalent grades, that were calculated using spot metal prices that were current in August 2021. May 2022 metal prices are significantly different to the August 2021 metal prices. A re-assessment of cobalt equivalent cut-off grades will result in a different outcome.

AMC understands that all current metallurgical test work is focused on primary ore only, and the oxidized material may not be feasible for processing. This is not apparent in the reporting of the Mineral Resource and may impact that part of the Mineral Resource reported as suitable for open pit mining.

There might be a high risk on that part of the Mineral Resource reported as having potential for open cut mining, which is still subject to the results of the scoping study and metallurgical test work.

The overall risk related to geology and the Mineral Resource estimate is considered to be moderate to low.

## 5 Conclusions and recommendations

### 5.1 Conclusions

In AMC's opinion, the MCB, Sagay and Opuwo projects have potential for economic exploitation, and for further exploration success and discovery. The projects are at different stage of exploration and evaluation as follows:

- The MCB project being most advanced with a Mineral Resource estimate and in-house scoping study completed.
- The Sagay project is at an exploration stage. A Mineral Resource estimate classified as Inferred Mineral Resource could be completed with additional exploration.
- The Opuwo project has reported Mineral Resources. AMC considers that better continuity could be defined in that part of the estimate classified as Indicated Resource. Sampling for metallurgical test work is currently being undertaken. A scoping study assessment of mining and processing options should follow.

The Mineral Resource estimates for MCB and Opuwo have potential for extension and improved Mineral Resource classification with additional drilling to increase the level of confidence in the estimates and, with additional economic studies, to progress towards the eventual reporting of Ore Reserves.

Further exploration work is required to achieve the Mineral Resource estimate at the Sagay project. Advance drill definition of the Nabiga-a Hill deposit at the Sagay project is a high priority and progress geological and scoping level studies to develop a Mineral Resource estimate and to estimate the economic potential of the deposit.

Integrated geological, structural, lithogeochemical and alteration studies, interpretation and modelling at the MCB and Sagay deposits could improve understanding of the geology and phases of intrusions, that could help to optimise Mineral Resource modelling and targeting of Mineral Resource extensions. Focused geological evaluation could improve understanding, modelling and targeting of high-grade mineralization based on structural and lithostratigraphic controls and lithogeochemical signature.

Geological and lithogeochemical study could be combined with geophysical rock-property test work to fully understand the geophysical response of the mineralization and host rocks to assist with further geophysical exploration. The improved geological understanding could be used to refine the ranking and prioritization of additional prospects within the current permit areas and undertake focused exploration on prioritized targets.

All projects would benefit from further metallurgical test work, geometallurgical modelling.

Scoping studies examining mining options could be completed for Opuwo and Sagay when further Mineral Resource definition is completed.

## 6 References

- Belon** H. and Yumul GP., 2000. Mio-Pliocene magmatism in the Baguio Mining District, Luzon, Philippines: Age clues to its geodynamic setting. *C. R. Acad. Sci.*, 331. Pp. 295-302.
- Cailteux** JK. (2005). Genesis of Sediment-Hosted Stratiform Copper-Cobalt Deposits, Central African Copperbelt. *Journal of African Earth Sciences*, 134-158.
- Celsius** Resources Limited, 2021. Scoping Study, Maalinao-Caigutan-Biyog Project. Scoping Study based on Maiden Mineral Resource Statement. Pp. 166
- Celsius** Resources Limited, 2022. Celsius improves recoveries of Cobalt and Copper at Opuwo. ASX Release. 17 August 2022.
- Celsius** Resources Limited, 2022. Celsius Resources Limited Investor Presentation. 5 September 2022.
- Corbett** G. and Leach, T. 1997. Short course manual: Southwest Pacific rim gold-copper systems: Structure, alteration and mineralisation.
- Crisostomo** JN, Calayag, AM., Sunio E., and Vicedo R., 2013. Preliminary Exploration Results of the Kalinga Geothermal Prospect, Luzon, Philippines. *GRC Transactions*, v. 37 pp255-262
- Durkee**, EF., and Pederson, S. L., 1961. Geology of Northern Luzon, Philippines. *Bulletin of the American Association of Petroleum Geologist*. v. 45, n. 2 pp. 137-168.
- Escasio**, FBG., 2016. An Alternative Model of the Batong Buhay Deposit. Internal Freeport-McMoRan report.
- Griffin** K, 2021. Opuwo Cobalt-Copper Project Mineral Resource Estimate Report. Prepared by Mining Plus for Celsius Resources. Pp 82.
- Hedenquist** JW. and Lowernstern, J. B. 1994. The role of magmas in the formation of hydrothermal ore deposits. *Nature* v. 370. pp. 519-527.
- Hoschke** T, 2008. Geophysical signatures of copper-gold porphyry and epithermal gold deposits. In Spencer, J. E. and Titley, S. R., eds, *Ores and orogenesis: Circum-Pacific, geologic evolution and ore deposits: Arizona Geologica Society Digest 22*, pp 85-100.
- JORC**. (2012). The JORC Code, 2012 Edition, Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. AusIMM.
- Miller** RM. (2013). Comparative Stratigraphic and Geochronological Evolution of the Northern Damara Supergroup in Namibia and the Katanga Supergroup in the Lufilian Arc of Central Africa. *Geoscience Canada V 40*, 118-140.
- Mines** and Geosciences Bureau (MGB) – Department of Environment and Natural Resources, 2010. *Geology of the Philippines, Second Edition*. pp 92-106.
- Official** Gazette, 1998-03-30, Vol. 94, No. 13, pp. 276-2295, ISSN: 0115-0421 The House of Representatives, Congress of the Philippines.
- Olsen** S, 2020. MCB Copper-Gold Property, Kalinga, Island of Luzon, Philippines. Mineral Resource Estimate – Technical Report. Prepared for Anleck Ltd. pp 72.
- Philippine** Mining Act of 1995. Republic Act No. 7942. Congress of the Philippines.
- Sillitoe** RH. 2010, Porphyry Copper Systems. *Economic Geology*, v. 105, pp 2-41.
- Simplification** of Procedures in the Issuance of Mining Contracts and Permits (2004). Department of Environment and Natural Resources (DENR) Memorandum Order No. 09-2004. (Phil.)
- Subang** LL., Manipon C. J. C., Briola, O. A., Ascano, C. J. B., Lulu, J. N., Celiz, M. A. D. A., Taningco, J. R. R., 2006. Geology and Mineralisation of the Porphyry and Epithermal Cu-Au Deposits at Maalinao-Caigutan-Biyog, Batong Buhay, Pasil, Kalinga, Philippines. Proceedings from the 18th Annual Geological Convention.

**Swinden** Geoscience Consultants Ltd. (2017). NI 43-101 Geological Report on the Kunene Co-Cu Project, Northwest Namibia.

**Tagura** FC. 2009. Sagay Project Phase 1 Exploration Report. Prepared for Tambuli Mining Company Inc. pp 153.

**Taningco** JR. R. and Madera, A., 2017. Revised Report on Mineral Resource Estimation of Batong Buhay Project. Internal Freeport-McMoRan report.

**The Revised** Guidelines on Free and Prior Informed Consent (FPIC) and Related Processes of 2012. (2012) National Commission on Indigenous Peoples Administrative Order No. 3, Series of 2012.

**The VALMIN** Committee. (2015). VALMIN, 2015. Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets. Retrieved from The VALMIN Code online: <http://www.valmin.org>

**Turner** 2021, Geotechnical Input for Maalinao-Caigutan-Biyog (MCB) Scoping Study. Internal Document by Turner Mining and geotechnical Pty Ltd.

## 7 Glossary

Ancestral Domain	Refers to all areas belonging to Indigenous Cultural Communities/Indigenous Peoples comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations and which are necessary to ensure their economic, social and cultural welfare.
Declaration of Mining Project Feasibility	A document or written notice submitted by the Contractor to the Mines and Geosciences Bureau proclaiming the feasibility of commercial utilization of the minerals identified in the Contract Area by internationally accepted sound mining practices and supported by a Mining Project Feasibility Study.
Department of Environment and Natural Resources	The primary agency responsible for the conservation, management, development, and proper use of the country's environment and natural resources. Its mandate among others is to assure availability and sustainability of the country's natural resources through judicious use and systematic restoration or replacement, whenever possible.
Dolostone Ore Formation (DOF)	A stratigraphic geological unit that hosts widespread cobalt mineralization and is the host unit for the Opuwo cobalt Mineral Resource.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment is a Philippine's regulatory process that involves predicting and evaluating the likely impacts of a project on the environment (land, water, air, flora, fauna and people) at various stages (construction, commissioning, operation and abandonment) of the project development. It also involves the development of appropriate preventive, mitigating and enhancement measures that will protect the environment from the identified impacts. In the Philippines, the EIA process is implemented by the Department of Environment and Natural Resources (DENR) Environmental Management Bureau (EMB).
Exploration	The searching or prospecting for mineral resources by geological, geochemical or geophysical surveys, remote sensing, test pitting, trenching, drilling, shaft sinking, tunnelling or any other means for the purpose of determining the existence, extent, quantity and quality thereof and the feasibility of mining them for profit.
Exploration Permit	Grants the permit holder the right to conduct exploration for all minerals in specified areas. An Exploration Permit is valid for a period of two years, subject to renewal for periods of two years, up to a total of six years for metallic mineral exploration. The grantee of the permit may apply for further renewal of the exploration permit, which may be granted for another term of two years for the very purpose of preparing or completing the feasibility studies and filing of the

	declaration of mining project feasibility and the pertinent mineral agreement or FTAA application.
Exploration Results	Include data and information generated by mineral exploration programmes that might be of use to investors, but which do not form part of a declaration of Mineral Resource or Ore Reserves.
Feasibility Study	A comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.
Financial and Technical Assistance Agreement	A contract involving financial or technical assistance for large-scale exploration, development, and utilization of mineral resources. This type of contract is open to Filipinos and foreign corporations with up to 100 percent foreign equity and has a term of 25 years and renewable for another 25 years.
Free and Prior Informed Consent	The consensus of all members of the Indigenous Cultural Communities/Indigenous Peoples to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference, and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves
Indicated Mineral Resource	Is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated. Estimations are made with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.
Indigenous Cultural Community	A group or tribe or indigenous Filipinos who have continuously lived as communities on communally bounded and defined land since time immemorial and have succeeded in preserving, maintaining, and sharing common bonds of languages, customs, traditions, and other distinctive cultural traits, and as may be defined and delineated by law.

Inferred Mineral Resource	Is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
Measured Mineral Resource	Is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated. Estimations are made with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.
Metallurgy	Physical and/or chemical separation of constituents of interest from a larger mass of material. Employs methods to prepare a final marketable product from material as mined. Examples include screening, flotation, magnetic separation, leaching, washing, roasting, etc.
Mine Design	A framework of mining components and processes taking into account mining methods, access to the mineralization, personnel, material handling, ventilation, water, power and other technical requirements spanning commissioning, operation and closure so that mine planning can be undertaken.
Mine Development	The work undertaken to explore and prepare an Ore body or a Mineral deposit for mining and mineral processing including the construction and commissioning of necessary infrastructure and related facilities.
Mine Planning	Production planning, scheduling and economic studies within the Mine Design taking into account geological structures and mineralization, associated infrastructure and constraints, and other relevant aspects that span commissioning, operation and closure.
Mineral	Any naturally occurring material found in or on the earth's crust that is either useful to or has a value placed on it by humankind, or both. This excludes hydrocarbons, which are classified as Petroleum.
Mineral Resource Estimate (MRE)	An estimate of the quantum and quality of a Mineral Resource which is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade (or quality), and

	quantity that there are reasonable prospects for eventual economic extraction.
Mineralization	Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralization might occur, whether by class of deposit, mode of occurrence, genesis, or composition.
Mines and Geosciences Bureau	The agency mandated to take charge in the administration and disposition of mineral lands and mineral resources; promulgate rules and regulations, policies and programs relating to mineral resources management and geoscience development.
Mineral Production Sharing Agreement	A mineral agreement wherein Government shares in the production of the Contractor, whether in kind or in value, as owner of the minerals. In return, the Contractor shall provide the necessary financing, technology, management, and personnel for the mining project.
Mineral Resource	A concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Mining	All activities related to extraction of metals, minerals and gemstones from the earth whether surface or underground, and by any method (e.g., quarries, open cast, open cut, solution mining, dredging, etc.)
Mining Area	The portion or portions of the Contract Area identified by the Contractor for Mine Development, mining, utilization, and sites for support facilities or in the immediate vicinity of mining operations.
Mining Operations	Exploration, Mine Development, Pre-Feasibility Studies, Feasibility Studies, utilization (including, but not limited to, mining production and all related activities necessary to discover, evaluate and assess the feasibility of Minerals in the Contract Area and if commercially feasible, develop and operate a mine and extract, utilise, process and dispose of Minerals), and /or rehabilitation.
Scoping Study	A technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed modifying factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.

## 8 Abbreviations and units of measurements

%	Percent
\$	Dollar
°	Degrees
'	Minutes
"	Seconds
°C	Degrees Celsius
AAS	Atomic absorption spectroscopy
ACTLABS	Activation Laboratories Ltd
AIM	Alternative Investment Market
AMC	AMC Consultants Pty Ltd
Au	Gold
ASX	Australian Securities Exchange
CCDC	Central Cordillera Diorite Complex
GIS	General Information Sheet
cm	Centimetres
Co	Cobalt
CoEq	Cobalt equivalent
CP	Competent Person
CPR	Competent Persons' Report
CRM	Certified Reference Material
Cu	Copper
DENR	Department of Environment and Natural Resources
DGPS	Differential Global Positioning System
DMPF	Declaration of Mining Project Feasibility
DOF	Dolostone Ore Formation
E	East
EPL	Exclusive Prospecting License
FPIC	Free and Prior Informed Consent
FTAA	Financial and Technical Assistance Agreement
g	Grams
g/t	Grams per tonne
GPS	Global Positioning System
ha	Hectare(s)
ICC	Indigenous Cultural Communities
ICP-MS	Inductively coupled plasma mass spectrometry
IP	Indigenous Peoples
IEC	Information, Education, & Communication
IRR	Internal Rate of Return
JORC	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves
KE	Kriging efficiency
kg	Kilograms
km	Kilometres
koz	Kilo-ounces (thousand ounces)
KV	Kriging variance
kt	Kilo-tonnes (thousand tonnes)
LiDAR	Light detection and ranging
LOM	Life-of-Mine
LSE	London Stock Exchange
m, m <sup>2</sup> , m <sup>3</sup>	Metre(s), square metre(s), cubic metre(s)

Ma	Megayear (million years)
MCB	Maalinao-Caigutan-Biyog Project
MGB	Mines and Geosciences Bureau
MMCI	Makilala Mining Company Inc.
Moz	Million ounces
MPSA	Mineral Production Sharing Agreement
Mtpa	Million tonnes per annum
Mt	Million tonnes
N	North
NFRIPPT	Namibian Former Robben Island Political Prisoners Trust
NPA	New People's Army
NPV	Net Present Value
PFS	Preliminary Feasibility Study
ppm	Parts per million
PSM	Pells Sullivan Meynink
QA/QC	Quality Assurance/Quality Control
US	United States
RC	Reverse Circulation
REX	REX Minerals Ltd
RL	Reduced Level (elevation)
RQD	Rock Quality Designation
RS	Regression of estimate
SEC	Securities and Exchange Commission
SLOS	Sublevel Open Stopping
SRTM	Shuttle Radar Topography Mission
t	Tonne(s)
t/m <sup>3</sup>	Tonnes per cubic metre
UK	United Kingdom
VWP	Vibrating Wire Piezometer
XRF	X-ray Fluorescence
W	West
WRCS	Weighted resource category score
Zn	Zinc

## Our offices

### Australia

#### Adelaide

Level 1, 12 Pirie Street  
Adelaide SA 5000 Australia

T +61 8 8201 1800  
E [adelaide@amcconsultants.com](mailto:adelaide@amcconsultants.com)

#### Melbourne

Level 29, 140 William Street  
Melbourne Vic 3000 Australia

T +61 3 8601 3300  
E [melbourne@amcconsultants.com](mailto:melbourne@amcconsultants.com)

### Canada

#### Toronto

140 Yonge Street, Suite 200  
Toronto ON M5C 1X6 Canada

T +1 647 953 9730  
E [toronto@amcconsultants.com](mailto:toronto@amcconsultants.com)

### United Kingdom

#### Maidenhead

Registered in England and Wales  
Company No. 3688365  
Building 3, 1st Floor  
Concorde Park, Concorde Road  
Maidenhead SL6 4BY United Kingdom

T +44 1628 778 256  
E [maidenhead@amcconsultants.com](mailto:maidenhead@amcconsultants.com)

Registered Office:  
The Kinetic Centre  
Theobald Street  
Elstree  
Hertfordshire WD6 4PG United Kingdom

#### Brisbane

Level 21, 179 Turbot Street  
Brisbane Qld 4000 Australia

T +61 7 3230 9000  
E [brisbane@amcconsultants.com](mailto:brisbane@amcconsultants.com)

#### Perth

Level 1, 1100 Hay Street  
West Perth WA 6005 Australia

T +61 8 6330 1100  
E [perth@amcconsultants.com](mailto:perth@amcconsultants.com)

#### Vancouver

200 Granville Street, Suite 202  
Vancouver BC V6C 1S4 Canada

T +1 604 669 0044  
E [vancouver@amcconsultants.com](mailto:vancouver@amcconsultants.com)

### Singapore

#### Singapore

9 Straits View  
#05-07 Marina One (West Tower)  
Singapore 018937

T +65 3157 9130  
E [singapore@amcconsultants.com](mailto:singapore@amcconsultants.com)