Cabaçal Gold-Copper Project

NI 43-101 Technical Report and Preliminary Economic Assessment

Mato Grosso, Brazil

Effective Date: March 1, 2023

Prepared for: Meridian Mining UK Societas

6th Floor, 65 Gresham Street
London, United Kingdom EC2V 7NQ

Prepared by: Ausenco do Brasil Engenharia Ltda

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List of Qualified Persons:
Tommaso Roberto Raponi, P. Eng. - Ausenco Engineering Canada Inc.
Scott C. Elfen, P. E. - Ausenco Engineering Canada Inc.
Simon Tear, BSc (Hons), P. Geo., EurGeol. - H&S Consultants Pty Ltd.
Marcelo Batelochi, BSc, P.Geo., AusIMM (CP) - MB Geologia Ltda.
Joseph Keane, P. Eng. - SGS North America Inc.
Guilherme Gomides Ferreira, MAIG. - GE21Mineral Consulting

CERTIFICATE OF QUALIFIED PERSON
Tommaso Roberto Raponi, P.Eng.

I, Tommaso Roberto Raponi, P. Eng., certify that:

1. I am employed as a Principal Metallurgist with Ausenco Engineering Canada Inc. (Ausenco), with an office address at Suite 1550 - 11 King St West, Toronto, ON M5H 4C7.
2. This certificate applies to the technical report titled "Cabaçal Gold-Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil" (the "Technical Report"), prepared for Meridian Mining UK Societas (the "Company")with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated from the University of Toronto with a Bachelor of Applied Science degree in Geological Engineering with specialization in Mineral Processing in 1984. I am a Professional Engineer registered with the Professional Engineers of Ontario (license No.90225970), the Engineers and Geoscientists of British Columbia (license No.23536), the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (license No.L4508), and with the Professional Engineers and Geoscientists of Newfoundland and Labrador (license No.10968).
4. I have practiced my profession continuously for over 38 years with experience in the development, design, operation and commissioning of mineral processing plants, focusing on gold projects, both domestic and internationally. My project design and development experience include the generation of capital and operating costs for mineral processing plants and associated infrastructure and financial modeling of project economics.
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I have not visited the Cabaçal Gold-Copper Project property.
7. I am responsible for Sections 1.11, 1.12.1, 1.12.2, 1.12.5, 1.13, 1.15, 1.16, 1.18.4, 1.19.5, 1.19.8, 17, 18.1, 18.2, 18.3, 18.5, 18.6.1, 18.6.2, 18.6.3, 18.7, 19, 21.1, 21.2.1, 21.2.3, 21.2.4, 21.2.5, 21.2.6, 21.2.7, 21.2.8, 21.2.9, 21.2.10, 21.2.11, 21.3.1, 21.3.3, 21.3.4,22, 25.9, 25.10, 25.12, 25.13, 25.14.1.5, 25.14.1.6, 25.14.1.8, 25.14.1.9, 25.14.2.2, 25.14.2.3, 25.14.2.4, 26.5 and 26.8 of the Technical Report.
8. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
9. I have had no previous involvement with Cabaçal Gold-Copper Project.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 30th day of March 2023

"Signed and sealed"

Tommaso Roberto Raponi, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Scott C. Elfen, P.E.

I, Scott C. Elfen, P.E., certify that:

1. I am employed as the Global Lead Geotechnical and Civil Services of Ausenco Engineering Canada Inc. ("Ausenco"), with an office address of 855 Homer Street, Vancouver, BC V6B 2W2, Canada.
2. This certificate applies to the technical report titled, "*Cabaçal Gold-Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil*" (the "Technical Report") prepared for Meridian Mining UK Societas (the "Company") with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated from the University of California, Davis, CA, in 1991 with Bachelor of Science degree in Civil Engineering (Geotechnical).
4. I am a Registered Civil Engineer in the State of California (license no. C56527) by exam since 1996 and I am also a member in good standing of the American Society of Civil Engineers (ASCE), and the Society for Mining, Metallurgy & Exploration (SME).
5. I have practiced my profession continuously for 26 years with experience in the development, design, construction and operations of mine waste storage facilities, such as waste rock storage facilities and tailings storage facilities ranging from slurry to dry stack facilities, focusing on precious and base metals, both domestic and international. In addition, I have developed geotechnical design parameters for pit slope design, plant foundation design, and other supporting infrastructure. Examples of projects I have worked on include: Skeena's Eskay Creek Project PEA, PFS and FS, O3 Mining's Marban Project PEA and PFS, First Mining Gold's Springpole PEA and PFS. SSR Mining's Puna Silver In-Pit Tailings Disposal PFS, and Detailing Engineering, and Lumina Gold Corp's Cangrejos Project PEA and PFS.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Cabaçal Gold-Copper Project.
8. I am responsible for 1.12.3, 1.12.4, 1.14, 1.19.6, 1.19.7, 18.6.4, 18.6.5, 18.6.6, 20, 25.9.1, 25.11, 25.14.1.5.1, 25.14.1.7, 25.14.2.3.1, 25.14.2.5, 26.6 and 26.7 of the Technical Report.
9. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with the Cabaçal Gold-Copper Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 30th day of March 2023.

"Signed and sealed"

Scott Elfen, P.E.

CERTIFICATE OF QUALIFIED PERSON
Simon Tear, P.Geo., EurGeol.

I, Simon Tear, BSc (Hons), P. Geo., EurGeol., certify that:

1. I am employed as a Principal Geological Consultant and Director of H&S Consultants Pty Ltd. with offices at Level 4, 46 Edward St., Brisbane, QLD, Australia.
2. This certificate applies to the technical report titled *"Cabaçal Gold-Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil*" (the "Technical Report"), prepared for Meridian Mining UK Societas (the "Company") with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated from the Royal School of Mines, Imperial College, London, UK in 1983 with a BSc (Hons) degree in Mining.
4. I am a registered as a Professional Geologist with the Institute of Geologists of Ireland (registration number 17) and as a European Geologist with the European Federation of Geologists (registration number 26).
5. I have practiced as a geologist in the mining industry for over 39 years. My relevant experience for the purpose of this Technical Report is:
   a. I have extensive experience with a variety of different commodities and types of mineral deposits in Europe, Africa, South America, Asia and Australia.
   b. I have over 22 years field experience including 10 years of gold exploration.
   c. I have over 21 years experience with the resource estimation process including 3.5 years mine site experience (open pit and underground) and have worked on feasibility studies. I have also been engaged to undertake property assessments for >20 deposits/projects.
   d. I have completed over 130 resource estimations on a variety of deposit types including various hard rock deposits for a range of precious and base metals.
   e. I have completed over 45 reports that are in accordance with either NI43-101 or the 2004 and 2012 JORC Code and Guidelines.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Cabaçal Gold-Copper Project.
8. I am responsible for section 14 and sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.8, 1.9, 1.17, 1.18.1, 1.19.1, 1.19.2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 23, 24, 25.1, 25.2, 25.3, 25.4, 25.6, 25.14.1.1, 25.14.1.2, 25.14.2.1, 26.1, 26.2 and 27 of the Technical Report.
9. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with Cabaçal Gold-Copper Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 30th day of March 2023

“Signed and sealed”

Simon Tear
BSc (Hons), P. Geo, EuroGeol.
Principal Consultant and Director
H&S Consultants PTY LTD

CERTIFICATE OF QUALIFIED PERSON
Marcelo Antonio Batelochi, BSc, P Geo, AusIMM (CP)

I, Marcelo Antonio Batelochi, P Geo, AusIMM (CP), certify that:

1. I am currently an Independent Consultant with MB Geologia Ltda, with an office at Avenida Amazonas, 2904, Prado - Loja 512, CEP 30411-186 - Belo Horizonte/MG – Brazil.
2. This certificate applies to the technical report titled "*Cabaçal Gold-Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil*" (the "Technical Report") prepared for Meridian Mining UK Societas (the "Company") with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated from the São Paulo State University (UNESP), School of Mines, Brazil in 1991 with a Bachelor of Science (Honors) degree in Geology.
4. I am a registered as a Professional Geologist with the Brazilian Institute of Engineers (CREA) - (registration number 62666D-MG) and chartered professional AUSIMM (registration no. 205477).
5. I have practiced my profession as a geologist in the mining industry for more than 30 years. My relevant experience for the purpose of this Technical Report is:
    a. I have over 18 years field experience including 7 years of copper/gold exploration.
    b. I have 13 years experience on Open pit mining operation on Gold Mines.
    c. I have over 24 years experience with the resource estimation process including 6 years mine planning experience (open pit) and have worked over 7 feasibility studies.
    d. I have completed over 30 resource estimations on a variety of deposit types including various mineralization styles deposits for a range of precious, base metals and industrial minerals.
    e. I have completed over 15 reports that are in accordance with either NI43-101 or the 2004 and 2012 JORC Code and Guidelines.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I visited the Cabaçal Gold-Copper Project property two times: 7th to 11th June 2021 and 29th August to 1st September, 2022,, performing an overview of regional and local geology, corecheck facilities, visual core Inspection, drill collar location check, procedures of drilling, surveying, core handling, logging, sampling and assaying and the QAQC protocols.
8. I am responsible for sections 1.6, 1.18.1, 12, 25.5, and 25.14.1.2 of the Technical Report.
9. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with the Cabaçal Gold-Copper Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 30th day of March 2023

"Signed and sealed"

Marcelo Antonio Batelochi
BSc (Hons), P Geo, AusSIMM (CP)
Independent Consultant and Director
MB Soluções em Geologia e Mineração Ltda.

CERTIFICATE OF QUALIFIED PERSON

Joseph M. Keane, P. E.

I, Joseph M. Keane, P.E., do herby certify that:

1. I am an independent Mineral Processing Engineer Consultant and contributed as an associate of the following organization: SGS North America Inc. ("SGS"), 3845 North Business Center Drive, Tucson, Arizona 85705, Telephone: (520) 579-8315, Fax: (520) 579-7045, Email: Joseph.Keane@sgs.com.
2. This certificate applies to the technical report titled "*Cabaçal Gold-Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil*" (the "Technical Report") prepared for Meridian Mining UK Societas (the "Company") with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated from the Montana School of Mines in 1962 with a Bachelor of Science in Metallurgical Engineering. I obtained a Master of Science degree in Mineral Processing Engineering in 1966 from Montana College of Mineral Science and Technology. In 1989, I received a Distinguished Alumni Award from that Institution.
4. I am a member of the Society for Mining, Metallurgy, and Exploration, Inc. (SME license No. 1682600) and am a registered professional metallurgical engineer in Arizona (License No. 12979) and Nevada (License No. 5462).
5. "Since National Instrument NI 43-101 was Introduced by the Canadian Institute of Mining, Minerals, and Petroleum in 2001, I have been named as a Qualified Person in more than 40 project reports. I have also been a Qualified Person for a number of reports issued under the US Securities and Exchanges Commission S-K 1300 Guide."
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Cabaçal Gold-Copper Project property
8. I am responsible for section 1.7, 1.18.3, 1.19.4, 13, 25.8, 25.14.1.4, 25.14.2.2, and 26.4 of the Technical Report, and I am the Qualified Person for matters relating to the information contained in that report section.
9. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with the Cabaçal Gold-Copper Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 30th day of March, 2023.

"Signed and sealed"

Joseph M. Keane, P.E.

CERTIFICATE OF QUALIFIED PERSON
Guilherme Gomides Ferreira, P. Mining Engineer, MAIG

I, Guilherme Gomides Ferreira, Mining Engineer, MAIG, certify that:

1. I am employed as a Mining Manager with GE21 Mineral Consulting ("GE21"), with an office address of Avenida Afonso Pena, 3130 – 12th Floor, Belo Horizonte, MG, Brazil, CEP 30.130-910.
2. This certificate applies to the technical report titled "*Cabaçal Gold-Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Mato Grosso, Brazil*" (the "Technical Report") prepared for Meridian Mining UK Societas (the "Company") with an effective date of March 1, 2023 (the "Effective Date").
3. I graduated in 2006 from the Federal University of Minas Gerais, in Belo Horizonte, Brazil with a Bachelor of Science degree Mining Engineering.
4. I am a member of the Australian Institute of Geoscientists ("MAIG") (License No.7586).
5. I am a professional Mining Engineer, with more than 17 years of experience in the mining industry. My relevant experience for the purpose of this Technical Report includes:
   a. 2006 to 2017– Mining Engineer at mining companies, developing technical studies of Mineral Reserves, mine planning, pit optimization, and economic analysis as well a producing iron ore and gold mine.
   b. 2017 to present – Manager of GE21 Consultoria Mineral, which provides advice, assistance, and audits for the entire mining cycle, from defining strategies, generating and selecting targets and investments, mineral exploration, project development, geological assessments, resource reserve estimation for JORC and NI 43-101 reports, conceptual technical and economic studies, and economic feasibility.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I visited the Cabaçal Gold-Copper Project between 13th to 16th December for a duration of 4 days.
8. I am responsible for sections 1.10, 1.18.2, 1.19.3, 16, 21.2.2, 21.3.2, 25.7, 25.14.1.3, and 26.3of the Technical Report.
9. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with Cabaçal Gold-Copper Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: March 30th 2023

"Signed and sealed"

Guilherme Gomides Ferreira, P. Mining Engineer, MAIG

Important Notice

This report was prepared as National Instrument 43-101 Technical Report for Meridian Mining UK Societas (Meridian) by Ausenco do Brasil Engenharia Ltda (Ausenco), H&S Consultants Pty Ltd. (H&SC), MB Geologia Ltda., SGS North America Inc. (SGS), and GE21 Mineral Consulting (GE21), collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Meridian subject to terms and conditions of its contracts with each of the Report Authors. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party are at that party's sole risk.

Table of Contents

List of Tables

List of Figures

1 SUMMARY

1.1 Introduction

Ausenco do Brasil Engenharia Ltda. ("Ausenco") was engaged by Meridian Mining UK Societas ("Meridian" or) to prepare this report as a National Instrument 43-101 (NI 43-101) Technical Report ("Technical Report") on the Cabaçal Project ("the Project"). Meridian, through its Brazilian subsidiary Rio Cabaçal Mineração Ltda. ("RCM"), has an option agreement over the Project with two private Brazilian companies: Prometálica Mineração Ltda ("PML") and IMS Engenharia Mineral Ltda ("IMS"), "the Vendors".

BP Minerals ("BPM") identified the exploration potential of the belt in 1980s and completed substantial exploration works including the discovery and development of the Cabaçal Au-Cu-Ag underground mine (then known as the Mineração Manati Ltda - "Manati"), which opened in 1987. Rio Tinto ("RTZ") acquired BP Minerals in 1989 and maintained the property for two years before ceasing production in 1991 and withdrawing from exploration in the general area. A second mineralized area on the licences, discovered by BPM 9km to the southeast of Cabaçal, was subsequently developed by PML, operating as the Santa Helena Zn-Pb-Cu-Au-Ag underground mine from 2006 to 2008, closing during a downturn in the zinc price.

There is no current mining activity on the project area and the aim of MNO is to conduct resource definition programs and open-pit mine development studies focused initially on the Cabaçal Cu-Au-Ag mine and its extensions. Meridian is also conducting exploration on the broader belt for new VMS discoveries. Inspections of the Project were undertaken by independent Qualified Person, Mr. Marcelo Antonio Batelochi (of MB Geologia Ltda, Belo Horizonte, Minas Gerais, Brazil), between the 7th to 11th June 2021, and 29th August to 1st September 2022. Elements of these field inspections are incorporated into this report. The general aim of this work was to verify and validate the field information from historical and current exploration campaigns coordinated by H&S Consultants Pty Ltd of Sydney, Australia, to support the preparation of this NI 43-101 Mineral Resource report.

1.2 Project Description, Location and Access

The Cabaçal Gold-Copper Project (the "Project", or the "Property"), is located in the State of Mato Grosso, Brazil. Mining rights straddle five municipalities: Mirassol do Oeste, São José dos Quatro Marcos, Lambari d'Oeste, Rio Branco and Araputanga. The Project is located approximately 310 km west-north-west of the state capital Cuiabá. Sealed roads provide access between Cuiabá and Meridian's administrative base located in São José dos Quatro Marcos. Within the Property, the Cabaçal Cu-Au-Ag mine is located -58o 12' 33.84'' W; -15o 20' 18.6'' S (GCS WGS 1984), on the 1:250000 "Barra do Bugres" mapsheet, approximately 30 km by unpaved all-weather gravel roads from São José dos Quatro Marcos.

- The mining and exploration licences under the option agreement pending approval of the transfers to RCM by the Agência Nacional de Mineração ("ANM") are:
- Registered to Prometálica Mineração Ltda.
    - 861956/1980: The Santa Helena Mining Lease (875 Ha); and
    - 866292/2004: The Cabaçal Mining Lease Application (4,028 Ha).

- Registered to IMS Engenharia Mineral Ltda
    - 867407/2008: Exploration licence (9,813 Ha) – approved for second term;
    - 866002/2016: Exploration licence (2,566 Ha) - renewal pending for second term; and
    - 866455/2016: First term exploration licence - renewal pending for second term.

Meridian entered into a definitive Purchase Agreement to acquire a 100% beneficial interest in the Cabaçal Copper-Gold Project ("Cabaçal") in the state of Mato Grosso, Brazil, for a total consideration of USD8,750,000 plus, at the option of the vendors, 4,500,000 Meridian common shares or CAD1,350,000, from two private Brazilian companies, Prometálica Mineração Ltda. and IMS Engenharia Mineral Ltda (the "Vendors"). Meridian changed the terms of the second payment and assigned the Purchase Agreement related to the Cabaçal project to its subsidiary Rio Cabaçal Mineração Ltda, and also changed the terms of the third payment. Meridian is now required to make staged payments based on milestones achieved as follows:

- USD25,000 payable within five days of the execution of the option agreement (paid);
- USD275,000 payable by 15 October 2021 following filing of transfer requests for the mineral rights to MNO subsidiary Rio Cabaçal Mineração Ltda, lodged with the ANM (paid);
- USD1,750,000 on 1 August 2023, unless accelerated upon completion of an equity financing for gross proceeds of at least USD2,500,000, provided completion of successful drilling program and historical geophysics database validation, as well as the obtaining of certain permits and the access to the surface rights overlapping with the Cabaçal mineral rights (see details regarding payment below);
- 1,000,000 common shares in the capital of Meridian or CAD 300,000, at the option of the Vendors, within six months of the third payment and subject to completion of a technical report on the estimate of the resource in accordance with National Instrument 43-101;
- USD1,850,000 plus, at the option of the vendors, 1,500,000 common shares in the capital of Meridian or CAD 450,000, within nine months of the fourth payment and subject to the successful completion of the positive economic feasibility study;
- USD2,250,000 payable plus, at the option of the vendors, 2,000,000 common shares in the capital of Meridian or CAD 600,000, up to 30 days after the Installation Licence ("LI") of the Cabaçal Project plant is issued by the competent authorities;
- USD2,600,000 payable within 45 days after the signature by Meridian of the definitive financing contracts for the construction of the Cabaçal Project plant; and
- Under the option agreement terms with the Vendors, Meridian has made the Vendor payments due following the positive due diligence (USD25,000), and made a second stage payment, with the titles transfer request lodged (USD275,000).

On 30 December 2022, Meridian closed brokered private placement with gross proceeds of USD4,320,372 triggering the third payment of USD1,750,000 of the Cabaçal Agreement. As of December 31, 2022, the payable amount has been recognized by Meridian. The Cabaçal Agreement contemplates that payments can be withheld by Meridian in Indemnification Escrow Fund (the "Escrow Fund") to guarantee the payment of any losses in connection with certain Vendors' obligations. Also, at Company's discretion, the Escrow Fund balance can be used to pay certain Vendors' obligations. Subsequent to the year ended December 31, 2022, Meridian and the Vendors started the process of setting up the Escrow Fund and Meridian made payments of approximately USD765,000 on behalf of the Vendors that have been deducted from the third payment amount.

Cabaçal is located within the buffer zone of Brazil's frontier ("Border Buffer Zone"). The Border Buffer Zone is a political protection zone and not an economic exclusion zone. The terms of the Agreement give Meridian the option, under certain conditions, to return the mineral rights to the Vendors on a "as is" basis, without any obligation to making any future payments and to complying with other obligations.

Licence 861956/1980 has a royalty payment for the benefit of Mineração Manati Ltda. ("Manati"), arising from the Mineral Exploitation Project Agreement dated December 20, 2000. The value is equivalent to one-point-five per cent (1.5%) of the gross revenues less taxes. Licence 861956/1980 contains some remaining infrastructure relating to the Santa Helena Mining Operation – parts of the beneficiation plant, office rooms, the old laboratory and guardhouse, and the tailings dam. The metallic structures that have not been removed have been sold for scrap and are being progressively disassembled. Under the acquisition structure, Rio Cabaçal Mineração Ltda. is purchasing the titles and not the holding companies. This is being done to mitigate the corporate risk with respect to any actions against the past operators.

Meridian applied for 12 satellite exploration licences in its own right in the Cabaçal, Jaurú and Araputanga Belts. The applications have been accepted and registered (see list below). Approval of the licences for field activity is pending.

Licence Number	**Licence Number**
866261/2021 (9862.28 Ha)	866749/2021 (7545.90 Ha)
866754/2021 (4917.97 Ha)	866744/2021 (9691.66 Ha)
866752/2021 (4912.24 Ha)	866743/2021 (666.42 Ha)
866751/2021 (4977.87 Ha)	866751/2022 (1403.63 Ha)
866757/2021 (7400.68 Ha)	866752/2022 (9466.49 Ha)
866750/2021 (8925.37 Ha)	866753/2022 (5070.51 Ha)

1.3 History

In the early 1980s, BPM identified three new greenstone belts in northwest Mato Grosso, which they named the Jaurú, Araputanga and Cabaçal Belts, and established about 800,000 hectares of licences over this area. RTZ assumed ownership of the project following its acquisition of BPM in 1989.

BPM initially undertook regional geological mapping, stream geochemical programs and an aerial geophysical INPUT survey, defining a series of Cu-Pb-Zn-Au anomalies and various conductors associated with metavolcanic – metasedimentary stratigraphy. This was followed by prospect-scale soil surveys, ground geophysics and exploratory drilling. The Cabaçal and Santa Helena VMS deposits were discovered during this exploration phase (from prospects first called C4A and C2C, respectively). Historical drilling during the BPM-RTZ campaigns between 1981 to 1989 amounted to 768 diamond holes for 79,088.6 m (dominantly NQ core with some HQ, BQ, and AQ core sizes). The immediate Cabaçal mine area was intensely drilled, in places on a 10m by 10m grid, whilst the extensions were drilled on a 100m by 100m grid, with predominantly vertical holes.

Mining was initiated on the Cabaçal Deposit in April 1987, on historical licence 861925/1980. The mine operated until August 1991 when RTZ closed it. The Cabaçal operation processed 973,031 t @ 4.91g/t Au, 0.80% Cu (Ag data not complete). Mineralized material mineralogy was composed of sulphides, selenides, bismuth, gold, and silver alloys. The main sulphide minerals were chalcopyrite, pyrite and pyrrhotite, with subordinate sphalerite and trace levels of galena. Underground mining was selective using a room and pillar mining method and focused on high-grade gold trends. The mine produced a gold-rich copper concentrate and gold-silver doré. Following rehabilitation, the Cabaçal mining licence was renounced in March 1994. In June 2004, PML was successful in applying for a new exploration licence (866292/2004) over the Cabaçal mine area. PML subsequently applied for a mining licence in May 2017.

With the divestment of RTZ interests, the mining rights for the Santa Helena licence 861956/1980 were transferred to Metais do Brasil Mineração Ltda ("MBM") in June 1998. In September 1998, MBM wrote an agreement transferring the mineral rights to PML. In December 1998, PML and Companhia Mineira de Metais ("CMM", a subsidiary of Votorantim Group) formed a consortium for the exploitation of the Mineral Resources on 861956/1980. During this stage, additional exploration, resource evaluation, metallurgical testing and equipment purchases were carried out. An additional 39 diamond holes for 2,478.8m were completed between 1999 and 2001, and a mining licence application was lodged on in June 2002. For strategic reasons, CMM exited from the project with PML assuming full management in 2003 and proceeded with the development of the Santa Helena Mine. The life-of-mine production was planned from 2006 - 2011, but the collapse in the zinc price from a high of USD4,442/t in November 2006 to a low of USD1075/t in January 2009 rendered the project unprofitable and mining terminated early. From October 2006 to August 2008, the mine produced 439,813t @ 6.6% Zn, 1.6% Cu, 1.8 g/t Au, and 43.0g/t Ag.

The Vendors undertook a VTEM Survey in 2007 over the Cabaçal Belts, obtaining conductivity and magnetic survey data, and undertook further soil survey programs. Prior parties have evaluated the licences, but subsequent agreements have lapsed with no change in ownership. This includes:

- Evaluation by AngloGold Ashanti in 2011, including resampling of historical core and technical reviews; and
- A period in 2015, when Avanco evaluated the project and undertook a limited drill campaign, involving 11 drill holes for 2,234.1 m. Their interest in the project was subsequently discontinued.

SRK was previously commissioned by the Vendors to undertake a resource study on the Monte Cristo (Santa Helena) Deposit in 2007. This estimate was last updated in a report dated 30 May 2007 (Michael, et al, 2007), with an estimate of Measured and Indicated Resources of 1,120,000 t @ 8.39% Zn, 2.08% Cu, 1.20g/t Au 41.65g/t Ag, and Inferred Resources of 37,000t @ 5.81% Zn, 1.29% Cu, 1.28g/t Au. 40.94 g/t Ag. The Mineral Resource has not been updated to account for final mining depletion and changes in metal prices, and is therefore not considered a current Mineral Resource. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the issuer is not treating the historical estimate as current mineral resources or mineral reserves.

Historical estimates have been made for the Cabaçal Cu-Au-Ag Deposit by the Vendors, and by Falcon Metais Ltda in June 2009. Meridian has not treated these estimates as current Mineral Resources for purposes of National Instrument 43-101. The Falcon estimate scoped Inferred Resources of 21.7 Mt @ 0.56% Cu, 0.61 g/t Au. A uniform density of 2.7 t/m^3 was applied for tonnage estimation, using 3D solids modelled from 54 sections. A 0.2% Cu Equivalent % cut-off grade was applied (CuEquiv% = Cu% + (0.51 * Au ppm); Metallurgical Recovery = 85% Cu, 65% Au; Au priceUSD845/oz; Cu price USD4000/ton). A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the issuer is not treating the historical estimate as current mineral resources or mineral reserves This historical estimate has now been superseded by the estimate detailed in this report.

Many of the geochemical and geophysical peripheral targets defined by BPM did not progress to systematic drill testing, due to the focus on resource definition drilling at Cabaçal (C4 target) and Santa Helena (C2C target). Intersections of interest outside of the Cabaçal and Santa Helena mine environments include:

- C-2B: A target located 1.5 km northwest along strike from the Santa Helena mine, along the same trend (overlapping with a VTEM target). Initially defined by significant gold counts in soils and a chargeability anomaly, Holes JUCHD 9, 11, 77, 78 and 79 intercepted gold mineralization associated with conductive sulphide (pyrite + pyrrhotite). Ledgers retrieved from the RTZ archives shows a peak grade of 1 m @ 140 g/t Au from 53 m in JUCHD11. Hole JUCHD9 contained a polymetallic anomaly in the upper section of the hole, with a peak grade of 1 m @ 94 g/t Ag, 0.45 g/t Au, 0.78% Zn, 0.14% Pb & 0.01% Cu from 12.72 m.

- C-4B: This target is located ~3k m along strike from Cabaçal to the northwest and was initially defined as a stream and soil geochemical anomaly with an associated historical IP chargeability anomaly. Historical reports indicated that 12 holes were drilled (JUSPD006, 12-13, 15-19, 21-24), with a peak grade of 0.7 m @ 5.2 g/t Au from 46.0 m in JUSPD017, and 0.96 m @ 0.91% Cu, 3.0 g/t Ag from 79.2 m in JUSPD021.

The combination of modern geophysics with the historical datasets has created an excellent framework for a new round of exploration on advanced targets.

1.4 Geological Setting, Mineralization and Deposit Types

The Cabaçal and Santa Helena deposits and other known targets are related to a Paleoproterozoic volcanogenic massive, stringer and disseminated sulphide system located within deformed metavolcanic-sedimentary rocks of the Alto Jaurú Greenstone Belt. The meta-sediment package consists of a basalt-dominated bimodal sequence dated at 1853 +/- 15 Ma (dated by U-Pb method on zircon from the Manuel Leme Formation; Pinho et al., 2010). This places it at around the same age as other significant Paleoproterozoic VMS districts (e.g., Flin Flon, Canada: 1890 Ma; Bergslagen and Skellefte districts, Sweden: 1890 Ma, Jerome, United States: 1760 Ma; Pembine-Wausau Terrane, United States: 1870 Ma).

Regionally, the Cabaçal host sequence is interpreted to lie on the overturned eastern limb of an east-verging anticline (Mason and Kerr, 1990). An associated laterally extensive chert-pelite unit is thought to be an exhalative unit and acts as a marker horizon. Mineralization comprises massive, stockwork/breccia style, stringer and disseminated sulphides dominated by primary chalcopyrite and lesser pyrite and sphalerite. The gold content of the deposit is relatively high, enhanced by a later-stage hydrothermal overprint superimposed on the original VMS mineral system. Both shallow-dipping and steeper-dipping late-stage vein sets were identified during the mine development. There is a shallow weathering profile, typically 10-15m deep.

VMS mineral systems can often generate clusters of deposits, providing exploration discovery opportunities from both near-mine and more regional exploration targets.

1.5 Drilling

Meridian has executed a drilling program over 2021-2022 on the Cabaçal deposit. This includes a series of diamond twin holes, resource infill holes, and extensional exploration holes, to support the validation of the historical database of the project and to define the limits of mineralization at Cabaçal. A campaign of metallurgical drilling was also undertaken. The program to date has been executed by drilling contractor Willemita Sondagens Ltda using Maquesonda wireline diamond coring rigs. Holes are collared with HQ2 core through the saprolite to maximize recovery, with NQ2 tails. Triple-tube coring to date has not been necessary.

Drilling by Meridian has tested the Cabaçal mine and its strike extensions of over a strike length of about 1,900 m. The historical workings of the Cabaçal mine project cover a strike length of 550 m, with extensions open to the northwest and southeast. The database was frozen on 21st August 2022, by which time Meridian had completed 184 drill holes for a total of 22,890 m of drilling. Assay data had been reported for 161 of these holes (20,330 samples).

Examples of intersections from the various mineralized zones are listed below. The wide zones of Cu-Au-Ag mineralization intersected in the Cabaçal mine environment are in line with expectations from historical records and confirm the selective nature of past room and pillar underground mining. Meridian's drilling has also defined high-grade gold mineralization extending along strike from the mine workings in previously sparsely drilled areas.

Southern Copper Zone

- CD-009: 66.1m @ 0.8g/t Au , 0.6% Cu, & 1.8g/t Ag, from 86.0m; including:
  - 2.7m @ 14.0g/t Au, 1.5% Cu &, 7.0 g/t Ag from 86.9m; and
  - 12.8m @ 0.5g/t Au, 1.7% Cu &, 5.2 g/t Ag from 139.7m.

Central Copper Zone

- CD-094: 64.3 m @ 1.9 g/t Au, 0.7% Cu, 2.6 g/t Ag from 22.0 m; including:
  - 19.9 m @ 6.0 g/t Au 1.8% Cu, & 7.7 g/t Ag from 66.5 m.

Eastern Copper Zone

- CD-030: 56.0 m @ 0.6 g/t Au, 0.4% Cu & 1.8 g/t Ag from 7.5 m; including:
  - 21.0 m @ 1.3 g/t Au, 0.9% Cu, & 4.0 g/t Ag from 41.5m.

Cabaçal Northwest Extension

- CD-072: 49.0 m @ 4.3 g/t Au 0.4% Cu, & 1.2 g/t Ag from 43.0 m, including:
  - 12.4 m @ 16.6/t Au, 1.0% Cu & 2.8 g/t Ag from 73.3 m.
- CD-110: 31.3 m @ 1.0 g/t Au, 0.1% Cu & 0.2 g/t Ag from 20.2 m, including:
  - 10.4 m @ 2.3 g/t Au & 0.1 g/t Ag, 0.0%Cu from 32.5 m.

Cabaçal Southeast Extension

- CD-052: 31.3 m @ 0.2 g/t Au, 0.7% Cu &, 4.2 g/t Ag, from 64.2 m; including:
  - 8.2 m @ 0.5 g/t Au, 1.7% Cu, 11.9 g/t Ag & 1.9% Zn from 86.8 m.

Estimated expenditure on drilling and exploration for the Cabaçal project by MNO up to the Effective date of the Mineral Resource estimate ("MRE") was USD6.9M.

1.5.1 Recent Exploration

Meridian has undertaken the following general exploration activities during 2021-2022 with the focus on the Cabaçal area:

- Surface geochemical surveys (1,092 soil samples; 57 rock chip samples);
- Surface and downhole geophysics;
- 95 downhole electromagnetic ("BHEM") surveys;
- 104-line kilometres of surface Fixed Loop Transient Electromagnetic surveys ("FLTEM");
- 11-line kilometres of surface Pole-Dipole Induced Polarization Surveys ("PDIP");
- 6-line kilometres of surface Dipole- Dipole Induced Polarization surveys ("DDIP");
- 41-line kilometres of surface Gradient Array Induced Polarization surveys ("GAIP");
- Remote sensing - WorldView-3 satellite survey over the Cabaçal Belt;

- Topographic control with Geosan Geotecnologia Eireli and EMBRATOP providing high-resolution drone orthophotography, digital terrane models, and selected collar surveys;
- In-house field checks and surveys of historical collar positions; and
- Digital data compilation, with in-house and sub-contracted compilation of data from scanned reports retrieved from the archives of RTZ.

Meridian is undertaking rock chip and soil sampling programs, focusing initially on the C2A area of BPM (centred approximately 3km southeast of the Cabaçal Mine). Soil geochemical anomalies with variable Cu, Cu-Au, Zn-Cu-Pb soil responses were historically defined, but not closed off with gaps in the sample coverage. The area has limited outcrop. Samples were collected from the 'B Horizon' using a hand-auger, on a 200m by 25m grid, closing to 100 m on infill lines.

The results from the soil sampling have confirmed that the anomalies expressed in the historical sampling exist and are correctly located. This includes a north-south trending geochemical anomaly extending over 1.5 km, with a cross-strike footprint of about130-200 m (peak Cu of 1,080 ppm) with flanking Pb and Zn anomalies, extending the footprint of this metal anomaly outward to ~400 across strike. They have also defined a new Cu-Zn anomaly, located about 3 km southeast of the Cabaçal Mine. Peak rock chip results of 4,075 ppm Cu, 3,530 ppm Zn have been reported to date with fresh sulphides locally present at surface.

Geophysical programs have been focused at Cabaçal and on satellite targets (Cabaçal West, C4-A, C2-A). Meridian initially contracted Geomag S/A Prospecções Geofísicas, a company of the Wellfield Services Group, to conduct an orientation survey and downhole electromagnetic surveys over the Cabaçal mine and near-mine area. Meridian subsequently purchased its own modern surface and downhole survey equipment manufactured by Australian Electromagnetic Imaging Technology Pty Ltd (EMIT) and runs surveys with it own in-house crew.

Fixed-Loop orientation surveys over the Cabaçal Mine defined a bedrock conductor consistent with a response related to a broad footprint of disseminated to stringer sulphides. The EM anomaly extends about100-200 m southeast of the limits of the historical mine development. Fixed-loop surveys have also been initiated over bedrock conductors defined from the 2007 VTEM survey. Downhole electromagnetic surveys have been completed, with nearly 7,000 m of survey work having been undertaken to date. BHEM surveys in the Cabaçal mine setting have identified conductive anomalies coincident with stringer zones intersected in recent MNO and historical drilling.

1.6 Sampling, Analysis and Data Verification

For surface geochemistry, soil sampling is undertaken with samples collected from the 'B Horizon' using a hand-auger, on a 200m by 25m grid, closing to 100 m on infill lines. Samples were first analysed in the field by portable XRF, calibrated with certified references, with the inclusion of blanks and certified references. All samples are later sent to SGS Laboratories (Belo Horizonte) for gold analysis (by method FA505). Ten percent of the samples analysed for a multielement package at SGS by four acid total digest with ICP-OES finish for verification of the field portable XRF values (method code ICP40B). Rock chip samples are collected by hammer over outcrop where present or from loose rock on surface and also sent to SGS Laboratories (Belo Horizonte) for gold analysis by method FA505, and multielement analysis by four acid total digest with ICP-OES.

For drilling, after geological logging and core photography, drill core is cut using a core saw with a diamond cutting blade. Minimum sample interval is 0.25 m with the maximum generally 1m. Density measurements were taken on core samples using the weight in air/weight in water Archimedes method. Samples are collected in tough plastic bags and immediately tied with tamper-proof zip-ties.

MNO's QAQC programme for the sampling and assaying includes the use of Certified Reference Materials ("CRM" or standards), pulp blanks, field and lab duplicates; umpire lab checks, and is to industry standard.

Samples from MNO's drilling campaign have been submitted to two ISO-accredited sample preparation and analytical facilities, one being SGS Geosol Laboratórios Ltda, Vespasiano, Minas Gerais, Brazil ("SGS"), and the other being ALS (Preparation in Cuiabá, Brazil; Analytical services in Lima, Peru; "ALS").

SGS applied the following procedures:

- Sample preparation: samples dried at 105°Celsius, crushed with 75% passing <3 mm, split to give a mass of 250-300 g, pulverized with 95% passing 150#.
- Gold analysis is by fire assay of a 50 g charge with atomic absorption spectrometry (“AAS”) finish.
- Copper, zinc and lead are analysed as part of a multielement package through a 4-acid total digest and inductively coupled plasma optical emission spectrometry (“ICP-OES”) finish.
- Silver analysis depending on grade range is variably analysed by a 4-acid total digest method with an ICP-OES or AAS finish, or Aqua Regia digest with AAS finish.
- ALS applied the following procedures:
- Sample preparation: PREP-31: drying, crush 70% passing <2 mm, split off to give a mass of approximately 250 g. and pulverize to better than 85% passing 200#.
- Au-AA23: Au by fire assay and AAS finish of a 30 g charge. Over-range samples repeated by Au-GRA21 (Au by fire assay and gravimetric finish of a 30 g charge);
- Silver is analysed by Method Code ME-MS62; and
- Copper, zinc and lead are analysed as part of a multielement package (Method Code ME-ICP61a), through a four-acid total digest method (HCl, HNO3, HF and HClO4), with analysis by Inductively coupled plasma atomic emission spectroscopy (“ICP AES” finish).

In the QP’s opinion, the sampling and analytical methodology used for the current surface geochemical and drill core sampling is considered standard industry practice and more than adequate for mineral exploration purposes. Sample security procedures are considered to be of standard industry practice and effective with sufficient QAQC measures to amplify any suspicious outcomes.

H&SC used publicly available geoscientific data from the CPRM available from the CPRM (GEOSGB online geological GIS data) and ANM (SIGMINE online mineral licence GIS data) in an appropriate industry standard GIS software package to successfully verify some of the diagrams created by Meridian.

A five-day site visit to the Cabaçal project and off-site core storage facilities was completed by Marcelo Batelochi (MAusIMM CP Geo) of MB Geologia Ltda, (Belo Horizonte, Minas Gerais, Brazil) between the 7th to 11th June 2021. The visit included:

- A second 4-day site visit was completed by Marcelo Batelochi (MAusIMM CP Geo) of MB Geologia Ltda, (Belo Horizonte, Minas Gerais, Brazil) 29th August to 1st September, 2022. This continued the overview of visual core inspections, drill collar location checks, drilling procedures, surveying, core handling, logging, sampling and assaying, and the QAQC protocols.
- The field practices, management and storage system for the data reviewed during the site visits are in accordance with good practices.

- The field practices, management and storage system for the data reviewed during the site visits are in accordance with good practices.

1.7 Mineral Processing and Metallurgical Testing

Under BPM and subsequently RTZ, two mined products were generated at Cabaçal:

- Gold and silver (in doré bars); and
- Copper, gold, and silver concentrate.

The processing circuit consisted of:

- Crushing, grinding and gravimetric concentration with the use of Gravity Concentrator and shaking tables for gold recovery, and a foundry to produce gold- silver doré bars; and
- Flotation cells designed to produce a sulphide concentrate of copper, gold, and silver.

The beneficiation process was simple due to a clean mineralized material, with low impurities and an absence of organic material. This made the mined material, at a 200 µm grind, amenable to flotation techniques, with the excellent auto-flotation characteristics of the Cabaçal mine's chalcopyrite allowing for a simple flotation schedule to give copper recoveries in the order of 82 to 95% to a clean concentrate. The subsequent (xanthate) scavenger circuit recovered gold/pyrite/pyrrhotite minerals with the Au (+Ag) separated by Gravity Concentrator and shaking tables with Au-Ag doré bars smelted on site. There is a decommissioned waste dump on site, a dam to collect processing water, and support facilities.

In the 2021-2022 drilling campaign, Meridian completed ten metallurgical drill holes. Seven of these holes were used for sample selection to confirm historical performance with a new round of testwork at SGS Lakefield, Canada. The holes provided samples from the four known main VMS systems, namely the Central Copper Zone, the Eastern Copper Zone, the South Copper Zone and the Cabaçal Northwest Extension. Most of the samples were within the expected head grade range for the deposit. A key feature of the Cabaçal mineralization is the low S:Cu ratio, which implies low pyrite/pyrrhotite content. The average feed would be expected to be ~ 1.5 S:Cu, which confirms the historical mineralogy, suggesting that chalcopyrite is about 65% of the sulphides in the sulphide assemblage.

Comminution tests were conducted. The average Bond Work Index was 11.2, which is considered to be relatively soft and not atypical for VMS deposits. The average Abrasion Index was 0.28, which suggests moderate abrasion. Samples were considered to be of medium to hard competency for SAG milling (average SMC A x b was 44.5).

A three stage Gravity Recoverable Gold ("GRG") test was conducted on the Master Composite sample, with grind sizes of 423 micron, 155 micron and 113 micron, respectively. The final GRG number is 64.3, which is considered quite high and is an indication that this material is amenable to gravity gold recovery. It is anticipated that gold not recovered in the gravity circuit will be picked up in the downstream flotation circuit.

Rougher conditions for flotation testwork used natural pH, potassium amyl xanthate ("PAX") collector and Methyl Isobutyl Carbinol ("MIBC") frother. Sulphur recovery was typically around 95%, leaving a non-acid-generating tailing, which was typically less than 0.1% in sulphur content. Mass pull for the Master Composite was around 5 to 6 percent by weight. The rougher flotation was conducted mostly in solids percent around 35%. The slope between recovery and concentrate grade is quite flat, which indicates that the Cabaçal mineralization could produce higher grade concentrates. A 24.8 % copper concentrate was produced with 94.4% copper recovery, 87.2% gold recovery (gravity + float) and 81.9% silver recovery (gravity + float). The recoveries achieved are in line with the historic metallurgy. Based on the testwork, a single stage of cleaner flotation appears to be sufficient to produce a marketable concentrate containing above 25% copper and is recommended in the process design. A pyrite concentrate was produced from the cleaner tailings to remove the acid-generating minerals. The concentrate assayed 44% of sulphur with notable levels of gold and silver, which could have market potential.

1.8 Mineral Resource Estimates

Mineral Resource estimates were generated by Simon Tear (PGEO), of H&S Consultants Pty Ltd, ("H&SC") based in Brisbane, Qld, Australia. The effective date of the MRE for the Cabaçal Au-Cu-Ag deposit is the 21st of August 2022, which was the date that the latest database was received by H&SC. The MRE reported in this section have been classified under the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.

The MRE are based on 848 historic and recent diamond core holes with logged geology and assays, totalling 87,268 m. Downhole sampling averaged 0.8 m under geological control with a substantial majority of drillcore sampled. Data was supplied in the SIRGAS national grid coordinate system. Geological logging is consistent and is based on a full set of logging codes covering lithology, alteration, and mineralization.

The geological interpretation was supplied by Meridian, modified by H&SC, as a series of 3D wireframe surfaces created via 20 to 25 m sectional interpretation. This interpretation included the bounding basal contact to the mineralization, a base of complete oxidation and a base of partial oxidation. A detailed topographic surface, from 1m gridded LiDAR data, was also supplied. All data was rotated 45° by H&SC to a north-south orthogonal national grid for ease of working and then unrotated for the final product.

The interpreted VMS body and its associated mineralization has overall (rotated) grid dimensions of 600 m (X) by 2,200 m (Y) by 300 m (Z) with a 20° dip to the west and a 10° plunge to grid south. Mineralization is close to surface in the northeast at approximatley 350 mRL, and terminates at approximately 60 mRL in the southwest. The MRE is contained within a notional pit outline down to 60 mRL; the pit has a 45° hangingwall slope and a 25° footwall slope. Drillhole spacing was nominally on 10-20m spacing in the centre of the deposit extending to 50-100 m in the periphery.

For grade interpolation, the complete drill hole dataset was composited to 1 m intervals for gold, copper and silver and subsequently modelled. The unconstrained 1m compositing produced a total of 40,467 composites. Grade interpolation used the Multiple Indicator Kriging ("MIK") technique for gold with the E-Type estimate (utilising an average panel grade for gold) used for reporting the Mineral Resources. Block size was 10 m (X) by 10 m (Y) by 5 m (Z) with a selective mining unit ("SMU") of 5 m by 5m by 2.5 m with no sub-blocking. Two drilling domains were delineated based on the density of drilling with three sub-domains for complete oxidation, partial oxidation, and fresh rock. The two domains were treated separately with regards to the variography, but the grade interpolation used the same search parameters for each domain with soft boundaries between them. Ordinary Kriging ("OK") was used for the grade interpolation of the copper and silver composite values.

The density data comprised 18,862 data points generated from weight in air/weight in water measurements (Archimedes Principle). The data were subsequently modelled unconstrained using OK, with similar search parameters and rotations to the global metal grade interpolation. Overall average density of the deposit is 2.79 t/m³.

The MIK method is a non-linear modelling method and works without the need for conventional top cutting. An adjustment was made to the gold mean for the top indicator class for the fresh rock sub-domains and can be considered as a 'top cut' method. No top cutting was considered necessary for the copper or silver data.

A three-pass search strategy was applied to the gold grade interpolation. Search ellipse parameters are listed below (Table 1-1). The search ellipse orientations generally reflected the overall attitude of the deposit.

Table 1-1: MIK Search Ellipse Parameters – Gold

Pass No	X radius (m)	Y radius (m)	Z radius (m)	Min Data	Min Octants	Max Data
1	35	35	5	16	4	48
2	70	70	10	16	4	48
3	70	70	10	8	2	48

Allocation of the classification of the MRE (Table 1-2) is derived from the search pass numbers, which essentially is a function of the drillhole sample data distribution with consideration of other aspects. These aspects included an assessment of the geological model, drillhole spacing (and thus the data point spacing), the results of the variography, sampling method and representivity including QAQC outcomes, the quality of density data, core recoveries, the grade interpolation method, and the uncertainty associated with the location of the historic underground workings.

Table 1-2: Resource Classification

Pass Number	Resource Category
1 & 2	Indicated
3	Inferred

It is also assumed that the deposit will be mined by a bulk mining method, i.e., open pit. The MRE have been reported in Table 1-3 using a 0.3 g/t gold equivalent ("AuEq") cut-off grade, within the notional pit. This cut-off grade is based on cut-off grades used for other similar deposits in the region and on advice supplied by Meridian (from metallurgical testwork).

Table 1-3: Cabaçal Mineral Resource Estimate – Effective Date: 21st of August 2022.

Category	Mt	Au (g/t)	Cu (%)	Ag (g/t)	AuEq (g/t)	Au (Mozs)	Cu (Kt)	Ag (Mozs)	AuEq (Mozs)
Indicated	**52.9**	**0.64**	**0.32**	**1.4**	**1.05**	**1.1**	**168**	**2.4**	**1.8**
Inferred	10.3	0.68	0.24	1.1	0.96	0.2	24.5	0.4	0.3

Reported tonnage and grade figures (Table 1-3) are rounded from raw estimates to reflect the order of accuracy of the estimate. Minor variations may occur during the addition of rounded numbers. Estimations used metric units (metres, tonnes, and g/t).

Gold equivalents are calculated as:

$$AuEq(g/t) = (Au(g/t) * \%Recovery) + (1.492*(Cu\% * \%Recovery)) + (0.013*(Ag(g/t) * \%Recovery)),$$

where:

- Au_recovery_ppm = 5.4368*ln(Au_Grade_ppm)+88.856
- Cu_recovery_pct = 2.0006*ln(Cu_Grade_pct)+94.686
- Ag_recovery_ppm = 13.342*ln(Ag_Grade_ppm)+71.037

Recoveries based on 2022 metallurgical testwork on core submitted to SGS Lakefield.

Gold price assumptions: USD1,650.00/oz; Silver USD21.35/oz; Copper USD3.59/lb (Metal prices used were derived from CIBC August 2022 long-term banking consensus).

Depletion from historic mining was factored into the gold interpolation using a third-party model for the workings. Copper depletion was based on deducting the production figures from the MRE. No account of silver depletion has been included as there are incomplete reports for the silver production (any depletion impact on the MRE for silver is considered to be of very low significance).

Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

1.9 Mineral Reserves

A Preliminary Economic Assessment (PEA) is a preliminary study that is not a prefeasibility or feasibility study. This preliminary study includes an economic analysis of the feasibility of the potential of the Mineral Resource Estimate. The PEA is a study with an insufficient level of accuracy to establish Mineral Reserves.

Mineral Reserves were not estimated for the Cabaçal Copper-Gold Project.

1.10 Mining Operations

Historically, the underground mine at Cabaçal reached a depth of 200 m and was developed using the chambers and pillars mining method for a production capacity of 300 K t/a.

The Cabaçal Deposit ('Cabaçal') is projected to be mined by conventional open pit mining methods for 22 years and 4 months, at a plant feed rate of 2.50 Mt/y, with an in-pit indicated Mineral Resources of 49.5 Mt grading 0.60 g/t Au, 0.32 % Cu and 1.35 g/t Ag, and in-pit inferred Mineral Resources of 6.1 Mt grading 0.93 g/t Au, 0.24% Cu and 1.01 g/t Ag, based on long gold, copper and silver selling price of, respectively, USD1,650.00/oz, USD3.59/lb, USD21.35/oz.

The effective date of Mineral Resource is 21 August, 2022, was prepared and delivered by Geol. Simon Tear (PGEO, EURGEOL), a Qualified Person (QP) as defined under National Instrument 43-101 regulations. A pit design was developed based upon operational and reliable technical parameters, resulting in an estimated mine life of twenty-three years.

Figure 1-1 shows the results for the final operational pit, and Table 1-4 presents the mineable resources for the Cabaçal Deposit.

Table 1-4: Final Operational Pit Summary.

Meridian - Cabaçal Gold-Copper Project - In-pit Resources					
Resources	**Mass (kt)**	**Au[a] (g/t)**	**Au (oz)**	**Cu[b] (%)**	**Ag[c] (g/t)**
Indicated	49 453	0.60	955 510	0.32	1.35
Inferred	6 142	0.93	182 711	0.24	1.01
Total ROM	**55 595**	**0.64**	**1 138 221**	**0.31**	**1.31**
Waste	118 082				
Strip Ratio	2.12				

1. Gold depletion was factored in with MIK modelling.
2. Adjusted copper grade with reported underground mined material.
3. No adjustments were applied related to historical silver production.
4. Modifying factors applied: Dilution 3%; Mining recovery 97%.
5. Cut-off grade = 0.30g/t AuEqq .
6. 1 oz = 1 troy ounce = 31.1035 g
7. Sale price for: Au = USD1,650/oz, Pt = USD21.35/oz and Cu = USD3.59/lb
8. Mining costs: USD2.11/t mined.
9. Processing costs: USD8.20 /t ROM.
10. G&A: USD1.66/t ROM .
11. Logistic: USD1.64/t ROM.
12. Strip Ratio = 2.12 t/t.
13. The Qualified Person for the estimate is Guilherme Gomides Ferreira, BSc. (Meng), MAIG, an employee of GE21.

Figure 1-1: Final Operational Pit (Ultimate Pit Design)

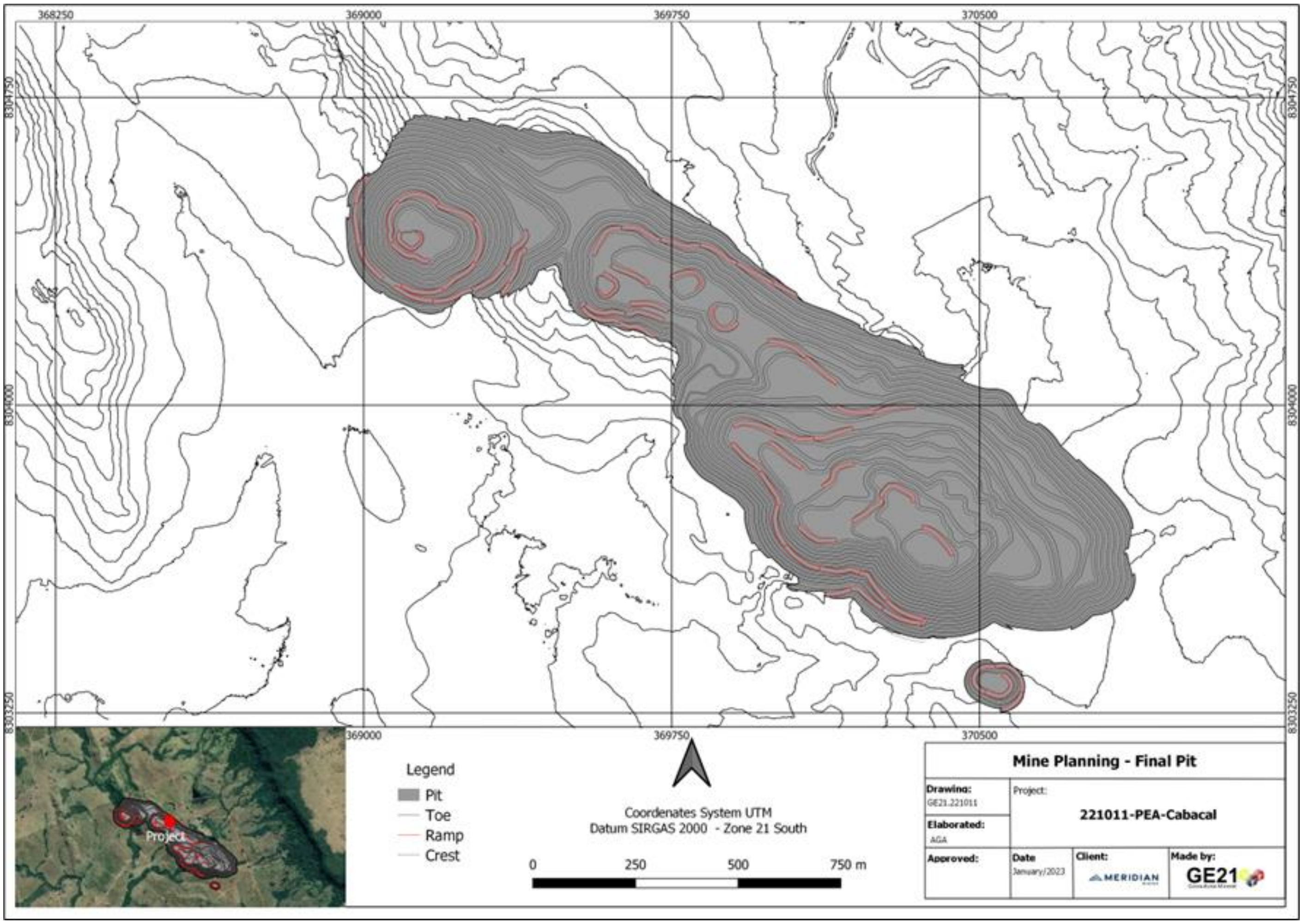


Table 1-5: Mine Schedule (Dry Basis)

Period Number	Mined						Low Grade Stockpile Balance				Plant Feed			
	ROM (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Waste (Mt)	Total Mov. (Mt)	Low Grade Stock (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Plant Feed (Mt)	Au (g/t)	Cu (%)	Ag (g/t)
PS	0.45	3.22	0.10	0.32	2.32	2.77	0.04	0.41	0.11	0.34	-	-	-	-
1	2.32	1.87	0.32	1.23	5.90	8.22	0.27	0.17	0.22	0.67	2.50	2.30	0.29	1.13
2	4.85	0.67	0.32	1.03	9.86	14.72	2.63	0.16	0.24	0.71	2.50	1.16	0.40	1.34
3	2.55	1.07	0.38	1.41	12.30	14.85	2.68	0.16	0.24	0.71	2.50	1.09	0.39	1.43
4	2.68	0.76	0.41	1.65	11.89	14.56	2.86	0.16	0.23	0.71	2.50	0.81	0.43	1.72
5	2.51	0.57	0.42	1.73	10.15	12.66	2.87	0.16	0.23	0.71	2.50	0.57	0.42	1.74
6	2.43	0.99	0.45	1.75	4.59	7.03	2.81	0.16	0.23	0.71	2.50	0.96	0.44	1.71
7	2.43	0.60	0.31	1.27	4.59	7.03	2.74	0.16	0.23	0.71	2.50	0.59	0.31	1.25
8	2.44	0.47	0.25	0.97	4.61	7.05	2.67	0.16	0.23	0.71	2.51	0.47	0.25	0.97
9	2.41	0.41	0.20	0.92	4.55	6.96	2.61	0.16	0.23	0.71	2.48	0.41	0.21	0.92
10	2.43	0.42	0.24	1.09	4.59	7.03	2.54	0.16	0.23	0.71	2.50	0.42	0.24	1.08
11	2.20	0.61	0.29	1.18	4.99	7.19	2.24	0.16	0.23	0.71	2.50	0.56	0.29	1.14
12	2.21	0.82	0.31	1.37	5.00	7.21	1.95	0.16	0.23	0.71	2.50	0.74	0.30	1.32
13	2.20	0.66	0.24	1.01	4.99	7.19	1.66	0.16	0.23	0.71	2.50	0.60	0.24	0.98
14	2.20	0.64	0.15	0.62	4.99	7.19	1.36	0.16	0.23	0.71	2.50	0.58	0.15	0.61
15	2.20	0.52	0.15	0.69	4.99	7.19	1.07	0.16	0.23	0.71	2.50	0.48	0.15	0.68
16	2.32	0.21	0.26	1.29	2.60	4.92	0.89	0.16	0.23	0.71	2.50	0.20	0.26	1.24
17	2.32	0.46	0.30	1.36	2.59	4.91	0.71	0.16	0.23	0.71	2.50	0.44	0.30	1.31
18	2.32	0.52	0.30	1.19	2.59	4.91	0.53	0.16	0.23	0.71	2.50	0.49	0.29	1.15
19	2.32	0.30	0.38	1.71	2.59	4.91	0.35	0.16	0.23	0.71	2.50	0.29	0.37	1.64
20	2.32	0.46	0.53	2.53	2.60	4.92	0.18	0.16	0.23	0.71	2.50	0.44	0.51	2.41
21	2.43	0.32	0.34	1.53	2.13	4.56	0.12	0.16	0.23	0.71	2.49	0.32	0.34	1.51
22	2.43	0.24	0.26	1.31	2.13	4.56	0.06	0.16	0.23	0.71	2.49	0.23	0.27	1.31
23	0.61	0.19	0.39	2.25	0.53	1.14	-	-	-	-	0.67	0.18	0.35	2.05
LoM	**55.59**	**0.64**	**0.31**	**1.31**	**118.08**	**173.68**					**55.59**	**0.64**	**0.31**	**1.31**

At the Cabaçal Mine, the mining operations will be carried out by a third-party contractor. The mining equipment was sized according to the volumes of material to be removed each year.

The run-of-mine (ROM) will be drilled, blasted, loaded and transported by trucks. The medium and high grade material and part of low grade material will go directly feed to the plant. The other part of the low grade material will go to a low grade stockpile maximum of 2.87Mt. The idea is to feed the plant with highest ROM at the beginning while retaining the lower grades for feeding the plant later.

The following work is recommended to advance the mining plans at Cabaçal:

- An effective grade control plan to achieve the necessary control over the dilution rate must be implemented during the first acts of mining, by a trade-off considering the use of sampling holes or the use of dedicated drilling equipment.
- Conduct a detailed geotechnical analysis including a geotechnical oriented diamond drilling campaign and logging, with sampling collecting for tensile, compressive and shear strength tests and review the pit optimization parameters.
- Implement hydrological and hydrogeological studies deposits and to monitor of water level for the project to ensure the stability of the slopes and the entry of water into the pit to avoid the interruption of operations.

1.11 Processing and Recovery Operations

The metallurgical testwork provided was thoroughly analyzed and the process route has been chosen as the best suited for the testwork results for the material. The unit operations selected are typical for this industry.

In essence, the project is composed of:

- Primary crushing
- Single stage semi-autogenous (SAG) milling with pebble crushing
- Gravity concentration with production of gold doré bullion
- Rougher, cleaner and cleaner scavenger flotation to produce copper gold concentrates
- Pyrite flotation
- Concentrate dewatering
- Tailings dewatering
- Dry stack tailings

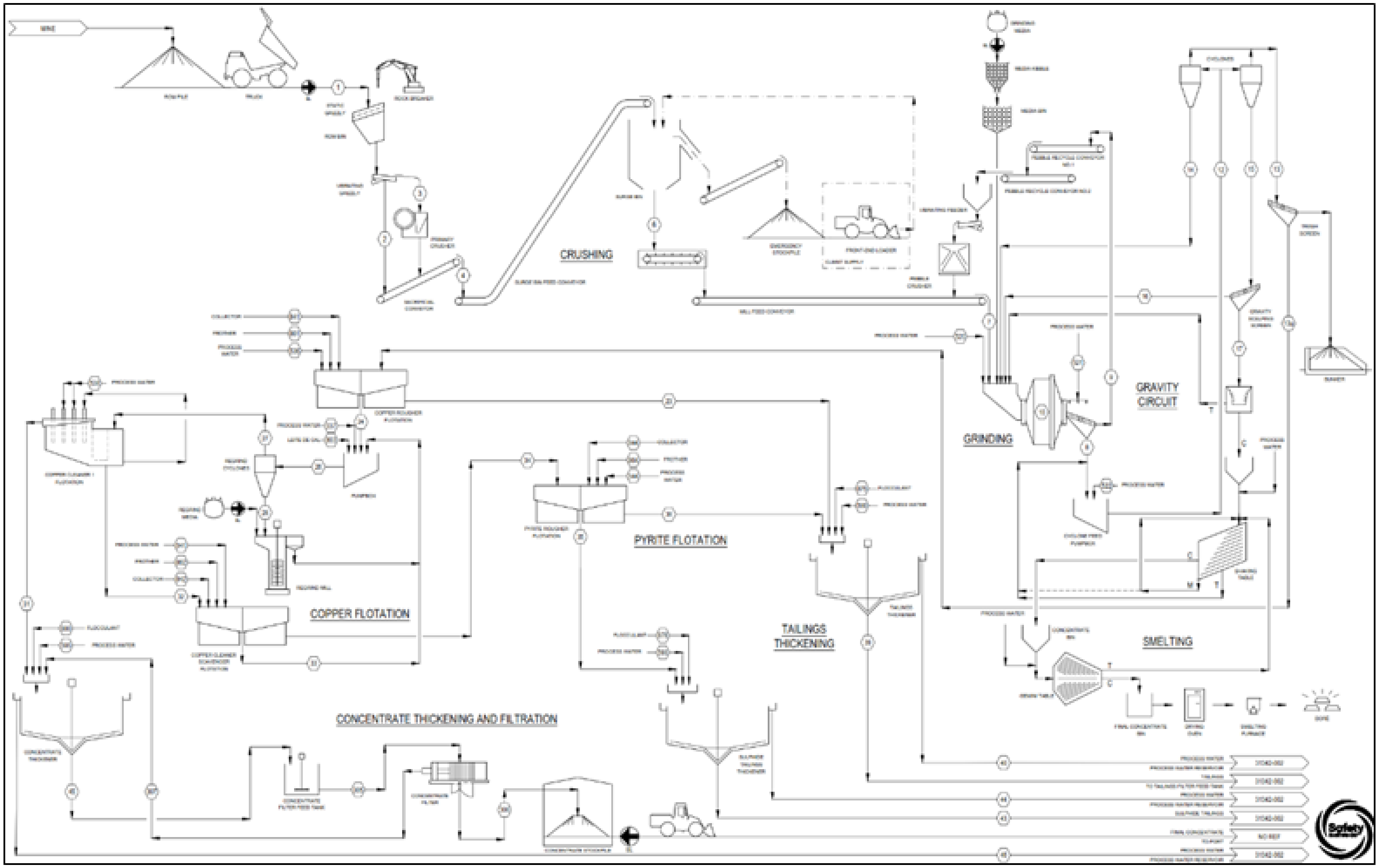
Key process design criteria are listed below:

- Nominal throughput of 6,850 t/d or 2.5 Mt/a
- Crushing plant availability of 65%
- Plant availability of 92% for grinding, gravity concentration, flotation, and thickening
- Plant availability of approximately 85% for concentrate and tailings filtration

An overall process flow diagram showing the unit operations in the selected process flowsheet is presented in Figure 1-2.

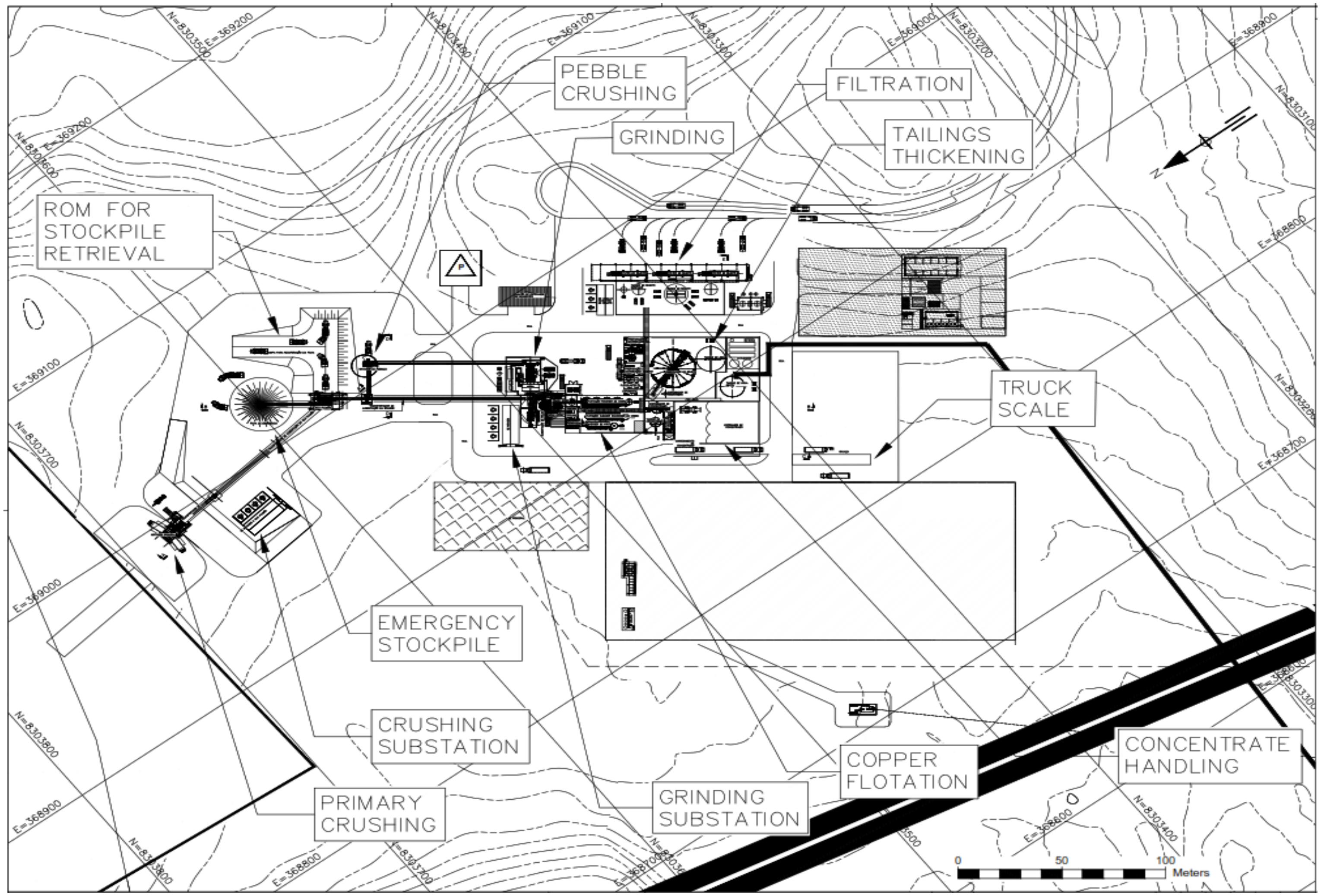
The overall processing plant layout is provided in Figure 1-3.

Figure 1-2: Overall Process Diagram



Source: Ausenco, 2023

Figure 1-3: Overall Processing Plant Layout



Source: Ausenco, 2023

The site is a greenfield location consisting of an open pit mine that utilizes direct tipping to feed the jaw crusher. The crushed product reports to the closed SAG mill grinding circuit, with classification performed by a cyclone cluster. Cyclone overflow gravitates to the flotation circuit, where copper-gold concentrate is recovered. Cyclone underflow is split so that part of it returns to SAG mill feed and part feeds a gravity circuit for gold recovery. The gravity circuit is composed of a gravity concentrator and shaking tables. Gravity tailings are returned to the grinding circuit, while final concentrate is fed to a smelter to produce doré.

Flotation concentrate is thickened and filtered before storage and transportation out of site. Tailings are also thickened and filtered prior to deposition in the dry stack tailings facility.

Site utilities and services includes high and low pressure air, reagent preparation and storage, diesel fuel storage and raw water treatment and process water supply,

Total plant electrical load is approximately 10 MW and all the infrastructure to provide this power has been accounted for.

1.12 Project Infrastructure

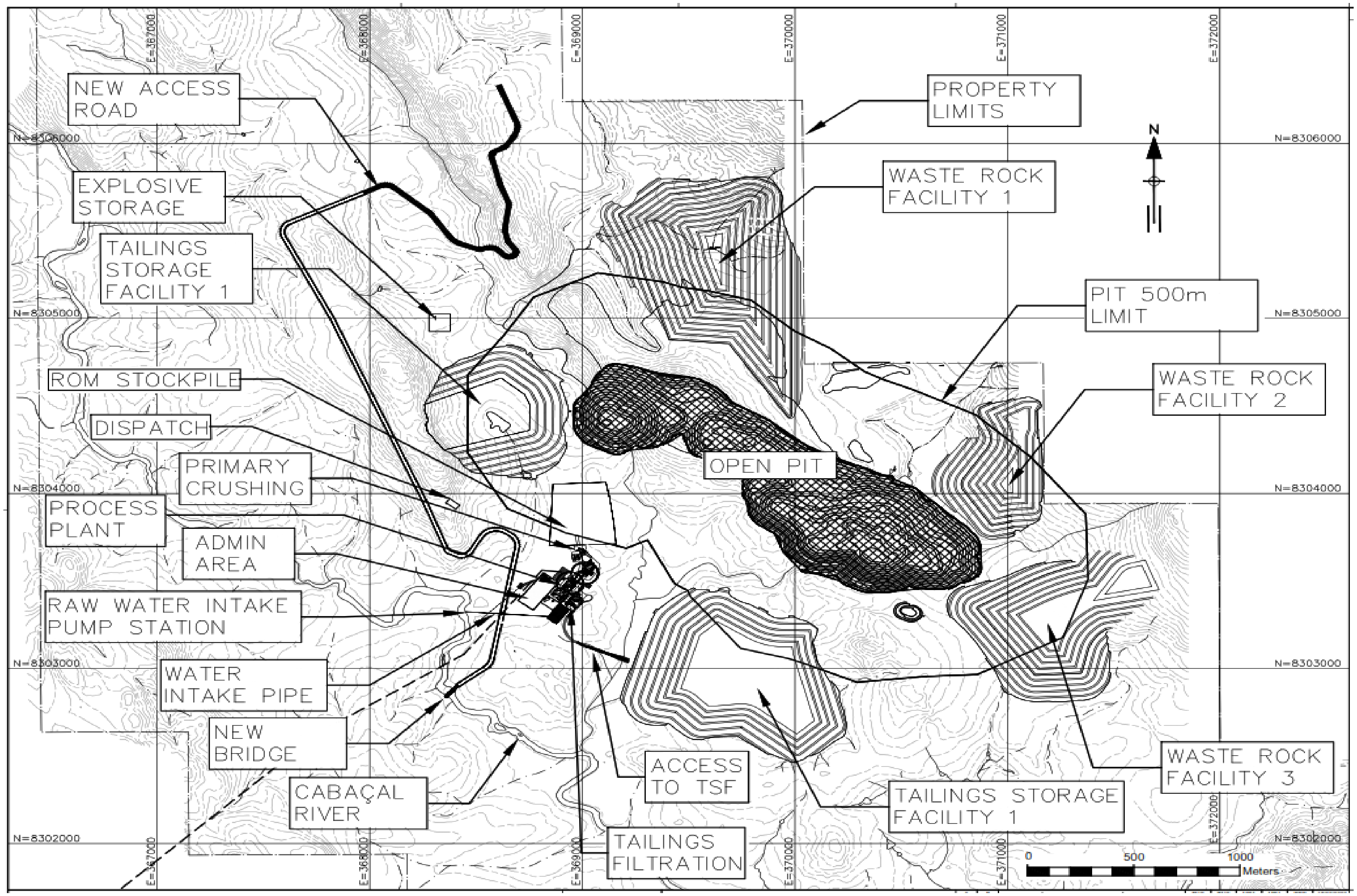
Infrastructure to support Cabaçal Project will consist of site civil work, site facilities and process buildings, a water management system, waste disposal facility (WDF) and electrical power distribution. Site facilities include:

- Mine facilities, including administration offices, truckshop, washbay, HME workshop, gas station and magazine;
- Process facilities, including process plant, crusher facilities, mill facilities, stockpile facility, flotation facilities, filtration facilities, process plant workshop, assay laboratory, dry stack tailings storage (DSTS), and rock storage facility (RSF);
- Common facilities include gatehouse and administration building; and
- Both the mine facilities and the process facilities serviced with potable water, fire water, compressed air, power, diesel, communication, and sanitary systems.

The site was selected to provide sufficient area to all the facilities mentioned. Nevertheless, more detailed engineering is needed to confirm the suitability and location on the current area for final mine and processing facilities, should they be constructed.

The overall site plan is shown in Figure 1-4.

Figure 1-4: Overall Site Layout



Source: Ausenco, 2023.

The plant site consists of the necessary infrastructure to support the processing operations. All infrastructure buildings and structures will be built and constructed to all applicable codes and regulations. Due to the tropical weather conditions, no closed buildings will be required to cover the process plant. The project site will include administration building, plant maintenance shop and warehouse, and other buildings.

1.12.1 Access

Property access is described in Section 1.2. The project can be accessed by unpaved all-weather gravel roads, approximately 30 km to the north-northeast from São José dos Quatro Marcos city. A new concrete bridge crossing the Cabaçal river was also planned during the development of the plant location study.

The site access road is a two-lane gravel road required from the secondary road to the plant site access, expected to be 9 m wide by 0.7 km long. This road also connects farmlands to the entrance of the mine via a single lane gravel road that will be 6 m wide by 6 km long.

The typical method of clearing, topsoil removal, and excavation will be employed, incorporating drains, safety bunds and backfilling with granular material and aggregates for road structure. The entrance to the process and mine site will be via the gatehouse.

1.12.2 Power Supply

Plant power supply will be via a connection at the Araputanga Substation at 138 kV. An approximately 20 km long transmission line is required to connect the plant to the Araputanga substation. The proposed line may use the existing high-voltage electric transmission corridor that passes nearby the Cabaçal Project.

1.12.3 Tailings Management Facility

Ausenco performed a deposition and siting trade-off study in 2021 for MNO. The results showed favour to the filtered tailings and dry stack tailings facility (DSTF). Mineralized material was discovered under the DSTF designed in the trade-off study located near the southeast end of the pit, so this site was not available for the PEA. In addition, the total ROM to be processed increased from 25.3 Mt to 55.6 Mt.

In the PEA, two (2) DSTF sites were developed to contain the life-of-mine (LoM) tailings generation of 55.6 Mt. Recent advances in tailings filtration technology and performance favours tailings filtration and dry stacking for this project even in a wet environment.

Conceptual design for both DSTF 1 and DSTF 2 are based on an assumed 23-year LoM with a total milled tonnes of 55.6 Mt and a maximum annual mining rate of 2.5 Mt/a. The tailings would be dewatered at the filter plant to a target moisture content of approximately 15%, then trucked to the DSTFs, and placed and compacted in controlled lifts to a specified minimum compacted density. The dry density of the placed tailings was assumed to be 1.65 t/m^3 for volumetric calculations. For the purposes of the PEA, the outer slopes for both DSTF 1 and 2 were designed at a 3.5H:1V (horizontal:vertical) slope, based on a preliminary stability analysis.

A geochemical testing program was completed in 2022. The results show some of the samples were PAG. However, the sulphide concentrations in the tailings are low, suggesting the tailings are not PAG. However, to be conservative, the tailings have been classified as potential acid-generating (PAG) until additional tests are completed. Therefore, Ausenco has designed both facilities with a compacted soil liner and geomembrane with a containment berm to contain any potential acid runoff from these facilities. Due to the tailings being filtered and placed and compacted, it is not anticipated that an appreciable amount of drain-down or seepage from the tailings will contribute flows to the internal drain. However, the global stability of the DSTFs will depend on the ability to prevent the development of elevated pore pressures within the stacks. The DSTFs are therefore have an internal drain system designed to prevent the development of elevated pore pressures within the tailings mass and capture and seepage and convey it to the DSTF seepage pond for analysis and treatment, if necessary. Both sites also have an underdrain system in the natural drainage bottoms designed to intercept any potential upwelling groundwater and seep through the liner system. The upper operational surface will be graded so that contact runoff reports to a lined operational pond at the back of the DSTF to facilitate pumping back to the process plant for reuse. Contact stormwater must be managed on the DSTF top and not allowed to enter the underdrain system. As the filtered tailings surface progresses up the slope at the back of each DSTF, the lined operational pond would be relocated to the lowest point on each lift. In addition, rain coats will be utilized to minimize infiltration of precipitation along with shedding it off the DSTF as non-contact water.

Diversion channels must be constructed around the DSTFs before any other construction is started. The diversion channels would route non-contact stormwater run-on around the DSTFs and back into natural drainages downstream. Conceptual channel alignments are shown in Section 18.6.5.1.

Haul trucks will be used to transport the dried tailings from the filter plant to either of the DSTFs via dedicated haul roads. The tailings would be end dumped, spread in approximately 30 cm-thick loose lifts with a dozer, and compacted using a vibrating smooth drum roller or sheepsfoot compactor, as appropriate.

Reclamation of the outer slopes of the DSTFs would be undertaken concurrent with DSTF construction. As successive lifts of dewatered tailings are placed and compacted, the outer slope face would be covered with rock cladding, topsoil, and vegetated. The final top surface of the DSTF would be graded back to the natural slope and stormwater diversion channels at not less than 2%, covered with topsoil and revegetated.

1.12.4 Waste Rock Storage Facility (WRSF)

Waste rock storage facilities are planned for waste material from the open pit. Three locations were selected for waste rock storage: one north of the ultimate pit limits (WRF01), one east south-east of the ultimate pit limits (WRF02) and one on the south southeast side of the pit (WRF03). Total waste rock capacity is approximately 118 Mt.

1.12.5 Water Management

Raw water for use during operations is available within the Project area and will be sourced from the nearby Cabaçal river and storage in a raw water tank reservoir constructed in the beneficiation plant area.

The site water balance considered the requirements/excess of water, and the available water sources. The Process plant has a net raw water demand of approximately 94 m^3/h during LoM.

1.13 Market Studies and Contracts

Meridian has not completed any formal marketing studies regarding gold/silver/copper production from mining and processing Cabaçal mineralized material into gold doré bars and copper/silver/gold concentrate. Market price assumptions and payment terms were based on a review of public information, industry consensus, standard practice and specific information from comparable operations in the region.

For this technical report, a gold price of USD1,650/oz, cooper price of USD3.59/lb and silver price of USD21.35/oz was assumed and exchange rate reported in Brazilian Reals (BRL) to US dollars (USD) BRL5.30:USD1.00 and Brazilian Reals (BRL) to Canadian dollars(CAD) BRL3.964:CAD1.00 was used.

The economic analysis applies refining charges and payment terms based on benchmarks for comparable operations located in Brazil and the Mato Grosso area. Payable gold in doré is assumed to be 99.9%, with a refining charge of USD0.50 per oz of payable gold. For copper concentrate, road and port costs are assumed to be USD42.69 per oz of gold equivalent payable. This cost considers transport by trucks from the site to Vitória Port over an approximate distance of 2,400 km, including taxes. Port costs include storage costs and operations for loading ships.

A deduction of 1% from the copper grade in concentrate is taken as free metal. Payable gold in concentrate is assumed to be 90% for concentrate grades above 1 g Au/dmt, increasing to a maximum of 95% for concentrate grades above 10 g/dmt Au. Payable silver in concentrate is assumed to be 90% for concentrate grades above 30 g/dmt Ag.

1.14 Environmental

Meridian has engaged the Sete Soluções e Tecnologia Ambiental Ltda to undertake an environmental study (EIA/RIMA: Estudo de Impacto Ambiental e Relatório de Impacto Ambiental/Environmental Impact Study and Report of Environmental Impact). Environmental studies started in January 2022 and are ongoing as of the Effective Date.

Considering the surveys carried out, the main aspects that generate environmental impacts with the implementation of the Cabaçal project are highlighted below, most of which are intrinsic to the implementation of mining projects and subject to control, mitigation, and compensation.

Physical environment: Changes in the morphology of the relief and landscape of the region, associated with rock mass movement. Impacts can be managed with appropriate drainage control and vegetation. Dry stacked tailings will be used to mitigate risk and tailings will be non-acid generating. Barren topsoil in the open pit mine pre-strip will be stockpiled and used for rehabilitation. Analysis of air quality, environmental noise, and vibrations in the study area indicate that the operational works should not cause significant environmental changes, and constant monitoring of these conditions will be undertaken.

Biotic environment: Local change in land use and vegetation removal can impact fauna but can be offset by both a careful management plan to maintain biodiversity through reforestation, and by purchase and preservation of analogue forest environments to compensate for areas used.

Socioeconomic environment: Programs will be put in place to manage community expectations and ensure that infrastructure, public services and equipment and not overloaded. Indirect and direct employment opportunities will arise from mine development, and local and state governments would receive income from taxes.

Cabaçal Project is in an area already been greatly altered by anthropic activities, in particular pastures characterized as environments of very low plant diversity, formed through prior deforestation for cattle grazing over previous decades. Remnant native vegetation plays an important role in the hosting a diversity of fauna species in the district, and a carefully managed future mining operations would plan to enhance habitat for endemic species and more than compensate for local impacts.

As for the socioeconomic aspects of the study area, considering the dynamics and social portrait of the municipalities in question (Rio Branco, São José dos Quatro Marcos, Araputanga and Mirassol D'Oeste) the implementation and operation of the Cabaçal project will represent related positive consequences, above all, the generation of employment and income, generation of budget revenues for the municipal public treasury, enhancing the economy and public social investment in these regions. Care will need to be taken to not overload services and public facilities during the build up of activities in the region.

Closure and Reclamation Considerations: The primary objective of the closure and reclamation initiatives will be to eventually return the DSTF and WRSF to self sustaining facilities that satisfy the end land-use objectives. No formal Closure and Reclamation Plan has been prepared for the Cabaçal project to date. One will be developed as the project advances through subsequent project stages of feasibility-level design.

1.15 Capital and Operating Costs

The capital and operating cost estimates presented in this PEA provide substantiated costs that can be used to assess the preliminary economics of the Cabaçal project. The estimates are based on an open pit mining operation, as well as the construction of a stage-wise process plant, associated tailings storage and management facility, and infrastructure, as well as Owner's costs and provisions.

Exchange rate reported in Brazilian Reals (BRL) to US dollars (USD) BRL5.30:USD1.00 and Brazilian Reals (BRL) to Canadian dollars(CAD) BRL3.964:CAD1.00 was used.

1.15.1 Capital Cost Estimate

The capital cost estimate conforms to Class 5 guidelines for a preliminary economic assessment level estimate with a -40% +50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed in Q1 2023 based on Ausenco's budgetary quotations and in-house database of projects and studies as well as experience from similar operations.

The following costs and scope are excluded from the capital cost estimate:

- land acquisitions
- taxes not listed in the financial analysis
- sales taxes
- scope changes and project schedule changes and the associated costs
- any facilities/structures not mentioned in the project summary description
- costs to advance the project from preliminary economic assessment to prefeasibility study
- geotechnical unknowns/risks
- financing charges and interest during the construction period
- any costs for demolition or decontamination for the current site
- third-party costs

Owner's capital costs are included in the capital estimate.

The total initial capital cost for the Cabaçal Project is USD179.6 M; and the life-of-mine sustaining cost is USD108 million. The initial capital cost summary is presented in Table 1-6.

Table 1-6: Capital Cost Summary

Description	Total Cost (MBRL)	Total Cost (MUSD)
Direct Costs	626.72	118.25
Equipment	206.77	39.01
Packages	4.84	0.91
Materials	51.27	9.67
Construction And Erection	193.51	36.51
Others	170.32	32.14
Indirect Costs	166.60	31.43
Contingency	158.66	29.94
Total	**951.97**	**179.62**

1.15.2 Operating Cost Estimates

Operating costs include the ongoing cost of operations related to mining, processing, tailings disposal and general administration activities. A summary of the operating costs is shown in Table 1-7. The LoM operating cost is USD21.2/t.

Meridian has opted for the complete outsourcing of mining at Cabaçal. GE21 Consultoria Mineral Ltda, was selected by Meridian for the engineering of the Mine. Using its database of recent quotes, GE21 calculated the mining operational costs.

Table 1-7: Operating Cost Breakdown

Cabaçal Operating Cost Breakdown		
Item	**USD/t milled**	**USD/oz**
Mining Costs	9.31	296.43
Labour	1.63	51.78
Power	2.07	65.80
Reagents & Consumables	2.61	82.96
Maintenance	0.97	30.72
Water/sewage	0.00	0.07
Access Maintenance	0.06	1.96
Laboratory	0.38	12.13
Dry Stack	2.12	67.33
G&A	2.11	67.06
Total Operating Costs	**21.25**	**676.25**

Common to all operating cost estimates are the following assumptions:

- Cost estimates are based on Q1 2023 pricing without allowances for inflation.
- Costs are expressed in United States dollars (USD), using the exchange rate of BRL5.30:USD1.00.
- Majority of the labour requirements are assumed to come from neighbouring municipalities.

- Processing unit operations were benchmarked against similar or comparable processing plants.
- Equipment and materials will be purchased as new.
- Grinding media consumption rates have been estimated based on the material characteristics.
- Reagent consumption rates have been estimated on the metallurgical characteristics.
- The mobile equipment cost includes fuel and maintenance costs.

1.15.3 Sustainability Costs Estimate

Sustaining capital were estimated based on specific engineering requirements. The total sustaining cost is USD108 million, distributed as shown in Table 1-8.

Table 1-8: Sustaining Cost Summary

Item	MUSD
Process	30.53
Tailings	47.73
Indirect Costs	7.83
Owner Costs	3.91
Contingency	18.00
Total Sustaining Capital	**108.00**

1.16 Economic Analysis

The 2023 PEA is preliminary in nature and is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2023 PEA based on these Mineral Resources will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

The Project was evaluated using a discounted cash flow (DCF) analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections. Cash flows were taken to occur at the end of each period. The economic analysis was run on a constant dollar basis with no inflation.

The economic analysis uses the following assumptions:

- Construction period of 18 months;
- Mine life of 22.3 years (last year is a partial year);
- Results based on 100% ownership;
- 2.0% NSR State Copper Royalty (CFEM);
- 1.5% NSR State Gold Royalty (CFEM);
- 2.0% NSR State Silver Royalty (CFEM);

- Landowner royalty defined as 50% of the total State Royalty;
- Capital cost funded with 100% equity (no financing cost assumed);
- All cash flows discounted to the start of construction using a full period discounting convention;
- All metal products are sold in the same year they are produced;
- Project revenue is derived from the sale of copper and gold concentrate and gold doré; and
- No contractual arrangements for refining currently exist.

The pre-tax net present value (NPV) discounted at 5% is USD717 M; the internal rate of return (IRR) is 67.0%, and payback period is 0.8 years. On a post-tax basis, the NPV discounted at 5% is USD573 M; the IRR is 58.4%, and payback period is 0.9 years. A summary of Project economics is shown in Table 1-9.

Table 1-9: Economic Analysis Summary

General	Base Case	Spot Case (as of March 1, '23)
Copper Price (USD/lb)	3.59	4.13
Gold Price (USD/oz)	1,650	1,841
Silver Price (USD/oz)	21.35	21.35
Mine Life (years)	22.3	22.3
Production	**LoM Total/Avg.**	**LoM Total/Avg.**
Total Mill Feed Tonnes (kt)	55,595	55,595
Mill Head Grade Cu (%)	0.31%	0.31%
Mill Head Grade Au (g/t)	0.64	0.64
Mill Head Grade Ag (g/t)	1.31	1.31
Mill Recovery Rate Cu (%)	92.4%	92.4%
Mill Recovery Rate Au (%)	89.7%	89.7%
Mill Recovery Rate Ag (%)	75.2%	75.2%
Total Copper Recovered (Mlb)	353	353
Total Gold Recovered (koz)	1,021	1,021
Total Silver Recovered (koz)	1,759	1,759
Total Recovered Gold (AuEq)	1,811	1,832
Total Recovered Gold (AuEq) Year 1-5	655	661
Operating Costs	**LoM Total/Avg.**	**LoM Total / Avg.**
Mining (USD/t Moved)	3.03	3.03
Processing Cost (USD/t Milled)	9.83	9.83
G&A Cost (USD/t Milled)	2.11	2.11
Refining & Transport Cost (USD/lb Cu)	0.45	0.45
Total Operating Costs (USD/t Milled)	21.25	21.25
Cash Costs (USD/oz Au Eq)	804.38	800.78
Cash Costs (USD/oz Au Eq) Year 1-5	644.27	643.87
AISC (USD/oz Au Eq)	864.15	859.86
AISC (USD/oz Au Eq) Year 1-5	670.71	670.07
Capital Costs	**LoM Total/Avg.**	**LoM Total/Avg.**
Initial Capital (USDM)	180	180
Sustaining Capital (USDM)	108	108

Mine Closure Costs (USDM)	23	23
Salvage Value (USDM)	(27)	(27)
Financials – Pre-Tax	**LoM Total/Avg.**	**LoM Total/Avg.**
NPV (5%) (USDM)	717	936
IRR (%)	67.0%	79.6%
Payback (years)	0.8	0.7
Financials – Post-Tax	**LoM Total/Avg.**	**LoM Total/Avg.**
NPV (5%) (USDM)	573	745
IRR (%)	58.4%	69.7%
Payback (years)	0.9	0.8

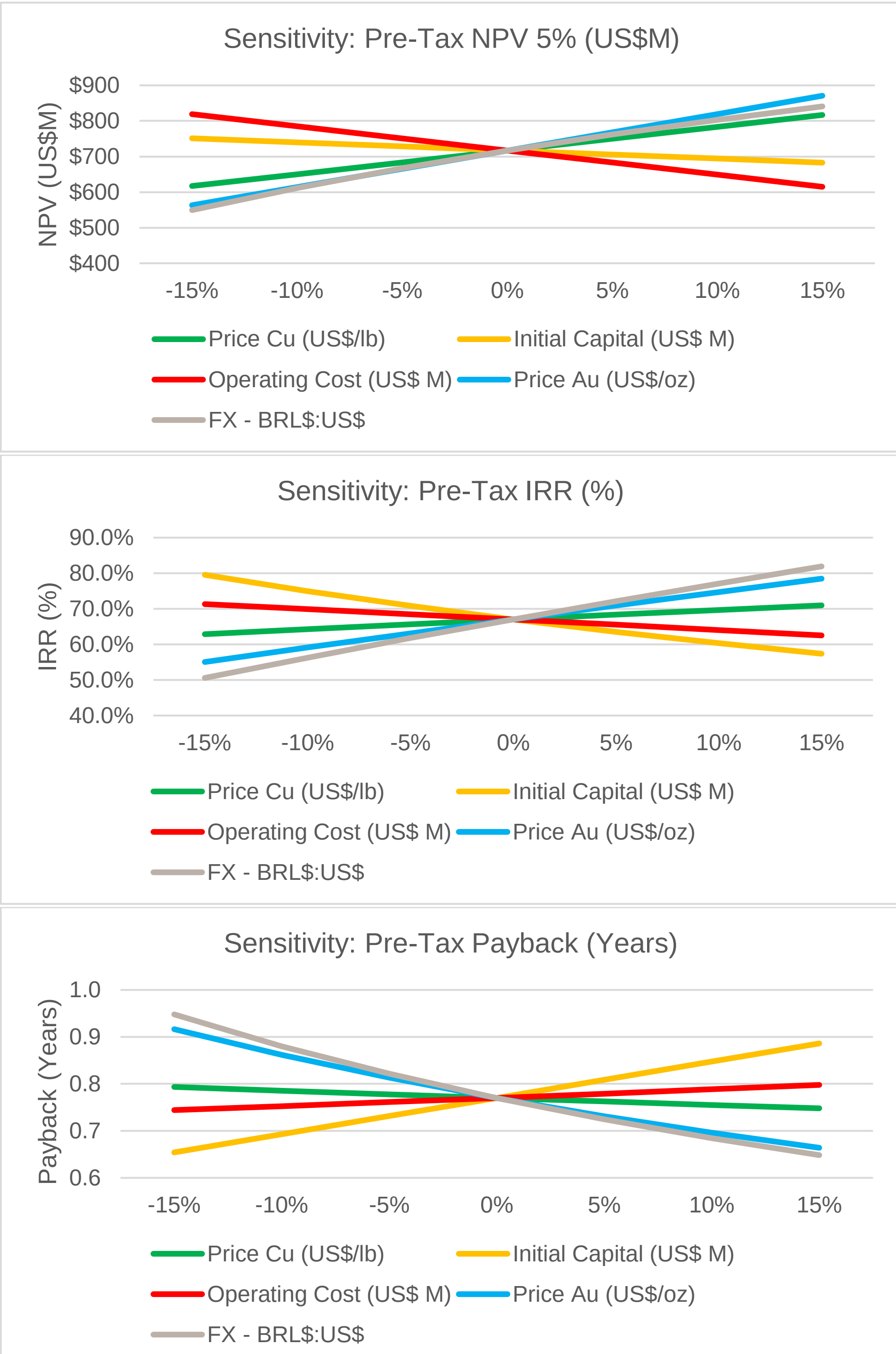
Note:* Cash costs consist of mining costs, processing costs, mine-level G&A, treatment, refining, and transport costs, and royalties.
** AISC includes cash costs plus sustaining capital, mine closure cost and salvage value.
*** AISC includes costs plus sustaining capital, mine closure cost and salvage value.

1.16.1 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV, IRR, and payback of the Project, using the following variables: gold price, copper price, discount rate, total operating cost, foreign exchange, and initial capital costs.

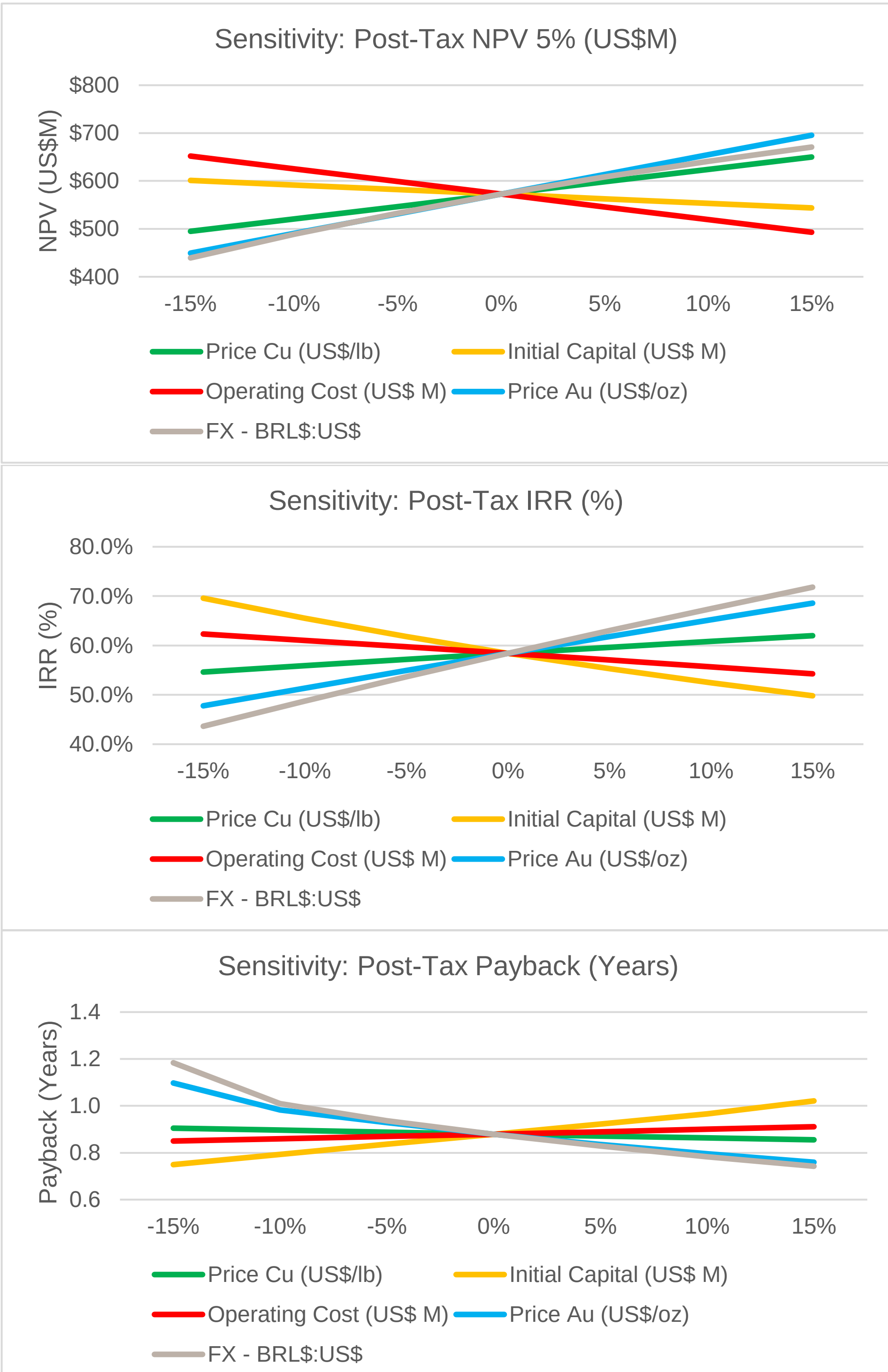
As presented in Figure 1-5 and Figure 1-6, the sensitivity analysis showed that the Project is most sensitive to changes in gold price, foreign exchange, and initial capital.

Figure 1-5: Pre-Tax NPV, IRR, and Payback Sensitivity Results



Source: Ausenco, 2023.

Figure 1-6: Post-Tax NPV, IRR, and Payback Sensitivity Results



Source: Ausenco, 2023.

1.17 Other Relevant Data Information

Two drill rigs are currently deployed on the project and drill programs in the immediate term are focused on the delineation of additional mineralization at Cabaçal and its immediate extensions. Meridian has discovered high-grade Au mineralization in the Cabaçal North-West Extension, in late-stage structures overprinting the Cu-Au-Ag VMS stratigraphy. This in particular shows that the broad 100m by 100m historical drilling was too wide to delineate high-grade trends, and programs here are focused on infill drilling of angled holes to couple with both the shallow-dipping mineralized stratigraphy and the steeper-dipping late-stage mineral-bearing structures.

Following the initial twin drilling campaign at Cabaçal, drilling has been focussed on closing the drill spacing on the extensions to a 50 m by 50 m pattern. Select drilling on a 25 m by 25 m grid has been initiated with results to be incorporated into a 2023 Mineral Resource update. A campaign of metallurgical drilling was undertaken in late 2021-early 2022. Geotechnical drilling will be considered as part of the recommendations following an assessment of the open pit development potential. The limits of mineralization in the overall Cabaçal system continue to be defined with the 50m by 50m infill grid drilling still in progress at the time the resource database was frozen.

MNO initiated environmental and hydrological studies through Sete Soluções e Tecnologia Ambiental Ltda and Hidrovia in 2022 with studies remaining in progress.

Geophysical and geochemical reconnaissance is planned to develop targets over the broader belt. Meridian is strategically focussing initially on the corridor between and immediately along strike from the Cabaçal and Santa Helena mines. Any new discoveries on the mine lease / mining lease application in the corridor offer permitting and operational synergies. The exploration crew will be deployed between geophysical programs (surface and borehole electromagnetic surveys, survey induced polarization and gravity surveys), and reconnaissance soil and rock chip sampling. Prospecting activities will be undertaken on targets emerging from the WorldView-3 satellite alteration mineral mapping study on the Cabaçal Belt.

1.18 Interpretation and Conclusions

The following interpretation and conclusions are made for the project:

1.18.1 Data Verification and Mineral Resources

1.18.1.1 Geology and Mineralization

- The Cabaçal project lies with the highly deformed Paleoproterozoic Alto Jaurú Greenstone Belt in the Jaurú-Santa Domain Belt of the Amazon craton;
- The geology of the Cabaçal deposit comprises an overturned metamorphosed volcano-sedimentary sequence with a sheared base. The mineralized VMS sequence is typically tens of metres thick and dips gently to the southwest;
- The Cabaçal mineralization is characteristic of a typical bimodal mafic polymetallic VMS system with potential for multiple clusters of mineral zones within a 4-6 km² area. The broader area covered by the MNO exploration licences and licence applications offer considerable scope for more similar type of deposits as Cabaçal;

1.18.1.2 Exploration Results

- Exploration programs completed to date are appropriate for the style of deposit in the area.

1.18.1.3 Mineral Resource Estimate

- Sampling methods are acceptable for the Mineral Resource estimation. Mineral Resource estimate prepared in accordance with CIM Definition standards for Minera Resources and Mineral Reserves.

1.18.2 Mining Methods

- The MRE have been reported constrained by a nominal pit shell and surface topography, at a 0.3 g/t gold equivalent cut-off, based on the assumption exploitation will be by an open pit method.
- The MRE comprise Indicated and Inferred Resources.

1.18.3 Metallurgical Testwork & Recovery Methods

- The comminution tests indicated that this material is medium hard for SAG milling and soft to medium hard for ball mill applications.
- The copper in the deposit is essentially in the form of chalcopyrite, with very good liberation characteristics based upon the QEMSCAN and mineralogy tests. The testwork did not show any clear trend between grind size and final metals recovery. A grind size of 200 microns is predicted to be appropriate for the mineralization.
- The metallurgical testwork indicates that the inclusion of a gravity circuit does not have a significant impact on the total gold recovery. However, based on field experience, whenever there is considerable gravity recoverable gold in the deposit, it is always good practice to include the gravity circuit in the process design. This deposit is an acceptable candidate for gravity gold recovery based on testwork, which showed a Gravity-Recoverable Gold number of 64.3. Based on the grind size of 200 microns and assumption that 50% cyclone underflow reports to gravity concentration, the gold recovery by an appropriate gravity circuit in field is estimated to be around 30%.
- From the testwork, rougher concentrate regrind and elevated pH are required to produce a satisfactory concentrate grade. The regrind size used in the testwork varied from 30 to 50 microns. For process design, a regrind size between 35-45 microns is recommended, with a cleaner flotation pH of at least 9. Based on the testwork, a single stage of cleaner flotation appears to be sufficient to produce a marketable concentrate containing above 25% copper.
- If the Master composite sample is representative of the overall deposit of the Cabaçal project in mineralogy and head grade, the average copper recovery from this deposit is expected to be in the low 90% range and gold recovery is expected to be in the mid to high 80% range with the incorporation of a gold gravity circuit.
- Pyrite flotation was tested on the copper cleaner tails. A concentrate with approximately 44% of sulphur content was achieved, which may be a marketable product.
- Based on the testwork, recovery of zinc material is not recommended at this stage due to unfavourable mineral characteristics and relatively low head grade.

1.18.4 Recovery Methods

- The process plant has been designed for a throughput of 6,850 t/d to produce gold. In the form of doré bullion from gravity concentration and a copper gold concentrate from flotation. Flotation tailings are processed to remove pyrite and produce a low sulphur tailing for dry stack storage.

1.19 Recommendations

1.19.1 Overall

The results presented in this technical report demonstrate that the Cabaçal project is technically and economically viable. It is recommended to continue developing the project through additional studies as discussed below, to advance the project towards a prefeasibility study. The recommended work program has a total budget of USD10.2 million.

1.19.2 Geology

H&SC recommends the following drilling is undertaken to improve the understanding of the grade continuity and to allow for upgrades in the MRE:

- A detailed drilling programme on 25m centres testing a sub-area of the main deposit across 7 or 8 section lines.
- A line of drillholes along strike at 50m spacing in reasonably close proximity to the northeast margin of the mineralization.
- The continuation of infill and expansionary exploration drilling for the northwest half of the peripheral zone to the Cabaçal mine.
- Regional exploration is undertaken over the 50km of strike of the prospective belt that is held by the Company under licence. The aim is to identify potential for further VMS systems for drilling follow up. Exploration strategies to be employed include surface geochemical sampling, ground based geophysics using the Company's in-house geophysical and geochemical teams (e.g., IP and EM surveys and remote sensing studies). Reconnaissance drilling may be undertaken with an initiated 20 holes for 3,000m proposed.

1.19.3 Mining

For the next phases of the Project, we recommend the following studies:

An effective grade control plan to achieve the necessary control over the dilution rate must be implemented during the first acts of mining, by a trade-off considering the use of sampling holes or the use of dedicated drilling equipment.

Conduct a detailed geotechnical analysis including a geotechnical oriented diamond drilling campaign and logging, with sampling collecting for tensile, compressive and shear strength tests and review the pit optimization parameters.

Implement hydrological and hydrogeological studies deposits and to monitor of water level for the project to ensure the stability of the slopes and the entry of water into the pit to avoid the interruption of operations.

Develop a seismicity study in case there are structures such as: roads, communities, and power lines close to the Project.

1.19.4 Mineral Processing and Metallurgical Testing

Additional metallurgical tests for future Prefeasibility Studies (PFS) include:

- Optimization studies of rougher concentrate regrind size;
- Optimization studies of copper cleaner pH and potential depressants;
- Pyrite flotation studies, if required, investigating other reagent schedules without copper sulphate;

- Additional variability studies as necessary;
- Sedimentation and potential filtration tests on flotation tailings;
- Sedimentation and filtration tests on flotation concentrates;
- Physical characterisation tests of mineralized material, concentrate and tailings;
- Further study on the acid generating potential of the tailings without pyrite flotation is recommended together with a market study for the pyrite concentrate;
- Investigate ZCL lithology, which appeared in all the outliers;
- Perform more testwork on samples grading between 1 and 3% Cu head grade;
- Perform more testwork at the revised flowsheet (grind size, residence times, etc.);
- Perform specific energy tests for concentrate regrind requirements;
- Conducting a pilot plant test of the process in order to increase confidence and generate concentrate samples for marketing purposes; and
- Recovery formulas will be reviewed based on additional testwork results on oxide and primary mineralization.

1.19.5 Recovery Methods

The PEA scope did not include a throughput optimisation study. The Mineral Resource estimate published in September 2022 was more than 2 times larger than the previous historic resource, producing a 22-year mine life for the PEA. An optimisation study would determine if processing at a higher rate would further improve the project economics. Site Geotechnical

1.19.5.1 Geotechnical Field and Laboratory Program

A site-wide geotechnical field and laboratory program needs to be completed for the next phase for primary crusher, process plant, WRSFs, DSTFs, and other infrastructure. The following recommendations are made for geotechnical site investigation and laboratory work:

- Completion of fourteen (560m) geotechnical boreholes, 35 test pits, and geophysics in the areas of the primary crusher, process plant, WRSFs, DSTFs, haul roads, and ancillary roads to investigate and confirm foundation conditions, specifically the extent of the overburden along with depth to groundwater and to bedrock.
- Fifteen test pits and drilling of four 40m boreholes to confirm suitability and quantity of borrow materials for infrastructure construction.
- Laboratory index testing, including compaction tests, mechanical strength tests, and permeability tests on foundation soils and potential borrow materials.
- Laboratory testing to confirm the physical characteristics of the filtered tailings, including strength, trafficability, and permeability tests at both low and very high confining stresses to represent the height of the DSTF.
- Develop factual and interpretative reports for these facilities.

1.19.5.2 DSTF, WRSF, SSF, Mine Roads, and Plant Platform Design and Analysis

- Perform deterministic and probabilistic local seismic hazard study for the development of design seismic for infrastructure.

- Review and update meteorological and hydrology information, updating surface water and sediment management for the DSTF, WRSF and mine roads.
- Complete geochemistry testing and studies to confirm the metal leaching and acid generating potential of the materials that will be stored and/or used for construction.
- Develop seepage predictions and seepage control measures for the DSTF and WRSF along with surface water management.
- Update the tailings and waste rock deposition strategy to optimize material handling, including trafficability of material handling equipment for the DSTF.
- The stability model should be reviewed and updated, as required, with consideration of the final stacking plan using updated data about the material properties of the waste rock, tailings, and the foundations for both the DSTF and WRSF.
- Perform a liquefaction assessment with consideration of updated information on material properties and the updated stacking plan for the DSTF.
- Solicit budgetary quotes for earthworks and geosynthetics (i.e., geomembrane, geotextile, and piping) to get more accurate pricing for the next cost estimates.
- Develop civil design for DSTF and WRSF (stacking and scheduling by mine planner)
- Develop cost estimates (i.e., capital, sustaining capital, and operating costs) for DSTF and WRSF.

1.19.6 Environmental Studies and Permitting

The Cabaçal Project will need to obtain environmental permits in order to construct and operate a mine. In order to apply for these permits, Meridian will need to submit detailed reports on the potential environmental impacts of any mining operation. MNO is already at an advanced stage of sourcing the information required to generate these reports.

1.19.7 Advanced Studies

If Meridian completes substantially all of the recommended work in this section, then it may wish to consider undertaking a feasibility study that generates greater confidence such as a prefeasibility study including updated and more detailed cost estimation and economic analysis.

2 INTRODUCTION

Meridian Mining UK S ("Meridian") commissioned Ausenco do Brasil Engenharia Ltda. ("Ausenco") to compile a preliminary economic assessment ("PEA") of Cabaçal gold-copper project in Brazil. The PEA was prepared in accordance with the Canadian disclosure requirements of National Instrument 43-101 ("NI 43-101") and the requirements of Form 43-101 F1.

The responsibilities of the engineering consultants and firms who are providing qualified persons are as follows:

- Ausenco managed and coordinated the work related to the report. Ausenco also developed the PEA-level design and cost estimate for the process plant, general site infrastructure, tailings infrastructure, environmental management, compiled the overall cost estimate and completed the economic analysis;
- H&S Consultants Pty Ltd completed the work related to geological setting, deposit type, exploration, drilling, sample preparation, data verification, Mineral Resource estimation, and adjacent properties;
- GE21 Mineral Consultants Ltd developed the mine plan and schedule, and capital cost and operating cost related to the mine;
- SGS Lakefield Canada responsible for the project laboratory testing methodology and interpretation;
- Sete Soluções e Tecnologia Ambiental Ltda completed work related to environmental studies; and
- Hidrovia Hidrogeologia e Meio Ambiente Ltda supported the PEA with hydrological studies.

2.1 Terms of Reference

The report supports disclosures by Meridian in a news release dated March 6, 2023, entitled, "Meridian Delivers Strong Economics for Cabaçal's PEA: After-Tax NPV5 of USD573 M, 58.4% IRR & 10.6 Month Payback."

Readers are cautioned that the PEA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

2.2 Qualifications of Authors

The Qualified Persons for the report are listed in Table 2-1. By virtue of their education, experience, and professional association membership, and independence from Meridian, the individuals presented in Table 2-1 are each considered to be a "Qualified Person" as defined by NI 43-101. Report sections for which each QP is responsible are also listed in Table 2-1.

Table 2-1: Report Contributors

Qualified Person	Professional Designation	Position	Employer	Independent of Meridian	Report Section
Tommaso Roberto Raponi	P. Eng.	Principal Metallurgistt	Ausenco Engineering Canada Inc.	Yes	1.11, 1.12.1, 1.12.2, 1.12.5, 1.13, 1.15, 1.16, 1.18.4, 1.19.5, 1.19.8, 17, 18.1, 18.2, 18.3, 18.5, 18.6.1, 18.6.2, 18.6.3, 18.7, 19, 21.1, 21.2.1, 21.2.3, 21.2.4, 21.2.5, 21.2.6, 21.2.7, 21.2.8, 21.2.9, 21.2.10, 21.2.11, 21.3.1, 21.3.3, 21.3.4,22, 25.9, 25.10, 25.12, 25.13, 25.14.1.5, 25.14.1.6, 25.14.1.8, 25.14.1.9, 25.14.2.2, 25.14.2.3, 25.14.2.4, 26.5, 26.8
Scott Elfen	P. Eng.	Global Lead Geotechnica l Services	Ausenco Engineering Canada Inc.	Yes	1.12.3, 1.12.4, 1.14, 1.19.6, 1.19.7, 18.6.4, 18.6.5, 18.6.6, , 20, 25.9.1, 25.11, 25.14.1.5.1, 25.14.1.7, 25.14.2.3.1, 25.14.2.5, 26.6, 26.7
Simon Tear	P. Geo.	Principal Geological Consultant	H&SC	Yes	1.1, 1.2, 1.3, 1.4, 1.5, 1.8, 1.9, 1.17, 1.18.1, 1.19.1, 1.19.2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 23, 24, 25.1, 25.2, 25.3, 25.4, 25.6, 25.14.1.1, 25.14.1.2, 25.14.2.1, 26.1, 26.2, 27
Marcelo Batelochi	MAusIMM (CP Geo)	Independent Consultant	MB Geologia Ltda	Yes	1.6, 1.18.1, 12, 25.5, 25.14.1.2
Joseph Keane	P. Eng.	Mineral Processing Engineer	SGS	Yes	1.7, 1.18.3, 1.19.4, 13, 25.8, 25.14.1.4, 26.4
Guilherme Gomides Ferreira	MAIG.	Mine Engineer	GE21	Yes	1.10, 1.18.2, 1.19.3, 16, 21.2.2, 21.3.2, 25.7, 25.14.1.3, 26.3

2.3 Site Visits and Details of Inspection

An inspection of the Cabaçal Project was undertaken by anindependent Qualified Person, Mr. Marcelo Antonio Batelochi (of MB Geologia Ltda, Belo Horizonte, Minas Gerais, Brazil), between the 7th to 11th June 2021.

He was accompanied by the Project Staff and Dr Adrian McArthur – Chief Executive Officer, President & Director of Meridian. The scope of the visit covered reviewing the geology of the property, aspects of both the recent and historical data collection and sampling for the Property including inspections of drill core and old drill sites, trenches and soil sampling sites. In addition, drill core from campaigns conducted by BPM / RTZ in the 1980's – 1990's held at the UFMT (Mato Grosso Federal University) storage building in Cuiabá (capital city of Mato Grosso State), were inspected on the 7th June 2021.

A second site inspection of the Cabaçal Copper-Gold Project ("the Project") was undertaken by QP, Mr. Marcelo Antonio Batelochi (MB), of MB Geologia Ltda, Belo Horizonte Minas Gerais, Brazil), between the 29th August to 1st September, 2022. Mr. Batelochi was accompanied by Rio Cabaçal Mineração staff and Dr Adrian McArthur – Chief Executive Officer, President & Director. The scope of the visit was to update the assessment on the geology, data collection and sampling aspects of the Property including an inspection of selected drill cores completed since June 2021.

Mr Guilherme Gomides from GE21 visited the site in between 13th to 16th of December, 2022. He was accompanied by Mr Victor Belo, Principal Mining Consultant for Meridian Mining. The purpose of the visit was to become familiar with site topography and insfrastructure, the style of the geology, the mineralization, and the rock competency.

2.4 Effective Dates

This technical report has a number of significant dates as follows:

- Cabaçal mineral resource estimate: 21 August 2022; and
- Financial analysis: 01 March 2023.

The effective date of this report is based on the date of the financial analysis, which is 01 March 2023.

2.5 Information Sources and References

This technical report is based on internal company reports, maps, published government reports, and public information as listed in Section 27. It is also based on information cited in Section 3.

2.6 Previous Technical Reports

The following Technical Report related with the Cabaçal Project were filed on SEDAR:

- H&S Consultants Pty Ltd, 2022. Independent Technical Report, Mineral Resource Estimates for the Cabaçal VMS Deposit, Cabaçal Project, State of Mato Grosso, Brazil. Prepared for Meridian Mining UK Societas, effective date is 16 August 2022.
- H&S Consultants Pty Ltd, 2021: Amended and Restated NI43-101 Technical Report: Cabaçal Project Property Report, Mato Grosso, NW Brazil. Prepared for Meridian Mining UK Societas, effective date is 12 November 2021.
- SRK Consulting (2007) NI 43-101 Technical Report, Brazilian Resources Inc., Monte Cristo Mine, State of Mato Grosso, Brazil. SRK Project Number 164802. Effective Date: 31 December 2006.

2.7 Currency, Units, Abbreviations and Definitions

All units of measurement in this report are metric and all currencies are expressed in United States dollars (USD) unless otherwise stated. All material tonnes (t) are metric where 1 tonne = 1,000 kilograms, or 2,204.6 pounds. A list of report abbreviations is provided in Table 2-2.

Table 2-2: Unit Abbreviations

Acronym/Abbreviation	Description
%	Percent
°	Azimuth/Degrees
°C	degree Celsius
#	mesh size
µm	micron
a	annum
Ai	Abrasion Index
ABA	Environmental Acid/Base Accounting

Acronym/Abbreviation	Description
AA	Atomic Absorption
Ag	silver
Au	gold
AuEq	gold equivalent grade
BWI	Ball Mill Bond Work Index
CCD	counter-current decantation
CIL	Carbon-in-leach
CoG	Cut-off grade
cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
CFEM	Financial Compensation for the Exploration of Mineral Resources
Cfm	cubic feet per minute
ConfC	Confidence Code
Crec	Core Recovery
CSS	Closed-Side Setting
CTW	Calculated True Width
dia.	Diameter
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
FA	fire assay
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	gram
Gal	gallon
g/L	gram per litre
g-mol	gram-mole
gpm	gallons per minute
GRG	Gravity Recoverable Gold
g/t	grams per tonne
ha	hectares
HDPE	Height Density Polyethylene
HLS	Heavy Liquid Separation
Hp	Horsepower
HTW	Horizontal True Width
ICP	Induced Couple Plasma

Acronym/Abbreviation	Description
ID^2	Inverse-distance squared
ID^3	Inverse-distance cubed
IFC	International Finance Corporation
ILS	Intermediate Leach Solution
IRR	Internal Return Rate
kA	kiloamperes
kg	kilograms
km	kilometre
km^2	square kilometre
Koz	thousand troy ounces
kt	thousand tonnes
kt/d	thousand tonnes per day
kt/y	thousand tonnes per year
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	litre
L/sec	litres per second
L/sec/m	litres per second per metre
lb	pound
LCT	Locked cycle test
LHD	Long-Haul Dump Truck
LLDDP	Linear Low Density Polyethylene Plastic
LOI	Loss On Ignition
LoM	life-of-mine
M	metre
m^2	square metre
m^3	cubic metre
Masl	metres above sea level
MARN	Ministry of the Environment And Natural Resources
MDA	Mine Development Associates
mg/L	milligrams/litre
MIBC	methyl isobutyl carbinol
MIK	Multiple Indicator Kriging
mm	millimetre
mm^2	square millimetre

Acronym/Abbreviation	Description
mm^3	cubic millimetre
MME	Mine & Mill Engineering
Moz	million troy ounces
Mt	million tonnes
MTW	Measured true width
MW	million watts
m.y.	million years
NAG	Net Acid Generation
NGO	Non-Governmental Organization
NPV	Net Present Valued
NSR	Net Smelter Value
NI 43-101	Canadian National Instrument 43-101
OK	Ordinary Kriging
OSC	Ontario Securities Commission
Oz	Troy Ounce
PAX	Potassium Amyl Xanthate
PEA	Preliminary Economic Assessment
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
PMF	Probable Maximum Flood
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	Rotary Circulation Drilling
RoM	Run-of-mine
RQD	Rock Quality Description
SEC	U.S. Securities & Exchange Commission
sec	second
SG	specific gravity
SPT	Standard Penetration Testing
st	short ton (2,000 pounds)
SUDAM	Superintendence Of Development Of The Amazon
t	tonne (metric ton) (2,204.6 pounds)
t/a	tonnes per annum
t/h	tonnes per hour
t/d	tonnes per day
t/y	tonnes per year

Acronym/Abbreviation	Description
TSF	Tailings Storage Facility
TSP	Total Suspended Particulates
V	volts
VFD	Variable Frequency Drive
W	watt
XRD	X-Ray Diffraction
Y	year

2.8 Definitions

The following general mining terms are used in this report.

Table 2-3: Definitions of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
BHEM Survey	Bore Hole Electromagnetic survey – a downhole survey method designed to detect conductive bodies.
Block model	A 3D shape comprised of blocks each with various metal grades and geological parameters; used for reporting the Mineral Resource.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the mineralized material.
Crushing	Initial process of reducing RoM particle size to render it more amenable for further processing.
Cut-off Grade (CoG)	The grade of mineralized rock, which determines as to whether it is economic to recover its metal content by further concentration.
Density	Mass of a unit volume of a material substance. The formula for density is d = M/V, where d is density, M is mass, and V is volume.
Dilution	Waste, which is unavoidably mined with mineralized material.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
FLTEM Survey	Fixed Loop Transient Electromagnetic survey – a surface survey method designed to detect conductive bodies
Footwall	The underlying side of a mineralization or stope.
Gangue	Non-valuable components of the mineralized material.
Grade	The measure of concentration of a metal within mineralized rock.
Hangingwall	The overlying side of a mineralization or slope.

Term	Definition
Haulage	A horizontal underground excavation, which is used to transport mined mineralized material.
Hydrocyclone	A process whereby material is graded according to size by exploiting centrifugal forces of particulate materials.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error. Uses variography.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
LoM Plans	Life-of-Mine plans.
LRP	Long Range Plan.
Material Properties	Mine properties.
Milling	A general term used to describe the process in which the RoM is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
Ongoing Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.
Pillar	Rock left behind to help support the excavations in an underground mine.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Shaft	An opening cut downwards from the surface for transporting personnel, equipment, supplies, mineralized mateiral, and waste.
Sill	A thin, tabular, horizontal to subhorizontal body of igneous rock formed by the injection of magma into planar zones of weakness.
Smelting	A high temperature pyrometallurgical operation conducted in a furnace, in which the valuable metal is collected to a molten matte or doré phase and separated from the gangue components that accumulate in a less dense molten slag phase.
Specific Gravity	Ratio of the density of a substance to that of a standard substance, the usual standard of comparison for solids and liquids being water.
Stope	Underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulphide	A sulphur bearing mineral.
Tailings	Finely ground waste rock from which valuable minerals or metals have been extracted.
Thickening	The process of concentrating solid particles in suspension.
Total Expenditure	All expenditures including those of an operating and capital nature.
Tuff	A rock composed of compacted volcanic ash varying in size from fine sand to coarse gravel.
Variogram	A statistical representation of spatial characteristics usually metal grade.

Term	Definition
Variography	A methodology to measure the spatial grade continuity of a particular metal and the relationship between samples; uses variograms to generate variogram models.

3 RELIANCE ON OTHER EXPERTS

3.1 Introduction

The QPs have relied upon the following other expert reports, which provided information regarding surface rights, property agreements, royalties, environmental, permitting, social and community impacts, taxation, and markets for sections of this Report.

3.2 Property Agreements, Mineral Tenure, Surface Rights and Royalties

The QPs have not independently reviewed ownership of the Project area and any underlying property agreements, mineral tenure, surface rights, or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from Arap, Nishi & Uyeda Advogados and legal experts retained by Meridian for this information through the following documents:

- Arap, Nishi & Uyeda Advogados. Mineral Rights Purchase and Sale Agreement, by and among Prometálica Mineração Ltda. And IMS Engenharia Mineral Ltda., as Sellers, and Meridian Mining SE, As Purchaser, Dated as of 6 November 2020. 70 Pages.
- Instrumento Particular de Acordo para Realização de Projeto de Explotação Mineral. 6 Pages. Royalty agreement relating to licence 861956/1980 (the St Helena / Monte Cristo Mining Lease) for the benefit of Mineração Manati Ltda., a company registered at CNPJ/ME under n. 30.670.848/0001-99.

This information is used in Section 4 of the Report.

3.3 Taxation

The QPs have fully relied upon, and disclaim responsibility for, information supplied by Meridian for information related to taxation as applied to the financial model as follows:

- "February 2023: Cabaçal Financial Model" by Meridian, (Meridian Mining, 16 February 2023).

This information is used in Section 22 of the Report.

3.4 Markets

The QPs have not independently reviewed the marketing information. The QPs have fully relied upon, and disclaim responsibility for, information derived from Meridian for this information through the following documents:

- "February 2023: F. Model" by Meridian, (Meridian Mining, 16 February 2023).

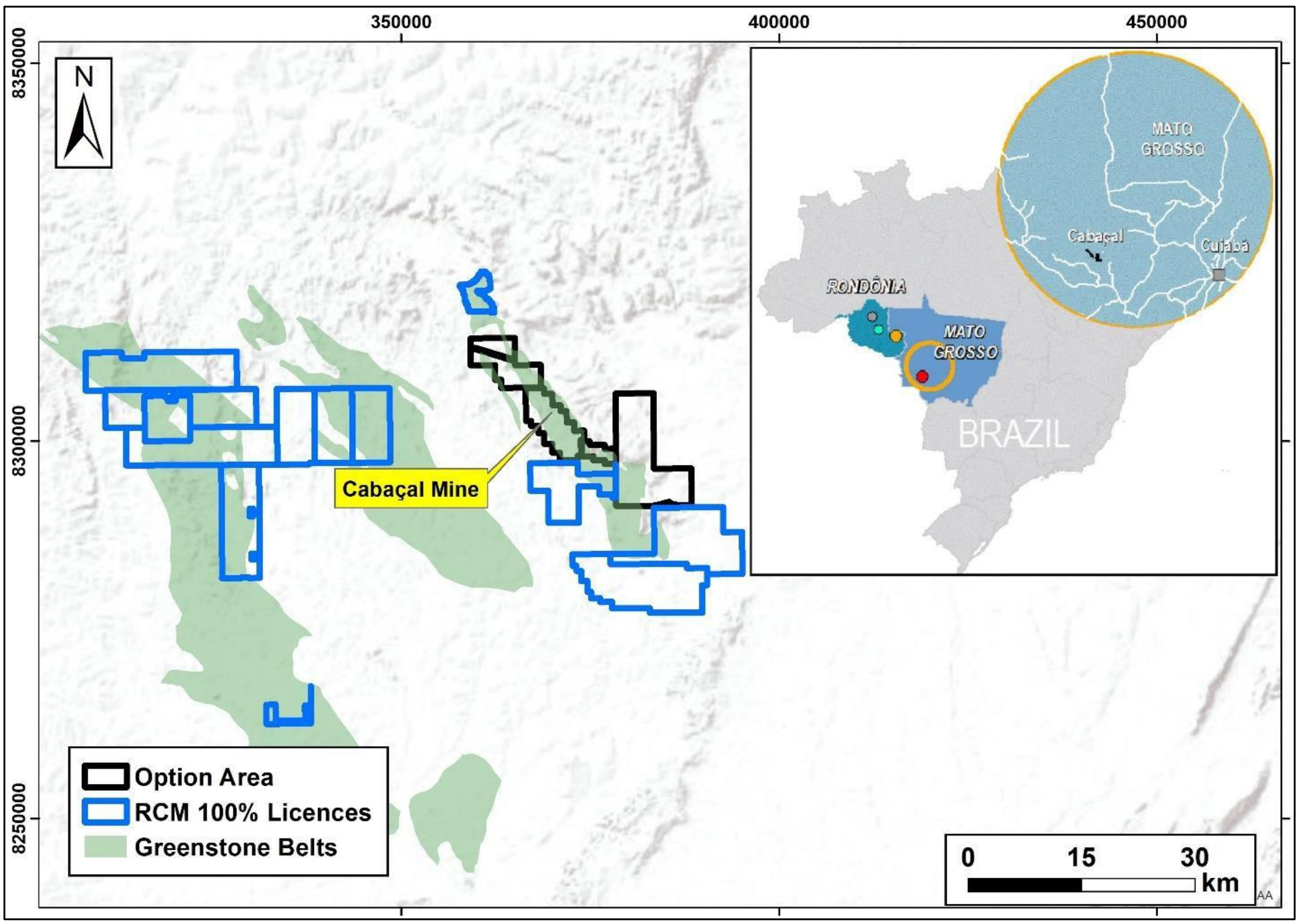
This information is used in Section 19 of the Report. The information is also used in support of the financial analysis in Section 22.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Introduction

The Cabaçal Cu-Au-Ag mine is located at -58o 12' 33.84 '' W; -15o 20' 18.6'' S (GCS WGS 1984), on the 1:250000 "Barra do Bugres" mapsheet SD-21-Y-D (IBGE map system; Instituto Brasileiro De Geografia e Estatistica). Figure 4-1 shows the location of the Cabaçal deposit and the Meridian exploration licences.

Figure 4-1: Project Location Map, Showing The Option Area and Exploration Licences.



Source: Meridian, 2022. Adapted from Lacerda Filho et al (2014).

There are several towns in the area, including Araputanga, São José dos Quatro Marcos and Mirasol D'Oeste, which have facilities such as hospitals, schools, shops, banks, post-offices, and petrol stations. The project area is accessible via unpaved roads. São José dos Quatro Marcos offer the best logistic base for a regional office. The total distance by road from São José dos Quatro Marcos to Cabaçal is 30 km.

4.2 Mineral Titles

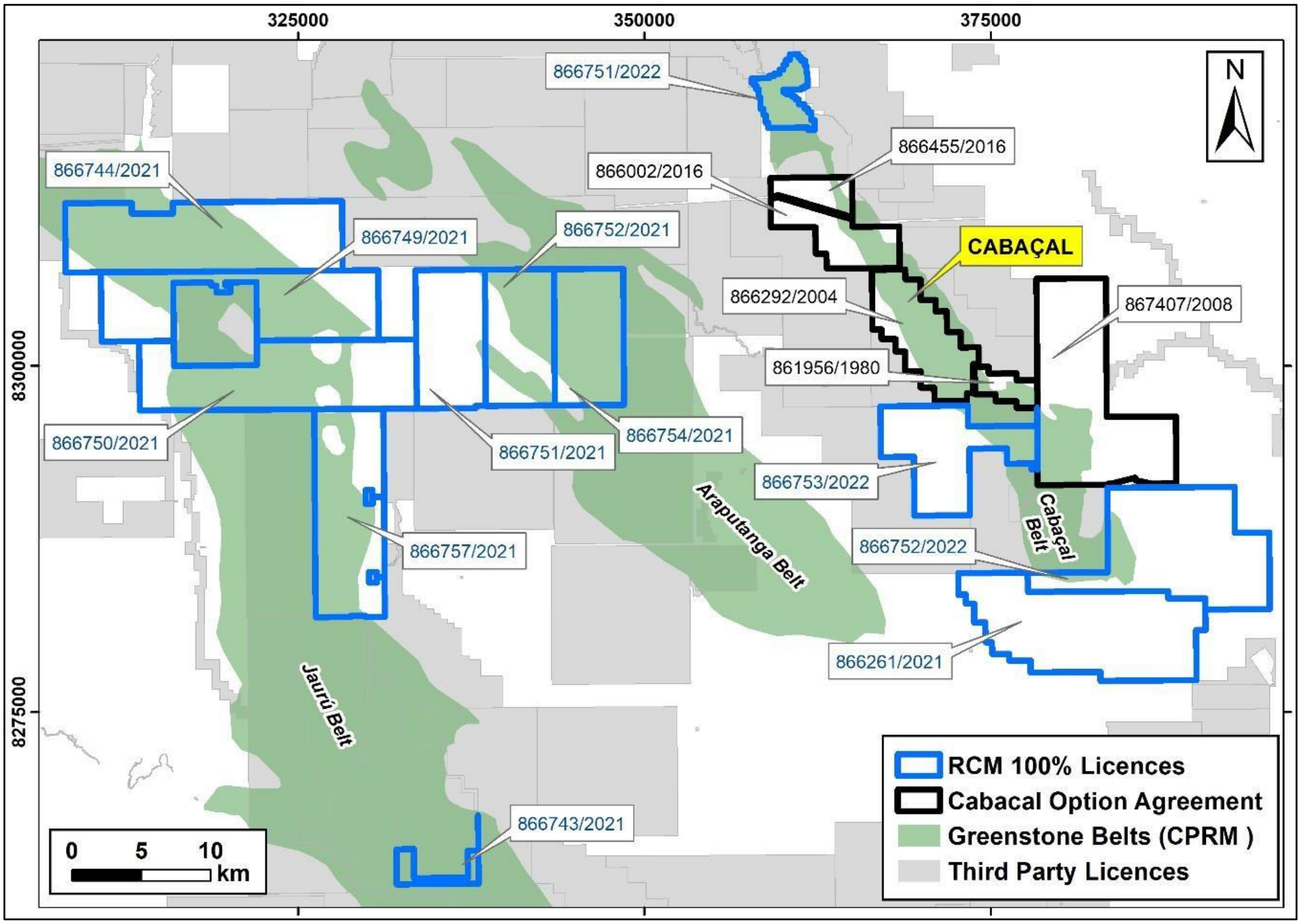
The Cabaçal Project tenure covers a 50km strike length of a prospective Proterozoic greenstone belt, spanning 44,265 Ha, of which 18,462 Ha relates to the following licences under the option agreement:

- Registered to Prometálica Mineração Ltda.
  - 861956/1980: The Santa Helena Mining Lease (875 Ha); and
  - 866292/2004: The Cabaçal Mining Lease Application (4,028 Ha).
- Registered to IMS Engenharia Mineral Ltda
  - 867407/2008: Exploration licence (9,813 Ha);
  - 866002/2016: Exploration licence (2,566 Ha); and
  - 866455/2016: Exploration licence (1,180 Ha).

Meridian applied for twelve licences in its own right in the Cabaçal, Jaurú and Araputanga Belts. The applications have been accepted and registered (Figure 4-2). Approval of the new applications for field activity is pending. The licences in the Jaurú and Araputanga Belts span 49,110 Ha.

Licence Number	Licence Number
866261/2021 (9862.28 Ha)	866749/2021 (7545.90 Ha)
866754/2021 (4917.97 Ha)	866744/2021 (9691.66 Ha)
866752/2021 (4912.24 Ha)	866743/2021 (666.42 Ha)
866751/2021 (4977.87 Ha)	866751/2022 (1403.63 Ha)
866757/2021 (7400.68 Ha)	866752/2022 (9466.49 Ha)
866750/2021 (8925.37 Ha)	866753/2022 (5070.51 Ha)

Figure 4-2: Land Tenure Map Option Area Plus RCM Licences.



Source: Meridian, 2022. Geology from Lacerda Filho et al (2014), licences from ANM.

4.2.1 Nature and Extent of Issuer's Interest

The mining sector in Brazil is administered by the Agência Nacional de Mineração ("ANM"), part of the Ministry of Mines and Energy. Like many countries, minerals are owned by the government, and private companies have the right to explore and develop resources in return for royalty payments. The mineral code allows for a legal right of entry (Decret-Law Nº 227, De 28 De Fevereiro De 1967 – Brazilian Mining Code). Meridian is sensitive to community needs and all mining and exploration work is undertaken under agreement with private landholders.

A mineral licence in the application stage awaiting approval is termed "Requerimento de Pesquisa" (research applications). Once approved, the licence is authorized for work programs, and the licence enters of phase of being authorized for research ("Autorização De Pesquisa"). Exploration licences are granted for an initial period of three years. Subject to assessment of an exploration progress report ("Partial Report" or "Relatório Parcial"), exploration claims are extendable for three more years. During this phase, bulk sampling can be conducted to test processing performance of different material types. At the conclusion of this period, Meridian submits a Final Report, outlining the findings of its work programs. Where resources are defined, a Positive Final Report is presented ("Relatório Final de Pesquisa Mineral Positivo"). An application for a mining licence (Lavra) can be made after submission of an economic study, and the area is typically reduced in size to a footprint required for development and operation. In instances where exploration does not define a resource of interest, a Negative Final Report is submitted ("Relatório Final de Pesquisa Mineral Negativo"), and the licence is relinquished. Mining licences have no expiry data and are valid until surrendered, subject to being kept in good standing through payment of government licensing fees and meeting regulations.

With respect to the licences forming part of the option agreement:

- Licence 866292/2004 (the Cabaçal Mining Lease Application) has had its final report approved and has been accompanied by an appropriate reduction of area. The current licence was first approved for exploration on 10 December 2009. A partial report was presented on 4 October 2012 and the licence was renewed on 3 January 2013. A positive final report was presented on 8 June 2016 and approved on 13 October 2016 with an appropriate reduction in area. The mining lease application was lodged on 11 May 2017;
- Licence 861956/1980 (the Santa Helena / Monte Cristo Mining Lease) was approved as a mining licence on 12 June 2002. The last Mineral Resource update by SRK was lodged on 13 February 2017 by PML;
- The first term exploration licences all had anniversaries on 7 March 2021 (866002/2016, 866455/2016), and interim exploration reports have been submitted (Partial Reports);
- Licence 867407/2008 was renewed for a second three-year term on 10 October 2022 following assessment and approval of its Partial Report; and Meridian has verified the titles are registered to the Vendors and an application for transferal has been lodged to the ANM. Annual fees ("TAH") are payable to the Federal Government upon grant or renewal of mineral claims, at current rates of BRL 3.70 per hectare for the first three years of grant, and BRL 5.56 per hectare upon renewal.

4.3 Agreements, Royalties and Encumbrances

Licence 861956/1980 (the Santa Helena/Monte Cristo Mining Lease) has a royalty payment for the benefit of Manati, arising from the Mineral Exploitation Project Agreement dated 20 December 2000. The value is equivalent to one-point-five per cent (1.5%) of the gross revenues earned in a given month, less any taxes in connection with the Purchaser's production and sales, payable up to the fifth (5^{th}) business day of each month, in connection with the immediate previous month. Under the acquisition structure, Rio Cabaçal Mineração is purchasing the titles and not the holding companies. This is being done to mitigate the corporate risk with respect to any actions against the past operators.

On 6 November 2020, Meridian entered into a definitive Purchase Agreement to acquire a 100% beneficial interest in the Cabaçal mineral rights located in the state of Mato Grosso, Brazil, for a total consideration of USD8,750,000 plus, at the option of the vendors, 4,500,000 Meridian shares or CAD1,350,000, from two private Brazilian companies, Prometálica Mineração Ltda., and IMS Engenharia Mineral Ltda (the "Vendors"). During the year ended 31 December 2021, Meridian changed the terms of the second payment and assigned the Purchase Agreement related to the Cabaçal project to its Brazilian subsidiary Rio Cabaçal Mineração Ltda. ("Rio Cabaçal") and, during the nine-month period ended 30 September 2022, changed the terms of the third payment. Meridian is required to make staged payments based on milestones achieved as follows:

Amounts paid/payable as of 31 December 2022:

- USD25,000 payable within 5 days of the execution of the option agreement (paid);

- USD275,000 payable by 15 October 2021, as the transfers of the mineral rights to Rio Cabaçal were filed with the Agência Nacional de Mineração ("ANM"; Brazil's nation mining agency) (paid);and
- USD1,750,000 payable on 1 August 2023, unless accelerated upon completion of an equity financing for gross proceeds of at least USD2,500,000, provided completion of successful drilling program and historical geophysics database validation, as well as the obtaining of certain permits and the access to the surface rights overlapping with the Cabaçal mineral rights (payable as of 31 December 2022 – see details regarding payment below).

Amounts not yet triggered:

- 1,000,000 common shares in the capital of Meridian or CAD300,000, at the option of the Vendors, within six months of the third payment and subject to completion of technical report on the estimate of the resource in accordance with National Instrument 43-101, whichever occurs later;
- USD1,850,000 plus, at the option of the vendors, 1,500,000 common shares in the capital of Meridian or CAD450,000, within nine months of the fourth payment and subject to the successful completion of the positive economic feasibility study;
- USD2,250,000 payable plus, at the option of the vendors, 2,500,000 common shares in the capital of Meridian or CAD600,000, up to 30 days after the Installation Licence ("LI") of the Cabaçal Project plant is issued by the competent authorities; and
- USD2,600,000 payable within 45 days after the signature by Meridian of the definitive financing contracts for the construction of the Cabaçal Project plant.

On 30 December 2022, Meridian closed a brokered private placement with gross proceeds of USD4,320,372 triggering the third payment of USD1,750,000 of the Cabaçal Agreement. As of 31 December 2022, the payable amount has been recognized by Meridian in accounts payable and accrued liabilities. The Cabaçal Agreement contemplates that payments can be withheld by Meridian in Indemnification Escrow Fund (the "Escrow Fund") to guarantee the payment of any losses in connection with certain Vendors' obligations. Also, at Company's discretion, the Escrow Fund balance can be used to pay certain Vendors' obligations. Subsequent to the year ended 31 December 2022, Meridian and the Vendors started the process of setting the Escrow Fund and Meridian made payments of approximately USD765,000 on behalf of the Vendors that have been deducted from the third payment amount.

4.4 Environmental Liabilities and Permitting

4.4.1 Environmental Liabilities

Licence 861956/1980 contains some remaining infrastructure relating to the Santa Helena Mining Operation – parts of the beneficiation plant, office rooms, the old laboratory and guardhouse, and the tailings dam. The operating licence (Lo n° 0655/2008) for activities in the Santa Helena Mine has expired since 12/05/2011 and there is no request for renewal. Remaining metallic structures that have not yet been removed are being traded for scrap metal and are being progressively disassembled.

The Vendors have presented to the environmental agency SEMA a request for decommissioning the dam (Process No. 1,546/2003, protocols 135003/2006 and 848703/2010), and SEMA is engaging with the Vendors on outstanding requirements.

The Cabaçal mine on licence 866292/2004 is totally deactivated. Old buildings have their walls remaining and have partially now been adapted for Meridian's exploration requirements. The entrance to the underground mine was sealed by RTZ. The tailings dam was decommissioned and rehabilitated.

4.4.2 Required Permits – Brazilian Environmental Regulation

Meridian has received the required permits to execute its work programs. Exploration activities require a "Licença de Operação Provisória para Mineração ("LOPM") to be issued by the state environmental authority. On 3 March 2021, LOPM n° 323835/2021, was issued by the Secretaria de Estado do Meio Ambiente (Secretary of State for the Environment – SEMA, Mato Gosso) for the immediate Cabaçal thalweg definition area. The LOPM has been expanded over time with additional farms as access agreements have been confirmed to facilitate regional exploration. In October 2022, the LOPM licence number was updated to LOPM n° 328120/2022, reflecting the addition of the expanded areas. The LOPM is valid through 26 February 2024, and is renewable on application. The LOPM spans targets on both the Cabaçal Mining Lease Application (866292/2004), and the Santa Helena Mining Lease (861956/1980). A LOPM application has been lodged for the Álamo licence (867407/2008), which on 10 October, 2022 had its interim exploration report approved and was renewed for a second three-year term.

4.4.3 Current Status of the Cabaçal Project

There are no current mining activities on the Project. The Cabaçal mine was decommissioned by RTZ, and the Santa Helena mine has been closed with the plant partially sold and dismantled. Meridian initiated the current exploration and resource definition campaign on the 1st of February 2021. There are no obstacles regarding access to the property. Mineral titles are secure having been granted by government under a mining code. The right to perform work on the property has been covered by the appropriate landowner agreements.

4.5 Surface Rights

The Project concession package provides legal basis for entry, exploration, and extraction activities. Agreements are required with local surface rights owners prior to surface disturbance activities. Permits for extraction are obtained through application to the state's environmental and mining agencies (SEMA and the ANM).

4.6 Water Rights

MNO uses a license to capture water (certificate registered under number 4074/GOUT/CCRH/SURH/2021 - technical opinion # 4074) at five points of the Cabaçal Project for use in mineral exploration activities. This license was issued on March 15, 2021, by SEMA (environmental agency of the state of Mato Grosso - Brazil).

4.7 Social Licence Considerations

This subject is addressed in Section 20 and is the subject of ongoing studies.

4.8 Project Risks and Uncertainties

The broader 18,000 ha exploration area beyond the immediate mine environment has a large number of rural landholdings. Some properties are of small to moderate size. While resource companies have rights of access, Meridian has only been conducting its exploration activities with the agreement of the landholders. Most landholders are supportive of development and receive a direct benefit through royalties if targets proceed to production. Meridian's licences do not overlap indigenous lands. Meridian manages landholder liaison through its in-house team.

Furthermore, many state agencies in Brazil have had reduced levels of activities during the pandemic, which in particular has restricted the level of field work and public contact. Restrictions are gradually decreasing and to date Meridian has not been prevented from getting the necessary permits to execute its work programs.

5 ACCESIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Topography, Elevation and Vegetation

The Cabaçal Project is located on the plateau area of Western Mato Grosso state, consisting of flat to gently rolling hills. The resource and exploration area lies at an elevation of ~225 – 345m above sea level. There are many rivers in the project area such as the Cabaçal, Jaurú and Rio Branco, all of which flow into the Paraguai River. The area has already been significantly cleared for agriculture. The topography is undulating and amenable to exploration, being largely grass-covered (Figure 5-1). Topographic base maps used for exploration by RTZ at Cabaçal were constructed from aerial photographs flown at a scale of 1: 25,000. The local economy is based on agriculture, predominantly beef cattle.

Figure 5-1: View From The SE Looking Across Cabaçal and Towards The NW Extension (Ridgeline).

Source: Meridian Staff, 2021. Located at Meridian drill site CD-065 (Cabaçal Southeast), looking NW.

5.2 Accessibility

The Cabaçal Project is located in the Brazilian state of Mato Grosso in NW Brazil. The state is serviced by regular scheduled jet air flights to the capital city Cuiabá.

The site is accessible by the federal highway BR-070 from Cuiabá, 219km by road to the municipality of Cáceres, then 59 km by the BR-174 road until the junction with the MT-175 road, 32km by the MT-175 until the municipality of São José dos Quatro Marcos, 16 km by unpaved road MT-339 to Santa Fé (the nearest town) and finally 14 km by unpaved side road. The site or adjacent towns do not have a formal airport, but there is an approved runway closer to the city of Mirassol do Oeste, where twin-engine aircraft are allowed to operate during the day.

Within the Project area, vehicle access is available via a network of all-weather municipal dirt roads (Figure 5-2). During the wet season, 4WD access is advisable in some sectors.

Figure 5-2: Road Connecting São José Dos Quatro Marcos and The Santa Helena Mine.

Source: Meridian Staff, 2021.

5.3 Climate

As a point of reference, public domain data indicates that São José dos Quatro Marcos, in Mato Grosso, has an average temperature of 25.4°C and average annual precipitation of 1,471 mm, concentrated between October and April. Previous mining operations ran all year round. Table 5-1 contains climate data for the general Cabaçal area.

Table 5-1: Climate Data for São José Dos Quatro Marcos

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	27.3	26.2	26.4	25.2	22.8	22.6	23.3	25	25.9	27.2	27.1	25.7
Min. Temperature (°C)	21.9	21	20.1	18.6	16.3	14.9	15.5	17.8	19.8	20.9	21.3	19.7
Max. Temperature (°C)	32.7	31.5	32.7	31.9	29.4	30.3	31.2	32.3	32.1	33.6	33	31.8
Avg. Temperature (°F)	81.1	79.2	79.5	77.4	73	72.7	73.9	77	78.6	81	80.8	78.3
Min. Temperature (°F)	71.4	69.8	68.2	65.5	61.3	58.8	59.9	64	67.6	69.6	70.3	67.5
Max. Temperature (°F)	90.9	88.7	90.9	89.4	84.9	86.5	88.2	90.1	89.8	92.5	91.4	89.2
Precipitation / Rainfall (mm)	277	215	192	126	56	22	15	21	48	101	178	220

5.4 Sufficiency of Surface Rights

The Project concession package provides legal basis for entry, exploration, and extraction activities. Agreements are required with local surface rights owners prior to surface disturbance activities. Permits for extraction are obtained through application to the state's environmental and mining agencies (SEMA and the ANM).

5.5 Infrastructure Availability and Sources

5.5.1 Power

The region is supplied by a high-voltage 34.5kV power line from Cachoeira Dourada in Goiás State to Rio Casca in Mato Grosso State. The high-voltage line is about 1km southwest of the Santa Helena mine site. A potential route for the construction of the electric line from the substation at Araputanga to the Cabaçal mine area has been identified, extending over 21 km.

5.5.2 Communications

The microwave system run by Embratel and Telemat provides excellent national and international coverage for communications.

5.5.3 Water

Fresh water for the Santa Helena operations was supplied from the nearby Cabaçal River, about 0.5km from the mine site, via a permit for a barge-mounted pump, which operated at 800 L/min.

5.5.4 Mining Personnel

Brazil has an advanced mining economy, with a long history of production in many commodities including gold and base metals. The country has a strong system of universities and professional institutions. Experienced professional staff in remote locations typically work on a fly-in/fly-out basis, with residential options available. Mato Grosso itself has active mines, quarrying and alluvial operations. Labourers can be sourced from the local towns and agricultural community. Meridian has an experienced management team.

5.5.5 Health Services

The municipality has medical services in both the municipal and private network, with which Meridian's medical insurer, UNIMED, is affiliated with. The municipality of Mirassol d'Oeste, located approximately 10 km from São José dos Quatro Marcos, has more specialized services, including an intensive care unit.

5.5.6 Potential Tailings Storage Areas

A scoping study of tailings sites for operation at Cabaçal has been undertaken by Ausenco initiated in July 2021 and finished in December 2022, with findings now updated in Section 18 of this study.

5.5.7 Potential Processing Plant Sites

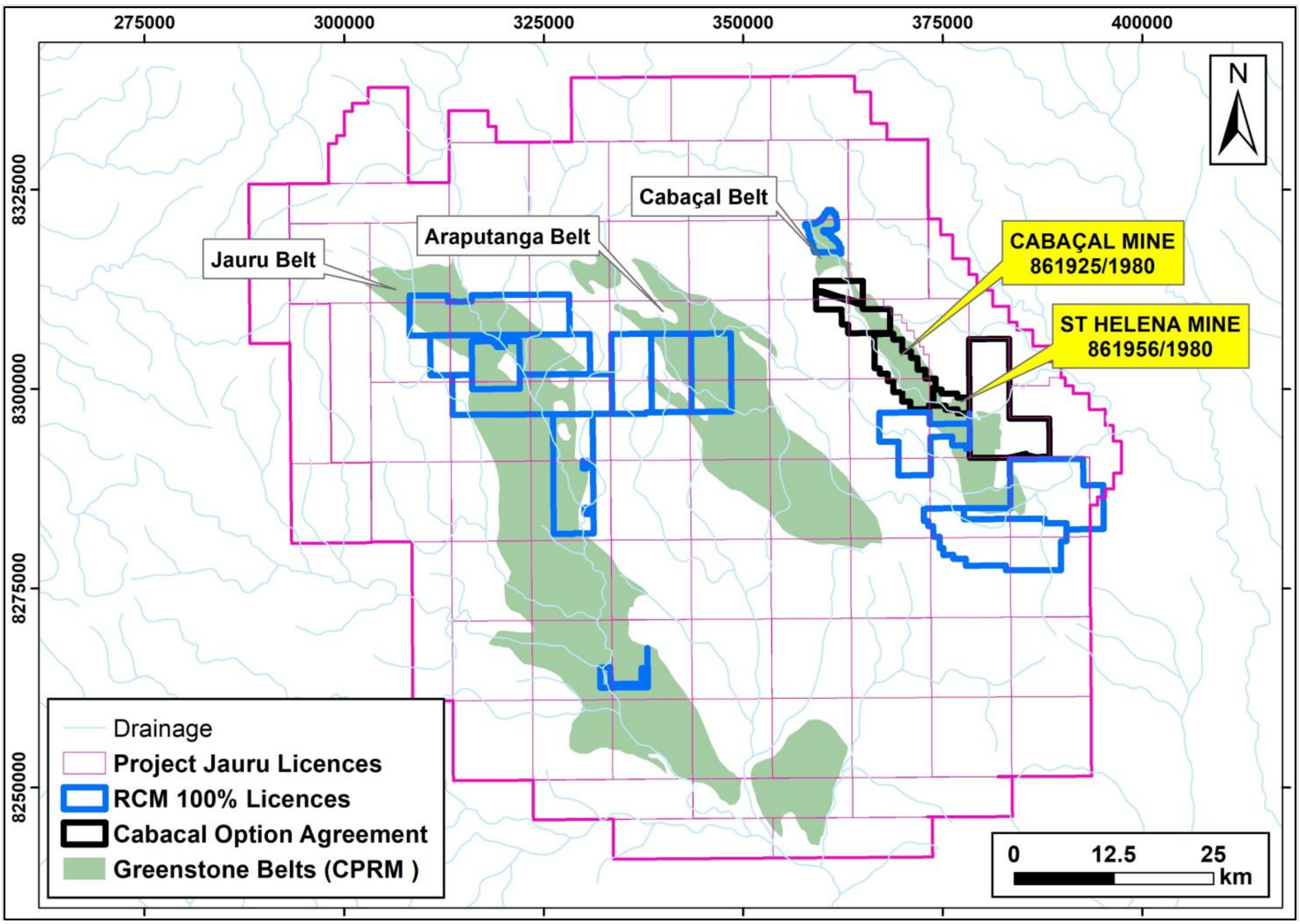
A scoping study of processing plant options has been undertaken as part of the scoping study by Ausenco. Sites have now been identified and are summarized in Section 18 of this study.

6 HISTORY

6.1 Prior Ownership and Ownership Changes

In early 1980, BPM reconnaissance activities recognized the presence of a series of greenstone belts in northwest Mato Grosso, subsequently named the Jaurú, Araputanga and Cabaçal Belts, and applications for 80 exploration licences were lodged at the DNPM through its subsidiary Mineração Santa Martha S/A (Figure 6-1). The licences covered about 800,000 hectares and collectively were referred to as Project Jaurú. With the acquisition of BPM by RTZ in 1989, Mineração Santa Martha was absorbed by Mineração Manati Ltda, a subsidiary of RTZ.

Figure 6-1: Original BP Minerals Licences of Project Jaurú.



Source: Meridian, licences adapted from ANM data and geology from Lacerda Filho et al (2014).

6.1.1 Cabaçal Mine Area

BPM licence 861925/1980, where the Cabaçal deposit was discovered and developed, was applied for on 17/10/1980. It was approved for its first term of exploration on 25/06/1981 and renewed for a second term on 21/02/1985. A positive final exploration report was presented on 15/04/1986 and approved on 21/05/1986. A mining licence application was lodged on the 02/06/1986 and approved on 16/03/1987. Initiation of mining was registered on 27/04/1987. Following the cessation of mining at Cabaçal and closure and rehabilitation, the mining licence was renounced on 14/03/1994, and the area was published as free on 13/10/1994.

Following relinquishment, a number of competing and overlapping applications were lodged for the area but did not progress due to either incomplete content in application documentation, or later withdrawal by the applicants.

On 01/06/2004, PML was successful in applying for the Cabaçal licence 866292/2004, straddling the area which had earlier been relinquished by RTZ. The licence was approved for exploration on 10/12/2009, with its first term report approved on 04/10/2012 and renewed for a second term in 03/01/2013. A positive final report was presented on 04/01/2016, and a mining licence was applied for on 11/05/2017.

6.1.2 Santa Helena Mine Area

Licence 861956/1980, where the Santa Helena deposit was discovered and developed, was applied for on 17/10/1980 by BPM. It was approved for its first term of exploration on 15/03/1982 and renewed for a second term on 1/09/1988. A positive final exploration report was presented on 21/09/1990. With the divestment of RTZ interests, in June 1998, Mineração Manati Ltda transferred mining rights to Metais do Brasil Mineração Ltda ("MBM"). In September 1998, MBM wrote an agreement transferring the mineral rights and liabilities to Prometálica Mineração Ltda ("PML").

In December 1998, PML and Companhia Mineira de Metais ("CMM", a subsidiary of Votorantim Group) formed a consortium for the exploitation of the Mineral Resources on 861956/1980. During this stage, additional exploration, resource evaluation, metallurgical testing, and equipment purchase were carried out. The Final report was approved on 06/04/2000. A mining licence application was lodged on 01/02/2001 and approved on 12/06/2002. However, for strategic reasons, CMM exited from the project soon after. Beginning in 2003, PML took over the project and developed the Santa Helena Mine. The life-of-mine production was planned from 2006 – 2011, but the collapse in the zinc price from a high of USD 4,442/t in November 2006 to a low of USD 1,075/t in January 2009 rendered the project unprofitable and mining terminated early.

6.1.3 Cabaçal Option Area Exploration Licences and prior PML partnerships

Other historical BPM licences, which straddle the option area include 861906/1980, 861937/1980, 861924/1980, 861923/1980. This formed part of the original Project Jaurú application package lodged in October 1980. The licenses lapsed with the withdrawal of RTZ in 1994 with none progressing to mining licences.

The Vendors have had prior parties evaluate the licenses, but subsequent agreements have lapsed with no change in ownership. This includes:

- Evaluation by AngloGold Ashanti in 2011, including resampling of historical core and technical reviews; and
- A period in 2015, when Avanco evaluated the project and undertook a limited drill campaign, involving eleven drill holes. Their interest in the project was subsequently discontinued.

6.1.4 RCM Licences – Cabaçal Belt

RCM licences 866261/2021, 866751/2022, 866752/2022, 866753/2022 straddle the following licences of the original Project Jaurú application package: 861921/1980, 861922/1980, 861937/1980, 861939/1980, 861939/1980, 861947/1980, 861958/1980, 861959/1980, 861960/1980. The licences lapsed with the withdrawal of RTZ in 1994 with none progressing to mining licences. Meridian acquired this as an application over vacant ground.

6.1.5 RCM Licences – Araputanga Belt

RCM licences 866751/2021, 866752/2021, 866754/2021 straddle the following licences of the original Project Jaurú application package: 861920/1980, 861926/1980, 861927/1980, 861928/1980. The licenses lapsed with the withdrawal of RTZ in 1994 with none progressing to mining licences. Meridian acquired this as an application over vacant ground.

6.1.6 RCM Licences – Jaurú Belt

RCM licences 866743/2021, 866750/2021, 866749/2021, 866757/2021, 866744/2021 straddle the following licences of the original Project Jaurú application package: 861909/1980, 861910/1980, 861912/1980, 861914/1980, 861931/1980, 861932/1980, 861933/1980, 861934/1980, 861943/1980, 861955/1980, 861972/1980. The licenses lapsed with the withdrawal of RTZ in 1994 with none progressing to mining licences.

Four licences were attained by the ANM's auction process over lapsed ground previously held by Guaporé Mineração Ltda (in which Anglo American had an interest):

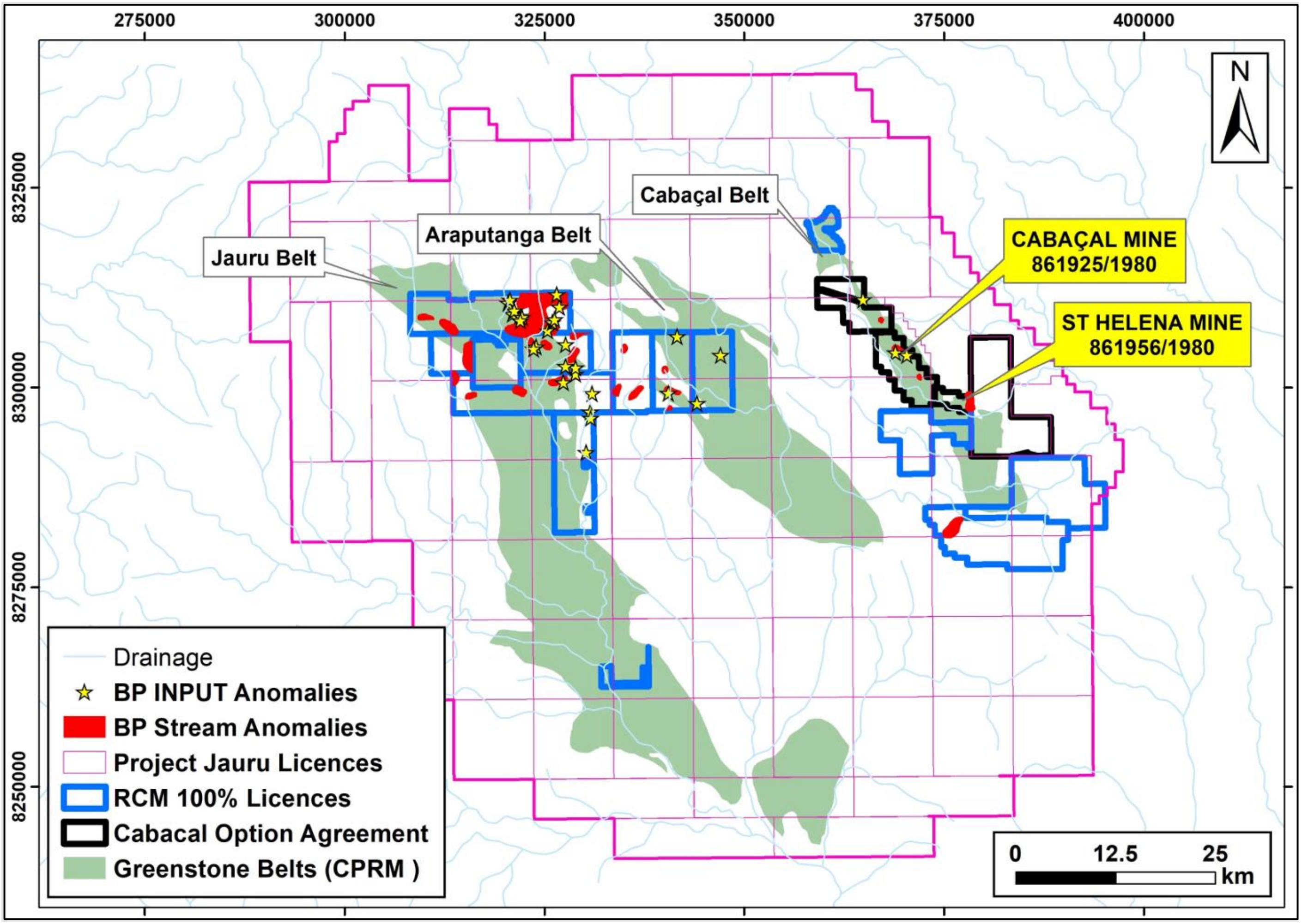
- 866744/2021 (previously 866261/2006);
- 866749/2021 (previously 866262/2006);
- 866.750/2021 (previously866263/2006); and
- 866.757/2021 (previously 866803/2006).

866743/2021 was acquired over a vacant area.

6.2 Historical Exploration

After establishing the Jaurú Project in the 1980's, BPM first undertook regional stream geochemical programs and aerial geophysical programs, defining a series of anomalies for their licences (Figure 6-2).

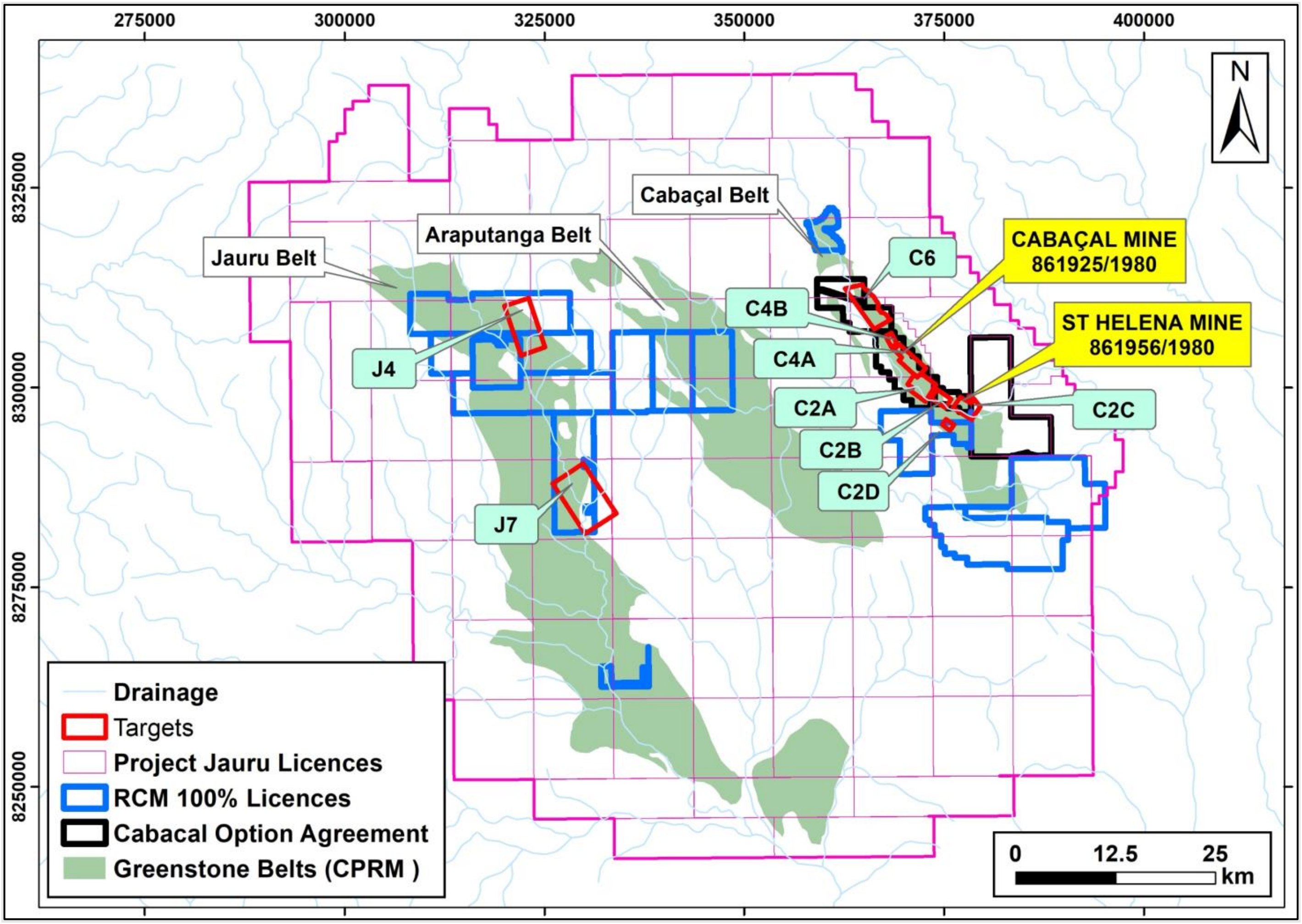
Figure 6-2: Regional Steam and Geophysical Anomalies Defined by First Phase of Exploration.



Source: Meridian, licences from ANM and geology from Lacerda Filho et al (2014). Targets from RTZ archives.

This was followed by prospect-scale soil surveys, ground geophysics, and exploratory drilling. The Cabaçal and Santa Helena VMS deposits were discovered during this exploration phase from prospects first called C4A and C2C, respectively (Figure 6-3). The Cabaçal deposit was not exposed, and its discovery was attributed to soil geochemistry and geophysics (RTZ File BRA30000124—086.pdf; unpublished 1985 report). Discussion of historical exploration in this report is largely focused on the Cabaçal Belt, with compilation and validation of historical data for the Araputanga and Jaurú Belts yet to be completed.

Figure 6-3: Principal BP Minerals Prospects.



Source: Meridian, Licences from ANM data; geology from Lacerda Filho et al (2014). Targets from RTZ archives.

Following the work by BPM and the relinquishment of the Cabaçal Mine Lease, the next phase of work was conducted by PML with the Cabaçal Mine area held under licence 866292/2004. Exploration work comprised limited fieldwork and a series of data compilation exercises. More recent exploration programs have included:

- A VTEM Survey (2007) – conductivity and magnetic survey;
- Resampling of historical core and technical reviews by AngloGold Ashanti (2011);
- Regional soil sampling (2012); and
- Regional diamond drilling funded by Avanco (2015).

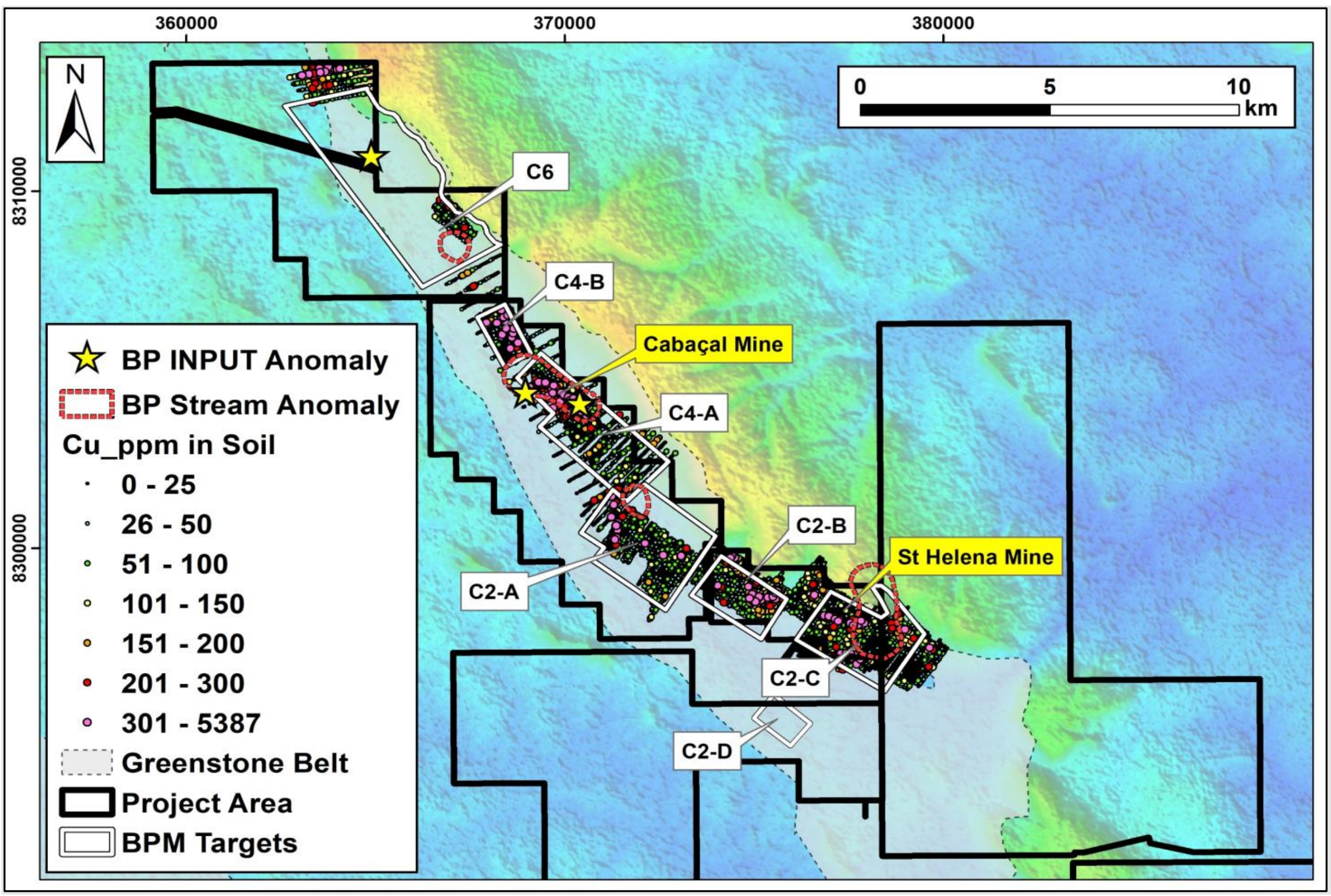
6.2.1 Geochemical Surveys

The original BPM reconnaissance programs covered an area of approximately 11,500 km^2. Initially, interpretations were made on satellite and radar images, in conjunction with regional geological mapping (scale 1: 100,000). Subsequent field work targeting broad, prospective areas (7,000 km^2) within the general area, comprised stream sediment sampling (4,291 samples, analysed for Cu, Pb, Zn, Ni, As, sometimes Au + Ag) and pan concentrates (5,111 samples).

In 1982, 1:50,000 geological mapping was undertaken accompanied by a detailed stream sediment sampling program (1,921 samples analyzed for Cu, Pb, Zn, Ni, As, sometimes Au + Ag). During this period, the first surface occurrences of copper (chalcopyrite and malachite) were identified ~ 5km to the west of Cabaçal.

During 1983 and1984, follow up of the stream geochemical work resulted in a series of detailed hand-auger soil sampling grids initially on 50m by 400m spacing. This was followed by closer spaced soil sampling on 25m by 100m grids concentrating on the Cabaçal Range. In 1985, a regional soil sampling programme at 50m by 400m spacing was completed over the Cabaçal corridor. The extent of historical BPM soil sampling is illustrated in Figure 6-4, showing areas with anomalous copper results.

Figure 6-4: Original BP Minerals Targets in The Cabaçal Belt on ASTER Digital Elevation Model.



Source: Meridian, 2022, adapted from RTZ Archives. ASTER data from NASA's Land Processes Distributed Active Archive Centre.

6.2.2 Geophysical Surveys

In 1982, BPM carried out an INPUT survey completed by Prospec S/A, with the technical supervision of Questor Canada, covering ~6,800 km^2, capturing ~2,800-line km of magnetic/electromagnetic data. This delineated the principal volcanic belts and 81 targets, 13 of them in the Cabaçal Belt. The original Cabaçal target was delineated as an INPUT anomaly 46-A, coinciding with Cu (56 ppm) and Zn (49 ppm) anomalies in stream sediment samples, and gold counts in pan concentrates (maximum 14 counts).

Ground-based geophysical surveys were completed by September 1985, and included 45 km of gradient array IP arrangement, 13 km of pole-dipole IP, and 163 km of max-min applied potential surveys.

The most recent geophysical program was a VTEM magnetic and conductivity survey undertaken for PML in late 2007, through Microsurvey Aerogeofísica e Consultoria Geofísica Ltda. (“Rio Branco Survey”). 977-line kilometres of data were collected at spacings of 300m. A review by Newexco Services Pty Ltd (Perth Australia) was commissioned through AngloGold Ashanti in 2009 (Ebner, 2009), identifying 21 bedrock conductors. Given the scale of the anomalies, further work is required to identify the conductive sources.

6.2.3 Mapping and Survey

The original reconnaissance work initiated in July 1980, by BPM defined the Jaurú, Araputanga and Cabaçal Belts. In 1982, BPM carried out an aerial photogrammetric survey (1: 25,000 colour images) covering an area of about 6,800 km^2 of the area. This dataset was used for initial photointerpretation, and subsequent mapping at a regional scale (1:100,000).

Mapping scales were progressively reduced to semi-detail scales (1:50,000) and coupled with soil survey / mapping grids. The area around the Cabaçal mine (C-2A grid) was mapped at scales 1:5,000, 1:2,500 (combined with a 200m X 25m grid) and 1:1,000 (50m X 25m grid).

6.3 Development Results of Previous Owners

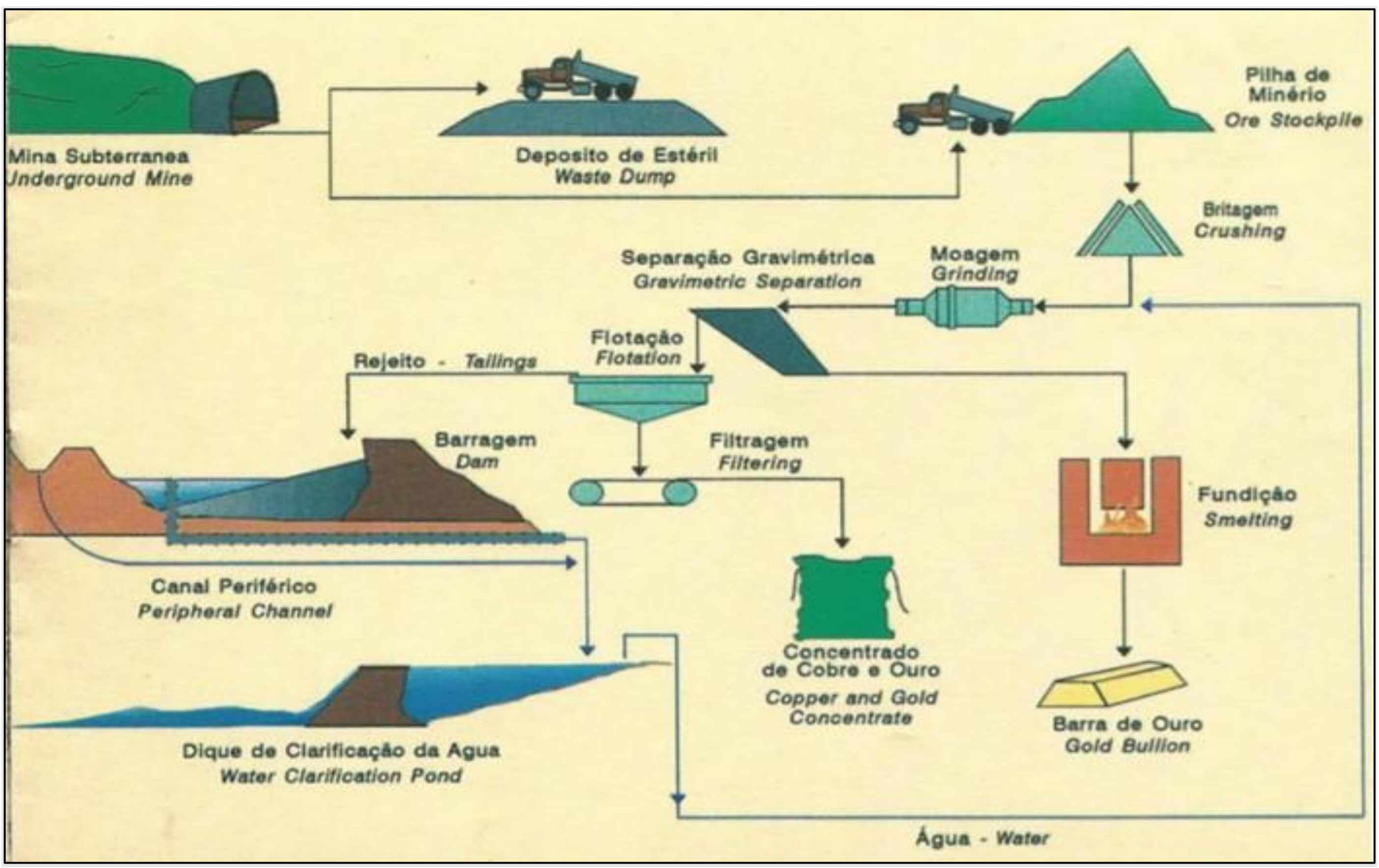
The Cabaçal Mine opened in 1987 and processed 973,031 t @ 4.91g/t Au, 0.80% Cu. Underground mining was selective using a room and pillar mining method and focused on high-grade trends in the mineralization. In August 1991, the Cabaçal mine ceased production during a period of subdued metal prices, following the takeover of BPM Minerals by RTZ in 1989. Cabaçal was not considered a core operation by RTZ.

The original Cabaçal plant and mill (Figure 6-5) were designed to process a nominal rate of 550 t per day but showed a capacity to process 700 t per day, based on conventional flowsheet (Figure 6-6). The calculated average gold content of run-of-mine (“RoM”) material over the life of the Cabaçal operation was around 5.0 g/t Au. RoM mineralogy was composed of sulphides, selenides, bismuth and gold and silver alloys. The main sulphides were chalcopyrite, pyrite and pyrrhotite, with subordinate sphalerite and trace levels of galena.

Figure 6-5: Illustrative Photos of Historical Cabaçal Operations.

Source: Meridian, 2022: Night view of the historical Cabaçal beneficiation plant and smelting of gold bars.

Figure 6-6: Mining and Beneficiation Process Flowchart of The Cabaçal Mine 1990.



Source: Mineração Manati Ltda.

At the start of operations in 1987, reports indicate recoveries of around 90% for gold were achieved. Eight months later, a report dated August 1988 indicated that in July of that year the plant processed 19,424 t of mineralized material with an average gold head content of 7.3 g/t and recovery of 92%.

During the mill's ramp up period in 1987 and prior to the gravity circuit's installation, the Cabaçal mill was fed using development material from the mine, grading 0.1 g/t Au and 0.3% Cu (Ag not reported). The report states that the produced copper concentrates graded 7.0 g/t Au, 18% Cu, and 80 g/t Ag with recoveries of gold @ 80%, copper @ 94% and 80% for silver. The lower gold (+silver) recovery is attributed to the gravity circuit not being installed, and the coarse fraction not being recovered during this period. Meridian sees this as a positive attribute, as the overall high metallurgical recoveries are spread across the broad spectrum of copper-gold-silver grades found in the historical Cabaçal mine data.

The positive metallurgical characteristics of the Cabaçal gold mine is largely due to its principal sulphide assemblage. Of the sulphides present, 65% is chalcopyrite, 25% is pyrite and 10% is pyrrhotite. The accessory sulphides are sphalerite, molybdenite, cubanite and galena. The high recoveries for gold are due to its distribution, 42.9% in silicates (as free gold), 31.8% in chalcopyrite (inter- and intra-grain), 9.1% in pyrite, 8.7% pyrrhotite, 1.2% in sphalerite and 6.3% as intergrowths between sulphides and silicates. Silver is mainly associated with the gold as electrum. There is no known record of smelter penalties.

The gold recoveries at the gravimetric plant were of the order of 45% of the contained metal and the total gold recovery started at 82%, but reached an average, in the more than four years of operation, in the order of 93%, according to information from former Metallurgy Manager at RTZ, Mr Jock Clark. Copper at the beginning of the operation had an average head grade of 0.4% with recovery of around 82%. At the end of operations, the RoM content was more than 1.0% Cu, (having increased significantly with the mining of deeper parts of the mine), with a recovery of 95%. The exported concentrate contained about 22% copper in the last year of the operation with a gold content of around 50 g/t Au in the concentrate. At the beginning of the operation, the concentration of gold had reached up to 150 g/t Au.

Available historical mill reports for the Cabaçal mine when it was operated from 1987 to 1991 by BPM / RTZ including the full year mill summary for 1990, with operational history indicating recoveries of +90% for copper, 90% for gold; and +85% for silver (Table 6-1).

Table 6-1: Cabaçal Operational Mill Recoveries, 1990.

Year: 1990	Cabaçal Mill Feed			Flotation Recoveries			Gravity Recoveries		Total Metal Recoveries		
Month	Au (g/t)	Cu (%)	Ag (g/t)	Au%	Cu%	Ag%	Au%	Ag%	Au%	Cu%	Ag%
January	3.03	1.09	5.06	57.9	95.1	85.0	39.1	1.6	97.0	95.1	86.6
February	3.04	1.03	4.90	54.8	95.1	81.9	39.8	1.9	94.6	95.1	83.8
March	3.20	1.00	4.29	56.4	95.1	79.1	36.8	2.1	93.2	95.1	81.2
April	3.37	0.99	4.07	53.5	94.0	79.6	40.5	2.5	94.1	94.0	82.2
May	3.33	1.08	4.77	55.7	94.9	81.4	37.3	2.8	93.0	94.9	84.1
June	3.28	1.07	4.00	52.3	94.1	87.1	40.7	3.4	93.0	94.1	90.5
July	3.53	1.14	4.50	47.2	94.0	87.2	44.8	3.1	92.0	94.0	90.4
August	3.21	1.05	3.59	50.9	93.7	88.3	42.2	3.1	93.1	93.7	91.4
September	4.14	1.04	3.53	49.5	94.6	81.8	44.1	3.8	93.6	94.6	85.7
October	4.17	1.10	3.96	49.8	94.1	83.4	43.6	3.3	93.5	94.1	86.7
November	4.21	1.25	4.44	49.8	95.6	88.3	43.7	3.3	93.5	95.6	91.6
December	4.15	0.92	3.20	47.4	95.0	88.2	45.7	4.1	93.1	95.6	92.3
Averages	**3.50**	**1.06**	**4.23**	**52.0**	**94.6**	**84.1**	**41.5**	**2.8**	**93.6**	**94.6**	**86.9**

Based on a review of the available data, it is anticipated that conventional processing will be required, similar to methodologies applied by BPM in the late 1980s. Nowadays, there is more modern equipment, which should better facilitate mineral processing, such as equipment for gravimetric recovery and treatment of concentrate in confined systems such as the Albion Process (Glencore Technology). As part of the future metallurgical studies, Meridian will also look at how the lower grade copper-gold-silver sulphide assemblage can be used as a blending material with higher grading sulphide material so as to maintain a steady feed grade during the trial metallurgical test work. Based on a review of the available data, it is anticipated that conventional processing will be required, similar to methodologies applied by BPM in the late 1980s. Nowadays, there is more modern equipment, which should better facilitate mineral processing, such as equipment for gravimetric recovery and treatment of concentrate in confined systems such as the Albion Process (Glencore Technology). As part of the future metallurgical studies, Meridian will also look at how the lower grade copper-gold-silver sulphide assemblage can be used as a blending material with higher grading sulphide material so as to maintain a steady feed grade during the trial metallurgical test work.

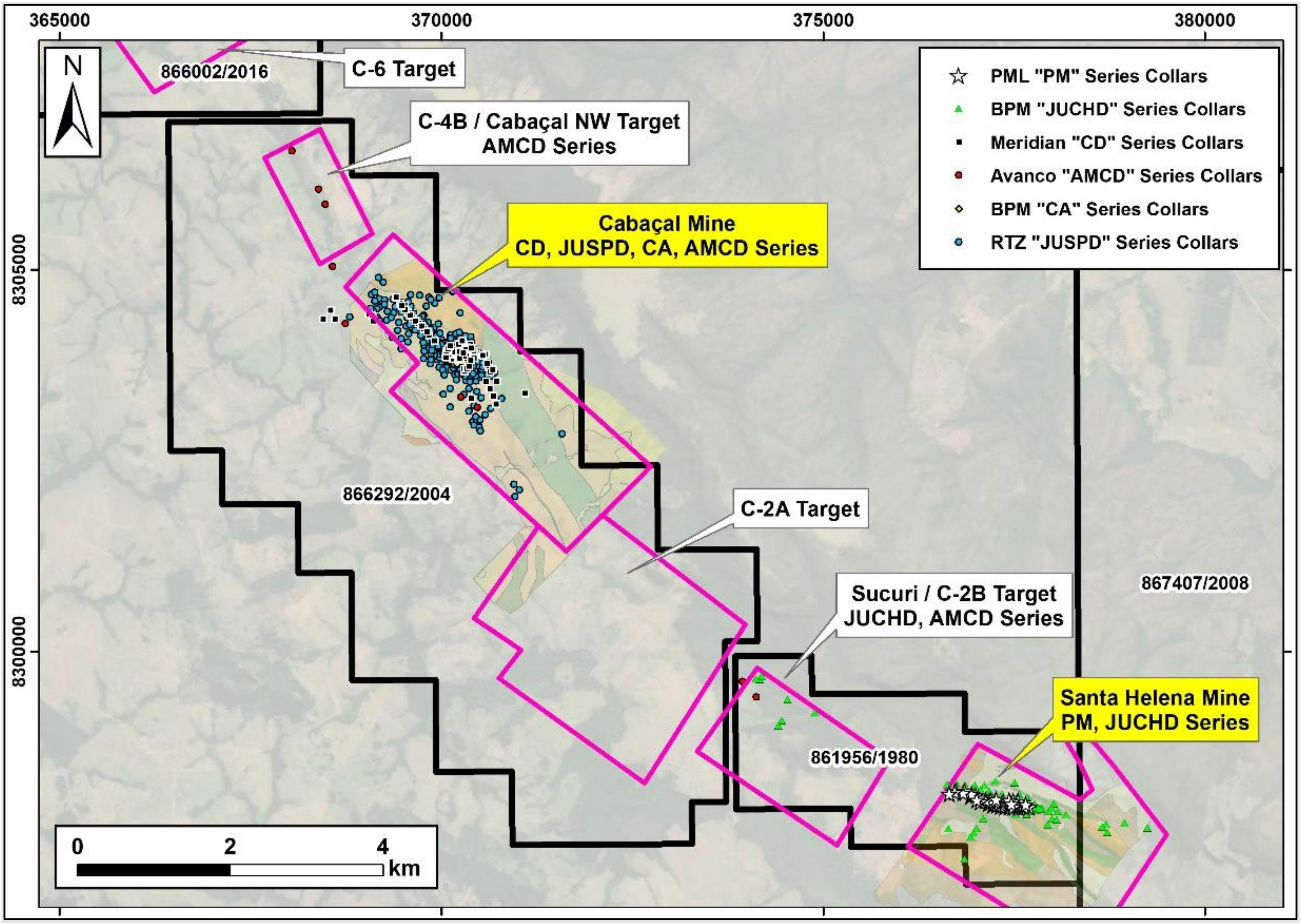
The Santa Helena underground Zn-Cu-(Au-Ag) mine was operated by PML between 2006 and 2008. Full production figures are currently not available.

6.4 Historical Drilling – Procedures and Results

6.4.1 Type and Extent

The extent of regional diamond drilling in the Cabaçal Belt for the various campaigns is illustrated in Figure 6-7.

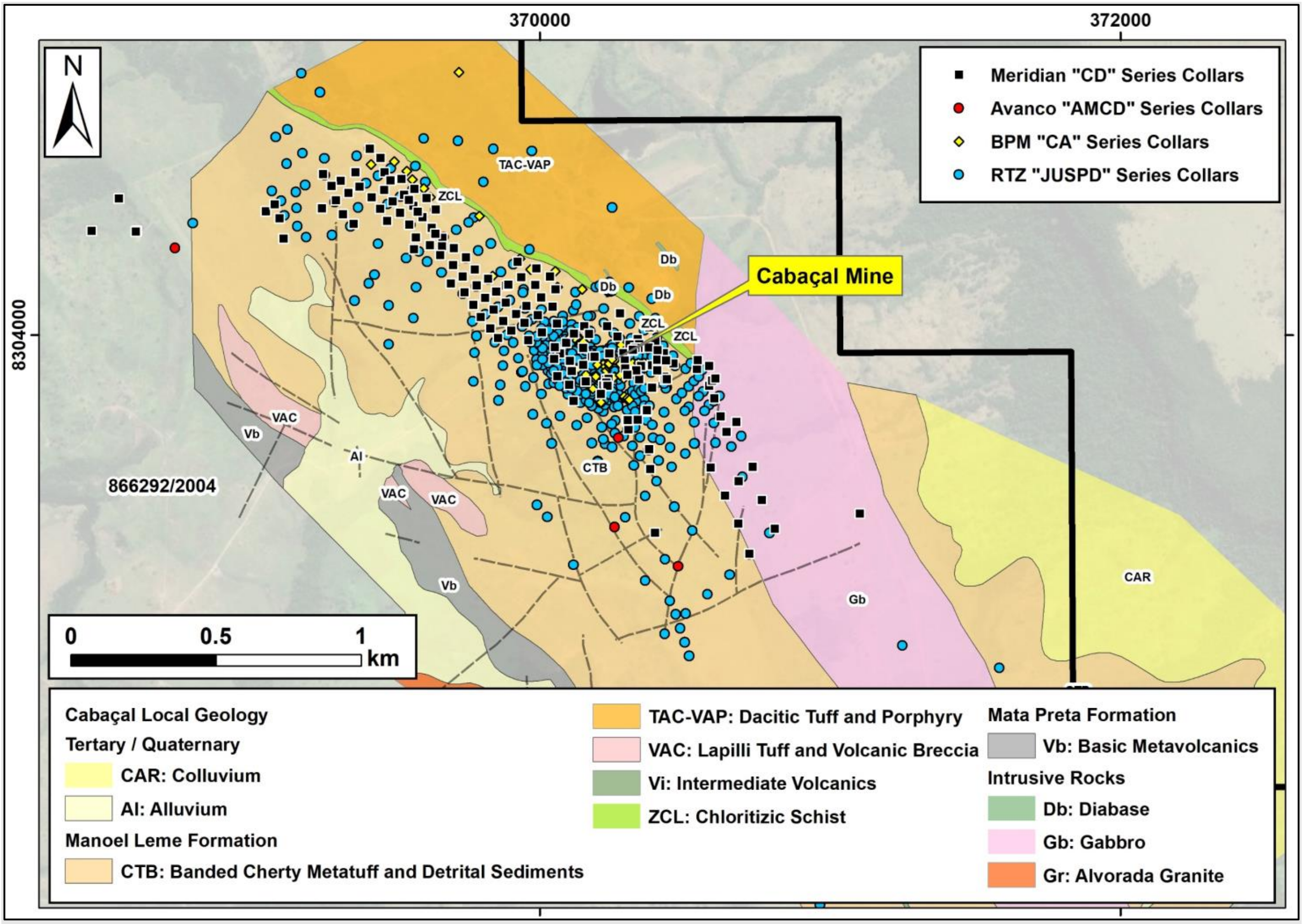
Figure 6-7: Cabaçal Belt Drilling.



Source: Geology from PML GIS data. PML and BPM collars from PML and RTZ archives.

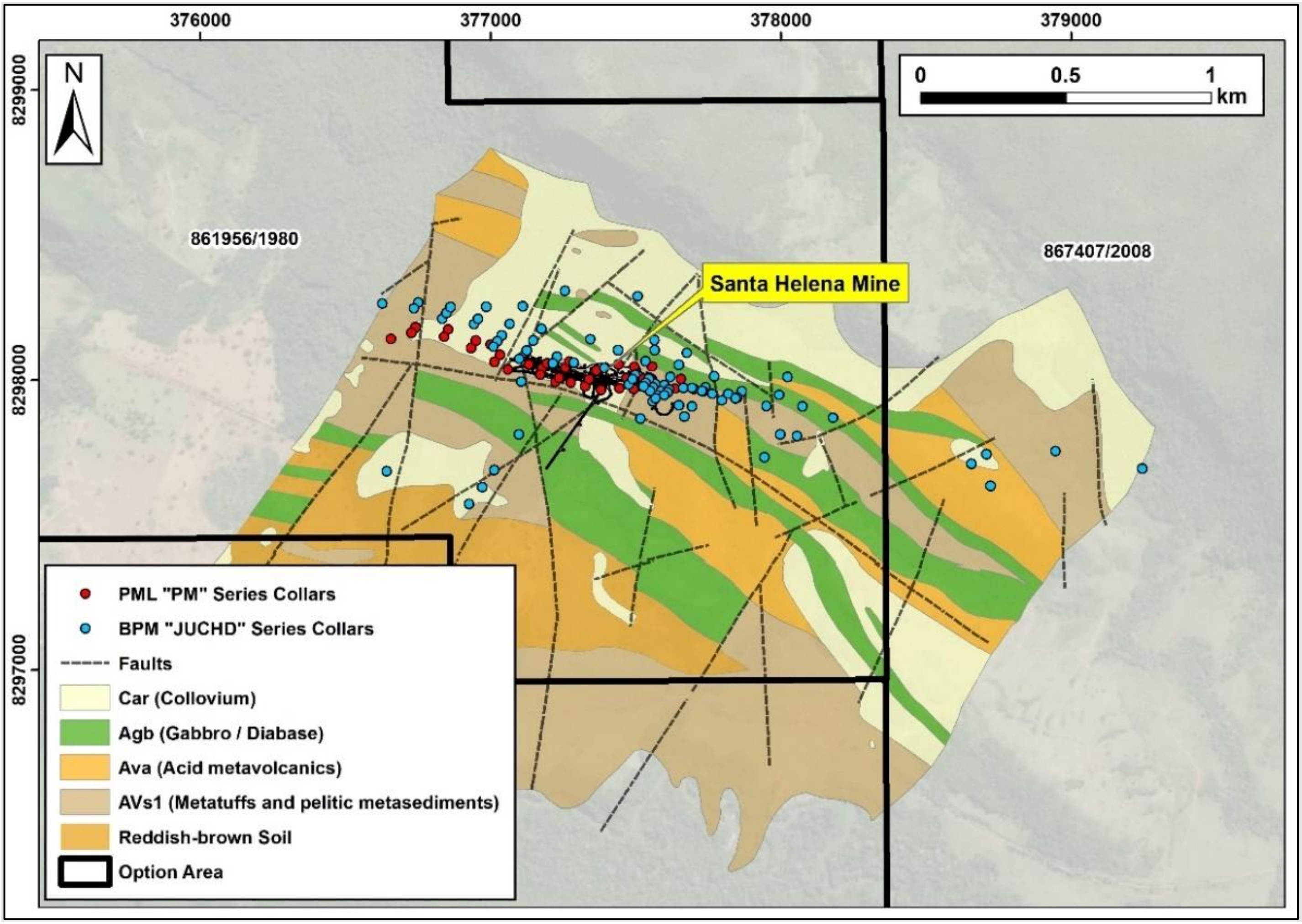
Drilling in the near mine settings for Cabaçal and Santa Helena are shown in Figure 6-8 and Figure 6-9, respectively.

Figure 6-8: Near Mine Drilling – Cabaçal Area.



Source: Geology from PML GIS data. PML and BPM collars from PML and RTZ archives.

Figure 6-9: Near Mine Drilling – Santa Helena Area.



Source: Geology from PML GIS data. PML and BPM collars from PML and RTZ archives.

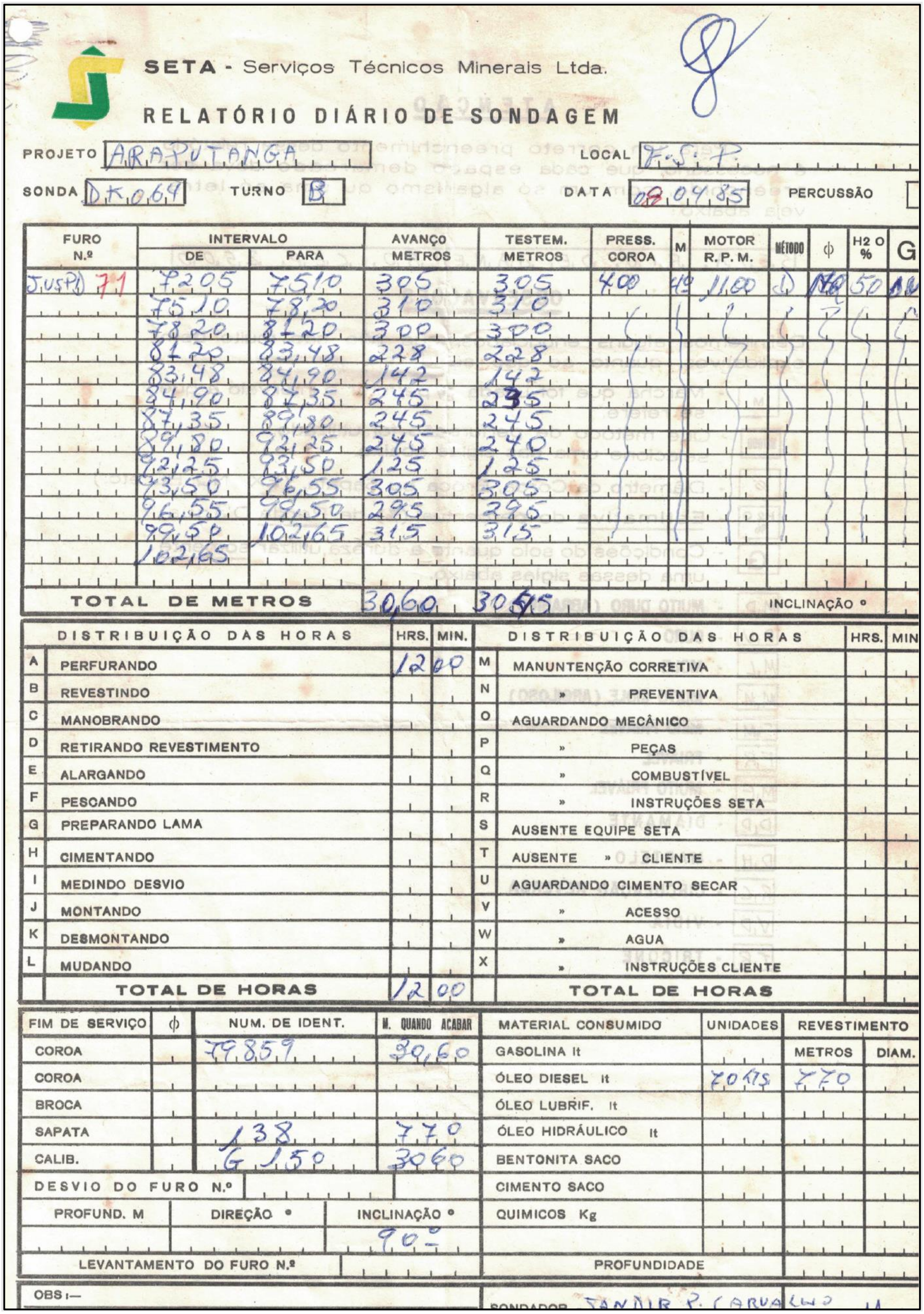
BPM's drilling of the Cabaçal and Santa Helena deposits involved diamond coring with Maquesonda 850, Diakore, and BBS+ Longyear wireline diamond drill rigs (Figure 6-10).

Figure 6-10: Warman Rig in Operation on The Cabaçal Deposit, São Paulo Farm.

Source: BRA30000124–086.

Historical daily production drill bulletins have been located for many of the drill holes from the contractor SETA Drilling (Figure 6-11).

Figure 6-11: Example of Original Daily Drill Bulletin, JUSPD071.



SETA - Serviços Técnicos Minerais Ltda.

RELATÓRIO DIÁRIO DE SONDAGEM

PROJETO: ARAPUTANGA — LOCAL: F.S.P.

SONDA: DK 064 — TURNO: B — DATA: 08.04.85 — PERCUSSÃO

FURO N.º	INTERVALO DE	INTERVALO PARA	AVANÇO METROS	TESTEM. METROS	PRESS. COROA	M	MOTOR R.P.M.	MÉTODO	φ	H2O %	G
JUSPD 71	72,05	75,10	305	305	400	HQ	1100	D	NQ	50	
	75,10	78,20	310	310							
	78,20	81,20	300	300							
	81,20	83,48	228	228							
	83,48	84,90	142	142							
	84,90	87,35	245	235							
	87,35	89,80	245	245							
	89,80	92,25	245	240							
	92,25	93,50	125	125							
	93,50	96,55	305	305							
	96,55	99,50	295	295							
	99,50	102,65	315	315							
	102,65										
TOTAL DE METROS			3060	3045				INCLINAÇÃO °			

	DISTRIBUIÇÃO DAS HORAS	HRS.	MIN.		DISTRIBUIÇÃO DAS HORAS	HRS.	MIN.
A	PERFURANDO	12	00	M	MANUNTENÇÃO CORRETIVA		
B	REVESTINDO			N	» PREVENTIVA		
C	MANOBRANDO			O	AGUARDANDO MECÂNICO		
D	RETIRANDO REVESTIMENTO			P	» PEÇAS		
E	ALARGANDO			Q	» COMBUSTÍVEL		
F	PESCANDO			R	» INSTRUÇÕES SETA		
G	PREPARANDO LAMA			S	AUSENTE EQUIPE SETA		
H	CIMENTANDO			T	AUSENTE » CLIENTE		
I	MEDINDO DESVIO			U	AGUARDANDO CIMENTO SECAR		
J	MONTANDO			V	» ACESSO		
K	DESMONTANDO			W	» AGUA		
L	MUDANDO			X	» INSTRUÇÕES CLIENTE		
	TOTAL DE HORAS	12	00		TOTAL DE HORAS		

FIM DE SERVIÇO	φ	NUM. DE IDENT.	M. QUANDO ACABAR	MATERIAL CONSUMIDO	UNIDADES	REVESTIMENTO METROS	REVESTIMENTO DIAM.
COROA		79859	30,60	GASOLINA lt			
COROA				ÓLEO DIESEL lt	70 lts	7,70	
BROCA				ÓLEO LUBRIF. lt			
SAPATA		138	7,70	ÓLEO HIDRÁULICO lt			
CALIB.		G 150	30,60	BENTONITA SACO			
DESVIO DO FURO N.º				CIMENTO SACO			
PROFUND. M	DIREÇÃO °		INCLINAÇÃO ° 90°	QUIMICOS Kg			
LEVANTAMENTO DO FURO N.º				PROFUNDIDADE			

OBS:—

SONDADOR: SANDIR P. CARVALHO

Source: SETA. Drill bulletin showing advance and recovery, rig and bit type, date, hole set-up details.

Registers of coordinates (along with diameter and set up details) have been found in the following reports retrieved from RTZ archives (pdf files: BRA30000124—086: BRA30000124–085). Maps showing spatial locations of drill holes are also available (BRA30000058—002, BRA30000124—091, BRA30000058—008, BRA30000124—091, BRA30000124—025, BRA30000124—049).

A summary of principal drilling in historical campaigns in the Cabaçal Belt covering both the Cabaçal and Santa Helena deposits and regional exploration is as follows:

Table 6-2: Summary of Drilling From Historical Campaigns.

	Year	Hole Series	Type	# Holes	Meterage
Avanco	2015	AMCD	DD	11	2,234.10
RTZ	1988	CAIF	DD	83	2,908.60
BPM	1984- 1988	JUCHD	DD	94	13,215.70
BPM-RTZ	1983-1989	JUSPD	DD	591	62,964.30
Prometálica (C2C)		PM	DD	39	2,478.80
TOTAL				**818**	**83,801.50**

For the BPM drilling, available records indicate that early holes included narrower diameter drilling (AQ: 3019m, BQ: 3149m) – predominantly in the 1983 – 1984 campaign, to the JUSPD055/JUCHD017, and sporadically thereafter. From 1985, holes were typically collared through the saprolite with HQ diameter core, with NQ tails. Available records indicate 6,342m of drilling in HQ diameter with the balance in NQ diameter.

Avanco undertook an 11-hole reconnaissance drilling program as part of its evaluation program in 2015. The drilling was completed by contractor Servdrill Perfuração e Sondagem, using HQ core through the saprolite-saprock zone, and NQ diameter drill core in fresh rock. At least 246m was drilled as HQ.

6.4.2 Drill hole collar survey control

Historically, BPM drill holes in the Cabaçal Mine were located with survey control. Seven km of base lines were established, these were along local grid sections 40S, 00N and 100N to 800N, in the NW extension area, and along sections 200N to 100S, in the SE extension area; The location of collar coordinates for all the drill holes was by the closed polygons method tied to a geodetic station (Figure 6-12, Figure 6-13). This was triangulated from a survey point established by the army in the area. The survey equipment used included: a Wild theodolite (model T -2), coupled to a Wild rangefinder (model DI -3), and a Wild level model N-2 (Mineração Santa Martha, 1997).

Comparison of collar coordinates listed on BPM and RTZ survey ledgers (e.g., Figure 6-12) with surveys of PML, Meridian, and independent contractors COGETOP and Geosan (using modern DGPS / Real Time Kinetic equipment) show that there is an offset between the actual and original tabulated positions. The reason for this offset is unknown, (Figure 6-13). Current database positions are based on either resurveyed values, or a correction factor where collars are not located based on the following affine transformation parameters:

- scale_in: 0.076090297878291
- scale_out: 13.070490000006
- X1: 0.14334583730256
- Xshift_in: -370031.926
- Xshift_out: 369907.6625
- Xx: 1.0047200686214
- Xy: -0.01178270072258
- Y1: 0.015253554414599
- Yshift_in: -8303357.224
- Yshift_out: 8303880.2725
- Yx: 0.010151340899493
- Yy: 1.005704301647

Figure 6-12: Example of Original Drill Collar Ledger From Archival Records.

DRILLING DATA

HOLE JU-SP-D	GEOLOGICAL SECTION	DEPTH (m)	DIAMETER	DIRECTION DIP	COORDINATES NORTH (Y)	COORDINATES EAST (X)	COLLAR ELEVATION	DEPTH ZCL BASE	SAMPLES FROM/TO	No. OF SAMPLES	NOTES PLT	NOTES
001	395	153,05	AQ	N 60° E 60°	8303.423,371	370.466,455	257,951	92.50	JUR 5755 JUR 5937	183		
002	495	107,45	AQ	N 60° E 60°	8303.532,627	370.469,490	271,604	30.50	JUR 6310 JUR 6407	98		
003	590	101,37	AQ	N 60° E 60°	8303.541,385	370.297,239	279,185	66.70	JUR 6408 JUR 6552	145		
004	1305N	103,16	AQ	N 60° E 60°	8304.281,007	370.236,550	291,558	não tem ZCL	JUR 6663 JUR 6764	102		
005	1345N	61,70	AQ	N 60° E 60°	8303.997,817	369.637,099	355,586	26.70	JUR 6765 JUR 6802	38		
007	395	140,48	AQ	N 60° E 60°	8303.394,573	370.417,600	250,767	99.00	JUR 6851 JUR 7005	155		
008	1090N	159,35	AQ	N 45° E 60°	8303.762,975	369.907,256	319,421	54.50	JUR 6803 JUR 6850	48		
009	1385N	157,54	AQ	N 45° E 60°	8304.014,338	370.051,280	333,916	72.90	JUR 7208 JUR 7393	186		
010	800	155,59	AQ	N 45° E 60°	8303.633,553	370.071.040	298,781	93.00	JUR 7395 JUR 7542	148		
011	395	320,78	NX 15,20 BXL320,78	N 60° E 60°	8303.361,541	370.354,295	251,898	107.20	JUR 7543 JUR 7845	303		
014	590	300,00	NX 18,15 BXL300,00	N 60° E 60°	8303.504,032	370.232,797	273,453	85.00	JUR 7846/7966 JUR 8373/8560	309		
015	200	113,35	NQ 73,75 BQ 113,35	N 43°30E 60°	8303.290,940	370.559,859	239,780	99.30	JUR 13.492 JUR 13.561	70		
026	200	247,75	NQ 61,46 BQ 247,75	N 43°30E 60°	8303.038,185	370.317,753	247,556	162,55	JUR 13.793 JUR 13.867	75		
027	00	220,00	NQ 61,00 BQ 220,00	N 43°30E 60°	8303.100,620	370.654,494	238,644	122.10	JUR 13.868 JUR 14.031	164		
028	00	239,35	NQ 113,80 BQ 239,35	N 43°30E 60°	8302.920,081	370.481,561	254,577	212.30	JUR 14.032 JUR 14.161	130		
029	200	126,55	NQ 82,20 BQ 126,55	N 43°30E 60°	8303.211,934	370.483,991	235,352	119.05	JUR13595/13665 JUR13456/13491	105		
030	00	242,60	NQ 28,65 BQ 242,60	N 43°30E 60°	8302.847,865	370.412,388	246,753	219.05	JUR 13.666 JUR 13.792	127		

Source: SETA. Drill bulletin showing advance and recovery, rig and bit type, date, hole set-up details.

Figure 6-13: **Original Survey Marker For The Cabaçal Project.**

Source: Meridian Staff Photo.

More recently, PML established a geodetic base station named M1, MC-POSTE, PO-Britador, PM-1001 and PM-1002, with an additional two stations, at Fazenda Santa Helena (PM-1003) and another at Fazenda Alamo (PM-1004):

Table 6-3: **Prometálica Mineração Ltda. Geodetic Base Stations in UTM SAD69.**

Point	X	Y	Z	OBS
M1	376857.160	8297134.851	234.112	PM, tailings dam
MC-POSTE PO- BRITADOR	377148.930 377219.427	8297558.134 8297639.393	238.763 248.022	PML PML
PM-1001	377277.564	8297051.620	255.809	PML, guardhouse
PM-1002 PM-1003	377830.076 373602.235	8298016.556 8298080.091	355.096 242.109	PML, Mine Santa Helena Farm
PM-1004	378569.017	8297756.143	395.540	Alamo Farm

Collar locations at Cabaçal were revised by PML by means of georeferenced maps of collar positions, which appear in the various reports. Some field checks were subsequently done by PML on hole locations by handheld GPS (63 holes), geodetic GPS (32 holes), and total station surveys (5 holes). The geodetic GPS surveys were conducted by independent surveyors, COGETOP – Engineering Service (Mirassol D'Oeste – Consultoria Geodésica Topográfica). Checks by Total Station on the following holes were undertaken by PML surveyors. The positions of remaining holes were calculated from georeferencing work undertaken by PML using historical plans, which illustrated the collar layout.

Holes drilled by Avanco were laid out using handheld GPS, and those in the near-mine areas have since been located and formally surveyed, correcting minor offsets typical with handheld GPS accuracy.

6.4.3 Drill hole downhole survey control

Downhole surveys for the historical drillholes were made with a Sperry-Sun single-shot drillhole path-deviation instrument at 30m intervals. The XYZ coordinates along the path of the drillhole were calculated utilizing an HP-97 calculator (BRA30000124–086.pdf). The vendors provided spreadsheets with 849 downhole surveys for 325 holes (BD Survey Recuperados_Ago2020.xls). Of these, 273 holes drilled from a vertical set-up. The original downhole survey files of the Sperry-Sun surveys are yet to be located. Tabulated registers from historical RTZ archives list set up coordinates, dip and UTM azimuth for surface and underground holes (pdf files: BRA30000124—086, BRA30000124–085). The SETA daily drill bulletins likewise record the dip and azimuth of collars at set-up. Historical plans and sections indicate that deviation for angled holes was not substantial, thus given the relatively shallow depths drilled, and with most holes being vertical, location errors of drill intercepts are likely to be quite small.

Downhole surveys on Avanco holes were made by way of a REFLEX EZ-TRAC™ tool with dip and azimuth readings in 3m increments.

6.4.4 Rock Mass Data

After the start of the infill drilling program on Cabaçal by BPM, rock mass data was collected, comprising core recovery, rock quality designation ("RQD"), weathering, and discontinuities (BRA30000124—086.pdf; Figure 6-14).

Figure 6-14: Example of Rock Mass Ledger from Archival Records.

MINERACAO SANTA MARTHA S.A.

CABACAL I EXTENSIONS

ROCK MASS DATA - BOREHOLE CORE

BOREHOLE : JU-SP-D-089

INTERVAL FROM	INTERVAL TO	LITH code	RECO VERY (m)	RQD (%)	WEATH ERING (cod)	MAN STR cod	POINT LOAD CRK.TEN (MN/m2)	POINT LOAD DIR.F W.FOL	DEPTH (m)	DISCONTINUITIES TYP	DISCONTINUITIES TYP TOT	DISCONTINUITIES RUGO SITY	DISCONTINUITIES ALTER ATION	DISCONTINUITIES ANG. AXIS	ORIENTATION STRK	ORIENTATION DIP
24.40	25.40		1.00	21.0	LI	4				FOL	1	2.00	1.00	50		
										J	17	2.00	1.00	90		
25.40	26.30		0.90	27.8	LI	4				FOL	7	2.00	1.00	45	160	
										J	12	2.00	1.00	50		
26.30	26.94		0.58	48.4	LI	4				FOL	2	2.00	1.00	45		
										J	2	2.00	1.00	90		
26.94	28.54		1.40	61.2	MI	3				FOL	3	2.00	1.00	40		
										J	6	2.00	1.00	60		
										FOL	4	2.00	1.00	50	140	
28.54	30.34		1.70	17.2	MI	3				J	18	2.00	1.00	10		
30.34	32.40		2.06	66.0	MI	3	8.40			FOL	3	2.00	1.00	40	170	
										J	15	2.00	1.00	90		
32.40	34.10		1.60	68.2	MI	3				FOL	1	2.00	1.00	55	150	
										J	11	2.00	1.00	25		
34.10	36.02		1.70	5.7	MI	3				FOL	2	2.00	1.00	40		
										J	31	2.00	1.00	90		
36.02	36.82		0.65	0.0	LI	4				FOL	0	2.00	1.00			
										J	6	2.00	1.00	90		
36.82	38.50		1.68	78.6	FI	2				FOL	2	2.00	1.00	50	150	
										J	8	2.00	1.00	65		
38.50	41.55		2.92	71.5	FI	2				FOL	15	2.00	1.00	50	170	
										J	10	2.00	1.00	90		
41.55	44.55		3.00	84.3	FI	2				FOL	14	2.00	1.00	55		
										J	3	2.00	1.00	90		
										CL	1	2.00	1.00	20	340	
44.55	47.65		3.10	67.7	FI	2				FOL	13	2.00	1.00	30	160	
										J	14	2.00	1.00	90		
47.65	50.70		3.05	40.7	FI	2				FOL	18	2.00	1.00	40	160	
										J	14	2.00	1.00	25		
50.70	53.75		3.05	47.9	FI	2				FOL	11	2.00	1.00	65		
										J	29	2.00	1.00	10		

MAN.STR.= MANUAL STRENGTH CRK.TEN.= CRACK TENSION STRK=STRIKE

Source: BRA30000124—083

The core recovery was measured for each drill run, by fitting the fragments together and measuring the length apparently represented. Recovery was also recorded against drilling advance in the daily drill bulletins of SETA.

RQD was calculated based on the total cumulative length of pieces of core greater than 100mm in length, for each run, expressed as a percentage.

Weathering was recorded according to a simple coding system for each core run:

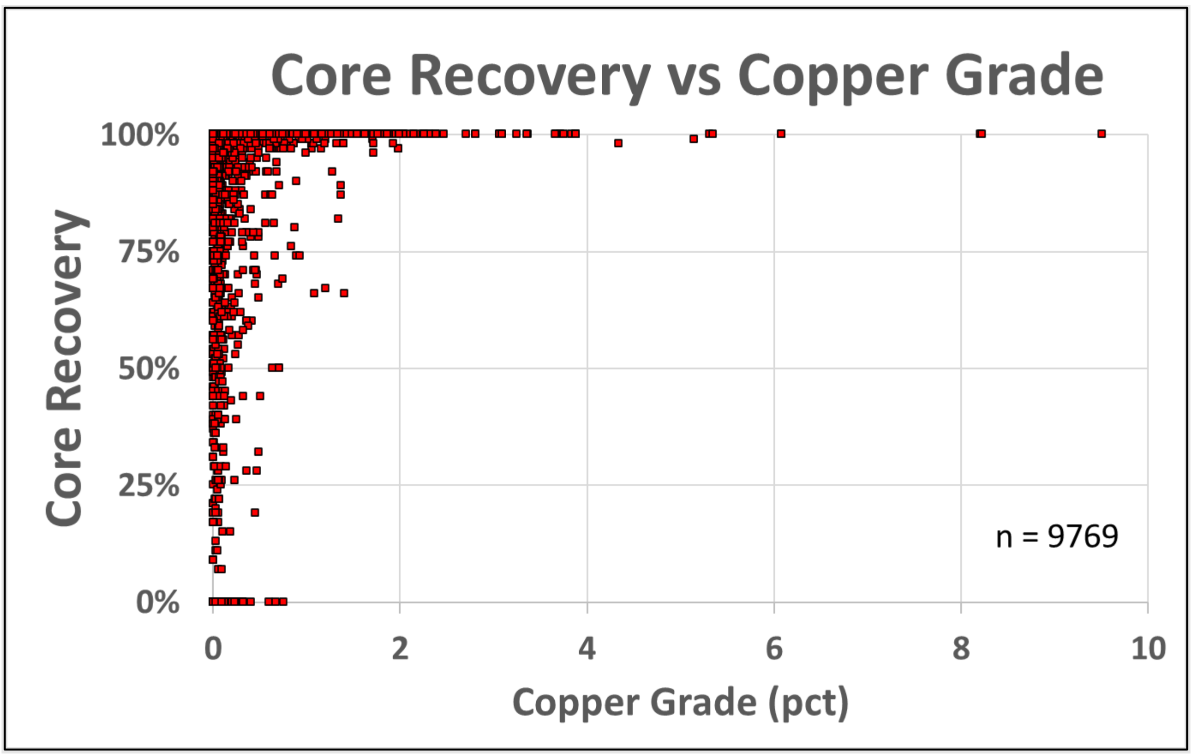
1. Completely fresh rock;
2. Slightly weathered rock, with discolouration only, with some minerals partially altered to clay;
3. Moderately weathered rock, highly discoloured, fabric becoming obscure, much clay alteration; and
4. Completely weathered rock, with discolouration and decomposition of many minerals, and the original fabric obscured.

Discontinuities were measured for the following structural features: Joints (J), Foliation (Fol), Cleavage (Cl), Veins (V), Fault (F). Where relevant, roughness was also recorded.

Point load tests were carried out on 120mm long samples selected from unbroken core from hangingwall, footwall and the mineralized material zone in each selected drillhole. The samples were shipped to the Ouro Preto School of Mines where the point load tests were carried out. After October 1985, the point load tests were carried out at Araputanga. A 1 to 5 scale of strength was estimated with 1 representing the softest and weakest rocks, and 5 representing the strongest rocks.

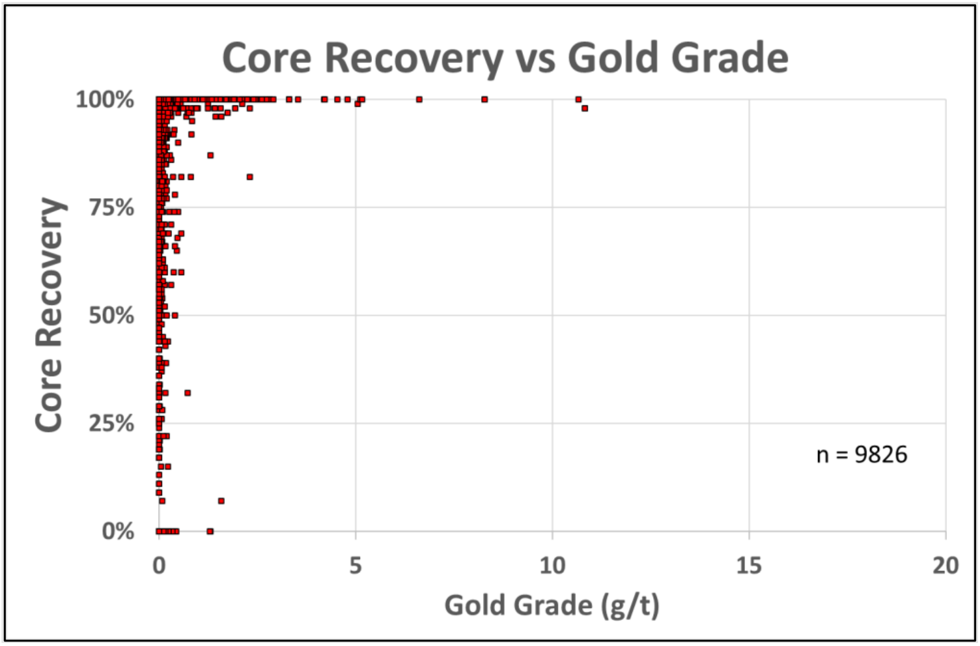
Recovery data indicated by the rock mass tables and corroborated by the SETA daily drill bulletins, indicated good recovery. Charts of copper and gold grades against recovery indicate no bias or relationship between metal grade and recovery (Figure 6-15, Figure 6-16). Average recovery for the Cabaçal drilling is based on the rock mass table and is recorded as 96.2%.

Figure 6-15: Core Recovery vs Copper Grade For JUSPD-Series Cabaçal Samples.



Source: BRA30000124—083 and RTZ assay ledgers.

Figure 6-16: Core Recovery vs Gold Grade for JUSPD-Series Cabaçal Samples.



Source: BRA30000124—083 and RTZ assay ledgers.

Recoveries were logged in eight of the Avanco holes for 1,652.1 m, mostly in fresh, where the average recovery was 98.9%.

6.4.5 Density

Density readings were collected as part of the Rock Mass characterization procedure. Samples were determined in parallel with the point load tests by personnel at the School of Mines, and subsequently by BPM staff at Araputanga. Readings were based on the immersion in water method (weight in air/weight in water).

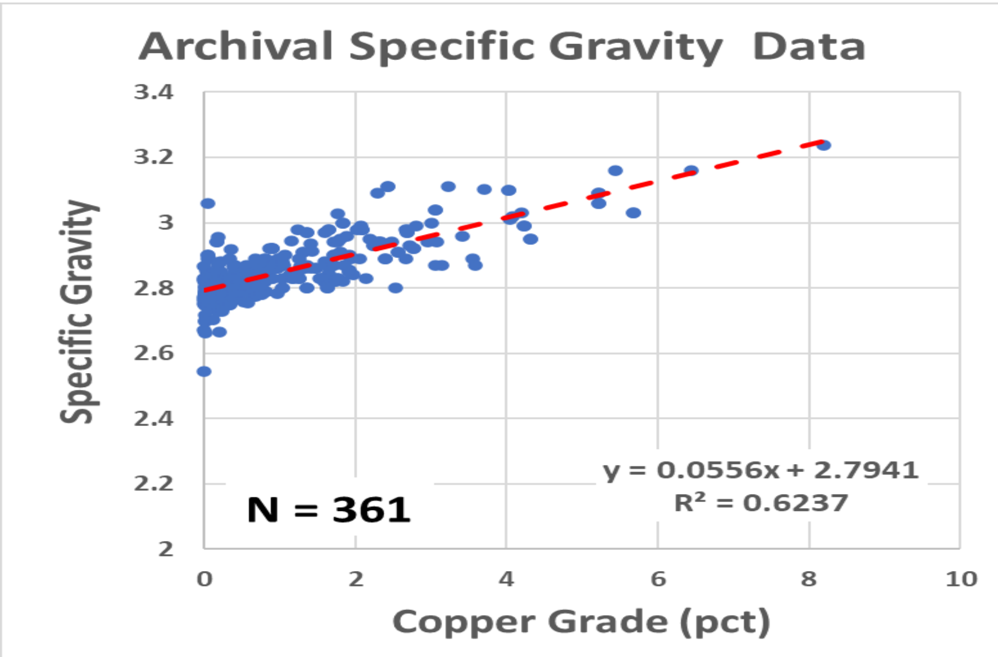
Data has been retrieved from readings that were compiled from BPM ledgers, which include individual interval readings in archival ledgers (BRA30000124—082.pdf), and data calculated against composites in intersections selected for reserve definition (BRA30000124—025.pdf). Data shows in general an increase in specific gravity with increasing copper grade (Figure 6-17).

Reserve calculations completed by BPM as five mineralization domains referred to as A-E (BRA30000124—022.pdfd) assigned the following densities, with average default values of:

- Zone A : 2.83 t/m^3;
- Zone B : 2.83 t/m^3;
- Zone C : 2.92 t/m^3;
- Zone D : 2.95 t/m^3; and
- Zone E: 2.96 t/m^3.

Three hundred, sixty-one (361) specific gravity assay readings have been compiled from historical records, but the total number of records on which these averages are based on is unknown.

Figure 6-17: BP Minerals Density Plot Against Copper Grade.



Source: Meridian,.

6.4.6 Core Logging

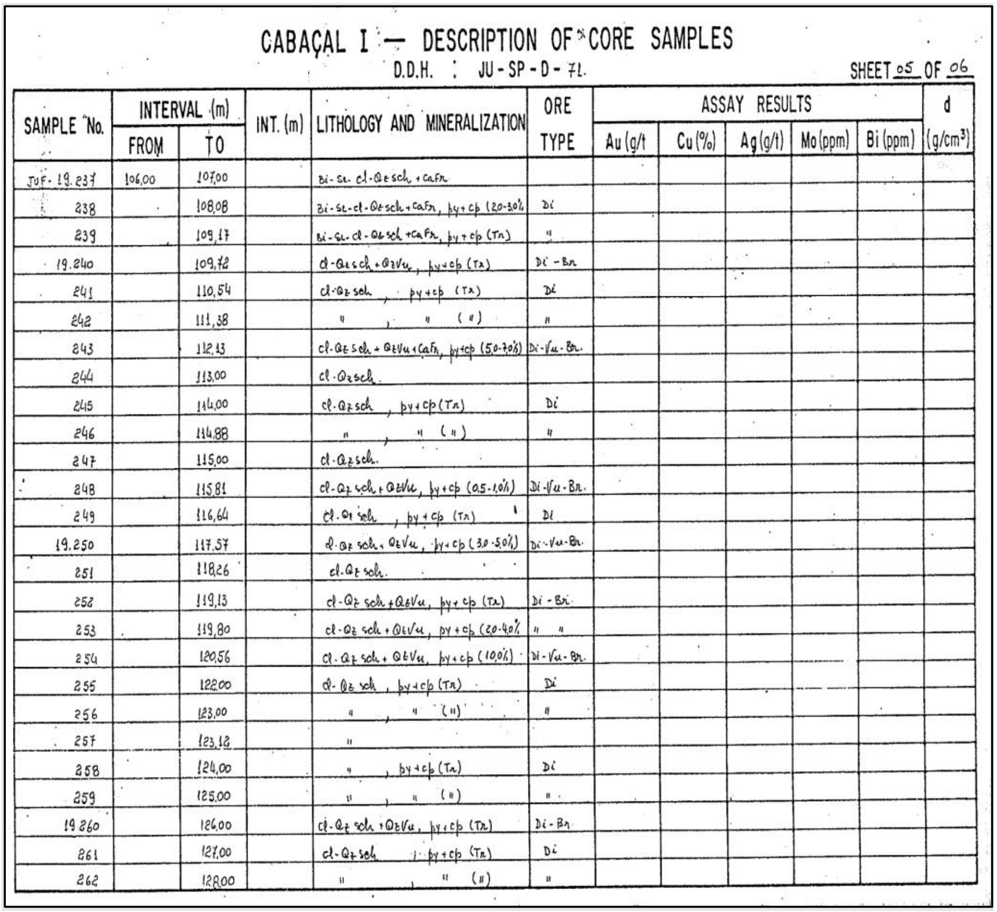
Original core logging procedures are summarized in the 1985 BPM exploration report (BRA30000124—086.pdf: Geoplex Mineração: Exploration Report -Volume I -The Cabaçal Project). Historical core logging was undertaken following mark up by technicians (Figure 6-18). Core photography was carried out and samples were marked out with intervals typically ranging from 0.2 to 1.5m, depending on the degree of mineralization and lithological variation. Sawn half core was sampled, and the remainder stored in core sheds.

Not all original logs have survived (examples exist in RTZ archival file BRA30000124—137.pdf), but data has been compiled from a variety of sources:

- File BRA30000124—083.pdf: tabulated lithology codes, geotechnical / structural logging;
- File BRA30000124–078.pdf: Description of Borehole Core – Lithology;
- File BRA30000058–006.pdf: Secoes Transversais — ST-590 e ST-295 — Cabaçal I;
- File BRA30000124–050.pdf: Secoes Transversais e Mapa de Contorno de Base Reservas;
- File BRA30000124--024.pdf: Definition of mineralized Zones and Potential for New mineral Reserves; and
- Files BRA30000058–018 to 024.pdf: Monthly Project reports.

BPM logging was based on a series of qualitative codes for lithology, alteration, 80halweg80e80tion and oxidation written on hardcopy logs and sections. This data has been transferred to digital files by Meridian and stored as an Access database. Avanco and PML logging had been captured digitally in a series of MSExcel spreadsheets and has similarly been integrated into the Access database.

Figure 6-18: Example of Original Log and Sampling Sheet, JUSPD071.



CABAÇAL I — DESCRIPTION OF CORE SAMPLES

D.D.H. : JU-SP-D-71. SHEET 05 OF 06

SAMPLE No.	INTERVAL (m)		INT. (m)	LITHOLOGY AND MINERALIZATION	ORE TYPE	ASSAY RESULTS					d
	FROM	TO				Au (g/t	Cu (%)	Ag (g/t)	Mo (ppm)	Bi (ppm)	(g/cm³)
JUF-19.237	106,00	107,00		Bi-Se-cl-Qz sch + CaFr							
238		108,08		Bi-Se-cl-Qz sch + CaFr, py+cp (20-30%	Di						
239		109,17		Bi-Se-cl-Qz sch + CaFr, py+cp (Tr)	"						
19.240		109,72		cl-Qz sch + QzVu, py+cp (Tr)	Di - Br						
241		110,54		cl-Qz sch, py+cp (Tr)	Di						
242		111,38		" , " (")	"						
243		112,13		cl-Qz sch + QzVu + CaFr, py+cp (5,0-7,0%)	Di-Vu-Br.						
244		113,00		cl-Qz sch.							
245		114,00		cl-Qz sch, py+cp (Tr)	Di						
246		114,88		" , " (")	"						
247		115,00		cl-Qz sch.							
248		115,81		cl-Qz sch + QzVu, py+cp (0,5-1,0%)	Di-Vu-Br.						
249		116,64		cl-Qz sch, py+cp (Tr)	Di						
19.250		117,57		cl-Qz sch + QzVu, py+cp (3,0-5,0%)	Di-Vu-Br.						
251		118,26		cl-Qz sch.							
252		119,13		cl-Qz sch + QzVu, py+cp (Tr)	Di - Br.						
253		119,80		cl-Qz sch + QzVu, py+cp (2,0-4,0%	" "						
254		120,56		cl-Qz sch + QzVu, py+cp (10,0%)	Di-Vu-Br.						
255		122,00		cl-Qz sch, py+cp (Tr)	Di						
256		123,00		" , " (")	"						
257		123,18		"							
258		124,00		" , py+cp (Tr)	Di						
259		125,00		" , " (")	"						
19.260		126,00		cl-Qz sch + QzVu, py+cp (Tr)	Di - Br						
261		127,00		cl-Qz sch, py+cp (Tr)	Di						
262		128,00		" , " (")	"						

Source: BRA30000124—137.

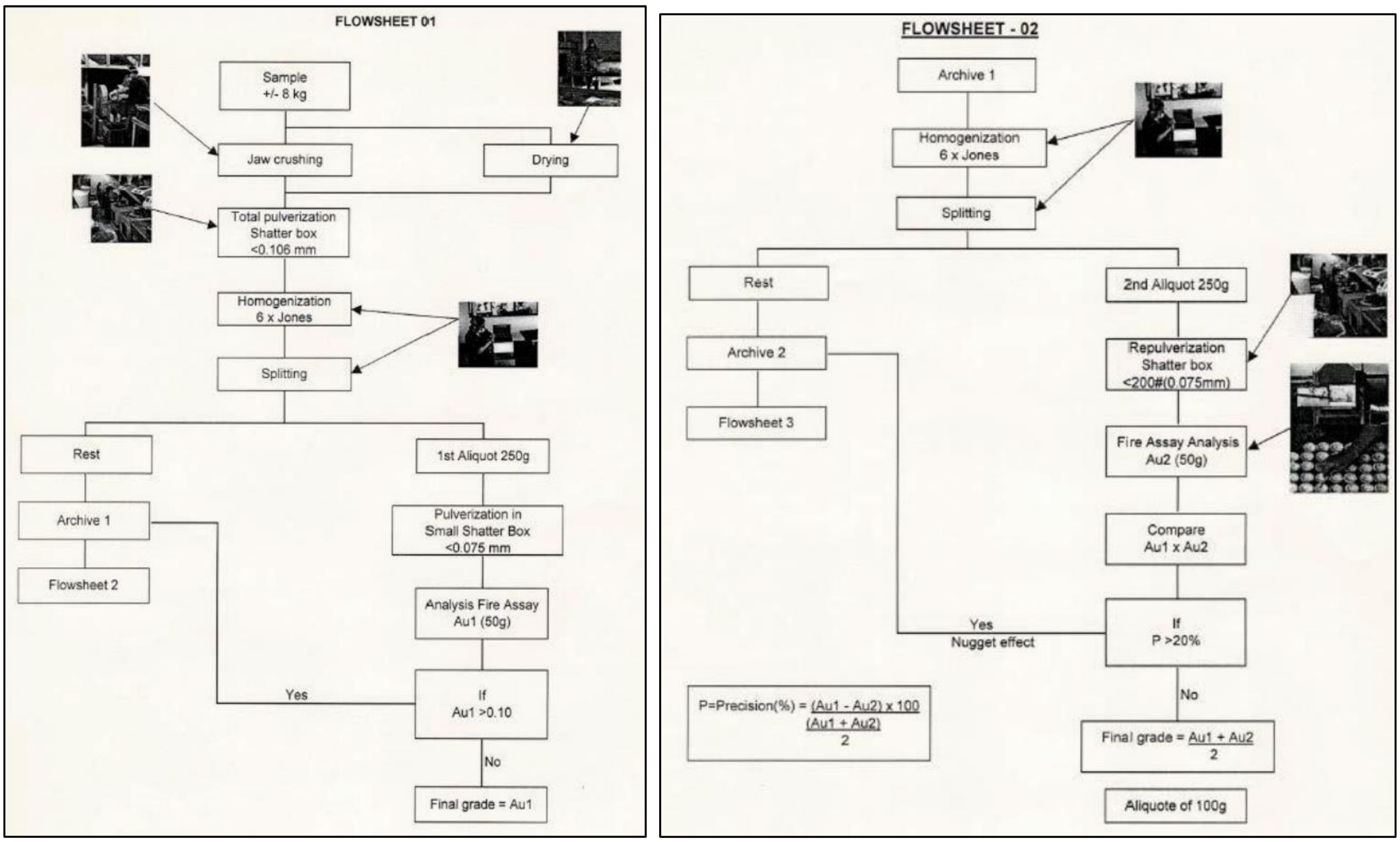
6.4.7 Sample Preparation and Analysis

Documentation from the 1987 Mineração Santa Martha S.A. report dated June 1987 provides information on the sample preparation technique.

Based on a study of the Cabaçal microscopy and using Gy's sampling formula, the milling and pulverizing of entire core intervals to a nominal -200 mesh and analysing of 50g fire assay charges were established as standard procedures for the Cabaçal deposit drillcore. In the early drilling (about 10% of the completed holes) AQ and BQ diameter cores were obtained, whereas HQ and NQ diameter core sizes were used during the evaluation drilling. Early tests of the milling and pulverizing equipment with Cabaçal core established the milling times necessary to achieve nominal -200 mesh granulometry for this material.

BPM had its own laboratory in the Cabaçal mine for sample preparation and production sample analysis. Exploration samples were analysed off-site at a commercial laboratory – Nomos – in Rio de Janeiro. Original laboratory managers have provided a report summarizing laboratory procedures, flowsheets, and quality control protocols (Vilar Da Silva, 2021; Figure 6-19).

Figure 6-19: Nomos Laboratory Flowsheet



Source: Vilar Da Silva, 2021.

Initially, the gold analysis was by atomic absorption, with an aqua regia digest, and in the extraction an organic solvent MIBK was used, for aliquots of 50 grams. Subsequently, fire assay analyzes were adopted; after tests showed, that this method was more efficient, with better reproducibility of the assay result for gold. In addition, the sample prep adopted the procedure of crushing the entire sample entirely at -200 mesh, and later quartering to obtain a 50-gram aliquot.

Copper and silver were analysed by atomic absorption, using a three-acid digest for copper and aqua regia digest for silver. Selected core samples were also analysed for Pb, Zn, Bi, Mo and As. Pb and Bi were obtained by aqua regia digest with an atomic absorption finish.

Multielement analyses were carried out on 39 drill core samples for Cabaçal to better understand the character of the hydrothermally altered and metamorphosed rocks (Au, Cu, Ag, Bi, Mo, Pb, Ca, Mg, Ti, Mn, Ba, Co, Cr, Ga, Ni, Sc, Sr, Y, Yb and Zn). A range of analytical techniques, appropriate to the times, was completed (e.g., Fire Assay, Aqua regia/AA and

XRF). Using correlation coefficients, they estimated that 37 of the 39 samples could be classified as being originally andesites, and two as dacites.

Original laboratory reports are not available for the Cabaçal samples, and data has been compiled from available drill hole data registers and sections. Assay data for 279 surface holes is missing either in part or in full. For these holes, semi-quantitative values based on numbers depicted on graphic cross sections have been inserted into the digital database to guide geological interpretation.

Samples from Avanco's drilling were analysed at SGS Geosol – Laboratórios Ltda, - Vespasiano – MG Brazil, for Ag, Cu, Pb, Zn, by method AAS41B (four-acid digest with atomic absorption finish, and gold by method FAA505 – fire assay of a 50g charge with atomic absorption finish).

6.4.8 Quality Assurance/Quality Control Procedures

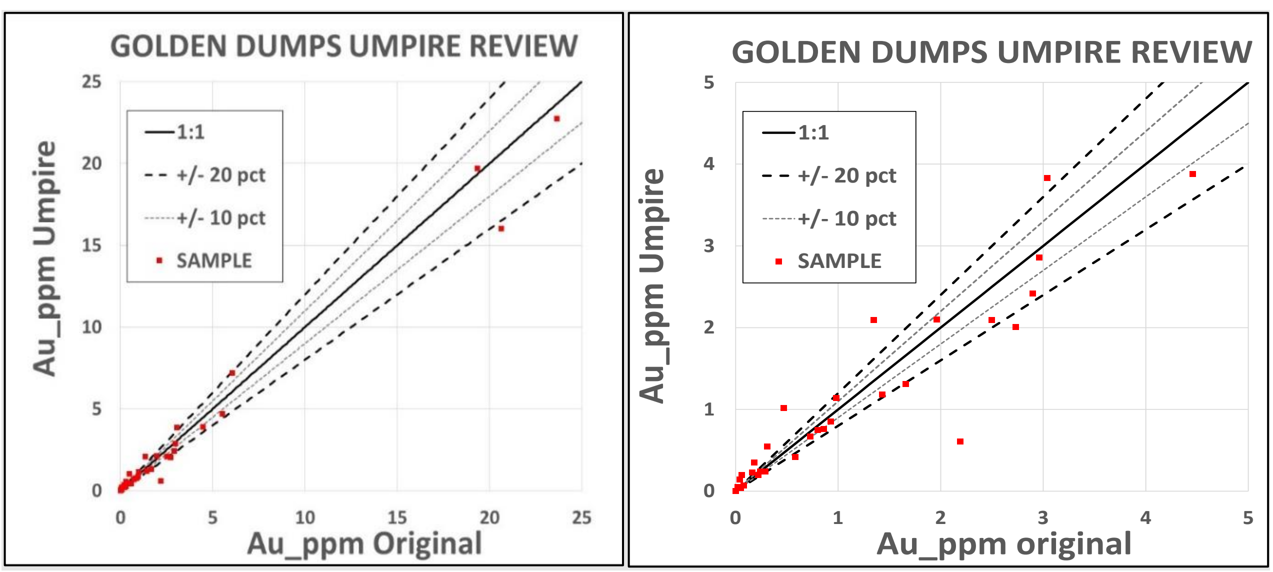
Documentation from the 1987 Mineração Santa Martha S.A. report dated June 1987 indicates that a duplicate analysis program was applied as part of a close quality control program for gold analysis:

Duplicates for 20 percent of all Cabaçal deposit cores were analyzed to maintain close control over variability associated with preparation and analysis.

At an early stage of the infill drilling program in May 1985, a series of check analyses on 42 pulps from holes JUSPD052, 58, 62 and 63 from the Cabaçal deposit were carried out at "Golden Dumps Research Laboratory", South Africa (Figure 6-20). The umpire samples included pulp blanks and standards, which returned acceptable results. No systematic bias was identified from these checks.

BPM's selection of the Golden Dumps laboratory was based on its reputation as one of the best facilities of the era for fire assay gold analysis. BPM concluded, based on blank analysis, standard analysis and laboratory precision, that its own fire assay laboratory performed in a competent and consistent manner in analysis of the Cabaçal deposit drill core.

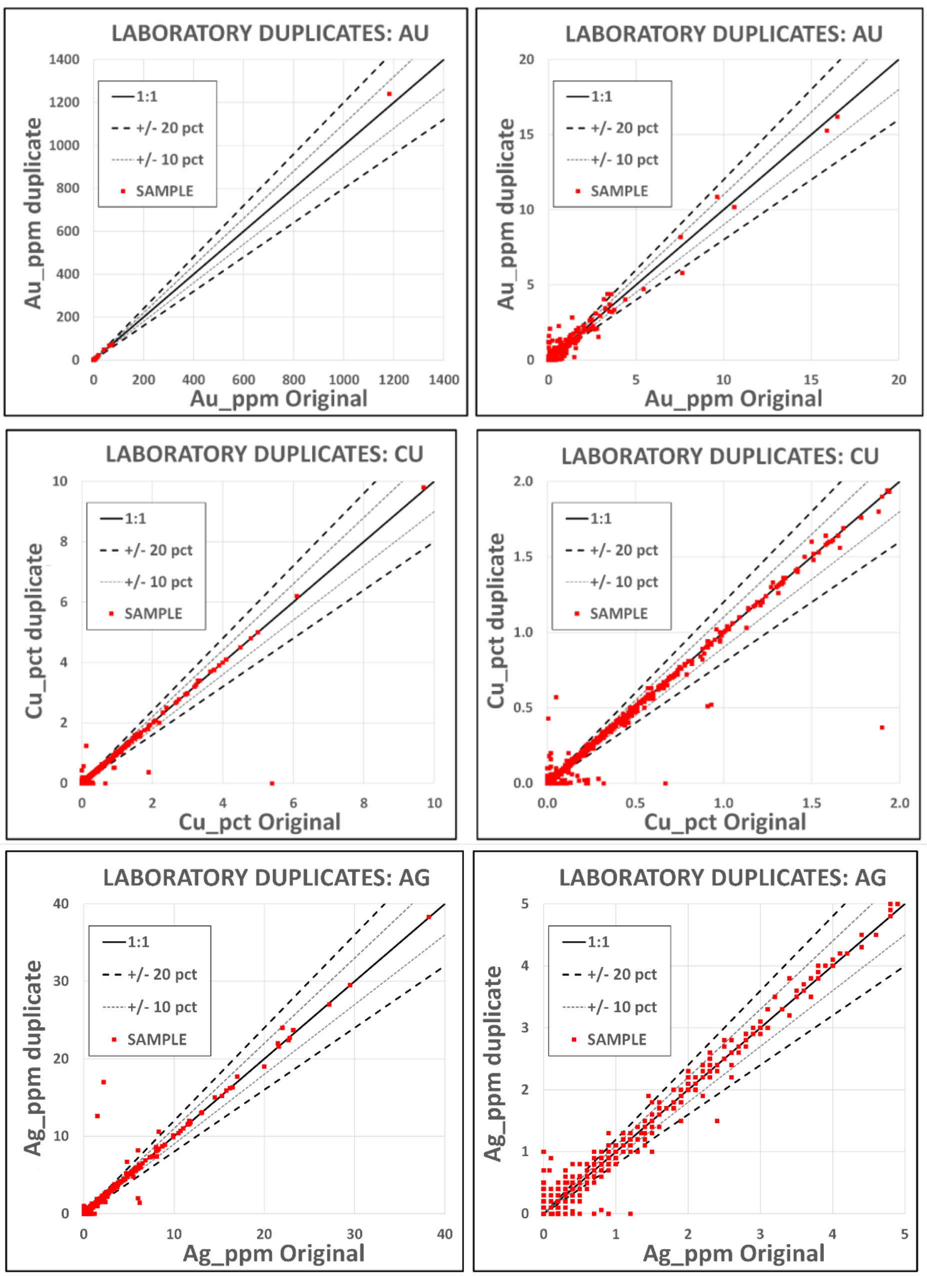
Figure 6-20: Umpire Analysis BP Minerals Laboratory and Golden Dumps Research Laboratory.



Source: Meridian, based on BPM data in BRA30000124–088. Charts to the right are an expanded view of the lower grades.

Data from the BPM Cabaçal drilling is available for 1,788 laboratory pulp duplicates for gold analysis (grade range: below detection to 1,240g/t Au), 1,697 laboratory pulp for copper analysis (grade range: below detection to 9.8% Cu) and 1,730 laboratory pulp duplicates for silver analysis (grade range: below detection to 38.3g/t Ag). Results show no evidence of any systemic bias (Figure 6-21). No specific analytical records of blank analysis or Certified Reference Materials have yet been located, other than that associated with the Golden Dumps umpire analyses.

Figure 6-21: Compiled BP Minerals Duplicate Analyses.



Source: Meridian, based on data in BRA30000124-076, 124-077, 124-079. Charts to the right are an expanded view of lower grades.

Avanco's drilling was accompanied by a quality control program, involving submission of quarter core field duplicates (one in 40 samples), pulp blanks (one in 40 samples), Certified Reference Materials manufactured by Geostats (GBM998-4, GBM399-6; one in forty samples).

6.4.9 Significant Results and Interpretation

The first diamond drilling campaign was carried out between July and December 1983 in the C-4A grid (14 holes and 1,760 metres – JUSP001 to JUSP014), which proved the presence of copper, lead and zinc sulphide mineralization at Cabaçal and anomalous values for gold (JUSPD007 – had the first visible gold reported). In the C-4B grid, Cu, Pb and Zn sulphides were also identified, along with anomalous assays for Au and Ag.

A second diamond drilling campaign on the C-4A grid, executed in the second half of 1984, confirmed the lateral continuity and down-plunge of the mineralized intervals intercepted during the first drilling campaign, when 33 holes (6,309 metres) were drilled – JUSPD025 to JUSPD057). In this campaign, Cu, Pb, Zn and Ag mineralization (with traces of Au) were also identified in the C-2C and C-2B grids.

The next program to evaluate the Cabaçal deposit was carried out between March and September 1985 (coinciding with the former C-4A target). This program identified five overlapping mineralized zones and the stratabound characteristics of the deposit.

A further program to assess the potential of the northwest and southeast extensions of the Cabaçal deposit, carried out between July 1986 and February 1987, 71 holes (total of 7,517 metres). These were drilled in a 100m x 50m grid in the northwest extension and 50m x 25m in the southeast extension. This mineralization envelope was extended and considered open along northwest, southeast and southwest extensions (Mineração Santa Martha, 1987).

As a result of the work developed by Mineração Santa Martha (Grupo BPM) and Mineração Manati Ltda. (Grupo RTZ), the Cabaçal mine initiated operations in March 1987 following approximately 60,000 metres of diamond drilling.

Many of the geochemical and geophysical targets defined by BPM did not progress to systematic drill testing, due to the focus on resource definition drilling at Cabaçal (C4 target) and Santa Helena (C2C target). Intersections of interest outside of the Cabaçal and Santa Helena mine environments include:

- C-2B: A target located 1.5 km northwest along strike from the Santa Helena mine, along the same trend (overlapping with the "Sucuri" VTEM target). Initially defined by significant gold counts in soils and a chargeability anomaly, Holes JUCHD 9, 11, 77, 78 and 79 intercepted gold mineralization associated with conductive sulphide (pyrite + pyrrhotite). Ledgers retrieved from the RTZ archives show a peak grade of 1m @ 140g/t Au from 53m in JUCHD11. Hole JUCHD9 contained a polymetallic anomaly in the upper section of the hole, with a peak grade of 1m @ 94g/t Ag, 0.45g/t Au, 0.78% Zn, 0.14% Pb & 0.01% Cu from 12.72m (BRA30000124-080.pdf); and
- C-4B: This target is located ~3km along strike from Cabaçal to the northwest and was initially defined as a stream and soil geochemical anomaly with an associated historical chargeability anomaly. Historical reports indicated that 12 holes were drilled (JUSPD006, 12-13, 15-19, 21-24), with a peak grade of 0.7m @ 5.2g/t Au from 46.0m in JUSPD017, and 0.96m @ 0.91% Cu, 3.0 g/t Ag from 79.2m in JUSPD021 (BRA30000058–001.pdf). Geochemical anomalies are related to at least two horizons consisting of chlorite, garnet, grunerite, stilpnomelane, magnetite and quartz, with bands of sulphide (pyrite, pyrrhotite, chalcopyrite, galena, and sphalerite). These horizons occur interspersed with acidic metavolcanic and pelitic metasediments (tuffs of dacitic-rhyolitic composition) with subordinate intermediate to basic volcanics and volcaniclastics. Collar locations for these holes are yet to be confirmed in the field.

In December 2002, Prometálica Mineração Ltda conducted drilling around the Santa Helena (C2-C) deposit, completing 39 vertical holes (2,078 metres) in order to complete a prefeasibility study and metallurgical tests.

The drilling methods, logging procedures, sampling methods, sample preparation and analysis and recoveries are considered best practices for the time, conducted by experienced professionals under supervision of senior management of BP Minerals and later Rio Tinto. Analytical precision of commercial laboratories has improved in since the 1980's and 1990's, but the data is considered reasonably accurate with no evidence of bias. Modern downhole survey methods have also improved since the era of the original programs, but given the short lengths of the holes, and the predominance of vertical drilling, there is not considered to be any material drift in the holes.

6.4.10 Validation Drilling

In 2015, Avanco drilled hole AMCD-15-005, testing near to historical drill hole JUSPD-031, approximately 18 m away. In the opinion of the QP 18m is considered, too big a distance for a twin hole but the position, pattern and general tenor of the copper and gold mineralization reasonably matches the original results, providing some confidence that historical records are robust.

AMCD-15-005 returned:

- Upper Zone : 31m @ 0.33% Cu, 0.03 g/t Au from 99.0m; and
- Lower Zone : 45.0m @ 0.73% Cu, 0.34g/t Au from 149m.

This compares to JUSPD031, which intersected:

- Upper Zone : 24.0m @ 0.23% Cu, 0.06g/t Au from 97.0m; and
- Lower Zone : 47.29m @ 0.71% Cu, 0.97g/t Au from 142.55m.

6.4.11 Historical Resources

Historical estimates have been made for the Cabaçal Cu-Au-Ag Deposit by the Vendors, and by Falcon Metais Ltda in June 2009 (Table 6-4). Meridian has not treated these estimates as a current Mineral Resources for purposes of National Instrument 43-101.

Table 6-4: Historical Cabaçal Estimate.

Rock Group	Class Rec	% Deposit	Volume (m^3 x 1000)	Density (t/m^3)	Tonnage (t x 1000)	Cu %	Au g/t	Au oz	CuEq %
ORE_ALL	Inferred	100	8,050.90	2.70	21,737.43	0.56	0.61	423,399.18	0.87
	Total		8,050.90	2.70	21,737.43	0.56	0.61	423,399.18	0.87

The historical estimates were generated via an inverse distance squared method on composite data from 301 diamond drill holes. A uniform density of 2.7t/m^3 was applied for tonnage estimation, using 3D solids modelled from 54 sections. A 0.20% Cu Equivalent % cut-off grade was applied (CuEquiv % = Cu % + (0.51 * Au ppm); Metallurgical Recovery = 85% Cu, 65% Au; Au price USD845/oz; Cu price USD4000/ton). No qualified person has done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. Meridian is not treating the historical estimate as current mineral resources or mineral reserves.

The historical resource estimate has been superseded by the Mineral Resource Estimate in Section 14 of this report.

SRK was previously commissioned by the Vendors to undertake a resource study on the Monte Cristo (Santa Helena) Zn Deposit in 2007. This estimate was last updated in a report dated 30 May 2007 (Michael et al, 2007; Table 6-5). The estimation procedure consisted of using three iterations of the inverse distance squared method on composited drillhole data using progressively longer search ranges. A Zn Equivalent % calculation was applied for reporting the estimates (ZnEq % = Zn% + (2.14 * Cu%) + (0.39 * Au ppm)+ (0.007* Ag_ppm); Metallurgical Recovery = 89% Zn, 89% Cu, 65% Au, 61% Ag; Au price USD570/oz; Ag price USD11/oz, Cu price USD 3.36/ lb; Zn price = 1.57/lb) The Mineral Resource was reported in accordance with NI-43-101 rules, but has not been updated to account for final mining depletion. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the issuer is not treating the historical estimate as current mineral resources.

Table 6-5: Historical Santa Helena 2007 Estimates

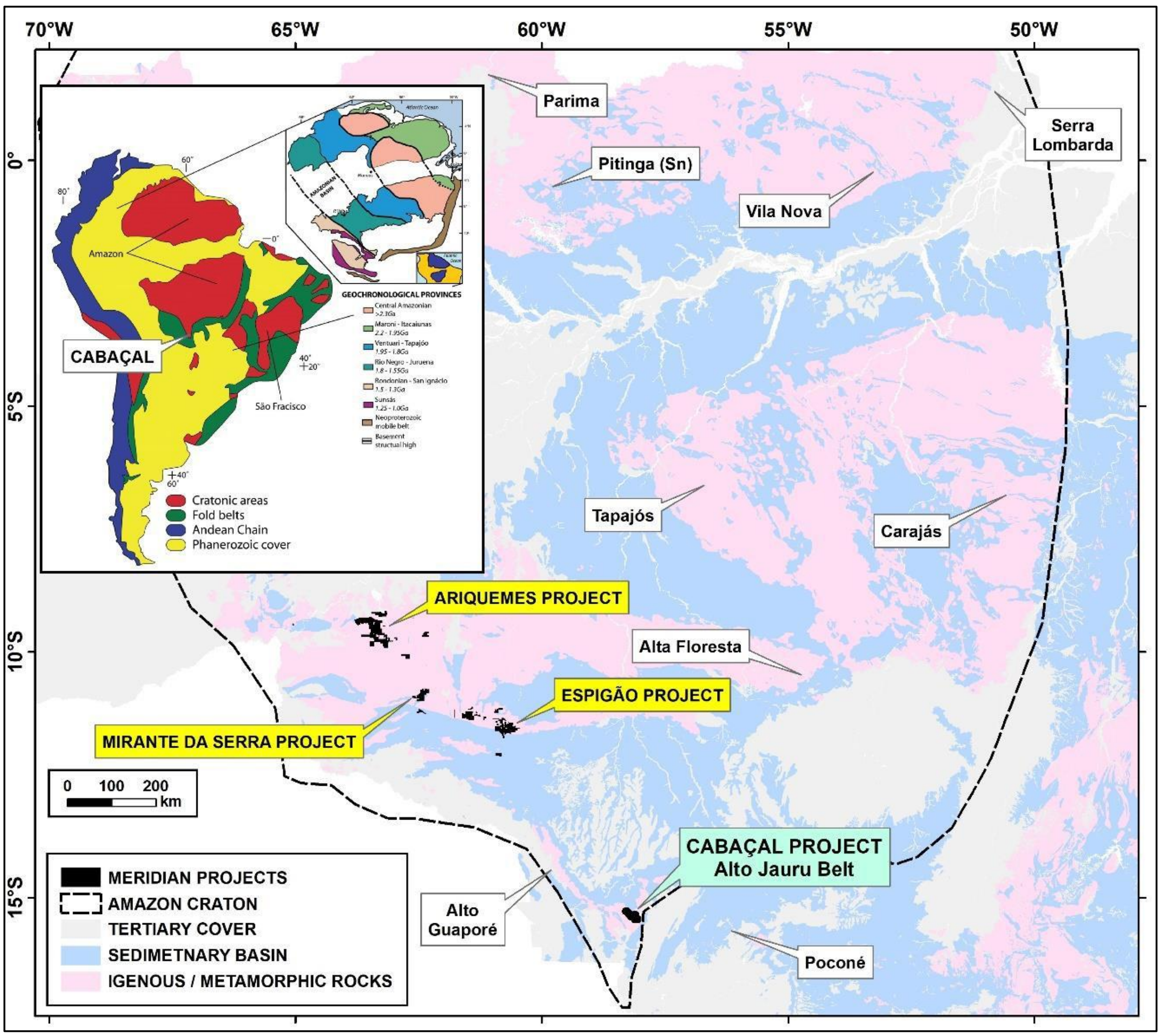
Classification	Tonnes	ZnEq (%)	Zn (%)	Cu (%)	Au (g/t)	Ag (g/t)
Measured In-situ	595,000	9.03	5.84	1.17	1.23	40.43
Indicated	488,000	10.30	6.47	1.44	1.37	43.30
Stockpile (Measured)	37,000	13.60	8.39	2.08	1.23	39.52
Total M&I	1,120,000	9.73	6.20	1.32	1.29	41.65
Inferred	37,000	9.28	5.81	1.29	1.28	4.94

7 GEOLOGICAL SETTING

7.1 Regional Geology

The South American platform of Brazil is underlain by two cratons: the Amazon craton and the São Francisco craton. The state of Mato Grosso is located on the Amazon craton within basement rocks of Proterozoic age (Jamari Domain / Mato Grosso- San Ignácio Province; Figure 7-1).

Figure 7-1: Regional Tectonic Setting of the Cabaçal Project Area.

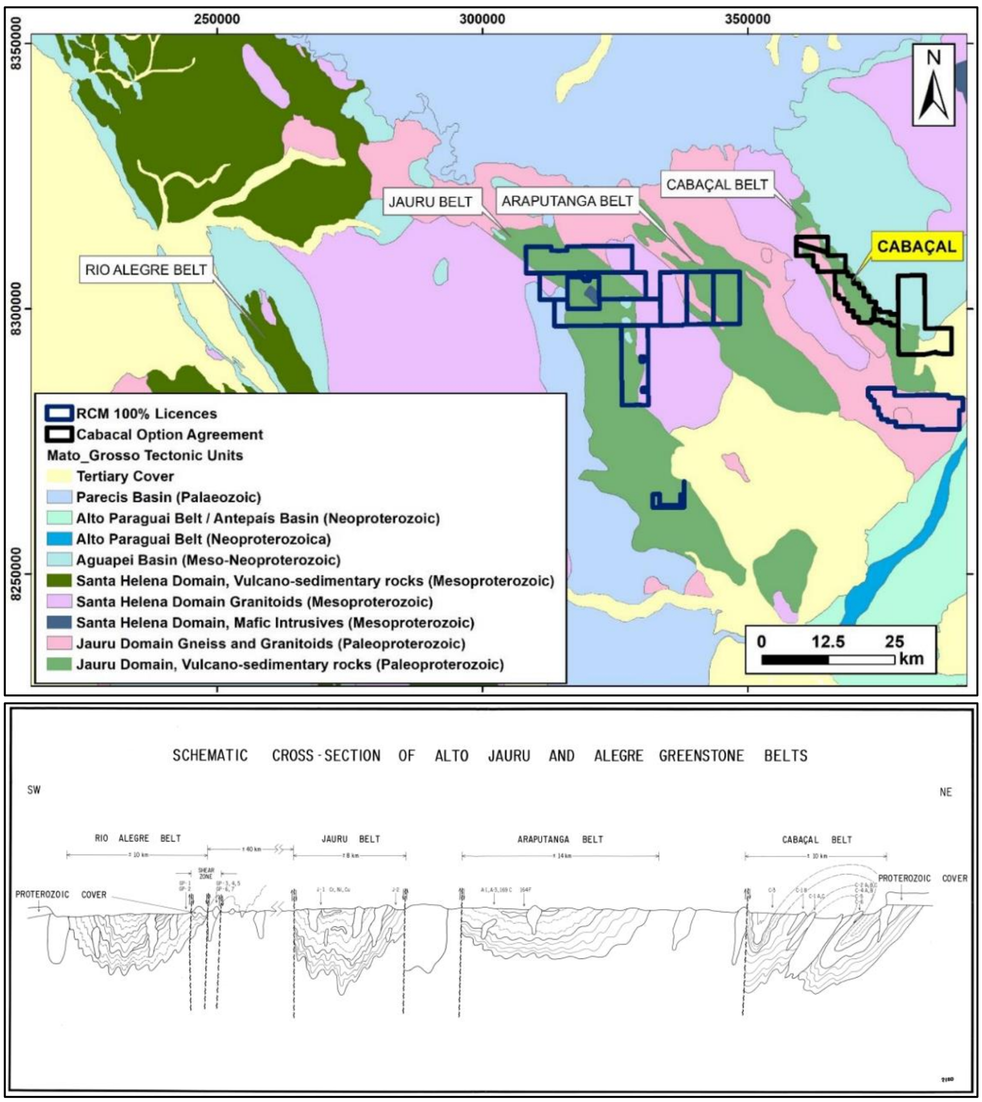


Source: Adapted from Hunt (2011) and CPRM Geology. Also shown are Meridian projects in Rondônia.

In the region, there are three belts of volcano-sedimentary rocks that collectively comprise the Alto Jaurú Greenstone Belt (1810-1520 Ma). From east to west, the Alto Jaurú Greenstone Belt includes the Cabaçal, Araputanga and Jaurú Belts (Figure 7-2). These belts are separated by the granite- gneiss terrains (Jaurú Domain – 1810-1520 Ma – orthogneiss) and Tonalite-trondhjemite-associated granitoids; Santa Helena Domain Granitoids – 1.450 – 900 Ma. The greenstone belts and crystalline basement are onlapped by younger sedimentary rocks of the Parecis Basin (542-0 Ma) In schematic cross-section, the tectonically bounded volcano-sedimentary terranes with show stratigraphic repetition with substantial deformation and convoluted folding (Figure 7-2).

The sequence has been subject to tropical weathering.

Figure 7-2: Regional Geology of The District and Schematic Cross-Section Through The Belts.



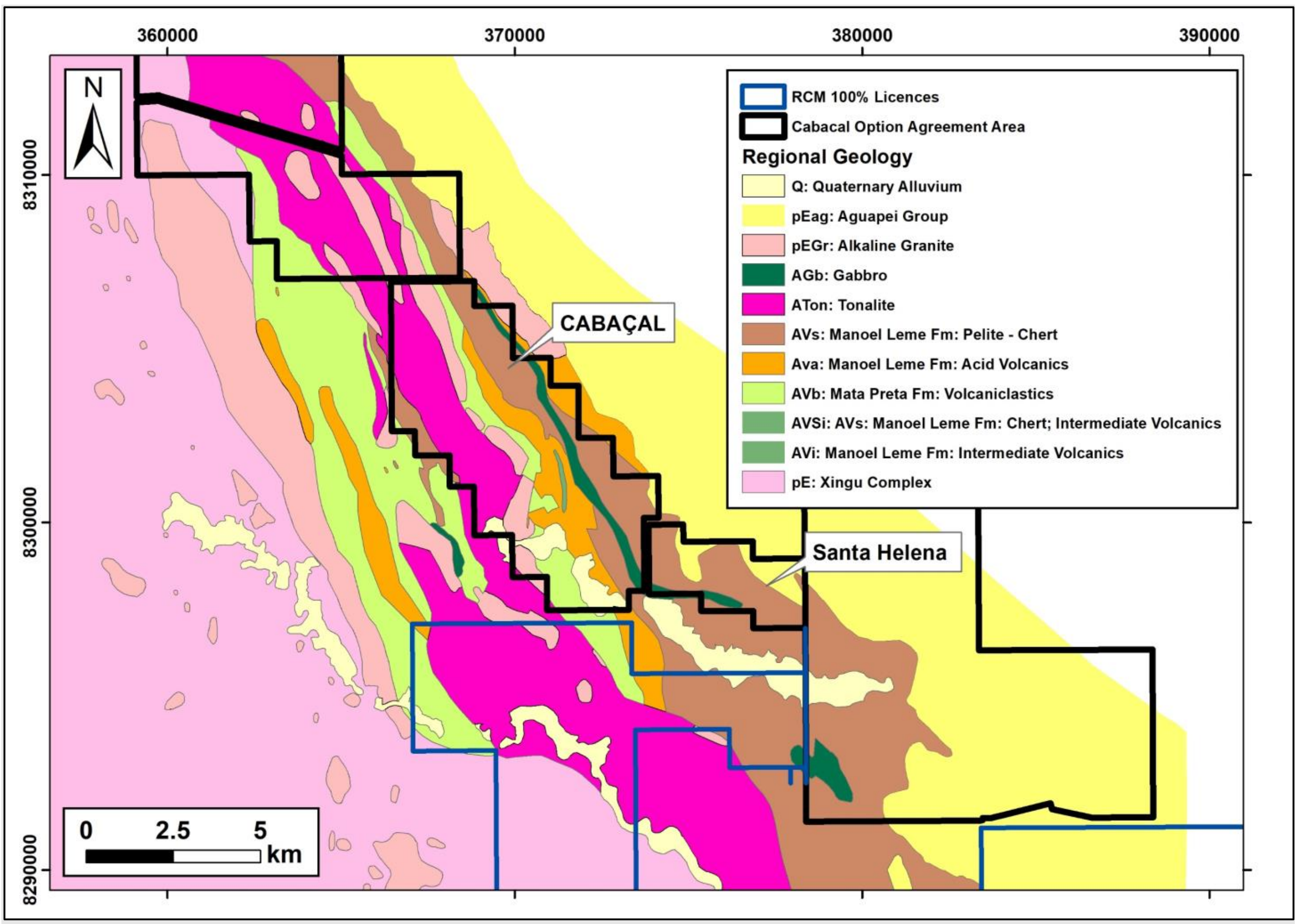
Source: Adapted from Hunt (2011) and CPRM Geology. Also shown are Meridian projects in Rondônia.

The greenstone stratigraphy assigned to the Alto Jaurú Group is divided into three formations. The Mata Preta Formation is composed of basic submarine volcanics, tholeiitic in character, with subordinate acid to intermediate volcanics and metasediments. The Manoel Leme Formation consists of an acid volcanic sequence of porphyritic lavas and dacitic tuffs at the base and pelitic and chemical metasediments with acid volcanic intercalations at the top of the unit. The Rancho Grande Formation is composed of chemical metasediments with basic volcanics. Each of the three belts has components of the three formations.

7.2 Property Geology

The Manoel Leme Formation in the Cabaçal Belt covers an area of about 35 x 2km (70km^2) trending WNW/ ESE as shown in Figure 7-3. This formation is the host to the mineralized sequence at Cabaçal, which is interpreted to be situated on the overturned eastern limb of an east-verging anticline.

Figure 7-3: Cabaçal Project Geology Map



Source: Meridian, adapted from GIS files supplied by PML (based on original BMP mapping)

Lithological units in the formation include:

- Acid Metavolcanics: Slightly foliated porphyritic lavas of dacitic to rhyodacitic composition with well preserved plagioclase phenocrysts. Crystal and lapilli metatuffs contain plagioclase and rock fragments;
- Banded Metachert: These rocks contain up to 98% silica with chlorite and sericite; the rock is finely banded with alternating layers of quartz, calcite, chlorite, and sulphides. They occur preferentially above acid metavolcanics comprising chloritized schist, massive and semi-massive sulphides and banded cherty metatuff. The banded chert can include intervals rich in disseminated and banded sulphide mineralization;
- Chloritized Zones: The chloritized zones are composed of chlorite and quartz with smaller amounts of sericite and/or biotite. They appear as deformed masses associated with shear zones. These rocks show a close spatial affinity with the sulphide mineralization;
- Sulphide Zones: These zones contain all the disseminated (< 40%) and semi-massive/massive (>40%) sulphide mineralization. The mineralization is closely related to the chloritized and banded metachert units. The main sulphide minerals are pyrrhotite, pyrite, sphalerite, chalcopyrite, and galena. At the surface, these zones form gossanous occurrences;
- Banded Cherty Metatuff: These rocks are biotite-chlorite-sericite-quartz schist, with pronounced compositional banding related to primary layering; and
- Intermediate Metavolcanics: These rocks comprise metamorphosed lavas and tuffs. They are composed mainly of biotite, plagioclase, and quartz.

Metabasalts of the Mata Preta Formation are present in the central and western sectors of the Cabaçal Project area.

The Aguapeí Group lies in angular discordance over the greenstone sequence and forms an escarpment on the western margin of the belt. It consists mainly of quartzites and metasiltstones, and subordinately, metaconglomerates.

An extensive tonalite body (Cabaçal Tonalite) runs through the western margin of the of project area, and has a strike length of ~38km, trending NW-SE. Xenoliths and/or roof pendants of metasediments and metavolcanics occur in the tonalite.

Granites occur as NW elongated bodies associated with the tonalite. They are homogenous but foliated near the margins. The granites consist of quartz, feldspar, muscovite and biotite. The texture of the granites can be compared to the Alvorada granite dated at 1440+80 Ma.

Intrusions of gabbroic composition are common in the region and post-date mineralization.

The sequence is folded with ductile to latter brittle structural overprints. Most of the structural studies are based on more detailed mine geology reviews.

The area has been subject to tertiary to recent weathering, The upper clay saprolite is largely stripped and the weathering profile transitions rapidly from saprolite typically in the upper 10-15m, to a narrow transitional saprock interval and then to fresh rock.

7.3 Cabaçal Mine Geology

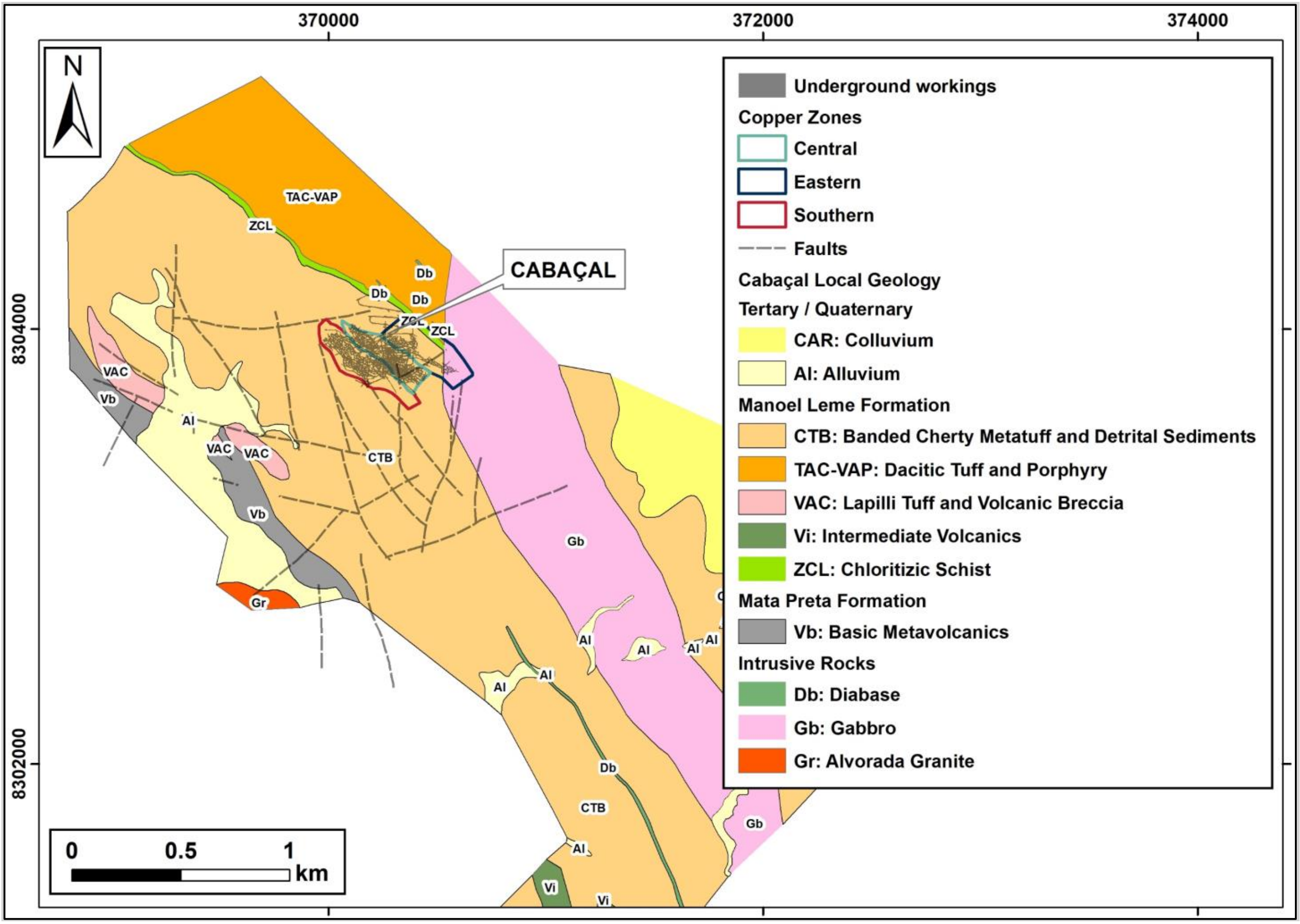
7.3.1 Lithology and Structure

The overturned geology of the immediate Cabaçal Mine environment can be divided into the following principal lithological units (Mason and Kerr, 1990; Osbourne, 1991; Figure 7-4; Figure 7-5). There is a strong structural and alteration overprint, which can sometimes mask clear identification of the protolith in these schistose rocks, and multielement geochemistry suggests there are subdivisions which may mark variation in detrital input and/or possible intercalation between volcanic and sedimentary units.

- Quartz-sericite-chlorite-(biotite) schist (CTB): This unit is considered to be predominantly a tuffaceous meta-sediment and hosts high-grade gold and copper mineralization. Data from multielement analyses such as nickel, chromium, titanium and zircon, show variation indicating transitions from more felsic to intermediate to more mafic compositions.
- Chlorite-quartz-biotite-(sulphide) schist (ZCL): This distinctive unit is represented by a strongly sheared unit, frequently carrying at least 1-5% sulphide (Cpy > Py > Po). Locally, remnants of a thin (0.3 – 0.5m) magnetite BIF occur near the top of this unit.
- Biotite-quartz-carbonate-chlorite schist (Zbi): This narrow horizon is most prominent where the ZCL is at its thickest. The horizon has little gold mineralization, but can carry some sphalerite, and locally galena. Locally, this unit is associated with a thin chert band with sedimentary structures indicating the sequence is overturned.
- Quartz-sericite-biotite-feldspar schist (TAC): The structural footwall of the deposit is occupied by a dacitic metavolcanic / volcaniclastic unit (where porphyritic textures are present, the unit is coded VAP). It is considered barren, although few holes penetrate to any great depths through the unit.
- A post mineralization gabbro intrusion is developed to the east of the mine workings (Gb).

In long section, the mineralization trend has a shallow plunge, with hinge zones in the mine environment plunging at about 20° SE. The mine sequence stratigraphy projects for an unknown distance to the southeast beneath the mafic sill (shown in purple in Figure 7-4).

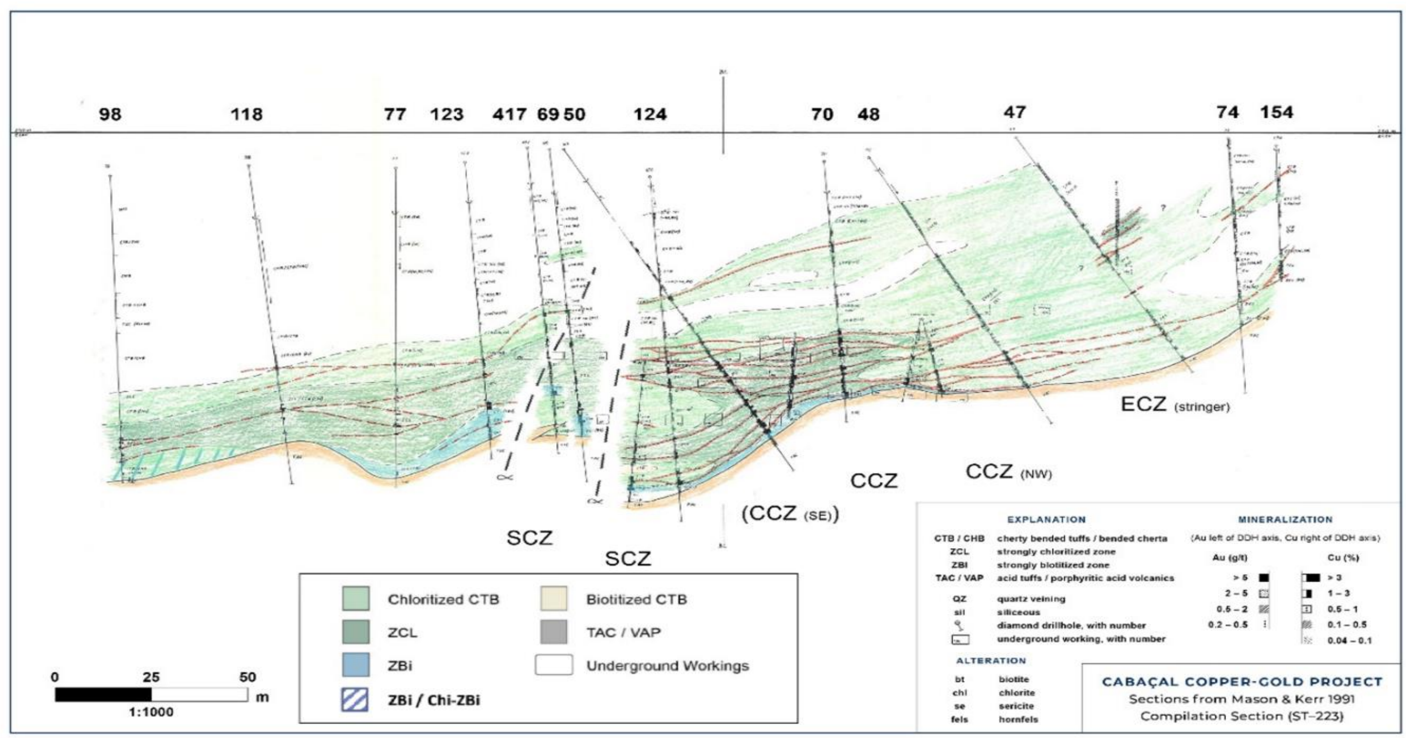
Figure 7-4: Plan View of Cabaçal Local Geology.



Source: Meridian.

In cross-section (Figure 7-5), the gentle southwest dip of the mineral sequence is evident, with drilling data indicating an undulating basal shear structure, rolling from moderately dipping to sub-horizonal through a combination of folding and faulting. A level of interdigitation of the different sub-units of the mine sequence is evident.

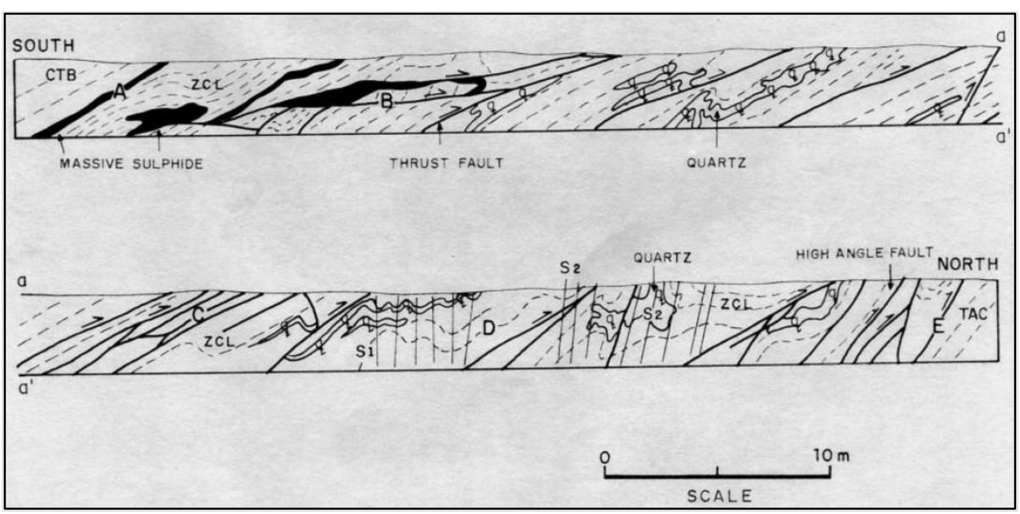
Figure 7-5: SW-NE Cross-Section of Geology In The Cabaçal Mine Environment



Source: Mason and Kerr (1990).

The mine sequence stratigraphy is in ductile thrust contact with the basal acid volcanic TAC unit (Figure 7-6).

Figure 7-6: Structural Style Mapping In Underground Access Drive.



Source: Franke and Osborne (1988). 195 Level Access. A = CTB/ZCL contact; B = Thrust duplex; C = Sigmoidal shear fractures; D = En echelon folded quartz veins; E = ZCL/TAC contact

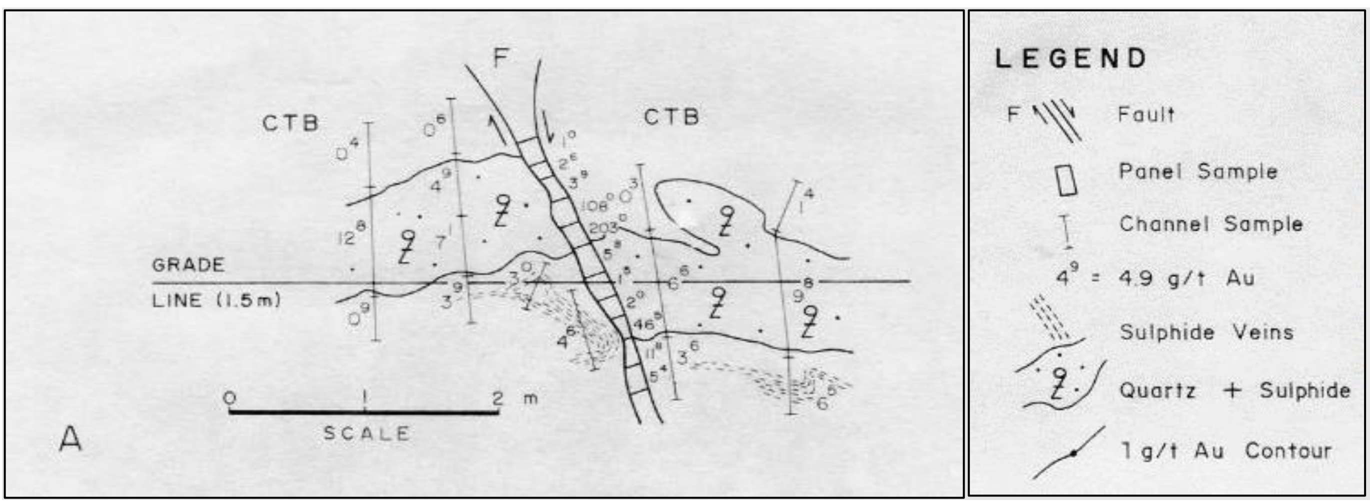
A number of deposit scale to belt-scale studies and reviews have been conducted on the Cabaçal Project.

Osborne (1989) suggested that the Cabaçal mine was located in a zone of dilation within a regional scale thrust in contact with a metavolcanoclastic sequence (CTB) and a metavolcanic pile (TAC). According to this author, mineralization would be divided into two different zones, which developed as a result of the same deformational history imposed on rocks of different composition and competence.

Osborne observed that the upper zone consisted of an en-échelon arrangement of mineralized lenses within the CTB unit and hosts 85% of the total gold mineralization. In this zone, the gold is hosted in sulphide-quartz veins (D1), sulphides in veinlets (D1, D2, D4) and shear quartz veins with sulphide and garnet. Remobilized mineralized material have a Riedel shear pattern. The gently dipping stratiform mineralization is cut by late-stage sub-vertical structures, which can redistribute mineralization physically and chemically (Figure 7-7).

The copper-rich lower zone is a complex system that includes veins of quartz-sulphide and sulphides banded or in the form of veins folded and remobilized by thrust. Enveloping rocks vary from CTB, in the sterile or weak mineralization zones, through CTB-CL and ZCL in the very deformed mineralized areas, up to Zbi in the footwall contact. The chlorite content is higher in the most deformed areas.

Figure 7-7: Example of High-angle Mineralized Fault Cross-Cutting the VMS Mineralization.



Source: Franke and Osborne (1988). South wall SN1839

7.4 Mineralization Style

The mineralization host units are volcanic, volcanoclastic, and sedimentary rocks deposited in a marine environment. These units were cut by basic granitic and plutonic rocks. All are intensely metamorphosed and deformed, with folding and local faulting.

The Cu-Au-Ag mineralization zone has overall dimensions of 650m (down-dip) by 2,350m (along strike). The mineral zone strikes approximately 135°, dips at 10-20° to the southwest, and has a shallow plunge to the southeast of 10-20°. At lower grades, the mineralization has good continuity. Higher grade copper-gold trends are enveloped within the lower grade halo. The mineralization has a vertical elevation extent of approximately 200m, The true width is the mineral zone is typically some tens of metres (approximately 10 to 90m).

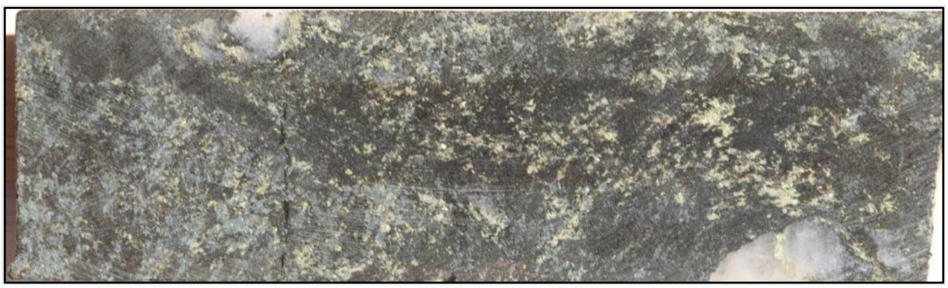
There are a range of mineral styles typical of a VMS deposit including massive sulphide, breccia zones with sulphide clasts and/or matrix, sulphide stringer zones and disseminated sulphides (Figure 7-8). One of the most important styles for gold mineralization involves later stage gold event superimposed on the original VMS stratigraphy. Examples are seen that include gold-rich quartz-sulphide veins, free gold developed within foliation, and gold-only layers in chloritic alteration zones detached from the VMS mineralization envelope (Figure 7-9). In addition to the drill core, good examples of the mineralization style are illustrated in photos from the Cabaçal Mine operations (Figure 7-10, Figure 7-11; Figure 7-12).

Mineral species at the Cabaçal mine consist of pyrite, chalcopyrite, pyrrhotite, sphalerite, galena, gold along with bismuth, selenium, and tellurium alloys.

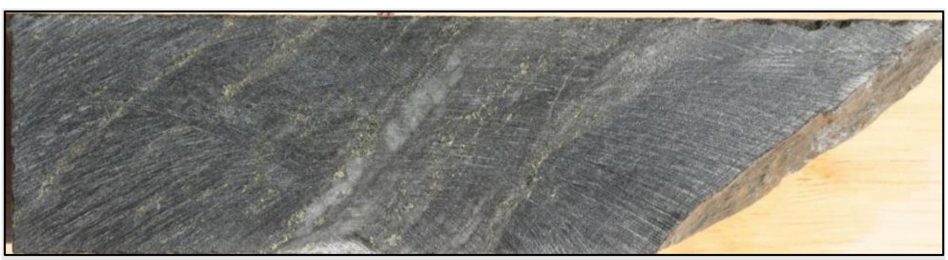
In the uppermost part of the Cabaçal deposit, the mineralization has been oxidised. Erosion has caused the removal from of the upper clay saprolite for most areas such that depth to fresh rock can be quite shallow typically between 5 and 20m averaging 1-15m below surface.

Figure 7-8: Examples of Copper Sulphide Mineralization Styles In Drill Core

CD005 : Sample CBDS00514 (55.2 – 55.9m) : Sulphide breccia; 5.0% Cu, 1.9g/t Au, 26.1g/t Ag.

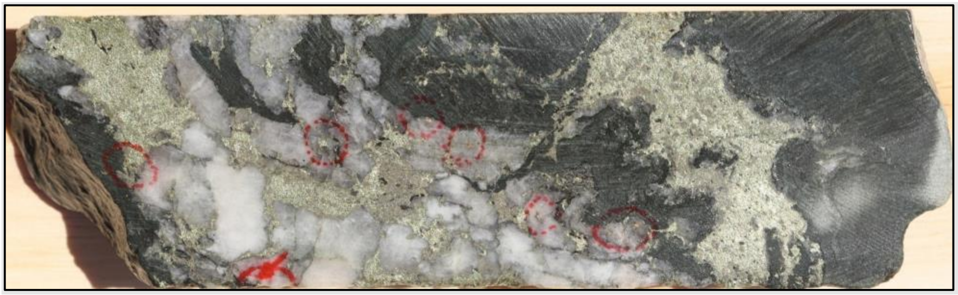


CD012 : Sample CBDS01274 (103.0 – 103.65m) : Disseminated sulphides : 3.0% Cu, 11.4g/t Au 11.7g/t Ag.

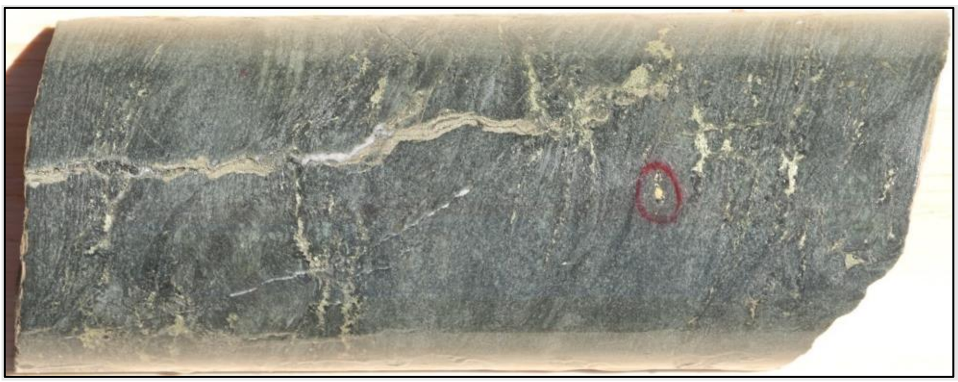


CD019 : Sample CBDS02076 (53.0 – 53.5m) : Disseminated sulphides : 0.7% Cu, 0.2g/t Au, 1.1g/t Ag

Figure 7-9: Examples Gold Mineralization Styles in Drill Core.



CD072 : Sample CBDS08327 (79.7- 80.25m) : Quartz-sulphide vein : 299.1g/t Au, 3.0% Cu, 18.8g/t Ag.



CD114 : Sample CBDS14431 (63.85 – 64.21m) : 0.4% Cu, 56.8g/t Au, 4.1g/t Ag.

CD110 : Sample CBDS14665 (37.65 – 38.4m) : CTB (Chloritic alteration zone; gold-only layer) : 0.0% Cu, 8.6g/t Au, 0.1g/t Ag.

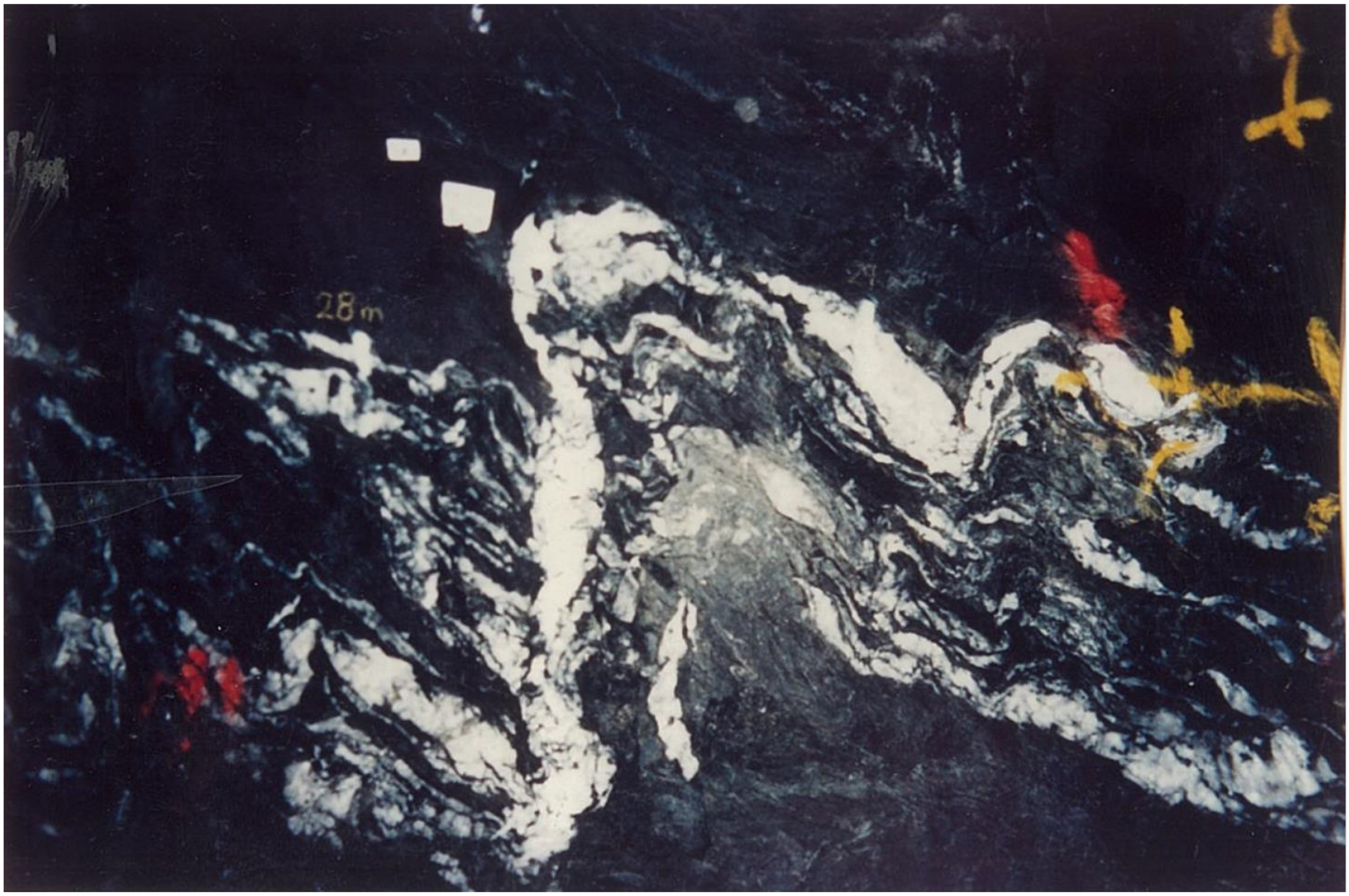
Figure 7-10: Cabaçal Mineralization: Banded Massive Sulphide of Central Copper Zone.

Source: Mason and Kerr (1990): From underground mine face.

Figure 7-11: Cabaçal Mineralization: High-grade Au-Cu Vein from The Southern Copper Zone.

Source: Mason and Kerr (1990): From underground mine face

Figure 7-12: Sheared Quartz Vein System, Cabaçal Mine.



Source: Mineral Controls at The Cabaçal I Mine, Mato Grosso State, Brazil (Maten, 1988)

7.4.1 Significant Mineralized Zones at Cabaçal

Mason & Kerr (1990) carried out a comprehensive reassessment of all geological data and analytical results from boreholes, supported by observations made in selected exposures in the Cabaçal mine front. These studies aimed at establishing the geological controls of mineralization, structure, and assessing the potential for discovering additional resources in the mine and its surroundings.

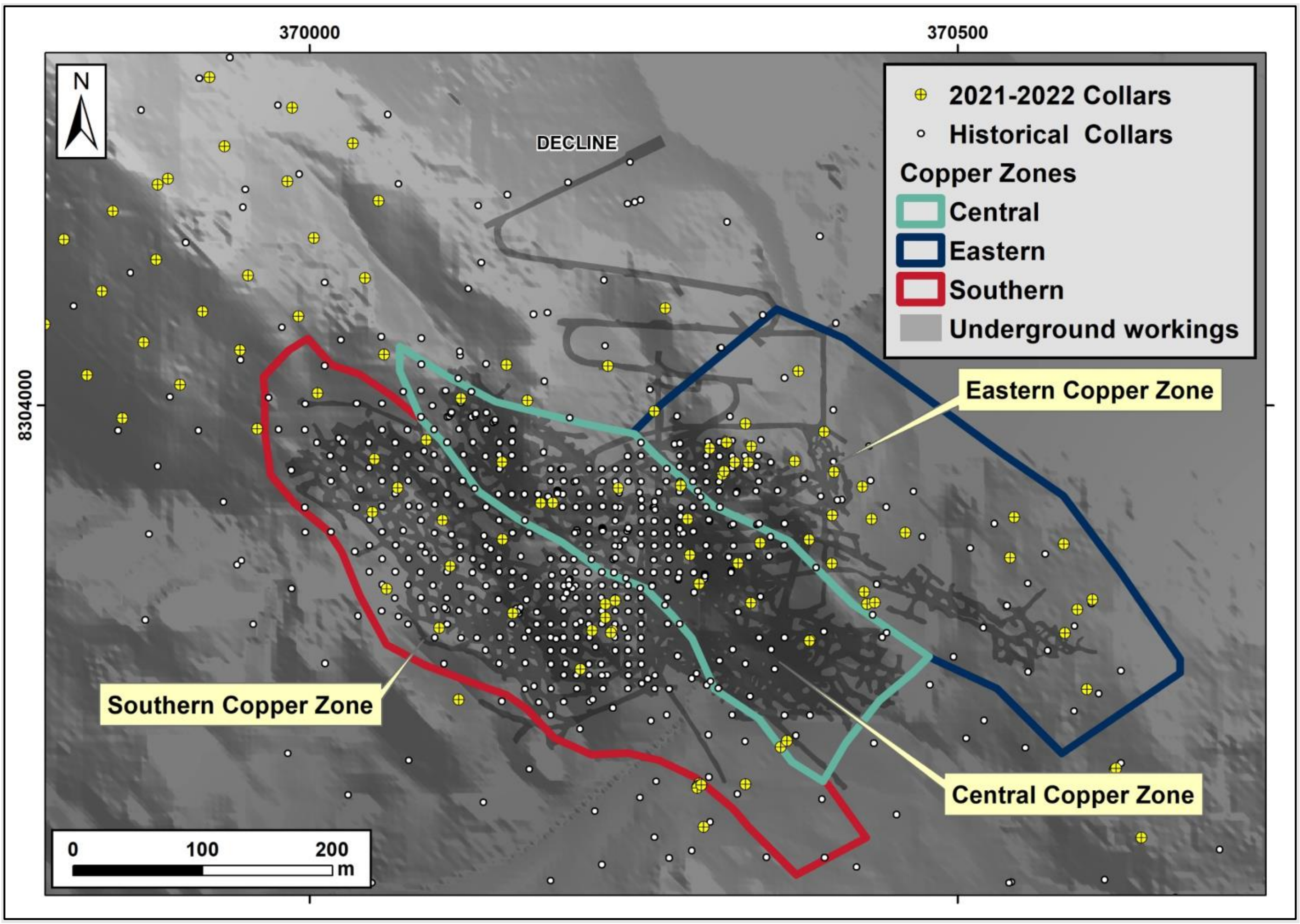
These authors have interpreted the Cabaçal deposit as a VMS system, rich in gold, intensely deformed, which was inverted and shortened, within the lower limb of a large recumbent fold. The mineralization was characterized in terms of the hydrothermal alteration assembly, i.e., sericite-biotite-chlorite-quartz, which has the geometry of a flattened pipe and consists of massive, stringer to disseminated Cu-Au sulphides mineralization, with a late overprinting gold event.

From the same authors, mineralization at Cabaçal is related to three hydrothermal centres (Central, East and South Copper Zones). The main gold zone is a flat stringer zone related to the South Copper Zone (SCZ). In the Central Copper Zone (CCZ), past mining targeted high-grade gold in the core of an intense hydrothermal alteration pipe (ZCI) and, to a much lesser extent, the massive sulphide lenses. The East Copper Zone (ECZ) is a centre of lesser expression of vein-type copper mineralization, with erratic gold mineralization of the high-grade stringer type. The recent Meridian drillholes in relation to the three hydrothermal alteration centres are shown in Figure 7-13.

The large tonalite intrusion that is developed to the west of the Cabaçal deposit is likely to be a subvolcanic intrusion, providing a heat engine for convection of hydrothermal fluids.

The Cu-Au-Ag mineralization zone has overall dimensions of 650m (down-dip) by 2,350m (along strike). The mineral zone strikes approximately 135°, dips at 10-20° to the southwest, and has a shallow plunge to the southeast of 10-20°. At lower grades, the mineralization has good continuity with shorter-ranged higher grade copper-gold trends enveloped by the lower grade halo. The mineralisation outcrops and has reaches a vertical depth of 200m below surface. The true width of the mineral zone is variable ranging from 10 to 90m.

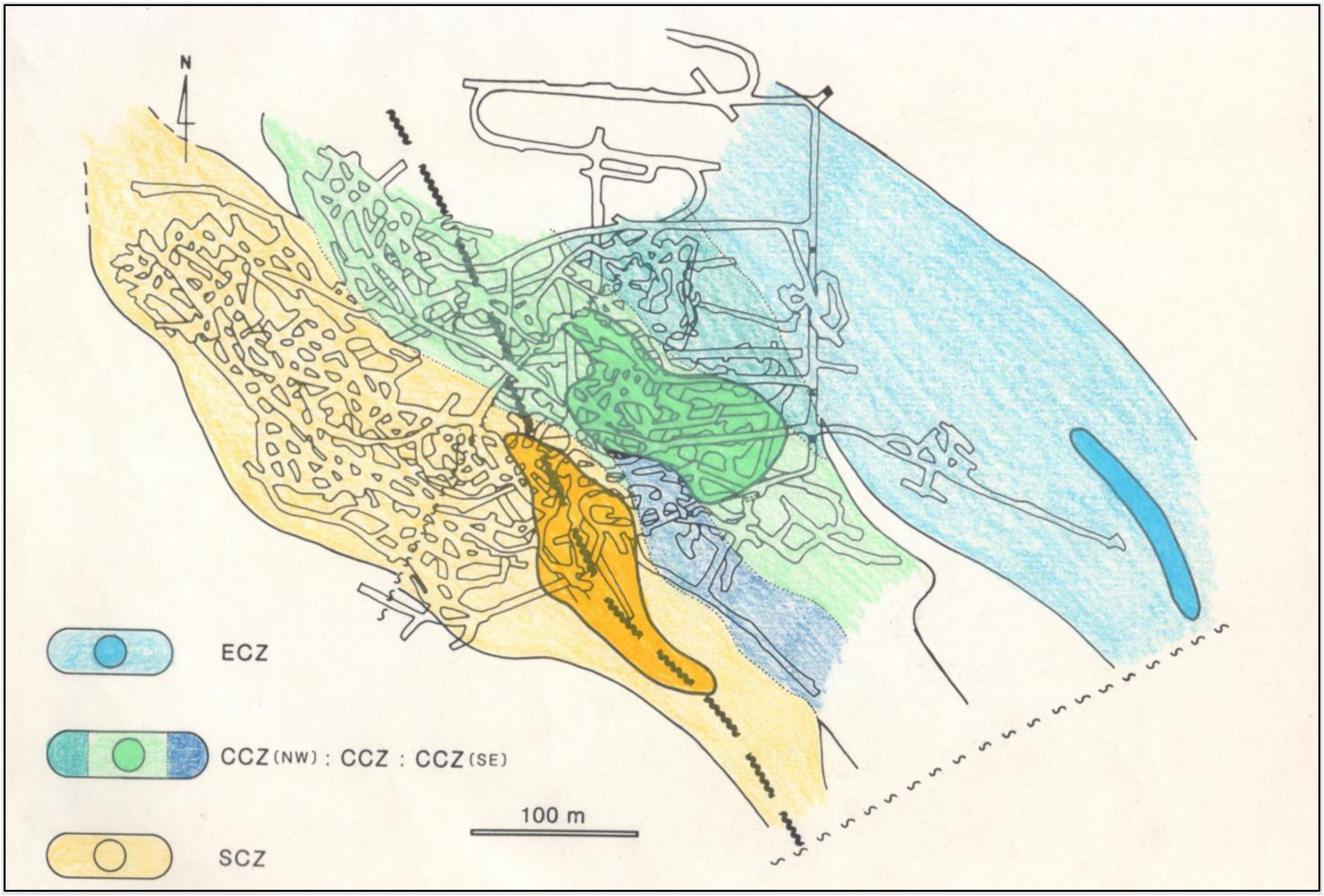
Figure 7-13: Eastern, Central and Southern Copper Zones in Relation To Meridian Resource Collars.



Source: Meridian, adapted from Copper Zones of Mason & Kerr (1990), with mine development in level plan from RTZ archives.

Figure 7-14 shows where the focus points of chloritic alteration are located within the hydrothermal centres and are interpreted to represent feeder structures.

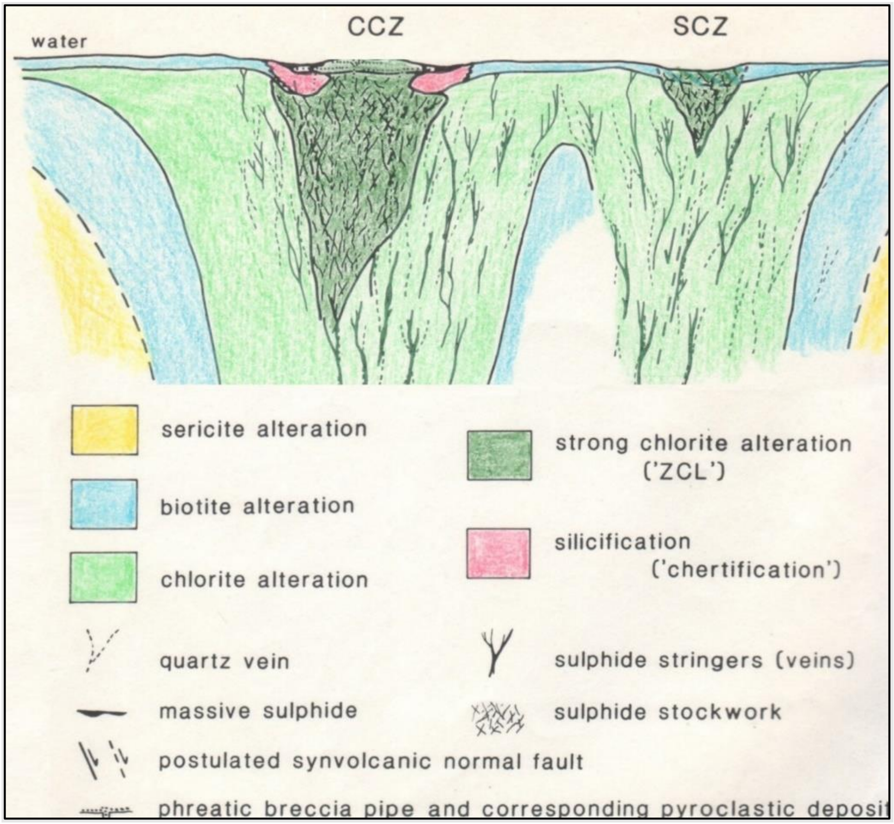
Figure 7-14: Plan of Cabaçal Mine Levels in Relation to the Three Copper Zones



Source: Mason and Kerr (1990). Chloritic cores to copper zones in bold colour

The original pre-deformation architecture of these overlapping centres is shown schematically in Figure 7-15.

Figure 7-15: Pre-deformation Schematic Section (sequence now inverted)



Source: Mason and Kerr (1990)

The attributes of each zone and examples of significant mineralization within them is as follows:

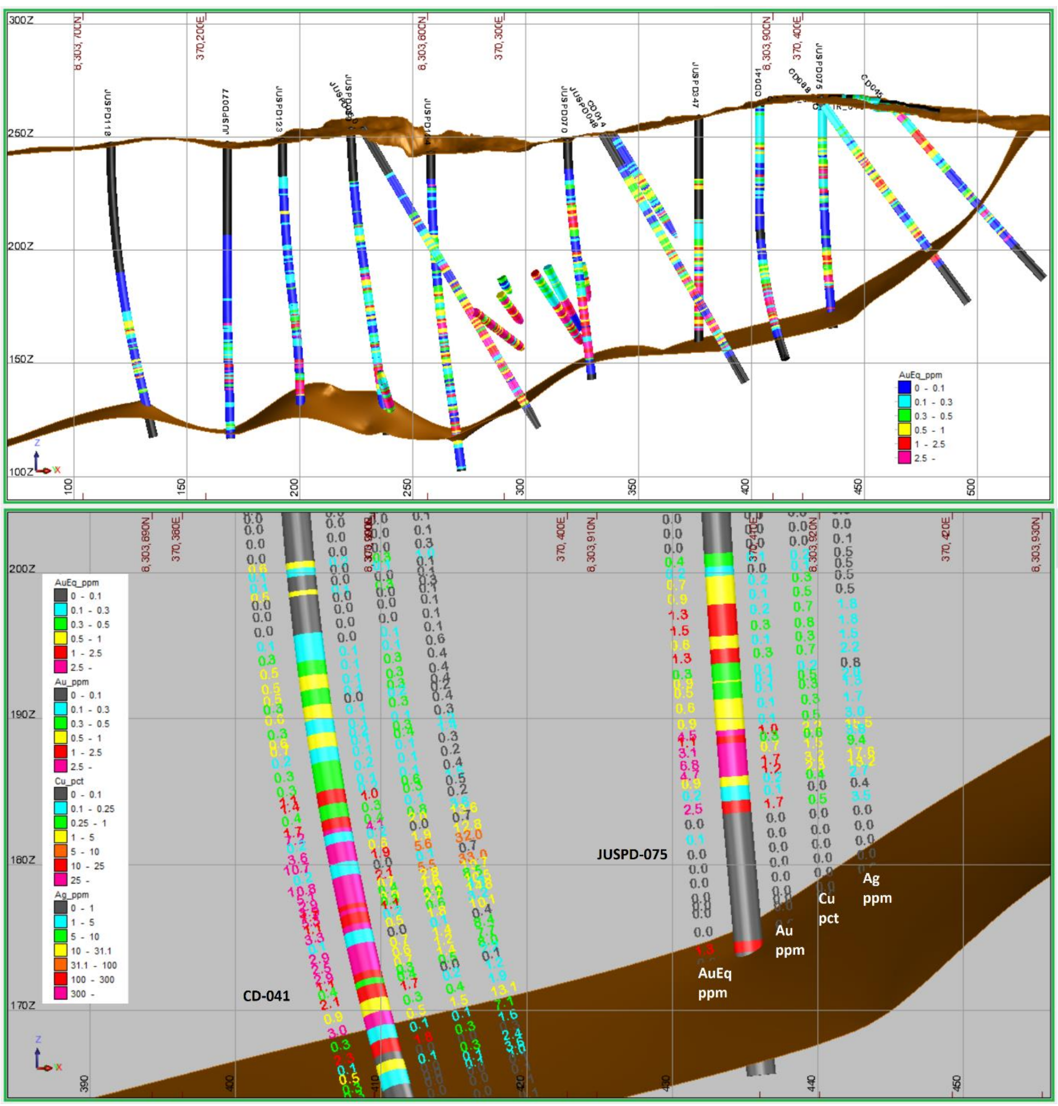
The East Copper Zone ("ECZ") consists of an elongate zone of sulphide stinger zones developed within chloritic CTB. The domain shows some thickening in the basal ZCL at the CTB/TAC contact, which dips at ~25o to the SW where copper grades can increase to >1% Cu in SE-plunging shoots. Gold grades tend to be more modest, but high-grade intersections are known which require further drilling e.g., JUSPD119: 5.6m @ 7.7g/t Au & 1.1% Cu from 45.2m; JUSPD222: 6.4m @ 60.1g/t Au, 0.5% Cu & 4.0g/t Ag from 47.7m; JUSPD025: 5.0m @ 85.3g/t Au, 0.7% Cu & 10.0g/t Ag from 71.5m. Mason and Kerr (1990) noted that the corridor was comparatively sparsely drilled compared to the other two domains, with the northern, northeastern, and eastern limits of the ECZ not well defined. The mineralization is truncated by the shallow-dipping gabbro intrusion at the SE end of the workings. Only limited exploration has been carried out to look for the extension of the deposit east of the gabbro.

The Central Copper Zone ("CCZ") is cored by a well-developed, intensely chloritized discordant pipe with strong Cu-Au mineralization. The CCZ is the only unit which hosts a massive / breccia sulphide layer, in a bed 5 to 150 cm-thick, capped by a 'chert' (possibly a silicified tuffaceous horizon). The massive sulphide consists of layers or lenses of the same sulphide assemblage occurring in the stockwork and stringer veins, thus interpreted to be related to the VMS feeder system. A zinc-barren window is centred over the pipe in plan view, but the pipe is flanked by a broad zone of elevated zinc values (grades ranging from 0.1 to 5.8% Zn) dispersed at the top of the ZCL and in the Zbi. This represents typical VMS zonation outward from a hotter zone in the throat of the pipe (Cu) to cooler areas on the margins (Zn).

The Southern Copper Zone ("SCZ") is also associated with a major alteration pipe, but the early biotite alteration has not been obliterated by the intense chloritic alteration as in the core of the CCZ. The SCZ was interpreted to represent an intermediate stage of development of the VMS system that was more advanced that the ECZ, but not quite so advanced as the CCZ. The SCZ contains some zones of high-grade copper mineralization near the lower limits of the underground development (e.g., JUSPD482: 13.4m @ 1.2g/t Au, 5.5% Cu, 24.7g/t Ag & 0.5% Zn, JUSPD596: 15m @ 2.7g/t Au, 5.2% Cu, 9.5g/t Ag & 1.2% Zn).

The combination of stringer, disseminated, and breccia sulphides combines to form a broad footprint of shallow-dipping mineralization, an example of which is shown in Figure 7-16, which includes Meridian holes CD-041 and CD-45 that targeted the Eastern Copper Zone.

Figure 7-16: Cabaçal Cross-Section, CD-041 and CD-045



Source: Meridian Upper brown surface is surface relief; lower brown surface is TAC contact, with mine sequence in between.

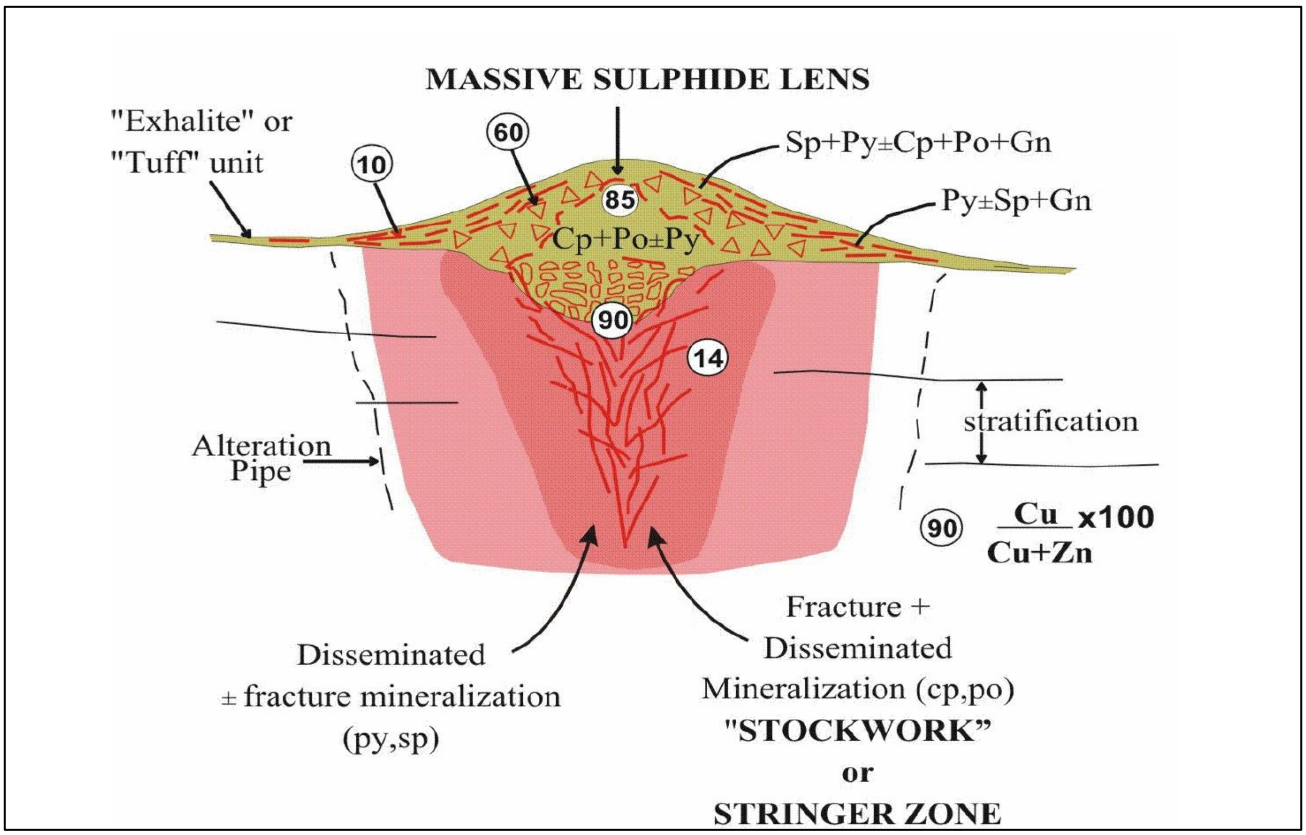
8 DEPOSIT TYPES

8.1 Mineral Deposit

The metallogeny of Zn, Cu, Pb, Au and Ag mineralization in the Jaurú Belt is classified as a volcanogenic massive sulphide (VMS) mineral system developed within a Proterozoic Greenstone Sequence. Initially, felsic marine volcanism was followed by a deposition of sulphide minerals. Chert and sediment layers were deposited during the period of sulphide deposition. The final event was a period of intermediate volcanism.

In a typical volcanogenic massive sulphide deposit, the massive sulphides lie above stringer and stockwork mineralization associated with an alteration pipe. The top contact is usually very abrupt, and zinc tends to be concentrated close to this upper contact. Massive sulphide mineralization is usually capped by chert or silicified tuff overlain by weakly altered barren strata. Elements of the model for a classic VMS mineralization setting include a stratiform lens of massive sulphide overlying a discordant stringer sulphide zone within an envelope of altered rock (alteration pipe). Base metals typically show some form of spatial zonation (Figure 8-1) indicated by numbers in circles with the highest numbers being Cu-rich and the lower numbers more Zn-rich (Py = pyrite, Cp = chalcopyrite, Po = pyrrhotite, Sp = sphalerite, and Gn = galena).

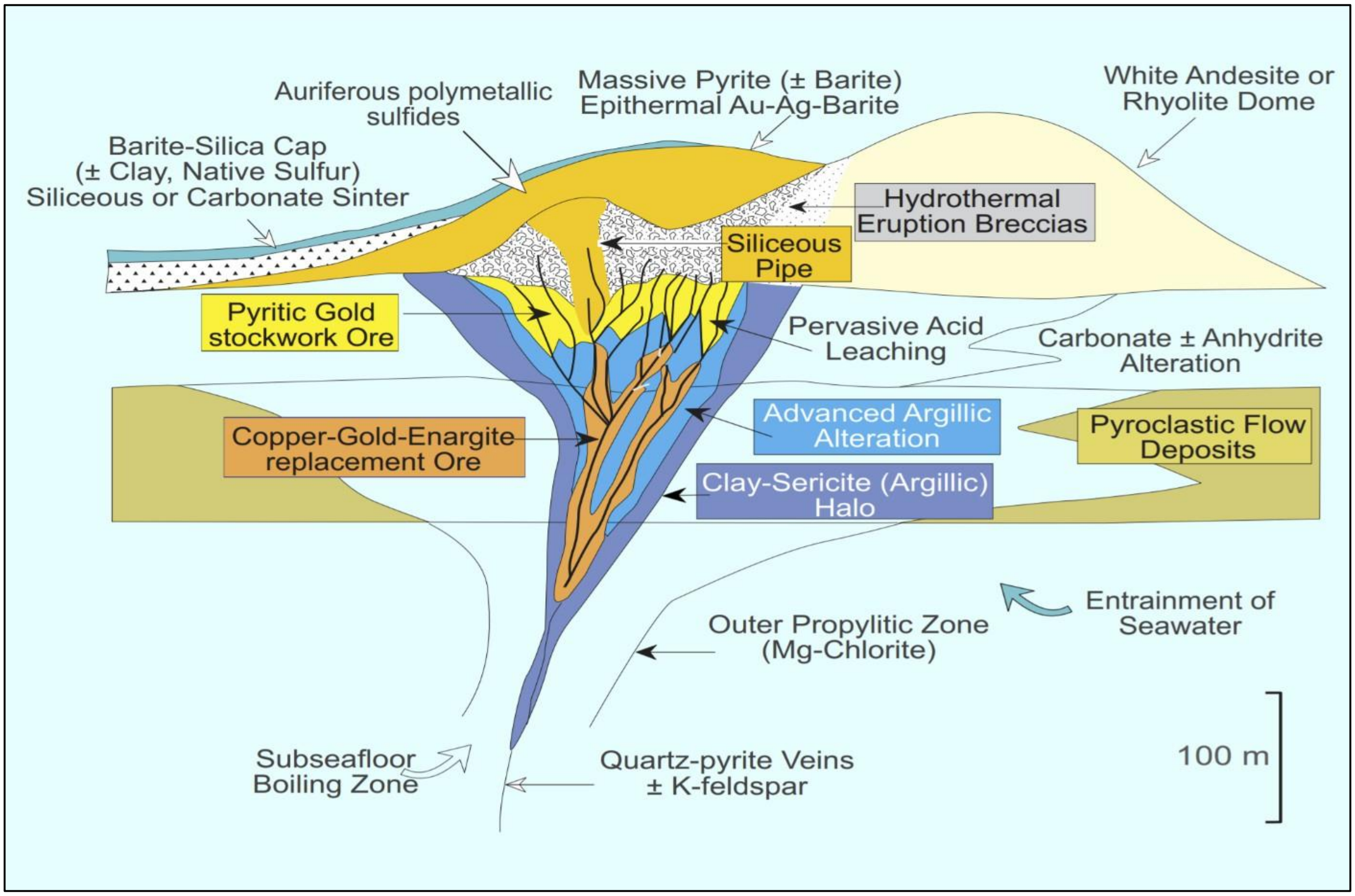
Figure 8-1: Idealized VMS deposit morphology



Source: Gibson et al (2007).

VMS deposits have a continuum of compositions through to gold-rich end members (Dubé et al, 2005), where gold contents in g/t can exceed combined percentage levels of Cu, Pb, and Zn. Such gold-rich deposits occur in a variety of submarine volcanic terranes from mafic bimodal through felsic bimodal to bimodal siliciclastic. Their host strata are commonly underlain by coeval subvolcanic intrusions and sill-dyke complexes, typically metamorphosed to greenschist and lower amphibolite facies in greenstone belts of various ages. The gold most commonly has an uneven distribution within the deposit due to both primary depositional controls and subsequent tectonic remobilization. The gold metal association varies from Cu dominant through to Zn-Pb dominant end members. They contain similar architectural elements to classic VMS deposits.

Figure 8-2: Idealized deposit morphology of gold-rich VMS end-member.



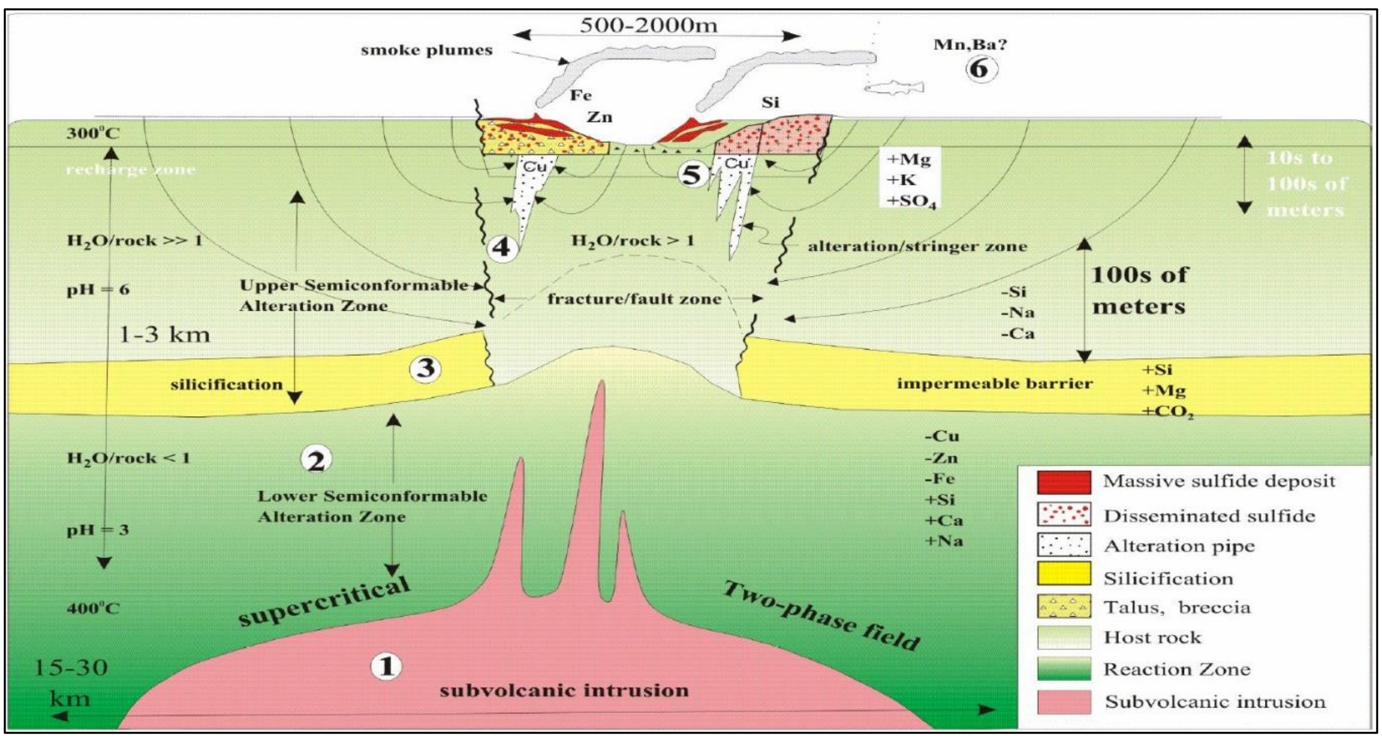
Source: Dubé et al (2005).

8.2 Geological Model

VMS deposits are significant sources of Cu, Zn, Pb, Ag, Au, and minor amounts of other metals. They form on, and immediately below the seafloor, by the discharge of a high temperature, evolved, seawater-dominated hydrothermal fluid during contemporaneous volcanic and intrusive activity. VMS deposits are syngenetic, stratabound to stratiform accumulations of massive to semi-massive sulphide with often underlying associated discordant stringer or stockwork zones. Six main elements are considered essential to the formation of VMS hydrothermal systems, (Gibson et al, 2007; modified from Franklin et al., 2005Figure 8-3):

1. A heat source that is sometimes manifested by large, sill-like, synvolcanic hypabyssal intrusions to initiate, drive and sustain a long-lived, high temperature hydrothermal system;
2. A high temperature reaction zone that forms through the interaction of evolved seawater with volcanic and sedimentary strata. During this interaction, metals are leached from the surrounding rocks;
3. Deep penetrating, synvolcanic faults that focus and discharge metal-bearing hydrothermal fluids via seafloor black smokers;
4. Footwall and hanging wall alteration zones that are products of the interaction of near surface strata with mixtures of high temperature ascending hydrothermal fluid and ambient seawater;
5. The massive sulphide deposit that formed at or near the seafloor and whose metal content was refined by successive hydrothermal events; and
6. Distal products, primarily thalweg, that represent a hydrothermal contribution to background sedimentation.

Figure 8-3: Schematic Representation of VMS Deposits.



Source: Gibson et al (2007).

Many VMS deposits occur in districts that contain a series of periodically spaced deposits. Controls on the localization of VMS deposit camps mainly involve volcanic and synvolcanic features e.g., calderas, craters, grabens, and domes; faults and fault intersections; and seafloor depressions or local basins.

9 EXPLORATION

9.1 Introduction

Meridian has undertaken the following exploration activities during 2021-2022 mostly associated with the Cabaçal Mine and its general periphery:

- Diamond drilling, sampling and assaying;
- Surface geochemical surveys including soil and rock chip sampling;
- Downhole geophysical surveying of historic diamond drillholes;
- Ground based electromagnetic geophysical surveys;
- Remote sensing;
- Topographic control; and
- Digital data compilation.

This ground-based work has resulted in the following numbers:

- 184 drill holes for 22,890m;
- 20,330 drill core samples;
- 1,092 soil samples;
- 95 downhole bore hole electromagnetic ("BHEM") surveys;
- 11-line kilometres of surface Pole-Dipole Induced Polarization Surveys ("PDIP");
- 104-line kilometres of surface Fixed Loop Transient Electromagnetic surveys ("FLTEM");
- 6-line kilometres of surface Dipole- Dipole Induced Polarization surveys ("DDIP"); and
- 41-line kilometres of surface Gradient Array Induced Polarization surveys ("GAIP");

The intent of the diamond drilling (and further discussed in Section 10) is threefold:

1. Validation drilling of the historical drilling via hole twinning in preparation for a new Mineral Resource estimate;
2. Infill drilling of the current known mineralization envelope to help upgrade any Mineral Resource estimate; and
3. Additional exploration drilling to expand the known mineralization and possibly increase the size any Mineral Resource.

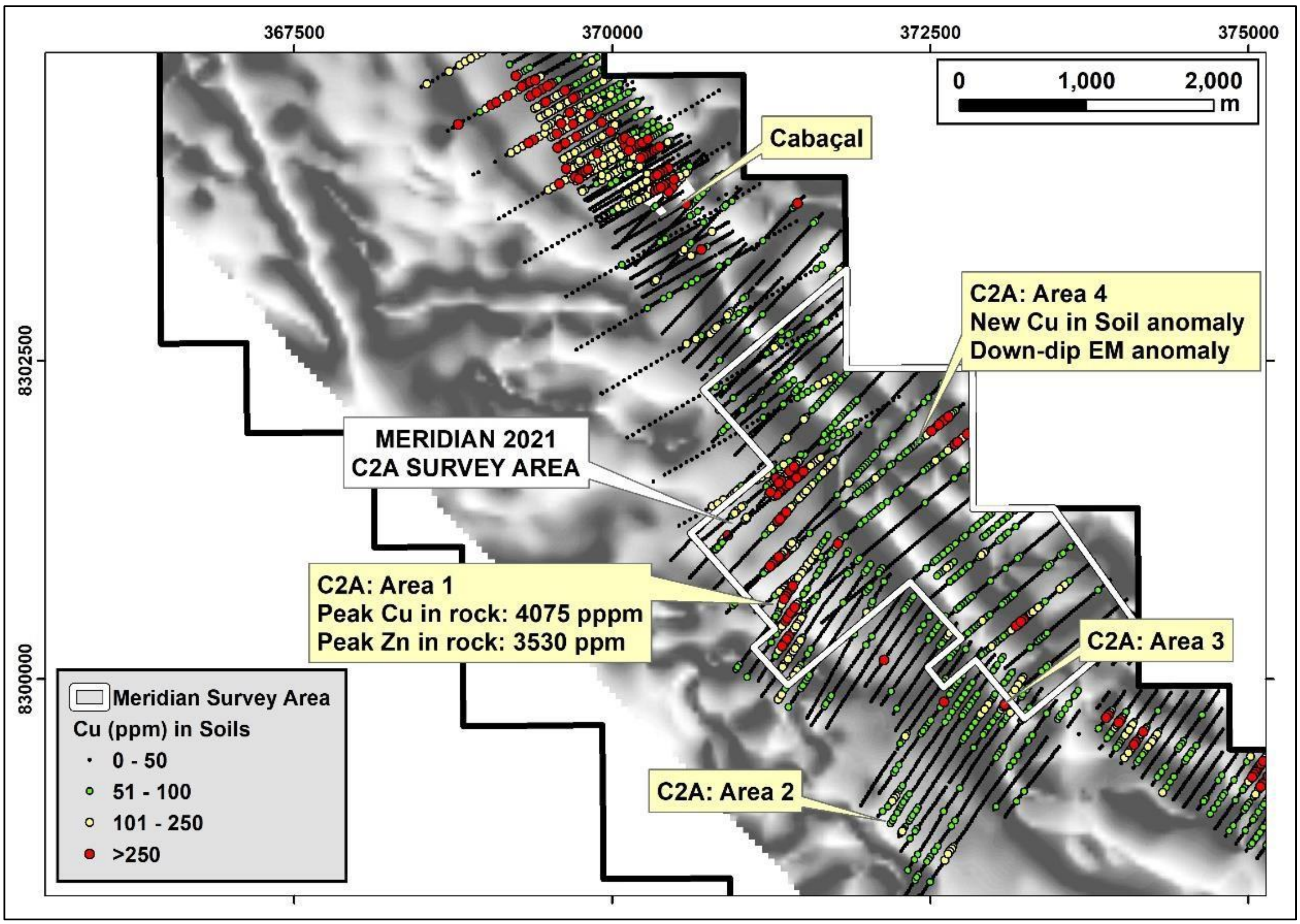
The surface geochemical and geophysical programmes are designed to test peripheral areas to the Cabaçal mine for new mineralization. The remote sensing is being used to identify additional targets in both the periphery to the mine and in the regional areas within the Meridian exploration leases.

9.2 Geochemical Surveys

Meridian initiated a rock chip and soil sampling program, focusing initially on the C2A area of BPM (centred approximately 3 km southeast of the Cabaçal Mine). Soil geochemical anomalies with variable Cu, Cu-Au, Zn-Cu-Pb soil responses were historically defined, but not closed off with gaps in the sample coverage. The area has limited outcrop.

Previous work by BPM defined a north-south trending geochemical anomaly extending over 1.5 km, with a cross-strike footprint of ~130-200m (peak Cu of 1,080 ppm) with flanking Pb and Zn anomalies extending the footprint of this metal anomaly outward to ~400 cross strike. This area is associated with historical IP and EM responses from past surface surveys (C2A: Area 1Figure 9-1). Separate Zn-Pb dominant soil responses are developed further southwards and are associated with historical EM responses (C2A: Areas 2, 3Figure 9-1).

Figure 9-1: Historical and new geochemical soil results (Cu) in the C2A Target.



Source: Meridian, 2022, BPM & Meridian geochemical data. Background: Analytic Signal magnetics.

One thousand, one hundred, ninety-two (1,192) soil samples have been collected by Meridian in order to validate, infill, and extend the BPM grid. Samples were collected from the 'B Horizon', using a hand-auger, on a 200 x 25m grid, closing to 100m on infill lines. Samples were first analysed in the field by portable XRF, calibrated with certified references, with the inclusion of blanks and certified references. All samples were later sent to SGS Laboratories (Belo Horizonte) for gold analysis (by method FA505). Ten percent of the samples were analysed for a multielement package at SGS using a 4 acid total digest with ICP-OES finish for verification of the portable XRF values (method code ICP40B). Blanks are inserted at a frequency of 1 in 50 samples and standards at a frequency of 1 in 20 samples.

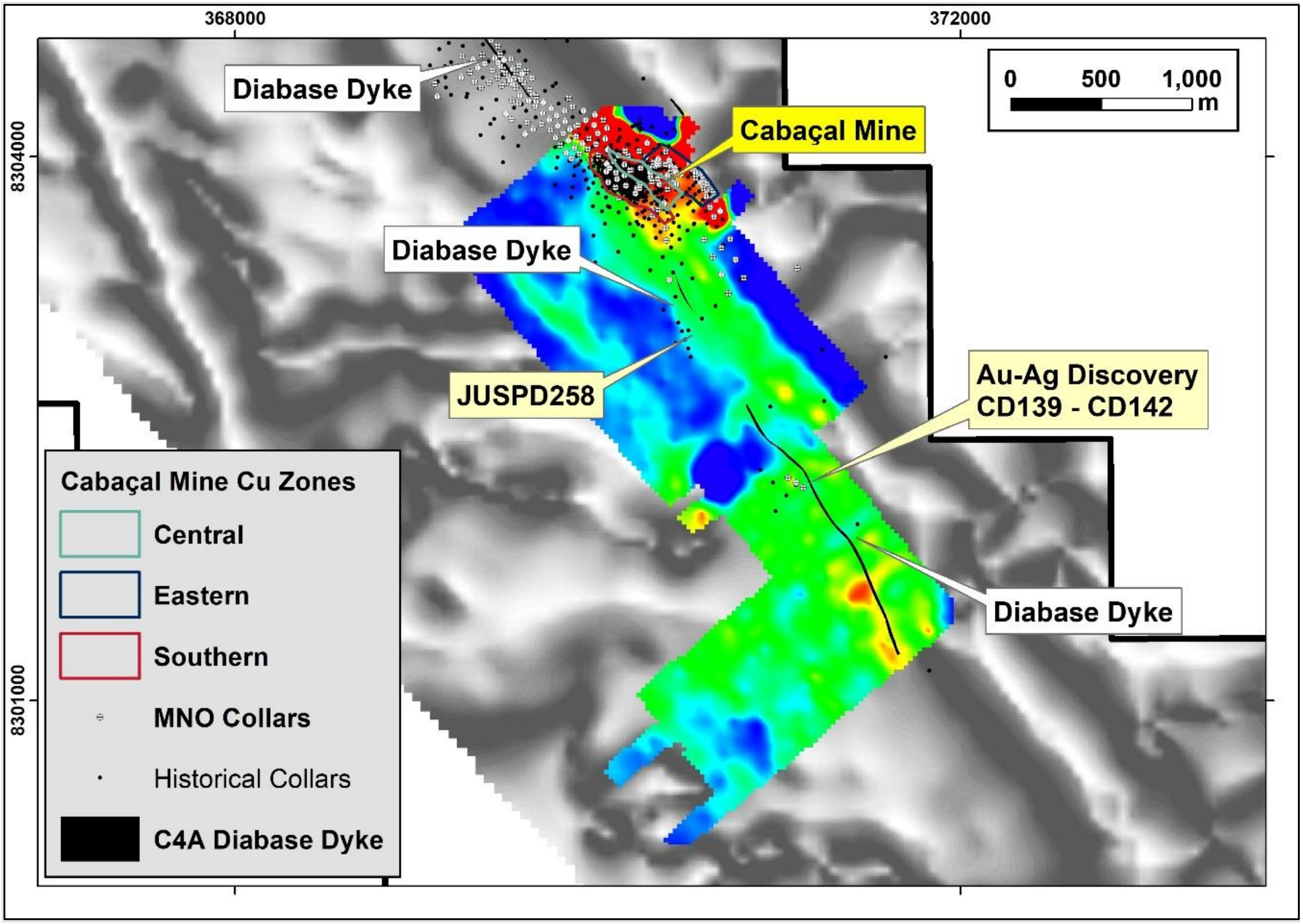
The results from the soil sampling have confirmed that the anomalies expressed in the historical sampling exist and are correctly located. They have also defined a new Cu-Zn anomaly, located 3km southeast of the Cabaçal Mine (C2A: Area 4). Peak rock chip results of 4,075 ppm Cu, 3,530 ppm Zn have been reported to date (Figure 9-1).

9.3 Geophysical Surveys

Meridian initially contracted Geomag S/A Prospecções Geofísicas, a company of the Wellfield Services Group, to conduct an orientation survey and downhole electromagnetic surveys over the Cabaçal mine and near-mine area. Measurements were taken using a TEM57-MK2 Transmitter and PROTEM receiver for the surface surveys, and a BH43-3 borehole three-dimensional time domain ("TDEM") probe for the subsurface work. Meridian subsequently purchased its own modern equipment manufactured by Australian Electromagnetic Imaging Technology Pty Ltd (EMIT), comprising a Digiatlantis probe, an 8-Channel SMARTem24 Receiver, SMARTx4 Transmitter, and a tri-axial fluxgate magnetometer and with an in-house team has initiated a program of FLTEM and BHEM surveys. Data is sent to Meridian's independent consultant, Core Geophysics, where subsequent processing and modelling of the geophysical data is undertaken using industry standard Maxwell software.

Fixed-Loop orientation surveys over the Cabaçal Mine defined a bedrock conductor consistent with a response related to a broad footprint of disseminated to stringer sulphides. The EM anomaly extends ~100-200m southeast of the limits of the historical mine development. Fixed-loop surveys have also been initiated over bedrock conductors defined from the 2007 VTEM survey, with an initial focus at Cabaçal West where three holes were initially drilled (CD058, CD066, CD075), and further work is pending. Downhole electromagnetic surveys have been completed, with survey work having been completed on 95 holes to date. BHEM surveys in the Cabaçal mine setting coincide with stringer zones intersected in recent Meridian and historical drilling. Induced Polarization Surveys have been undertaken over Cabaçal, the northwest extension, and the southern extension through the C4A (south) gold-silver target and C2A target area, showing a number of chargeability anomalies consistent with targets for disseminated sulphides (Figure 9-2).

Figure 9-2: Plan view of modelled conductors in the Cabaçal Mine area.



Source: Meridian, 2022. Chargeability image from Core Geophysics superimposed on Analytic Signal magnetics.

9.4 Remote Sensing

In August 2021, Meridian commissioned a WorldView-3 satellite survey to supplement existing regional datasets and assist in exploration targeting. WorldView-3 is a high-resolution commercial satellite sensor launched in 2014, which provides detailed imagery that can be utilized in mineral mapping, providing a fast and effective technique to screen large areas for signatures of hydrothermal alteration. Meridian has waited for peak dry season conditions for the survey window, and with the survey concluded, data has been interpreted by Dan Taranik (Exploration Mapping Group, Nevada, United States). No archive imagery existed so four new strips of WorldView-3 satellite imagery were acquired for a total delivery of 1,384km^2 of survey coverage Anomalies from the Worldview 3 survey represent the uppermost surficial signatures of alteration cells where they project to surface; these systems will have deeper down-dip/down-plunge extension or strike extensions which may become offset from the anomalies. This belt-scale data provides a useful dataset for long-term exploration assessment. Data from the survey is under review.

9.5 Topographic Survey

Brazilian survey group Geosan Geotecnologia Eireli was commissioned by Meridian to fly high- resolution drone orthophotography, conduct an independent location survey on drill holes, and generate a digital terrane model with contours. This work was conducted in three phases from 18-20 January 2021, 9-10 February 2021, and 7-8 July 2021

The initial terrain model was subsequently updated with a LiDAR survey conducted by the Brazilian survey group, Embratop Geo-Tecnologias Ltda on 1st June, 2022. The survey utilized a Matrice 30 RTK drone with a Zenmuse L1 sensor and a D-RTK2 Mobile Station base. This equipment has a Horizontal precision of: 1 cm + 1ppm and a vertical precision of 1.5 cm + 1ppm. The survey was flown at an altitude of 90m above ground level, with a velocity of 8m per second providing 352 points per metre. Aerial photography and terrain model products were provided in UTM SIRGAS format over 1,700 Ha corridor.

9.6 Data Compilation

During Meridian's due diligence review, the Cabaçal project data and historical resource estimates were reviewed by SRK, who made the following recommendations to validate the data and optimise any resource estimation:

- Try to find the old drill cores and re-sample and re-assay all the core available;
- Re-survey the drillhole collars and validate them against the ones in the current database;
- Establish a twin hole program to compare the results with historical ones;
- Develop a program for density measurements with the new drillholes;
- Construct a new geological interpretation and 3D model considering the rock type characteristics and style of the mineralization;
- Use a geostatistical method to have a better 3D interpolation of the grades;
- Establish a program for metallurgical testwork;
- Categorize the Mineral Resources as Inferred, Indicated and Measured, according to the increasing level of geological knowledge and understanding of grade distribution;
- Define and apply a criterion for “reasonable prospect of economic extraction” in the final; and
- Mineral Resource statement.

Meridian has undertaken programs to progressively compile archival records, engaging an independent third party (Fazal Sons Inc; a Pakistan-based geologist specializing in data compilation). Ledgers were compiled in MSExcel, and were double checked internally by Meridian staff, and further checked using validation tools in Surpac and Leapfrog. Multiple corroborating datasets were cross-referenced by Meridian staff for consistency. Values were also cross-referenced with an MSExcel database provided by RTZ for drilling and surface geochemistry. Data from the following files has been compiled (Table 9-1).

Table 9-1: Prioritized data for compilation from RTZ Archives.

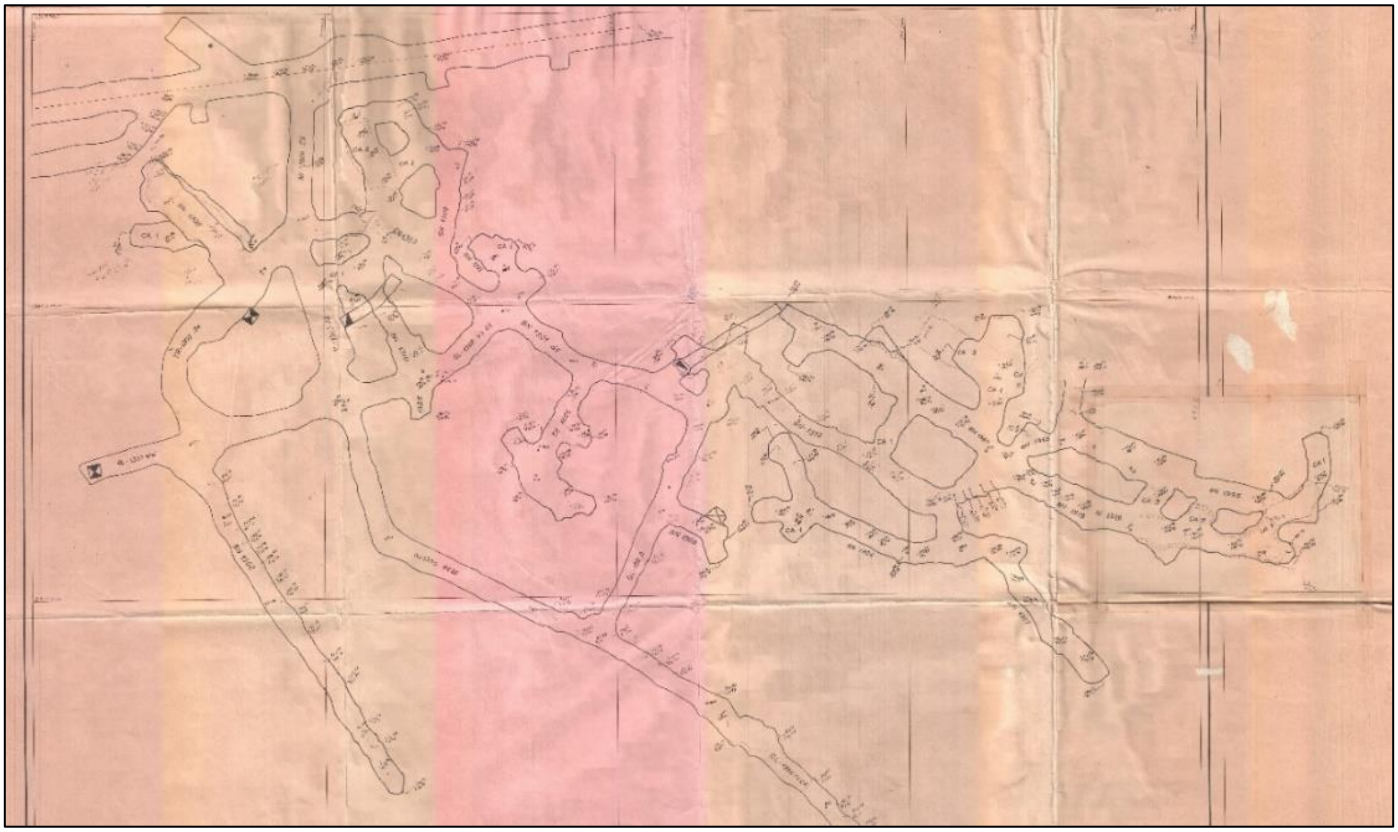
File	Pdf_Page-Form	Pdf_Page_To		Type
BRA30000124-086.pdf	46	56	11	surface collars
BRA30000124-085.pdf	3	6	4	underground drill collars
BRA30000124-085.pdf	7	11	5	surface collars
BRA30000124-085.pdf	13	134	122	underground drill assays
BRA30000124-085.pdf	124	382	259	surface drill assays
BRA30000124-076.pdf	1	430	430	Assays : Au-Cu-Ag-Pb-Zn-Ni-As-Bi-Mo
BRA30000124-077.pdf	1	281	281	Assays : Au-Cu-Ag-Pb-Zn-Ni-As-Bi-Mo
BRA30000124-079.pdf	1	573	573	Assays : Au-Cu-Ag-Pb-Zn-Ni-As-Bi-Mo
BRA30000124-081.pdf	2	501	500	Litho/Min; Assays : Au-Cu-Ag
BRA30000124-082.pdf	2	316	315	Assays: Au-Cu-Ag
BRA30000124-078.pdf	1	555	555	mineralization and mineral types
BRA30000124-080.pdf	1	62	62	mineralization and mineral types

Meridian has reviewed all sources of information from historical registers and cross sections to digitally compile the historical logging codes. Compiled digital data now comprises (at the time of writing):

- 16,447 entries of mineralogy;
- 6,215 records for lithology;
- 7,413 structural readings;
- 11,883 assay records for BPM surface diamond drilling in the Cabaçal Belt;
- 3,154 assay records for RTZ underground diamond drilling in the Cabaçal Deposit;
- 8,756 surface geochemical assay records;
- 361 density assay readings;
- 83 RTZ underground diamond drill hole collar positions; and
- 697 BPM surface diamond drill hole collar positions.

In addition to the tabulated data, there are a significant number of maps of geological, geophysical and geochemical data. Many plans of underground mine development at Cabaçal are also available in the historical records (Figure 9-3). This data is being progressively digitized and interpreted.

Figure 9-3: Plans of underground development, Cabaçal Mine.



Source: Meridian; hardcopy files donated by Sr Romar Antonio Araujo, former draftsman for BPM.

10 DRILLING

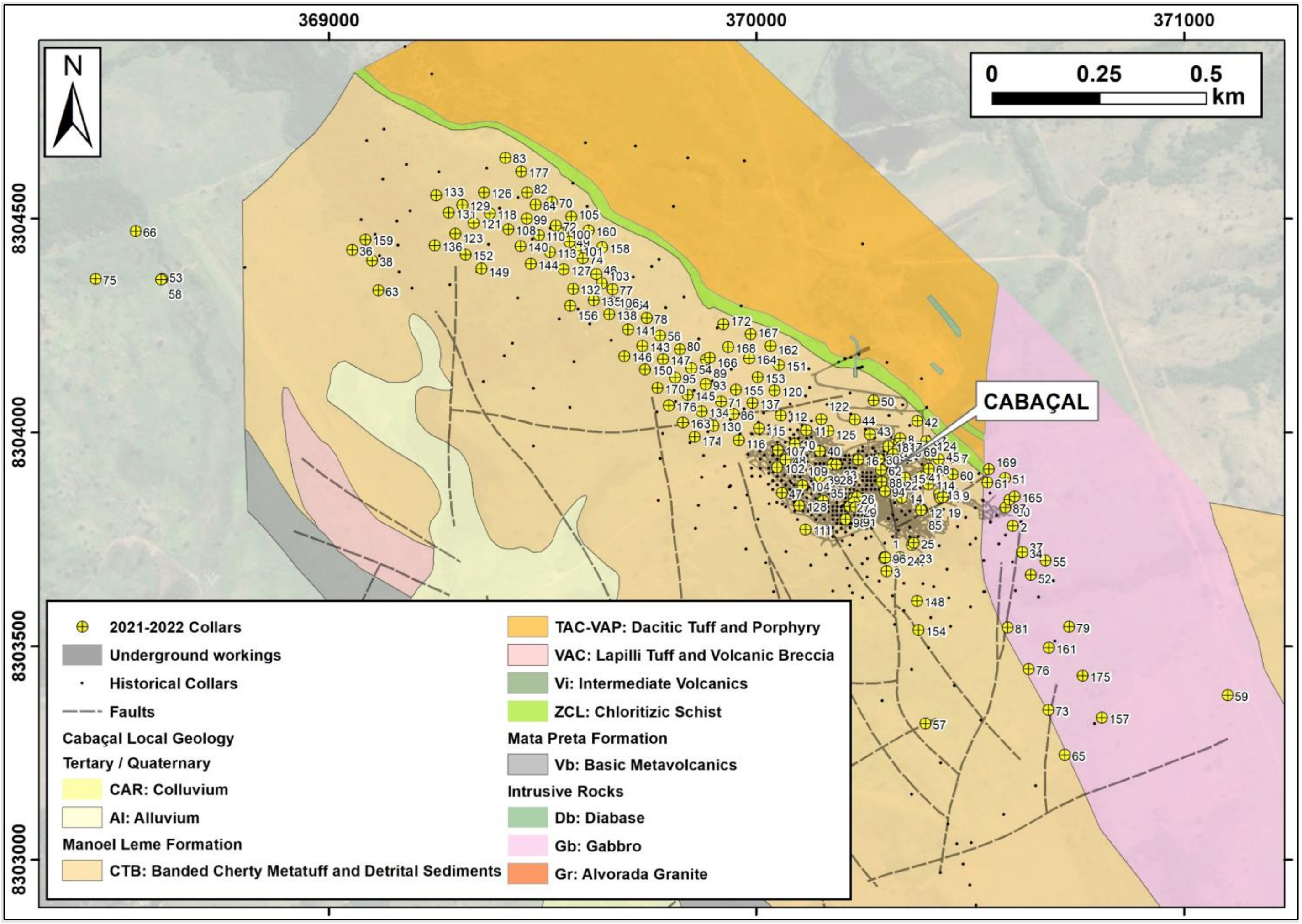
10.1 Extent & Outcomes

Meridian is in the process of diamond drilling a combination of twin holes, infill holes and resource extension holes, to support the validation of the historical database of the project and to define the limits of mineralization. Three rigs are being utilized by Willemita Sondagens Ltda (CNPJ – 29.049.513/0001-79, Av. Custódio G. Sobrinho, 189 – Centro, 38.780-000 – Vazante, Minas Gerais, Brasil):

- Maquesonda Mach1200 (Capacity: 200 m with HQ, 400 m with NQ, 800 m with BQ);
- Maquesonda Original Mach1200 (Capacity: 200 m with HQ, 700 m with NQ, 1000 m with BQ); and
- Maquesonda Original Mach1210 (Capacity: 200 m with HQ, 1000 m with NQ, 1200 with BQ).

Rigs operate with turbocharged 6cc MWM motor and conventional wireline coring system. Holes are collared with HQ2 core through the saprolite to maximize recovery, with NQ2 tails. Drilling by Meridian to date has extended over a strike length of ~1,800m, centred on the historical workings of the Cabaçal Mine and extensions to the northwest and southeast (Figure 10-1,Table 10-1). One hundred and seventy-five (175) holes completed for a total of 22,432 m were included in the drilling database up to the Effective date of the Mineral Resource Estimate (MRE). Analytical results received are summarized inTable 10-2.

Figure 10-1: Extent of Drilling in The 2021-2022 Campaign to The MRE Effective Date.



Source: Meridian, 2022 Geology and workings adapted from GIS files of PML (based on original BMP maps).

Table 10-1: Collars completed to the Effective Date of the 2021-2022 drilling campaign.

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD001	370300.4	8303708.6	253.1	189.6	15-Mar-21	23-Mar-21
CD002	370599.7	8303781.3	258.6	95.2	15-Mar-21	22-Mar-21
CD003	370304.0	8303675.2	261.8	205.5	15-Mar-21	23-Mar-21
CD004	370300.0	8303707.0	253.1	200.1	28-Mar-21	03-Apr-21

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD005	370321.5	8303971.0	275.8	123.1	05-Apr-21	08-Apr-21
CD006	370299.2	8303706.0	253.4	193.3	06-Apr-21	13-Apr-21
CD007	370321.9	8303971.5	275.9	115.5	08-Apr-21	12-Apr-21
CD008	370336.3	8303986.1	276.9	95.6	13-Apr-21	15-Apr-21
CD009	370299.2	8303705.3	253.3	153.0	15-Apr-21	20-Apr-21
CD010	370090.3	8303973.6	275.0	106.0	15-Apr-21	20-Apr-21
CD011	370116.9	8304005.5	280.7	112.2	26-Apr-21	28-Apr-21
CD012	370386.6	8303819.4	252.4	106.4	15-Apr-21	20-Apr-21
CD013	370427.9	8303856.4	258.2	162.7	27-Apr-21	04-May-21
CD014	370340.7	8303847.9	251.8	78.5	29-Apr-21	03-May-21
CD015	370347.8	8303894.1	261.3	86.7	04-May-21	06-May-21
CD016	370238.2	8303936.5	271.0	87.1	04-May-21	05-May-21
CD017	370340.8	8303968.4	273.9	91.4	05-May-21	07-May-21
CD018	370308.7	8303967.0	273.3	52.6	07-May-21	08-May-21
CD019	370430.2	8303846.9	256.2	174.1	08-May-21	13-May-21
CD020	370338.5	8303956.2	272.6	100.3	08-May-21	11-May-21
CD021	370328.1	8303956.3	272.4	82.8	10-May-21	11-May-21
CD022	370330.7	8303878.5	257.0	133.3	12-May-21	19-May-21
CD023	370363.6	8303736.8	247.9	151.5	13-May-21	17-May-21
CD024	370336.2	8303708.0	252.0	170.7	17-May-21	20-May-21
CD025	370368.3	8303741.5	247.3	156.7	18-May-21	22-May-21
CD026	370228.2	8303846.9	268.3	136.7	20-May-21	25-May-21
CD027	370218.1	8303826.6	267.1	141.6	22-May-21	29-May-21
CD028	370178.3	8303924.9	275.0	98.2	25-May-21	28-May-21
CD029	370233.6	8303826.4	267.8	154.5	27-May-21	02-Jun-21

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD030	370286.4	8303938.3	266.3	89.9	31-May-21	04-Jun-21
CD031	370235.9	8303849.5	268.7	145.2	01-Jun-21	07-Jun-21
CD032	370228.3	8303836.4	268.5	140.6	04-Jun-21	10-Jun-21
CD033	370187.7	8303924.9	275.0	101.7	05-Jun-21	08-Jun-21
CD034	370621.4	8303719.5	258.6	91.2	10-Jun-21	14-Jun-21
CD035	370156.7	8303839.9	256.2	112.4	11-Jun-21	17-Jun-21
CD036	369055.2	8304427.1	240.9	154.6	14-Jun-21	17-Jun-21
CD037	370622.1	8303720.2	258.7	110.9	15-Jun-21	18-Jun-21
CD038	369102.4	8304402.1	240.9	146.3	19-Jun-21	22-Jun-21
CD039	370148.8	8303896.9	266.6	59.9	21-Jun-21	22-Jun-21
CD040	370148.6	8303956.4	279.7	56.9	21-Jun-21	23-Jun-21
CD041	370385.4	8303896.6	264.6	115.4	25-Jun-21	01-Jul-21
CD042	370377.0	8304026.6	274.1	85.4	25-Jun-21	30-Jun-21
CD043	370266.0	8303995.6	273.8	100.6	26-Jun-21	29-Jun-21
CD044	370230.3	8304030.4	283.4	74.2	01-Jul-21	03-Jul-21
CD045	370426.6	8303937.6	264.6	102.6	02-Jul-21	05-Jul-21
CD046	369626.1	8304370.0	340.3	130.4	05-Jul-21	07-Jul-21
CD047	370059.7	8303858.7	263.9	109.0	06-Jul-21	09-Jul-21
CD048	370068.2	8303936.7	268.7	90.2	06-Jul-21	09-Jul-21
CD049	369563.0	8304446.2	347.7	132.3	10-Jul-21	14-Jul-21
CD050	370274.6	8304075.0	286.2	73.0	12-Jul-21	14-Jul-21
CD051	370581.8	8303893.4	256.4	50.4	12-Jul-21	14-Jul-21
CD052	370641.7	8303667.0	256.2	109.3	15-Jul-21	20-Jul-21
CD053	368611.2	8304359.4	235.7	217.8	16-Jul-21	26-Jul-21
CD054	369848.2	8304150.0	314.7	186.6	27-May-21	27-Jun-21

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD055	370676.5	8303700.3	260.9	92.8	21-Jul-21	23-Jul-21
CD056	369775.1	8304226.7	326.0	150.9	26-Jul-21	30-Jul-21
CD057	370395.8	8303319.1	273.2	126.8	27-Jul-21	31-Jul-21
CD058	368609.0	8304357.3	235.8	441.1	31-Jul-21	13-Aug-21
CD059	371101.9	8303385.2	274.6	150.3	03-Aug-21	11-Aug-21
CD060	370459.5	8303902.1	253.9	99.8	13-Aug-21	16-Aug-21
CD061	370540.6	8303882.8	252.8	75.0	18-Aug-21	23-Aug-21
CD062	370291.8	8303912.6	261.2	96.7	18-Aug-21	21-Aug-21
CD063	369116.2	8304332.3	244.4	251.5	24-Aug-21	31-Aug-21
CD064	369702.4	8304300.1	338.7	145.0	24-Aug-21	31-Aug-21
CD065	370721.2	8303245.8	267.7	213.8	03-Sep-21	11-Sep-21
CD068	370403.2	8303915.3	267.4	112.4	20-Sep-21	23-Sep-21
CD069	370374.4	8303957.2	270.1	100.2	24-Sep-21	28-Sep-21
CD070	369522.2	8304538.7	351.6	112.0	28-Sep-21	01-Oct-21
CD071	369917.6	8304072.5	296.2	126.6	01-Jan-00	01-Jan-00
CD072	369531.7	8304483.9	350.8	115.1	05-Oct-21	08-Oct-21
CD073	370682.8	8303350.9	262.4	166.2	06-Oct-21	14-Oct-21
CD074	369594.4	8304406.9	342.8	130.1	15-Oct-21	15-Oct-21
CD075	368455.7	8304359.1	244.7	590.8	19-Oct-21	24-Nov-21
CD076	370636.7	8303446.8	257.2	165.9	22-Oct-21	28-Oct-21
CD077	369663.6	8304334.7	342.3	131.6	22-Oct-21	26-Oct-21
CD078	369743.9	8304267.6	333.9	138.1	28-Oct-21	01-Nov-21
CD079	370731.5	8303545.4	260.1	106.0	01-Nov-21	04-Nov-21
CD080	369821.2	8304194.5	321.7	145.5	03-Nov-21	08-Nov-21
CD081	370587.6	8303543.9	253.4	139.2	06-Nov-21	11-Nov-21

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD082	369464.0	8304561.6	341.2	72.4	10-Nov-21	12-Nov-21
CD083	369413.7	8304642.6	347.5	51.8	13-Nov-21	18-Nov-21
CD084	369484.0	8304533.0	345.5	99.1	23-Nov-21	26-Nov-21
CD085	370385.6	8303818.8	252.4	137.2	25-Nov-21	01-Dec-21
CD086	369946.5	8304042.7	287.5	124.1	29-Nov-21	02-Dec-21
CD087	370582.7	8303824.7	257.1	81.0	01-Dec-21	04-Dec-21
CD088	370293.4	8303884.7	252.9	100.4	07-Dec-21	09-Dec-21
CD089	369882.9	8304170.3	321.2	134.4	03-Dec-21	07-Dec-21
CD090	370592.2	8303842.8	257.7	81.6	07-Dec-21	10-Dec-21
CD091	370232.5	8303825.0	267.7	151.6	13-Dec-21	14-Jan-22
CD092	370318.6	8303946.7	269.7	60.1	26-Jan-22	01-Feb-22
CD093	369881.7	8304112.4	306.1	133.1	10-Jan-22	25-Jan-22
CD094	370300.6	8303862.7	250.0	100.3	26-Jan-21	01-Feb-22
CD095	369810.6	8304128.1	300.9	198.5	28-Jan-22	07-Feb-22
CD096	370302.1	8303707.6	253.0	178.1	28-Jan-22	05-Feb-22
CD097	370319.8	8303949.3	270.0	104.9	03-Feb-22	09-Feb-22
CD098	370209.1	8303796.9	255.9	160.1	09-Feb-22	16-Feb-22
CD099	369463.0	8304500.1	340.8	94.2	10-Feb-22	12-Feb-22
CD100	369548.3	8304465.6	349.1	115.4	11-Feb-22	21-Feb-22
CD101	369577.8	8304425.7	346.0	116.0	16-Feb-22	21-Feb-22
CD102	370048.5	8303918.0	267.8	110.8	18-Feb-22	22-Feb-22
CD103	369639.4	8304349.0	339.3	136.3	21-Feb-22	24-Feb-22
CD104	370108.6	8303876.4	262.8	105.2	23-Feb-22	25-Feb-22
CD105	369567.2	8304504.6	354.9	101.6	24-Feb-22	03-Mar-22
CD106	369661.7	8304305.7	332.2	149.8	26-Feb-22	04-Mar-22

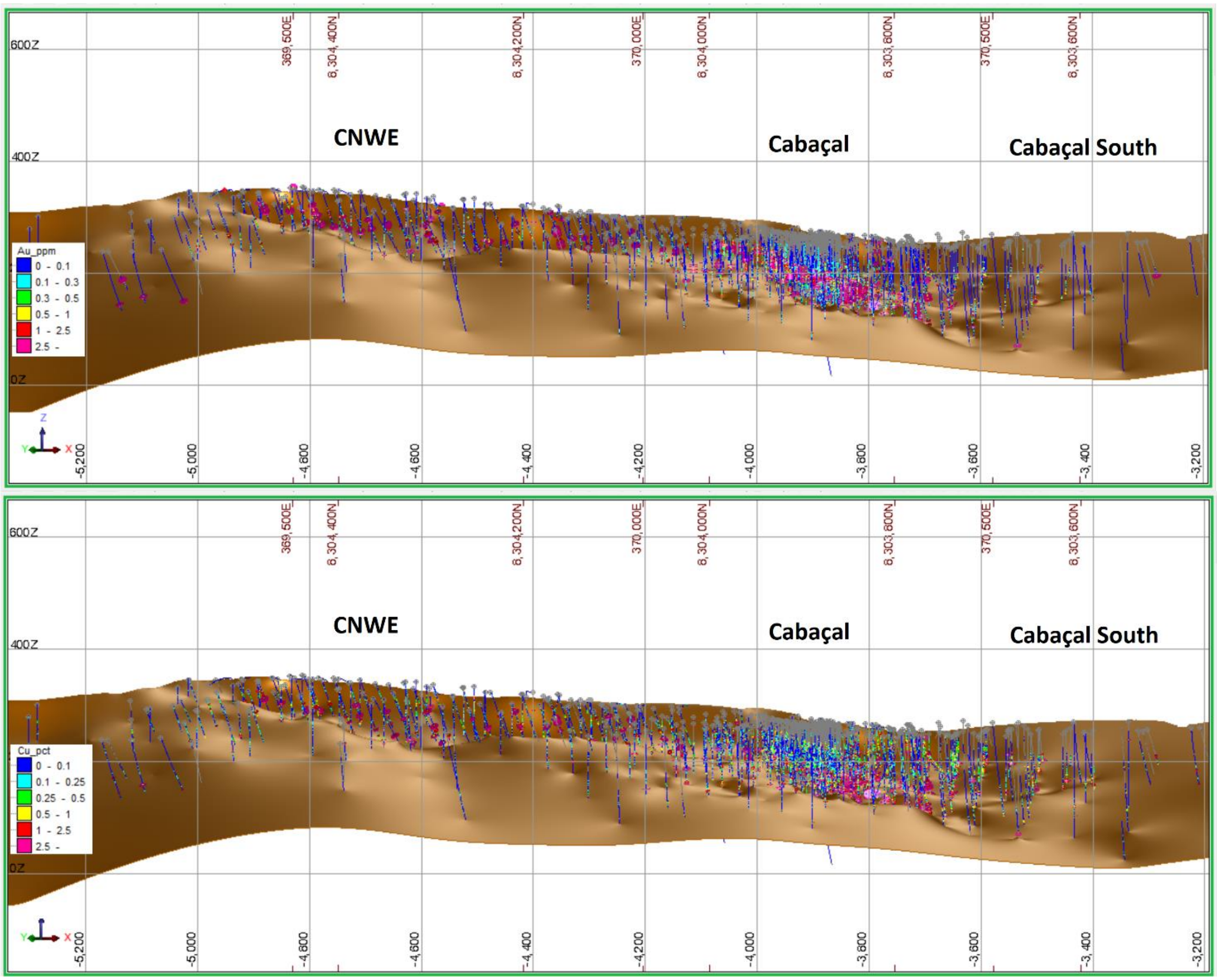
Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD107	370050.2	8303958.9	271.2	100.5	01-Mar-22	03-Mar-22
CD108	369420.1	8304475.4	327.0	86.9	08-Mar-22	11-Mar-22
CD109	370102.6	8303911.7	265.7	109.8	05-Mar-22	09-Mar-22
CD110	369491.6	8304461.5	339.1	188.1	07-Mar-22	16-Mar-22
CD111	370115.2	8303773.2	256.7	170.9	15-Mar-22	21-Mar-22
CD112	370057.5	8304039.4	289.9	124.5	17-Mar-22	23-Mar-22
CD113	369517.9	8304421.6	332.7	166.6	21-Mar-22	28-Mar-22
CD114	370402.9	8303878.4	263.3	118.8	24-Mar-22	29-Mar-22
CD115	370006.2	8304009.6	280.4	124.2	24-Mar-22	29-Mar-22
CD116	369959.6	8303981.9	273.8	109.1	01-Apr-22	06-Apr-22
CD117	370433.7	8303912.6	260.4	106.7	02-Apr-22	06-Apr-22
CD118	369377.8	8304512.2	325.9	83.2	31-Mar-22	09-Apr-22
CD119	370436.0	8303848.2	255.9	121.4	09-Apr-22	19-Apr-22
CD120	370042.9	8304098.2	296.1	109.2	11-Apr-22	13-Apr-22
CD121	369339.9	8304490.1	311.6	87.0	12-Apr-22	14-Apr-22
CD122	370152.0	8304031.3	287.1	100.1	19-Apr-22	21-Apr-22
CD123	369296.3	8304465.3	292.4	90.4	19-Apr-22	25-Apr-22
CD124	370404.5	8303948.8	270.1	94.5	22-Apr-22	26-Apr-22
CD125	370168.2	8304003.8	289.3	100.7	25-Apr-22	27-Apr-22
CD126	369363.4	8304561.6	323.4	71.5	27-Apr-22	29-Apr-22
CD127	369549.5	8304381.4	331.1	175.1	29-Apr-22	09-May-22
CD128	370100.2	8303828.7	262.4	88.3	30-Apr-22	03-May-22
CD129	369312.8	8304532.4	309.1	125.2	28-Apr-22	03-May-22
CD130	369900.2	8304015.9	283.8	106.6	05-May-22	10-May-22
CD131	369281.3	8304513.9	300.8	88.8	06-May-22	10-May-22

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD132	369571.5	8304336.1	324.5	148.4	11-May-22	16-May-22
CD133	369251.7	8304554.8	295.2	90.9	11-May-22	14-May-22
CD134	369872.2	8304048.8	290.9	102.3	12-May-22	14-May-22
CD135	369619.7	8304309.3	324.2	151.4	16-May-22	20-May-22
CD136	369248.6	8304437.3	271.1	99.4	17-May-22	21-May-22
CD137	369991.4	8304068.7	294.8	121.7	18-May-22	20-May-22
CD138	369656.0	8304276.1	321.5	160.8	23-May-22	25-May-22
CD139	371134.2	8302175.1	271.9	126.9	26-May-22	31-May-22
CD140	369448.8	8304435.9	324.7	88.3	23-May-22	25-May-22
CD141	369699.9	8304240.9	318.1	172.4	27-May-22	30-May-22
CD142	371096.7	8302201.5	268.0	253.0	02-Jun-22	10-Jun-22
CD143	369733.6	8304202.6	305.3	138.9	27-May-22	31-May-22
CD144	369473.3	8304394.1	319.1	97.7	01-Jun-22	03-Jun-22
CD145	369839.9	8304088.1	298.7	113.2	02-Jun-22	03-Jun-22
CD146	369691.9	8304178.5	292.3	109.3	04-Jun-22	08-Jun-22
CD147	369781.5	8304171.2	305.0	120.0	06-Jun-22	08-Jun-22
CD148	370375.7	8303606.1	265.9	184.6	13-Jun-22	16-Jun-22
CD149	369357.8	8304383.3	297.0	123.0	09-Jun-22	14-Jun-22
CD150	369739.9	8304147.6	289.1	91.4	09-Jun-22	11-Jun-22
CD151	370053.3	8304157.8	300.3	70.1	13-Jun-22	15-Jun-22
CD152	369320.4	8304416.0	296.2	113.5	16-Jun-22	20-Jun-22
CD153	370003.4	8304129.1	301.3	110.2	16-Jun-22	18-Jun-22
CD154	370379.1	8303537.6	271.5	208.9	18-Jun-22	22-Jun-22
CD155	369952.8	8304100.2	304.1	121.1	21-Jun-22	22-Jun-22
CD156	369565.4	8304295.8	313.3	128.9	22-Jun-22	25-Jun-22

Hole_id	Easting SIRGAS2000	Northing SIRGAS2000	Elevation	Depth	START_DATE	END_DATE
CD157	370808.1	8303332.7	266.9	175.6	24-Jun-22	30-Jun-22
CD158	369639.8	8304433.3	347.1	100.2	24-Jun-22	27-Jun-22
CD159	369086.3	8304451.4	240.6	115.2	28-Jun-22	30-Jun-22
CD160	369608.4	8304472.4	350.5	100.5	28-Jun-22	30-Jun-22
CD161	370684.2	8303496.5	256.5	153.8	02-Jul-22	08-Jul-22
CD162	370033.5	8304202.2	303.1	81.5	02-Jul-22	04-Jul-22
CD163	369828.6	8304023.5	276.3	100.3	06-Jul-22	08-Jul-22
CD164	369983.0	8304172.9	303.7	91.0	07-Jul-22	09-Jul-22
CD165	370604.0	8303850.4	259.1	70.7	11-Jul-22	15-Jul-22
CD166	369890.9	8304174.7	320.4	131.7	11-Jul-22	14-Jul-22
CD167	369986.5	8304229.6	306.8	153.8	02-Jul-22	08-Jul-22
CD168	369934.6	8304199.7	311.9	109.9	14-Jul-22	18-Jul-22
CD169	370543.5	8303913.8	254.6	60.4	20-Jul-22	20-Jul-22
CD170	369769.3	8304104.1	283.5	80.2	15-Jul-22	20-Jul-22
CD171	369855.6	8303990.1	273.4	100.1	21-Jul-22	25-Jul-22
CD172	369922.8	8304253.0	314.3	76.2	19-Jul-22	21-Jul-22
CD175	370763.2	8303431.0	262.8	186.9	27-Jul-22	30-Jul-22
CD176	369795.8	8304062.5	280.1	93.5	26-Jul-22	29-Jul-22
CD177	369450.4	8304610.4	347.6	65.9	25-Jul-22	27-Jul-22

The 2021-2022 program has returned significantly mineralized intersections of Cu, Au, Ag in the VMS style of the mineralization extending in the Northwest Extension (“CWNE”) from the mine along strike over the basal contact (Figure 10-2).

Figure 10-2: View to the NE with Resource Hole Traces Coloured by Au (top) and Cu (bottom).



Source: Meridian, 2022. Drilling and model of the basal contact. Horizontal and vertical gridlines are spaced at 200m intervals for reference.

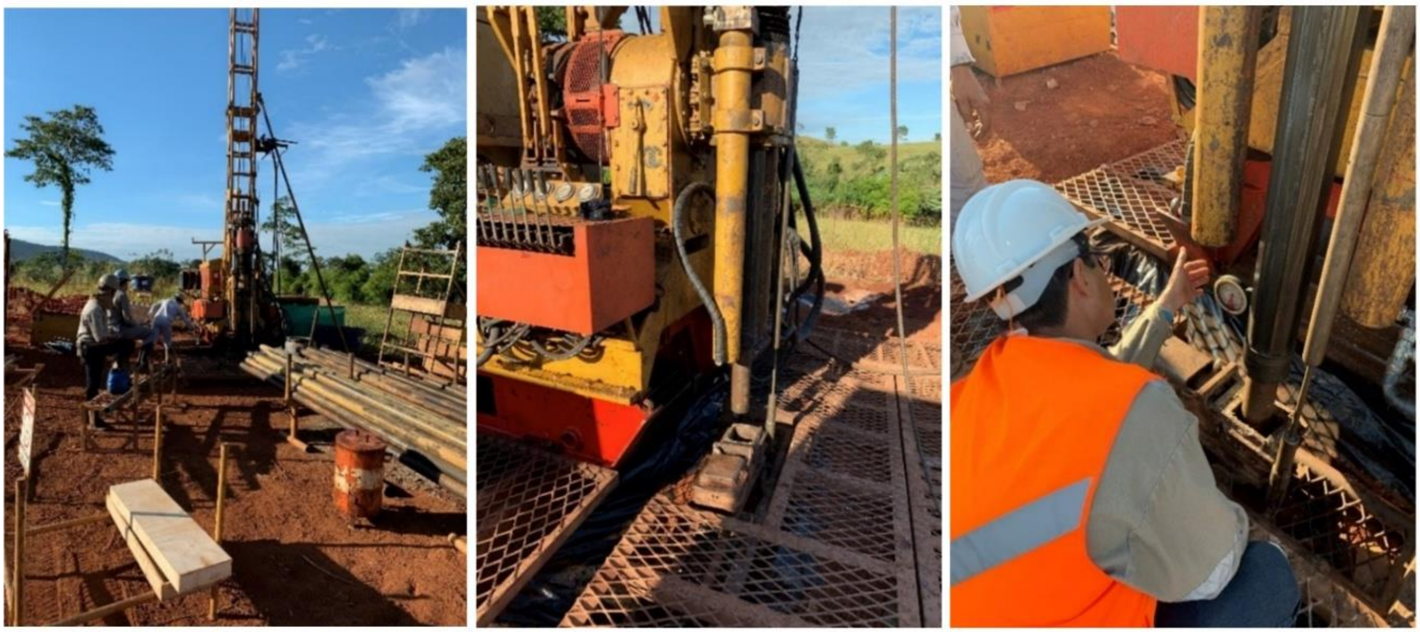
10.2 Procedures

The following describes the procedures used for the Meridian drilling and geochemical sampling.

10.2.1 Drill hole layout and collar control

Holes are first planned in 3-D visualization software, namely Surpac and Leapfrog. Proposed sites are field checked and collar sites are located with Real Time Kinetic ("RTK") survey control operated by trained technicians. Planned collar sites are marked on the ground with a survey peg, and the azimuth of the planned hole is lined up with a foresight and backsight. Pegs were marked with flagging tape to assist with orientation of the drill rig. Once the rig is positioned, the azimuth is cross checked, and the mast is checked with an inclinometer to confirm the planned dip (Figure 10-3).

Figure 10-3: Drill Pad and Inclination Check of the Mast.



Source: Batelochi (2021).

Survey equipment is hired from service provider CentroGEO (Rua Manoel Garcia Velho, n° 466 – Bandeirantes – Cuiabá – MT; CNPJ: 06.696.107/0001-00). The equipment has comprised a Trimble R8s RTK Base GNSS receiver, with antenna and UHF radio, and Trimble TSC3 data collector. This system provides horizontal precision of 3mm and vertical precision of 3.5mm. Data is exported from the receiver in UTM South America 1969 Zone 21L and converted to SIRGAS in Trimble software.

Collar coordinates are verified again at the conclusion of drilling using the same equipment, and the data entered into MSExcel hole registers and the MSAccess database. Collar positions are marked for future reference with permanent concrete marks and aluminum labels of hole name and details., The database is currently recording both SAD69 and SIRGAS2000 UTM coordinate details.

10.2.2 Drill hole downhole survey control

Drill hole dip and azimuth are controlled by inclinometer and compass at the collar set up. Holes are surveyed at their conclusion with a TrushotTM Digital Survey tool rented from Dip Core Brasil Ltda EPP, which provides dip and azimuth readings at downhole increments of 6m. The instrument is free of the influence of any magnetic interference. Data is processed using Trushot view software and is exported into an MSExcel file with the depth interval listed along with dip (negative for holes drilled downward from surface), true north, and calculated easting, northing, and elevation coordinates. This data is uploaded into Meridian's centralized MSAccess database.

10.2.3 Drill core processing

The following core handling procedure is used for the current drilling (illustrated in Figure 10-4)

- Drill core is inspected periodically on site at the rig by Company geologists and is delivered twice at day to the core farm by the drilling contractor Willemita. Core trays are stacked and strapped to prevent movement during transport with upper trays sealed with lids. Transport distances range from several hundred metres to a maximum of two kilometres from between the drill site and core-processing facilities. Core is stored in wooden boxes; HQ trays hold ~2.8m of core; NQ trays hold ~3.7m;
- When the core is delivered to Meridian's core yard, it is checked for drill run meterage on the aluminum tags on core blocks as reported by the drillers. The tags record the depth, the meterage advanced, and the recovery;
- Downhole metre lengths for the core are measured by Meridian's technicians and recorded on the boxes. 'From' and 'To' depths are inscribed on each tray, along with 1m integer marks on the core, down the full length of the hole;
- Geological logging is undertaken by the site geological team under supervision of experienced management. Logging details include information on lithology, alteration, mineralization, and structure. Geological logging was completed as hardcopy on designed paper sheets and then transferred to digital format using MSExcel templates, with built in validation tools e.g., codes selected from pick lists, meterage validation checks to prevent gaps or overlapping intervals;
- Rock Quality Designation ("RQD") and core recovery details are measured by Meridian's technicians;
- Mark up of core includes the positioning of a cutting line, such that the maximum angle of structural fabrics (alpha angle) is preserved in the cut core;
- Definition of sampling intervals for both assaying and density is undertaken by the geologist with sampling under geological control. Minimum sample interval is 0.25m with the maximum generally 1m giving an overall average sample width of 0.84m. A small number of samples exceed this 1m length, usually in sterile material, or in very rare cases where there is core loss and samples are measured from core block to core block;
- Core is photographed after initial mark up under wet and dry conditions, in pairs of trays at right angles with good lighting;
- Samples including sample number and 'From' and 'To' depths are identified with a tag book system;
- Core is cut in half using a 'brick saw' with a diamond cutting blade. The cut core is placed back in the trays prior to collection for sampling. Samples are collected in tough plastic bags and immediately tied with tamper-proof zip-ties. Core trays are also photographed with half core in place and sample intervals labelled, with the other half core having been sampled and bagged; and
- Quality control samples are added to the sample suite and includes standards, blanks, and field duplicates, and their sample numbers are added to the sample book before entry into the database.

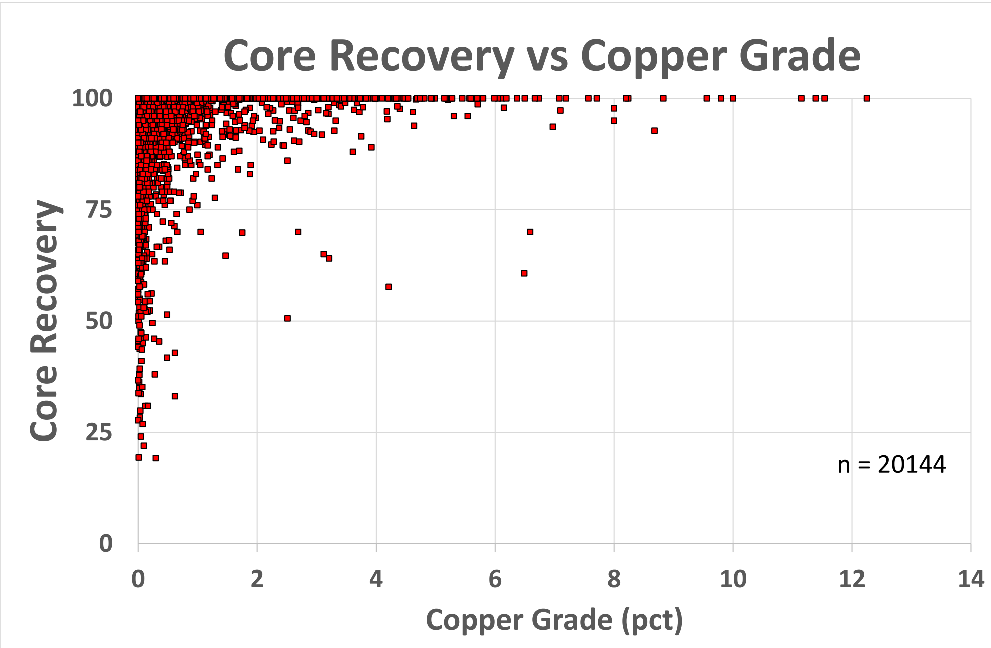
Figure 10-4: Examples of The Drillhole Procedures Implemented on Cabaçal Project

Source: Batelochi (2021); In a clockwise sequence, the photography; sample ready to be collected after sawing; the sampling procedure; core box with the shoulder markers and the sample interval for density determination. Rock Mass Data.

10.2.4 Core Recovery

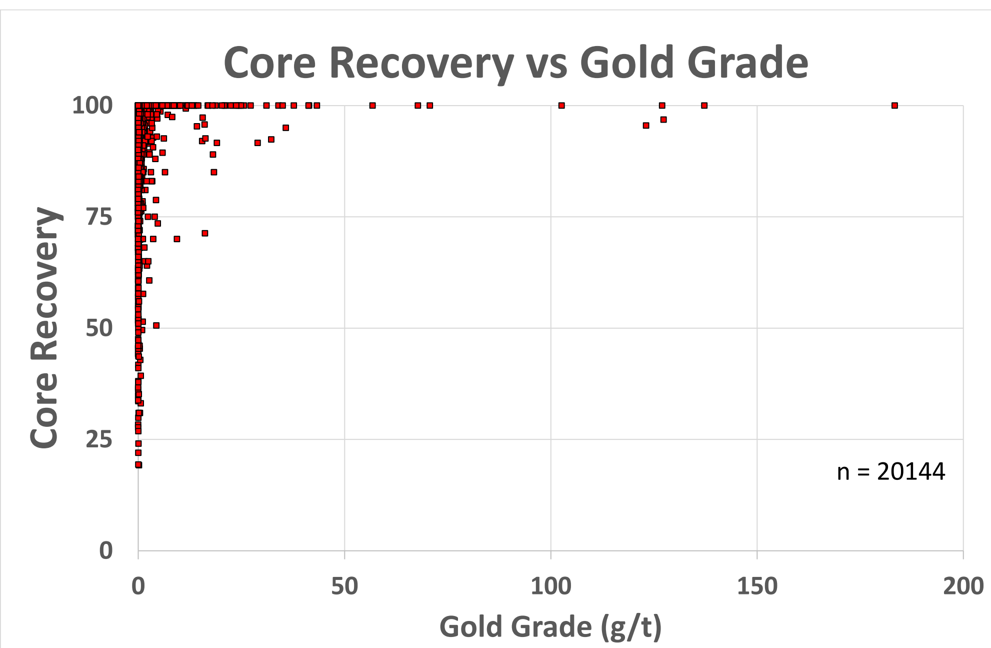
Like the historical core recovery, Meridian's drilling programs have seen a high percentage of core recovery in the competent rock units of the basement. Core recovery in the Meridian program to date has been 98.2%. Core loss is slightly higher in the saprolite (95.3% recovered), compared to fresh rock (98.6%). There is no evident bias in grade related to the core recovery (Figure 10-5, Figure 10-6). Causes of core loss can be related to when broken ground is intersected, or loss within the saprolite.

Figure 10-5: Core Recovery vs Copper Grade for Meridian CD-Series Cabaçal Samples.



Source: Meridian data, DC-series drilling.

Figure 10-6: Core Recovery vs Gold Grade for Meridian CD-Series Cabaçal Samples.



Source: Meridian data, DC-series drilling

10.2.5 Core and Sample Storage

The Cabaçal Project office and core shed has been installed at the old Manati Mine facilities, less than 1 km from the Cabaçal mineral deposit. This infrastructure is in reasonable condition for exploration and resource definition work, with a large area for storage, logging and sampling the cores (Figure 10-7).

Figure 10-7: Cabaçal Project Facilities and Core Storage.

Source: Batelochi (2021).

A limited amount of historical core has been stored at the Mato Grosso Federal University ("UFMT") (Figure 10-8). In general, the core and core boxes are well preserved, but there are some boxes with termite damage that the core has been switched by Company staff to plastic trays. The core at UFMT has been subject to re-assay programs.

Figure 10-8: Historical Drill Holes Stored at UFMT

Source: Batelochi (2021): Examples of quarter and half core from resampling programs.

The 12 holes drilled by Avanco in 2015 have been very well preserved in a warehouse at the Santa Helena Mine Site formally operated by PML. (Figure 10-9). The cores are properly stacked and are in good condition for any re-assay or re-logging campaign. The holes are being relocated to the Cabaçal Project to centralize the core collection.

Figure 10-9: Drill Holes From The Avanco 2015 Campaign.

Source: Batelochi (2021); Core storage at a warehouse at the Santa Helena mine site.

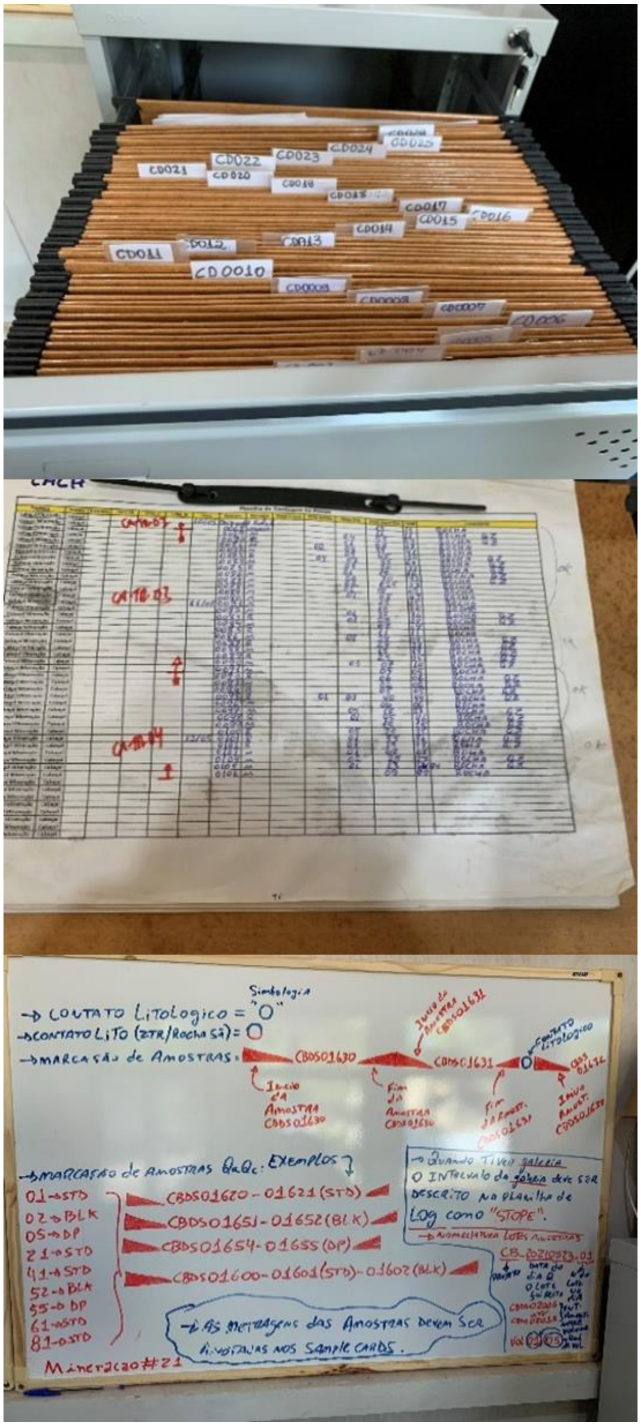
10.2.6 Storage of Documentation and Data

Original documentation for each drillhole or trench has been filed in its respective folder (Figure 10-10).

The database is an MSAccess database with inputs from MSExcel spreadsheet tables. The project geologists and technicians are responsible for supplying the spreadsheets and the database manager is responsible for data import, management of the data and for the high frequency of backups, including to Meridian's cloud-based storage (on a Corporate Google Drive structure).

The MSAccess database contains separate tables for collar coordinates and metadata, logging (lithology, mineralogy, structure, alteration), sampling and assay data, density, RQD, downhole survey, and a QAQC.

Figure 10-10: Cabaçal Project Original Drilling and Trenches Document File.



Source: Batelochi (2021).

Table 10-2: Intersections Reported From The 2021-2022 Drilling Campaign

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
CD167	-49	062	56.0	CNWE							
					37.2	0.2	0.1	0.5	0.0	0.0	2.2
				Including	1.7	0.9	0.2	1.9	0.0	0.0	31.2
CD166	-45	234	131.7	CNWE							
					28.8	0.1	0.1	0.3	0.0	0.0	24.2
					34.0	0.2	0.1	1.3	0.0	0.0	67.0
CD164	-50	065	91.0	CNWE							
					22.2	0.2	0.0	0.7	0.0	0.0	16.8
					12.4	0.2	0.3	0.5	0.0	0.0	53.5
				Including	1.2	0.5	1.3	1.4	0.0	0.0	63.8
CD163	-50	058	100.3	CNWE							
					14.5	0.1	0.0	0.3	0.0	0.0	10.1
					17.4	0.3	0.6	0.8	0.0	0.0	34.7
				Including	1.2	1.3	6.2	4.4	0.0	0.0	39.4
					3.7	0.1	0.0	1.4	0.0	0.0	66.2
CD162	-50	060	81.5	CNWE							
					19.6	0.2	0.2	0.6	0.0	0.0	13.7
				Including	0.9	1.9	1.1	4.3	0.0	0.0	31.8
CD159	-45	060	115.2	CNWE							
					11.5	0.1	0.0	0.1	0.0	0.0	2.0
					8.0	0.1	0.0	0.3	0.0	0.0	49.0
					2.3	0.0	9.0	0.4	0.0	0.0	78.9
					20.8	0.1	0.0	0.6	0.1	0.0	88.0
CD158	-51	060	100.2	CNWE							
					17.9	0.2	0.0	0.2	0.0	0.0	24.9
					19.8	0.4	0.3	1.1	0.0	0.0	47.5
				Including	7.6	0.6	0.5	2.	0.1	0.0	59.6
CD156	-47	074	128.9	CNWE							
					21.8	0.1	0.1	0.3	0.0	0.0	30.0
					4.6	0.1	0.1	0.4	0.0	0.0	56.0
					1.7	0.2	0.1	0.5	0.0	0.0	66.0
					10.2	0.7	0.2	4.8	0.2	0.0	89.1
				Including	1.9	3.2	0.8	20.0	0.3	0.0	90.9
CD155	-50	060	121.1	CNWE							
					13.4	0.1	0.0	0.5	0.0	0.0	22.3
					5.4	0.3	0.1	1.4	0.0	0.0	40.1

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					15.5	0.2	0.1	0.8	0.0	0.0	51.9
					26.7	0.2	0.3	0.6	0.0	0.0	80.1
				Including	2.2	0.6	2.8	1.8	0.0	0.0	90.3
CD145	-50	060	113.2	CNWE							
					4.3	0.2	0.0	0.4	0.0	0.0	24.2
					5.0	0.0	0.1	0.4	0.1	0.1	36.0
					17.9	0.2	0.4	0.9	0.0	0.0	44.1
CD144	-50	060	97.7	CNWE							
					5.5	0.2	0.0	0.1	0.0	0.0	12.6
					24.0	0.1	0.2	0.6	0.0	0.0	34.0
					3.8	0.2	0.2	2.2	0.4	0.1	63.6
CD143	-50	060	138.9	CNWE							
					19.2	0.3	0.4	2.0	0.1	0.0	58.3
				Including	7.8	0.6	0.8	3.5	0.0	0.0	58.3
CD142	-45	045	253.0	C4-A Sth							
					6.6	0.0	0.5	0.3	0.0	0.0	12.4
					4.0	0.0	0.3	0.7	0.0	0.0	32.0
					10.7	0.0	1.8	33.7	0.1	0.0	45.7
					7.5	0.0	0.0	1.8	0.0	0.0	62.0
					2.6	0.0	0.2	1.3	0.0	0.0	99.0
					10.4	0.2	0.0	0.9	0.0	0.0	140.2
					8.0	0.2	0.0	1.4	0.0	0.0	170.0
					7.0	0.0	0.0	0.5	0.3	0.0	197.0
					19.4	0.2	0.0	2.1	0.0	0.0	214.0
					14.8	0.0	0.0	0.6	0.3	0.0	237.5
CD141	-51	061	172.4	CNWE							
					28.2	0.1	0.0	0.2	0.0	0.0	18.8
					31.3	0.2	0.1	1.0	0.0	0.0	55.0
					23.2	0.3	0.2	1.4	0.1	0.0	113.8
CD140	-50	060	88.3	CNWE							
					3.4	0.3	0.2	0.6	0.0	0.0	34.2
					20.9	0.1	0.2	0.5	0.0	0.0	43.0
CD139	-45	045	126.9	C4-A Sth							
					17.3	0.0	0.5	0.2	0.0	0.0	13.0
					26.4	0.0	0.6	25.2	0.0	0.0	56.2
				Including	4.9	0.0	2.3	87.8	0.1	0.1	77.7

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
CD138	-55	060	160.8	CNWE							
					20.0	0.5	0.1	0.5	0.0	0.0	31.0
					19.6	0.8	0.4	4.8	0.0	0.0	78.4
					34.7	0.2	0.1	1.1	0.1	0.0	105.6
CD137	-50	060	121.7	CNWE							
					5.2	0.1	0.3	0.2	0.0	0.0	53.5
					20.7	0.1	0.1	0.2	0.0	0.0	69.6
					4.7	0.4	0.1	3.9	0.1	0.0	95.6
CD136	-50	060	99.4	CNWE							
					6.9	0.1	0.0	0.1	0.0	0.0	4.5
					40.4	0.2	0.1	0.5	0.0	0.0	14.6
					7.6	0.0	0.0	0.5	0.2	0.1	54.9
CD135	-50	060	151.4	CNWE							
					29.4	0.2	0.0	0.3	0.0	0.0	16.0
					10.5	0.2	0.1	1.2	0.0	0.0	55.0
					21.7	0.1	0.2	0.7	0.0	0.0	72.0
					13.6	0.3	0.1	1.5	0.2	0.0	119.7
CD134	-50	060	102.3	CNWE							
					25.0	0.3	0.0	1.3	0.0	0.0	10.0
				Including	1.6	1.4	0.1	4.7	0.0	0.0	16.4
					12.0	0.2	0.3	1.4	0.0	0.0	51.7
CD133	-50	060	90.9	CNWE							
					15.4	0.1	0.1	0.5	0.2	0.0	24.5
					7.7	0.1	0.0	3.7	0.6	0.1	46.8
CD132	-50	060	148.4	CNWE							
					11.1	0.2	0.0	0.2	0.0	0.0	16.4
					39.9	0.0	0.5	0.1	0.0	0.0	30.1
					39.9	0.3	0.1	1.7	0.2	0.0	76.9
				Including	5.7	1.1	0.2	2.8	0.0	0.0	87.0
CD131	-49	059	88.8	CNWE							
					14.0	0.1	0.0	0.0	0.0	0.0	7.0
					5.5	0.1	0.1	0.1	0.0	0.0	36.8
					11.2	0.1	0.0	1.2	0.5	0.1	55.0
CD130	-48	061	106.6	CNWE							
					25.0	0.4	0.1	1.3	0.1	0.0	18.0
				Including	4.0	1.4	0.5	4.3	0.2	0.0	35.1
					18.0	0.3	0.1	1.3	0.0	0.0	54.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
CD129	-45	060	88.3	CNWE							
					8.8	0.2	0.0	0.2	0.0	0.0	20.2
					5.8	0.1	0.1	0.4	0.0	0.0	44.1
					3.3	0.1	0.0	1.2	0.7	0.1	59.0
CD128	-90	000	125.2	SCZ							
					14.0	0.2	0.0	0.9	0.1	0.0	34.0
					41.4	0.3	0.8	0.9	0.0	0.0	62.4
				Including	13.2	0.5	2.3	1.5	0.0	0.0	66.8
				Including	6.6	0.6	4.4	2.2	0.0	0.0	66.8
CD127	-49	061	175.1	CNWE							
					54.4	0.1	0.4	0.3	0.0	0.0	26.9
				Including	1.5	0.1	2.1	0.5	0.0	0.0	39.1
				and	9.5	0.2	1.3	0.3	0.0	0.0	63.2
				and	3.2	0.1	3.6	0.1	0.0	0.0	67.0
				and	2.6	1.0	0.5	1.5	0.0	0.0	78.7
					12.3	0.2	0.2	1.0	0.2	0.0	98.5
CD126	-47.8	060	71.5	CNWE							
					2.4	0.3	0.1	0.3	0.0	0.0	16.0
					11.5	0.1	0.1	1.4	0.3	0.1	25.7
CD125	-59.7	045	100.7	ECZ (decline)							
					70.3	0.3	0.1	0.8	0.0	0.0	13.5
					3.1	1.1	0.5	6.0	0.0	0.0	58.0
CD124	-59.5	055	94.5	ECZ							
					34.0	0.3	0.2	1.4	0.0	0.0	14.0
				Including	1.3	0.3	2.3	3.5	0.0	0.0	18.2
					12.3	0.4	0.1	2.0	0.0	0.0	52.0
					8.1	0.5	0.2	2.8	0.2	0.0	70.1
CD123	-49.2	059	90.4	CNWE							
					50.4	0.1	0.1	1.2	0.1	0.0	25.7
CD122	-55	046	100.1	ECZ (decline)							
					21.0	0.2	0.0	0.3	0.0	0.0	10.0
					33.4	0.4	0.2	1.5	0.0	0.0	37.7
				Including	3.8	1.2	0.4	7.3	0.1	0.0	65.0
CD121	-49	059	87.0	CNWE							
					58.7	0.2	0.1	0.6	0.0	0.0	8.4

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
CD120	-50	062	109.2	CNWE							
					55.5	0.2	0.1	0.7	0.0	0.0	30.0
					5.8	1.1	0.2	2.8	0.0	0.0	86.9
CD119	-47	047	121.4	ECZ							
					67.5	0.4	0.1	1.3	0.0	0.0	3.1
				Including	1.0	0.1	2.6	0.8	0.0	0.0	67.2
					17.6	0.8	0.7	3.3	0.4	0.0	81.4
				Including	7.1	1.2	1.0	5.1	0.1	0.0	82.8
CD118	-50	060	83.2	CNWE							
					8.6	0.2	0.0	0.1	0.0	0.0	3.6
					28.2	0.1	0.1	0.1	0.0	0.0	17.9
					2.7	0.2	0.1	2.4	0.6	0.1	52.3
CD117	-58	046	106.7	ECZ							
					33.0	0.4	0.0	1.6	0.0	0.0	7.0
					31.0	0.4	0.2	2.5	0.4	0.0	55.0
				Including	16.8	0.6	0.4	3.1	0.5	0.0	59.0
				Including	4.5	1.2	0.6	5.6	0.2	0.0	59.0
CD116	-44	062	109.1	SCZ							
					76.0	0.3	0.2	0.9	0.0	0.0	8.0
				Including	1.2	1.6	0.4	3.0	0.1	0.0	25.2
				and	2.3	1.1	2.1	3.6	0.1	0.1	44.2
				and	1.7	0.3	1.1	1.0	0.0	0.0	72.0
				and	3.0	1.1	0.2	10.9	0.1	0.0	81.0
CD115	-46	063	124.2	CCZ							
					9.8	0.3	0.0	0.8	0.0	0.0	11.0
					8.6	0.3	0.1	0.6	0.0	0.0	27.0
					50.6	0.5	0.5	2.8	0.0	0.0	49.0
				Including	11.0	1.3	0.5	8.3	0.0	0.0	88.1
CD114	-60	043	118.8	ECZ							
					32.7	0.2	0.1	0.8	0.0	0.0	13.0
					15.5	0.1	1.4	0.6	0.0	0.0	53.0
				Including	0.4	0.4	56.8	4.1	0.0	0.0	63.9
					14.4	0.3	0.1	1.5	0.5	0.0	84.0
CD113	-49	057	166.6	CNWE							
					64.1	0.2	1.0	1.0	0.0	0.0	11.1
				Including	20.5	0.0	2.6	0.2	0.0	0.0	14.0
				Including	3.0	0.1	9.4	0.1	0.0	0.0	14.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					7.5	0.0	3.0	0.5	0.0	0.0	27.0
CD112	-50	060	124.5								
					8.4	0.2	0.4	0.2	0.0	0.0	42.6
					35.4	0.2	0.2	0.4	0.0	0.0	60.0
CD111	-53	047	170.9								
					15.1	0.1	0.0	0.4	0.1	0.0	52.4
					2.0	0.3	0.1	1.0	0.0	0.0	78.0
					23.6	0.2	0.1	0.5	0.0	0.0	85.0
CD110	-48	058	188.1	CNWE							
					31.3	0.1	1.0	0.2	0.0	0.0	20.2
				Including	10.4	0.0	2.3	0.1	0.0	0.0	32.5
					24.4	0.1	0.1	1.0	0.4	0.0	53.7
CD109	-46	047	109.8	SCZ/CCZ							
					50.7	0.2	0.6	0.6	0.0	0.0	14.0
				Including	11.2	0.3	2.4	1.8	0.0	0.0	52.1
				Including	6.9	0.1	3.2	0.2	0.0	0.0	52.1
				Including	1.1	0.5	12.7	0.8	0.0	0.0	52.1
					2.5	0.7	0.2	2.0	0.0	0.0	74.0
					12.3	0.3	0.1	1.4	0.0	0.0	82.0
CD108	-48	061	86.9	CNWE							
					22.9	0.2	0.0	0.1	0.0	0.0	8.5
				and	27.0	0.2	0.3	1.3	0.1	0.0	36.0
CD107	-89	075	100.5	CNWE							
					22.0	0.0	0.0	0.4	0.0	0.0	11.0
					32.0	0.2	0.4	0.6	0.0	0.0	43.0
				Including	7.8	0.3	1.3	0.4	0.0	0.0	52.0
CD106	-48	063	149.8	CNWE							
					103.3	0.2	0.6	0.5	0.0	0.0	23.7
				Including	3.7	0.7	2.1	1.9	0.0	0.0	58.4
					5.8	0.2	7.0	0.8	0.0	0.0	80.0
					5.6	1.0	0.3	2.0	0.0	0.0	113.9
CD105	-45	058	101.6	CNWE							
					27.0	0.2	0.1	0.3	0.1	0.0	44.0
CD104	-87	048	105.2	SCZ							
					17.0	0.1	0.0	0.3	0.1	0.0	20.0
					48.5	0.3	0.3	0.9	0.0	0.0	41.0
				Including	3.6	1.0	0.4	3.4	0.0	0.0	76.5

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
CD103	-48	063	136.3	CNWE							
					25.0	0.2	0.1	0.3	0.0	0.0	28.8
					11.4	0.3	0.1	2.5	0.6	0.0	89.6
CD102	-59	045	110.8	SCZ							
					23.2	0.2	0.0	0.4	0.0	0.0	19.8
					34.6	0.2	1.1	0.7	0.0	0.0	52.9
				Including	11.5	0.2	2.8	0.6	0.0	0.0	53.9
CD101	-49	056	116.0	CNWE							
					13.3	0.5	0.1	0.4	0.0	0.0	23.8
					7.4	0.0	0.2	0.0	0.0	0.0	42.0
					36.2	0.2	1.3	0.9	0.0	0.0	54.6
				Including	7.8	0.6	5.4	1.8	0.0	0.0	83.0
CD100	-49	060	115.4								
					9.9	0.1	0.1	0.2	0.0	0.0	2.2
					50.8	0.5	0.8	1.3	0.0	0.0	41.9
				Including	15.0	1.0	1.3	2.5	0.0	0.0	75.2
					2.7	0.1	0.0	1.9	0.3	0.0	94.8
CD099	-50	060	94.2	CNWE							
					32.4	0.4	1.5	1.0	0.1	0.0	22.6
				Including	15.0	0.5	3.0	0.9	0.0	0.0	30.0
CD098	-63.0	045	160.1	SCZ							
					15.1	0.2	0.0	0.5	0.0	0.0	39.0
					32.9	0.6	0.5	2.4	0.0	0.0	66.0
				Including	17.7	1.0	0.5	4.1	0.1	0.0	80.4
					5.0	0.3	0.1	0.9	0.2	0.0	104.0
					17.7	0.7	0.3	1.9	0.1	0.0	118.6
CD097	-60	045	104.9	ECZ							
					5.5	0.2	0.0	1.3	0.0	0.0	8.6
					15.2	0.1	0.1	0.2	0.0	0.0	32.9
					36.7	0.6	0.2	3.9	0.1	0.0	51.0
				Including	11.9	1.3	0.4	8.9	0.1	0.0	61.8
CD096	-65.0	045	178.1	SCZ							
					7.9	0.3	0.0	0.8	0.0	0.0	49.5
					22.5	0.2	0.2	0.4	0.0	0.0	67.0
					34.7	0.6	0.7	1.9	0.2	0.0	116.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
				Including	11.6	1.4	1.9	4.7	0.6	0.0	139.2
CD095	-49.0	057	198.5	CNWE							
					5.6	0.2	0.0	0.6	0.0	0.0	14.4
					22.8	0.4	0.3	3.2	0.0	0.0	33.0
				Including	6.3	1.2	0.6	9.1	0.1	0.0	48.3
					7.5	0.1	0.0	0.8	0.0	0.0	59.0
CD094	-67	045	100.3	CCZ							
					64.3	0.7	1.9	2.6	0.0	0.0	22.0
				Including	19.9	1.8	6.0	7.7	0.1	0.0	66.5
				Including	0.8	10.0	127.0	77.7	0.3	0.0	81.9
CD093	-50	060	133.1	CNWE							
					7.0	0.2	0.1	0.5	0.0	0.0	8.2
					2.8	0.4	1.7	2.5	0.0	0.0	58.7
					4.2	0.1	0.0	0.5	0.0	0.0	65.9
					19.5	0.2	0.4	0.4	0.0	0.0	73.5
					12.0	0.3	0.1	1.2	0.1	0.0	102.0
CD092	-90	000	60.1	ECZ							
					11.0	0.3	0.0	0.8	0.0	0.0	9.0
					15.9	0.3	0.3	0.7	0.0	0.0	32.0
CD091	-90	000	151.6	CCZ							
					0.5	6.3	0.4	14.7	0.1	0.0	29.2
					15.4	0.3	0.1	1.0	0.1	0.0	41.0
					7.3	0.2	0.1	0.2	0.0	0.0	66.0
					39.2	0.5	0.2	3.2	0.2	0.0	77.8
				Including	11.5	1.0	0.4	3.9	0.1	0.0	80.6
				and	6.1	0.6	0.2	8.8	0.8	0.0	111.0
					6.7	0.4	0.2	1.2	0.1	0.0	134.1
CD090	-90	045	81.6	ECZ							
					6.0	0.2	0.0	0.5	0.0	0.0	17.0
					25.2	0.8	0.2	2.4	0.0	0.0	29.2
				Including	14.6	1.0	0.3	3.2	0.2	0.0	37.1
				Including	1.5	2.4	0.6	5.4	0.1	0.0	42.0
				Including	3.6	2.1	0.6	7.8	0.4	0.0	47.3
CD089	-50	060	134.4	CNWE							
					3.0	0.2	0.1	1.8	0.0	0.0	20.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					1.0	0.2	2.6	1.4	0.0	0.0	33.6
					10.0	0.3	0.0	1.2	0.0	0.0	51.0
					3.2	0.3	0.2	0.7	0.0	0.0	99.0
					5.3	0.4	0.1	1.3	0.0	0.0	107.7
CD088	-90	000	100.4	CCZ							
					66.1	0.6	0.6	1.2	0.0	0.0	14.1
				Including	34.1	0.9	1.0	1.9	0.1	0.0	45.1
				Including	9.9	1.2	1.2	2.5	0.1	0.0	59.0
				Including	1.7	1.8	3.5	3.3	0.0	0.0	64.2
				Including	4.8	2.6	3.1	5.3	0.0	0.0	73.7
CD087	-90	000	81.0	ECZ							
					31.4	0.7	0.2	2.0	0.1	0.0	31.0
				Including	13.3	1.3	0.4	4.0	0.2	0.0	49.1
CD086	-50	060	124.1	CNWE							
					30.3	0.1	0.1	0.4	0.0	0.0	9.0
					28.8	0.3	0.8	1.5	0.1	0.0	47.7
				Including	9.4	0.4	2.4	1.7	0.0	0.0	47.7
					17.0	0.1	0.0	1.1	0.6	0.0	80.0
CD085	-65	045	137.2	CCZ							
					86.2	0.4	0.1	0.9	0.0	0.0	21.0
				Including	0.6	1.0	0.6	2.3	0.1	0.0	54.0
				and	0.5	1.0	0.5	2.5	0.2	0.0	57.0
				and	0.4	2.2	0.6	1.7	0.0	0.0	87.5
				and	12.8	0.8	0.5	3.2	0.1	0.0	94.4
					2.5	0.5	0.6	1.9	0.1	0.0	114.5
CD084	-60	045	99.1	CNWE							
					9.4	0.3	0.6	0.3	0.0	0.0	18.0
				Including	1.1	1.6	3.7	1.9	0.0	0.0	23.0
					7.3	0.0	0.0	2.7	0.7	0.3	61.8
CD083	-50	060	51.8	CNWE							
					11.0	0.1	0.1	1.2	0.1	0.1	10.0
					15.0	0.1	0.0	1.5	0.2	0.1	25.0
CD082	-50	060	72.4	CNWE							
					30.4	0.2	0.2	1.9	0.4	0.2	23.0
				Including	4.0	0.0	0.0	1.1	1.5	0.1	33.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					3.9	0.1	0.1	4.3	1.2	0.4	59.3
CD081	-60	045	139.2	CSE							
					24.1	0.5	0.1	1.3	0.0	0.0	90.7
					3.0	0.4	0.2	3.8	0.2	0.0	118.3
CD080	-50	060	145.5	CNWE							
					18.0	0.1	0.0	0.3	0.0	0.0	24.0
					11.7	0.1	0.1	0.5	0.1	0.0	45.0
					17.7	0.1	0.4	0.3	0.0	0.0	60.1
					14.3	0.4	0.4	0.8	0.0	0.0	106.7
Including					0.7	0.9	4.0	6.4	0.2	0.1	120.4
CD079	-50	060	106.0	CSE							
					20.7	0.3	0.3	0.8	0.0	0.0	68.3
Including					1.1	0.4	5.6	4.9	0.0	0.0	87.0
CD078	-50	060	138.1	CNWE							
					7.0	0.1	0.0	0.2	0.0	0.0	19.0
					13.2	0.1	0.2	0.2	0.0	0.0	35.5
					2.6	0.0	0.2	0.0	0.0	0.0	55.6
					6.0	0.1	0.0	0.3	0.0	0.0	64.0
					19.7	0.2	0.1	0.1	0.0	0.0	84.0
					14.9	0.3	0.4	0.6	0.0	0.0	113.0
				Including	4.1	0.2	1.0	0.1	0.0	0.0	114.3
CD077	-50	060	131.6	CNWE							
					17.0	0.1	0.1	0.2	0.0	0.0	12.0
					23.5	0.2	0.1	0.1	0.0	0.0	35.0
					0.4	0.4	1.2	0.5	0.0	0.0	89.0
					10.7	0.3	0.2	1.0	0.2	0.0	104.0
				Including	1.5	1.3	0.5	2.2	0.0	0.0	107.0
CD076	-50	045	165.9	CSE							
					12.0	0.1	0.0	0.4	0.0	0.0	57.0
					2.0	0.2	0.0	0.2	0.0	0.0	75.0
					3.0	0.2	0.0	0.3	0.0	0.0	82.0
					3.3	0.2	0.0	0.3	0.0	0.0	97.7
					2.3	0.2	0.0	0.3	0.0	0.0	111.0
CD075	-70	045	590.8	CW							
					6.3	0.2	0.0	1.1	0.0	0.0	461.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					5.5	0.1	0.1	0.9	0.2	0.1	495.9
CD074	-50	060	130.1	CNWE							
					18.3	0.2	0.0	0.2	0.0	0.0	26.0
					10.0	0.5	0.1	2.4	0.0	0.0	53.0
					18.9	0.3	0.5	1.1	0.0	0.0	77.0
				Including	2.8	1.1	0.5	3.3	0.0	0.0	79.2
				and	2.8	0.6	1.8	1.8	0.0	0.0	88.3
CD073	-50	045	166.2	CSE							
					11.8	0.1	0.0	0.2	0.0	0.0	83.2
					2.5	0.3	0.0	0.6	0.0	0.0	100.0
					6.0	0.1	0.0	0.4	0.0	0.0	117.0
					1.3	0.6	0.2	5.9	0.2	0.0	132.5
CD072	-50	060	115.1	CNWE							
					49.0	0.4	4.3	1.2	0.0	0.0	43.0
				Including	12.4	1.0	16.6	2.8	0.0	0.0	73.0
				Including	3.2	1.4	62.7	5.3	0.0	0.0	79.4
				Including	0.6	3.0	299.1	18.8	0.0	0.2	79.7
CD071	-50	060	126.6	CNWE							
					3.0	0.8	0.4	2.7	0.0	0.0	19.0
					2.0	0.3	0.2	0.8	0.0	0.0	36.0
					29.5	0.2	0.7	1.1	0.0	0.0	45.9
				Including	10.2	0.1	1.5	0.3	0.0	0.0	46.6
				Including	0.4	0.0	13.5	0.2	0.0	0.0	46.6
				Including	1.4	0.2	5.6	0.9	0.0	0.0	55.4
CD070	-50	060	112.0	CNWE							
					8.0	0.2	0.0	0.2	0.0	0.0	37.0
					7.0	0.7	0.2	2.3	0.3	0.1	62.0
				Including	1.1	4.0	0.8	6.5	0.0	0.0	62.5
CD069	-50	045	100.2	ECZ							
					7.0	0.2	0.5	1.0	0.0	0.0	28.0
					32.8	0.4	0.1	1.6	0.1	0.0	43.0
CD068	-55	045	112.4	ECZ							
					45.0	0.4	0.3	1.0	0.0	0.0	14.0
				Including	3.0	0.5	3.5	1.9	0.0	0.0	34.0
				and	9.1	0.4	0.1	1.8	0.0	0.0	67.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					6.9	0.7	0.2	4.0	0.9	0.0	82.4
CD067	-50	045	99.8	ECZ							
					4.5	0.1	0.7	0.6	0.0	0.0	1.5
					7.3	0.1	0.0	0.7	0.0	0.0	10.0
					13.7	0.3	0.1	1.3	0.0	0.0	30.0
					8.1	0.9	0.3	3.7	0.2	0.0	50.4
CD066	-69	049	590.6	CW							
					58.0	0.1	0.0	4.2	0.1	0.0	332.0
				Including	0.5	1.8	0.1	3.0	0.0	0.0	369.1
					7.0	0.1	0.0	0.9	0.2	0.0	544.0
CD065	-50	045	213.8	CS							
					9.8	0.5	0.2	2.1	0.0	0.0	125.0
CD064	-55	060	145.0	CNWE							
					8.8	0.1	0.1	0.2	0.0	0.0	20.3
					12.9	0.3	0.3	1.0	0.0	0.0	34.1
					9.7	0.2	0.1	0.4	0.0	0.0	70.3
					12.0	0.0	0.2	0.2	0.0	0.0	96.0
					8.0	0.7	0.4	1.1	0.0	0.0	111.7
CD063	-50	060	251.5	CW							
					7.0	0.3	0.0	0.3	0.0	0.0	96.0
					4.8	0.2	2.4	0.8	0.0	0.0	128.8
Including					1.8	0.5	6.3	1.4	0.0	0.0	129.6
CD062	-90	000	96.7	CCZ							
					13.6	0.4	0.0	1.2	0.0	0.0	13.5
					7.0	0.1	4.1	0.4	0.0	0.0	31.0
					33.4	0.4	0.8	1.5	0.0	0.0	45.0
Including					8.5	0.2	1.6	0.8	0.0	0.0	51.5
					2.1	0.2	0.6	1.1	0.0	0.0	85.0
CD061	-90	000	75.0	ECZ							
					5.7	0.3	0.0	0.8	0.0	0.0	8.4
					7.3	0.2	0.0	0.8	0.0	0.0	27.1
					11.5	0.6	0.2	2.5	0.1	0.0	40.4
					1.2	0.5	0.1	3.6	2.7	0.1	56.0
CD060	-50	045	99.8	ECZ							
					37.0	0.5	0.0	1.8	0.0	0.0	2.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					9.5	0.8	0.7	3.2	0.2	0.0	48.0
CD059	-50	045	150.3	Regional							
					No significant Intersection						
CD058	-70	045	441.1	CW							
					53.5	0.1	0.0	0.8	0.0	0.0	350.0
				Including	0.4	1.7	0.4	2.6	0.0	0.0	381.0
					0.6	0.3	0.1	65.6	1.1	1.0	396.0
CD057	-65	045	126.8	CS							
					3.5	0.0	0.1	0.1	0.0	0.0	57.0
					7.0	0.1	0.0	0.3	0.0	0.0	101.0
CD056	-50	060	150.9	CNWE							
					6.8	0.1	0.1	0.3	0.0	0.0	18.7
					8.1	0.0	0.4	0.3	0.0	0.0	32.0
					34.7	0.2	0.4	0.8	0.0	0.0	58.3
Including					4.0	0.1	1.6	0.8	0.0	0.0	89.0
					27.9	0.3	0.1	0.8	0.0	0.0	108.0
CD055	-89	334	92.8	ECZ							
					15.2	0.3	0.3	1.4	0.0	0.0	52.4
CD054	-49	060	186.6	CNWE							
					11.4	0.2	0.4	0.7	0.0	0.0	8.0
					7.9	0.2	0.2	0.9	0.0	0.0	23.4
					54.4	0.4	2.6	1.7	0.0	0.0	44.6
				Including	16.5	1.0	7.2	4.2	0.0	0.0	45.1
				Including	6.5	1.5	16.6	5.8	0.0	0.0	45.1
				and	1.2	2.8	4.8	15.3	0.0	0.0	55.9
				and	10.3	0.3	1.7	0.7	0.0	0.0	79.7
				Including	1.3	1.7	5.7	4.3	0.0	0.0	79.7
					1.3	0.2	3.6	0.6	0.0	0.0	82.7
					2.0	0.1	2.1	0.1	0.0	0.0	88.0
					15.8	0.2	0.1	1.2	0.0	0.0	111.3
CD053	-70	045	217.8	CW							
					Abandoned						
CD052	-89	068	109.3	ECZ							

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					1.6	1.4	0.2	3.0	0.0	0.0	59.3
					31.3	0.7	0.2	4.2	0.6	0.0	64.2
Including					8.2	1.7	0.5	11.9	1.9	0.0	86.8
CD051	-90	000	50.4	ECZ							
					18.7	0.3	0.0	0.9	0.0	0.0	7.3
					3.5	0.6	0.2	3.5	0.5	0.1	33.5
CD050	-60	045	73.0	ECZ							
					18.5	0.2	0.1	1.2	0.0	0.0	5.5
CD049	-50	060	132.3	NWE							
					53.7	0.3	10.8	1.3	0.0	0.0	39.0
				Including	26.7	0.2	21.5	1.8	0.0	0.0	66.0
				Including	8.0	0.4	71.3	5.1	0.1	0.0	83.0
CD048	-90	000	90.2	SCZ							
					10.0	0.1	0.0	0.6	0.0	0.0	8.0
					4.2	0.5	0.1	1.0	0.0	0.0	31.8
					23.0	0.1	0.8	0.3	0.0	0.0	42.0
					4.8	0.3	0.1	2.0	0.0	0.0	77.0
CD047	-90	000	109.0	SCZ							
					5.0	0.7	0.1	2.3	0.1	0.0	38.0
					15.0	0.4	0.7	0.8	0.0	0.0	59.0
					18.5	0.1	0.1	0.5	0.0	0.0	76.7
CD046	-58	068	130.4	NWE							
					11.7	0.3	5.7	1.9	0.0	0.0	69.5
				Including	0.3	4.0	9.8	12.2	0.0	0.0	69.5
				and	0.3	2.0	20.9	13.9	0.0	0.0	71.0
				and	0.3	0.5	183.4	30.1	0.0	0.1	75.7
					5.8	0.4	0.1	3.4	0.8	0.0	99.2
CD045	-50	045	102.6	ECZ							
					37.2	0.4	1.1	1.4	0.0	0.0	1.4
				Including	3.0	0.1	12.7	2.4	0.0	0.0	6.0
					6.5	0.6	0.2	2.1	0.2	0.0	62.0
					1.3	1.8	0.5	6.3	1.2	0.0	77.7
CD044	-60	045	74.2	ECZ							
					27.6	0.2	0.1	0.7	0.0	0.0	28.0
CD043	-60	045	100.6	ECZ							

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					51.2	0.2	0.1	0.7	0.0	0.0	6.0
CD042	-60	045	85.4	ECZ							
					18.6	0.2	0.1	0.5	0.0	0.0	0.6
					5.4	0.4	0.1	1.5	0.1	0.0	29.0
CD041	-89	238	115.4	ECZ							
					9.0	0.3	0.0	1.0	0.0	0.0	17.0
					6.0	0.1	0.3	0.5	0.0	0.0	31.0
					31.4	0.7	0.5	4.5	0.4	0.0	70.0
				Including	10.3	1.6	0.7	9.9	0.1	0.0	82.8
CD040	-90	000	56.9	CCZ							
					33.8	0.3	0.3	0.9	0.0	0.0	11.0
				Including	5.3	0.6	0.7	2.6	0.1	0.0	21.9
CD039	-90	000	59.9	SCZ							
					36.2	0.3	0.2	0.8	0.0	0.0	20.0
CD038	-60	060	146.3	NWE							
					18.1	0.4	0.6	1.6	0.0	0.0	95.9
				Including	2.4	1.4	2.5	5.5	0.0	0.0	95.9
CD037	-60	045	110.9	ECZ							
					17.0	0.6	0.4	3.2	0.1	0.0	51.0
CD036	-60	060	154.6	NWE							
					0.6	1.2	4.7	5.4	0.0	0.0	113.4
					2.0	0.3	0.2	0.6	0.0	0.0	120.0
CD035	89	070	112.4	SCZ							
					19.8	0.2	0.1	0.9	0.1	0.0	35.0
					8.4	0.3	0.2	1.2	0.0	0.0	62.9
					4.5	0.4	0.2	2.8	0.0	0.0	83.0
CD034	-90	000	91.2	ECZ							
					17.8	0.6	0.5	2.3	0.1	0.0	59.3
				Including	5.1	1.2	0.8	4.6	0.1	0.0	72.0
CD033	-90	000	101.7	CCZ							
					18.0	0.2	0.0	0.6	0.0	0.0	9.0
					53.6	0.4	0.8	2.1	0.0	0.0	36.5
				Including	16.1	0.9	2.0	5.4	0.1	0.0	53.5
CD032	-90	000	140.6	SCZ							
					88.0	0.3	0.1	0.9	0.1	0.0	36.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
				Including	5.4	0.9	0.2	1.9	0.1	0.0	42.8
				Including	8.0	1.1	0.3	3.3	0.7	0.0	115.0
CD031	-89	045	145.2	SCZ							
					26.5	0.3	0.1	0.6	0.0	0.0	32.1
					28.1	0.3	0.5	1.0	0.0	0.0	64.0
					17.7	0.6	0.9	2.1	0.4	0.0	110.0
CD030	-85	045	89.9	ECZ							
					56.0	0.4	0.6	1.8	0.0	0.0	7.5
				Including	21.0	0.9	1.3	4.0	0.0	0.0	41.5
CD029	-90	000	154.5	SCZ							
					16.5	0.3	0.2	0.9	0.0	0.0	42.0
					71.8	0.7	0.3	3.1	0.2	0.0	65.0
				Including	6.9	2.0	0.5	7.6	0.2	0.0	91.7
CD028	-90	000	98.2	CCZ							
					60.2	0.2	0.6	0.9	0.0	0.0	17.6
				Including	6.0	0.1	2.4	0.5	0.0	0.0	32.0
				and	3.5	0.2	2.3	0.3	0.0	0.0	46.0
CD027	-90	000	141.6	SCZ							
					8.0	0.3	0.1	0.8	0.0	0.0	47.0
					21.3	0.3	0.6	0.9	0.0	0.0	62.8
					16.0	0.3	0.2	1.3	0.3	0.0	96.0
CD026	-90	315	136.7	SCZ							
					78.1	0.4	0.3	1.2	0.1	0.0	33.1
				Including	2.7	3.9	1.5	9.4	0.9	0.0	112.0
CD025	-50	045	156.7	CCZ							
					35.4	1.1	0.5	4.5	0.1	0.0	106.0
				Including	3.6	1.7	1.3	5.5	0.1	0.0	111.9
					4.6	4.4	1.7	18.2	0.5	0.0	118.7
CD024	-75	045	170.7	SCZ							
					9.5	0.4	0.0	1.0	0.0	0.0	50.5
					44.5	0.6	0.7	2.0	0.1	0.0	101.5
				Including	9.8	1.7	2.8	6.4	0.5	0.1	134.8
CD023	-75	045	151.5	CCZ							
					5.0	0.2	0.0	1.0	0.0	0.0	22.0
					7.0	0.4	0.0	0.8	0.0	0.0	42.0

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					6.1	0.4	0.1	1.4	0.1	0.0	77.0
					29.4	0.4	0.7	1.1	0.0	0.0	94.0
				Including	9.1	0.6	1.4	1.6	0.1	0.0	113.4
CD022	-89.2	004	133.3	CCZ							
					76.4	0.5	0.3	1.1	0.0	0.0	11.0
				Including	16.8	1.2	0.6	3.5	0.0	0.0	65.8
CD021	-87.9	008	82.8	ECZ							
					27.6	0.8	0.6	3.8	0.1	0.0	35.5
				Including	10.7	1.7	1.0	8.5	0.1	0.0	55.9
				and	1.3	3.8	0.6	13.6	0.3	0.2	72.7
CD020	-89.4	050	100.3	ECZ							
					43.8	0.6	0.4	2.8	0.0	0.0	27.8
				Including	18.9	1.2	0.7	6.3	0.1	0.0	52.7
				and	7.3	0.3	0.2	0.9	0.0	0.0	78.7
CD019	-55	165	174.1	ECZ							
					62.5	0.5	0.1	0.8	0.0	0.0	12.0
				Including	2.5	2.9	0.4	4.9	0.0	0.0	20.7
					2.2	2.9	1.0	4.3	0.1	0.0	53.5
				and	31.0	0.2	0.3	0.1	0.0	0.0	84.0
				and	17.2	0.8	0.4	3.9	0.1	0.0	130.0
CD018	-89	272	52.9	ECZ							
					14.2	0.3	0.1	0.8	0.0	0.0	9.0
					12.4	0.3	0.3	0.7	0.0	0.0	33.0
CD017	-89	029	91.4	ECZ							
					46.0	0.8	0.3	3.4	0.0	0.0	29.0
				Including	9.6	2.6	0.9	12.2	0.1	0.0	56.0
CD016	-90	000	87.1	CCZ							
					14.0	0.3	0.0	0.7	0.0	0.0	20.0
					26.0	0.3	0.3	1.4	0.0	0.0	42.5
CD015	-89	110	86.7	CCZ							
					20.0	0.2	0.1	0.7	0.0	0.0	12.0
					15.7	0.4	0.1	0.7	0.0	0.0	37.0
					30.3	0.5	0.9	1.5	0.0	0.0	56.4
				Including	3.8	1.3	0.4	1.7	0.0	0.0	43.0
				and	6.1	0.4	1.0	1.0	0.0	0.0	67.2

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
				and	4.5	1.0	3.3	4.6	0.1	0.0	77.9
CD014	-59	060	78.5	CCZ							
					26.4	0.3	0.2	0.4	0.0	0.0	20.0
					20.5	0.6	0.3	0.4	0.0	0.0	54.0
				Including	6.8	0.9	0.5	0.7	0.0	0.0	55.6
					3.4	0.9	0.2	0.5	0.0	0.0	69.2
CD013	-50	120	162.7	ECZ							
					94.0	0.6	0.1	1.5	0.0	0.0	8.0
				Including	8.5	1.4	0.5	5.0	0.2	0.0	54.5
					22.5	0.6	0.2	2.1	0.0	0.0	110.5
				Including	5.6	1.2	0.4	4.8	0.1	0.0	119.2
CD012	-85	050	106.4	CCZ							
					29.8	0.3	0.0	0.9	0.0	0.0	23.8
					37.9	0.5	0.3	1.7	0.1	0.0	59.8
				Including	15.2	0.9	0.5	3.9	0.2	0.0	82.5
				Including	2.0	2.8	6.2	11.3	0.2	0.0	101.6
CD011	-50	045	112.2	CCZ							
					7.0	0.3	0.0	0.0	0.0	0.0	11.0
					20.2	0.3	0.3	0.9	0.0	0.0	46.3
CD010	-66	040	106.0	CCZ							
					9.4	0.2	0.0	0.4	0.0	0.0	12.7
					11.0	0.3	1.3	0.9	0.1	0.0	25.9
					10.3	0.5	0.5	2.4	0.0	0.0	47.9
					11.1	0.4	0.4	0.0	0.0	0.0	65.0
CD009	-55	330	153.0	SCZ							
					3.0	0.2	0.0	0.2	0.0	0.0	40.0
					8.0	0.2	0.0	1.0	0.0	0.0	62.0
					66.1	0.6	0.8	1.8	0.0	0.0	86.9
				Including	2.7	1.5	14.0	7.0	0.1	0.0	86.9
				Including	12.8	1.7	0.5	5.2	0.1	0.0	139.7
CD008	-64	035	95.6	ECZ							
					35.0	0.3	0.2	1.0	0.2	0.0	30.0
				Including	12.2	0.8	0.4	2.5	0.4	0.0	44.8
CD007	-65	045	115.5	ECZ							
					35.1	0.5	0.2	2.2	0.0	0.0	30.3

Hole ID	Dip	Azimuth	EOH (m)	Prospect	Intercept (m)	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	From (%)
					2.0	0.7	0.4	1.6	0.2	0.0	78.3
CD006	-77	334	193.3	SCZ							
					7.3	0.2	0.2	0.8	0.2	0.0	100.4
					17.7	1.3	1.5	6.1	0.3	0.0	113.0
				Including	11.5	1.9	2.2	8.9	0.3	0.0	118.5
					6.2	1.5	0.5	5.3	0.1	0.0	156.0
CD005	-97	045	123.1	ECZ							
					4.6	0.1	0.0	0.0	0.0	0.0	18.6
					3.0	0.1	0.1	0.0	0.0	0.0	33.5
					30.7	0.9	0.6	4.9	0.1	0.0	38.5
					2.8	0.9	0.3	5.6	0.1	0.0	75.4
					4.3	0.3	0.3	1.0	0.1	0.0	82.1
CD004	-65	338	200.1	SCZ							
					9.5	0.2	0.2	0.0	0.0	0.0	94.6
					6.5	0.6	0.2	2.5	0.1	0.0	114.9
				Including	0.3	11.5	2.2	55.0	0.7	0.0	119.4
					15.9	3.3	0.7	15.7	0.6	0.0	148.6
				Including	10.2	4.9	1.0	23.9	0.7	0.0	152.0
CD003	-75	045	205.5	SCZ							
					15.0	0.4	0.0	0.0	0.0	0.0	75.0
					58.6	0.6	0.9	1.7	0.2	0.0	110.0
				Including	17.2	1.5	2.5	4.7	0.4	0.0	151.4
CD002	-90	000	95.2	ECZ							
					22.7	0.5	0.4	0.7	0.1	0.0	39.7
				Including	2.7	1.6	1.7	5.3	0.4	0.0	59.7
CD001	-81	057	189.6	SCZ							
					23.7	0.6	0.3	0.7	0.1	0.0	128.0

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Security Measures

Drill core, and surface geochemical samples (soils and rock chip) are stored at Meridian's core farm on private property under 24-hour supervision.

Upon cutting, samples are sealed in plastic sample bags, which are securely fastened with one way zip-ties to prevent easy tampering. The samples are taken by Meridian staff to theoffice at São José de Quarto Marcos for dispatch by commercial couriers or Company Staff to the SGS Laboratory depot at Goiania for sample preparation (SGS UnigeoRua 144, n186 – Setor Marista, Goiania – GO, 74170-030, Brasil). Pulps are then sent to the SGS analytical laboratory Vespasiano, Minas Gerais, Brazil. Samples remain in the secure chain of custody, being transported by SGS personnel. SGS is independent of Meridian. Pulps are packaged in taped, bar-coded boxes labelled with batch and client details before being sent to the SGS analytical facilities in Vespasiano. Weights of individual boxes and individual pulps are recorded and tracked internally at SGS.

11.2 Sample Preparation and Analysis

The assays for the drilling campaign have been processed at the ISO-accredited sample preparation and analytical facilities of SGS Geosol Laboratórios Ltda, Vespasiano, Minas Gerais, Brazil (ISO 9001:2015 and ISO14001:2015; ABS 32982 and ABS 39911).The following procedures are applied:

- Sample preparation is undertaken using a standard procedure (preparation code PRP102_E). Individual half core samples typically weigh ~1.5 – 5.0 kg; The procedure involves:
  - Drying at 105°Celsius;
  - Crushing so that 75% passes <3 mm, homogenization of the sample, splitting with a Jones riffle splitter to give a split sample mass of 250-300g; and
  - Pulverization of 250 to 300 g with 95% passing mesh size 150#.
- Gold analysis is by fire assay of a 50g charge with an AAS finish. (Method code FAA505; Analytical range 5 – 100,000 ppb Au). Samples that pass the upper limit of detection are repeated by method code FAA525 (50g fire assay with AAS finish, calibrated for high-grade samples, 0.01 ppm lower limit of detection). Samples with a copper content of >10% are repeated by method code FAA35V (fire assay to extinction);
- Copper, zinc and lead are analysed as part of a multielement package through a 4-acid total digest method (HCl, HNO3, HF and HclO4), with analysis by ICP-OES finish. Elements and analytical range for method Code ICP40B are listed in Table 11-1. Results greater than 1% Cu, Zn, or Pb are repeated under high-grade Method Code ICP40B_S;
- Silver analysis is by 4 acid total digest method (HCl, HNO3, HF and HclO4), with an ICP-OES finish (Analytical range 3 – 100 ppm Ag). Samples are repeated with method code AAS12E (Aqua Regia digest with AAS; Analytical range 0.2 – 300ppm Ag). This provides a more precise grade on samples below 3ppm, although aqua regia being a partial digest may under-report the value. Silver grades above 20 ppm Ag are also repeated by method code CAA41DA which comprises determination of silver by a 4-acid digest and AAS finish with an analytical range >1ppm and no upper limit limitation; and
- The ICP-OES analytical method provides assays for a 32-element suite, which can be used for lithogeochemical studies including waste rock characterization and identification of mineralized material pathfinder elements.

Table 11-1: **Elements and Ranges in SGS Method Code ICP40B.**

Ag	3 – 100 (ppm)	Al	0.01 – 10 (%)	As	10 – 10000 (ppm)	Ba	3 – 10000 (ppm)
Be	3 – 10000 (ppm)	Bi	20 – 10000 (ppm)	Ca	0.01 – 15 (%)	Cd	3 – 10000 (ppm)
Co	8-0000 (ppm)	Cr	3 – 10000 (ppm)	Cu	3 – 10000 (ppm)	Fe	0.01 – 15 (%)
K	0.01 – 15 (%)	La	20 – 10000 (ppm)	Li	3 – 10000 (ppm)	Mg	0.01 – 15 (%)
Mn	0.01 – 15 (%)	Mo	3 – 10000 (ppm)	Na	0.01 – 15 (%)	Ni	3 – 10000 (ppm)
P	0.01 – 15 (%)	Pb	8 – 10000 (ppm)	S	0.01 – 10 (%)	Sb	10 – 10000 (ppm)
Sc	5 – 10000 (ppm)	Se	20 – 10000 (ppm)	Sn	20 – 10000 (ppm)	Sr	3 – 10000 (ppm)
Th	20 – 10000 (ppm)	Ti	0.01 – 15 (%)	Tl	20 – 10000 (ppm)	U	20 – 10000 (ppm)
V	8 – 10000 (ppm)	W	20 – 10000 (ppm)	Y	3 – 10000 (ppm)	Zn	3 – 10000 (ppm)
Zr	3 – 10000 (ppm)						

Meridian undertakes umpire checks on pulp samples through ALS Laboratories in Lima, Peru, ALS is independent of Meridian and is ISO Certified (ISO/IEC 17025:2017 and ISO 9001:2015). ALS deploys the following method codes:

- Au-AA23: Au by fire assay and AAS finish of a 30g charge. Analytical range 0.005-10 ppm Au. Over-range samples repeated by Au-GRA21 (Au by fire assay and gravimetric finish of a 30g charge; Analytical range: 0.05 – 10,000ppm);
- Silver is analysed by Method Code ME-MS62 (0.01 – 100ppm range); and
- Copper, zinc and lead are analysed as part of a multielement package (Method Code ME-ICP61a), through a 4-acid total digest method (HCl, HNO3, HF and Hcl04), with analysis by Inductively coupled plasma atomic emission spectroscopy ("ICP AES" finish). Elements and analytical range for method Code ME-ICP61a are listed in

Table 11-2. Results greater than 1% for Cu, Pb, Zn are repeated with ICP AES Method Code OG62.

Table 11-2: **Elements and Ranges in ALS Method Code ME-ICP61a.**

Ag	1 – 200	Cr	10 – 100,000	Mo	10 – 50,000	Sr	10 – 100,000
Al	0.05% - 30%	Cu	10 – 100,000	Na	0.05% - 30%	Th	50 – 50,000
As	50 – 100,000	Fe	0.05% - 50%	Ni	10 – 100,000	Ti	0.05% - 30%
Ba	50 – 50,000	Ga	50 – 50,000	P	50 – 100,000	Tl	50 – 50,000
Be	10 – 10,000	K	0.1% - 30%	Pb	20 – 100,000	U	50 – 50,000
Bi	20 – 50,000	La	50 – 50,000	S	0.05% - 10%	V	10 – 100,000
Ca	0.05% - 50%	Mg	0.05% - 50%	Sb	50 – 50,000	W	50 – 50,000
Cd	10 – 10,000	Mn	10 – 100,000	Sc	10 – 50,000	Zn	20 – 100,000
Co	10 – 50,000						

11.3 Quality Assurance/Quality Control Procedures

Table 11-3 provides definitions of quality control tools and measures that are undertaken by Meridian and by the commercial laboratories as checks to monitor analytical results reported.

Table 11-3: Quality Control Definitions.

Item	Description
Standard	Certified Reference Material ("CRM") used to measure accuracy of the sample prep and analysis of the samples.
Blank Standard	A Certified Reference Material ("CRM") with a value at or near to the detection limit of the element analyzed, used to monitor contamination.
Field Duplicate	This sample provides a check in particular on the short scale continuity of the metal grades – taken as a paired quarter of core collected in the field.
Laboratory Duplicate	This sample provides a check on sample homogeneity from the sample prep stage and the repeatability of the sample extraction. The sample is normally nominated by the on-site geologist Sample collected as a sub-sample of the originally submitted 1-5kg sample after crushing and pulverizing. Referred to as a pulp duplicate
2nd Lab Checks (Umpire Lab)	This sample provides a check on the accuracy of the original lab assays, preferably using a different analytical method. Completed by a second independent commercial laboratory.
Laboratory Replicate	A second measurement (often analytical reading) of the same sub-sample after sample digest; a check for sample prep homogeneity and machine calibration. It is usually nominated by the laboratory and therefore not an independent check.
Twin Hole	A repeat hole, usually a diamond hole, located in very close proximity to an original hole, i.e., nominally <5m spatial difference. It is used to validate any previous drilling and is a check that the sampling is representative and provides a measure of the short scale grade continuity.

11.3.1 Standards

Quality Assurance is monitored through the use of Company-submitted certified analytical standards supplied by ITAK (609, Sebastião Simão de Almeida St, Sion; João Monlevade; Minas Gerais, Brazil, 35931-209) and OREAS (Ore Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North Vic 3153, Australia). Standards are inserted at a rate of 1 in 20 samples. Details of the standards are included in Table 11-4.

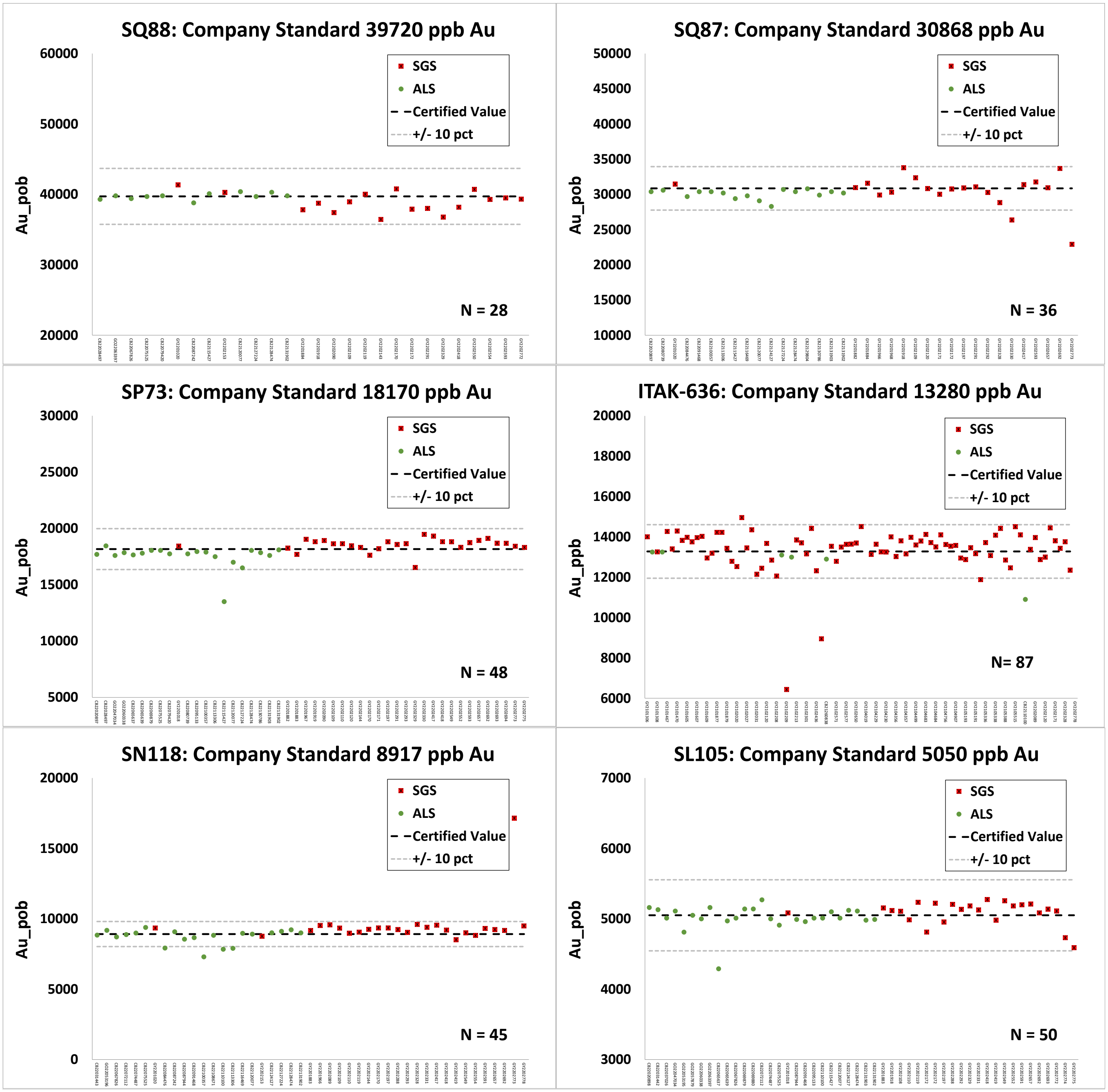
Table 11-4: Company-submitted Standards.

Standard	Count	Certified Value				
		Ag_g/t	Au_g/t	Cu_ppm	Pb_ppm	Zn_ppm
ITAK-635		36.6	3.96			
ITAK-636		97.2	13.28			
ITAK-809			0.28	3,580		
ITAK-824		12.15	0.25	26,780		
ITAK-825		6.98	0.21	57,600		
ITAK-833		5.2	1.83	15,710		
ITAK-845		1.44	0.31	3,158		
ITAK-852		11.9	0.48	64,800		
ITAK-862		2.27	0.78	10,410	11.76	33
OREAS-111		10.1		23,700	377	4,196
OREAS-112		13.2		51,000	360	4,351
OREAS-523		2.36	1.01	16,800	26.3	40
OREAS-620		38.5	0.69	1,730	7,740	31,500
OREAS-621		69.2	1.25	3,630	13,600	52,200
OREAS-624		45.3	1.16	`000	6,240	24,000
SL105		30.4	5.05			
SN118		49.9	8.92			
SP73			18.17			
SQ87			30.87			
SQ88		160.8	39.72			

Selected examples of assay results for standards are illustrated in Figure 11-1 to Figure 11-6.

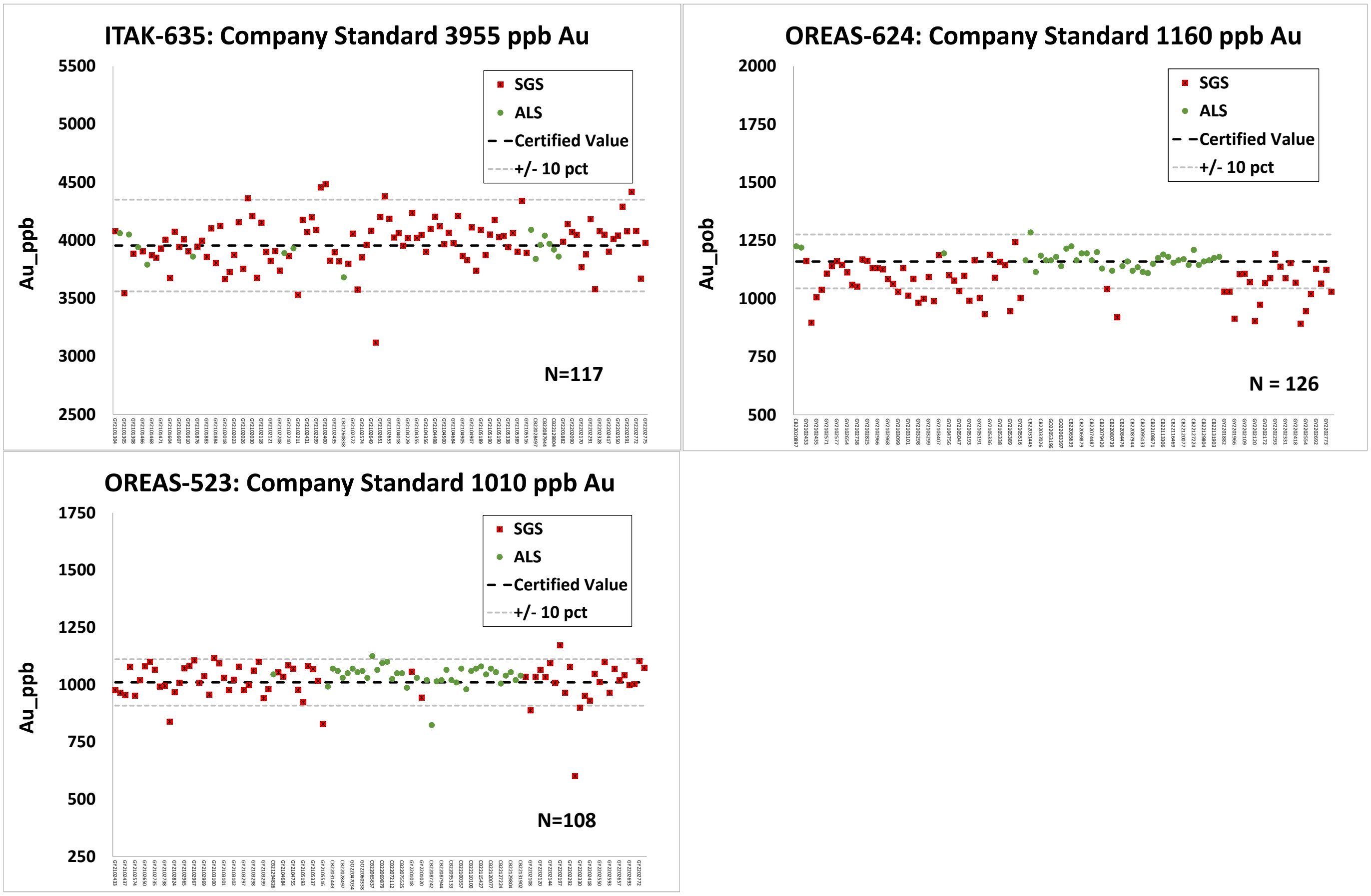
Generally, the results indicated reasonable accuracy with no obvious bias associated with the high grade gold standards. The results for the moderate grade standard OREAS-624 indicated significant variability and bias with the SGS data but much better consistency with the ALS check samples. As this standard's CRM is 1,160 ppb it is below the cut-off grade used for the MRE and therefore not of major concern to H&SC, but nevertheless still needs investigating. The other two moderate gold standards indicate variability with the SGS results but no obvious bias. The ALS results are much more consistent indicating that there is perhaps not a problem with the standard itself.

Figure 11-1: Examples of Company-submitted Higher grade Au Standards.



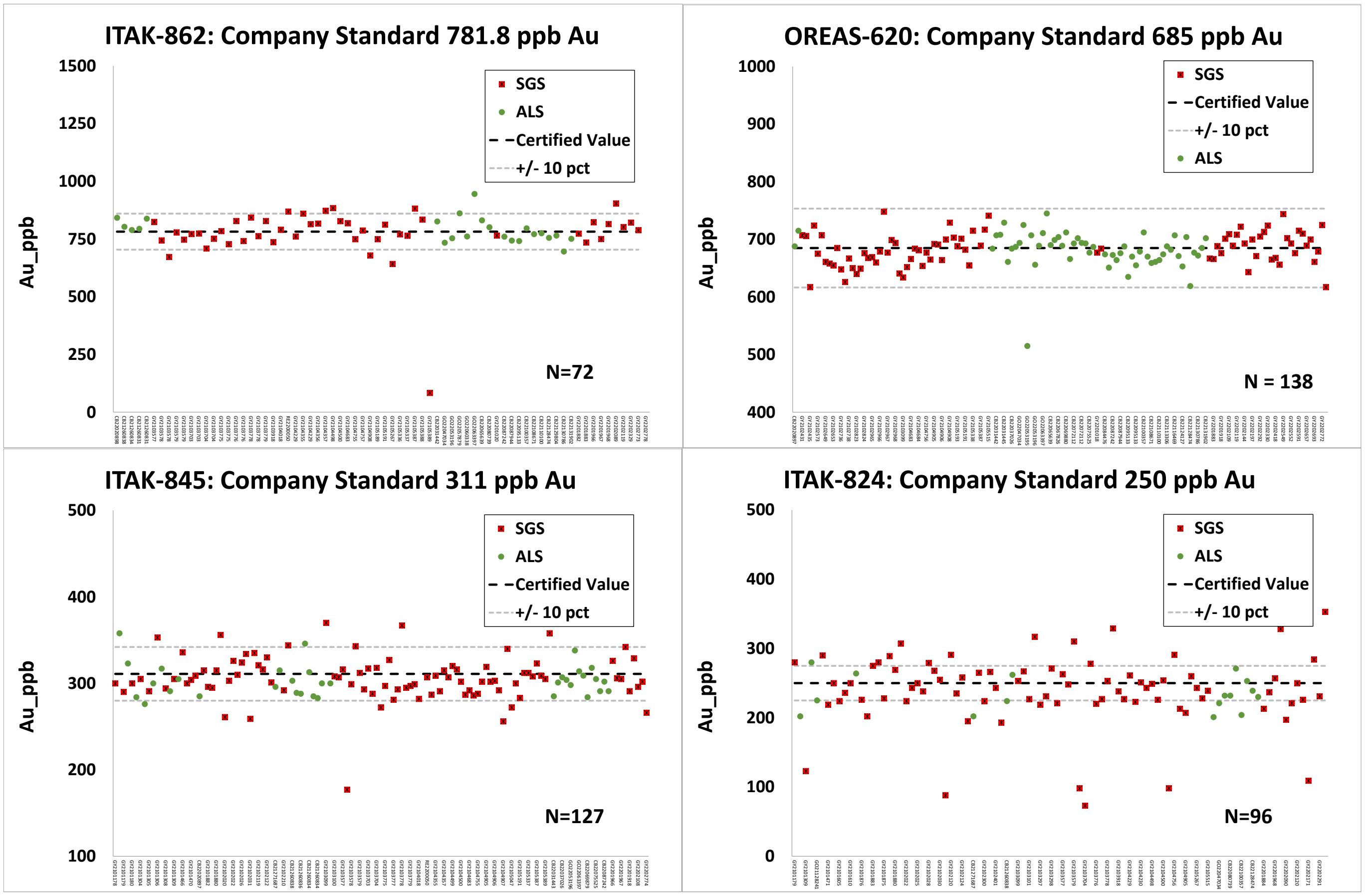
Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

Figure 11-2: Examples of Company-submitted Moderate-grade Au Standards.



Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

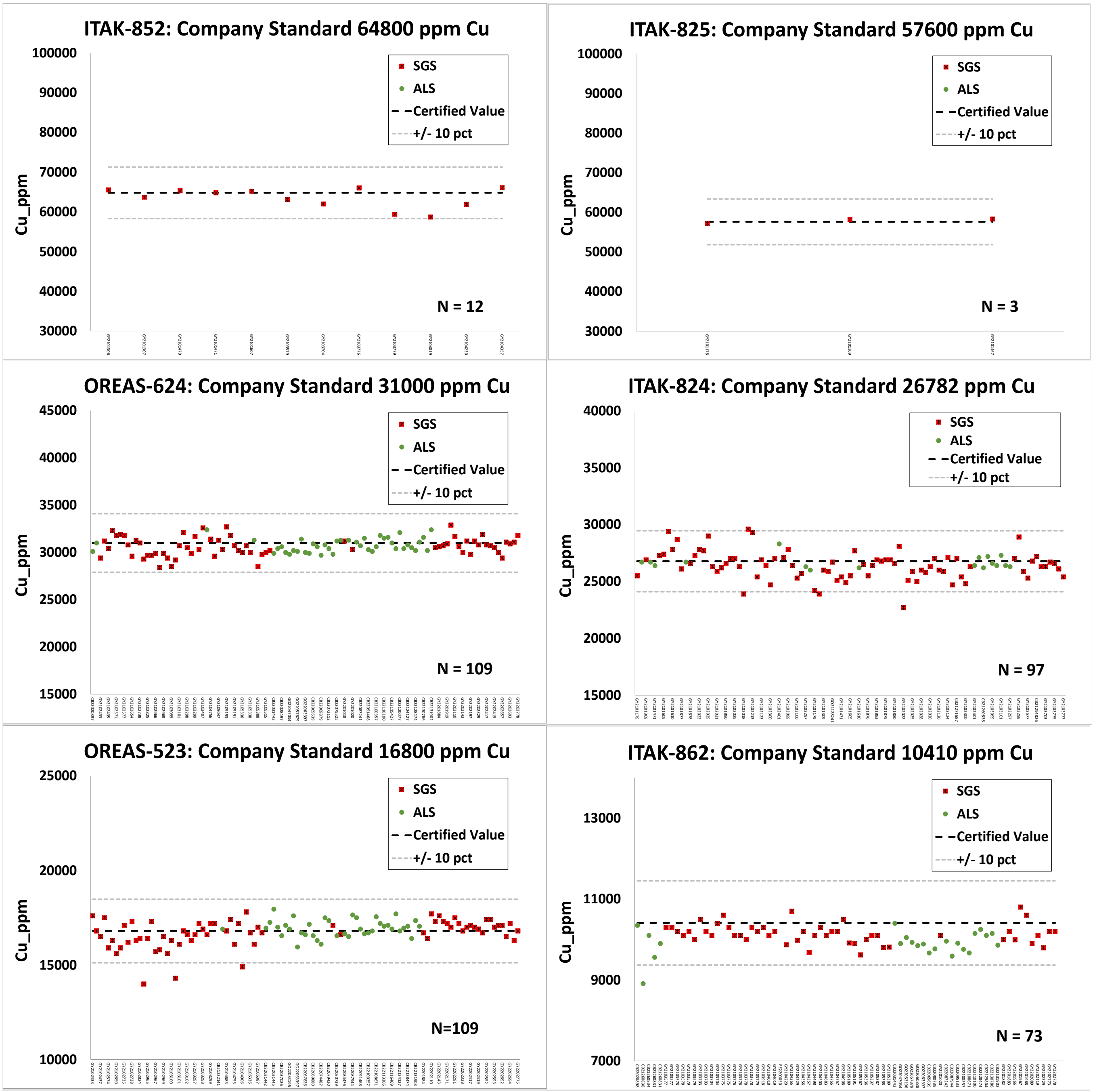
Figure 11-3: Examples of Company-submitted Lower-grade Au Standards.



Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

Copper standards show reasonable results with some minor under-reporting (in the 2-3% range).

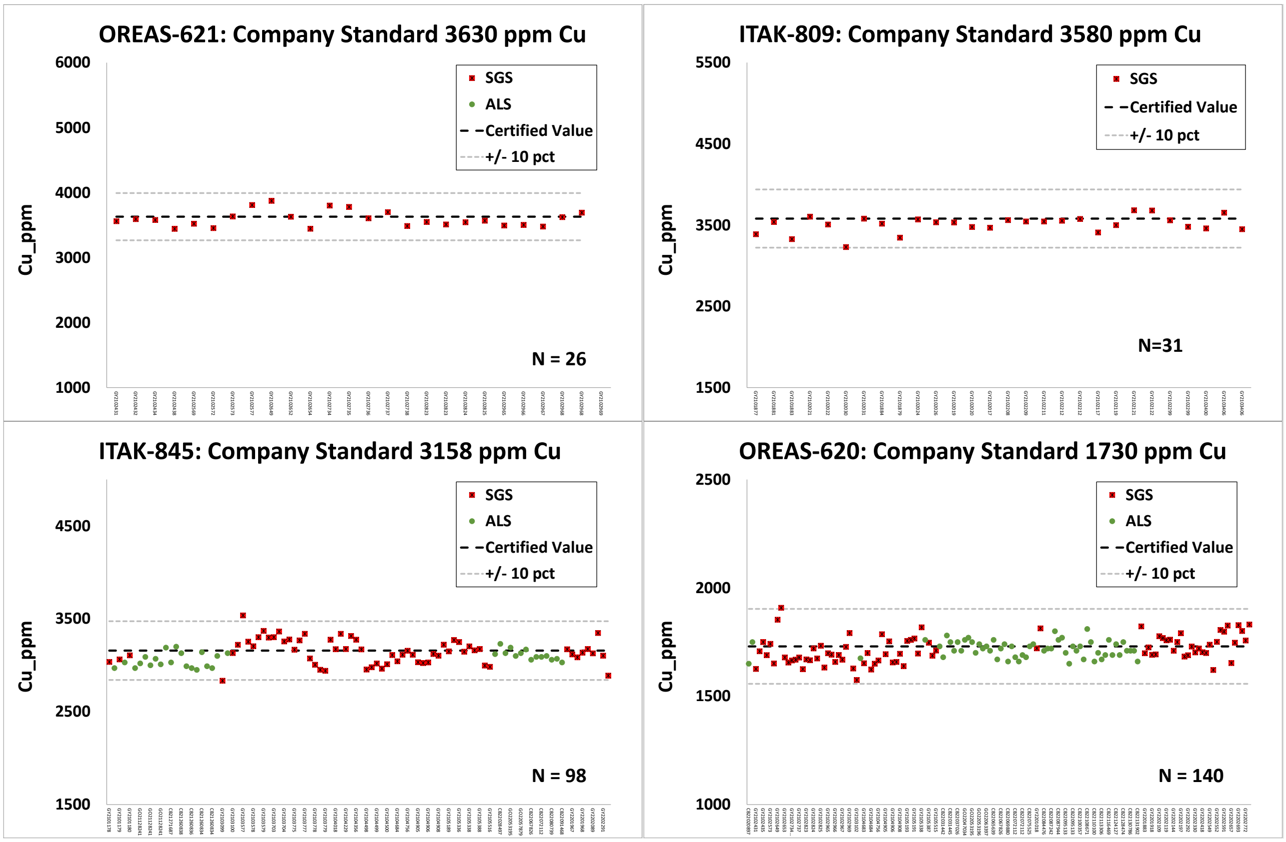
Figure 11-4: Examples of Company-submitted Higher grade Cu Standards.



Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

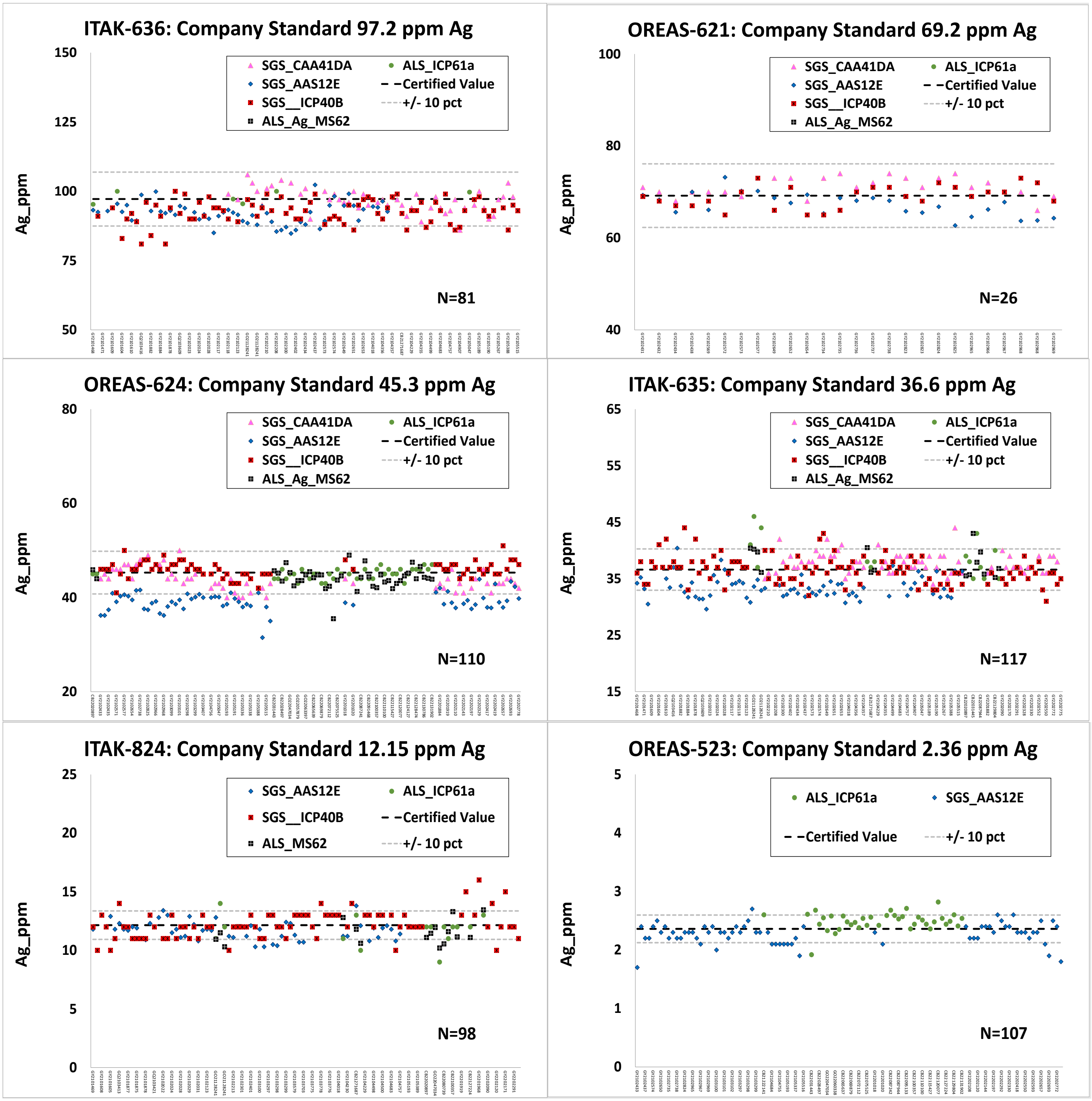
The results for silver indicate significant variability but no overall obvious bias for all ranges.

Figure 11-5: Examples of Company-submitted Lower-grade Cu Standards.



Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

Figure 11-6: Examples of Company-submitted Ag Standards.



Source: Meridian, 2022. Charts plotted with +/- 10% control lines.

Meridian discusses any outliers with the analytical laboratories. Any analytical batches with more significant outliers are incorporated into the umpire testwork program, along with routine periodic checks. SGS made modest adjustments and reissued reports for a number of early laboratory reports where copper was reporting lower grade values. A program of umpire analysis was in progress at the time of the Mineral Resource Estimate (MRE) effective date.

11.3.2 Blanks

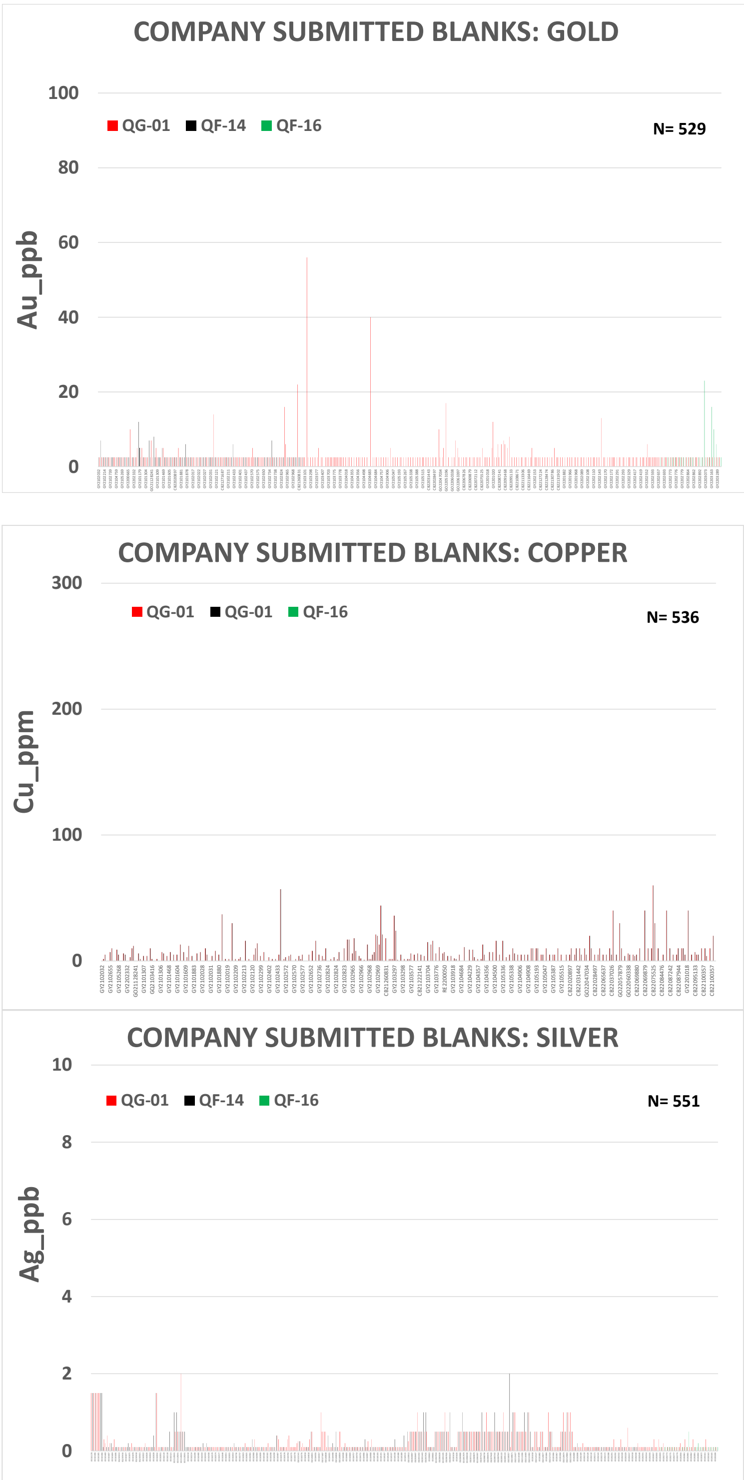
Meridian has utilized two pulp blanks supplied by ITAK (QF-14, QF-01), inserted at a rate of 1 in 50 samples (Table 11-5).

Table 11-5: Company-submitted Blanks.

Standard	Certified Value					
	Cu_ppm	Zn_ppm	Pb_ppm	Au_g/t	Ag_g/t	Number
QF-14	1.85	1.25	12.7	<0.005	<0.02	
QG-01	5.3	<1	3.55	<0.005	1.26	
QF-16	3.0	1.15	2.0	<0.005	<0.02	

Figure 11-7 shows the results of Meridian's blank standards for gold, copper, and silver. The results are all acceptable indicating no systematic contamination of samples.

Figure 11-7: Company-submitted Blanks.



Source: Meridian, 2022.

11.3.3 Duplicates

Pulp duplicates reported by the laboratories are illustrated in Figure 11-8. Two graphs are used for each element – one to show the whole dataset and one to show the lower grades where there is an increased number of samples. These duplicates are laboratory nominated and are taken at a frequency of one in 20 samples. Excluding samples close to the lower detection limit, there are 113 samples for gold, 253 samples for copper, and 167 samples for silver. There is no evidence for any bias in the copper and silver results, but the relatively low-grade gold data suggests a small positive bias with the duplicate samples. As these data are not used in the any resource modelling the issue is not considered too significant.

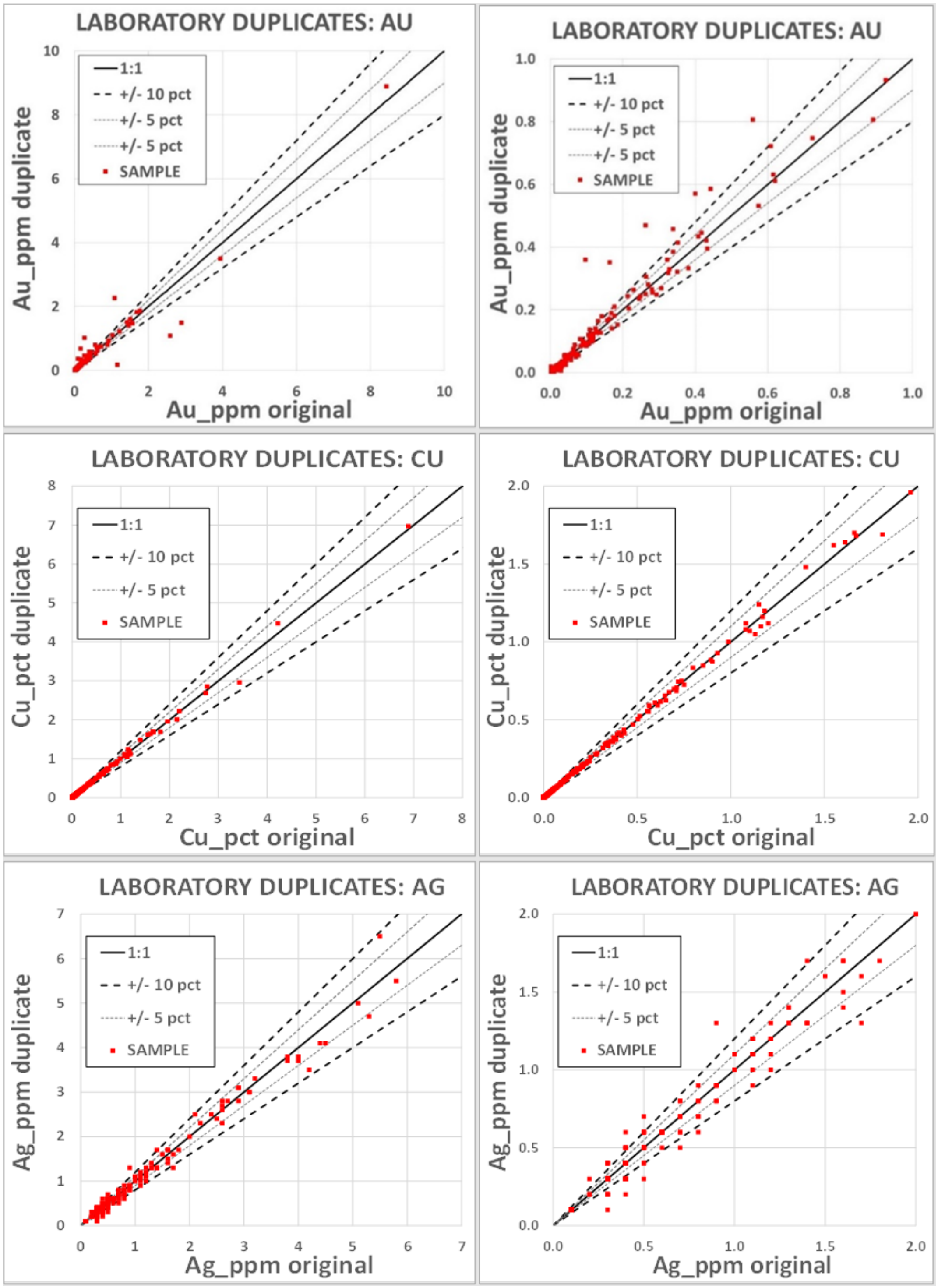
Field duplicates, selected by Meridian geologists, are taken as pairs of quarter core from the same interval submitted as separate sample numbers. Results are illustrated in Figure 11-9. The results show a wide scatter characteristic of field duplicate samples but show no systematic bias. Excluding samples close to the lower detection limit, there are 113 samples for gold, 196 samples for copper, and 76 samples for silver.

11.3.4 Umpire Analyses

ALS Global is used as an umpire laboratory. A first batch of 292 duplicate pulp samples was submitted in May 2021 with the outcomes shown in Figure 11-10. Whilst there is some scatter for gold at lower grades, there appears to be no systematic bias which supports the accuracy of the original assays. The copper results indicate no bias, but the silver results show a modest positive bias for the second lab check. Noting the relative low silver grade, this bias is not considered significant at this stage.

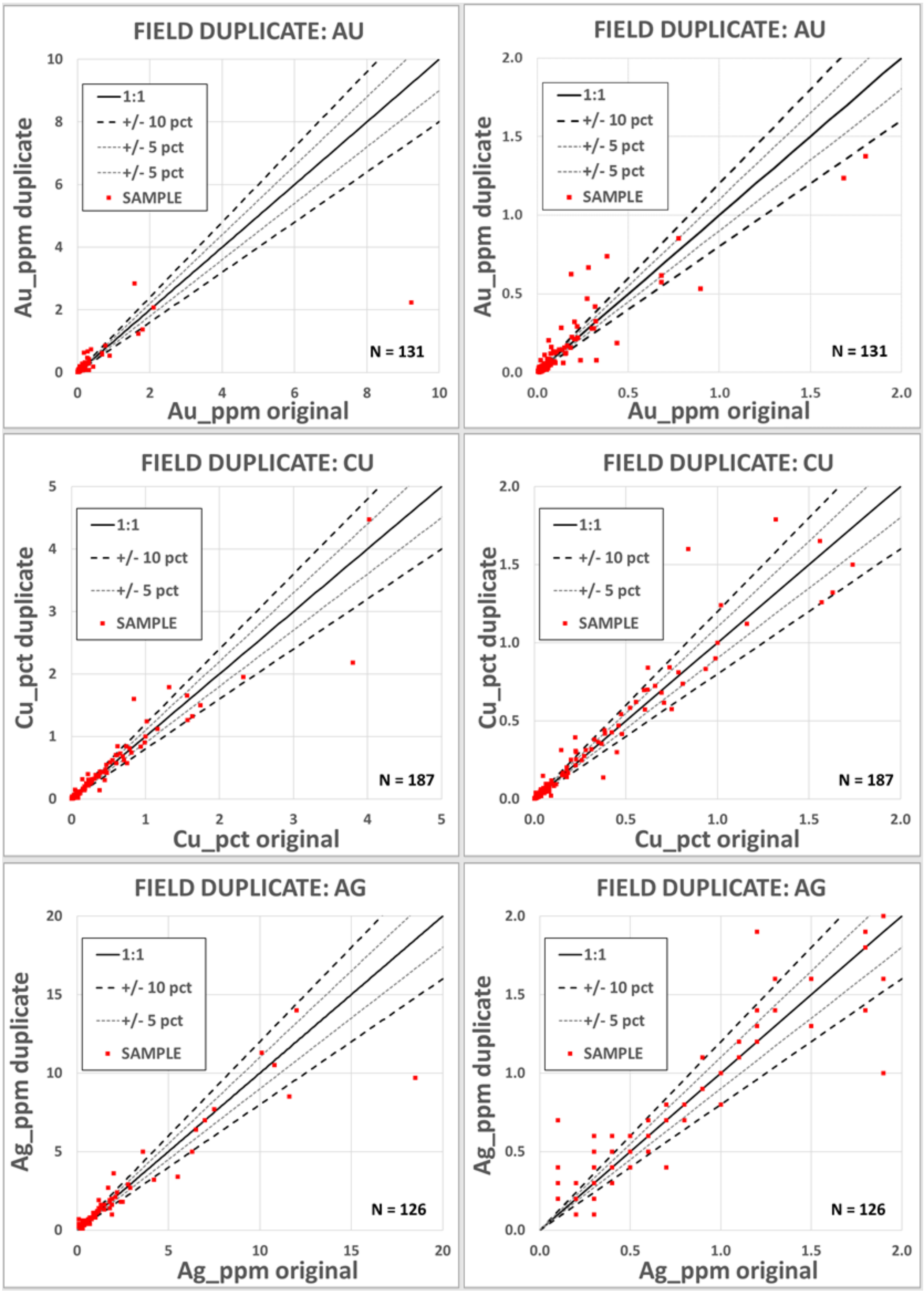
A second batch of 354 check samples was submitted in October 2021. The outcomes (Figure 11-11) still show some scatter for gold at lower grades but there appears to be no systematic bias, which supports the accuracy of the original assays. The silver results still show a modest positive bias for the second lab check but noting the relative low silver grade, this bias is not considered significant at this stage. Results relating to batches where Cu standards were below expected certified values showed on average higher Cu values in the umpire analyses from ALS from the July-August 2021 period (Figure 11-11). SGS reissued certificates with small adjustments to the low-grade copper results.

Figure 11-8: SGS Laboratory Duplicates



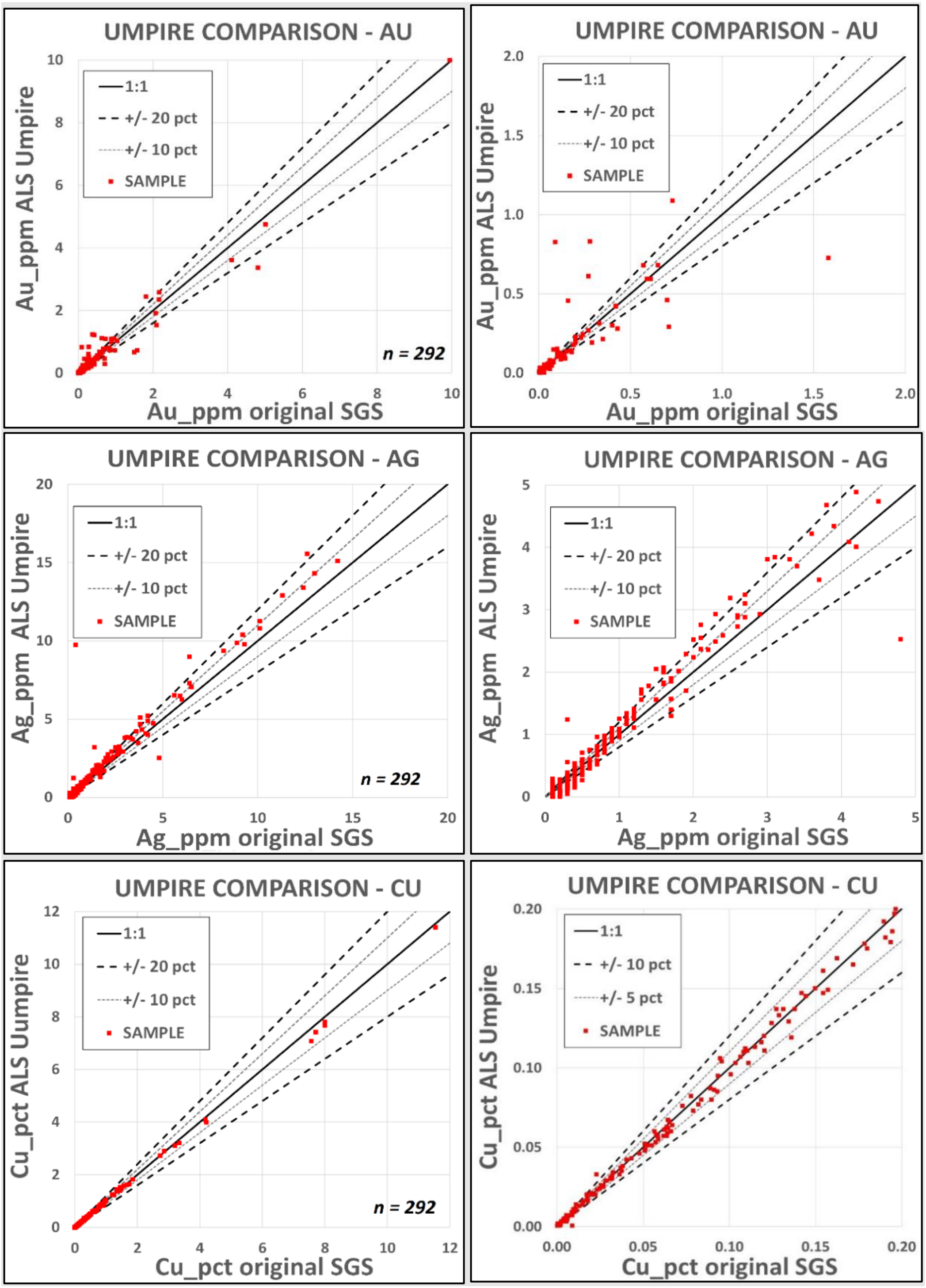
Source: Meridian, 2022. Chart to the right is an expanded view of the lower grades.

Figure 11-9: Meridian Field Duplicates.



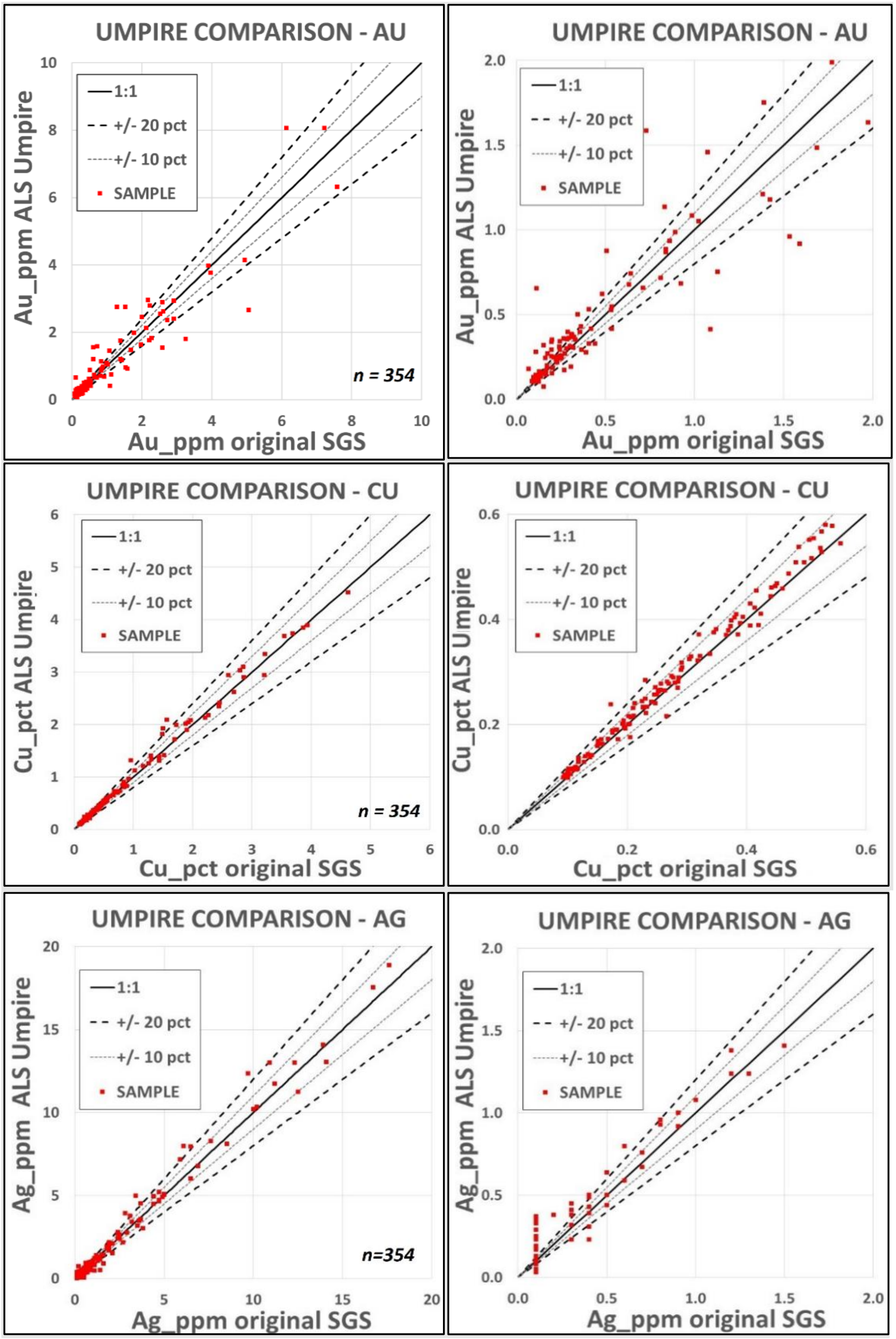
Source: Meridian, 2022. Chart to the right is an expanded view of the lower grades.

Figure 11-10: SGS Original Assays Vs ALS Umpire Results, May 2021 Campaign.



Source: Meridian, 2022: Chart for Cu, Au, Ag, which detail of lower-grade population to the left

Figure 11-11: SGS Original Assays Vs ALS Umpire Results, June-August 2021 Period.



Source: Meridian, 2022: Chart for Cu, Au, Ag. Chart to the right is an expanded view of the lower grades.

In the QP's opinion, the sampling and analytical methodology used for the current drill core sampling is considered standard industry practice and adequate for mineral exploration purposes.

Sample security procedures are considered to be of standard industry practice and effective with sufficient QAQC measures to amplify any suspicious outcomes.

11.4 Meridian Twin Drilling Program

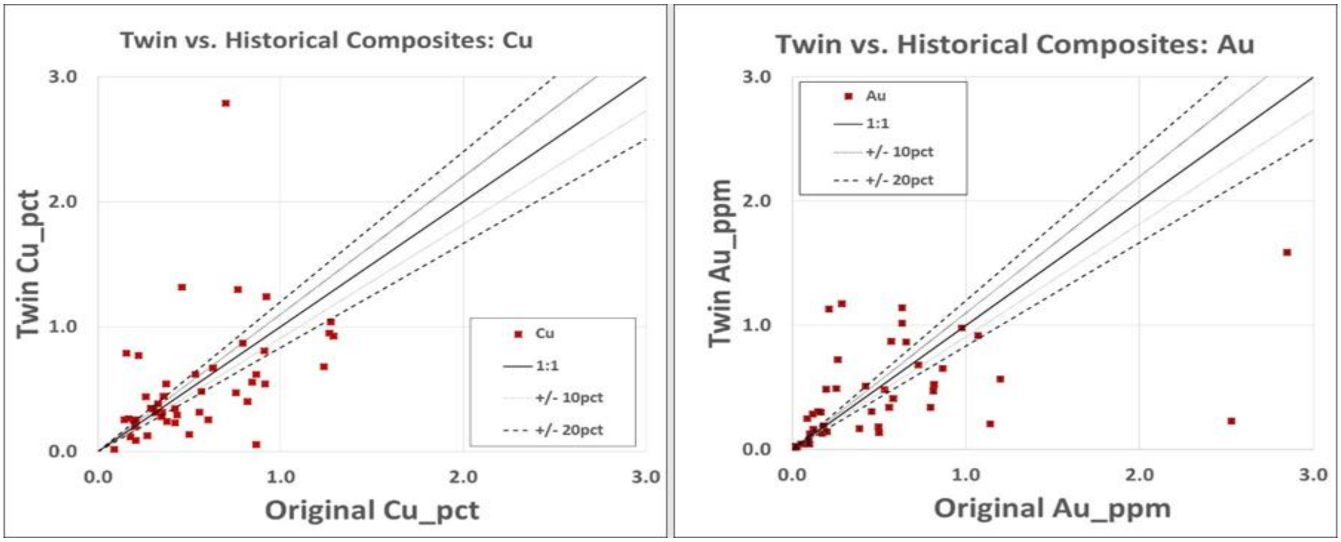
Seventeen (17) twin hole pairs have been completed as detailed in Table 11-6.

Table 11-6: Historical Hole – Meridian Hole Twin Pairs By Copper Zone.

ECZ	CCZ	SCZ
JUSPD068-CD015	JUSPD076-CD012	JUSPD355-CD026
JUSPD264-CD005	JUSPD048-CD014	JUSPD296-CD027
JUSPD265-CD017	JUSPD280-CD016	JUSPD066-CD029
JUSPD301-CD018	JUSPD368-CD028	JUSPD295-CD031
JUSPD325-CD020	JUSPD352-CD033	JUSPD385-CD032
JUSPD300-CD030		
JUSPD221-CD034		

The nature of the mineralization and the method of hole twinning means comparison of individual sample results has the potential to be not so meaningful. However, comparison of average metal grades for similar sized mineral intercepts and comparison of the pattern of the downhole grades can be used to ascertain any bias associated with the historical holes. The hole twinning has confirmed the general pattern and footprint of mineralization. Comparisons of average metal grades for defined mineral intervals for the twin hole results for both elements show a similar scatter to the resampling data (Figure 11-12; Table 11-7).

Figure 11-12: Twin Hole Composite Comparison.



Source: Meridian, 2022.

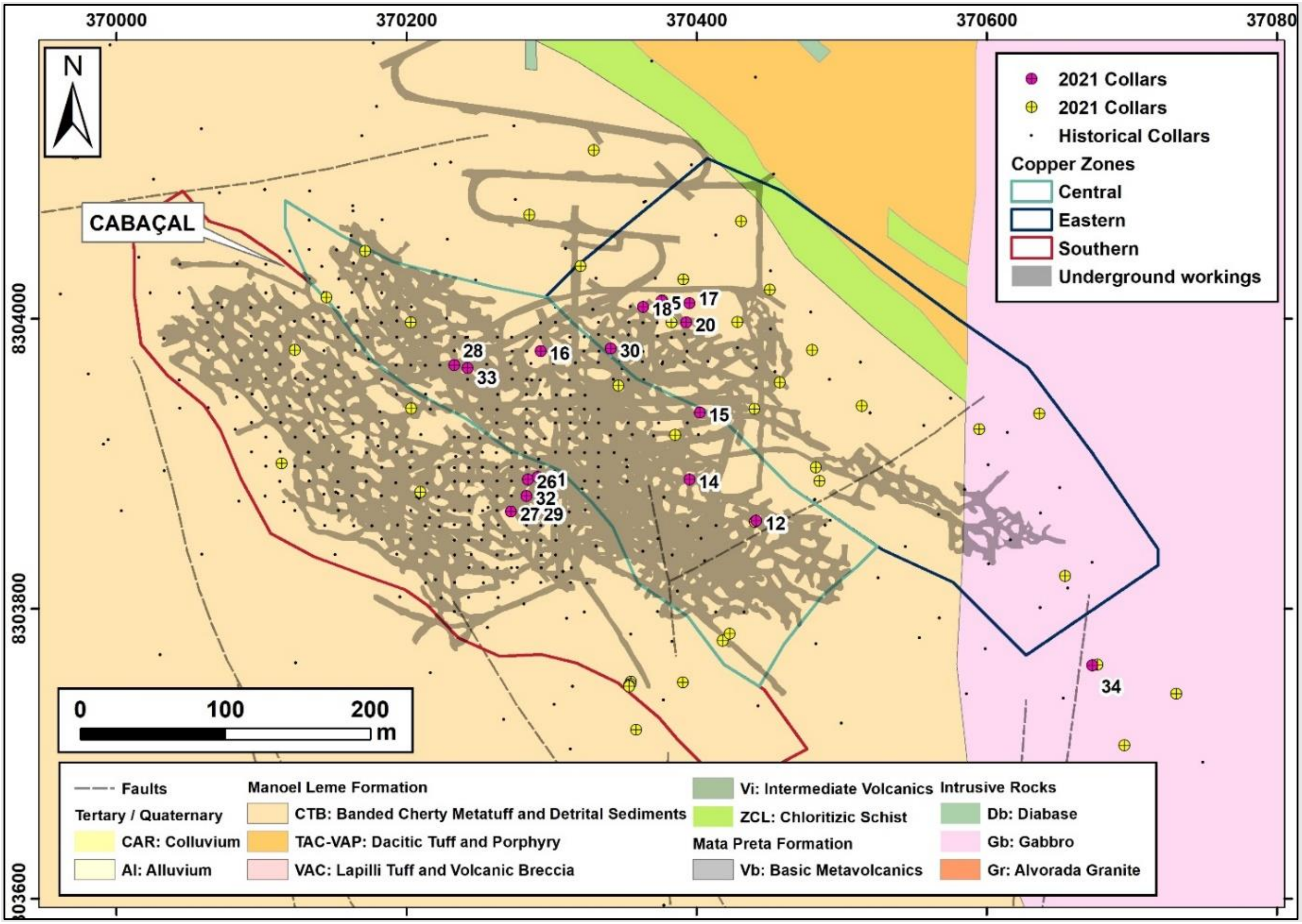
Table 11-7: Composites From Original Hole and Adjacent Twin Results.

JUSPD Hole-ID	From (m)	To (m)	Interval (m)	Cu (pct)	Au (ppm)	Ag (ppm)	Meridian Hole-ID	From (m)	To (m)	Interval (m)	Cu (pct)	Au (ppm)	Ag (ppm)
JUSPD068	11.00	32.60	21.60	0.20	0.10	0.55	CD015	12.00	32.00	20.00	0.19	0.07	0.70
JUSPD068	39.39	53.00	13.61	0.36	0.10	0.42	CD015	39.00	52.67	13.67	0.44	0.12	0.74
JUSPD068	56.85	87.00	30.15	0.76	0.66	3.38	CD015	56.37	86.68	30.31	0.47	0.87	1.50
JUSPD264	42.35	68.00	25.65	1.29	0.82	6.42	CD005	43.50	69.15	25.65	0.92	0.52	5.66
JUSPD264	77.15	79.15	2.00	0.79	0.17	4.17	CD005	75.35	77.10	1.75	0.87	0.30	5.05
JUSPD076	29.00	54.90	25.90	0.31	0.03	0.94	CD012	23.75	53.50	29.75	0.31	0.02	0.90
JUSPD076	83.00	97.45	14.45	1.27	0.81	5.13	CD012	82.50	97.68	15.18	0.95	0.47	3.90
JUSPD076	100.90	103.00	2.10	0.70	0.12	0.55	CD012	101.63	103.65	2.02	2.79	6.18	11.31
JUSPD048	22.00	41.11	19.11	0.30	0.02	0.43	CD014	21.00	40.00	19.00	0.34	0.02	0.57
JUSPD048	41.11	75.00	33.89	0.26	0.12	0.11	CD014	41.35	74.40	33.05	0.44	0.28	0.28
JUSPD280	24.10	34.00	9.90	0.35	0.05	0.77	CD016	20.00	34.00	14.00	0.31	0.04	0.73
JUSPD280	42.50	68.00	25.50	0.60	0.46	4.56	CD016	42.50	68.45	25.95	0.25	0.30	1.38
JUSPD265	44.63	67.82	23.19	0.76	0.42	3.76	CD017	44.60	67.60	23.00	1.29	0.51	5.96
JUSPD301	36.00	45.50	9.50	0.43	0.80	3.52	CD018	36.00	45.39	9.39	0.29	0.34	0.75
JUSPD325	49.00	71.00	22.00	1.28	0.87	8.59	CD020	49.00	71.55	22.55	1.04	0.65	5.51
JUSPD355	34.00	43.00	8.50	1.24	0.50	2.38	CD026	33.10	42.00	8.90	0.68	0.18	1.68
JUSPD355	48.00	51.85	3.85	0.37	0.15	0.44	CD026	48.00	51.40	3.40	0.54	0.30	0.97
JUSPD355	69.80	76.00	6.20	0.18	0.57	0.66	CD026	70.00	766.23	6.23	0.12	0.87	0.51

JUSPD Hole-ID	From (m)	To (m)	Interval (m)	Cu (pct)	Au (ppm)	Ag (ppm)		Meridian Hole-ID	From (m)	To (m)	Interval (m)	Cu (pct)	Au (ppm)	Ag (ppm)
JUSPD355	83.40	102.00	18.60	0.55	1.14	2.60		CD026	84.50	102.70	18.20	0.32	0.20	1.46
JUSPD355	108.50	118.10	9.60	0.46	0.26	0.96		CD026	108.00	117.50	9.50	1.32	0.49	3.34
JUSPD296	48.00	55.50	7.50	0.29	0.39	0.42		CD027	48.00	55.00	7.00	0.35	0.17	0.83
JUSPD296	62.30	70.40	8.10	0.20	0.20	0.25		CD027	62.75	70.13	7.38	0.25	0.48	0.43
JUSPD296	76.20	88.70	12.50	0.33	0.26	1.27		CD027	76.11	88.50	12.39	0.31	0.72	1.19
JUSPD368	17.70	21.40	3.70	0.14	0.10	0.67		CD028	17.60	21.00	3.40	0.25	0.04	0.46
JUSPD368	29.70	40.00	10.30	0.21	2.85	0.43		CD028	28.00	38.45	10.45	0.09	1.58	0.35
JUSPD368	47.00	58.00	11.00	0.35	0.63	0.27		CD028	46.00	58.19	12.19	0.28	1.14	0.52
JUSPD368	63.65	85.70	22.05	0.33	0.18	1.54		CD028	63.35	83.00	19.65	0.38	0.19	2.03
JUSPD066	42.52	52.00	9.48	0.38	0.09	1.20		CD029	42.00	51.00	9.00	0.24	0.04	0.90
JUSPD066	54.22	58.88	4.66	0.57	0.73	1.65		CD029	54.00	58.50	4.50	0.48	0.68	1.30
JUSPD066	65.00	72.00	7.00	0.21	0.09	0.23		CD029	64.93	72.86	7.93	0.26	0.25	0.14
JUSPD300	81.60	140.63	59.03	0.91	0.56	3.52		CD030	81.37	143.90	62.53	0.81	0.34	3.78
JUSPD300	24.00	26.70	2.70	0.87	0.98	7.61		CD030	23.00	26.00	3.00	0.06	0.98	0.00
JUSPD300	37.00	64.55	27.55	0.15	0.28	0.86		CD031	39.00	63.50	24.50	0.79	1.17	3.62
JUSPD295	33.00	45.20	12.20	0.91	0.50	2.02		CD031	32.10	42.80	10.70	0.54	0.13	1.07
JUSPD295	70.10	78.80	8.70	0.17	0.21	0.36		CD031	70.00	78.92	8.92	0.26	1.13	0.61
JUSPD295	86.40	99.00	12.60	0.82	2.53	3.87		CD031	86.70	99.00	12.30	0.40	0.23	1.47
JUSPD295	112.00	127.80	15.80	0.87	0.63	3.57		CD032	11.55	127.65	16.10	0.62	1.01	2.17
JUSPD385	45.00	72.10	27.10	0.42	0.20	0.54		CD032	45.00	71.84	26.84	0.23	0.14	0.42
JUSPD385	84.00	103.80	19.80	0.27	0.17	1.47		CD032	83.00	104.00	21.00	0.13	0.13	0.06
JUSPD385	103.20	14.60	0.83	0.22	4.04			CD033	11.00	124.00	13.00	0.77	0.19	2.42
JUSPD352	35.20	42.50	7.30	0.09	1.20	0.25		CD033	35.00	42.00	7.00	0.02	0.56	0.10
JUSPD352	45.00	47.80	2.80	0.85	0.58	0.79		CD033	45.00	48.00	3.00	0.56	0.41	1.02
JUSPD352	50.60	59.00	8.40	0.42	3.47	0.35		CD033	50.70	59.35	8.65	0.34	2.66	1.13
JUSPD352	62.00	71.20	9.20	0.92	1.07	5.00		CD033	61.80	72.00	10.20	1.24	0.91	7.73
JUSPD352	80.55	87.00	6.45	0.63	0.12	2.29		CD033	81.30	86.90	5.60	0.67	0.16	2.27
JUSPD221	46.97	52.23	5.26	0.50	0.02	0.84		CD034	48.00	54.60	6.60	0.14	0.01	0.36
JUSPD221	59.00	77.92	18.92	0.53	0.53	1.60		CD034	60.25	78.00	17.75	0.62	0.48	2.31

The location of exiting twin holes is illustrated in Figure 11-13.

Figure 11-13: Twin Hole Locations.



Source: Meridian, 2022. Geology and workings adapted from GIS files of PML (based on original BMP maps)

The twin hole composite comparisons show good accuracy but poor precision between the original and the recent drillholes with any bias between the two data sets as not being significant under the Chi2 test. It is noted that the original analytical methods employed a three-acid digest for the base metal mineralization, compared to a four-acid total digest in the current program.

11.5 Density

Density measurements were taken on core samples via the immersion in water method, i.e., weight in air weight in water – Archimedes method.

For weathered samples, representative sections of whole core, 10-15 cm in length, from different domains of the overburden and weathered basement were selected for measurement (typically 3 – 5 samples per hole). If samples could not be processed immediately, they were wrapped in plastic cling wrap and placed in a refrigerator to preserve moisture content and measured at the earliest opportunity. The clingfilm wrap retains any natural air in porous core (although the Cabaçal weathered core is not vuggy).

A SCOUT – SPX Scale was used to weigh the samples, with an upper capacity of 6.2 kg, measuring in increments of 0.1 g (Figure 11-14). The scale was zeroed before each sample.

Figure 11-14: Density Weighing and Immersion Station.

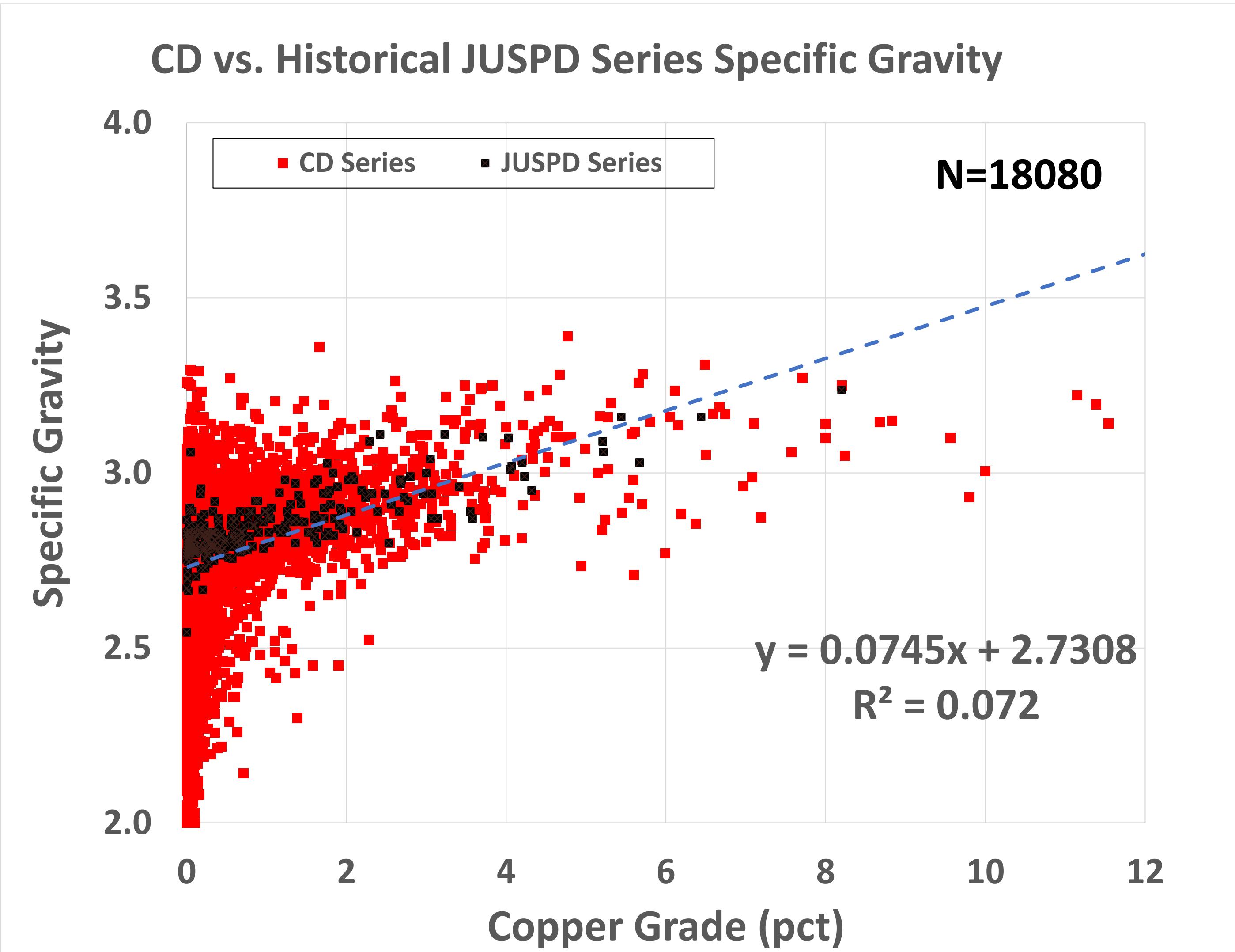
Source: Meridian.

Initially, for holes up to CD131, readings were conducted on fresh rock samples of representative sections of half core, 10 to 15cm in length. Samples from the oxide zone were weighed first in their moist state, then dried in an oven at 105° for two hours (based of tests of moisture loss) and re-weighed to determine moisture content. Density on fresh core from basement samples was made on half core after cutting, with no coating of the sample being necessary. For holes after CD132, the procedure was adjusted to take readings on full half-core sample intervals, with the cut core inserted into a suspended PVC cradle.

To the resource cut-off date, 18,565 readings have been taken from Meridian's drilling campaign, summarized by rock code, weathering and mineralization in Table 11-8 and illustrated in Figure 11-15 and Figure 11-16. This compares to 361 records recovered from the historical record, which are paired with assay data. The limited historical data associated with the JUSPD holes will likely mean that there are not sufficient data points to interpolate density block values for all areas of the deposit and default values will need to be assigned to modelled lithological / mineralization domains.

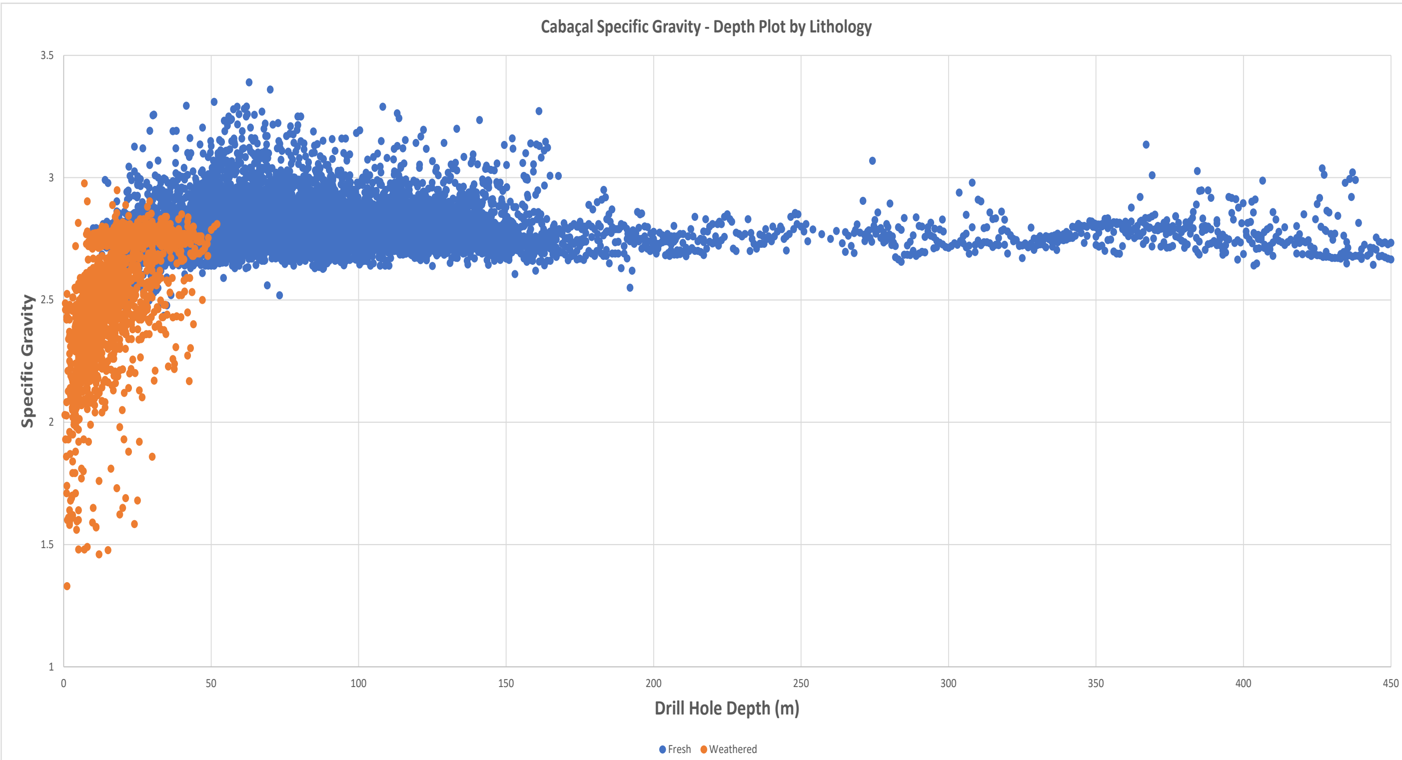
Charting copper grade against density data from Meridian's drilling show a general increase in density with copper grade that was seen in the historical JUSPD series of holes. However, other sulphide minerals (pyrite, pyrrhotite, sphalerite) and oxide minerals (magnetite) contribute to rock mass density, creating a spread of values (Figure 11-15). A plot of density against hole depth and weathered status (Figure 11-16) shows the reduction in density with decreasing downhole depths (focussed principally in the 0-25m depth range).

Figure 11-15: 2021-2022 Drill Campaign Density Plot Against Copper Grade.



Source: Meridian.

Figure 11-16: Density Plot Against Drill Hole Depth.



Source: Meridian. Reduction in density evident in upper meterage transitioning to saprolite.

Table 11-8: Density by Lithology, Meridian Drilling Campaign.

Lithology	Fresh – Barren				Fresh – Mineralized			
	Number	Average	Max	Min	Number	Average	Max	Min
TAC/VAP	1332	2.73	3.07	2.56	1	2.8	2.8	2.8
AVA	48	2.75	2.82	2.64	3	2.78	2.84	2.75
AVI	40	2.78	2.88	2.7	1	2.85		
CHB	968	2.76	3.09	2.52	690	2.8	3.26	2.57
CTB	6610	2.78	3.26	2.36	4126	2.82	3.39	2.48
DIA	20	2.8	2.88	2.53	1	2.66		
GBR	43	2.95	3.07	2.8	1	3		
QZVN	32	2.73	2.88	2.63	63	2.79	3.26	2.64
ZBI	63	2.82	3.29	2.65	60	2.88	3.24	2.69
ZCL	371	2.84	3.29	2.44	646	2.91	3.31	2.52
Lithology	Weathered – Barren				Weathered – Mineralized			
	Number	Average	Max	Min	Number	Average	Max	Min
TAC/VAP	6	2.66	2.78	2.39				
AVA	84	2.41	2.81	1.36				
AVI								
CHB	815	2.47	2.9	1.44	321	2.58	2.86	1.77
CTB	1172	2.48	2.98	1.48	512	2.6	2.95	1.79
DIA	11	2.82	2.92	2.52	1	2.66	2.66	2.66
GBR	5	1.97	2.82	1.34	3	2.16	2.52	1.53
QZVN	10	2.52	2.6	2.44				
ZBI								
ZCL	2	2.65	2.75	2.55	5	2.47	2.66	2.2
SOL	11	1.76	2.45	1.52				

SOL	Soil
TAC/VAP	Acid Tuff/Porphyritic Acids Volcanic (Footwall)
AVA	Acid Metavolcanics
AVI	Intermediate Metavolcanics
CHB	Banded Chert
CTB	Banded Tuffaceous Chert
DIA	Diabase Dyke
GBR	Gabbro
QZVN	Quartz vein
ZBI	Biotite Zone
ZCL	Chlorite Zone

11.6 Opinion on Adequacy

The security procedures designed to prevent sample interference are acceptable.

The sample preparation and analytical procedures are to industry standard and are acceptable.

Meridian's QAQC program is of an acceptable level and conforms to common industry practice. The following is a summary of outcomes:

- The standards indicate minor issues with the analytical results. Reports were reissued to correct for a slight under-reporting lower grade copper results from the early stages of the program (0.1 – 1% Cu grade range), some of the lower grade gold standards with SGS indicate significant variability but generally no bias;
- Assay results for blank standards show no issues with contamination;
- Field duplicates from diamond core show typical scatter associated with this type of sampling but there are no significant biases in the data;
- A collection of lab duplicate samples (second pulp samples) has indicated no issue with the sample homogenization and subsequent acid digest and analysis. There is some expected variation in lower grade samples but no indication of systematic bias.
- Additional samples have been sent for umpire analysis indicate some variability with gold but no obvious bias, a small silver bias with the ALS samples and a well behaved set of results for copper;
- No coarse reject samples have been tested; and
- Results from twin holes show no bias between modern results and historical results to date.

The density data measuring method is appropriate, and the results are reasonable.

Improvements with the QAQC programme could include company-selected lab duplicates and umpire lab samples as a substantial number of samples were close to the lower detection limit for gold and therefore of limited use. Company-nominated samples could also allow for more higher grades to be included in the check work. At the moment, there are too few high grade gold samples in the lab duplicate programme.

12 DATA VERIFICATION

H&SC used publicly available geoscientific data from the CPRM available from the CPRM (GEOSGB online geological GIS data) and ANM (SIGMINE online mineral licence GIS data) in an appropriate industry standard GIS software package to successfully verify some of the diagrams created by Meridian.

A three-day site visit to the Cabaçal project was completed by Marcelo Batelochi of MB Geologia Ltda, (Belo Horizonte, Minas Gerais, Brazil) on between the 7th to 11th June 2021. A second visit was made between the 29th August to 1st September, 2022. On both visits, he was accompanied by the Project Staff and Dr Adrian McArthur – Chief Executive Officer, President & Director of Meridian, and Company QP. The visit included:

- An inspection of historical drill core stored at UFMT in Cuiabá, capital of Mato Grosso;
- A review of scanned historical maps, reports, and ledgers from the RTZ archives;
- An inspection of various exposures around the historical workings at the Cabaçal Mine;
- A review of the current drill sites, and rig set up procedures;
- A review of the current drill core for geological understanding;
- A review of the Meridian logging and sampling procedures;
- A review of the data compilation protocols for historical data and data flow for the current program;
- Field checks of a selection of recent and historical drill collars; and
- Checks of a selection of assay records in the MSAccess database against original laboratory reports and assay ledgers.

The field practices, management and storage system for the data reviewed during the site visit is in accordance with good practices. The field inspection of the drill holes confirmed their location in accordance with database records. It is recommended that, as the project advances towards Prefeasibility Studies (PFS), a robust database management software is implemented, which provides more formal tools for storage, data validation and extraction and plotting routines.

12.1 Collar Locations

Checks were undertaken by Independent QP Mr. Marcelo Batelochi during the site visits. Verification of collar locations consisted of recording X and Y coordinates of selected drillholes using a handheld GPS and comparing the coordinates with the data written on the tagged collars located on the ground (Figure 12-1). (Z coordinates in this case are not relevant due to the acknowledged elevation errors associated with the use of handheld GPS devices). Collar tags for 25 drill holes were checked comprising 13 current holes and 12 historical holes (Figure 12-1; Figure 12-2). These sets of coordinates were then compared with the coordinates in the digital database. The collar locations from the handheld GPS show that the database coordinates are acceptable, indicating a difference of <10 m in any horizontal direction for most instances (Figure 12-1). The database and drill holes planned to date coordinates has been recorded in the SAD69 UTM datum, to facilitate ease of planning with the historical database, maps, and development, all of which have been registered in this coordinate system. Meridian has now migrated to the SIRGAS2000 datum during the second drill campaign.

Figure 12-1: Drill Hole Location Quick Check Procedure.

Source: Meridian, 2022. CD0017 (current campaign) and JUSPD101 (Historical).

Figure 12-2: Drill Hole Location of AMCD15005.

Hole Id: AMCD15005	x	y
Geodesic Coords (SIRGAS2000)	370,269.80	8,303,646.44
Coords from Hand GPS	370,271.00	8,303,646.00
SAD69 Coords (Database)	370,324.26	8,303,687.70
Coords at the Collar Tag (SAD 69)	370,320.00	8,303,690.00
Dist Database/Collar tag (SAD69)		4.84

Source: Meridian, 2022 Avanco hole AMCD15005. Showing marker coordinates compared to database (UTM|SAD69| 21L zone).

Table 12-1: Collar Field Checks Conducted During Site Visit By Independent QP, June 2021

Hole ID	SAD69 Coords (Database)		Geodesic Coords (SIRGAS2000)		Coords from Hand GPS		X and Y Difference (m)
	X	Y	X	Y	X	Y	
Historical Drill Holes (80's)							
JUSPD589	370,672.67	8,303,832.03	370618.21	8,303,790.77	370,619	8,303,791	0.8
JUSPD101	370,355.91	8,303,715.47	370,301.45	8,303,674.21	370,302	8,303,674	0.6
JUSPD025	370,492.06	8,303,861.04	370,437.60	8,303,819.78	370,484	8,303,862	8.1
JUSPD104	370,488.63	8,303,857.62	370,434.17	8,303,816.36	370,481	8,303,858	7.6
JUSPD265	370,395.17	8,304,009.68	370,340.71	8,303,968.42	370,336	8,303,969	4.7
JUSPD110	370,309.59	8,304,048.53	370,255.13	8,304,007.27	370,254	8,304,008	1.3
JUSPD541	370,193.20	8,303,947.78	370,138.74	8,303,906.52	370,138	8,303,906	0.9
JUSPD376	369,173.29	8,304,454.32	369,118.83	8,304,413.06	369,119	8,304,413	0.2
JUSPD101	370,355.91	8,303,715.47	370,301.45	8,303,674.21	370,302	8,303,674	0.6
JUSPD589	370,672.67	8,303,832.03	370,618.21	8,303,790.77	370,619	8,303,791	0.8
JUSPD375	369,109.46	8,304,468.22	369,055.00	8,304,426.96	369,058	8,304,425	3.6
Current Drilling Campaign and Avanco Due Dilligence (2015)							
CD002	370,654.14	8,303,822.59	370,599.68	8,303,781.33	370,600	8,303,782	0.7
CD004	370,354.47	8,303,748.30	370,300.01	8,303,707.04	370,300	8,303,706	1.0
CD006	370,353.63	8,303,747.31	370,299.17	8,303,706.05	370,299	8,303,705	1.1
CD009	370,353.61	8,303,746.55	370,299.15	8,303,705.29	370,299	8,303,703	2.3
CD003	370,358.46	8,303,716.43	370,304.00	8,303,675.17	370,304	8,303,672	3.2
AMCD15005	370,324.26	8,303,687.70	370,269.80	8,303,646.44	370,271	8,303,646	1.3
CD018	370,363.12	8,304,008.26	370,308.66	8,303,967.00	370,306	8,303,969	3.3
CD021	370,382.60	8,303,997.58	370,328.14	8,303,956.32	370,327	8,303,956	1.2
CD020	370,392.92	8,303,997.46	370,338.46	8,303,956.20	370,336	8,303,955	2.7
CD017	370,395.16	8,304,010.68	370,340.70	8,303,969.42	370,341	8,303,969	0.5
CD008	370,390.78	8,304,027.36	370,336.32	8,303,986.10	370,336	8,303,981	5.1
CD007	370,376.35	8,304,012.73	370,321.89	8,303,971.47	370,320	8,303,972	2.0
CD005	370,375.92	8,304,012.28	370,321.46	8,303,971.02	370,320	8,303,972	1.8

A marker for JUSPD230, originally considered dislocated from the database position in the June 2021 field inspection, was subsequently found not to have been in situ.

Drillhole collar verification from the second site visit comprised identifying drillholes from the collar tags on 31 Meridian drill pads and then recording collar coordinates using a handheld GPS (Table 12-2). These sets of coordinates were then compared with the coordinates in the digital database. The collar locations from the handheld GPS show that the database coordinates are acceptable, indicating a difference of <10m in any horizontal direction for most instances.

Table 12-2: Collar Field Checks Conducted During Site Visit By Independent QP, September 2022.

Hole ID	SAD69 Coords (Database)		Geodesic Coords (SIRGAS2000)		Coords from Hand GPS		X and Y Difference (m)
	X	Y	X	Y	X	Y	
Historical Drill Holes (80's)							
JUSPD589	370,672.67	8,303,832.03	370,618.21	8,303,790.77	370,619	8,303,791	0.8
JUSPD101	370,355.91	8,303,715.47	370,301.45	8,303,674.21	370,302	8,303,674	0.6
JUSPD025	370,492.06	8,303,861.04	370,437.60	8,303,819.78	370,484	8,303,862	8.1
JUSPD104	370,488.63	8,303,857.62	370,434.17	8,303,816.36	370,481	8,303,858	7.6
JUSPD265	370,395.17	8,304,009.68	370,340.71	8,303,968.42	370,336	8,303,969	4.7
JUSPD110	370,309.59	8,304,048.53	370,255.13	8,304,007.27	370,254	8,304,008	1.3
JUSPD541	370,193.20	8,303,947.78	370,138.74	8,303,906.52	370,138	8,303,906	0.9
JUSPD376	369,173.29	8,304,454.32	369,118.83	8,304,413.06	369,119	8,304,413	0.2
JUSPD101	370,355.91	8.303,715.47	370,301.45	8,303,674.21	370,302	8,303,674	0.6
JUSPD589	370,672.67	8,303,832.03	370,618.21	8,303,790.77	370,619	8,303,791	0.8
JUSPD375	369,109.46	8,304,468.22	369,055.00	8,304,426.96	369,058	8,304,425	3.6

Current Drilling Campaign and Avanco Due Dilligence (2015)							
CD002	370,654.14	8,303,822.59	370,599.68	8,303,781.33	370,600	8,303,782	0.7
CD004	370,354.47	8,303,748.30	370,300.01	8,303,707.04	370,300	8,303,706	1.0
CD006	370,353.63	8,303,747.31	370,299.17	8,303,706.05	370,299	8,303,705	1.1
CD009	370,358.46	8,303,746.55	370,299.15	8,303,705.29	370,299	8,303,703	2.3
CD003	370,358.46	8,303,716.43	370,304.00	8,303,675.17	370,304	8,303,672	3.2
AMCD15005	370,324.26	8,303,687.70	370,269.80	8,303,646.44	370,271	8,303,646	1.3
CD018	370,363.12	8,304,008.26	370,308.66	8,303,967.00	370,306	8,303,969	3.3
CD021	370,382.60	8,303,997.58	370,328.14	8,303,956.32	370,327	8,303,956	1.2
CD020	370,392.92	8,303,997.46	370,338.46	8,303,956.20	370,336	8,303,955	2.7
CD017	370,395.16	8,304,010.68	370,340.70	8,303,969.42	370,341	8,303,969	0.5
CD008	370,390.78	8,304,027.36	370,336.32	8,303,986.10	370,336	8,303,981	5.1
CD007	370,376.35	8,304,012.73	370,321.89	8,303,971.47	370,320	8,303,972	2.0
CD005	370,375.92	8,304,012.28	370,321.46	8,303,971.02	370,320	8,303,972	1.8

A marker for JUSPD230, originally considered dislocated from the database position in the June 2021 field inspection, was subsequently found not to have been in situ.

Drillhole collar verification from the second site visit comprised identifying drillholes from the collar tags on 31 Meridian drill pads and then recording collar coordinates using a handheld GPS (Table 12-2). These sets of coordinates were then compared with the coordinates in the digital database. The collar locations from the handheld GPS show that the database coordinates are acceptable, indicating a difference of <10m in any horizontal direction for most instances.

Table 12-3: Collar Field Checks Conducted During Site Visit By Independent QP, September 2022.

Hole ID	Datum/UTM Zone	Handheld GPS X	Handheld GPS Y	Handheld GPS Z	Database X	Database Y	Database Z	Dist XY	Dist Z
CD065	WGS84/21L	370,721.13	8,303,245.45	251.48	370,721.24	8,303,245.83	267.66	0.395	-16.19
CD073	WGS84/21L	370,681.80	8,303,349.12	248.91	370,682.84	8,303,350.87	262.45	2.038	-13.54
CD076	WGS84/21L	370,635.64	8,303,445.44	243.59	370,636.66	8,303,446.75	257.24	1.661	-13.65
CD161	WGS84/21L	370,686.04	8,303,493.52	243.82	370,684.21	8,303,496.49	256.54	3.489	-12.72
CD175	WGS84/21L	370,763.80	8,303,429.56	250.47	370,763.24	8,303,431.03	262.81	1.573	-12.34
CD157	WGS84/21L	370,806.97	8,303,331.89	254.97	370,808.13	8,303,332.66	266.90	1.397	-11.92
CD052	WGS84/21L	370,642.03	8,303,665.64	248.20	370641.69	8,303,666.97	256.18	1.371	-7.98
CD124	WGS84/21L	370,403.84	8,303,947.31	260.92	370,404.52	8,303,948.78	270.11	1.618	-9.19
CD088	WGS84/21L	370,291.57	8,303,884.84	245.77	370,293.45	8,303,884.70	252.94	1.885	-7.16
CD062	WGS84/21L	370,292.71	8,303,910.51	254.05	370,291.81	8,303,912.57	261.23	2.245	-7.17
CD048	WGS84/21L	370,069.58	8,303,936.15	260.59	370,068.19	8,303,936.65	268.75	1.483	-8.15
CD102	WGS84/21L	370,048.22	8,303,916.56	260.58	370,048.52	8,303,917.96	267.79	1.434	-7.21
CD047	WGS84/21L	370,060.03	8,303,859.32	257.31	370,059.66	8,303,858.68	263.85	0.740	-6.54
CD128	WGS84/21L	370,100.68	8,303,827.68	256.13	370,100.16	8,303,828.67	262.36	1.109	-6.22
CD111	WGS84/21L	370,116.13	8,303,771.79	249.89	370,115.17	8,303,773.22	256.69	1.720	-6.80
CD098	WGS84/21L	370,208.32	8,303,796.86	249.15	370,209.07	8,303,796.87	255.90	0.748	-6.75
CD085	WGS84/21L	370,384.90	8,303,820.20	248.73	370,385.61	8,303,818.80	252.39	1.563	-3.66
CD012	WGS84/21L	370,386.42	8,303,818.55	248.87	370,386.63	8,303,819.36	252.39	0.842	-3.51
JUSPD076	WGS84/21L	370,389.95	8,303,820.89	248.82	370,386.84	8,303,819.62	252.74	3.351	-3.92
CD089	WGS84/21L	369,883.93	8,304,170.43	315.69	369,882.86	8,304,170.26	321.20	1.081	-5.51
CD056	WGS84/21L	369,775.51	8,304,226.43	320.43	369,775.14	8,304,226.71	325.95	0.440	-5.52
JUSPD212	WGS84/21L	369,704.79	8,304,238.57	311.77	369,702.37	8,304,240.35	318.26	3.002	-6.49
CD138	WGS84/21L	369,657.23	8,304,276.36	317.83	369,656.04	8,304,276.07	321.52	1.232	-3.69
CD046	WGS84/21L	369,626.11	8,304,370.22	336.30	369,626.14	8,304,370.00	340.28	0.224	-3.98
CD122	WGS84/21L	370,151.30	8,304,029.87	287.33	370,151.96	8,304,031.25	287.10	1.531	0.23
CD115	WGS84/21L	370,007.12	8,304,008.27	278.01	370,006.16	8,304,009.59	280.41	1.638	-2.40
CD072	WGS84/21L	369,533.14	8,304,483.21	344.47	369,531.70	8,304,483.85	350.78	1.577	-6.30
CD097	WGS84/21L	370,322.89	8,303,946.97	269.89	370,319.83	8,303,949.31	270.02	3.858	-0.12
CD081	WGS84/21L	370,589.57	8,303,543.76	253.13	370,587.63	8,303,543.89	253.44	1.742	-0.32
CD054	WGS84/21L	369,847.76	8,304,150.53	309.98	369,848.22	8,304,149.97	314.72	0.729	-4.74
CD132	WGS84/21L	369,570.80	8,304,335.73	320.28	369,571.50	8,304,336.15	324.50	0.821	-4.22

Only minor issues were noted during the site inspection:

- Collar coordinates labelled for historical hole AMCD15005 were moderately different to the database coordinates; Company staff confirmed that database coordinates are based on DGPS survey control, whilst those marked on the collar are from handheld GPS; the collar marker will be updated;
- The collar tags on the June 2021 visit were not marked with any Datum, although details of the data are recorded in the database. Meridian subsequently has included a stamp for the datum for new drillholes;
- Not all historical collar tags could be found. In some cases, the historical pads are preserved but the collars have been buried. Hole positions have historical survey control and where collar marks are not preserved, often the drill pad is still visible. Various collars have been located by scraping the ground. It is recommended that new tags are assigned to the hole collars as they are located.
- Eleven new holes were not marked with metal tags during field inspection – Meridian advises that temporary markers will be replaced by metal tags, with the program ongoing.

Meridian has transitioned to the use of SIRGAS coordinates in the database for compliance with Brazilian National Instrument from ANM: DNPM Ordinance No. 76/2015.

In the opinion of the independent QP (Batelochi, 2021, 2022), current procedures for locating drillholes are in accordance with good practices. Recommendations to consolidate the database for future Mineral Resources estimation and feasibility studies include:

- Continue to review historical drillhole collars in the field and compare to the database collar table;
- Supplement Company survey control with checks by an independent surveyor; and
- Historical downhole surveys are limited in number as most holes were vertical where deviation from planned hole traces is considered to be very limited. No checks with the original logs and the drillhole database were completed.

12.2 Geological Verification

Geology and mineralization were seen in the cores of the historical drillholes, at UFMT Facilities, and the current drilling campaign, at the Cabaçal Project facilities. The observations in the field corroborate what has been written in both earlier BPM and RTZ reports, and more recent PML reports, and reports released by Meridian.

During the June 2021 review, eleven drill holes were reviewed and checked for 1,575.73m of drilling:

- CD022 (Meridian surface diamond drill hole; 133.31m);
- CD023 (Meridian surface diamond drill hole; 151.50m);
- CD024 (Meridian surface diamond drill hole; 170.71m);
- CD025 (Meridian surface diamond drill hole; 156.72m);
- AMCD15004 (Avanco diamond drill hole; 157.55m);
- AMCD15005 (Avanco diamond drill hole; 211.55);
- CAIFS034 (RTZ underground diamond drill hole; 53.12m);
- JUCHD029 (BPM surface diamond drill hole; 181.93m);
- JUCHD076 (BPM surface diamond drill hole; 133.18m);
- JUCHD034 (BPM surface diamond drill hole; 104.14m); and
- JUSPD384 (BPM surface diamond drill hole; 122.02m).

During the August 2022 review, twelve drill holes were reviewed and checked for 1,663.91m of drilling:

- CD052 (Meridian surface diamond drill hole; SE Extension: 109.3m);
- CD073 (Meridian surface diamond drill hole; SE Extension: 166.2m);
- CD081 (Meridian surface diamond drill hole; SE Extension: 139.24m);
- CD072 (Meridian surface diamond drill hole; NW Extension: 115.11m);
- CD115 (Meridian surface diamond drill hole; NW Extension: 124.16m);
- CD132 (Meridian surface diamond drill hole; NW Extension: 148.35m);

- CD141 (Meridian surface diamond drill hole; NW Extension: 172.43m);
- CD054 (Meridian surface diamond drill hole; NW Extension: 186.56m);
- CD088 (Meridian surface diamond drill hole; Central Copper Zone: 100.4m);
- CD085 (Meridian surface diamond drill hole; Central Copper Zone: 137.22m);
- CD097 (Meridian surface diamond drill hole; Eastern Copper Zone: 104.89m); and
- CD098 (Meridian surface diamond drill hole; Southern Copper Zone: 160.05m).

As discussed with the current Cabaçal Project Geologists, the QP supports the continuous improvement of the geological understanding of the deposit, to continue the procedures of detailed mapping of lithology, structure, alteration, and mineralization on drill holes, trenches, and other exploration activities. Relogging is recommended for the more recent Avanco drillholes on account of a different set of logging codes being used. This will make the logging compatible with the current database system as well as acquiring data that had not previously been digitally compiled.

Drill core handling and mark-up procedures were reviewed during the site visits and are considered by the QP of a high-standard suitable for Mineral Resource estimates.

12.3 Historical Core Resampling.

Meridian's program to validate the assay results of the historical drill database includes a resampling program of historical core held at UFMT, and a twin hole drilling program. These programs compare the results of historical assays from the extensive drilling database of Cabaçal recovered from Rio Tinto to recent drilling and analytical laboratory results. The stored core is in good condition and the impact of post-drilling oxidation is considered minimal.

A total of 355 samples were analysed by Meridian from the UFMT core collection, with the following core sizes being available:

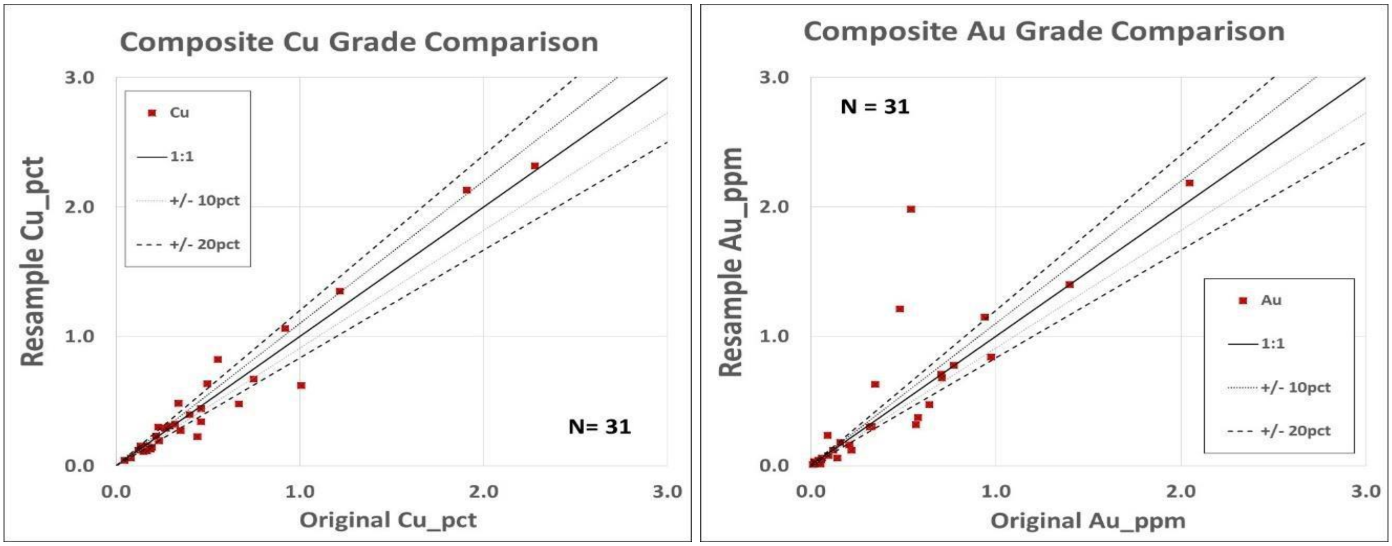
- JUSPD029 (CCZ) – quarter core;
- JUSPD050 (SCZ) – half core;
- JUSPD076 (CCZ) – quarter core;
- JUSPD114 (CCZ) – quarter core;
- JUSPD127 (SCZ) – quarter core; and
- JUSPD135 (SCZ) – quarter core.

Core intervals were marked up for sampling based on available core blocks and tray annotation. Comparison of length-weighted composited intervals for the historical results with the recent analyses indicates good accuracy (Table 12-3; Figure 12-3). The comparisons of the raw data for both gold and copper show good accuracy with moderate precision with any bias between the two data sets, original and recent, as not being significant under the Chi2 test (Figure 12-4).

Table 12-4: Composites from Original Analyses and Resampling Results on Historical Core.

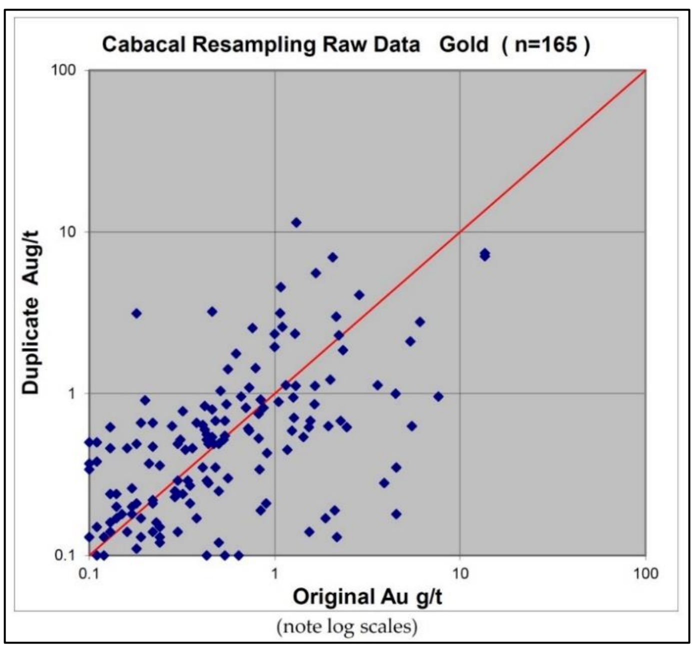
Hole ID	From	To	Interval	Original Composited Grade				Meridian Composited Grade			
				Cu_pct	Au_g/t	Ag_g/t	Zn_pct	Cu_pct	Au_g/t	Ag_g/t	Zn_pct
JUSPD050	44.00	45.81	1.81	0.18	0.04	2.82	0.02	0.13	0.04	0.46	0.02
JUSPD050	70.50	74.00	3.50	0.92	0.71	2.02	0.04	1.06	0.71	2.01	0.04
JUSPD050	84.06	86.00	1.94	0.32	0.12	0.35	0.01	0.32	0.12	0.50	0.01
JUSPD050	91.00	94.00	3.00	0.12	0.77	0.30	0.01	0.12	0.77	0.53	0.01
JUSPD050	98.10	140.00	41.90	1.22	1.40	2.97	0.09	1.35	1.40	3.11	0.08
JUSPD076	22.82	54.90	32.08	0.29	0.02	0.92	0.05	0.31	0.03	0.92	0.01
JUSPD076	60.52	70.09	9.57	0.27	0.06	0.03	0.01	0.29	0.06	0.08	0.01
JUSPD076	77.23	83.81	6.58	1.01	0.33	0.08	0.04	0.62	0.30	2.11	0.08
JUSPD076	85.59	93.06	7.47	0.75	0.35	4.05	0.10	0.67	0.63	3.21	0.10
JUSPD076	93.06	101.95	8.89	2.28	0.54	12.26	0.27	2.32	1.98	9.56	0.28
JUSPD029	87.54	93.00	5.46	0.08	0.16	0.00	0.01	0.06	0.18	0.32	0.01
JUSPD029	99.00	103.00	4.00	0.15	0.58	1.31	0.01	0.11	0.37	0.49	0.01
JUSPD029	108.70	118.00	9.30	1.91	0.71	10.70	0.13	2.13	0.68	0.49	0.14
JUSPD114	53.25	58.19	4.94	0.17	0.02	0.12	n/a	0.16	0.01	11.50	0.01
JUSPD114	61.88	65.85	3.97	0.20	0.05	0.09	n/a	0.14	0.01	0.33	0.01
JUSPD114	70.00	74.00	4.00	0.23	0.06	0.10	n/a	0.20	0.05	0.58	0.03
JUSPD114	85.23	96.84	11.61	0.40	0.94	0.52	n/a	0.40	1.15	0.82	0.02
JUSPD114	101.02	107.88	6.86	0.46	0.57	2.85	n/a	0.44	0.32	2.54	0.04
JUSPD114	114.55	116.67	2.12	0.55	0.32	2.14	n/a	0.82	0.30	3.80	0.08
JUSPD127	26.00	30.00	4.00	0.35	0.03	0.10	n/a	0.27	0.02	0.60	0.04
JUSPD127	46.00	53.90	7.90	0.19	0.97	0.16	n/a	0.13	0.84	0.38	0.01
JUSPD127	57.00	61.00	4.00	0.67	0.48	0.68	n/a	0.48	1.21	0.93	0.05
JUSPD127	65.00	76.00	11.00	0.44	0.64	1.98	n/a	0.23	0.47	0.92	0.01
JUSPD127	80.00	85.00	5.00	0.34	0.09	1.52	n/a	0.48	0.08	2.30	0.10
JUSPD127	90.00	95.00	5.00	0.23	0.14	1.38	n/a	0.23	0.06	1.48	0.02
JUSPD127	98.65	105.65	7.00	0.17	0.21	0.39	n/a	0.12	0.16	0.58	0.01
JUSPD135	29.45	32.46	3.01	0.22	0.01	0.00	n/a	0.23	0.01	0.42	0.02
JUSPD135	37.97	41.00	3.03	0.14	0.02	0.00	n/a	0.16	0.02	1.05	0.05
JUSPD135	52.36	63.36	11.00	0.46	2.05	0.35	n/a	0.34	2.18	1.15	0.01
JUSPD135	67.71	71.27	3.56	0.50	0.22	0.82	n/a	0.63	0.12	2.52	0.03
JUSPD135	78.38	82.00	3.62	0.05	0.09	0.00	n/a	0.04	0.23	0.76	0.01

Figure 12-3: UFMT Historical Core Resampling Results



Source: Meridian, 2022. Composite Grade Comparison: JUSPD050, JUSPD029, JUSPD076, JUSPD114, JUSPD127, JUSPD135

Figure 12-4: Example of Raw Data Comparison from UFMT Historical Core Resampling – Gold



Source: H&SC, 2021. Raw Data plot for JUSPD050, JUSPD029, JUSPD076, JUSPD114, JUSPD127, JUSPD135.

12.4 Opinion on Adequacy

It is the QP’s opinion that the data are robust and suitable for use in the current Mineral Resource estimate.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The Cabaçal Project is a copper, gold-silver-deposit in Brazil, which had been previously explored and operated by BPM and RTZ (now Rio Tinto). It produced a copper-gold concentrate by a flotation and gravity concentration recovery process. In 2022, test samples from the site were collected, and sent to SGS Lakefield ("SGS-L") in Canada for metallurgical testing The test program was completed in September 2022. Per the request of Meridian Mining, Joseph M. Keane, P.E., and independent Mineral Processing Engineer Consultant, reviewed the metallurgical test data for Cabaçal project and authored this section of the NI43-101 report.

13.1 Historical Metallurgical Tests of Cabaçal

An historical testwork study was conducted in 1985 at the laboratories of The Centre for Mineral Technology ("CETEM"), a research institute of the Ministry of Science, Technology and Innovations located in Rio de Janeiro. The study utilized drill core to produce concentrates of copper-gold mineralization from Cabaçal, and involved also vibrating table tests and subsequent magnetic separation of samples of gold pre-concentrates to evaluate a flotation process route followed by gravimetric concentration of flotation tailings.

Table 13-1 summarizes the best test done by CETEM in May 1985:

Table 13-1: Best Test Results

Products	Test 11 – 10 Min					Test 11 – 8 Min				
	Weight (%)	Au		Cu		Weight (%)	Au		Cu	
		g/t	Dist - %	%	Dist - %		g/t	Dist - %	%	Dist - %
Concentrate Flotation	5.00	201.00	88.20	12.30	97.60	4.70	165.00	88.10	11.90	96.40
Concentrate Gravimetry	9.70	79.40	4.90	0.07	0.10	0.80	8.00	2.50	0.08	0.10
Reject Gravimetry	94.30	0.82	6.90	0.02	2.30	94.50	0.88	9.40	0.02	3.50
Feeding	100.00	11.40	100.00	0.63	100.00	100.00	8.80	100.00	0.58	100.00
P80	P80 < 150## (104µm)					P80 < 100## (147µm)				

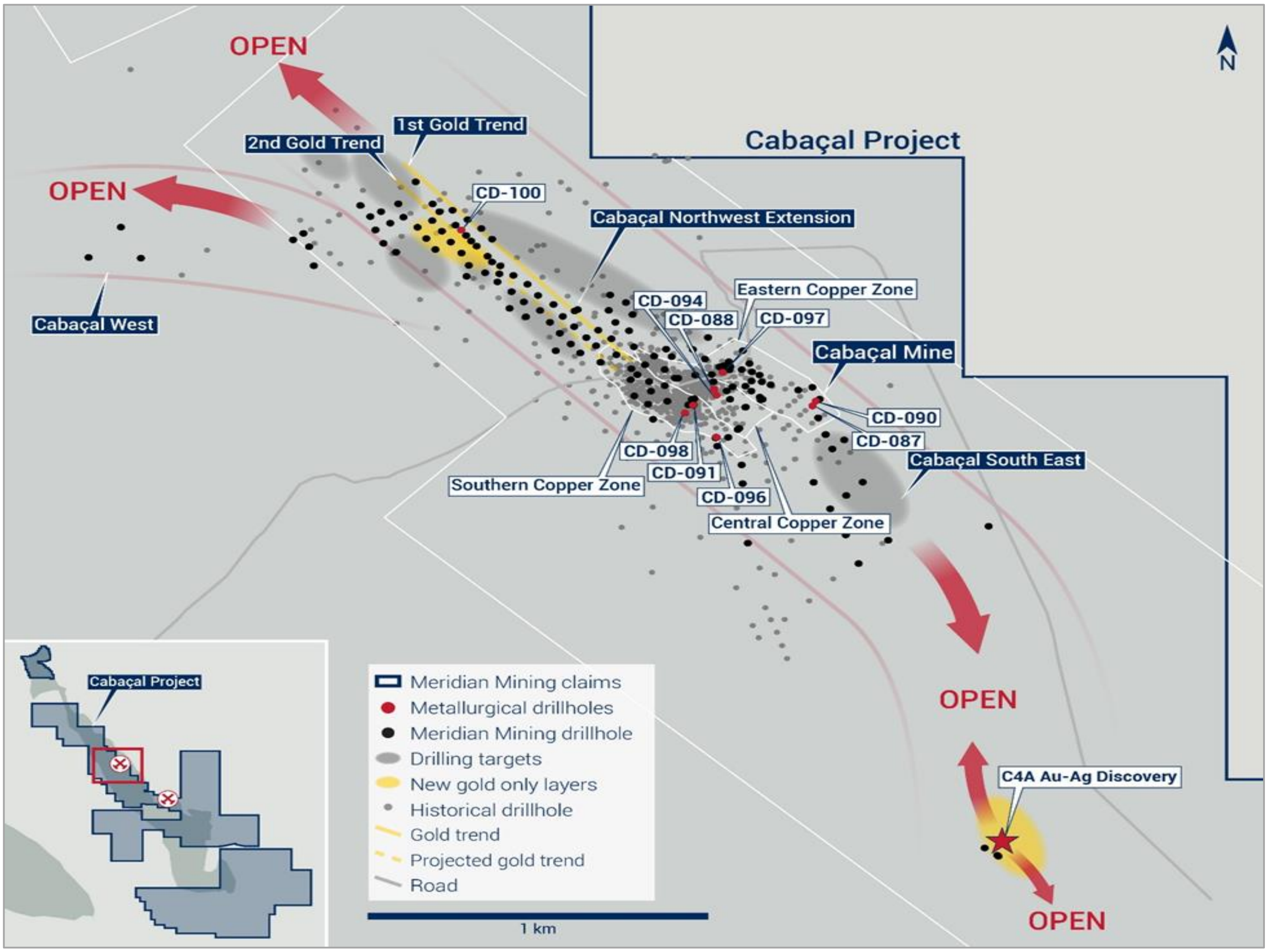
The tested process route indicated total gold recoveries in the order of 90% to 94% and mass recovery between 5 and 7%. The gravimetric concentrator contributes 2% to 7% of gold recovery.

Copper content in the rougher stage in the range of 10% to 12% with recovery of 97% to 98%. After two cleaning steps 20% copper content was reached.

13.2 Sample Selection and Preparation

Meridian drilled 10 HQ MET holes for the metallurgical test program of which 7 were used for sample selection. The on-site Geology team selected the collar locations and drill orientation. The holes were to cover the four known main VMS systems (Central Cu Zone, Eastern Cu Zone, South Cu Zone and the Cabaçal Northwest Extension). Figure 13-1 outlines the locations of the holes.

Figure 13-1: Plan View Showing Location of The Metallurgical Drill Holes.



Source: Meridian, date??

The concept for sample selection was to pick a set of continuous intervals from the 4 zones to cover a range of expected head assays (Cu, Au, S) and to also cover the 3 main lithologies (CHB, CTB and ZCL). Mike Ounpuu, metallurgical advisor to Meridian, picked 9 copper-gold samples and a Cu-Au-Zn sample derived from MET holes. Late in the program two additional high grade samples picked by the Meridian Geology team were added. The samples were to be used for mineralized material- sorting testwork which was cancelled after the samples had been shipped. Table 13-2 summarizes the sample selection data. The test samples head grade ranged from 0.23 % Cu to 4.5% Cu and from 0.03 g/t Au to 36 g/t Au. Most of the samples were within the normal expected head grade range for the deposit. A key feature of the Cabaçal mineralization is the low S:Cu ratio, which implies low pyrite/pyrrhotite content. The average mineralization will be ~ 1.5 S:Cu, which confirms the historical mineralogy suggesting that chalcopyrite is 65% of the sulphides assemblage.

Table 13-2: Summary of Sample Selection Data.

Zone	DDH	Sample_ID	Litho	From (m)	To (m)	Mass (kg)	Cu (pct)	Au (g/t)	Ag (g/t)	Zn (pct)	Pb (pct)	S (pct)
CCZ	CD088	**CD088_59.00_79.77**	ZCL	59.00	69.50	63.0	1.50	1.66	3.10	0.05		1.01
				73.68	79.77							
	CD094	**CD094_13.66_34**	CTB	13.66	34.00	88.0	0.23	0.03	0.43	0.02		0.36
	CD094	**CD094_41.00_72.40**	CTB	41.00	48.00	69.5	0.65	0.57	1.00	0.02		0.91
				63.85	72.40							
ECZ	CD087	**CD087_30.00_57.70**	CHB/ ZCL	30.00	39.45	72.0	0.78	0.20	2.20	0.05		1.01
				47.40	57.70							
	CD097	**CD097_68.35_87.65**	ZCL/CTB	68.35	87.65	86.5	0.52	0.23	1.60	0.09		0.63
SCZ	CD096	**CD096_73.00_89.50**	CTB	73.00	89.50	72.9	0.28	0.27	0.37	0.01		1.04
	CD098	**CD098_72.65_91.50**	CTB	72.65	91.50	82.9	0.63	0.64	2.54	0.04		1.17
CNWE	CD100	**CD100_52.00_69.00**	CTB	52.00	69.00	73.8	0.35	1.14	1.21	0.01		1.15
		CD100_75.15_92.84	CTB	75.15	92.84	76.7	0.87	1.13	2.28	0.02		2.12
Zn sample			This is a collection of Zn samples from various holes									
ECZ	CD087		ZCL	57.70	61.30							
CCZ	CD088		CTB	83.40	86.50							
				87.70	88.05							
				89.70	90.45							
				93.70	94.30							
ECZ	CD090		CTB	47.80	54.35							
SCZ	CD091		CTB	101.00	106.00							
		Zn_Composite		110.95	114.00	77.9	0.87	0.36	5.07	0.47	0.04	0.88
High Grade	CD094	**CD094_79.90_82.70**	ZCL	79.90	82.70	12.3	4.57	36.8	27.4	0.12	0.00	4.38
Quartz	CD091		Qtz Vein	86.35	86.65	0.8	1.17	8.66	0.11	0.00		
	CD096		Qtz Vein	149.15	149.60	1.9	1.03	2.66	0.13	0.01		
	CD096		Qtz Vein	150.25	150.71	1.8	3.22	12.7	2.38	0.07		
	CD097		Qtz Vein	66.65	67.10	1.6	4.43	82.7	0.53	0.00		
	CD098		Qtz Vein	96.05	96.60	2.3	0.86	11.8	0.23	0.00		
	CD098		Qtz Vein	97.35	98.00	2.7	0.78	5.13	0.08	0.00		
		Qtz Vein Composite				11.0	3.70	1.84	19.8	0.56		4.64

The ten main composites were split in half upon arrival at SGS whereby half of the mass was for comminution testing and the other half for flotation testing. The comminution rejects remain at SGS of which much of the mass can be used for further testing. The main 9 non-zinc composites were combined in equal mass to produce a Master Composite. The two additional high grade samples were prepared for flotation testing only.

Sub samples from the 10 Flotation samples were split out for head assay, mineralogy, grind calibration and environmental characterization. The two lowest grade samples had sub samples removed for Heavy Liquid Separation (HLS) to assess if mineralized material sorting by specific gravity (i.e., Dense Media Separation) could be applicable to the Cabaçal deposit.

All samples shipped to SGS were submitted for head assays. Table 13-3 summarizes the key assays for the Master Composite sample and the twelve Variability type samples used for flotation testing. The assays are from the calculated test heads. The Zinc composite assayed 0.41 % zinc. The Cabaçal VMS system is low sulphur with typical S:Cu ratio being around 1.5. The Zinc content is generally low and is only elevated at the physical bottom of the deposit. Potential problematic elements such as Arsenic, Mercury, Lead, Bismuth etc. are all low.

Table 13-3: Head Assays for the Samples Tested.

Sample	%Cu	%S	Au g/t	Ag g/t
Master Comp	0.59	1.23	0.59	1.73
CCZ-1	1.15	1.71	1.57	2.63
CCZ-2	0.22	0.34	0.09	0.61
CCZ-3	0.54	0.83	0.65	1.07
CCZ-4	3.08	4.40	22.0	18.2
ECZ-1	0.73	1.00	0.24	1.90
ECZ-2	0.46	0.65	0.15	2.82
SCZ-1	0.23	0.95	0.27	0.37
SCZ-2	0.54	1.09	0.73	2.14
CNWE-1	0.31	1.06	0.40	0.91
CNWE-2	0.82	1.77	1.46	2.14
Zn Comp	0.84	1.49	0.26	1.49
Qtz Veins	3.12	4.60	1.75	13.9

13.3 Mineralogy

The primary sulphide minerals are chalcopyrite, pyrite and pyrrhotite. There are virtually no other copper sulphide minerals present. Zinc, whenever present, is in the form of sphalerite. The ratio of the 3 primary sulphides is 65:28:5 (chalcopyrite, pyrite, and pyrrhotite) which is aligned with the historical mineralogy of the deposit. Other sulphide minerals besides chalcopyrite include pyrite and pyrrhotite, which comprise of 0.32% and 0.14% of the material by mass, compared with 0.68% of chalcopyrite by mass.

Pyrite has similar level of liberation as chalcopyrite, which implies that most of pyrite will be liberated during copper flotation. Pyrite can be either recovered as a separate product or reports to tailings.

The main non-sulphide minerals are quartz, sericite/muscovite and chlorite accounting for over 90% of the minerals in the deposit. Table 13-4 summarizes the modals from the 12 Variability type samples. Table 13-5 provides the copper sulphide association data. Most of the copper sulphide is essentially liberated (average ~ 80%). There is some copper sulphide associated with pyrite, and with silicate gangue minerals. The sphalerite in the zinc sample has a low degree of liberation, which makes difficult to produce marketable zinc concentrate through flotation.

Table 13-4: Modal Mineralogy for Variability Samples.

Survey		**19018-01/MI5015-JUL22**											
Project		**Meridian**											
Sample		CCZ-1	CCZ-2	CCZ-3	CCZ-4	ECZ-1	ECZ-2	SCZ-1	SCZ-2	CNWE-1	CNWE-2	Zn Comp	AuQtz Vein
K80,um		149	117	128	224	349	147	128	197	114	126	253	301
Calculated ESD Particle Size		30	32	28	39	43	27	32	33	34	34	42	41
		Sample	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**	**Sample**
Mineral Mass (%)	Chalcopyrite	3.36	0.68	2.02	9.49	2.73	0.91	0.61	2.01	1.14	3.04	2.71	9.12
	Pyrite	1.12	0.32	1.10	2.64	0.34	0.11	0.87	1.58	4.16	1.77	0.67	2.19
	Pyrrhotite	0.52	0.14	0.04	0.06	0.06	0.01	0.49	0.15	0.16	0.00	0.20	0.18
	Cp: Py-Po	2.1	1.5	1.8	3.5	6.8	7.9	0.4	1.2	0.3	1.7	3.1	3.8
	Py Po	2.2	2.2	27.5	44.0	6.1	12.5	1.8	10.6	26.6	359.8	3.4	12.2
	Sphalerite	0.02	0.00	0.05	0.13	0.05	0.14	0.02	0.03	0.01	0.01	0.49	0.51
	Other Cu Minerals	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.04	0.00	0.03	0.00
	Other Sulphides	0.01	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.02	0.00	0.01	0.03
	Quartz	55.6	54.2	50.9	61.6	45.19	40.02	53.11	55.28	53.40	64.89	45.07	56.9
	Sericite/Muscovite	8.52	27.52	19.0	4.0	21.80	19.49	27.61	19.94	18.07	13.03	16.65	6.67
	Chlorite	28	14.66	25.3	20.6	26.56	37.65	15.52	19.10	19.92	15.78	31.01	22.5
	Clays	0.41	0.68	0.38	0.23	0.99	0.25	0.50	0.41	0.36	0.38	0.64	0.08
	Feldspars	0.99	0.16	0.09	0.09	0.71	0.04	0.09	0.14	0.68	0.05	0.52	0.13
	Titanite/sphere	0.17	0.16	0.15		0.37	0.39	0.26	0.20	0.21	0.16	0.27	
	Other Silicates	0.01	0.48	0.01	0.23	0.22	0.00	0.00	0.01	0.03	0.03	0.61	0.10
	Calcite	0.11	0.03	0.13	0.06	0.09	0.11	0.28	0.31	0.05	0.05	0.47	0.68
	Other Carbonates	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.11
	Fe-Oxides	0.27	0.10	0.20	0.28	0.18	0.13	0.06	0.19	1.07	0.25	0.11	0.22
	Ilmenite	0.44	0.26	0.33	0.17	0.36	0.30	0.22	0.24	0.20	0.11	0.14	0.08
	Other Oxides	0.02	0.06	0.02	0.14	0.09	0.05	0.04	0.02	0.06	0.04	0.04	0.17
	Apatite	0.32	0.13	0.28	0.15	0.18	0.32	0.21	0.33	0.37	0.34	0.32	0.36
	Other	0.07	0.37	0.06	0.07	0.06	0.06	0.12	0.06	0.07	0.06	0.07	0.07
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 13-5: Copper Sulphide Association at ~ Primary Grind Size.

Mineral Name	CCZ-1	CCZ-2	CCZ-3	CCZ-4	ECZ-1	ECZ-2	SCZ-1	SCZ-2	CNWE-1	CNWE-2	Zn Comp	AuQtz Vein
Pure Cu-Sul	53.65	55.77	48.59	45.20	39.72	80.31	59.83	49.44	76.31	65.97	41.69	64.17
Free Cu-Sul	7.79	2.96	22.00	42.60	17.32	0.00	4.87	30.95	5.37	13.76	7.52	18.90
Lib Cu-Sul	28.09	12.63	3.17	5.99	13.43	4.73	10.96	5.32	6.84	6.28	7.88	7.33
Cu-Sul:Py	0.78	0.16	7.72	0.95	0.02	0.17	0.19	0.70	4.18	0.53	4.53	1.75
Cu-Sul:Sph	0.00	0.12	0.42	0.14	0.03	0.00	0.00	0.00	0.09	0.13	0.28	0.23
Cu-Sul:Qtz/Feld	5.07	2.17	3.31	0.54	0.47	2.22	2.66	1.20	0.52	3.50	2.64	1.07
Cu-Sul:Amp/Epidote	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cu-Sul:Mica/Chlor/Clays	2.09	7.60	2.52	0.34	1.12	5.46	4.83	1.33	0.95	5.10	4.30	0.57
Cu-Sul:Fe-Oxides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.00	0.00	0.01
Cu-Sul:Carbonates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Cu-Sul/Carbonate/Silicates	1.91	12.30	6.16	3.39	21.07	2.36	14.86	10.65	1.47	4.27	25.52	4.03
Cu-Sul:Other Minerals	0.00	0.00	0.00	0.00	0.00	0.17	0.31	0.00	0.00	0.00	0.00	0.00
Complex	0.63	4.31	6.10	0.85	6.82	4.58	1.50	0.40	2.86	0.47	5.64	1.32
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

13.4 Comminution

The Variability samples were submitted to a standard set of comminution tests.

Table 13-6 summarizes the results of SAG Mill Comminution Test (SMC), Ball Mill Bond Work Index Test (BWI) and Abrasion Index Test (Ai). The average SMC A x b was 44.5, which is considered to be of medium to hard competency for SAG milling. Most of the samples were near the average value, which suggests the mineralization may respond somewhat consistently. The average Bond Work Index (100 mesh closing) was 11.2, which is considered to be on the soft side and not atypical for VMS deposits. The spread in the values was notable in that the softest was 8.0 and the hardest being 15.2. This variation may have impact on the grinding circuit throughput or product size depending on the circuit configuration. The average Abrasion Index was 0.28 which suggests moderate abrasion. The data are mostly near the average value.

Table 13-6: Summary of Comminution Results

Comp	A x b	SMC ta	SCSE (kWh/t)	AI (g)	BWI (kWht/t)
CCZ-1	39.2	0.36	10.3	0.287	11.2
CCZ-3	47.6	0.44	9.3	0.288	9.8
ECZ-1	35.8	0.32	10.8	0.285	15.2
ECZ-2	45.0	0.41	9.6	0.160	8.0
SCZ-1	33.0	0.31	11.0	0.265	9.7
SCZ-2	42.4	0.40	9.8	0.310	12.5
CNWE-1	68.7	0.65	7.9	0.311	11.4
CNWE-2	42.9	0.39	9.8	0.356	9.7
Zn Comp	45.5	0.41	9.7	0.267	13.7
Average	**44.5**	**0.41**	**9.8**	**0.281**	**11.2**

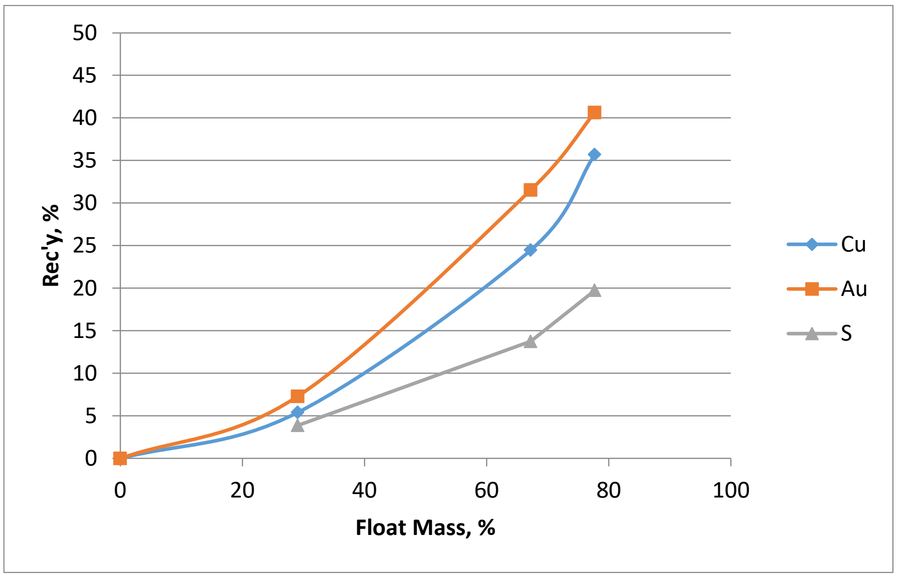
13.5 Heavy Liquid Separation

Meridian desired to assess if some form of material-sorting could benefit the project. Heavy Liquid Separation (HLS) was tested as a proxy for Dense Media Separation (DMS), and additionally planned sorting by various sensor techniques was abandoned after the HLS results became available. A sample of Cabaçal mineralization was crushed to -12 mm and screened on 20 mesh (0.85 mm) to remove the fines. The sample was separated at SG of 2.75, 2.85 and 2.95 producing a float product and 3 sink products from each SG tested. The overall balance is given in Table 13-7. Figure 13-2 presents the recovery loss vs. the weight% of float product. Rejecting ~30% of the mass the recovery loss of copper and gold is 5 to 7%. Inferring Table 13-7, when mass rejection is 50%, the metal loss will be 15 to 20%. It is considered that the recovery loss is unacceptable for the mass rejection, considering that copper recovery to the flotation concentrate is around 94% from the mineralization.

Table 13-7: Summary of Heavy Liquid Separation Mass Balance.

HLS Products	HLS SG	Weight		Assays			Distribution (%)		
	(g/cm³)	(g)	(%)	Cu (%)	Au (g/t)	S (%)	Cu	Au	S
HLS SG 2.95 Sink	2.95	656	11.1	3.12	1.22	14.0	49.2	45.1	64.5
HLS SG 2.85 Sink	2.85	621	10.5	0.75	0.26	1.37	11.2	9.1	6.0
HLS SG 2.75 Sink	2.75	2266	38.2	0.35	0.19	0.62	19.1	24.3	9.9
HLS SG 2.75 Float	2.75	1723	29.0	0.13	0.08	0.32	5.4	7.3	3.9
Fines		667	11.2	0.94	0.38	3.35	15.1	14.3	15.7
Feed (Calc.)		5933	100.0	0.70	0.30	2.40	100.0	100.0	100.0

Figure 13-2: Metal Recovery Loss vs Wt.% to Float Product.



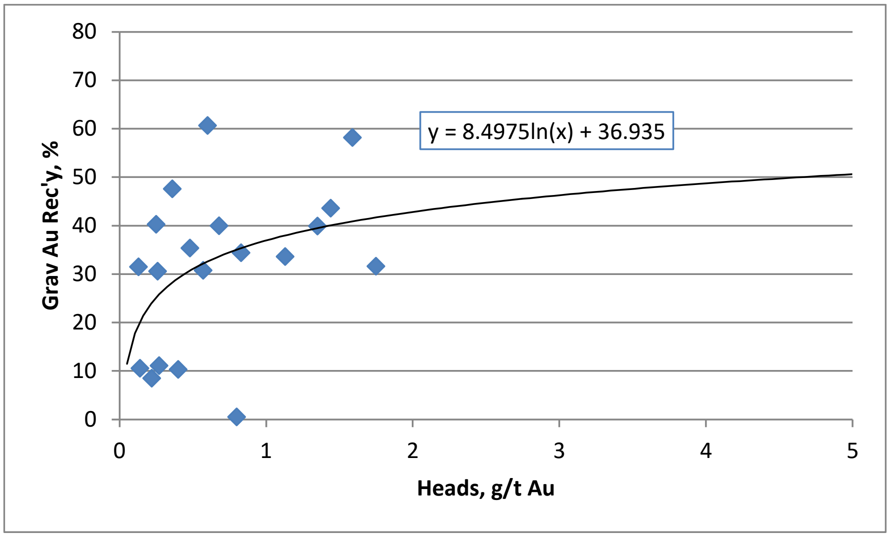
Source: SGS Lakefield, 2022

13.6 Gravity Recovery

The historical Cabaçal process plant used gravity recovery and reported ~ 45% of the gold in the plant was recovered by this technique. Most of the tests conducted at SGS-L included gravity recovery by passing the ground sample through a MD3 Knelson Concentrator and then upgrading the concentrate on a Mozley Laboratory Separator. Final gravity concentrates typically weighed 2-4 grams.

A three stage GRG test was conducted on the Master Composite sample, with the grind size at each stage at 423 micron, 155 micron and 113 micron respectively. The final GRG number is 64.3, which is quite high and an indication that this material is amenable to gravity gold recovery. Figure 13-3 presents the gold gravity recovery from all tests as a function of the gold head assay. Low head grade samples achieved 10-30% gravity gold recovery while higher head grade samples could achieve up to 60% gravity gold recovery.

Figure 13-3: Gravity Au Recovery vs. Head Au Grade.



Source: SGS Lakefield, 2022

The gravity concentrate was often examined by optical microscope. Flakes of gold were seldom observed in most tests. A sample of gravity concentrate was submitted for mineralogy. In Table 13-8, the mode of gold occurrence in the gravity concentrate is summarized. Most of the gold was as native gold with minor amounts of electrum and Au-Bi-S. Most of the gold mass in the gravity concentrate (99%) was from flakes above 20 microns in equivalent diameter. The largest flake was 80 microns equivalent diameter.

Table 13-8: Mode of Au Occurrence in Gravity Concentrate.

Mineral	Frequency	Frequency Distribution	Surface Area	Surface Area Distribution
Gold	23	67.6	12942	71.9
Electrum	7	20.6	16	0.1
Au-Bi-S	2	5.9	849	4.7
Gold/Au-Bi-S	2	5.9	4190	23.3
Total	**34**	**100**	**17997**	**100**

In Table 13-9, the impact of gravity recovery on head assay and rougher tailings is presented. The data implies that, gravity gold if not recovered in the gravity circuit, will be picked up in the downstream flotation circuit. However, due to the difference between the laboratory and field experience, it is recommended to keep the gravity concentrator in the process design.

Table 13-9: Impact of Gravity Gold Recovery on Au Heads, Tails and Rougher Recovery.

	Head, g/t Au	Ro Tail, g/t Au	Ro Au Rec'y, %
gravity	0.62	0.06	88.67
no gravity	0.69	0.06	89.18

13.7 Flotation

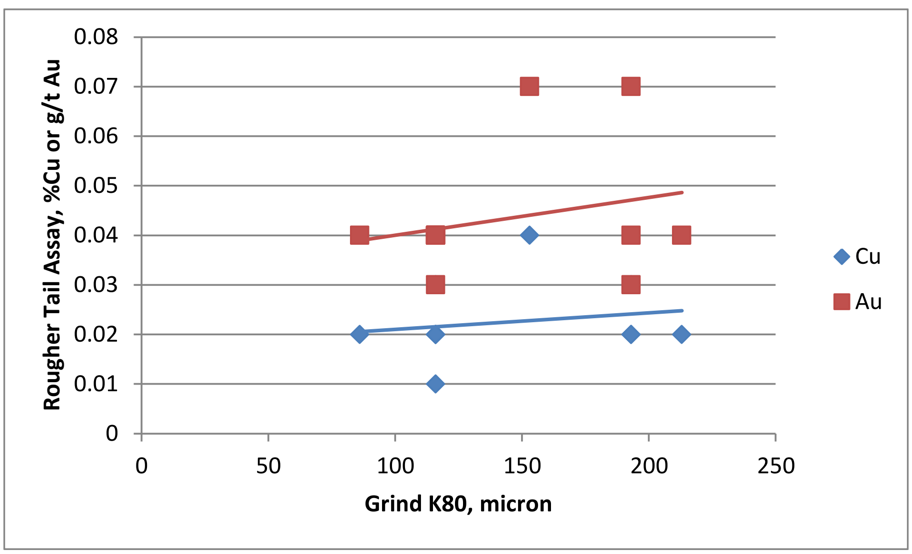
The historical Cabaçal process and metallurgy are known. The primary grind was 120 microns without rougher concentrate regrind, one stage of cleaner flotation and essentially bulk sulphide flotation producing a cooper gold concentrate assaying around 21% copper. Review of the drill logs and assays confirmed that the Cabaçal mineralization had an S:Cu ratio around 1.5, from which bulk sulphide flotation should permit a 23% copper concentrate with little gangue content. This was the starting basis for the testing at SGS-L.

The rougher conditions used natural pH, potassium amyl xanthate (PAX) collector and Methyl Isobutyl Carbinol (MIBC) frother. The rougher conditions were a mild version of bulk sulphide flotation. Sulphur recovery was typically around 95% leaving a tailing which was typically less than 0.1% of sulphur content. This was found to be non-acid generating. Flotation time was set at 13 minutes in the Laboratory initially and then reduced to 10 minutes. Mass pull for the Master Composite was around 5 to 6 percent by weight. The rougher flotation was conducted mostly at a solids percent around 35%.

13.7.1 Effect of Primary Grind on Rougher Recovery

An early series of tests was conducted to assess the impact primary grind size has on rougher recovery. Considering the grind sizes tested, the data did not suggest that grind size had much impact on tailings grade or metals recovery. Figure 13-4 presents the copper and gold rougher tailing assay as a function of grind size for the initial 12 tests conducted on the Master Composite. The figure suggests that grind has little impact on the recovery. A few data points were notably higher than the trend for both copper and gold in tailing. The full data set suggests they could be erroneous as one test alone accounted for the high copper data point and one of the gold data points. Duplicate gold assays were implemented later in the test program.

Figure 13-4: Effect of Grind on Rougher Tails Assay.



Source: SGS Lakefield, 2022

13.7.2 Cleaner Flotation Conditions

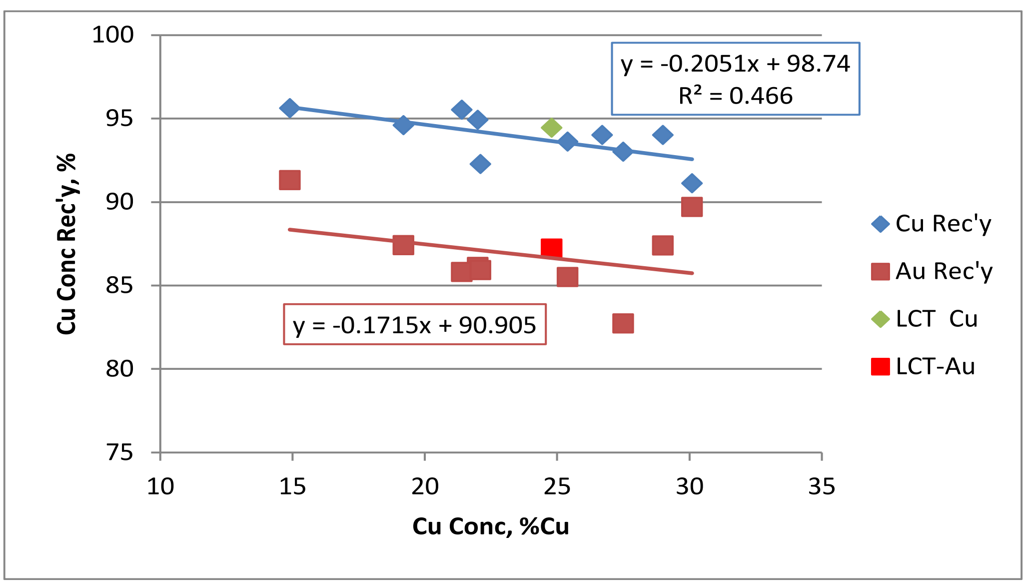
Development of the cleaner circuit was based on initial observations. The initial cleaner test looked as if it produced a good sulphide concentrate, but upon examination by optical microscope, abundant gangue minerals were noted. The second test included a short 5 minute regrind (corresponding to a regrind size of 40 microns), which resulted in much better concentrate grade due to the rejection of gangue minerals. Later Cleaner flotation tests used lime for iron sulphide depression as well as using an alternate, more selective collector (3477, di-thiophosphate) rather than PAX. The final test included a pyrite/pyrrhotite recovery scavenger after copper-gold flotation. The objective was to desulfidize the cleaner tailing so that the combined tailing would be non-acid generating. Table 13-10 summarizes the key parameters of the tests and the key results. Tests using lime in the regrind and elevated pH above 9 in the cleaner flotation readily produced concentrates with 25% to 30 % of copper. Figure 13-5 summarizes the copper recovery vs. copper concentrate grade data from the tests, with the Locked Cycle Test (LCT) result included. The slope between recovery and concentrate grade is quite flat, which suggests that Cabaçal should be operated to produce the higher grade concentrate.

Table 13-10: Summary of Cleaner Test Conditions and Results.

Test	Grind	Ro PAX (g/t)	Regrind (min)	Lime	pH	Cl Coll	Dosage (g/t)	Grade	Recovery (%)	
								%Cu	Cu	Au *
F-2	116	25	0	0	7.7	PAX	3	14.9	95.6	91.3
F-4	116	25	5	0	8.0	PAX	3	22.0	94.9	86.1
F-8	193	25	10	0	8.0	PAX	2.5	21.4	95.5	85.8
F-9	116	25	5	100	8.9	3477	2.5	25.4	93.6	85.5
F-10	116	25	5	300	11.0	3477	1	26.7	94.0	85.2
F-20	193	25	5	200	9.6	3477	2	29.0	94.0	87.4
F-21	193	25	5	200	10.2	3477	2	30.1	91.1	89.7
F-31	193	25	5	0	7.7	PAX	5	22.1	92.3	85.9
F-32	193	25	5	200	9.6	3477	6	27.5	93.0	82.7
F-32 + Py						PAX	30	19.2	94.6	87.4

* recovery from gravity + Float Concentrate

Figure 13-5: Copper Recovery vs. Concentrate Grade from Master Composite.



Source: SGS Lakefield, 2022

The LCT result is given in Table 13-11. A 24.8 % copper concentrate was produced with 94.4% copper recovery, 87.2% gold recovery (gravity + float) and 81.9% silver recovery (gravity + float). The pyrite concentrate assayed 44.2 % S and the combined tailing assayed 0.13 % of sulphur. Environmental Acid/Base Accounting ("ABA") and Net Acid Generation ("NAG") testing suggest the combined tailing should be non-acid generating. However, a Humidity Cell Test ("HCT") is recommended to further confirm in the next stage.

Table 13-11: Locked Cycle Test Results.

Product	Wt.	Assays, %, g/t				% Distribution				
	%	Cu	Au	Ag	S	Cu	Au	Ag	S
Cu 1st Cl Conc	2.22	24.8	12.7	59.0	36.6	94.4	49.7	74.9	67.1
Mozley Conc	0.12		175	100		0.0	37.5	6.9	0.0
Py 1st Cl Conc	0.62	1.50	2.10	15.2	44.2	1.6	2.3	5.3	22.5
Py Ro Tails	2.12	0.16	0.37	1.52	2.44	0.6	1.4	1.8	4.3
Cu Ro Tails	95.1	0.02	0.05	0.20	0.08	3.5	9.2	11.1	6.3
Comb. Cu Cl Conc & Mozley Conc	2.34	23.5	21.1	61.1	34.7	94.4	87.2	81.9	67.1
Comb. Py Ro Tl & Cu Ro Tl	97.2	0.02	0.06	0.23	0.13	4.1	10.6	12.9	10.6
Head (Calc.)	100	0.58	0.57	1.75	1.21	100	100	100	100
Head (Dir.)		0.56	0.75	1.80	1.30				

In Table 13-12, the detailed concentrate analysis for the copper and pyrite concentrates from the LCT is summarized. The copper concentrate is very clean from the problematic elements such arsenic, bismuth, cadmium, mercury, lead and antimony etc. Considering that a significant amount of pyrrhotite will also be present in the pyrite concentrate, the pyrite concentrate containing 44% sulphur may potentially be marketable. The pyrite concentrate also contains around 0.5% of zinc and 200 ppm of mercury. There are notable levels of gold and silver which may make it attractive for precious metal extraction. These factors need to be considered for the market study of pyrite concentrate in the next stage.

Table 13-12: Detailed Concentrate Analysis for Copper and Pyrite concentrates.

Element	Unit	LCT-1 Cu 1st Cl Conc C-E	LCT-1 Py 1st Cl Conc C-E	Element	Unit	LCT-1 Cu 1st Cl Conc C-E	LCT-1 Py 1st Cl Conc C-E
Ag	g/t	59	< 30	Ni	g/t	32	123
Au	g/t	12.7	4680	Pb	g/t	808	600
Al	g/t	3240	< 30	Sb	g/t	< 10	< 10
Ba	g/t	< 30	< 3	Se	g/t	< 200	< 200
Be	g/t	< 3	219	Si	g/t	15800	42400
Bi	g/t	75	2760	Sn	g/t	< 30	< 30
Ca	g/t	1270	< 40	Sr	g/t	< 10	< 10
Cd	g/t	44	309	Ti	g/t	248	580
Co	g/t	103	138	Tl	g/t	< 5	< 5
Cr	g/t	< 50	14900	U	g/t	< 5	< 5
Cu	g/t	239000	408000	V	g/t	< 80	< 80
Fe	g/t	315000	1430	Y	g/t	14	22
K	g/t	1290	< 100	Zn	g/t	7460	5140

Element	Unit	LCT-1 Cu 1st Cl Conc C-E	LCT-1 Py 1st Cl Conc C-E	Element	Unit	LCT-1 Cu 1st Cl Conc C-E	LCT-1 Py 1st Cl Conc C-E
Li	g/t	< 100	1800	F	%	0.010	0.011
Mg	g/t	1290	279	Cl	g/t	< 50	< 50
Mn	g/t	161	179	As	g/t	58	---
Mo	g/t	131		Hg	g/t	< 0.3	223

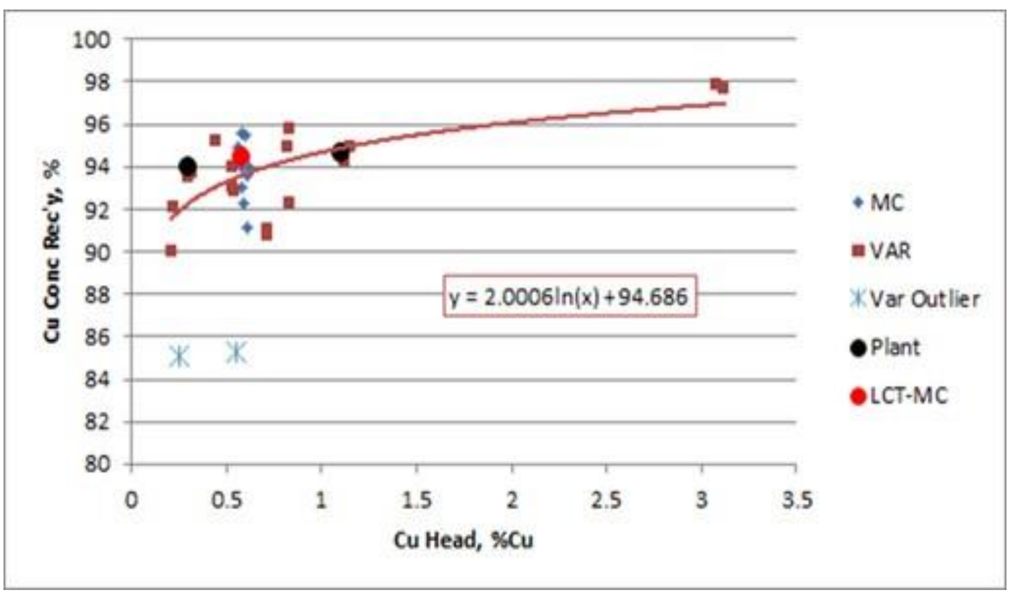
13.7.3 Variability Sample Testing – Recovery Model for Economics

A total of 12 variability samples were tested. Each sample was subjected to a kinetic rougher test and additional one or two stage cleaner tests using the conditions developed for the Master Composite. The additional pyrite flotation after the first cleaner was incorporated in the program to produce the tailings for environmental characterization. The samples were from the four main zones of mineralization and covered the broad range of head grades, which could be expected.

Figure 13-6, Figure 13-7 and Figure 13-8 show the copper, gold and silver recovery as a function of the head grade respectively. The trend lines all have the familiar logarithmic shape with higher recovery at higher head grades. The figures include not only the variability data, but also the Master Composite data, LCT and the historic Cabaçal plant data. The data sets appear to be consistent. The recoveries achieved are in line with the historic metallurgy. Based on the regression between flotation metal recoveries and sample head grade, the following formulas can be used to estimate the metal recovery on a high level based on the head grade of the material:

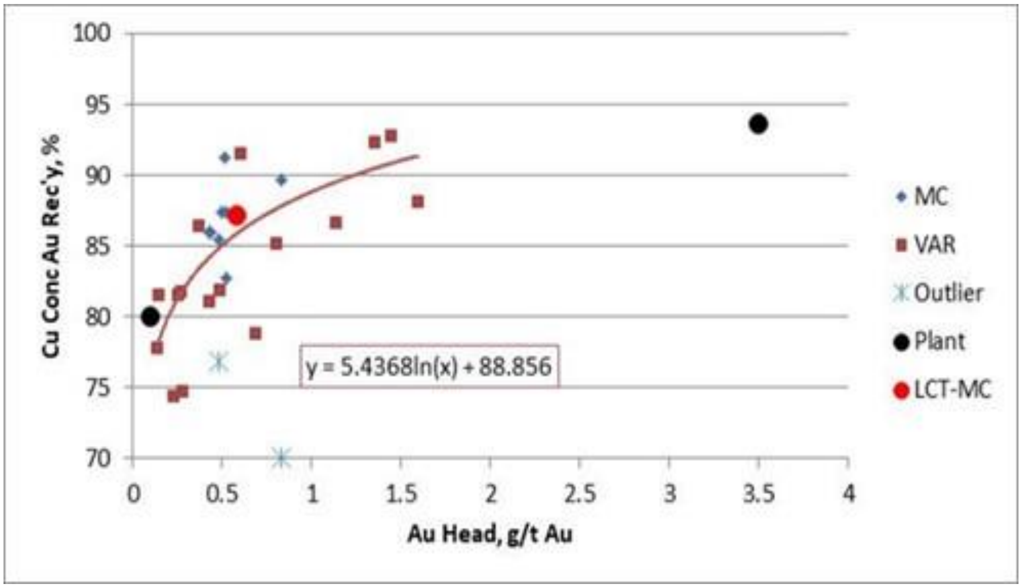
- For copper, % of copper recovery = 2.0006 x ln (copper head grade, %) + 94.686
- For gold, % of gold recovery = 5.4368 x ln (gold head grade, g/t) + 88.856
- For silver, % silver recovery = 13.342 x ln (silver head grade, g/t) + 71.037

Figure 13-6: Cu Recovery vs Cu Head grade.



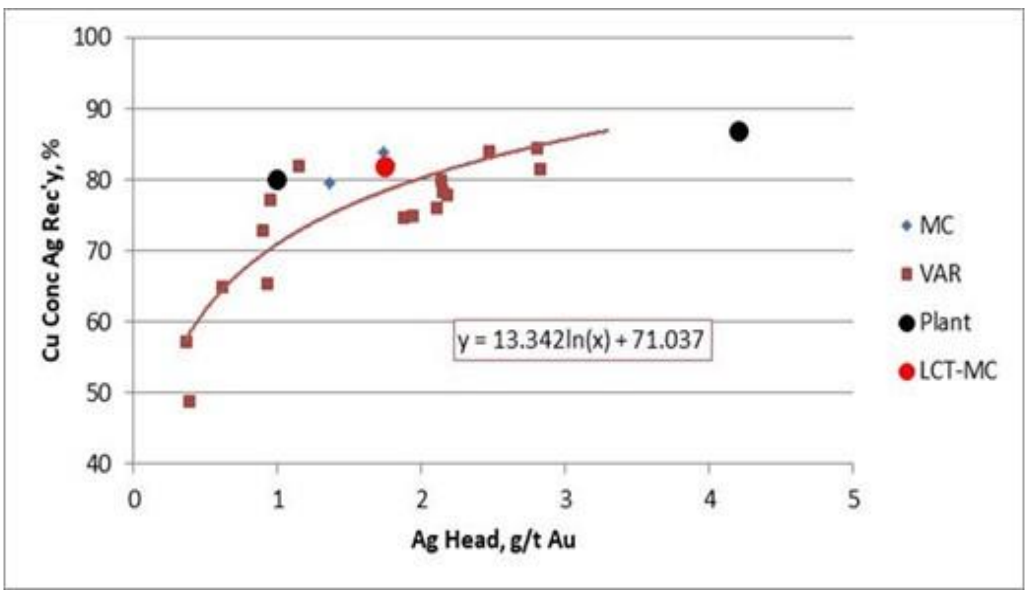
Source: SGS Lakefield, 2022

Figure 13-7: Au Recovery vs Au Head grade.



Source: SGS Lakefield, 2022

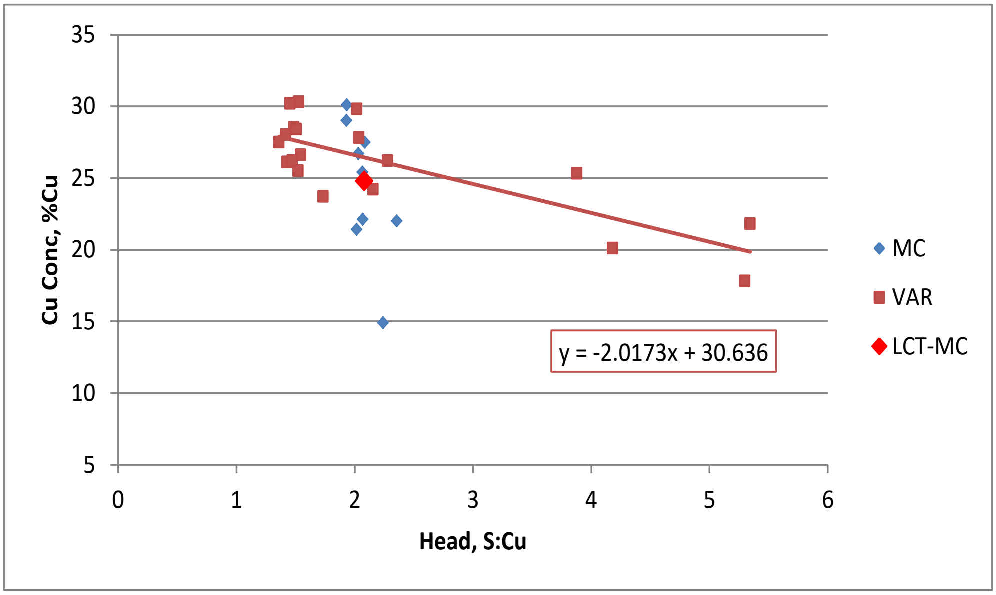
Figure 13-8: Ag Recovery vs Ag Head grade.



Source: SGS Lakefield, 2022

Figure 13-9 presents the copper concentrate grade vs the head S:Cu ratio (sulphur to copper). Samples with a high S:Cu ratio have higher iron sulphide contents and thus tend to produce a lower grade copper concentrate. Samples with low S:Cu ratios have low levels of iron sulphides and will exhibit a higher copper grade and recovery to the copper concentrate. Average mineralization will have an S:Cu ratio around 1.5, and thus concentrates above 25 % copper should be expected.

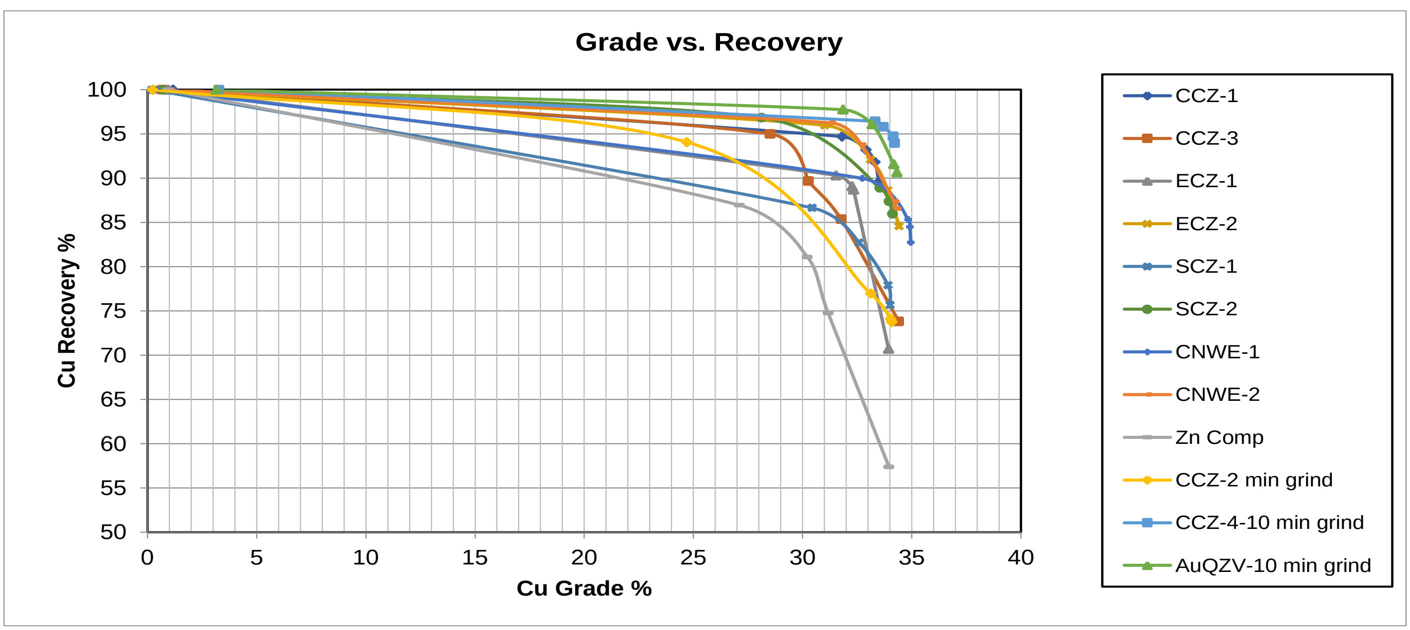
Figure 13-9: Cu Concentrate Grade vs Head S:Cu.



Source: SGS Lakefield, 2022

Figure 13-10 presents the copper concentrate grade vs. copper recovery curve for all the samples. It is noted that majority of the tests produced concentrates containing over 25% copper with over 90% copper recovery. The samples with high S:Cu ratio were conducted using the standard test conditions. It may be possible to improve the concentrate grade by employing a higher pH level or finer regrind size.

Figure 13-10: Cu Recovery vs. Grade Curve for the Variability Samples.



Source: SGS Lakefield, 2022

The zinc sample had good copper recovery and acceptable copper concentrate grade. A 23.7% copper concentrate at 92.3% copper recovery was made. Total gold and silver recovery were both 81.2%. The copper concentrate contained 5.3% zinc and recovered 42% of the zinc in the sample. Optical microscopy revealed that much of the zinc was middling particles with other sulphides and gangue. The mineralogy suggested that the zinc sample had the finest mineral textures and that the sphalerite was poorly liberated. A marketable zinc concentrate was not produced.

The procedure to remove the iron sulphides from the copper cleaner tailings is similar to zinc flotation conditions, namely activation with copper sulphate and PAX as collector. The zinc concentrate assayed only 23.5% zinc. Notable iron sulphide flotation was observed. Only a single cleaner test was conducted. Further testing was considered, but abandoned as the grind, regrind, reagent conditions and flowsheet will likely be significantly different than for the Cabaçal copper-gold mineralization. The material containing zinc is a minor component of the Cabaçal deposit and is located at the physical base of the deposit.

13.8 Conclusions and Recommendations

The Meridian Cabaçal Project is a copper-gold deposit, with a minor portion of the deposit containing zinc. Based on the testwork, the zinc mineral has a very fine texture and is poorly liberated. The testwork was unable to produce a marketable zinc concentrate. In addition, the zinc head grade is very low compared to industry standards., Zinc flotation using copper sulphate activation would further complicate operation of the copper flotation circuit. It is not recommended to include zinc flotation in the process design.

Pyrite flotation was tested on the copper cleaner tails. A concentrate with approximately 44% of sulphur content was achieved. The purpose of pyrite flotation was to remove the acid generating material from the tailings with additional potential to sell the pyrite concentrate. Further study on the acid generating potential of the tailings without pyrite flotation is recommended together with a market study for the pyrite concentrate. Depending on the study, pyrite flotation may be worth consideration, however the utilization of copper sulphate is not recommended at this time due to process water contamination considerations and impact upon the copper flotation circuit.

The copper in the deposit is essentially in the form of chalcopyrite, with very good liberation characteristics based upon the QEMSCAN and mineralogy tests. The testwork did not show any clear trend between grind size and final metals recovery. Based on industry experience, SGS-L recommends the grind size at 200 micron at this stage.

The testwork indicates that the inclusion of a gravity circuit does not have a significant impact on the total gold recovery. However, based on field experience, whenever there is considerable gravity recoverable gold in the deposit, it is always good practice to include the gravity circuit in the process design. This deposit is an acceptable candidate for gravity gold recovery based on testwork, which showed GRG number of 64.3. Based on the grind size of 200 micron and assumption that 50% cyclone underflow reports to gravity concentration, the gold recovery by an appropriate gravity circuit in field is estimated to be around 30%. Consequently, it is recommended to include a gravity circuit in the process design.

From the testwork, rougher concentrate regrind and elevated pH are required to produce a satisfactory concentrate grade. The regrind size used in the testwork varied from 30 to 50 microns. For process design, a regrind size between 35-45 microns is recommended, with a cleaner flotation pH of at least 9. Based on the testwork, a single stage of cleaner flotation appears to be sufficient to produce a marketable concentrate containing above 25% copper and is recommended in the process design.

If the Master composite sample is representative of the overall deposit of the Cabaçal Project in mineralogy and head grade, the average copper recovery from this deposit is expected to be in the low 90% range and gold recovery is expected to be in the mid to high 80% range with the incorporation of a gold gravity circuit. Based on the head grade, as indicated from the test sample, this deposit warrants further study and should proceed to the next stage of investigation. The scope of further testwork recommended includes:

- Optimization of rougher concentrate regrind size.
- Optimization of copper cleaner pH and potential depressants.
- Pyrite flotation, if required, investigating other reagent schedules without copper sulphate.
- Sedimentation and potential filtration tests on flotation tailings.

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

Mineral Resource estimates ("MRE") were generated by Simon Tear (PGEO, EurGeol), a Director and Consulting Geologist of H&S Consultants Pty Ltd ("H&SC"), based in Brisbane, Qld, Australia. The Mineral Resources were publicly reported by Meridian to the TSX in September 2022 in accordance with NI43-101 rules.

The effective date of the Mineral Resource estimate MRE is 21st August, 2022, which was the date that the final datasets were received.

The Mineral Resources reported in this section have been classified under the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.

An initial review of the drilling data and consultation with Meridian indicated a multi-stage mineral system with an early gold-bearing VMS style of mineralization overprinted by a late stage structural gold event. As a result, H&SC has produced a hybrid resource model using Multiple Indicator Kriging ("MIK") for the gold grade interpolation and Ordinary Kriging ("OK") for the copper and silver grade interpolation.

The key feature for the grade interpolation was using unconstrained 1m composited drillhole data within the main mineralized host unit with no grade domains. Two domains, domain 1 and domain 2, were delineated based on the density of drilling completed. A basal structural surface constraint was used to restrict the composite selection and grade interpolation with depth. Sub-domains based on oxidation levels (oxidised, partial and fresh) were also applied to the composite data.

14.2 Multiple Indicator Kriging

The MIK method was developed in the early 1980's with the intent of addressing some of the problems associated with estimation of resources in mineral deposits. These problems arise where sample grades show the property of extreme variation and consequently where estimates of grade show extreme sensitivity to a small number of very high grades. These characteristics are typical of many gold deposits, where the coefficient of variation ("CV") statistic in samples normally exceeds 2. MIK is one of a number of methods which can be used to provide better estimates than the more traditional methods such as OK and inverse distance weighting.

The basic unit of an MIK block model is a panel that normally has the dimensions of the average drillhole spacing in the horizontal plane. The panel should be large enough to contain a reasonable number of blocks, or Selective Mining Units ("SMUs"; usually set to about 15). The SMU is the smallest volume of rock that can be mined separately as mineralized material or waste and is usually defined by a minimum mining volume. The goal of MIK is to estimate the tonnage and grade of mineralization that would be recovered from each panel if the panel were mined using the SMU as the minimum selection criteria to distinguish between mineralized material and waste.

The resource model for Cabaçal was built using GS3©, the MIK software developed by FSSI Consultants (Aust.) Pty Ltd, a forerunner to H&SC, and is suitable for use in open-pit optimization studies. GS3 and particularly its grade control sister MP3, are sold commercially by FSSI to mine sites around the world. Examples of the use of GS3/MIK models are included below:

- Atlantic Mining NS Inc. now owned by St. Barbara. This came into production in 2018 and has recently finished mining the initial Touquoy pit. This site used MIK for their resource models and MP3 for grade control – and after some 5 years of production, it has performed very well.
- OceanaGold's Haile Gold Mine in South Carolina (USA) uses MIK modelling for their resource estimation.
- Perseus Mining have used MIK-produced Mineral Resources for several mines and report good reconciliation, especially with the Edikan mine in Ghana.
- The Bayan Airag gold mine in Mongolia has reported a very good match between grade control and the MIK/GS3 resource modelling.
- The Kanmantoo copper mine in South Australia (Hillgrove Resources), after a poor performance between the mill feed and the Mineral Resource model, with the introduction of MIK, reconciliation between the resource model and the mill feed greatly improved.
- The Sukari gold mine in Egypt, owned by Centamin, has used MIK to generate recoverable resources since 2010. Meridian now uses GS3 for its Mineral Resources.
- In central NSW E-type MIK/GS3 gold resources have been generated for the Perseverance, New Occidental and Hera mines belonging to Peak Gold Mines (owned by Aurelia).
- MIK/GS3 was used to generate recoverable Mineral Resources for the Sepon gold mine in Laos (owner Pan Aust).
- The ERA-owned Ranger Uranium mine in the Northern Territory has used MIK/GS3 to generate recoverable resources.

14.3 Supplied Data

Meridian supplied the following items to H&SC:

- A drillhole database in MSAccess for direct use in Surpac. Drillhole data comprises surface and underground diamond cored holes for both recent and historic drilling. 23 surface trenches were also included;
- Drillhole data included hole collars, downhole surveys, assays, lithology, alteration, veining, densities and recoveries;
- 3D wireframes for topography, the underground development and mined stopes;
- 3D wireframes for the basal contact to the mineralization ("TAC"), a gabbro body, and oxidation surfaces for base of complete oxidation ("BOCO") and base of partial oxidation or transition zone ("BOPO"); and
- Mill production figures.

The MSAccess database had indexed fields, which check for duplicate entries, inconsistent data protocols, etc. The database was linked to the Surpac Mining software for geological interpretation, composite data generation, block model creation and validation and resource reporting. Additional error checking was done using the Surpac database audit option for incorrect hole depths, sample/logging overlaps and missing downhole surveys. Manual checking of logging codes for consistency, plausibility of drill hole trajectories and assay grades were also undertaken.

Drill hole spacing was nominally on 10-20m centres in domain 1 of the deposit, i.e., the densely drilled ex-mine area, extending to 50 to 100m in domain 2, i.e., in the mine periphery and extending to the northwest and southeast. Downhole sampling was generally on 1m intervals with all the Meridian core sampled and most of the historical drilling core was sampled.

The MRE is based on 869 diamond core holes with geology and assays, totalling 91,956m. An additional 23 surface trenches were included for a further 1,539 m of sampling. A database summary is presented in Table 14-1, showing the data provided for a range of items.

Table 14-1: Database Summary.

Item	Holes/Trenches	Records
Collar	892	93,495.55mm
Survey	892	6,918
Au (g/t)	740	54,468
Cu (%)	740	54,543
Ag (g/t)	715	54,011
Pb (ppm)	269	30,096
Zn (ppm)	269	30,096
Lithology	597	5,175
Weathering	271	3,018
Density	253	18,826

The resource estimation methodology aimed to use as much drilling data as possible including the historic data and the trench data. Meridian completed a substantial amount of hole twinning that validated the use of the historical drilling data (see Chapter 10 Drilling). However, one issue noted was that some of the historical holes had unsampled sections, presumably because of no visible grade or due to a focus then on high grade gold, which could have been an issue with H&SC's method of unconstrained composite modelling. These unsampled sections were virtually all within the detailed drilled area around the mine. The risk to the resource estimates is that metal grades would be inserted into areas where they did not exist. On viewed subsequent models, this did not seem to be the case, partially due to the density of drilling, i.e., the 10 to 20m centres, impacting on these blank areas, thus minimising the risk to the estimates.

Also included in the composite dataset were assays from historical holes, generally within the immediate mine area, that could not be validated via a ledger of results. Initial modelling by H&SC without these holes resulted in poorer reconciliation with the mine production and so it was decided to include them in the resource estimation as the total number of samples, approximately 1,125 samples, represented <3% of the total data.

Assay types were labelled 1 or 2 in the database with details supplied in Table 14-2.

Table 14-2: Assay Types in the Database.

Assay Type Number	Quantity	Description
1	55,272	From Official Ledger
2	1,075	Digital data not validated

An overall assessment of the data confirms that it is suitable for resource estimation.

14.4 Geological Interpretation

A review of the drilling data in cross-section suggested a very complex pattern to the mineralization, particularly for gold. This was supported by geological observations from Meridian.

The geological interpretation was supplied by Meridian, modified by H&SC, as a series of 3D wireframes created via sectional interpretation. Section spacing varied between 20, 25 and 100m and the geological interpretation included a surface for the TAC and a gabbro unit in the east, along with oxidation surfaces for the BOCO and BOPO. The option of creating mineral domains within the mineral host unit was discounted by H&SC due to an assessment of the variation of the mineral grades between drillholes and the diffuse boundaries to the mineralization within drillholes. Creating high grade domains would introduce a conditional bias to the composite data that could result in overstatement of the grades in the resource.

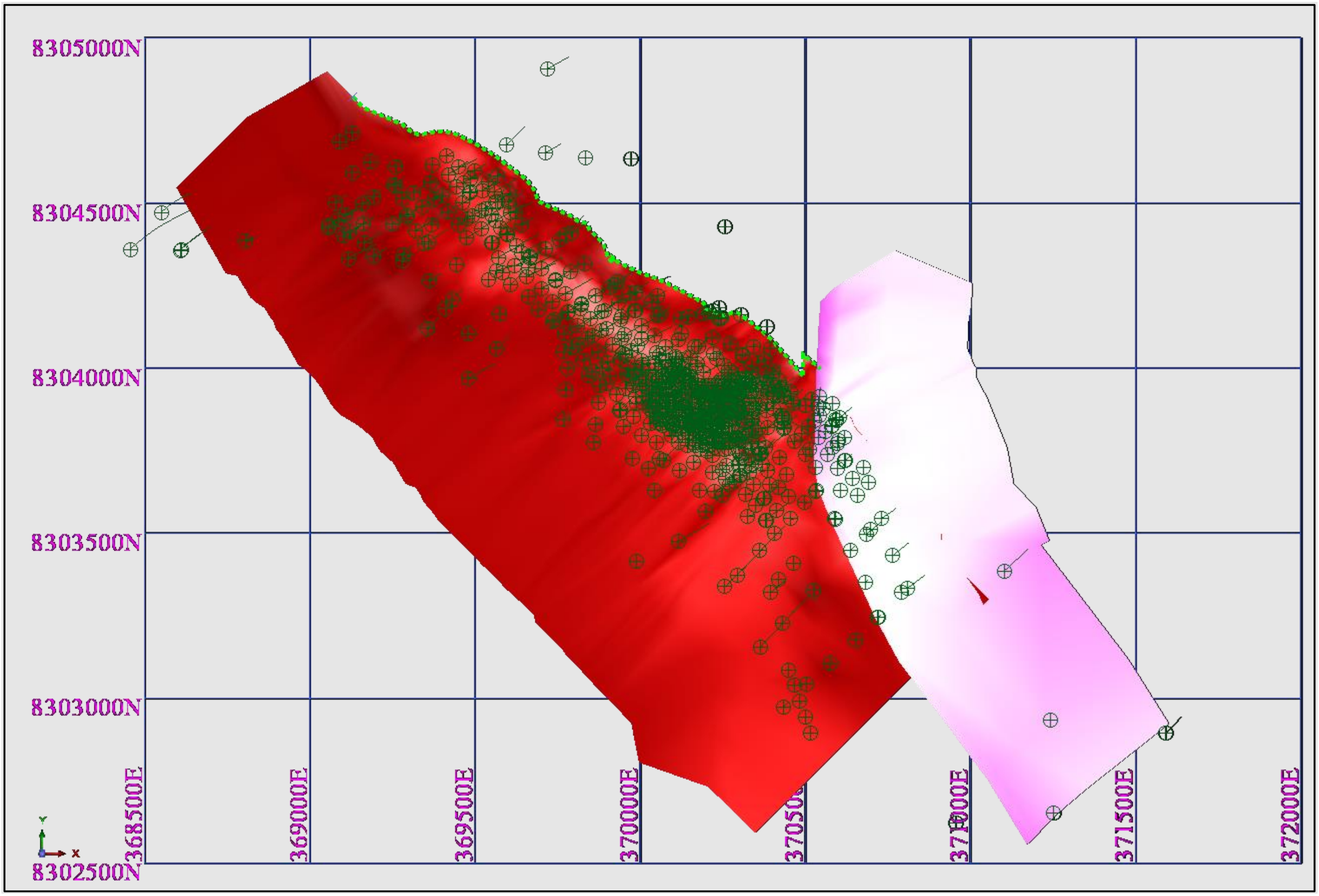
The interpreted mineral zone has overall dimensions of 650m (down-dip) by 2,350m (along strike) with a range in thickness from surface of 0 to 200m. Mineralization outcrops along its northeast margin (270mRL 205halweg..) and is interpreted to finish between the 140 to 0mRL. The mineral zone strikes approximately 135° with a down-dip angle of 10-20° to the southwest and a shallow plunge to the southeast of 10-20°. There is a minor inflexion section in the middle of the deposit with a shallow dip to the northeast. No definitive thickness has been applied to the mineral body for resource estimation purposes.

A detailed topographic surface from 1m gridded LiDAR data was also supplied, responsibilityh acted as a top to the mineralization.

All coordinates are in the SIRGAS2000 grid projection with the axis of the drilling grid orientated approximately at 135°.

Mineralization is interpreted to be bounded in the northwest by a lack of drilling, in the southeast by very low grades, and down-dip by a tail off metal grades and a potential lack of drilling (Figure 14-1).

Figure 14-1: Interpreted Geological Surfaces.



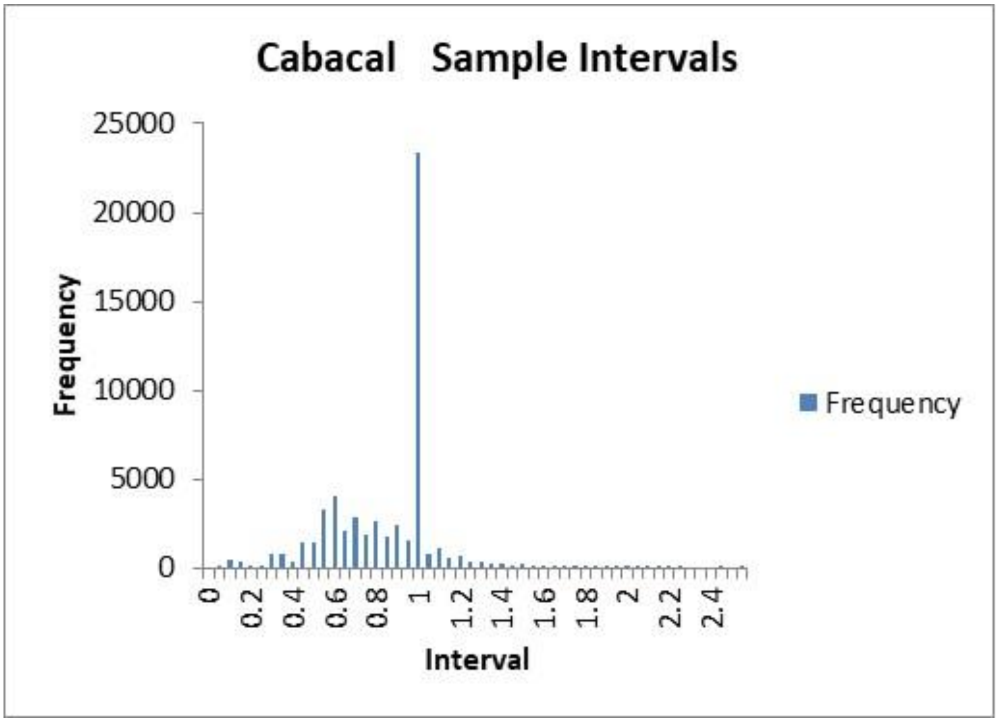
Source: H&SC, 2022. (red = basal TAC contact, purple = gabbro unit, green dash = surface track of TAC unit, green circles/lines – drillhole collars and traces).

14.5 Data Analysis

Drillhole spacing was on 10 to 20m centres in the core of the deposit extending to 50 to 100m in the periphery. Downhole sampling for the historical holes was on generally 1m intervals under geological control with varying levels of continuous sampling. The Meridian hole sampling has been more continuous, on 1m intervals, under some geological control.

A large majority of the sample lengths are 1m or less (Figure 14-2), and therefore it was decided to use 1m composites for input to the block grade interpolation.

Figure 14-2: Histogram of Sample Intervals.



Source: H&SC, 2022.

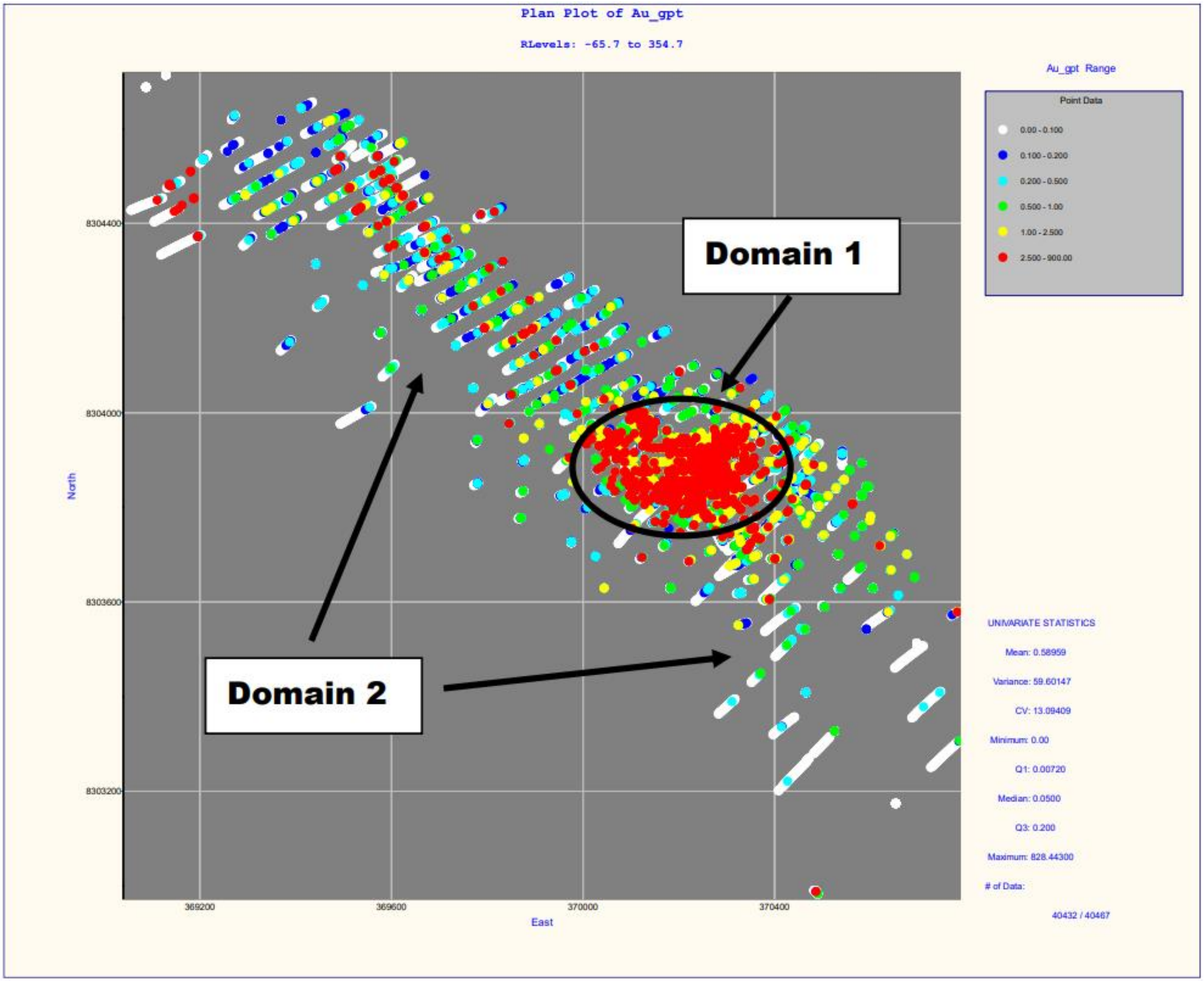
Unconstrained 1m composite data was generated for the whole drill hole database for gold, copper, silver, lead and zinc and then limited to above the TAC. This resulted in a total of 40,467 composites. However, the data contained a large number of zeroes, mainly in the mine zone, for gold (5,091), copper (2,977) and silver (8,056). These zeroes were replaced with very low values, 0.0004g/t for gold, 0.0001% for copper, with regression equations used for silver based on a copper-silver correlation; for domain 1 Ag = 4.3696*Cu%-0.1346 and for domain 2 Ag = 4.3367*Cu% +0.0396. The blank sample intervals were ignored.

The two drilling domains were delineated based on a solid shape for the more densely drilled mine area. This defined domain 1 as being for the more densely drilled area around the old mine, and domain 2 for the peripheral drilling. The oxidation surfaces were then applied to the trimmed composite data in order to yield three oxidation sub-domains, i.e., complete oxidation, partial oxidation or transition zone and a fresh rock zone. All composite data was rotated 45° clockwise to an H&SC N-S orthogonal grid orientation for ease of variography and metal grade interpolation. The modelled data was subsequently unrotated back into real space. The point of rotation was 371373mE, 8302229mN, 29.5mRL with a Z-axis rotation of 45o clockwise.

A plan view of the gold composite data is shown in Figure 14-3.

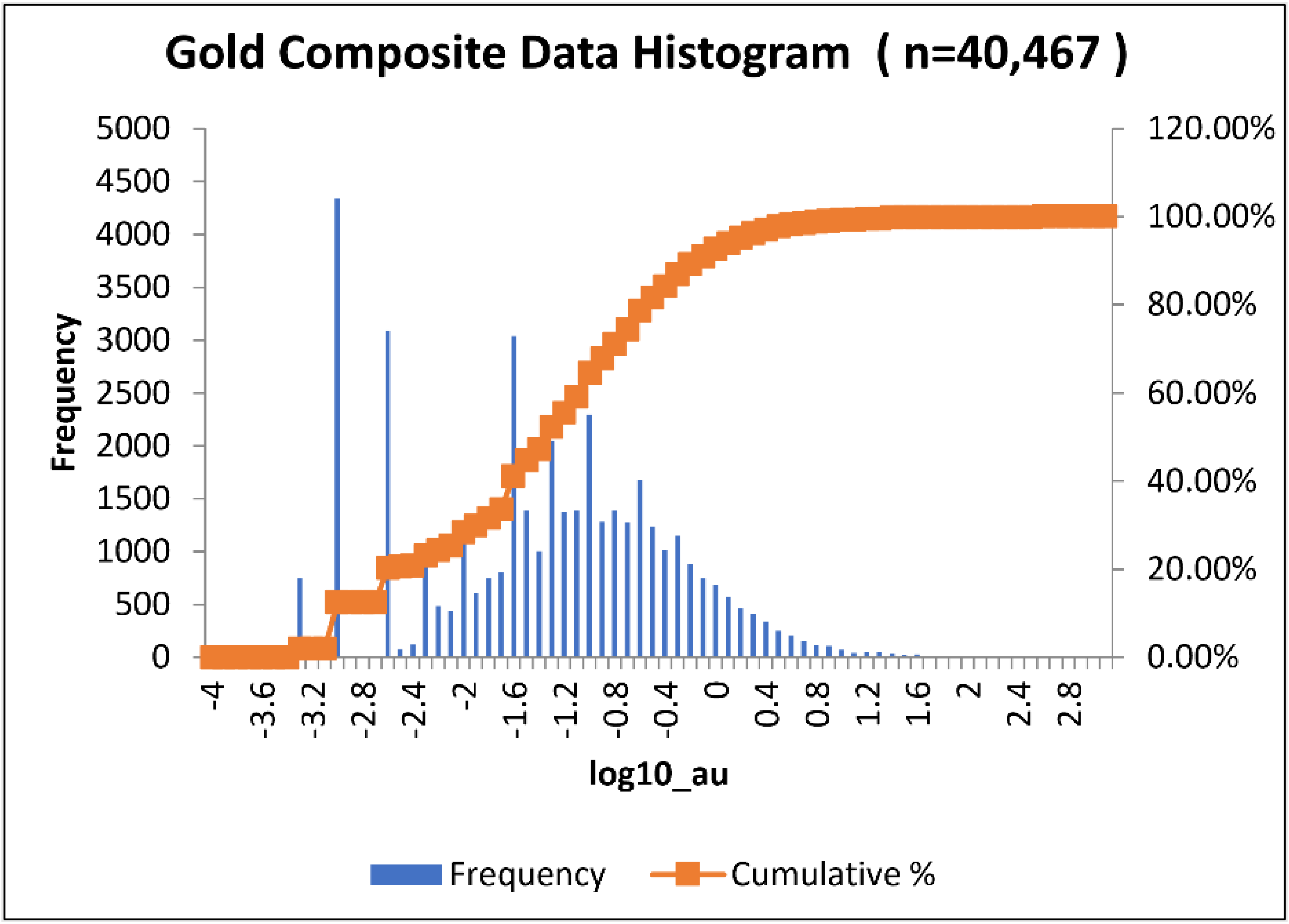
A histogram of the gold composite data is shown as Figure 14-4 and indicates a single, log normal population for the combined drilling domains with no significant skew or bimodal nature.

Figure 14-3: Gold Composite Distribution in Plan View.



Source: H&SC,2022. (data cropped for improved viewing; zoom for better resolution).

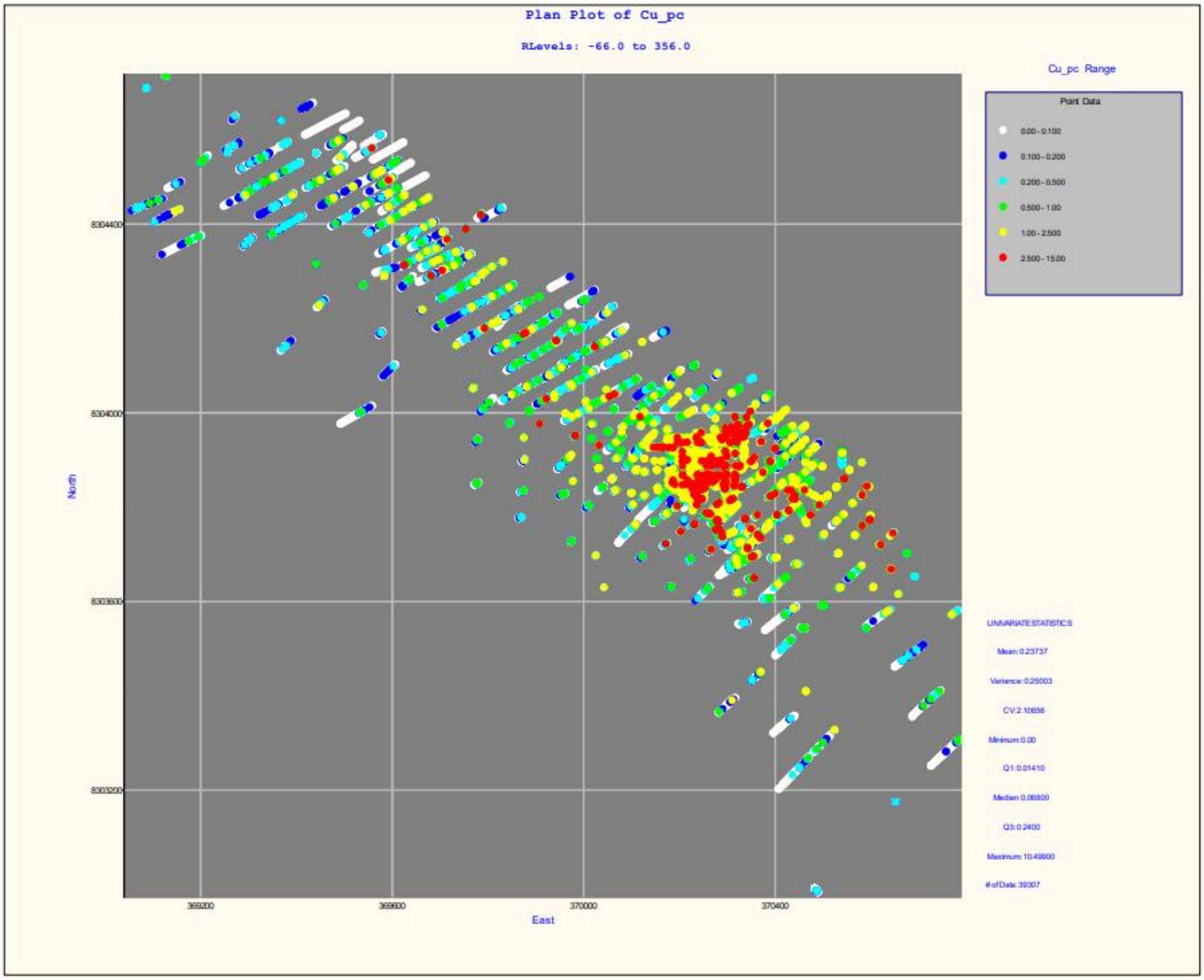
Figure 14-4: Histogram of Gold Composite Data.



Source: H&SC,2022. Log scale for x-axis.

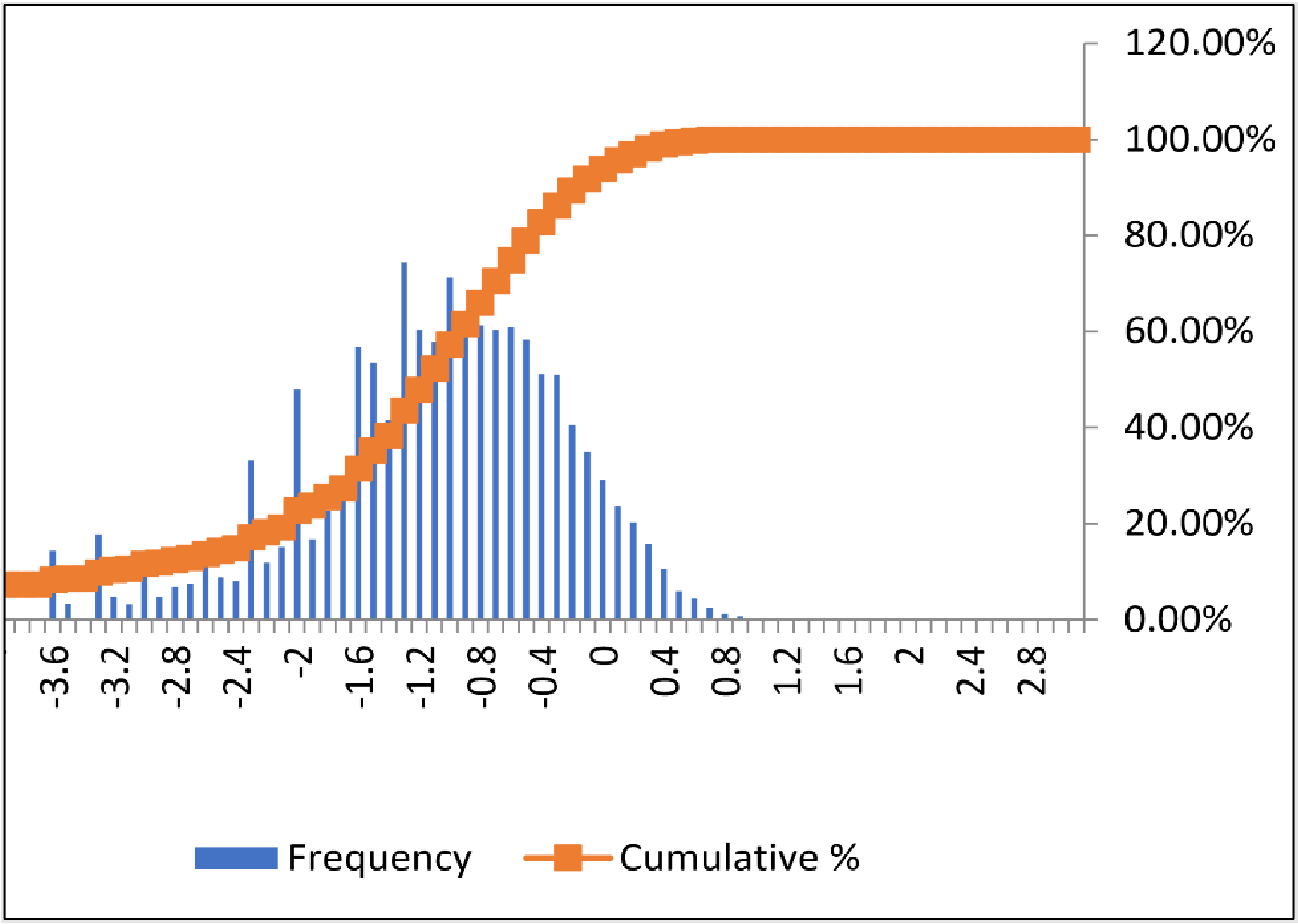
A plan view image of the copper composite data is shown in Figure 14-5. A histogram plot of the data (Figure 14-6) shows indicates a single, log normal population for the combined drilling domains with no significant skew or bimodal nature (zoom for better resolution of the figure).

Figure 14-5: Copper Composite Distribution in Plan View.



Source: H&SC,2022.

Figure 14-6: Histogram of Copper Composite Data.



Source: H&SC,2022. Log scale for x-axis.

Table 14-3 provides summary statistics for the gold data for the three oxidation sub-domains split by drilling domain. The most important item to note is the high CV for all domains and sub-domains, which indicates extreme values and/or the potential for more than one population. The latter of which is potentially excluded based on the histogram in Figure 14-4. The high CVs would suggest that a more sophisticated block grade modelling method is required, preferably a non-linear modelling technique, i.e., not OK.

Table 14-3: Summary Statistics for Gold Composites.

	BOCO		BOPO		Fresh	
	Domain 1	Domain 2	Domain 1	Domain 2	Domain 1	Domain 2
No. Data:	743	2700	670	1903	17485	16966
mean:	0.096	0.050	0.038	0.469	1.063	0.243
variance:	1.193	0.256	0.014	168.794	97.989	21.603
Std Dev	1.092	0.506	0.118	12.992	9.899	4.648
CV:	11.37	10.092	3.086	27.683	9.31	19.132
Minimum:	0.0004	0.001	0.0004	0.001	0.0004	0.0004
Q1:	0.005	0.0025	0.0042	0.0025	0.0496	0.00251
Median:	0.011	0.0099	0.01	0.0111	0.1578	0.025
Q3:	0.039	0.032	0.028	0.044	0.502	0.086
Maximum:	28.961	24.442	1.712	508.429	828.443	363.914

An option to reduce the CV would be to apply a top cut to the gold composite data. However, H&SC prefers to apply minimal top cuts to composite data as, firstly, applying top cuts adjusts real data and secondly the threshold is usually arbitrarily decided without any statistical or geological validity. H&SC prefers to control any potential higher grade outliers through judicious use of the grade interpolation technique and search parameters, variography and the geological interpretation. No top cutting was applied to the gold, copper or silver composite data.

The visual part of the data review and the geological understanding of the gold mineralization, in combination with the above notes on the statistical analysis, led to the decision to use MIK for the gold grade interpolation. This is a non-linear modelling method suited to the type of deposit, the multiple styles of mineralization and the significant range in gold grades seen at Cabaçal. The MIK method is designed to work without the need for excessive top cutting and grade domains. It is ideally suited to gold deposits in open pit extraction scenarios.

The summary statistics for copper and silver are included in Table 14-4. The most obvious feature is the drop in the CVs to around 2 or less, which indicates to H&SC there is less risk with extreme values and that OK would be an appropriate grade interpolation method. The significantly higher copper and silver means for the domain 1 data is probably a reflection of the higher density of drilling in the higher grade mine material. There is no evidence for supergene enrichment in the BOPO zone.

Table 14-4: Summary Statistics for Copper and Silver Composites.

Domain 1	BOCO		BOPO		Fresh	
	Copper	Silver	Copper	Silver	Copper	Silver
No. Data:	743	743	670	670	17482	17482
mean:	0.058	0.395	0.146	0.506	0.409	1.711
variance:	0.003	0.259	0.047	0.636	0.523	13.329
Std Dev	0.050	0.509	0.216	0.798	0.723	3.651
CV:	0.862	1.290	1.481	1.576	1.766	2.134
Minimum:	0.0001	0.005	0.0001	0.00435	0.0001	0.001
Q1:	0.027	0.100	0.020	0.06	0.0347	0.200
Median:	0.049	0.265	0.060	0.2	0.155	0.490
Q3:	0.076	0.470	0.173	0.6	0.452	1.610
Maximum:	0.814	6.69	1.54	7.97	13.65	84

Domain 2	BOCO		BOPO		Fresh	
	Copper	Silver	Copper	Silver	Copper	Silver
No. Data:	2700	2700	1903	1903	16966	16966
mean:	0.049	0.315	0.117	0.407	0.166	0.769
variance:	0.002	0.267	0.043	0.752	0.139	3.801
Std Dev	0.045	0.516	0.207	0.867	0.373	1.950
CV:	0.928	1.64	1.763	2.128	2.239	2.536
Minimum:	0.0001	0.005	0.0001	0.002	0.0001	0.001
Q1:	0.023	0.1	0.015	0.1	0.005	0.100
Median:	0.039	0.2	0.054	0.2	0.042	0.250
Q3:	0.060	0.3	0.103	0.4	0.166	0.640
Maximum:	0.402	11.9	3.349	17.6	10.499	64

As part of the MIK modelling process, it is necessary to generate conditional statistics for the two domains and the three sub-domains (oxide zones). H&SC decided to adopt a set of 14 gold grade bins for the following percentile indicator bins: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, 0.97, 0.99.

Examples of the conditional statistics for the fresh rock zones for the two drilling domains are included as Table 14-5. The key feature to note is the difference between the mean and the median for the top indicator bin for each domain (see below for an explanation).

Table 14-5: Gold Conditional Statistics for Selected Sub-domains.

Domain 1 Fresh					
Grade_Thresh	Cum_Prop	Class_Mean	Class_Med	Mean_Above	No.Data
0.006	0.1	0.003	0.003	1.181	1748
0.029	0.2	0.017	0.019	1.327	1749
0.056	0.3	0.044	0.050	1.51	1748
0.100	0.4	0.079	0.079	1.748	1749
0.158	0.5	0.121	0.120	2.074	1748
0.240	0.6	0.197	0.200	2.543	1749
0.400	0.7	0.311	0.300	3.286	1748
0.502	0.75	0.447	0.444	3.854	874
0.691	0.8	0.589	0.590	4.671	875
0.978	0.85	0.817	0.805	5.955	874
1.500	0.9	1.190	1.172	8.337	874
2.842	0.95	2.036	1.976	14.631	874
4.518	0.97	3.551	3.460	22.017	350
13.635	0.99	7.347	6.800	51.357	350
828.443	1	51.357	24.2	-99	175

(class_Med = class median)

14.6 Variography

Variography was undertaken on the composite data to ascertain spatial continuity of metal grades. The general comment is that the variography was weakly defined even for domain 1. However, it should be noted that outside the drive development and stoping areas, i.e., domain 2, the drillhole spacing is considered by H&SC to be relatively wide and, in combination with the seeming lack of any uniquely strong structural or lithological control to mineralization, well defined variography will be difficult to achieve and is subject to compromises. The main outcome of the variography studies on this project is that more infill drilling in domain 2 is required to get a better measure of the grade continuity.

Gold variography was weak to moderate for domain 1 but was weak for domain 2. Copper and silver variography was relatively weaker for both domains and indicated either a lack of drilling and/or little structure to the data, the latter of which is considered potentially symptomatic for the styles of mineralization, i.e., the deformation of an Au/Cu VMS system coupled with a gold structural overprint.

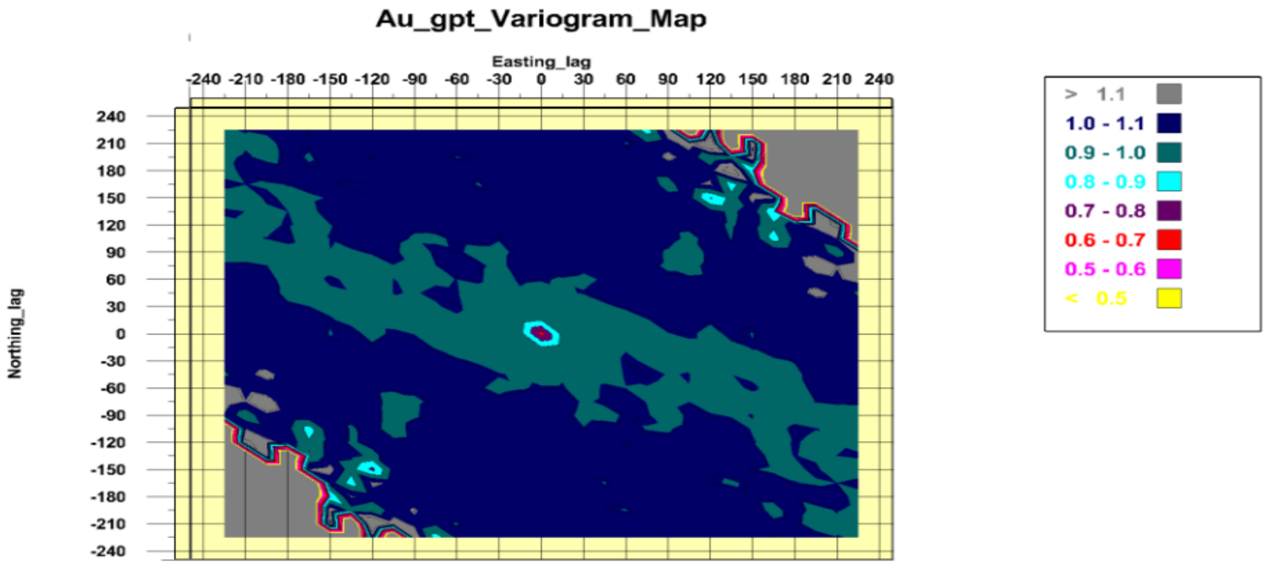
The issue of the historic vertical drilling with respect to sub-vertical gold structures may also impart a sample bias. This would have a negative effect on assessing the grade continuity for what is overall a relatively flat-lying mineral body.

Variogram map examples for domain 1 showing gold grade continuity in the three orthogonal directions are shown in Figure 14-7. (Note: the directions in the variography are for the rotated data). In the top diagram in Figure 14-7, the strike continuity of the gold mineralization in domain 1, the X-Y direction, is in marked contrast to the perceived general strike of the deposit, i.e., approximately a 40° difference. The variogram map indicates a strong geological continuity of the gold grades but short-range grade continuity (the cyan/red colours). The variogram maps are also a function of the drillhole spacing.

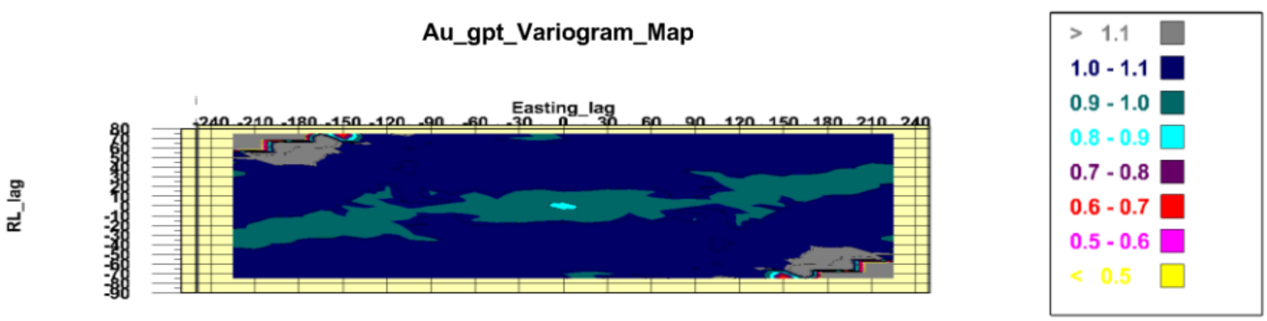
The other two variogram maps confirm the regional dip and plunge of the mineralization, but again indicate short-range grade continuity.

Figure 14-7: Variogram Maps for Domain 1 Gold Composite Data, Fresh Sub-domain.

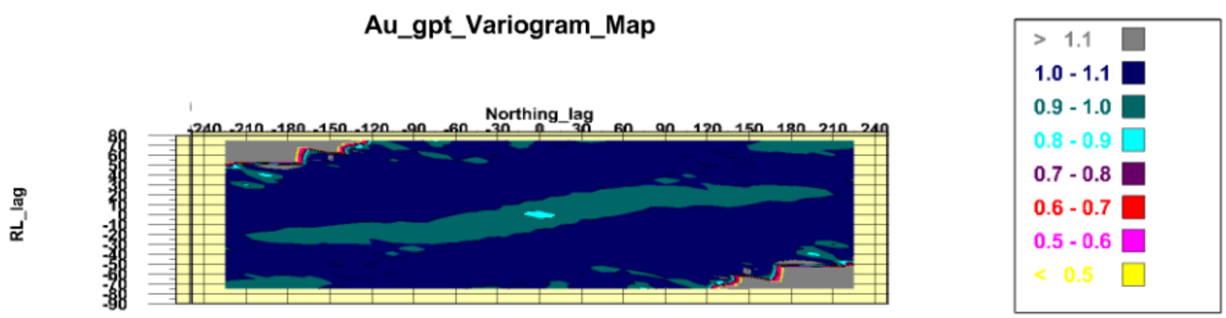
Domain 1 Gold Plan View (X-Y) (rotated grid view)



Domain 1 Gold Cross-Section View (E-W)



Domain 1 G–ld - Long Section View (N_S)



Source: H&SC,2022.

14.7 Resource Estimation

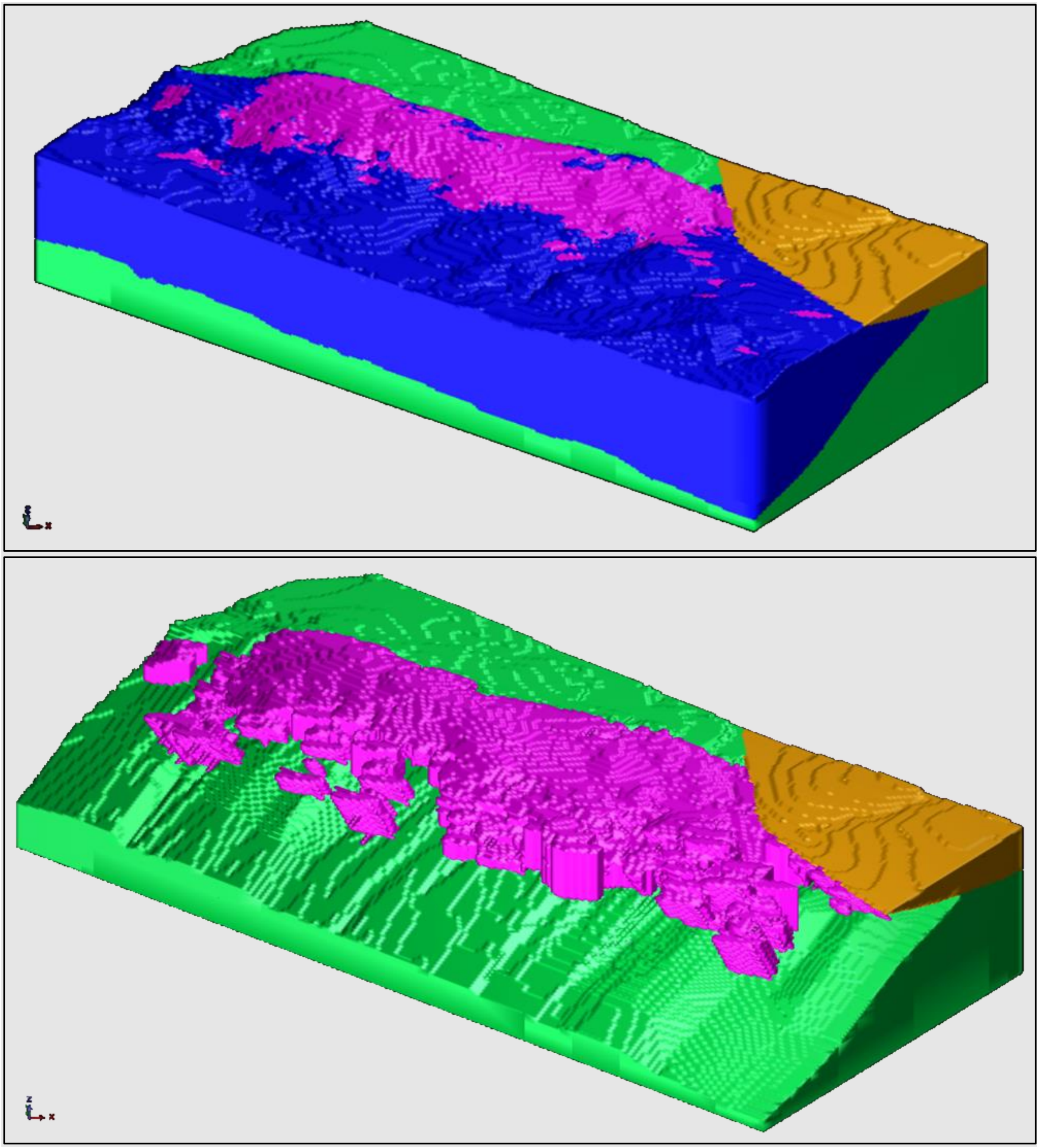
Details of the Surpac block model are supplied in Table 14-6. No sub-blocking has been applied.

Table 14-6: Block Model Details

Cabaçal MIK/OK Block model: cabacal_combined_v6_180922.mdl			
Type	**X**	**Y**	**Z**
Minimum Coordinates	370429.72	8302729.632	-160
Maximum Coordinates	371529.72	8305229.632	415
User Block Size	10	10	5
Min. Block Size	10	10	5
	Bearing	**Dip**	**Plunge**
Rotation	45	0	0

A 3D block model representation of geology is included as Figure 14-8. The green is the footwall barren unit, the brown is the gabbro, the blue is the mineral hosting sequence and the magenta represents the interpolated block grades for the gold mineralization. The lower diagram essentially shows the extent of the mineralization, particularly the down-dip extent, by removing the host unit.

Figure 14-8: Block Model Geology.



Source: H&SC,2022. View looking down to north.

H&SC has its own purpose-built MIK modelling software (GS3) designed for geological situations as seen at Cabaçal. The method produces two resource models, recoverable Mineral Resources and E-type Mineral Resources. Meridian informed H&SC that it intended to recover gold, copper and silver from mining the deposit via an open pit method. Therefore H&SC decided to produce an E-type estimate for gold with an appropriate block size and SMU that would allow for OK of the relatively better distributed copper and silver mineralization. This enables the joint reporting of Mineral Resources for all three elements.

The MIK grade interpolation for gold used a block size of 10m by 10m by 5m with an SMU of 5m by 5m by 2.5m and no sub-blocking. The sizes are less than the ideal, as mentioned previously, but is part of the compromise using the E-type model and likely mining selectivity. The two drilling domains zones were treated separately with regards to the variography but had similar search ellipse strategies applied, with soft boundaries between the two domains and the oxidation sub-domains. For copper and silver OK was used for the grade interpolation for the same block size with the same search ellipse parameters as for the gold. Copper and silver have a moderate degree of correlation and were thus modelled together.

A three pass search strategy was applied to the MIK gold grade interpolation with search ellipse parameters detailed in Table 14-7. Search axis rotations for the ellipse generally matched the mineral continuity directions from the variography work, which reflected the overall attitude of the deposit. The maximum extrapolation of the estimates is 70m.

Table 14-7: MIK Search Ellipse Parameters – Gold.

Pass No	X radius (m)	Y radius (m)	Z radius (m)	Min Data	Min Octants	Max Data
1	35	35	5	16	4	48
2	70	70	10	16	4	48
3	70	70	10	8	2	48
Rotations	10	-20	10	(trigonometric convention- rotated data)		

For the grade estimation of copper and silver by OK, the same search ellipse dimensions were used except with a minimum of 12 data points and a maximum of 32 with a minimum of 4 octants decreasing in Pass 3 to a minimum of 6 data and 2 octants (Table 14-8). An initial review of the OK modelling suggested that the grade interpolation would benefit from a separate search ellipse dipping northeast rather southwest to cater for the previously identified inflexion zone in the basal contact surface, which was duly completed with a soft boundary. An additional expanded set of search parameters (Pass 4) was used for copper and silver to ensure all gold block grades had an accompanying copper and silver grade, but not vice versa.

Table 14-8: OK Search Ellipse Parameters – Copper & Silver.

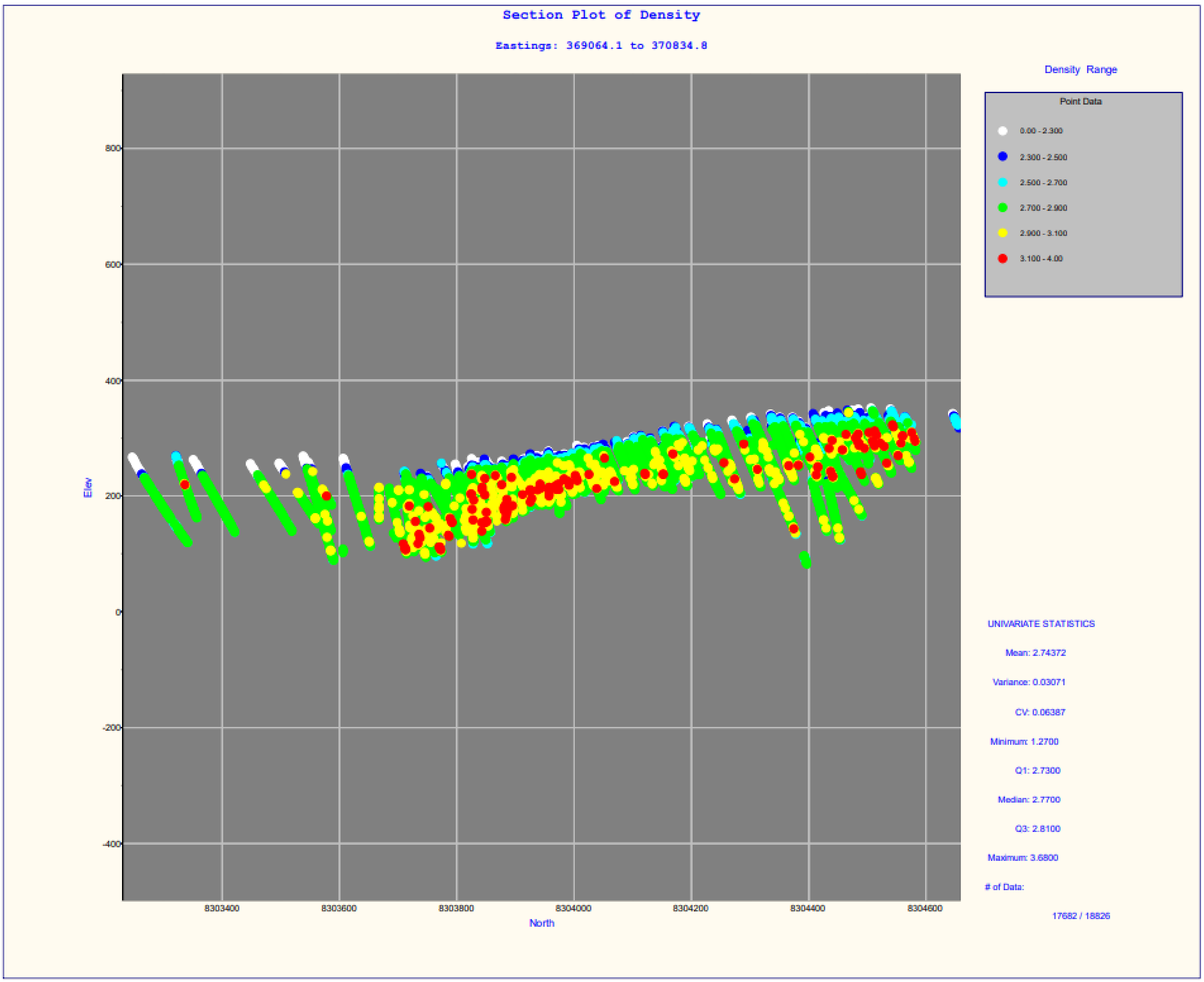
Pass No	X radius (m)	Y radius (m)	Z radius (m)	Min Data	Min Octants	Max Data
1	35	35	5	12	4	32
2	70	70	10	12	4	32
3	70	70	10	8	2	32
4	130	130	13	6	2	32
Rotations	10	-20	10	Main Search Orientations		
	10	20	0	Inflexion Zone Orientations		
	(trigonometric convention – rotated data)					

14.8 Density Model

Density data was supplied by Meridian comprising measurements made initially on selected pieces of core, 10-15cm in length. The sampling was modified mid-programme to comprise all the 1m half core sample bits as a single sample. The measuring technique was by the weight in air/weight in water method (Archimedes principle). A number of very low density values were removed from the dataset as potentially being in error. A total of 18,826 samples were used for the density grade interpolation.

Figure 14-9 shows the distribution of density samples in long section view. Items to note are lower densities associated with the near surface oxidized material, the general shallow southeast plunge of the deposit and the rather limited number of high density values (red dots are >3.1t/m^3).

Figure 14-9: Long Section View of Density Sample Data.



Source: H&SC,2022. 1,144 peripheral samples trimmed for improved resolution.

The density samples were modelled unconstrained using OK with similar search parameters and rotations to the global metal grade interpolation for Passes 1 to 3 (Table 14-9). To try and ensure all blocks with estimated metal grades had a density an additional 3 pass search strategy was applied, i.e., Passes 4 to 6 in the OK search parameters.

Table 14-9: OK Search Ellipse Parameters – Density.

Pass No	X radius (m)	Y radius (m)	Z radius (m)	Min Data	Min Octants	Max Data
1	35	35	5	12	4	32
2	70	70	10	12	4	32
3	70	70	10	8	2	32
4	100	100	10	6	2	32
5	130	130	13	6	2	32
6	130	130	13	3	1	32
Rotations	10	-20	5	(trigonometric convention)		

As part of the MIK estimation process an average density value is created for each block along with the E-type gold grade. Blocks that were not allocated a density block grade from the OK estimation but had an E-type gold grade had the MIK density substituted into the overall density attribute.

14.9 Estimation Results

The global E-type estimation results are reported for a 0.3g/t gold equivalent ("AuEq") cut-off grade as advised by Meridian for the three pass categories used in the MIK grade interpolation.

Gold equivalents are calculated as follows:

AuEq(g/t) = (Au(g/t) * %Recov) + (1.492*(Cu% * %Recov)) + (0.013*(Ag(g/t) * %Recov)) w here:

- Au_recovery_ppm = (5.4368*ln(Au_Grade_ppm))+88.856;
- Cu_recovery_pct = (2.0006*ln(Cu_Grade_pct))+94.686; and
- Ag_recovery_ppm = (13.342*ln(Ag_Grade_ppm))+71.037.

Meridian price assumptions: Au = USD1,650/oz; Cu = USD3.59/lb; Silver = USD21.35/oz

The estimation results are reported to give an indication of the distribution of metal throughout the deposit (Table 14-10). The following items are noted:

- The Au g/t field is from the MIK E-type estimation; higher gold ounces relative to gold equivalent ounces for the BOCO is a function of small volumes and the gold recovery factor being applied to the AuEq number;
- The mine area, domain 1, is markedly higher in gold (and copper and silver) grade than the peripheral zone, as would probably be expected;
- The BOCO zone shows a marked depletion in copper grades for both domains; and
- BOCO & BOPO volumes are relatively small making up 2-3% of the total Mineral Resources.

Depletion from historic mining was factored into the gold grade interpolation using a third-party model for the workings. No account for copper or silver depletion has been included at this stage.

Classification of the estimation results is included in Section 14.12.

A problem with trying to factor in the copper and silver depletion is that the development drives are relatively narrow in height and using a centroid-in/centroid-out basis for reporting estimates tends to not properly represent the actual mineralization removed. Estimating the copper and silver depletion is best done using a partial percent volume adjustment for the development drives and stopes and then manually remove this data from the reported resource estimates, which needs to be done as a separate exercise. This is demonstrated in a later section in this chapter.

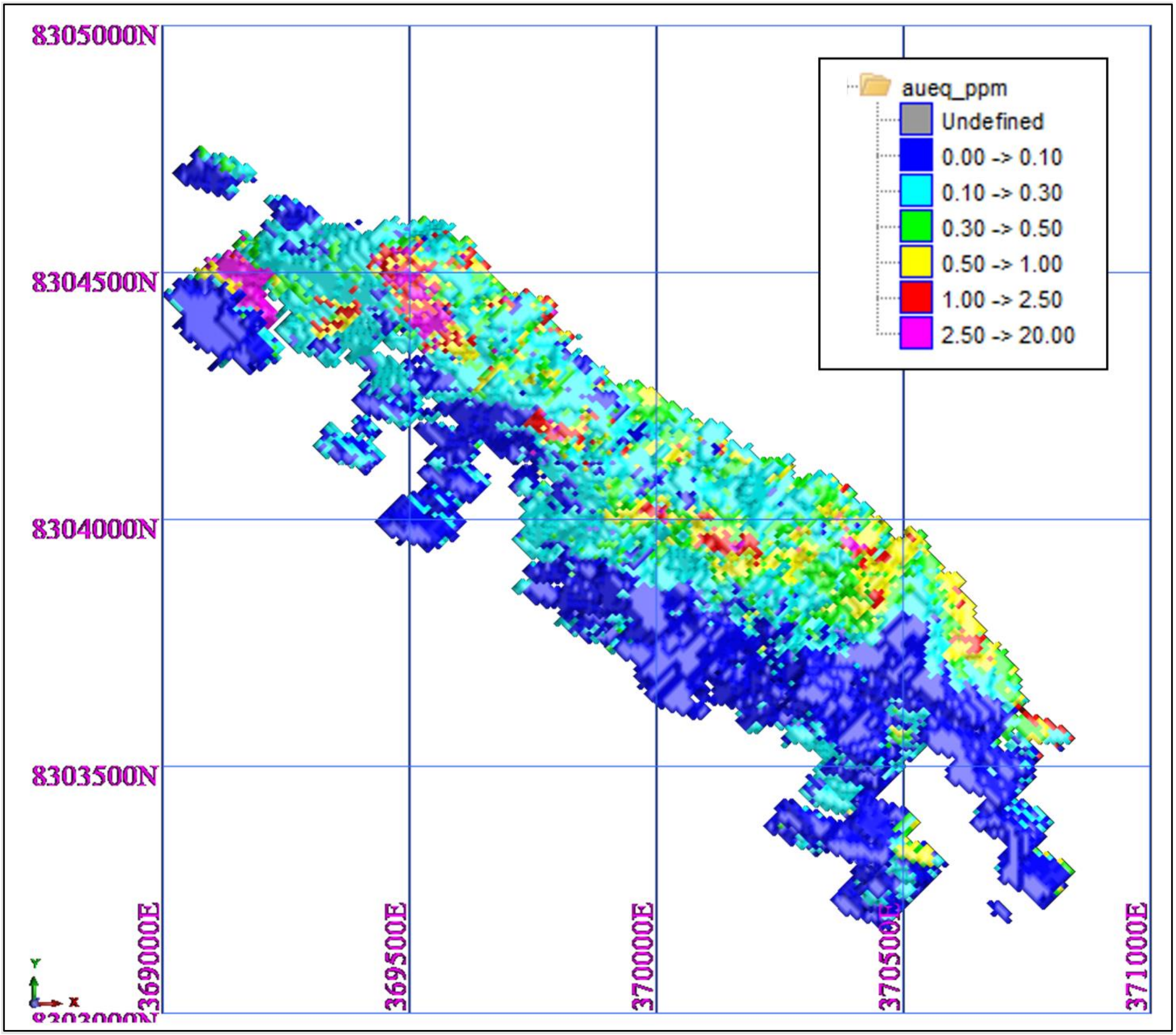
Table 14-10: Global Estimation Results.

Domain	Oxide	Pass No	Volume	Tonnes	Au g/t	Cu %	Ag g/t	AuEq g/t	Au Ozs	Cu T	Ag ozs	AuEq Ozs	Density t/m³
Domain 1	BOCO	Pass 1	21,500	48,305	0.81	0.10	0.7	0.72	1,258	49	1,075	1,117	2.25
		Pass 2	19,500	45,150	0.52	0.12	0.5	0.45	761	56	694	656	2.32
		Pass 3	7,000	15,880	0.63	0.13	0.4	0.55	320	20	195	278	2.27
	Sub Total		48,000	109,335	0.67	0.11	0.6	0.58	2,338	125	1,962	2,053	2.28
	BOPO	Pass 1	99,000	258,630	0.21	0.30	1.0	0.60	1,763	766	8,615	4,990	2.61
		Pass 2	90,000	234,360	0.16	0.26	0.7	0.50	1,198	614	5,607	3,768	2.60
		Pass 3	500	1,280	0.06	0.65	2.3	0.98	2	8	93	40	2.56
	Sub Total		189,500	494,270	0.19	0.28	0.9	0.55	2,972	1,389	14,320	8,805	2.61
	Fresh	Pass 1	4,692,000	13,201,110	1.11	0.46	2.0	1.70	470,316	60,989	840,032	722,453	2.81
		Pass 2	2,116,000	5,926,900	0.59	0.39	1.6	1.08	112,630	22,937	309,495	206,203	2.80
		Pass 3	31,000	86,285	0.26	0.61	2.7	1.09	710	522	7,369	3,030	2.78
	Sub Total		6,839,000	19,214,295	0.95	0.44	1.9	1.51	583,843	84,351	1,156,565	931,677	2.81
Sub Total			7,076,500	19,817,900	0.92	0.43	1.8	1.48	588,802	86,010	1,173,143	942,465	2.80
Domain 2	BOCO	Pass 1	9,500	23,335	0.65	0.05	0.4	0.57	490	13	269	430	2.46
		Pass 2	57,000	142,990	0.79	0.07	0.3	0.70	3,623	102	1,522	3,209	2.51
		Pass 3	20,000	51,905	0.75	0.10	0.5	0.67	1,252	54	876	1,113	2.60
	Sub Total		86,500	218,230	0.76	0.08	0.4	0.68	5,361	168	2,666	4,751	2.52
	BOPO	Pass 1	115,500	307,040	1.80	0.23	0.6	2.06	17,761	712	6,299	20,348	2.66
		Pass 2	737,500	1,948,725	1.34	0.17	0.5	1.49	83,839	3,274	29,388	93,238	2.64
		Pass 3	208,500	563,915	0.79	0.26	0.9	1.10	14,234	1,461	16,500	19,909	2.70
	Sub Total		1,061,500	2,819,680	1.28	0.19	0.6	1.47	115,779	5,442	52,132	133,549	2.66
	Fresh	Pass 1	1,782,500	4,997,835	0.48	0.36	1.4	0.94	76,976	17,892	225,626	150,417	2.80
		Pass 2	9,469,500	26,492,105	0.42	0.26	1.2	0.73	353,512	69,409	981,315	624,396	2.80
		Pass 3	3,197,000	8,938,115	0.60	0.24	1.1	0.88	171,290	21,362	310,104	253,773	2.80
	Sub Total		14,449,000	40,428,054	0.46	0.27	1.2	0.79	601,871	108,751	1,517,027	1,028,251	2.80
Sub Total			15,597,000	43,465,964	0.52	0.26	1.1	0.84	722,569	114,315	1,572,322	1,167,012	2.79
Total			22,673,500	63,283,864	0.65	0.32	1.3	1.04	1,312,479	199,977	2,745,014	2,110,140	2.79

(the lack of use of significant figures does not imply accuracy)

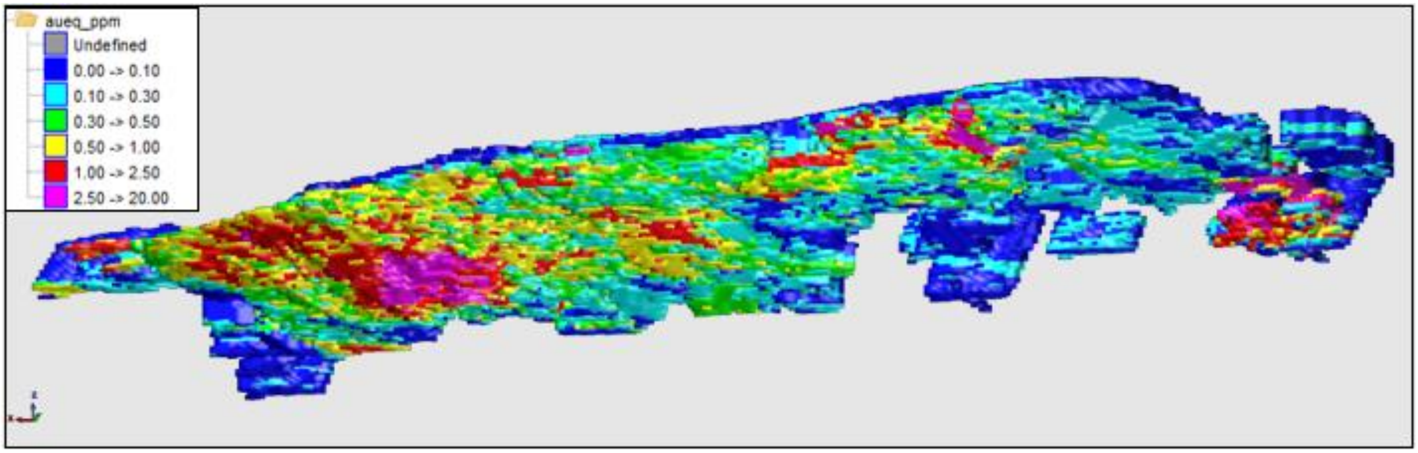
A plan view of all interpolated block grades for the fresh rock material for a zero gold equivalent cut-off constrained to the E-type model is shown in Figure 14-10. Figure 14-11 shows an oblique view of the global block gold equivalent grade distribution for a zero gold equivalent cut-off for all oxidation domains as seen from below.

Figure 14-10: Global Block Grade Distribution for AuEq for the Fresh Rock Sub-domains.



Source: H&SC,2022. Plan view.

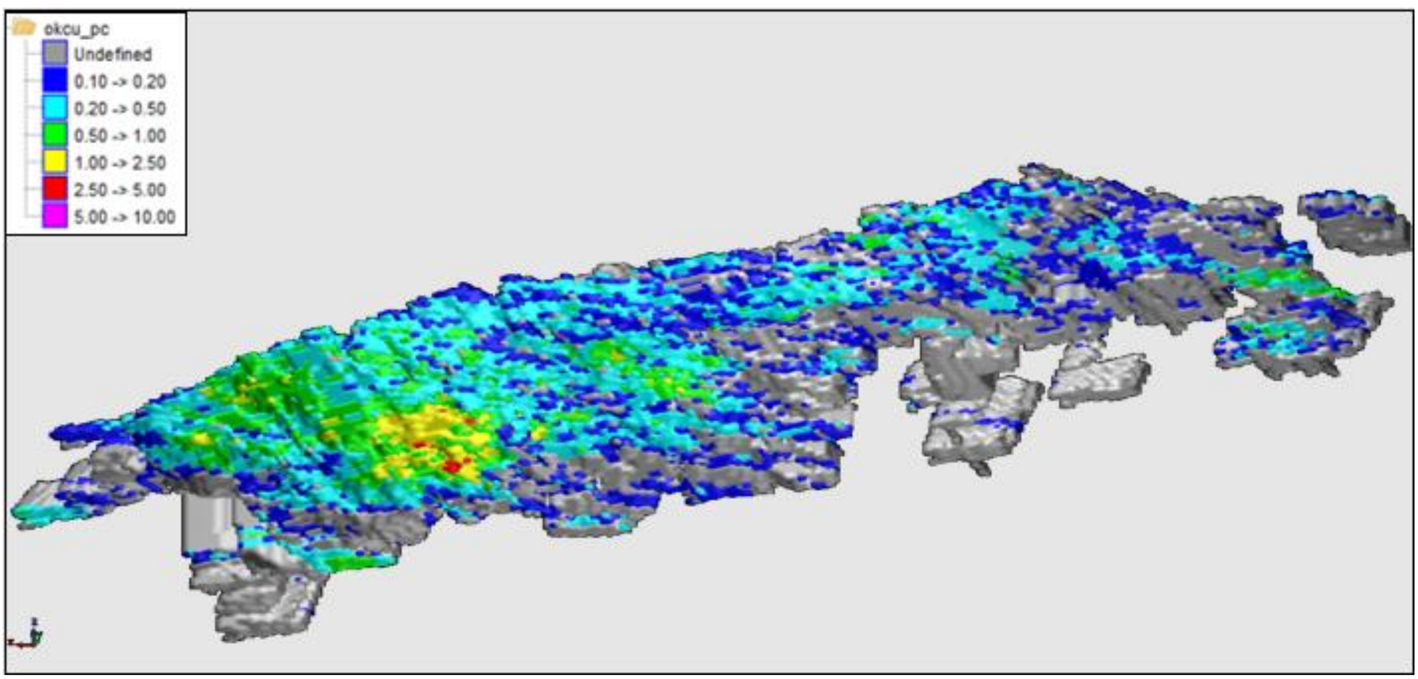
Figure 14-11: Global Block Grade Distribution for AuEq for All Sub-domains.



Source: H&SC,2022. (Footwall view looking up to south)

An oblique view of the global distribution of all interpolated copper block grades for fresh rock for a zero gold equivalent cut-off is shown in Figure 14-12 (from below).

Figure 14-12: Global Block Grade Distribution for Copper for Fresh Rock Sub-domain.



Source: H&SC,2022. Footwall view looking up to south.

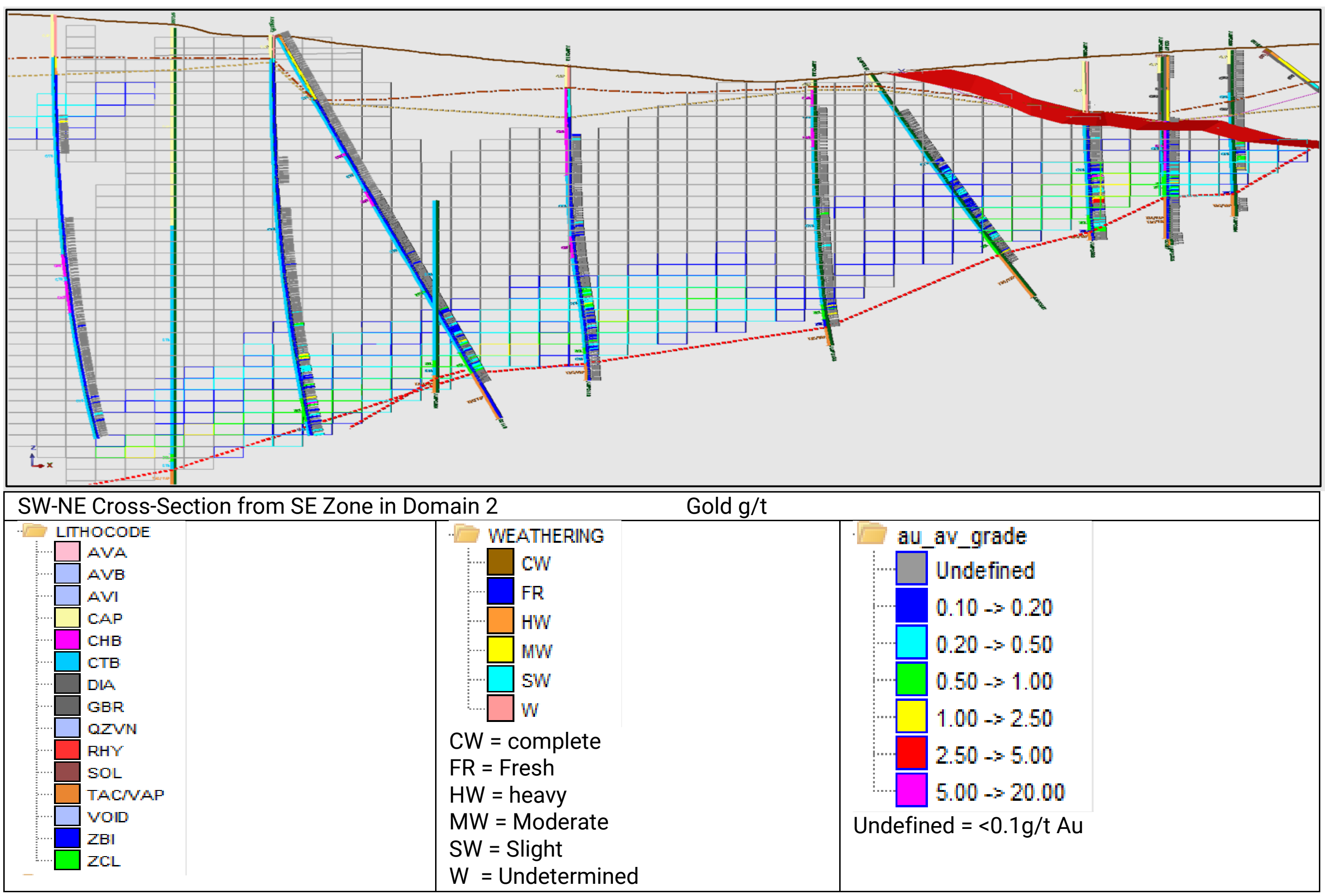
14.10 Block Model Validation

The final block model was reviewed visually by H&SC and it was concluded that the block model fairly represents the grades observed in the drillholes. H&SC also validated the block model statistically using a variety of histograms, summary statistics and check models. Validation confirmed the modelling strategy as acceptable with no significant issues.

14.10.1 Visual Inspection

Examples of the drillhole assay values in comparison with block grades are shown in a pair of oblique cross-sectional figures. Figure 14-13 shows the blocks from the unconstrained global gold grade interpolation from the southeast end of domain 2, plotted against the drillhole assay grade for gold. The brown solid line in the figures represents the topographic trace, the brown dot-dash line represents the BOCO, the light brown dashed line represents the BOPO and the red dash line is the basal contact for the mineral zone. The red surface is the gabbro unit. The drillhole traces have colour coded bars for lithology on the left hand side and oxidation level on the right hand side with colour coded gold assays offset on the right hand side. Gold block grades reasonably match the drillhole grades.

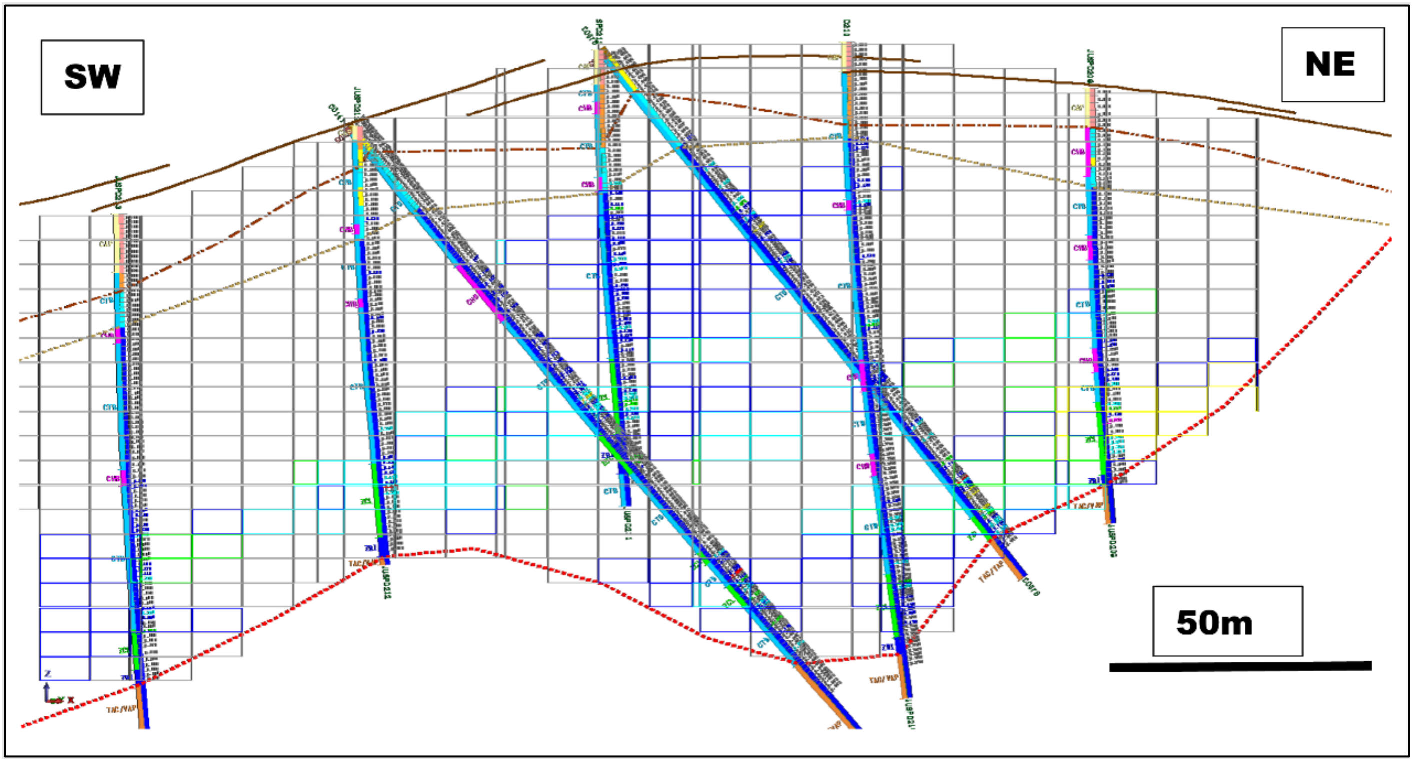
Figure 14-13: Example Cross-Section of Drilling and Gold Block Grades.



So urce: H&SC,2022. SE Zone Domain 2.

Figure 14-14 shows a cross-section with the same features, this time from the NW zone of domain 2. The section is slightly oblique to the block model axes and the topographic traces, hence the broken solid brown line. The image shows both the historic vertical holes and Meridian's angled holes.

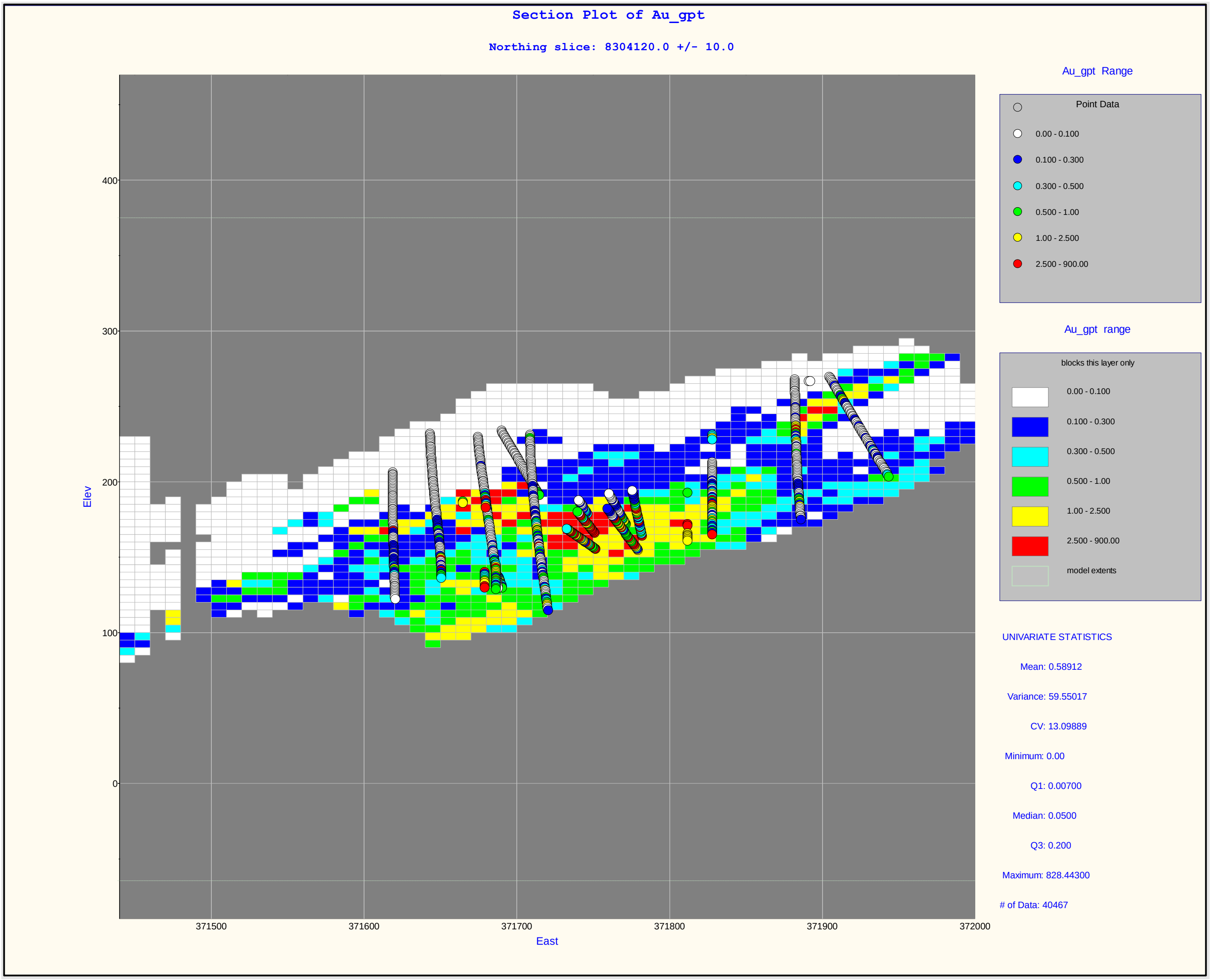
Figure 14-14: Example Cross-Section of Drilling & Gold Block Grades.



Source: H&SC,2022. NW Zone Domain 2 (same legend as for Figure 14 13).

Further examples of composite grades versus block grades are also included. Figure 14-15 is an E-W cross-section for the rotated model showing gold composite values and block grades from the southeast end of domain 2, in close proximity to domain 1 (the detailed drilling area).

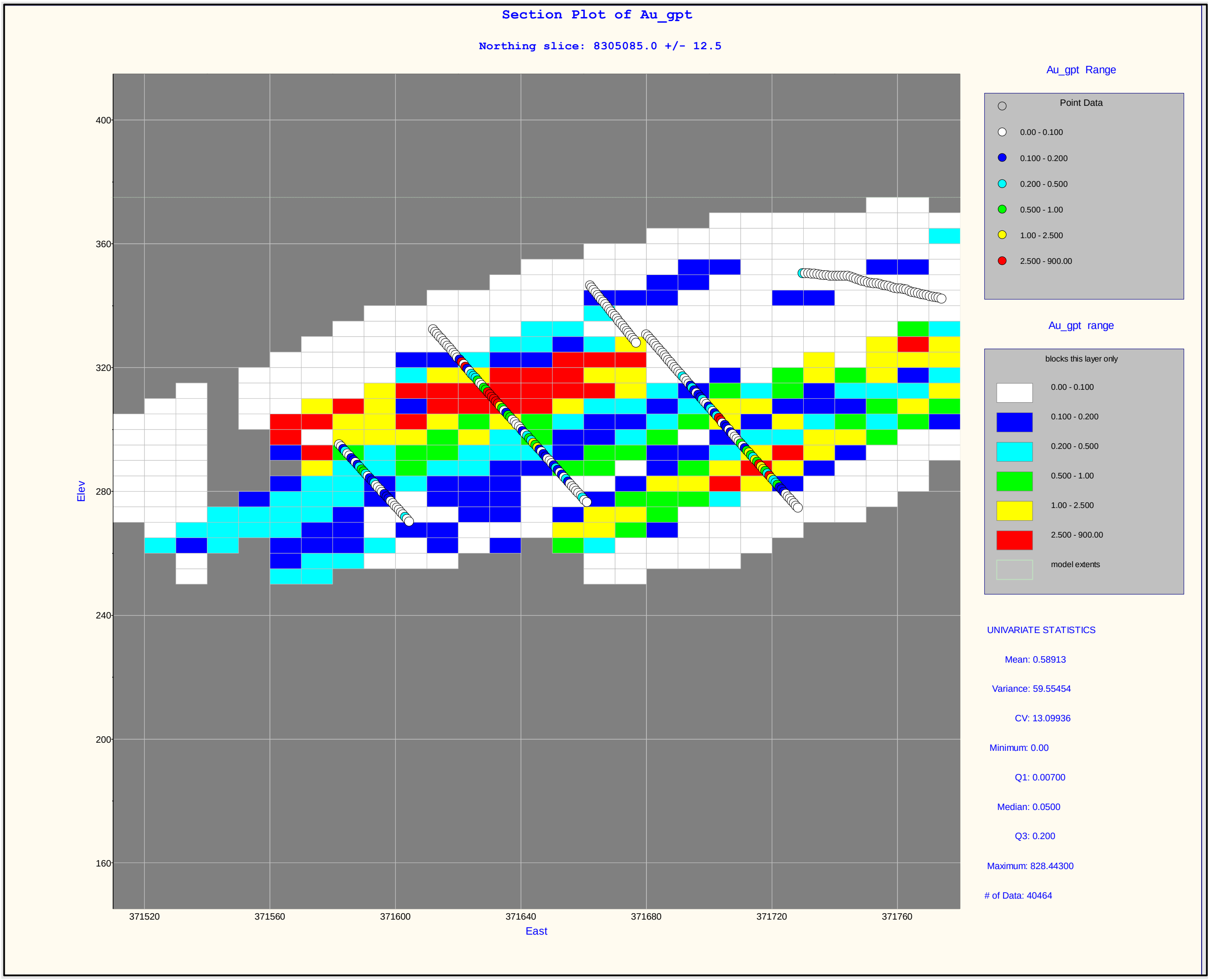
Figure 14-15: Cross-Section 8304120mN for Gold (rotated grid).



Source: H&SC,2022 (zoom for better resolution).

Figure 14-16 is a cross-section from approximately 1km further north still within domain 2 showing gold block grades and gold composite values.

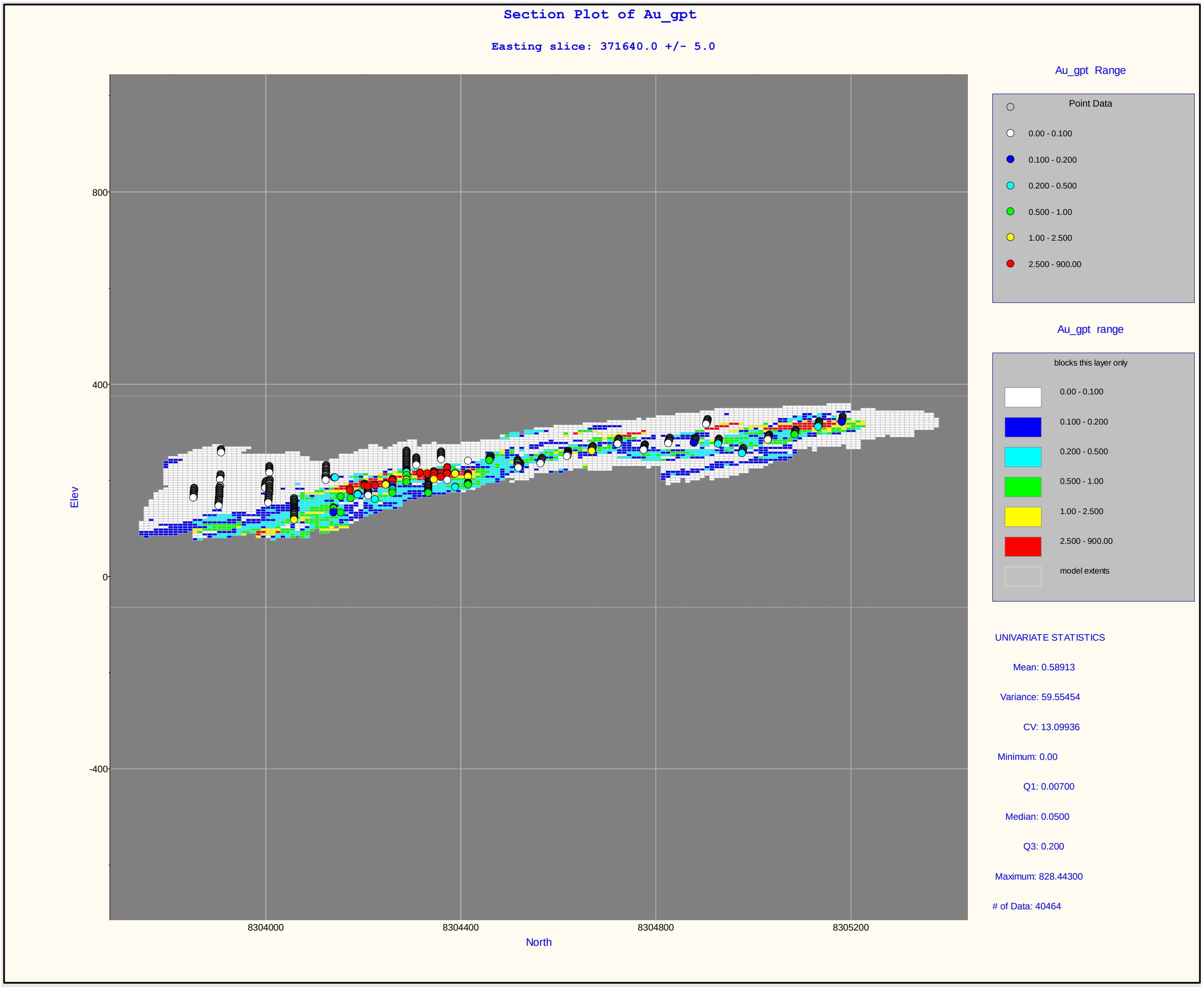
Figure 14-16: Cross-Section 8305085mN for Gold (rotated grid).



Source: H&SC,2022.

Figure 14-17 is a long section through the middle of the deposit showing the gold block grade distribution against gold composite values (zoom to 250% for better resolution).

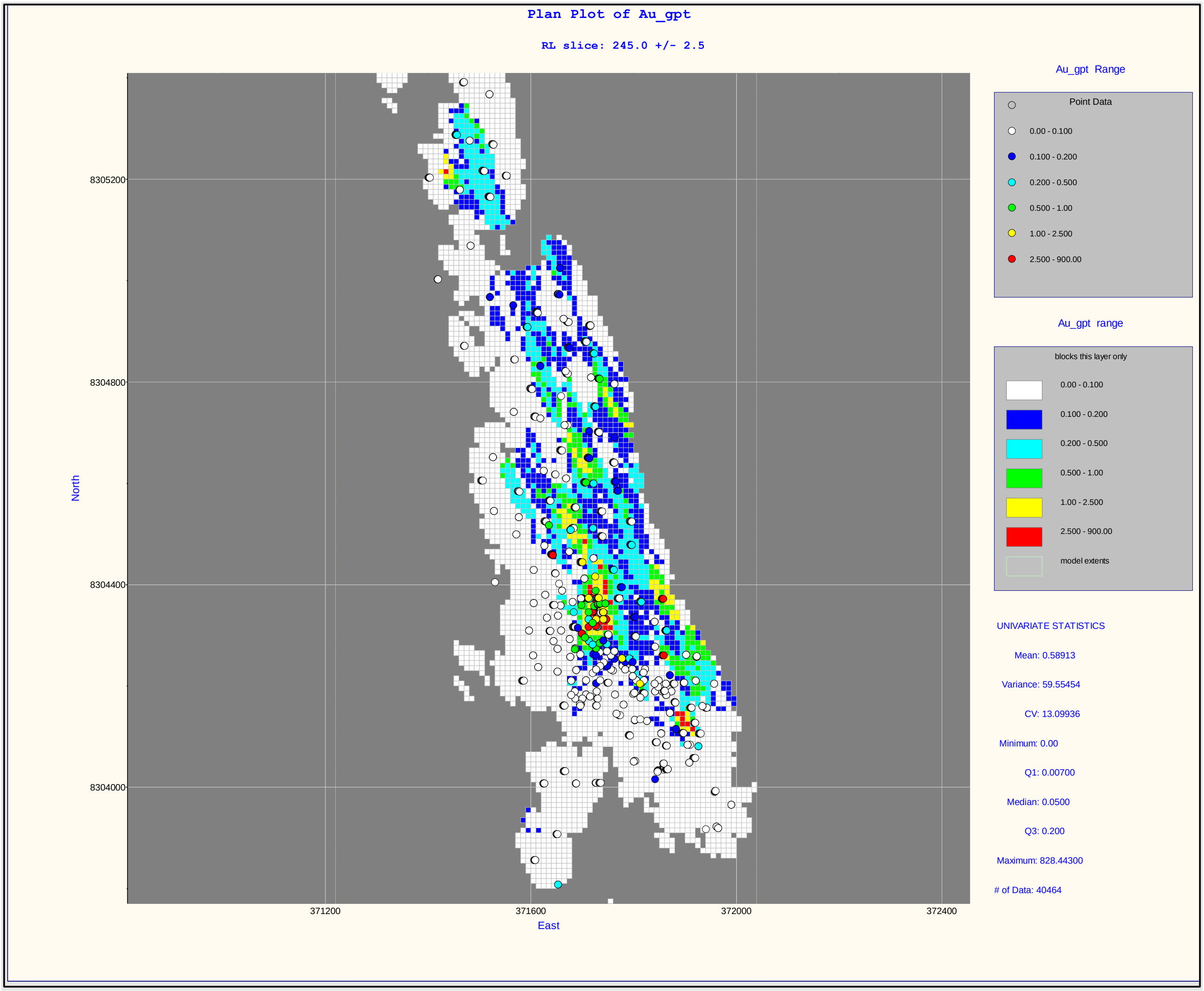
Figure 14-17: Long Section 371640mE for Gold (rotated grid).



Source: H&SC,2022.

Figure 14-18 is a plan view of the deposit, showing gold block grades and composite values for a 5m section window. The linearity is due to the section plane cutting across the mineral zone. However, it is worth noting that there may be more than one stratigraphic position, at the same time noting that some of the linearity occurs within the inflexion zone.

Figure 14-18: Plan View 245mRL for Gold (rotated grid).



Source: H&SC,2022.

14.10.2 Statistical Checks

A comparison of composite and block grade means would normally be expected to show the composite mean being higher than the block grade mean. This is the case for Cabaçal with Table 14-11 showing the comparison of metal means for the fresh rock zones for domain 1 and domain 2 and confirms no issues with grade interpolation.

Comparing the mean grades for the BOPO zone show a similar pattern to the fresh rock zone except for the domain 1 Au_E-type, where the block mean is slightly higher, but the outcome is not considered significant considering the small resource volumes associated with the BOPO zone. The other discrepancy is with the copper means for the BOCO zone for both domains, which is likely a function of the low data numbers and copper depletion via oxidation associated with the zone.

Table 14-11: Comparison of Means for Block Grades and Composite Values for Metals.

Domain 1	Au_E-type Comp	Fresh Block	Domain 2	Au_E-type Comp	Fresh Block
No. Data:	17485	17133	No. Data:	16966	99677
mean:	1.063	0.765	mean:	0.243	0.161
variance:	97.989	2.109	variance:	21.603	0.185
SD	0.114	0.404	SD	0.013	0.060
CV:	9.31	1.897	CV:	19.132	2.673
Minimum:	0.0004	0.003	Minimum:	0.0004	0.001
Q1:	0.050	0.107	Q1:	0.003	0.011
Median:	0.158	0.268	Median:	0.025	0.036
Q3:	0.502	0.718	Q3:	0.086	0.128
Maximum:	828.443	18.11	Maximum:	363.914	8.412
Domain 1	**Copper Comp**	**Fresh Block**	**Domain 2**	**Copper Comp**	**Fresh Block**
No. Data:	17485	17133	No. Data:	16966	99677
mean:	0.409	0.366	mean:	0.166	0.117
variance:	0.523	0.124	variance:	0.139	0.022
SD	0.232	0.379	SD	0.074	0.092
CV:	1.766	0.964	CV:	2.239	1.267
Minimum:	0.0001	0	Minimum:	0.0001	0
Q1:	0.035	0.140	Q1:	0.005	0.021
Median:	0.155	0.260	Median:	0.042	0.070
Q3:	0.452	0.46	Q3:	0.166	0.15
Maximum:	13.65	4.5	Maximum:	10.499	2.57
Domain 1	**Silver Comp**	**Fresh Block**	**Domain 2**	**Silver Comp**	**Fresh Block**
No. Data:	17485	17133	No. Data:	16966	99677
mean:	1.71	1.55	mean:	0.77	0.60
variance:	13.33	3.37	variance:	3.80	0.59
SD	0.80	1.31	SD	0.30	0.46
CV:	2.13	1.18	CV:	2.54	1.30
Minimum:	0.001	0.01	Minimum:	0.001	0.01
Q1:	0.2	0.44	Q1:	0.1	0.20
Median:	0.49	0.88	Median:	0.25	0.33
Q3:	1.61	1.96	Q3:	0.64	0.69
Maximum:	84	25.51	Maximum:	64	20.69

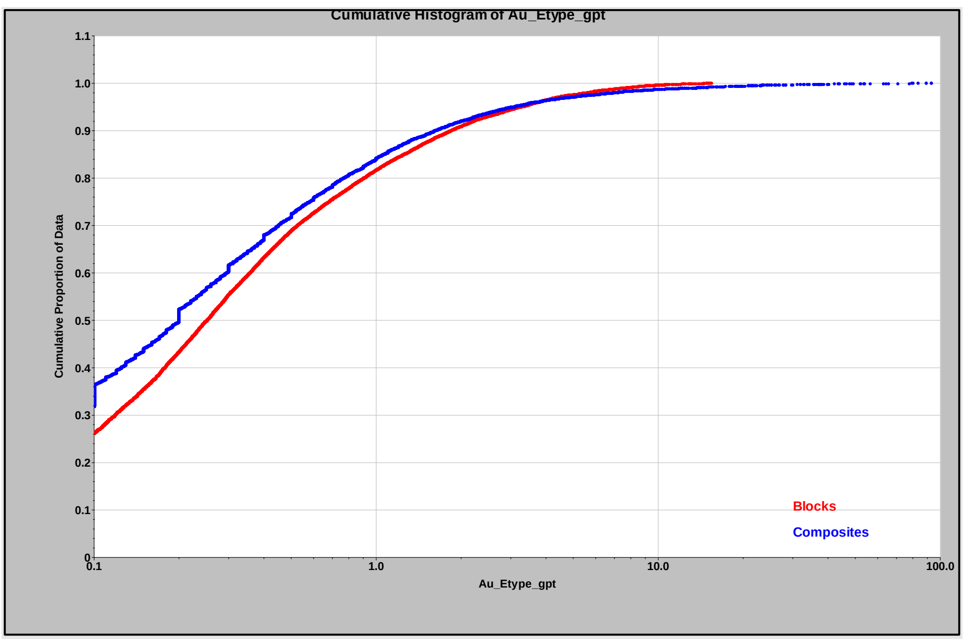
Table 14-12 shows the outcomes for the same statistical checks for the interpolated density data. The results indicate a possible slight overstatement of density in the new model for the BOCO zone but as these zones contain a relatively small amount of the resource estimates the impact of any overstatement is not considered significant especially considering the likely resource classification. For further comparison, the default values used in the MIK estimates are included as well.

Table 14-12: Comparison of Means for Block Grades and Composite Values for Density.

Data Source	BOCO No of data	Ave Density t/m³	BOPO No of data	Ave Density t/m³	Fresh No of data	Ave Density t/m³
Sample	1,217	2.29	1,1814	2.62	14,651	2.80
Block Model	14,397	2.37	13,469	2.58	116,810	2.78
MIK Default		2.29		2.49		2.79

A second statistical check method is to compare the cumulative frequency curves for the block grades and the composite values. Selected examples are included; Figure 14-19 shows the results for the Au_E-type domain 1 combined BOPO and Fresh oxidation zones. The curves indicate minor smoothing of the gold grades with no excessive high grade smearing resulting from the MIK technique and is used by H&SC to indicate no issues with the grade interpolation.

Figure 14-19: Cumulative Frequency Block Grades & Composites. Au_Etype Domain 1.

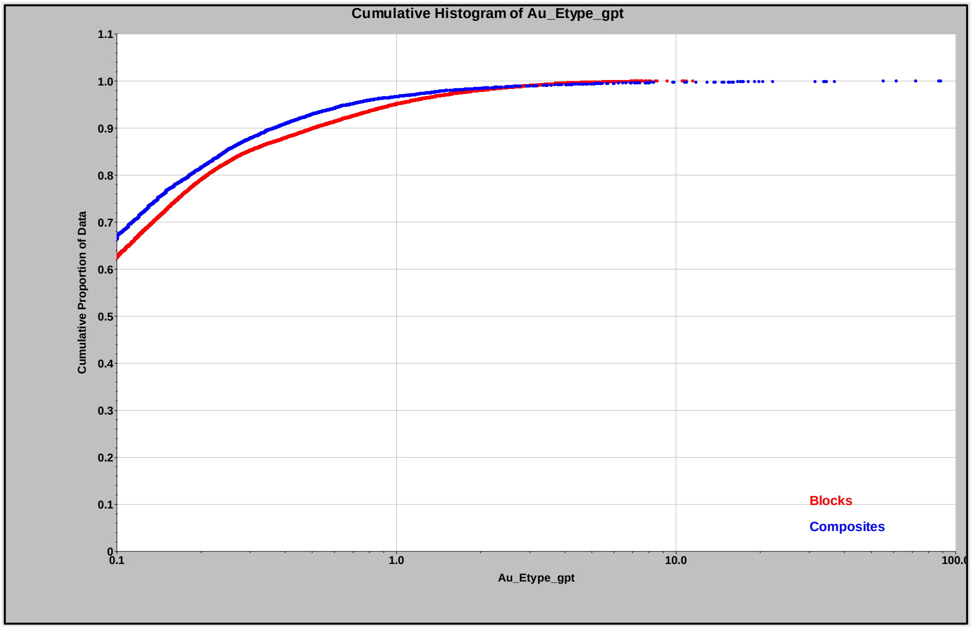


Source: H&SC,2022.

Figure 14-20 is the same set of curves only this time for domain 2 and again shows no issues with the grade interpolation.

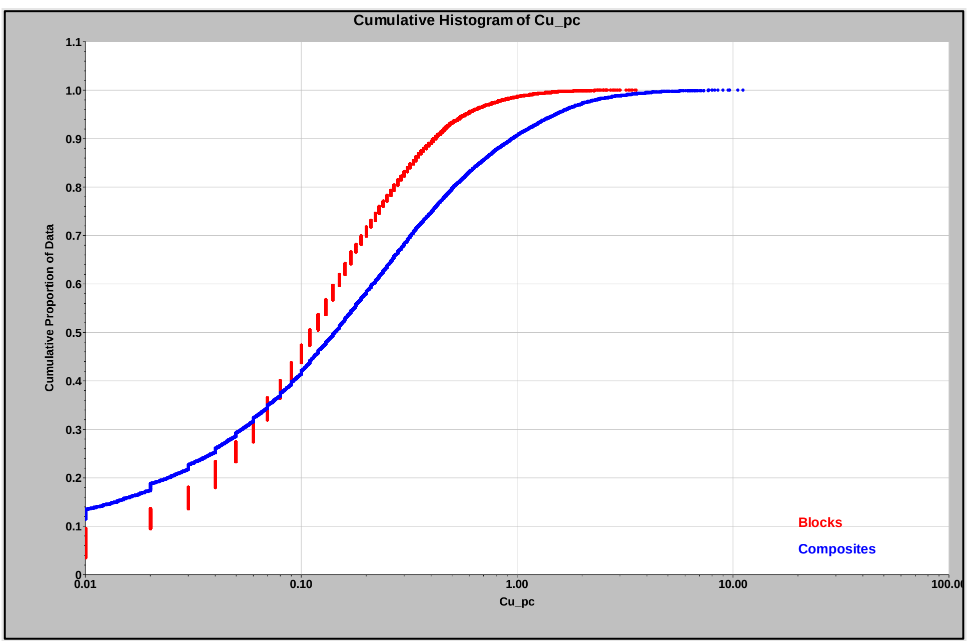
Figure 14-21 shows the curves for the combined domains 1 and 2 for copper within the combined BOPO and fresh rock oxidation zones and again indicates no issue with the grade interpolation. Silver shows a similar set of curves.

Figure 14-20: Cumulative Frequency Block Grades & Composites Au_Etype Domain 2.



Source: H&SC,2022.

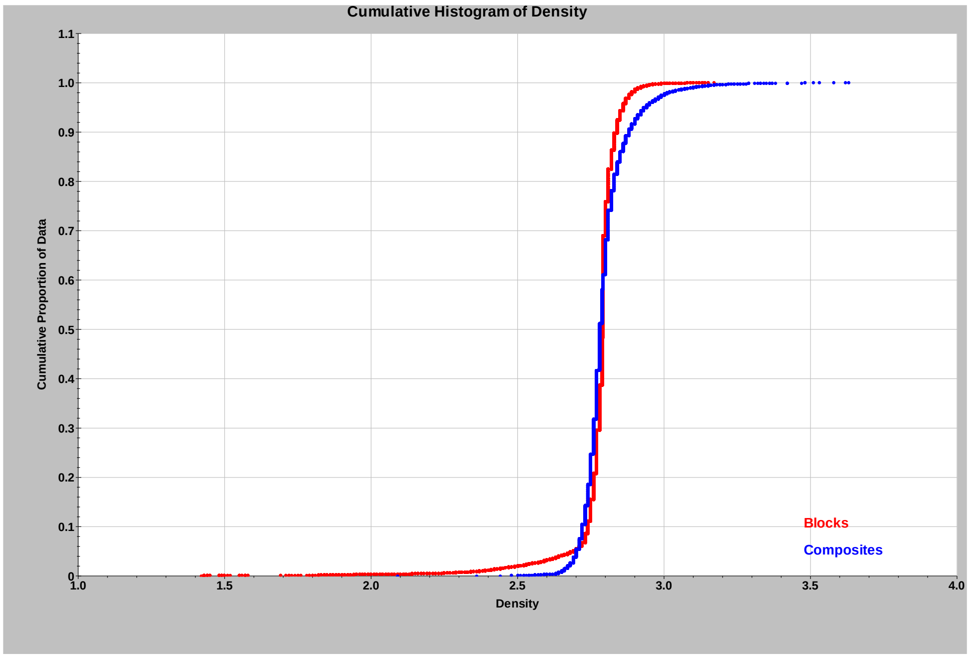
Figure 14-21: Cumulative Frequency Block Grades & Composites Copper Both Domains.



Source: H&SC,2022.

Figure 14-22 shows the block grade and composite value cumulative frequency curves for density in the Fresh rock zone and indicate no issues with the density block grade interpolation.

Figure 14-22: Cumulative Frequency Block Grades & Composites Density Fresh Rock.



Source: H&SC,2022.

14.10.3 Check Models

As part of H&SC's MIK modelling strategy, several models are often run to get a measure of the robustness of the Mineral Resources. In this instance, H&SC ran an additional three models looking at the impact of:

1. the additional non-validated data, i.e., assay type 2;
2. using default densities against modelled density block grades; and
3. the impact of high grades in the fresh sub-domain.

Details of the check models are included in Table 14-13. The base case model is V2, which used automated numerically-derived indicator variograms along with default density values for the different domains and sub-domains. V4 had the indicator variograms refined with a manual input using geological sense. V5 had the inclusion of the non-validated data and V6 had the gold depletion factored in and took in the effect of extreme gold grades. V6 was the final model run and is the preferred model. This final model used all the assay data but included reviewing the impact of extreme grades on the estimation results. To do this the conditional statistics for the gold top indicator class for the fresh rock zones for both domains 1 and 2 were reviewed. On review, it is apparent that there is a substantial difference between the gold mean and median for the top class (see Table 14-5) and that it is prudent to replace the mean with a compromise value. The compromise value was the average of the mean and median, i.e., 37.3778 for domain 1 and 9.858 for domain 2. In effect, the application of an average mean/median value is akin to applying a top cut but without actually cutting the data.

As part of H&SC's MIK modelling the GS3 software generates two models for gold – a recoverable resource where there is a greater level of selectivity and an E-type model that contains an average gold grade for the block, akin to an OK model product. All MIK models account for some dilution.

Table 14-13: Check Model Details.

Model No	Data Source	Variography	Search Parameters	Density	Au Depletion	Mean/Med compromise	Comments
V2	Validated	Unrefined	35m by 35m by5m Exp 1	MIK default	NO	NO	Base case
V4	Validated	Refined	35m by 35m by5m Exp 1	OK	NO	NO	
V5	All data	Refined	35m by 35m by5m Exp 1	OK	NO	NO	
V6	All data	Refined	35m by 35m by5m Exp 1	OK	Yes	Yes	Preferred

(Exp 1 = Expansion of search ellipse dimensions by 100%)

Table 14-14 shows the global outcomes of the gold check models. The total of gold ounces is approximately similar for the recoverable model and the E-type model for each model version. The difference between the MIK default densities and the OK estimated densities is not significant. There is a marked increase in total gold ounces with the inclusion of the unvalidated data (V5 and V6). The impact of the compromised mean/median is significant; roughly 150,000 ounces or approximately 11% of the deposit, indicating that the deposit is sensitive to high gold grades. The impact of depletion on the V6 model is approximately 150,000 ounces based on reported production.

Table 14-14: Check Model Results for Gold.

Recoverable	Pass 1			Pass 2			Pass 3			Combined		
Model	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs
V2	5,582,351	1.98	355,763	9,284,291	1.61	479,738	1,790,151	1.88	107,927	16,656,792	1.76	943,706
V4	5,453,228	2.06	361,035	8,782,002	1.76	496,988	1,694,626	1.84	100,261	15,929,856	1.87	958,352
V5	6,990,891	2.68	601,307	9,029,678	1.85	537,426	2,371,311	3.02	230,116	18,391,879	2.32	1,369,042
V6	6,851,769	2.26	497,469	8,028,561	1.60	412,012	2,188,115	2.19	154,294	17,068,446	1.94	1,063,622
E_Type Model	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs	Tonnes	Au g/t	Au ozs
V2	6,181,825	1.82	360,772	12,285,380	1.26	496,156	1,988,145	1.72	109,827	20,455,350	1.47	966,861
V4	6,177,570	1.82	361,120	11,932,980	1.31	502,260	1,969,340	1.60	101,506	20,079,890	1.49	964,610
V5	7,657,385	2.44	600,034	11,882,420	1.41	537,574	2,584,045	2.77	230,487	22,123,850	1.92	1,367,980
V6	7,550,170	2.04	495,738	9,785,745	1.25	393,632	2,567,320	1.89	156,103	19,903,235	1.63	1,045,720

(the lack of use of significant figures does not imply accuracy)

14.10.4 Reconciliation

H&SC was provided wireframes representing Meridian's understanding of the size and location of the historic workings. The relatively small dimensions of the actual workings make it difficult to get an accurate measure of the extracted material with respect to the block model and the block size using the centroid in/out selection method. H&SC initially tried the partial percent volume adjustment method to get a measure of the size and grade of the workings. Reporting the estimation results for the workings from the V5 model (Table 14-15) using a gold grade of zero and a partial percent volume adjustment, with no depletion, resulted in a reasonable match with the production tonnes (+4% difference – yellow highlight). However, the reported results significantly under-estimated the grade for both gold and copper when compared to the production numbers (silver production records are incomplete). This implies a level of reasonable accuracy for the volume of the depletion solids but suggests the accuracy of the development locations may not be right, particularly with the elevation, or the shapes include some barren material. If the ~40,000 tonnes are removed from the V5 model at 0g/t, i.e., match production tonnes, the impact on the grade is very modest changing from 2.82g/t to 2.93/g/t.

Table 14-15: Reconciliation Results.

		Tonnes	Au g/t	Cu %	Au ozs	Cu Tonnes
Production		**973,013**	**4.91**	**0.8**	**153,617**	**7,784**
Model						
V5	Partial Percent of workings				Au_E-type cut-off 0g/t	
Pass no	Volume	Tonnes	Au_E-type g/t	Cu %	Au_E-type ozs	Cu tonnes
Total	357,846	**1,012,924**	2.82	0.58	91,815	5,885
	Diff %	4.1	-42.6	-27.4	-40.2	-24.4
V4	Without the unvalidated data					
	Blocks touching the development solids				Au_E-type cut-off 2g/t	
	Volume	Tonnes	Au_E-type g/t	Cu %	Au_E-type ozs	Cu tonnes
Total	396,500	1,125,345	4.13	0.67	**149,515**	**7,506**
	Diff %	15.7	-15.8	-16.6	-2.7	-3.6
V5	With the unvalidated data					
	Blocks touching the development solids				Au_E-type cut-off 2g/t	
	Volume	Tonnes	Au_E-type g/t	Cu %	Au_E-type ozs	Cu tonnes
Total	557,500	1,578,025	**5.18**	0.67	262,886	10,604
	Diff %	62.2	5.5	-16.0	71.1	36.2

The accuracy of the location of the development drives and stopes might be important for the reconciliation. They are based on 2D drawings and could possibly be out vertically by a metre or two which, noting the relatively narrow block height and the flat lying nature to the mineralization, may impact negatively on the reported estimation results.

H&SC then reported the estimation results for the development from check model V4, which featured just the validated assay data, for a 2g/t Au cut-off and for all blocks touching the development solids (orange highlight). The results showed a reasonable match with the gold production ounces (-3% difference) but for a 16% increase in the amount of tonnes. The results indicate that without necessarily knowing all mining parameters and methods, it is possible to approximately report from the block model the number of gold ounces and copper tonnes achieved in production using reasonable constraints.

Another check involved H&SC reporting the estimation results for a gold cut-off grade of 2g/t from model V5 which had all the drillhole assay data included and for all blocks touching the development solids. This resulted in an approximate match with the production gold grade (+5% difference – green highlight) albeit with excess tonnes and thus excess ounces. H&SC suspects that using a slightly lower gold cut-off of around 1.75g/t will achieve a more exact match with the gold production grade, but it will still show increased tonnes and ounces way in excess of the production numbers.

Copper showed a reasonably consistent under-reporting of production grade for the different models. However, the final V6 estimation report indicated a <5% difference in the copper tonnes despite the -16% difference in copper grade.

The technique of using blocks touching the development wireframes is an imprecise method but attempts to compensate for any inaccuracies with the location in space of the said development wireframes.

Whilst the reconciliation results for the new resource model with historical production are not ideal there do seem to be indications that the reconciliation might be reasonable and thus confidence in the new resource estimates can be moderately high.

Other issues potentially impacting the reconciliation could involve mining of higher grade copper for lower gold grades which could account for the copper grade difference in the reconciliation numbers.

As the reports for silver production are incomplete, silver depletion has not been incorporated. In any case, the depletion impact for silver is considered to be not significant with respect to the overall Mineral Resources.

14.11 Previous Estimates

Falcon Metais Ltda in June 2009 reported Mineral Resources for Cabaçal. The estimate was based on using 3D solids modelled from 54 sections and scoped Inferred Resources of 21.7Mt @ 0.56% Cu, 0.61g/t Au. A uniform density of 2.7t/m^3 was applied for tonnage estimation, and the estimates were reported using 0.2% Cu Equivalent cut-off grade (CuEquiv % = Cu % + (0.51 * Au ppm) with assumptions for metallurgical recovery = 85% Cu, 65% Au; and metal price assumptions of Au price USD 845 / oz; Cu price USD4000/ton).

The new estimates indicate a significant increase in size with a similar gold grade but a markedly lower copper grade. The larger size might be expected with the expansionist exploratory drilling, the use of a gold equivalent, as opposed to a copper equivalent, with markedly different gold price assumptions and the different grade interpolation technique. Thus, comparison with the previous estimate is relatively meaningless.

14.12 Resource Classification

Allocation of the classification for the MRE is derived from the search pass numbers generated in the grade interpolation. This is essentially a function of the drillhole sample data distribution, along with consideration of other aspects, which reflects the confidence in the input data and distance from the block centroid. The other aspects included in the subjective classification of the MRE are an assessment of the geological model, the results of the variography, the sampling methods and representivity of samples including QAQC, the quality of the density data, core recoveries, the grade interpolation modelling method, and the reconciliation with historic production.

The classification is based on the following considerations:

Positive aspects

- Relatively simple geological model, i.e., in the structural hangingwall of a basal structure/contact.
- All drilling is diamond core of an appropriate core size with good core recovery.
- Data spacing, i.e., drillhole density is appropriate for the classification of the MRE. The close spaced drilling for domain 1 allowing for a measure of gold grade distribution.
- No relationship between metal grades and core recovery.
- Good sampling procedures for the Meridian drilling and no issues with the QAQC data.
- Significant amount of density data of a reasonable quality.
- A sophisticated grade interpolation method that is appropriate for gold, i.e., MIK.
- Hole twinning of historic drillholes and re-assaying of historic holes indicates it is reasonable to combine recent and historic datasets.
- Reasonable success with the reconciliation giving indicative results similar to production.

Negative aspects

- Complex controls to the gold mineralization, with at least 2 if not more orientations for gold.
- Data point spacing in peripheral areas is wide, i.e., domain 2 drilling.
- Poor definition in the variography for domain 2 and domain 1 to some extent.
- Sensitivity to high grade samples, as indicated by the check modelling.
- The vertical drilling orientation for about 70% of all holes is sub-optimal for the sub-vertical trends in the gold data, introduces a possible sample bias.
- Minimal preserved QAQC data for the historical drilling
- Uncertainty in the accuracy of the historic development and stopes, which results in moderate to good reconciliation of the block model with production.

After due consideration Table 14-16 contains details of the resource classification based on the pass categories.

Table 14-16: Resource Classification.

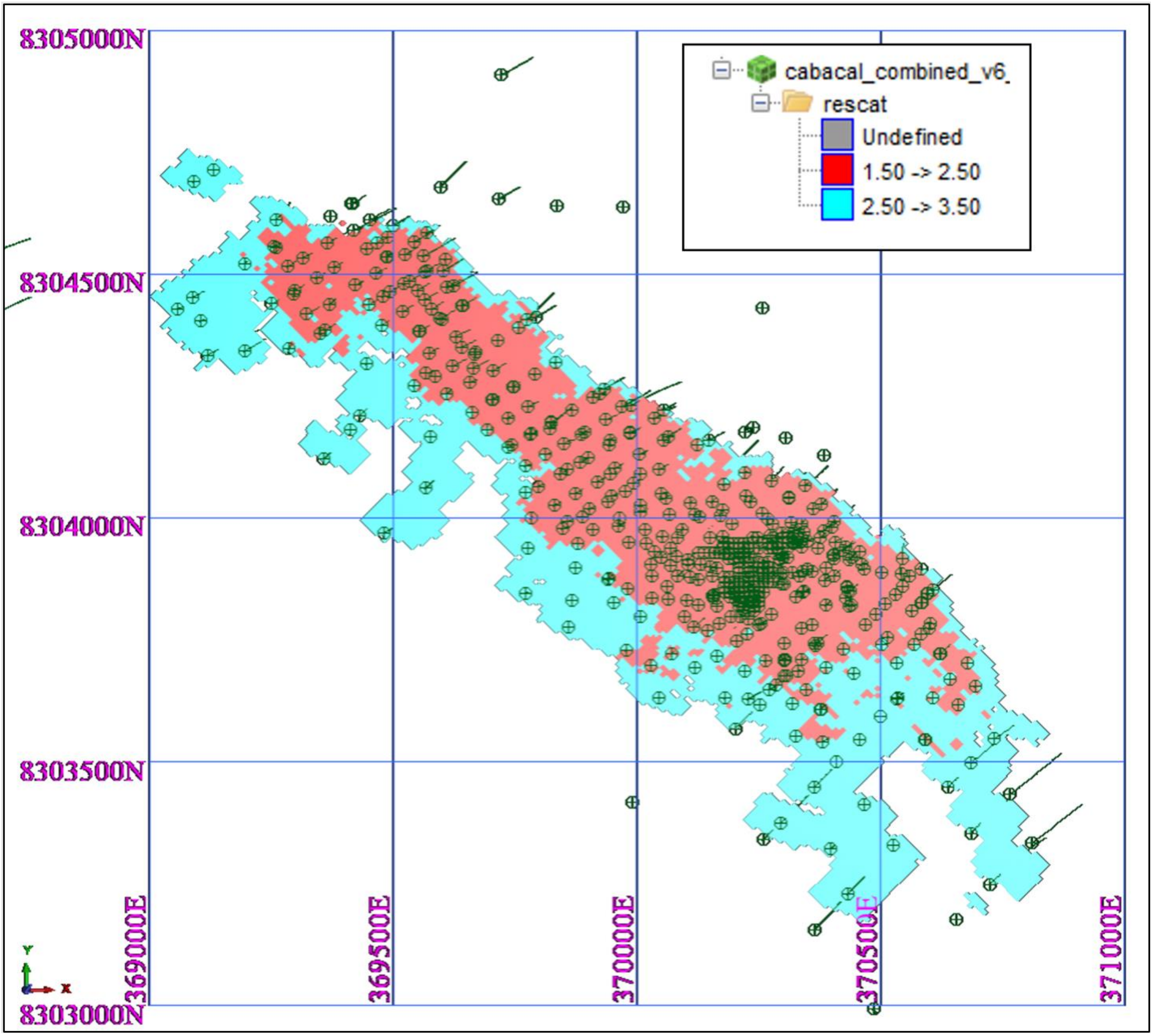
Pass Category	Resource Classification
1 & 2	Indicated
3	Inferred

The Inferred Resources in this estimate have a lower level of confidence than that applied to Indicated Resources and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Resources could be updated to an Indicated Resources with continued exploration, specifically additional drilling.

Adjustments to the original classification are:

1. Strips of Indicated Resource between drillholes and peripheral to the main body of mineralization on the southwest side of the deposit were reverted to Inferred Resource. The strips are a modelling artifact due to the same search ellipse parameters applied to the differential drill hole spacing.
2. A small area of suspiciously high grade Indicated Resource at the northwest end of the deposit on its southwest margin was reverted to Inferred. The high grade is due to relatively unconstrained high grade assays on the margin of the deposit.

Figure 14-23: Mineral Resources Resource Classification



Source: H&SC,2022 (red = Indicated, Cyan = Inferred; green circles and lines = drillhole collars & traces).

14.13 Mineral Resources

Reporting of the Mineral Resources was done using the following constraints:

1. Gold equivalent cut-off of 0.3 AuEq g/t, based on cut-off grades used for other similar deposits in the region and as advised by Meridian.
2. Above the basal contact.
3. Above a nominal pit surface based on a 20° and 45° angled sidewalls intersecting at the base of the modelled interpretation.
4. Gold depletion was factored in with the MIK modelling.

Copper depletion from production figures was simply removed manually from the Indicated Resources. No account was made for silver.

The Mineral Resources for the Cabaçal Au-Cu-Ag deposit are classified as Indicated and Inferred and are listed in Table 14-17. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

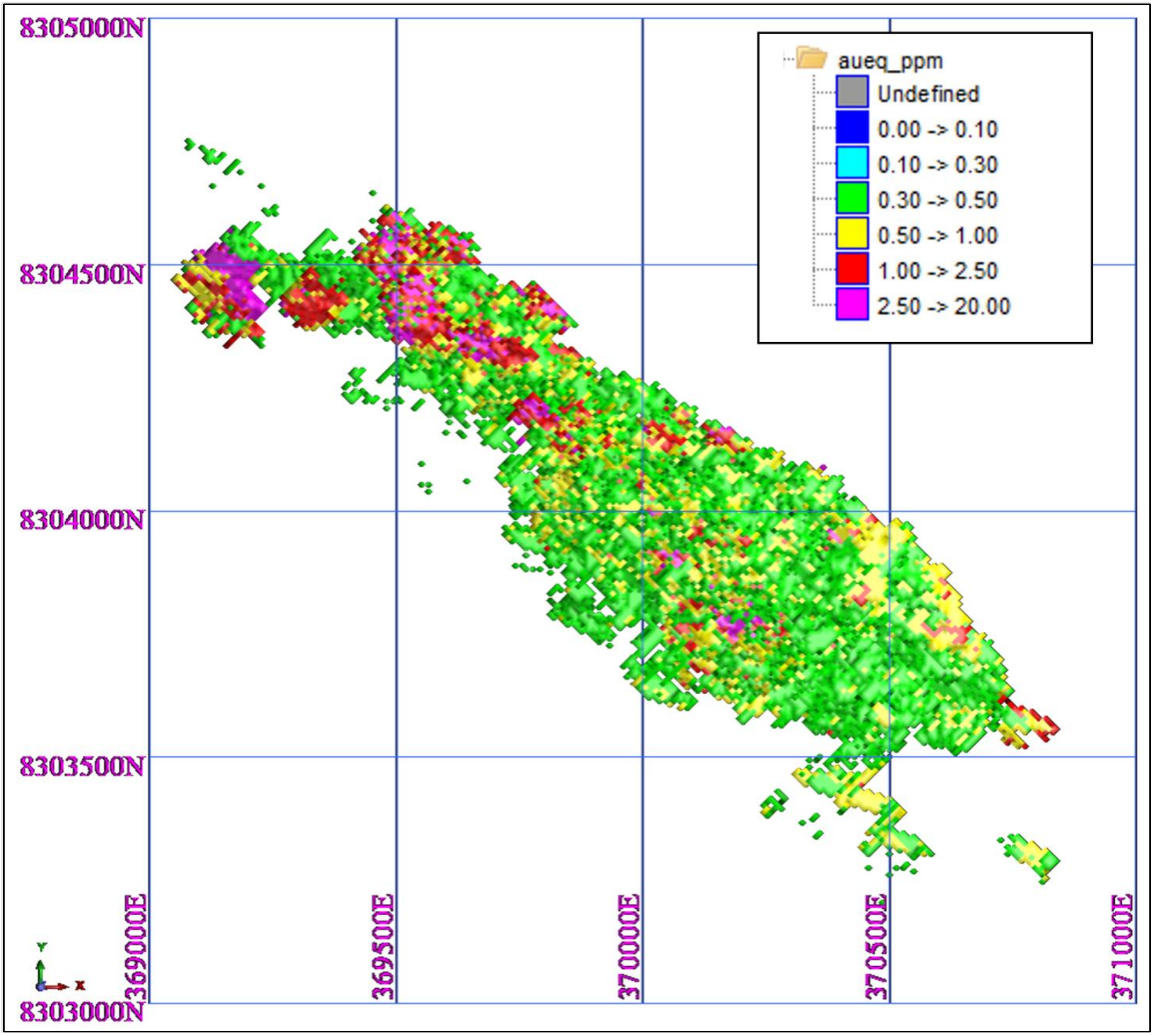
Table 14-17: Mineral Resources.

Category	Mt	Au g/t	Cu %	Ag g/t	AuEq g/t	Au Mozs	Cu Kt	Ag Mozs	AuEq Mozs
Indicated	**52.9**	**0.64**	**0.32**	**1.4**	**1.05**	**1.1**	**168**	**2.4**	**1.8**
Inferred	10.3	0.68	0.24	1.1	0.96	0.2	24.5	0.4	0.3

Figure 14-24 is a plan view example of the distribution of the gold equivalent block grades for the Cabaçal Mineral Resources at a 0.3g/t AuEq cut-off.

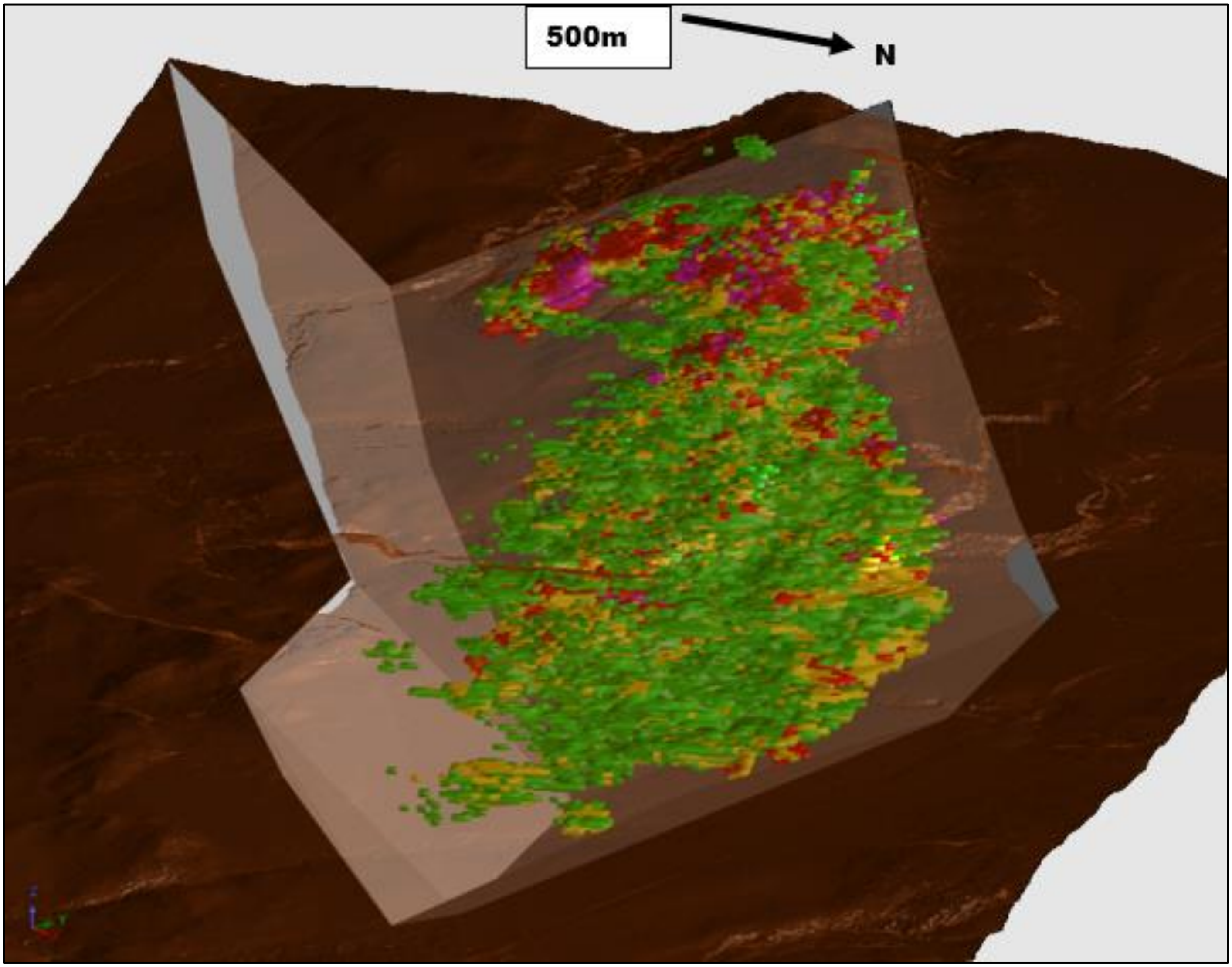
Figure 14-25 is an oblique view of the constraining proposed pit surface (in grey/light brown) and the Mineral Resources with the transparent topographic surface (dark brown).

Figure 14-24: Mineral Resources Global Block Grade Distribution for AuEq.



Source: H&SC,2022.

Figure 14-25: Mineral Resources within the Proposed Constraining Pit Surface.



Source: H&SC,2022 (looking down to WNW).

A series of global resource estimates have been produced for a range of E-type gold equivalent cut-off grades

(Table 14-18 and Table 14-19 – Indicated and Inferred, respectively). The tables have the numbers presented as grade tonnage curves shown in Figure 14-26 and Figure 14-27 (Indicated and Inferred respectively).

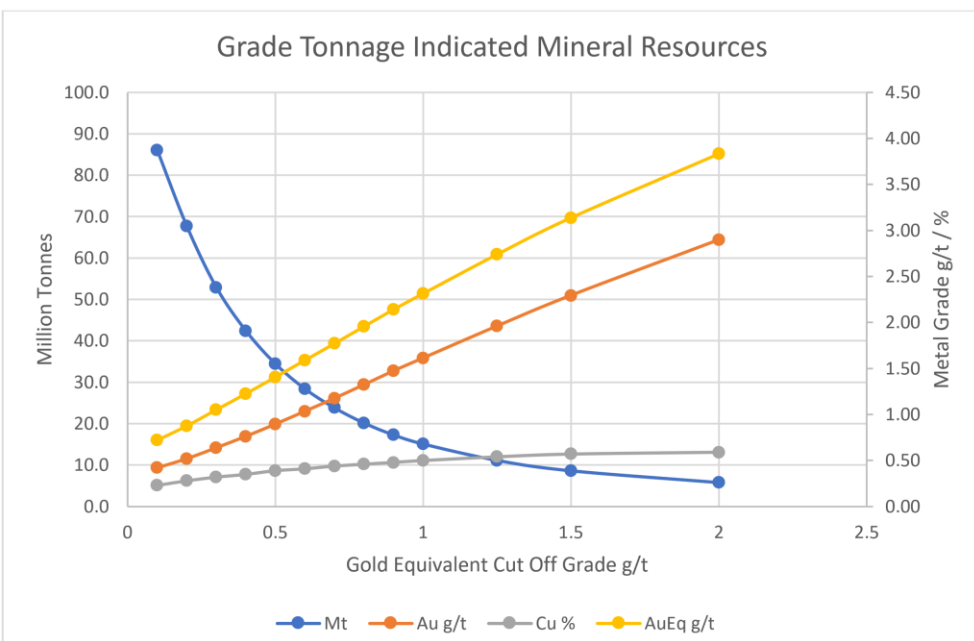
(Note the copper grades for the Indicated Resources grade-tonnage results reported in the press release for Cabaçal on 26 September 2022 did not have the minor impact of depletion included. This was an error and has been amended in Table 14-18).

Table 14-18: Sensitivity to AuEq Cut-off Grades for Indicated Resources.

Indicated Resources									
AuEq cut-off g/t	Mt	Au g/t	Cu %	Ag ppm	AuEq g/t	Au Mozs	Cu Kt	Ag Mozs	AuEq Mozs
0.1	86.1	0.42	0.23	1.0	0.72	1.2	201.4	2.9	2.0
0.2	67.7	0.52	0.28	1.2	0.88	1.1	189.7	2.6	1.9
0.3	**52.9**	**0.64**	**0.32**	**1.4**	**1.05**	**1.1**	**168.0**	**2.4**	**1.8**
0.4	42.5	0.76	0.35	1.6	1.23	1.0	149.7	2.2	1.7
0.5	34.5	0.90	0.39	1.8	1.41	1.0	132.9	2.0	1.6
0.6	28.4	1.04	0.41	1.9	1.59	0.9	117.8	1.8	1.5
0.7	23.8	1.18	0.44	2.1	1.77	0.9	104.9	1.6	1.4
0.8	20.2	1.32	0.46	2.2	1.96	0.9	93.5	1.4	1.3
0.9	17.3	1.47	0.48	2.3	2.14	0.8	83.7	1.3	1.2
1	15.1	1.61	0.50	2.5	2.31	0.8	75.9	1.2	1.1
1.25	11.2	1.96	0.54	2.7	2.74	0.7	60.4	1.0	1.0
1.5	8.7	2.29	0.57	2.9	3.14	0.6	49.1	0.8	0.9
2	5.8	2.90	0.59	3.1	3.83	0.5	34.3	0.6	0.7

(Mineral Resources is for a 0.3 g/t AuEq cut-off; tabulation of other cut-off values for information only)
(copper grades factored for mining depletion)

Figure 14-26: Grade Tonnage Curves for Indicated Resources.

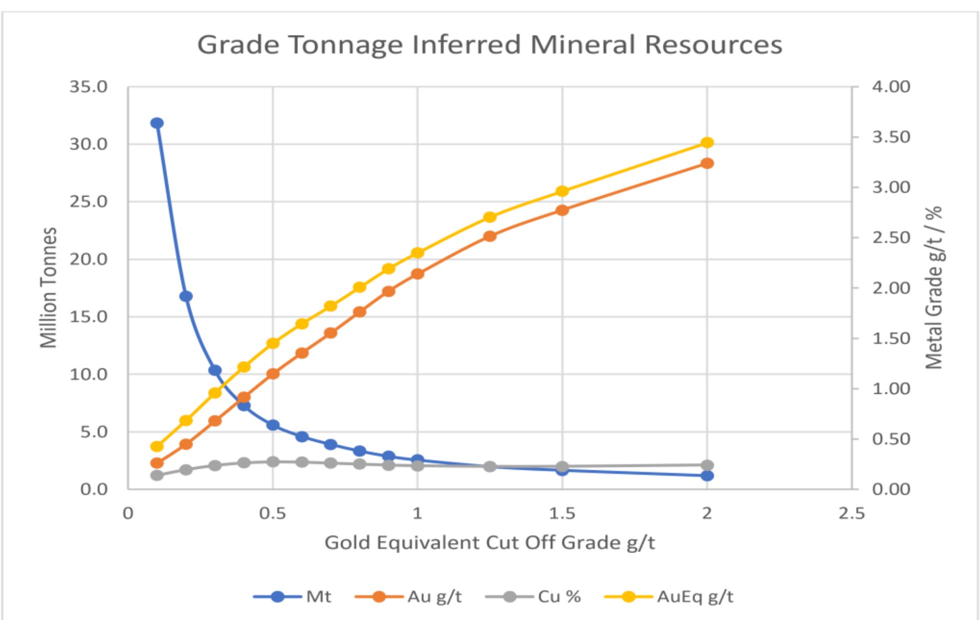


Source: H&SC,2022.

Table 14-19: Sensitivity to AuEq Cut-off Grades for Inferred Resources.

Inferred Resources									
AuEq cut-off g/t	Mt	Au g/t	Cu %	Ag ppm	AuEq g/t	Au Mozs	Cu Kt	Ag Mozs	AuEq Mozs
0.1	31.9	0.26	0.14	0.7	0.43	0.3	44.6	0.7	0.4
0.2	16.8	0.45	0.20	0.9	0.68	0.2	32.9	0.5	0.4
0.3	**10.3**	**0.68**	**0.24**	**1.1**	**0.96**	**0.2**	**24.5**	**0.4**	**0.3**
0.4	7.3	0.92	0.26	1.2	1.22	0.2	19.1	0.3	0.3
0.5	5.6	1.15	0.27	1.2	1.45	0.2	15.2	0.2	0.3
0.6	4.6	1.36	0.27	1.2	1.65	0.2	12.4	0.2	0.2
0.7	3.9	1.55	0.26	1.2	1.82	0.2	10.2	0.1	0.2
0.8	3.3	1.76	0.25	1.1	2.01	0.2	8.3	0.1	0.2
0.9	2.9	1.97	0.24	1.1	2.19	0.2	6.9	0.1	0.2
1	2.5	2.14	0.24	1.1	2.35	0.2	6.0	0.1	0.2
1.25	2.0	2.51	0.23	1.0	2.70	0.2	4.5	0.1	0.2
1.5	1.7	2.77	0.23	1.0	2.96	0.1	3.8	0.1	0.2
2	1.2	3.24	0.24	1.1	3.44	0.1	2.9	0.0	0.1

Figure 14-27: Grade Tonnage Curves for Inferred Resources.



Source: H&SC,2022.

The 0.3 g/t AuEq cut-off grade has been selected for the base case for the Mineral Resource Estimate and the mine schedule optimization studies outlined in Section 16 of this report. Scenarios tabulated are considered to meet the criteria of having reasonable prospects for economic extraction based on mining costs typical of the operational environment in Brazil, deposit geometry, and long-term commodity price outlooks and fluctuations. By analogue to other deposits, resource cut-off grades for Paracatu gold mine in Minas Gerais, Brazil are stated at 0.11 g/t to 0.19 g/t Au and reserves at 0.16 g/t and 0.24 g/t Au (Sims, 2020). For the Chapada Mine, resources in the gold-only Surucu deposit are stated at 0.16g/t Au for oxide material and 0.23g/t Au for sulphide material, and Mineral Reserves are estimated at a cut-off grade of 0.19 g/t Au for oxide material and 0.30 g/t Au for sulphide material (Moore et al, 2019). Low grade mineralized material in a potential open pit mining scenario would be separately stockpiled for potential end-of-mine life processing. Other cut-off grades would be considered as having reasonable prospects of economic extraction in relation to fluctuating metal prices.

14.14 Discussion

Issues impacting on the resource classification are:

- Sample spacing: The pass categories are derived from the search parameters, which contain data point requirements in order to estimate metal block grades, i.e., a function of the data point spacing, which ultimately is a function of the drillhole spacing. The resource classification is derived from the pass category allocated to each block with subsequent consideration of other impacting factors (see below).
- The geology of the deposit and the style of mineralization: VMS mineralization with structurally overprinted gold mineralization in a high strain regime tends to have lower gold grade continuity subjectively affecting the confidence in the accuracy of the MRE.
- The sampling methods: The bulk of the resource estimates have been generated from diamond drilling results which is generally considered the best sampling technique (assuming good core recoveries) and thus provides increased confidence for the MRE.
- Variography: As described above for the densely drilled domain 1, i.e., 10-20m hole spacing, had weak to moderate gold variography indicating potential issues with understanding the gold grade continuity. This may be a function of the potential biased sampling form the historical vertical drilling and/or redistribution of gold via the structural overprint. Weak to moderate variography has a limiting effect on the confidence of the MRE.
- Density data: There is a substantial amount of density data, which appears to be of good quality and can be modelled by OK. The range in densities for the mineralization and surrounding host rock is relatively small, which increases the confidence in the estimated density data and hence the MRE.
- The QAQC procedures and outcomes: These are considered to be to industry standard for the Meridian drilling. The QAQC outcomes impart a high level of confidence in the appropriateness of the sampling methods and the accuracy of these assays.
- The historic data: This is more problematic with unsampled sections, vertical holes (i.e., not necessarily well oriented given the steep dip of some of the gold mineralization) and limited preserved records of historical QAQC data. The hole twinning by Meridian and resampling of historical core has indicated that there appears to be no issues with the historic gold, copper and silver assays. Confidence in the MRE is always reduced if there is a lack of QAQC data.
- Reconciliation: Mixed results were achieved but it is concluded that there is some confidence in the methodology used for the MRE and the accuracy of the estimates themselves.

- Core recoveries: The current recovery of >95% is reasonable and the gold and copper grades are not related to core recovery.

A review of the distribution of the block grades and a consideration of the above issues has led to some minor moderation of the resource classification involving reallocating Indicated Resources to Inferred Resources using defined shapes. The amount of material involved is very modest and generally was on the periphery of the MRE.

Factors affecting the MRE

- Modelling method. CVs for the gold composites were very high indicating skewed data with extreme values. This in itself would prompt H&SC to use a more sophisticated grade interpolation technique. This was confirmed by a visual inspection of the drilling in section and the complicated hardcopy historical interpretations supplied by Meridian. H&SC's experience would immediately suggest that MIK would be a more appropriate modelling method. A check model for gold using OK resulted in gold block grades having a poor match with the drilling data as well as an apparent overstatement of gold grade, i.e., high grade drill data had been smeared out into low grade or no grade areas. This would be a natural feature using a linear modelling method plus much reduced tonnes leading to an overall much lower number of gold ounces. The CVs for the copper and silver data were much lower and thus, in combination with visual reviews of the composite grade distribution, the OK method is acceptable for grade interpolation for these elements. With a more sophisticated grade interpolation technique, there is an increased level of confidence in the subsequent MRE.
- Composite data selection. A review of the drilling data indicated poorly structured gold data. The idea of separating higher grade zones as separate domains is considered by H&SC to be unwise in this instance as it is virtually impossible to physically recognise any such domains with any degree of coherency. Further infill drilling may help to resolve this. As a result, H&SC composited the whole drillhole dataset as unconstrained for all three elements and relied on the large amount of data to control the grade interpolation with suitable inputs from variography, block size and the search strategy parameters. H&SC has used this practice many times to good effect despite it not being an 'industry standard' technique. The method is reliant on widespread and abundant sampling and assaying, which is the case for Cabaçal. The amount of data, >40,000 points, and its widespread distribution with low grade peripheral data provides a reasonable degree of confidence in the subsequent MRE.
- Geological interpretation. The use of unconstrained composite data precludes the need for mineral domains. This simplifies the grade interpolation and removes the risk of introducing conditional biases, which can lead to an overstatement of metal grades, especially with the use of high grade metal domains. The mineralization at Cabaçal is marked by a rather abrupt basal termination associated with a sheared stratigraphical contact. This contact was well logged in the drilling data such that a 3D surface could easily be created, and this surface was used to both cut the base of the unconstrained composited data and to prevent any grade interpolation below it. Progressing up sequence from this basal contact the mineralization gradually peters out as it approached the ground surface, providing a natural limit to the values of the block grade interpolation. The result is a rather simple geological model but with some clear cut geological controls to mineralization.

- Drillhole spacing. The drill hole spacing for domain 1 is good, despite this variography is only weak to moderate; for domain 2 the drillhole spacing is considered wide and hence data distribution is considered wide for a large part of the deposit. The detailed drilled area, domain 1, contained drilling almost at a grade control spacing, 10-20m, and this still failed to provide clearcut grade continuity patterns in the variography (the vertical holes do not help). Domain 2 contains much wider spaced drilling generally 50 to 100m but the data distribution is considered wide for a large part of the deposit. This, plus the nature of the mineralization impacts negatively on the variography, which in turn indicates that much closer spaced drilling, perhaps in a localised test area first, is required for more confidence in any grade continuity, which in turn is reflected in the resource classification. In H&SC's experience modelling of gold (and copper), composite data with such wide drill hole spacings is relatively high risk, hence the Inferred Resource classification for a large part of domain 2. The MIK modelling technique with the unconstrained data partially offsets this risk.
- Density data. The dataset is both expansive and representative with the vast majority of the data from the recent Meridian drilling and therefore widespread. The density measuring technique, i.e., immersion in water weight in air/weight in water, is an industry standard technique. Sample selection for density measurement is appropriate with most of the core being competent. Such is the quantity of data that it is feasible to generate block grades for density by using OK. This is a more accurate and sophisticated method than applying broad scale default values to the various rocktypes or the calculation of density from assay grades. It is also noted that the range in densities is relatively small which adds to the general high level of confidence in the tonnages of the MRE.
- Drillhole orientation. A potential complication with the gold composite data and the perceived multi-directional gold grade distribution, is the predominance of vertical holes in the historic drilling. This opens up the risk of a sampling bias with respect to sub-vertical gold-bearing structures and remains a moderate risk to the accuracy of the MRE. The Meridian drilling has used angled holes in an attempt to avoid this issue.
- The block size. With varying drillhole spacing achieving an optimal block size depends on compromises. Often a small block size can lead to over-smoothing of grades and thus an overstatement of grade for Mineral Resources. Large block sizes do not provide the appropriate resolution for selective mining in open pit scenarios. Normally an MIK recoverable resource model would have a panel/block size with dimensions equal to the drillhole spacing. As the end product in this case is an E-type model with other elements, the compromise is a relatively small block size in comparison with the domain 2 drill spacing. The SMU is considered to be an appropriate size for selective mining and represents the minimum dimensions of any mining unit.
- Top cutting. Whilst the use of top cutting is regarded as standard industry practice, H&SC considers that it is often used rather arbitrarily with no sound geological or statistical basis. H&SC is generally reluctant to apply top cuts preferring to control any high grade samples by a combination of the grade interpolation method, geological interpretation, composite length, variography and search parameters. For Cabaçal no top cuts were applied to the composite data. One of the benefits of the MIK modelling is that it is designed to generally work with extreme grades without the need for top cutting. H&SC completed a small sensitivity analysis by reviewing the impact of using the mean or the median for the top indicator class for the fresh rock sub-domains. It was concluded that the estimation results were sensitive to high grades and that a compromise was applied, i.e., the average of the mean and median for the top indicator class was used in the estimation process. This in effect is like applying a top cut without actually cutting the raw data. Use of the compromise increases the confidence of the MRE.
- Minimum number of data. H&SC has kept the minimum number of data for the MIK Pass 3 grade interpolation search relatively high at 8 and at 6 for the OK grade interpolation. In H&SC's experience, using a lower number of minimum data invites an increase in risk to the interpolated grades particular at the margins of the deposit or in areas of wide drillhole spacing.

- Reconciliation. Attempts at reconciliation with production data produced mixed results. Using the supplied wireframe shapes it was possible to reasonably match the reported tonnes, assuming all material was mined, but the gold and copper grades were significantly lower leading to an under-reporting of gold ounces and copper tonnes. It may be that the underground workings are not located accurately enough with respect to the mineralization especially in the vertical direction, hence the lack of reconciliation. Using a gold cut-off grade of 2g/t within a defined mined area it was possible to report separately resource estimates at the production grade and for the total of gold ounces as per the production numbers. This provides some additional confidence in the grade interpolation method and the MRE.
- Reporting constraints. A 0.3g/t gold equivalent cut-off was used to report the MRE and this is based on advice supplied by Meridian. A notional open pit surface with a 20° sloping footwall surface and a 45° hanging wall sidewall meeting at the deepest part of the Mineral Resources was used as a further constraint for the resource reporting.

The Qualified Person is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant factors that could materially affect the potential development of the MRE.

15 MINERAL RESERVE ESTIMATE

This section is not relevant to this report.

16 MINING METHODS

The Cabaçal Deposit ('Cabaçal') is projected to be mined by conventional open pit mining methods for 22 years and 4 months, at a plant feed rate of 2.50 Mt/y, with an in-pit indicated Mineral Resources of 49.5 Mt grading 0.60 g/t Au, 0.32 % Cu and 1.35 g/t Ag, and in-pit inferred Mineral Resources of 6.1 Mt grading 0.93 g/t Au, 0.24% Cu and 1.01 g/t Ag, based on long gold, copper and silver selling price of, respectively, USD1,650.00/oz, USD3.59/lb, USD21.35/oz.

Development of the LoM (life-of-mine) plan includes pit optimization, pit design, mine scheduling and the application of economic and metallurgical modifying factors to Indicated and Inferred Mineral Resources. The tonnages and grades reported in this report are inclusive of estimated RoM loss and mining dilution.

The Mineral Resources estimate, with effective date of Mineral Resource is August 21, 2022, was prepared and delivered by Geol. Simon Tear (PGEO, EURGEOL), a Qualified Person (QP) as defined under National Instrument 43-101 regulations.

The effective date of Mineral Resource is August 21, 2022. Pit optimization was performed to establish the pit boundary for mining planning, applying reasonable modifying factors to the Mineral Resources estimate. A pit design was developed based upon operational and technical parameters, resulting in an estimated mine life of 23 years.

The final pit and the mine planning was based on pit optimization using GEOVIA Whittle software. The mining plan described in this report is based on Indicated and Inferred Mineral Resources constrained to the pit designed.

Mineable Resources are an estimate of the grade and tonnage in which the LoM plan was developed. Mineral Resource that are not Mineral Reserves do not have demonstrated economic viability.

16.1 Pit Optimization Parameters

The technical and economic parameters listed in Table 16-1 were used to generate the optimal pit shell, which consists of a pit that maximizes the project economic value, as obtained by applying the Lerch-Grossman algorithm implemented in GEOVIA Whittle software.

The classic methodology for the selection of the optimal pit consists of generating a set of nested pit shells from the application of revenue factors. The factor is applied to the sales prices of the relevant commodities, resulting in a single pit shell for each factor applied. The resulting generated pit shells were analyzed to define the final optimal pit shell to develop the LoM plan.

Table 16-1: Technical and Economic Parameters Used in the Final Pit Optimization.

Cabaçal Project - First Pass Parameters for ROM definition at PEA level				
Item			Unit	Value
Revenue	Economic	Selling Price	USD/oz Au	1650
			USD/oz Ag	21.35
			USD/lb Cu	3.59
	ROM	Density	g/cm³	block model
		Grades	g/t	block model
		Resource Classification	-	Indicated and Inferred
	Mine	Mining Recovery	%	97%
		Dilution		3%
	Block Model	X	m	10
		Y		10
		Z		5
	Slope Angle	Hanging Wall	º	48
		Foot Wall		*mineralized body slope*
	Max depth	bottom	mRL	60mRL
	Cut-off grade	Au_eq	g/t	0.3
	Process	Metallurgical Recovery	%	block model
Costs		Mining	USD/t mined	2.11
		Processing	USD/t RoM	8.20
		Logistics	USD/t RoM	1.64
		G&A	USD/t RoM	1.66

16.1.1 Geotechnical Study

The Ouro Cabaçal Project pit will be implanted in a rock mass formed by quartz-sericite-chlorite-(biotite) shale (CTB), metavolcanic/vulcanocastic composed of quartz-sericite-biotite-feldspar shale (TAC) and by intrusion post mineralization of gabbro (GBR).

There are two main groups and a subgroup formed by:

- The first group is formed by the F1 foliation 25º-80º/045º (dip-dip direction), joint J1 60º-90º/224º (dip-dip direction).
- The second group is formed by joint J2 70º-90º/315º (dip-dip direction), fault F2 85º/135 (dip-dip direction).
- The subgroup is formed by the F3 0º-20º/215º subhorizontal fault (dip-dip direction).

The bedrock presents reasonable RQD (50 – 75%), medium degree of fracturing (F3), Class II/II rock mass, good to reasonable, presenting a resistance to uniaxial compression ranging from 50Mpa to 170Mpa with an average of 92Mpa.

Table 16-2shows intact rock properties for silicified sandstone.

Table 16-2: Intact Rock Parameters.

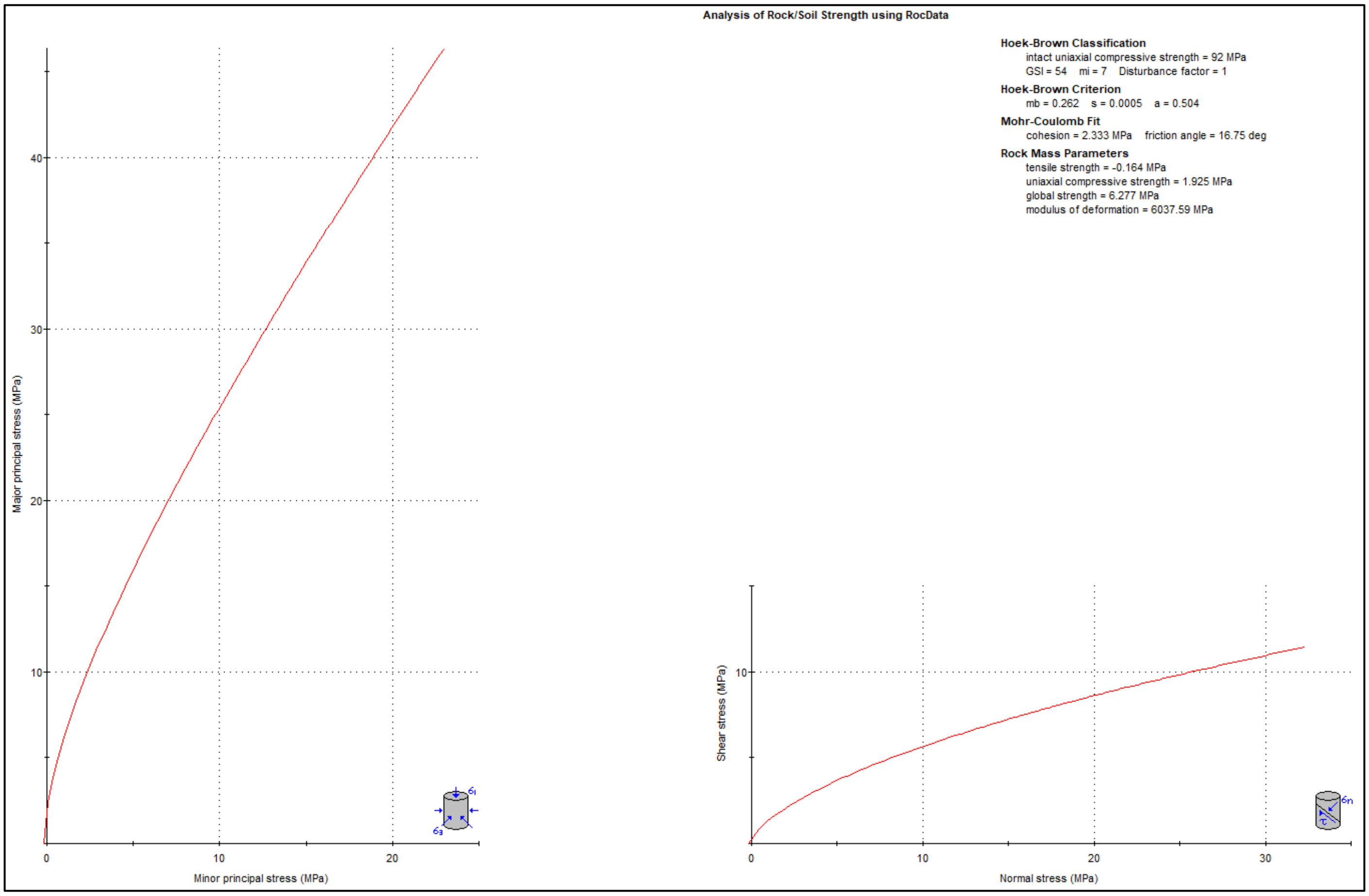
Parameters	Intact Rock	Observations
Specific weight ɣ (kN/m^3)	24.0	Meridian Report
Intact rock strength σci (MPa)	92	UCS Test
Material Constant mi	9	RocLab

Based on the properties of the intact rock, RocLab (Rocscience, 2002) was used, Figure 16-1, to determine the criteria for rupture of the rock mass, using the Hoek-Brown Classification with the determination of the GSI (Geological Strength Index), Damage Factor due to detonation (D). The assumed values can be found in Table 16-3.

Table 16-3: Rock Mass Parameter.

Parameters		Rock Mass CTB	Rock Mass TAC	Observations
Hoek-Brown Classification	Sigci MPa	92	92	UCS Test
	GSI	54	54	RocLab
	mi	7	9	RocLab
	D	1	1	RocLab
Hoek-Brown Criteriun	mb	0.262	0.262	RocLab
	s	0.0005	0.0005	RocLab
	a	0.504	0.504	RocLab

Figure 16-1: Results Obtained With Rocdata.



Source: GE21, 2023

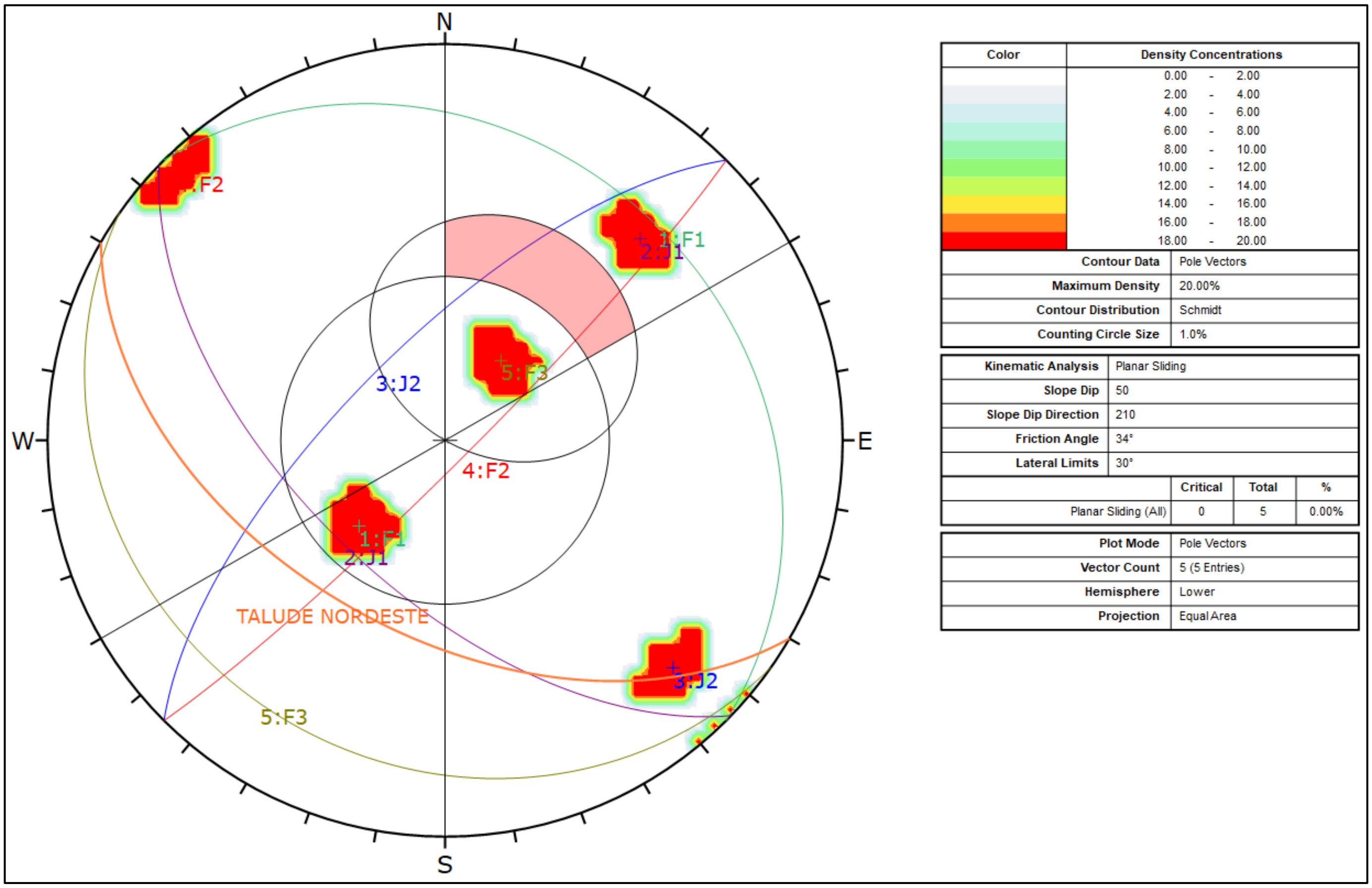
16.1.2 Kinematic Analysis

Kinematic analyzes were performed for the various slopes to assess planar and overturning failures.

The adopted friction angle was obtained from RocLab, Cohesion 350M/a and friction angle of 34º. Figure 16-2 and Figure 16-3 exemplify the analyzes carried out for different sectors and the respective percentages of occurrences for planar failures and overturning.

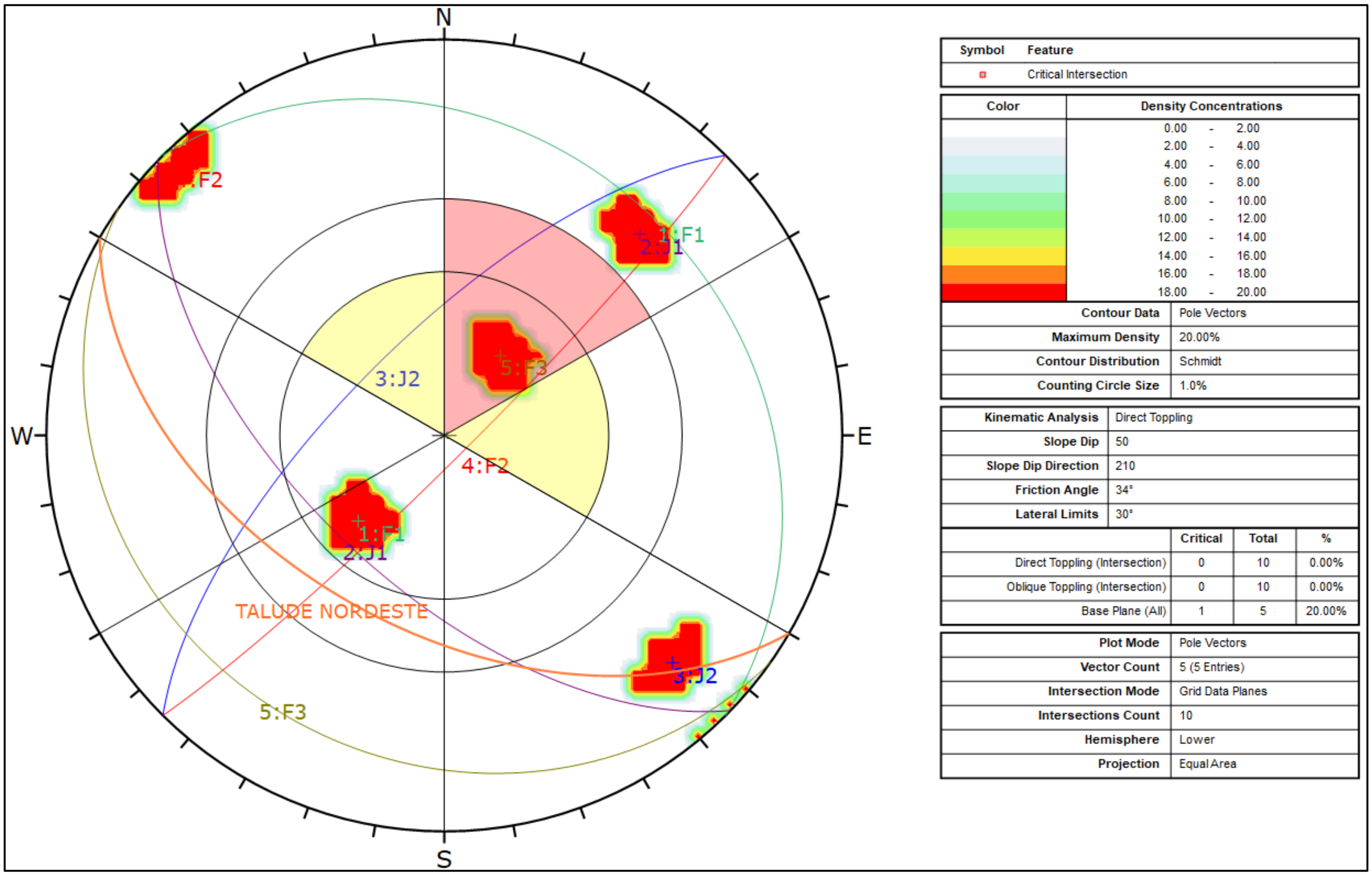
The critical percentages found are lower than 30%, which is adopted internationally and are considered acceptable.

Figure 16-2: Kinematic Analysis For The Northeast Slope With 0% Planar Failure.



Source: GE21, 2023

Figure 16-3: Kinematic Analysis For The Northeast Slope With 20% Planar Failure.



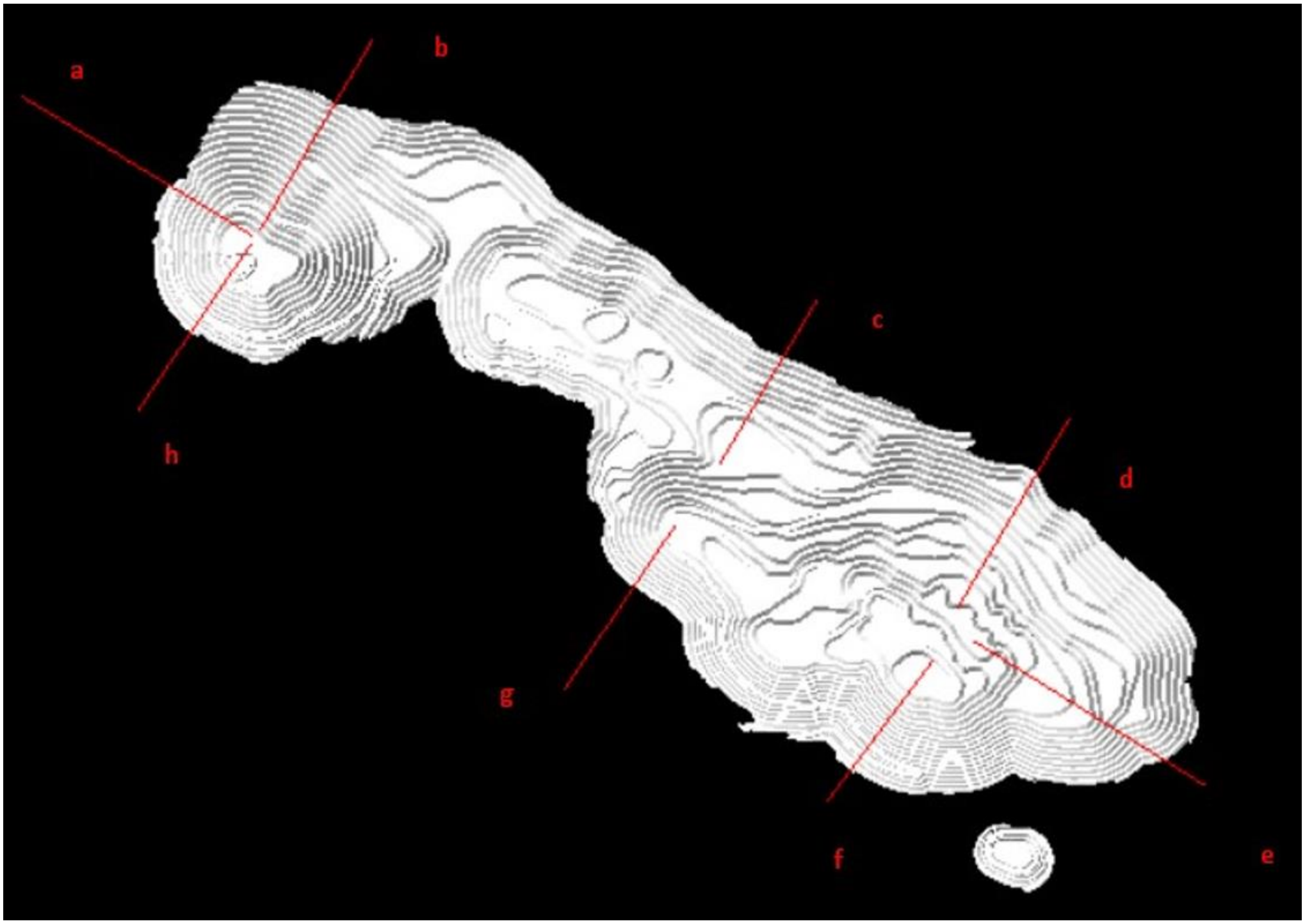
Source: GE21, 2023

16.1.3 Limit Equilibrium Analysis

For the Cabaçal pit, sections A, B and F representing the pit slopes were analyzed, adopting the parameters obtained in RocLab.

The position of the sections is shown in Figure 16-4.

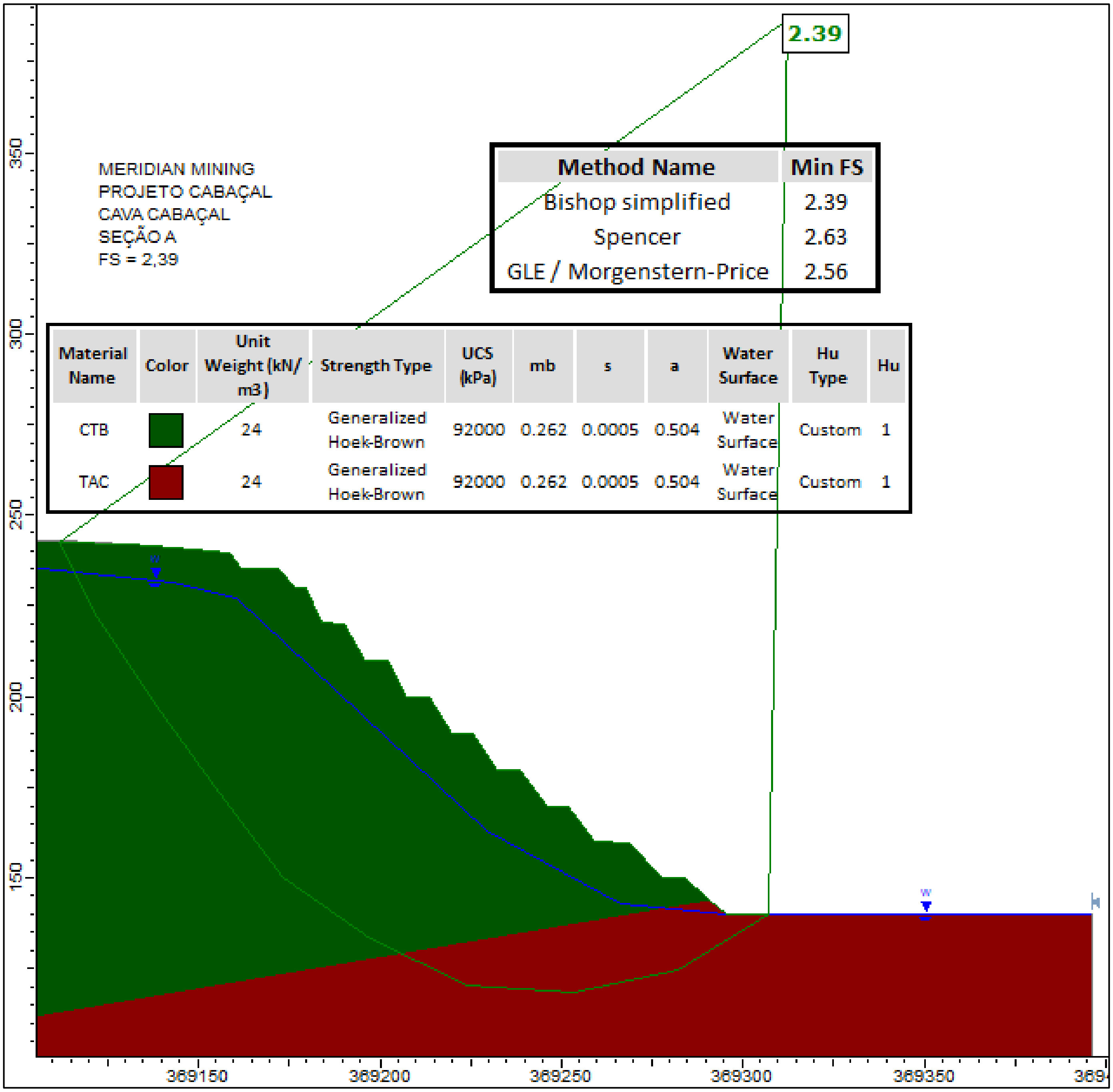
Figure 16-4: Location of Analysis Sections



Source: GE21, 2023

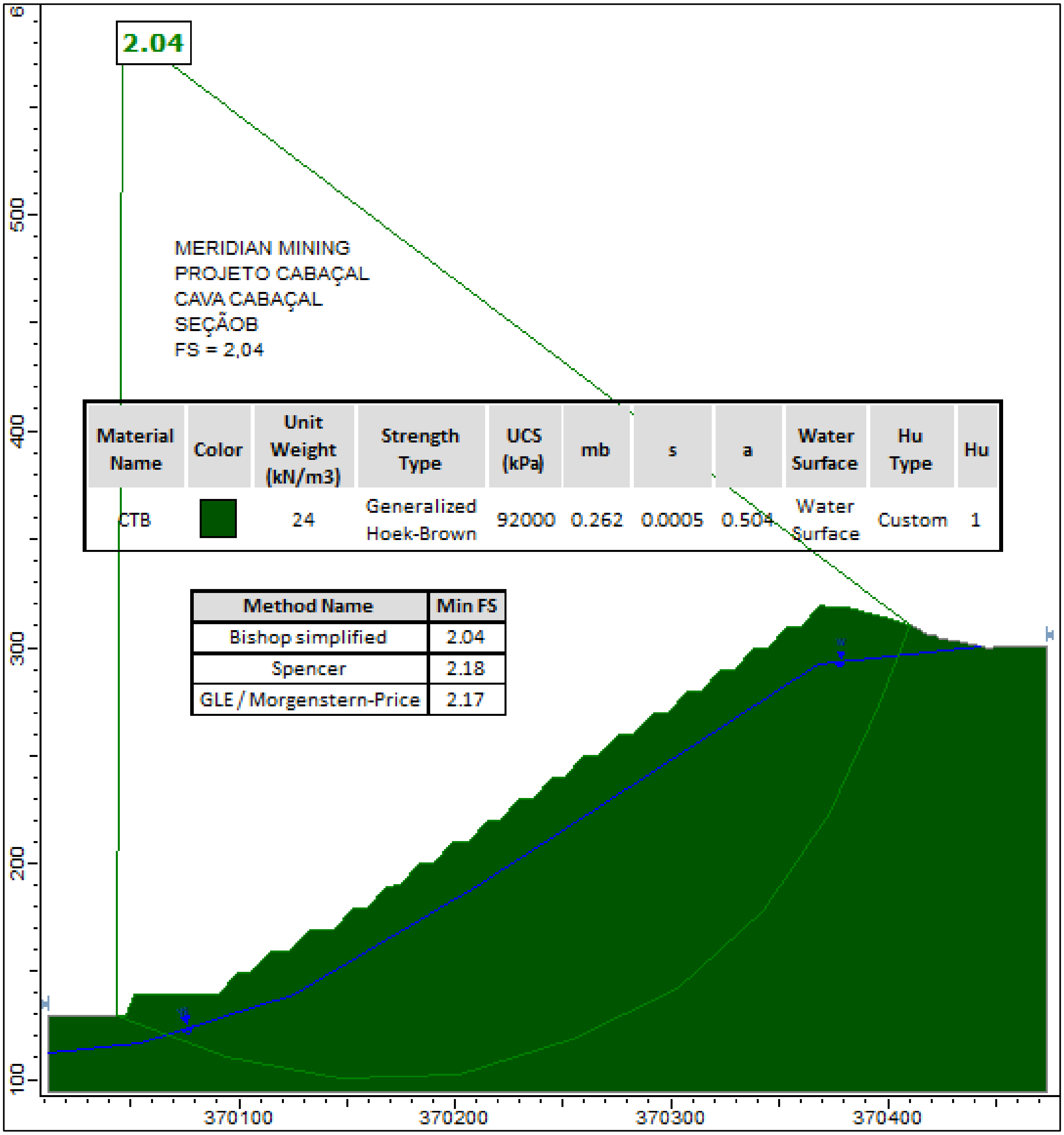
The results of the analyzes are shown in Figure 16-5 to Figure 16-7 and in Table 16-4.

Figure 16-5: Analysis of Section A With FS = 2.39.



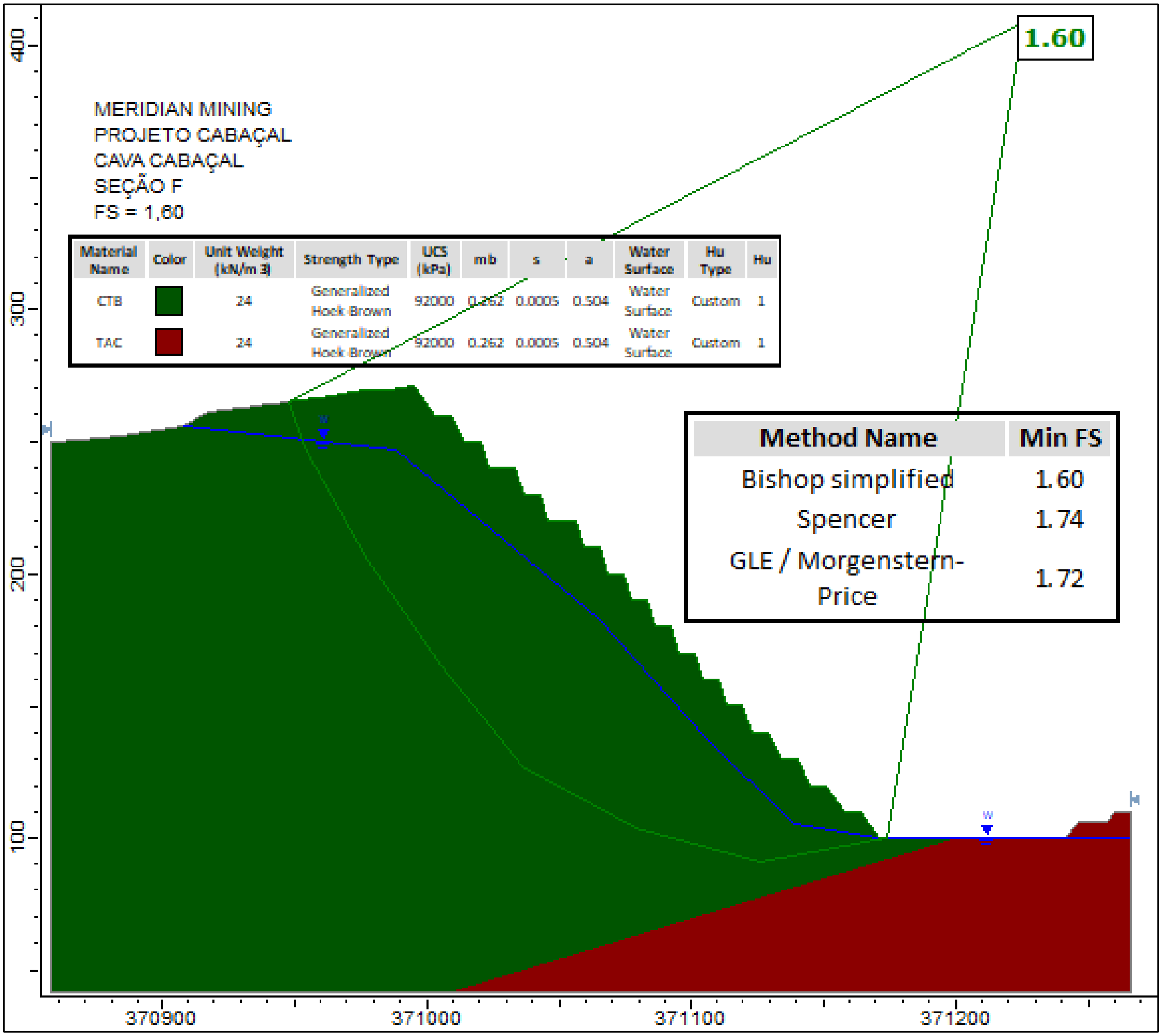
Source: GE21, 2023

Figure 16-6: Analysis of Section B With FS = 2.04.



Source: GE21, 2023

Figure 16-7: Analysis of Section F with FS = 1.60.



Source: GE21, 2023

Based on the results of the limit equilibrium analyses, the angles adopted for the pit are compatible with those used in open pits in Brazil.

The final pit slope angles and other geotechnical parameters used for the pit optimization and pit design, are shown below in Table 16-4.

Table 16-4: Geotechnical Pit Slope Design Criteria.

Sectors	Face Angle (°)	Berm Width (m)	Bench Height (m)	Overall Slope Angle (°)
Hanging Wall	73	6	10	48
Foot Wall	48	6	10	*following mineralization*

16.1.4 Recommendations

For the next work steps, it is recommended:

- Hydrogeological study of the project.
- Investigation of geological structures through optical television (optical televiewer, OPTV) in old and new boreholes that are unobstructed.
- Description of drillholes not sampled by the RMR system.
- Carrying out rock mechanics tests according to the attached specification.
- Installation of piezometers/water level indicators in boreholes.

16.2 Modifying Factors

Modifying factors listed below were applied to the pit optimization analysis and the pit design.

16.2.1 Economic and Metallurgical Factors

The economic and metallurgical factors used for the open pit and mineral resource were estimated including and assuming long-term commodities sales price, economic cut-off grade, metallurgical recovery, mining costs, processing costs, G&A costs, and sales costs.

16.2.1.1 Long-Term Commodities Prices

The long-term sales prices of the gold, copper and silver adopted for the pit optimization study were the same as presented on Section 14, respectively, USD1,650.00/oz Au, USD3.59/lb Cu, USD21.35/oz Ag.

16.2.1.2 Cut-off Grade

The cut-off grade of 0.3g/t was applied to the gold equivalent.

16.2.1.3 Metallurgical Factors

The metallurgic recovery of gold, copper and silver were assessed separately, as presented in the block model. The formula for metallurgical recoveries are:

- Gold Recovery=5.4368 ×ln(Gold Grade)+88.856

- Copper Recovery=2.0006 ×ln(Copper Grade)+94.686
- Silver Recovery=13.342 ×ln(Silver Grade)+71.037

16.2.1.4 Mining and Process Costs Factors

Optimization economics considered a mining cost, as first pass parameter, of USD2.11/t mined and a processing cost of USD8.20/t fed to the plant.

16.2.1.5 Other Costs

The cost assumptions also included USD1.66/t RoM for G&A expense, and logistics of USD1.64/t RoM.

16.2.2 Dilution and Losses

Generally, using the resource block model as the basis for short to medium term production results in decreased mass recovery rates in the mine planning. The common cause is that the block size in the Mineral Resource Block model is generally too large, is undiluted, and is not suitable for the variability in the level of control needed to account for the selectivity effect to ensure reasonable accuracy during the blending process.

In order to account for the RoM loss and mining dilution, GE21 assumed, at this level of study, an average ROM recovery of 97% and dilution rate of 3%. Further detailing must be performed with the increase of Project maturity.

16.3 Pit Optimization Study

The determination of the pit optimization was based on:

- Definition of economic and physical parameters, cut-off grade, and modifying factors presented.
- Definition of an optimal pit shell using Geovia Whittle 4.7 software.
- The selection of the pit shell, and intermediate push backs, based on RoM quantity, quality and strip ratio, and allowance for a life-of-mine long enough to support a positive cash flow.

The determination of the optimal pit shell geometry was chosen from the generation of an optimal sequence of pushbacks, corresponding to feasible increments of the generated pit shells, from the use of Lerchs-Grossman's three-dimensional algorithm for different blocks values, and obtained by product price variations using the revenue factor.

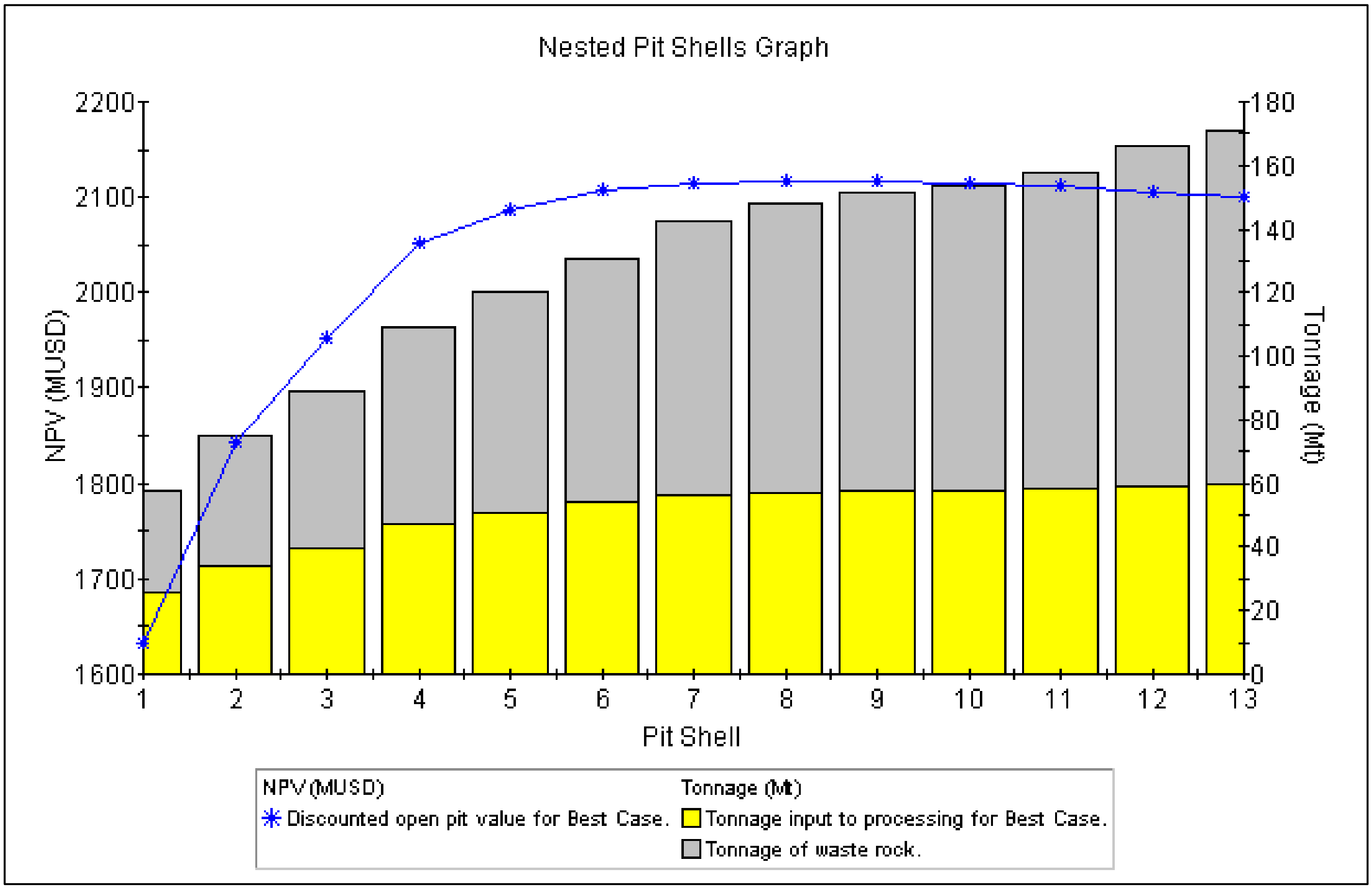
This sequence of expansion pit shells, or pushbacks, is the basis of open pit mine planning when using Whittle software, which projects the evolution of mine geometry over time. The evolution of mining over time can be simulated with two criteria: the maximization route or the stationary route. The first tries to maximize the operational financial return from a sequence of pushbacks that optimize the cash flow; the latter aims to keep the parameters of the processing plant feed material constant. The first approach was applied, and the optimal pit sequence was obtained by varying the revenue factor in a range from 30% to 150% of the product selling price.

The pit shell used to develop the pit design was Pit 8 with a revenue factor of 100%. Table 16-5, and Figure 16-1 present the pit optimization results and show the evolution of the pushbacks with the selected pit shell highlighted. The selected pit shell refers to the point which the increment of RoM is minimal related to the increment in tonnages of waste, with the project's value curve reaching almost its peak value.

Table 16-5: Nested Pit Shells Optimization Results.

Optimization Pit Summary											
Pit	Revenue Factor	ROM	Waste	Strip Ratio	Au Eq.	Au	Ag	Cu	Metallurgical Recovery (%)		
		Mt	Mt		g/t	g/t	ppm	%	Au	Ag	Cu
1	0.30	15.69	42.29	2.70	2.16	1.56	2.03	0.48	86.26	72.37	89.43
2	0.40	24.43	50.95	2.09	1.69	1.16	1.82	0.43	84.00	71.56	89.25
3	0.50	32.30	56.39	1.75	1.43	0.95	1.62	0.39	82.57	70.32	89.04
4	0.60	41.78	67.08	1.61	1.23	0.79	1.48	0.35	81.29	69.29	88.91
5	0.70	49.06	71.38	1.46	1.11	0.71	1.38	0.33	80.42	68.44	88.77
6	0.80	53.89	76.89	1.43	1.05	0.66	1.34	0.32	79.90	68.08	88.71
7	0.90	56.12	86.59	1.54	1.03	0.64	1.32	0.31	79.77	68.01	88.70
8	1.00	57.04	90.67	1.59	1.02	0.63	1.32	0.31	79.70	68.00	88.70
9	1.10	57.59	94.24	1.64	1.01	0.63	1.32	0.31	79.66	67.98	88.70
10	1.20	57.87	96.04	1.66	1.01	0.63	1.32	0.31	79.63	67.97	88.70
11	1.30	58.25	99.21	1.70	1.01	0.63	1.31	0.31	79.60	67.97	88.70
12	1.40	59.11	107.29	1.82	1.00	0.62	1.31	0.31	79.53	67.94	88.69
13	1.50	59.47	111.32	1.87	1.00	0.62	1.31	0.31	79.52	67.93	88.69

Figure 16-8: Nested Pit Shells Tonnage & NPV Graph.



Source: GE21, 2023

16.4 Mine Design

Mine design comprises the design of an operational pit, including ramps, berms, and access over the life of the selected optimal pit shell, allowing for exploitation of Mineral Resources in an operationally feasible way.

The methodology consists of tracing the benches, toe and crest outlines, safety berms, construction sites, and access ramps, while respecting the geometric and geotechnical parameters defined by geotechnical studies. The assumptions adopted for the final pit design were:

- Minimize the loss of mineralized material.
- Define access routes for shorter average transport distances.

Table 16-6 presents the geometric parameters adopted to develop the mine design.

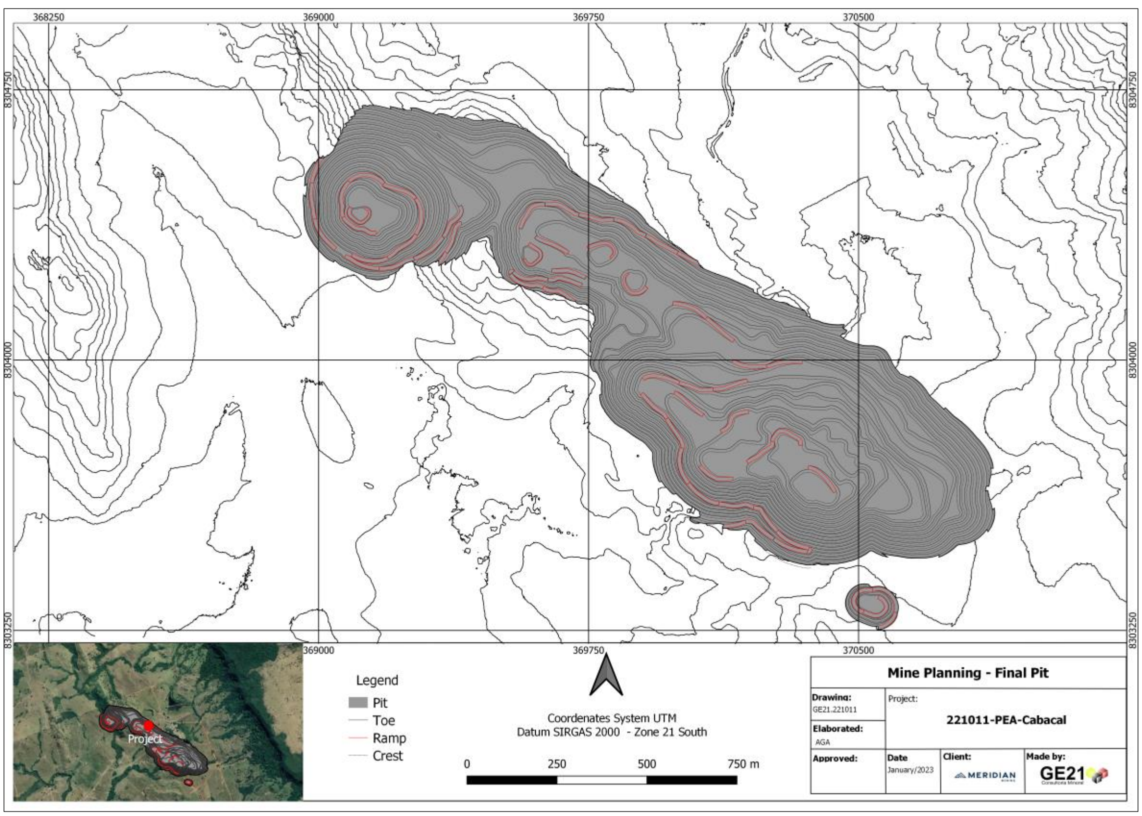
Table 16-6: Parameters for Pit Design.

Parameters		Value	Unit
Face Angle	Hanging wall	73	°
	Foot wall	48	°
Bench height		10	m
Berm width		6	m
R267halweg267eient		10	%
Ramp width		12	m
Minimum mining width		30	m

Source: GE21, 2023

Figure 16-2 shows the results for the final pit design and Table 16-7 presents the Mineable Resources, In-pit Mineral Resources.

Figure 16-9: Final Pit Design



Source: GE21, 2023

Table 16-7: Final Pit Summary

Meridian - Cabaçal Gold-Copper Project In-pit Resources					
Resources	Mass (kt)	Au[a] (g/t)	Au (oz)	Cu[b] (%)	Ag[c] (ppm)
Indicated	49 453	0.60	955 510	0.32	1.35
Inferred	6 142	0.93	182 711	0.24	1.01
Total RoM	**55 595**	**0.64**	**1 138 221**	**0.31**	**1.31**
Waste	118 082				
Strip Ratio	2.12				

1. Gold depletion was factored in with MIK modelling.
2. Adjusted copper grade with reported underground mined material.
3. No adjustments were applied related to historical silver production.
4. Modifying factors applied: Dilution 3%; Mining recovery 97%.
5. Cut-off grade = 0.30g/t Au_eq (Gold equivalent).
6. 1 oz = 1 troy ounce = 31.1035g
7. Sale price for: Au = USD1,650/oz, Pt = USD21.35/oz and Cu = USD3.59/lb
8. Mining costs: USD2.11/t mined.
9. Processing costs: USD8.20 /t RoM (run-of-mine).
10. G&A: USD1.66/t RoM (run-of-mine).
11. Logistic: USD1.64/t RoM (run-of-mine).
12. Strip Ratio = 2.12 t/t.
13. The Qualified Person for the estimate is Guilherme Gomides Ferreira, P. Mining Engineer, MAIG, an employee of GE21.

16.5 Mine Scheduling

In order to define the annual production plan, the following criteria were applied:

- Pre-stripping.
- Feed rate: 2.50 Mt/a.
- 3.0% dilution rate.
- Mining recovery: 97%.

This study consisted of sequencing production, and waste rock blocks, in addition to defining the evolution of pit(s) geometries throughout the modelled mining life.

For the production development, the areas to be mined annually were established and designed pushbacks plans for years 1 to 5, 10, 15, 20 and 23.

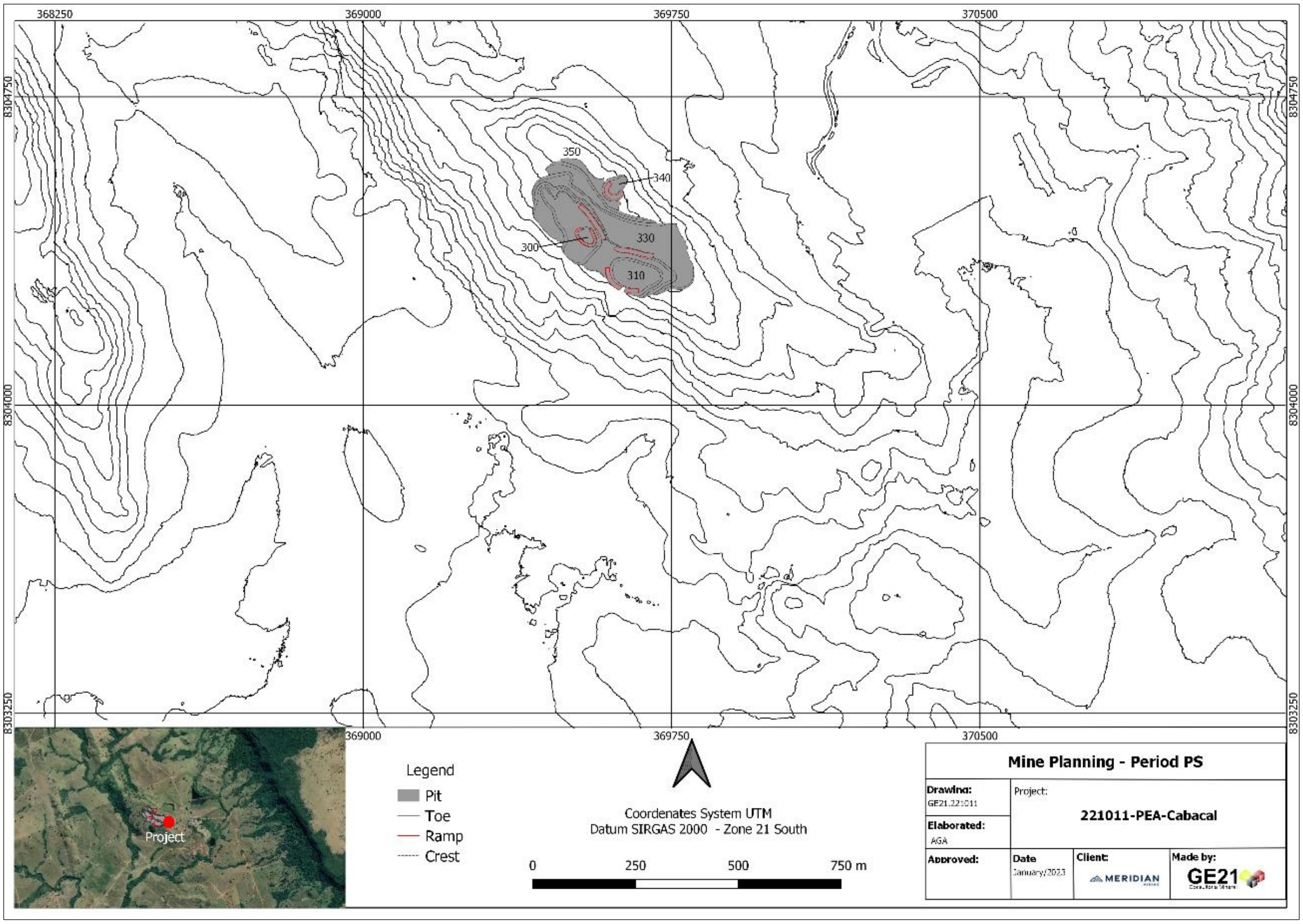
Operational sequencing results can be found in Figure 16-10 to Figure 16-12 and in Table 16-8 below.

Table 16-8: Mine Schedule (Dry basis)

Period Number	Mined						Low Grade Stockpile Added				Low Grade Stockpile Balance				Low Grade Stockpile Removed				High Grade + Medium Grade Stockpile Added				Plant Feed			
	ROM (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Waste (Mt)	Total Mov. (Mt)	Low Grade Stock (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Low Grade Stock (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Low Grade Stock (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	High Grade + Medium Grade Stock (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	Plant Feed (Mt)	Au (g/t)	Cu (%)	Ag (g/t)
PS	0.45	3.22	0.10	0.32	2.32	2.77	0.04	0.41	0.11	0.34	0.04	0.41	0.11	0.34					0.41	3.59	0.10	0.32	-	-	-	-
1	2.32	1.87	0.32	1.23	5.90	8.22	0.27	0.17	0.22	0.67	0.27	0.17	0.22	0.67	0.04	0.17	0.22	0.67	-	-	-	-	2.50	2.30	0.29	1.13
2	4.85	0.67	0.32	1.03	9.86	14.72	2.36	0.16	0.24	0.71	2.63	0.16	0.24	0.71	-	-	-	-	-	-	-	-	2.50	1.16	0.40	1.34
3	2.55	1.07	0.38	1.41	12.30	14.85	0.05	0.22	0.20	0.62	2.68	0.16	0.24	0.71	-	-	-	-	-	-	-	-	2.50	1.09	0.39	1.43
4	2.68	0.76	0.41	1.65	11.89	14.56	0.18	0.16	0.23	0.69	2.86	0.16	0.23	0.71	-	-	-	-	-	-	-	-	2.50	0.81	0.43	1.72
5	2.51	0.57	0.42	1.73	10.15	12.66	0.02	0.16	0.24	0.80	2.87	0.16	0.23	0.71	-	-	-	-	-	-	-	-	2.50	0.57	0.42	1.74
6	2.43	0.99	0.45	1.75	4.59	7.03	-	-	-	-	2.81	0.16	0.23	0.71	0.07	0.16	0.23	0.71	-	-	-	-	2.50	0.96	0.44	1.71
7	2.43	0.60	0.31	1.27	4.59	7.03	-	-	-	-	2.74	0.16	0.23	0.71	0.07	0.16	0.23	0.71	-	-	-	-	2.50	0.59	0.31	1.25
8	2.44	0.47	0.25	0.97	4.61	7.05	-	-	-	-	2.67	0.16	0.23	0.71	0.07	0.16	0.23	0.71	-	-	-	-	2.51	0.47	0.25	0.97
9	2.41	0.41	0.20	0.92	4.55	6.96	-	-	-	-	2.61	0.16	0.23	0.71	0.07	0.16	0.23	0.71	-	-	-	-	2.48	0.41	0.21	0.92
10	2.43	0.42	0.24	1.09	4.59	7.03	-	-	-	-	2.54	0.16	0.23	0.71	0.07	0.16	0.23	0.71	-	-	-	-	2.50	0.42	0.24	1.08
11	2.20	0.61	0.29	1.18	4.99	7.19	-	-	-	-	2.24	0.16	0.23	0.71	0.29	0.16	0.23	0.71	-	-	-	-	2.50	0.56	0.29	1.14
12	2.21	0.82	0.31	1.37	5.00	7.21	-	-	-	-	1.95	0.16	0.23	0.71	0.29	0.16	0.23	0.71	-	-	-	-	2.50	0.74	0.30	1.32
13	2.20	0.66	0.24	1.01	4.99	7.19	-	-	-	-	1.66	0.16	0.23	0.71	0.29	0.16	0.23	0.71	-	-	-	-	2.50	0.60	0.24	0.98
14	2.20	0.64	0.15	0.62	4.99	7.19	-	-	-	-	1.36	0.16	0.23	0.71	0.29	0.16	0.23	0.71	-	-	-	-	2.50	0.58	0.15	0.61
15	2.20	0.52	0.15	0.69	4.99	7.19	-	-	-	-	1.07	0.16	0.23	0.71	0.29	0.16	0.23	0.71	-	-	-	-	2.50	0.48	0.15	0.68
16	2.32	0.21	0.26	1.29	2.60	4.92	-	-	-	-	0.89	0.16	0.23	0.71	0.18	0.16	0.23	0.71	-	-	-	-	2.50	0.20	0.26	1.24
17	2.32	0.46	0.30	1.36	2.59	4.91	-	-	-	-	0.71	0.16	0.23	0.71	0.18	0.16	0.23	0.71	-	-	-	-	2.50	0.44	0.30	1.31
18	2.32	0.52	0.30	1.19	2.59	4.91	-	-	-	-	0.53	0.16	0.23	0.71	0.18	0.16	0.23	0.71	-	-	-	-	2.50	0.49	0.29	1.15
19	2.32	0.30	0.38	1.71	2.59	4.91	-	-	-	-	0.35	0.16	0.23	0.71	0.18	0.16	0.23	0.71	-	-	-	-	2.50	0.29	0.37	1.64
20	2.32	0.46	0.53	2.53	2.60	4.92	-	-	-	-	0.18	0.16	0.23	0.71	0.18	0.16	0.23	0.71	-	-	-	-	2.50	0.44	0.51	2.41
21	2.43	0.32	0.34	1.53	2.13	4.56	-	-	-	-	0.12	0.16	0.23	0.71	0.06	0.16	0.23	0.71	-	-	-	-	2.49	0.32	0.34	1.51
22	2.43	0.24	0.26	1.31	2.13	4.56	-	-	-	-	0.06	0.16	0.23	0.71	0.06	0.16	0.23	0.71	-	-	-	-	2.49	0.23	0.27	1.31
23	0.61	0.19	0.39	2.25	0.53	1.14	-	-	-	-	0.00	0.00	0.00	0.00	0.06	0.16	0.23	0.71	-	-	-	-	0.67	0.18	0.35	2.05
LoM	**55.59**	**0.64**	**0.31**	**1.31**	**118.08**	**173.68**																	**55.59**	**0.64**	**0.31**	**1.31**

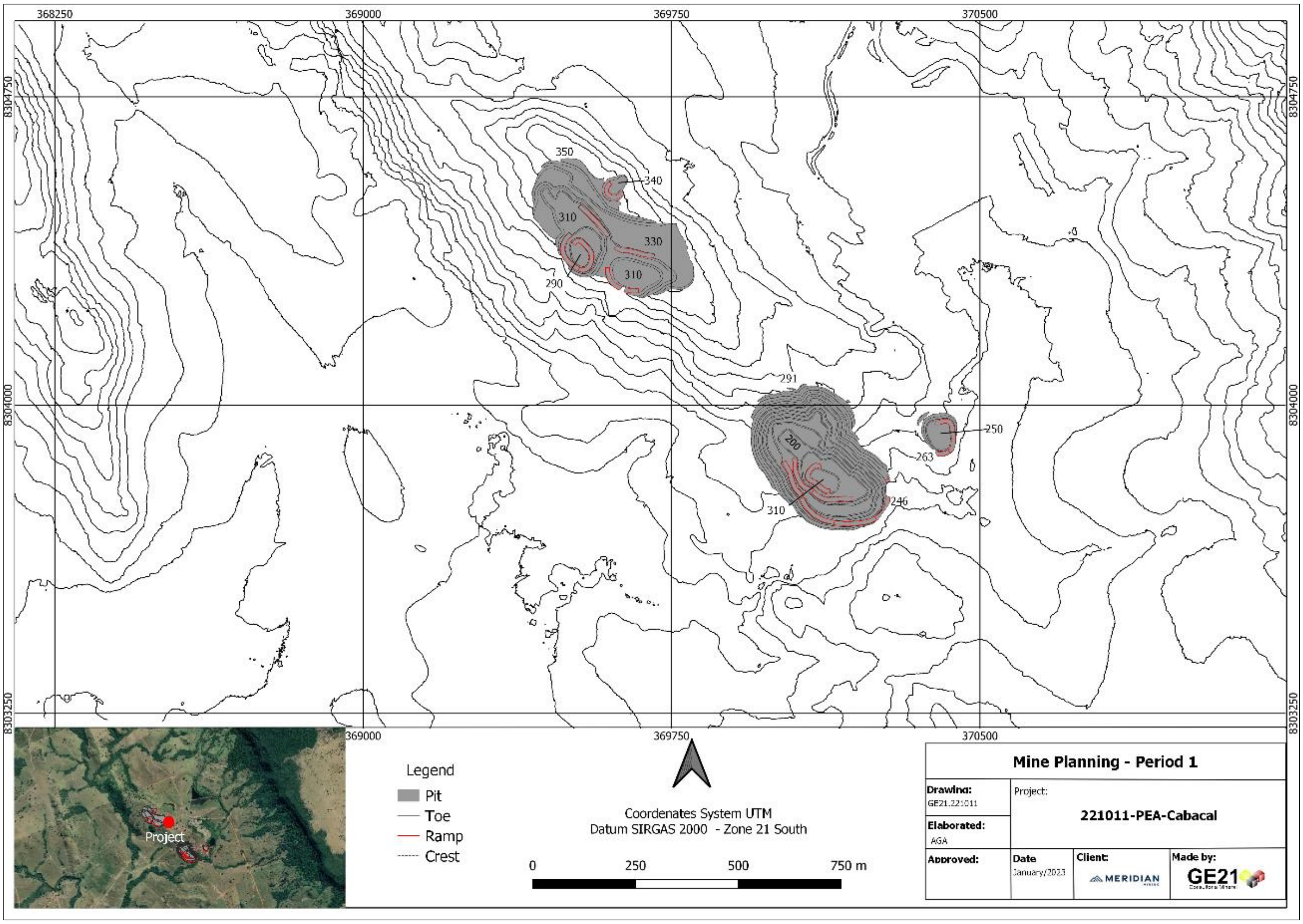
Note: 97 Mine recovery 3% Dilution

Figure 16-10: Pit Cabaçal – Pre-Strip (PS)



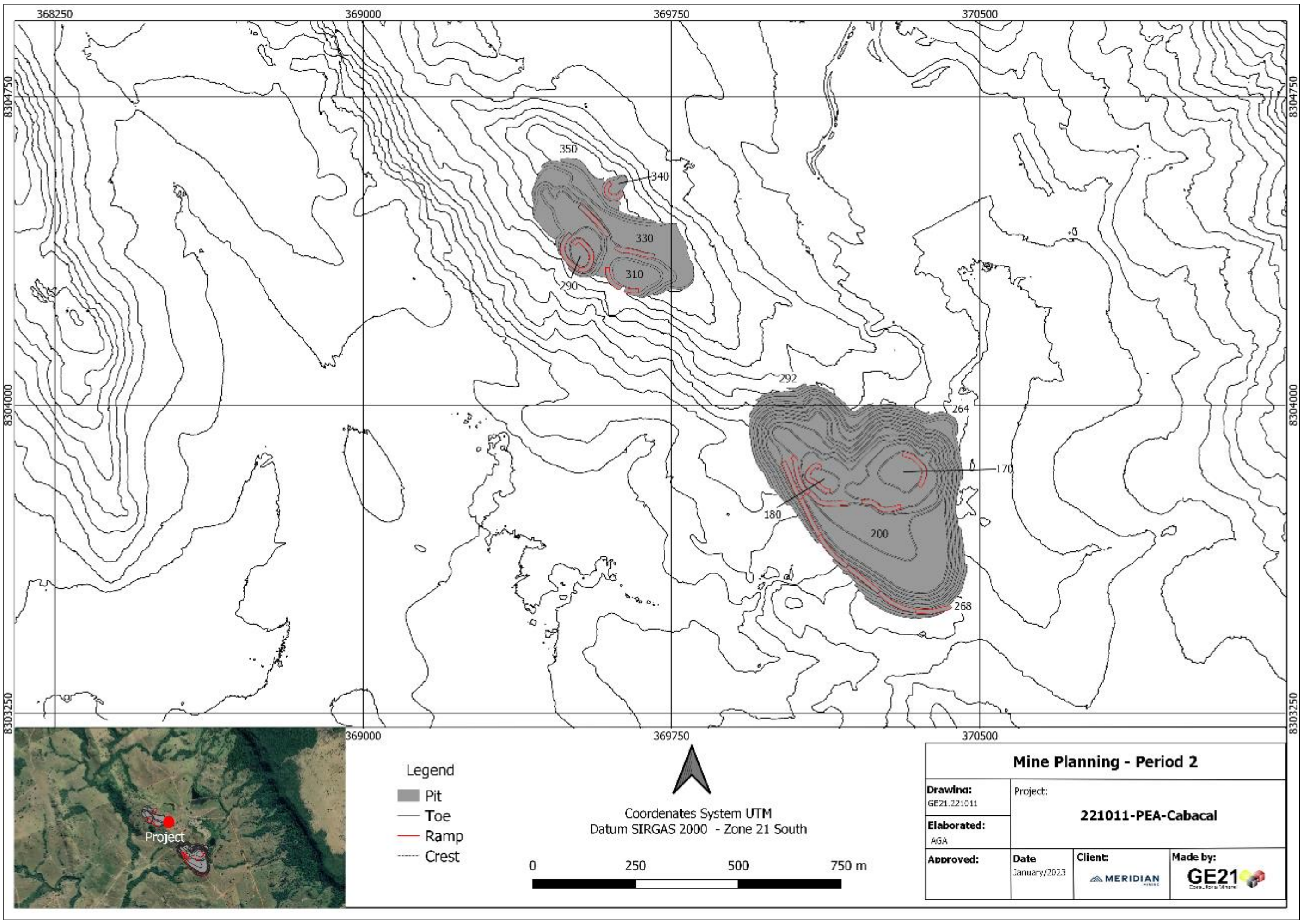
Source: GE21, 2023

Figure 16-11: Pit Cabaçal–al - Year 01



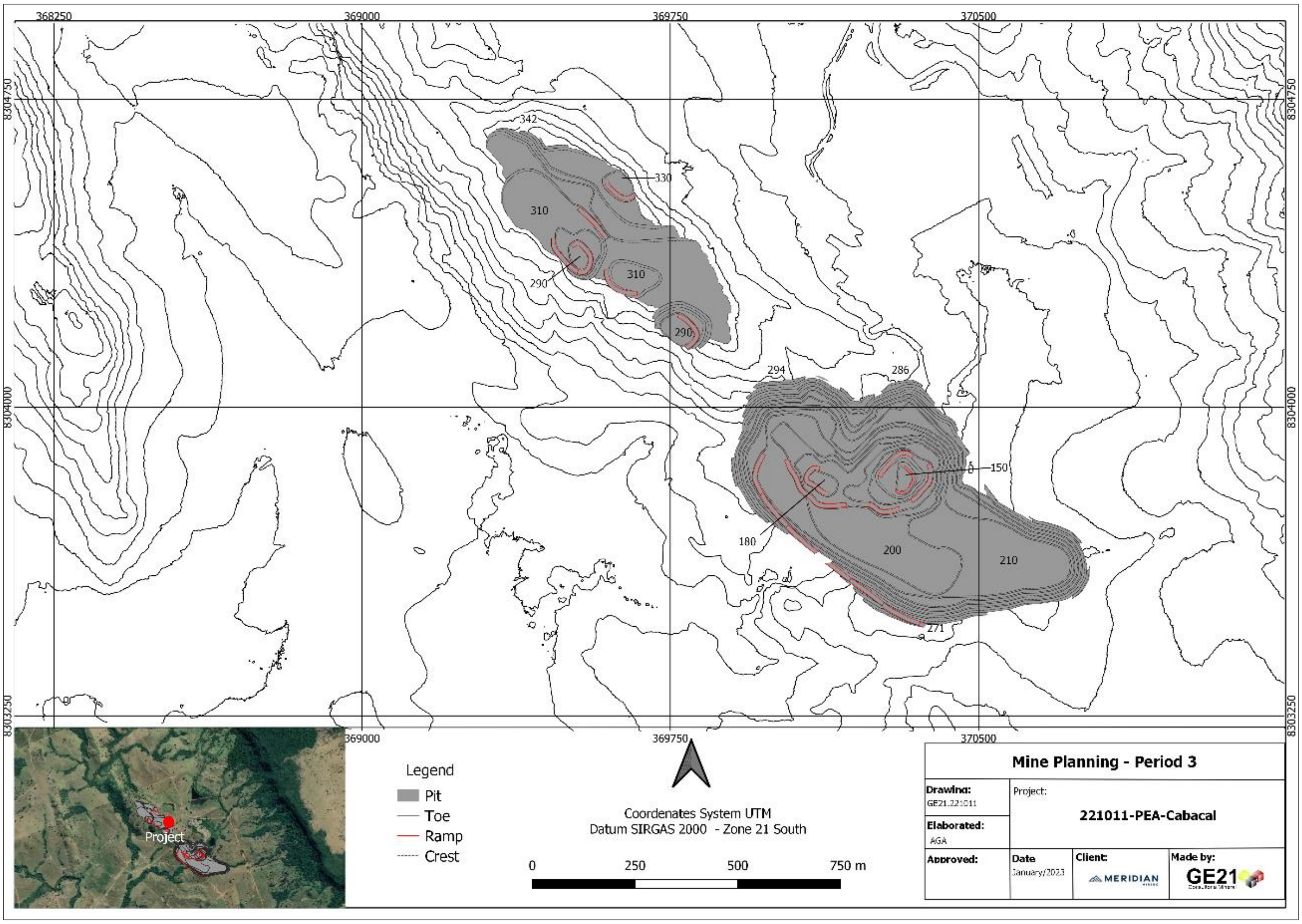
Source: GE21, 2023

Figure 16-12: Pit Cabaçal –al - Year 02



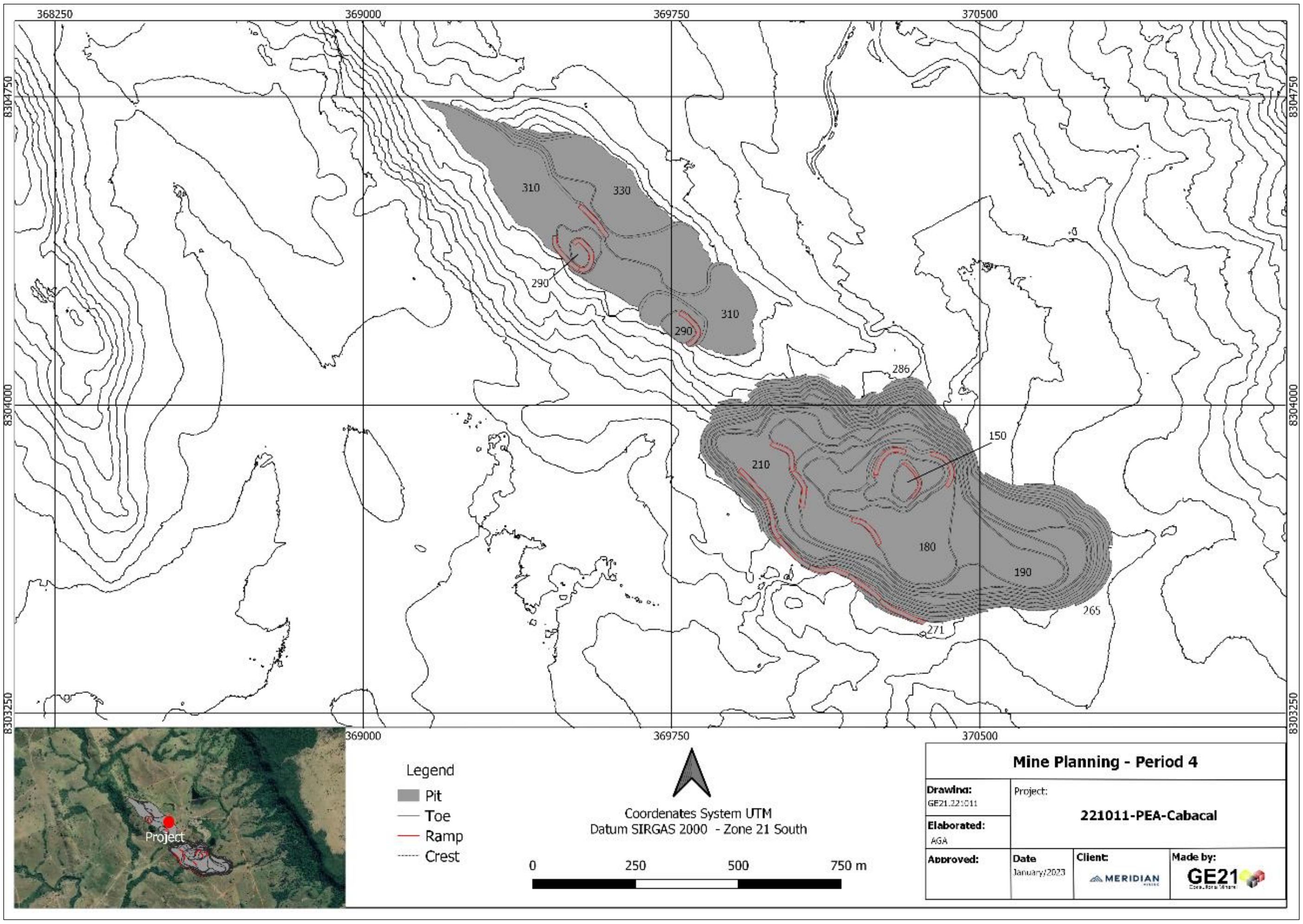
Source: GE21, 2023

Figure 16-13: Pit Cabaçal–al - Year 03



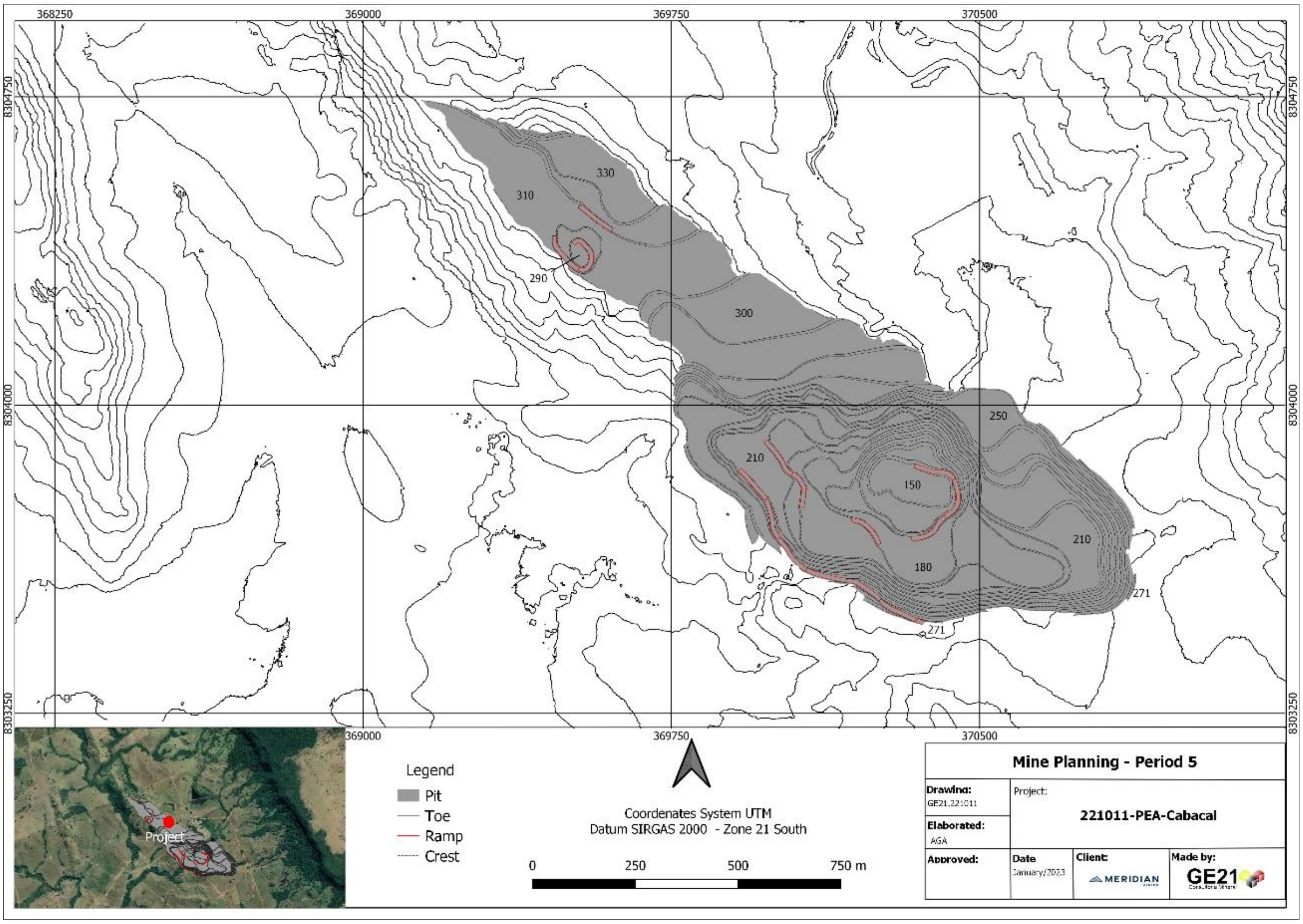
Source: GE21, 2023

Figure 16-14: Pit Cabaçal–al - Year 04



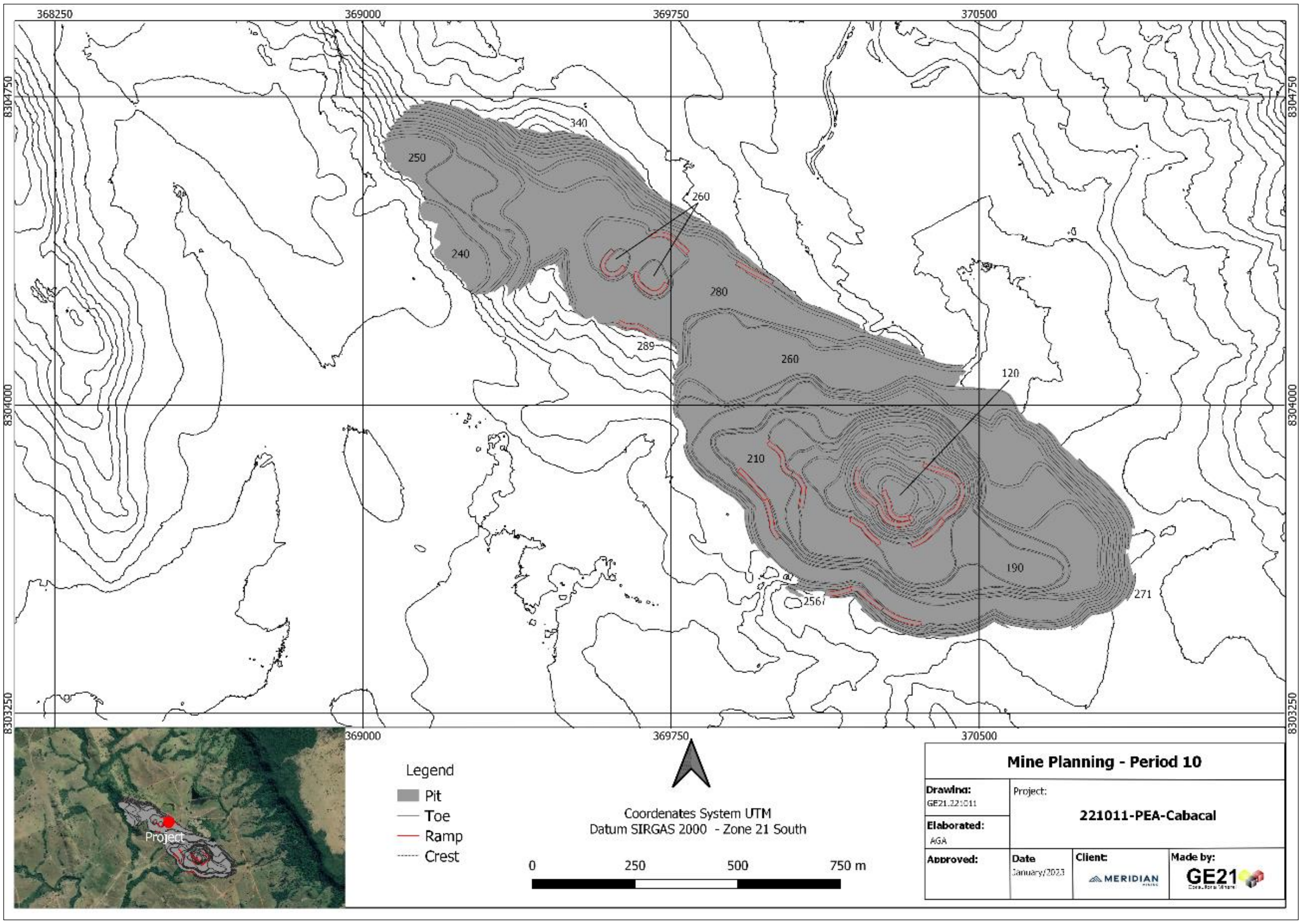
Source: GE21, 2023

Figure 16-15: Pit Cabaçal–al - Year 05



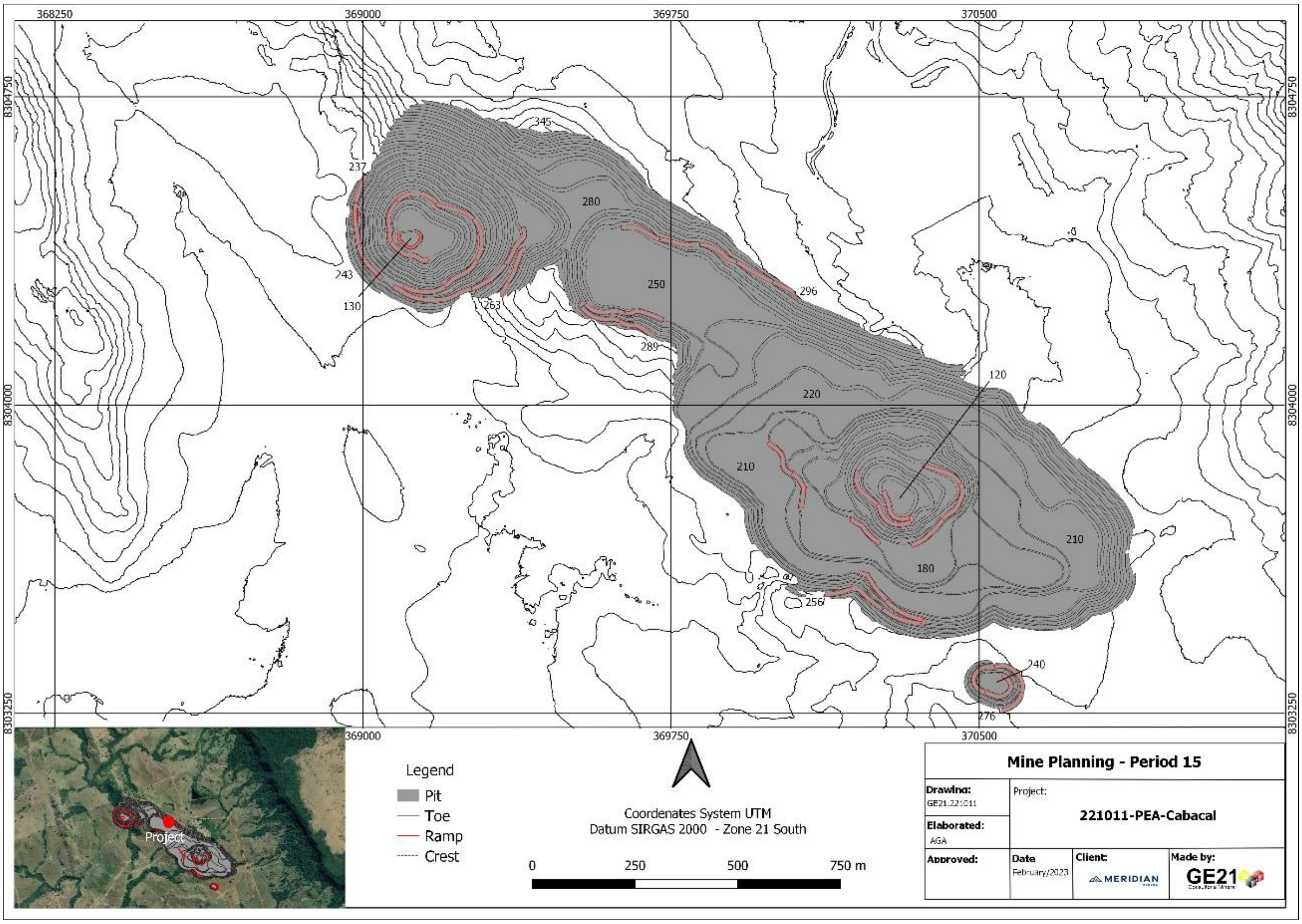
Source: GE21, 2023

Figure 16-16: Pit Cabaçal–al - Year 10



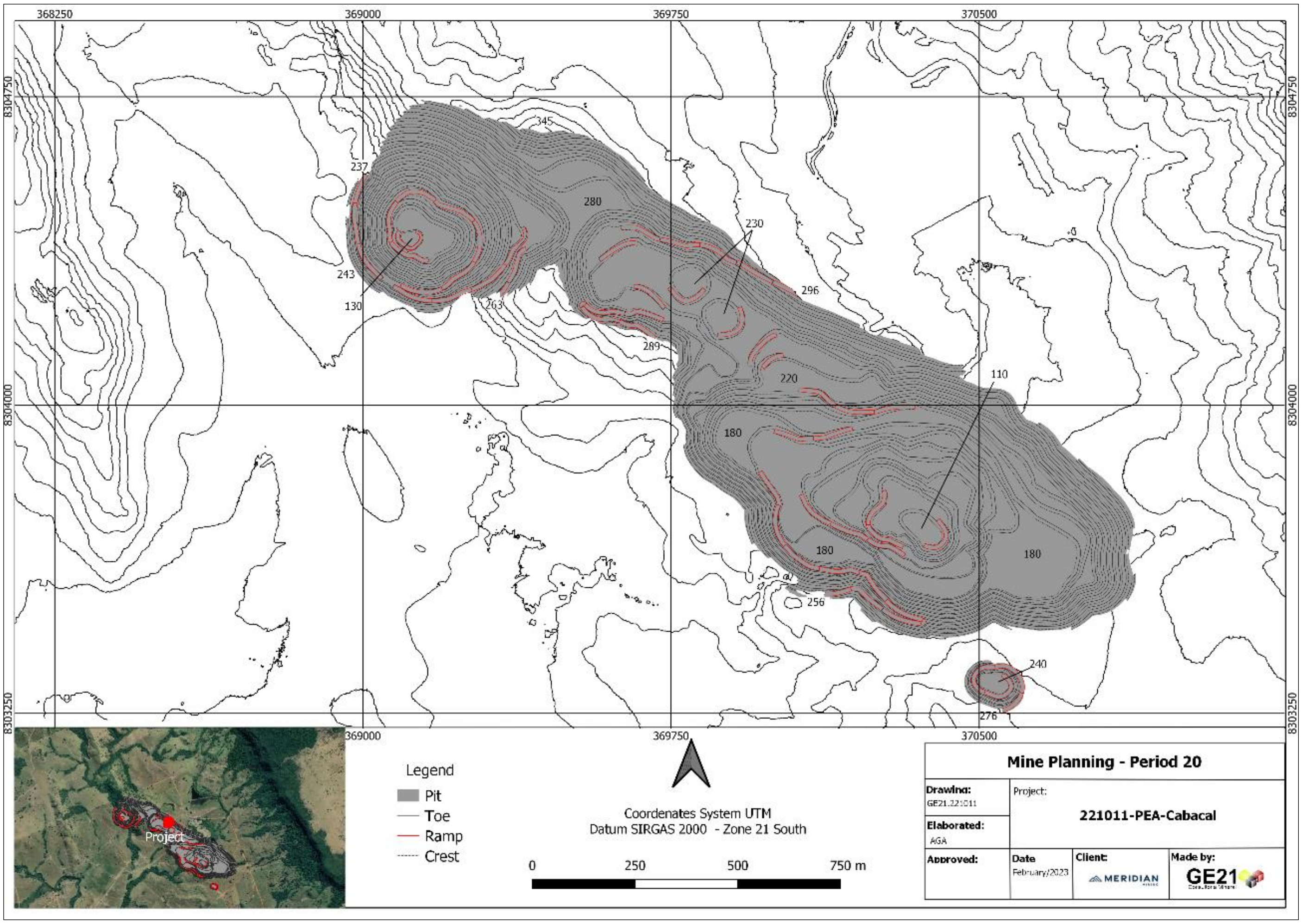
Source: GE21, 2023

Figure 16-17: Pit Cabaçal–al - Year 15



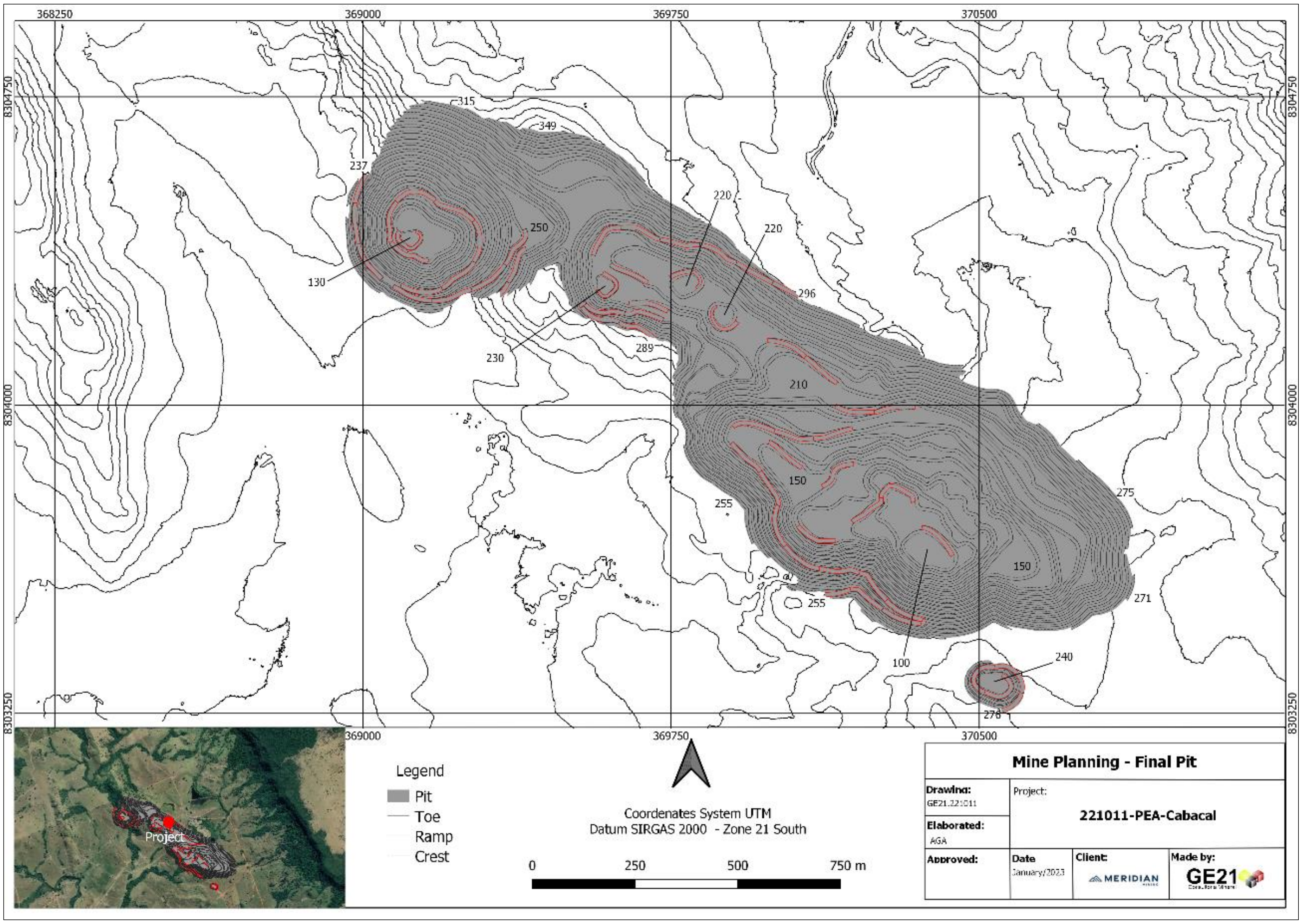
Source: GE21, 2023

Figure 16-18: Pit Cabaçal–al - Year 20



Source: GE21, 2023

Figure 16-19: Pit Cabaçal –al - Year 23



Source: GE21, 2023

16.6 Mine Fleet Sizing

At the Cabaçal Mine, the mining operations will be carried out by a third-party contractor. The mining equipment was sized according to the volumes of material to be removed each year.

The run-of-mine (ROM) will be drilled, blasted, loaded and transported by trucks. The medium and high grade material and part of low grade material will go directly feed to the plant. The other part of the low grade material will go to a low grade stockpile maximum of 2.87Mt. The idea is feed the plant with highest RoM at the beginning and let the lowest grades for feed the plant later.

The main mining activities will be:

- Digging or rock blasting of RoM and waste.
- Excavation, loading and transport of RoM and waste.
- Disposal of RoM in the primary crusher and/or stockpile balance and waste in the waste dump.
- Construction and maintenance of all internal accesses to the pit(s) and the waste dumps.
- Maintenance of the floor, drainage, coating and signaling of all access roads used in the operation.
- Implementation and maintenance of the mine's surface drainage systems at access points to the mining operation, waste deposit, stocks and other areas linked to mining operations.
- Mine infrastructure services, such as: construction and maintenance of accesses to the mining areas, crusher, waste dump, workshops and offices, mine drainage services, access signaling, mine dewatering, etc.
- Feeding the plant at an average rate of 310tph, performed by wheel loader.
- Build and maintain the operation's support facilities (offices, workshops, cafeteria, living quarters, warehouses, changing rooms, ablution facilities, septic tanks, environmental, health and safety emergency, explosive magazine, electrical and hydraulic installations and others), in strict accordance with the Brazilian environmental standards and labour laws.

16.6.1 Rock Types Properties

The rock types are outlined in the Sections below. Rock properties are important, influencing the equipment fleet requirements, as well as the waste dump and stockpile design capacities.

16.6.1.1 Density

The in-situ average dry density (in-site pit) used for fleet sizing is 2.63 t/m³.

16.6.1.2 Swell Factor

An average swell factor of 30% for RoM and waste and 15% for tailing were estimated for the "in situ" material transported.

16.6.1.3 Moisture Content

A moisture content factor of 5% for RoM and waste and 15% for tailing were assumed for "in situ" rock material. This factor was used to define the mine fleet sizing. The mining equipment was sized according to the volumes of material to be removed each year.

16.6.2 Equipment

In order to perform the mining activities, the equipment used must be in full working order, always observing the technical standards necessary for the services to be carried out safely. The equipment must comply with the respective maintenance and inspection plans, as well as carrying out scheduled shutdowns for preventive and predictive maintenance. The proposed equipment to be used in the mine will have high operational reliability, providing comfort and safety to operators. The quantitative of equipment is presented on Table 16-9, on a yearly basis.

Table 16-10 shows the production of RoM and waste and the percentage of material to be blasted.

Table 16-9: Schedule of Primary Mining Equipment.

Mining Fleet	Model	Technical Specifications	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Hydraulic Excavator	Koma–su - PC 500 LC	8.1 t mineralized material and 7.5 t waste	2	3	6	6	6	5	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1
Haul Truck	Sca–ia - G500XT	42 t	3	11	20	19	14	19	11	12	12	12	12	13	14	14	14	14	12	13	13	13	12	11	11	3
Drilling Machine	Epi–oc - T40 '2–5"-5"2–5"- 5'		1	5	9	8	8	7	5	5	5	4	5	4	4	4	4	4	4	4	4	4	4	3	3	1
Wheel Loader	Caterpil–ar - CAT 966	13.7 t	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Bulldozer CAT D8 T	Caterpil–ar - CAT D8 T	354 HP	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bulldozer CAT D6 T	Caterpil–ar - CAT D6 T	215 HP	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Grader	Koma–su - GD655	218 HP	1	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Operation Support Truck	Sca–ia - P360	34 t	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water Truck	Vo–vo - FMX	20.000 l	1	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Backhoe Excavator	–CB - 3CX	74 HP	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hydraulic Hammer	Komatsu	360 HP	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fork Lift	Hyster H135-155FT	6 t	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Blasting Support Truck	Sca–ia - P360	34 t	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fuel and Lube Truck	Vo–vo - FMX	3.000 l	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maintenance Support Tr–ck - Munck	Munck Merce–es - Axor 3131	228 kw	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Crane	SANYI	30 t	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Portable Lightning Tower	Patria LS4	-	3	5	9	8	8	7	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	2
Light Vehicle	Mitsubishi	-	5	7	7	7	7	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total			**28**	**48**	**80**	**76**	**71**	**73**	**45**	**46**	**46**	**45**	**46**	**46**	**47**	**47**	**47**	**47**	**41**	**42**	**42**	**42**	**41**	**39**	**39**	**24**

Table 16-10: RoM and Waste Production and Percentage of Material to be Blasted.

Production / Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Total RoM **x 1,00– t - Wet Basis**(1)	474	2 438	5 110	2 685	2 818	2 646	2 562	2 562	2 569	2 537	2 562	2 318	2 325	2 318	2 318	2 318	2 445	2 439	2 439	2 439	2 445	2 555	2 555	642	**58 521**
Total Waste x1,00– t - Wet Basis(1)	2 445	6 214	10 380	12 948	12 513	10 683	4 837	4 837	4 850	4 788	4 837	5 248	5 262	5 248	5 248	5 248	2 739	2 731	2 731	2 731	2 739	2 240	2 240	563	**124 297**
Hard RoM **o be blasted x 1,000 t**	237	2 438	5 110	2 685	2 818	2 646	2 562	2 562	2 569	2 537	2 562	2 318	2 325	2 318	2 318	2 318	2 445	2 439	2 439	2 439	2 445	2 555	2 555	642	**58 284**
Hard Waste to be blasted x1,000 t	1 222	6 214	10 380	12 948	12 513	10 683	4 837	4 837	4 850	4 788	4 837	5 248	5 262	5 248	5 248	5 248	2 739	2 731	2 731	2 731	2 739	2 240	2 240	563	**123 075**
Total to be blasted	1 460	8 652	15 490	15 633	15 331	13 329	7 399	7 399	7 419	7 325	7 399	7 566	7 587	7 566	7 566	7 566	5 184	5 170	5 170	5 170	5 184	4 795	4 795	1 204	**181 358**
% Hard RoM	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**100%**
% Hard Waste	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**100%**
Stripping Ratio (t/t)	5.15	2.55	2.03	4.82	4.44	4.04	1.89	1.89	1.89	1.89	1.89	2.26	2.26	2.26	2.26	2.26	1.12	1.12	1.12	1.12	1.12	0.88	0.88	0.88	**2.12**
Total Earthmoving x 1,000 t	2 919	8 652	15 490	15 633	15 331	13 329	7 399	7 399	7 419	7 325	7 399	7 566	7 587	7 566	7 566	7 566	5 184	5 170	5 170	5 170	5 184	4 795	4 795	1 204	**182 818**

Notes: 1-Moisture 5%

16.6.3 Operations

Mining will commence after the removal and storage of topsoil and waste overburden material. Small excavators will be used initially for drainage work, digging trenches, minor material removal and material disposal. A hydraulic excavator equipped with a 4.0m³ bucket was selected. For transport, road trucks (8X4) with a capacity of 42t are planned.

The RoM and waste will be blasted, loaded by excavators, transported by trucks with a capacity of 42t and unloaded on the RoM pad and waste dump respectively. The process plant will be fed at an average rate of 310 tph, 24 hours per day, 7 days per week.

It is estimated that 100% of the RoM and waste must be blasted using explosives, except in the pre-stripping that was assumed 50%.

As an initial assumption, a drilling diameter of 4 inches was adopted for RoM with 10 metre high benches and 5 inches for waste at 10 metre high benches.

The drilling operation will be supported by a bulldozer and/or hydraulic excavator to carry out cleaning activities in the drilling areas, construction of access points to the drilling area, as well as the use of a hydraulic hammer coupled to the hydraulic excavator for rock handling in the operational area.

The rock blasting work comprises primary and secondary blasting and a hydraulic hammer will be used as required.

16.6.4 Work Shifts

Cabaçal will be mined using the open pit method with four teams that will be alternating in three shifts and one resting, operating 24 hours a day, 365 days a year. The mining movements were designed to produce enough RoM to feed processing plant with a nominal capacity of 2.5Mt/y and LoM of 22 years and 4 months.

16.6.5 Opening and Maintenance of Roads and Accesses

Roads and accesses will require the following items to be carried out.

- Opening and adaptation of accesses.
- Longitudinal and transverse drainage for water routing using a grader, excavator and crawler tractor.
- Construction of safety berms will have a height equal to or greater than 50% of the height of the largest vehicle axle, and will be made with a crawler tractor, grader and/or hydraulic excavator.
- Reflective signage, PVC beacons with reflective tape.

16.6.6 Excavation, Loading, Transport and Soil Treatment

As the excavation progresses, drainage systems will be installed to avoid the accumulation of rainfall.

It is planned to mobilize a backhoe excavator for drainage services, trench excavation, material disposal and small handling. 4.0 m³ excavators will be used according to the volume requirements for large and medium volumes. For transport, 8x4 trucks, with a capacity of 42t, will be used, allowing for productivity and safety.

16.6.7 Drilling and Blasting

The geology and rock types at the Cabaçal Mine are crucial for defining drilling and blasting parameters, which relates to mining recovery.

It is important to know the limits of the mineralized body to minimize dilution and losses. Meridian will have a geologist as part of its technical staff who will work directly with the drilling, blasting and loading teams. Employees who are directly involved in activities related to optimizing the mining recovery, such as drill operators, drilling assistants, rock blasting team, and excavator operators, will be trained to recognize minerals to avoid deviation from planned mineral boundaries.

It is foreseeable that Meri’ian's technical teams will go through a learning period based on the empirical results acquired with operation commencement. Naturally, changes to rock blast parameters and operating methods will be required. Consideration should be given not only to the complexity of the geological formation and the operational challenges resulting from this condition, but also to the context of the environment in which the mine will be located.

Previous studies (pre-blast survey) before the first blasting should be developed to establish the minimum distances between pre-existing structures that will be kept and the blasted benches. As a result, restrictions or opportunities relating to the maximum load per drill hole may be revealed, which may indicate the maximum blasthole diameter, as well as the type of accessories used. These factors, among others, may imply technical and commercial adjustments throughout the life of the mine operation.

Table 16-10 and Table 16-11 show the preliminary blasting plan considered for RoM and waste.

Table 16-11: Preliminary Blasting Plan: RoM.

Drilling and Blasting Rock		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23
Ore	1.000 m3	165	845	1 772	931	977	917	888	888	891	879	888	804	806	804	804	804	848	846	846	846	848	886	886	222
Ore – Wet Basis	kt	474	2 438	5 110	2 685	2 818	2 646	2 562	2 562	2 569	2 537	2 562	2 318	2 325	2 318	2 318	2 318	2 445	2 439	2 439	2 439	2 445	2 555	2 555	642
Average Density	t/m^3	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88
Hole Diameter	inch	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Burden	m	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Spacing	m	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Blast Pattern	m^2	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Spacing/Burden	-	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Subdrilling	m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bench height	m	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Total Hole Length	m	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Volume per Hole	m^3	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Mass per Hole	t	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
m^3 Blasted/m Drilled	m^3/m	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Specific Drilling	m/m^3	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Specific Drilling	m/t	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Specific Charge	kg/ml	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32
Drilled Metres	km	22	113	236	124	130	122	118	118	119	117	118	107	107	107	107	107	113	113	113	113	113	118	118	30
Necessary Holes	hole	1 994	10 248	21 476	11 282	11 842	11 120	10 769	10 769	10 798	10 660	10 769	9 743	9 770	9 743	9 743	9 743	10 277	10 249	10 249	10 249	10 277	10 737	10 737	2 697
Explosive Density	g/cm^3	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Linear Load Ratio	kg/m	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93
Top Stemming	m	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Explosive Column	m	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45
Load per Hole	kg	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87	83.87
Load Ratio	Kg/m^3	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Load Ratio	kg/t	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35

Table 16-12: Preliminary Blasting Plan: Waste.

Drilling and Blasting Rock		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23
Waste	1.000 m3	454	2 306	3 852	4 805	4 643	3 964	1 795	1 795	1 800	1 777	1 795	1 947	1 953	1 947	1 947	1 947	1 016	1 014	1 014	1 014	1 016	831	831	209
Waste – Wet Basis	kt	1 222	6 214	10 380	12 948	12 513	10 683	4 837	4 837	4 850	4 788	4 837	5 248	5 262	5 248	5 248	5 248	2 739	2 731	2 731	2 731	2 739	2 240	2 240	563
Average Density	t/m³	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69
Hole Diameter	inch	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Burden	m	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Spacing	m	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Blast Pattern	m²	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75
Spacing/Burden	-	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Subdrilling	m	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Bench height	m	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Total Hole Length	m	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Volume per Hole	m³	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
Mass per Hole	t	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446
m³ Blasted/m Drilled	m³/m	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75
Specific Drilling	m/m³	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Specific Drilling	m/t	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Specific Charge	kg/ml	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56
Drilled Metres	km	29	146	245	305	295	252	114	114	114	113	114	124	124	124	124	124	65	64	64	64	65	53	53	13
Necessary Holes	hole	2 743	13 943	23 292	29 056	28 078	23 972	10 853	10 853	10 883	10 744	10 853	11 776	11 808	11 776	11 776	11 776	6 145	6 129	6 129	6 129	6 145	5 027	5 027	1 262
Explosive Density	g/cm³	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Linear Load Ratio	kg/m	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57	15.57
Top Stemming	m	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Explosive Column	m	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
Load per Hole	kg	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76	123.76
Load Ratio	Kg/m³	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Load Ratio	kg/t	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28

Based upon the rock characteristics and operating parameters, the top hammer drilling method has been chosen. Due to experience with and availability of the equipment, tools, original replacement parts, and technical services, the authors recommend Epiroc - T40 equipment, listed in Table 16-13.

Table 16-13: List of Selected Equipment.

Brand	Model	Diameter		Type
		mm	inch	
Epiroc	T40	63.5 to 140	–.5 - 5.5	Production

Using the parameters established for blasting, it was possible to calculate the number of drills needed to meet the planned production schedule for the Cabaçal Mine as shown in Table 16-13.

Table 16-14: Preliminary Calculation of Drilling Requirements.

Drilling Sizing		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23
Blasted Material – Wet basis	kt	1 460	8 652	15 490	15 633	15 331	13 329	7 399	7 399	7 419	7 325	7 399	7 566	7 587	7 566	7 566	7 566	5 184	5 170	5 170	5 170	5 184	4 795	4 795	1 204
Days / Year	quantity	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Shifts / Day	quantity	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Hours / Shift	quantity	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
FA - Physical Availability	%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Hours Available	hours	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008	7008
Unproductive Hours	hours	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Utilization	%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Efficiency Factor	%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Drillholes per hour - Ore	Drill/h	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Drillholes per hour - Waste	Drill//h	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Meters drilled per hour - Ore	m/h	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Meters drilled per hour - Waste	m/h	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Drilling Productivity - Ore	Mtpy	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Drilling Productivity - Waste	Mtpy	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46
Effective Hours Worked	hours	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872	3 872
Tonnage per drillhole - Ore	t/Drill	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
Tonnage per drillhole - Waste	t/Drill	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446	446
Equipment Numbers Required	quantity	**1**	**5**	**9**	**8**	**8**	**7**	**5**	**5**	**5**	**4**	**5**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	**3**	**1**

If it is necessary to implement different grids than was originally planned or to add slope preservation methods, such as damping lines, pre-cut or post-cut, the amount of drilling will tend to increase. Should an increase in the amount of drilling be required, the fleet and staff will be adequate to meet this demand.

The proposed top hammer drills have an operating cabin with ROPS/FOPS certification, air conditioning, acoustic insulation system, dust collector, hole cleaning air monitoring system, rod greasing system, angle and depth gauge, and water injection for dust control.

The drilling operation will be supported by a bulldozer and/or hydraulic excavator to carry out the cleaning and preparation of the drilling benches, access construction to the drilling benches, as well as a hydraulic breaker coupled to the hydraulic excavator to remove blocks in the operational area.

16.6.8 Explosives Supply

The provision of explosives and the execution of blasting services will be carried out by a subcontractor specializing in blasting, under the guidance of the mining contractor.

It is foreseen that Cabaçal Mine will use pumped explosives, booster, and non-electrical accessories.

During the mine operation, the daily blasting plans will be prepared by mining contractor technical team and the results will be evaluated and any necessary adjustments made to improve blasting effectiveness.

16.6.9 Explosive Magazine and accessories

The explosive magazines will be supplied and built by Meridian contracted to perform the mining activities. This company will supply and maintain a remote security system, following the guidelines of Ordinance No. –47 - COLOG, of November 21, 2019, which provides the administrative procedures for the use and storage of explosives and accessories, as well as Ordinance No.–56 - COLOG, of June 5, 2017, which provides the administrative procedures related to registration with the army for the use and storage of army controlled products (PCE).

Area security will be established through compliance with the minimum distances from the storage location to inhabited areas, railways or highways, according to distances established in the regulation for the Inspection of Controlled Products (R-105). To this end, the plan for transporting, handling and storage of explosives and explosive accessories will be reviewed by Meridian management.

The security of products controlled by the army (PCE) will be guaranteed through the adoption of measures against deviations, loss, theft, and theft against obtaining knowledge about activities with PCE, in order to avoid their use in the practice of illicit acts. These measures will be included in the Security Plan, which will contain:

- Risk analysis of activities.
- Measures to control access within the site and mine systems.
- Active and passive measures to protect assets, people and knowledge related to activities.
- Preventive measures against PCE theft and robbery during transportation.
- Contingency measures in case of accidents or detection of illicit practices with PCE.
- PCE input and output control measures.

- Personnel access control.
- Twenty-four-hour electronic monitoring of explosives storage areas and their access.
- Defined procedures for entry, exit and search of persons.
- Definition of areas with restricted access.

Access control will be carried out electronically, 24 hours a day, covering storage and access areas. For this, cameras connected to a remote base will be used and monitored online.

17 RECOVERY METHODS

17.1 Overall Process Design

The provided testwork was thoroughly analyzed and the process route has been chosen as the best suited for the testwork results for the material. The unit operations selected are typical for this industry.

At this point, no need for expansion phases was noted, but a more detailed mine plan is required in the subsequent phases of engineering to ensure this.

In essence, the project is composed of:

- Primary crushing:
- Single stage semi-autogenous (SAG) milling with pebble crushing
- Gravity concentration with production of gold doré
- Rougher, cleaner and cleaner scavenger flotation to produce copper gold concentrates
- Pyrite flotation
- Concentrate dewatering
- Tailings dewatering
- Dry stack tailings

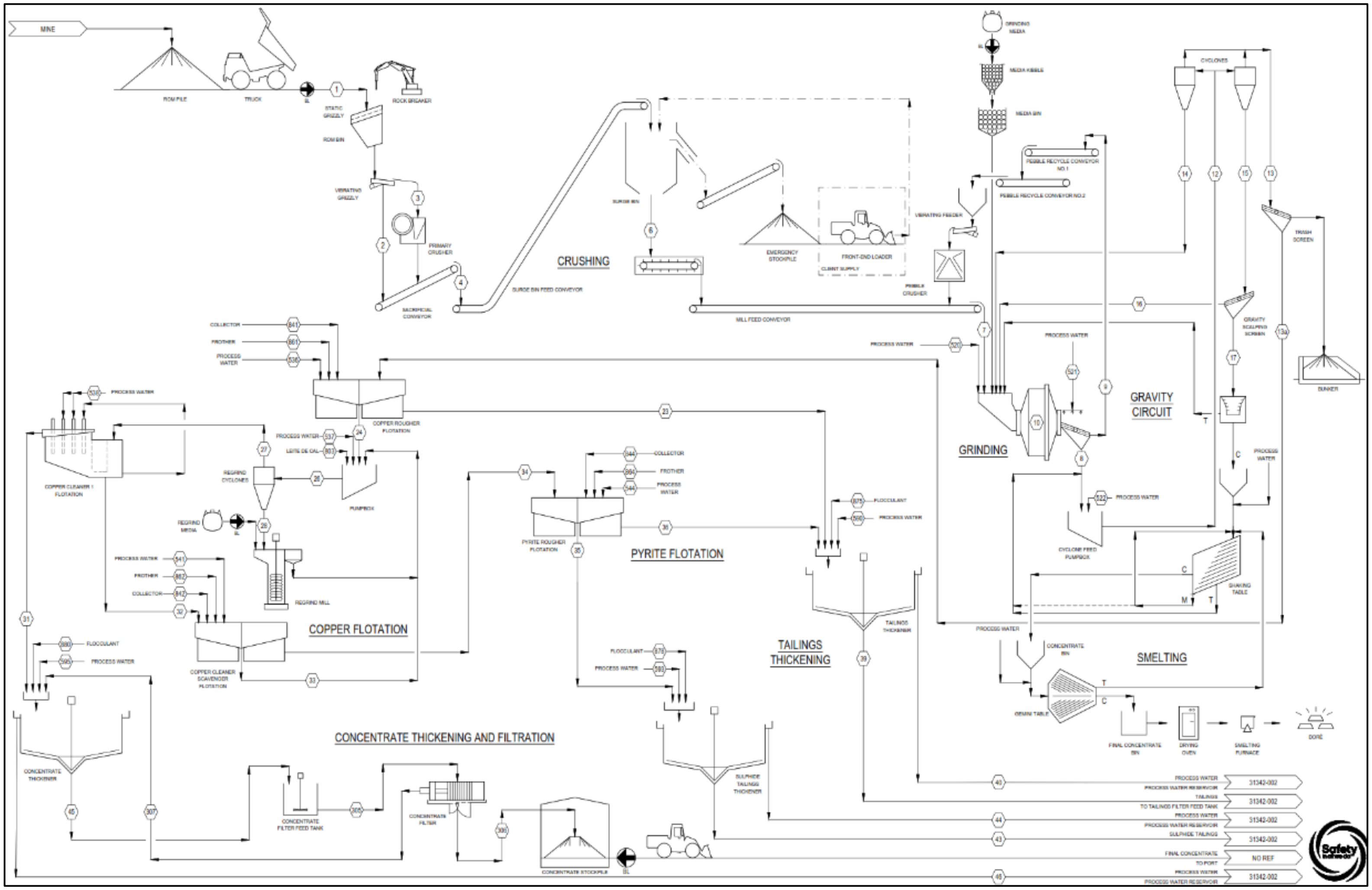
Key process design criteria are listed below:

- Nominal throughput of 6,850 t/d or 2.5 Mt/a
- crushing plant operating availability of 65%
- plant operating availability of 92% for grinding, gravity concentration, flotation, and thickening
- plant operating availability of approximately 85% for concentrate and tailings filtration

An overall process flow diagram showing the unit operations in the selected process flowsheet is presented in Figure 17-1.

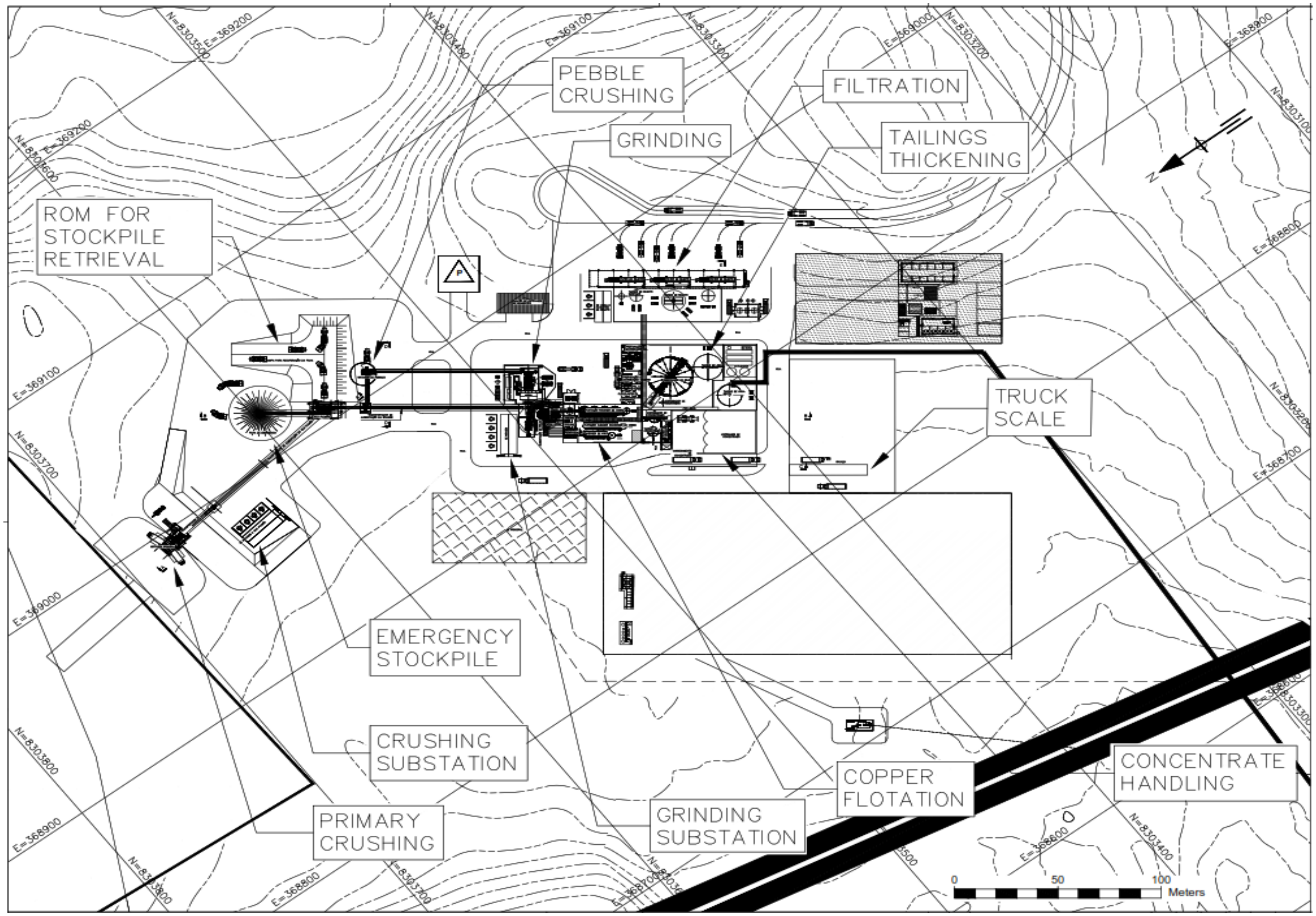
The overall processing plant layout is provided in Figure 17-2.

Figure 17-1: Overall Process Diagram



Source: Ausenco (2023)

Figure 17-2: Overall Plant Layout



Source: Ausenco,2023

17.2 Plant Design

The site is a greenfield location consisting of an open pit mine that utilizes direct tipping to feed the jaw crusher. The crushed product reports to the closed SAG mill grinding circuit, with classification performed by a cyclone cluster. Cyclone overflow gravitates to the flotation circuit, where copper-gold concentrate is recovered. Cyclone underflow is split so that part of it returns to SAG mill feed and part feeds a gravity circuit for gold recovery. The gravity circuit is composed of a gravity concentrator and shaking tables. Gravity tailings are returned to the grinding circuit, while final concentrate is fed to a smelter to produce doré.

Flotation concentrate is thickened and filtered before storage and transportation out of site. Tailings are also thickened and filtered prior to deposition in the dry stack tailings facility.

17.2.1 Plant Design Criteria

Key process design criteria for the mill are listed in Table 17-1.

Table 17-1: Key Milling Plant Process Design Criteria

Design Parameter	Units	Value
Plant Throughput	t/d	6,850
Head Grade – Design Copper Sulphur Gold Silver	 %Cu %S Au g/t Ag g/t	 0.80 1.24 1.66 2.93
Crushing Plant Operating Availability	%	65
Mill Operating Availability	%	92
Concentrate Filtration Operating Availability	%	84.4
Tailings Filtration Operating Availability	%	85
Bond Crusher Work Index (CWi)	kWh/t	17.6
Bond Ball Mill Work Index (BWi)	kWh/t	12.2
Axb	-	39.8
SMC	kWh/t	10.1
Bond Abrasion Index (Ai)	g	0.300
Material Specific Gravity		2.83
Angle of Repose	degrees	37
Moisture Content	%	5.0

Design Parameter	Units	Value
SAG Mill discharge density	% w/w	70
SAG Mill Ball Charge	% v/v	12
Pebble Crusher Recycle Rate	% w/w	22-33
Gravity Circuit Feed Rate	% of cyclone feed	30
Grind Size (k_{80})	µm	200
Rougher Stage Recovery (Cu)	%	97.8
Rougher Stage Recovery (Au)	%	90
Rougher Stage Mass Pull	%	3.1
Cleaner 1 Stage Recovery (Cu)	%	75.0
Cleaner 1 Stage Recovery (Au)	%	65.0
Cleaner 1 Stage Mass Pull	%	17.3
Cleaner Scavenger Stage Recovery (Cu)	%	86.0
Cleaner Scavenger Stage Recovery (Au)	%	77.0
Cleaner Scavenger Stage Mass Pull	%	56.9
Regrind Product Size, (k_{80})	µm	30
Concentrate Thickener – Unit Area Settling R–te - Design	t/m²/h	0.25
Concentrate Thickener – Underflow Density	% w/w	60
Tails Thickener – Unit Area Settling R–te - Design	t/m²/h	1.00
Tails Thickener Underflow Density	% w/w	60
Concentrate Filter, Filtration Rate	kg/m²/h	286
Concentrate Moisture Content	% w/w	7-8
Tails Filter, Filtration Rate	kg/m²/h	237
Tails Moisture Content	% w/w	15

17.2.2 Primary Crushing

Material is hauled from the mine direct tipped into to the RoM hopper. A mobile rock breaker is utilised to break oversize rocks at the static grizzly feeding the RoM hopper. Material from the RoM hopper is crushed by a primary jaw crusher. RoM hopper material is reclaimed by a vibrating grizzly at 480 t/h to feed the jaw crusher.

The crushed material is conveyed to a surge bin that provides approximately 10 minutes of storage. The bin has an overflow chute that directs excess material to an emergency stockpile, with up to 30 h of storage capacity. When the crushing circuit is not operational, front-end loaders (FELs) feed material from the emergency stockpile to the surge bin. The crushing circuit is designed for an annual operating time of 5,694 h/a, or 65% operating availability, whereas the milling operation is designed for an annual operating time of 8,059 h/a, or 92% operating availability, resulting in excess crushed material production when the crusher is operational. The excess crushed material will allow routine crusher maintenance to be carried out without interrupting production.

The surge bin is equipped with an apron feeder to regulate feed at 310 t/h into the SAG mill, via the grinding circuit feed conveyor. Pebbles from the SAG mill are fed to a recycle circuit via conveyors and discharged to the pebble crusher. The crushed product is then returned to the SAG mill feed conveyor to recycle to the SAG mill.

The material handling and crushing circuit includes the following key equipment:

- RoM hopper
- vibrating grizzly
- fixed rock breaker
- primary jaw crusher (C130 or equivalent)
- mill feed apron feeder
- pebble crusher (HP200 or similar)
- material handling equipment

17.2.3 Grinding Circuit

The grinding circuit consists of a SAG mill in closed circuit with hydrocyclones. The circuit is sized based on a feed 80% passing size (k_{80}) of 92 mm and a product k_{80} of 200 µm. The SAG mill slurry discharges through a vibrating screen where the pebbles are screened out and recycled to the SAG mill via conveyors. Vibrating screen undersize discharges into the cyclone feed pumpbox. The SAG mill is also fed by cyclone underflow and gravity circuit tails for further size reduction.

Water is added to the cyclone feed pumpbox to obtain the appropriate density prior to pumping to the cyclones. Cyclone overflow gravitates to the flotation circuit via a trash screen.

The grinding circuit includes the following key equipment:

- SAG mill (7.92 m diameter x 4.72 m long, 4,700 kW)
- SAG mill discharge vibrating screen
- cyclone feed pumpbox

- classification cyclones

17.2.4 Gravity Concentrate Recovery Circuit

The gravity circuit comprises one centrifugal concentrator complete with a feed scalping screen. Feed to the circuit is from the cyclone underflow launder, via a partition in that launder. Gravity scalping screen oversize at +2 mm reports back to the grinding circuit.

Scalping screen undersize is fed to the centrifugal concentrator. Operation of the gravity concentrator is semi-batch and the gravity concentrate is collected in the concentrate storage cone. The concentrate is fed to two stages of shaking tables to obtain the final concentrate, that is subsequently smelted into doré bullion bars.

The gravity recovery circuit includes the following key equipment:

- gravity feed scalping screen
- gravity concentrator
- shaking tables
- smelting furnace

17.2.5 Flotation Circuit

The copper-gold flotation circuit is comprised of three stages: rougher, cleaner 1 and cleaner scavenger.

The cyclone overflow stream is fed to a trash screen prior to the flotation circuit. Screen undersize is then fed to rougher circuit, which is made up of conventional forced-air flotation cells. Rougher stage tailings are directed to the tailings thickener while the concentrate feeds the regrind circuit hydrocyclones. The product size passing 80% for the regrind circuit is 30 µm. Cyclone overflow feeds the cleaner 1 stage of flotation while the underflow reports to a regrind mill for further grinding. Mill product is combined with rougher concentrate and cleaner scavenger concentrate to feed the regrind cyclones in a closed circuit.

The cleaner 1 stage is a pneumatic cell. Its concentrate is the final concentrate and reports to the concentrate thickener. Cleaner 1 tailings are directed to the cleaner scavenger stage, also performed by conventional forced-air flotation cells.

Cleaner scavenger stage concentrate is recirculated back to cleaner 1 flotation, by first going to the regrind cyclone feed pumpbox. The tailings are fed to the pyrite flotation circuit, to collect potentially acid generating tailings (pyrite concentrate) for separate treatment.

The pyrite flotation circuit tailings are joined with the rougher circuit tailings to feed the tailings thickener. The concentrate from this stage is fed to a separate tailings thickener.

The flotation circuit includes the following key equipment:

- rougher flotation cells (five 100m³ conventional flotation cells)
- cleaner 1 flotation cell (one pneumatic flotation cell)
- cleaner scavenger flotation cells (six 12m³ conventional flotation cells)
- pyrite flotation cells (four 12m³ conventional flotation cells)

- regrind mill (2.70 m diameter x 4.73 m long, 450 kW)
- regrind cyclone cluster
- trash screen

17.2.6 Tailings Dewatering

Tailings are thickened before filtration and stacking. There are two tailings thickeners: one dedicated to the pyrite circuit concentrate – which is potentially acid generating – and one fed by the rougher flotation tailings and pyrite flotation tailings. The overflow of the thickeners is reused as process water in the plant. Flocculant is combined with the feed to the thickeners to improve the settling rate of the material. The underflow of each thickener is pumped to a dedicated filtration feed tank.

The tailings filter feed tank has a residence time of approximately 3.4 h. It is connected to three parallel pumps, which feed three parallel tailings filters. They are all duty filters.

The pyrite circuit filter feed tank has sufficient capacity for one day (24 h) of operation. Its contents are batch processed through one of the tailings filters to be combined in the dry stack facility accordingly.

The main equipment in this area includes:

- high-rate thickener for flotation tailings (20 m diameter)
- high-rate thickener for pyrite concentrate (2 m diameter)
- tailings filters (three 2.5 x 2.5m plate and frame filters with 62 plates each)
- overflow tank for process water storage

17.2.7 Concentrate Dewatering

The concentrate dewatering circuit consists of thickening and filtration equipment required to dewater the copper-gold concentrate prior to loadout and shipment. The concentrate stream reports to a high-rate thickener, where flocculant is added to assist in the settling of the solids. The thickener overflow is sent to the process water tank, while the underflow is fed to the filter feed tank with a residence time of 24 hours.

The concentrate is then fed to a plate and frame filter. The filtrate is recycled to the concentrate thickener, while the cake discharges into the building and is rehandled to covered stockpiles to await loadout and transport.

The major equipment and facilities in this area include the following:

- high-rate thickener for concentrate (7 m diameter);
- concentrate filter (1.0 x 1.0m plate and frame filters with 28 plates); and
- concentrate storage areas.

17.3 Reagent Handling & Storage

Each set of compatible reagent mixing, and storage systems are located within curbed containment areas to prevent incompatible reagents from mixing. Storage tanks are equipped with level indicators, instrumentation, and alarms to ensure spills do not occur during normal operation. Appropriate ventilation, fire and safety protection, eyewash stations, and Material Safety Data Sheet (MSDS) stations are located throughout the facilities. Sumps and sump pumps are provided for spillage control.

The following reagent systems are required for the process:

- hydrated lime
- flocculant
- frother
- collector

A list of the reagents and its annual costs is presented Section 21.3.3. A list of the consumables and its annual costs is presented in Section 21.3.3.

17.3.1 Lime

Hydrated lime is delivered bags, which are lifted using a frame and hoist into the bag breaker on top of the mixing/storage tank. The solid reagent discharges into the tank and is slurried in process water to achieve the required dosing concentration. The slurried hydrated lime is pumped through a ring main with distribution points in the flotation circuit.

An extraction fan is provided over the lime bag breaker/mixing tank to remove reagent dust that may be generated during reagent addition/mixing.

17.3.2 Flocculant

Powdered flocculant is delivered to site in bulk bags and stored in the warehouse. A self-contained mixing and dosing system is installed, including a flocculant storage hopper, flocculant blower, flocculant wetting head, flocculant mixing tank, and flocculant transfer pump. Powdered flocculant is loaded into the flocculant storage hopper using the flocculant hoist. Dry flocculant is pneumatically transferred into the wetting head, where it is contacted with water.

Flocculant solution, at 0.25% w/v, is agitated in the flocculant mixing tank for a pre-set period. After a pre-set time, the flocculant is transferred to the flocculant storage tank using the flocculant transfer pump. Flocculant is dosed to the various high-rate thickeners using variable speed helical rotor style pumps. Flocculant is further diluted just prior to the addition point.

17.3.3 Frother (MIBC)

MIBC is delivered as a liquid in IBCs and stored in the warehouse until required. A permanent bulk box is installed to provide storage capacity local to the flotation area. MIBC is used as received and without dilution. Diaphragm-style dosing pumps deliver the reagent to the required locations within the flotation circuit. A top-up of the permanent bulk boxes is carried out manually as required.

17.3.4 Collector (PAX)

PAX is delivered in granular powder form in bags and stored in the warehouse. Raw water is added to the agitated PAX mixing tank. Bags are lifted using a frame and hoist into the PAX bag breaker on top of the tank. The solid reagent falls into the tank and is dissolved in water to achieve the required dosing concentration. PAX solution is transferred by gravity to the PAX storage tank, which has a stacked arrangement with the mixing tank.

The mixing tank is ventilated using the PAX tank fan to remove any carbon disulphide gas. PAX is delivered to the flotation circuit using the PAX dosing pump. Actuated control valves provide the required PAX flowrates at a number of locations around the flotation circuit.

17.4 Services & Utilities

17.4.1 Process/Instrument Air

High-pressure air at 700 kPag is produced by compressors to meet plant requirements. The high-pressure air supply is dried and used to satisfy instrument air demand. Dried air is distributed via the air receivers located throughout the plant.

17.4.2 Low Pressure Air

Low pressure air for flotation is supplied by air blowers.

17.4.3 Diesel Fuel

The diesel storage area is supplied and maintained by the fuel supplier but, in general, the diesel fuel area contains the following equipment:

- diesel unloading pump
- diesel storage tanks
- diesel supply pumps
- light vehicle bowsers
- heavy vehicle bowsers

A vertical spindle sump pump is provided to remove any rainwater from the diesel fuel bund area.

17.5 Water and Power Supply

17.5.1 Raw Water Supply System

Raw water is supplied to a raw water storage tank. Raw water is used for all purposes requiring clean water with low dissolved solids and low salt content, primarily as follows:

- gland water for pumps
- reagent makeup
- raw water is treated and stored in the potable water storage tank for use in safety showers and other similar applications
- fire water for use in the sprinkler and hydrant system

- cooling water for mill motors and mill lubrication systems (closed loop)

The requirement for raw water for all these applications is approximately 94m³/h.

17.5.2 Process Water Supply System

Overflow from the thickeners meet the main process water requirements. The current water balance is positive, in that more process water is recovered (approximately 740 m³/h) than required (approximately 690 m³/h). A more detailed water balance will be investigated in the next phase of the project.

17.5.3 Gland Water

One dedicated gland water pump is fed from the freshwater tank to supply gland water too all slurry pump applications in the plant.

17.5.4 Power Requirements

Total plant electrical load considered is 10 MW. The required infrastructure to provide this power is included in this report in Section 18.

18 PROJECT INFRASTRUCTURE

18.1 Introduction

Infrastructure to support the Cabaçal project will consist of site civil work, site facilities/buildings, on-site roads, a water management system, and site electrical power. Site facilities will include both mine facilities and process facilities, as follows:

- mine facilities include the administration offices, truckshop, washbay, HME workshop, gas station and explosive magazine.
- process facilities include the process plant, crusher facilities, process plant workshop, and assay laboratory, dry stack tailings storage (DSTS) and rock storage facility (RSF).
- common facilities include a gatehouse and administration building.
- both the mine facilities and process facilities will be serviced with potable water, fire water, compressed air, power, diesel, communication, and sanitary systems.

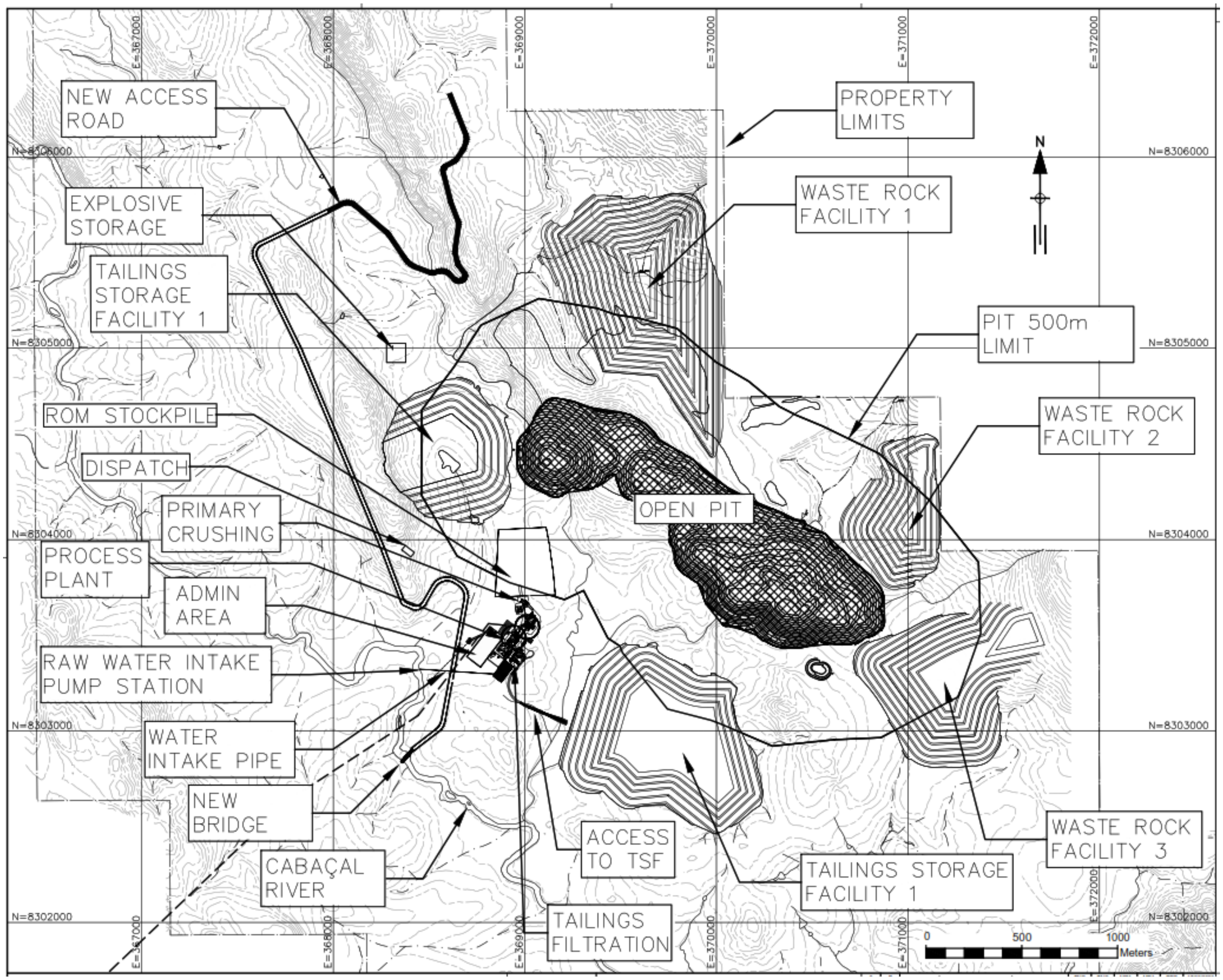
18.2 Overall Site Layout Development

Site selection was based on the following observations and factors:

- select a site within the claim boundary
- avoid building and stockpiling on wetlands to the extent possible
- locate the rock storage facility near the mine pits to reduce haul distance
- locate the primary crushing and RoM pad to reduce hauling from the pits over the life-of-mine
- locate the process plant in an area with reduced risk of flooding
- locate the DSTS near the process plant to reduce haul distance
- arrange the administration building, processing plant and offices in close proximity

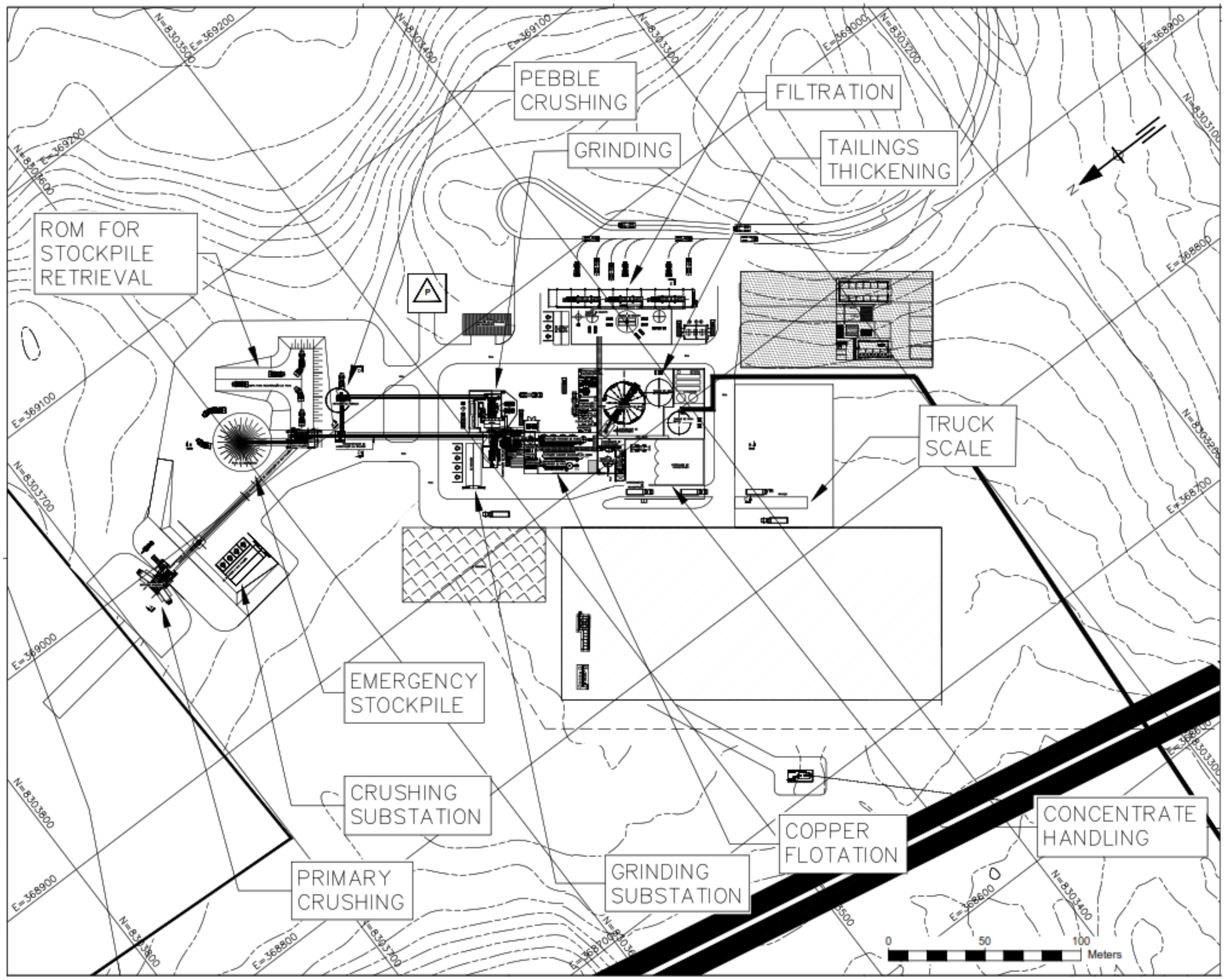
The Cabaçal site layout is shown in Figure 18-1 and the process plant layout is shown in Figure 18-2.

Figure 18-1: Overall Site Layout



Source: Ausenco, 2023

Figure 18-2: Plant Layout



Source: Ausenco, 2023

18.3 Site Preparation

The existing public road will be connected to the project for site access. The typical method of clearing, topsoil removal, and excavation will be employed, incorporating drains, safety bunds and backfilling with granular material and aggregates for road structure.

Forest clearing and topsoil removal is expected to be required to allow construction of the processing plant and other buildings and facilities. Site civil work includes design for the following infrastructure:

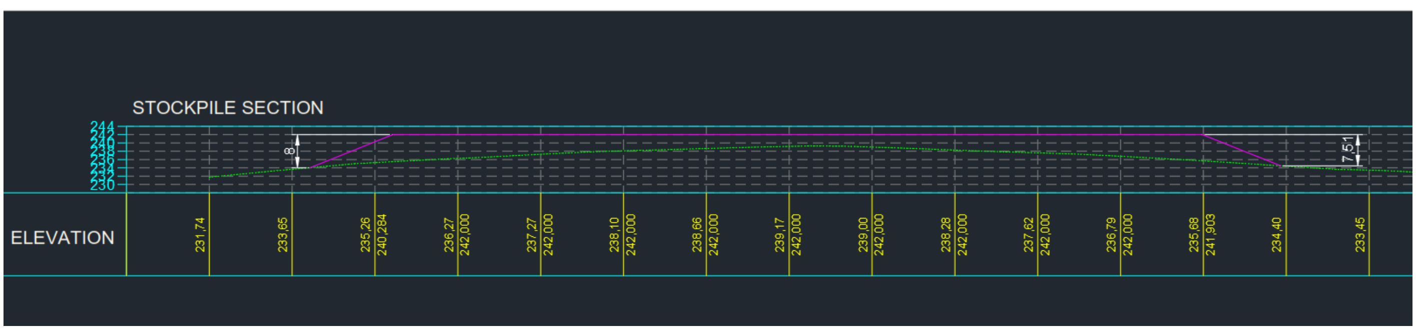
- light vehicle and heavy equipment roads
- access roads
- topsoil and overburden stockpile area
- mine facility platforms and process facility platforms
- water management ponds and ditches and channels
- Dry stack tailings storage facility (DSTF)
- Waste rock storage facilities.

18.4 Stockpiles

The RoM stockpile was placed near the border of the pit (still respecting the safety distance requirement), optimizing material transport distance from the pit to primary crushing at a higher elevation than the plant to avoid additional earthworks. Two RoM are considered:

- One low grade mineralization stockpile (0.1 to 0.3% Cu) with 3,500 t; one medium grade mineralization stockpile (0.3 to 0.5% Cu) with 2,000 t and one high grade stockpile (Cu content higher than 0.5%) with1,000 t. The storage area is located with its geometric centre aligned with the RoM pad, which allows end dumping of a single mine haul truck to the primary crusher.
- The study for the three stockpiles (low, medium and high grade) that will feed the plant starts at the reference elevation (base) 242,000, occupying an area of approximately 21.9 Ha. Its implantation provides a total capacity of 1,500,000 m³ and the final height is 8 m. For design criteria was considered global slope (H:1V) of 2.5.

Figure 18-3: Stock Pile Section



Source: Ausenco, 2023.

The study for the three stock piles (low, medium and high grade) that will feed the plant starts at the reference elevation (base), occupying an area of approximately 21.9 Ha. Its implantation provides a total capacity of 1,500,000 m³ and the final height is 8 m. For design criteria was considered global slope (H:1V) of 2.5.

18.5 Roads and Logistics

The study of access to the site was conceived to meet the operating demands, which include access to the pit, processing plant, waste dumps, water pipeline, power line & energy connection in the national grid and the tailings storage facility. For copper concentrate, road infrastructure was considered in the study. For gold concentrate a helipad for transport was planned. In addition to the operational items, a new road route was studied to serve the areas of rural landowners located in the vicinity of the project area. A new concrete bridge crossing the Cabaçal river and an entrance to access the mine was also planned during the development of the plant location study.

18.5.1 Access to Site

Construction of a new bridge will be necessary to facilitate the access to the plant and permit the access of the farms located behind the future pit once the mine infrastructure occupies the area where the current road exists. The bridge was located considering the existing crossing of the Cabaçal River near the project, with proposed span of 70 m long. However, a new location may be studied in the next phase of engineering based on the hydrological studies of the river. A secondary access 6 km northwest of the Cabaçal mine, has been created to the community to bypass the plant.

18.5.2 Plant Site Roads

The roads within the process plant area will be generally 6 m wide, integrated with process plant pad earthworks, and designed with adequate drainage. The roads will allow access between the administration building, warehouses, mill building, crushing buildings, stockpile, mining truckshop, and the top of the mill feed stockpile.

18.5.3 On-Site Infrastructure

The plant site consists of the necessary infrastructure to support the processing operations. All infrastructure buildings and structures will be built and constructed to all applicable codes and regulations. The plant site layout showing facilities is provided in Figure 18-1.

18.5.4 Power Supply

Power demand for the project is 10 MW. The power demand was calculated based on the mechanical equipment list. As design criteria a power correction factor of 0.95 and simultaneity factor of 1.05 was adopted. The power correction must be done in the electrical room.

Emergency generators will be used to supply power to critical motors in case of power outages, for example to slurry agitators and thickeners, to avoid damage to equipment. In future stages of the project transformer, size will be chosen.

Table 18-1: Power Demand

Item	Values
Maximum Demand in Megawatts (MW)	10

18.5.5 Buildings

18.5.5.1 Process Plant

The process plant consists of the following buildings:

- Crushing Building
- Stockpile Cover
- Mill Building (Grinding + Gravity)
- Reagents Building
- Reagents Storage
- Concentrate Handling Building
- Flotation Building
- Filtration Building
- Tailings Thickener Building
- Gold Room

The plant layout is shown in Figure 18-2. All process plant buildings, and ancillary buildings, conveyors and other equipment will be equipped with fire suppression systems.

18.5.5.2 Administration Building

The administration offices will be located northwest of the process plant. The building will have HVAC, and will contain offices, meeting rooms, a lunchroom, washrooms, men's, and women's dry, lockers, and a first aid area that will accommodate all the G&A staffing.

18.5.5.3 Maintenance Shops and Warehouses

The maintenance buildings on Cabaçal Project includes truckshop, washbay, HME workshop, gas station and explosives magazine. The plant maintenance buildings will be located near the process plant, and will serve as warehouse for the process plant equipment spares, maintenance and storage of light vehicles and process plant equipment, as well as general storage.

The truckshop and washbay building will provide maintenance to the truck fleet and be located near the process plant.

18.6 Off-Site Infrastructure

18.6.1 Main Access Road

Access to the project from any part of Brazil can be made by air to the city of Várzea Grande/MT, where the Cuiabá International Airp–rt - Marechal Rondon is located, where you can take the BR-070 road to Cáceres, which is 216 km away from the capital. From Cáceres, continue along the BR-070 for approximately 12 km until the roundabout where you reach the BR-174, where, continuing ahead for another 50 km, access the MT-175 on the right for more 32 Km, which will reach to the city of São José dos Quatro Marcos.

18.6.2 High-Voltage Power Supply

The electrical system in the project region is composed of a transmission line of 138 kV originated in SE Jaurú 230/138 kV that reaches Araputanga and continues to São José dos Quatro Marcos. São José dos Quatro Marcos is interconnected in 138 kV with the Juba I and II UHEs.

After a trade-off study between the options the plant power supply will be via a connection to the Energisa Mato Grosso system, at the Araputanga substation at 138 kV. An approximately 20 km long transmission line is required to connect the plant to the Araputanga substation, construction of the project main substation 138-13,8kV and a 138 kV entry section in SE Araputanga. This alternative was chosen for presenting clear advantage in liquid present value, considering the Investment cash flow, weather using truss or concrete as structure.

The proposed line may utilize the existing high-voltage electric transmission corridor from Araputanga that passes nearby the Cabaçal project. The basis characteristics of the transmission line are:

- 138 kV
- Structure: single circuit concrete poles or truss (steel structure)
- Conduction wires: CAA 4/0 AWG – 6/1
- Isolation: Suspension, tempered glass 254x146mm, Class 8.000kgf
- Grounding: Copperweld w–re - n°4 AWG – radial disposition
- Estimated length: 21.5 km
- Service strap width: 24m
- Number of circuits: 1
- Number of lightning rods:1

18.6.3 Water Supply

Raw water will be sourced from the nearby Cabaçal river for use in reagent mixing, gland water for slurry pumps and flushing water for the new concentrate filter. A reference value for raw water consumption (based on similar projects) is approximately 94 m³/h, including potable water consumption; however, this value must be confirmed by calculations to be made in later phases of the Project.

Cabaçal river will also supply the plant with potable water, with a demand of approximately 1 m³/h during LoM. Nevertheless, a future study aiming at defining the potable water supplier must be executed. For the potable water a treatment station will be dimensioned according to consumption needs in accordance with the Personnel Location Chart. The water treatment station location will have as a priority the closest proximity to the point of capture of water for its supply.

18.6.4 Tailings and Waste Disposal

Waste disposal for the Cabaçal Project includes both Waste Rock Storage Facilities and Tailings Storage Facilities.

18.6.5 Tailings and Storage Facilities

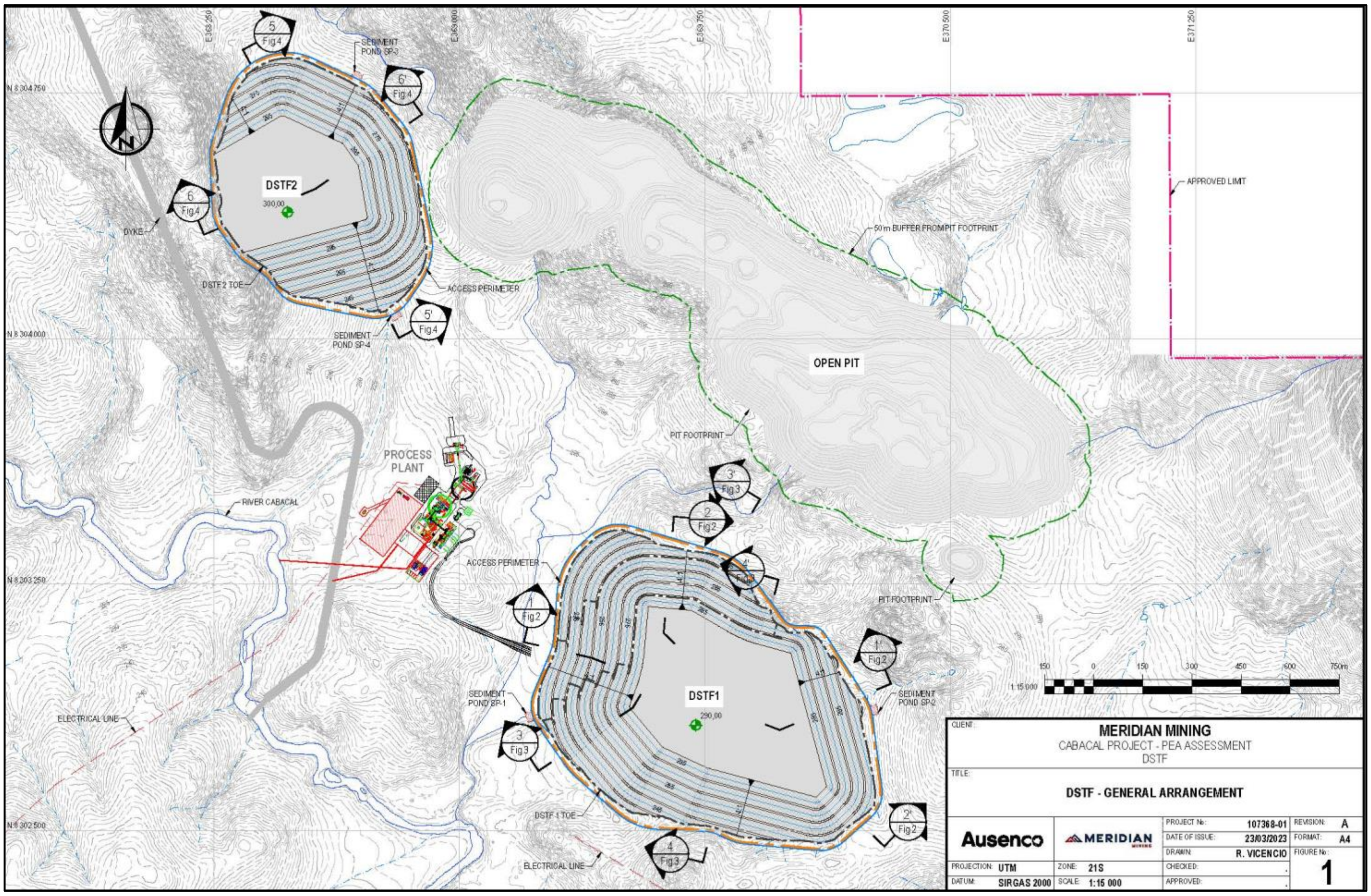
Ausenco performed a deposition and siting trade-off study in 2021 for Meridian. Tailings deposition from slurry tailings to filter tailings were analyzed taking into account economical, environmental and social risks to the area. The results showed favour to the filtered tailings and dry stack tailings facility (DSTF). Mineralized material was discovered under the DSTF designed in the trade-off study located near the southeast end of the pit, so this site was not available for the PEA. In addition, the total RoM to be processed increased from 25.3 Mt to 55.6Mt.

Therefore, during the PEA two (2) DSTF site were developed to contain the life-of-mine (LoM) tailings generation of 55.6 Mt, which are discussed in more detail below. Factors considered in the siting these new facilities included such considerations as topography, geology, owners' property boundary, distances between the proposed process plant location and the location of other mine facilities and potential mineralized material trends. Recent advances in tailings filtration technology and performance favours tailings filtration and dry stacking for this project even in a wet environment. Maximizing process water recycling and minimizing makeup water requirements was also considered an additional benefit of the DSTF method.

18.6.5.1 Dry Stack Tailings Storage Facility Design

Under the PEA scenario using both DSTF 1 and DSTF 2, DSTF 1 would be constructed first and receive dewatered tailings at a rate of 6,850 t/d from the filter plant until it reaches its maximum capacity of 40 Mt in at the end of year 16 and then DSTF 2 would be constructed and filled to a maximum capacity of 15.6 Mt from years 17 through 23 (Figure 18-4).

Figure 18-4: Dry Stack Tailings Facility Layout



Source: Ausenco, 2023

18.6.5.2 Design Criteria

Conceptual design for both DSTF 1 and DSTF 2 are based on an assumed 23-year LoM with a total milled tonnes of 55.6 Mt and a maximum annual mining rate of 2.5 Mt/a. The tailings would be dewatered at the filter plant to a target moisture content of approximately 15%, then trucked to the DSTFs, and placed and compacted in controlled lifts to a specified minimum compacted density. The dry density of the placed tailings was assumed to be 1.65 t/m^3 for volumetric calculations. Key DSTF design criteria are summarized in Table 18-2 below.

For the purposes of the PEA, the outer slopes for both DSTF 1 and 2 were designed at a 3.5H:1V (horizontal:vertical) slope, based on a preliminary stability analysis. Overall slope angles should be revised for global stability in the next phase of the Project based on the results of geotechnical field and laboratory work.

The geochemical test program for Cabaçal Project shows a few tailings sample as PAG, however the mineralized material deposit contains low sulphide concentrations. The tailings have been classified as potential acid generating (PAG) to be conservative. Therefore, Ausenco has design both facilities with a compacted soil liner and geomembrane with a containment berm to contain any potential acid runoff from these facilities. Due to the tailings being filtered and placed and compacted, it is not anticipated that an appreciable amount of drain-down or seepage from the tailings will contribute flows to the internal drain. However, the global stability of the DSTFs will depend on the ability to prevent the development of elevated pore pressures within the stacks. The DSTFs are therefore have an internal drain system designed to prevent the development of elevated pore pressures within the tailings mass and capture and seepage and convey it to the DSTF seepage pond for analysis and treatment, if necessary. Both sites also have an underdrain system in the natural drainage bottoms designed to intercept any potential upwelling groundwater and seep through the liner system.

Table 18-2: DSTF Design Criteria

Criteria	Units	Description
General		
Total Annual Mined Tonnes	t/y	2,500,000
Total Mineralization Mined	t	55,600,000
Life-of-Mine	yr	23
Required Tailings Storage Capacity	t	55,600,000
	m^3	33,697,970
100-year 24-hour Storm Event	mm	143
Filtered Tailings		
Placed Dry Density	t/m^3	1.65
Target Moisture Content	w/w	15%
Tailings Acid Generation Potential	PAG/NAG	Potentially PAG
Tailings Transport and Stacking System		
Tailings Transport System from Filter to DSTF		Haul Truck
Tailings Spreading within DSTF	-	Dozer
Compaction of Tailings	-	Dozer and Vibrating Smooth Drum Roller
Overall Slope Angle	XH:1V	DSTF-1 – 3.5H:1V
		DSTF-2 – 3.5H:1V

18.6.5.3 DSTF Pad Preparation

For the PEA, it was assumed that DSTF 1 would be constructed in 3 Phases and DSTF 2 in 1 Phase. Phase 3 will be stacked on top of Phases 1 and 2, so there is no pad preparation. For Phases 1, 2 and 4, a perimeter road will be constructed around each facility to define the limits of the facilities, but also to provide maintenance access along with a non-contact stormwater diversion channel to keep clean water from entering the facility. Each phase will be cleared of vegetation, topsoil removed and stockpile for progressive closure. The underdrain will be installed within the subgrade and will consist of trenches excavated into the subgrade, non-woven geotextile, dual-wall perforated pipe, and drainage gravel, with a clay plug on top. The underdrain will discharge into the seepage pond. The subgrade will be compacted to accept geomembrane along with a perimeter berm to contain contact water from the DSTF and discharge into the collection pond. Once the geomembrane is installed the internal drain will be installed. It consists of dual-wall perforated pipe encapsulated in drainage gravel and wrapped in a non-woven geotextile that also discharges into the collection pond. Then the DSTF pad is ready for filtered tailings.

A geotechnical site investigation must be completed as part of the next phase of study to confirm suitable foundation conditions and adjust the costs described herein.

The main features of the DSTFs:

- Underdrain
- Impermeable Liner System
- Internal Drain
- Diversion Channels
- Sediment Ponds
- External Filter Tailings Slopes: 3.5H:1V
- Spread and Compacted Filter Tailings

18.6.5.4 DSTF Slope Stability

No geotechnical investigation was performed for the PEA dry stack facilities. This inability to characterize the foundation conditions beneath the DSTF footprints means the designs for those facilities could change based on the field and laboratory programs.

In the absence of detailed testing and characterization data for both the foundation and the tailings, Ausenco prepared slope stability analyses based on reasonable strength and material properties based on Ausenco's experience with recent dry stack projects in similar geological and climatic environments. The goal of the analyses was to determine the conceptual DSTF configurations. The PEA designs currently reflect the results of these analyses; however, a complete slope stability study must be completed as part of the next phase of study and consider the results of the site geotechnical investigation and tailings characterization.

18.6.5.5 DSTF Water Management

18.6.5.5.1 Underdrain System

Seeps, springs or upwelling groundwater within the DSTF footprint would be controlled by the installation of an underdrain system consisting of dual-wall perforated central header pipes placed in ditches in the base of existing natural drainages with connecting perforated transverse drains in smaller tributaries to the main drainages. Any seepage that is intercepted by the underdrain would be considered non-contact water and routed pond below the facility and discharge directly to the natural channels below each DSTFs. Water quality would be checked on a regular basis, if there were any issues with water quality the water would be routed to a water treatment plant.

The underdrain system would be installed in phases as the DSTF advances up the slopes and drainages with temporary stormwater controls in place to ensure that contact or upgradient stormwater is not allowed to enter the underdrain system.

18.6.5.5.2 Internal Drainage System

A system of internal drains would be installed within the placed tailings to prevent the development of elevated pore pressures within the tailings mass. The drains would consist of dual-wall perforated pipes installed in gravel-filled drains wrapped in geotextile and routed to the closest sediment pond. Similarly, to the underdrain the water quality would be tested on a regular basis and if it does not meet water quality discharge standards it would be routed to the water treatment plant.

18.6.5.5.3 Stormwater Management

The upper operational surface will be graded so that contact runoff reports to a lined operational pond at the back of the DSTF to facilitate pumping back to the process plant for reuse. Contact stormwater must be managed on the DSTF top deck and not allowed to enter the underdrain system. As the filtered tailings surface progresses up the slope at the back of each DSTF, the lined operational pond would be relocated to the lowest point on each lift. In addition, rain coats will be utilized to minimize infiltration of precipitation along with shedding it off the DSTF as non-contact water.

Diversion channels must be constructed around the DSTFs before any other construction is started. The diversion channels would route non-contact stormwater run-on around the DSTFs and back into natural drainages downstream. Conceptual channel alignments are shown in Figure 18-4 above.

18.6.5.6 DSTF Access Road and Haul Roads

The DSTFs will be accessed by dedicated haul and access roads that include additional width to support stormwater management and safety berms.

18.6.5.7 DSTF Tailings Stacking

Haul trucks will be used to transport the dried tailings from the filter plant to either of the DSTFs via dedicated haul roads. The tailings would be end dumped, spread in approximately 30 cm-thick loose lifts with a dozer, and compacted using a vibrating smooth drum roller or sheepsfoot compactor, as appropriate.

18.6.5.8 DSTF Closure and Reclamation

Reclamation of the outer slopes of the DSTFs would be undertaken concurrent with DSTF construction. As successive lifts of dewatered tailings are placed and compacted, the outer slope face would be covered with rock cladding, topsoil, and vegetated. The final top surface of the DSTF would be graded back to the natural slope and stormwater diversion channels at not less than 2%, covered with topsoil and revegetated.

18.6.6 Waste Rock Storage Facilities

For waste rock and overburden storage facilities several areas have been identified. Three areas were assigned in the Project Site during this stage, these areas are shown in Figure 18-1. The volume, maximum height and distance to the pit of each waste rock facility is presented in Table 18-3.

Table 18-3: Dimensions of Waste Rock Facilities

Description	Volume (m^3)	Maximum Height (m)	Distance from the pit (km)
Waste Rock Facility 1	36,210,000	50 – 70	1.1
Waste Rock Facility 2	7,940,000	70 – 90	1.0
Waste Rock Facility 3	18,600,000	50 – 85	1.9

All stockpiles and rock storage facilities were planned to avoid existing water bodies and water courses. Initial studies showed that waste rock is potentially non-acid generating. The following criteria were used to develop the waste rock storage facilities:

- Earthwork Criteria
  - Exterior slope 2.5H:1V;
  - Slope width 12 m;
  - Bench width 8 m;
  - Height between benches 20 m;
  - Bench slope 2%

Detailed waste material characterisation studies are planned for optimization of the long-term storage facility design for construction, safe operation, and eventual closure.

18.7 Site-Wide Water Management

This section discusses site-wide water management, the design of water management structures, hydrology, and water balance. Major drainage paths within the study area were delineated through GIS analysis of LiDAR elevation data with a 2 to10 m contour resolution.

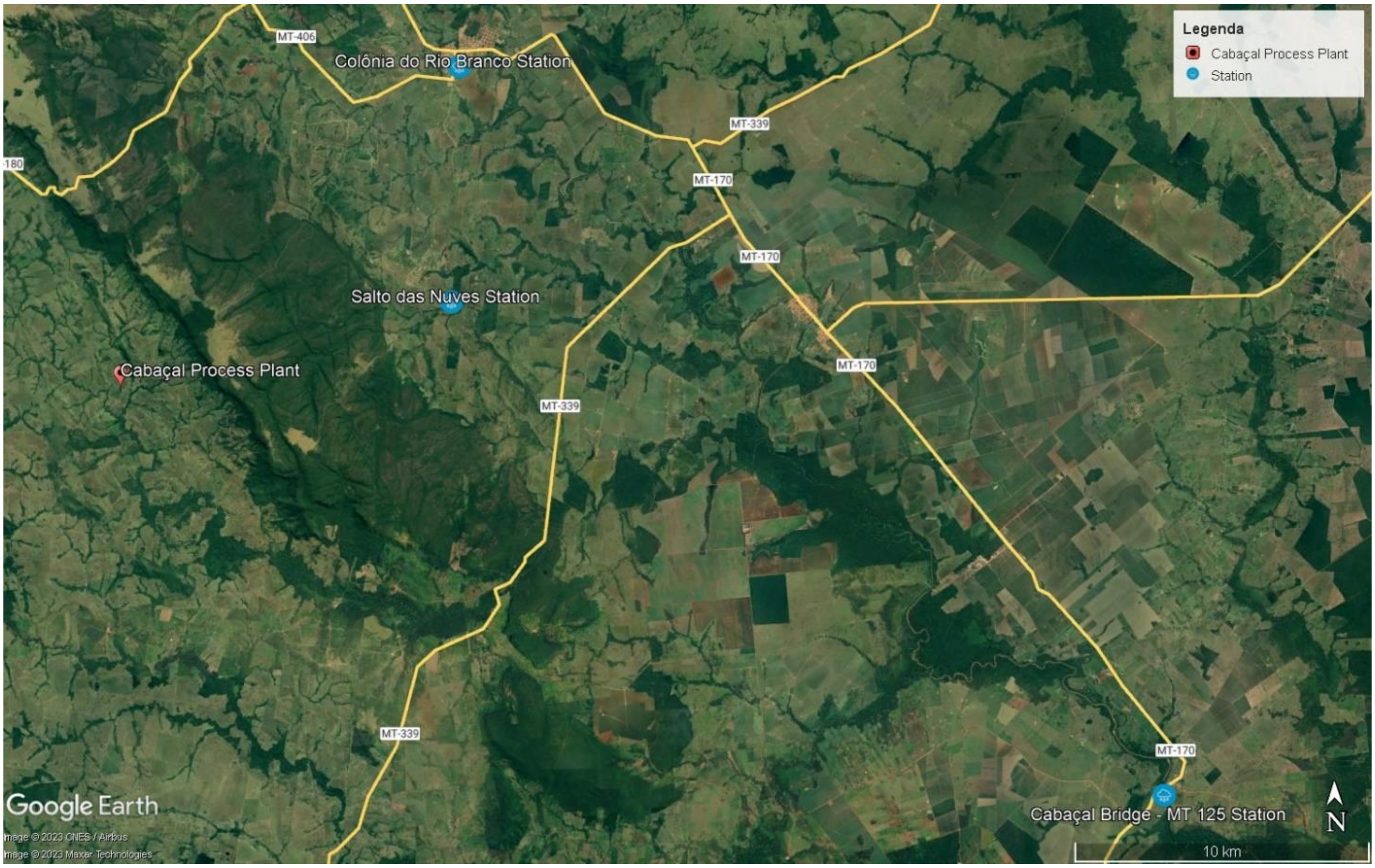
18.7.1 Hydrology

The following sections briefly describe available climate data, hydrometric data, water management structures, and catchment delineations for the project site.

18.7.1.1 Climate and Meteorology

Based on the Köppen climate classification, the Cabaçal Project is located in a tropical climate (type “Awa”), with dry winter. The average temperature of the project area is 25.9ºC and the total annual precipitation is 1,471 mm, with July as the month with the lower precipitation.

Figure 18-5: Project Location and Nearby Rainfall Stations



Source: Ausenco 2023.

The extreme precipitation events for this Project were obtained via Cabaçal Bridge – MT 125 Station, located in the city Mirassol d'Oeste in Mato Grosso.

18.7.1.2 Hydrogeology

Hydrogeological Studies of the Cabaçal Project show two local aquifer systems, one porous and the other fractured, feeding local springs (HIDROVIA, 2022; Figure 20-3). The flows of watercourses are dependent on rainfall and the seasonal water surplus of the global water supply. A significant reduction in the flows of local drainages occurs in the dry season compared to the rainy season, which seasonally impacts recharge / discharge rates of the aquifers.

Open pit development scenarios will locally lower the underground water level (adopting a maximum depth of 200 metres as the 'ine's final pit), causing a local and temporary impact on the water table. The water table had been previously lowered during underground mining operations with no adverse impacts. At the end of future open pit mine operations, the water table would return to new equilibrium conditions. Following the project studies by now (Conceptual Hydrogeology), Meridian will engage a specialized company to construct a mathematical model for simulating underground flows from the implantation phase to the final stages of mine closure for the Rio Cabaçal Project.

18.7.2 Water Management Structures

Water management structures were not calculated in this Project Stage. For the following stages engineering studies and solutions regarding water management will be conducted with the objective of defining the structures, their geometries and location in the project site, based on the climate and hydrogeology data.

18.7.3 Site-Wide Water Balance

The site water balance considered the requirements/excess of water, and the available water sources. The Process plant has a net raw water demand of approximately 87 m^3/h during LoM. The Total Process Water demand is of approximately 690 m^3/h, with the possibility of 740 m^3/h of Reused Process Water.

During later stages of study, a detailed water balance analysis is required to review the annual amount of excess water, which needs to be treated and managed throughout the mine’s life.

19 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

No market studies or product valuations were completed as part of the 2023 PEA. Market price assumptions and payment terms were based on a review of public information, industry consensus, standard practice and specific information from comparable operations in the region.

19.2 Commodity Price Projections

Project economics were estimated based on the long-term metal prices summarized in Table 19-1. These prices are consensus forecasts from numerous financial institutions compiled by CIBC in August 2022.

Table 19-1: Base Case Metal Prices

Metal Price	Unit	Value
Gold Price	USD/oz	1,650.00
Copper Price	USD/lb	3.59
Silver Price	USD/oz	21.35

Source Meridian Mining

The precious metal markets are highly liquid and benefit from terminal markets around the world (e.g., London, New York, Tokyo, and Hong Kong). The London PM fix for gold and copper on Mar^{ch} 1st, 2023, was USD1,841.25/oz and USD4.129/lb, respectively. Long-term consensus price forecasts for gold and silver ranged between USD1,650.00/oz to USD1,700/oz for gold and USD18.50/oz to USD20.25/oz for silver.

19.3 Refining Charges, Payment Terms & Penalties

The economic analysis applies refining charges and payment terms based on benchmarks for comparable operations located in Brazil and the Mato Grosso area. Payable gold in doré is assumed to be 99.9%, with a refining charge of USD0.50 per oz of payable gold. The copper concentrate treatment and refining terms used for the economic analysis are shown in Table 19-2.

Table 19-2: Treatment and Refining Terms

Treatment and Refining Terms	Unit	Value
Treatment of Cu Concentrate	USD/dmt	80.00
Refining of Cu in concentrate	USD/payable lb	0.08
Refining of Au in concentrate	USD/payable oz	5.00
Refining of Ag in concentrate	USD/payable oz	0.50

Source Meridian Mining

For copper concentrate, road and port costs are assumed to be USD42.69 per oz of gold equivalent payable. This cost considers transport by trucks from the site to Vitória Port over an approximate distance of 2,400 km, including taxes. Port costs include storage costs and operations for loading ships.

A deduction of 1% from the copper grade in concentrate is taken as free metal. Payable gold in concentrate is assumed to be 90% for concentrate grades above 1 g Au/dmt, increasing to a maximum of 95% for concentrate grades above 10 g/dmt Au. Payable silver in concentrate is assumed to be 90% for concentrate grades above 30 g/dmt Ag.

19.4 Contracts

At this PEA stage of project development, no marketing contracts exist.

19.5 Comments on Market Studies and Contracts

The QP notes that the pricing and payment terms used in the cash flow analysis are reasonably aligned with consensus estimates and benchmarks from comparable operations.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Setting

The Project will be located primarily in areas of pastureland and small corridors of forests, which are part of Areas of Permanent Protection (APP), along thalwegs of drainage. The site is drained by a network of small streams; apart from these streams, no significant surface water features are directly impacted by the Project. The natural environment in the area of the Project has been significantly altered by a wide range of intrusive human influences that span many decades. No primary forest remains in the project area. Current land usage in the Project is typically a mixture of cattle and sheep grazing and light agriculture in cleared areas adjacent to secondary forest along stream corridors. The latter are usually situated in the low-lying areas. Historical mining on the project site have been closed and rehabilitated.

There are no villages or significant groups of dwellings in the project's environmental Area of Influence (AOI).

20.2 Environmental Permitting Requirements

The Project is being developed in accordance with Brazilian National Environmental Policy established on 31 August 1981 (Federal Law ref. No. 6,938), all activities that cause pollution or have the potential to pollute are subject to environmental licensing. Applicable rules regarding licensing procedures were established by the National Council for the Environment (CONAMA) under Resolution 237 of 19 December 1997.

It is by this means the licensing procedure that the issuing agency determines the conditions, limits and measures for the control and use of natural resources and allows the installation and implementation of a mining project. Depending on the nature of the operation and geographic localization, licences are required to be issued by federal, state, or municipal agencies.

- Federal entities are responsible for licensing activities that may cause national or regional environmental impacts (where more than one federal state is affected);
- State entities, including the federal districts, are responsible for the environmental licensing of potentially polluting activities not compatible with the criteria defined in licensing laws by the municipalities;
- Municipal entities are responsible for licensing activities that may cause local environmental impacts, as defined by the state environmental agency.

Other criteria are also considered, such as the administrative responsibility for the management of protected areas including sustainable forests, water resources, conservation, and other protected areas.

The Cabaçal mine licence 866292/2004 is deactivated. Old buildings on the Project have been partially adapted for Meridian's exploration requirements. The entrance to the underground mine was sealed by RTZ. The tailings dam was decommissioned and rehabilitated.

As part of the permitting regulations, Article 225 of the federal constitution (1998) states that "Those who exploit Mineral Resources shall be required to restore the degraded environment, in accordance with technical solutions directed by the lead public agency. The reclamation project must include (in chronological order) the objectives to achieve short, medium, and short, medium, and long-term goals. Short-term goals involve topographic restoration of the land, erosion control, replanting of vegetation and waste control, among others. In the medium term it seeks to restructure the physical and chemical properties of the soil, recycle nutrients, and encourage the reappearance of fauna and finally, long-term, the self-sustaining recovery process must be aided, along with the soil-plant-animal inter-relationship and the future use of the area. Based on prior experience with similar-scale projects in Brazil, it is estimated that permitting actions will take 12 to 24 months to complete.

Meridian has applied for twelve exploration permits over parts of the Cabaçal, Jaurú and Araputanga Belts. The applications have been accepted and registered. The in the Jaurú and Araputanga Belts span 49,110 Ha.

20.3 Environmental Baseline and Impact Studies

Environmental baseline studies are being conducted as part of Environmental Impact Study (EIA/RIMA) since January 2022 to support the Preliminary Licence (PL) application for the Project to be presented to the Secretary for the Environment of the State of Mato Grosso (SEMA/MT). Sete Soluções e Tecnologia Ambiental Lt"a (""ete"; headquartered in Belo Horizonte, Minas Gerais, Brazil), was hired by Meridian to conduct an EIA for the Cabaçal Project. Baseline studies include the collection of surface water, groundwater, biodiversity, climate, and geochemical data.

The details of the environmental actions will be presented in the Environmental Impact Study (EIA) and, later, in the Installation Licence Phase (LI) and in the Environmental Control Plan (PCA).

20.3.1 Environmental Area of Influence

The baseline characterization studies and environmental impact assessment (EIA) for the Cabaçal Project are being prepared by Sete for the EIA submission for the Preliminary Licence.

The EIA attempts to estimate the potential impacts of the Project on the physical environment and/or local communities in comparison with baseline conditions. The EIA includes an evaluation of the positive and negative aspects of the Project, using a scale of high, moderate, low, or insignificant. Depending on the probability of an identified adverse impact, mitigating measures will be developed to reduce the potential impacts to an acceptable level.

20.3.2 Environmental Control

Based on the impacts being identified and evaluated by the implementation and operation of the Cabaçal project, the prevention, control, mitigation, monitoring, and environmental compensation actions that should be implemented by Meridian are presented in the Table 20-1 below, with the objective of monitoring the evolution of impacts both positive and negative caused by undertaking this project.

The details of the environmental actions will be presented in the Environmental Impact Study (EIA) and, later in the Installation Licence Phase (LI) and in the Environmental Control Plan (PCA).

Table 20-1: Environmental control, mitigation, monitoring, and compensation actions

Actions	Categories
Recovery Plan for Degraded Ar–as - PRAD	Mitigation
Forest Exploitation Project	Mitigation
Compensation Program	Compensation
Water and Effluent Quality Monitoring Program	Monitoring
Erosive and Silting Process Control Program	Mitigation
Environmental Control Program at the Construction Site and Construction Phase	Mitigation
Environmental Noise Monitoring Program	Monitoring
Solid Waste Management Program	Mitigation
Air Quality Monitoring Program	Monitoring
Vegetation Suppression Monitoring Program and Possible Fauna Rescue	Monitoring
Environmental Education Program	Mitigation
Fauna Monitoring Program	Monitoring
Social Communication Program	Mitigation
Vibration Level Monitoring Program	Monitoring

Sources: Ausenco, 2023

20.3.3 Biodiversity Studies

Brazil is a very biodiverse country. Like other nations, it has established a range of laws and regulations to protect its environmental resources. At the same time, the country is seeking to diversify and grow its economy, an increasingly vital component of which is mining. In keeping with Brazilian law and international Best Management Practices (BMPs), mining project proponents must seek a practical and appropriate balance between project economics and environmental protection, including the preservation of biodiversity.

20.3.3.1 Flora

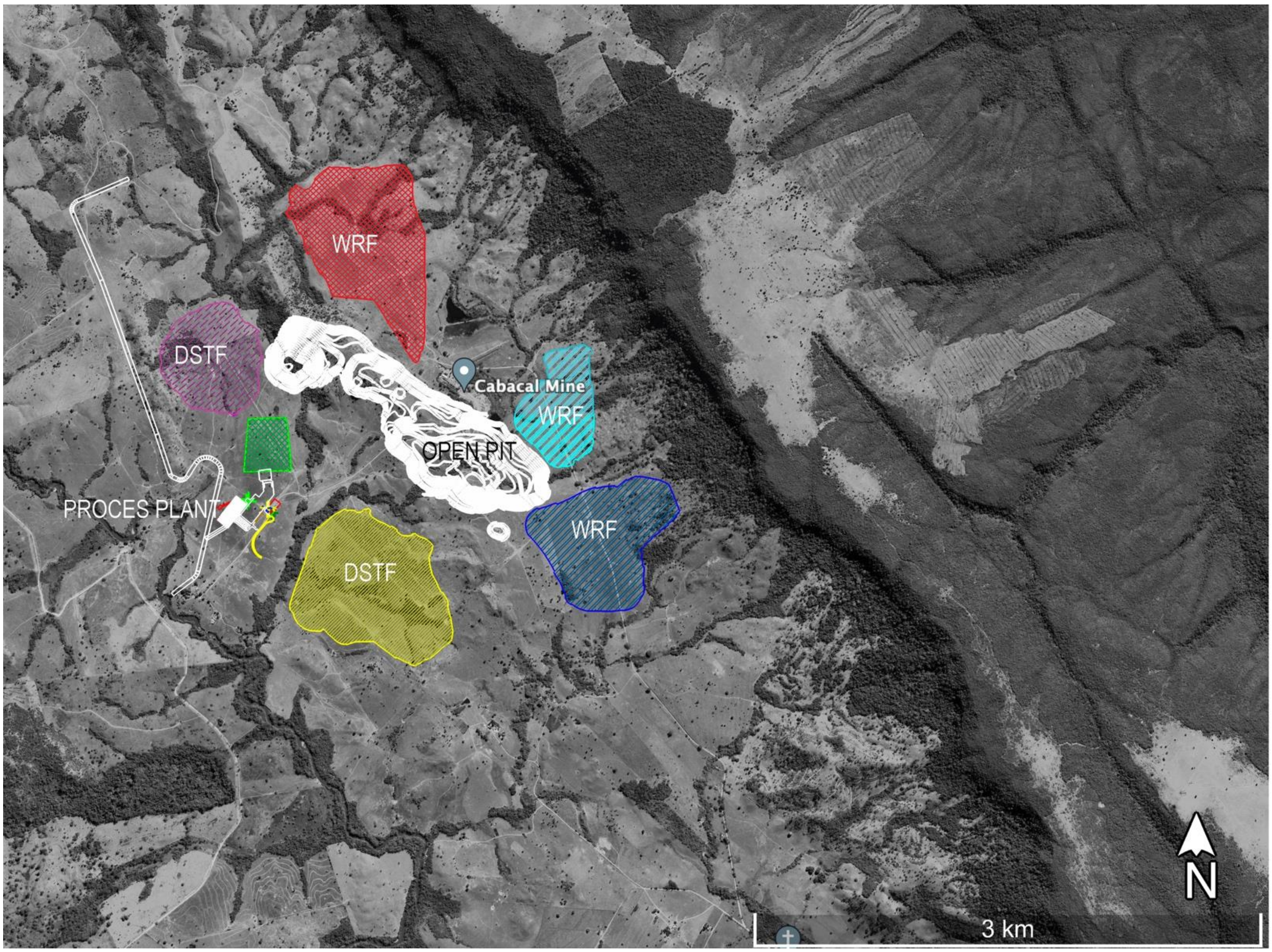
The project is located in the Amazon biome, in a transition region with the Cerrado and Pantanal biomes. The region does not overlap with National or State Parks.

Human activities have significantly changed the landscape over the past 50 years (refer to Figure 20-1). There was extensive development of pasture, savannah, grassland formation over the decades. In the project area, the forested spaces comprise approximately 20% of the forest cover consisting of seasonal semi-deciduous trees (Equatorial Forest

Broadleaf). The remaining area consists of approximately 80% pastureland with rural dwellings, bamboo stands, and water bodies steams and dams. Pasture areas are characterized as environments of very low plant biodiversity, with their formation resulting from vegetation suppression and cattle and sheep activities.

The presence of semi-deciduous seasonal forest is typically linked to areas of vegetation preservation ("APP"), which are distributed along the perennial or intermittent watercourses of the project area. Some seasonal watercourses will overlap infrastructure planned for the Cabaçal Project. The Cabaçal Project area lies within the priority area AMZ-793 for the conservation of biodiversity based on the Map of Priority Areas for the Conservation, Sustainable Use and Sharing of Benefits of Brazilian Biodiversity (Ministry of the Environment, 2018).

Figure 20-1: Site Vegetation and Pasturelands.



Source: Ausenco, 2023.

20.3.3.2 Fauna

The Project is in a heavily development and agriculture area that has previously disturbed the original native forest ecosystem. Biodiversity losses, including the extirpation and extinction of several species within the broader region and has been linked to past anthropogenic activities and associated impacts, caused by widespread grazing by livestock, as well as agricultural development.

The fauna in the project area is directly influences by human activities. Despite the anthropic alterations observed in the region, there are still remnants of native vegetation, mainly on the tops of hills and close to watercourses. These remnants of natural vegetation shelter most of the diversity of fauna species, including endemic and endangered ones, providing habitat for species, which emphasizes the importance of the study area for the conservation of local and regional fauna. Currently, Sete is developing the EIA for the Preliminary Licence and has not completed it as of writing of this report.

20.4 Geology and Geomorphology

The Cabaçal Project area is located in the transition zone between the two geomorphological units: the Ronca–or - Salto do Céu Mountain Range (in which the "Monte Cristo" or "Cabaçal" Mountain is located) and the Upper Paraguay Basin. The Cabaçal Project is located on the southwest slope of the Monte Cristo Mountain, which is characterized as a zone of headwaters of predominantly intermittent, ephemeral, and perennial streams.

The study area is in the SW portion of the Amazonian Craton. Local geological units include the Alto Jaurú Group represented by acid metavolcanic rocks, banded metacherts and banded chert-like tuffs (host to the Cabaçal mineralization), the Alvorada Intrusive Suite (granitic / granitoid bodies), the Alto Alegre Intrusive Suite (gabbro / diabase intrusions), and the Cabaçal Tonalite. Recent sedimentary cover is present over the site.

20.4.1 Soils

Soils in the study area are dominated by Red-Yellow Latosols and Red-Yellow Argisols (deep and well-drained soils, moderately good for agricultural). Both classes of soil are associated with flat to smooth-wavy landforms. Due to geological, geomorphological and pedogenesis processes, the area also includes other soil classes: Litholic Neosols and Haplic Cambisols (underdeveloped soils), Fluvic Neosols (alluvial soils), and Gleissolos (hydromorphic soils).

20.5 Geochemistry

Meridian contracted SGS Lakefield Research in Canada to carry out metallurgical testing for the Cabaçal deposit. In addition to metallurgical testing, SGS also carried out geochemical characterization of the mineralized material, overburden, and tailings. The geochemical tests were aimed to evaluate the generation of acid mine drainage and leaching, and therefore, the following tests were performed: Acid Base Accounting (ABA), Net Acid Generation (NAG) and leaching by ABNT NBR 10006:2004 and TLCP.

The main results of geochemical characterization were:

- The Cabaçal VMS system has a low sulphur content with an S:Cu ratio of approximately 1.5.
- Sample assays did not reveal any potentially problematic elements such as As, Bi, Cd, Hg, Pb, Sb, etc.
- The main sulphide minerals are chalcopyrite, pyrite and pyrrhotite. There are virtually no other Cu sulphide minerals present. The ratio of the 3 primary sulphides is 65:28:5, which is in line with the historical mineralogy of the deposit.

- Most of the Cu sulphide is essentially released (average ~80%).
- A test was carried out that included the recovery of pyrite/pyrrhotite after Cu-Au flotation with the aim of desulfurizing the tailings so that the combined tailings did not generate acid. As a result, a fairly flat slope was obtained, suggesting that iron sulphide recovery is not critical for Cu or Au.
- All mineralized materials samples were considered acid generating, while only 1 (one) overburden sample (Waste 12 TAC/VAP) was considered potentially acid generating. One of the tailings samples was acid generating (SCZ-1 Comb Tails), while another three are potentially acid generating (CCZ-1 Comb Tailings, CNWE-a Comb Tailings and CNWE-2 Comb Tails). Most of the tailings have low sulphides, therefore, should not be acid generating. However, further studies need to be performed to validate that the tailings and waste rock are not acid generating or metal leaching.
- The Neutralization Potential (NP) as a function of %S, the tailings samples have a similar low NP of approximately 10 t $CaCO_3$/1000 t. Some of the overburden samples have higher carbonate content and may provide increased NP.
- Samples with NP/AP <1 are considered acid generating. Samples with NP/AP >3 are considered non-acid generating. Samples between these two ratios are considered potentially acid generating and will require additional testing. Samples with %S > 0.35 are likely to be acid generating and, conversely, samples with %S < 0.12 are likely to be considered non-acid generating.
- Regarding the leaching test, no problematic elements were found leaching into any of the samples.

20.5.1 Archaeological Studies

In 2022, Meridian commissioned Totem Consultoria em Arqueologia Ltda (Totem) to carry out the initial archaeological survey of the Cabaçal Project. The Impact Assessment of the Archaeological Heritage of the Cabaçal Project (Archaeological Heritage Impact Assessment Project - PAIPA) was prepared and submitted for approval to the Institute of Historical and Artistic Heritage (Iphan), the regulatory agency for archaeological finds in Brazil. Once PAIPA was approved, Totem carried out surveys in the field, covering the area directly affected by the project. Bibliographical reviews of the physiographic and cultural contexts for the same area were also carried out, Excavations of 179 test pits were carried out across the project that were all negative for archaeological remains. However, two ceramic fragments were found on the surface of minor significance.

The data collected in the office and in the field were used to develop the Impact Assessment Report on the Archaeological Heritage of the Cabaçal Project (Archaeological Heritage Impact Assessment Report-RAIPA). Meridian filed the RAIPA, which is part of the process to obtain the project implementation licences with Iphan.

20.6 Socioeconomic Studies

Currently, Sete is performing socioeconomic studies for the project. The Cabaçal Project area belongs, according to the Brazilian Institute of Geography and Statisti’s ("BGE"), to a single intermediate geographic region of Cáceres, and two immediate geographic regions of Cáceres and Mirassol D’Oeste. From these studies the follow will be developed:

- Social setting of the Project.
- Social areas of Impact.
- Social Risks, Impacts and mitigation measures.
- Stakeholder mapping.

- Socioeconomic benefits, community relations and communications.
- Social Management Policies and Social Management System.

20.7 Baseline Water Quality and Quantity

20.7.1 Water Quality

Campo Análises Agrícolas e Ambientais (CAMPO) was contracted to carry out the surface and groundwater field campaign. The works was carried out in March 2022, characterizing the rainy season, and August 2022, corresponding to the dry season. The programs consisted of 9 surface water collection points and 10 groundwater collection point in the project area. Eight of surface water sample point are within the project and one located downstream on the Cabaçal river as a water quality control point. The 10 groundwater collection points are all within the Project boundary.

The selection of parameters to be monitored were based on NBR 12,649/1992, which lists water quality parameters based on mining type. For the Cabaçal Project, parameters related to copper and gold mining were selected. The selection was also based on the parameters legislated in CONAMA Resolution nº 396/2008 and CONAMA Resolution nº 357/2005, in addition to parameters of hydrogeochemical interest.

In the first campaign (rainy season), dissolved Iron showed the highest occurrence regarding the legal limit, representing 50% of the nonconformities. The high concentrations of Iron and Manganese may be related to the local geochemistry, due to the presence of ferromagnesian metavolcanic rocks.

Dissolved Oxygen represented 25% of nonconformities in the first campaign (rain) and 63% in the second campaign (dry). The presence of E. Coli may be mainly related to animal excrement, since the largest portion of the study area corresponds pastureland activity in the region. The concentrations of Dissolved Oxygen remained below 5 mg/L, which could be due organic matter into water bodies that leads to the consumption of dissolved oxygen, due to the oxidation of this organic matter (Von Sperling, 2014).

In the two sampling campaigns carried out, low values of electrical conductivity and total dissolved solids were recorded, indicating low salinity of the waters. In general, pH ranged between neutral and moderately acidic.

In view of the results and discussions presented, it can be noted that the bodies of water located in the Cabaçal Project study area already contain substances in concentrations higher than the normative limit of CONAMA Resolution No. 357/2005 prior to the implementation and operation of the project.

Similarly, the ground water campaign was carried out in two sampling programs at the sample time of the surface water sampling. In eight of the ten wells, both Iron and Manganese were above legal limits for human consumption. Also, Aluminum in six of the 10 wells were above water quality standards. The groundwater sampling shows that in 10 out of the 10 well sampled, concentration of certain constituents were above drinking water stands for Brazil.

The Iron and Manganese parameters registered the highest percentages of non-compliance, followed by Aluminum. However, it should be noted that the occurrence of these elements (Iron, Manganese and Aluminum) above the legal limit in the Cabaçal Project region, may reflect the local geological substrate, with the presence of metavolcanic rocks that contain these elements in their constitution, combined with the hydrochemical processes, which makes it possible for these metals to enter the environment in surface and groundwater.

20.7.2 Hydrology

The watersheds on the east side of the Cabaçal River in the project area were studied. The Cabaçal River is located approximately 0.25 km southwest of the process plant. The project is intersected by a number of watercourses, some with names and others with no names. The Manoel Lemos and Mina Streams are the two largest streams that cross the project. The Manoal Lemos stream exhibits rain season flow of 169 l/s and 22 l/s during the dry season. The Mina stream exhibits 188 l/s in the rainy season and 15 l/s in the dry season. The unnamed streams on the Project drain into these two streams. The Cabaçal River flows are during the rainy season is 64 m^3/s and during the dry season 29 m^3/s (Refer to Figure 20-2).

Figure 20-2: Cabaçal River.

Source: Sete, 2022

20.7.3 Hydrogeology

Hydrogeological Studies of the Cabaçal Project show two local aquifer systems, one granular and the other fractured bedrock, feeding local springs (HIDROVIA, 2022; Refer to Figure 20-3).

The granular system is formed by unconsolidated sediments (residual soils, colluviums, and alluviums) whose porosity is of the granular type. The sediments form shallow, localized, discontinuities, free aquifers with high porosity and permeability in the sandy and gravel layers, and low in the clay layers.

Figure 20-3: Spring in Project Area

Source: Sete, 2022.

Although sediments can function as seasonal aquifers or remain unsaturated on the tops of slopes and hills, the presence of a granular system is very important for increasing the infiltration capacity of the substrate, allowing water to enter and percolation in the form of subsurface flows along with temporary water storage. This volume flows slowly throughout the year within the sedimentary layers to the valley floors, regulating the flow at the headwaters of watercourses embedded in these deposits. The aquifer potential of the granular layer is associated with the thickness, type, and lateral continuity of the sediments. In the Project area sediments tend to be thin, clayey, and discontinuous and therefore have relatively low aquifer potential.

Non-volcanic igneous rocks and metamorphic rocks are commonly called crystalline rocks and, from a hydrogeological point of view, constitute the fractured aquifers. In these rocks, the primary porosity is practically non-existent and the voids with the potential to store and transmit water are mainly in fractures. Shale rocks, which represent most of the metavolcanic sedimentary set of the Alto Jauru Group, manifest even greater restriction for flow due to the higher percentage of clay minerals and the tendency to form closed fractures.

Studies carried out by Manati (1987) to obtain the average permeability coefficient in the horizon of altered rock through a series of tests at variable load in selected boreholes in the Project area were performed. The results indicated that the average permeability coefficient of the fractured aquifer in the central and northern portion of the mine are between 1.3 10-6 m/s and 2.2 x 10-5 m/s. No studies have been performed to determine yield of these fractured zones. The depth to groundwater in boreholes in the Project area ranged for the dry season from 2m to 35 m below the surface, with an average of 17m. The average season variation is approximately 4m.

Open pit development scenarios will locally lower the underground water level (adopting a maximum depth of 200 meters as the ’ine's final pit), causing a local cone of depression of water table surrounding the pit. The water table had been previously lowered during underground mining operations with no adverse impacts. At the end of the future open pit mining operations, the water table would return to new equilibrium conditions. Meridian will engage a hydrogeology company to construct a mathematical model for simulating underground flows from the implantation phase to the final stages of mine closure for the Rio Cabaçal Project.

20.7.4 Site Water Balance

A site wide water balance was completed to estimate the water consumption and water supply needs of the Project. The site water balance considered the requirements/excess of water, and the available water sources. The water balance has a net raw water demand of approximately 87 m³/h over the life-of-mine (LoM). Due to the small up-stream drainage basins, the water balance demonstrates that the project cannot reliably meet its total year-round water demand from the drainage basins covered by the site footprint, so during typical and dry precipitation conditions, the project may require off-site surface water source from the nearby Cabaçal river, on-site groundwater, and/or develop a reservoir onsite to store excess runoff during peak rainfall months.

Cabaçal river will also supply potable water with a demand of approximately 1 m³/h over the LoM. Potable water supplied will be treated in a water treatment station (WTS) to serve the project and will be dimensioned according to consumption needs in accordance with the Personnel Lease Table (PLT).

Any excess water from the project, like contact water that will not be utilized in the plant will be treated, if needed, and discharge to the environment. In the next stage of study, a detailed water balance is required considering dry years to wet year to determine water requirements and sources along with water treatment needs and managed through the life of mine. In addition, future studies need to look at water supply sources and permitting requirements.

20.7.5 Mining Closure and Reclamation

No formal Closure and Reclamation Plan has been prepared for the Cabaçal project to date. One will be developed as the project advances through subsequent project stages. Closure costs have been included in the PEA financial model. Closure costs were based upon Ausenco’s benchmark of PEA studies developed between 2021 and 2023 from copper, gold and silver projects

A conceptual closure plan will be developed in the next phase with a basis for estimating Project closure costs. The considerations in developing the closure strategy include:

- Physical and chemical stabilization of mine waste facilities, including land-forming,
- Placement of topsoil over impacted ground surfaces, as required,
- Revegetation,
- Regrading of mine haul roads,
- Runoff management,
- Demolition of the processing facilities, and
- Post closure monitoring and management

20.8 Final Considerations

Based on the initial work to be presented in the Preliminary License EIA, it can be stated, in light of the additional information and studies being carried out, as well as the current environmental legislation, that the Cabaçal project can and should be seen as a viable undertaking from an environmental point of view. It is expected that the benefits arising from its implementation and operation are certainly greater than local impacts identified in the current studies, representing a positive change in the local social dynamics.

Finally, measures with a character of prevention, control, mitigation, compensation, and monitoring of negative impacts will have the capacity to generate adequate responses to the expected impacts, so that the interference of the enterprise in the environment occurs within limits considered acceptable by the current environmental legislation and by society.

21 CAPITAL AND OPERATING COSTS

21.1 Introduction

The capital and operating cost estimates presented in this PEA provide substantiated costs that can be used to assess the preliminary economics of the Cabaçal project. The estimates are based on an open pit mining operation, as well as the construction of a stage-wise process plant, associated tailings storage and management facility, and infrastructure, as well as Owner's costs and provisions.

All capital and operating cost estimates are reported in US dollars (USD) and Brazilian Reals (BRL), with no allowance for escalation or exchange rate fluctuations. The exchange rates used are (CAD is Canadian dollars):

- BRL5.30:USD1.00
- BRL3.964:CAD1.00

The capital cost estimate conforms to Class 5 guidelines for a preliminary economic assessment level estimate with a -40% +50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed by Ausenco in Q1 2023 based on the equipment suppliers' budgetary quotations and in-house database of projects and studies as well as experience from similar operations. At this point, no need for expansion phases was noted, but a more detailed mine plan is required in the subsequent phases of engineering to ensure this.

21.2 Capital Costs

The total initial capital cost for the Cabaçal Project is USD179.6 M; and the LoM sustaining costis USD108 M. The initial capital cost summary is presented in Table 21-1.

Table 21-1: Capital Cost Estimate

Description	Initial Cost (MBRL)	Initial Cost (MUSD)	Sustaining Cost (MBRL)	Sustaining Cost (MUSD)	Total Cost (MBRL)	Total Cost (MUSD)
Direct Costs	**626.72**	**118.25**	**414.79**	**78.26**	**1,041.50**	**196.51**
Equipment	**206.77**	**39.01**	**47.57**	**8.97**	**254.34**	**47.99**
Mechanical Equipment	168.85	31.86	47.57	8.97	216.41	40.83
Electrical Equipment	27.06	5.10	-	-	27.06	5.10
Instrumentation and Automation	10.87	2.05	-	-	10.87	2.05
Packages	**4.84**	**0.91**	**-**	**-**	**4.84**	**0.91**
Telecommunications	4.84	0.91	-	-	4.84	0.91
Materials	**51.27**	**9.67**	**114.26**	**21.56**	**165.54**	**31.23**
Plate Work	5.71	1.08	12.93	2.44	18.64	3.52
Steel Structure	21.96	4.14	-	-	21.96	4.14
Piping	16.85	3.18	101.34	19.12	118.19	22.30
Electrical, Instrument, Automation and Telecom	6.75	1.27	-	-	6.75	1.27
Construction and Erection	**193.51**	**36.51**	**-**	**-**	**193.51**	**36.51**
EM Erection	90.64	17.10	-	-	90.64	17.10
Earthworks	22.00	4.15	-	-	22.00	4.15
Civil Works	64.06	12.09	-	-	64.06	12.09
Ancillary Facilities	16.82	3.17	-	-	16.82	3.17
Others	**170.32**	**32.14**	**252.96**	**47.73**	**423.28**	**79.86**
Tailings - Dry Stack	58.50	11.04	252.96	47.73	311.46	58.77
SE Araputanga	11.69	2.21	-	-	11.69	2.21
Main Substation	42.52	8.02	-	-	42.52	8.02
LT 138kV	10.34	1.95	-	-	10.34	1.95
Mine	45.23	8.53	-	-	45.23	8.53
Bridge Rio Cabaçal	2.04	0.38	-	-	2.04	0.38
Indirect Costs	**166.60**	**31.43**	**62.22**	**11.74**	**228.81**	**43.17**
EPCM	62.67	11.82	41.48	7.83	164.20	30.98
Spare Parts and Special Tools	6.20	1.17				
Vendor representative	4.14	0.78				
Freight	9.85	1.86				
First Fill	6.27	1.18				
Commissioning and start up	17.31	3.27				
Indirect Field Construction	12.53	2.36				
Land Acquisition	-	-				
Engineering, Construction and Civil Responsability risk insurance	3.76	0.71				
Owner Costs	43.87	8.28	20.74	3.91	64.61	12.19
Contingency	**158.66**	**29.94**	**95.40**	**18.00**	**254.06**	**47.94**
Total	**951.97**	**179.62**	**572.41**	**108.00**	**1,524.38**	**287.62**

Source: Ausenco, 2023

21.2.1 Basis of Estimate

The capital cost estimate was developed by Ausenco in Q1 2023 US dollars based on equipment suppliers' budgetary quotations (main equipment) and in-house database of projects and studies as well as experience from similar operations. Due to the methodology used to develop the capital estimate and the conceptual level of engineering definition, the estimate has an accuracy of -40% +50%, which is in accordance with the Association for the Advancement of Cost Engineering International (AACE International) guidelines for a PEA study.

Data input for the estimates has been obtained from numerous sources, including the following:

- mining schedule
- conceptual engineering design by Ausenco
- mechanical equipment costs determined from budgetary quotations (main equipment) and Ausenco's database of historical projects for others equipment
- engineering design at a preliminary economic assessment level
- contingency of 20% on the total investment value
- no growth allowances were applied

21.2.2 Direct Costs - Mining

Meridian has opted for the complete outsourcing of mining at Cabaçal and a company specialized in blasting, loading and haulage of the mineralized material and waste will be engaged, as well as transport services for tailings from the filters to the storage yard (DSTF).

GE21 Consultoria Mineral Ltda, a company from Belo Horizonte/MG – Brazil, was the office selected by Meridian for the engineering of the Mine; therefore, using its database of recent quotes, who calculated not only the operational costs for these services, but also estimated the Capex costs of the project as indicated in the table below.

The mobilization of the contractor will take place six months before the start up of the plant so that the opening of the Mine can begin and was estimated, including the construction site, at USD 1,471.54K.

The opening of the roads in an extension of 8.5 km for access to the mineralized material and waste storage structures was estimated at USD 394.47k. It does not involve deforestation as the Cabaçal area is completely anthropized by livestock activity and has gravel to cover the road over the Pit, which will naturally be removed for its opening.

The pre-stripping will handle 0.45Mt of RoM and 2.32Mt of waste and will cost USD 6,667.62K, and the RoM will be stored in the stockpile in front of the crusher, and it will be available to be fed in the plant in the start up.

The demobilization of the contractor was also estimated to occur in the last year of the undertaking's useful life at USD228.05K.

Table 21-2: Mining Capital Costs

What	When	Why	MBRL	MUSD
Mobilization of the Mining Contractor	6 months before the stars up (year 0)	Star mining opening	7.79	1.47
Opening the roads for trucks and other equipments	After Mining Contractor Mobilization (year 0)	Access to the Mine and Stockpiles	2.09	0.39
Pre-stripping of 0.45 Mt of RoM	Starting 6 monts before the start up (year 0)	Opening the Mine	5.67	1.07
Pre-stripping of 2.32 Mt of Waste	Starting 6 months before the start up (year 0)	Opening the Mine	29.66	5.59
Demobilization of the Mining Contractor	Year–23 - after finishing the beneficiation of mineralized material	Finishing the contract	1.21	0.23

21.2.3 Direct Costs – Process and Infrastructure

Process equipment requirements were based on the conceptual process route and design criteria (refer to Section 17).

Mechanical equipment and building supply costs were based on recent and historical budget quotes from similar projects, adjusted to reflect the Cabaçal Project sizing and base date.

The process plant and infrastructure costs are presented in Table 21-3 and described in the following sections.

Table 21-3: Process and Infrastructure Capital Cost

WBS	WBS Description	Initial Capital Cost (MUSD)	Sustaining Capital Cost (MUSD)	Total Capital Cost (MUSD)
	On-site Infrastructure/Dry Stack Tailings	**26.38**	**47.73**	**74.11**
3000	General Beneficiation Plant	26.38	47.73	74.11
	Process Plant	**78.79**	**30.53**	**109.32**
3000	General Beneficiation Plant	40.01	-	40.01
3120	Primary Crushing	1.96	2.18	4.15
3150	Crushed Mineralized Material Storage	1.48	0.75	2.23
3210	Grinding	11.20	7.59	18.79
3230	Gravity	0.66	0.94	1.60
3240	Gold Room	0.19	0.20	0.40
3300	Flotation	11.38	8.09	19.47
3420	Concentrate Thickener	0.47	0.33	0.80
3430	Concentrate Filtration and Storage	0.92	1.25	2.18
3500	Tailings Thickener	1.21	0.93	2.14
3600	Tailings Filtration and Storage	7.81	0.97	8.78
3700	Reagents	0.39	0.63	1.02
3800	Plant Water Services	0.46	0.71	1.17
3900	Compressor Area	0.64	5.96	6.60
	Off-site Infrastructure	**4.54**	**-**	**4.54**
3000	General Beneficiation Plant	4.54	-	4.54
	Total Process & Infrastructure Cost	**118.25**	**78.26**	**187.98**

Source: Ausenco, 2023

21.2.4 On-site Infrastructure

The on-site infrastructure costs were based on Ausenco's in-house database for similar projects. They include:

- earthworks
- ancillary facilities
- dry stack tailings facility
- main substation

The on-site infrastructure costs are shown inTable 21-4.

Table 21-4: On-site Infrastructure Capital Cost

WBS Description	Initial Capital Cost (MUSD)	Sustaining Capital Cost (MUSD)	Total Capital Cost (MUSD)
Earthworks	4.15	-	4.15
Ancillary Facilities	3.17	-	3.17
Tailings - Dry Stack	11.04	47.73	58.77
Main Substation	8.02	-	8.02

21.2.5 Off-site Infrastructure

The off-site infrastructure costs were based on Ausenco's in-house database for similar projects. They include:

- Araputanga substation
- Power transmission line
- Rio Cabaçal bridge

The off-site infrastructure costs are shown inTable 21-5.

Table 21-5: Off-site Infrastructure Capital Cost

WBS Description	Initial Capital Cost (MUSD)	Sustaining Capital Cost (MUSD)	Total Capital Cost (MUSD)
SE Araputanga	2.21	-	2.21
LT 138kV	1.95	-	1.95
Bridge Rio Cabaçal	0.38	-	0.38

21.2.6 Taxes

The tax rates informed in the proposals sent by the suppliers were adopted, applying the current legislation. For packages whose prices came from the database, the highest tax rates were adopted. The taxes that are highlighted in the investment estimate are:

- ISS (Municipal service tax)
- ICMS (Tax on the circulation of goods and transportation and communication services)
- DIFAL (ICMS tax difference, applied to interstate operations)
- PIS (Employees' profit participation program)
- COFINS (Social contribution for social security financing)
- IPI (Tax on industrialized goods)
- II (Importation tax)

The materials and equipment for other disciplines (such as electrical, piping, concrete, steel structures) were developed by applying percentage factors on the total direct costs of mechanical equipment, without taxes.

21.2.7 Indirect Capital Costs

Indirect costs include:

- engineering, procurement, construction and management (EPCM): 10% on all direct costs
- spare parts and special tools: 3% on supplied mechanical and electrical equipment costs
- vendor representatives: 2% on supplied mechanical and electrical equipment costs
- Freight: 5% on all equipment and material supply costs
- first fills: 1% on all direct costs
- commissioning and start-up: 3% on supplied mechanical and electrical equipment costs
- indirect field construction: 2% on all direct costs
- Owner's costs: 7% on all direct costs, to complement allowance for Owner's Team informed by RCM
- engineering, construction and civil responsibility risk insurance: 0.5% on all project costs except this cost and contingency

The indirect costs are shown in Table 21-6.

Table 21-6: Indirect Cost Estimate

<table>
<tr><th>Description</th><th>Initial Cost (MBRL)</th><th>Initial Cost (MUSD)</th><th>Sustaining Cost (MBRL)</th><th>Sustaining Cost (MUSD)</th><th>Total Cost (MBRL)</th><th>Total Cost (MUSD)</th></tr>
<tr><td>EPCM</td><td>62.67</td><td>11.82</td><td rowspan="9">41.48</td><td rowspan="9">7.83</td><td rowspan="9">164.20</td><td rowspan="9">30.98</td></tr>
<tr><td>Spare Parts and Special Tools</td><td>6.20</td><td>1.17</td></tr>
<tr><td>Vendor representative</td><td>4.14</td><td>0.78</td></tr>
<tr><td>Freight</td><td>9.85</td><td>1.86</td></tr>
<tr><td>First Fill</td><td>6.27</td><td>1.18</td></tr>
<tr><td>Commissioning and start up</td><td>17.31</td><td>3.27</td></tr>
<tr><td>Indirect Field Construction</td><td>12.53</td><td>2.36</td></tr>
<tr><td>Land Acquisition</td><td>-</td><td>-</td></tr>
<tr><td>Engineering, Construction and Civil Responsibility risk insurance</td><td>3.76</td><td>0.71</td></tr>
<tr><td>Owner Costs</td><td>43.87</td><td>8.28</td><td>20.74</td><td>3.91</td><td>64.61</td><td>12.19</td></tr>
<tr><td>Total</td><td>166.60</td><td>31.43</td><td>62.22</td><td>11.74</td><td>228.81</td><td>43.17</td></tr>
</table>

21.2.8 Owner (Corporate) Capital Costs

This item includes all the Owner’s costs, such as:

- Acquisitions or leases of areas and/or rights necessary for the implementation of the projected works;
- Provision for enterprise risks and opportunities related to: health, safety, environment, business commercial risks, technical risks, management risks, external risks (legal, political, climate etc.), etc.;
- Expenses with licences, use of software and computer equipment;
- Escalation;
- Training, start-up and labour costs for allocated operation before start-up;
- Environmental studies to obtain the licenses required by law;
- Environmental, social investments, local infrastructure, environmental compensatory measures;
- Own personnel expenses during design and implementation;
- Other non-explicit expenses in capital costs;
- ERP (Enterprise Resource Planning - Enterprise Resource Planning);
- IT equipment.

Ausenco applied 7%on all direct costs to complement allowance for the Owner’s Team, informed by RCM.

21.2.9 Exclusions

The following costs and scope are excluded from the capital cost estimate:

- land acquisitions (PEA assumed that land owners would be paid statutory royalties in lieu of land acquisition)
- taxes not listed in the financial analysis
- sales taxes
- scope changes and project schedule changes and the associated costs
- any facilities/structures not mentioned in the project summary description
- costs to advance the project from preliminary economic assessment to prefeasibility study
- geotechnical unknowns/risks
- financing charges and interest during the construction period
- any costs for demolition or decontamination for the current site
- third-party costs

21.2.10 Sustaining Capital

21.2.10.1 Mining Infrastructure Sustaining Capital

The mine will be operated by a third party; hence no mining sustaining capital costs were considered. Mine costs are shown in the operating cost.

21.2.10.2 Process Plant Sustaining Capital

Sustaining capital associated to the periodic replacement of equipment and piping was estimated based on specific engineering requirements, per the design outlined in Section 17, and considering the life-of-mine of 23 years.

The periodicity of replacement per item is shown in Table 21-7.

Table 21-7: Process Plant Sustaining Items Summary

Item	Replacement Period (years)
Agitators	Slurry - 7 Reagents - 10
Sample analyzer	15
Blower	7
Silos / Bins	15
Compressors	15
Cyclones	10
Boxes	10
Drying oven	15

Item	Replacement Period (years)
Feeders	15
Grizzly	2
Tramp magnet	10
Metal detector	10
Pumps	10
Sampleers	10
Screens	10
Flocculant preparation system	15
Weightometers	7
Piping	7

The total process plant sustaining cost is USD108 M, distributed as shown in Table 21-8.

Table 21-8: Process Plant Sustaining Cost Summary

Item	MUSD
Process	30.53
Tailings	47.73
Indirect Costs	7.83
Owner Costs	3.91
Contingency	18.00
Total Sustaining Capital	**108.00**

Source: Ausenco, 2023.

21.3 Operating Costs

Operating costs include the ongoing cost of operations related to mining, processing, tailings disposal and general administration activities. A summary of the operating costs is shown in Table 21-9. The LoM operating cost is USD21.2/t.

Table 21-9: Operating Cost Breakdown

Cabaçal Operating Cost Breakdown		
Item	**USD/t milled**	**USD/oz**
Mining Costs	9.31	296.43
Labour	1.63	51.78
Power	2.07	65.80
Reagents & Consumables	2.61	82.96
Maintenance	0.97	30.72
Water/sewage	0.00	0.07
Access Maintenance	0.06	1.96
Laboratory	0.38	12.13
Dry Stack	2.12	67.33
G&A	2.11	67.06
Total Operating Costs	**21.25**	**676.25**

21.3.1 Basis of Estimate

Common to all operating cost estimates are the following assumptions:

- Cost estimates are based on Q1 2023 pricing without allowances for inflation.
- Costs are expressed in United States dollars (USD), using the exchange rate of BRL5.30:USD1.00.
- Majority of the labour requirements are assumed to come from neighbouring municipalities.
- Processing unit operations were benchmarked against similar or comparable processing plants.
- Equipment and materials will be purchased as new.
- Grinding media consumption rates have been estimated based on the material characteristics.
- Reagent consumption rates have been estimated based on metallurgical test results.
- The mobile equipment cost includes fuel and maintenance costs.

21.3.2 Mine Operating Costs

Table 21-10 and Table 21-11 summarize the OPEX mining unitary costs.

Table 21-10: Summary Mine OPEX RoM and Waste

Summary - OPEX		
RoM Mining	**Unit**	**Value**
Drilling	USD/t mined	0.68
Blasting	USD/t mined	0.86
Load	USD/t mined	0.44
Transport	USD/t mined	1.15
Total	**USD/t mined**	**3.13**
Waste Mining	**Unit**	**Value**
Drilling	USD/t mined	0.34
Blasting	USD/t mined	0.56
Load	USD/t mined	0.42
Transport	USD/t mined	1.32
Scattering	USD/t mined	0.16
Total	**USD/t mined**	**2.80**

Table 21-11: Summary Mine OPEX –Tailings

Summary - OPEX - Tailings		
Tailing	**Unit**	**Value**
Load	USD/t milled	0.31
Transport	USD/t milled	0.79
Scattering	USD/t milled	0.12
Total	**USD/t milled**	**1.22**

Table 21-12 summarizes the expected OPEX mining unitary costs per year. The amount of material to be drilled and blasted was used to calculate the total cost of the waste to be removed, based upon the following values.

Table 21-12: Mining Unitary Costs

Year	AHD [1] (Km)		USD/t [2]	
	RoM	WASTE	RoM	WASTE
0	2.98	2.04	2.26	2.29
1	4.18	1.62	3.17	2.61
2	4.86	2.17	3.17	2.74
3	4.68	2.44	3.17	2.69
4	3.09	0.87	3.08	2.51
5	4.61	3.09	3.17	2.74
6	3.99	2.33	3.17	2.69
7	4.44	2.56	3.17	2.69
8	4.05	2.78	3.17	2.69
9	3.97	3.18	3.08	2.74
10	3.9	3.58	3.08	2.74
11	3.82	3.98	3.08	2.74
12	3.75	4.38	3.08	2.79
13	3.67	4.78	3.08	2.79
14	3.79	5.08	3.08	2.85
15	3.91	4.96	3.08	*2.79*
16	4.55	6.29	3.17	*2.97*
17	4.77	7.16	3.17	*3.13*
18	4.99	8.04	3.17	3.29
19	4.94	7.04	3.17	3.13
20	4.89	6.03	3.17	2.97
21	4.76	4.87	3.17	2.79
22	4.76	4.87	3.17	2.79
23	4.76	4.87	3.17	2.79
Average	**4.31**	**3.41**	**3.13**	**2.80**

1. AHD- Average Haulage Distance – Turn Round - Wet Basis
2. Wet Basis (5% moisture)

Table 21-13 summarizes the expected Total OPEX costs.

Table 21-13: Total OPEX – (USD per Year).

	Unit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Waste - Mining Costs (1)	MUSD	5.60	16.19	28.45	34.83	31.43	29.28	13.01	13.01	13.05	13.12	13.26	14.38	14.69	14.65	14.96	14.65	8.12	8.55	8.99	8.55	8.12	6.25	6.25	1.57	340.99
ROM - Mining Costs (1)	MUSD	1.07	7.73	16.19	8.50	8.68	8.38	8.12	8.12	8.14	7.81	7.89	7.14	7.16	7.14	7.14	7.14	7.75	7.73	7.73	7.73	7.75	8.09	8.09	2.03	183.24
Tailing - Mining Costs (1)	MUSD	-	3.70	3.70	3.70	3.70	3.70	3.71	3.71	3.72	3.67	3.71	3.70	0.38	3.70	3.70	3.70	3.71	3.70	3.70	3.70	3.71	3.68	3.68	0.99	82.36
Total Costs	**MUSD**	**6.67**	**27.61**	**48.34**	**47.04**	**43.81**	**41.37**	**24.84**	**24.84**	**24.09**	**24.61**	**24.86**	**25.22**	**25.56**	**25.49**	**25.80**	**25.49**	**19.58**	**19.97**	**20.41**	**19.97**	**19.58**	**18.03**	**18.03**	**4.59**	**606.59**
	USD/t RoM	**14.05**	**11.32**	**9.46**	**17.52**	**15.55**	**15.63**	**9.69**	**9.69**	**9.69**	**9.7**	**9.7**	**10.88**	**10.99**	**10.99**	**11.13**	**10.99**	**8.01**	**8.19**	**8.37**	**8.19**	**8.01**	**7.06**	**7.06**	**7.16**	**10.37**

Year columns 0–23 and Total are grouped under the heading "Year".

1. Wet Basis (5% moisture).

21.3.3 Process Operating Costs

21.3.3.1 Labour

Staffing was estimated by the Meridian and reviewed by Ausenco. The labour costs incorporate requirements for plant operation, such as management, metallurgy, operations, maintenance, site services, assay laboratory, and contractor allowance. The total operational labour averages 190 employees: 56 for plant, 62 for maintenance, 12 for mine and 60 for management, administration, human resources (HR) and safety, health, environment and community (SHEC), as shown in Table 21-14

Labour costs amount to USD4,049,927 per year. Salaries and wages were informed by the Client.

Table 21-14: Labour Summary

Description	Shift 1	Shift 2	Shift 3	Shift 4	Total
1. Management	7	0	0	0	7
2. Administration and Human Resources	28	1	1	1	36
3. Safety, Health, Environmental and Community relations	14	1	1	1	17
4. Mine	12	0	0	0	12
5. Plant	26	10	10	10	56
6. Maintenance	32	10	10	10	62
Total Meridian	**119**	**22**	**22**	**22**	**190**

Source: Ausenco, 2023.

21.3.3.2 Power

The power costs of the process plant were estimated from the installed power in the mechanical equipment list with factors applied for availability and utilization. The power cost is divided in two parts, one for consumption and one for demand, and both have different values for peak and off-peak hours. For consumption, a cost of USD0.115/kWh, BRL0.607/kWh (peak hours) and USD0.072/kWh, BRL0.380/kWh (off-peak hours) was used. For demand, a cost of USD5.192/kWh, BRL27.518/kWh (peak hours) and USD1.967/kWh, BRL10.426/kWh (off-peak hours) was used. A summary of the power costs is provided in Table 21-15

Table 21-15: Summary of Power Costs

Description	Installed Power (kW)	Annual Power Cost (MUSD/a)
Plant	10,000	5.146

Source: Ausenco, 2023.

21.3.3.3 Reagents, Wear Items, and Grinding Media

Various reagents and consumables are required operation of the process plant. The reagent consumption rates are summarized in Table 21-16. The consumable consumption rates are summarized in Table 21-17.

Annual reagent costs were estimated at USD1.154 M.

Table 21-16: Summary of Reagent Consumptions

Reagent	Total Consumption (t/a)	Reagent Price (USD/t)	Total Annual Costs (MUSD/a)
Hydrated lime	750.3	167	125,571
Flocculant - tailings	98.5	4,111	404,727
Flocculant - concentrate	0.81	4,111	3,313
Flocculant – Sulphides Thickening	0.40	4,111	1,657
MIBC	25.0	5,525	138,042
Collector	100.0	4,811	481,068
Total			**1,154,378**

Source: Ausenco, 2023.

Table 21-17: Summary of Consumable Consumptions

Item	Total Consumption	Reagent Price (USD/t or set)	Total Annual Costs (MUSD/a)
Grinding media (85-125mm)	1,675 t/y	1,414.35	2.37
Jaw crusher liner	3 sets/y	34,004.24	0.10
Cone crusher liner	6 sets/y	1,815.65	0.06
SAG mill liner	1 sets/y	828,127.75	0.83
Regrind mill liner	1 sets/y	29,081.95	0.26
Filter cloth (tailings)	30 sets/y	57,056.60	1.71
Filter cloth (concentrate)	10 sets/y	1,683.96	0.02
Total			**5.35**

Source: Ausenco, 2023.

The total annual consumable costs for plant are USD5.3 M.

Approximately 46% of the reagents and consumables costs are imported. This corresponds to approximately 10% of the total beneficiation plant yearly operating costs.

21.3.3.4 Maintenance Parts and Supplies

The process plant annual maintenance cost was derived from the total mechanical equipment cost (supply) using a factor of 4% (maintenance parts and materials), 1.5% (consumption materials) and 1% (Fuels and Lubricants). Table 21-18 shows a summary of the maintenance costs.

Table 21-18: Maintenance Costs

Plant	Annual Maintenance Cost (MUSD/a)
Maintenance Parts and Materials	1.47
Consumption Materials	0.55
Fuels and Lubricants	0.36

Source: Ausenco, 2023.

21.3.3.5 Laboratory Services

The operating cost estimate for laboratory activity was benchmarked against similar projects and adjusted for throughput requirements. Laboratory services were estimated as one cost. An annual cost of USD948,888K was assumed.

21.3.4 General and Administrative Operating Costs

General and administrative (G&A) costs are expenses not directly related to the production of the desired products and include expenses not included in mining, processing, external refining, and transportation costs. These costs were sent by the client The G&A costs are divided into the following areas:

- G&A maintenance, including access road maintenance
- labour
- camp services
- human resources, including training, recruiting, and community relations
- infrastructure power, including power requirements for HVAC and administrative buildings
- site administration, maintenance, and security, including subscriptions, memberships, advertisement, office supplies and garbage disposal
- health and safety, including personal protective equipment, hospital service cost, and first aid
- environmental, including water sampling and tailings management facility operating costs
- IT and telecommunications, including hardware and support services
- contract services, including insurance, sanitation and cleaning, licence fees, and legal fees.

All G&A costs are detailed in Table 21-19.

Table 21-19: Summary of G&A Operating Costs

G&A Costs	USD/a
Insurance - Applied to the new installations	518,053
Administration	Included in Labour
Administrative Expenses	1,490,191
Other general administrative expenses (including meals, local transportation, PPE, uniforms, security, environmental monitoring and office supplies and communications)	3,236,364
Total G&A Expenses	**5,244,600**

Source: Rio Cabaçal Mineração, 2023.

22 ECONOMIC ANALYSIS

22.1 Forward-Looking Information Cautionary Statements

The results of the economic analyses discussed in this section represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Information that is forward-looking includes the following:

- Mineral resource estimates;
- Assumed commodity prices and exchange rates;
- Proposed mine production plan;
- Projected mining and process recovery rates;
- Assumptions as to mining dilution and estimated future production;
- Sustaining costs and proposed operating costs;
- Assumptions as to closure costs and closure requirements; and
- Assumptions as to environmental, permitting, and social risks.

Additional risks to the forward-looking information include:

- Changes to costs of production from what is assumed;
- Unrecognized environmental risks;
- Unanticipated reclamation expenses;
- Unexpected variations in quantity of mineralized material, grade, or recovery rates;
- Accidents, labour disputes and other risks of the mining industry;
- Geotechnical or hydrogeological considerations during mining being different from what was assumed;
- Failure of mining methods to operate as anticipated;
- Failure of plant, equipment, or processes to operate as anticipated;
- Changes to assumptions as to the availability of electrical power, and the power rates used in the operating cost estimates and financial analysis;
- Changes to site access, use of water for mining purposes and to time to obtain environment and other regulatory permits;
- Ability to maintain the social licence to operate;
- Changes to interest rates; and
- Changes to tax rates.

Readers are cautioned that the 2023 PEA is preliminary in nature. It includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2023 PEA will be realized.

Mineral Resources are not Mineral Reserves do not have demonstrated economic viability.

22.2 Methodologies Used

The Project was evaluated using a discounted cash flow (DCF) analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections. Cash flows were taken to occur at the end of each period. It must be noted that tax calculations involve complex variables that can only be accurately determined during operations and, as such, the actual post-tax results may differ from those estimated. A sensitivity analysis was performed to assess the impact of variations in gold price, copper price, discount rate, total operating cost, foreign exchange and initial capital costs.

The capital and operating cost estimates are presented in Section 21 of this Report in Q1 2023 American dollars. The economic analysis was run on a constant dollar basis with no inflation.

22.3 Financial Model Parameters

22.3.1 Assumptions

The economic analysis was performed assuming a gold price of USD1,650/oz, silver price of USD21.35/oz and copper price of USD3.59/lb; these metal prices were based on consensus analyst estimates. The forecasts used are meant to reflect the average metals price expectation over the life of the Project. No price inflation or escalation factors were taken into account. Commodity prices can be volatile, and there is the potential for deviation from the forecast.

The economic analysis also used the following assumptions:

- Construction period of 18 months;
- Mine life of 22.3 years (last year is a partial year);
- Results based on 100% ownership;
- 2.0% NSR State Copper Royalty (CFEM);
- 1.5% NSR State Gold Royalty (CFEM);
- 2.0% NSR State Silver Royalty (CFEM);
- Land owner royalty defined as 50% of the total State Royalty;
- Capital cost funded with 100% equity (no financing cost assumed);
- All cash flows discounted to the start of construction using full period discounting convention;
- All metal products are sold in the same year they are produced;
- Treatment and refining charges as described in Section 19;
- Project revenue is derived from the sale copper and gold concentrate and gold doré; and
- No contractual arrangements for refining currently exist.

22.3.2 Taxes

The Project was evaluated on a post-tax basis to provide an approximate value of the potential economics. The tax model calculations are based on the tax regime as of the date of the 2023 PEA and considers application of the Superintendência do Desenvolvimento da Amazônia (SUDAM) tax benefit upon start of production. Depreciation on capital equipment, development and exploration cost as permitted by Brazil tax regulations was applied.

The taxes assumed in the economic analysis include:

- Brazilian corporate income tax of 25.0% (including the SUDAM incentive which is a reduction of 75.0% of tax during the first 10 years of mine operation);
- Social Contribution of 9% of taxable income;
- Initial tax loss carry-forward of USD30.0 M.

Total tax payments are estimated to be approximately USD253 M over the life-of-mine.

22.3.3 Working Capital

An estimation of working capital has been incorporated into the economic analysis, and includes the following assumptions:

- Accounts Receivable: 30 days;
- Inventories: 30 days;
- Accounts Payable: 30 days.

22.3.4 Closure Costs and Salvage Value

Closure costs and salvage value are applied at the end of the life-of-mine. Closure costs were estimated to be USD23 M at the end of the LoM as detailed in Section 20. Salvage value was estimated to be USD27 M.

22.3.5 Royalties

Based on the agreements in place, including the State Copper Royalty; State Gold Royalty; State Silver Royalty; and Landowner Royalty assumed for the Project, total undiscounted royalty payments over the life-of-mine are approximately USD70M.

22.4 Economic Analysis

The pre-tax NPV discounted at 5% is USD717 M; the IRR is 67.0%, and payback period is 0.8 years. On a post-tax basis, the NPV discounted at 5% is USD573 M; the IRR is 58.4%, and payback period is 0.9 years.

A summary of Project economics is shown in Table 22-1 and shown graphically in Figure 22-1.

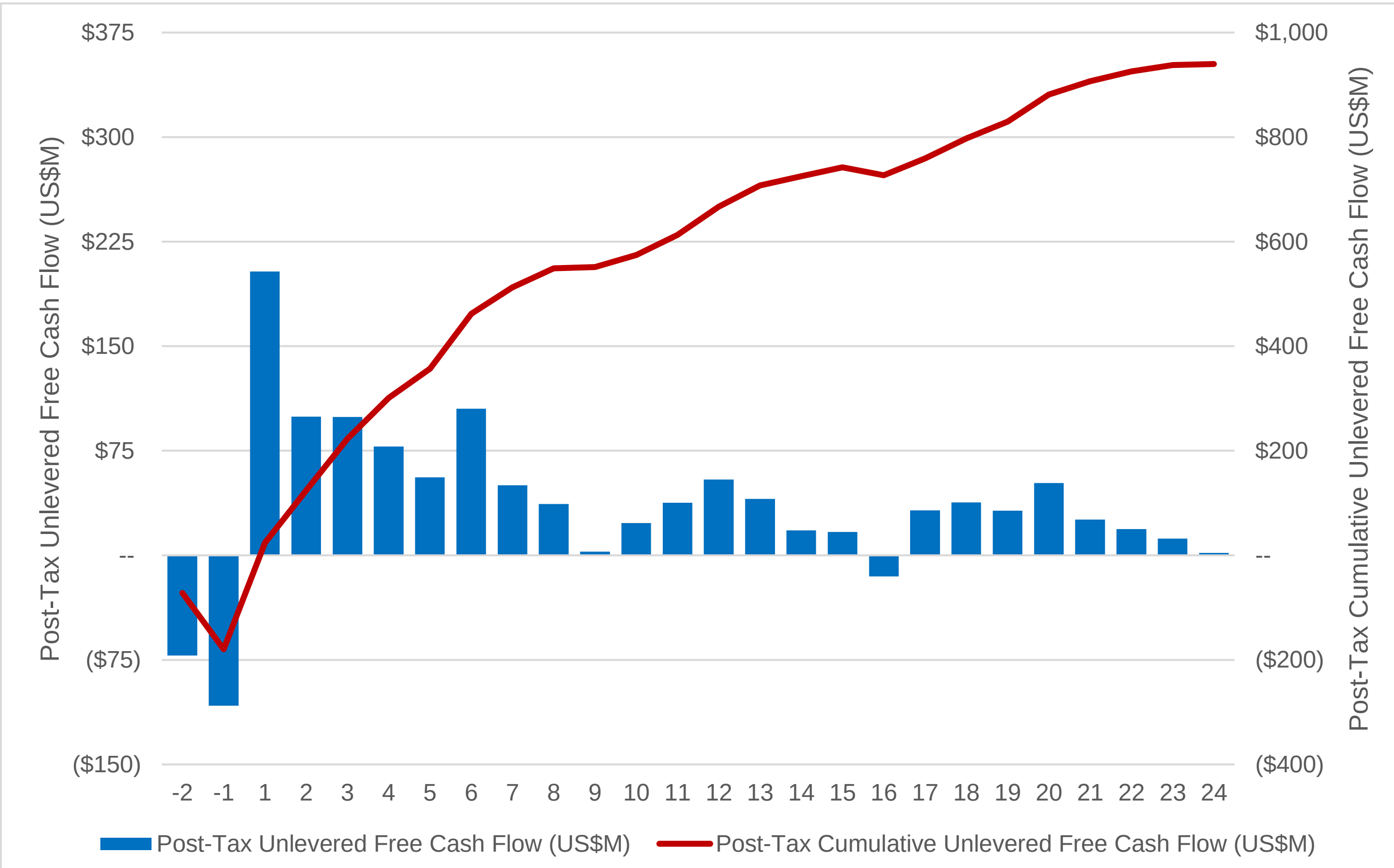
Table 22-1: Economic Analysis Summary Table

General	Base Case	Spot Case (as of 1 March '23)
Copper Price (USD/lb)	3.59	4.13
Gold Price (USD/oz)	1,650	1,841
Silver Price (USD/oz)	21.35	21.35
Mine Life (years)	22.3	22.3
Production	**LoM Total/Avg.**	**LoM Total/Avg.**
Total Mill Feed Tonnes (kt)	55,595	55,595
Mill Head Grade Cu (%)	0.31%	0.31%
Mill Head Grade Au (g/t)	0.64	0.64
Mill Head Grade Ag (g/t)	1.31	1.31
Mill Recovery Rate Cu (%)	92.4%	92.4%
Mill Recovery Rate Au (%)	89.7%	89.7%
Mill Recovery Rate Ag (%)	75.2%	75.2%
Total Copper Recovered (Mlb)	353	353
Total Gold Recovered (koz)	1,021	1,021
Total Silver Recovered (koz)	1,759	1,759
Total Recovered Gold (AuEq) (koz)	1,811	1,832
Total Recovered Gold (AuEq) Year 1-5 (koz)	655	661
Operating Costs	**LoM Total/Avg.**	**LoM Total/Avg.**
Mining Cost (USD/t Moved)	3.03	3.03
Processing Cost (USD/t Milled)	9.83	9.83
G&A Cost (USD/t Milled)	2.11	2.11
Refining & Transport Cost (USD/lb Cu)	0.45	0.45
Total Operating Costs (USD/t Milled)	21.25	21.25
Cash Costs (USD/oz Au Eq)	804.38	800.78
Cash Costs (USD/oz Au Eq) Year 1-5	644.27	643.87
AISC (USD/oz Au Eq)	864.15	859.86
AISC (USD/oz Au Eq) Year 1-5	670.71	670.07
Capital Costs	**LoM Total/Avg.**	**LoM Total/Avg.**
Initial Capital (MUSDM)	180	180
Sustaining Capital (MUSDM)	108	108
Mine Closure Costs (MUSDM)	23	23
Salvage Value (MUSDM)	(27)	(27)
Financials - Pre-Tax	**LoM Total/Avg.**	**LoM Total/Avg.**
NPV (5%) (USDM)	717	936
IRR (%)	67.0%	79.6%
Payback (years)	0.8	0.7

Financials - Post-Tax	LoM Total/Avg.	LoM Total/Avg.
NPV (5%) (USDM)	573	745
IRR (%)	58.4%	69.7%
Payback (years)	0.9	0.8

Note: * Cash costs consist of mining costs, processing costs, mine-level G&A, treatment, refining, and transport costs, and royalties ** AISC includes cash costs plus sustaining capital, mine closure cost and salvage value.

Figure 22-1: Projected LoM Post-Tax Unlevered Free Cash Flow



The cashflow analysis was completed on an annual cashflow basis; the cashflow output is shown in Table 22-2.

Table 22-2: Cashflow Forecast on an Annual Basis

Dollar figures in Real 2023 USDM	Unit	LoM	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24
FX - BRL:USD	BRL:USD	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30
Copper Price	USD/lb	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59
Gold Price	USD/oz	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650
Silver Price	USD/oz	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	21.35	2135
Revenue	**USDM**	**2,882**	**--**	**--**	**328**	**207**	**197**	**170**	**141**	**191**	**123**	**98**	**82**	**89**	**115**	**141**	**112**	**93**	**81**	**68**	**103**	**108**	**99**	**143**	**97**	**74**	**22**	**--**
Operating Expenses	USDM	(1,181)	--	--	(54)	(74)	(73)	(70)	(67)	(51)	(51)	(51)	(51)	(51)	(51)	(52)	(52)	(52)	(52)	(46)	(46)	(46)	(46)	(46)	(44)	(44)	(13)	--
Treatment, Refining,Transport Costs	USDM	(154)	--	--	(8)	(9)	(9)	(9)	(9)	(10)	(7)	(6)	(5)	(5)	(6)	(7)	(5)	(4)	(3)	(5)	(7)	(6)	(8)	(11)	(7)	(6)	(2)	--
Royalties	USDM	(70)	--	--	(8)	(5)	(5)	(4)	(3)	(5)	(3)	(2)	(2)	(2)	(3)	(3)	(3)	(2)	(2)	(2)	(3)	(3)	(2)	(4)	(2)	(2)	(1)	--
EBITDA	**USDM**	**1,477**	**--**	**--**	**259**	**118**	**110**	**87**	**61**	**126**	**62**	**39**	**25**	**31**	**55**	**79**	**52**	**35**	**24**	**15**	**48**	**53**	**42**	**83**	**43**	**22**	**7**	**--**
Initial Capital	USDM	(180)	(72)	(108)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sustaining Capital	USDM	(108)	--	--	--	(17)	--	(0)	--	(0)	(10)	(0)	(21)	(4)	--	(0)	--	(10)	(3)	(29)	--	(0)	--	(4)	(10)	(0)	--	--
Mine Closure	USDM	23)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(23)	--
Salvage Value	USDM	27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27	--
Change in Working Capital	USDM	--	--	--	(27)	10	1	2	2	(4)	6	2	1	(1)	(2)	(2)	2	2	1	1	(3)	(0)	1	(4)	4	2	4	2
Pre-Tax Unlevered Free Cash Flow	**USDM**	**1,193**	**(72)**	**(108)**	**232**	**112**	**111**	**89**	**63**	**121**	**58**	**41**	**5**	**26**	**52**	**76**	**54**	**27**	**22**	**(12)**	**45**	**52**	**43**	**75**	**37**	**24**	**14**	**2**
Pre-Tax Cumulative Unlevered Free Cash Flow	**USDM**		**(72)**	**(180)**	**53**	**165**	**276**	**365**	**428**	**549**	**607**	**648**	**653**	**680**	**732**	**809**	**863**	**890**	**912**	**900**	**945**	**997**	**1,041**	**1,116**	**1,153**	**1,177**	**1,191**	**1,193**
Unlevered Cash Taxes	USDM	(253)	--	--	(29)	(12)	(12)	(11)	(7)	(16)	(8)	(5)	(3)	(3)	(15)	(22)	(14)	(9)	(5)	(3)	(13)	(14)	(11)	(23)	(11)	(5)	(2)	--
Post-Tax Unlevered Free Cash Flow	**USDM**	**940**	**(72)**	**(108)**	**204**	**99**	**99**	**78**	**56**	**105**	**50**	**37**	**3**	**23**	**38**	**54**	**41**	**18**	**17**	**(15)**	**32**	**38**	**32**	**52**	**26**	**19**	**12**	**2**
Post-Tax Cumulative Unlevered Free Cash Flow	**USDM**		**(72)**	**(180)**	**24**	**123**	**223**	**301**	**357**	**462**	**512**	**549**	**552**	**575**	**613**	**667**	**707**	**725**	**742**	**727**	**759**	**797**	**830**	**881**	**907**	**926**	**938**	**940**
Production Summary																												
Resource Mined	kt	55,595	--	451	2,317	4,855	2,550	2,677	2,514	2,434	2,434	2,441	2,410	2,434	2,202	2,209	2,202	2,202	2,202	2,323	2,317	2,317	2,317	2,323	2,427	2,427	610	--
Waste Mined	kt	118,082	--	2,322	5,903	9,861	12,301	11,887	10,149	4,595	4,595	4,607	4,549	4,595	4,985	4,999	4,985	4,985	4,985	2,602	2,595	2,595	2,595	2,602	2,128	2,128	534	--
Resource Sent to Mill	kt	55,595	--	--	2,498	2,498	2,498	2,498	2,498	2,501	2,501	2,508	2,477	2,501	2,497	2,503	2,497	2,497	2,497	2,502	2,495	2,495	2,495	2,502	2,486	2,486	668	--
Cu Mill Head Grade	%	0.31	--	--	0.29	0.40	0.39	0.43	0.42	0.44	0.31	0.25	0.21	0.24	0.29	0.30	0.24	0.15	0.15	0.26	0.30	0.29	0.37	0.51	0.34	0.27	0.35	--
Au Mill Head Grade	g/t	0.64	--	--	2.30	1.16	1.09	0.81	0.57	0.96	0.59	0.47	0.41	0.42	0.56	0.74	0.60	0.58	0.48	0.20	0.44	0.49	0.29	0.44	0.32	0.23	0.18	--
Ag Mill Head Grade	g/t	1.31	--	--	1.13	1.33	1.43	1.72	1.74	1.71	1.25	0.97	0.92	1.08	1.14	1.32	0.98	0.61	0.68	1.24	1.31	1.15	1.64	2.41	1.51	1.31	2.05	--
Gravimetry Recovery - Au	%	95.0	--	--	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	--
Mill Recovery - Cu	%	92.4	--	--	92.2	92.8	92.8	93.0	92.9	93.0	92.4	91.9	91.5	91.8	92.2	92.3	91.9	90.9	90.9	92.0	92.3	92.2	92.7	93.3	92.5	92.0	92.6	--
Mill Recovery - Au	%	87.4	--	--	93.4	89.6	89.3	87.7	85.8	88.6	86.0	84.7	84.0	84.1	85.7	87.3	86.1	85.9	84.8	80.1	84.4	85.0	82.1	84.4	82.7	81.0	79.4	--
Mill Recovery - Ag	%	75.2	--	--	72.6	74.9	75.8	78.3	78.4	78.2	74.0	70.6	69.9	72.1	72.7	74.7	70.8	64.4	65.8	73.9	74.7	72.9	77.7	82.8	76.6	74.6	80.6	--
Total Recovered Copper	Mlbs	353	--	--	15	20	20	22	21	22	16	13	10	12	15	15	12	8	8	13	15	15	19	26	17	13	5	--
Total Recovered Gold	koz	1,021	--	--	173	85	80	58	40	70	42	33	29	29	40	54	43	41	34	14	31	35	20	31	22	16	3	--
Total Recovered Silver	koz	1,759	--	--	66	80	87	108	110	108	74	55	51	63	66	79	56	32	36	74	79	68	102	160	93	78	35	--
Total Payable Copper	Mlbs	340	--	--	14	20	19	21	21	22	15	12	10	12	14	15	12	7	7	12	15	14	18	25	17	13	5	--
Total Payable Gold	koz	986	--	--	167	82	77	56	39	68	40	32	28	28	38	52	41	40	33	13	30	34	19	30	21	15	3	--
Total Payable Silver	koz	1,583	--	--	59	72	78	97	99	97	67	49	46	56	60	71	50	28	32	66	71	61	92	144	83	70	32	--
Gross Revenue	**USDM**	**2,882**	**--**	**--**	**328**	**207**	**197**	**170**	**141**	**191**	**123**	**98**	**82**	**89**	**115**	**141**	**112**	**93**	**81**	**68**	**103**	**108**	**99**	**143**	**97**	**74**	**22**	**--**
Operating Costs																												
Mine Operating Costs	USDM	(518)	--	--	(24)	(45)	(43)	(40)	(38)	(21)	(21)	(21)	(21)	(21)	(22)	(22)	(22)	(22)	(22)	(16)	(16)	(17)	(16)	(16)	(14)	(14)	(4)	--
Mill Processing Costs	USDM	(546)	--	--	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(25)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(8)	--
G&A Costs	USDM	(117)	--	--	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(2)	--
Total Operating Costs	**USDM**	**(1,181)**	**--**	**--**	**(54)**	**(74)**	**(73)**	**(70)**	**(67)**	**(51)**	**(51)**	**(51)**	**(51)**	**(51)**	**(51)**	**(52)**	**(52)**	**(52)**	**(52)**	**(46)**	**(46)**	**(46)**	**(46)**	**(46)**	**(44)**	**(44)**	**(13)**	**--**
Treatment, Refining, Transport Costs, and Royalties																												
Treatment, Refining, Transport Costs	USDM	(154)	--	--	(8)	(9)	(9)	(9)	(9)	(10)	(7)	(6)	(5)	(5)	(6)	(7)	(5)	(4)	(3)	(5)	(7)	(6)	(8)	(11)	(7)	(6)	(2)	--
Royalties	USDM	(70)	--	--	(8)	(5)	(5)	(4)	(3)	(5)	(3)	(2)	(2)	(2)	(3)	(3)	(3)	(2)	(2)	(2)	(3)	(3)	(2)	(4)	(2)	(2)	(1)	--
Capital Expenditures																												

Dollar figures in Real 2023 USDM	Unit	LoM	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24
Initial Capital	USDM	(180)	(72)	(108)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sustaining Capital	USDM	(108)	--	--	--	(17)	--	(0)	--	(0)	(10)	(0)	(21)	(4)	--	(0)	--	(10)	(3)	(29)	--	(0)	--	(4)	(10)	(0)	--	--
Mine Closure	USDM	(23)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(23)	--
Salvage Value	USDM	27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27	--

* Cash costs consist of mining costs, processing costs, mine-level G&A, treatment, refining, and transport costs, and royalties.** AISC includes cash costs plus sustaining capital, mine closure cost and salvage value

22.5 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV, IRR, and payback of the Project, using the following variables: gold price, copper price, discount rate, total operating cost, foreign exchange and initial capital costs.

Table 22-4 shows the post-tax sensitivity analysis results; pre-tax sensitivity results are shown in Table 22-3.

As presented in Figure 22-2 and Figure 22-3 the sensitivity analysis showed that the Project is most sensitive to changes in gold price, foreign exchange, and initial capital.

Table 22-3: Pre-Tax Sensitivity Analysis

Pre-Tax NPV Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	$638	$700	$762	$819	$825	$887
$3.59	$655	$717	$779	$836	$841	$903
$4.00	$731	$793	$855	$912	$917	$979
$4.13	$755	$817	$879	$936	$941	$1,003
$4.50	$823	$886	$948	$1,005	$1,010	$1,072
$5.00	$916	$978	$1,040	$1,097	$1,103	$1,165

Pre-Tax IRR Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	61.6%	66.4%	71.1%	75.3%	75.7%	80.2%
$3.59	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
$4.00	65.4%	70.0%	74.6%	78.7%	79.1%	83.5%
$4.13	66.4%	71.0%	75.5%	79.6%	80.0%	84.4%
$4.50	69.1%	73.6%	78.0%	82.0%	82.4%	86.7%
$5.00	72.6%	77.0%	81.3%	85.2%	85.6%	89.8%

Pre-Tax Payback Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	0.83	0.77	0.73	0.69	0.69	0.65
$3.59	0.82	0.77	0.72	0.69	0.68	0.65
$4.00	0.80	0.75	0.71	0.67	0.67	0.63
$4.13	0.80	0.75	0.70	0.67	0.66	0.63
$4.50	0.78	0.73	0.69	0.66	0.65	0.62
$5.00	0.76	0.71	0.67	0.64	0.64	0.61

Pre-Tax NPV Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	$937	$960	$1,066	$1,099	$1,195	$1,323
4.0%	$769	$787	$872	$898	$974	$1,077
5.0%	$700	$717	$793	$817	$886	$978
8.0%	$540	$553	$610	$628	$680	$749
10.0%	$461	$472	$520	$535	$579	$638

Pre-Tax IRR Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	66.4%	67.0%	70.0%	71.0%	73.6%	77.0%
4.0%	66.4%	67.0%	70.0%	71.0%	73.6%	77.0%
5.0%	66.4%	67.0%	70.0%	71.0%	73.6%	77.0%
8.0%	66.4%	67.0%	70.0%	71.0%	73.6%	77.0%
10.0%	66.4%	67.0%	70.0%	71.0%	73.6%	77.0%

Pre-Tax Payback Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	0.77	0.77	0.75	0.75	0.73	0.71
4.0%	0.77	0.77	0.75	0.75	0.73	0.71
5.0%	0.77	0.77	0.75	0.75	0.73	0.71
8.0%	0.77	0.77	0.75	0.75	0.73	0.71
10.0%	0.77	0.77	0.75	0.75	0.73	0.71

Pre-Tax NPV Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	$881	$960	$1,040	$1,113	$1,120	$1,200
4.0%	$720	$787	$854	$916	$922	$989
5.0%	$655	$717	$779	$836	$841	$903
8.0%	$503	$553	$603	$649	$653	$703
10.0%	$428	$472	$516	$556	$560	$604

Pre-Tax IRR Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
4.0%	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
5.0%	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
8.0%	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
10.0%	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%

Pre-Tax Payback Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	0.82	0.77	0.72	0.69	0.68	0.65
4.0%	0.82	0.77	0.72	0.69	0.68	0.65
5.0%	0.82	0.77	0.72	0.69	0.68	0.65
8.0%	0.82	0.77	0.72	0.69	0.68	0.65
10.0%	0.82	0.77	0.72	0.69	0.68	0.65

Pre-Tax NPV Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$417	$480	$542	$598	$604	$666
(10.0%)	$549	$611	$674	$730	$736	$798
--	$655	$717	$779	$836	$841	$903
10.0%	$741	$803	$865	$922	$928	$990
20.0%	$813	$875	$937	$994	$1,000	$1,062

Pre-Tax IRR Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	40.2%	44.6%	48.9%	52.7%	53.1%	57.2%
(10.0%)	51.7%	56.3%	60.8%	64.8%	65.1%	69.4%
--	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
10.0%	72.1%	77.1%	82.0%	86.4%	86.8%	91.6%
20.0%	81.4%	86.6%	91.8%	96.4%	96.8%	101.8%

Pre-Tax Payback Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	1.27	1.07	0.96	0.91	0.90	0.85
(10.0%)	0.94	0.88	0.83	0.78	0.78	0.73
--	0.82	0.77	0.72	0.69	0.68	0.65
10.0%	0.73	0.68	0.64	0.61	0.61	0.58
20.0%	0.66	0.62	0.58	0.55	0.55	0.52

Pre-Tax NPV Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$700	$763	$825	$881	$887	$949
(10.0%)	$678	$740	$802	$859	$864	$926
--	$655	$717	$779	$836	$841	$903
10.0%	$632	$694	$756	$813	$818	$881
20.0%	$609	$671	$734	$790	$796	$858

Pre-Tax IRR Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	79.0%	84.6%	90.1%	94.9%	95.4%	100.7%
(10.0%)	69.8%	75.0%	80.0%	84.5%	85.0%	89.8%
--	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
10.0%	55.9%	60.3%	64.7%	68.6%	69.0%	73.2%
20.0%	50.5%	54.6%	58.7%	62.4%	62.8%	66.7%

Pre-Tax Payback Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	0.66	0.62	0.58	0.55	0.55	0.52
(10.0%)	0.74	0.69	0.65	0.62	0.61	0.58
--	0.82	0.77	0.72	0.69	0.68	0.65
10.0%	0.91	0.85	0.80	0.75	0.75	0.71
20.0%	0.99	0.92	0.87	0.82	0.82	0.77

Pre-Tax NPV Sensitivity To Operating Cost

Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$791	$853	$915	$972	$977	$1,039
(10.0%)	$723	$785	$847	$904	$909	$971
--	$655	$717	$779	$836	$841	$903
10.0%	$587	$649	$711	$768	$773	$835
20.0%	$519	$581	$643	$700	$705	$767

Pre-Tax IRR Sensitivity To Operating Cost

Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	68.1%	72.7%	77.2%	81.2%	81.6%	86.0%
(10.0%)	65.2%	69.9%	74.5%	78.6%	79.0%	83.4%
--	62.3%	67.0%	71.7%	75.9%	76.3%	80.8%
10.0%	59.2%	64.1%	68.8%	73.1%	73.6%	78.2%
20.0%	55.9%	61.0%	65.9%	70.3%	70.7%	75.4%

Pre-Tax Payback Sensitivity To Operating Cost

Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	0.78	0.74	0.69	0.66	0.66	0.62
(10.0%)	0.80	0.75	0.71	0.67	0.67	0.63
--	0.82	0.77	0.72	0.69	0.68	0.65
10.0%	0.84	0.79	0.74	0.70	0.70	0.66
20.0%	0.87	0.81	0.76	0.71	0.71	0.67

Table 22-4: Post-Tax Sensitivity Analysis

Post-Tax NPV Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	$510	$560	$609	$655	$659	$709
$3.59	$523	$573	$622	$668	$672	$722
$4.00	$582	$632	$681	$727	$731	$781
$4.13	$600	$650	$700	$745	$750	$799
$4.50	$654	$704	$753	$799	$803	$853
$5.00	$726	$776	$825	$871	$875	$925

Post-Tax IRR Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	53.5%	57.8%	62.0%	65.7%	66.1%	70.1%
$3.59	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
$4.00	57.0%	61.1%	65.2%	68.9%	69.2%	73.1%
$4.13	57.9%	62.0%	66.0%	69.7%	70.0%	73.9%
$4.50	60.3%	64.4%	68.3%	71.9%	72.2%	76.0%
$5.00	63.5%	67.4%	71.3%	74.8%	75.1%	78.9%

Post-Tax Payback Sensitivity To Metal Price

Copper Price	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
$3.50	0.94	0.88	0.83	0.79	0.78	0.74
$3.59	0.94	0.88	0.83	0.78	0.78	0.74
$4.00	0.92	0.86	0.81	0.77	0.77	0.73
$4.13	0.91	0.86	0.81	0.76	0.76	0.72
$4.50	0.89	0.84	0.79	0.75	0.75	0.71
$5.00	0.87	0.82	0.77	0.74	0.73	0.69

Post-Tax NPV Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	$744	$761	$842	$867	$940	$1,038
4.0%	$613	$627	$692	$713	$772	$851
5.0%	$560	$573	$632	$650	$704	$776
8.0%	$433	$443	$488	$503	$543	$598
10.0%	$370	$378	$417	$429	$464	$511

Post-Tax IRR Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	57.8%	58.4%	61.1%	62.0%	64.4%	67.4%
4.0%	57.8%	58.4%	61.1%	62.0%	64.4%	67.4%
5.0%	57.8%	58.4%	61.1%	62.0%	64.4%	67.4%
8.0%	57.8%	58.4%	61.1%	62.0%	64.4%	67.4%
10.0%	57.8%	58.4%	61.1%	62.0%	64.4%	67.4%

Post-Tax Payback Sensitivity To Discount Rate

Discount Rate	Copper Price $3.50	$3.59	$4.00	$4.13	$4.50	$5.00
2.0%	0.88	0.88	0.86	0.86	0.84	0.82
4.0%	0.88	0.88	0.86	0.86	0.84	0.82
5.0%	0.88	0.88	0.86	0.86	0.84	0.82
8.0%	0.88	0.88	0.86	0.86	0.84	0.82
10.0%	0.88	0.88	0.86	0.86	0.84	0.82

Post-Tax NPV Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	$699	$761	$824	$881	$887	$950
4.0%	$574	$627	$681	$730	$734	$788
5.0%	$523	$573	$622	$668	$672	$722
8.0%	$403	$443	$484	$521	$524	$565
10.0%	$342	$378	$414	$447	$450	$486

Post-Tax IRR Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
4.0%	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
5.0%	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
8.0%	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
10.0%	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%

Post-Tax Payback Sensitivity To Discount Rate

Discount Rate	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
2.0%	0.94	0.88	0.83	0.78	0.78	0.74
4.0%	0.94	0.88	0.83	0.78	0.78	0.74
5.0%	0.94	0.88	0.83	0.78	0.78	0.74
8.0%	0.94	0.88	0.83	0.78	0.78	0.74
10.0%	0.94	0.88	0.83	0.78	0.78	0.74

Post-Tax NPV Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$334	$384	$434	$479	$483	$533
(10.0%)	$439	$489	$538	$584	$588	$638
--	$523	$573	$622	$668	$672	$722
10.0%	$591	$641	$691	$736	$740	$790
20.0%	$648	$698	$748	$793	$798	$847

Post-Tax IRR Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	34.4%	38.3%	42.1%	45.4%	45.8%	49.4%
(10.0%)	44.7%	48.7%	52.7%	56.3%	56.6%	60.4%
--	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
10.0%	63.0%	67.5%	71.8%	75.8%	76.1%	80.4%
20.0%	71.4%	76.1%	80.6%	84.8%	85.2%	89.6%

Post-Tax Payback Sensitivity To FX

FX	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	1.64	1.41	1.22	1.08	1.07	0.97
(10.0%)	1.17	1.01	0.94	0.89	0.89	0.84
--	0.94	0.88	0.83	0.78	0.78	0.74
10.0%	0.84	0.78	0.74	0.70	0.70	0.66
20.0%	0.75	0.71	0.66	0.63	0.63	0.60

Post-Tax NPV Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$561	$611	$661	$706	$710	$760
(10.0%)	$542	$592	$641	$687	$691	$741
--	$523	$573	$622	$668	$672	$722
10.0%	$504	$553	$603	$648	$653	$702
20.0%	$484	$534	$584	$629	$634	$683

Post-Tax IRR Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	69.1%	74.1%	79.0%	83.4%	83.8%	88.5%
(10.0%)	60.9%	65.5%	70.0%	74.0%	74.4%	78.8%
--	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
10.0%	48.5%	52.4%	56.3%	59.8%	60.1%	63.9%
20.0%	43.7%	47.4%	51.0%	54.3%	54.6%	58.1%

Post-Tax Payback Sensitivity To Initial Capital

Initial Capital	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	0.75	0.71	0.66	0.63	0.63	0.59
(10.0%)	0.85	0.79	0.75	0.71	0.70	0.67
--	0.94	0.88	0.83	0.78	0.78	0.74
10.0%	1.07	0.97	0.91	0.86	0.86	0.81
20.0%	1.27	1.11	0.99	0.94	0.93	0.88

Post-Tax NPV Sensitivity To Operating Cost

Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	$629	$679	$728	$774	$778	$828
(10.0%)	$576	$626	$675	$721	$725	$775
--	$523	$573	$622	$668	$672	$722
10.0%	$470	$519	$569	$615	$619	$669
20.0%	$417	$466	$516	$562	$566	$616

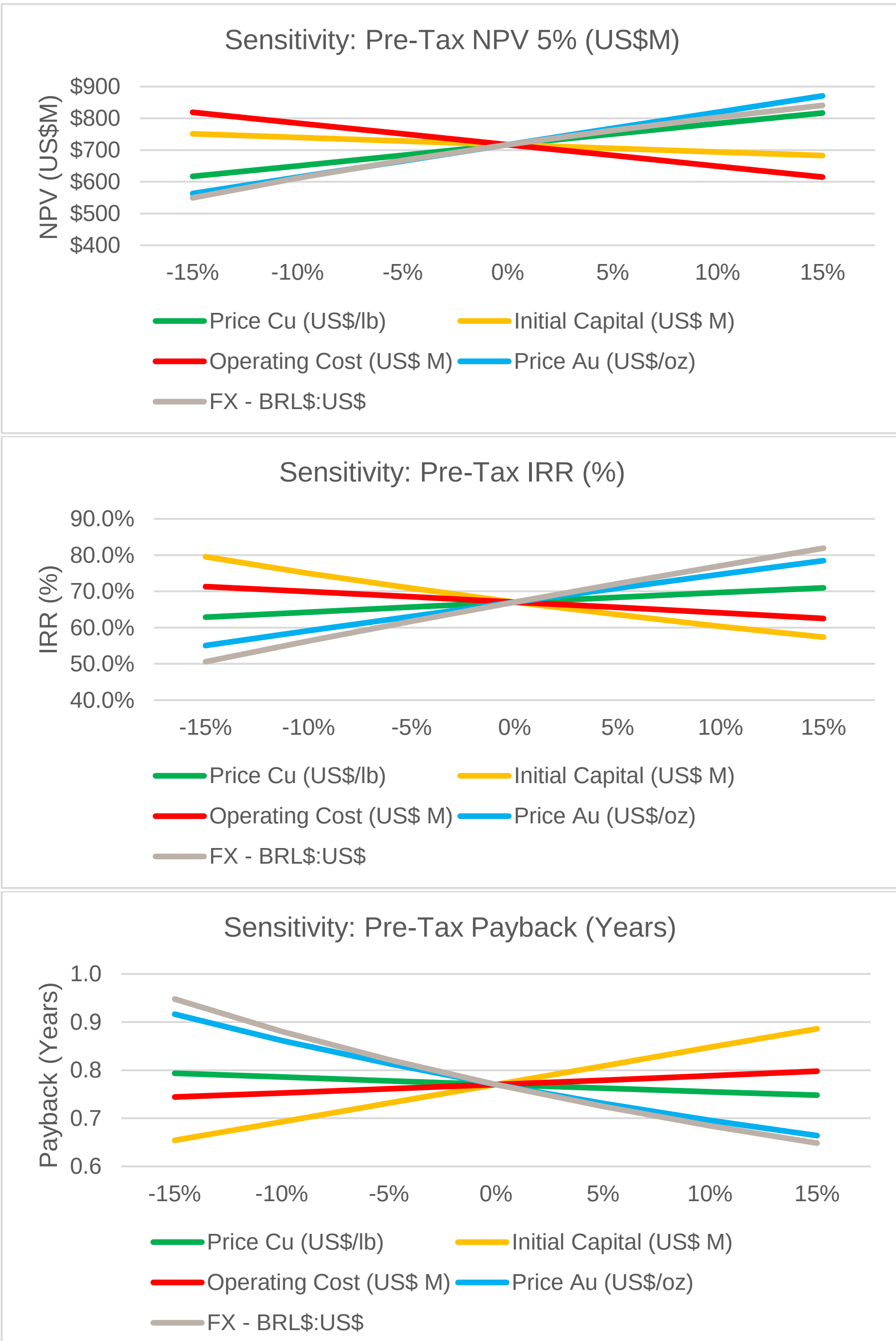
Post-Tax IRR Sensitivity To Operating Cost

Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	59.5%	63.6%	67.6%	71.2%	71.5%	75.4%
(10.0%)	56.9%	61.0%	65.1%	68.8%	69.1%	73.1%
--	54.2%	58.4%	62.6%	66.3%	66.7%	70.7%
10.0%	51.3%	55.7%	59.9%	63.7%	64.1%	68.2%
20.0%	48.3%	52.8%	57.2%	61.1%	61.5%	65.7%

Post-Tax Payback Sensitivity To Operating Cost

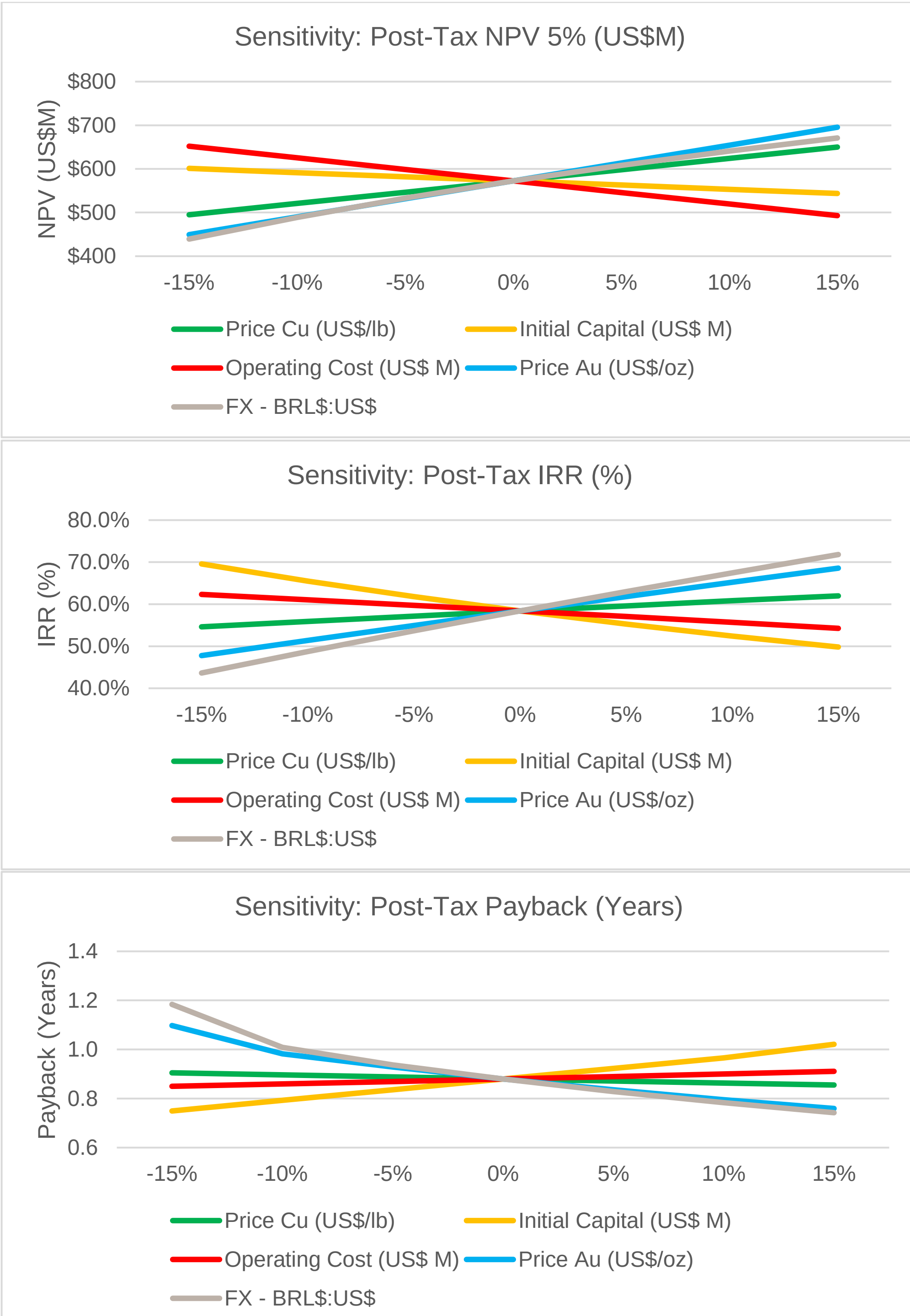
Operating Cost	Gold Price $1,550	$1,650	$1,750	$1,841	$1,850	$1,950
(20.0%)	0.90	0.84	0.79	0.75	0.75	0.71
(10.0%)	0.92	0.86	0.81	0.77	0.76	0.72
--	0.94	0.88	0.83	0.78	0.78	0.74
10.0%	0.96	0.90	0.84	0.80	0.80	0.75
20.0%	0.99	0.92	0.86	0.82	0.81	0.77

Figure 22-2: Pre-Tax NPV, IRR, and Payback Sensitivity Results



Source: Ausenco, 2023

Figure 22-3: Post-Tax NPV, IRR, and Payback Sensitivity Results



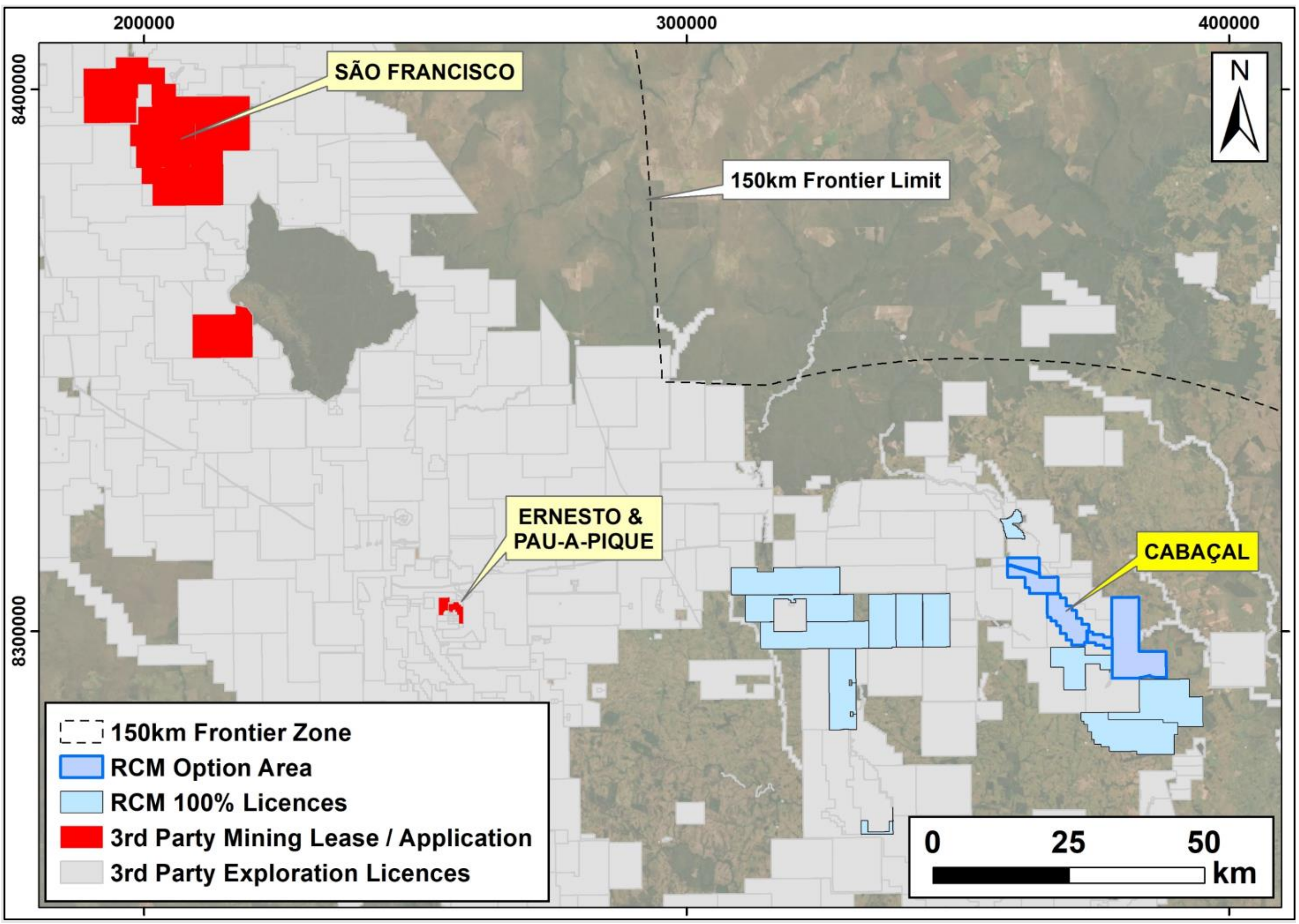
Source: Ausenco, 2023

23 ADJACENT PROPERTIES

The closest operations to the Cabaçal Project are the São Francisco, São Vicente, and Ernesto Pau-a-Pique ("EPP") gold projects – previously operated by Yamana and now by Aura Minerals (Figure 23-1). These are located to the west of the Alto Jaurú Greenstone Belt in a separate geological domain.

Licences in the immediate vicinity of the Cabaçal Project are held by a diversity of ownership, dominated by small Brazilian companies and private individuals. Their activities are not publicly reported.

Figure 23-1: Cabaçal Option Area and RCM Applications, with closest third-party mining



Source: Meridian, 2022: RCM licences (Meridian subsidiary) and option area; licences from ANM SIGMINE GIS system

24 OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to this Report.

25 INTERPRETATION AND CONCLUSIONS

25.1 Introduction

This report was prepared and compiled by Ausenco under the supervision of the QPs at the request of Cabaçal Project. This report has been prepared in accordance with the provisions of NI 43-101 Standards of Disclosure for Mineral Projects. The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this report.

25.2 Property Description and Location

The Cabaçal project is located in the State of Mato Grosso, Brazil approximately 310 km west-north-west of the state capital Cuiabá. Sealed roads provide access between Cuiabá and São José dos Quatro Marcos followed by approximately 30km by unpaved all-weather gravel roads to the project site.

There are several towns in the area, including Araputanga, São José dos Quatro Marcos and Mirasol D'Oeste, which have facilities such as hospitals, schools, shops, banks, post-offices, and petrol stations.

The Cabaçal project consists of 5 mining and exploration licences being acquired under an option agreement for a total of USD8,750,000 and 4,500,000 Meridian common shares as well as 12 satellite exploration licence applications in Meridian's name in the Cabaçal, Jaurú and Araputanga Belts. The applications have been accepted and registered. Approval of the licences for field activity is pending.

Licence 861956/1980 (the Santa Helena / Monte Cristo Mining Lease) is the only property that has a royalty payment equivalent to one-point-five per cent (1.5%) of the gross revenues other than government royalties which apply to all properties.

Meridian has received the required permits in order to conduct its exploration programs. Landowner agreements are in place for the areas in which Meridian operates.

Meridian's permits do not overlap indigenous lands or national parks.

Meridian has obtained all the necessary approvals and community support in order to operate its Exploration activities on the Cabaçal project. If Meridian wants to construct and operate a mining operation at Cabaçal then further approvals will be required.

25.3 Geology and Mineralization

The Cabaçal deposit and other known targets are related to a Paleoproterozoic volcanogenic massive, stringer and disseminated sulphide system located within deformed metavolcanic-sedimentary rocks of the Alto Jaurú Greenstone Belt.

The Cabaçal VMS host stratigraphy has been subject to a multi-stage deformation history, with substantial folding and faulting. The deposit is interpreted to lie on the overturned eastern limb of an east-verging anticline.

A shallow-dipping, bounding basal contact to the mineralization is easily delineated geologically, and a base of complete oxidation and a base of partial oxidation can also be delineated. There is a shallow weathering profile, typically 10-15m deep. The deposit strikes approximately northwest-southeast with a 20° dip to the southwest and a 10° plunge to the southeast. It outcrops along its northeastern margin.

Mineralization comprises massive, stockwork/breccia style, stringer and disseminated sulphides dominated by primary chalcopyrite with lesser pyrite and sphalerite. The gold content of the deposit is relatively high, enhanced by a later stage hydrothermal overprint superimposed on the original VMS mineral system. Both shallow-dipping and steeper-dipping late-stage vein sets for gold were identified during the mine development.

The mineralization at Cabaçal is characterised by multiple, thick, shallow-dipping zones of copper, gold, and silver mineralization, with the main stockwork stringer zone undeveloped historically, and representing an attractive target for a potential open pit operation.

The Project has the geology, an appropriate age, and characteristics of a deformed VMS terrane. The conclusions of the 1990 study by Dr Robert Mason and Mr David Kerr of Queens University, Ontario, Canada remain current and reflect the exploration opportunity the belt offers with the following quote: "We are excited about the potential for more mineralized material discovery around Cabaçal and in belt as a whole" and "In a Canadian context the Cabaçal Belt would be a prime long-term target for VMS type mineralization, with strong competition for ground holding".

The structural architecture and deposit style makes the project conducive to along strike and down-dip discoveries, both near-mine and more regionally.

25.4 Exploration Results

For the resource estimation two drilling domains were identified based on the different amount of drilling i.e., domain 1 equals the Cabaçal Mine area and domain 2 equals the peripheral area to the mine. Three sub-domains were created representing the three oxidation levels.

The drillhole data was composited to 1 m for the whole of the drillhole database and trimmed above the basal contact. Variography (grade continuity) for gold was moderate to weak; this may have been a function of the vertical historical drilling introducing a sample bias in relation to the sub-vertical, overprinting structural gold mineralization. The copper and silver composite data had much lower coefficients of variation (CV) such that Ordinary Kriging was considered an appropriate grade interpolation method. The copper and silver variography was weak.

25.5 Data verification

A combination of the visual review of gold composite grade distribution and the CV for gold indicated the need for a sophisticated, non-linear grade interpolation technique, in this case Multiple Indicator Kriging ("MIK") was chosen. No top cuts were applied to the composite data although a compromise mean value for gold was applied to the top indicator class for the fresh rock sub-domains.

Validation of the block model included visual comparison of block grades with both drillhole assays and composite values. It also included simple statistical checks, check models testing for sensitivity to high grades and an attempt at reconciliation with mine production. The outcomes of the validation exercises indicate no significant issues with the grade interpolation or the geological interpretation.

A significant investment has been made in past exploration activities that would be expensive to replicate in modern times. Historic high-grade development at Cabaçal extended over 650 m within the 1.2 km long and open Cabaçal mineral system as defined by extensional drilling. Underground extensional potential is indicted by historical intersections close to the lower and lateral limit of historical development.

The combination of the modern VTEM data and historical surface geochemistry outlines a series of targets for Cu-Au and Zn-Pb-Ag mineralization. Twenty bedrock anomalies have been identified, with Maxwell conductivity plates modelled and extending for hundreds of metres. Three conductivity clusters were defined in proximity to the Cabaçal Mine environment, representing targets to test for mineralized stratigraphic extensions of the mine sequence.

Supplied geological information from both the drillhole database and Meridian's 3D interpretation (with H&SC's modifications) are appropriate and provide substantial geological control for the Cabaçal mineralization.

The QA/QC data for the Meridian drilling confirms that there are no issues with the sampling or assaying for the recent drilling. The Meridian twin hole and re-assay data confirms that there appears to be no issues with the sampling and assaying of the historical drilling data.

The drillhole database supplied by Meridian is suitable for the generation of MRE.

25.6 Resource Estimation

Resource estimation used a 3-pass search strategy with expanding search ellipse axes and reducing the minimum number of data required for grade interpolation. Block size was 10 m by 10 m by 5 m with a selective mining unit of 5 m by 5 m by 2.5 m and no sub-blocking.

The polymetallic nature of the deposit meant that H&SC chose to report the gold resources from the E-type model generated from the MIK process as opposed to the recoverable resources. The MRE is reported for a 0.3 g/t gold equivalent cut-off based Meridian's metallurgical testwork and H&SC's experience with similar types of deposits.

The Project provides an opportunity to consolidate 100% ownership of a district scale VMS camp with 30 km of strike length and multiple targets, and with a large Mineral Resource in a mining friendly jurisdiction. Exploration and mining tenure covers 18,460 Ha.

The work completed by Meridian has been successful in that its drilling has confirmed the historic drilling results associated with the Cabaçal Au-Cu-Ag VMS deposit. Not only that, but the drilling has also confirmed and upgraded significant mineralization peripheral to the Cabaçal Mine.

The drilling data has been used in conjunction with an appropriate grade interpolation technique, MIK for gold and OK for copper and silver.

The Cabaçal deposit is classified as containing Indicated and Inferred Resources.

Table 25-1: Cabaçal Mineral Resource Estimate – Effective Date: 21st of August 2022.

Category	Mt	Au g/t	Cu %	Ag g/t	AuEq g/t	Au Mozs	Cu Kt	Ag Mozs	AuEq Mozs
Indicated	52.9	0.64	0.32	1.4	1.05	1.1	168	2.4	1.8
Inferred	10.3	0.68	0.24	1.1	0.96	0.2	24.5	0.4	0.3

The effective date of the MRE is 21st August, 2022, which was the date that the final datasets were received by H&SC. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The MRE detailed in this report have been classified under the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.

25.7 Mining

The Cabaçal Deposit will be mined by conventional open-pit mining methods for a twenty-two years and four months mine life, at a plant feed rate of 2.50 Mt/y, with an in-pit indicated Mineral Resources totalling 49.5 Mt grading 0.60 g/t Au, 0.32 % Cu and 1.35 g/t Ag, and in-pit inferred Mineral Resources totalling 6.1 Mt grading 0.93 g/t Au, 0,24 % Cu and 1.01 g/t Ag, based on long gold, copper and silver selling price of, respectively, USD1,650/oz, USD3.59/lb, USD21.35/oz.

An effective grade control will be developed, including blasting control such as to keep the dilution under control, avoiding excess in the projected rate of 3.0% of waste inside the RoM.

Three waste rock disposal areas with a total capacity to store 62.75 Mm^3 are considered sufficient to support the Cabaçal mine plan.

25.8 Metallurgical Testwork & Recovery Methods

The comminution tests indicated that the Cabaçal material is medium hard for SAG milling and soft to medium hard for ball mill applications.

The copper in the deposit is essentially in the form of chalcopyrite, with very good liberation characteristics based upon the QEMSCAN and mineralogy tests. The testwork did not show any clear trend between grind size and final metals recovery. Based on industry experience, SGS-L recommends the grind size at 200 micron at this stage.

From the testwork, rougher concentrate regrind and elevated pH are required to produce a satisfactory concentrate grade. The regrind size used in the testwork varied from 30 to 50 micron. For process design, a regrind size between 35-45 micron is recommended, with a cleaner flotation pH of at least 9. A single stage of cleaner flotation appears to be sufficient to produce a marketable concentrate containing above 25% copper and is recommended in the process design.

The testwork indicates that the inclusion of a gravity circuit does not have a significant impact on the total gold recovery. However, based on field experience, whenever there is considerable gravity recoverable gold in the deposit, it is always good practice to include the gravity circuit in the process design.

Based on the testwork, recovery of zinc material is not recommended at this stage due to unfavourable mineral characteristics and relatively low head grade.

Pyrite flotation was tested on the copper cleaner tails. A concentrate with approximately 44% of sulphur content was achieved which may be a marketable product.

If the Master composite sample is representative of the overall deposit of the Cabaçal project in mineralogy and head grade, the average copper recovery from this deposit is expected to be in the low 90% range and gold recovery is expected to be in the mid to high 80% range with the incorporation of a gold gravity circuit.

The process plant is designed for a throughput of 6850 t/d to produce gold in the form of doré bullion and a copper gold concentrate. Tailings are desulphurized with pyrite flotation and then filtered for disposal.

25.9 Project Infrastructure

The existing power system in the region is capable of providing the energy necessary for the operation of the Project. At first the system is not overloaded, but future expansions will have to be analyzed through new simulations.

The Project will be connected to the Energisa Mato Grosso system via the 138 kV Araputanga SE, with the construction of the 138 kV Projeto Cabaçal – Araputanga LT and corresponding substations.

Infrastructure to support the Cabaçal Project will consist of site civil work, process buildings and non-process buildings, water management, Waste Disposal Facility (WDF) and electrical power distribution. The WDF is divided into a Waste Rock Storage Facilities (WRSFs) and Dry Stack Tailings Facilities (DSTFs). Mine facilities and the process and administration area will include services with potable water, fire protection, compressed air, power, diesel, communication, and sanitary systems. The processing plant and WDF will be located within the Cabaçal property.

25.9.1 WRSF and DSTF

Three WRSF have been designed to store 62.75 Mm^3 of waste rock over the life-of-mine. The Waste Rock Facility 1 is designed to store 36.2 Mm^3, the Waste Rock Facility 2 7.9 Mm^3, and the Waste Rock Facility 3 18.6Mm^3. The WRSFs have been designed in accordance with relevant federal and provincial and international construction guidelines for waste rock facilities in Brazil. The WRSF will be constructed in 20m high benches with a global exterior slopes of 2.5: 1 (H:V).

Two Dry Stack Tailing Facilities (DSTFs) have been designed to store 33.7 Mm^3 filtered tailings over the life-of-mine. DSTF 1 is designed to store 23.4 Mm^3 and DSTF 2 can store 9.4 Mm^3 of tailings. Tailings will be filter to approximately 15% moisture by weight and transport to the DSTFs in haul trucks. The filtered tailings will be spread and compacted in thin lifts too improve stability of these facilities. The DSTF have also been design in accordance with relevant federal and provincial and international construction guidelines for tailings facilities in Brazil. The DSTF will be constructed with global exterior slopes of 3.5: 1 (H:V).

Water management measures for the project will include a series of diversion channels to divert clean flow of existing water courses, as well as collection and diversion ditches to collect surface and contact runoff water. Currently, no geochemical testing has been performed on waste materials and potential construction materials. However, based on the project mineralization there are sulphides and to be conservative the assumption is there is a potential for waste materials to be potentially acid generating. Runoff from the WDF will be captured and tested for water quality. Contact runoff will be conveyed to collection ponds or sediment ponds where the majority of the total suspended solids will settle out, and treated as needed, prior to releasing the water to the environment.

25.10 Market Studies and Contracts

Meridian has not completed any formal marketing studies regarding gold doré bars and copper/silver/gold concentrate. Market price assumptions and payment terms were based on a review of public information, industry consensus, and standard practice.

For this technical report, a gold price of USD1,650/oz, cooper price of USD3.59/lb and silver price of USD21.35/oz was assumed and exchange rate reported in Brazilian Reals (BRL) to US dollars (USD) BRL5.30:USD1.00 and Brazilian Reals (BRL) to Canadian dollars(CAD) BRL3.964:CAD1.00 was used.

The copper concentrate and gold doré specified in this study are expected to be high grade with no elements that incur penalties. For this reason, they are expected to be sought after by customers, although no market contracts are in place at this time.

25.11 Environmental Studies, Permitting and Social or Community Impact

Meridian has engaged the Sete Soluções e Tecnologia Ambiental Ltda to undertake an environmental study (EIA/RIMA: Estudo de Impacto Ambiental e Relatório de Impacto Ambiental/Environmental Impact Study and Report of Environmental Impact). Environmental studies started in January 2022 and are ongoing as of the Effective Date.

The Cabaçal Project is in an area already been greatly altered by anthropic activities, in particular pastures characterized as environments of very low plant diversity, formed through prior deforestation for cattle grazing over previous decades.

Considering the surveys carried out, the main aspects that generate environmental impacts with the implementation of the Cabaçal project are typically intrinsic to the implementation of mining projects and can be managed by control, mitigation, and compensation. They include:

- Changes to the physical environment from mining and storing rock and storing tailings in a dry stack facility;
- Changes to the flora and fauna affected by the mining operations and removal of vegetation; and
- Socioeconomic impact both positive and negative including employment and taxes as well as additional demand on public services.

Closure and Reclamation considerations include the rehabilitation of the DSTF and WRSF to self sustaining facilities that satisfy the end land-use objectives. No formal Closure and Reclamation Plan has been prepared for the Cabaçal project to date. One will be developed as the project advances through subsequent project stages of feasibility-level design.

25.12 Capital and Operating Cost Estimate

The capital and operating cost estimates presented in this PEA estimate conforms to Class 5 guidelines for a preliminary economic assessment level estimate with a -40% +50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed by Ausenco in Q1 2023 based on equipment suppliers' budgetary quotations and in-house database of projects and studies as well as experience from similar operations. Operating cost estimates are based on Q1 2023 pricing without allowances for inflation.

The capital and operating costs are considered reasonable for a project of this scope and at this stage of definition.

25.13 Economic Analysis

The Project was evaluated using a discounted cash flow (DCF) analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections. Cash flows were taken to occur at the end of each period. The economic analysis was run on a constant dollar basis with no inflation.

The pre-tax NPV discounted at 5% is USD717 M; the IRR is 67.0%, and payback period is 0.8 years. On a post-tax basis, the NPV discounted at 5% is USD573 M; the IRR is 58.4%, and payback period is 0.9 years.

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV, IRR, and payback of the Project, using the following variables: gold price, copper price, discount rate, total operating cost, foreign exchange and initial capital costs. The sensitivity analysis showed that the Project is most sensitive to changes in gold price, foreign exchange, and initial capital.

The PEA is preliminary in nature, that it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

25.14 Risks and Opportunities

25.14.1 Risks

The risks and uncertainties that could affect mineral exploration on the Cabaçal Project are the same as for all exploration programs and strategies.

25.14.1.1 Overall

Economic Risk: Brazil is the world's ninth largest economy, with a GDP of USD1.9 trillion. Brazil's per capita GDP is lower than Chile's, but higher than fellow BRIC members China and India. Brazil's economy has recently gone backwards along with other economies during the pandemic but is expected to return to positive growth as the world economy recovers. The World Overall levels in foreign investment in recent years have been in the order of USD60-70 billion annually. With respect to the mineral industry, the country has both Brazilian and foreign companies engaged in mineral exploration and production activities.

Political and Legislative: Brazil has democratic system of government. The Mining Code (Act No. 227) of 1967 governs resource activities in Brazil and was aimed at providing an impetus to foreign investment in the mining sector. Successive amendments to the constitution have now made it possible for foreign entities to have 100 percent ownership of Brazilian companies. A plan for a new mining policy was announced in 2009. In June 2013, the Brazilian Government submitted a bill of law (PL 5807) to the National Congress that included provision for an increase in royalties to 4% and an auction process for new licences. It was proposed in a climate of stronger commodity prices, and opposition to the bill saw it rejected. The country's leading coalition has recently changed, and the country continues to operate under the original legislation.

Legal: Meridian has taken and continues to take all necessary and available steps to comply with relevant laws and regulations. The terms of the option agreement have been registered by legal agreement.

Operating Climate and Seasonality: Rainfall is concentrated over the summer months in the Project area. Exploration activities can be conducted throughout the year, although some geophysical activities and geochemical activities are better suited to seasonal conditions. Mining and processing can operate through the year, although access to some sites would require surfacing of local access tracks to make them suitable for all-weather use.

Security: Like many places, crime in Brazil tends to be more concentrated in areas where drug trafficking, drug and alcohol use, or social inequality is marked. The region hosting the Project area is a more recently settled part of the country, with many cities established in the 1970's-1980's. It lacks the "favelas," which are better known in larger and longer established cities. Various levels of the country's police force are present in the region and administer law and order (Polícia Federal, Polícia Rodoviária Federal, Polícia Militar, Polícia Civil). For the stage of Meridian's activities, there are no additional measures required beyond routine precautions.

Technical: Data quality and procedures can be a technical risk for projects, particularly where there are large amounts of historical data. All new data will be generated to modern standards pursuant to NI 43-101 reporting requirements including appropriate QAQC to confirm the suitability and accuracy of the sampling and assaying. Attempts have been made to validate the historical data, particularly the drilling, with reasonable success. Also, a risk is the grade interpolation technique, which has been attended to by H&SC by using the MIK method in acknowledgement of the non-linearity of the gold grade distribution and the sensitivity of the estimates to extreme values.

25.14.1.2 Data Verification and Mineral Resources

The risks and uncertainties that could affect mineral exploration on the Cabaçal Project are the same as for all exploration programs and strategies. As for the exploration information the data comprises government products and field data from low level geochemical (including drillhole assays) and geophysical programs with a very low level of risk. The methodologies used for sampling and assaying are considered appropriate and have a very low level of risk associated with them. Geological interpretation of the assembled desktop and field data is considered by the QP as entirely reasonable with a low level of risk. The exploration data is considered reliable.

The risks and uncertainties that could affect the Mineral Resources have been minimised by the quality of the exploration work completed to date. This work has been qualitatively assessed with the outcomes of the assessment expressed in the classification of the Mineral Resource. The drilling data including the historical drilling is considered reliable and the geological interpretation is reasonable.

The biggest risk to mineral exploration is the non-occurrence of mineralization of a significant tenor as to be available for economic extraction. This can only be established by conducting exploration programs. The program designed for the Cabaçal project, including the geological model for mineralization, is appropriate. The staged exploration process allows for careful management of geoscientific risk and will optimize to delineate the mineralization.

Mineral Resources by definition are estimations of contained metal within a mineral deposit and have a level of uncertainty based on factors taken into account for the resource classification. Further drilling and technical studies may have a positive or a negative impact on estimations of tonnage, grade, and metallurgical recovery. A global reduction in any of these variables can be detrimental to the profitability or viability of a potential future mining operation. The sensitivity to these factors can better defined at the reserve definition stage through sensitivity analysis once a Mineral Resource is established.

25.14.1.3 Mining

No geotechnical studies were conducted for this PEA report meaning that pit wall angles and other mine plan assumptions may be too aggressive or conservative.

While the historic Cabaçal underground mine operated and successfully managed ground water, limited hydrological studies in the planned open pit have been conducted and therefore more water than anticipated from ground sources may need to be managed.

More detailed drilling that is currently underway may produce a different resource estimate in future which alters the mine sequence developed for the PEA.

25.14.1.4 Metallurgical Testwork & Recovery Methods

While a sufficiently detailed program of testwork was conducted for the PEA, there are gaps that will need to be filled to enable detailed design of the process flowsheet. These include additional comminution design criteria, physical characteristics of the mineralised material, tailings, and concentrates, confirming the acid generating potential of the tailings and variability of the mineralized rock types.

25.14.1.5 Project Infrastructure

Potential risks for project infrastructure include the following:

- Flood plain overlaps proposed infrastructure.

25.14.1.5.1 Dry Stack Tailings Facility

Risks associated too the Dry Stack Tailings Facilities include the follow:

- The DSTFs have limited expansion capability for additional tailings storage should the resource estimate increase.
- No geotechnical and hydrogeological information has been collected at the DSTF areas. This may impact the assumptions considered for foundation preparations, facility design and configuration, and seepage control systems.
- A detailed construction schedule and identification and testing of suitable construction materials have not been completed. Availability of construction materials (from the open pit or local borrow zones) may impact the design and construction of the DSTF.
- Additional geochemical testing to define the characteristics of the tailings and waste materials should be performed. A more detailed understanding of the geochemical characteristics may result in increased PAG management or a revised waste management plan.
- The tailings characteristics and densities assumed for DSTF, and water recovery were based on Ausenco's experience and not on a laboratory testing program, and detailed consolidation modelling has not been completed. The results of consolidation modelling may impact the DSTF design and available water recovery used in the site-wide water balance.
- The site-specific source terms and the water quality modelling have not been completed. This may impact water quality and the assumptions related to managing site water.

25.14.1.6 Market Studies and Contracts

No market studies were performed for this PEA report creating a risk that the products intended to be produced by the Cabaçal project may not attract the prices that are assumed in this study.

25.14.1.7 Environmental Studies, Permitting and Social or Community Impact

Minimal site-specific climate information exists to inform water balance modelling and water management system designs.

25.14.1.8 Economic Analysis

The economics analysis has not considered the risk of the project to metal price fluctuation, inflation or other unexpected events such as political instability that can significantly impact the economics and schedule.

25.14.2 Opportunities

25.14.2.1 Mineral Resources

Opportunities exist to test for additions to resource inventories through further work, including:

- Infill drilling of the Cabaçal area to upgrade the quality of the MRE.
- Extensional drilling in the Cabaçal area.
- Exploring for additional resources in the broader exploration area.

25.14.2.2 Recovery Methods

Based on the testwork and mine schedule, the recovery methods could be further optimized by the evaluation of:

- Multi-stage crushing ahead of ball milling, yielding capital cost reduction opportunities.
- Consideration for a self-funded mill treatment rate expansion (to 4.0 or 5.0 Mt/a) after the payback period, as the head grade reduces to maintain metal production.
- Review of regrind mill technologies to further optimize operating costs.
- Review use of high-shear flotation equipment such a Jameson cells, Stackcells, DFRs, as a substitution for tank cells.

25.14.2.3 Project Infrastructure

- Negotiate with the regional power supplier to obtain a better cost for a transmission line.

25.14.2.3.1 Dry Stack Tailings Facilities

- The DSTF geometry may be optimized to reduce the overall footprints, reducing construction materials.
- Local or nearby fine and coarse-grained materials for DSTFs could be identified which would reduce requirements for crushing and screening of quarried rock to produce underdrain and internal drain materials.
- Additional geochemical testing show both the tailings and waste rock are NAG and non-metal leaching, which would reduce cost for both facilities around containment and management oof contact water.

25.14.2.4 Market Studies and Contracts

- Produce copper concentrate and supply it to potential customers for testing. This is an important step in the negotiation of future offtake agreements.

25.14.2.5 Environmental

- The site-wide water balance and water management systems may be optimized based on improved characterization of the climatic conditions of the project.
- The annual water deficit could be reduced through optimized management of non-contact and contact water.
- Future geochemical test works show the waste materials are non-acid generating and do not require extensive mitigation measures.

25.15 Conclusions

The PEA completed on the Cabaçal cooper-gold project demonstrates positive economics with open pit mining, a 2.5 Mt/a mill capacity and a DSTF solution. Based on the assumptions and parameters presented in this Report, the PEA shows positive economics (i.e., After-Tax NPV_5 of USD 573 M, 58.4% IRR & 10.6 Month Payback). The PEA supports a decision to carry out additional detailed studies to progress the project further into detailed assessment.

The risks stated in Section 25.14.1 may have an impact on the project economic outcomes which have not been considered in this PEA.

26 RECOMMENDATIONS

26.1 Overall

The results presented in this technical report demonstrate that the Cabaçal project is technically and economically viable. It is recommended to continue developing the project through additional studies, including a prefeasibility study.

Table 26-1 summarizes the proposed budget to advance the project through the prefeasibility study stage.

Table 26-1: Proposed Budget to advance the Project to a Prefeasibility Level

Activity	Total (USD,000)
Exploration including Cabaçal resource estimate upgrades	3,720
Mining	600
Metallurgical Studies	265
Recovery Methods	150
Geotechnical	850
Waste Storage and Other	450
Environmental and Social	313
Engineering & Other	3,874
Total	**10,222**

26.2 Geology

The general drill hole spacing and hence data distribution is considered wide for a large part of the Cabaçal deposit. This, plus the nature of the mineralization, impacts negatively on the confidence in the grade continuity, which in turn is reflected in the resource classification.

Therefore H&SC recommends the following drilling is undertaken to improve the understanding of the grade continuity and to allow for upgrades in the MRE:

- A detailed drilling programme on 25m centres testing a sub-area of the main deposit across 7 or 8 section lines. The chosen sub-area should be where there is both significant high-grade mineralization and a substantial grade variation associated with the mineralization, generally where the more recent Meridian drilling has been completed. This is likely to amount to 18 to 22 holes for approximately 2,500m of drilling and will look to cover 200m of strike and 100m of dip. The aim of the drilling is to get an improved measure of the grade continuity so as to be able to design follow up drilling in order to generate both Measured and Indicated Resources for the whole deposit.

- A line of drillholes along strike at 50m spacing in reasonably close proximity to the northeast margin of the mineralization. The aim of this drilling is to convert Inferred Resource to Indicated (and possibly Measured), particularly in areas of likely starter pits for any subsequent mining. A total of 25 holes for 1,500m is estimated to be required for the whole northeast margin, with an average hole depth of only 60-70m. It will also look to test some newly discovered up dip mineralization.
- The continuation of infill and expansionary exploration drilling for the northwest half of the peripheral zone to the Cabaçal mine. This is to include drilling up to 16 holes for approximately 3,500m to convert marginal Inferred Resources on the southwest margin of the mineralization to Indicated Resources within the nominal pit shape. Additional holes may be needed to extend the mineralization further to the northwest i.e., 5-10 holes for 1000 to 2000m.
- In the far western corner of the deposit there is a zone of suspect high grade Inferred Resource blocks. These have resulted from a small collection of isolated high grade drill intercepts in combination with a general lack of surrounding drilling. In order to convert the Inferred Resource blocks to a coherent zone of Indicated Resource it is recommended that 10 holes be completed for an approximate total of 1,200m.

It is recommended that all drilling is diamond core with dip angles for the holes ranging from -50o to -60o so as to be perpendicular to the stratabound mineralization and to potentially cut across the sub-vertical gold structures.

There may also be scope for further drilling along strike of the MRE to the southeast.

In addition, it is recommended that:

- Drillholes are completed for the gathering of geotechnical information and to provide material for various rock property testwork. This is estimated at 10 holes for 1,600m, subject to pit optimization studies and historical geotechnical data review.
- Drillholes are completed to provide material for metallurgical testwork in the oxide /transition zone (Geometallurgy; estimated at 9 holes for 1,100m).
- Metallurgical drillholes could be considered to test recovery assumptions in the zone of pervasive oxidation where base metal recovery is currently assumed to be zero (3 to 4 shallow holes for 200m).
- Environmental studies should be concluded for Cabaçal to position the project for future development and extended to Santa Helena for potential resource development as a satellite open pit target.
- Regional exploration is undertaken over the 50km of strike of the prospective belt that is held by Meridian under licence. The aim is to identify potential for further VMS systems for drilling follow up. Exploration strategies to be employed include surface geochemical sampling, ground based geophysics using Meridian’s in-house geophysical and geochemical teams (e.g., IP and EM surveys and remote sensing studies). Reconnaissance drilling may be undertaken with an initiated 20 holes for 3000m proposed.

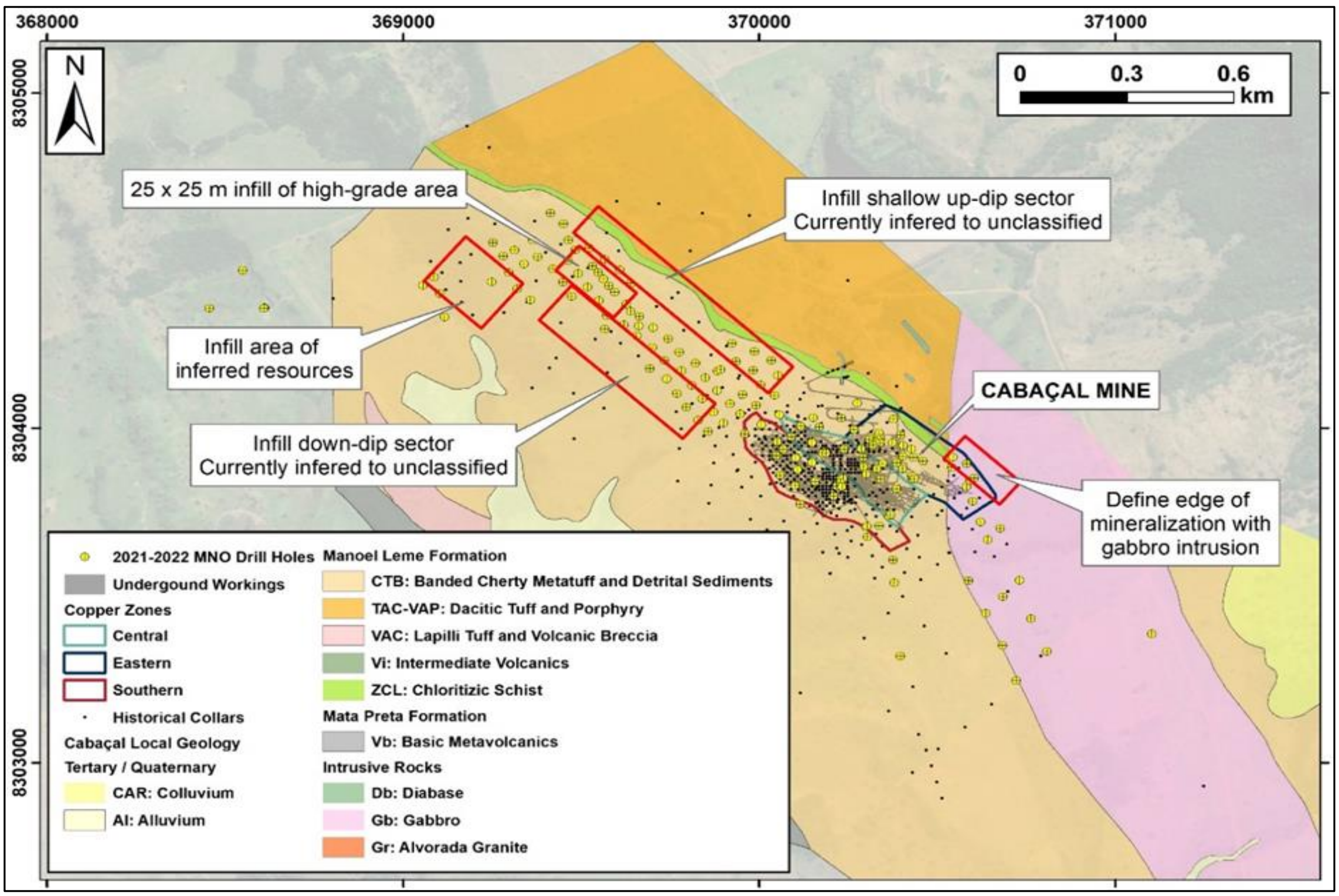
Also recommended is the continuation of other works. This is to include:

- Historical data assembly and validation for data from the broader Cabaçal, Belt (including Santa Helena), and in the adjacent Jaurú and Araputanga Belts to the west,
- Additional twin hole drilling for Santa Helena to further validate the historical results including copper, zinc, gold and silver assays, along with extensional holes to test near-mine geophysical targets (estimated 20 holes for 3000m).
- Improving the quality of the current drillhole database by extending work programs conducted on the Cabaçal deposit to other targets, particularly at the Santa Helena deposit with activities including:
    - Maximising searches and resurveys of buried collar locations in the field;

- Conducting downhole deviation surveys on a selection of historical holes;
- Validating the void model from historical data with confirmed drilled void positions.

Figure 26-1 illustrates corridors where drilling would improve the definition of the Cabaçal MRE for development studies. This primarily involves infill drilling in areas of Inferred Resource but also allows for possible resource extension by better defining the limits to the mineralization. Also shown is the area recommended for 25 m by 25 m infill drilling, to gain a better measure of the continuity of high-grade mineralization discovered in the Cabaçal Northwest Extension. This is hoped to generate results that can confirm the ideal drill spacing for Measured Resources.

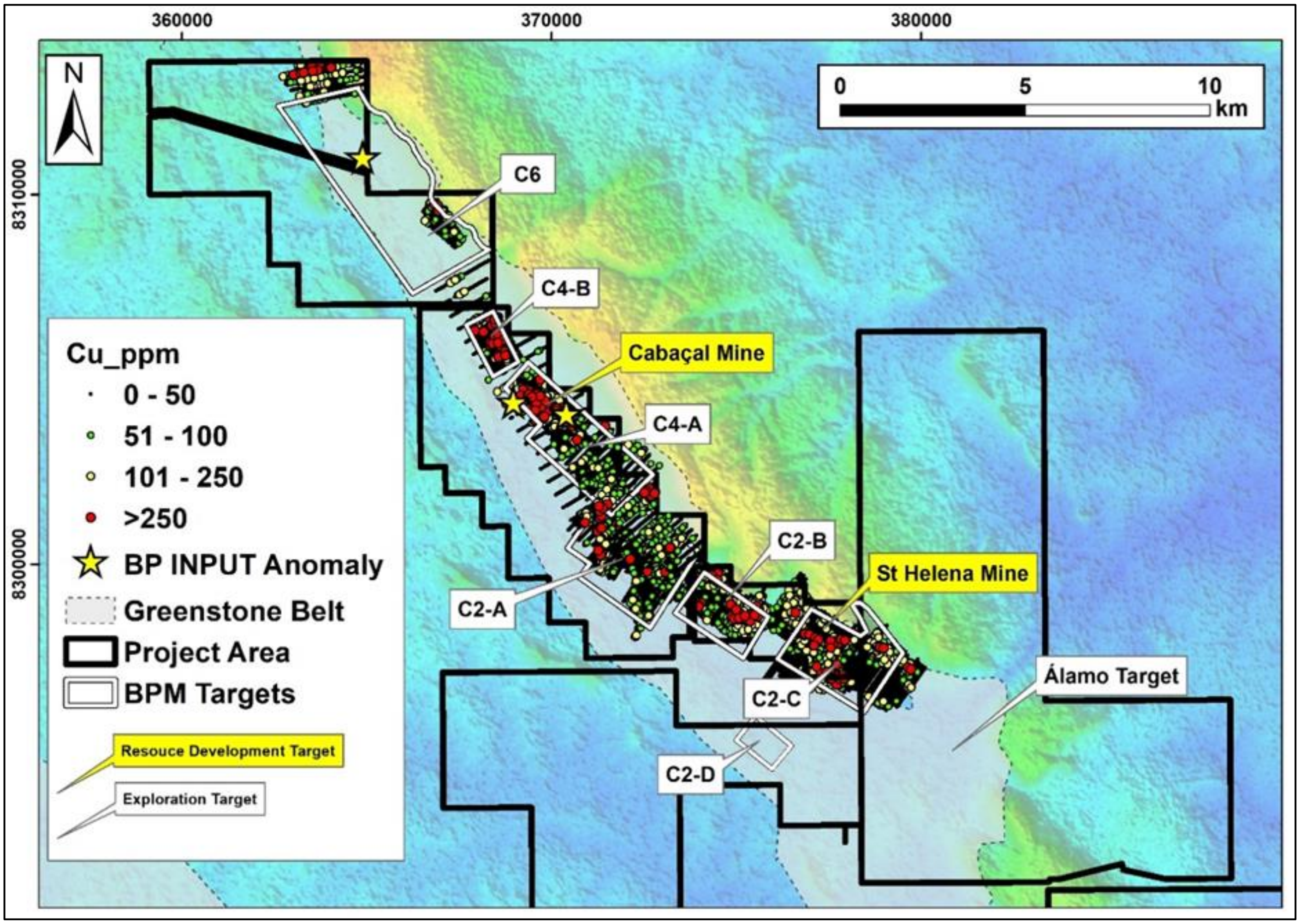
Figure 26-1: Cabaçal Mineral Resource Infill Targets.



Source: Meridian, 2022.

Figure 26-2 illustrates the location of further resource development and exploration targets. Resource development targets are at Cabaçal where additional work is proposed ahead of potential development studies, and the other historical mining operation at Santa Helena where opportunities exist to update the historical resource with data compilation and validation, and extensional drilling. Exploration targets with exiting geochemical and geophysical anomalies requiring follow up exploration and reconnaissance drilling subject to access agreements and permitting include the Álamo Target, the C2 target corridor, and the C4-B – C6 trend.

Figure 26-2: Cabaçal Project Resource Development and Exploration Targets.



Source: Meridian, 2022.

The costs for implementing the Geology recommendations described above are estimated at USD3,720,000 (three million seven hundred and twenty thousand dollars).

26.3 Mining

For the next phases of the project we recommend the following studies:

An effective grade control plan to achieve the necessary control over the dilution rate must be implemented during the first acts of mining, by a trade-off considering the use of sampling holes or the use of dedicated drilling equipment.

Conduct a detailed geotechnical analysis including a geotechnical oriented diamond drilling campaign and logging, with sampling collecting for tensile, compressive and shear strength tests and review the pit optimization parameters.

Implement hydrological and hydrogeological studies deposits and to monitor of water level for the project to ensure the stability of the slopes and the entry of water into the pit to avoid the interruption of operations.

Develop a seismicity study in case there are structures such as: roads, communities, and power lines close to the project.

The costs for implementing the recommendations described above to conducting to Prefeasibility Studies (PFS) of Cabaçal Project are estimated at USD600,000K (six hundred thousand dollars).

26.4 Mineral Processing and Metallurgical Testing

Additional metallurgical tests for future prefeasibility study include:

- Optimization studies for the comminution circuit considering a SAG Mill – Ball Mill grinding circuit
- Optimization studies of rougher concentrate regrind size;
- Optimization studies of copper cleaner pH and potential depressants;
- Pyrite flotation studies, if required, investigating other reagent schedules without copper sulphate;
- Additional variability studies as necessary;
- Sedimentation and potential filtration tests on flotation tailings; and
- Sedimentation and filtration tests on flotation concentrates.
- Physical characterisation tests of mineralized material, concentrate and tailings;
- Further study on the acid generating potential of the tailings without pyrite flotation is recommended together with a market study for the pyrite concentrate.
- Investigate ZCL lithology, which appeared in all the outliers
- Perform more testwork between 1 and 3% Cu head grade
- Perform more testwork at the revised flowsheet (grind size, residence times, etc.)
- Perform specific energy tests for concentrate regrind
- Conducting a pilot plant test of the process in order to increase confidence and generate concentrate samples for marketing purposes
- Recovery formulas will be reviewed based on additional testwork results on oxide and primary mineralization.

The costs for implementing the recommendations described above to conducting to Prefeasibility Studies (PFS) of Cabaçal Project are estimated at USD265,000 (two hundred and sixty-five thousand dollars)

26.5 Recovery Methods

The PEA scope did not include a throughput optimisation study. The Mineral Resource estimate published in September 2022 was more than 2 times larger than the previous historic resource, producing a 22-year mine life for the PEA. An optimisation study would determine if processing at a higher rate would further improve the project economics. The costs for a throughput optimisation study of the Cabaçal Project are estimated at USD150,000 (one hundred and fifty thousand dollars).

26.6 Site Geotechnical

26.6.1 Geotechnical Field and Laboratory Program

A site-wide geotechnical field and laboratory program needs to be completed for the next phase for primary crusher, process plant, WRSFs, DSTFs, and other infrastructure. The following recommendations are made for geotechnical site investigation and laboratory work:

- Completion of fourteen (560m) geotechnical boreholes, 35 test pits, and geophysics in the areas of the primary crusher, process plant, WRSFs, DSTFs, haul roads, and ancillary roads to investigate and confirm foundation conditions, specifically the extent of the overburden along with depth to groundwater and to bedrock.
- Fifteen test pits and drilling of four 40m boreholes to confirm suitability and quantity of borrow materials for infrastructure construction.
- Laboratory index testing, including compaction tests, mechanical strength tests, and permeability tests on foundation soils and potential borrow materials.
- Laboratory testing to confirm the physical characteristics of the filtered tailings, including strength, trafficability, and permeability tests at both low and very high confining stresses to represent the height of the DSTF.
- Develop factual and interpretative reports for these facilities.

The estimated cost is approximately USD850,000K (eight hundred and fifty thousand dollars) including the drilling and excavator rental.

26.6.2 DSTF, WRSF, SSF, Mine Roads, and Plant Platform Design and Analysis

- Perform deterministic and probabilistic local seismic hazard study for the development of design seismic for infrastructure.
- Review and update meteorological and hydrology information, updating surface water and sediment management for the DSTF, WRSF and mine roads.
- Complete geochemistry testing and studies to confirm the metal leaching and acid generating potential of the materials that will be stored and/or used for construction.
- Develop seepage predictions and seepage control measures for the DSTF and WRSF along with surface water management.
- Update the tailings and waste rock deposition strategy to optimize material handling, including trafficability of material handling equipment for the DSTF.
- The stability model should be reviewed and updated, as required, with consideration of the final stacking plan using updated data about the material properties of the waste rock, tailings, and the foundations for both the DSTF and WRSF.
- Perform a liquefaction assessment with consideration of updated information on material properties and the updated stacking plan for the DSTF.
- Solicit budgetary quotes for earthworks and geosynthetics (i.e., geomembrane, geotextile, and piping) to get more accurate pricing for the next cost estimates.
- Develop civil design for DSTF and WRSF (stacking and scheduling by mine planner).
- Develop cost estimates (i.e., capital, sustaining capital, and operating costs) for DSTF and WRSF.

The estimated cost for the recommended work is approximately USD450,000 (four hundred and fifty thousand dollars).

26.7 Environmental Studies and Permitting

The Cabaçal project will need to obtain environmental permits in order to construct and operate a mine. In order to apply for these permits, Meridian will need to submit detailed reports on the potential environmental impacts of any mining operation. Meridian is already at an advanced stage of sourcing the information required to generate these reports.

The cost of completing the work to finalise and submit the environmental permit application is estimated at USD313,000K (three hundred and thirteen thousand dollars).

26.8 Advanced Studies

If Meridian completes substantially all of the recommended work in this section, then it may wish to consider undertaking a feasibility study that generates greater confidence such as a prefeasibility study including updated and more detailed cost estimation and economic analysis.

The cost of conducting a prefeasibility study is estimated at USD3.874 M. (three million eight hundred and seventy-four thousand dollars).

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