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# Technical Report

## Technical Report, Kiniero Gold Project, Guinea

Robex Resources Inc.

### Kouroussa Prefecture, Kankan Region, Republic of Guinea

In accordance with the requirements of National Instrument 43-101 "Standards of Disclosure for Mineral Projects" of the Canadian Securities Administrators

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AMC Project 422024
Effective date 01 June 2023

# 1 Summary

## 1.1 Introduction

This Technical Report on the Kiniero Gold Property (Property) situated within the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, has been prepared by AMC Consultants (UK) Limited (AMC), on behalf of Robex Resources Inc. (Robex) of Quebec, Canada. This Technical Report has been prepared to a standard that is in accordance with the requirements of National Instrument 43-101 (NI 43-101), Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators (CSA). All the work incorporated in the Technical Report has been carried out by consultants who are independent Qualified Persons (QPs), and as such, this is an independent NI 43-101 Technical Report.

The report is an update to the Report "*Kiniero Gold Project, Guinea – Pre-Feasibility Study (NI 43-101 Technical Report)*" prepared by Mining Plus (2022 Mining Plus Technical Report) with an effective date of 26 August 2022. The main purpose of this Technical Report is to report the results of the Kiniero Project Feasibility Study works and to support the Robex annual statement of Mineral Resources and Mineral Reserves.

Robex is a Canadian gold mining company listed on the Toronto Stock Exchange – Venture (TSX-V), and trades as RBX.

Currency used throughout this report is in the lawful currency of United States dollars (US$) unless otherwise stated.

## 1.2 Property description

The Kiniero Gold Project (Kiniero Project or Project) located within the Property, comprises a series of shear-hosted Birimian-style gold deposits which are to be mined using conventional open-pit mining techniques. The Property was previously mined within the Kiniero licence area, commencing in the 1950s. The main formal historical mining operation within the Kiniero licence area was established by Société d'Exploration Minière en Afrique de l'Ouest (SEMAFO) in 2002 and ran until 2014. This consisted of a series of deposits exploited by open-cast means at the former Kiniero Gold Mine. Most of the production was sourced from the Jean and Gobelé (SGA) deposits, as well as from the subsequently delineated West Balan deposit.

Mineral processing for the Project will comprise carbon-in-leach (CIL) with gold electrowinning, in addition to gravity circuits to produce doré.

The Property is located approximately 440 km due east-north-east of the capital of Conakry, 55 km west of Kankan and 5 km north-west of the town of Kiniero (the administrative seat of the Kiniero subprefecture). The Project is located within the Property at latitude 10°25'52" north and longitude 09°47'48" west.

Robex is the sole shareholder of Sycamore Mining Limited. Sycamore Mining Limited holds 85% of Sycamore Mine Guinee SAU (SMG,) with the Government of Guinea (GOG) holding the additional 15%. SMG is responsible for executing on-the-ground operations on the Property.

The Property comprises two sets of adjoining licence areas, these being called Kiniero and Mansounia which together cover an area of 470.48 $km^2$. The Kiniero licence area is a legal exploitation permitted area, consisting of four adjoining exploitation permits, held in the name of SMG.

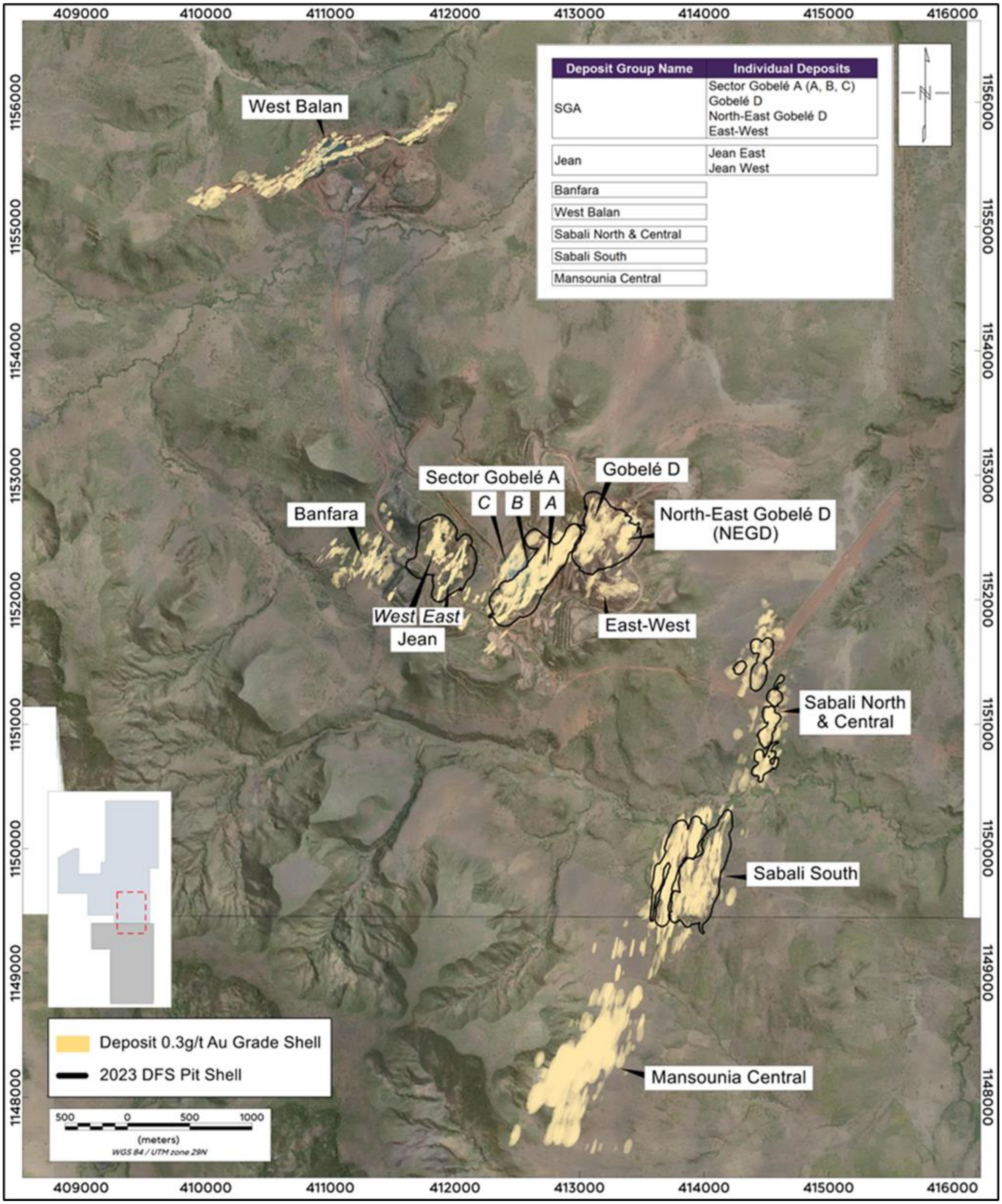
The Mansounia licence area consists of two adjoining exploration permits with an expiry date of April 2023. An exploitation licence application was filed with the Centre de Promotion et de Development Miniers (CPDM) Q1 2023, prior to the expiration date of 5 April 2023 for the exploration licences, for 50% of the Mansounia licence area, as per Guinean mining law. A legal letter provided to the QP from the Director of Legal Affairs and HR at Robex, outlines no immediate impediment to the awarding of the Mansounia exploitation permits.

The Property comprises 47 gold anomalies, of which the following deposit clusters make up the Project and form the focus of this Technical Report:

- Sabali cluster, including:
  - Sabali North.
  - Sabali Central.
  - Sabali South (straddling the Kiniero/Mansounia boundary).
  - Mansounia Central.
- SGA cluster, including:
  - Sector Gobelé A (A, B, C) (SGA).
  - Gobelé D.
  - North-East Gobelé D (NEGD).
  - East-West.
- Jean cluster, including:
  - Jean East and Jean West.
  - Banfara.
- Balan cluster, including:
  - Derekena.
  - West Balan.

Figure 1.1 shows the location of the main deposit clusters discussed in this report.

Figure 1.1 Plan of main deposit clusters




Source: SMG, 2023.

## 1.3 Mineral tenure and surface rights

The Kiniero licence area comprises exploitation permit numbers 22962, 22963, 22964, and 22965, covering an area of 326.33 $km^2$. Permits 22962, 22963, and 22965 were granted on 17 December 2020, whilst permit 22964 was granted on 04 November 2022. All permits are valid for 15 years (renewable).

The Mansounia licence area comprises two exploration permits, 22834 and 22835, covering an area of 144.15 $km^2$ which were granted on 06 April 2020 and valid for three years (renewable). An exploitation licence application was submitted to the CPDM in Q1 2023, prior to the expiration date of 5 April 2023 for the exploration licences, for 50% of the Mansounia licence area. This application is still being processed.

On 18 June 2021, SMG and Penta Goldfields Company SAU (Penta) entered into a purchase agreement for the Mansounia licence area. The agreement was subject to a minimum amount of exploration expenditure and technical work being completed within a one (1) year period. The minimum exploration expenditure and work commitments has been met by SMG, the results of which are included in this Technical Report and have been used in support of the conversion of the Mansounia exploration licences into exploitation licences.

SMG does not own any surface rights to land pertaining to the Project. The Mining Code distinguishes between mining rights and surface rights. The permit holder cannot occupy the surface or a portion of the surface of the area of the permit if held by a third party without that third party's consent. However, if the permit expressly provides that the permit holder is entitled to occupy the surface inside the area of the permit, such consent is not required. SMG has negotiated and actioned a Resettlement Action Plan (RAP) to allow access for drilling and mining operations with the neighbouring communities and the representative of the local authorities.

## 1.4 Environment, permitting, compliance activities, and social licence

An Environmental and Social Impact Assessment (ESIA) was completed by ABS Africa (Pty) Ltd. (ABS Africa) and Insuco Guinée Limited (Insuco), and submitted to the Government of Guinea (GOG) in May 2020. The ESIA supported the application for the conversion of the Kiniero Exploration Permits to Exploitation Permits. The ESIA and associated studies have subsequently been updated to reflect the open pit designs, mining schedule, waste dumps, tailings storage facility (TSF), and process plant design that form part of this Technical Report.

## 1.5 History

The exploration and mining history of the Property dates back to the 1940s; however, exploration and mining activity in the regional Siguiri basin has a much longer history. The first geological studies of the Birimian commenced in the early 1900s. More detailed exploration from 1943 to 1945 resulted in the discovery of auriferous veining through various parts of the Siguiri Basin within the Birimian Greenstone Belt.

The Property has seen successive phases of exploration and development by a number of companies. Exploration within the Kiniero licence area of the Property commenced in 1943 under BUMIFOM. Between 1943 and 1950 BUMIFOM initially explored through pitting, trenching, and drilling, culminating in the establishment of the historical Kiniero Gold Mine.

More recent development commenced in the late 1980s and culminated in the production of 418,000 oz of gold between 2002 and 2014 from the historical Kiniero Gold Mine which was operated by SEMAFO. Extensive exploration works were carried out by SEMAFO during this period including diamond drilling (DD), reverse circulation (RC) drilling, trenching, geophysical surveys, and soil sampling. Mining by SEMAFO was undertaken in the SGA (Gobelé), Jean, and West Balan deposit areas.

Following an initial public tender process, on 19 November 2019, SMG signed an agreement with the GOG to redevelop the Kiniero Gold Mine. SMG subsequently applied for the Kiniero licence exploitation permits, which were successfully awarded to SMG.

Limited exploration works were conducted within the Mansounia licence area prior to 1948. Between 1948 and 2003 exploration was limited to soil sampling and mapping. In 2003-2005 Gold Fields as a JV partner carried out aeromagnetic surveys, and an initial programme of rotary air blast (RAB) and RC drilling.

Between 2006 and August 2013, Burey Gold Limited (Burey Gold) conducted exploration works within the Mansounia licence area. Exploration activities completed in this period included RC and DD drilling.

In August 2014, Blox Inc (Blox) acquired a 78% interest in the Mansounia licence. Limited exploration was conducted between 2014 and June 2019 with drilling limited to auger drillholes. The Mansounia licence was acquired in its entirety in April 2020 by Penta, before being acquired by SMG in June 2021.

## 1.6 Deposit geology

The Property is located within the Kiniero Gold District of the Siguiri Basin, which is situated in north-eastern Guinea, extending into central Mali. Geologically, the Siguiri Basin comprises a portion of the West Africa Birimian Greenstone Belt which includes intrusive volcanics (ultramafics to intermediate) and sediments that were largely deposited through the period 2.13 Ga to 2.07 Ga.

Intense weathering has affected West Africa since the early Mesozoic. The sustained tropical climate from the Mesozoic to the present day in western Africa has resulted in a deep weathering and leaching profile of the local lithologies, with the development of a surface laterite colluvium and a saprolitic zone near the surface.

The deposits located on the Property are associated with the Proterozoic Birimian orogeny of West Africa. Most gold mineralization in the West African Craton is shear-zone-hosted and structurally controlled, with lithology having a minor, local influence. The mineralization developed in the Kiniero Gold District conforms to this general style of mineralization.

Gold mineralization occurs in veins a few millimetres to tens of metres in width, with predominantly quartz-sulphide mineral assemblages and differing secondary minerals depending on the degree of alteration and/or overprinting. The veins generally take the form of composite anastomosed structures. At least three categories can be distinguished, corresponding to three consecutive stages of the hydrothermal process, and in turn, there is an extensive pervasive albitization event which overprints the earliest veining.

## 1.7 Exploration

Exploration works completed by SMG on the Property includes outcrop sampling and soil geochemical sampling using a bulk leach extractable gold (BLEG) assay method. Geophysical exploration included the compilation and reassessment of historical magnetic and resistivity surveys. SMG also commissioned magnetic modelling on three magnetic anomalies using the University of British Columbia (UBC) magnetics susceptibility inversion tool. In 2022, SMG commissioned Geostratum to undertake electrical resistivity tomography (ERT) profiles using a

Schlumberger survey configuration. A total of 20 survey lines were completed covering a lateral distance of 22 km.

Known gold deposits within the Property show a direct correlation with interpreted aeromagnetic anomalies supporting its application for identifying prospective targets. The geophysical data has proven valuable in correlating the known geology and structures against the BLEG Au-in-soil geochemical fabric. There is a strong relationship between the BLEG Au-in-soil, magnetics, intrusives, and structures.

## 1.8 Drilling

Drilling has been carried out across the Property by various operators, including most recently by SMG. Historical drilling used as part of the Mineral Resource estimates comprises those drillholes completed by SEMAFO, Gold Fields, and Burey Gold. The dates of acquisition of the two Kiniero and Mansounia licences by the Issuer is January 2020 and June 2021 respectively. Any drilling works after these dates is treated as current.

Between 1996 and 2012, drilling was carried out by SEMAFO across the Kiniero licence area. Initial exploration drilling was aimed at identification and delineation of deposits. This was subsequently followed up by RC and DD to define the extents of the mineralization. Later periods of exploration focused on targeting orebody extensions and/or replacing Mineral Resources. SEMAFO used a combination of RC, DD, and RAB methods totalling 6,414 drillholes (446,833 m), of which RC drilling makes up 85% of the metres drilled.

Within the Mansounia licence area, RAB and RC drilling was completed by Gold Fields between 2003 and 2005, and RC and DD by Burey Gold from 2007 up until the updated Mineral Resource estimate by Runge in 2012. Between these two operators a total of 430 drillholes (35,368 m) was drilled, of which 86% of metres drilled was RC.

Since acquiring the Property SMG has undertaken a combination of RC, DD, RAB, air core (ACO), and auger drillholes.

The RAB drilling campaigns were undertaken primarily to investigate sources for water supply, for monitoring or dewatering at the Project, and therefore have not been used in the Mineral Resource estimates. Auger drilling was completed by SMG on the legacy stockpiles, the results of which have been used to quantify the volumes, tonnages, and grades of each of the near-mine stockpiles that were drilled.

SMG completed a total of 756 RC drillholes totalling 72,547 m and a further six (6) DD drillholes, totalling 1,326 m to supplement the previous drilling works completed by SEMAFO, Gold Fields, and Burey Gold.

Drillhole spacing ranges from approximately 12 m by 12 m up to 100 m-200 m by 50 m in areas which are less well drilled. Drillholes have been predominantly drilled inclined with the aim of intercepting mineralization perpendicular to the interpreted trend.

## 1.9 Sample preparation, analyses and data verification

A number of laboratories have been used for preparation and assaying of samples by SEMAFO, Gold Fields, Burey Gold, and more recently, SMG. The laboratories used have typically been accredited and with the exception of the Kiniero Mine Laboratory, all independent. Laboratories used by SEMAFO included ITS Mandiana, SGS Siguiri, ALS Kankan, ALS Bamako, and the Kiniero Mine Laboratory.

Samples prepared and assayed for Gold Fields and Burey Gold were undertaken by Transworld Laboratories (acquired by Intertek Minerals Division in October 2008).

All of the laboratories used by the previous operators used a similar sample preparation and assay method comprising weighing, drying, crushing, and pulverizing samples to 75 µm, from which a 50 g subsample was taken for fire assay with an atomic absorption finish (FA-AA).

Since 2020, SMG has used four different accredited independent laboratories:

- Bamako SGS Mineral Laboratory in Mali (SGS Bamako).
- Ouagadougou SGS Mineral Laboratory in Burkina Faso (SGS Ouagadougou).
- Bamako ALS Minerals Laboratory in Mali (ALS Bamako).
- Intertek Minerals Limited in Tarkwa, Ghana (Intertek Tarkwa).

Sample preparation and analyses have comprised crushing and pulverization of samples to 75 µm with the resultant subsamples assayed via fire assay with an atomic absorption finish.

Quality assurance and quality control (QA/QC) procedures have been implemented by both SMG and the previous Project operators.

QA/QC submissions by SEMAFO included field duplicates, certified reference materials (CRMs), and blanks. Burey Gold inserted duplicate samples, standard reference materials (SRMs) and blanks to the laboratories to check for precision and accuracy. Burey Gold opted to generate its own SRMs by generating composite samples from different holes which had yielded similar assay grades. Blank samples were generated using a similar approach to the SRMs.

SMG has submitted field and pulp duplicates, as well as CRMs sourced from Ore Research and Exploration (OREAS) and Rocklabs. A cement material has been used as a blank. The field duplicate results show a moderate- to low-level of repeatability, including when applying a grade cap to remove higher grade samples which may exhibit greater variability. The QP is of the opinion that the degree of precision and repeatability for the field duplicates, is in keeping with the mineralization style and nuggety nature of the gold mineralization at the Property. The pulp duplicates show improved precision compared to the field duplicates indicating that the crushing and pulverization stages are generating a more homogenous mass from which more representative sample splits can be obtained.

The results of the CRM submissions show that overall, there is a reasonable degree of analytical accuracy, with the majority of results falling within ±3 standard deviations of the target value. Blank samples show no significant sample contamination with >96% of results being within ten times the detection limit.

The QP is of the opinion that the sample preparation, security, and analytical methods are acceptable and meet industry-standard practices. In the opinion of the QP the data has been verified and is therefore suitable for use in Mineral Resource and Mineral Reserve estimates.

## 1.10 Mineral processing and metallurgical testing

Various metallurgical testwork campaigns have been completed by SMG in support of the Project, relying on sample material that has been selected from the differing deposits, with the purpose of:

- Validating historical metallurgical processing plant performance data.
- Determining feasibility study (FS)-level design parameters for the process plant.

Canadian-registered independent mineral process engineering consultancy, Soutex Inc (Soutex), was appointed in 2022 in order to increase the level of confidence in the plant design and economic assumptions. The main goals of the last 2022-2023 testwork was to identify the leaching conditions and reagents consumption for the plant's CIL circuit. CIL testing is favoured because the previous results (Intertek, 2022) showed better kinetics than direct leaching. The direct leaching route was also studied to validate the premises of faster kinetics using CIL. Additionally, acid mine drainage (AMD), gravity concentration, oxygen consumption, and cyanide detoxification were also realized as part of this testwork.

Compared to previous studies, the recent testwork led to reduced leach time and reagent consumption design criteria, combined with new information about oxygen consumption and detoxification parameters. The recovery hypotheses are similar to the 2022 Mining Plus Technical Report, showing a decrease of recovery with depth in the various pits.

## 1.11 Mineral Resource estimates

Mineral Resource estimates have been completed for the following deposits on the Property:

- SGA—incorporating SGA (Gobelé A, B, C), Gobelé D, NEGD, and East-West.
- Jean—incorporating Jean West and Jean East.
- Sabali South—previously known as Sabali Extension, inclusive of Mansounia North of the Mansounia licence area.
- Sabali North and Central—previously known as Sabali East.
- Mansounia Central.
- West Balan.
- Banfara.

Mineral Resource estimates were also completed for selected stockpiles and dumps.

The effective date for the Mineral Resource estimates is 12 November 2022 The Mineral Resources are reported inclusive of Mineral Reserves. Estimates by deposit are presented in Table 1.1.

Table 1.1 Kiniero Mineral Resources, as of 12 November 2022

| Deposit | Indicated | | | Inferred | | |
|---|---|---|---|---|---|---|
| | **Tonnes (Mt)** | **Au grade (g/t)** | **Contained Gold (koz)** | **Tonnes (Mt)** | **Au grade (g/t)** | **Contained Gold (koz)** |
| SGA | 11.04 | 1.57 | 556 | 9.64 | 1.54 | 479 |
| Jean | 4.31 | 1.81 | 251 | 1.63 | 1.68 | 88 |
| Sabali North and Central | 1.48 | 1.18 | 56 | 0.27 | 0.98 | 9 |
| Sabali South | 11.74 | 0.92 | 347 | 2.93 | 1.03 | 97 |
| West Balan | 2.11 | 1.48 | 100 | 0.84 | 1.51 | 41 |
| Banfara | 0.90 | 1.07 | 31 | 0.78 | 1.46 | 37 |
| Mansounia Central | - | - | - | 12.32 | 0.84 | 333 |
| **Total in situ** | **31.59** | **1.32** | **1,342** | **28.42** | **1.18** | **1,082** |
| Stockpiles | 11.61 | 0.37 | 139 | 0.19 | 1.31 | 8 |
| **Grand total** | **43.20** | **1.07** | **1,481** | **28.61** | **1.19** | **1,090** |

Notes:

1. Mineral Resources are not Mineral Reserves until they have demonstrated economic viability.
2. The effective date of the Mineral Resource is 12 November 2022.
3. The date of closure for the sample database informing the in situ Mineral Resources is 17 August 2022. The date of date of database closure for the stockpiles is 12 November 2022.
4. Cut-off grades for Mineral Resource reporting are:
   a. SGA, Jean and Banfara: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.5 g/t Au, fresh 0.6 g/t Au.
   b. Sabali South: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.7 g/t Au, fresh 0.9 g/t Au.
   c. Sabali North and Central: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.9 g/t Au, fresh 0.8 g/t Au.
   d. West Balan: laterite 0.5 g/t Au, saprolite (oxide) 0.4 g/t Au, saprock (transition) 0.5 g/t Au, fresh 0.6 g/t Au.
   e. Stockpiles reported as Mineral Resources have been limited to those dumps which exhibit an average grade >0.3 g/t Au for the entire stockpile assuming no selectivity.
5. These are based on a gold price of US$1,950/oz and costs and recoveries appropriate to each pit and type of feed.
6. The QP for this Mineral Resource estimate is Mr Ingvar Kircher.
7. Mineral Resources are reported inclusive of Mineral Reserves.
8. Open-pit Mineral Resources have been constrained using conceptual open-pits based on a gold price of US$1,950/oz.
9. The Mineral Resource has been compiled in accordance with the guidelines outlined in CIM Definition Standards, (2014).
10. Totals presented in this table are reported from the Mineral Resource models, are subject to rounding, and may not sum exactly.

The Mineral Resource estimates are based on drilling data exported from the Microsoft™ Access database operated by SMG. The database incorporates some historical drilling data from SEMAFO for the Kiniero licence area, Burey Gold data for the Mansounia licence, as well as the more-recent drilling completed by SMG. For the estimates, grade control drilling for SGA has been omitted along with trenching, RAB, and auger drilling data.

Interpretations of the mineralization and weathering profiles for the in situ deposits were completed and used to generate 3D block models.

Samples were selected within the mineralization wireframes and assigned a MINZONE domain code corresponding to the fault block or distinct area in which it is located. The individual lode wireframes in each of the MINZONE areas were then used to provide additional subdomaining. Grade capping was applied to the sample data prior to compositing.

Drilling data was composited to 2 m sample lengths, except for Sabali South which was composited to 1 m.

Variography was completed using the gold composite data where adequate data existed.

The block models for the in situ deposits have generally been constructed using 5 m by 12.5 m by 5 m blocks rotated into the general orientation of each of the deposits. Exceptions are for Mansounia which used small panels of 10 m by 25 m by 10 m blocks and the stockpiles and dumps which used unrotated 25 m by 25 m by full vertical width blocks.

Gold grades have been estimated into the deposit block models using restricted ordinary kriging (ROK) with small search neighbourhoods and dynamic anisotropy as the estimation method to approximate selective mining unit (SMU) mining selectivity. Exceptions are for Mansounia and the stockpiles and dumps which used ordinary kriging (OK) to estimate gold grades into small panels. A high-grade distance restriction process was applied to most of the deposit estimates.

The resultant grade estimates were validated both statistically and visually.

The Mineral Resources for the Project have been classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014). The mineralization at the Project satisfies sufficient criteria to allow classification into Indicated and Inferred Mineral Resource categories. Areas of the deposits classified as Indicated correspond to individual orebodies which have more than three drillholes informing them, and where the drillhole spacing is <30 m. Mineralization not making the criteria for Indicated and with drillholes spacing <100 m were classified as Inferred, including orebodies estimated based on two to three drillholes.

To demonstrate reasonable prospects for eventual economic extraction (RPEEE), pit optimizations have been carried out on the block models using Whittle software at a gold price of US$1,950/oz. Table 1.2 summarizes the pit optimization parameters used.

Table 1.2 Pit optimization parameters summary

| Inputs | Units | SGA | Jean | Sabali South | Sabali North and Central | West Balan | Banfara |
|---|---|---|---|---|---|---|---|
| Gold Price | US$/oz | 1,950 | 1,950 | 1,950 | 1,950 | 1,950 | 1,950 |
| Selling Cost | US$/oz | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 |
| Royalty | % | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| Selling Price | US$/g | 58.86 | 58.86 | 58.86 | 58.86 | 58.86 | 58.86 |
| Annual Discount Rate | %/annum | 5 | 5 | 5 | 5 | 5 | 5 |
| Mining Cost (laterite) | US$/bcm | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| Mining Cost (Saprolite) | US$/bcm | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| Mining Cost (Saprock) | US$/bcm | 2.30 | 2.30 | 2.30 | 2.30 | 2.30 | 2.30 |
| Mining Cost (Fresh) | US$/bcm | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 |
| Mining Recovery | % | 95 | 95 | 95 | 95 | 95 | 95 |
| Mining Dilution | % | 16 | 20 | 18 | 19 | 18 | 21 |
| Processing Cost (Laterite) | US$/t ROM | 20.78 | 20.80 | 21.41 | 20.69 | 20.89 | 20.80 |
| Processing Cost (Saprolite) | US$/t ROM | 15.56 | 15.63 | 15.72 | 15.73 | 16.13 | 15.63 |
| Processing Cost (Saprock) | US$/t ROM | 21.34 | 21.36 | 21.54 | 21.37 | 21.77 | 21.36 |
| Processing Cost (Fresh) | US$/t ROM | 27.13 | 27.15 | 27.17 | 27.12 | 27.52 | 27.15 |
| Gold Recovery (Laterite) | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Gold Recovery (Saprolite) | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Gold Recovery (Saprock) | % | 92.0 | 92.0 | 62.5 | 50.0 | 92.0 | 92.0 |
| Gold Recovery (Fresh) | % | 86.0 | 86.0 | 60.0 | 65.0 | 86.0 | 86.0 |
| Breakeven cut-off grade (Laterite) | g/t | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Breakeven cut-off grade (Saprolite) | g/t | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 |
| Breakeven cut-off grade (Saprock) | g/t | 0.5 | 0.5 | 0.7 | 0.9 | 0.5 | 0.5 |
| Breakeven cut-off grade (Fresh) | g/t | 0.6 | 0.6 | 0.9 | 0.8 | 0.6 | 0.6 |

Source: Robex, 2023.

SMG has completed an extensive campaign of auger drilling on all available low-grade stockpiles and historical waste rock dumps. The modelling of the stockpiles used the auger data, pre-mining topography, and the 2021 LiDAR survey to define the total and informed volumes. Full length composites were used to estimate the dumps using an inverse distance estimation method.

Stockpiles and dumps that have been reported as Mineral Resources are limited to those which exhibit an average grade >0.3 g/t Au for the entire stockpile or dump assuming no selectivity and for which there are reasonable prospects that the stockpiles can be processed economically. All stockpiles eligible to be reported as Mineral Resources have been classified as Indicated except for part of the West Balan stockpile which has been classified as Inferred.

## 1.12 Mineral Reserve estimates

The Kiniero Mineral Reserves are composed of open-pit Mineral Reserves of 21,410 kt at an average grade of 1.27 g/t Au containing 872 koz Au and historic stockpiles of 6,255 kt at an average grade of 0.48 g/t Au containing 96 koz Au. The consolidated open pit and stockpile Probable Reserves for Kiniero are presented in Table 1.3.

Table 1.3 Kiniero Mineral Reserves as of 01 June 2023

| Probable Mineral Reserves | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mining area** | **Oxide** | | | **Transition** | | | **Fresh** | | | **Total** | | |
| | **Tonnes (Kt)** | **Au Grade (g/t)** | **Au (koz)** | **Tonnes (Kt)** | **Au Grade (g/t)** | **Au (koz)** | **Tonnes (Kt)** | **Au Grade (g/t)** | **Au (koz)** | **Tonnes (Kt)** | **Au Grade (g/t)** | **Au (koz)** |
| Jean | 745 | 1.13 | 27 | 840 | 1.69 | 46 | 2,608 | 1.64 | 138 | 4,193 | 1.56 | 211 |
| SGA | 633 | 1.28 | 26 | 862 | 1.67 | 46 | 3,649 | 1.60 | 188 | 5,143 | 1.57 | 260 |
| SGD | 1,286 | 1.14 | 47 | 253 | 1.30 | 11 | 1,895 | 1.51 | 92 | 3,434 | 1.36 | 150 |
| Sabali South | 6,255 | 0.80 | 162 | 1,318 | 1.32 | 56 | 18 | 1.71 | 1 | 7,590 | 0.90 | 219 |
| Sabali North and Central | 1,049 | 0.97 | 33 | 0.00 | 0.00 | 0 | 0 | 0.00 | 0 | 1,049 | 0.97 | 33 |
| **Subtotal all pits** | **9,968** | **0.92** | **295** | **3,273** | **1.51** | **158** | **8,170** | **1.59** | **419** | **21,410** | **1.27** | **872** |
| Stockpiles | 6,255 | 0.48 | 96 | | | | | | | 6,255 | 0.48 | 96 |
| **Total Ore Reserves** | **16,223** | **0.75** | **391** | **3,273** | **1.51** | **158** | **8,170** | **1.59** | **419** | **27,665** | **1.09** | **968** |

Notes:
1. CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM, 2014) were used for reporting of Mineral Reserves.
2. Mineral Reserves are estimated using a long-term gold price of US$1,650 per troy oz for all mining areas.
3. Mineral Reserves are stated in terms of delivered tonnes and grade before process recovery.
4. Mineral Reserves are defined by pit optimization and are based on variable break-even cut-offs as generated by process destination and metallurgical recoveries.
5. Metal recoveries are variable dependent on material type and mining area (Table 15.9 of this Technical Report).
6. Open-pit dilution and geological ore loss is applied through the application of 1 m dilution skins to the resource block model using Mining Shape Optimiser (MSO).
7. Mining recovery of 99% applied to diluted open-pit inventories to account for operational losses.
8. The QP responsible for this item of the Technical Report is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimates.
9. Effective date of Mineral Reserves is 01 June 2023.
10. Tonnage and grade measurements are in metric units. Contained Au is reported as troy ounces.
11. Totals may not compute exactly due to rounding.

The process through which the Mineral Reserves were determined was as follows:

1 Mineable Shape Optimiser (MSO) was applied to the Mineral Resource block models to generate mining shapes and determine dilution and ore losses. The mining shapes were applied to the Mineral Resource block models to generate diluted block models. The MSO algorithm generated 3D wireframes which:
   a. Meet minimum mining dimension criteria.
   b. Include dilution skins of one metre thickness.
   c. Provide a diluted ore grade above the specified cut-off grade.
2 Geotechnical slope regions and pit optimization inputs, including mining and processing costs, were added to the diluted block models to create mining block models.
3 Pit optimization was undertaken on the mining block models using Datamine Studio NPV Scheduler. The pit optimizations were completed based on US$1,650/oz gold price, 5.5% royalty, and 5% discount rate. A 20 m minimum mining width was applied to the pit shells in NPV Scheduler to account for practical mining constraints. Robex's strategy is to maximize the gold contained in the Mineral Reserves and thus the Revenue Factor (RF)1 pit shells were selected to form the basis of design.
4 Pit designs were created using Datamine software and are based on:
   a. The selected RF1 pit shell wireframes from pit optimization.
   b. The pit slope design criteria.
   c. Dual-lane ramp width of 18 m and 10% maximum gradient.
   d. Single-lane ramp width of 12 m and 12.5% maximum gradient.
   e. Minimum mining width of 20 m.
5 Pit phase designs were imported into NPV Scheduler and a strategic schedule run to optimize net present value (NPV) while honouring project constraints. Following the strategic schedule, a production schedule was produced in MineSched based on the strategic schedule sequencing and practical mining constraints (Section 16 of this Technical Report).
6 Following scheduling, a further mining recovery of 99% was applied to the open-pit ore to form the final Mineral Reserve estimate.

As a result of previous mining operations, there are historic oxide stockpiles located across the Kiniero site. Seven of these stockpiles have been drilled, modelled, and classified as Indicated Mineral Resources and have been included in the Mineral Reserves. The higher grade stockpile will be used to supplement ore production during start-up while the lower grade stockpiles will be processed at the end of mine life.

## 1.13 Mining

Mining at Kiniero will be undertaken by conventional contractor-operated truck and excavator open-pit mining in the SGA, Jean, SGD, Sabali South and Sabali North, and Central pits. Mining will be undertaken using Komatsu PC1250 sized excavators mining on 5 m benches and 2.5 m flitches loading 55 t Volvo A60H haul trucks.

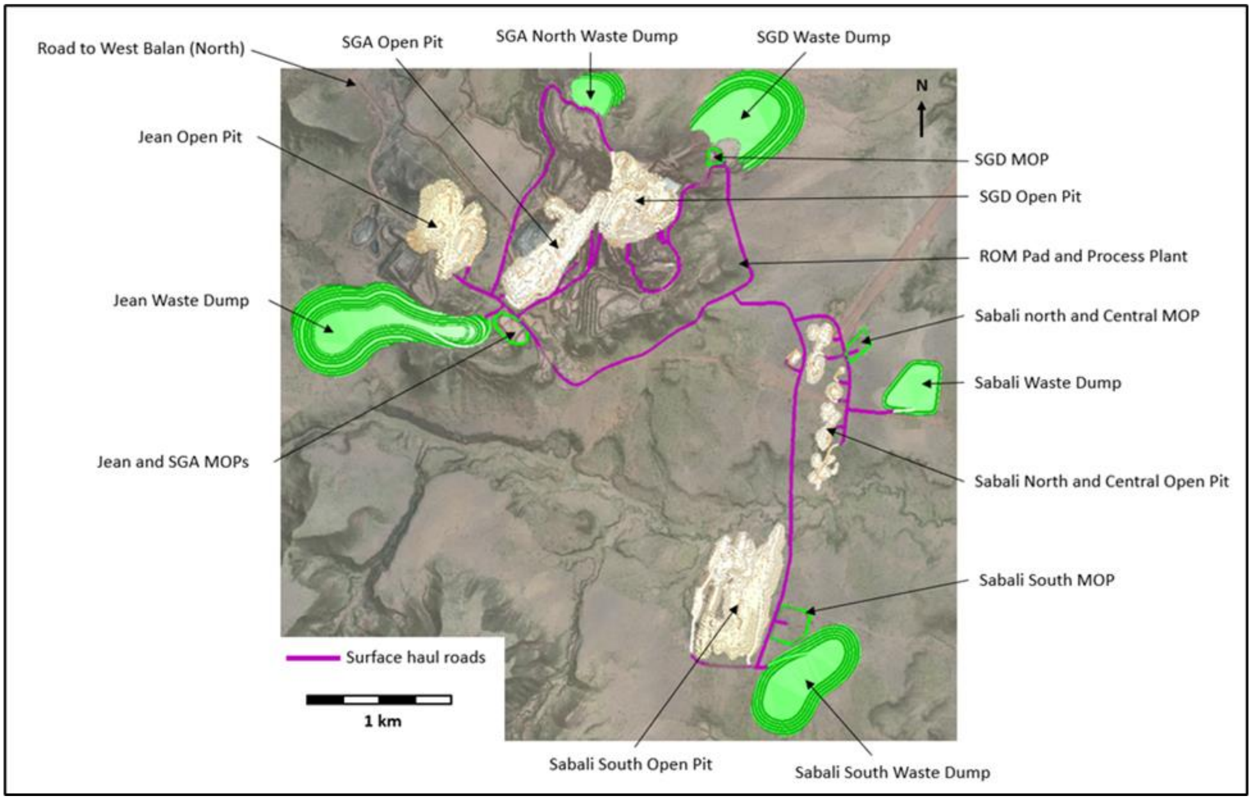
Mining in upper oxide layers will be free-dig with drill-and-blast required in areas that mine through the transitional material into fresh rock. The free-dig nature of the oxide and transitional zones has been confirmed by extensive previous mining at site. Drill-and-blast will be required for approximately 1% of the oxide material, 40% of the laterite, 60% of the transitional, and 100% of the fresh.

Ore will be categorized by material and grade through in-pit grade control and will be hauled to mine ore pad (MOP) stockpiles by the Volvo A60H fleet. All ore will be rehandled at the MOP by a fleet of Komatsu WA600 front-end loaders (FEL) which will load Ginaf HD5380T 60 t road haul trucks to deliver the ore to the process plant. Waste will be hauled to the nearest available waste dump by the Volvo A60H fleet.

Historic mining in Jean, SGA, and SGD have resulted in pit lakes that require dewatering and clean-up prior to mining.

The key mining infrastructure including pits, waste dumps, stockpiles, and haulage routes is shown in Figure 1.2.

Figure 1.2 Key mining infrastructure layout




Source: AMC, 2023.

## 1.14 Production schedule

The production schedule was completed in MineSched using the pit designs and phases described in Section 16.6 of this Technical Report and diluted mining block models described in Section 15 of this Technical Report. The key outcomes of the production schedule are:

- 9.5 year mine life with 7.5 years of mining followed by two years of stockpile processing.
- 81.7 Mt total open-pit material mined.
  - 21.4 Mt of ore at 1.27 g/t Au mined
  - 60.3 Mt of waste mined.
  - 2.8:1 waste to ore strip ratio.
  - 6.3 Mt of historic stockpile ore at 0.48 g/t Au.

The key constraints used in the production schedule were:

- Mining commencing on 01 May 2024.
- Follow the optimized mining sequence determined in strategic scheduling.
- Mining rate of 1.2 Mt per month reduced to 0.8 Mt in the wet season.
- Maximum process plant oxide throughput of 361.6 Mt per month.
- Maximum process plant power consumption of 4.3M kWh per month.
- Minimize mining in the Sabali areas during the wet season.

Following scheduling in MineSched, the mining schedule was adjusted by bench and material to account for a 99% ore mining recovery. The mining recovery factor accounts for ore misplaced on waste dumps during operations and represents between one and two truckloads per day for LOM. Waste tonnages were adjusted accordingly by bench and material to accommodate the misplaced ore.

The production schedule, including historic stockpiles, is summarized annually by mining area in Table 1.4.

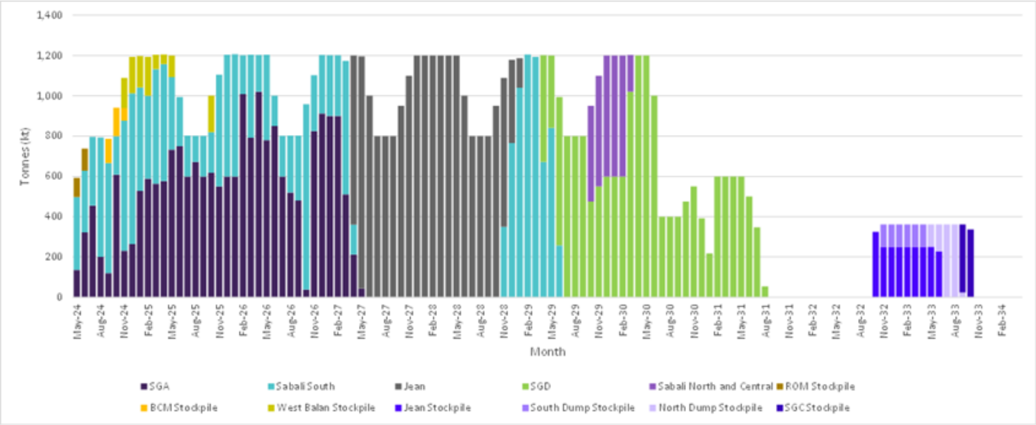
## Table 1.4 Production schedule table

| Open pit name | Parameter | Units | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SGA | Waste | kt | 2,150 | 5,796 | 5,917 | 1,700 | 0 | 0 | 0 | 0 | 0 | 0 | **15,563** |
| | Ore | kt | 187 | 1,581 | 2,508 | 867 | 0 | 0 | 0 | 0 | 0 | 0 | **5,143** |
| | Grade | g/t Au | 1.18 | 1.51 | 1.59 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **1.57** |
| Sabali South | Waste | kt | 2,553 | 2,712 | 2,416 | 711 | 1,018 | 3,304 | 0 | 0 | 0 | 0 | **12,713** |
| | Ore | kt | 1,180 | 1,862 | 1,848 | 701 | 98 | 1,903 | 0 | 0 | 0 | 0 | **7,590** |
| | Grade | g/t Au | 0.71 | 0.80 | 0.95 | 1.43 | 0.75 | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | **0.90** |
| Jean | Waste | kt | 0 | 0 | 0 | 7,664 | 8,368 | 66 | 0 | 0 | 0 | 0 | **16,098** |
| | Ore | kt | 0 | 0 | 0 | 978 | 3,136 | 79 | 0 | 0 | 0 | 0 | **4,193** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 1.21 | 1.68 | 1.45 | 0.00 | 0.00 | 0.00 | 0.00 | **1.56** |
| SGD | Waste | kt | 0 | 0 | 0 | 0 | 0 | 5,339 | 6,324 | 2,310 | 0 | 0 | **13,972** |
| | Ore | kt | 0 | 0 | 0 | 0 | 0 | 313 | 1,913 | 1,208 | 0 | 0 | **3,434** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.08 | 1.38 | 1.39 | 0.00 | 0.00 | **1.36** |
| SBL | Waste | kt | 0 | 0 | 0 | 0 | 0 | 1,216 | 742 | 0 | 0 | 0 | **1,958** |
| | Ore | kt | 0 | 0 | 0 | 0 | 0 | 409 | 640 | 0 | 0 | 0 | **1,049** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.15 | 0.86 | 0.00 | 0.00 | 0.00 | **0.97** |
| **Subtotal open pit** | **TMM** | **kt** | **6,069** | **11,951** | **12,688** | **12,622** | **12,619** | **12,629** | **9,618** | **3,518** | **0** | **0** | **81,715** |
| | **Waste** | **kt** | **4,703** | **8,508** | **8,333** | **10,075** | **9,385** | **9,925** | **7,065** | **2,310** | **0** | **0** | **60,304** |
| | **Ore** | **kt** | **1,366** | **3,443** | **4,356** | **2,546** | **3,233** | **2,704** | **2,553** | **1,208** | **0** | **0** | **21,410** |
| | **Grade** | **g/t Au** | **0.77** | **1.13** | **1.32** | **1.44** | **1.65** | **0.95** | **1.25** | **1.39** | **0.00** | **0.00** | **1.27** |
| | | | | | | | | | | | | | |
| **Historic stockpile name** | **Parameter** | **Units** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **Total** |
| ROM Stockpile | Ore | kt | 205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **205** |
| | Grade | g/t Au | 0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.94** |
| BCM Stockpile | Ore | kt | 326 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **326** |
| | Grade | g/t Au | 0.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.58** |
| West Balan Stockpile | Ore | kt | 329 | 756 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,085** |
| | Grade | g/t Au | 0.53 | 0.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.59** |
| Jean Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 824 | 1,479 | **2,303** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.43 | **0.43** |
| South Dump Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 223 | 448 | **671** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.43 | **0.43** |
| North Dump Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 991 | **991** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | **0.43** |
| SGC Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 674 | **674** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | **0.38** |
| **Subtotal historic stockpiles** | **Ore** | **kt** | **860** | **756** | **0** | **0** | **0** | **0** | **0** | **0** | **1,047** | **3,591** | **6,255** |
| | **Grade** | **g/t Au** | **0.65** | **0.62** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.43** | **0.42** | **0.48** |

Source: AMC, 2023.

The total material movement (TMM) tonnage by mining area is shown in Figure 1.3.

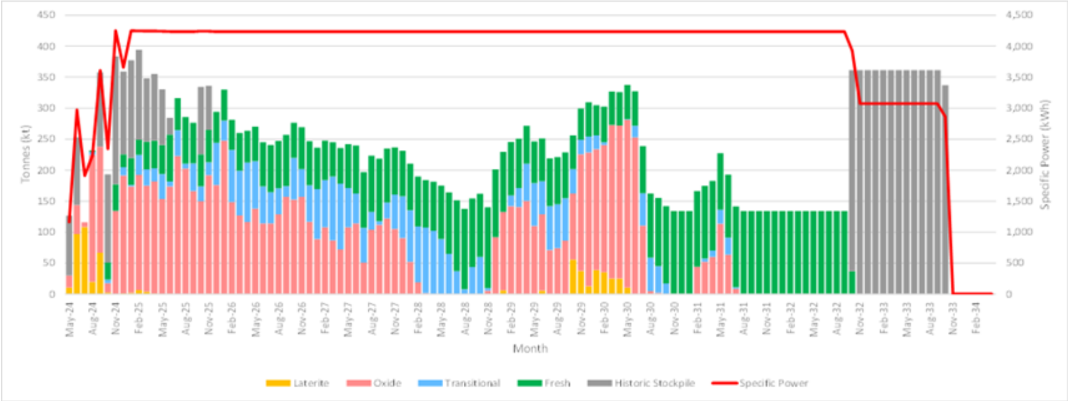
Figure 1.3 Total tonnage by mining area (including historic stockpiles)




Source: AMC, 2023.

The process schedule targeted 4.3 MkWh power consumption is presented in Figure 1.4.

Figure 1.4 Process feed schedule (showing specific power)



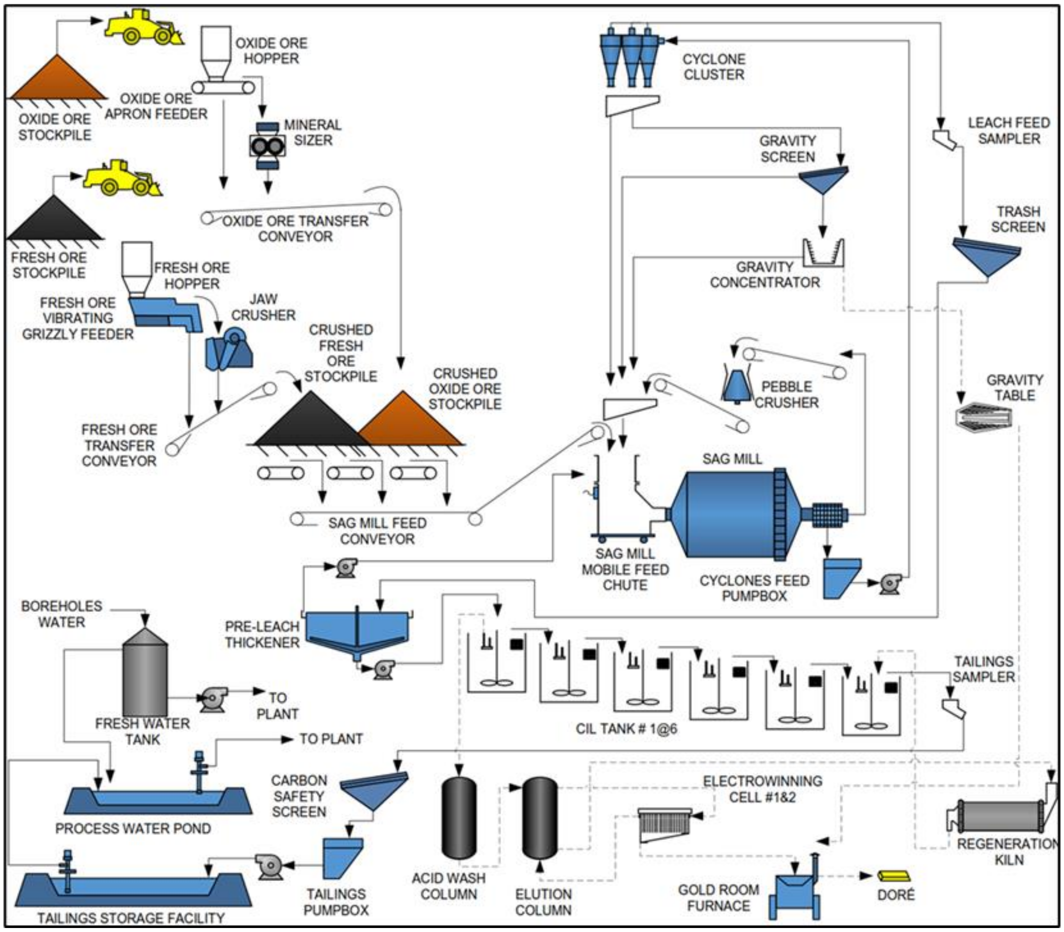

Source: AMC, 2023.

Mining equipment will be provided by the mining contractor and the costs are included in the contractor quotations.

## 1.15 Recovery methods

The process plant design is based on a metallurgical flowsheet developed for flexible operation between the various types of ore while maintaining the throughput and gold recovery. Ore will be processed on-site, at a centrally located processing facility near the mining areas. The beneficiation plant has been designed to process a blend of oxide, laterite, transition, and fresh ores from the mining pits and stockpiles. Figure 1.5 illustrates the simplified block flow diagram of the proposed process plant. Oxide and upper transition (soft) ores require less comminution energy than laterite and fresh ore (hard). However, they present other challenges in handling due to the sticky nature of oxide ore types, justifying dedicated crushing devices for soft and hard ores. The process plant design has been based on a nominal capacity of 3.0 Mtpa. The flowsheet (Figure 1.5) includes processes for crushing, semi-autogenous grinding (SAG) milling, gravity concentration, thickening, carbon-in-leach (CIL) leaching, Zadra elution, gold electrowinning, and carbon regeneration and SO2 detoxification, that are well proven in the industry.

Figure 1.5 Process plant simplified block flow diagram




Source: Soutex, 2023.

The crushing area of the Project processing plant contains two parallel crushing lines, each feeding a dedicated ore stockpile. Laterite, transition, and fresh ores from the ROM pad feed a crushing line (hard), while oxide ores feed the other (soft) (Figure 1.5). The crushed ores are reclaimed from the crushed fresh ore stockpile and the crushed oxide ore stockpile by three (3) underground apron feeders and transported to the SAG mill by the SAG mill feed conveyor.

The use of separate crushed ore stockpiles allows for better management of the oxide/hard ore ratio. Optimal tonnages from the apron feeders for the crushed fresh and crushed oxide ores are adjusted to obtain the targeted ore type feed ratio to the SAG mill. The grinding of the crushed ore will be performed using a SAG mill in a closed circuit with hydrocyclones and a pebble crusher. A gravity concentrator processes a portion of the cyclone underflow (within the SAG circulating load). The ground ore exiting the cyclone overflow flows by gravity to the pre-leach thickener feed box.

Lime is added to achieve an alkaline pH, and to prevent HCN gas formation in the CIL circuit. Sodium cyanide is added to the CIL feed box to achieve the cyanide concentration target for gold leaching. The slurry then progresses to the CIL tanks. The slurry containing loaded carbon is pumped counter current from CIL Tank #6 to CIL Tank #1 and to the loaded carbon screen, where the loaded carbon is recovered. The residual cyanide in the tailings will be eliminated in the detoxification tank in order to meet International Cyanide Management Code (ICMC) standards. The leached slurry, containing residual gold, flows through the tailings pump box from where it is transferred to the tailings storage facility.

The loaded carbon is discharged into the acid wash column. The loaded carbon is washed with hydrochloric acid to remove any carbonates that were trapped on the carbon surface during the CIL stage before being transferred to the elution column. The elution process desorbs the gold adsorbed onto the activated carbon by circulating a preheated barren solution in the elution column, where the gold is transferred from the carbon into solution. The pregnant solution emanating from the elution column is cooled before being transferred to the electrowinning cells, where gold is plated onto cathodes.

The gravity concentrate is cleaned of magnetic material by the gravity concentrate magnet, following which the gravity table receives the gravity concentrate and separates the high-density material, i.e. the gold, from the lower density material – the tailings. The gold from the electrowinning cells and the gravity table is then further purified in the gold room furnace, from where it is melted and then poured into moulds to form doré bars.

### 1.16 Environmental studies, permitting, and social or community impacts

The baseline description was initially prepared and reported in the Environmental Social Impact Assessment (ESIA) by ABS Africa and Insuco Guinée Limited (Insuco). The ESIA was submitted in May 2020 in support of the application to the GOG for the conversion of the Kiniero Exploration Permits to Exploitation Permits. The March 2020 ESIA Report and associated specialist studies was subsequently updated to assess the 2022 Technical Report changes pertaining to the Project, namely the:

- Updated pit designs and site layout.
- Updated mining schedule.
- Pit dewatering strategy.
- Inclusion of the Sabali South pits and waste rock dumps (WRDs) to the south.
- Inclusion of a new TSF to the north-east of the existing TSF, which provides increased capacity to the facility proposed in 2020.
- Inclusion of a new processing plant to the east of the SGA pits, with an increased processing capacity of 3 Mtpa.

The Project is being undertaken with due consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements, Equator Principles and International Finance Corporation (IFC) Performance Standards. The economic benefit of this development is significant and viewed as a positive development by the community. With mining projects of this nature, there are also negative impacts which will require planning, mitigation, and monitoring during the construction, operational, decommissioning, and closure phases of the project. These have been included in the ESIA. Based on the assessment completed in the ESIA, no fatal flaws have been identified. Mitigation measures and monitoring programmes have been identified and developed for impacts that require mitigation.

### 1.17 Power

Due to the Project location, access to the Guinea national grid is not available, thus an on-site power generation solution is required. The Project will utilize a diesel-solar and battery storage hybrid power plant consisting of diesel generators with a capacity of approximately 13,286 kW, a solar photo-voltaic (PV) plant with total capacity of approximately 18,030 kWp/14,400 kW and the battery energy storage system with a capacity of 06 MWh/12 MW.

The hybrid power plant has been developed based on Vivo Energy providing power as an Independent Power Producer (IPP). Vivo Energy will be responsible for all energy requirements of the mine. The diesel generator will be the prime source of power supply. The PV battery plant will be displacing the thermal generation by up to 40% during the solar hours with support from a battery energy storage system (BESS). The PV battery and diesel generator plant will be connected directly to the main switchgear of the mine at a high voltage of 15 KV through a dedicated power line infrastructure. The distribution will supply the camp, plant, mining workshops, and TSF via the mine's main switchgear.

## 1.18 Water

Water for operations is to be sourced from existing raw water catchment dam (rainwater runoff collection), dewatering of historical pits, and boreholes.

Potable water will be required for the mine site and both accommodation camps during operations and construction. Currently the Main Camp has borehole water supply available and at the Staff Camp, water will be obtained from the Niandan River. Allowance has been made for the procurement and installation of three 4,000 gallon per day industrial Reverse Osmosis (RO) units, i.e. one for each camp and one for the mine site. Water supply to the RO units will be via existing boreholes at each camp.

Process water will be primarily sourced from recirculated TSF water. It is continuously recirculated from the TSF, to the process water pond and to the processing plant, mainly in the milling area. A pump located in the process water feeds the process water distribution network of the mill. Raw water is added to the process water pond through the freshwater tank overflow to compensate for the process water losses. The proposed water supply is sufficient to meet the process plant requirements.

## 1.19 Tailings

Epoch Resources (Pty) Ltd (Epoch) was commissioned by SMG to undertake the detailed design of the new TSF. The proposed TSF is required to accommodate 36 Mt of tailings over a life-of-mine (LOM) of 12 years at a rate of 250 ktpm (3 Mtpa). The required storage volume for the tailings has been calculated based on an estimated average in situ dry density of the tailings product of 1.39 $t/m^3$, a particle specific gravity (SG) of 2.77 $t/m^3$, and an estimated average in situ void ratio of 1.

The tailings will be pumped to the TSF in a slurry comprising 45% to 55% solids by mass. At an estimated particle SG of 2.77 $t/m^3$ the slurry density will be between 1.40–1.54 $t/m^3$.

The proposed TSF site has been selected as the preferred site for the development of the Kiniero Mine TSF based on the evaluation of the candidate sites. The TSF site was selected due to:

- The reduced rock/earth fill volume required to construct the main embankment of the TSF.
- The opportunity for phasing the TSF allows for the capital expenditure of the TSF construction to be spread over 3 phases (1A, 1B, and 2).
- The site allows for a facility that would be 27 m high, fully lined with a downstream raised, full-containment wall leading to potentially fewer failure modes to the TSF.
- The elevation to the processing plant is more favourable than other options and avoids the need for a deposition line to run over the large ridge between the existing TSF and other site options, which is favourable in terms of pumping costs.
- The site would be less exposed during operational and closure phases.
- Rehabilitation and closure of the TSF lends itself to relatively simple closure principles, where the long-term storage of water to the TSF could be avoided utilizing existing stormwater diversions to direct surface runoff away and off of the TSF. The relatively smaller downstream embankment surface area for the TSF would require less material for the rehabilitation and vegetation of downstream slopes to the TSF.

## 1.20 Capital and operating costs

The initial capital expenditure (CapEx) cost is estimated at US$159.9 million. Sustaining CapEx is estimated at US$74.2 million giving a life-of-mine (LOM) total CapEx of US$234.1 million. The LOM CapEx is summarized in Table 1.5.

Table 1.5 LOM CapEx summary

| Category | Initial CapEx (US$k) | Development CapEx post construction (US$k) | Sustaining LOM CapEx (US$k) | Total LOM CapEx (US$k) |
|---|---|---|---|---|
| Mining | 9,064 | | 3,091 | 12,155 |
| Process Plant | 91,346 | | 13,279 | 104,625 |
| TSF | 19,648 | 29,372 | 6,640 | 55,660 |
| Infrastructure | 8,617 | | | 8,617 |
| G&A | 15,730 | | | 15,730 |
| Other costs | 6,102 | | 505 | 6,606 |
| Closure costs | | | 19,866 | 19,866 |
| Contingency | 9,389 | 1,473 | | 10,862 |
| **Total** | **159,896** | **30,845** | **43,381** | **234,122** |

Source: Robex, AMC, Soutex, Epoch, 2023.

CapEx estimates presented in this section reflect total project costs from January 2023 to end of mine life. All costs incurred up to the end of 2022 are considered sunk costs.

Initial CapEx is defined as costs incurred up to April 2024.

The LOM OpEx estimates are summarized in Table 1.6.

Table 1.6 Summary of LOM OpEx

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore processed) | OpEx (US$/oz) |
|---|---|---|---|
| Refining and transport charges | 1.6 | 0.1 | 1.9 |
| Mining Costs | 296.5 | 10.7 | 348.5 |
| Processing Costs | 355.1 | 12.8 | 417.5 |
| General and Administration (Guinea) | 58.9 | 2.1 | 69.2 |
| **Total on site OpEx** | **712.1** | **25.7** | **837.1** |
| General and Administration (outside Guinea) | 32.3 | 1.2 | 38.0 |
| **Total OpEx including off-site G&A** | **744.4** | **26.9** | **875.1** |

Source: Robex, 2023.

## 1.21 Economic analysis

The economic analysis was undertaken by Robex and reviewed by AMC. The Project shows economic viability with a pre-tax NPV at 5% discount rate of US$251 million and internal rate of return (IRR) of 42% and a post-tax NPV of US$170 million and IRR of 31%. The pre-tax and post-tax economic analyses are summarized in Table 1.7.

## Table 1.7 Pre-tax and post-tax economic analysis summary

| **Production Summary** | **Units** | **Pre-tax** | **Post-tax** |
|---|---|---|---|
| Mine Total | | | |
| Total Material Mined | kt | 81,715 | 81,715 |
| Waste | kt | 60,304 | 60,304 |
| Ore | kt | 21,410 | 21,410 |
| Grade | g/t | 1.27 | 1.27 |
| In situ Gold (Reserves) | koz | 872 | 872 |
| Strip Ratio | W:O | 2.8 | 2.8 |
| **Processing** | | | |
| Ore Processed | kt | 27,665 | 27,665 |
| Grade | g/t | 1.09 | 1.09 |
| Recovered Gold | koz | 851 | 851 |
| **Cashflow summary** | | | |
| Net revenues | US$m | 1,402 | 1,402 |
| Royalties | US$m | (98) | (98) |
| Cash operating costs | US$m | (743) | (743) |
| Mining | US$m | (296) | (296) |
| Processing | US$m | (355) | (355) |
| G&A Guinea | US$m | (59) | (59) |
| G&A outside Guinea | US$m | (32) | (32) |
| Operating EBITDA | US$m | 561 | 561 |
| EBITDA Margin | % | 40% | 40% |
| Sustaining capital | US$m | (23) | (23) |
| Mine direct cashflows | US$m | 537 | 537 |
| Working capital movement | US$m | - | - |
| Taxes | US$m | - | (105) |
| Mine net operating cashflows | US$m | 537 | 433 |
| Growth or extension capital | US$m | (164) | (164) |
| Mine Net Investing cashflows | US$m | 373 | 269 |
| ABEX capital | US$m | (20) | (20) |
| Mine free cashflows | US$m | 353 | 249 |
| **Project NPV as of July 1st 2023** | **US$m** | **251** | **170** |
| **Project IRR as of July 1st 2023** | **%** | **42%** | **31%** |

Source: Robex, 2023.

Sensitivities were undertaken on gold price, CapEx, and OpEx at varied discount rates. The Project is most sensitive to gold price followed by OpEx and then CapEx.

The sensitivities to gold price are summarized in Table 1.8.

Table 1.8 Gold price sensitivities

| | Pre-tax | | | Post tax | | |
|---|---|---|---|---|---|---|
| | Discount rate (%) | | | Discount rate (%) | | |
| **Gold price (US$/oz)** | **0%** | **5%** | **10%** | **0%** | **5%** | **10%** |
| 1,950 | 591 | 437 | 329 | 418 | 301 | 218 |
| 1,800 | 472 | 344 | 254 | 335 | 235 | 165 |
| 1,650 | 354 | 251 | 179 | 251 | 170 | 113 |
| 1,500 | 235 | 158 | 104 | 167 | 103 | 59 |
| 1,350 | 116 | 65 | 29 | 82 | 37 | 6 |

Source: Robex, 2023.

The sensitivities to CapEx are summarized in Table 1.9.

Table 1.9 CapEx sensitivities

| | Pre-tax | | | Post-tax | | |
|---|---|---|---|---|---|---|
| | Discount rate (%) | | | Discount rate (%) | | |
| **CapEx flex** | **0%** | **5%** | **10%** | **0%** | **5%** | **10%** |
| 15% | 329 | 228 | 157 | 233 | 151 | 94 |
| 7.5% | 341 | 239 | 168 | 242 | 160 | 104 |
| 0% | 354 | 251 | 179 | 251 | 170 | 113 |
| -7.5% | 366 | 263 | 190 | 260 | 179 | 122 |
| -15% | 378 | 274 | 201 | 269 | 188 | 131 |

Source: Robex, 2023.

The sensitivities to OpEx are summarized in Table 1.10.

Table 1.10 OpEx sensitivities

| | Pre-tax | | | Post tax | | |
|---|---|---|---|---|---|---|
| | Discount rate (%) | | | Discount rate (%) | | |
| **OpEx flex** | **0%** | **5%** | **10%** | **0%** | **5%** | **10%** |
| 15% | 291 | 198 | 134 | 202 | 128 | 76 |
| 7.5% | 323 | 225 | 156 | 227 | 149 | 95 |
| 0% | 354 | 251 | 179 | 251 | 170 | 113 |
| -7.5% | 384 | 277 | 201 | 275 | 190 | 130 |
| -15% | 414 | 302 | 222 | 298 | 210 | 147 |

Source: Robex, 2023.

## 1.22 Interpretation and conclusions

It is concluded that the Project work completed to date, including exploration, site development, mineral processing, and associated studies leading to the current Mineral Resource and Mineral Reserve estimates, has demonstrated the technical and economic viability of the Project.

The Property comprises two licence areas. The Kiniero licence area and the Mansounia licence area. Whilst the Kiniero licence area comprises four valid exploitation permits, the application to convert the Mansounia licence from exploration to exploitation is still underway. The QP understands that there are no immediate impediments to prevent the Mansounia exploitation licence being granted. However, until the licence is granted, a risk does remain, whereby failure to acquire the licence would prevent production from the southern part of Sabali South. A lack of exploitation and exploration licences over the Mansounia Central deposit would also preclude its reporting and subsequent incorporation into a mine plan. The Mansounia Central deposit does not form part of the mine plan presented in this Technical Report.

Extensive exploration drilling and the previous mining activities have enabled a reasonable understanding of the Property geology and associated mineralization. Deposits on the Property exhibit inherent compositional and distributional heterogeneity of the gold mineralization. This heterogeneity results in grade variability over small spatial scales thus a robust grade control programme informing a short-term mine plan would be required for the Property.

The Mineral Resource and Mineral Reserve estimates are consistent with CIM Definition Standards (2014) referred to in NI 43-101. The information and analysis described in this Technical Report are sufficient for reporting Mineral Resources and Mineral Reserves

Mining at Kiniero will be undertaken by conventional contractor-operated open-pit mining in the SGA, Jean, SGD, Sabali South, and Sabali North and Central pits. The proposed mining method and fleet will be used to deliver the following:

- 9.5 year mine life with 7.5 years of mining followed by two (2) years of stockpile processing.
- 81.7 Mt total open-pit material mined.
  - 21.4 Mt of ore at 1.27 g/t Au mined.
  - 60.3 Mt of waste mined.
  - 2.8:1 waste to ore strip ratio.
  - 6.3 Mt of historic stockpile ore at 0.48 g/t Au.

The Project will produce gold doré which is readily marketable and sold “ex-works” or on a “delivered” basis to several international refineries. There are no indications of the presence of penalty elements that may impact the price or render the product unsaleable.

Mineral processing for the Project will comprise CIL with gold electrowinning, in addition to gravity circuits to produce doré. The gold will be recovered in a beneficiation plant that has been designed to process a blend of oxide, laterite, transition, and fresh ores from various mining areas. Various metallurgical testwork campaigns have been completed by SMG and Robex in support of the Project, relying on sample material that has been selected from the differing deposits.

The TSF design was carried out prior to the completion of other studies supporting this Technical Report and has not considered final geohydrological assessments. The TSF design should be revisited to assess any risks which may present themselves from studies published after this submission.

The TSF will have sufficient tailings storage capacity to satisfy the minimum LOM tailings storage requirement of 3 Mtpa for a period of 12 years.

The Project is being undertaken with due consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements. The economic benefit of this development is significant and viewed as a positive development by the community. With mining projects of this nature, there are also negative impacts which will require planning, mitigation, and monitoring, during the construction, operational, decommissioning, and closure phases of the project. These have been included in the ESIA. Based on the assessment completed in the ESIA, no fatal flaws have been identified. Mitigation measures and monitoring programmes have been identified and developed for impacts that require mitigation.

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# 2 Introduction

## 2.1 General and terms of reference

AMC Consultants (UK) Limited (AMC) was commissioned by Robex Resources Inc. (Robex) to undertake the compilation of an independent Technical Report (2023 AMC Technical Report), for the Kiniero Property (Property), Guinea, West Africa. This Technical Report discloses the results of a feasibility study (FS) and updates to the Mineral Resources and Mineral Reserves.

The Kiniero Property comprises two licence areas, the Kiniero licence area and the Mansounia licence area. Within the licences are 47 gold anomalies of which the following deposit clusters make up the Kiniero Gold Project (Kiniero Project or Project) and form the focus of this Technical Report:

- Sabali cluster, including:
  - Sabali North.
  - Sabali Central.
  - Sabali South (straddling the Kiniero/Mansounia boundary).
- Mansounia Central.
- SGA cluster, including:
  - Sector Gobelé A (A, B, C) (SGA).
  - Gobelé D.
  - North-East Gobelé D (NEGD).
  - East-West.
- Jean cluster, including:
  - Jean East and Jean West.
  - Banfara.
- Balan cluster, including:
  - Derekena.
  - West Balan.

In addition to the above deposits, legacy run-of-mine (ROM), and low-to-medium grade stockpiles are also present.

This Technical Report is an update, to the NI 43-101 Technical Report "*Kiniero Gold Project, Guinea – Pre-Feasibility Study (NI 43-101 Technical Report)*" by Mining Plus (Mining Plus, 2022).

The date of the most recent technical and scientific information informing the Mineral Resources and Mineral Reserves is as of 12 November 2022.

This Technical Report has been prepared to a standard which is in accordance with the requirements of National Instrument 43 101, Standards of Disclosure for Mineral Projects (NI 43-101), of the Canadian Securities Administrators (CSA) for lodgement on CSA's System for Electronic Document Analysis and Retrieval (SEDAR).

Mineral Resources and Mineral Reserves are classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards – for Mineral Resources and Mineral Reserves May 2014 (CIM, 2014).

## 2.2 The Issuer

Robex is a Canadian gold mining company listed on the Toronto Stock Exchange – Venture (TSX-V), and trades as RBX. The company is headquartered in Quebec, Canada. Its assets are located in West Africa. It operates the Nampala Mine in Mali, which reached commercial production on 1 January 2017. In Guinea it operates the Kiniero Property in Guinea and is also active in exploration with drilling campaigns underway across its West African properties.

## 2.3 Report authors

The names and details of persons who prepared, or who have assisted the Qualified Persons (QPs) in the preparation of this report, are listed in Table 2.1.

Table 2.1 Persons who prepared or contributed to this Technical Report

| Qualified Person | Position | Employer | Independent of Robex | Date of site visit | Professional designation | Sections of report |
|---|---|---|---|---|---|---|
| **Qualified Persons responsible for the preparation and signing of this Technical Report** | | | | | | |
| Mr N Szebor | General Manager, Maidenhead and Principal Geologist | AMC Consultants (UK) Limited | Yes | 16-19 January 2023 | CGeol (GSL), EurGeol, FGS | 2-12, 23, 24, 27 and part of 1, 14, 25, and 26 |
| Mr A Turner | Principal Engineer | AMC Consultants (UK) Limited | Yes | 16-19 January 2023 | MIMMM, CEng | 15, 16, 19, 22 and part of 1, 21, 25 and 26. |
| Mr I Kirchner | Principal Geologist | AMC Consultants (Pty) Limited | Yes | No Visit | FAusIMM, MAIG | 14 and part of 1, 25, and 26. |
| Mr A Berton | Assistant Director | Soutex Inc. | Yes | November 2022 | PhD, P.Eng | 13, 17 and part of 1, 18, 21, 25 and 26 |
| Mr J Thompson | Founder and Principal Engineer | TREM Engineering | Yes | 5-17 September 2022 | MSAIMM, COMREC, MISRM | Part of Sections 16, 25 and 26. |
| Mr G Wiid | Director | Epoch Resources (Pty) Ltd | Yes | No Visit | Pr Eng (ECSA) CEng (ACSE) | Part of Sections 1, 18, 21, 25, and 26 |
| Mr F Coetzee | CEO | ABS Africa (Pty) Ltd. | Yes | 9-14 February 2020, 9-12 November 2022 | Pr.Sci.Nat | 20, and part of 1, 25, and 26 |
| **Other experts who assisted the Qualified Persons** | | | | | | |
| Mr J Glanvill | Resource Geologist | Robex Technical Services | No | December 2020 | Pr.Sci.Nat | Sections 1-14 |
| Mr D Tucker | Chief Mining Engineer | Robex Technical Services | No | 13-17 March 2023 | BSc, CEng, MIMMM, FAusIMM (CP Geo) | Sections 1, 15, 16, 19, 21, and 22. |
| Mr A De Klerk | Exploration Manager | Robex Technical Services | No | 13-17 March 2023 | Pr.Sci.Nat | Sections 1-14 |
| Mr A Bezuidenhout | Corporate Geologist | Robex Technical Services | No | June 2022 | MSc | Sections 1-14 |
| Ms M Guimard | Project Manager | Robex Technical Services | No | 28 March – 4 April 2023 | MSc | Sections 18 and 21 |
| Mr J Llido | Senior Mining Engineer | Robex Technical Services | No | No Visit | M.AusIMM | Section 16 |
| Mr S Prunier | Investor Relations and Corporate Development | Robex Technical Services | No | No Visit | MSc | Section 19 and 22 |

A site visit was completed by Mr Nick Szebor, General Manager and Principal Geologist (AMC) and Mr Alan Turner, Principal Mining Engineer (AMC) in January 2023. As part of the site visit the site layout and infrastructure was reviewed, along with the Property geology, exploration data, diamond drill core, and reverse circulation drilling chips. The data and record security were reviewed, including the core and chip storage chips, and discussions on all aspects of the Project were held with key on-site personnel.

## 2.4 Source of information

In supervising the preparation of this Technical Report, the QPs have relied on various geological maps, cross-sections, reports, and other technical information provided by Robex. The QPs have reviewed and analysed the data provided and drawn their own conclusions, augmented by their knowledge of the Project and communications with Robex personnel. Specific documents referenced in this report are listed in Section 27, References, at the end of this report.

This Technical Report is an update, and references some of the material of the Mining Plus Technical Report (Mining Plus, 2022), incorporating additional sample data, and study work.

## 2.5 Other

All units of measurement used in this Report are metric unless otherwise stated. Tonnages are reported as metric tonnes (t), precious metal values (gold and silver) in grams per tonne (g/t) or parts per million (ppm) and base metal values (tin, copper, lead, and zinc) are reported in weight percent (%) or ppm. Other references to geochemical analysis are in ppm or parts per billion (ppb) as reported by the originating laboratories. All currency amounts and commodity prices are stated in U.S. dollars (US$) unless otherwise stated.

A draft of the report was provided to Robex for checking of factual accuracy. This Technical Report effective at 01 June 2023.

## 2.6 Units and abbreviations

The following units listed in Table 2.2 were used in this Technical Report.

## Table 2.2 List of units

| **Unit** | **Description** |
|---|---|
| % | per cent |
| /day | per day |
| /hour | per hour |
| /oz | per ounce |
| /year | per year |
| ° | degrees |
| °C | degrees Celsius |
| CAD | Canadian dollars |
| CFA | Central African Franc |
| cm | centimetre |
| $cm^2$ | centimetre squared |
| cfm | cubic feet per minute |
| dBA | decibels A |
| g | gram |
| g/t | grams per tonne |
| ha | hectares |
| Hz | hertz |
| kg | kilogram |
| kg/t | kilogram per tonne |
| kL | kilolitre |
| km | kilometre |
| $km^2$ | kilometre square |
| kV | kilovolt |
| L | litre |
| m | metre |
| mAMSL | metres above mean sea level |
| MAR | mean annual rainfall |
| mm | millimetre |
| $m^3$ | cubic metre |
| Ma | million years |
| Moz | million ounces |
| MPa | megapascals |
| Mt | million tonnes |
| Mtpa | million tonnes per annum |
| ohm | electrical unit of resistance |
| oz | troy ounces |
| ppb | parts per billion |
| ppm | parts per million |
| psi | Pounds per square inch |
| t or tons | tonnes (metric) |
| tpd | tonnes per day |
| µm | microns |
| US$ | United States dollar |

The following abbreviations were used in this Technical Report (Table 2.3).

Table 2.3 List of abbreviations

| Abbreviation/Technical term | Description |
|---|---|
| AAS | atomic absorption spectroscopy |
| ABA | acid base accounting |
| ABEX | abandonment expenditure |
| ABS | ABS Africa (Pty) Ltd. |
| AC | alternating current |
| ACO | air core |
| AGL | above ground level |
| Ai | Bond Abrasion index |
| AISC | all in sustaining costs |
| ALS | ALS Minerals |
| ALS Bamako | Bamako ALS Minerals Laboratory in Mali |
| AMA | African Maritime Agencies Guinea |
| AMC | AMC Consultants (UK) Limited |
| AMD | acid mine drainage |
| Au | gold |
| Auxin | Auxin Guinee Mining Service |
| bcm | bank cubic metre |
| BCM | BCM stockpile |
| BDK | BDK fresh bedrock otherwise known as FR |
| BESS | Battery Energy Storage System |
| BLEG | bulk leach extractable gold |
| Blox Inc | Blox |
| BMA | Bulk Minerals Analysis |
| BML | Base Metals Laboratory Ltd |
| BRG | Bundesanstalt für Geowissenschaften und Rohstoffe – Germany |
| BRGM | Bureau de Recherche Géologiques et Minières – France |
| BUMIFOM | Bureau Minier de le France d'Outre-Mer |
| BWi | Bond Ball Mill work index |
| $Ca(OH)_2$ | hydrated lime |
| CapEx | capital expenditure |
| CBR | coarse ore bottle |
| CD | cyanide destruction |
| CDPM | Centre de Promotion et de Development Miniers (Guinea's Centre for Mining Promotion and Development) |
| CIM | Canadian Institute of Mining, Metallurgy and Petroleum |
| CIL | carbon-in-leach |
| CIP | carbon-in-pulp |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| CR | Critically Endangered |

| Abbreviation/Technical term | Description |
|---|---|
| CRMs | certified reference materials |
| CSA | Canadian Securities Administrators |
| $CuSO_4$ | copper sulphate |
| DD | diamond core drilling |
| DEM | digital elevation model |
| DIGM | Division Informations Géologiques et Minières |
| DSHA | deterministic seismic hazard assessment |
| DTMs | digital terrain models |
| ECOWAS | Economic Community of West African States |
| EGM, 96 | Earth Gravitational Model 1996 (EGM, 96) |
| EMS | Energy Management System |
| EN | Endangered |
| ENC | Eugene Nel Composite |
| Epoch | Epoch Resources (Pty) Ltd |
| EPRP | Emergency Preparedness and Response Plan |
| ERT | electrical resistivity tomography |
| ESA | Energy Supply Agreement |
| ESIA | Environmental and Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| ESMS | Environmental Social Management System |
| Eureka | Eureka Consulting (Pty) Ltd |
| FEL | front-end loaders |
| FOS | factor-of-safety |
| FR | fresh bedrock |
| FS | feasibility study |
| G&A | general and administration |
| GET | ground engaging tools |
| GIS | Geographical Information System |
| GISTM | Global Industry Standard on Tailings Management |
| GNSS | Global Navigation Satellite System |
| GOB D | Gobelé D |
| GOG | Government of Guinea |
| GSD | ground sample distance |
| GSI | Geostat Systems International Inc. |
| HARD | Half Absolute Relative Difference |
| HCl | hydrochloric acid |
| IBA | Important Bird Area |
| ICMC | International Cyanide Management Code |
| IDW2 | inverse distance weighting squared |
| IFC | International Finance Corporation |
| IMO | Independent Metallurgical Operations (Pty) Ltd |
| Insuco | Insuco Guinée Limited |
| Intertek Tarkwa | Intertek Minerals Limited in Tarkwa, Ghana |

| Abbreviation/Technical term | Description |
|---|---|
| IPCC | Intergovernmental Panel on Climate Change |
| IPP | Independent Power Producer |
| IRA | inter-ramp slope angles |
| IRR | internal rate of return |
| LAT | laterite including a "mottled" zone at its base |
| LC | Least Concern |
| LIMS | Laboratory Information Management System |
| LOM | life-of-mine |
| LRP | Livelihood Restoration Plan |
| MCC | motor control centre |
| MES | Main Electrical Substation |
| MOP | mine ore pad |
| MSO | Mining Shape Optimiser |
| MV | main voltage |
| NaCN | sodium cyanide |
| NAF | non-acidic forming |
| NAG | net acid generation |
| NaOH | sodium hydroxide |
| NEGD | North-East Gobelé D |
| NI 43 101 F1 | National Instrument 43 101 Form F1 (Canadian Reporting standard) |
| NN | Nearest Neighbour |
| $NO_2$ | nitrogen dioxide |
| NPV | net present value |
| NT | Near Threatened |
| OK | ordinary kriging |
| OpEx | operating expenditure |
| OREAS | Ore Research and Exploration |
| OSA | overall slope angles |
| NSR | net smelter return |
| PAR | Population at Risk |
| PCS | Power Conversion System |
| PDI | Predictive Discovery |
| Penta | Penta Goldfields Company SAU |
| PFS | pre-feasibility study |
| PGA | peak ground acceleration |
| PI | Plasticity Index |
| PLC | programmable logic controller |
| PLI | portable hydraulic point load index |
| PM | Particulate Matter |
| POAI | project area of influence |
| POF | probability-of-failure |
| POX | pressure oxidation |
| Project or Kiniero Project | Kiniero Gold Project |

| Abbreviation/Technical term | Description |
|---|---|
| Property | Kiniero Property |
| PSHA | probabilistic seismic hazard assessment |
| PV | photovoltaic |
| QA/QC | quality assurance and quality control |
| QEMSCAN | Quantitative Evaluation of Minerals by Scanning Electron Microscopy |
| QKNA | qualitative kriging neighbourhood analysis |
| QP | Qualified Person |
| RAB | rotary air blast |
| RAP | Resettlement Action Plan |
| RBF | Radial Basis Function |
| RC | reverse circulation |
| RF | revenue factor |
| RO | Reverse Osmosis |
| Robex | Robex Resources Inc. |
| Rocklabs | Scott Technology Limited |
| ROK | restricted ordinary kriging |
| ROM | run-of-mine |
| RPEEE | reasonable prospects for eventual economic extraction |
| RQD | rock quality designation |
| RWi | Bond Rod Mill work index |
| SAG | semi-autogenous grinding |
| SAGU | Société Ashanti Guinea |
| SANS | South African National Standard |
| SAP | saprolite |
| SCADA | Supervisory Control and Data Acquisition |
| SCC | Species of Conservation Concern |
| SEDAR | System for Electronic Document Analysis and Retrieval |
| SEMAFO | Société d'Exploration Minière en Afrique de l'Ouest |
| SGA | Sector Gobelé A |
| SIA | Social Impact Assessment |
| SG | specific gravity |
| SGD | This is the combination of Gobelé D (GOB D) and North-East Gobelé D (NEGD) |
| SGS | Bamako SGS Mineral Laboratory |
| SGS Ouagadougou | Ouagadougou SGS Mineral Laboratory in Burkina Faso |
| SGS Randfontein | SGS South Africa (Pty) Limited Randfontein Laboratory |
| SMBS | Sodium metabisulphite |
| SMD | Lefa Société Minière de Dinguiraye Mine |
| SMG | Sycamore Mine Guinee SAU |
| SMU | selective mining unit |
| $SO_2$ | sulphur dioxide |
| SOGUIPAMI | Societe Guineanne du Patrimoine Minier |
| Soutex | Soutex Inc. |

| Abbreviation/Technical term | Description |
|---|---|
| SPK | transitional otherwise known as TR |
| SPL | Lower SAP |
| SPU | Upper SAP |
| SRMs | standard reference materials |
| SRTM | shuttle radar topography mission |
| SWMP | Stormwater Management Plan |
| Sycamore | Sycamore Mining Ltd. |
| TMM | tonnes material movement |
| TR | transitional zone |
| TREM | TREM Rock Mechanics Engineering |
| TSF | tailings storage facility |
| UBC | University of British Columbia |
| UCS | uniaxial compressive strength |
| VU | Vulnerable |
| WAD | weak acid dissociable |
| WESTAGO SARL | WESTAGO |
| WGS, 84 | World Geodetic System 1984 (WGS, 84) |
| WHO | World Health Organisation |
| WRD | waste rock dump |
| WWI | World War I |
| XRD | X-ray diffraction |
| ZoI | zones of induction |
| 2D | two-dimensional |
| 3D | three-dimensional |

# 3 Reliance on other experts

The QP has relied, in respect of legal aspects upon the work of the Expert listed below. To the extent permitted under NI 43-101, the QP disclaims responsibility for the relevant section of this Technical Report:

- Expert: Mr Nicolas Ros de Lochounoff, Director of Legal Affairs and HR at Robex Resources Inc. As advised in the communication letter "*Objet: Situation des permis dits de Mansounia*" dated 18 May 2023.
- Report, opinion or statement relied upon: Information on mineral tenure and status for the Mansounia licence.
- Extent of reliance: Full reliance following review by QP.
- Portion of Technical Report to which the disclaimer applies: Section 4.

The QP has relied, in respect of legal aspects upon the work of the Expert listed below. To the extent permitted under NI 43-101, the QP disclaims responsibility for the relevant section of this Technical Report:

- Expert: CPDM (Centre de Promotion et de Développement Minières) on the validity of the licence permits (CPDM, 2021), the Due Diligence Report provided (CABINET D'AVOCATS BAO ET FILS, 2021), and the letter titled "*Legal opinion on the validity and the good standing of the mining titles held by Sycamore Mine Guinée SAU and Penta Goldfields SAU in Republic of Guinea*" (CABINET D'AVOCATS BAO ET FILS, 2021a).
- Report, opinion, or statement relied upon: Information on mineral tenure and status, licence issues.
- Extent of reliance: Full reliance following review by QP.
- Portion of Technical Report to which the disclaimer applies: Section 4.

The QP has relied, in respect of legal aspects upon the work of the Expert listed below. To the extent permitted under NI 43-101, the QP disclaims responsibility for the relevant section of this Technical Report:

- Expert: Mr. Stanislas Prunier, Investor Relations and Corporate Development Manager, Robex. 13.06.2023_Robex_Final_Model_Group_Final_DFS.xlsx (Robex consolidated financial model).
- Report, opinion or statement relied upon: Information on taxation and royalties in Guinea used as inputs to the financial model.
- Extent of reliance: Full reliance following review by QP.
- Portion of Technical Report to which the disclaimer applies: Section 22.

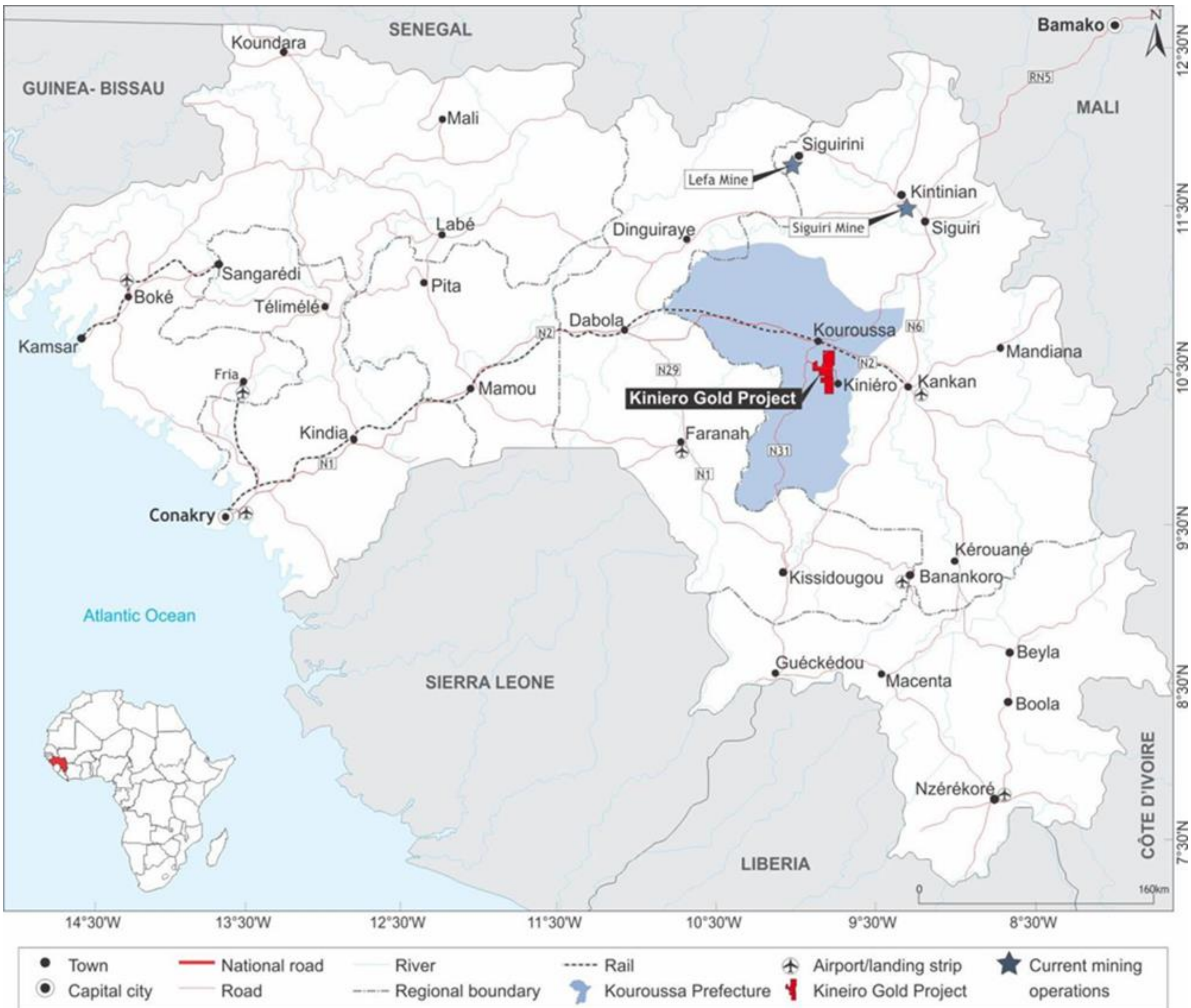
# 4 Property description and location

## 4.1 Location

The Property is situated within the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, approximately 440 km due east-north-east of the capital of Conakry (Figure 4.1) and 55 km west of Kankan. The Kouroussa Prefecture is further subdivided into a series of subprefectures, with the Property located in the Kiniero subprefecture, 5 km north-west of the town of Kiniero (the administrative seat of the Kiniero subprefecture).

The Project is located within the Property at latitude 10°25’52” north and longitude 09°47’48” west.

Figure 4.1 Location map of Property




Source: SMG, 2003.

## 4.2 Mineral tenure in Guinea

### 4.2.1 Minerals policy and legislative framework

Guinean Mining Code from 2011 (Mining Code), amended in 2013, with additional regulations adopted in 2014 and 2017, provides a framework for the exploration and exploitation of Guinean mineral assets. The Mining Code Article 3 states that mineral substances within the territory of Guinea are the property of the state and cannot be subject to private appropriation except as provided for by the Mining Code. The Mining Code provides for a separation between ownership of minerals whilst they are in situ and ownership of minerals once extracted. A private party that holds a mining permit/right granted under the Mining Code acquires ownership of any minerals it extracts pursuant to that mining right.

The Mining Code adopts a very comprehensive definition of the concept of environment by referring to the natural and human environment. According to this document, it is up to the holder of the mining title to prevent or minimize any negative effect due to activities on health and the environment.

The Mining Code sets out the extent of discretionary powers of the state with regards to the mineral asset; the processes of application for exploration and exploitation permits/rights, permit renewal processes, rights and obligations attached to the permits, closure and remediation of mining projects, and environmental and social considerations. Exploitation permits are issued for a period of 15 years and are renewable.

The legislative framework into which the Project fits includes national, local, and international laws and regulations. These laws cover various mining, environmental, safety, and other aspects relevant to the Project.

Guinea's national laws applicable to the Project includes the following:

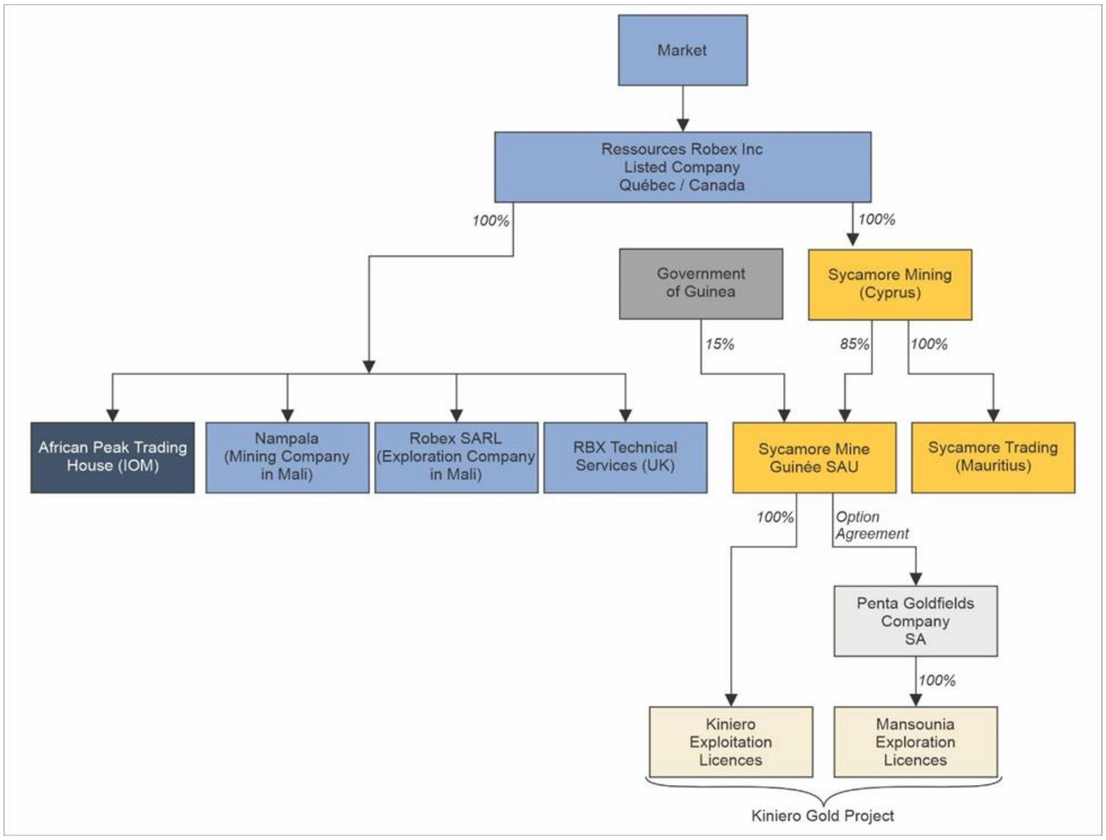
- The Constitution of the Republic of Guinea (2010, 2020). This is the supreme standard of the State, which moves towards a normative framework and a more restrictive policy on the protection of the environment and the wellbeing of the populations. The obligation for the State is to protect the environment while guaranteeing each citizen the right to a healthy and sustainable environment.
- The Mining Code (2011, 2013) which is the main law for the mining industry in Guinea, covering prospecting, exploration, processing, transportation, and marketing of mineral substances.
- The Code for the Protection and Development of the Environment (1987, 1989, 2019) establishes the basic legal principles for the management and development of the environment, the protection of the natural environment and the human environment against all forms of degradation.
- The Land and State Code (1992) constitutes the general legal framework applicable to land tenure in Guinea and deals mainly with the registration of land ownership through the use of titles, leases, and deeds. Property rights in Guinea are recognized and protected by the Constitution.
- The Local Government Code (2006) defines the legal regime and the rights of local authorities. These decentralized communities are legal entities with their own resources and assets and the capacity to manage the environment and natural resources in its territories.
- The Planning Code (1998) states the national and regional development of Guinea through the master plan for regional planning and regional development.
- The Rural Land Policy (2001) provides for the recognition of traditional land rights.

- The Forest Code (1991) sets out principles and responsibilities for forest resources in Guinea and all aspects related to the commercial use, conservation, and community of the forest.
- The Pastoral Code (1995) sets out the principles and responsibilities governing the traditional practice of breeding cattle, sheep, and goats etc.
- The Labour Code (2014) is the main reference text on employment in Guinea. It enshrines fair treatment and equal opportunities with equal jurisdiction.
- The Code of Local Authorities (2017) specify in particular that Local Authorities have competence in matters of urban planning, development of the territory, and administration of unknown owners and bare land.
- The Public Health Code (1997) provides for prior compulsory consultation with the Ministries of Industry, Public Health, the Environment and Public Works for technical advice and official authorization. This is conducted before development of projects which are likely to cause damage to the environment and utility activities that can generate waste likely to affect public health.

### 4.2.2 Ownership structure

The corporate structure pertaining to the Project is summarized in Figure 4.2. Since the completion of the 2022 Technical Report (Mining Plus, 2022), Robex Resources Inc., has become the sole shareholder of Sycamore Mining Limited. Sycamore Mining Limited hold 85% of Sycamore Mine Guinee SAU (SMG) with the Government of Guinea (GOG) holding the additional 15%. SMG is responsible for executing on-the-ground operations on the Property.

Figure 4.2 Kiniero Project corporate structure




Source: SMG, 2003.

### 4.2.3 Mineral rights

The Property comprises two sets of adjoining licence areas, these being called Kiniero and Mansounia, as shown in Figure 4.3. Together they cover an area of 470.48 $km^2$.

The Kiniero licence area is a legal exploitation permitted area consisting of four adjoining exploitation permits, held in the name of SMG. This area encompasses numerous gold deposits that have variously been historically explored and/or exploited, including the Kiniero Gold Mine. The former Kiniero Gold Mine is defined as the area (both geologically and geographically) impacted by gold mining activities undertaken by Société d'Exploration Minière en Afrique de l'Ouest (SEMAFO) from 2002 to 2014.

Following an initial public tender process, on 19 November 2019, SMG signed an agreement with the GOG as the preferred bidder to redevelop the previously operational Kiniero Gold Mine. To support this redevelopment process, SMG applied for the four adjoining Kiniero exploration permits (Permis de Recherche Minière) on 30 December 2019, which were successfully awarded to SMG on 14 January 2020. These four exploitation licences total an area of 326.33 $km^2$.

An application was lodged with the Ministry of Mines and Geology on 21 May 2020 to support the conversion of the exploration permits into exploitation permits. On 4 August 2020, SMG's application for the four exploitation permits (Permis d'Exploitation Minière Industrielle), was accepted and approved by the mining regulator of Guinea, the Centre de Promotion et de Development Miniers (CPDM) and registered with the Geological and Mining Information Division of the Ministry of Mines and Geology, (DIGM). The applications were variously ratified by parliament on 4 November 2020, and again on 17 December 2020, and are each valid for a period of 15 years, renewable on expiry.

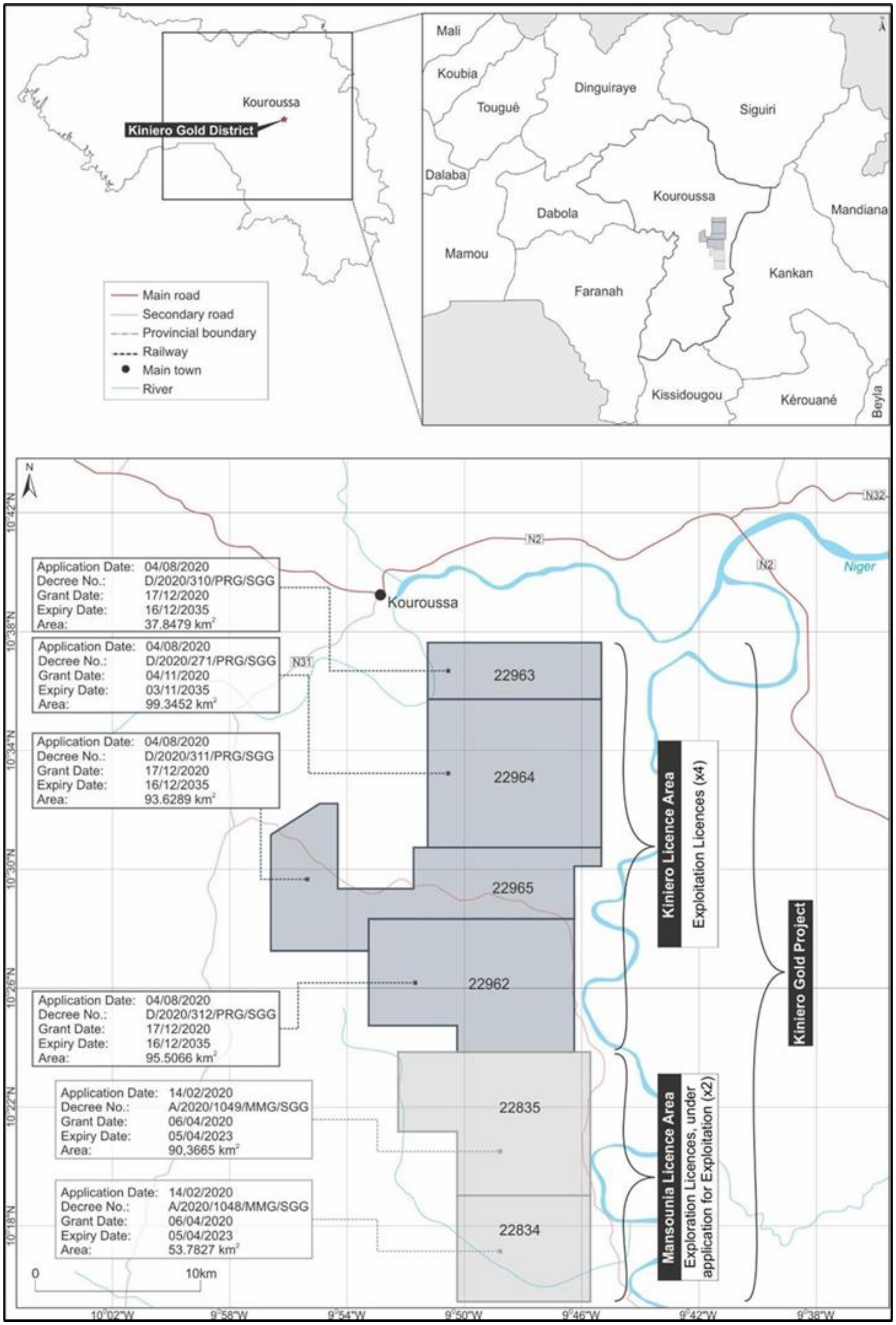
The adjacent Mansounia licence area is a legal exploration permitted area immediately south of the Kiniero licence area, consisting of two adjoining exploration permits held in the name of Penta Goldfields Company SAU, (Penta).

On 18 June 2021, SMG and Penta entered into a purchase agreement for the Mansounia licence area. The agreement was subject to a minimum amount of exploration expenditure and technical work being completed within a one (1) year period. The minimum exploration expenditure and work commitments have been met by SMG, the results of which are included in this Technical Report and have been used in support of the conversion of the Mansounia exploration licences into exploitation licences.

The Mansounia licence area consists of two adjoining exploration permits (Permis de Recherche Minière) and adjoin Kiniero Licence № 22962. These total an area of 144.15 $km^2$. An exploitation licence application was lodged with the CPDM in Q1 2023, prior to the expiration date of 5 April 2023 for the exploration licences, for 50% of the Mansounia licence area, as per Guinean mining law.

A listing of the Kiniero exploitation licences and the associated licence area coordinates is provided in Table 4.1 and Table 4.2. Summary information for the Mansounia exploration licences and licence coordinates is provided in Table 4.3 and Table 4.4. A plan of the Kiniero and Mansounia licences is provided in Figure 4.3.

Figure 4.3 Kiniero and Mansounia licence areas




Source: SMG, 2023.

Table 4.1 Kiniero exploitation licence areas

| Permit № | Permit Type | Mineral | Area (km²) | Decree № | Date Awarded | Validity/Duration |
|---|---|---|---|---|---|---|
| 22962 | Permis d'Exploitation Minière Industrielle | Gold (Au) | 95.51 | D/2020/312/PRG/SGG | 17 Dec 2020 | 15 years, renewable |
| 22963 | | | 37.85 | D/2020/310/PRG/SGG | | |
| 22964 | | | 99.35 | D/2020/271/PRG/SGG | 04 Nov 2020 | |
| 22965 | | | 93.63 | D/2020/311/PRG/SGG | 17 Dec 2020 | |
| **Total Kiniero Exploitation Permit Area** | | | **326.33** | | | |

Source: SMG, 2023.

Table 4.2 Kiniero exploitation licence area coordinates

| Permit № | Decree № | Corner Coordinates (WGS84) | | | | |
|---|---|---|---|---|---|---|
| | | No. | Geographic | | UTM ZONE 29P | |
| | | | Longitude | Latitude | X | Y |
| 22962 | D/2020/312/PRG/SGG | 1 | 09°52'57.97" W | 10°28'17.69" N | 403,391.59 | 1,157,688.12 |
| | | 2 | 09°46'00.52" W | 10°28'18.46" N | 416,082.65 | 1,157,678.56 |
| | | 3 | 09°45'59.23" W | 10°23'50.37" N | 416,101.92 | 1,149,443.95 |
| | | 4 | 09°49'58.83" W | 10°23'50.32" N | 408,816.09 | 1,149,460.77 |
| | | 5 | 09°49'59.45" W | 10°24'45.10" N | 408,801.65 | 1,151,143.44 |
| | | 6 | 09°52'58.94" W | 10°24'45.10" N | 403,343.86 | 1,151,158.21 |
| 22963 | D/2020/310/PRG/SGG | 1 | 09°50'59.12" W | 10°35'39.49" N | 407,041.61 | 1,171,248.64 |
| | | 2 | 09°50'59.14" W | 10°37'32.04" N | 407,050.44 | 1,174,705.77 |
| | | 3 | 09°45'02.29" W | 10°37'32.84" N | 417,893.73 | 1,174,702.42 |
| | | 4 | 09°45'02.24" W | 10°35'39.14" N | 417,886.82 | 1,171,210.04 |
| 22964 | D/2020/271/PRG/SGG | 1 | 09°50'58.95" W | 10°30'40.03" N | 407,021.79 | 1,162,050.32 |
| | | 2 | 09°50'58.30" W | 10°35'38.97" N | 407,066.49 | 1,171,232.60 |
| | | 3 | 09°45'02.22" W | 10°35'38.12" N | 417,887.36 | 1,171,178.70 |
| | | 4 | 09°45'02.58" W | 10°30'39.60" N | 417,854.41 | 1,162,009.51 |
| 22965 | D/2020/311/PRG/SGG | 1 | 09°56'19.18" W | 10°31'10.18" N | 397,290.24 | 1,163,004.15 |
| | | 2 | 09°54'36.33" W | 10°32'10.99" N | 400,422.03 | 1,164,862.82 |
| | | 3 | 09°54'01.29" W | 10°32'10.99" N | 401,487.09 | 1,164,859.75 |
| | | 4 | 09°54'02.27" W | 10°29'20.34" N | 401,442.26 | 1,159,618.04 |
| | | 5 | 09°51'28.76" W | 10°29'20.57" N | 406,108.98 | 1,159,612.07 |
| | | 6 | 09°51'29.20" W | 10°30'39.94" N | 406,102.26 | 1,162,050.05 |
| | | 7 | 09°45'02.58" W | 10°30'39.60" N | 417,854.41 | 1,162,009.51 |
| | | 8 | 09°45'02.32" W | 10°30'00.44" N | 417,859.44 | 1,160,806.67 |
| | | 9 | 09°45'59.91" W | 10°30'00.58" N | 416,108.83 | 1,160,815.19 |
| | | 10 | 09°46'00.25" W | 10°28'19.35" N | 416,090.92 | 1,157,705.88 |
| | | 11 | 09°52'59.64" W | 10°28'19.32" N | 403,340.96 | 1,157,738.33 |
| | | 12 | 09°52'59.38" W | 10°27'10.20" N | 403,342.92 | 1,155,615.19 |
| | | 13 | 09°56'18.96" W | 10°27'10.20" N | 397,274.95 | 1,155,632.69 |

Source: SMG, 2023.

Table 4.3 Mansounia exploration licence areas

| Permit № | Permit Type | Mineral | Area (km²) | Decree № | Date Awarded | Duration |
|---|---|---|---|---|---|---|
| 22834 | Permis de Recherche Miniere | Gold (Au) | 53.78 | A/2020/1048/MMG/SGG | 06 April 2020 | 3 years, renewable |
| 22835 | | | 90.37 | A/2020/1049/MMG/SGG | | |
| **Total Mansounia Exploration Permit Areas** | | | **144.15** | | | |

Source: SMG, 2022.

Table 4.4 Mansounia exploration licence area coordinates

| Permit № | Decree № | Corner Coordinates (WGS84) | | | | |
|---|---|---|---|---|---|---|
| | | № | Geographic | | UTM ZONE 29P | |
| | | | Longitude | Latitude | X | Y |
| 22834 | A/2020/1048/MMG/SGG | 1 | 09°45'29.00" W | 10°15'30.13" N | 416,984.70 | 1,134,076.75 |
| | | 2 | 09°49'59.21" W | 10°15'30.13" N | 408,764.48 | 1,134,097.08 |
| | | 3 | 09°49'59.21" W | 10°19'03.16" N | 408,781.47 | 1,140,640.45 |
| | | 4 | 09°45'29.00" W | 10°19'03.16" N | 417,000.16 | 1,140,620.01 |
| 22835 | A/2020/1049/MMG/SGG | 1 | 09°51'59.13" W | 10°23'50.16" N | 405,157.92 | 1,149,465.65 |
| | | 2 | 09°45'29.00" W | 10°23'50.16" N | 417,021.13 | 1,149,435.29 |
| | | 3 | 09°45'29.00" W | 10°19'03.16" N | 417,000.16 | 1,140,620.01 |
| | | 4 | 09°49'59.21" W | 10°19'03.16" N | 408,781.47 | 1,140,640.45 |
| | | 5 | 09°49'59.21" W | 10°21'10.17" N | 408,791.65 | 1,144,541.66 |
| | | 6 | 09°51'59.13" W | 10°21'10.17" N | 405,144.53 | 1,144,551.38 |

Source: SMG, 2022.

### 4.2.4 Surface rights

SMG does not own any surface rights to land pertaining to the Project. Land tenure in Guinea can be classified into statutory and customary practices, with statutory practices almost exclusively practiced in the urban areas. The Land and State Code recognizes private ownership of land, and the formal law grants owners' rights to use and alienate land held in ownership. Land rights must be registered with the national land registry and be included within a local land tenure plan. Once established, land rights registered under formal law are enforceable against competing claims.

The Mining Code distinguishes between mining rights and surface rights. The permit holder cannot occupy the surface or a portion of the surface of the area of the permit if held by a third party without that third party's consent. However, if the permit expressly provides that the permit holder is entitled to occupy the surface inside the area of the permit, such consent is not required.

No other zoning or planning permissions are required in terms of land tenure. Ongoing engagement with local communities ensures that issues are identified as work progresses. SMG has negotiated and actioned a Resettlement Action Plan (RAP) to allow access for drilling and mining operations with the neighbouring communities and the representative of the local authorities.

The Land and State Code recognizes state-owned public land, which includes areas that provide public services or are used by the public. Such land cannot be alienated. Some state land is classified as within the private domain (such as land identified as vacant or unclaimed) and can be alienated. The Land and State Code also provides that ownership rights under customary law may be registered and granted status under formal law provided that the landholder has occupied the holding for a statutory period of time and has made a sufficient level of investment in the land. The Land and State Code stipulates that unregistered land in rural areas (the vast majority of rural land) is owned by the state.

The 1992 Guinea Land and State Code is largely unenforced in rural areas. In response to this and the lack of success of the 1992 Land and State Code in rural areas, the GOG passed a Rural Land Policy in 2001 (Déclaration de la Politique Foncière en Milieu Rural). The policy recognizes certain customary land rights and calls for the development of legislation to formalize such rights.

### 4.3 Water rights

Water for the SMG drilling campaigns was obtained from surface sources in the Kiniero licence area. SMG has the right to extract water for use at their exploration camp and during drilling. SMG is currently negotiating the mining convention which will cover the water rights for construction and operation. This will be covered also in the Environmental and Social Impact Assessment (ESIA) application led by ABS Africa.

Planned water usage is summarized in Section 18.4.

### 4.4 Environmental permits

SMG obtained an Environmental Permit from the GOG in respect of the ESIA submitted as part of the application for the exploitation permit for the Kiniero licence area in June 2020. An updated Environmental Permit for the Project (including Mansounia) was lodged with the GOG in respect of the updated ESIA in June 2022 for the upgrade and expansion of the Project, as well as in support of the application for the exploitation permit for Mansounia licence area. The Environmental Permit was received in March 2023.

SMG is required to have valid environmental authorizations before any mining activity can take place at the site. Articles 120, 143, and 144 of the Mining Code state that specific authorizations are required for certain operations, including land clearing, building of communication transmission lines or infrastructure, and disposal of non-recycled waste. In practice, numerous additional permits and approvals are required for mining projects. The following licences will be required:

- Exploration permit.
- Operation permit.
- Water and environment.
- Approval of treatment facilities for effluent discharge.
- Authorization to install wastewater treatment devices.
- Authorization for deforestation/licence to cut or clear.
- Environmental and Social Management Plan (ESMP).
- Authorization to use water resources.
- Permit for groundwater research.

## 4.5 Royalties, taxation, and liabilities

### 4.5.1 State royalties

Royalties associated with exploitation of mineral deposits are defined by the Mining Code and subsequent amendments, and include the following:

- Guinean State royalty: 5.0%.
- Societe Guineanne du Patrimoine Minier (SOGUIPAMI): 0.5%.
- Local development tax: 1.0%.

The percentages quoted above are to be calculated as a function of turnover. The corporate tax rate on mining companies is 30% and will be subject to modification in the mining convention currently negotiated with the GOG.

The original November 2019 agreement included clauses indemnifying SMG for rehabilitation of existing disturbed sites, including mining areas and historical process plant areas, office areas, accommodation camp and existing tailings storage facility (TSF). Any new expansions to the existing infrastructure or any new development would, however, be excluded from this agreement. Rehabilitation of these extensions or new construction would be subject to future agreements and applications for development. The calculation of the rehabilitation and closure costs of the improvements and SMG's own developments will be calculated on an annual basis going forward as part of the environmental mandate.

### 4.5.2 Kiniero licence royalties

There is currently a private royalty of 0.5% over the Kiniero licence areas.

### 4.5.3 Mansounia licence royalties

As part of the purchase option agreement for the Mansounia licence, SMG is liable to pay a net smelter return (NSR) royalty to Penta according to the following scale:

- 3.00% for the first 150,000 ounces of gold produced.
- 3.25% for production between 150,000 and 300,000 ounces of gold produced.
- 3.50% for production beyond 300,000 ounces of gold produced.

## 4.6 Conclusions

The QP understands that there are no immediate impediments to prevent the Mansounia exploitation licence being granted. However, until the licence is granted a risk does remain, whereby failure to acquire the licence would prevent production from the southern part of Sabali South. A lack of exploitation and exploration licences over the Mansounia Central deposit would also preclude its reporting and subsequent incorporation into a mine plan. The Mansounia Central deposit does not form part of the mine plan presented in this Technical Report.

To the QP's knowledge, there are no other significant factors or risks that may affect access, title, or the right or ability to perform work on the Property.

# 5 Accessibility, climate, local resources, infrastructure, and physiography

## 5.1 Location and access

The Property is located in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, approximately 440 km due east-north-east of the capital of Conakry as shown in Figure 5.1. More locally, the Project is situated within the Kiniero subprefecture of the Kouroussa Prefecture, approximately 5 km due north-west of the town of Kiniero (the seat of the Kiniero subprefecture) and 55 km due west of Kankan, the capital of the Kankan Region and second largest city of Guinea. The Project is located 314 km due south-west of Bamako, the capital of Mali.

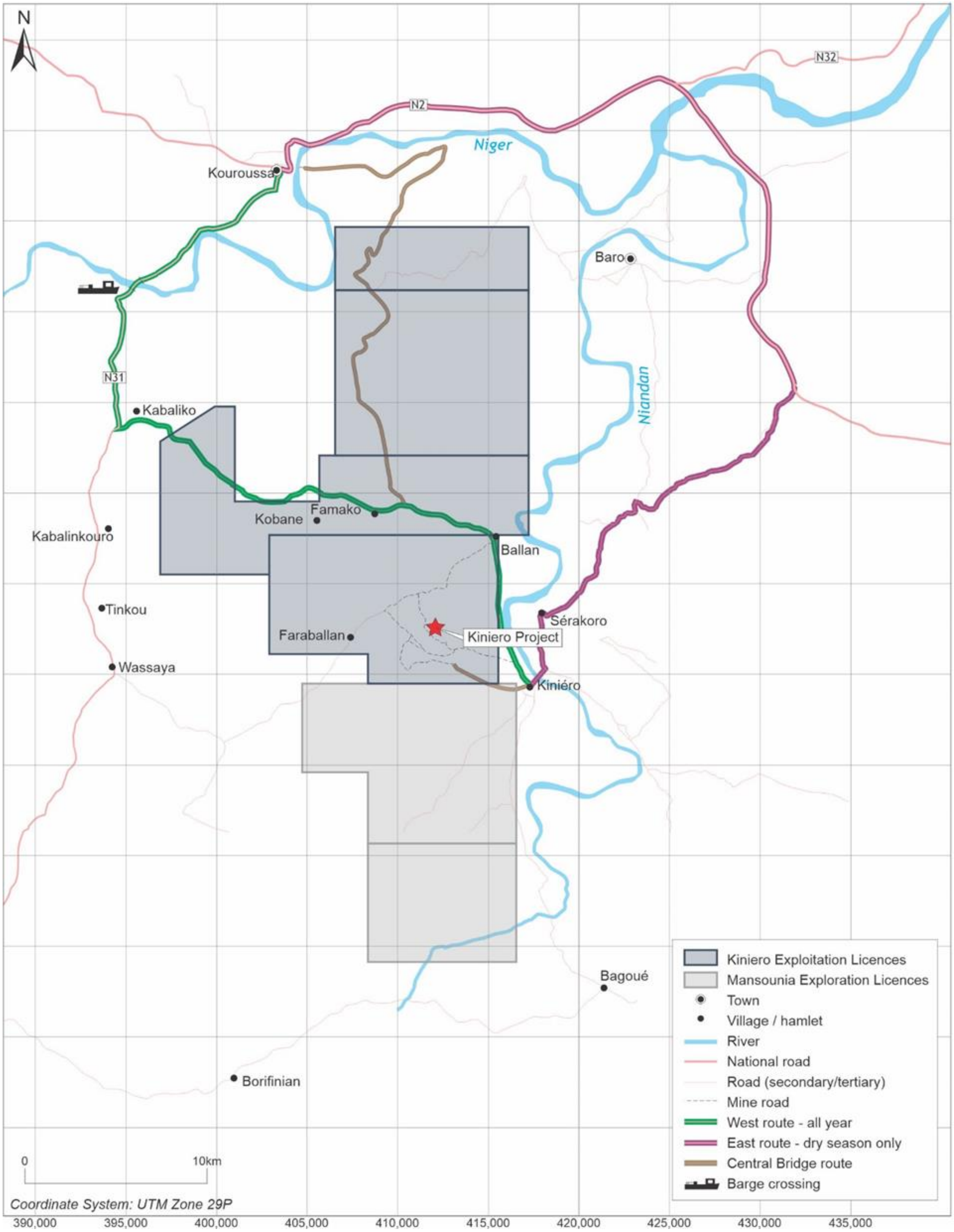
Access to the Property by road is from Conakry on the N1 route via Mamou to Kouroussa (Figure 5.1). The road route from Conakry to Kouroussa comprises an approximately 16-hour (550 km) drive along the N1, N2, and N29 national roads. Conakry is serviced by international flights and provides the option for internal flights, including charter flights to the Project or to the town of Kankan.

There is also the option of flying into Bamako, Mali, and driving to the Project. The road route from Bamako to Kouroussa comprises an approximately seven-hour (430 km) drive along the RN5 national road in Mali, through the Kouremale Border crossing into Guinea, via the N6 to Kankan and the N2 to Kouroussa (Figure 5.1).

Three road access routes to site are currently available from Kouroussa (Figure 5.1), these comprise:

- From Kouroussa south via the N31 to Saman then via Ballan to Kiniero town. This route is passable all year with both a low water bridge (dry season only) as well as a barge crossing over the Niger River at Diareguela. From Kouroussa, the road is gravel all the way to Kiniero.
- From Kouroussa to Kankan via the N1 with a turn off at Soronkoni via Serakoro to Kiniero. At Kiniero there is only a ford river crossing available. Thus this route is only available for vehicle access during the dry season (December to May). The first section of the road is paved up until the turnoff at Soronkoni from where it is a gravel road.
- From Kouroussa to Kiniero via the disused railway bridge, with the construction of a new gravel road directly to Kiniero. This will be open all year round and reduce the dependency on the river crossings.

Figure 5.1 Map of access routes for the Project




Source: SMG, 2023.

## 5.2 Physiography and topography

Guinea can be subdivided into four geographical regions:

- Maritime Guinea (Basse-Guinea), a coastal plain running north to south along the coast.
- Pastoral Fouta Djallon highlands (Moyenne-Guinea).
- Northern savannah (Haute-Guinea). The Property is situated within this region.
- South-eastern rainforest region (Guinea-Forestière).

The topography at the Property is dominated by the Wombon Mountains in the south-west which extend between the Kiniero and Mansounia licence areas, and the Kakon Mountains in the central northern area (Figure 5.2). Between the hills is a low-lying watershed area which is between the Niger River catchment to the north-west and the Niandan River catchment to the south-east.

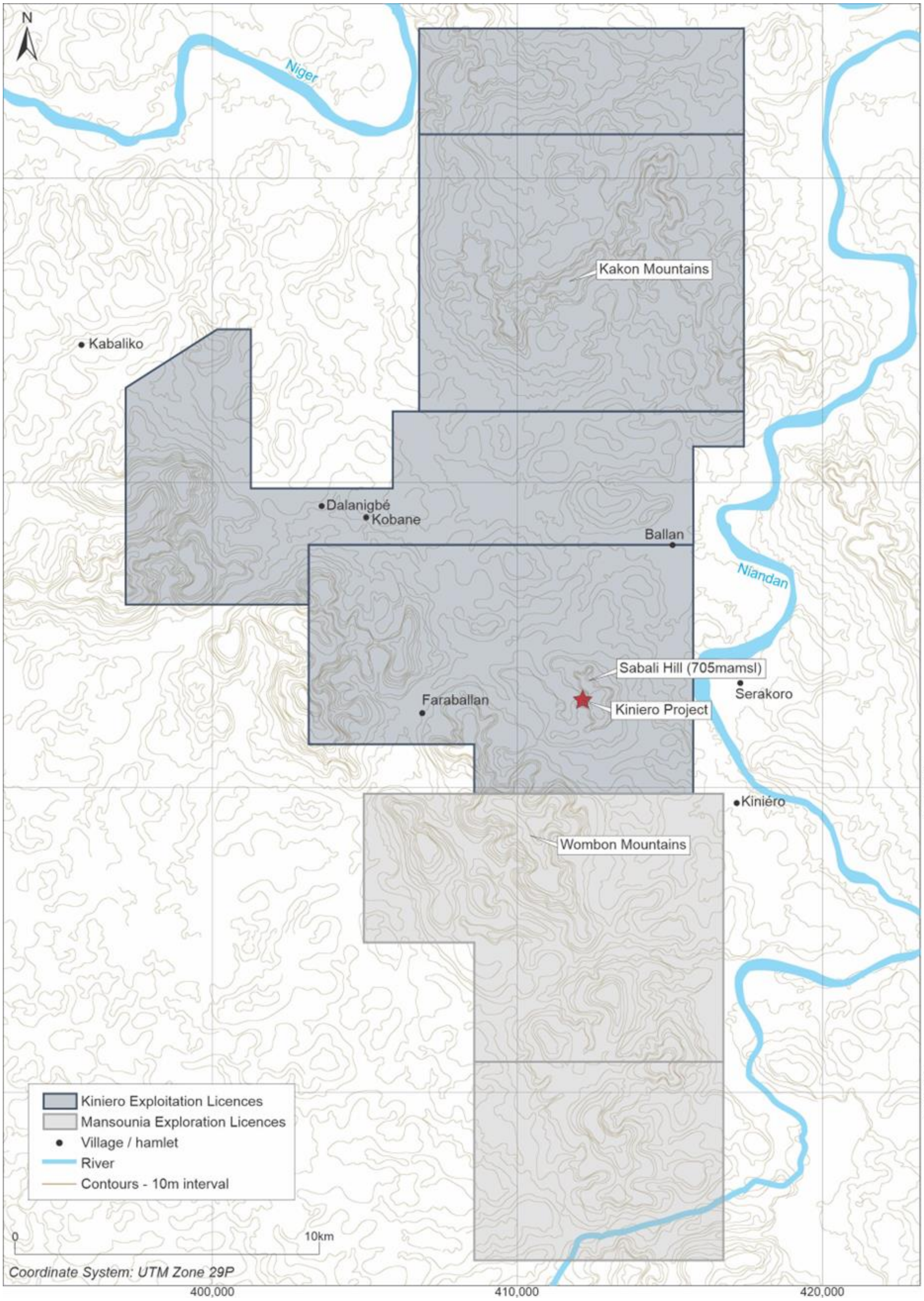
Elevations range from 348 m above mean sea level (mAMSL) in the north to 706 mAMSL in the south-eastern hills, with Sabali Hill forming the highest point (Figure 5.2).

## 5.3 Drainage

The Property is situated within the Niandan catchment, which forms part of the Niger River catchment area. The catchment area and tributaries of the Niger River in Guinea covers an area of 98,350 km², or approximately 40% of the country's surface area. The Project is bordered in the north by the Niger River, and to the east by the Niandan River, a tributary of the Niger River.

The tributaries of the Niger River within the Property flow south-west to north-east. The Balanköba watershed is a Niandan sub-basin and is located upstream from the Project. The Balanköba watershed has an elongated shape from south-west to north-east. The Balanköba River has a total length of 39 km. Before reaching the Niandan River, the Balanköba River receives flows from the Sénké, Sansarankö, and Badikö basins, which are situated within the Property.

Figure 5.2 Topographic map of Property




Source: SMG, 2022.

## 5.4 Climate

The Property experiences a tropical savanna climate with distinct wet and dry seasons, with the wet season lasting approximately six months between May and October.

Weather data for the area is obtained from a weather station in Kankan as well as from measurement stations at the Project. The mean annual rainfall (MAR) over a 60-year period was 1,600 mm, with the highest annual rainfall year on record being in 1933 (2,344 mm) and the lowest in 1988 (1,030 mm). The mean monthly climate statistics are presented in Table 5.1.

Table 5.1 Mean monthly climate statistics

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total/Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Degree Of Rainfall** | **Rainfall (mm) – Kankan Weather Station** | | | | | | | | | | | | |
| Normal | 2 | 5 | 23 | 69 | 136 | 210 | 278 | 346 | 331 | 150 | 29 | 2 | 1,581 |
| Dry | 0 | 0 | 13 | 45 | 114 | 177 | 231 | 295 | 277 | 113 | 13 | 0 | 1,278 |
| Wet | 5 | 10 | 33 | 93 | 158 | 242 | 326 | 397 | 386 | 188 | 45 | 6 | 1,889 |
| **Degree Of Rainfall** | **Annual Runoff (mm)** | | | | | | | | | | | | |
| Normal | 14 | 6 | 5 | 4 | 8 | 27 | 66 | 110 | 156 | 130 | 65 | 29 | 620 |
| **Type** | **Evaporation (mm) (Kankan Weather Station)** | | | | | | | | | | | | |
| Potential | 249 | 276 | 303 | 269 | 234 | 188 | 160 | 153 | 165 | 199 | 204 | 223 | 2,623 |
| Open- surface | 179 | 199 | 218 | 194 | 168 | 135 | 115 | 110 | 119 | 143 | 147 | 161 | 1,888 |
| **Type** | **Mean Daily Temperature (°C) (Kiniero)** | | | | | | | | | | | | |
| Maximum | 34 | 36 | 37 | 37 | 34 | 31 | 28 | 27 | 28 | 31 | 33 | 34 | 32.5 |
| Minimum | 21 | 22 | 23 | 25 | 24 | 22 | 21 | 21 | 22 | 22 | 22 | 21 | 22.2 |

Source: Kankan weather station.

The wind field in the area is bimodal, with winds blowing from the north-east during the dry season (December to February) and winds blowing from the south-west during the wet season (May to September). The wind field during the transitions between the wet and dry seasons has high calms and very little strong winds during these periods. The highest wind speeds from the south-west occur during the peak of the wet season in July and August, often occurring as destructive storm fronts, while the highest windspeeds from the north-east, the Harmattan trade winds, occur during the height of the dry season in December and January.

Exploration and mining operations can be carried out year-round except for potential short interruptions to travel during the rainy season.

The relative humidity in the region ranges between 55% and 68% and is much lower during the dry season (February 20% to 63%), compared to the rainy season (August 69% to 94%).

## 5.5 Local resources

The nearest villages to the Project are Kiniero, Balan, and Farabalan (Figure 5.1). These villages have education and medical facilities and could provide labour for the Project.

The town of Kouroussa is situated 55 km by road, north of the Project and is the capital of the Kouroussa Prefecture. Resources available in Kouroussa include formal markets, schools, hospitals, pharmacies, hotels, 4G cellular signal, and grid power.

Kankan is the second largest city in Guinea after Conakry and is the capital of the Kankan Prefecture. Kankan is located 90 km by road to the east of the Property and is serviced by an airport (IATA:KNN) with charter links to Conakry. The city includes a university, shopping centres, schools, hospitals, hotels, 4G cellular signal, and grid power.

## 5.6 Local infrastructure

The Project contains various existing infrastructure that had been constructed in support of the previous Kiniero Gold Mine. Much of this infrastructure was in various states of disrepair and have subsequently either been safely decommissioned and/or destroyed, repaired, or replaced. Current existing infrastructure at the Project includes:

- Airstrip: 1,500 m long.
- Main mine camp (57 beds) with supporting services (canteen, security, laundry, recreation, etc.).
- Staff mine camp (120 beds) located adjacent to Kiniero village, with supporting services.
- Various mine and general access roads.
- Administration and office block.
- Core yard.
- Laboratory and sample preparation facility.
- Light vehicle workshop and machinery bay.
- Old plant precinct—largely decommissioned and/or demolished. Various ancillary buildings remain as stores.

# 6 History

## 6.1 Introduction

West Africa has a long history of gold mining dating back to the 3rd century BC. The economic importance of this area, and more specifically the Siguiri Basin, is briefly discussed in this section. The exploration and mining history of the Property dates back to 1940s, however exploration and mining activity in the Siguiri basin has a much longer history as discussed in Section 6.2.

The description here will discuss the Kiniero licence area and the Mansounia licence area. The dates of acquisition of the two components of the Property by the Issuer is January 2020 and June 2021 respectively. Any work after that date is treated as current.

## 6.2 History of gold mining in the Siguri Basin

The Siguiri Basin, situated within north-eastern Guinea, contains the largest accumulation of Birimian greenstone geology in Guinea covering more than 414,470 km², and which abuts the older Leonean Craton (Archean) geology to the west and south-west. The West African Birimian Greenstone belt is one of the most richly gold-endowed terrains in the world, outside of the Witwatersrand Basin in South Africa.

The first geological studies of the Birimian commenced in the early 1900s. More detailed exploration from 1943 to 1945 resulted in the discovery of auriferous veining through various parts of the Siguiri Basin within the Birimian Greenstone Belt, essentially a rediscovery of part of the earlier Mali goldfields from the 14th Century.

The first records of European gold mining activity in Guinea dates to 1903. Between 1907 and 1908 twenty-one (21) mining companies were reportedly registered in Guinea. Intensified activities created significant legal, technical, and environmental problems before the onset of World War I (WWI) saw all operations suspended. Alluvial gold production records for the pre-WWI period were more than 3,000 kg. Various mining activities resumed post-WWI, with French colonial reports suggesting that the Siguiri area yielded between 957 kg and 3,752 kg of gold annually between 1931 and 1951 (Guinea government).

Between 1931 and 1937, the area was mapped at the scale of 1:500,000 by the French Colonial Government. It was not until 1948 that the first country-wide economic appraisal was completed by the newly formed Bureau Minier de le France d'Outre-Mer (BUMIFOM). Through the 1990s the Bundesanstalt für Geowissenschaften und Rohstoffe, (BRG), from Germany and then the Bureau de Recherche Géologiques et Minières (BRGM) of France, completed further extensive regional geological mapping and airborne geophysics surveys, publishing results at various scales from 1:2,000,000 to 1:200,000. Age dating of numerous units provided definitive time periods for the evolution of the geology, but the structural setting and tectonic frameworks remained poorly understood.

Between 1961 and 1963, a Russian prospecting expedition conducted an extensive exploration and mapping programme over the Siguiri Basin and produced the first geological map of the region at a scale of 1:200,000.

From 1981 to 1986 a Swiss company, Chevanin Mining & Exploration Co Limited and the Canadian group SOMIC held large licences covering the gold placer deposits of Koron and Didi, located north-west and west of Siguiri. Extensive exploration programmes were conducted, and feasibility studies completed. In 1988 the Société Aurifère de Guinea, a consortium consisting of Belgium UMEX (25.5%), Australian Pancontinental (25.5%), and the Guinean Government (49%) started production from the Koron-Kintinian deposit or the Siguiri Gold Mine as it was called, and production peaked at 1,113 kg gold in 1992. The same year, the mine closed due to financial and technical problems. The Siguiri Gold Mine is located approximately 130 km north to north-east of the Property.

The company and its land holdings were taken over by Ashanti Goldfield Co. Limited and in 1998, the new Société Ashanti Guinea (SAGU) operation started production from a heap leach operation near Kintinian, west of Siguiri. In 2003 the mining operation had increased production to 252,795 oz of gold (8,388 kg) from 9.6 Mt. With the identification of significant amounts of saprolitic ore, SAGU commissioned a 9.0 Mtpa carbon-in-pulp (CIP) facility at Koron. SAGU holds four significant areas under exploitation licence with mining operations from a single concession since 1997.

The Lefa Société Minière de Dinguiraye Mine (SMD) is owned by the Russian group Nordgold. The SMD project was originally discovered by Guinor Gold Corporation, who held an 85% interest in SMD and produced the first gold in April 1995. Through the period 1999-2005 production averaged 89,213 oz gold per annum. In October 2005, Crew Gold acquired SMD and commenced exploration for additional resources to upgrade the mill. Through the period 2007 to 2009 production ramped up from 91,683 oz gold to 180,571 oz gold per annum.

Nordgold acquired the Lefa Gold Mine in 2010. The operation has expanded the resource base and maintains production above 250,000 oz Au/year. In 2019 the operation reported production of 263,532 oz Au, an increase of 9% from 2018. The operation is the second largest producing gold mine in Guinea with estimated reserves of 7.78 Moz Au. The project is secured under a single mining concession covering 1,105 km² in which a cluster of seven deposits is located that have been developed and form a series of satellites orebodies delivering ore to a single processing plant.

Developments associated with the Project commenced in the late 1980s and culminated in the production of 418,000 oz of gold between 2002 and 2014 from the historical Kiniero Gold Mine which was operated by SEMAFO.

## 6.3 Kiniero licence area history

### 6.3.1 Ownership and exploration history

Table 6.1 provides a summary of the ownership and exploration history for the Kiniero licence area. The summary details have been compiled from SEMAFO reports which have been filed on SEDAR.

## Table 6.1 Ownership and exploration history of the Kiniero licence area

| Date | Company/Person | Activity |
|---|---|---|
| 1943-1950 | BUMIFOM | First exploration undertaken on Kiniero licence area, including reconnaissance pitting, trenching, and drilling. Culminated in the discovery of the Jean and Gobelé and Filon Bleu deposits and ultimately in the establishment of the historical Kiniero Gold Mine. |
| 1950-1958 | BRGM | Detailed follow-up exploration undertaken on Jean and Gobelé deposits. A total of 2,385 m of diamond core drilling (DD), and 590 m of rotary air blast (RAB) drilling was completed, in addition to 302 $m^3$ of trenching. |
| 1985-1987 | Mining Association of Niandan (JV between GOG, BRGM, Baraka and Precious Stones Guinea) | Extensive exploration, including mapping, pitting, trenching (1,917 $m^3$), DD (2,037 m) and reverse circulation (RC), (3,947 m) drilling, soil sampling, and ground geophysics. |
| 1988 | | Publication of FS. |
| 1989 | | Mining FS updated. Publishes results of the exploration drift developed on the main Jean deposit lode system. |
| 1992 | International Mining (of Australia) | Acquired Kiniero licence area and completed an updated FS. |
| 1995 | Mining Exploration Society in West Africa Inc (SEMAFO) | Acquired the Kiniero licence area. |
| 1996-1997 | SEMAFO | Soil geochemistry programme, aeromagnetic geophysics survey, detailed reverse circulation (RC) and diamond drilling campaigns at grid spacings of 25 m and 12.5 m. |
| 1999 | Managem S.A. | Acquires 51% controlling interest in SEMAFO Inc. |
| Dec 2000 | SEMAFO (49%)/Managem (51%) | SEMAFO awarded exploitation permit over the Jean and Gobelé deposits. |
| 2000-2001 | | Extensive exploration aimed at discovering additional mineralization around Gobelé and Jean deposits. Mapping (1:2,000), geophysics (magnetics and IP), stream sediment sampling, trenching, RC, RAB, and diamond drilling. Additional exploration completed to delineate the Gobelé D and Sabali East deposits. |
| 2001-2002 | | Construction of mining infrastructure. Oxide processing plant constructed with nameplate capacity of 600,000 t. |
| Apr 2002 | | Open-pit mining operations commences at the Jean deposit. |
| 2002-2003 | | Exploration conducted on Sabali East, West Balan, Wombon, Mankan, Heriko, and Filon Bleu deposits. Follow-up reconnaissance exploration delineates Banfara, East-West, Farabana, Gobelé D, and Jean West. Works included soil geochemistry (⅔ of the permits), ground magnetic and IP geophysics, trenching, and RC drilling. Leads to the discovery of Banfara, West Balan, and Sabali-East deposits. |
| 2004 | | Two additional adjoining exploration permits issued. |
| | | Delineation and exploration programmes undertaken at North-East Gobelé D, Sabali East, West Balan, Mankan, Heriko, and Filon Bleu. The soil geochemical survey was completed across the entire permit on a 200 m by 200 m grid. A diamond drilling programme was completed at Gobelé D and Banfara deposits for metallurgical purposes. |

| Date | Company/Person | Activity |
|---|---|---|
| 2005 | | Exploration carried out over East-West, NEGD, Farabana, Gobelé D, Sabali East, North Balan, Mankan, Heriko and Filon Bleu. Included 200 m by 200 m soil geochemistry, covering the new permit, trenching, and RC drilling. |
| 2005 | Managem | Sells shares in the Kiniero licence area back to SEMAFO Inc. |
| 2006-2007 | SEMAFO | Permit-wide exploration continued - stream sediment, soil sampling and trenching, mapping, and trenching. Trench sampling completed at Heriko, Mankan, Djikouroumba, Filon Boni, and Kato. Infill drilling at West Balan on 50 m by 25 m and 40 m by 20 m vertical grid to define Mineral Resources and explore a south-west extension. Drilling, trenching, and soil geochemistry completed at Sabali East, Farabana, West Balan, Zone C, and south of Sabali East. Leads to discovery of the Derekena and Sabali Extension. Drilling at West Balan south-west extension. Sabali East infill RC drilling at 25 m by 50 m grid. RC drilling at Farabana. Infill RC drilling to 25 m by 50 m grid, diamond drilling and trenching at Zone C. |
| 2007 | | Aeromagnetic survey over exploration permit by Fugro, part of Kiniero.<br>Kouroussa corridor survey undertaken in conjunction with Cassidy Gold Corporation. |
| 2008 | | Mining operations at West Balan commenced. |
| | | Exploration focusses on advancing targets close to existing deposits. RC drilling in Wombon area. Drilling at Gobelé A included RC and diamond drilling. RC drilling at Sabali North. Trenching on West Balan Block D and North Wombon. Trenching, termite mound sampling on 1.2 km by 2 km grid, and shallow RAB drilling (less than 20 m depth) on Zone C. North Wombon discovered using termite mound survey and followed up with trenches. |
| | | Exploitation permit granted to allow mining at West Balan. |
| 2009 | | RC drilling outside mining permit areas. RC drilling inside mining permits to test for extensions and depth continuity on West Balan, Wombon North, Wombon South, and south of Jean Gobelé hill. |
| 2010 | | Limited trenching on Kobane and Farabana. Surface sampling at North Banfara. |
| 2011-2012 | | Exploration programme (planned 17 km of drilling at US$4m budget) commenced in late 2011 and continued into Q1 2012. Aim to understand the bulk mineable potential of SGA through close drill spacing intercepts below the pit. |
| Mar 2014 | | SEMAFO ceases open-pit mining operations. |
| Apr 2014 | | The historical Kiniero Gold Mine closes. SEMAFO exits Guinea. Mine produced 418,000 oz of gold in 12-year history. |
| | Government of Guinea (GOG) | Revokes exploitation permit and places historical Kiniero Gold Mine on care and maintenance. |
| 2014-2019 | | No activities. |
| 2019 | | Puts the Kiniero licence area out to tender for new owner; awarded to SMG |

Source: SEMAFO, 2008, SMG, 2022.

### 6.3.2 Historical Mineral Resource and Mineral Reserve estimates

A historical Mineral Resource and Mineral Reserve estimate at the previous Kiniero Gold Mine was prepared and reported by SEMAFO in the report entitled "*Technical Report on the Mineral Resources and Reserves, Kiniero Gold Mine, Guinea*" by SEMAFO Inc (M Crevier), dated December 2008 and updated March 2009 (SEMAFO, 2008/2009). The Mineral Resources and Mineral Reserves were prepared and reported in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Definition Standards) and reported according to National Instrument Form 43-101 F1 (NI 43-101). The Mineral Resources are reported exclusive of Mineral Reserves. Table 6.2 and Table 6.3 summarize the Mineral Reserves and Mineral Resources reported for the Project as of 31 December 2008. It should be noted that production was carried out from the deposit until 2014, thus the QP is placing no reliance on these figures.

Detailed orebody modelling, including wireframing and block models were created by SEMAFO for the main deposits of the historical Kiniero Gold Mine for the Mineral Resource estimate. The associated parameters and criteria used in the estimation process were provided in the 2008/2009 SEMAFO report (SEMAFO, 2008/2009).

Table 6.2 Kiniero 2008 Mineral Reserve summary

| Mineral Reserve Classification | Tonnage (t) | Au Grade (g/t) | Au (ounces) |
|---|---|---|---|
| Proven | 257,800 | 3.17 | 26,300 |
| Probable | 1,735,100 | 3.77 | 210,100 |

Source: After Crevier, 2008.

Table 6.3 Kiniero 2008 Mineral Resource summary

| Mineral Resource Classification | Tonnage (t) | Au Grade (g/t) | Au (ounces) |
|---|---|---|---|
| Measured | 1,396,300 | 2.34 | 105,200 |
| Indicated | 9,633,500 | 1.82 | 563,900 |
| Inferred | 1,507,100 | 2.58 | 124,900 |

Source: After Crevier, 2008.

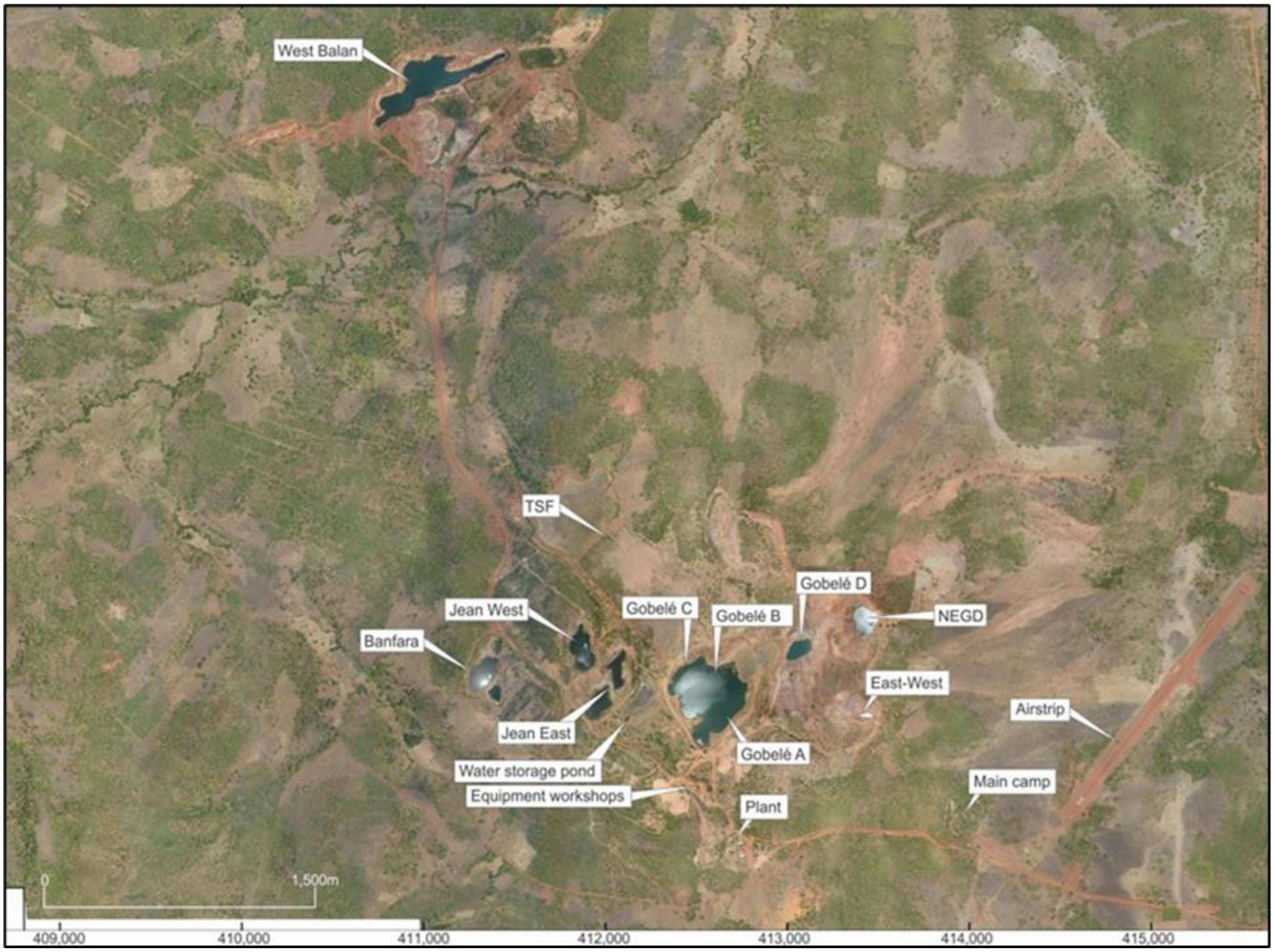
The QP has not done sufficient work to classify the historical estimates as current Mineral Resources or Mineral Reserves. The Issuer is not treating the historical estimate as current Mineral Resources or Mineral Reserves. The Mineral Resources and Mineral Reserves are superseded by the current Mineral Resources stated in Section 14 and Mineral Reserve estimates detailed in Section 15 of this Technical Report.

### 6.3.3 Historical production

Gold mining within the Kiniero licence area was first undertaken during the 1950s, with underground mining carried out at Filon Bleu (in the north), and at Jean (in the south), where a single exploration drive along the strike of the deposit was developed. No production results are available from this period.

The only other formal historical mining operation within the Kiniero licence area was established by SEMAFO in 2002 and ran until 2014. This consisted of a series of deposits exploited by open-cast means at the former Kiniero Gold Mine. Most of the production was sourced from the Jean and Gobelé (SGA) deposits, as well as from the subsequently delineated West Balan deposit. The location of the previous SEMAFO open pit and infrastructure is indicated in Figure 6.1. Additional important peripheral deposits to the Jean, Gobelé, and West Balan deposits that were also mined include Banfara, East-West, and North-East Gobelé D (NEGD).

Figure 6.1 General site layout and open-pit nomenclature of the Kiniero Gold Mine




Source: SMG, 2022.

## 6.4 Mansounia licence area history

### 6.4.1 Ownership and exploration history

A summary of the ownership and exploration history for the Mansounia licence area is provided in Table 6.4.

## Table 6.4 Ownership and exploration history of the Mansounia licence area

| Date | Company/Person | Activity |
|---|---|---|
| 1912-1945 | Various | Limited historical exploration campaigns. Limited to variety of rock chip sampling and mapping campaigns. |
| 1948 -1958 | BUMIFOM | Regional mapping, trenching, and pitting. |
| 1985-1987 | Mining Association of Niandan (JV between GOG, BRGM, Baraka and Precious Stones Guinea) | As part of the exploration of the neighbouring Kiniero licence area, the Mining Association of Niandan complete a regional data review, inclusive of the Mansounia licence area. |
| 1997-1998 | Leo Shield/Afminex | Soil sampling and mapping. |
| 1999 | Ashanti Exploration | Soil sampling and mapping. |
| 2003-2005 | Gold Fields Limited | Based on soil sampling results, Gold Fields (as a JV partner) completed an aeromagnetic survey. Results warranted the first ever drilling campaign, completing an initial reconnaissance RAB drilling campaign (56 drillholes), followed by 50 RC drillholes. |
| 2006 | Burey Gold Limited, (Burey Gold) | Burey Gold enters into a farm-in and JV agreement with Caspian Oil and Gas Ltd to earn a 70% interest in Mansounia. Burey Gold subsequently listed on the ASX in late-2006. |
| 2007-2009 | | Additional drilling completed, including 17 HQ DD drillholes (for metallurgy purposes) and 214 RC drillholes. |
| Jan 2009 | | Runge Limited complete a maiden independent Mineral Resource estimate on the Mansounia licence area. |
| 2011 | | RC drilling campaign completed (76 drillholes) as well as additional DD drillholes (two drillholes). No further drilling completed at Mansounia licence area until Sycamore Mine Guinee. |
| May 2012 | | Independent Mineral Resource estimate by Runge Limited - JORC Code (2012) compliant, incorporating results from an additional 81 RC drillholes. |
| Apr 2013 | | Independent Scoping Study completed by SEMS Exploration. Two treatment options considered - CIP or heap leach, each at a throughput of 4 Mtpa and different gold prices of US$1,600/oz and US$1,900/oz. Findings recommended that the heap-leach option should be developed. |
| Aug 2013 | | Exploration permit granted by the Ministère des Mines et de la Géologie. |
| Aug 2014 | Blox, Inc. (Blox) | Blox, Inc. acquire 78% of the Mansounia licence area in a JV with Caspian Oil and Gas Ltd. |
| Feb 2017 | | April 2013 scoping study independently updated by SEMS Technical Services Ltd - no changes in the data used, but which considered toll treating at a neighbouring property. Recommendations that the heap-leach option should be developed. |
| Dec 2017 | | One-year extension of the Mansounia exploration permits granted in support of completing the required mining feasibility studies. |
| Jul 2018 | | Sahara Natural Resources engaged to define drilling targets using existing data. Auger drilling campaign of 400 holes designed. |
| Oct 2018 | | 2,500 m of auger drilling (from 184 holes) completed on south-eastern target. Results extend the target area from 2.5 km to 5 km strike. |
| Dec 2018 | | FS independently completed by Spiers Geological Consultants, on behalf of Blox, Inc. Lodged in support of a mining licence application, submitted to Ministère des Mines. |
| Apr 2019 | | Expiry of the Mansounia exploration permits. |
| Jun 2019 | | Technical presentation made to the Ministère des Mines in support of the Mining Right application. |
| Apr 2020 | Penta Goldfields Company S.A. | Mansounia licence area exclusively acquired by Penta Goldfield Company S.A. |
| | | Mansounia exploration permits renewed for a period of three years. |

Source: Runge, 2012, SMG.

### 6.4.2 Historical Mineral Resource and Mineral Reserve estimates

A maiden historical Mineral Resource estimate for the Mansounia licence area was independently prepared and published by Runge Consultants Pty Ltd (Runge) in a report titled "*Mineral Resource Estimate, Mansounia Gold Deposit, Guinea, West Africa*" by Runge Limited (J Barnett), dated January 2009 (Runge, 2009).

The estimate incorporated 17 HQ diameter diamond drillholes, 176 reverse circulation (RC) drillholes and 51 rotary air blast (RAB) drillholes (total of 8,558 m) within the resource wireframes. The model was estimated using ordinary kriging (OK) in Surpac software. The 2009 historical Mineral Resource was classified mainly as Inferred Mineral Resources with a portion of the laterite classified as Indicated where the drill spacing was 100 m by 45 m. Table 6.5 below shows the historical Mineral Resource statement as reported by Runge over a range of different Au cut-off grades. The Mineral Resources were prepared and reported in accordance with the 2004 Edition of the JORC Code.

Table 6.5 Mansounia licence area Mineral Resource estimate (January 2009)

| Deposit | Au Cut-off Grade (g/t) | Indicated Resource | | Inferred Resource | |
|---|---|---|---|---|---|
| | | Tonnage (Mt) | Grade (g/t) | Tonnage (Mt) | Grade (g/t) |
| Mansounia | 0.20 | 7.9 | 0.60 | 53.6 | 0.50 |
| | 0.40 | 6.1 | 0.70 | 30.4 | 0.50 |
| | 0.70 | 2.2 | 0.90 | 10.9 | 0.80 |
| | 1.00 | 0.5 | 1.20 | 4.5 | 0.80 |

Source: After Runge, 2009.

An update to this maiden Mineral Resource estimate was independently prepared and published by Runge in May 2012 (Table 6.6) for Burey Gold in a report titled "*Resource Estimate Update, Mansounia Gold Deposit, Guinea, West Africa*", K Lowe, May 2012 (Runge, 2012). Additional drillhole data and revised sectional interpretations supported the update, particularly for the southern portion of the Mansounia gold deposit. The historical Mineral Resources were prepared and reported in accordance with the 2004 Edition of the JORC Code and reported at a 0.40 g/t Au cut-off grade.

Table 6.6 Mansounia licence area updated Mineral Resource estimate (May 2012)

| Material Type | Indicated Resource | | Inferred Resource | |
|---|---|---|---|---|
| | Tonnage (Mt) | Grade (g/t) | Tonnage (Mt) | Grade (g/t) |
| Haematitic Laterite | 3.3 | 0.6 | 3.3 | 0.5 |
| Limonitic Laterite | 2.8 | 0.7 | 2.7 | 0.5 |
| Oxide | - | - | 20.0 | 0.8 |
| Transitional | - | - | 10.1 | 0.8 |
| Fresh | - | - | 9.9 | 1.0 |
| **Total** | **6.1** | **0.7** | **45.9** | **0.8** |

Source: After Runge, 2012.

The QP has not done sufficient work to classify the historical estimates as current Mineral Resources or Mineral Reserves. The Issuer is not treating the historical estimate as current Mineral Resources or Mineral Reserves. The Mineral Resources and Mineral Reserves are superseded by the current Mineral Resources stated in Section 14 and Mineral Reserve estimates detailed in Section 15 of this Technical Report.

There have been no Mineral Reserves reported for the Mansounia licence area.

### 6.4.3 Historical production

No historical production has taken place within the Mansounia licence area.

# 7 Geological setting and mineralization

## 7.1 Regional geology

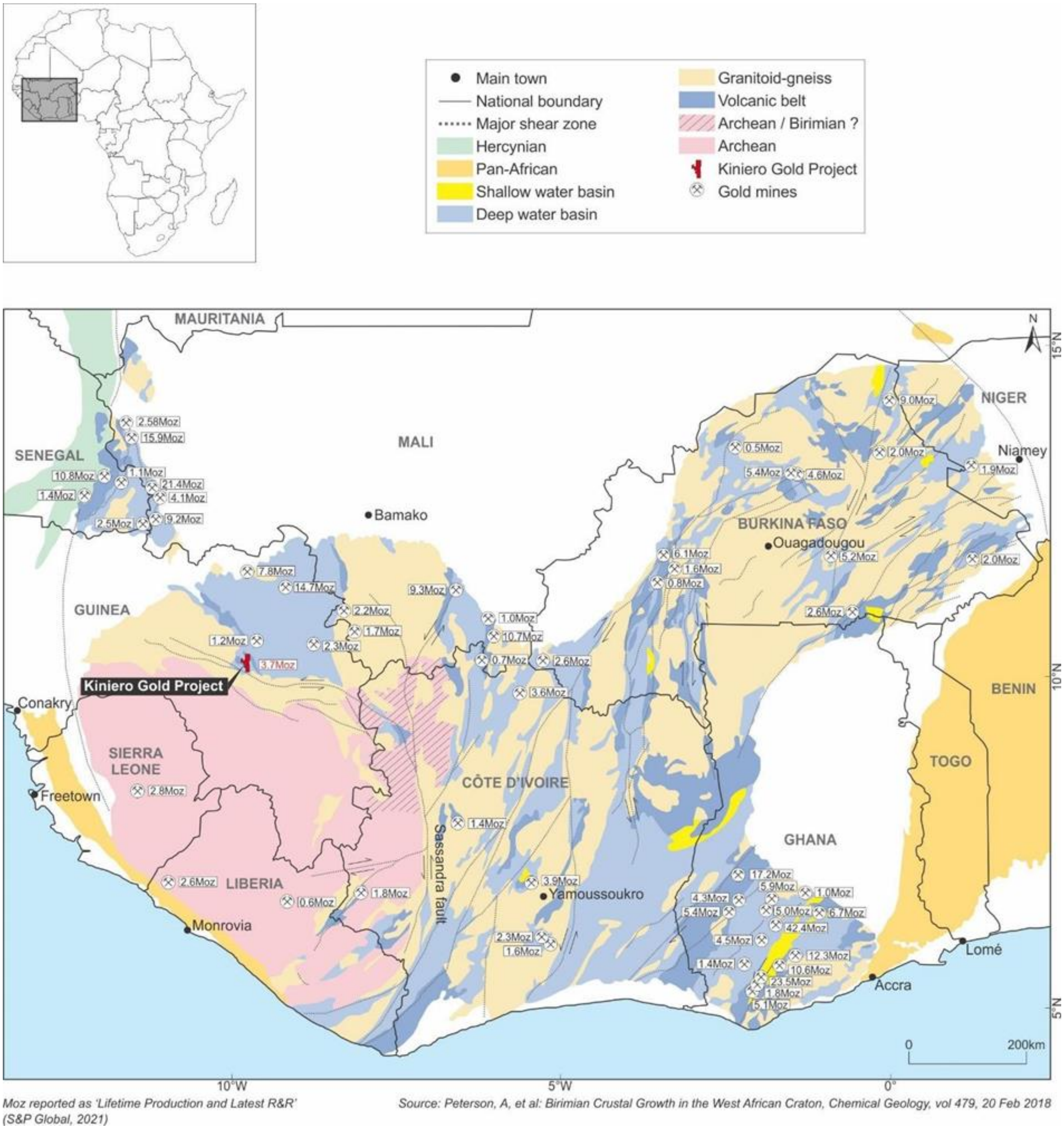
The Property is located within the Kiniero Gold District of the Siguiri Basin, which is situated in north-eastern Guinea, extending into central Mali. Geologically, the Siguiri Basin comprises a portion of the West Africa Birimian Greenstone Belt which includes intrusive volcanics (ultramafics to intermediate) and sediments that were largely deposited through the period 2.13 Ga to 2.07 Ga (Figure 7.1). The proposed development and tectonic evolution of the Birimian Greenstone Belt in relation to the Project is presented in Figure 7.2 as a schematic representation. The tectonic evolution and development of key structural elements has influenced the emplacement and distribution of gold mineralization. Understanding these structures is fundamental to the development of exploration targets and the interpretation of results.

Remnants of the tectonic fabrics are discernible within regional-scale high-resolution satellite (Sentinal-2) digital elevation model (DEM) (Figure 7.3). At the subcontinent-scale, displacements within the underlying basement rocks are reflected in the current landforms.

Early structural frameworks provided key controls for the emplacement of mineralizing fluids through the development of the Siguiri Basin, as observed in the strong north to south, east-north-east, and north-west fracture sets. A key driver for mineralizing events was a deep-level pumping of hydrothermal fluids, triggered by crustal rollback caused by the failure to subduct the younger Birimian Greenstone crust under the older Archaean terrain to the west and south-west.

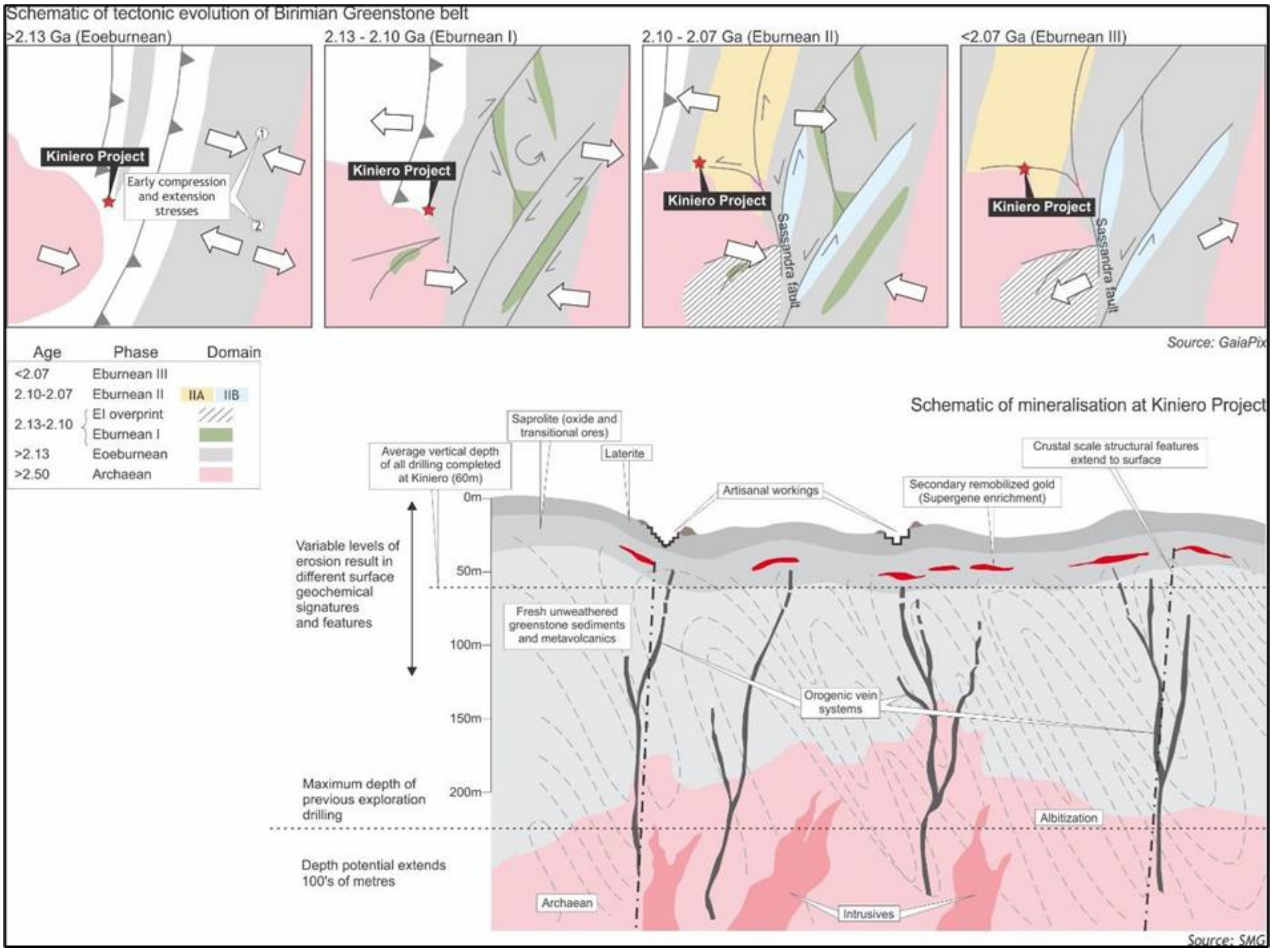
This crustal rollback in turn has drawn upper mantle-lower crust melts high into structurally controlled positions within the volcanogenic-metasedimentary pile. This secondary heat flow is interpreted as the driver for significant high-temperature alteration events which have been observed in the drilling at the SGA and Sabali South deposits. The Kiniero-Kouroussa Thrust Zone is an example of this environment where numerous economic deposits occur within a 60 km long corridor, (Figure 7.3 shows the integrated airborne magnetics merged with Sentinal-2 DEM across the Project (Kiniero-Kouroussa Thrust Zone).

## Figure 7.1 West African Craton and Birimian regional geology



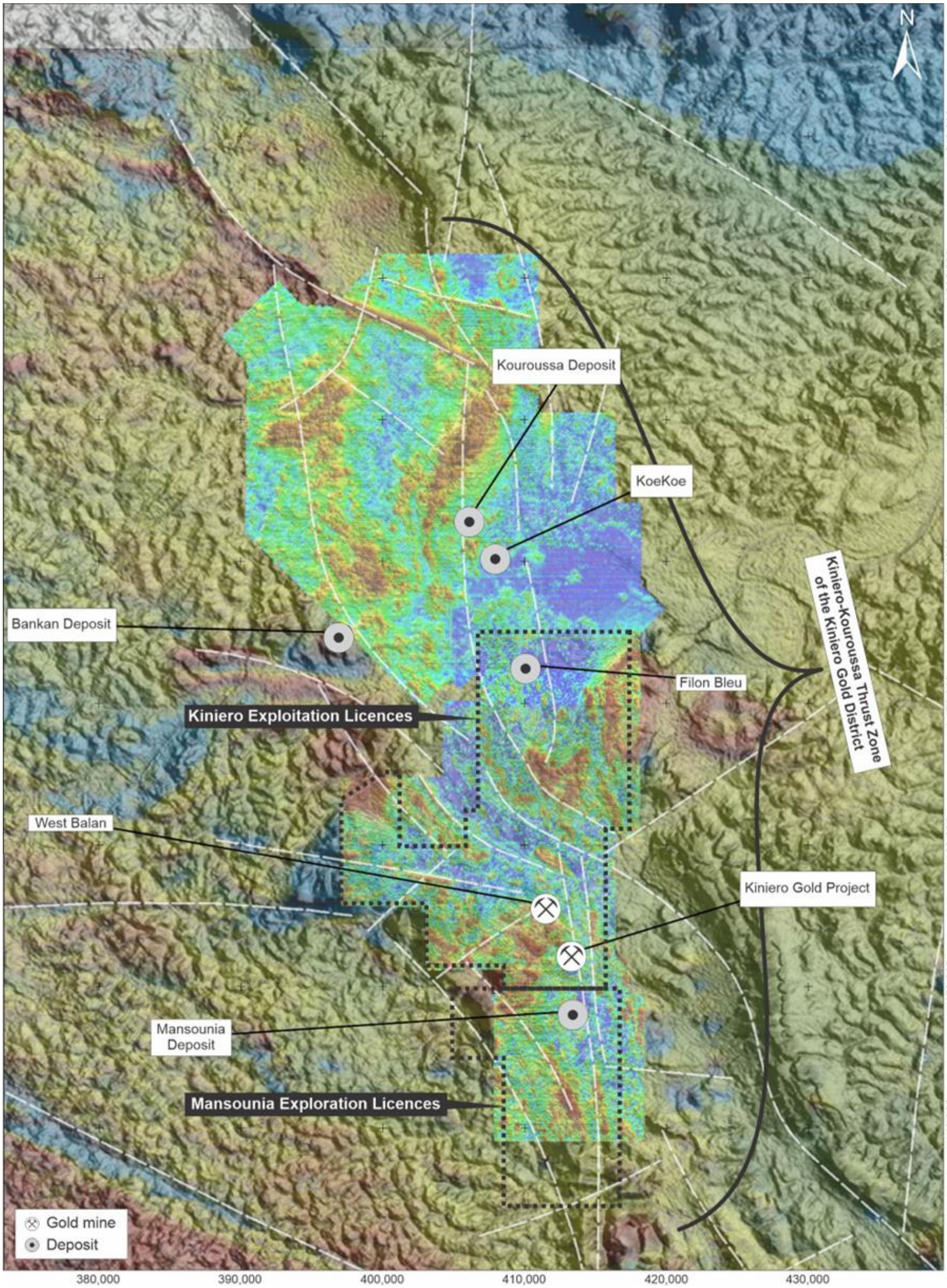

Source: Peterson, A, et al: "*Birimian Crustal Growth in the West African Craton, Chemical Geology*", vol 479, 20 February 2018.

## Figure 7.2 Tectonic evolution of Birimian Greenstone Belt and mineralization at the Project




Source: SMG, 2022.

Figure 7.3 Integrated airborne magnetics merged with Sentinal-2 DEM




Source: SMG, 2022.

## 7.2 Property geology

### 7.2.1 Lithology

Birimian volcano-sedimentary rocks, intrusives, and greenschist facies metamorphosed rocks occupy the Kiniero Gold District. These Birimian age rocks occur in two contrasting styles, depending on their nature. The strongly foliated metasedimentary rocks, of Lower Birimian age are deeply eroded and form plains almost completely devoid of outcrop. These metasedimentary rocks include schists, quartzites, argillites, mudstones, shales, and tuffs (off shelf deep-sea facies). The mafic and felsic metavolcanic rocks, which are much more resistant to erosion, generally form pronounced ridges of modest elevation.

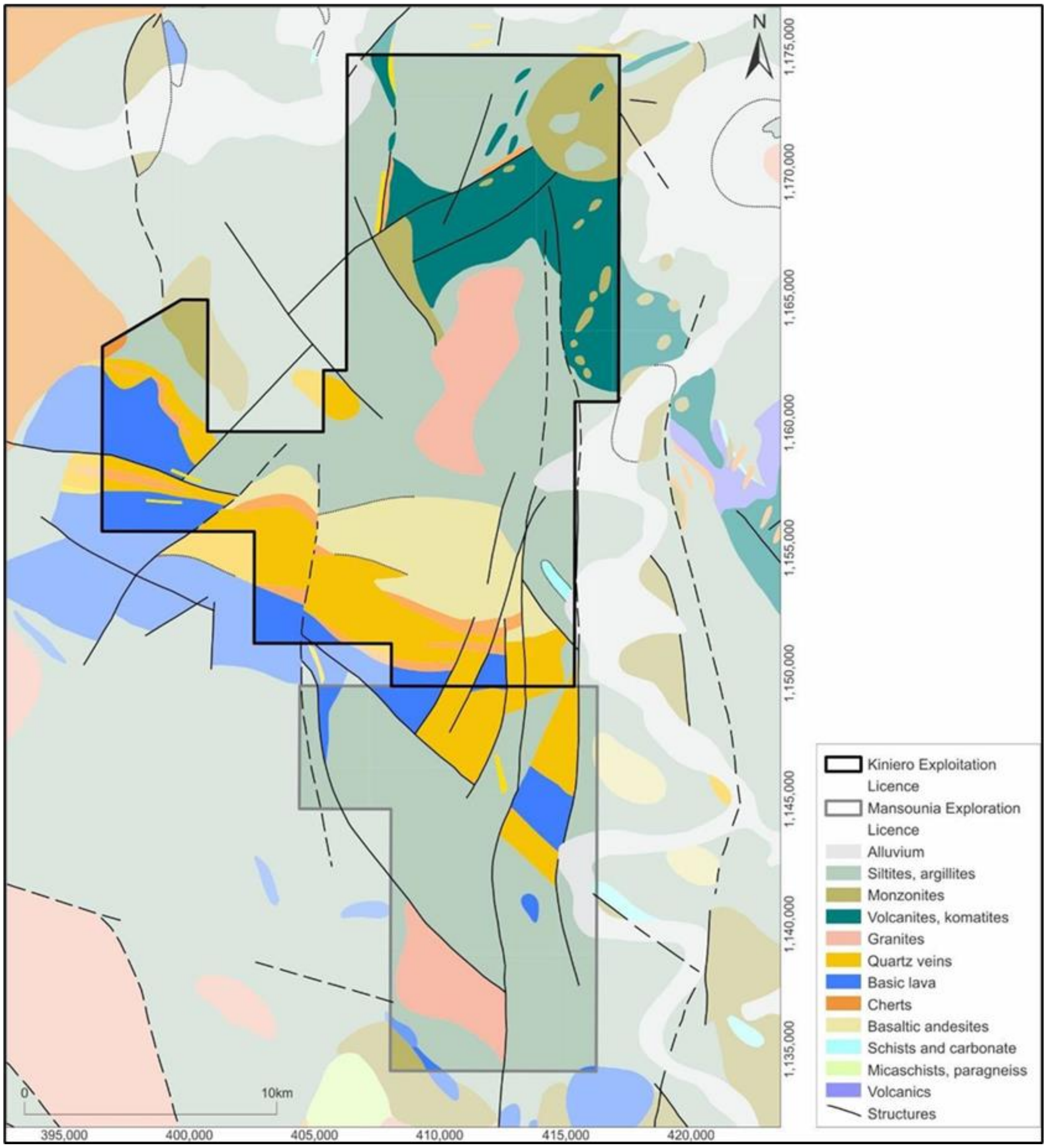
Mafic volcanic rocks include pillowed basalts, flow breccias and basaltic to andesitic tuffs of Upper Birimian age that are well exposed in several of the historic SEMAFO pits. These volcanic lithologies have been intensely foliated and metamorphosed to greenschist facies. Upper Birimian lithologies include some ultramafic lavas (komatiites with spinifex textures), cherts and banded iron formations, which are observed in some of the artisanal workings in the north of the Property and at the neighbouring Kouroussa Gold Project to the north.

Recent drilling by SMG has intersected variably altered and mineralized porphyries situated to the south of the historic SGA pit as well as at the central-southern area of Sabali South. These intrusives appear to be a key driver for the widespread argillic alteration at Sabali South and the high-temperature intense albitization at SGA.

The volcanic and sedimentary lithologies across the Kiniero Gold District represent an extensive component to the Siguiri Basin. These comprise fine-grained sedimentary rocks (shales and siltstones), with some intercalated volcanic rocks. Sandstone-greywacke tectonic corridors have been preferentially altered and locally silicified, supporting extensive brittle facture networks. These in turn have provided host environments for ascending mineralized hydrothermal fluids.

A simplified geological map of the Property is presented in Figure 7.4.

Figure 7.4 Simplified geology map of the Property




Source: Mining Plus, 2022, modified from BRGM.

The lithologies present within the Property broadly comprise the following, from oldest to youngest:

- Lower Proterozoic (<2,500 Ma) Lower Birimian, Niandan-Kiniero Graben. Dating points at Kiniero and Kouroussa have a 2.095 Ga to 2.055 Ga age range. Predominantly metamorphosed sediments, basalts and volcanics, meta-acid volcanics and pyroclastics.
- Lower Proterozoic (~2,200–2,000 Ma), Siguiri Basin comprised of various sediments deposited within the Siguiri Basin.
- Middle to Upper Proterozoic (<1,650 Ma), comprised of ultramafic and mafic intrusives.
- Upper Proterozoic (>1,350 Ma), Eburnean Orogeny (2,130-2,100 Ma), represented by felsic intrusives, granites, and granodiorites.
- Jurassic to present, comprised of laterite (developed in the Jurassic, the limited craton movement resulted in the very deep laterite profiles), eluvium, and alluvium.

### 7.2.2 Structural

The Property is dominated by the following structures:

- A contact zone to the south-west of the Kiniero-Kouroussa shear where Birimian units abuts the older (Archaean) Leonean Craton (Figure 7.3), striking in a WNW-ESE direction. An ultramafic belt trends NNW-SSE extending from south of the Project extending northwards through the Kouroussa Project (owned by Hummingbird Resources) and into Mali.
- Major faults striking north-west through north-east to east-north-east.
- North to south faults in the north of the Project. These structures, where intersected by north-west to north-east and east-north-east trending structures, often develop highly prospective structural settings for fluid focus.

Within the Kiniero Gold District, the collision with the western Leonean Craton resulted in underplating, rollback, and rotation of the Birimian rocks in the southern portion of the Siguiri Basin. It is likely that considerable over-thrusting occurred in what would have been a precursor of a subduction zone imbricate pile. Rollback created dilatational jogs and allowed for the intrusion of magmas high up into the collision environment geological package.

### 7.2.3 Laterite profile

Intense weathering has affected West Africa since the early Mesozoic. The sustained tropical climate from the Mesozoic to the present day in western Africa has resulted in a deep weathering and leaching profile of the Kiniero lithologies, with the development of a surface laterite colluvium and a saprolitic zone near the surface.

Laterite is a generally hard, reddish clay-rich horizon, rich in iron and aluminium oxides from which other components have been leached, and commonly formed by weathering of igneous rocks in moist warm climates. Saprolite is a multicoloured, soft friable material, which results from the kaolinization of the original feldspars in the volcanics.

In the saprolite, iron sulphides are generally transformed into iron oxides or hydroxides resulting in the yellow-brown colouration of the saprolite. Thickness of the saprolite is variable, from just a few metres to between 60 m and 80 m. The transition between the saprolite and the fresh rock has been identified at the Project as a specific horizon termed transitional (previously saprock), with preserved original structures and sulphides, but which can be scratched with the blade of a knife. To the north of the historic mining areas and south through to Mansounia, the saprolite is generally covered by a hard lateritic crust horizon with a thickness of 4 m to 10 m.

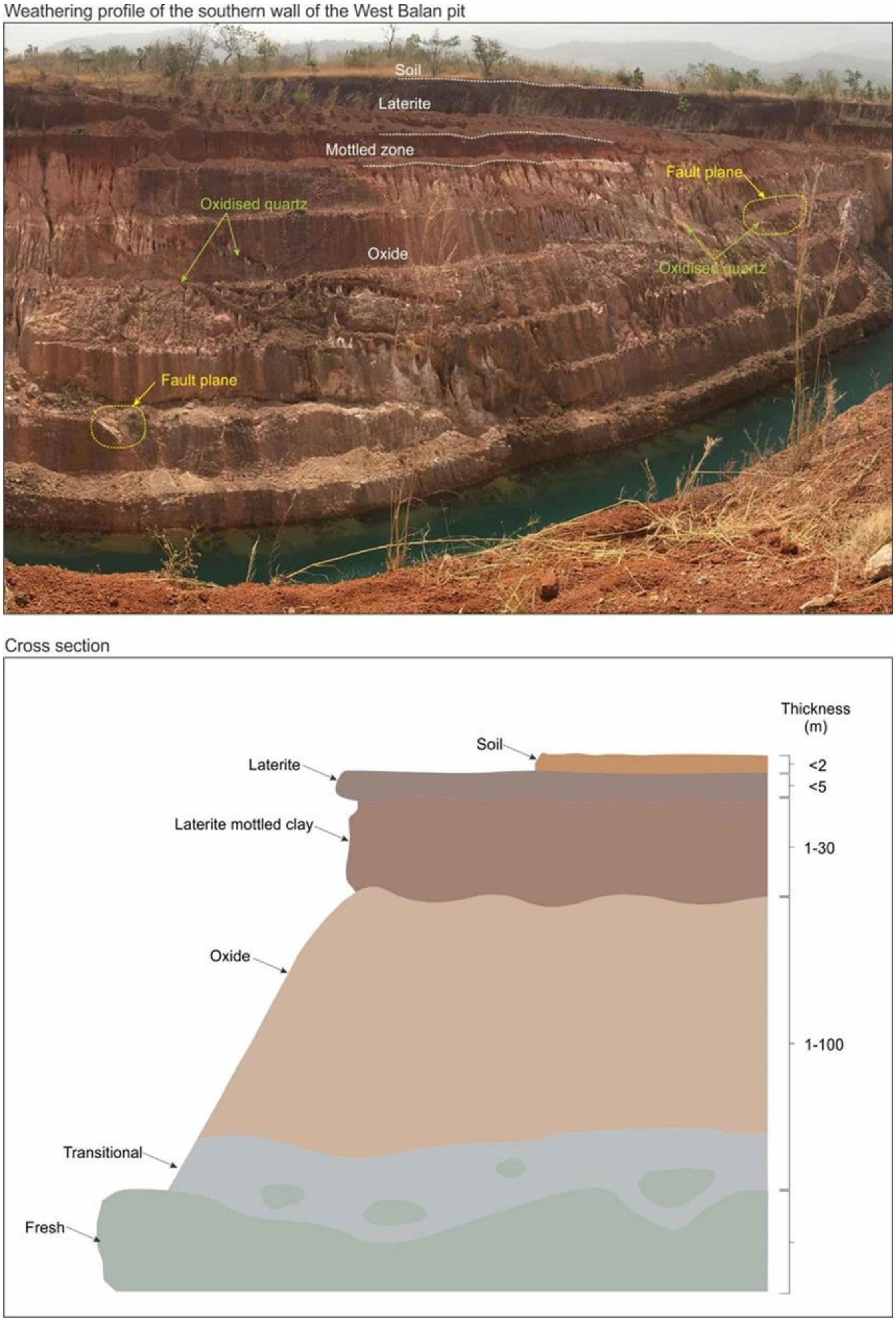
The typical lateritic profile in north-eastern Guinea is composed of the following three units, from top-to-base (Figure 7.5):

- Cuirasse (hardpan or ferricrete): This represents the upper portion of the lateritic profile and measures 1 m to 5 m in thickness. In this unit, there is a strong accumulation of iron oxide at the expense of kaolinite, and the iron-rich nodules become strongly cemented by hematite. Texturally, this unit appears conglomeratic, although it is not detrital in origin. At the top of the cuirasse, the development of micro fissures may lead to a decrease in the cohesion of this unit, and the subsequent formation of a pebbly (pisolitic) horizon. In some cases, this ferricrete unit can be subdivided into an upper horizon, called "cuirasse", which is strongly cemented and very resistant, and a lower horizon, called "carapace”, which is loosely cemented and crumbly.
- Mottled clay: This unit typically measures a few metres in thickness. It is composed of reddish nodules (10 mm to 30 mm) of iron oxides and hydroxides set in a matrix of clay minerals where the original texture of the rock has been destroyed.

- Saprolite: This unit directly overlies the fresh bedrock and can reach a thickness of 30 m to 50 m, although in some places it is only a few metres thick. It represents an isovolumetric weathering of the parent rock whose texture is preserved, but whose primary mineralogy is almost entirely replaced by alteration products, except for quartz, white mica and some heavy minerals such as rutile, zircon and tourmaline. The alteration minerals are composed of smectite, vermiculite, and kaolinite, with lesser amounts of goethite, gibbsite, and anatase. Robex has introduced a subdistinction of the saprolite where relevant to a deposit, splitting it into the following:
    - Upper saprolite: Typically, weathered oxide unit where both the rock and sulphide mineralization has been completely weathered and oxidized.
    - Lower saprolite: Is weak and behaves mechanically like the upper saprolite, but contains unoxidized sulphides within it, and processes more like a transitional material.

The lateritic profile may be complete or truncated by erosion. In either instance, it may also be covered by a layer of organic soil or by allochthonous (aeolian or alluvial) deposits.

Figure 7.5 Example of the weathering profile at West Balan




Source: Mining Plus, 2022.

### 7.3 Mineralization

Previous mining and more recent exploration indicate that the gold mineralization occurs in veins a few millimetres to tens of metres in width, with predominantly quartz-sulphide mineral assemblages and differing secondary minerals depending on the degree of alteration and/or overprinting. The veins generally take the form of composite anastomosed structures. At least three categories can be distinguished, corresponding to three consecutive stages of the hydrothermal process, and in turn, there is an extensive pervasive albitization event which overprints the earliest veining:

- Massive sulphide veins comprising pyrite and lesser chalcopyrite (with secondary chlorite, sericite and ± carbonate), which correspond to an initial high-temperature hydrothermal environment.
- Quartz-sulphide veins which cross-cut the sulphide veins (with secondary sericite and chlorite).
- Parallel, narrow (1 mm to 2 mm) quartz veinlets that are more tabular than the quartz-sulphide veins and commonly occur as multiple sheets in the periphery and parallel to more significant massive sulphide and quartz-sulphide veins, e.g. the veinlets at Sabali South develop as local stockworks within more brittle host rocks and have well-developed alteration reaction boundaries.

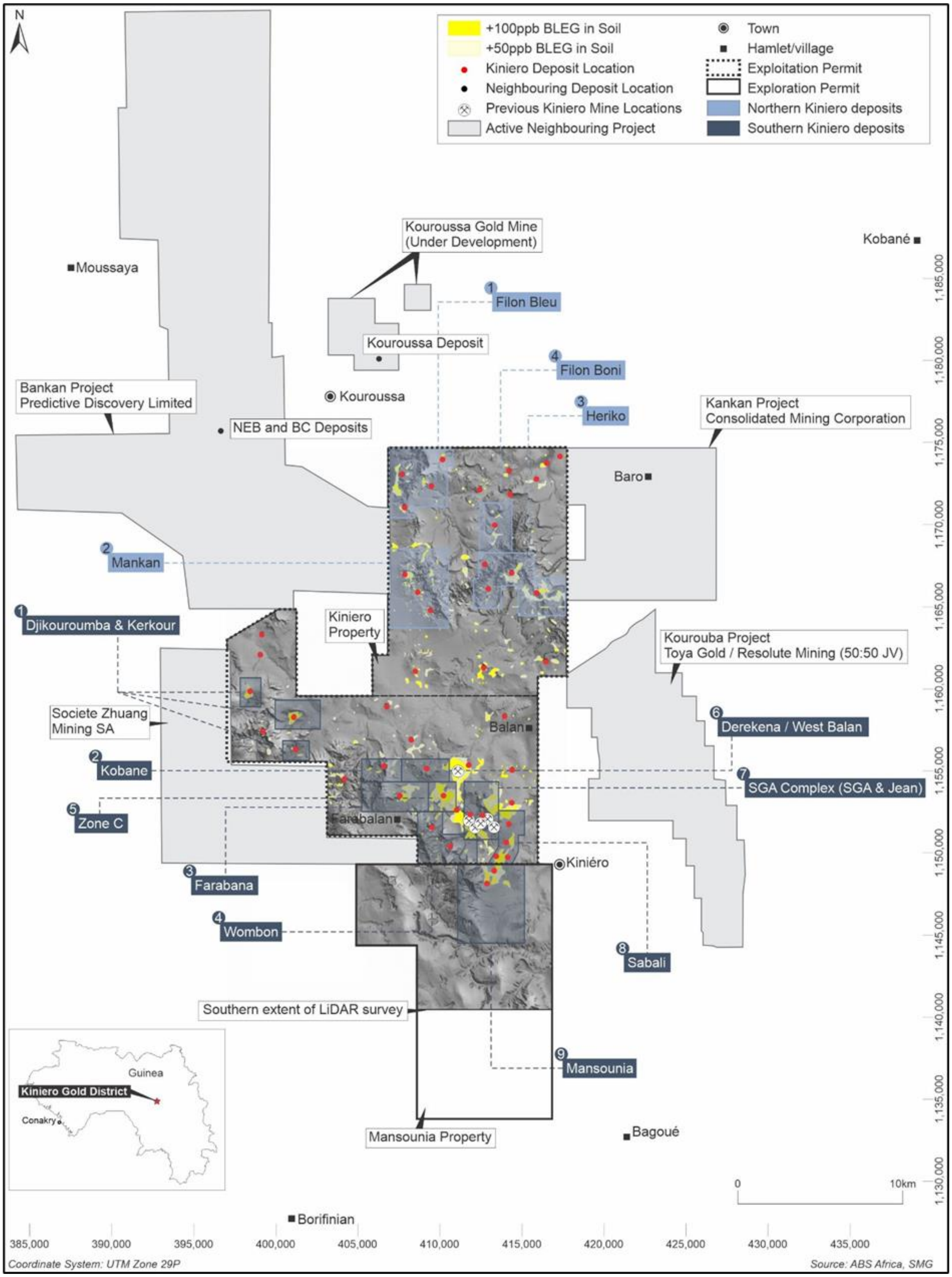
A total of 47 gold anomalies have been identified on the Property (Figure 7.6), of which the following deposit clusters (Figure 7.7) form the focus of this Technical Report:

- Sabali cluster, including:
  - Sabali North.
  - Sabali Central.
  - Sabali South (straddling the Kiniero/Mansounia boundary).
- Mansounia Central.
- SGA cluster, including:
  - Sector Gobelé A (A, B, C) (SGA).
  - Gobelé D.
  - North-East Gobelé D (NEGD).
  - East-West.
- Jean cluster, including:
  - Jean East and Jean West.
  - Banfara.
- Balan cluster, including:
  - Derekena.
  - West Balan.

In addition to the above deposits, legacy ROM, and low-to-medium grade stockpiles are also present.

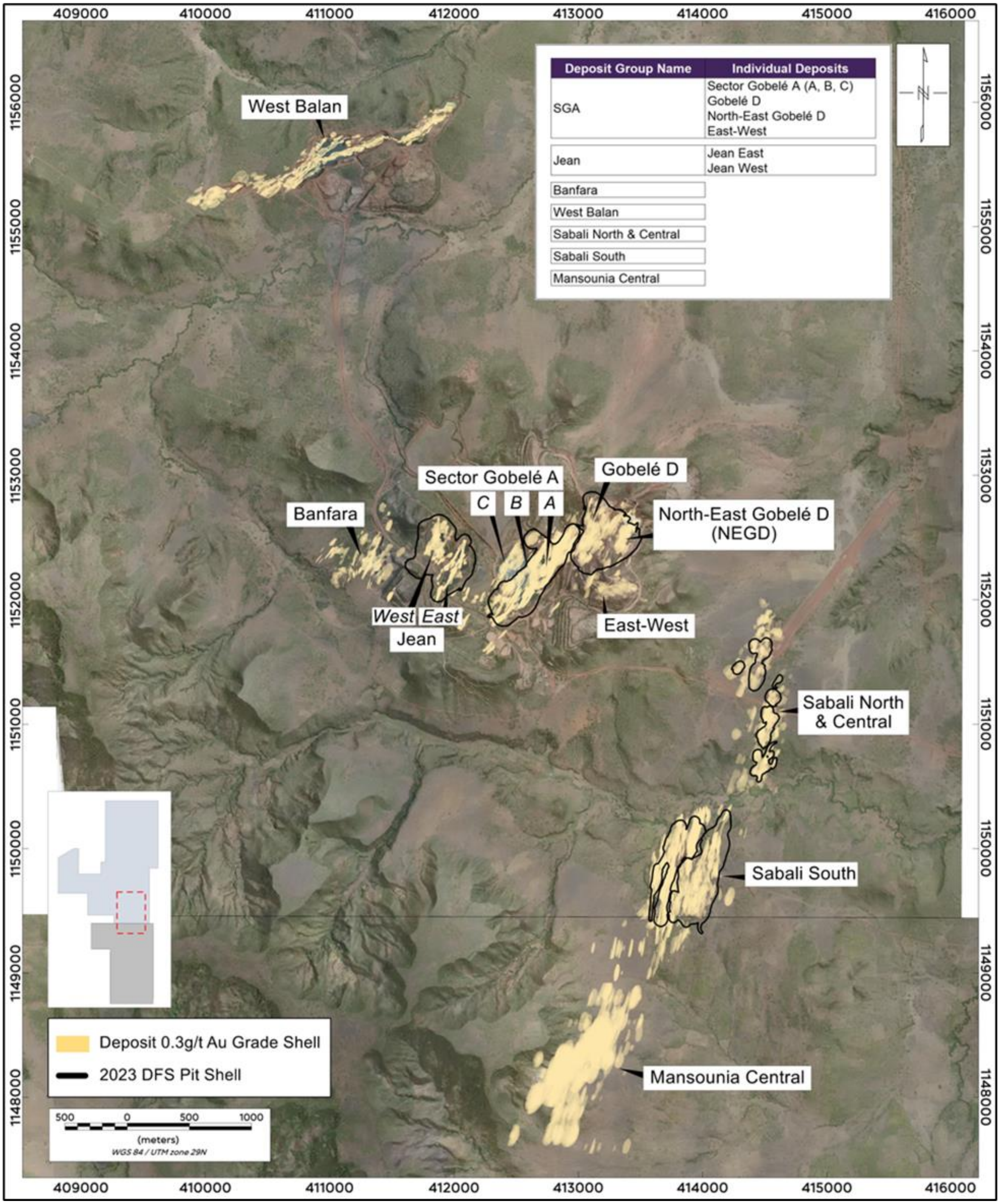
The local geological characteristics, mineralization, exploration, and mining developments of the 12 deposits is summarized in Table 7.1.

Figure 7.6 Location of the gold anomalies and main deposits on the Property




Source: ABS Africa, SMG.

Figure 7.7 Plan of main deposit clusters informing the Technical Report




Source: SMG, 2023.

## Table 7.1 Summary of geological characteristics for the main deposits

| Deposit Cluster and section | Geology Model ID | Deposit | Distance From Plant (km) | Strike | | Dip (°) | Mineralization | | Primary Ore Type | Depth Explored (mbs) | Additional Resource Potential |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Length (m) | Bearing (°) | | Width (m) | Style | | | |
| Sabali (7.3.1) | Sabali North and Central | Sabali North | 1.6 (E) | ~2,500 | 20 | 75-85 | 10-30 (700 m corridor) | Ocean floor volcanogenic mineralization (within pillow basalts) and a typical orogenic lode system, possible fault/thrust contacts between the two environments. | Oxide and fresh | ~80 | Sabali Extension is unconstrained along width and down-dip, and is only constrained on-strike to the south by the permit boundary. |
| | | Sabali Central | | | | | | | | | |
| | Sabali South | Sabali South | 2.0 (SE) | | | | | | | | |
| Mansounia (7.3.2) | Mansounia Central | Mansounia Central | 4.4 (NNE) | ~1,300 | 010-030 | 75-85 | 5-30 (500 m corridor) | Typical orogenic lode system with locally extensive areas of shallow and continuous supergene gold mineralization. | Oxide and fresh | ~75 | Not previously mined. Open on strike and width, significant depth potential. |
| SGA (7.3.3) | SGA | SGA (Gobelé A, B, C) | 1.0 (NNE clustered) | ~1,300 | 020-040 | 80-90 | 10-50 (1,400 m corridor) | Ocean floor volcanogenic mineralization within pillow basalts (type for Kiniero) and deeply penetrative typical orogenic lode systems developed in structural dilation zones. Shallower dipping geometry at east-west. | Oxide and fresh | ~100 | Confirmed exploration potential at depth down-dip from some of the deepest drilling completed at Kiniero. In addition, NEGD open on strike and parallel structures are present at east-west. |
| | | Gobelé D | | | | | | | | | |
| | | NEGD | | | | | | | | | |
| | | East-West | | | 90 | 40 | | | | | |
| Jean (7.3.4) | Jean | Jean East and West | | | 020-040 | 80-90 | | | | 150-200 (max) | |
| | Banfara | Banfara | 1.8 | ~400 | 350-020 | 80-85 | 30-50 | Typical orogenic features, with steep lode orientations. Structures display both east and west dip orientations. | Oxide and fresh | ~75 | Confirmed down-dip depth potential into sulphide ores. May be open to the south along-strike. |
| Balan (7.3.5) | West Balan | Derekena | 4.5 (NNW) | ~1,700 | 63 | 60-75 | 5-30 | Typical orogenic lode system with secondary mineralization in the laterite. | Oxide | ~80 | Confirmed down-dip along the entire strike length. |
| | | West Balan | | ~1,000 | | | 5-30 | | | | Not previously mined. Open at depth down-dip. |

Source: SMG, 2023.

### 7.3.1 Sabali Cluster

The Sabali North, Central, and South deposits occur within the same structural corridor and are broadly comparable in both their geological, lithological, and structural characteristics. From north to south there are, however, changes in the host/wall rock alteration with Sabali South being overprinted by an intense argillic alteration event, a distinguishing feature. It is noted that the observed changes in alteration might relate to vertical displacements of mineralized blocks within the corridor, rather than potential changes in character of mineralizing fluids.

Across the Sabali Cluster, a combination of historical and current drilling has outlined a structurally controlled corridor of mineralization trending approximately 020° that is steeply dipping to the east. The Sabali Cluster comprises three principal zones of mineralization:

- Two zones occur at the Sabali Central and Sabali North deposits, each of which strike for approximately 750 m that have been offset from one another by a north-east to south-west trending fault, producing a lateral offset of the blocks in the order of approximately 200 m. The lack of a marker bed/s constrains the ability to assess any vertical displacement component.
- One zone occurs at the Sabali South deposit, located directly to the south-west of Sabali Central, that is constrained by a possible east to north-east trending fault, or which is instead a general flexure of the mineralized corridor at the deposit scale. The width and depth of the mineralization at the Sabali South deposit is not drill constrained, and the extent of the mineralized geometry is likely to change, especially on the bounding eastern and western margins where drilling is sparser than in the Sabali Central and North. In addition, several of the deeper drill intersections have yielded true lode style mineralization, including multiphase dynamic breccia, providing confidence of testing for down-dip and strike extensions as part of a Mineral Resource extension drilling programme during 2023.

Drilling has demonstrated four styles of mineralization:

- Supergene gold mineralization, typically developed within the upper 30 m, predominantly at the Sabali South deposit.
- Multi-phase veins through to ore shoot dynamic breccia supporting milled transported clasts suggesting sustained (deep-seated and high-temperature) fluid flows over time.
- Classic stockwork developed within brittle fractured, pervasively silicified metasediments.
- Typical orogenic quartz-sulphide veining, locally suggesting high carbon dioxide ($CO_2$) in the system.

The Sabali North and Central deposits (previously named Sabali East by SEMAFO) were initially delineated by historical soil geochemical results Trenches were deepened and exposed a network of structures. These structures were generally oriented north to south fractures and filled with a quartz-carbonate ± sulphide mineral assemblage. The mineralized structures repeated at a frequency of 1 m to 5 m, over a length of approximately 60 m.

Trenching results justified an extensive RC drilling campaign which confirmed the continuity of mineralization characterized by subvertical to vertical, and generally thin mineralized structures, over a wide area (approximately 0.7 km by 1.0 km), striking approximately 010°, with variable vertical continuity. Recent geotechnical diamond drilling completed by SMG midway through the Sabali North and Central deposits has intersected structures with productive oreshoot textures which display similarities to those drilled at SGA.

Historical trenching in the central and northern areas of Sabali North and Central exposed in situ auriferous veining, and residual quartz pebble lines. These zones of mineralization are thought to be offset by late ENE faulting, possibly post mineralization. Documented sections indicate ankerite is an accessory carbonate in the vein parageneses, suggesting the ore depositing fluids were $CO_2$ rich. Ankerite has been observed in other systems of the Kiniero Mining District and suggests that although deposits have developed as discrete bodies, the fluid chemistry may have been similar over much of the district.

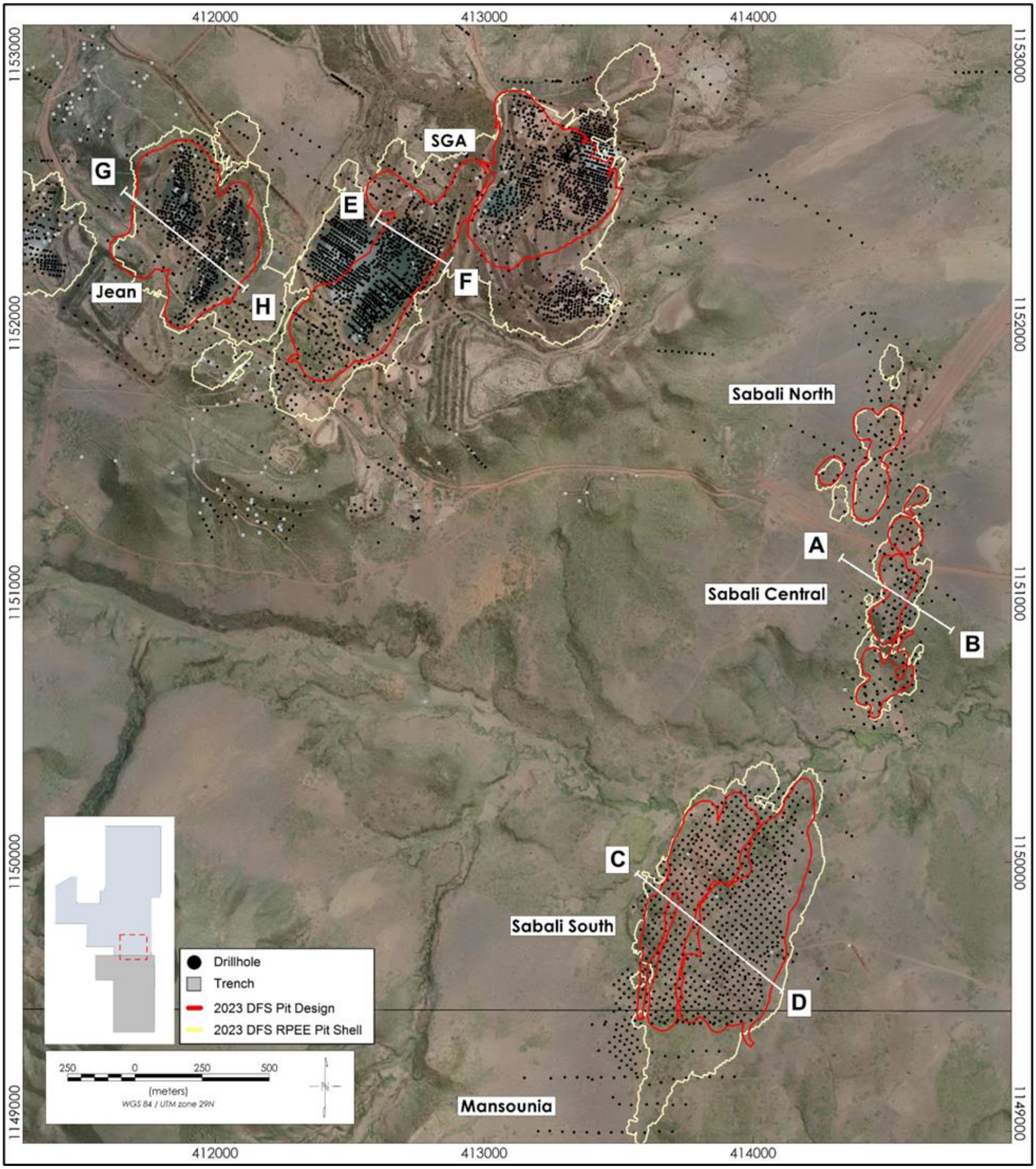
Figure 7.8 presents the location of the main deposits in the Southern Block of the Project and Figure 7.9 presents an illustrative cross-section of Sabali Central, indicating the regolith geology, pit designs, pit shells developed for determining reasonable prospects for eventual economic extraction (RPEEE), and a 0.3 g/t Au grade shell.

Subsequent extensive exploration has confirmed that the Sabali South deposit forms a part of a much larger shear mineralized corridor, termed the Sabali-Mansounia Corridor. The cumulative 6 km strike length of the Sabali-Mansounia Corridor has been underexplored, remaining largely open along-strike and at depth.

The geological model is characterized by a pronounced oxide weathering profile, which is deeply developed (>60 m) in the east of the deposit. Beneath the upper oxide layer is a hydrothermally altered sulphide ore unit that is mechanically similar to the overlying oxide, followed by saprock and fresh horizons. There are primary lithostratigraphic controls on early fluid movement, followed by secondary changes in permeability brought about by hydrothermal alteration, fracturing displaying differing levels of hydraulic brecciation, fluidization, and quartz-sulphide veining.

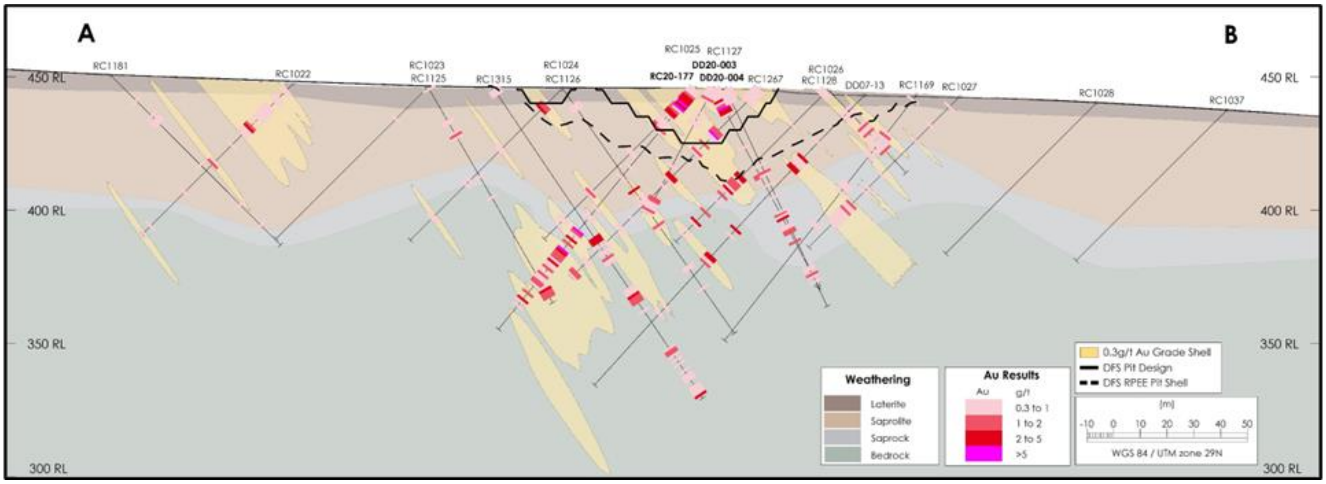
At least three principal zones of mineralization have been identified at Sabali South. These zones are developed along steeply dipping primary structures which are loosely defined due to drilling geometries (Figure 7.10). In the south-western sector of the Sabali South deposit, current drilling suggests there is a thinning of the oxide horizon within the weathering profile, resulting in sulphide-dominated ores reporting at a shallow depth, compared to elsewhere in the deposit.

Figure 7.8 Plan of the Southern Block deposits



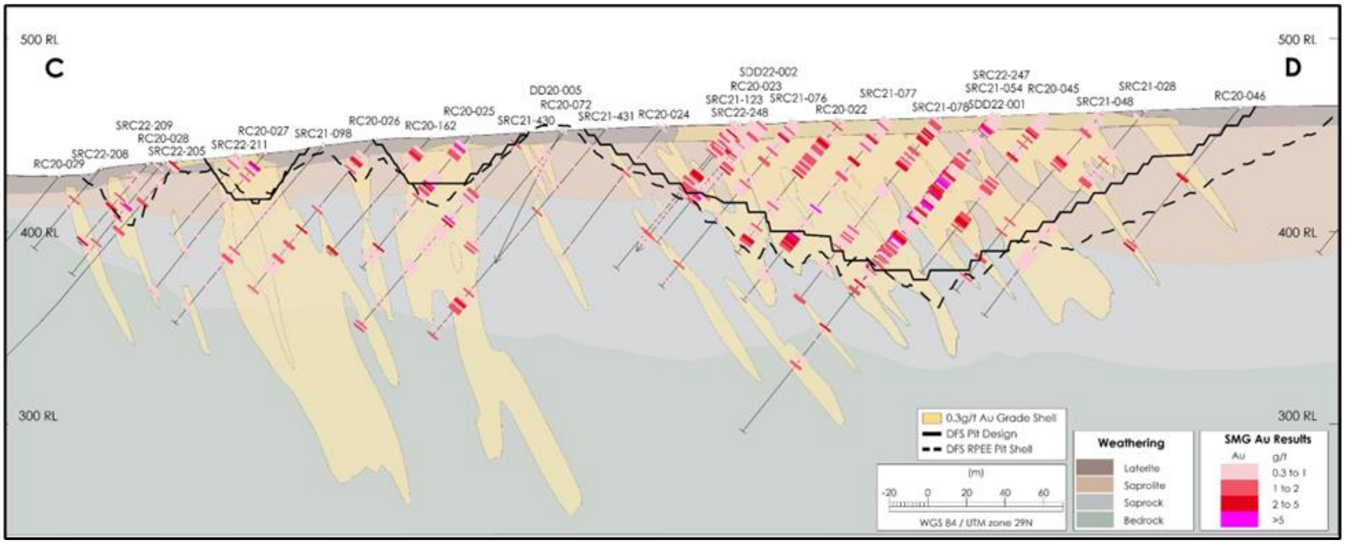

Note: The section lines shown refer to the cross-sections in Figure 7.9 to Figure 7.11.
Source: SMG, 2023.

Figure 7.9 Cross-section A-B through the Sabali Central deposit




Source: SMG, 2022.

Figure 7.10 Cross-section C-D through the Sabali South deposit




Source: SMG, 2022.

### 7.3.2 Mansounia Central

The Mansounia Central deposit is located to the south to south-west of the Sabali South deposit, and had been previously segmented into three separate targets, namely the Mansounia North deposit, which now forms a part of the Sabali South deposit, the Mansounia Central deposit and the Mansounia South deposit. Mansounia Central represents a direct on strike extension of the Sabali South deposit, part of the much larger shear mineralized corridor, termed the “Sabali-Mansounia” Corridor.

Drilling results from Mansounia Central have demonstrated a clear relationship between the bulk leach extractable gold (BLEG) gold-in-soil and the airborne magnetics, intrusives, the inferred alteration footprint, and the underlying confirmed structures. Structural interpretation of these combined data sets has yielded encouraging results, providing additional structural understanding to the broader mineralized Sabali-Mansounia Corridor.

The lithologies of the deposits have undergone deep weathering, commonly showing a 30 m to 50 m thick saprolitic horizon developed over the bedrock. At surface, the saprolite is capped by a 1 m to 5 m lateritic profile which locally can be thicker (up to 10 m). Secondary gold mineralization has been identified in the oxide profile with a west to east paleo-water table migration from an inferred source.

The saprolite unit has been the focus of previous exploration; however, a limited number of deeper drillholes that were completed exposed relatively thin (typically <5 m), steep (~75º) north to north-east trending mineralized zones in fresh and partially weathered volcanic units. It is noted that historical drilling in the southern portion (Mansounia South) identified several lode-style mineralized structures which have not yet been systematically explored.

### 7.3.3 SGA Cluster

The SGA Cluster of deposits are broadly geologically, structurally, and geographically related and share, in some instances, interrelated and overlapping exploration datasets. The SGA Cluster, comprised of the various Gobelé deposits, along with the Jean deposits, formed the focal point of early-exploration, development, and exploitation at the previous Kiniero Gold Mine.

Exploration of the area delineated a >1 km² anomalous zone of gold in soil geochemical results, with subsequent infill surveys delineating the general fabric of the respective lode systems. By the end of 2002, both the Jean and Gobelé deposits had been well-delineated with seven subdivided, yet interconnected deposits, being identified extending from Jean West on the western margin through to Gobelé D in the east.

The original Gobelé A and B deposits are characterized by subvertical structures forming a corridor of subparallel structures (Figure 7.11), extending for more than a kilometre in strike, trending at 030°, a strike direction which dictated north on the previous local mine survey grid. The central portion of the Gobelé A deposit is wide, reflecting a vertically extensive dilatational zone which has been drilled up to >200 m in depth, identifying mineralized structures well below the previous pit limit, hosting significant mineralized widths and grades.

The structures of the Gobelé C deposit, located immediately west of Gobelé B are also elongated, but do not exhibit similar large-scale dilation zones on its 040° trending lode system strike, as at Gobelé A and B. The lack of dilation within the Gobelé C deposit controls is reflected in the apparent depth extent, as it has only been explored to vertical depths of approximately 50 m. This is an indication that the controls on the deposition of fluids at Gobelé C were potentially different, as most of the other deposits of the Project are commonly developed on deeply penetrative shear systems which host typical orogenic lode features.

During 2021, Robex initiated a reconnaissance deep diamond drilling programme to confirm the depth extension potential of the Gobelé system at the SGA Complex. Drillhole GDD21-001 was designed to target depth extensions of the mineralized lode style potentials of the Gobelé system and was drilled to a final depth of 427.8 m, >115 m deeper than any other previous drillhole drilled at the SGA Complex. Results confirmed the depth extensions of the Gobelé gold-bearing system at SGA, as well as the auriferous nature of the vein and breccia types that were intersected. The zones of hydraulic brecciation, and structures hosting deep-fracture sets, reflect ore forming processes that have involved significant vertical transport. The mineralized structures represent discrete zones of high-grade gold with limited mineralization developing in the surrounding wall rock. These results from GDD22-001 are at a depth of approximately 120 m to 240 m below the lower limit of the FS pit shell.

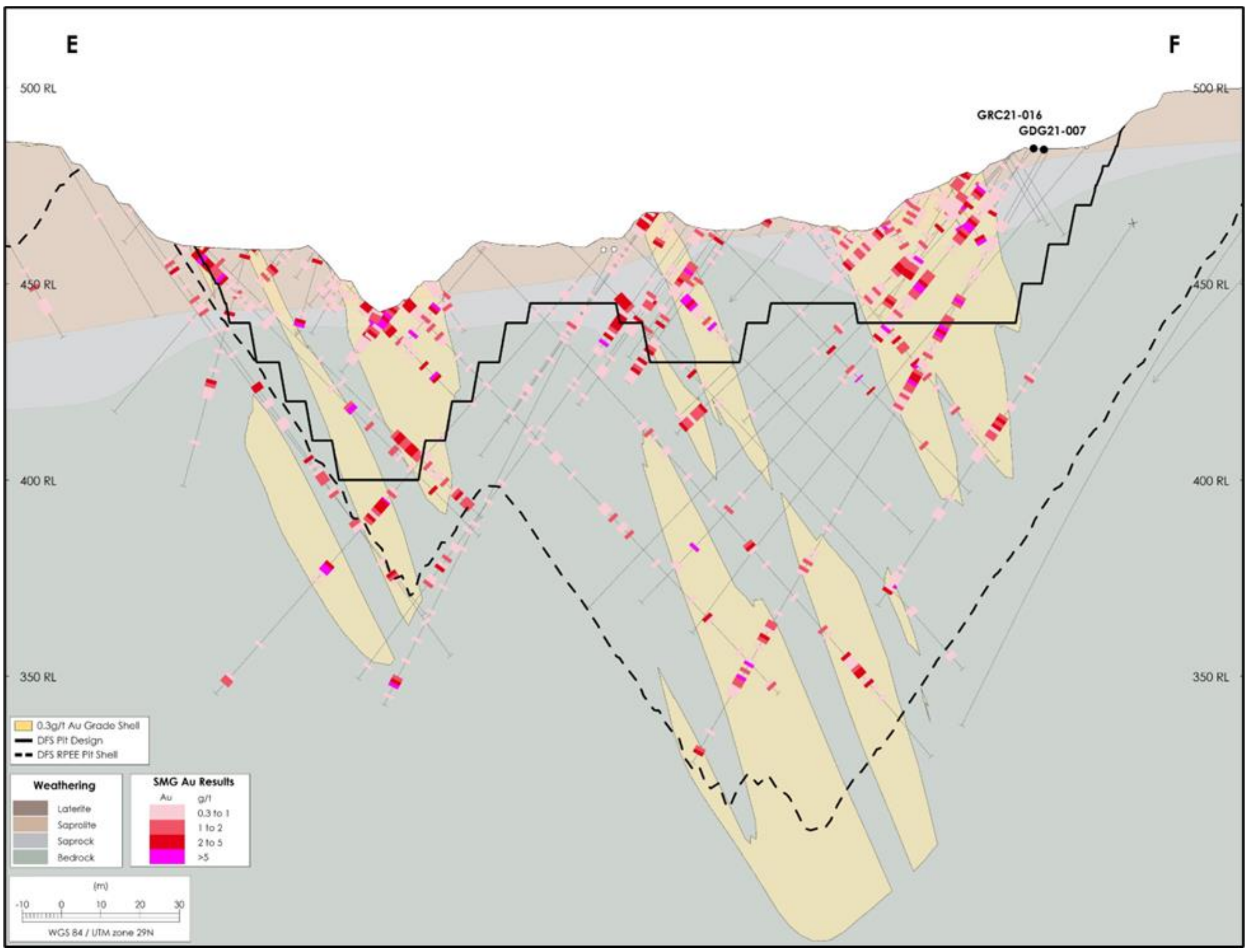
Gobelé D is located north-east of Gobelé A atop the Sabali Hill and displays a very similar geometry to that at Gobelé A. Gobelé D is characterized by a wide central structure (up to 25 m to 30 m thick) with zones of satellite mineralization on either side of it. Its characteristics differ to the eastern portion of the NEGD deposit.

The NEGD deposit is similar in geometry to the other Gobelé deposits, exhibiting subvertical geometry bounded by a series of 020° lode systems which have a central area of dilation. The deposit hosts two broad zones of mineralization situated below the base of the historic pit with a slight plunge to the south. The deepest drilling extends vertically 150 m which has confirmed down-dip depth extensions.

The east-west deposit is a tightly constrained deposit developed on a 090° trending structural fabric. The deposit was originally discovered while developing a 030° trending structure directly to the north within the footwall which intersected the east-west trending mineralization, hence its assigned name. The deposit has a comparatively flat southerly dip at 40° to 45°, as compared with other deposits of the Kiniero Gold District.

The deposit comprises two zones of mineralization, each 10 m to 15 m in width, with a 15 m to 20 m separation zone between them and are comparatively high-grade. The deposit remains open down-dip and presents some strike potential primarily to the west. Drilling directly to the north has outlined additional footwall structures.

Figure 7.11 Cross-section E-F through the SGA (Gob A, B and C) deposit




Source: SMG, 2022.

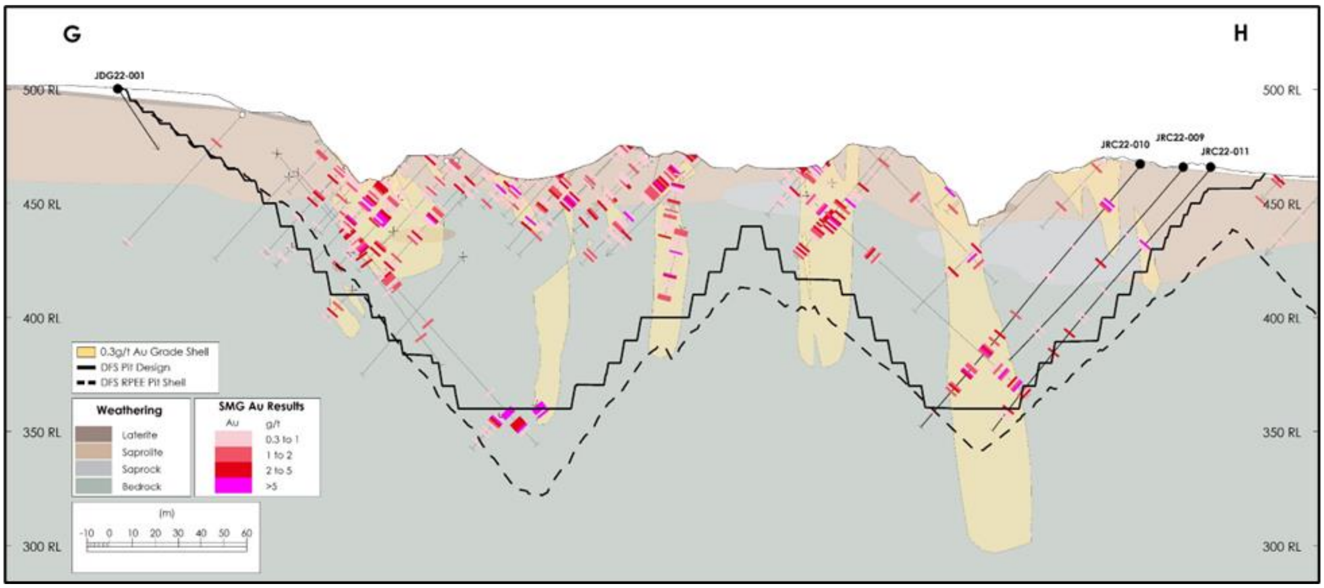
### 7.3.4 Jean Cluster

#### 7.3.4.1 Jean East and West

The Jean East and West deposits are situated immediately west of the various Gobelé deposits of SGA and were discovered at the same time as the Gobelé deposits. Jean East is characterized by thick mineralized subvertical structures elongated for approximately 500 m, trending 010°. This 010° trending structure at Jean East was mined, as well as the 350° striking mineralized structure at Jean West. The two mineralized structures at Jean are distinctly separated by a 030° trending fault.

The Jean West deposit is characterized by thinner and shallower subvertical structures with a 350° strike, which remain open to the north on-strike.

Figure 7.12 Cross-section G-H through the Jean (East and West) deposit




Source: SMG, 2022.

#### 7.3.4.2 Banfara

The Banfara deposit represents a steep sided worked out open-pit that targeted two mineralized structures, one trending north to south (a principal regional control) and dipping steeply to the west, and the other north-west to south-east dipping steeply to the east.

The extension of each of these mineralized structures has been variously explored, with a north-westerly extension, 300 m west of the existing Banfara pit, having been previously drilled. The northern extension has been comparatively less explored due to the TSF abutting against the extension, effectively sterilizing exploration potential.

### 7.3.5 Balan Cluster

The Balan Cluster of deposits includes the Derekena, West Balan, Kobane, and Farabana deposits, four principal zones of mineralization which represents one the most continuous zones of mineralization yet delineated within the Project. The Balan Cluster is unique in that the mineralization has developed along east-north-east shear zones, a key strike trend in the Siguiri Basin, but which is secondary to the north-west to north-east structures which dominate the Kiniero Gold District.

Historical and recent exploration and resource drilling has focused on oxide targets within the zone, little is known regarding the deeper sulphide mineralization.

Mineralization within the Derekena deposit consists of a series of subvertical quartz lode structures presenting typical orogenic vein features. The strike orientation and other aspects of the geometry are comparable to that of Gobelé D. Drilling intersections indicate mineralized structures averages 6 m to 7 m in thickness, in some areas exceeding 10 m, and are stacked across the width of the mineralized corridor. Mineralization is currently open down-dip across the strike length of the deposit.

Some of the drillholes in the Derekena (and Balan Cluster as a whole) have intersected altered granodiorite, which are known elsewhere in the Kiniero-Kouroussa corridor to have a close association with late-phase high-grade oreshoots.

The Derekena deposit is disrupted by a series of inferred small WNW to NW trending faults which displace the lateral position of the mineralization, typically in the 5 m to 10 m range. Mineralization trends are slightly rotated to the north to north-east from the typical West Balan trend, probably due to the proximity of the north-west to north-north-west trending Kiniero- Kouroussa shear zone (Figure 7.3).

The laterites of the Derekena deposit contain extensive areas of supergene enrichment in gold and have been mined by artisanal miners during recent years. Lateritic supergene gold in some areas may present resource potential, for which detailed evaluation is required.

Mineralization within the West Balan deposit is identical to that at Derekena, consisting of a series of subvertical quartz lode structures presenting typical orogenic vein features.

The strike orientation and other aspects of the geometry are comparable to that of Gobelé D with drilling intersections and historical pit observations indicating mineralized structures having averaged 6 m to 7 m in thickness, in some areas exceeding 10 m, stacked across the width of the mineralized corridor. Mineralization is currently open on-strike to the south-west at Derekena and down-dip across the strike length of the deposit.

As at Derekena, the West Balan deposit is disrupted by a series of inferred small WNW to NW trending faults which displace the lateral position of the mineralization, typically in the 5 m to 10 m range. There is no apparent indication of any significant vertical movement along these faults, a feature observed in other historic pits.

### 7.3.6 Other deposits

In addition to the main deposits, the Property includes a further 11 deposits of interest that are minor and do not form part of the disclosed Mineral Resources or Mineral Reserves that support this Technical Report. Table 7.2 provides a summary of the mineralization style and orientation of these 11 additional deposits.

## Table 7.2 Summary of geological characteristics for the additional deposits

| Deposit | Strike | | Mineralization | | Depth Explored (mbs) | Additional Resource Potential |
|---|---|---|---|---|---|---|
| | Length (m) | Bearing (°) | Width (m) | Style | | |
| Kobane | ~1,700 | 000-005 | 5-20 (800 m corridor) | Drilling results suggest a primary mineralization on north-south controls with secondary gold dispersion developed along paleo-slopes. | ~50-75 | Not previously mined. Open along both strike extents and down-dip. |
| Farabana | ~1,300 | 020-045 | 30-50 | Typical orogenic features, with secondary mineralization in the laterite. Evidence of higher-grade structures. | ~50-75 | Not previously mined. Open along both strike extents and down-dip. |
| Wombon, Wombon South | ~2,000 each | 350-005, 045-080 | >100 corridor | Stacked linear zones of veining. Strong structural control confirmed by limited drilling, probable dilation zones on mine centered structures. | <55 | Significant greenfields target. Open on strike and possibly connected to SGA cluster structural controls. Zones of intervening mineralization into the SGA cluster enhance prospectivity. |
| Balan South | ~2,000 | 60 | unknown | Assumed orogenic with steep lode orientations. | ~70 | High. Potentially a misinterpreted greenfields exploration target. |
| Zone C | ~500 | 350-020 | 30-50 | Typical orogenic features, with steep lode orientations. | ~80 | Never previously mined with confirmed down-dip depth potential. |
| Djikouroumba, Kerkour and surrounds | 700, 1,700 satellite | 315 and 065 | 30-50 | Strong structurally controlled zone of mineralization with principal fabric similar to other resource blocks in the Kiniero field. | ~75 | Two deposits, the main prospect developed on a dilation zone and the second area developed on a linear control. |
| Heriko | 3,500 | Avg ~040 | 5-30 (300 m corridor) | >100 m of stacked linear zones of veining within an outlined central dilation zone. Assumed typical orogenic lode system. | ~75 | Significant. Limited drilling suggests depth and strike potential with significant opportunity for additional maiden discoveries. |
| Mankan | >3500 | 330-030 | 5-15 (500 m corridor) | Typical orogenic north to south orientated linear lode system with points of dilation. On-strike from Filon Bleu with key regional geological control. | ~75 | Significant. Mineralization potential remains open on strike and dip with opportunity for near-term maiden mineral resource discoveries. |
| Filon Bleu (and surrounds) | 2,000 to 3,000 | 355-005 | 5-20 (200 m corridor) | Typical multi phased deep-seated orogenic lode system with stacked lodes from subvertical to dipping ~50 to the east. Gold hosted in laminated blue-grey sulphide-bearing lodes quartz veins. | <100 | Significant. Well-developed vein system with demonstrated depth potential. Open on-strike and plunge, RC drilling has delineated a detailed understanding of the full economic potential. |
| North-eastern Prospects | ~6,000 (cumulative) | 345-005, 045-080 | 30-50 within corridors | All prospects are closely associated with regional- scale features. Appears typically orogenic with steep lode orientations. | Not yet drilled | Significant greenfield target. Untested strike length and depth extent remains unknown. |
| Mansounia South | ~2,000 | 010-030 | 5-30 (500 m corridor) | Typical orogenic lode system with locally extensive areas of shallow and continuous supergene gold mineralization | ~75 | Not previously mined. Open on-strike and width, significant depth potential. |

Source: SMG, 2022.

# 8 Deposit types

The deposits located on the Property are associated with the Proterozoic Birimian orogeny of West Africa. Most gold mineralization in the West African Craton is shear-zone-hosted and structurally controlled, with lithology having a minor, local influence. The mineralization developed in the Kiniero Gold District conforms to this general style of mineralization.

Generally, vein-hosted lode type mineralization of the Birimian-style is associated with regionally metamorphosed terrains that have undergone considerable deformation and polyphase intrusive events. Birimian deposits are typically strongly structurally controlled but are also commonly associated with rheological contrasts within and between different lithologies. Recent drilling at both the SGA and Sabali South deposits has indicated the lithostratigraphy as being key to how the differing lithologies support structural preparation at a local scale.

Gold mineralization is typically late-orogenic, medium-grade lodes which are strongly structurally controlled and located within quartz veins or in quartz-veined fracture zones with inter-mineralization intrusives. Structures can be classified from their textural development as to whether their origins are proximal or deep-seated. The principal structural trends have been identified through trenching and drilling and are also visible within the existing open pits. Exploration drilling has continued to target the main structural orientations with holes aiming to intercept the mineralization trends at a sub-perpendicular orientation.

The mineralization vein-lode model proposed by former operators considered the deposits to be volcanogenic in origin and to have formed at a sub-marine effusive centre associated with basaltic lava extrusion, with high-temperature hydrothermal activity responsible for the mineralization. Geological work completed by SMG since acquisition of the Property suggests a more complex mineralization model.

The evidence of the primary controls on mineralized fluid emplacements are deep-seated fracture sets with local structural interplays creating dilatational environments. There is evidence of episodic over-pressuring within the system, which combined with seismic events triggered rapid ascent and mineral deposition over a significant vertical interval. The original subhorizontal volcanic/volcanoclastic assemblage was tilted to the north, resulting in an average east to west strike direction of the lithological units with a steep dip to the north thus masking the original vein emplacement strike direction and dip.

It is unclear if this tectonism is related to movement on the Kiniero-Kouroussa shear, or the emplacement of a series of large magmatic bodies through different areas of the district, or a combination of these events. Within the historic pits, mineralized veins that were originally striking north to south with a shallow dip to the west would, after the post-volcanic tectonism, be subvertical striking at 040° N.

In the existing SGA open pit, veins and veinlets are generally striking from 000° to 050° with moderate to strong dips to east or south-east (locally, some strongly dip to the west). Drilling in this area is dominated by holes inclined approximately 45°-75° to the west-north-west with azimuths of between approximately 280° and 315°. In the east-west pit and some parts of Gobelé D pits, the strike is east to west with strong dips to the south. Drillholes in the east-west pit have typically been drilled inclined at 45° to the north with an azimuth of approximately 008°. East to west and north to south structures are generally interconnected rather than intersected.

On-strike extensions of individual veins vary from 50 m to 300 m with interconnections and step-offsets creating fairly long orebodies of several hundred metres. Structures are also of variable thickness. Field observations in core at Gobelé D record thicknesses of up to 30 m, but averages are typically in the range of 4 m to 8 m in most deposits. Vertically, most orebodies extend beneath the depth of diamond drilling. Currently, mineralization remains open down-dip at all the deposits.

At Sabali South there is an internal mineralization domain fabric that suggests potentially NW through NNE veining trends that have developed within a generally NNE-NE stress fabric. Drilling at Sabali South has typically been completed with holes inclined at approximately 50° to the north-west at an azimuth of 310°.

The intensity of the mineralization is a function of the following factors:

- Geometry of controlling regional shear systems and secondary structures.
- Permeability of fractures as related to dip and depth.
- Intensity of fracturing developed within brittle host rocks and their respective bounding lithologies.

The local stratigraphy, lithology, and structure suggests that the origin of the local geology presents a mobile marine pile which has undergone several compressional events driven by drifting towards the south-west, where the basin margin impacts on the older (Archaean) Leonean Craton. This is the consequence of an ancient spreading centre, and possible primitive back-arc environment located in eastern Mali. The metavolcanic pile across the Kiniero Gold District contains significant accumulations indicative of these environments.

Compression, buckling, and over thickening of the sedimentary pile would have imparted locally higher-grade metamorphism. Unable to subduct the buoyant thin oceanic crust, isostatic adjustments would have been a trigger for a series of rollback events, creating local tensional stress regimes. The resulting structures would have provided deeply penetrative fracture sets likely tapping and drawing lower-mid crustal magmas creating a local high-heat flow through the metamorphic pile.

Supporting evidence is seen in the transition from low-energy deep ocean sediment sequences to higher energy continental shelf facies of sand, grit, and fine pebble conglomerations. Combined with vesicular pillow basalts which are relatively undeformed, and which are observed in the Kiniero-Kouroussa corridor, their depositional environment points to a shallower marine environment and not a seafloor spreading setting.

Deep fractures not only provided the passage for metamorphic derived fluids but also conduits for episodic magmatic events. These provided a remobilization of metamorphic and probable mixing of shallower circulating meteoritic fluids. Locally, a high $CO_2$ flux is supported by extensive carbonate veining, and an ideal environment for discrete zones of ore enhancement, typical of orogenic oreshoot development.

# 9 Exploration

## 9.1 Surveys

### 9.1.1 Survey methods

All survey works conducted by SMG have been completed in the Universal Tranverse Mercator 6° longitudinal Zone 29P, (UTM Zone 29P) using the World Geodetic System 1984 (WGS, 84) ellipsoid datum. The adopted Project coordinate system conforms to the nationally adopted survey coordinate system of Guinea:

- Projection method: UTM Zone 29P.
- Datum: WGS, 84.
- Local datum transform: (WGS, 84) World.
- Geodetic coordinate reference system: WGS, 84.
- Geoid reference: Earth Gravitational Model 1996 (EGM, 96).
- Ellipsoid: WGS, 84.
- Prime meridian: Greenwich.
- Unit: metre.

To ensure the veracity of historical survey data, SMG has undertaken a programme of base station validation checks, base station installations, and verification checks of historical drillhole collars.

A total of four historical base stations were located, of which only two remain (ST4 and ST3) in a reliable condition. Using base station ST4, a secondary base station SAB_1 was set up in the vicinity of the Sabali South drilling. Base station ST4 was subsequently damaged, and therefore a Trimble GNSS base station was established at the ST3 location. An averaged final set of UTM Zone 29P coordinates were generated and signed off by Trimble CenterPoint RTX Post-Processing. Additional base stations have been established as summarized in Table 9.1.

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Table 9.1 Summary of the Project base stations

| Base Station Nº | Location | Comments | UTM ZONE29P WGS 84 | | | SEMAFO Local Mine Coordinates | | |
|---|---|---|---|---|---|---|---|---|
| | | | East (X) | North (Y) | Elev. (Z) | East (X) | North (Y) | Elev. (Z) |
| SM7 | Old Plant | - | 412,732.700 | 1,151,474.977 | 494.756 | - | - | - |
| SM9 | Old Plant | - | 412,752.765 | 1,151,425.320 | 490.789 | - | - | - |
| SM4 | Old Plant | - | 412,711.347 | 1,151,368.537 | 488.637 | - | - | - |
| SM3 | Kiniero Main Camp | - | 412,773.010 | 1,151,341.501 | 486.349 | - | - | - |
| SC6 | Kiniero Staff Camp | - | 416,772.292 | 1,149,954.787 | 410.195 | - | - | - |
| SC8 | Kiniero Staff Camp | - | 416,708.575 | 1,149,975.271 | 410.373 | - | - | - |
| SC7 | Kiniero Main Camp | - | 416,693.604 | 1,150,078.966 | 410.489 | - | - | - |
| SC1 | Kiniero Main Camp | - | 413,920.680 | 1,151,435.927 | 479.204 | - | - | - |
| SC2 | Kiniero Main Camp | - | 413,892.891 | 1,151,562.385 | 484.076 | - | - | - |
| ST3 | Kiniero Main Camp | Previous SEMAFO Base Station | 413,954.216 | 1,151,521.977 | 482.778 | 6,651.88 | 5,523.84 | Unknown |
| SC3 | Kiniero Main Camp | - | 414,015.006 | 1,151,560.581 | 484.006 | - | - | - |
| SC5 | Kiniero Main Camp | - | 414,002.034 | 1,151,525.226 | 483.434 | - | - | - |
| SC4 | Kiniero Main Camp | - | 414,059.131 | 1,151,484.507 | 478.890 | - | - | - |
| Camp Base | Geology Office Roof | Master Base Station | 414,065.416 | 1,151,452.323 | 480.538 | - | - | - |
| RK002 | Wi-Fi Tower | - | 412,515.768 | 1,151,421.571 | 540.426 | - | - | - |
| SAB1 | Sabali South | - | 414,018.623 | 1,149,897.709 | 455.132 | - | - | - |
| GCP7 | Kiniero Main Camp | LiDAR Master Base Station | 416,091.691 | 1,150,757.983 | 431.924 | - | - | - |

Source: SMG, 2022.

Verification of the historical drillhole collars was undertaken and referenced back to the SAB_1 base station. The verification results correlated with the historical survey data.

In December 2021, SMG undertook a collar field verification survey campaign in the Mansounia licence area, and attempted to relocate and resurvey all previous drill collars. Of the 401 previous drill collars a total of 146 were relocated and surveyed. The remaining were either buried or destroyed.

Survey works for SMG were initially conducted by contractors including the Survey Head of Department of the neighbouring Kouroussa Gold Project (then Cassidy Gold Corporation) and CITAG (a local Guinean surveying business). Since June 2021, SMG has appointed a Chief Surveyor and completed survey works internally.

SMG currently operates a Global Navigation Satellite System comprising a LEICA CS20 LTE Field Controller and LEICA TS07 theodolite.

### 9.1.2 Digital terrain models

SMG inherited a range of low-resolution topographic surveys upon acquiring the Property; these include:

- Licence-wide Sentinel-2 satellite DEM, dated February 2020.
- A 5 m resolution licence-wide topography flown by Fugro in 2007.
- Reprocessed 2 m resolution licence-wide topography derived from the 5 m resolution 2007 Fugro data.
- December 2010 mine survey of the West Balan pit area.
- December 2010 mine survey of NEGD pit area.
- November 2010 mine survey of the SGA pit area, including West Balan, Jean, Gobelé D, NEGD, and East-West pits.
- December 2010 mine survey of the SGA pit area, including West Balan, Jean, Gobelé D, NEGD, and East-West pits.
- March 2012 mine survey of the SGA pit area, including West Balan, Jean, Gobelé D, NEGD, and East-West pits.
- 2006 mine survey of just the East-West pit.

No single survey provided a complete up to date surveys of all the former open pits at closure in March 2014. For the purpose of mining depletions, the QP has worked with SMG to combine the surveys into digital terrain models that best reflect the present-day surface.

In March 2021 a fixed wing/drone LiDAR survey was completed over the Project area. The survey was flown by Westair Aviation with the survey data and orthoimagery captured and managed by African Consulting Surveyors. The entire 326 km² Kiniero licence area was surveyed, as well as 94 km² of the northern sector of the Mansounia licence area, a total surveyed area of 420 km².

A series of ten ground control points were surveyed prior to flying, with approximately 2,500 line kilometres flown between 22 March 2021 and 24 March 2021. Flying was completed using a Cessna Caravan C208B equipped with a RIEGL VUX-240 lightweight airborne laser scanner with a field of view of 75°, programmed with Waveform-LiDAR technology. Orthoimagery was captured with a camera output at a 9.2 cm ground sample distance (GSD), 527 m above ground level (AGL), an average of 4 points/m² and an average of 5.56 photographs per line kilometre.

## 9.2 Outcrop sampling

Rock chip, grab, and/or outcrop sampling has been undertaken by SMG geologists on an ad hoc basis since acquisition of the Property. A total of 256 outcrop samples have been collected to date, 251 of which have undergone preparation and fire assay as per reverse circulation (RC) and diamond drilling (DD) samples. Outcrop samples have not been used as part of the Mineral Resource estimates.

## 9.3 Soil geochemical sampling (BLEG)

A BLEG soil geochemical sampling programme commenced in October 2020 over the Kiniero licence area. This was followed up in October 2021 with a BLEG programme over the Mansounia licence area. The BLEG sampling method was developed to more accurately measure fine-grade gold and sampling heterogeneity.

The sampling technique involves the compositing of two succeeding/neighbouring soil sampling points at 50 m sample centres into a single sample to produce a composite sample on 100 m spacing. Sampling positions were pre-generated on a sampling grid of 250 m by 100 m (lines spaced

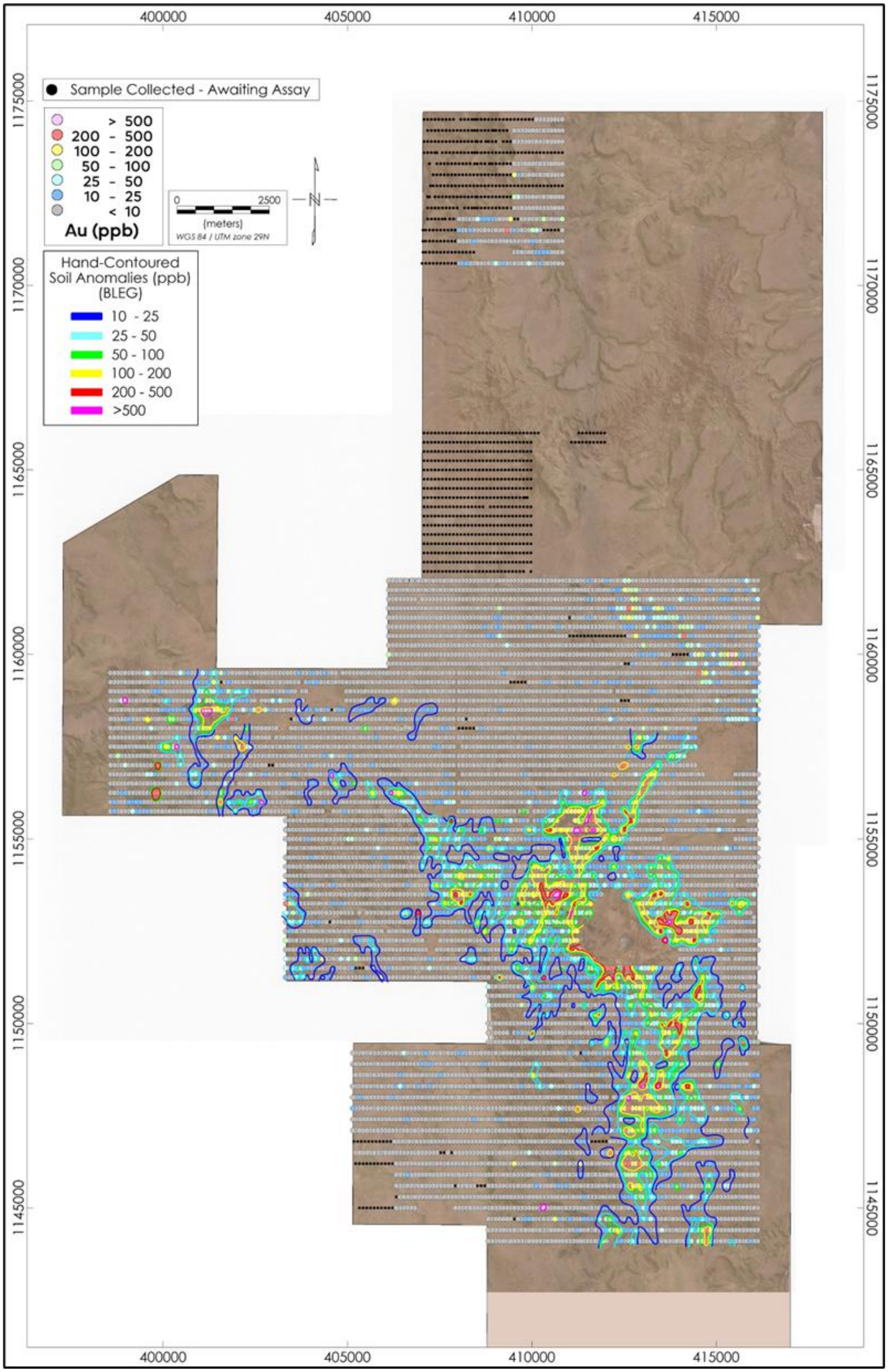
250 m apart with samples collected every 50 m, but composited across 100 m), with proposed sampling positions field-checked before collecting.

Vegetation and organic-rich material (or the top 5 cm) is removed prior to sampling. A 5 kg sample is taken and placed on a tarpaulin and removing any contaminants such as plant material. The sample is then placed into a pre-numbered sample bag, representing sample "A". The sample bag is then moved to the next sample position, where a "B" sample is taken in the same manner. Both samples are then placed on the same tarpaulin, visually checked, and then homogenized either by hand, or alternatively by shaking/rolling the tarpaulin for at least one minute. The homogenized sample is then divided into four segments, with two opposite quarters selected to obtain approximately 5 kg of sample mass and placed in the pre-numbered bag and sealed with a cable-tie, with remaining unsampled quarters disposed of. All equipment is then cleaned before collection of the next sample.

As of April 2023, a total of 7,330 BLEG samples had been collected across the Kiniero licence area, 6,434 of which have been analysed. A further 1,881 BLEG samples had been collected across the Mansounia licence area of which 1,834 have been analysed.

The area of the Property covered by these surveys, and the results of the BLEG surveys are shown in Figure 9.1.

Figure 9.1 Location and results of the BLEG sampling




Source: SMG, 2023.

## 9.4 Remote sensing and structural interpretation

In February 2020, SMG engaged GaiaPix to undertake both a regional and local remote sensing interpretation of the Kiniero licence area to gain a better understanding of its geological and structural setting. GaiaPix is a remote sensing and geographical information system (GIS) consultancy based in South Africa. The geological and structural interpretation undertaken by GaiaPix utilized the following data sets:

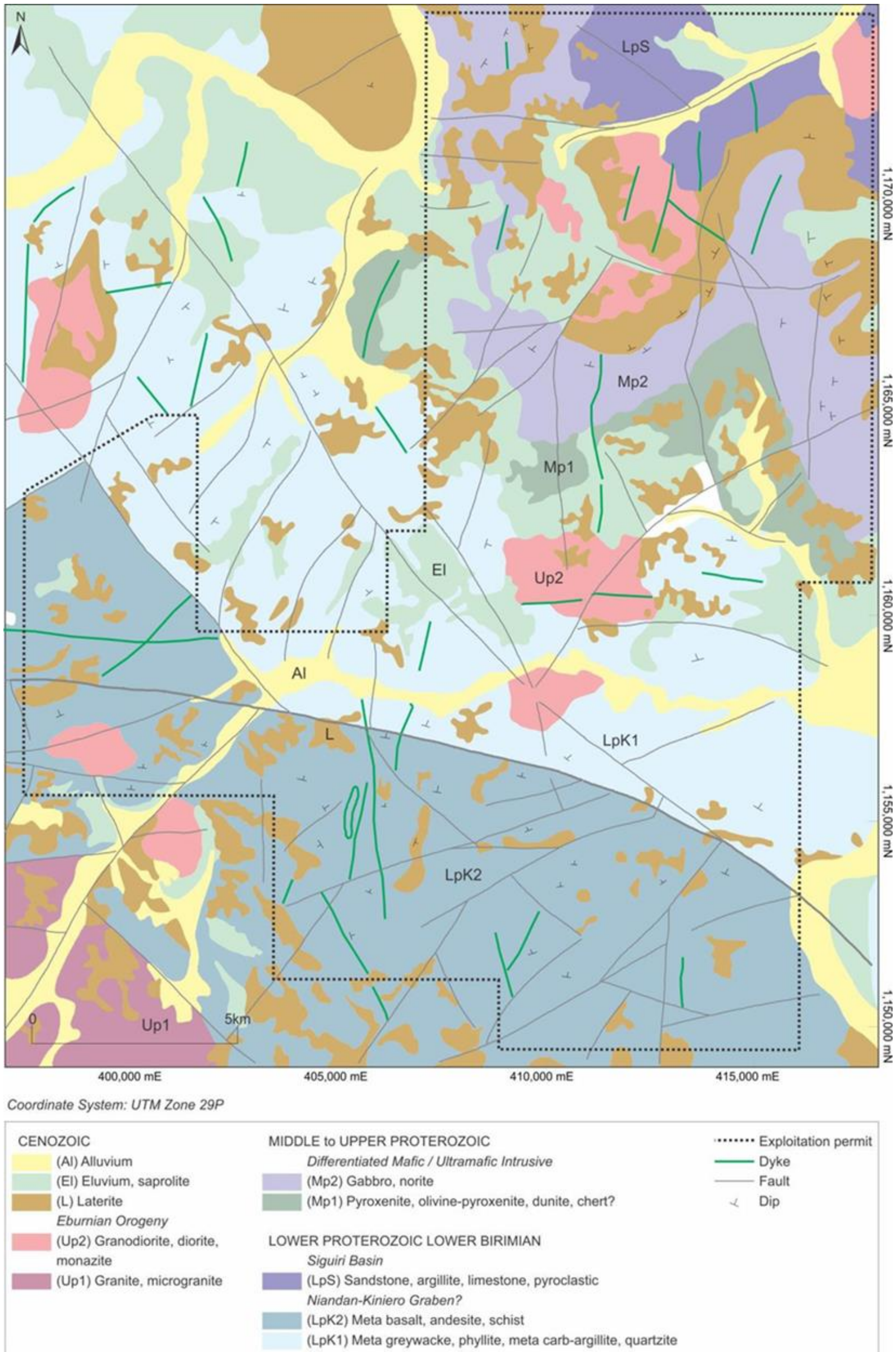
- Landsat 8 satellite imagery, at 15 m resolution, used for a regional geological interpretation at 1:125,000 scale, covering an area of approximately 5,900 km².
- PlanetScope satellite imagery, at 3 m resolution, for interpretation at 1:40,000 scale, covering an area of approximately 550 km². This was used to assess the controls of the gold mineralization.
- Shuttle radar topography mission (SRTM) at 30 m elevation used to produce three-dimensional (3D) anaglyph and sun shaded images.
- Aeromagnetic geophysical survey data from 2007, flown by Fugro over the Kiniero licence area.
- Historical mapping published by the BRGM.
- Geochemical sampling data collected across the Property by SEMAFO.

The results of the geological mapping and structural interpretation are shown in Figure 9.2.

GaiaPix was also requested to identify areas of potential mineralization. Known gold deposits on the Property appear to have a direct association with interpreted aeromagnetic anomalies, which may indicate the presence of intrusives at depth. In the southern sector of the Kiniero licence area, the Sabali North and Central, Sabali South, West Balan, and Farabana deposits (Figure 7.6 and Figure 7.7) were considered as being most prospective for mineralization as they represented extensions of the Jean, Gobelé, and Banfara deposits. Further, the Sabali North and Central and Sabali South deposits collectively represent geological extensions of the adjoining southerly Mansounia gold mineralization.

The northern sector was also considered to have a strong potential for gold mineralization with four prospective target areas identified as high-priority for exploration. Most of these were already known to host mineralization, having been mined by artisanal miners to maximum depths of approximately 35 m. These gold occurrences are hosted by shear-zones which predominantly strike in a north-west to south-east direction, conformable to the mineralization at the Kouroussa Gold Project which is located to the north of the Property.

Figure 9.2 Kiniero licence area geological map

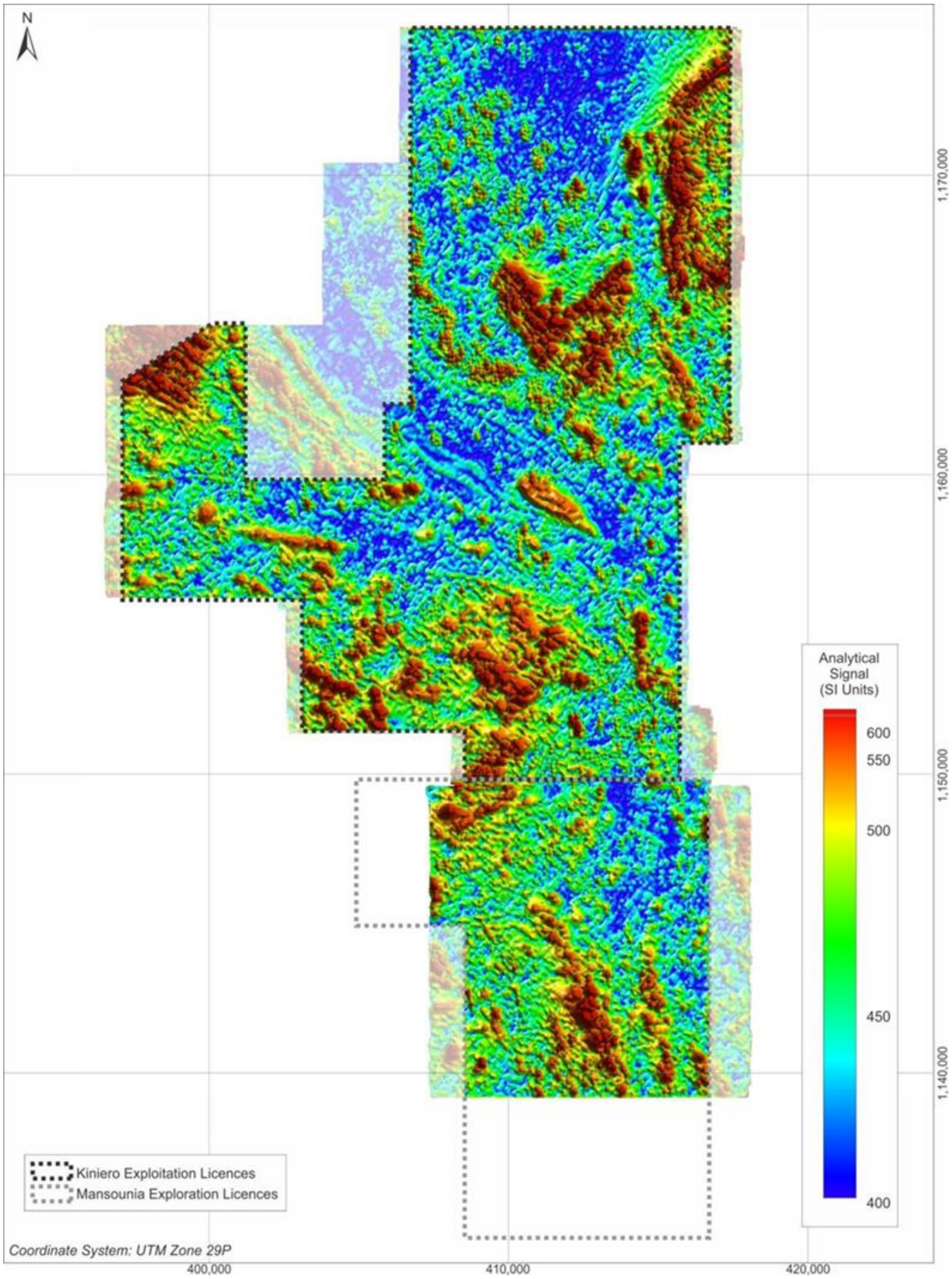



Source: GaiaPix, 2020.

## 9.5 Compilation of historical geophysical surveys

SMG engaged Eureka Consulting (Pty) Ltd (Eureka) of Australia, to merge two historical geophysical data sets comprising magnetics and resistivity. Whilst the data sets are located adjacent to one another there is a separation gap of approximately 200 m. To complete the data set merge, Eureka synthetically created data in this area based on the adjacent surveys. The result of this work is shown in Figure 9.3.

Figure 9.3 Merged Kiniero and Mansounia licence geophysical data sets (analytic signal)




Source: Eureka Consulting Pty, 2022.

The geophysical data has proven valuable in correlating the known geology and structures against the BLEG Au-in-soil geochemical fabric. There is a strong relationship between the BLEG Au-in-soil, magnetics, intrusives, and structures. Structural interpretation of the combined data sets has yielded encouraging results providing additional structural understanding to the broader Sabali/Mansounia mineralized corridor.

## 9.6 Magnetic modelling

Magnetic modelling was conducted by Eureka on three magnetic anomalies using the University of British Columbia (UBC) magnetics susceptibility inversion tool:

- K1 Anomaly: Located within the Sabali South deposit (in the Mansounia licences) on a near north to south structural trend. Targeted drilling (both RC and DD) completed targeting this anomaly.
- K2 Anomaly: Located south-west along-strike of SGA in the vicinity of the old plant precinct with modelling guiding the recently completed sterilization drilling campaign, targeting this feature.
- K3 Anomaly: Located at the North Balan target area, a greenfield locality of the Kiniero licence area that has neither been explored previously or by Sycamore. There is no historic drilling in this area.

## 9.7 Resistivity surveys – Schlumberger array

In March 2022, SMG commissioned Geostratum to undertake electrical resistivity tomography (ERT) profiles using a Schlumberger survey configuration. A hybrid combination of Wenner and Schlumberger arrays was also completed to optimize depth performance. The ground resistivity geophysics survey was aligned to support groundwater modelling around the existing and proposed open-pit areas. The survey was undertaken to identify structural breaks (i.e. shears, faults, lithological boundaries) which might be water-bearing, but which would also yield valuable structural geological information.

A total of 20 survey lines were completed covering a lateral distance of 22 km. The field data analysis was undertaken by subjecting the data to a data quality processing procedure using a despiking technique to remove known errored readings, and predictive error analysis processes.

Once the data integrity was satisfactory, final inversion was undertaken, and the results presented as two-dimensional (2D) inversion data. The resultant 2D inversion data was then interpreted based on the proven relationship between apparent resistivity characteristics and subsurface material properties associated with the target geology as interpreted from the existing borehole logs.

The following conclusions were derived from the survey:

- High-resistive/low-conductive zones at near-surface in the geophysical profiles, likely associated with dry laterite and infilled with dry saprolite (resistive values of 1,500 ohm to 5,000 ohm per metre).
- Low-resistive, high-conductive zones associated with argillic alteration, weathered, and saturated saprolite, and increased areas of weathering within the saprolite (resistivity <300 ohm per metre).
- High-resistive and low-conductive zones at depth were interpreted as volcanic rock, i.e. basaltic rocks at depth. The variation in conductivity is associated with the difference in degree of weathering of the volcanic rocks.
- High-resistive and low-conductive zones that were intruded into the upper layers are interpreted as volcanic dykes and sills (resistive values of between 2,000 ohm and 5,000 ohm per metre).
- Low-resistive, high-conductive zones at depth are associated with faulting where the argillic alteration, weathered and saturated saprolite, and increased areas of weathering within the saprolite are mapped at depth.

# 10 Drilling

## 10.1 Introduction

This section discusses the drilling carried out historically by SEMAFO on the Kiniero licence area in Section 10.2, and on the Mansounia licence area by various operators in Section 10.3. The drilling carried out by the Issuer is discussed in Section 10.4. In the various sections the type of drilling and amount carried out on the various deposits is shown in detailed tables. Table 10.1 below is a summary of the drilling carried out on the Property over time, including the historical drilling. Approximately 58% of samples from drilling works completed in the SGA and Jean deposit are located in areas which have subsequently been mined. At Banfara 15% of RC drillhole metres occur in areas which have been mined. As there has been a number of drilling types, some combinations and exceptions have been made in Table 10.1. This is explained in the footnotes. Refer to the individual tables; Table 10.2, Table 10.3, and Table 10.4 for the detail.

Table 10.1 Summary of all drilling on the Property

| Company | Licence area/Property | Period | Rotary Air Blast/Air Core | | Reverse Circulation | | Diamond Drilling | |
|---|---|---|---|---|---|---|---|---|
| | | | No. | Metres | No. | Metres | No. | Metres |
| SEMAFO | Kiniero | 1996-2012 | 458 | 13,707 | 5,564 | 381,830 | 392 | 51,296 |
| Gold Fields | Mansounia | 2003-2005 | 56 | 2,977 | 95 | 7,963 | - | - |
| Burey Gold | Mansounia | 2005-2012 | - | - | 260 | 22,347 | 19 | 2,082 |
| Subtotal | Property | 2003-2012 | 56 | 2,977 | 355 | 30,310 | 19 | 2,082 |
| SMG | Kiniero | 2020-2023 | 121 | 5,338 | 688 | 65,266 | 4 | 934 |
| SMG | Mansounia | 2020-2022 | 19 | 1,049 | 68 | 7,281 | 2 | 392 |
| Subtotal | Property | 2020-2022 | 140 | 6,387 | 756 | 72,547 | 6 | 1,326 |
| Grand total | Property | 1996-2022 | 654 | 23,071 | 6,675 | 484,687 | 417 | 54,704 |

Notes:
- Only the SMG, SEMAFO and Burey Gold and Gold Fields reverse circulation (RC) and diamond drilling (DD) included in the Mineral Resource estimation shown.
- SMG used air core (ACO); other operators used rotary air blast (RAB)—listed together in summary table.
- SMG also used auger drilling but for stockpile evaluation only.
- SMG also drilled DD holes for geotech, despite being assayed, they are not used in the Mineral Resource estimate, and not included in the table.

## 10.2 SEMAFO Kiniero licence drilling (1996-2012)

### 10.2.1 Summary

Between 1996 and 2012, drilling and trenching was carried out by SEMAFO across the Kiniero licence area, focusing around the areas of historical production. Initial exploration drilling was aimed at identification and delineation of deposits. This was subsequently followed up by RC and DD to define the extents of the mineralization. Later periods of exploration focused on targeting orebody extensions and/or replacing Mineral Resources.

The drilling and sampling methods used by SEMAFO have been documented in the independently prepared Technical Report by Geostat Systems International Inc. (GSI) titled "*Technical Report on the Resources and Reserves of the Kiniero gold deposits, Guinea (31 December 2007)*" (GSI, 2007). In addition, the "*Technical Report on the Mineral Resources and Reserves, Kiniero Gold Mine, Guinea*" SEMAFO Inc. (SEMAFO, 2008/2009), and other reports are stored on SEDAR.

SEMAFO used a combination of RAB, RC, and DD drilling methods. A summary of the drilling completed by SEMAFO between 1996 and 2012 is provided in Table 10.2. Details of the drilling are shown in Table 10.3, and a plan of the drilling completed by SEMAFO in the southern part of the Kiniero licence is shown in Figure 10.1.

Table 10.2 Summary of SEMAFO drilling, (1996 and 2012)

| | RAB | | | RC | | | DD | | |
|---|---|---|---|---|---|---|---|---|---|
| | **No.** | **Total Length (m)** | **Ave Length (m)** | **No.** | **Total Length (m)** | **Ave Length (m)** | **No.** | **Total Length (m)** | **Ave Length (m)** |
| Southern Deposits | 458 | 13,707 | 29.93 | 5,354 | 366,076 | 68.37 | 392 | 51,296 | 130.86 |
| Northern Deposits | 0 | 0 | | 210 | 15,754 | 75.02 | 0 | 0 | |
| All Deposits | 458 | 13,707 | 29.93 | 5,564 | 381,830 | 68.63 | 392 | 51,296 | 130.86 |

Source: SMG, 2023.

### 10.2.2 RAB drilling

RAB drilling was conducted using an Atlas Copco ROC L6H track-mounted drill rig which was used primarily as a grade control drill rig during the operation of the previous Kiniero Gold Mine. The drillhole diameter was 130 mm and drillholes were typically less than 50 m in depth, with an average depth of 30 m. RAB drilling was completed on section lines spaced approximately 100 m apart and on spacings of 10 m to 50 m along section lines. Holes were inclined between -45° and -60°; however, downhole surveys have not been completed. Sample recovery was not monitored.

For some RAB holes, chippings were glued to wooden boards with depth markers to act as a permanent record. SMG photographed the available chipboards in 2021.

Samples for RAB holes were collected from the drillhole collars where sample material exited the hole. A collecting spade was held at the drillhole collar by a Geotechnician to catch a random selection of approximately 2 kg to 3 kg of drilled material on a per-metre-basis, which was then logged and bagged for sampling. The reject sample material accumulating at the collar was moved aside and later discarded back down the drillhole. The remainder of the sampling protocols applicable to RAB drilling are the same as described for the RC drilling.

RAB drilling has not been included in the Mineral Resource estimate works described in Section 14.

### 10.2.3 RC drilling

RC drilling commenced in 1997 and was completed over 22 deposits with the initial aim of identifying targets through wide-spaced reconnaissance drilling. Subsequent phases of drilling saw the drillhole spacing reduced for better delineation and definition of the mineralization.

Pre-2008, RC drilling was outsourced to Forages Technic-Eau, a reputable drilling company based in Sainte-Julie, Quebec, Canada that had a base in Burkina Faso. In 2008, West African Drilling Services SARL, based out of Bamako, Mali, and Kankan—Guinea, was appointed by SEMAFO to undertake all RC drilling. In 2011, OreSearch Drilling Limited, a drilling company registered in the United Kingdom, was appointed to undertake the final RC drilling campaign at Kiniero Mine (approximately 8,000 m).

No specific details are available regarding the RC drilling completed by Forages Technic-Eau and West African Drilling Services SARL. RC drilling completed by OreSearch Drilling Limited made use of a heavy-duty track-mounted RC rig with a 1,150 cfm x 500 psi Sullair compressor onboard using standard 4½ inch hammer and drill rods. A track-carrier fitted with a Sullair 1,150 cfm x 500 psi auxiliary compressor and air research booster (maximum 1,200 psi) was available as required (generally for deeper drillholes).

RC drillholes were spaced at distances of between 100 m and 12.5 m intervals (in later RC drilling campaigns) along drill lines, which were generally orientated perpendicular to the mineralization.

Drillholes were initially sited using a handheld GPS and then surveyed post-drilling by the Kiniero Mine Surveyor. Drillhole azimuths were parallel to each other on the drill line and orientated to intersect the mineralization at right angles. Drill rigs were aligned to drill at dips of between -45° and -60°. No downhole surveys were undertaken on any of the historical RC drillholes. Due to the short nature of the RC drilling (average drillhole depth <68 m) the QP is of the opinion that hole deviations would be minor.

Sample measurements and intervals were determined by drillhole depths at 1 m intervals. Intervals were typically marked onto the drill rod as a visual guide for the Geologists or Geotechnicians, which indicated when a new sample bag must be inserted. The QP understands that the drilled sample material was not weighed on a per-metre-basis to monitor sample recovery.

Limited information is available pertaining to RC logging and photography. In 2021, SMG completed a programme of photographing a total of 636 of the SEMAFO chip boards which had been retained as a record of some of the RC holes drilled.

Sampling was carried out on-site by the Sampling Geologist and supporting Geotechnicians, with sample identification and numbering only being carried out by the Sampling Geologist. A series of duplicate sample ticket books were used during the sampling process which provided a unique sample number for each sample collected.

Samples were routinely collected at 1 m intervals. A sample bag was held in place beneath the cyclone to collect the drill cuttings. The retrieved sample was subsequently passed through a standard three-tiered riffle splitter to randomly reduce the sample to a manageable size with two subsamples of 2 kg to 3 kg each. The split samples were collected in durable polythene plastic bags, labelled with the unique duplicate sample ticket, and sealed for dispatch to the laboratory. One sample was submitted to the laboratory for analysis while the other was retained at the geological core yard for reference purposes. The riffle splitter was air cleaned with an air compressor hose between each sample split. Sampling details were recorded onto a separate dedicated sampling logging sheet.

A total of 52,296 m of diamond drilling in 392 drillholes was undertaken by SEMAFO (Table 10.3), covering seven deposits. The purpose of the diamond drilling was to obtain metallurgical sample material, detailed geotechnical information, as well as detailed primary structural and geological data on the respective deposits. Later, limited diamond drilling was undertaken to explore the mineralized depth extensions for potential underground development at the Kiniero Mine.

SMG reviewed the retained SEMAFO drill core which helped to understand the diamond drilling procedures and protocols, using the general state of the cores (i.e. recovery) and mark-up blocks, etc. SMG was also able to cross-reference this information to that which was recorded in the hard copy log sheets in the Geology Department at the previous Kiniero Mine offices, as well as against that which had been previously publicly reported by SEMAFO in 2007 and 2008 in accordance with NI 43-101.

Early diamond core drilling (i.e. pre-2008) was outsourced to Forages Technic-Eau. In 2008, diamond drilling was contracted to West African Drilling Services SARL, and in 2011 the final diamond core drilling campaign was outsourced to OreSearch Drilling Limited (approximately 12,000 m).

Exact details applicable to the diamond core drilling completed by Forages Technic-Eau and West African Drilling Services SARL, and the equipment utilized, is not known. Diamond drilling undertaken by OreSearch Drilling Limited made use of a crawler-mounted diamond core rig and a crawler-mounted support carrier using conventional wireline diamond drilling techniques.

Diamond drilling was completed using conventional wireline diamond drilling techniques to produce HQ (63.5 mm core diameter) or HQ3 (61.1 mm core diameter) core sizes. Drill cores were extracted from the core barrel, with stickups of each drill run measured. All depth measurements were recorded on wooden depth measurement blocks and inserted into the core boxes at the end of each drill run.

Core was extracted from the core barrels and immediately packed into plastic or wooden core trays by the drilling contractor. Each core box was clearly marked and labelled by the drillers with paint on the wooden core boxes, and metal-strip labelling on the plastic core trays, indicating the drillhole number and sequential box number.

Diamond drillholes were drilled at angles of between -45° and -60°. Downhole surveys were conducted on all diamond drillholes with survey readings collected every 50 m down the drillhole, as a minimum. For the OreSearch Drilling Limited diamond drilling, a “ReflexCamera” was detailed as the specified downhole survey equipment used.

Limited documented details are available pertaining to the core logging procedures used by SEMAFO. In 2021, SMG completed wet and dry photography on SEMAFO drill core for 28 drillholes.

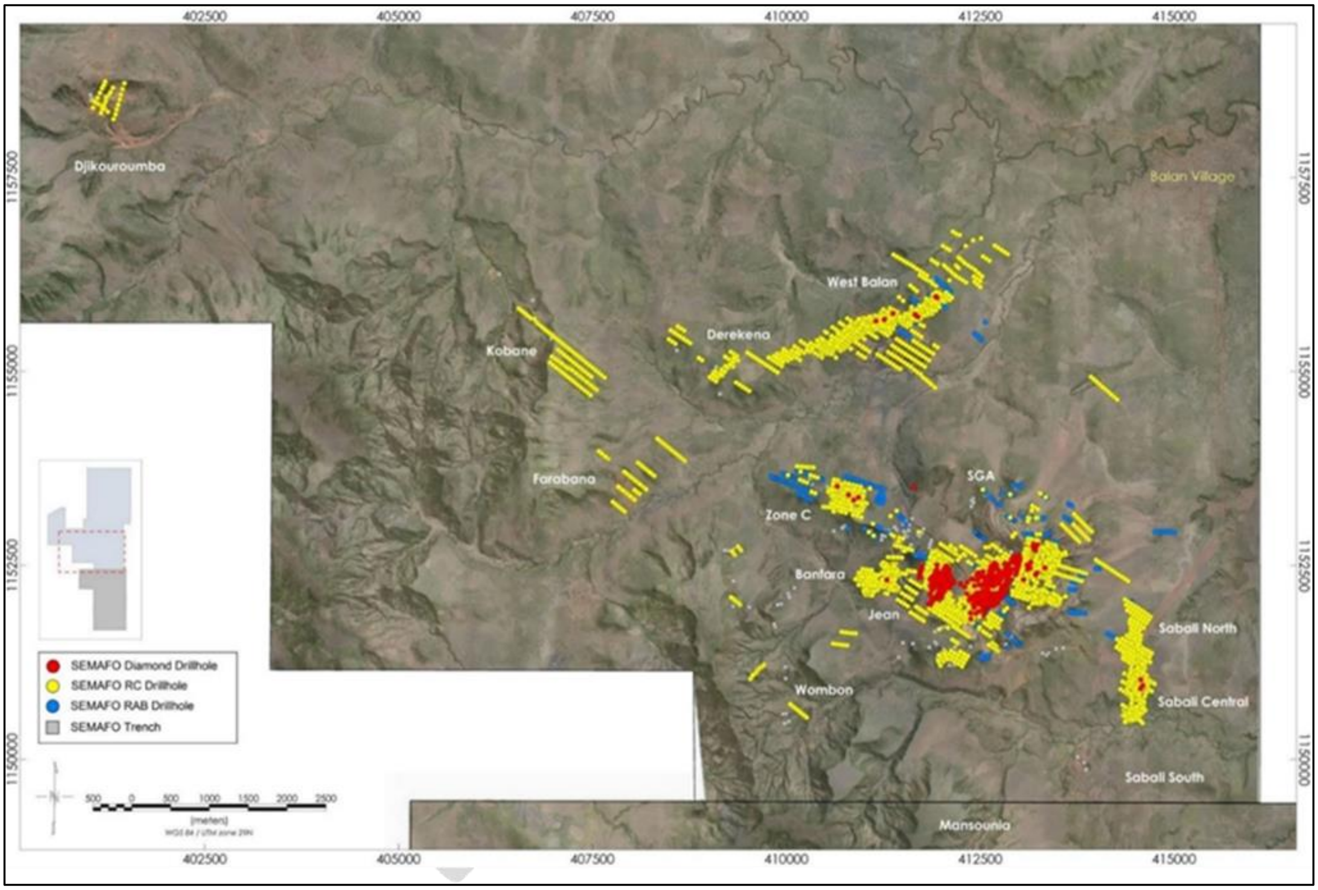
Samples were typically taken on 1 m intervals, whilst honouring geological contacts, with intervals ranging from 20 cm to 100 cm. For soft weathered horizons a chisel blade was used to cut the sample, for fresh material a diamond saw was used. Splitting of the core was done taking into account the dominant foliation orientation. Cores were returned to the core tray with the “top” piece of the halved-core bagged and tagged for dispatch to the laboratory, thus ensuring any preferential bias was removed. The other half remained in the core box and was archived for future reference.

## Table 10.3 Drilling completed by SEMAFO in the Kiniero licence area (1996-2012)

| Area | Cluster | Deposit / Anomaly | RC | | | RAB | | | DD | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No. | Total Length (m) | Ave Length (m) | No. | Total Length (m) | Ave Length (m) | No. | Total Length (m) | Ave Length (m) |
| Southern | Sabali | Sabali North and Central | 331 | 30,503 | 92.15 | 12 | 686 | 57.17 | 3 | 469 | 156.43 |
| | | Sabali South | | | | | | | | | |
| | SGA | Sector Gobelé A (A, B, C) | 2,148 | 132,011 | 61.46 | 190 | 4,399 | 23.15 | 256 | 37,099 | 144.92 |
| | | Gobelé D | | | | | | | | | |
| | | North-East Gobelé D (NEGD) | 12 | 841 | 70.08 | 8 | 164 | 20.50 | | | |
| | | East-West | 283 | 19,673 | 69.52 | 30 | 1,402 | 46.73 | | | |
| | Jean | Jean East, Jean West | 603 | 36,326 | 60.24 | 26 | 820 | 31.54 | 121 | 12,495 | 103.26 |
| | | Banfara | 355 | 19,523 | 54.99 | 12 | 335 | 27.92 | 1 | 100 | 100.00 |
| | West Balan | Derekena | 185 | 16,073 | 86.88 | | | | | | |
| | | West Balan | 1,009 | 77,384 | 76.69 | 44 | 2,316 | 52.64 | 7 | 679 | 97.03 |
| | - | Kobane | 92 | 7,662 | 83.28 | | | | | | |
| | | Farabana | 71 | 4,259 | 59.99 | | | | | | |
| | | Zone C | 192 | 16,293 | 84.86 | 136 | 3,585 | 26.36 | 4 | 454 | 113.45 |
| | | Djikouroumba | 28 | 2,809 | 100.32 | | | | | | |
| | | Wombon, Wombon South | 33 | 1,682 | 50.97 | | | | | | |
| | | Balan South | 12 | 1,037 | 86.42 | | | | | | |
| **TOTAL/AVE SOUTHERN DEPOSITS** | | | **5,354** | **366,076** | **68.37** | **458** | **13,707** | **29.93** | **392** | **51,296** | **130.86** |
| Northern | - | Heriko Main | 29 | 2,714 | 93.59 | | | | | | |
| | | Filon Bleu | 47 | 3,792 | 80.68 | | | | | | |
| | | West Filon Bleu | 9 | 800 | 88.89 | | | | | | |
| | | Mankan Central | 61 | 4,147 | 67.98 | | | | | | |
| | | Mankan South | 14 | 1,305 | 93.21 | | | | | | |
| | | Mankan North | 50 | 2,996 | 59.92 | | | | | | |
| | | Heriko East | | | | | | | | | |
| | | Heriko Extension North-East | | | | | | | | | |
| | | Diamanankouma | | | | | | | | | |
| | | Kato | | | | | | | | | |
| | | Saman | | | | | | | | | |
| **Total/Ave Northern Deposits** | | | **210** | **15,754** | **75.02** | **0** | **0** | | **0** | **0** | |
| **Grand Total/Ave Deposits** | | | **5,564** | **381,830** | **68.63** | **458** | **13,707** | **29.93** | **392** | **51,296** | **130.86** |

Source: SMG, SEMAFO.

Figure 10.1 Historical southern Kiniero licence drilling




Source: SMG, 2022.

## 10.3 Historical Mansounia licence drilling (2003-2018)

### 10.3.1 Introduction

RAB and RC drilling was completed by Gold Fields between 2003 and 2005, and RC and DD by Burey Gold from 2007 up until the updated Mineral Resource estimate by Runge in 2012. A summary of the drilling completed is provided in Table 10.4. A drill plan showing the location of the drilling is shown in Figure 10.2.

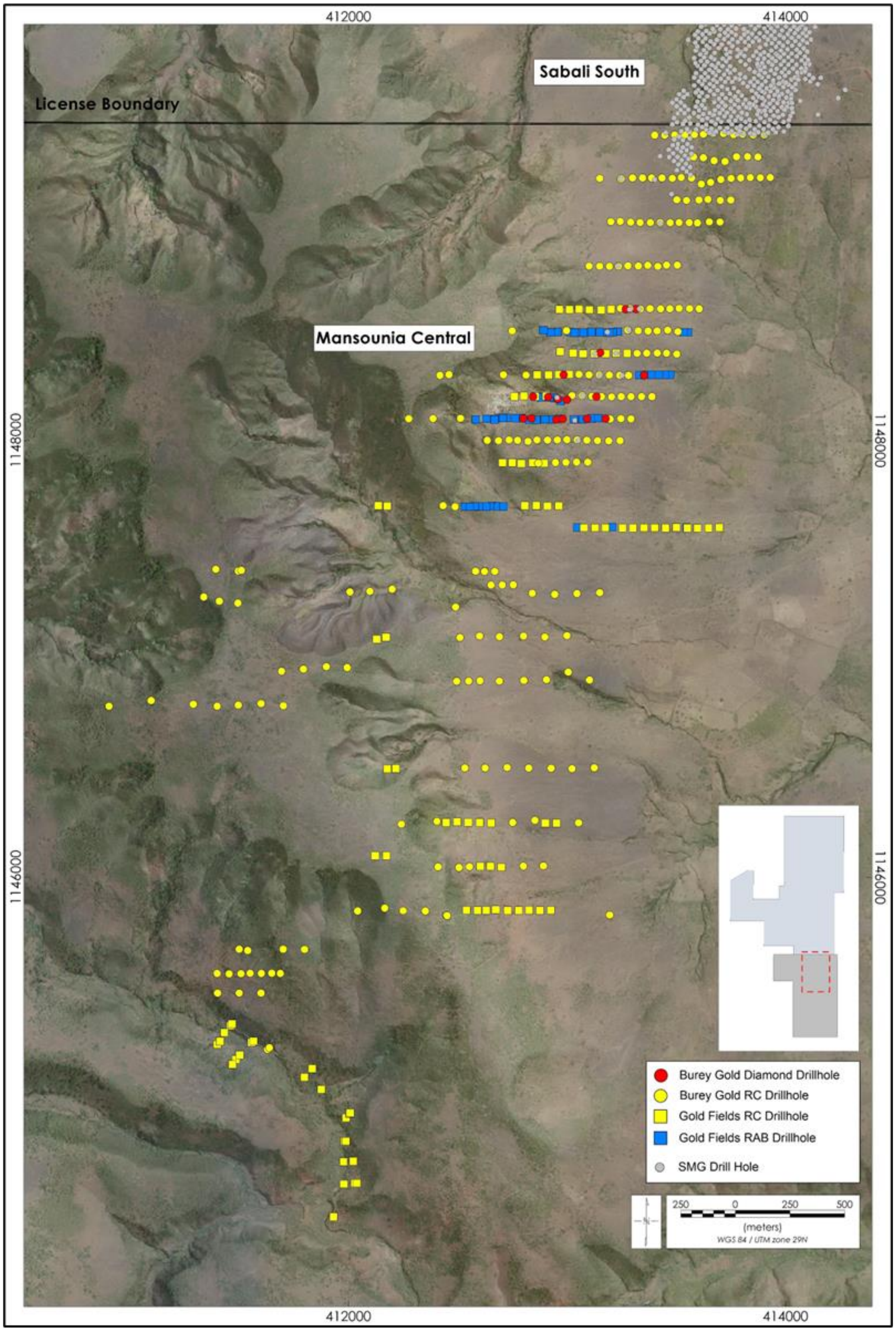
Table 10.4 Historical Mansounia drilling by ownership

| Company | Period | Previously Reported Drillholes | | | | | |
|---|---|---|---|---|---|---|---|
| | | RAB | | RC | | DD | |
| | | No. | Metres | No. | Metres | No. | Metres |
| Gold Fields | 2003-2005 | 56 | 2,976.5 | 95 | 7,963.0 | - | - |
| Burey Gold | 2005-2012 | - | - | 260 | 22,347.0 | 19 | 2,081.8 |
| **Total** | | **56** | **2,976.5** | **355** | **30,310.0** | **19** | **2,081.8** |

Source: Runge, 2012.

Out of the total of 430 holes drilled, 420 were shallow holes within the oxide material, whilst the remaining ten drillholes tested deeper parts of the mineralization. Where mineralization was targeted at significant depth, drilling was carried out with a combination of RC and DD drilling. The drillhole commenced with a pre-collared RC stem until water could no longer be circulated by boosters, whereupon the drillhole was continued until end-of-hole with a diamond drilled tail.

Figure 10.2 Historical Mansounia licence drilling




Source: SMG, 2022, adapted from Runge, 2012.

### 10.3.2 RAB and RC drilling

RAB and RC drilling was completed using equipment from West African Drilling Services SARL. Drillholes were drilled inclined at an average dip of -50° on an azimuth of 270°. RAB drillholes were drilled to a maximum of 88 m, averaging 51 m, whilst RC drillholes extended to a maximum of 135 m and averaging 86 m.

RC samples were weighed during the drilling process and "blow backs" were completed to ensure metre-to-metre sampling was achieved. Sample weights were systematically recorded for each metre drilled to estimate the recovery. RC drilling was generally noted as having good sample recoveries, estimated to be > 20 kg per metre drilled.

RC chips from all the drillholes were logged at the drill rig by the responsible Geologist and these were later validated using chip boards to confirm all major lithological alteration, mineralization, and structural features. Once completed, chip boards were photographed.

All Mansounia licence RC chip board photographs have been acquired by SMG and are securely stored at the Kiniero core yard.

RC drillholes were sampled on 1 m intervals with samples recovered into PVC bags below the cyclone before being subsampled using a three-tier riffle splitter. Final sample weights for assay averaged 5 kg. Drillholes that encountered wet samples within the saprolite were stopped early; however, where wet samples were identified in mineralized horizons, drilling was continued with the wet samples being dried, homogenized, and subsequently split. RC chip trays were systematically logged, and all chip trays were stored at a well-secured camp.

RAB samples were obtained in a similar manner to those taken by SEMAFO in the Kiniero licence (Section 10.2.2).

### 10.3.3 Diamond drilling

Diamond drilling was completed using West African Drilling Services SARL rigs with holes drilled inclined at approximately -60° on an azimuth of 270°. The oxide zones were drilled using an HQ core diameter rod (63.5 mm) and continued to the end of the hole with an NQ core diameter rod (47.6 mm). Diamond drillholes had an average depth of 110 m with a maximum depth of 210 m.

Downhole surveys were undertaken using an Eastman downhole camera (Gold Fields) and a Flexit smart-tool digital downhole instrument (Burey Gold Limited) with readings collected approximately every 40 m downhole. All diamond drillholes were downhole surveyed.

Sample recoveries in the diamond drillholes for the transition and fresh rock horizons has been reported as very good. Poor recoveries were obtained from the moderate to highly weathered saprolitic zone, as well as through the highly fractured and brecciated zones.

Core was transferred from the core trays and pieced together on a V-rail (angle iron) rack where the orientation line (bottom of hole) was drawn by connecting the individual orientation marks on each run.

Core structure orientations were recorded to determine the controls on mineralization to establish a reliable geological model for resource estimation purposes and provide additional geotechnical information to determine likely blast fragmentation and pit stability characteristics. Geotechnical logging included core recovery, rock quality designation (RQD) percentage, rock type, weathering, rock strength, and fractures per metre.

Core photography was completed; however, this is not available to SMG. SMG acquired the available halved drill cores that were securely stored in Kankan and relocated them to the Kiniero core yard in Q1 of 2023. All cores have been photographed wet and dry by SMG and will be relogged and sampled according to SMG procedures and protocols.

All diamond core sampling was completed at the discretion of the Geologist completing the geological logging. In general, 1 m intervals were sampled, unless geological features were identified which required smaller sample intervals (samples were not routinely collected across geological boundaries).

Core was split in half using an electric diamond blade core saw. Standard practice was to cut the core 1 cm to the right (when viewing downhole) of the orientation line with the left-side being retained and the right half of the core being dispatched for assay. The procedure for core from the upper oxide portions which was too friable to be split by a core saw, was dry cut or cleaved to produce the half core split.

All Gold Field drillholes, and all but 29 of the Burey Gold drillholes (MRC251 to MRC279), were surveyed using a Sokkia Straus DGPS (to two decimal places). The other 29 Burey Gold drillhole collars were surveyed using a Nomad TDS handheld GPS. SMG has subsequently undertaken a complete field check of all 430 Mansounia licence drill collars, surveying in the collar in every instance where the collar was relocated. Where the collar was not relocated, SMG has relied on the previous collar survey data, snapping these to the Project LiDAR topography.

#### 10.3.4 Auger drilling

On 26 October 2018, Blox announced that a shallow auger drilling campaign had been completed to delineate new targets. Blox had obtained 184 samples from the planned 400-hole auger programme. No additional details are available pertaining to the drilling methodology, nor the procedures and protocols applied to the logging and sampling. No auger drilling from this period has been included in the Mineral Resource estimate.

### 10.4 Sycamore Mine Guinee Drilling (2020-2023)

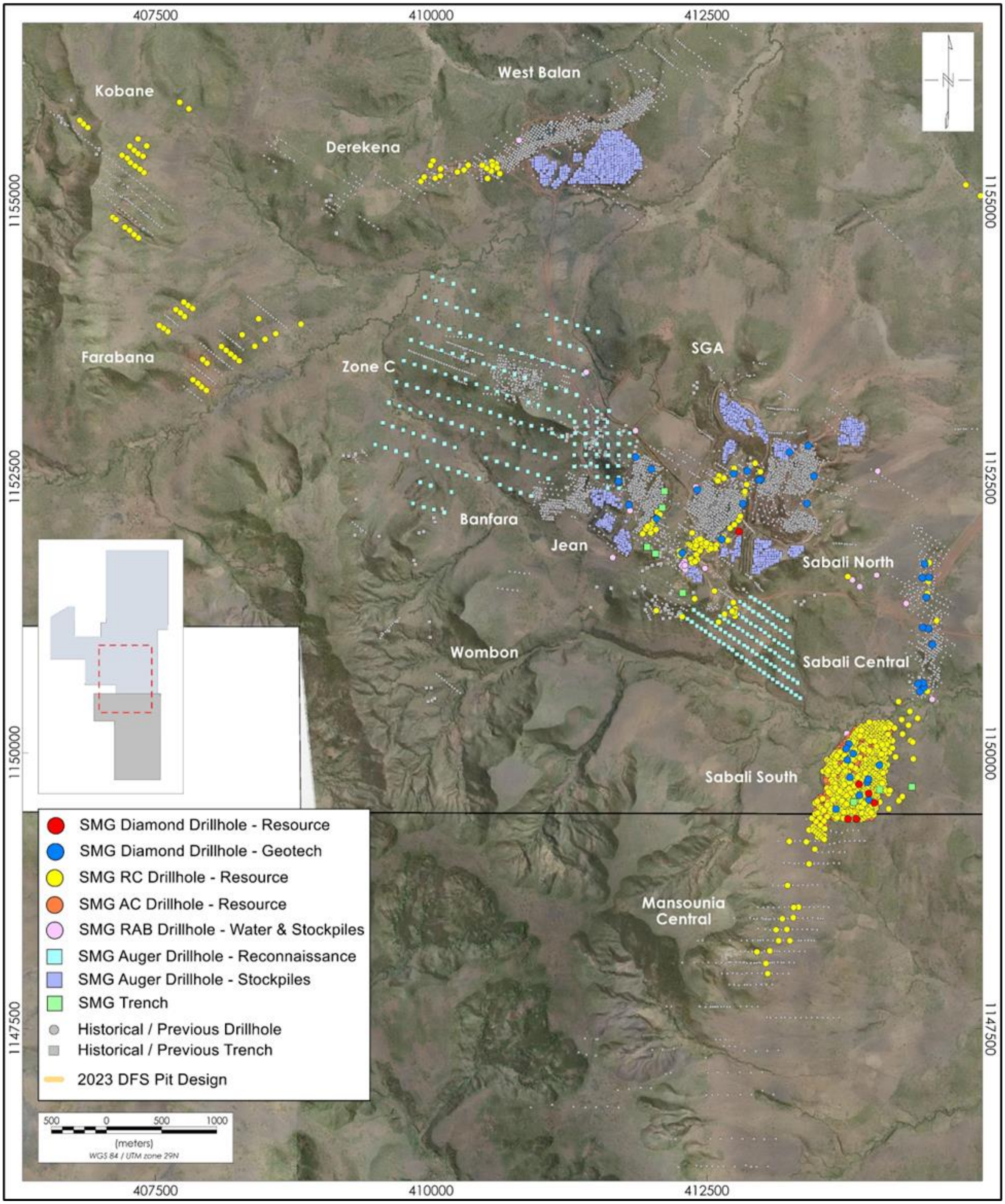
#### 10.4.1 Introduction

Drilling completed by SMG shown in Figure 10.3 includes RC, DD, ACO, RAB, and auger drillholes and is detailed in Table 10.5. Example cross-sections showing holes completed by SMG relative to historical drilling for Sabali Central, Sabali South, SGA, and Jean are shown in Figure 7.8, Figure 7.9, Figure 7.10, and Figure 7.11 respectively. The data of closure for the sample databases informing the Mineral Resource estimates is the 17 August 2022 of in situ deposits, and 12 November 2022 for stockpiles. Subsequent tabulations and statistics pertain to these dates. A secondary cut-off date of 11 March 2023 has been applied to other Technical Report-supported drilling, including reconnaissance (i.e. auger), mine geotechnical (i.e. diamond), and water monitoring/dewatering (i.e. RAB) drillholes and boreholes.

All RC, ACO, DD, RAB, and auger drillholes were collared on site by the Geology Manager using a handheld GPS. Final drillhole collar positions were surveyed by a qualified Surveyor post-drilling. Each RC, ACO, and DD drillhole was downhole surveyed to measure the azimuth and dip using single-shot surveys at 30 m intervals. Downhole directional surveys were used to obtain the exact orientation of each drillhole in three-dimensional space.

Target drilling was equipped with a Reflex Ez-Trac and a Devico RG30 Gyro downhole survey probe. Phoenix Precious Metals SARL and Ivry Drilling & Resources used a Reflex Ez-Trac survey tool.

Figure 10.3 Drilling and trenching completed by SMG (2020-2023)




Source: SMG, 2020-2023.

Table 10.5 Drilling completed by SMG

| | | DD - Resource | | | | DD - Geotech | | | | RC Drilling | | | | ACO Drilling | | | | Auger Drilling | | | | RAB Drilling | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cut-off Date - 17/08/2022 | | | | Cut-off Date - 11/03/2023 | | | | Cut-off Date - 17/08/2022 | | | | Cut-off Date - 17/08/2022 | | | | Cut-off Date - 11/03/2023 | | | | Cut-off Date - 11/03/2023 | | | |
| **Licence** | **Deposit** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** | **No.** | **Total Metres** | **Ave. EOH** | **Total Assays** |
| Kiniero | Sector Gobelé A | 1 | 428 | 428 | 466 | 12 | 1,971 | 164 | 506 | 64 | 8,194 | 128 | 8,126 | | | | | 144 | 3,878 | 27 | 2,358 | | | | |
| | Jean | | | | | 5 | 730 | 146 | | 13 | 1,491 | 115 | 1,475 | | | | | 36 | 911 | 25 | 456 | | | | |
| | Sabali North | | | | | 5 | 591 | 118 | 227 | 3 | 272 | 91 | 267 | | | | | | | | | | | | |
| | Sabali Central | | | | | 8 | 907 | 113 | 228 | 5 | 390 | 78 | 377 | | | | | | | | | | | | |
| | Sabali South | 3 | 507 | 169 | 564 | 12 | 1,160 | 97 | 233 | 529 | 49,906 | 94 | 49,567 | 121 | 5,338 | 44 | 5,262 | | | | | | | | |
| | Zone C | | | | | | | | | | | | | | | | | 139 | 3,778 | 27 | 1,872 | | | | |
| | Derekena | | | | | | | | | 19 | 1,635 | 86 | 1,618 | | | | | | | | | | | | |
| | Kobane | | | | | | | | | 23 | 1,648 | 72 | 1,634 | | | | | | | | | | | | |
| | Farabana | | | | | | | | | 26 | 1,574 | 61 | 1,564 | | | | | | | | | | | | |
| | SEMAFO Stockpiles | | | | | | | | | | | | | | | | | 877 | 12,473 | 14 | 6,454 | 6 | 87 | 15 | 87 |
| | Water Supply | | | | | | | | | 1 | 81 | 81 | | | | | | | | | | 5 | 658 | 132 | |
| | Water Monitoring | | | | | | | | | 5 | 75 | 15 | | | | | | | | | | 10 | 562 | 56 | |
| | Dewatering | | | | | | | | | | | | | | | | | | | | | 4 | 535 | 134 | |
| **Total/Ave. Kiniero licence area** | | **4** | **934** | **234** | **1,030** | **42** | **5,359** | **128** | **1,194** | **688** | **65,266** | **95** | **64,628** | **121** | **5,338** | **44** | **5,262** | **1,196** | **21,040** | **27** | **11,140** | **25** | **1,842** | **92** | **87** |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mansounia | Mansounia North | 2 | 392 | 196 | 353 | | | | | 55 | 5,870 | 107 | 5,797 | 19 | 1,049 | 55 | 1,037 | | | | | | | | |
| | Mansounia Central | | | | | | | | | 13 | 1,411 | 109 | 1,409 | | | | | | | | | | | | |
| **Total/Ave. Mansounia licence area** | | **2** | **392** | **196** | **353** | | | | | **68** | **7,281** | **107** | **7,206** | **19** | **1,049** | **55** | **1,037** | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Total/Ave. Property** | | **6** | **1,326** | **221** | **1,383** | **42** | **5,359** | **128** | **1,194** | **756** | **72,547** | **97** | **71,834** | **140** | **6,387** | **46** | **6,299** | **1,196** | **21,040** | **27** | **11,140** | **25** | **1,842** | **92** | **87** |

Source: SMG, 2023

### 10.4.2 RAB drilling

RAB drilling was contracted to and completed by Ricardo Drilling in 2020 and Guinee Forage in 2021 and 2022. The RAB drilling campaigns were undertaken primarily to complete water supply, monitoring or dewatering boreholes at the Project.

No RAB drillholes were used as part of the Mineral Resource estimates.

### 10.4.3 Auger drilling

Two auger drilling contractors have been used by SMG on the Project to date:

- BMA MultiService SARL who was contracted from March 2021 to May 2021 to drill near-mine legacy stockpiles using a custom-built, small truck-mounted power auger rig capable of drilling to a depth of 30 m.
- Auger Drilling Services Guinea Sarlu was contracted from October 2022 to March 2023 using a land-cruiser mounted power auger rig to achieve depths of 30 m, with a rod diameter of 4 inches. Auger Drilling Services Guinea Sarlu completed the legacy stockpile auger drilling campaign, various geotech auger drilling requirements at the new TSF, as well as reconnaissance geochem drilling campaigns at various near-mine exploration target areas.

During auger drilling, weathered rock is cut and broken with a simple blade-bit mounted on the end of a rotating string of rods. As the drill advances, extra rod sections are added to the top of the drill string. The broken rock is passed to the surface by a spiral screw thread (auger flight) along the rod string. The cuttings may be contaminated with material from the walls of the hole, and it is difficult to know from what exact depth any observed geological feature or sample is derived.

As a result, auger drilling has limited use in hard rock in situ Mineral Resource estimations, but it plays a significant role in the drilling, sampling, and evaluation of semi- to unconsolidated materials such as tailings and mine stockpiles. SMG completed an extensive auger campaign of the legacy stockpiles, the results of which have been used to quantify the volumes, tonnages, and grades of each of the near-mine stockpiles that were drilled by SMG. In addition, auger drilling does have a use in early-stage reconnaissance drilling in order to ascertain the geochemical signature within the saprolites, beneath the upper masking laterite profiles.

Logging of the auger drillholes followed the same procedure as for RC drilling. No photographs were taken of the stockpile auger drillhole chips. Photographs were taken of the reconnaissance drillholes. No representative chip trays were collected or stored for any auger drillholes.

Each 1 m drillhole sample brought to surface by the spiral screw thread was collected at the top of the drillhole using an auger sample collection tray. Sample material was scraped to the collection tray edges, allowing room for the additional material from a 1 m interval to be brought to surface. Upon a full metre having been drilled, the collected material was coned and quartered until a representative and manageable sample size was recovered. Beyond the point of sample splitting, the bagging and tagging procedure followed the same procedures as RC drilling

For the auger stockpile drilling, samples were initially collected on a per-metre-basis for the ROM and BCM stockpiles; and composited on a 2 m basis across all the remaining stockpiles. For the auger geochem drilling, samples were composited on a 2 m basis.

### 10.4.4 RC drilling

Four RC drilling contractors have been used on the Project to date:

- March 2020 to June 2021, Target Drilling (AUS) Pty Limited was appointed as the RC drilling contractor. Target Drilling (AUS) Pty Limited used a Hydco-3 ACO/RC and a KL900 multipurpose truck-mounted drill rig.
- November 2021 to April 2022, Phoenix Precious Metals SARL was the appointed RC drilling contractor. Phoenix Precious Metals SARL used a Schramm 450 RC truck-mounted drill rig.
- From April 2022 to September 2022, Ivry Drilling & Resources was appointed. Ivry Drilling & Resources made use of an EDM- 67K multipurpose truck-mounted drill rig with supporting Air Research 100,000 psi 2,000 cfm trailer-mounted booster.
- Since March 2023, Forage FTE Guinée SARLU has been providing RC drilling services to SMG, and is currently actively drilling at the Project, making use of two Schramm T450 track-mounted rigs complete with 1,050 cfm/380 psi air compressors.

Drillholes were planned by the Exploration Manager and collared on-site by the Geology Manager using a handheld GPS. In the case of angled drillholes, the azimuth was collared using a compass corrected for magnetic north, and the direction indicated using pegs and chevron tape. The Geologist assisted in the rig alignment procedure.

All RC drillholes were drilled using a standard 121 mm pneumatic hammer bit for the drilling. PVC casing was inserted into each drillhole once competent ground had been intersected to prevent drillhole collapse during drilling. PVC piping remained in place for the duration of the drilling.

All drilling was managed in the field by the Geology Manager and supervised by the SMG exploration geology team. The Exploration Geologists were responsible for stopping each drillhole. Since sampling was carried out on-site in conjunction with the lithological logging procedure, drilling rates were in turn dictated by the geological logging and sampling procedures.

All RC drilling and logging protocols are outlined in SMG's document "*Exploration Procedure and Protocols for Reverse Circulation (RC) Drilling and Sampling, V.5*" dated August 2022 (SMG, 2022).

Samples were obtained on a 1 m interval from beneath the cyclone and the recovered mass compared to the theoretical recovered mass to assess sample recovery.

The Geology Manager and Exploration Geologists were responsible for carrying out the lithological logging of all drilled material at the drill rig. Information logged included lithology, weathering, alteration, and mineralization data. Chip trays were photographed using a DSLR digital camera and a whiteboard to indicate the drillhole and depths of each chip tray. Three photographs were taken per 20 m chip tray, including the whole 20 m chip tray and a photo for the first and second set of 10 m intervals.

Sampling was carried out on-site by the Sampling Geologist and supporting Geotechnicians. A series of duplicate sample ticket books were used during the sampling process which provided a unique sample number for each sample collected. Samples were routinely collected at 1 m intervals.

A conventional three-tiered riffle splitter was used by the team of geological technicians to randomly reduce the sample to a manageable size. The split sample was collected in a durable 300 mm x 450 mm x 200 mm plastic bag, labelled with the unique duplicate sample ticket and sealed for dispatch to the laboratory.

The riffle splitter was cleaned with an air compressor hose between each sample split and then thoroughly cleaned with water after completion of each drillhole. The cyclone was opened and thoroughly air cleaned every 30 m of drilling. Any wet samples obtained were placed into pre-labelled hessian bags for drying prior to splitting. Sampling details were recorded onto a separate dedicated sampling logging sheet by the Sampling Geologist.

Individual sample bags were placed in groups of ten (10) into a 50 kg hessian rice bag or large plastic bag for dispatch to the laboratory. The large bags were clearly marked with a permanent or paint marker with a sequential bag number, the drillhole number, and the sample number sequence contained therein.

### 10.4.5 ACO drilling

ACO drilling was conducted by SMG only at the Sabali South deposit, targeting the upper saprolitic oxide horizon on a 25 m by 25 m infill drilling pattern. ACO drilling services were provided by Target Drilling who made use of a truck-mounted Schramm-2 drill rig with a rig mounted 350 psi/900 cfm compressor.

ACO drilling is very similar to RC drilling, with both drilling techniques involving the use of compressed air to flush out uncontaminated samples via an inner tube that have either been cut (in the case of ACO) or broken by concussive force (in the case of RC). Due to this similarity in drilling technique, the exploration and drilling procedures and protocols applied to the ACO drilling campaign were identical to those described as above for RC drilling.

### 10.4.6 DD

DD was conducted by SMG to develop a sound geological understanding of the deposit, and for geotechnical purposes to establish rock engineering parameters. All diamond drillholes were completed using an orientation tool to produce oriented core, as well as downhole surveyed. All diamond drillholes are conventional wireline.

Four diamond drilling contractors have been used on the Property:

- Target Drilling (AUS) Pty Limited completed diamond drilling from August 2020 to April 2021 using a track-mounted CT05- CSD1300L.
- Phoenix Precious Metals SARL was the appointed diamond drilling contractor from January 2022 to April 2022 using a track-mounted LF90D Boart Longyear diamond drill rig.
- Ivry Drilling & Resources was appointed from April 2022 to September 2022, making use of an EDM- 67K multipurpose truck-mounted drill rig.
- Forage FTE Guinée SARLU was appointed in June 2022 to initially undertake the mine geotechnical diamond drilling campaign, making use of an Eider 450S track-mounted drill rig. Forage FTE Guinée SARLU remains actively providing DD drilling services at the Project.

As with the RC drilling, all drillholes were planned by the Exploration Manager (or the Geotechnical Engineer, in respect of geotechnical drilling) and collared on-site by the Geology Manager using a handheld GPS. A core orientation tool was used on every run. Various tools were used throughout the programmes, including an orientation spear (generally in the upper weathered horizons), a Reflex EZ-Mark tool, and a Reflex ACT3 tool.

Drilling was completed using triple tube to improve core recovery. An HQ3 core size was used; however, drilling was reduced to NQ when downhole complications were encountered, and the drillhole diameter had to be reduced to achieve the planned end-of-hole depth. Drillholes were cased using PVC casing to stabilize the near-surface unconsolidated weathered material to ensure that the drillhole did not collapse.

Once the core was extracted, it was carefully removed from the inner tube and neatly packed into core boxes for safe storage and further processing. Any driller breaks to fit the core into the boxes were marked with and “X” to indicate an unnatural break in the core. Depth measurement blocks were inserted after every core run indicating the depth, run length, and any core loss or gain.

Core recovery measurements were undertaken by the drilling contractor in conjunction with the on-site SMG Geologist. Any core loss or gain per run was recorded and accurate depth measurements generated and marked. Any discrepancies were addressed with the drilling contractor. Core recoveries were recorded on the log sheet.

Core was fitted together, and an orientation line drawn. The core was metre-marked using the recovery measurements. The lithological log was completed recording the lithology, weathering, alteration, mineralization, and structural data. Finally, sample intervals were marked and recorded, and the cut line drawn below the orientation line to prepare for splitting using a core saw.

Core photography was completed for the entire length of each diamond drillhole. Each core box was photographed wet and dry as whole core, as well has half-core once cutting and sampling had been completed.

The full length of the diamond drillholes were sampled with an average sample length of 1 m and honouring geological boundaries. After the core was cut, the bottom half was sampled to ensure the orientation line was preserved on the remaining unsampled half of core. Once the sample interval was collected, it was placed into a plastic bag and tagged with the unique sample ID from a duplicate ticket book.

Once all sample intervals were collected, sequential samples were placed into larger plastic bags (approximately ten (10) per bag) and clearly marked in preparation for dispatch to the laboratory.

# 11 Sample preparation, analyses, and security

## 11.1 Sample preparation and assay

### 11.1.1 SEMAFO (1996-2013) – Kiniero licence

#### 11.1.1.1 Sample security and chain of custody

The QP understands that exploration and drilling samples were returned from the field daily and stored securely at the core yard on a sequential basis. No samples were left in the field overnight.

#### 11.1.1.2 Sample preparation and assay

A total of five different laboratories were used by SEMAFO during the 1996-2013 period:

- ITS Mandiana.
- SGS Siguiri.
- ALS Kankan.
- ALS Bamako.
- Kiniero Mine laboratory.

SGS Siguiri is accredited by Systeme Ouest Africain d'Accreditation (SOAC - accreditation number SAOC-ES19004) and conforms to the requirements of ISO/IEC 17025: 2017 for Fire Assay (FAA505) and Leachwell Extraction (LWL69M) tests.

ALS Minerals (ALS) operations are ISO 9001:2015 certificated for the "*provision of assay and geochemical analytical services*" by QMI Quality Registrars, as well as ISO 17025 accredited in various jurisdictions. ALS operates a management system compliant with ISO9001:2008 and ISO 17025 standards; however, no accreditation details have been sourced for the ALS Kankan preparation laboratory, which has since been decommissioned.

No accreditation details have been sourced for the Kiniero Mine laboratory or ITS Mandiana.

The QP understands that the same sample preparation method has been applied across the different laboratories for trench and drillhole samples. The sample preparation process comprises weighing, drying, crushing, and pulverizing samples to 75 µm, from which a 50 g subsample was taken for fire assay with an atomic absorption finish (FA-AA).

After crushing, the sample is split using a rifle splitter and the select subsample is ring pulverized. Once pulverized, the final subsample quantity is scooped and the rest of the sample put into an envelope for storage. The process is illustrated in Figure 11.1, which shows the sample preparation flowsheet for ALS Bamako. A similar preparation process is understood to have been followed by the other laboratories.

Soil samples were sent to SGS Siguiri for assay, and SGS Bamako in instances where SGS Siguiri was oversubscribed. Termite mound samples were assayed at both SGS Siguiri and ALS Kankan. Soil and termite mound samples were crushed and pulverized to 75 µm and assayed by aqua regia digestion with an atomic absorption spectroscopy finish.

### 11.1.2 Gold Fields (2003-2005) – Mansounia licence

The QP is not aware of any details pertaining to the sample preparation, assay methods, quality assurance and quality control (QA/QC) procedures and results, or bulk density methods from this phase of exploration.

The 2012 Runge Technical Report (Runge, 2012) and "*Volume 1: Mansounia Gold Project Feasibility Assessment Summary, Caspian Oil and Gas Limited*" in collaboration with Blox, Inc. Spiers Geological Consultants Pty (Blox, 2018) states that the Transworld Laboratory utilized the same sample preparation and assay methods, as well as external QA/QC methods as for the 2006-2013 Burey Gold works.

### 11.1.3 Burey Gold (2006-2013) – Mansounia licence

Details pertaining to the sample preparation and assay processes used by Burey Gold between 2006-2013 have been sourced from the 2022 Mining Plus Technical Report (Mining Plus, 2022) containing information from the 2012 Runge Technical Report (Runge, 2012), and the Blox Assessment Summary.

#### 11.1.3.1 Sample security and chain of custody

Sample bags were retrieved from the drill rig and placed into sample bags which were stapled closed. The sample bags were then transported to the Mansounia camp for storage before being transported to the assay laboratory using Burey Gold personnel and vehicles.

#### 11.1.3.2 Sample preparation and assay

All drill samples generated by Burey Gold were sent to Transworld Laboratories (acquired by Intertek Minerals Division in October 2008) in Ghana for analysis of recoverable Au. Samples were prepared and subjected to the BLEG process and tested for Au using atomic absorption spectroscopy (AAS) analysis.

Samples were dried, pulped, and pulverized to 95% passing 75 µm and then re-split to a 2 kg sample. This 2 kg sample was bottle-rolled with a cyanide solution for a 24-hour period. Runge Limited was informed that Burey Gold carried out analyses of the tails and found the Au content to be regularly undetectable.

### 11.1.4 Sycamore Mine Guinee (2020-Present)

#### 11.1.4.1 Sample security and chain of custody

All drillhole samples have been transported at the end of each shift back to the storage facility at the core yard. No core or RC samples were left at the drill-rig site overnight.

Samples were dispatched to the laboratory for assay under the direction of the SMG Geology Manager. Samples were submitted in batches with an approximate total weight of 50 kg, in either hessian sacks or large plastic bags sealed with cable ties. Samples were transported to the laboratory using reputable haulage couriers. SMG Geologists randomly accompanied dispatches to observe and account for the chain of custody procedures and protocols. The same regular courier companies, drivers, and clearing agents have been used for all dispatchments. Each shipment included the necessary chain of custody documentation, with clear instructions to avoid delays. The following documentation was provided when submitting samples:

- Official pre-paid cross-border clearance documentation.
- SMG sample dispatch form with clear instructions (as per laboratory proposal) regarding requested sample preparation and analyses as well as the details regards the disposal of pulps and rejects.
- A hard copy sample list accompanying the samples.

Samples were loaded onto the truck by the Geologist Assistant/s and ticked off by the SMG Geology Manager against the laboratory sample submission form to ensure that no sample bags were left behind. Sample dispatch forms and customs clearance documents were sent in hard copy with the driver.

Upon delivery to the laboratory, the laboratory took responsibility for the samples before completing a detailed inventory of the samples received, checking it against the sample dispatch form, and confirming to the SMG Geology Manager and Exploration Manager the successful receipt thereof.

#### 11.1.4.2 Sample preparation and analysis

Since 2020, SMG has used four different laboratories:

- Bamako SGS Mineral Laboratory in Mali (SGS Bamako).
- Ouagadougou SGS Mineral Laboratory in Burkina Faso (SGS Ouagadougou).
- Bamako ALS Minerals Laboratory in Mali (ALS Bamako).
- Intertek Minerals Limited in Tarkwa, Ghana (Intertek Tarkwa).

A summary of the laboratory accreditations is shown below in Table 11.1.

Table 11.1 Laboratory accreditation summary

| Laboratory | Accreditation | Date of Validity |
|---|---|---|
| SGS Bamako | ISO/IEC 17025:2005. South African National Accreditation System, accreditation number No. T0652 | September 2025 |
| SGS Ouagadougou | ISO/IEC 17025:2017. South African National Accreditation System, Facility Accreditation Number T0653 | September 2025 |
| ALS Minerals | ISO 9001:2015 and ISO 17025 | - |
| Intertek Tarkwa | ISO/IEC 17025:2017. South African National Accreditation System, accreditation number No. T0796 | December 2027 |

Source: AMC, 2023.

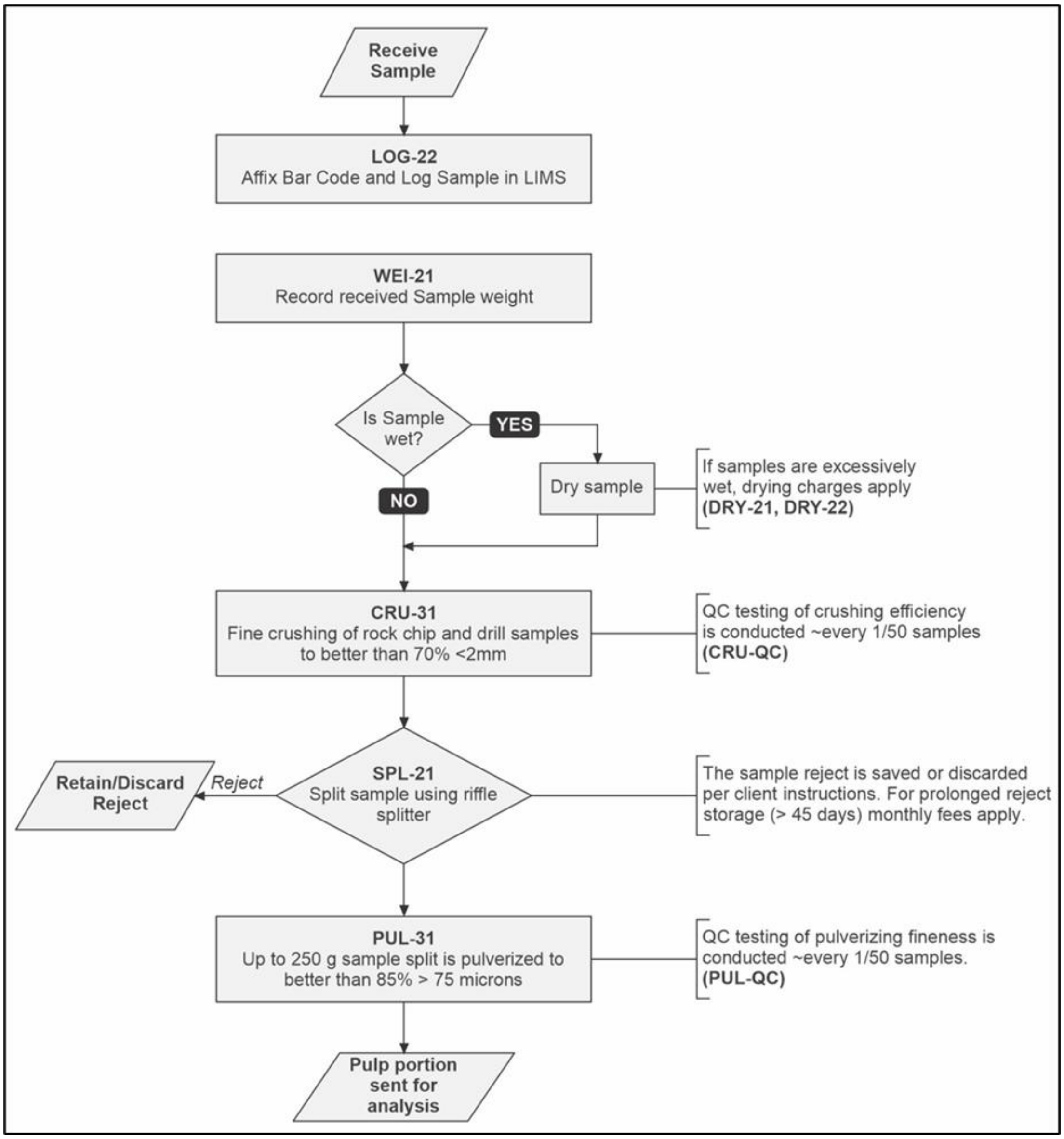
The sample preparation methodology used by the SGS Bamako and Ouagadougou laboratories comprises the crushing and pulverization of samples to 75 µm and a ±200 g subsample collected for assay. After crushing, a subsample is selected using a rifle splitter, and the final subsample scooped from the pulverized material. The sample fire assay method used by SGS (SGS Scheme Code FAA505) was a lead collection fire assay technique with an AAS finish, allowing for a lower detection limit of 0.01 ppm and an upper detection limit of 1,000 ppm.

Sample preparation and assay at the ALS laboratory included fine crushing of the entire sample to 70% passing -2 mm, taking a subsample of 1,000 g and subsequent pulverization to better than 85% passing 75 µm (ALS Item Code PREP-31B). Subsample selection was the same as SGS described above. The lead collection fire assay analytical procedures (ALS Item Code Au-AA26) were broadly the same as SGS using a 50 g nominal sample weight.

Sample preparation methods used by Intertek (Intertek Item Code SP12) entailed crushing and pulverizing to a nominal 85% passing 75 µm, and a 250 g subsample collected by matt-rolling for assaying purpose. The lead collection fire assay analytical procedures (Intertek Item Code FA51) were broadly the same as the method used by SGS.

An overall flowsheet of the sample preparation stages used for SMG samples is provided in Figure 11.1.

Figure 11.1 Laboratory sample preparation flowsheet (ALS Bamako)




Source: SMG, 2022.

All BLEG soil samples were analysed at Intertek Tarkwa. The sample preparation methodology (Intertek Item Code SP05) and analytical technique (Intertek Item Code CL04) undertaken on each sample entailed the following:

- Drying and pulverizing of the entire sample to -2 mm.
- Homogenization of the sample, then half split, pulverizing one half to -200 mesh from which a 2 kg sample was then split for analysis.
- The 2 kg split is placed in a BLEG roll bottle with 2Lof water, 30 g Ca(OH)2 and 10 g NaCN for 24-hours (standard BLEG leach/cyanide leach).
- Leachate solution is sent to AAS for finish analysis (detection limit 0.01 ppb).

## 11.2 Density measurements

Bulk density measurements have been undertaken by previous operators, as well as some additional recent measurements conducted by SMG. The QP has been provided with an Excel spreadsheet of the available density data split by deposit. A summary of the bulk density measurements by deposit is provided in Table 11.2.

Density measurements have been obtained from a total of 71 drillholes comprising 24 historical drillholes located within the SGA deposit, and the remaining determinations from 47 holes drilled by SMG.

Density measurements were obtained from drill core using the Archimedes water immersion method. For weathered drill core (laterite, saprolite, and saprock) the core was wrapped in cellophane of a known weight and weighed first dry and then wet to calculate the bulk density. For fresh drill core the same approach was applied with the exception of using the cellophane wrap, unless vugs were present in the sample. The density testwork undertaken by SMG has been conducted in a separate room adjacent to the core store with a dedicated set of scales.

Table 11.2 Bulk density measurement summary

| Deposit | Weathering | Number of drillholes | Number of samples | Minimum density (t/m$^3$) | Maximum density (t/m$^3$) | Average density (t/m$^3$) |
|---|---|---|---|---|---|---|
| Jean | Laterite (laterite and mottled) | 3 | 7 | 1.68 | 2.13 | 1.81 |
| | Saprolite (upper and lower) | 5 | 52 | 1.25 | 2.27 | 1.59 |
| | Saprock | 4 | 11 | 1.76 | 2.74 | 2.31 |
| | Fresh | 6 | 171 | 1.94 | 2.88 | 2.64 |
| SGA | Laterite (laterite and mottled) | 6 | 12 | 1.47 | 2.4 | 1.85 |
| | Saprolite (upper and lower) | 16 | 138 | 1.31 | 2.36 | 1.75 |
| | Saprock | 29 | 113 | 1.57 | 3.43 | 2.45 |
| | Fresh | 43 | 1,408 | 1.55 | 4.63 | 2.76 |
| Sabali South | Laterite | 12 | 20 | 1.84 | 2.43 | 2.21 |
| | Mottled | 6 | 8 | 1.36 | 2.18 | 1.82 |
| | Upper Saprolite | 15 | 153 | 1.23 | 2.75 | 1.58 |
| | Lower Saprolite | 16 | 237 | 1.11 | 2.64 | 1.77 |
| | Saprock | 12 | 81 | 1.43 | 2.9 | 2.10 |
| | Fresh | 10 | 170 | 1.84 | 3.1 | 2.61 |
| Sabali North and Central | Laterite (laterite and mottled) | 5 | 18 | 1.51 | 2.64 | 2.12 |
| | Saprolite (upper and lower) | 5 | 68 | 1.18 | 2.05 | 1.48 |
| | Saprock | 4 | 18 | 1.48 | 2.87 | 2.18 |
| | Fresh | 5 | 96 | 1.79 | 2.89 | 2.71 |
| Mansounia | Laterite (laterite and mottled) | 1 | 2 | 1.79 | 2.03 | 1.91 |
| | Saprolite (upper and lower) | 1 | 17 | 1.43 | 2.09 | 1.60 |
| | Saprock | 1 | 2 | 2.29 | 2.65 | 2.47 |
| | Fresh | 1 | 39 | 1.99 | 2.82 | 2.65 |

Source: AMC, 2023.

## 11.3 QA/QC

The following section describes the QA/QC procedures implemented by previous and current operators of the Project.

### 11.3.1 SEMAFO (1996-2013)

#### 11.3.1.1 Internal laboratory QA/QC

As part of the 1997 and 1998 exploration works, the laboratory ITS Mandiana carried out its own internal routine duplicate assay analysis. In addition to the internal duplicate assays, ITS Mandiana also partook in a round robin series of check assays with five other African laboratories. No records are available pertaining to the internal QA/QC results for ITS Mandiana.

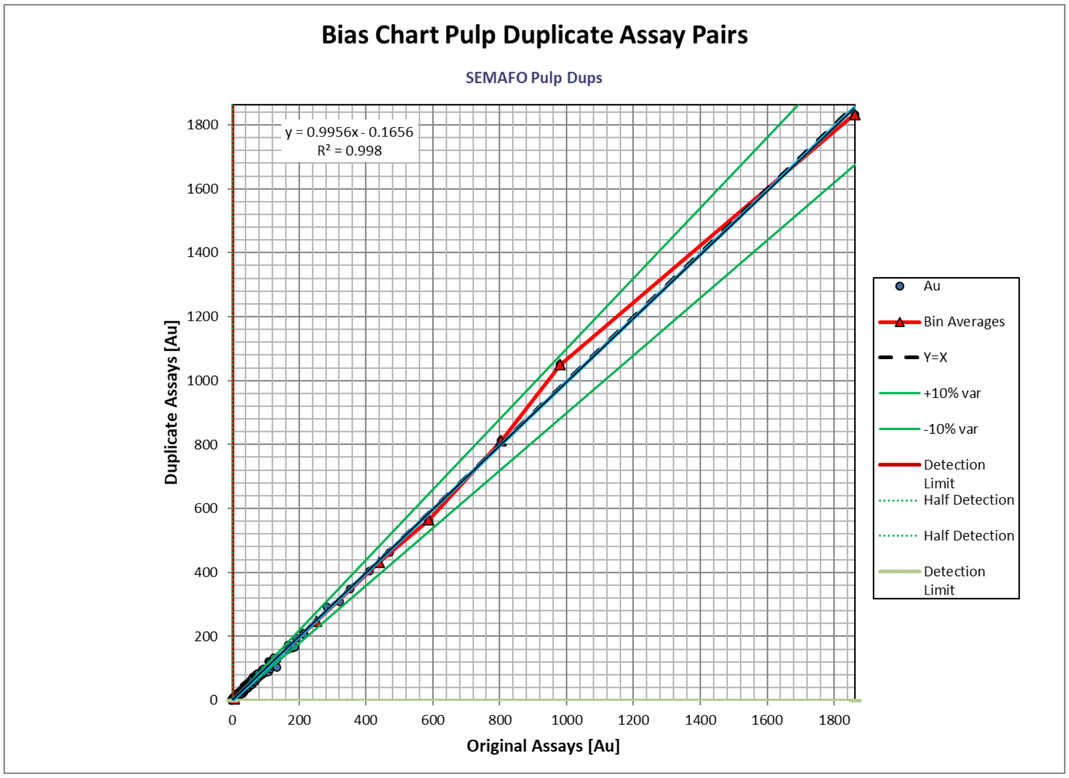
SGS Siguiri included internal QA/QC sample submissions as part of their procedures. Each sample batch of 50 samples included two internal laboratory certified reference materials (CRMs), one preparation blank, one reagent blank, one sample duplicate, and one assay replicate.

SEMAFO reported that ALS Bamako inserted internal QA/QC samples (including blanks, duplicates, and international standards) into each sample batch.

During the site visit by the QP, assay certificates from the SEMAFO period of exploration works were made available. The assay certificates included the results for internal pulp duplicates from 1999-2001 and 2005. SMG has subsequently compiled the 1,808 internal pulp duplicate assay results from the hardcopy certificates into an Excel spreadsheet which has been reviewed by the QP. The results show one significant outlier duplicate assay with a reported assay of 45,183 g/t Au, which likely reflects a data-entry issue. The QP has removed this result from the subsequent QA/QC review.

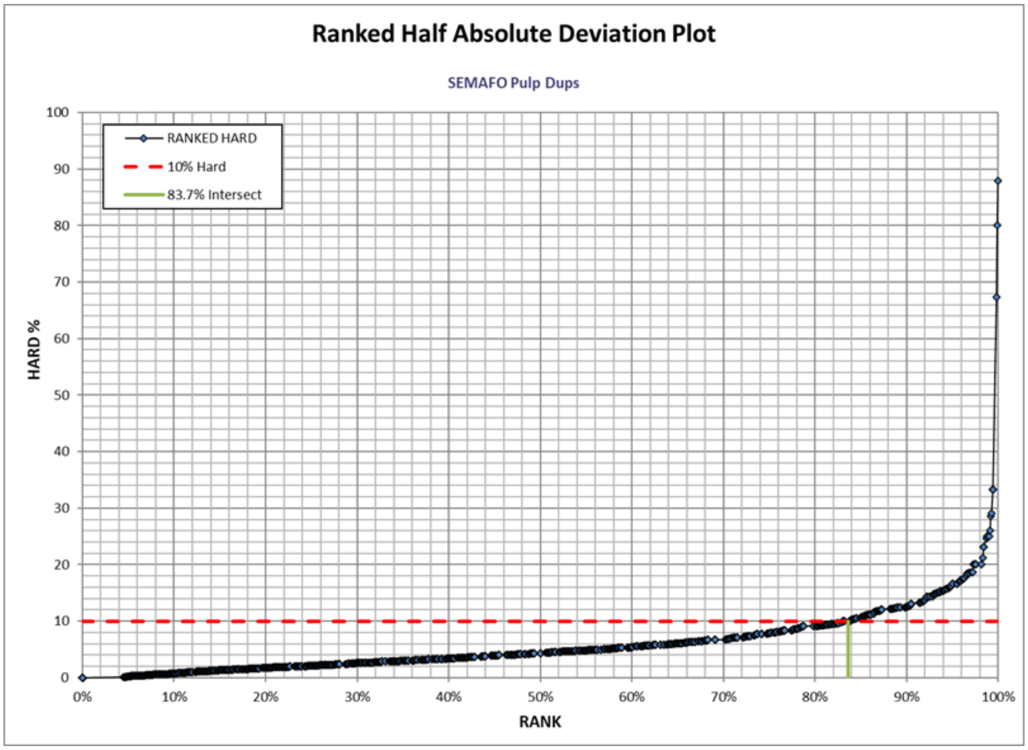
Figure 11.2 and Figure 11.3 show the SEMAFO internal pulp duplicate results in the form of a scatter and rank Half Absolute Relative Difference (HARD) plots respectively. The results show reasonable levels of repeatability and precision for the SEMAFO internal pulp duplicates.

Figure 11.2 SEMAFO internal pulp duplicate scatter plot




Source: AMC, 2023.

Figure 11.3 SEMAFO internal pulp duplicate rank HARD plot




Source: AMC, 2023.

#### 11.3.1.2 Umpire laboratory QA/QC submissions

SEMAFO did not submit umpire samples to external laboratories during 1997 and 1998, nor is any information on external QA/QC submissions available for 2000-2006 or 2009-2011.

The QP understands that SEMAFO did submit some umpire samples as part of QA/QC procedures in 2007, 2008, and 2012, However, this information has not been located by SMG.

#### 11.3.1.3 SEMAFO duplicate submissions

Field duplicates from both the diamond core and RC drilling in 2008 were routinely collected and independently submitted during the exploration sampling campaigns with a total of 1,847 collected during 2008 (Table 11.3). A total of 1,413 of the duplicates submitted comprise low-grade material (<0.2 g/t Au). When analysing the duplicate results >0.20 g/t Au the correlation factor (coefficient of determination) was acceptable at $R^2 = 0.935$, with a strong reproducibility.

As part of the 2012 exploration work, SEMAFO submitted a total of 425 field duplicates from both diamond core and RC chips. An acceptable correlation factor (coefficient of determination) of $R^2 = 0.915$ was reported overall.

#### 11.3.1.4 CRMs

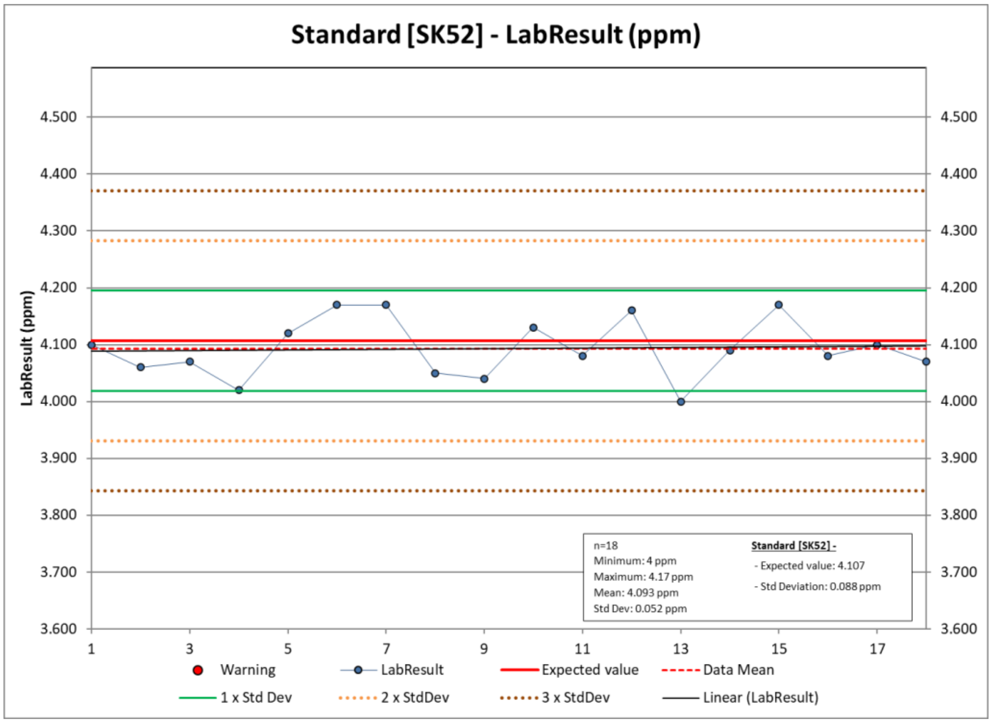
During 2008, CRMs and blank samples were inserted into sample batches to independently monitor laboratory performance. The CRMs were sourced from Rocklabs, a summary of the three CRMs used is provided in Table 11.3.

CRMs were initially submitted in 50 g sachets; however, this was sometimes insufficient to obtain an assay. SEMAFO therefore increased the quantity of CRM material in 2008 by inserting two 50 g sachets in a single sample bag.

CRMs submitted in 2012 are summarized in Table 11.4. During analysis of the CRM results by SMG it was identified that there had been data-capture errors in the CRM types submitted, which resulted in the misassignment of reported laboratory grades to the incorrect CRM type. SMG reassigned the CRM results to the relevant CRM type to enable a more reasonable analysis of the data.

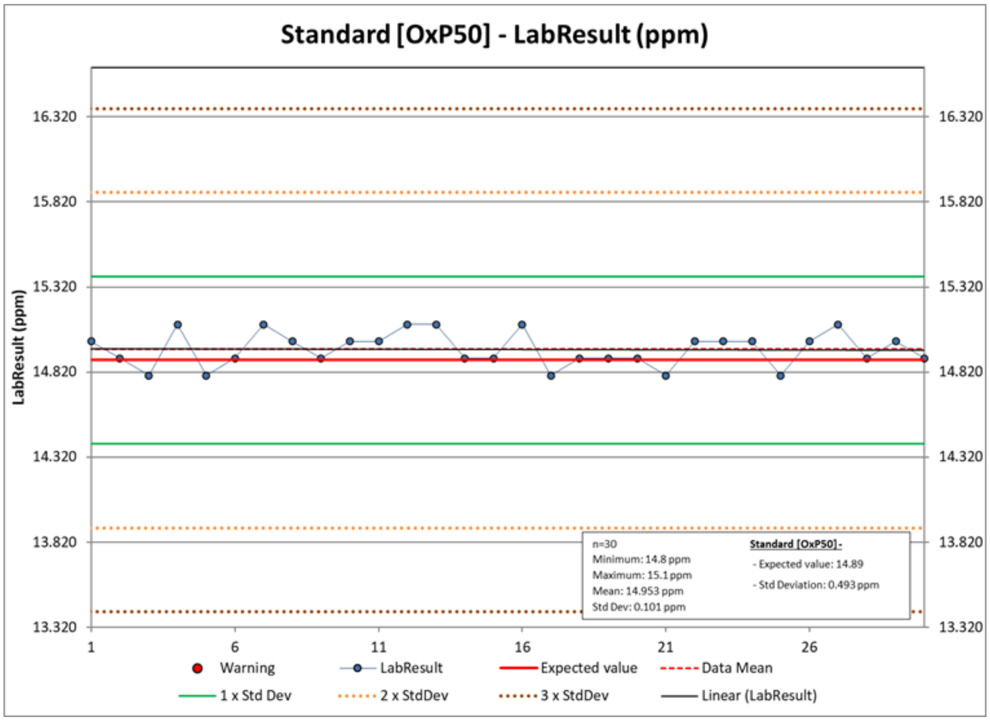
Examples of the CRM results from 2012 are shown in Figure 11.4, Figure 11.5, and Figure 11.6. Overall, the 2012 SEMAFO CRM results show good levels of analytical accuracy.

Figure 11.4 SEMAFO SK52 CRM results 2012



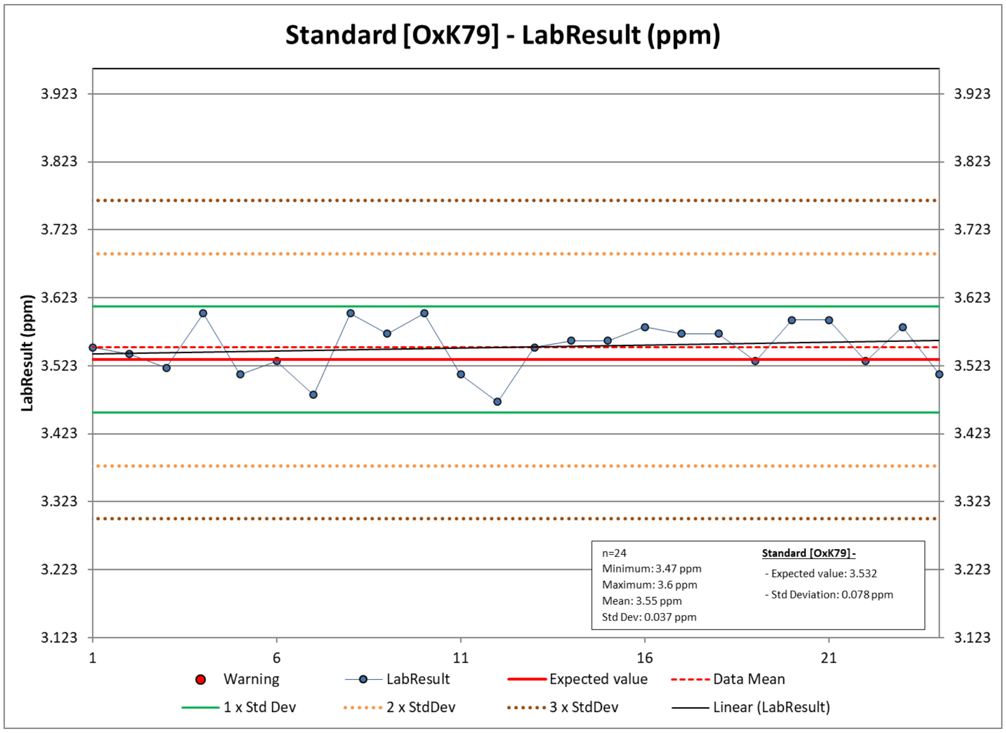

Source: AMC, 2023.

Figure 11.5 SEMAFO OxP50 CRM results 2012




Source: AMC, 2023.

Figure 11.6 SEMAFO OxK79 CRM results 2012




Source: AMC, 2023.

Table 11.3 Summary of the volume and details of the QA/QC samples submitted by SEMAFO in 2008

| Laboratory | Type/CRM name | Certified Values | | | | Totals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Grade (g/t) | 1SD | 95% Confidence Limits | | Submitted | Insufficient Sample | Sample Number Errors | Lab Error | Usable Results |
| | | | | Low | High | | | | | |
| ALS | CRM OxE56 | 0.611 | 0.015 | 0.605 | 0.617 | 311 | 5 | - | 3 | 303 |
| | CRM OxK48 | 3.557 | 0.042 | 3.538 | 3.576 | 347 | 6 | 5 | 1 | 335 |
| | CRM OxN49 | 7.635 | 0.189 | 7.555 | 7.715 | 337 | 5 | 1 | 1 | 330 |
| | **TOTAL CRMs** | | | | | **995** | **16** | **6** | **5** | **968** |
| | Field Duplicate (split from remaining drill sample) | | | | | 944 | - | - | - | 944 |
| | Blank (barren white quartz material) | | | | | 299 | - | - | - | 299 |
| **Total QA/QC Samples Submitted to ALS Chemex Bamako** | | | | | | **2,238** | **16** | **6** | **5** | **2,211** |
| SGS Siguiri and Ouagadougou | CRM OxE56 | 0.611 | 0.015 | 0.605 | 0.617 | 292 | - | - | - | 292 |
| | CRM OxK48 | 3.557 | 0.042 | 3.538 | 3.576 | 309 | 2 | 1 | | 306 |
| | CRM OxN49 | 7.635 | 0.189 | 7.555 | 7.715 | 307 | 2 | 8 | 1 | 296 |
| | **TOTAL CRMs** | | | | | **908** | **4** | **9** | **1** | **894** |
| | Field duplicate (split from remaining drill sample) | | | | | 903 | - | - | - | 903 |
| | Blank (barren white quartz material) | | | | | - | - | - | - | - |
| **Total QA/QC Samples Submitted to SGS Siguiri and SGS Ouagadougou** | | | | | | **1,811** | **4** | **9** | **1** | **1,797** |

Source: SEMAFO, 2008.

Table 11.4 Result summary of QA/QC samples submitted by SEMAFO in 2008

| Laboratory | Type/CRM name | Certified Values | | | | | Au Results (g/t) | | | | | | | QA/QC Results/Analysis (2008) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Grade (g/t) | 1SD | | 95% Confidence Limits | | Avg. | Min. | Max. | % Below Cert. Value | % Above Cert. Value | %Plotting Within 3SD | | |
| | | | CERT. | RECALC | LOW | HIGH | | | | | | Cert. | Recalc. | |
| ALS | CRM OxE56 | 0.611 | 0.015 | 0.021 | 0.605 | 0.617 | 0.627 | 0.419 | 0.694 | 29.50 | 70.50 | 83.20 | 92.80 | Generally overstated |
| | CRM OxK48 | 3.557 | 0.042 | 0.065 | 3.538 | 3.576 | 3.591 | 3.200 | 3.950 | 42.70 | 57.30 | 76.10 | 85.40 | Within certified range |
| | CRM OxN49 | 7.635 | 0.189 | 0.247 | 7.555 | 7.715 | 7.570 | 5.750 | 8.580 | 60.90 | 39.10 | 94.50 | 98.10 | Understated |
| | Blank[a] | <0.01 | - | - | - | - | 0.012 | 0.003 | 0.115 | 15.70 | 84.30 | - | - | Overstated |
| SGS Siguiri and Ouagadougou | CRM OxE56 | 0.611 | 0.015 | 0.021 | 0.605 | 0.617 | 0.626 | 0.440 | 0.770 | 36.60 | 63.40 | 84.20 | 91.80 | Generally overstated |
| | CRM OxK48 | 3.557 | 0.042 | 0.065 | 3.538 | 3.576 | 3.458 | 3.100 | 3.840 | 84.60 | 15.40 | 84.60 | 83.70 | Understated |
| | CRM OxN49 | 7.635 | 0.189 | 0.247 | 7.555 | 7.715 | 7.267 | 6.120 | 7.740 | 98.00 | 2.00 | 86.10 | 100 | Generally understated |

[a] Blank material uncertified (locally sourced quartz grab material).
Source: SEMAFO, 2008.

Table 11.5 Summary of the volume and details of the QA/QC samples submitted by SEMAFO in 2012

| Laboratory | Type/CRM name | Source/Details | Certified Values | | | | | Total Submitted |
|---|---|---|---|---|---|---|---|---|
| | | | Grade (g/t) | 1SD | 2SD | 95% Confidence Limits | | |
| | | | | | | Low | High | |
| SGS (Siguiri) | CRM OxE74 | Scott Technology Limited - Rocklabs | 0.614 | 0.017 | - | 0.608 | 0.620 | 63 |
| | CRM OxK69 | | 3.583 | 0.086 | - | 3.550 | 3.616 | 44 |
| | CRM OxK79 | | 3.532 | 0.078 | - | 3.506 | 3.558 | 79 |
| | CRM OxN62 | | 7.706 | 0.117 | - | 7.660 | 7.752 | 91 |
| | CRM OxP50 | | 14.890 | 0.493 | - | 14.560 | 15.220 | 104 |
| | CRM SK52 | | 4.107 | 0.088 | - | 4.078 | 4.136 | 77 |
| | **Total CRMs** | | | | | | | **458** |
| | Blank | Quartz (uncertified, grab sourced) | <0.01 | 0.010 | 0.020 | - | - | 456 |
| | **Total Blanks** | | | | | | | **456** |
| | Duplicate | Field duplicate split from remaining original reject drill sample on site | | | | | | 425 |
| | **Total Duplicates** | | | | | | | **425** |
| **Total CRMs, Blanks, and Duplicates Used By SEMAFO** | | | | | | | | **1,339** |

Source: SEMAFO, 2012.

#### 11.3.1.5 Blanks

Blank insertions by SEMAFO were introduced in October 2008 and were only sent to ALS Bamako. The blank material consisted "*of 'barren' white quartz material picked up by the geologist*". Given the association of gold mineralization with quartz veins at Kiniero there is a high probability of the quartz material contained gold. The material was subsequently assayed at the Kiniero Mine laboratory and found to contain mineralization.

Details of the "blank" material analyses is summarized in Table 11.4 where the lower detection limit at ALS Bamako was 0.005 g/t Au. A total of 15.7% of the "blank" material reported results lower than the detection limit. Cross-contamination during the preparation process from a gold-bearing sample, that was immediately followed by a "blank" material, was shown to be negligible with an average "blank" grade of 0.012 g/t Au being reported in this regard.

Blank samples submitted to SGS Siguiri in 2012 is summarized in Table 11.5. The laboratory operates a lower detection limit of 0.005 g/t Au with the blank sample results showing 95% of results being lower than ten times the detection limit.

### 11.3.2 Burey Gold (2006-2013) – Mansounia licence

#### 11.3.2.1 Internal laboratory QA/QC

Transworld Laboratories produced a QA/QC report in March 2008 documenting the repeatability and accuracy of their assaying techniques. Correlation plots of the internal standards, repeats, and duplicates were produced, and show an acceptable range of values.

#### 11.3.2.2 Burey Gold duplicate submissions

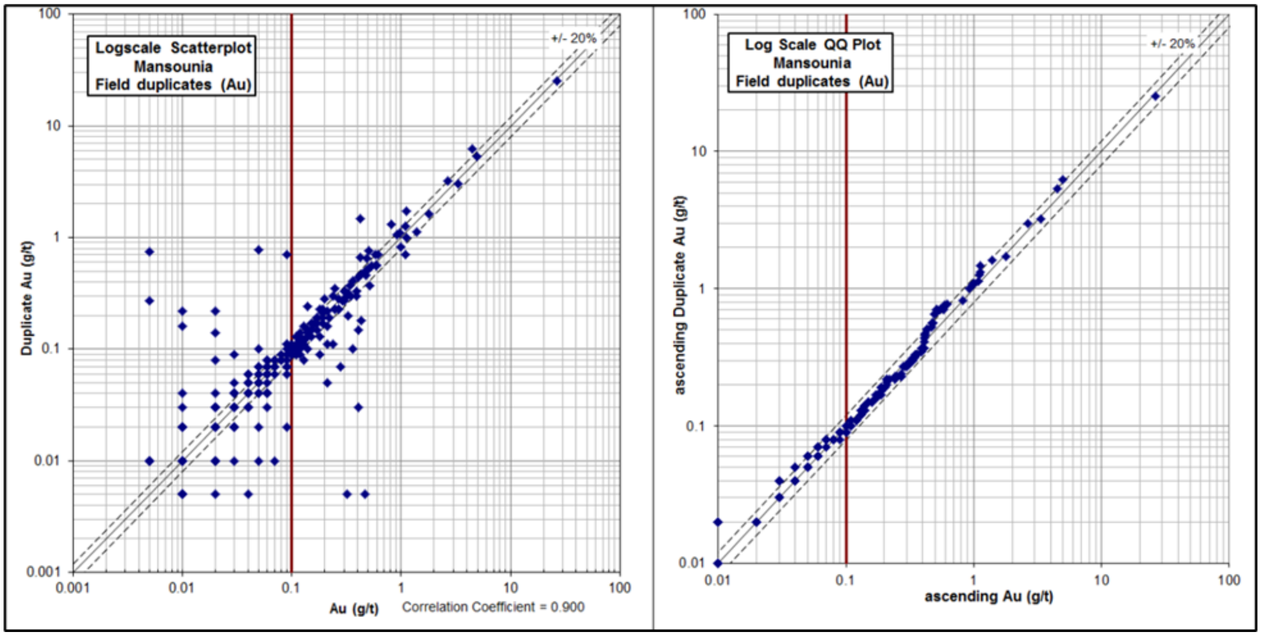
Burey Gold inserted a duplicate sample into the sample stream at a rate of 1-in-10. The QP understands that the duplicate assay data was previously reviewed by Runge Limited who noted that the results showed a reasonable similarity to the primary assay results (Table 11.6 and Figure 11.7).

Table 11.6 Summary statistics for Burey Gold Au duplicate data

| Statistic | Original Au | Duplicate Au | Difference |
|---|---|---|---|
| Number of samples | 472 | 472 | 0.0% |
| Mean | 0.18 | 0.19 | 4.3% |
| Variance | 1.64 | 1.56 | -4.5% |
| Std. Dev. | 1.28 | 1.25 | -2.3% |
| Minimum | 0.005 | 0.005 | 0.0% |
| Median | 0.02 | 0.02 | 0.0% |
| Maximum | 26.5 | 25.3 | -4.5% |

Source: Runge, 2012.

Figure 11.7 Burey Gold duplicate sample results




Source: Runge, 2012.

### 11.3.2.3 Umpire laboratory QA/QC submissions

The QP understands that duplicate samples were also routinely submitted to external umpire laboratories for check assays. No results or specific details of these submissions have been seen by SMG or the QP.

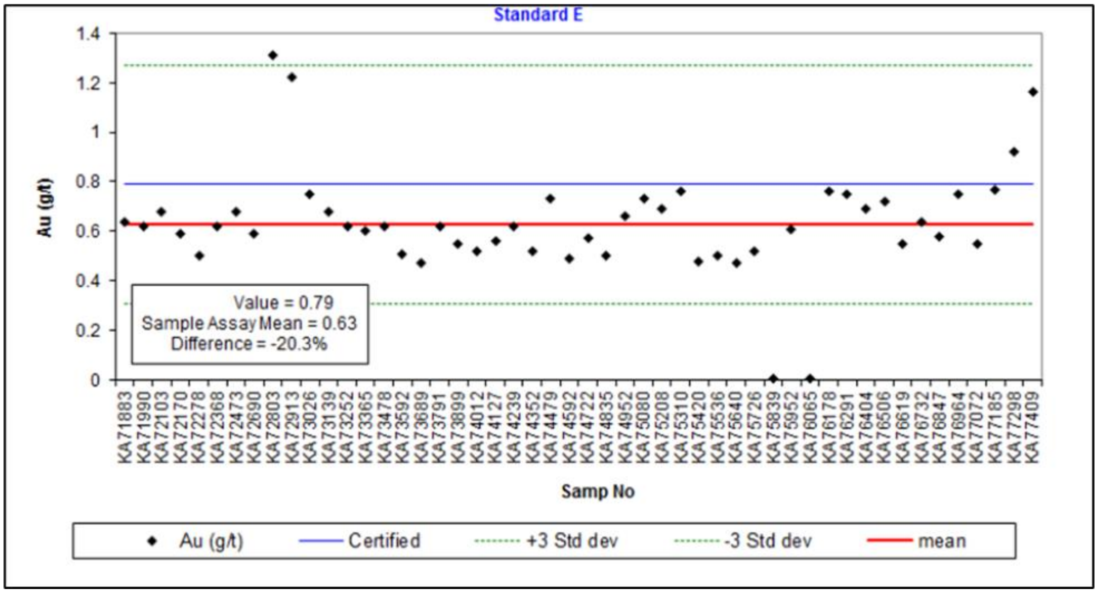
### 11.3.2.4 Standard reference materials

Unlike the CRMs sourced by SEMAFO from Rocklabs, Burey Gold opted to generate its own in-house standard reference materials (SRMs). The SRMs were created by selecting intervals from different holes where the assayed grade was similar. The retained sample material was then weighed and combined with a lengthy residency in a cement mixer to homogenize the sample. The samples were then mat-rolled and then bagged as SRMs. The average grade of the SRMs was calculated using a weighted average of the original individual sample assays. Validation checks were completed by Transworld Laboratories and continuously audited by senior field technicians.

Three different SRMs were created by Burey Gold with the results reporting to be approximately 20% below the expected values for all three standards. An example of the SRM results for Standard E is shown in Figure 11.8.

The QP is of the opinion that this type of SRM is unlikely to be suitable given the compositional and distributional heterogeneity of the mineralization encountered at the Project. This heterogeneity is likely to result in an SRM which may display low-repeatability. This is a view which Runge Limited previously commented on, and for which it advised Burey Gold to adopt purchasing of commercially available CRMs.

Figure 11.8 Burey Gold Standard E CRM results chart



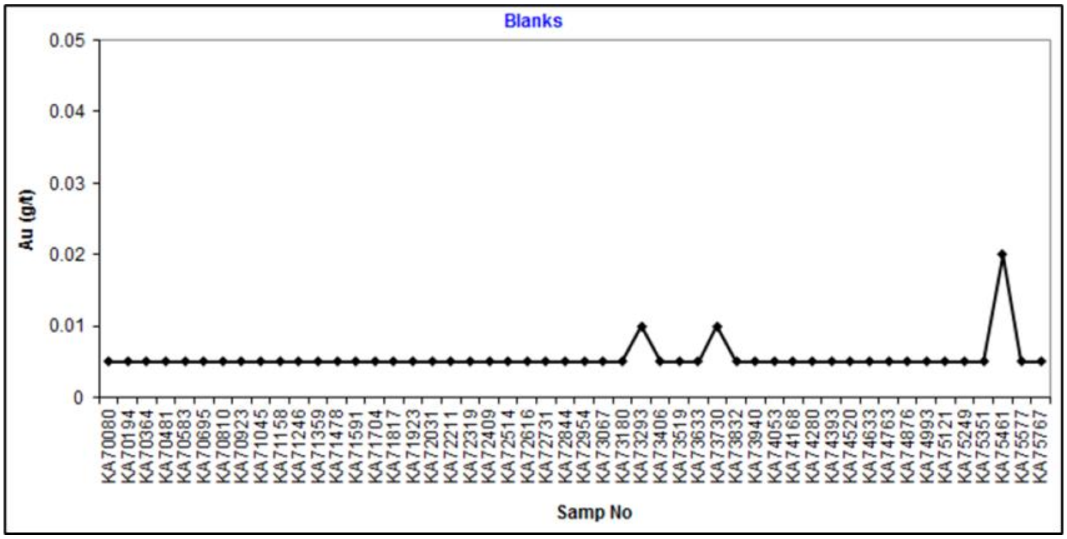

Source: Runge, 2012.

#### 11.3.2.5 Blanks

Barren material was sourced by Burey Gold in the same manner as the SRMs detailed in Section 11.3.2.4. RC sample intervals were selected where assays had previously returned a value that was below the detection limit of 0.01 g/t Au. A total 50 blanks were inserted in the sample streams; all except three samples returned values that were below the detection limit (Figure 11.9).

The QP is of the opinion that use of material from the Project is unlikely to be suitable for use as a blank material due to the likelihood of containing some mineralization.

Figure 11.9 Burey Gold blanks results chart




Source: Runge, 2012.

### 11.3.3 Sycamore Mine Guinee (2020-2022)

#### 11.3.3.1 Internal laboratory QA/QC

As part of the laboratory's own QA/QC checks, coarse and pulp duplicates are inserted by the laboratories into the sample stream, along with CRMs and blanks. A summary of the internal submissions by laboratory is provided in Table 11.7.

Table 11.7 Summary of internal laboratory sample submissions

| Laboratory | No. Regular Samples Analysed | No. Internal QA/QC Samples | Insertion Rate (%) | No. Passed at 2SD | 2SD Pass Rate (%) | Correlation Coefficient |
|---|---|---|---|---|---|---|
| **SGS Bamako** | | | | | | |
| CRM | | 1,276 | 5% | 1,153 | 90% | |
| Blanks | | 872 | 3% | 872 | 100% | |
| Duplicate – Coarse (S) | | 491 | 2% | | | 0.994 |
| Duplicate – Pulp (R) | | 1,851 | 7% | | | 0.977 |
| Total | *27,731* | 4,490 | 16% | | | |
| **SGS Ouagadougou** | | | | | | |
| CRM | | 185 | 2% | 178 | 96% | |
| Blanks | | 114 | 1% | 114 | 100% | |
| Duplicate – Coarse (S) | | 42 | 0% | | | 0.992 |
| Duplicate – Pulp (R) | | 144 | 1% | | | 0.960 |
| Total | *11,638* | 485 | 4% | | | |
| **ALS Bamako** | | | | | | |
| CRM | | 2,310 | 5% | 1,985 | 86% | |
| Blanks | | 326 | 1% | 325 | 99% | |
| Duplicate – Coarse (S) | | 1,960 | 5% | | | 0.996 |
| Duplicate – Pulp (R) | | 2,065 | 5% | | | 0.996 |
| Total | *42,883* | 6,661 | 16% | | | |
| **Intertek Tarkwa** | | | | | | |
| CRM | | 1,138 | 6% | 1,117 | 98% | |
| Blanks | | 612 | 3% | 600 | 98% | |
| Duplicate – Coarse (S) | | 781 | 4% | | | 0.958 |
| Duplicate – Pulp (R) | | 1,061 | 6% | | | 0.999 |
| Total | *18,757* | 3,592 | 19% | | | |

Source: SMG, 2022.

Results for the coarse and pulp duplicates shows reasonable levels of assay repeatability and precision. Results for the blanks indicate no significant sample contamination, whilst the CRM results show good levels of assay accuracy.

#### 11.3.3.2 SMG field duplicates

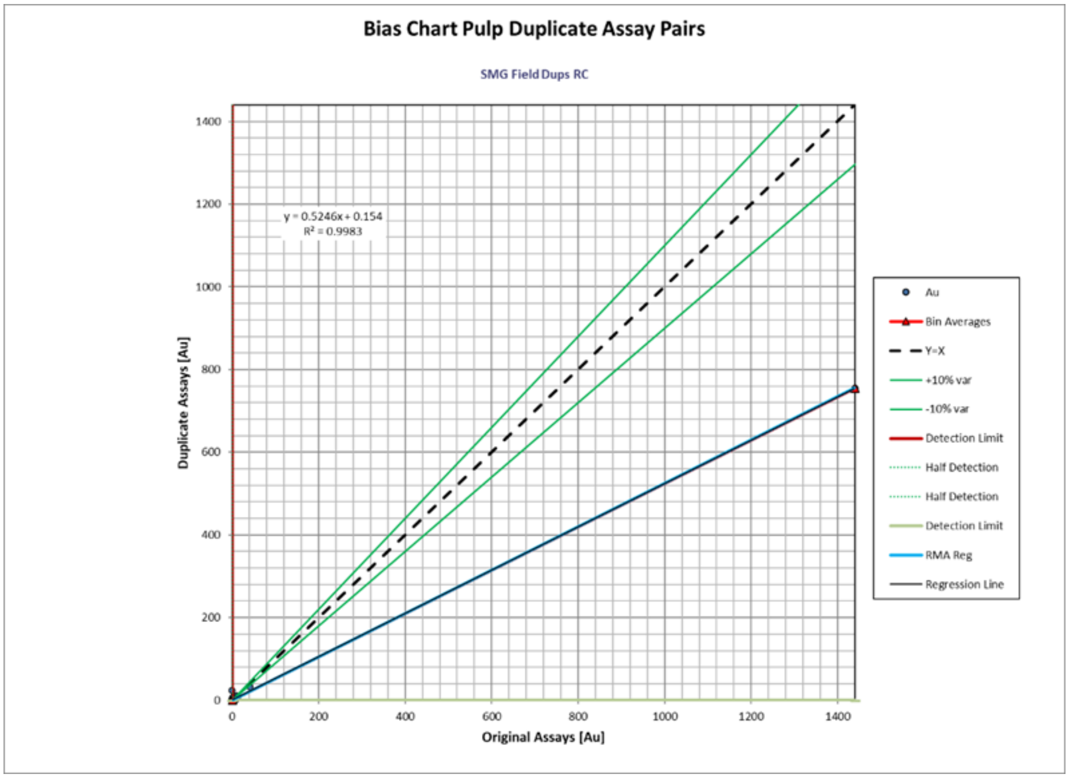
As part of the SMG exploration works, field duplicates were inserted into sample batches. The field duplicates included RC chips obtained as part of a separate split from material exiting the RC cyclone on the drill rig. DD field duplicates comprised quarter core. Field duplicates have also been submitted for air core and trenching samples.

The QP has reviewed the field duplicate results as of October 2022. Scatter and rank HARD plots of the RC and DD results are shown in Figure 11.10 to Figure 11.15.

The majority of the field duplicate data relates to the RC drilling.

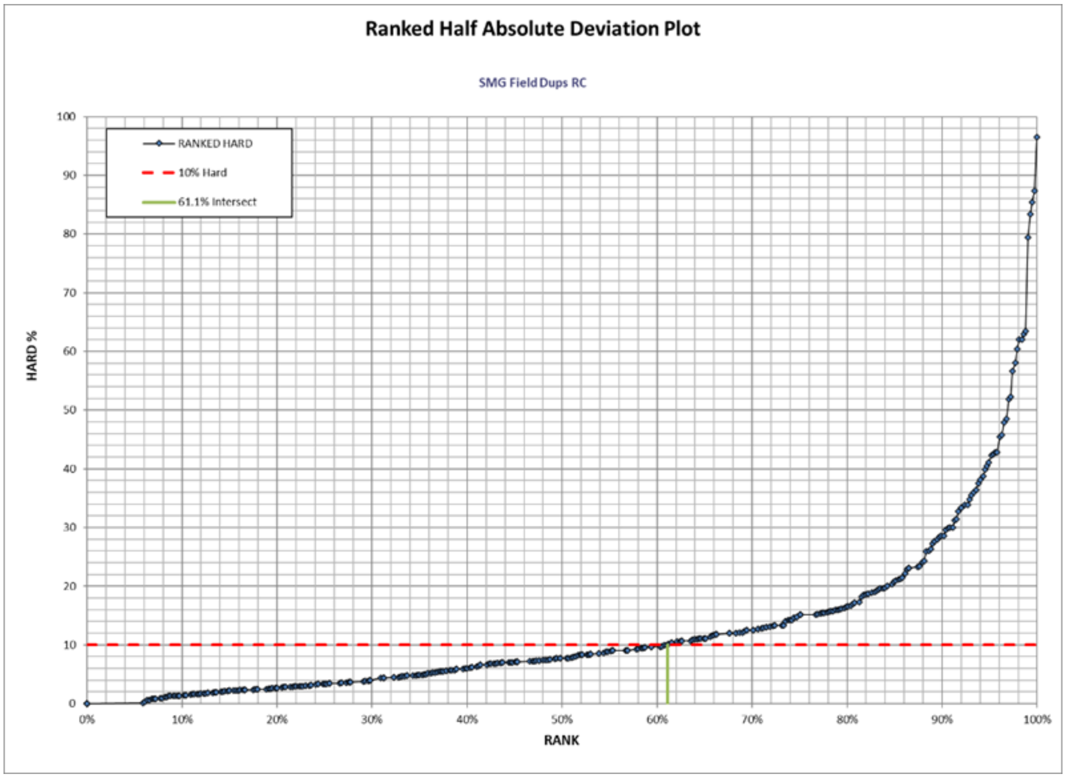
The field duplicate results show a moderate- to low-level of repeatability, this includes when applying a grade cap (Figure 11.12 and Figure 11.13) to remove higher grade samples which may exhibit greater variability. The QP is of the opinion that the degree of precision and repeatability for the field duplicates, is in keeping with the mineralization style and nuggety nature of the gold mineralization at the Project.

Figure 11.10 SMG RC field duplicates scatter plot (all results)



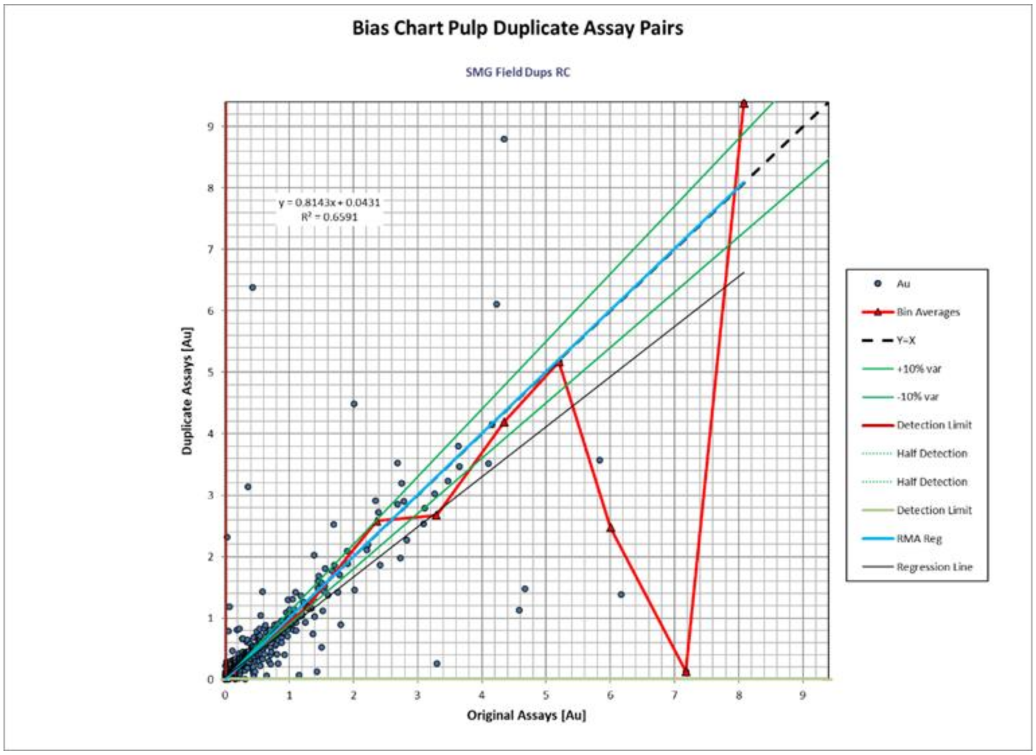

Source: AMC, 2023.

Figure 11.11 SMG RC field duplicates rank HARD plot (all results)



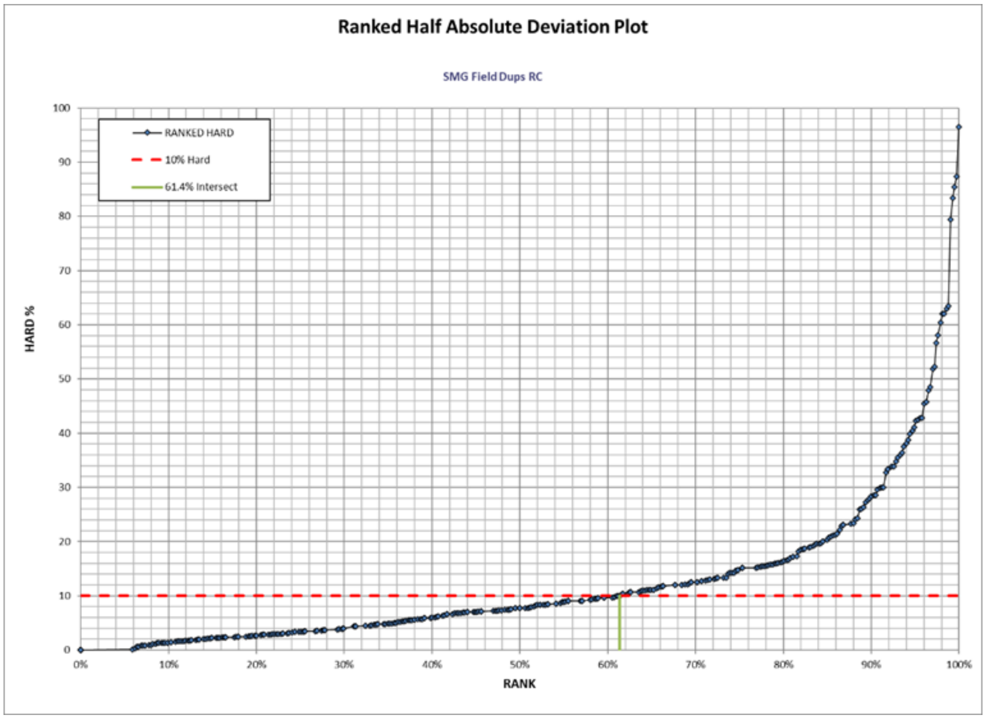

Source: AMC, 2023.

Figure 11.12 SMG RC field duplicates scatter plot (10 g/t Au grade capping)



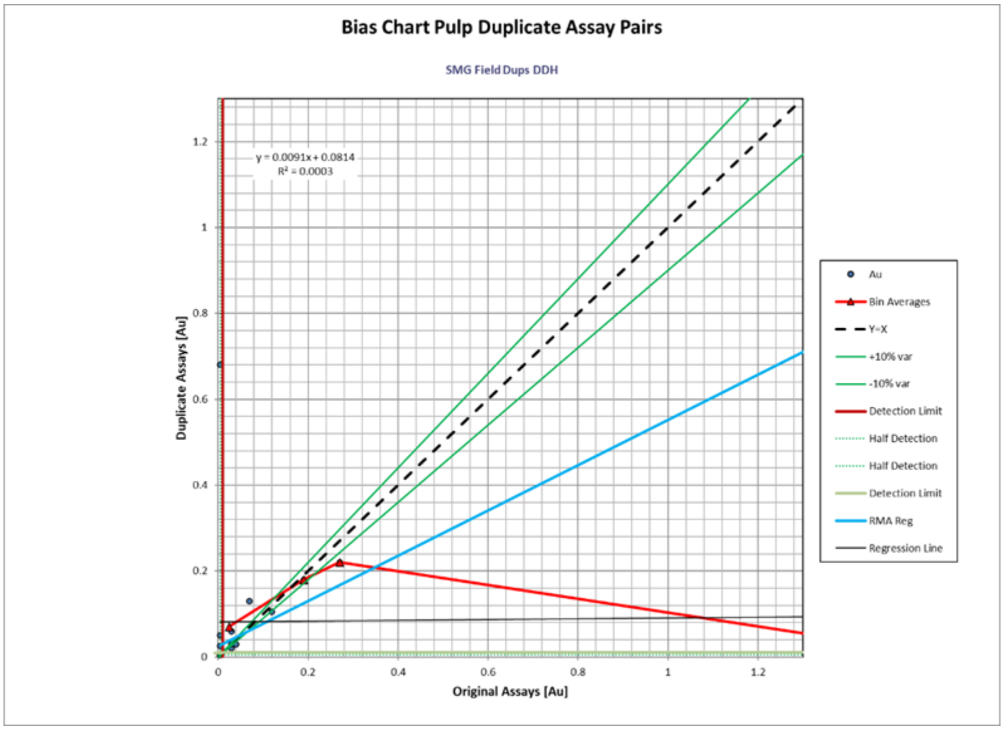

Source: AMC, 2023.

Figure 11.13 SMG RC field duplicates rank HARD plot (10 g/t Au grade capping)



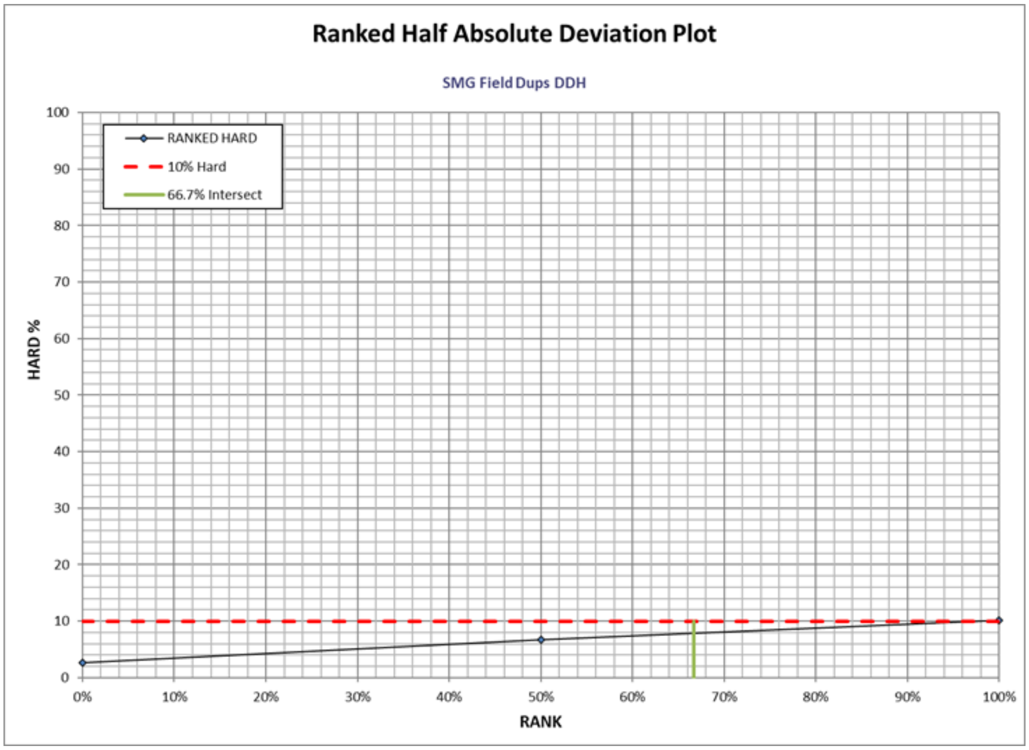

Source: AMC, 2023.

Figure 11.14 SMG DDH field duplicates scatter plot (all results)




Source: AMC, 2023.

Figure 11.15 SMG DDH field duplicates rank HARD plot (all results)




Source: AMC, 2023.

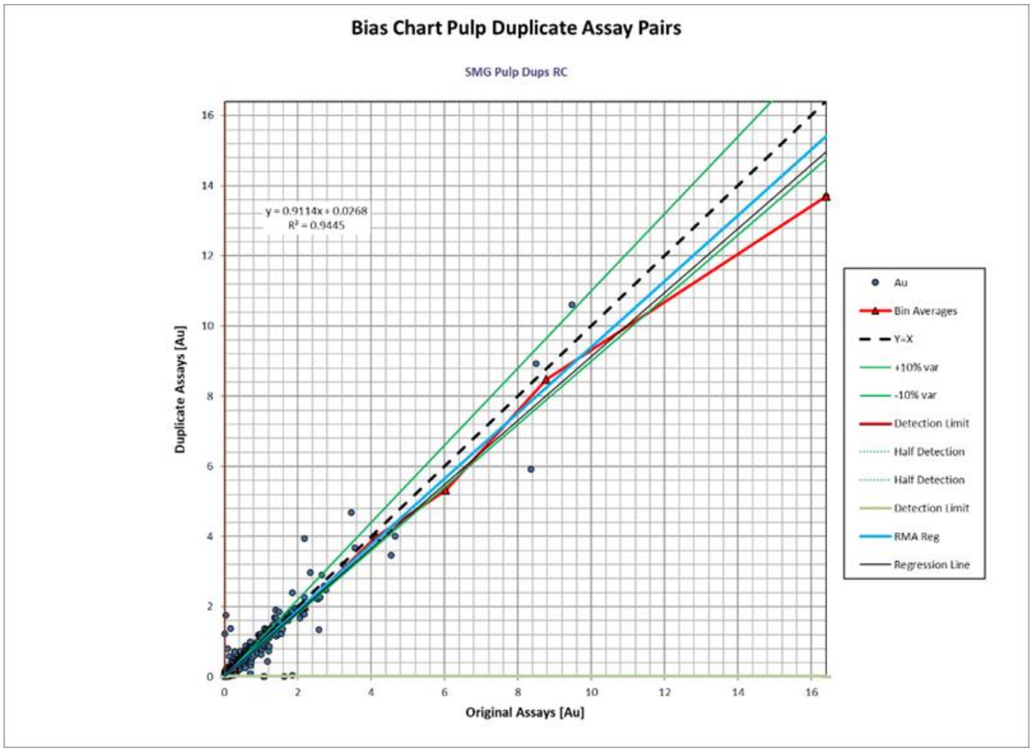
#### 11.3.3.3 SMG pulp duplicates

In addition to the submission of field duplicates, SMG reinserted pulp duplicates into sample batches. The pulp duplicates were obtained following the crushing and pulverization stages of sample preparation. Pulp duplicates corresponding to RC, air core, auger, and trenching samples were submitted, with RC samples comprising 79% of pulp duplicate submissions.

Results of the RC pulp duplicates are shown in Figure 11.16 and Figure 11.17. Overall, the results show an improvement in the repeatability and precision compared to the field duplicates. This indicates that the crushing and pulverization stages are generating a more homogenous mass from which more representative sample splits can be obtained.

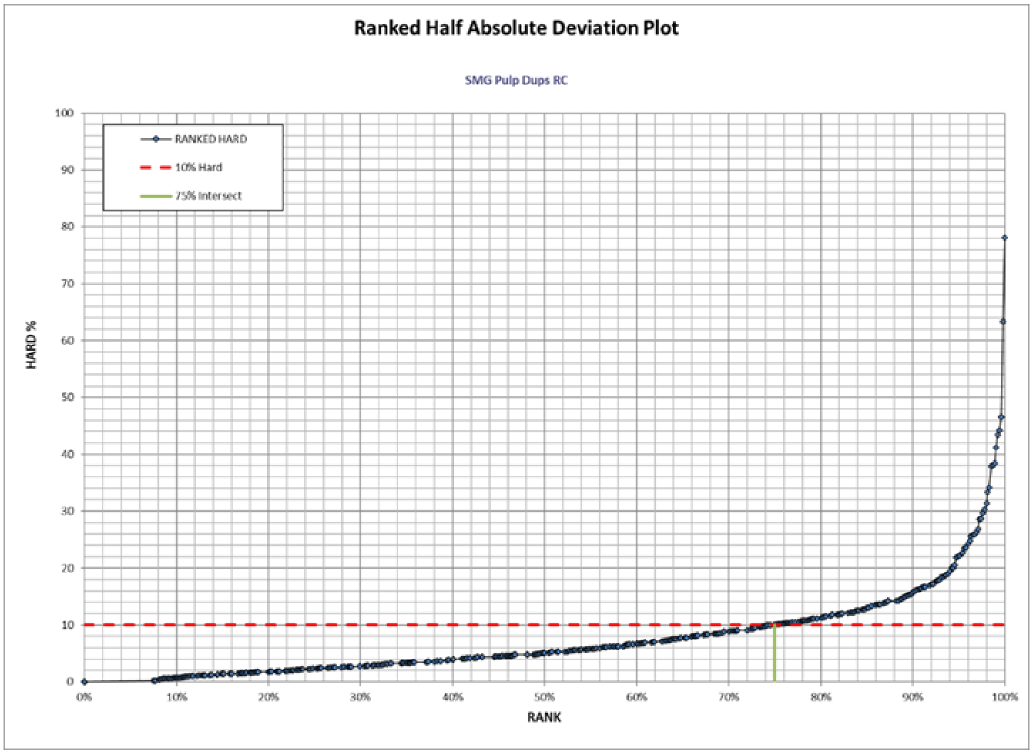
Whilst the pulp duplicates show an improvement in precision, the QP is of the opinion that the improvement is less than would be expected at the pulverization stage. This may indicate the introduction of grouping or segregation errors when taking a split of the pulverized material.

Figure 11.16 SMG RC pulp duplicates scatter plot (all results)




Source: AMC, 2023.

Figure 11.17 SMG RC pulp duplicates rank HARD plot (all results)




Source: AMC, 2023.

#### 11.3.3.4 CRMs

A total of ten different CRMs have been inserted by SMG, these comprise CRMs sourced from OREAS and Scott Technical Limited (Rocklabs). A summary of the CRM submissions to each of the laboratories is provided in Table 11.8.

Table 11.8 Summary of CRM submissions

| Laboratory | CRM number | Source/Details | Certified Values | | | | | Total Submitted |
|---|---|---|---|---|---|---|---|---|
| | | | Grade (g/t) | 1SD | 2SD | 95% Confidence Limits | | |
| | | | | | | LOW | HIGH | |
| SGS Mali SARLU (SGS Bamako) | OREAS 216b | Ore Research and Exploration | 6.660 | 0.158 | - | 6.610 | 6.710 | 78 |
| | OREAS 231 | | 0.542 | 0.015 | - | 0.538 | 0.547 | 22 |
| | OREAS 235 | | 1.590 | 0.038 | - | 1.570 | 1.600 | 45 |
| | OxE56 | Scott Technology Limited - Rocklabs | 0.611 | 0.015 | - | 0.605 | 0.617 | 87 |
| | OxG84 | | 0.922 | 0.033 | - | 0.912 | 0.932 | 100 |
| | OxK48 | | 3.557 | 0.042 | - | 3.538 | 3.576 | 69 |
| | OxK79 | | 3.532 | 0.078 | - | 3.506 | 3.558 | 65 |
| | OxP50 | | 14.890 | 0.493 | - | 14.560 | 15.220 | 72 |
| | SK52 | | 4.107 | 0.088 | - | 4.078 | 4.136 | 15 |
| | SL51 | | 5.909 | 0.136 | - | 5.862 | 5.956 | 237 |
| | **Total Certified Reference Material** | | | | | | | **790** |
| SGS Burkina SA (SGS Ouagadougou) | OREAS 216b | Ore Research and Exploration | 6.660 | 0.158 | - | 6.610 | 6.710 | 24 |
| | OREAS 235 | | 1.590 | 0.038 | - | 1.570 | 1.600 | 21 |
| | OxE56 | Scott Technology Limited - Rocklabs | 0.611 | 0.015 | - | 0.605 | 0.617 | 36 |
| | OxK79 | | 3.532 | 0.078 | - | 3.506 | 3.558 | 10 |
| | OxP50 | | 14.890 | 0.493 | - | 14.560 | 15.220 | 15 |
| | SL51 | | 5.909 | 0.136 | - | 5.862 | 5.956 | 4 |
| | **Total Certified Reference Material** | | | | | | | **110** |
| ALS Minerals Mali (ALS Bamako) | OREAS 216b | Ore Research and Exploration | 6.660 | 0.158 | - | 6.610 | 6.710 | 325 |
| | OREAS 231 | | 0.542 | 0.015 | - | 0.538 | 0.547 | 303 |
| | OREAS 235 | | 1.590 | 0.038 | - | 1.570 | 1.600 | 277 |
| | **Total Certified Reference Material** | | | | | | | **905** |
| Intertek Minerals Limited (Intertek Tarkwa) | OREAS 216b | Ore Research and Exploration | 6.660 | 0.158 | - | 6.610 | 6.710 | 257 |
| | OREAS 231 | | 0.542 | 0.015 | - | 0.538 | 0.547 | 207 |
| | OREAS 235 | | 1.590 | 0.038 | - | 1.570 | 1.600 | 209 |
| | OxE56 | Scott Technology Limited - Rocklabs | 0.611 | 0.015 | - | 0.605 | 0.617 | 32 |
| | OxG84 | | 0.922 | 0.033 | - | 0.912 | 0.932 | 5 |
| | OxK48 | | 3.557 | 0.042 | - | 3.538 | 3.576 | 19 |
| | SK52 | | 4.107 | 0.088 | - | 4.078 | 4.136 | 10 |
| | SL51 | | 5.909 | 0.136 | - | 5.862 | 5.956 | 30 |
| | **Total Certified Reference Material** | | | | | | | **769** |
| **Total CRMs** | | | | | | | | **2,574** |
| **Total CRMs Insertion Rate** | | | | | | | | **3%** |

Source: AMC, 2023.

The results of the CRM submissions show that overall, there is a reasonable degree of analytical accuracy, with the majority of results falling within ±3 standard deviations of the target value. Example results are shown in Figure 11.18 to Figure 11.21.

No differences in results have been identified between laboratories.

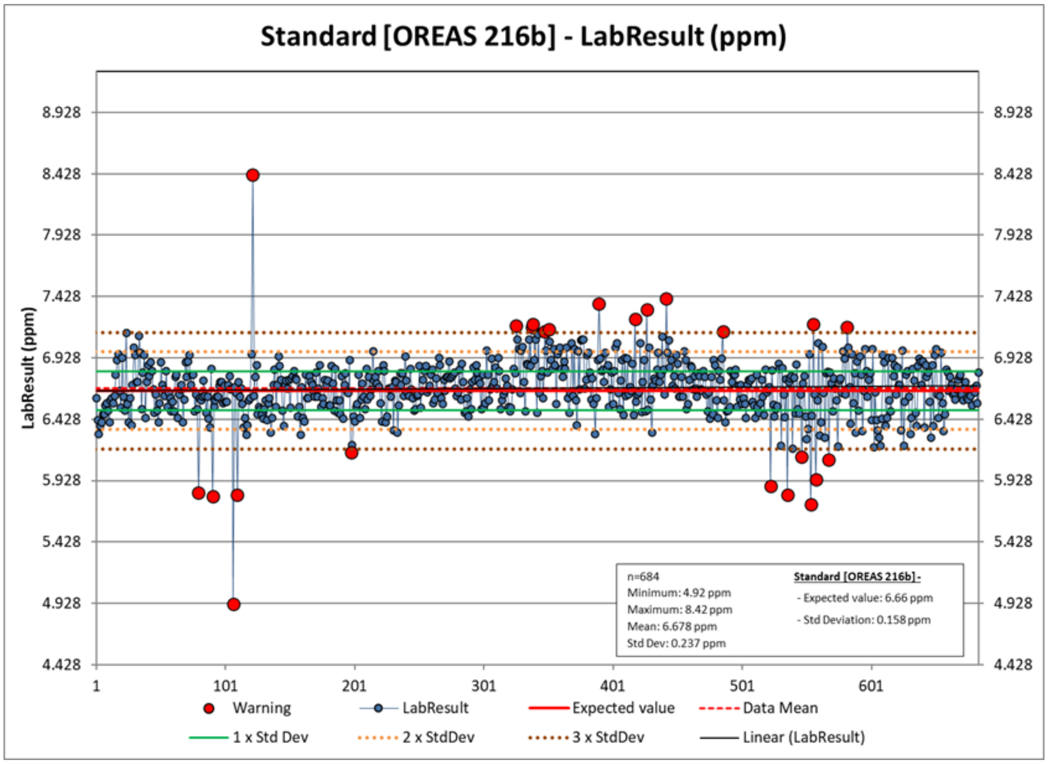
Results for the OREAS CRMs show between 93% to 96% of results falling within ±3 standard deviations, reducing to 81% to 87% falling within ±2 standard deviations.

The results for the Rocklabs CRMs show a greater degree of variability between the different CRMs. Results for CRMs OxE56, OxK48, and OxP50 show the lowest level of accuracy with 82.6%, 76.1%, and 88.5% of results falling within ±3 standard deviations respectively. Conversely, the other Rocklabs CRMs show good levels of accuracy.

CRM OxK79 (3.532 g/t Au) has a similar target grade to one of the poor performing CRMs, OxK48 (3.557 g/t Au). The results for CRM OxK79 show 98.7% of results falling below ±3 standard deviations.

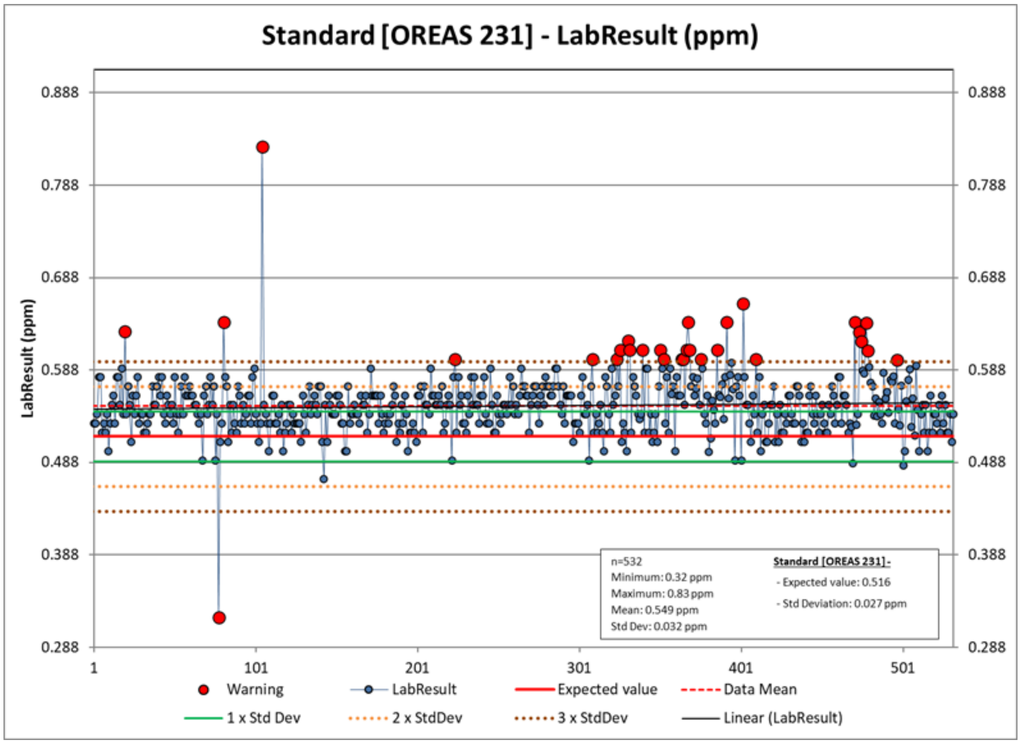
Comparing the results for CRMs OxP50, OxK79 (Figure 11.21) and SK52 with the same CRM submissions by SEMAFO in 2012 (e.g. Figure 11.6), indicates a greater degree of accuracy for the 2012 samples.

Figure 11.18 OREAS 216b CRM results chart



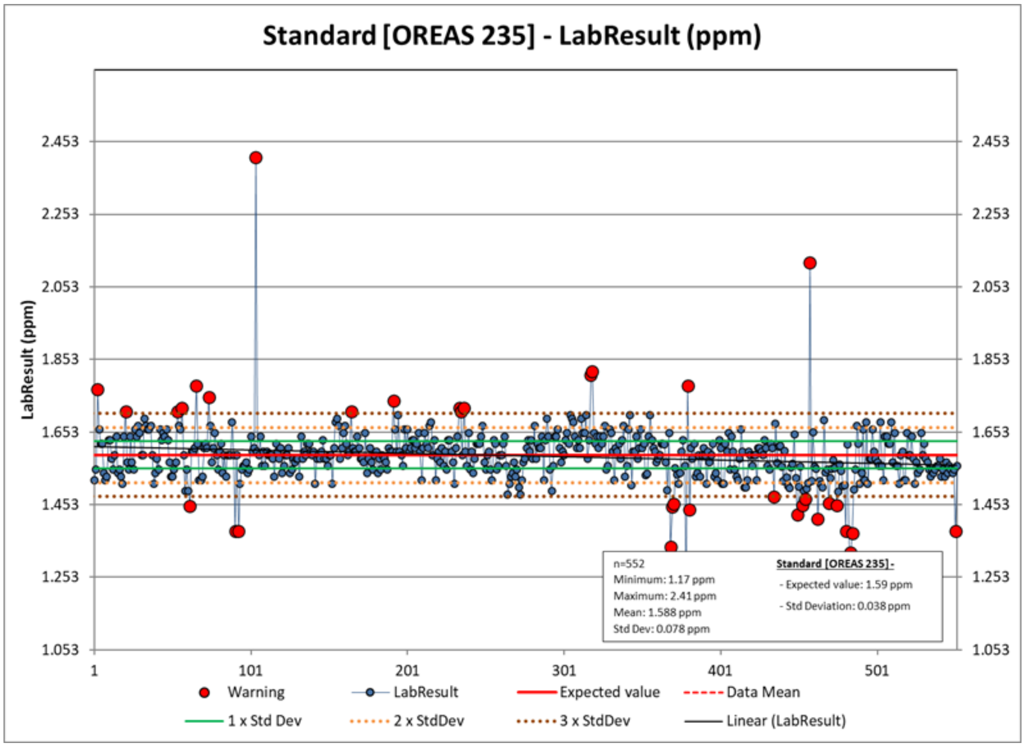

Source: AMC, 2023.

## Figure 11.19 OREAS 231 CRM results chart



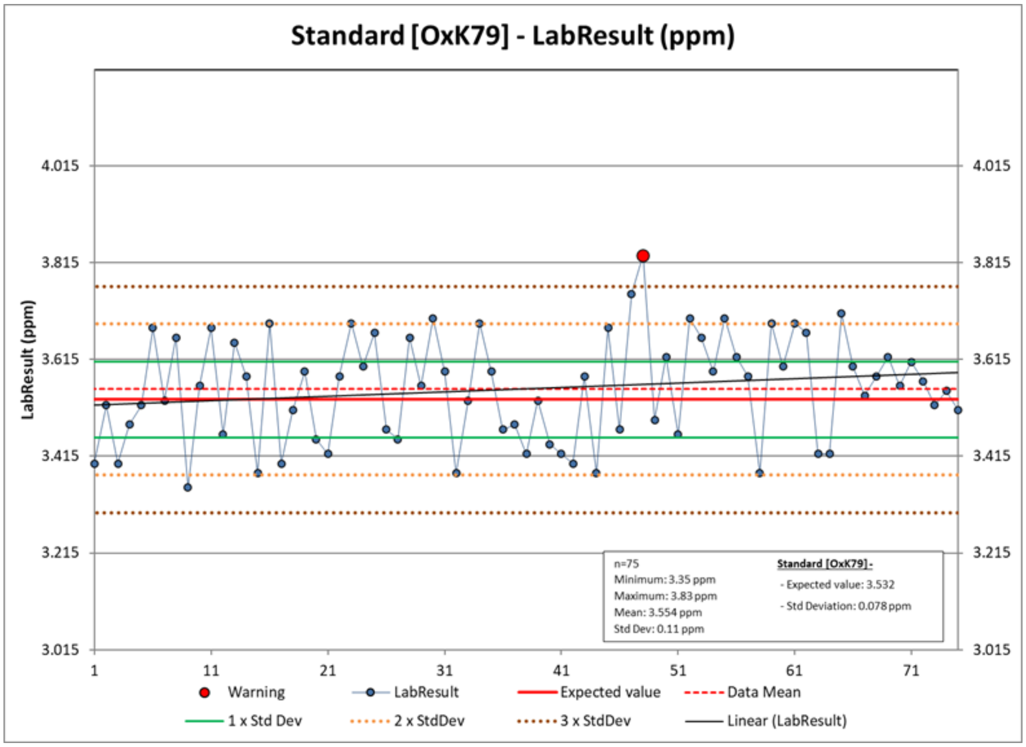

Source: AMC, 2023.

## Figure 11.20 OREAS 235 CRM results chart




Source: AMC, 2023.

Figure 11.21 OxK79 CRM results chart




Source: AMC, 2023.

### 11.3.3.5 Blanks

SMG opted to submit cement material as a blank to assess for sample contamination during sample preparation. Table 11.9 summarizes the blank submissions made to each laboratory and the pass rate set at ten times the detection limit of 0.005 g/t Au.

The results show no significant sample contamination.

Table 11.9 Summary of blank submissions and results

| Laboratory | Year | No. Blanks | Pass Rate % |
|---|---|---|---|
| ALS Bamako | 2020 | 0 | - |
| | 2021 | 0 | - |
| | 2022 | 695 | 97% |
| Intertek Ghana | 2020 | 59 | 100% |
| | 2021 | 85 | 99% |
| | 2022 | 292 | 100% |
| SGS Bamako | 2020 | 241 | 99% |
| | 2021 | 257 | 98% |
| | 2022 | 0 | - |
| SGS Burkina | 2020 | 0 | - |
| | 2021 | 70 | 96% |
| | 2022 | 0 | - |
| SGS Burkina | 2020 | 0 | - |
| | 2021 | 0 | - |
| | 2022 | 0 | - |

Source: AMC, 2023.

## 11.4 Conclusions

The QP has reviewed the sample preparation, analysis, security protocols, and QA/QC employed at the Project by previous and present operators. Based on this work, the QP is of the opinion that the sample data is adequate for use in the Mineral Resource estimation.

# 12 Data verification

## 12.1 Introduction

The sample data used in the Mineral Resource estimates is reliant on historical data obtained by SEMAFO and Burey Gold, as well as more recent drilling works undertaken by SMG in 2020-2022. Following the signing of the Kiniero licence framework agreement on 19 November 2019, SMG acquired the available historical exploration data from the previous Kiniero licence owners, and the Ministry of Mines and Geology of the GOG.

Upon acquisition of the historical exploration data, SMG undertook a high-level review and interrogation of the data, benchmarking its validity against publicly available reports, interpretations, and reported production profile data. Additional detail pertaining to the verification checks completed by SMG is provided in the 2022 Mining Plus Technical Report (Mining Plus, 2022).

The geology QP has reviewed the work carried out by SMG and also supervised the verification of available exploration data and ascertained the support as to the validity and suitability of the data for use in a Mineral Resource estimate. The following verification checks have been undertaken:

- Site visit.
- Review of a representative number of assay certificates against the sample database.
- Review of drill core and RC chips against the geological logging recorded in the sample database.
- Review of assay QA/QC data.

## 12.2 Site visit

A site visit was conducted between 16-19 January 2023 by Mr Nicholas Szebor (CGeol, EurGeol), AMC Principal Geologist, and Mr Alan Turner (MIMMMM, CEng) AMC Principal Mining Engineer.

As part of the site visit the following elements were reviewed:

- Site layout and infrastructure.
- Review of the Project geology, including visits to open pits, surface trenches, and surface exposures.
- Confirmation of drillhole collar positions.
- Review of the core store, including a review of drill core, RC chips, sample storage, and core-cutting facilities.
- Visit to the mine offices and camp.
- Discussions with key personnel on-site, including project Geologists and Mining Engineers.

## 12.3 Assay certificate checks

Hard copies of the historical drilling assay certificates are stored at the mine-site offices. As part of the site visit, Mr Nicholas Szebor randomly selected a series of assay certificates and reviewed the assay records against the sample database. No deviations between the certificates and the sample database were identified.

## 12.4 Review of drill core and RC chips

As part of the SMG historical data compilation, SMG conducted data checks on the hard copy drillhole data, and diamond drill cores stored at the Kiniero Mine core yard. A number of core boxes were damaged due to bush fires and general neglect before SMG acquired the Project; however, some cores, mainly from the Gobelé deposits of SGA, remained largely intact and marked up. All cores that remained in a useable condition were catalogued, cleaned, photographed, relogged, and variously sampled by SMG.

During the site visit the following SMG DD and RC drillholes were selected for review by Mr Nicholas Szebor:

- GDG21-001 (DD).
- GDG21-007 (DD).
- SRC21-033 (RC).
- RC20-199 (RC).
- JRC22-001 (RC).
- SDG22-005 (DD).

The geological logging was reviewed for each of the drillholes, comparing the logged information against the actual drillcore and RC chips. Reviewing the hardcopy drillhole logs shows a significant amount of additional useful information is being recorded in the comments section. This information includes details pertaining to mineralized veinlets. Not all information recorded in the comments section has been encapsulated in the standardized logging used for the sample database. A recommendation would be for SMG to consider adding additional standardized logging fields into the database, to facilitate better-capture of information currently recorded as comments.

In addition to the more recent SMG RC chip trays, the mine-site retains a series of RC chip boards pertaining to the SEMAFO RC drilling works. These RC chip boards comprise RC chips from 1 m intervals, glued as a sample mass to the board, and the corresponding interval and drillhole ID recorded. The RC chip boards provide a graphic reference of the geology and weathering state of each metre interval in each drillhole. The "from" and "to" interval and associated grade assay result is also documented adjacent to each drilled metre. These RC chip boards form an excellent record of the historical RC drilling and are reliable for use. Care should therefore be taken to retain these records.

Overall, the drillhole logging appears reasonable and sufficient for use in the Mineral Resource estimates. Some inconsistencies were noted in the geological logging; however, these typically relate to the logging of tuffs and therefore do not impact on the geological models currently used in the Mineral Resource estimate.

### 12.5 QA/QC review

QA/QC pertaining to the SMG exploration activities, and historical SEMAFO pulp duplicate and CRM data has been independently reviewed and is summarized in Section 0. The CRM results for both SMG and SEMAFO data shows reasonable levels of analytical accuracy. Where the same type of CRM has been used by both SMG and SEMAFO (OxP50, OxK79, and SK52), there are indications of greater accuracy for the SEMAFO assays. This might indicate there are potential improvements for analytical accuracy to be made by the current laboratories used by SMG. Notwithstanding, the levels of accuracy indicated by the CRMs is adequate for use in Mineral Resource estimates.

Field duplicate samples submitted by SMG show levels of precision and repeatability that is commensurate with a deposit with high degrees of small-scale grade variability. Comparing the results of the SMG pulp duplicates against the field duplicates shows an increase in precision. This increase reflects the further homogenization of the sample mass, and the derivation of more representative subsamples. Whilst the pulps show an improvement in the level of precision, the improvement is reduced compared to the SEMAFO internal pulp duplicates. This might indicate a lack of suitable homogenization prior to subsampling the pulp sample mass. It is recommended to further investigate the subsampling process and aim to optimize the process to prevent subsampling errors being introduced.

The available QA/QC data has provided sufficient information to support the reporting of Mineral Resources.

## 12.6 Data verification conclusions

The QP is of the opinion that the QA/QC work conducted at site does not indicate significant sampling bias or fundamental issues that preclude the use of assay data in the Mineral Resource estimates. The geological logging has been conducted in a largely standardized manner and is adequate for use in the development of geological models and Mineral Resource estimates.

# 13 Mineral processing and metallurgical testing

Various metallurgical testwork campaigns have been completed by SMG/Robex in support of the Project, relying on sample material that has been selected from the differing deposits, with the purpose of:

- Validating historical metallurgical processing plant performance data.
- Determining design parameters for the process plant.

Canadian-registered independent mineral process engineering consultancy, Soutex Inc. (Soutex), was appointed in 2022 in support of the pre-feasibility study (PFS). Soutex was not involved in any previous or prior metallurgical testwork campaigns at the Project and has had to place reliance on the previous metallurgical studies, previous plant performance, and prior SMG-completed studies, without having been able to verify the various sources directly. The extensive amount of data, from independent and reputable sources and laboratories, has provided a sufficient level of confidence for Soutex for reliance and use herein. Soutex was responsible for the design of the confirmatory test programme completed in 2022, and on the additional 2022-2023 programme aiming at defining and confirming process design criteria in the context of the current works supporting this Technical Report.

Of the various deposits at the Project, those that are relevant to metallurgical studies and results, as presented in this Technical Report, are:

- Derekena/West Balan.
- Jean East and Jean West.
- SGA (Sector Gobelé A, B, C).
- Gobelé D and NEGD.
- Sabali South.

The results for Mansounia Central/South (undeveloped) are also presented but are not directly considered in the course of this Technical Report.

Recent testwork has been conducted at four laboratories, selected on their capabilities and the testwork required, namely:

- SGS South Africa (Pty) Limited Randfontein Laboratory (SGS Randfontein), a Member of the Société Générale de Surveillance Group. This laboratory is accredited for chemical analysis with the recognized International Standard ISO/IEC 17025:2017 which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. The laboratory is accredited with South African National Accreditation System, accreditation number No. T0265 which expires in February 2025.
- Intertek Perth and Intertek Tarkwa, both part of the multinational laboratory and testing company Intertek Laboratory Testing Services. This laboratory is accredited for chemical analysis with the recognized International Standard ISO/IEC 17025:2017 which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. Intertek Tarkwa is accredited with South African National Accreditation System, accreditation number No. T0796, while Intertek Perth is accredited with National Association of Testing Authorities, Australia, accreditation number No. ABN59004379748.
- Base Metal Laboratories Ltd (BML), based in Kamloops, British Columbia, Canada, provides consulting and technical services for existing operations or new projects. BML specializes in supporting the evaluation of new technologies such as combination elutriation/flotation processes.
- Global ARD Testing Services was contracted for the acid drainage assessment.

The current section is divided into various subsections, the first four summarizing results that informed the Mining Plus Technical Report (Mining Plus, 2022). The goal in presenting all the results again is to have a document that is self-sufficient:

- Previous production data.
- Historical metallurgical testing.
- 2020-2021 Sycamore metallurgical testing.
- PFS metallurgical testing.
- FS metallurgical tests.

The first four bullets above show the metallurgical characterization of Kiniero material that was previously presented in the context of a PFS.

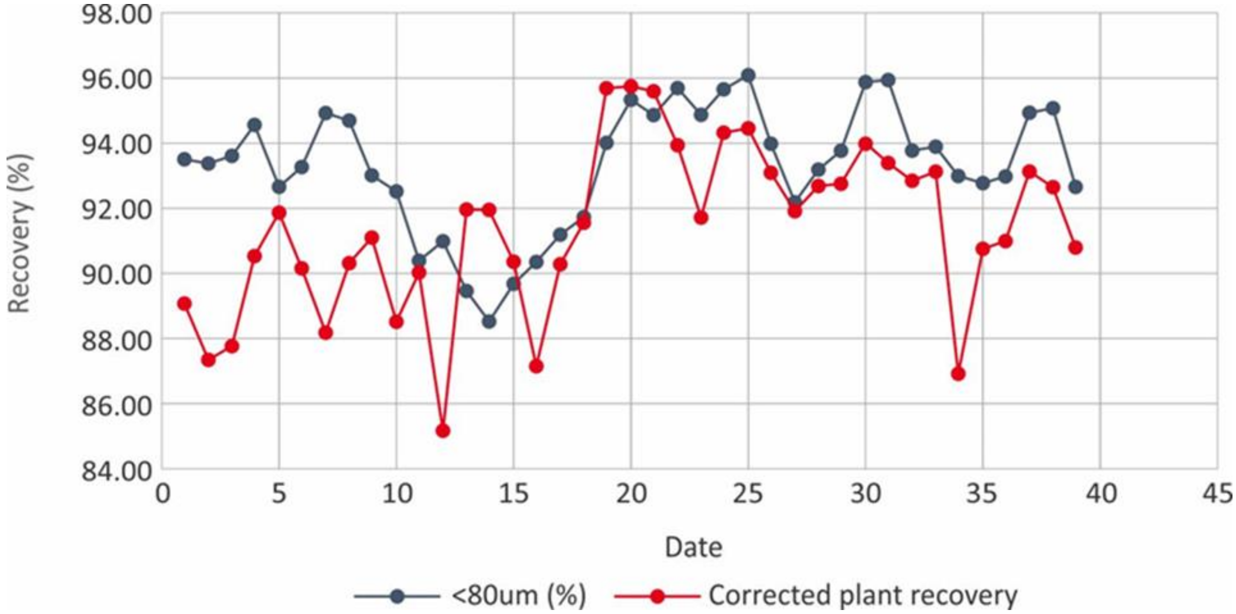
In order to step-up at the feasibility level, validation works were identified and also the necessity to perform confirmatory tests at a laboratory facility specialized in metallurgical testing was highlighted. Among the important gaps that needed to be filled was to identify more accurately the leaching conditions and reagents consumption for the plant's carbon-in-leach (CIL) circuit. Additionally, acid mining drainage (AMD), gravity concentration, oxygen consumption, and cyanide detoxification were also realized as part of this testwork programme. BML was chosen to perform this test programme.

## 13.1 Previous production data (2009 to 2012)

For study purposes, an analysis was performed on the previous production data at the Kiniero Gold Mine from 2009 to 2012. During this production period, plant feed was predominantly oxide ores sourced from the West Balan, SGA, and Jean deposits. The ore feed during this period represents a similar source ore feed, from these same deposits, that will support the restart and early production schedule of the Kiniero Gold Mine. This production data from 2009 to 2012 is thus highly relevant to the predicted plant performance in support of this Technical Report.

Historical data indicates that the previous operation routinely exceeded the target of 80% passing 80 µm, and usually operated at grinds exceeding 90% passing 80 µm. A comparison of historical grinds achieved versus recovery is shown in Figure 13.1. A poor correlation between grind size and recovery is apparent, likely due to the previous operation having exceeded the target grinds to such an extent that the effect of grind could not be clearly determined.

Figure 13.1 Previous production data (monthly, 2009 to 2012)—effect of grind on recovery




Source: SMG, 2022.

## 13.2 Previous metallurgical testwork

This section summarizes metallurgical data that is available from previous metallurgical studies that have been completed on the different Project ores both prior to, and during, production from the Kiniero Gold Mine (2009 to 2012).

### 13.2.1 Lakefield Research – SGA

In May 1997, on behalf of SEMAFO, ACA Howe supervised a metallurgical campaign in support of the previous mining operation. Canadian-based Lakefield Research (subsequently acquired by SGS in 2002) was contracted to undertake the metallurgical testwork studies on three ore types from the Jean and Gobelé deposits. The testwork included:

- Evaluation of grindability.
- CIL cyanidation.
- Pressure oxidation (POX) cyanidation.
- Thickening testwork.
- Mineralogical examination.

A total of 188 drill core samples from across the Jean and Gobelé deposits were submitted for gold and metallurgical analysis. Figure 13.2 indicates the metallurgy sample interval locations within the mined pit envelope. Some of these samples represent already mined ores; however, the deeper samples represent ores that are still available, therefore confirming the relevance of these early metallurgy testwork results to this Technical Report.

Results received from the now mined-out oxide and transition ores are not directly applicable to the remaining ores but are still of interest considering probable similarities with peripheral untested ores.

The samples were weighed, crushed to -6 mesh and split in half. One half of each core sample was further crushed to -10 mesh, and a head sample of 50 g was riffled-out for gold analysis by fire assay. From the remaining -6 mesh reject material, samples were combined to create three composites by ore types: oxide, transition, and fresh. The weight, specific gravity (SG) and the gold content of each individual core sample was used to make up the composites (Table 13.1).

For grindability tests, a standard Bond Ball Mill test was completed at a closing screen size of 150 µm. Results returned a Bond Ball Mill work index (BWi) value of 18.7, 16.6, and 13.8 for the fresh, transition, and oxide composites respectively (Table 13.2).

Figure 13.2 Drillhole locations and sample intervals of the Lakefield bulk composite metallurgical samples


Source: SMG, 2022.

Table 13.1 Lakefield metallurgical ore type composites head grade and SG

| Composite | Specific Gravity g/cm³ | Head (calc.) Au, g/t |
|---|---|---|
| Fresh | 2.86 | 7.97 |
| Transition | 2.76 | 6.43 |
| Oxide | 2.76 | 7.99 |

Source: Lakefield, 1997.

Table 13.2 Lakefield composites Bond Ball mill work index

| Composite | Feed, $F_{80}$ µm | Product, $P_{80}$ µm | Bond Ball Mill Work Index (kWh/t) | |
|---|---|---|---|---|
| | | | Metric | Imperial |
| Fresh | 1,417 | 110 | 18.70 | 16.90 |
| Transition | 1,187 | 105 | 16.60 | 15.00 |
| Oxide | 1,096 | 103 | 13.80 | 12.50 |

Source: Lakefield, 1997.

Direct CIL testwork was completed by bottle roll tests at 33% solids in a 1 g/L sodium cyanide solution with 10 g/L carbon, maintaining pH 10.5 to 11.0 with lime over the 48-hour leach period (Table 13.3). Recoveries >94% were achieved after eight hours of leaching from each of the oxide and transition composites. Recoveries between 83% and 85% were obtained from the fresh composite.

Table 13.3 Lakefield metallurgical results from CIL cyanidation testwork

| Test No. | Composite | Grind % -75 µm | Reagent Consumption kg/t of CN Feed | | Cumulative % Extraction Au (hours) | | | Residue g/t Au | Head (calc) g/t Au | Head (direct) g/t Au |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | NaCN | CaO | 8hr | 24hr | 48hr | | | |
| CN1 | Fresh | 63 | 2.37 | 0.53 | 82.8 | 83.0 | 83.2 | 1.27 | 7.31 | 8.14 |
| CN7 | Fresh | 73 | 2.59 | 0.16 | 84.8 | 85.3 | 85.6 | 1.14 | 7.54 | |
| CN8 | Fresh | 77 | 2.63 | 0.30 | 83.5 | 83.7 | 83.9 | 1.22 | 7.33 | |
| CN2 | Fresh | 85 | 2.56 | 0.57 | 85.3 | 85.6 | 85.9 | 1.04 | 7.05 | |
| CN9 | Transition | 60 | 1.38 | 0.90 | 93.6 | 93.7 | 93.8 | 0.44 | 6.85 | 6.43 |
| CN3 | Transition | 68 | 1.03 | 1.29 | 95.6 | 95.7 | 95.8 | 0.29 | 6.62 | |
| CN10 | Transition | 81 | 1.50 | 1.09 | 96.2 | 96.3 | 96.4 | 0.28 | 7.46 | |
| CN4 | Transition | 89 | 1.48 | 1.35 | 96.9 | 97.0 | 97.0 | 0.20 | 6.44 | |
| CN11 | Oxide | 62 | 1.54 | 0.95 | 94.4 | 94.5 | 94.6 | 0.47 | 8.43 | 7.99 |
| CN5 | Oxide | 79 | 1.30 | 1.51 | 95.8 | 96.0 | 96.0 | 0.29 | 7.00 | |
| CN6 | Oxide | 93 | 1.65 | 1.48 | 96.6 | 96.7 | 96.8 | 0.25 | 7.41 | |

Source: Lakefield, 1997.

The obtained recoveries were high; however, the final tailings gold content remained high for all samples. In application to the current Project, for which the head grade is lower than the 1997 tested samples, it is important to understand if the obtained recovery is most reliable or if the final tailings grade is most reliable. For this reason, it was important to perform additional tests with representative head grades (the 2020 to 2022 metallurgy testing scope).

In addition, pressure oxidation/CIL testwork was done on the fresh composite. Pressure oxidation was conducted at 225°C over 90 minutes. Gold recovery from the fresh composite increased from 83.5% to 97.0% in eight hours of leaching (Table 13.4).

Table 13.4 Lakefield metallurgical results for pressure oxidation/CIL cyanidation testwork on the fresh composite

| Test No. | Composite | Grind % -75 µm | Reagent Consumption kg/t of CN Feed | | Cumulative % Extraction Au (hours) | | | Residue g/t Au | Head (calc) g/t Au | Head (direct) g/t Au |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | NaCN | CaO | 8 h | 24 h | 48 h | | | |
| CN8[a] | Fresh | 77 | 2.63 | 0.13 | 83.50 | 83.70 | 83.90 | 1.22 | 7.33 | 8.14 |
| CN15 | Fresh | 77 | 1.64 | 3.56 | 97.10 | 97.30 | | 0.20 | 5.96 | 8.14 |

[a] CN8 is original (pre-oxidation) results for comparison.
Source: Lakefield, 1997.

A bulk CIL (4 kg) was performed on each composite to produce pulp for thickening testwork. Small amounts of the leached pulp were used in flocculant scoping tests. Anionic (Percol P155 and E10), cationic (Percol P351 and 455), and non-ionic (Percol P352) flocculants were tried with the E10 being the most effective. Thickening tests were completed on each composite.

Four drill core samples were selected for mineralogical examination. A macroscopic description of each sample was made before submission to section preparation. A systematic gold scan of the polished section was performed at a 200x magnification. Mineralogic analysis of the polished thin sections was carried out to identify the non-opaque minerals. X-ray diffraction analysis was also performed to assist in the identification of non-opaque minerals.

The samples consisted primarily of quartz, and minor amounts of carbonate, pyrite, and sericite, with trace amounts of chalcopyrite, arsenopyrite, and tetrahedrite. Rare amounts of gold were observed. Gold is primarily associated with pyrite as inclusions and as polymineralic inclusions with chalcopyrite, arsenopyrite, and tetrahedrite. Gold was also observed as inclusions in non-opaque minerals, and as polymineralic inclusions with chalcopyrite, arsenopyrite, and tetrahedrite in non-opaque minerals.

### 13.2.2 SGA metallurgical testwork

Various bottle roll tests were completed on the SGA deposit between 2007 and 2009 internally by SEMAFO at the mine-site laboratory. Comparative bottle roll tests, with and without carbon, did not highlight any difference in final recovery, an indication that preg-robbing was not a concern for the SGA deposit.

### 13.2.3 West Balan metallurgical testwork

Metallurgical testwork was performed on West Balan ores in 2009 from a sample collected from the mill, at the feed of the CIL circuit. Results returned a gold recovery of 89% from a 20-hour leach time with a cyanide consumption rate of 0.63 kg/t. It is suspected that the use of peroxide during the test may have impacted the cyanide consumption.

### 13.2.4 Mansounia Central metallurgical testwork

The Mansounia Central deposit consists principally of oxide ores which are not expected to yield any processing challenges, both in terms of grinding energy and in terms of leaching results. Previous licences owners, Burey Gold, appointed Perth-based Ammtec Ltd under the direction of Independent Metallurgical Operations Pty Ltd (IMO), in 2009, to complete metallurgical tests on laterite, oxide (saprolite) and transition (saprock) samples from diamond drill cores (Ammtec testwork report A11517). Seven bulk sample composites were created from the selected intervals in diamond drillholes MDD-001 to MDD-017.

The testwork study included:

- Head assays on individual drill core intervals.
- Head assays on composites of core samples.
- BWi determinations.
- SG and in-situ SG determinations on individual drill core intervals.
- Gravity recovery and cyanidation gold recovery.
- Rheology testing.

Results from this campaign are presented in Table 13.5 and summarized as:

- The BWi ranged between 6 kWh/t and 13 kWh/t. For oxide, the BWi is likely overestimated due to the non-applicability of the Bond procedure for oxide, where the $F_{80}$ is between 280 µm and 575 µm.
- Gravity recoveries ranged from 3% and 13% and was found to be of limited use on its own, thus a pre-wash phase was included in the process flow chart (together with the option for improved recovery via ultrafine grind) coupled with intense cyanide leach.
- Overall recoveries for the 75 µm 48-hour direct cyanide leach testwork produced results of 95% for laterite, 95% for oxides, and 90% for transition/saprock.
- Kinetics appeared to be normal (24-hour leach time) with average reagent consumption.

Table 13.5 Mansounia metallurgy testwork results for 2009 Ammtec programme

| **Sample Description Ore Type** | **Unit** | **#1 Laterite** | **#2 Laterite ± Kaolin** | **#3 Clay - Quartz Dominant** | **#4 Clay - Quartz Dominant** | **#5 Clay - Quartz Dominant** | **#6 Clay - Kaolin Major** | **#7 Rock** |
|---|---|---|---|---|---|---|---|---|
| Au $_{AVG}$ : Fire Assay | g/t | 0.48 | 0.91 | 0.78 | 1.57 | 2.26 | 1.00 | 0.42 |
| Au : Calculated Head | g/t | 0.51 | 0.97 | 0.89 | 1.69 | 2.84 | 1.10 | 0.53 |
| Au : Residue (48 hours) | g/t | 0.02 | 0.03 | 0.02 | 0.09 | 0.07 | 0.04 | 0.05 |
| Total Au Recovery (48 hours) | % | 96.0 | 96.9 | 97.8 | 94.7 | 97.5 | 96.4 | 90.6 |
| NaCN Consumption (48 hours) | kg/t | 0.76 | 0.80 | 0.69 | 0.86 | 0.81 | 0.81 | 0.81 |
| Lime Consumption (48 hours) | kg/t | 0.89 | 1.34 | 1.53 | 0.68 | 0.58 | 0.66 | 0.29 |

Source: Adapted from Blox, Inc., 2018.

### 13.2.5 Mansounia Central heap leach testwork

In 2013, an additional heap leach amenability testwork on composites from the Mansounia Central deposit was done by IMO (IMO, 2013). The data generated was to be used in the process design in a potential heap-leach scoping study.

Four representative composites were collected, and the following testwork was undertaken:

- Head assay analysis for gold.
- Coarse ore bottle roll (CBR) cyanide leach testing over a period of 96 hours, at 100% passing 6.30 mm.
- Agglomeration and percolation testing, at 100% passing 6.30 mm, at varying cement dosages and column leaching over a period of 60 days.

A summary of the 2013 CBR test results is presented in Table 13.6 which indicated gold recovery higher than 85%. Recoveries declined by approximately 10% as depth increased from the top composite (0 m-10 m) to the lowest composite (32 m-40 m).

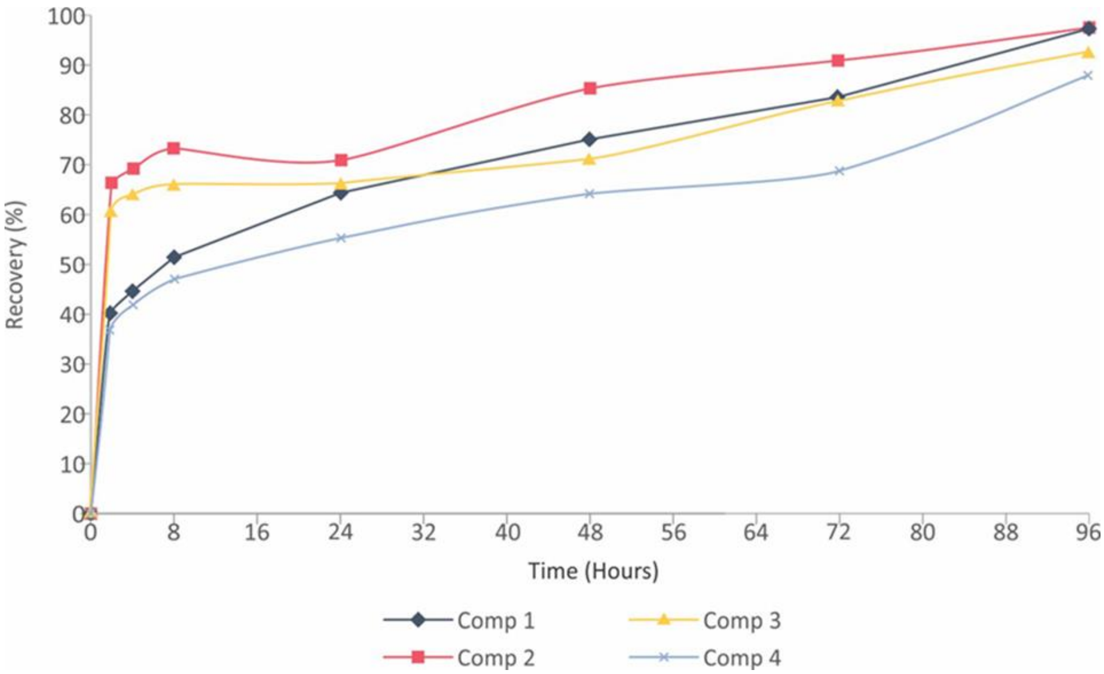
Recovery for all composites was rapid to in-excess of 40% within the first two hours, after that, the recovery curves were relatively slow, indicating that the leaching was probably not completed after 96 hours (Figure 13.3).

Table 13.6 2013 Mansounia heap leach testwork results

| Composite | Description | Depth Range | Calculated Head Grade (g/t) | | Leach Recovery (%) 96hrs | | Reagent Consumption (kg/t) | |
|---|---|---|---|---|---|---|---|---|
| | | | Au | Ag | Au | Ag | Nacn | Lime |
| 1 | Laterite / Clay Blend | 0-10 m | 0.71 | 0.70 | 96.70 | 14.50 | 0.46 | 2.63 |
| 2 | Clay Blend | 12-20 m | 1.18 | 0.85 | 97.30 | 18.10 | 0.40 | 1.72 |
| 3 | Clay Blend | 24-32 m | 0.93 | 1.74 | 92.80 | 7.80 | 0.25 | 1.40 |
| 4 | Clay Blend | 32-40 m | 1.51 | 2.25 | 87.90 | 37.70 | 0.40 | 1.83 |

Source: Adapted from Blox, Inc., 2018.

Figure 13.3 Mansounia gold recovery versus leach time for coarse bottle roll leach tests




Source: Adapted from Blox, Inc., 2018.

**13.3 SMG metallurgical testwork (2020 to 2022)**

Between 2020 and 2022, SMG completed a series of metallurgical testwork campaigns across the different ore profiles of primarily the SGA and Sabali South deposits. Table 13.7 summarizes the extent of the testing completed, with details of the sampling summarized in Table 13.8.

.

Table 13.7 Summary of metallurgical sampling and testwork completed by SMGs

| Deposit | Ore Type | №Drillholes used in Composite | Sample Type | Metallurgical Tests Completed | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Bbwi | Mineralogy | Bottle Roll (24 Hours) | Rate Kinetics (24 Hours) | Grind Variability Leach | Pre-Ox | Tails Characterization | Geochem |
| SGA | Saprolite | 4 | Dd | X | X | | X | | | X | X |
| | Transitional | 3 | Dd | X | X | | X | | | X | X |
| | Saprolite + Transitional | 7 | Dd | | | X | | | X | | |
| Sabali North | Saprolite/Oxide | 3 | Rc | | | | | X | | | |
| | Saprolite/Oxide | 3 | Rc | | | | X | | | | |
| | Saprolite/Oxide | 4 | Rc | | | X | | | | | |
| | Saprolite/Oxide | 4 | Rc | | | | X | X | | | |
| | Saprolite/Oxide | 3 | Rc | | | X | | | | | |
| | Saprolite/Oxide | 4 | Rc | | | | | X | | | |
| | Transitional | 2 | Rc | | | | X | | | | |
| | Transitional | 4 | Rc | | | | | X | | | |
| | Fresh/Sulphide | 3 | Rc | | | X | | | | | |
| West Balan | Saprolite | 1 | Rc | | | X | | | X | X | X |
| | Transitional | 1 | Rc | | | X | | | X | X | X |
| | Saprolite | 2 | Rc | | | | X | | | | |
| Sabali South | Saprolite | 20 | Rc | | | | X | X | X | | X |
| | Transitional | 18 | Rc | | | | X | X | X | | X |
| | Saprolite | 3 | Rc | | | X | | | | | |
| | Saprolite | 2 | Rc | | | X | | | | | |
| | Saprolite | 3 | Rc | | | X | | | | | |
| | Saprolite | 5 | Rc | | | X | | | | | |
| | Transitional | 2 | Rc | | | X | | | | | |
| | Saprolite | 4 | Rc | | | X | | | | | |
| | Saprolite | 3 | Rc | | | X | | | | | |
| | Transitional | 3 | Rc | | | X | | | | | |
| | Saprolite | 3 | Rc | | | X | | | | | |
| | Transitional | 2 | Rc | | | X | | | | | |

Source: SMG, 2022.

## Table 13.8 Metallurgy sample details

| Deposit | Sample Number | Depth | Ore Type |
|---|---|---|---|
| SGA | SGA-Ox | 6-8 m | Oxide |
| | | 16.9-19.2 m | Oxide |
| | | 41-42 m | Oxide |
| | SGA-Trans | 61-63 m | Trans. |
| | | 61-63 m | Trans. |
| West Balan | West Balan 1 | 85-86 m | Trans. |
| | West Balan 2 | 40-41 m | Oxide |
| Kobane | KOB_MET_01 | 22-24 m | Oxide |
| Sabali North | SABALI-OX1 | 15-18 m | Oxide |
| | SABALI-SUL1 | 75-78 m | Fresh |
| | SABALI-OX2 | 10-13 m | Oxide |
| | SABALI-OX3 | 18-22 m | Oxide |
| | SABALI-OX4 | 10-14 m | Oxide |
| | Sabali-Trans1 | 42-44 m | Trans. |
| | SABALI-SUL2 | 70-74 m | Fresh |
| | SABALI-OX5 | 35-38 m | Oxide |
| | SABALI-SUL3 | 68-72 m | Fresh |

| Deposit | Sample Number | Depth | Ore Type |
|---|---|---|---|
| Sabali South | SAB_EXT_3/4 | 31-32 m | Oxide |
| | | 39-40 m | Oxide |
| | | 62-63 m | Oxide |
| | | 39-40 m | Oxide |
| | | 53-54 m | Trans. |
| | | 49-50 m | Trans. |
| | | 29-30 m | Oxide |
| | | 37-38 m | Trans. |
| | | 38-40 m | Oxide |
| | | 61-64 m | Trans. |
| | | 46-48 m | Oxide |
| | | 52-53 m | Trans. |
| | | 13-15 m | Oxide |
| | | 36-38 m | Oxide |
| | SAB_EXT_4/4 | 66-72 m | Trans. |
| | | 54-55 m | Fresh |
| | | 66-68 m | Trans. |
| | | 79-80 m | Fresh |
| | | 66-70 m | Fresh |
| | | 75-79 m | Fresh |
| | | 68-73 m | Trans. |
| | Block 7 (25-35) | 46-47 m | Oxide |
| | | 47-48 m | Oxide |
| | | 46-47m | Oxide |

| Deposit | Sample Number | Depth | Ore Type |
|---|---|---|---|
| Sabali South | Block 11 (10-20) | 22-24 m | Oxide |
| | | 29-30 m | Oxide |
| | Block 1 (25-35) | 41-42 m | Trans. |
| | | 33-34 m | Oxide |
| | Block 2 (25-35) | 36-37 m | Oxide |
| | | 37-45 m | Ox/Tr |
| | Block 4 (25-35) | 44-45 m | Oxide |
| | | 39-40 m | Oxide |
| | | 50-51 m | Trans. |
| | | 44-45 m | Oxide |
| | | 36-37 m | Trans. |
| | Block 8 (25-35) | 36-37 m | Oxide |
| | | 48-49 m | Trans. |
| | Block 11 (25-35) | 36-39 m | Oxide |
| | Block 6(25-35) | 35-36 m | Oxide |
| | | 34-35 m | Oxide |
| | | 42-43 m | Oxide |
| | | 36-37 m | Oxide |
| | Block 5 (25-35) | 51-52 m | Trans. |
| | Block 12 (25-35) | 37-42 m | Oxide |
| | Block 11 (50-60) | 72-73 m | Trans. |
| | | 67-68 m | Trans. |

Source: SMG, 2022.

### 13.3.1 SGS Randfontein (2020)

#### 13.3.1.1 Mineralogy

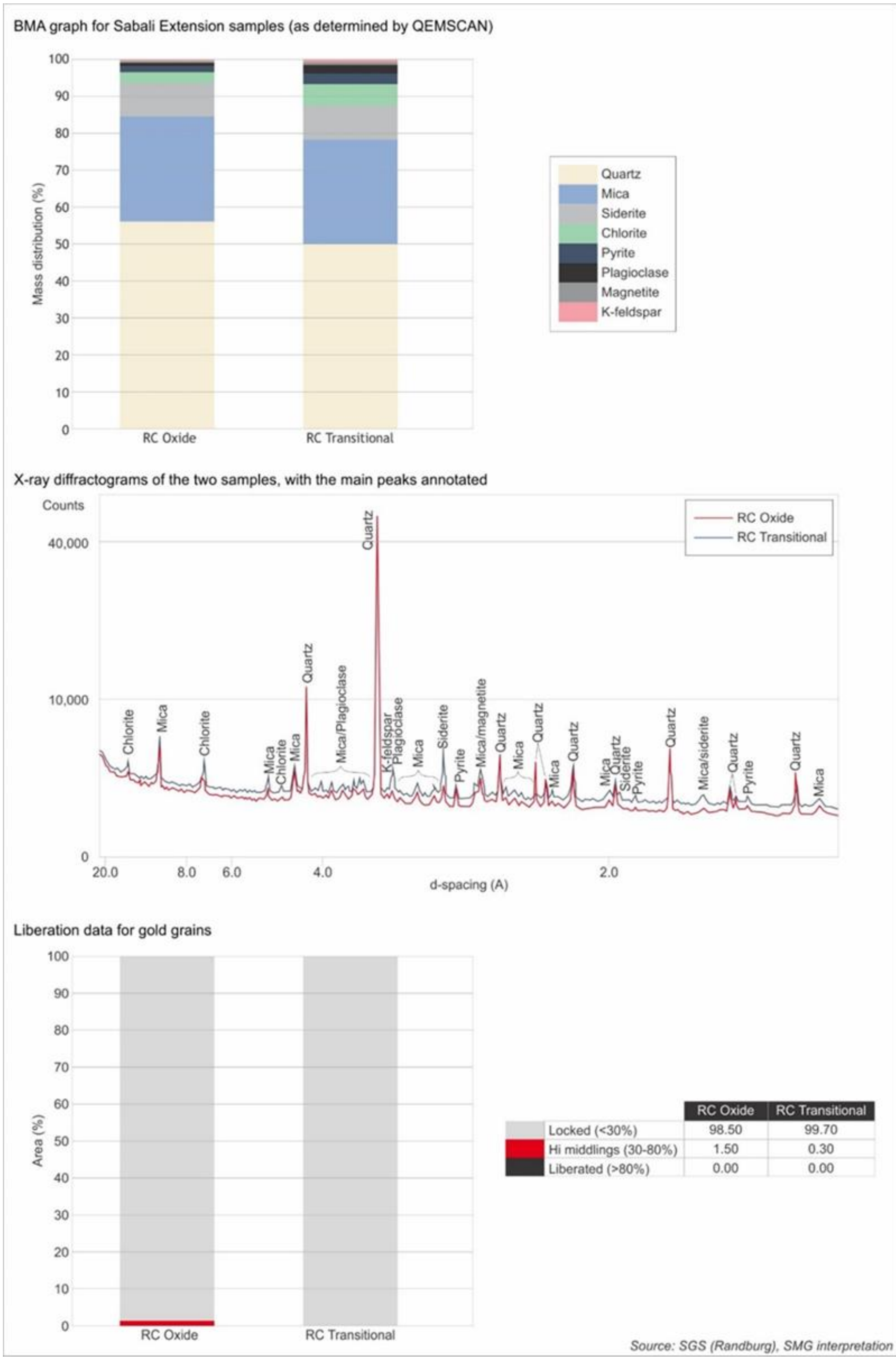
Mineralogical analyses were completed on samples selected from the Sabali South oxide and transitional ore zones by SGS Randfontein in 2020. The mineralogical composition of the samples is presented in Table 13.9 that were determined using both X-ray diffraction (XRD) and Quantitative Evaluation of Minerals by Scanning Electron Microscopy (QEMSCAN) Bulk Mineral Analysis (BMA) (Figure 13.4). Results indicated that both the oxide and transition ore zone samples were comprised predominately of silicate minerals, making up >85% for each sample.

Table 13.9 Mineralogical composition of Sabali South samples (as determined by QEMSCAN)

| **Mineral** | **Approximate Formula** | **Approximate Abundance (%)** | |
|---|---|---|---|
| | | **Oxide** | **Transition** |
| Quartz | $SiO_2$ | 56.0 | 49.8 |
| Mica | K-Al-(OH)-silicate | 28.2 | 28.2 |
| Siderite | $FeCO_3$ | 9.4 | 9.5 |
| Chlorite | Mg-Fe-Al-silicate | 2.7 | 5.7 |
| Pyrite | $FeS_2$ | 1.9 | 3.2 |
| Plagioclase | Ca-Na-Al-silicate | 0.6 | 2.4 |
| Magnetite | $Fe_3O_4$ | 0.6 | 0.5 |
| K-feldspar | K-Al-silicate | 0.3 | 0.5 |
| Arsenopyrite | FeAsS | 0.3 | 0.2 |
| **TOTAL** | | **100** | **100** |

Source: SGS Randfontein, 2020.

Figure 13.4 BMA graph for Sabali extension samples (as determined by QEMSCAN)




Source: SGS (Randburg), SMG interpretation.

#### 13.3.1.2 SGA leaching testwork

A series of five tests were performed samples from the SGA deposit, each at different leach times. The results are presented in Table 13.10. Leach results indicated an increasing recovery with time, but which dropped between 16 hours and 24 hours. Since the 16-hour and 24-hour tests were made on two different subsamples, it could be expected that there was a difference between them. The 24-hours test results provide a calculated grade significantly different from the others. Differences between the results indicates that the estimated recovery has a high range of uncertainty.

Table 13.10 SGA bottle roll leach test results

| Leach Time (hours) | NaCN (kg/t) | pH | Au (g/t) | | | Reagent Consumption | | Au Dissolution Assayed |
|---|---|---|---|---|---|---|---|---|
| | | | AVG. ASSAY | Au CALC'D | RESIDUE | NaCN (kg/t) | CaO (kg/t) | Solid (%) |
| 2 | 2.0 | 10.7 | 2.21 | 2.16 | 0.54 | 0.40 | 0.5 | 75.6 |
| 4 | 2.0 | 10.8 | 2.21 | 2.20 | 0.46 | 0.55 | 0.5 | 79.1 |
| 8 | 2.0 | 10.8 | 2.21 | 2.13 | 0.40 | 0.53 | 0.5 | 82.1 |
| 16 | 2.0 | 10.9 | 2.21 | 2.20 | 0.37 | 0.59 | 0.5 | 83.4 |
| 24 | 2.0 | 10.4 | 2.21 | 1.97 | 0.54 | 0.69 | 0.5 | 75.6 |

Source: SGS Randfontein, 2020.

#### 13.3.1.3 Derekena/West Balan metallurgical testwork

Bottle roll testwork was completed on a single sample from the Derekena deposit, as well as on a single sample from the Kobane deposit. Both samples yielded recoveries within the historical range (Table 13.11). Leaching was performed for 24 hours at a grind of 106 µm. The NaCN consumption observed is high but is most probably not representative of the industrial process since initial NaCN concentration was high at 3,000 ppm, exceeding the expected typical concentration of 500 ppm or less.

Table 13.11 Derekena and Kobane bottle roll leach test results

| Deposit | Au Head Grade (g/t) | Au Residue Head Grade (g/t) | NaCN Consumption (kg/t) | CaO Consumption (kg/t) | Au Recovery (%) |
|---|---|---|---|---|---|
| Derekena | 0.37 | 0.02 | 2.44 | 0.26 | 90.90 |
| Kobane | 2.85 | 0.31 | 1.91 | 3.00 | 89.13 |

Source: SGS Randfontein, 2020.

### 13.3.2 Sabali North and Central leaching testwork (Intertek)

Bottle roll testwork was completed on a series of composite samples selected across the oxide, transition, and fresh ore zones of the deposit over a 24-hour leach test period, with a second series submitted for a kinetic test. Table 13.12 presents the results from the 24-hour leach tests and Table 13.13 presents the 24-hour kinetic tests on other samples of Sabali North and Central (Figure 13.5). Those samples that yielded recoveries of 100% (which is not possible) likely had gold-in-tails under the detection limit.

Results indicate that the leach recovery is higher for the oxide horizon than for the fresh horizon. The 24-hours kinetic tests indicated the gold leach is not finished after 24-hours, an indication that gold dissolution from an optimized process could be higher than the 24-hours recovery available from this test series. The unusually high-cyanide consumption is an indication that the tests were possibly not performed in ideal conditions.

## Table 13.12 Sabali North and Central bottle roll leach test results

| Sample ID | Ore Type | $P_{80}$ (µm) | Au Head Assay (g/t) | NaCN (ppm) | Consumed NaCN (kg/t) | Final pH | Au Tailings Fire Assay (g/t) | Recovery (%) |
|---|---|---|---|---|---|---|---|---|
| SABEST_OX_02 | Oxide | 75 | 0.21 | 3000 | 1.59 | 10.76 | 0.00 | 100.00 |
| SABEST_OX_04 | Oxide | 75 | 0.50 | 3000 | 1.59 | 10.23 | 0.02 | 96.00 |
| SABEST_TR_01 | Trans | 106 | 2.22 | 3000 | 1.77 | 10.28 | 0.76 | 65.73 |
| SABEST_OX_05 | Oxide | 106 | 0.15 | 3000 | 1.55 | 10.84 | 0.00 | 100.00 |
| SABEST_SUL_03 | Fresh | 106 | 1.79 | 3000 | 1.71 | 10.48 | 0.54 | 69.83 |

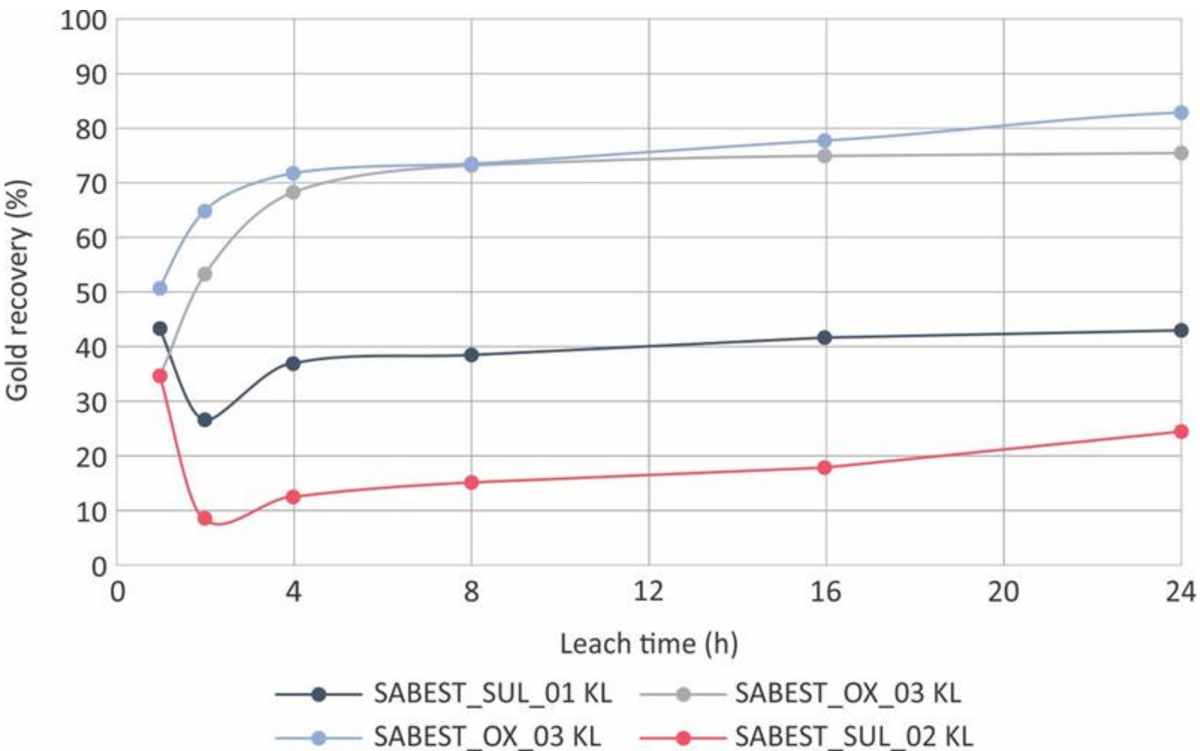
Source: Intertek, 2020.

## Table 13.13 Sabali North and Central 24-hour bottle roll leach kinetic test results

| Sample ID | $P_{80}$ (µm) | Au Head Assay (g/t) | Recovery (%) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1 hour | 2 hours | 4 hours | 8 hours | 16 hours | 24 hours |
| SABEST_SUL_01 KL | 106 | 6.24 | 43.35 | 26.76 | 37.02 | 38.62 | 41.83 | 43.11 |
| SABEST_OX_03 KL | 75 | 1.71 | 50.58 | 64.86 | 71.89 | 73.65 | 77.75 | 83.02 |
| SABEST_OX_03 KL | 150 | 1.61 | 34.68 | 53.27 | 68.22 | 73.21 | 75.08 | 75.70 |
| SABEST_SUL_02 KL | 106 | 0.76 | 34.68 | 8.61 | 12.58 | 15.23 | 17.88 | 24.50 |

Source: Intertek, 2020.

## Figure 13.5 Leaching kinetics for Sabali North and Central metallurgical samples




Source: Intertek, 2020.

#### 13.3.3 Sabali South leaching testwork

Following the discovery of the Sabali South deposit, a maiden metallurgical sampling campaign was completed in May 2020 in a first attempt to assess the metallurgical characteristics of the deposit. Sample selection was dictated by available sample material at the time and submitted for bottle roll leach testwork at SGS Randfontein. Results received indicated that sample mixing had occurred across the different ore horizons during compositing, and therefore, were not representative.

##### 13.3.3.1 Bottle roll scanning tests

A series of samples from Sabali South were submitted for 24-hour leach tests. The deposit was split into 12 blocks from which composited samples were selected. Some of the samples contained only oxide material, while others were a mix of oxide and transitional, or transitional material only. The type of weathering generally influences the cyanidation process for which the results from this maiden campaign are presented in Table 13.14.

Table 13.14 Sabali South maiden bottle roll leach scanning tests

| Sample ID | Ore Type | $P_{80}$ (µm) | Head Assay (Au g/t) | NaCN (ppm) | Consumed NaCN (kg/t) | Final pH | Tails Grade (Au ppm) | Recovery (%) |
|---|---|---|---|---|---|---|---|---|
| BLOCK 11 (10-20) | Oxide | 75 | 1.15 | 3,000 | 1.60 | 10.32 | 0.10 | 91.32 |
| BLOCK 01 (25-35) | Oxide/Trans. | 75 | 2.45 | 3,000 | 1.68 | 10.29 | 0.67 | 72.60 |
| BLOCK 02 (25-35) | Oxide/Trans. | 75 | 1.33 | 3,000 | 1.58 | 10.42 | 0.82 | 38.23 |
| BLOCK 04 (25-35) | Oxide/Trans. | 75 | 1.44 | 3,000 | 1.62 | 10.66 | 0.17 | 88.15 |
| BLOCK 05 (25-35) | Trans. | 75 | 1.16 | 3,000 | 1.61 | 10.58 | 0.88 | 23.81 |
| BLOCK 06 (25-35) | Oxide | 75 | 2.91 | 3,000 | 1.56 | 10.39 | 0.21 | 92.78 |
| BLOCK 07 (25-35) | Oxide | 75 | 0.81 | 3,000 | 1.56 | 10.46 | 0.00 | 100.00 |
| BLOCK 08 (25-35) | Oxide/trans | 75 | 1.65 | 3,000 | 1.62 | 10.42 | 0.73 | 55.69 |
| BLOCK 11 (25-35) | Oxide | 75 | 4.85 | 3,000 | 1.56 | 10.96 | 0.30 | 93.81 |
| BLOCK 12 (25-35) | Oxide | 75 | 4.03 | 3,000 | 1.62 | 10.29 | 0.58 | 85.62 |
| BLOCK 11 (50-60) | Trans. | 75 | 2.99 | 3,000 | 1.60 | 10.93 | 0.81 | 72.93 |

Source: SGS, 2020.

From this preliminary bottle roll scanning tests, it was apparent that the weathering and alteration assemblies at Sabali South plays a controlling role in gold recovery, as is apparent at Sabali Central and Sabali North. In general terms, the deeper the sample, the less weathered it is, resulting in the increase in sulphide content, and a lower gold recovery.

##### 13.3.3.2 Diagnostic leach test

Following the results for the lower saprolite and transitional ores of the Sabali South deposit, a diagnostic leach test was conducted on a low-recovery transitional sample from the western sector of the Sabali South Section. This was undertaken to determine whether preg-robbing material, or refractory material was present. The results of the diagnostic leach are presented in Table 13.15. The diagnostic leach test confirmed that the main cause of lower recoveries was due to the presence of refractory sulphide minerals that are related to the HCl and HNO3 digestible association, and not due to preg-robbing material being present.

Table 13.15 Diagnostic leach test results

| Gold Association | Au (g/t) | Au (%) |
|---|---|---|
| Direct Cyanidation | 0.827 | 44.96 |
| Preg-robbing | 0.042 | 2.30 |
| HCL Digestable | 0.287 | 15.62 |
| $HNO_3$ Digestable | 0.597 | 32.45 |
| Carbonaceous Minerals | 0.011 | 0.60 |
| Quartz Minerals | 0.075 | 4.08 |
| **Total** | **1.840** | **100** |

Source: SGS, 2020.

The diagnostic leach indicates that refractory elements such as sulphide are present, resulting in the direct leach processing route as being unsuitable for mineralized deposits beneath the upper oxidized saprolite horizon.

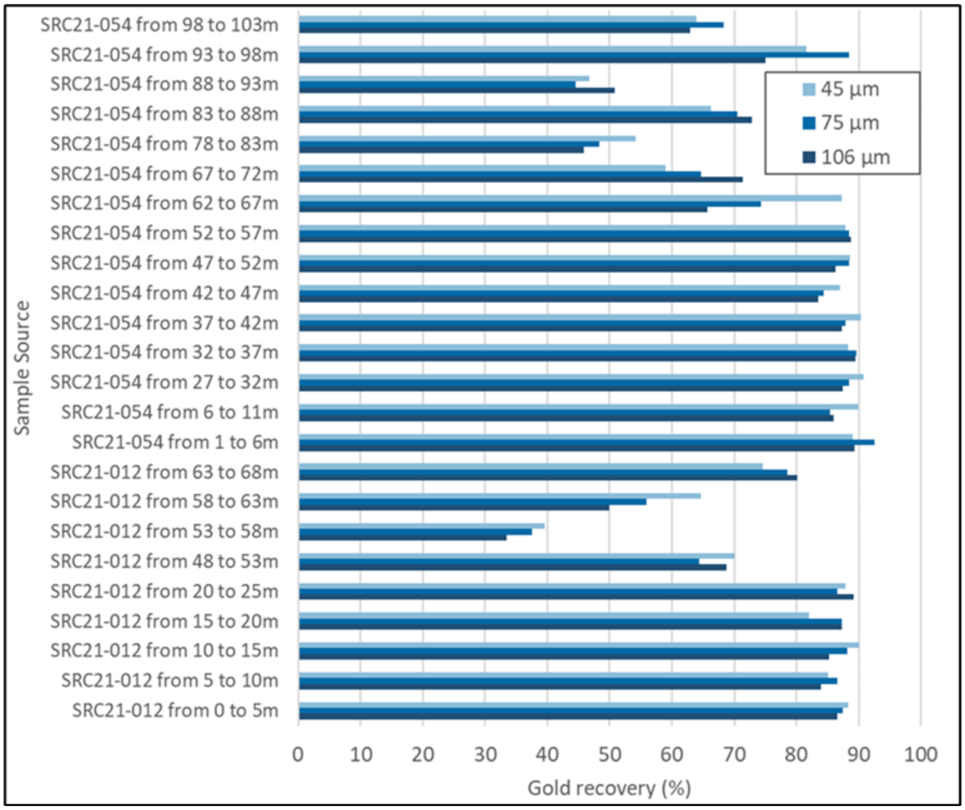
#### 13.3.3.3 Bottle roll leach characterization with grind size and depth

To better understand the relation between recovery and weathering, a series of cyanidation tests with $P_{80}$ grind sizes of 106 µm, 75 µm, and 45 µm were performed on 24 samples from two drillholes. Each sample represented a 5 m composite length with Au grades ranging from 0.48 g/t to 3.2 g/t. The recovery results for the 24-hours leaching are shown in Figure 13.6 with the recovery at three grind sizes indicated for each grind size.

Results indicate that after 24-hours of leach the recovery is between 80% and 90% for near-surface oxides and begins to reduce once a certain depth is reached. There is no significant effect of grind size for a $P_{80}$ of between 45 µm and 106 µm. For lower recovery samples, leach kinetics required to be observed to ascertain if the leaching was completed. Six lower recovery samples were selected for the leach at 106 µm and the results are shown in Figure 13.7.

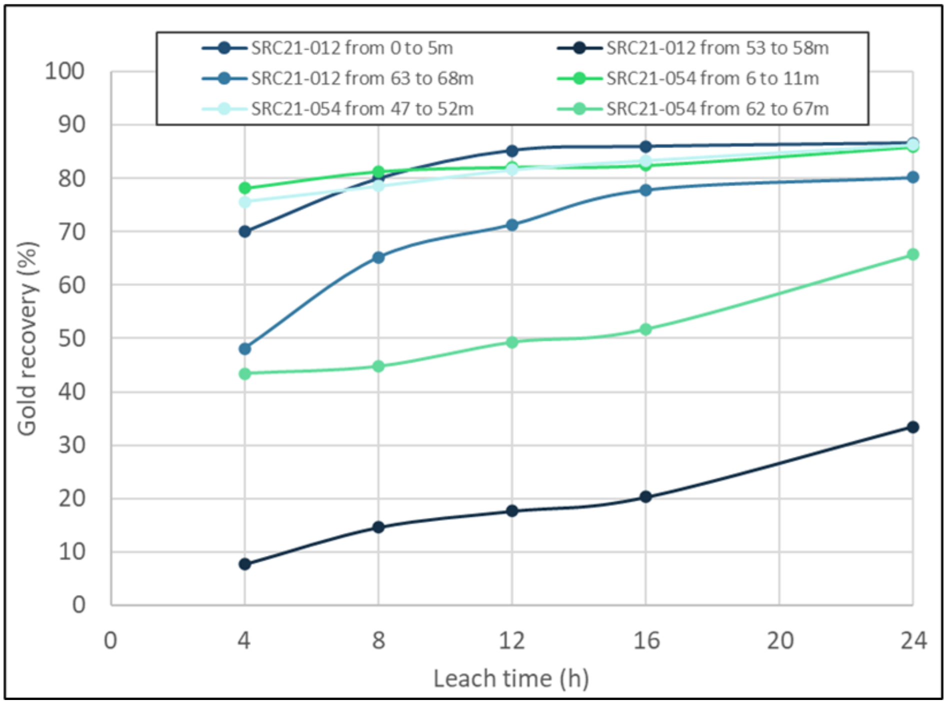
From these results, it is observed that the grind size has negligible effect on the Au recovery. The relation between recovery and weathering indicates the oxides as having a high recovery, transition the lowest recovery, and an improved recovery in the fresh ores.

Figure 13.6 Bottle roll leach recovery for three grind sizes at various depths




Source: SGS, 2020.

Figure 13.7 24-hour leach kinetics on selected samples




Source: SGS, 2020.

## 13.4 PFS metallurgical testwork (2022)

Under the guidance and supervision of Soutex, a metallurgy testwork campaign was defined to refine the basic design criteria required for the Project process plant. This included ascertaining:

- Grinding energy.
- Semi-autogenous grind (SAG) milling energy.
- Leaching conditions.
- Grind target.
- Reagent consumption.
- Relevance of an oxygen plant.

Testing was performed on the most appropriate drill cores and RC chips available from each of the various deposits. There was a predominant focus on testwork on the metallurgy of the Sabali South due to its discovery status, and also due to the higher confidence in the other deposits which had previously been subjected to extensive metallurgy testwork and subsequent processing during operations. The testing provided valuable information to refine the process design criteria to the required PFS accuracy level.

### 13.4.1 Grinding energy

Composite samples for laterite, oxide, and transition were assembled for comminution testing. Additionally, four fresh rock samples (not composited) were directly tested for comminution, including SAG milling testing. Details of the selected samples are presented in Table 13.16.

Table 13.16 Comminution sample list

| Sample ID | Deposit | Origin | Sample Type | Au (g/t) |
|---|---|---|---|---|
| Lat_Comp | Sabali South | SRC21-064 (0-10m) | RC | 0.74 |
| | | SRC21-058 (0-10m) | | 0.40 |
| Ox_Comp | Sabali South | Composite | RC | 1.40 |
| TR_Comp | Sabali South | Composite | RC | 1.10 |
| Fr_CC1 | SGA | KFC11-013 (75-101m) | DD | 1.50 |
| Fr_CC2 | SGA | KFC11-016A (75-86m) | DD | 1.12 |
| Fr_CC3 | SGA | GDD21-001 (271-279m) | DD | 1.05 |
| Fr_CC4 | SGA | GDD21-001 (40-60m) | DD | 0.01 |

Source: SMG, 2022.

#### 13.4.1.1 Comminution test programme

The comminution tests undertaken to ascertain the grinding energy includes:

- BWi.
- Bond Rod Mill work index (RWi).
- Bond Abrasion index (Ai): provides information for calculating wear of grinding media, mill liners and crusher liners.
- SMC test®: to provide SAG mill energy consumption.

For the samples sourced from RC drilling, only BWi was possible. However, once the samples had been analysed for size, it was observed that both transition and oxides samples were already too fine to perform the Bond procedure – oxide 79% passing 75 µm and transition 63% passing 75 µm.

The comminution testwork was undertaken by IMO in Perth, Australia on behalf of Intertek. SMC test® report was produced by JKTech (Pty) Ltd of the University of Queensland— Intertek Minerals, Ghana "Kiniéro Gold Project Comminution, Rheology and Thickening Project", 6431, August 2022 (Intertek, 2022).

#### 13.4.1.2 Comminution test results

Table 13.17 summarizes the various comminution results from the SMC report and Intertek report (Intertek, 2022). The fresh ore can be qualified as hard to very hard. A large portion of the oxide ores does not require any grinding, as it already meets the grind target, and where the remaining portion of the oxide ore is more competent, the resulting specific energy remains very low, well within the energy requirements to grind the fresh ores. As a benchmark, oxide-specific energy at the Nampala Mine owned by Robex is in the range of 3 kWh/t to 5 kWh/t.

Table 13.17 Comminution results

| **Comminution Results/Tests** | | **Units** | **Sampled ID (Table 16)** | | | | |
|---|---|---|---|---|---|---|---|
| | | | **Fr_CC1** | **Fr_CC2** | **Fr_CC3** | **Fr_CC4** | **Lat_CC** |
| Sample Description/Type | | - | Fresh | Fresh | Fresh | Fresh | Lateritic |
| Bond Abrasion Index | BAi | g | 0.3203 | 0.3306 | 0.0915 | 0.0514 | - |
| Bond Ball Work Index | BBWi | kWh/t | 25.7 | 26.6 | 20.7 | 23.2 | 17.2 |
| Feed $F_{80}$ | | μm | 2,414 | 2,475 | 2,446 | 2,574 | 1,467 |
| Product $P_{80}$ | | μm | 78.4 | 81.4 | 77.8 | 76.3 | 76.6 |
| Bond Rod Work Index | BRWi | kWh/t | 30.17 | 30.51 | 25.26 | 29.02 | - |
| Grindability | | g/rev | 2.2276 | 2.4077 | 3.3548 | 2.6472 | - |
| Drop Work Index | SMC | kWh/m³ | 12.7 | 12.4 | 9.6 | 12.2 | - |
| Mia | | kWh/t | 30.8 | 30.1 | 24.8 | 29.7 | - |
| Mih | | kWh/t | 25.9 | 25.2 | 19.7 | 24.7 | - |
| Mic | | kWh/t | 13.4 | 13.0 | 10.2 | 12.8 | - |
| Specific gravity | | t/m³ | 2.85 | 2.86 | 2.81 | 2.86 | - |
| JKTech rock breakage parameters (A*b) | | # | 22.0 | 23.0 | 29.2 | 23.4 | - |
| | | % | 97.9 | 97.1 | 86.8 | 96.8 | - |
| SAG Circuit Specific Energy (SCSE) | | kWh/t | 13.88 | 13.59 | 11.82 | 13.47 | - |
| | | % | 98.2 | 97.6 | 87.9 | 97.3 | - |

Source: SMC Test®, 2022.

Following the comminution and SMC tests, JKSimMet simulations were performed by SimSAGE in order to assess the grinding circuit capacity and configuration—"*Report on Modelling and Simulations of Kiniero SAG Grinding Circuit*", August 2022, SimSAGE, Dr. Toni Kojovic (SimSAGE, 2022).

### 13.4.2 Leaching tests

A leach and CIL testing campaign was initiated, the supporting sample selection of which is presented in Table 13.18.

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Table 13.18 Leaching and CIL sample list

| Sample ID | Deposit | Origin | Sample Type | Au (g/t) |
|---|---|---|---|---|
| Ox_Comp | Sabali South | Composite (11 intervals) | RC | 1.40 |
| Fr_Comp | SGA / Sabali South | Composite (6 intervals) | DD and RC | 1.40 |
| Lat_V1 | Sabali South | SRC21-064 (0 m to 10 m) | RC | 0.74 |
| Lat_V2 | Sabali South | SRC21-058 (0 m to 10 m) | RC | 0.40 |
| Ox _V3 | Sabali South[b] | MRC21-006 (15 m to 19 m) | RC | 2.75 |
| Ox _V4 | Sabali South | SRC21-235 (4 x 1 m intervals) | RC | 1.60 |
| Ox _V5 | Sabali South | SRC21-058 (41 m to 45 m) | RC | 1.64 |

[b] Previously Mansounia North (Mansounia licence).

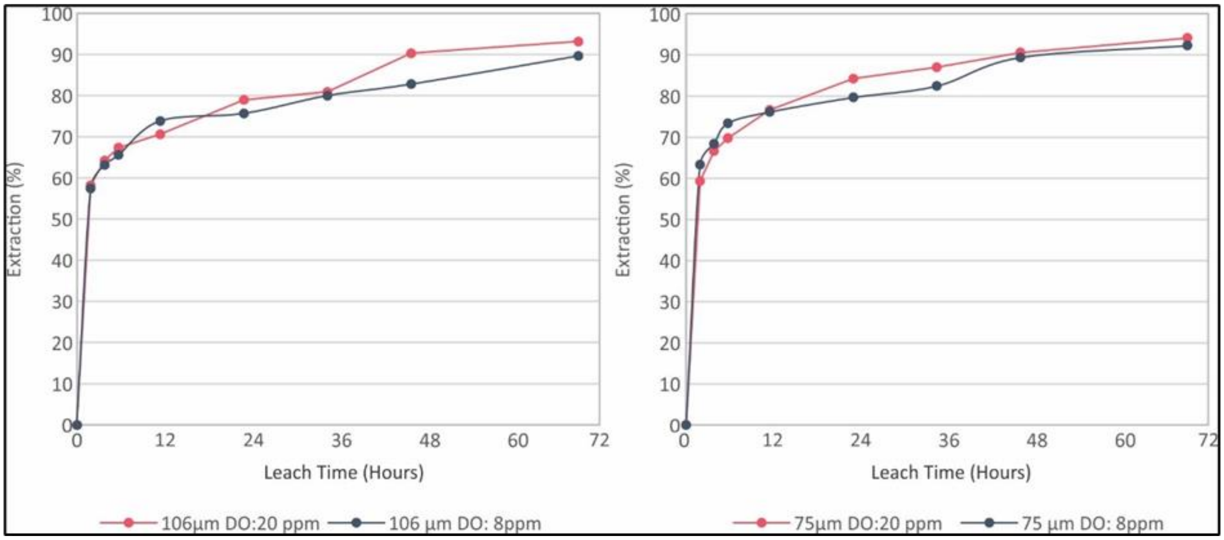
Source: SMG, 2022.

#### 13.4.2.1 Kinetic leach of main composites

Cyanide leach tests were performed on various samples to assess the kinetics over a longer leach period, as well as to evaluate the effect of using pure oxygen instead of air in the leach. Figure 13.8 shows the extraction results for oxide ore and Figure 13.9 for fresh ore. All tests were performed at a pH of 10.5 and NaCN concentration of 1,000 ppm. Key observations from the leach kinetic tests includes:

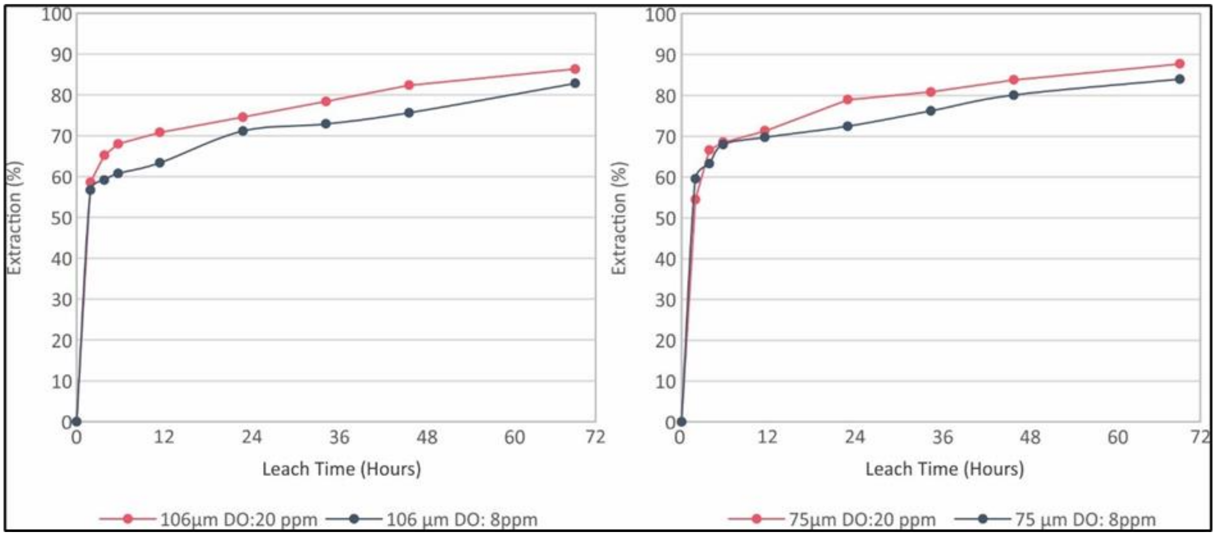
- The overall recovery reaches the previous expectations.
- Leaching is very slow, which motivated new assessment of the leach time at the FS level.
- The addition of pure oxygen has an important impact on the leaching kinetics and final recovery achievable for a finite residence time.

Figure 13.8 72-hour kinetic bottle roll leach tests for oxide composite




Source: Intertek, 2022.

Figure 13.9 72-hour kinetic bottle roll leach tests for fresh composite



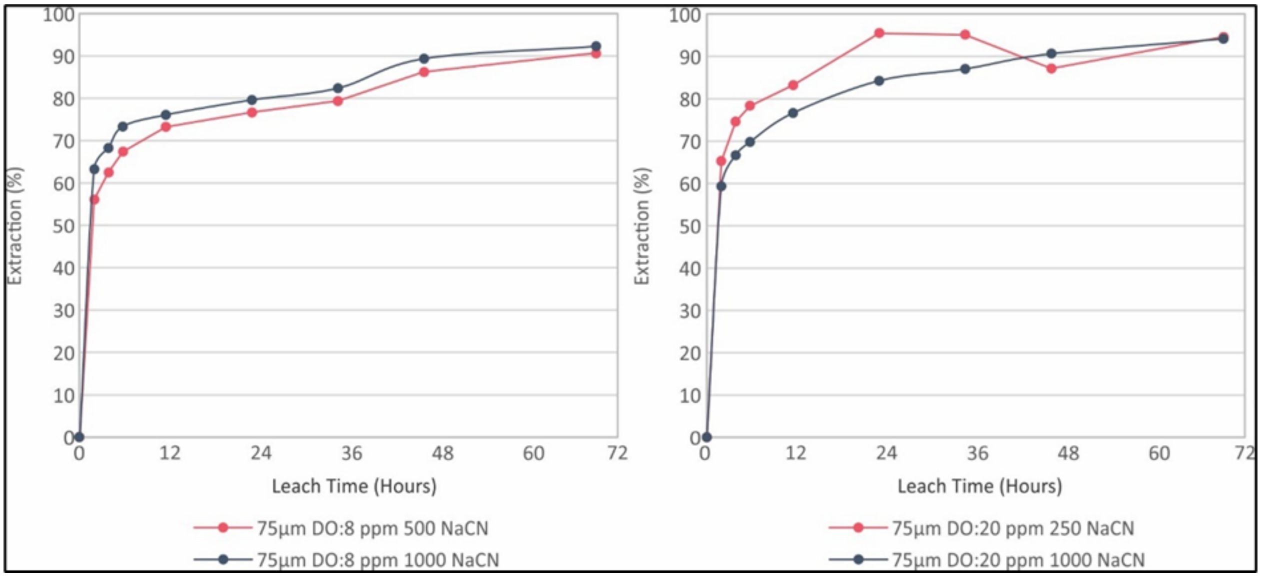

Source: Intertek, 2022.

#### 13.4.2.2 Effect of NaCN concentration

Cyanide leach tests on the main oxide composite were performed with various levels of NaCN. The results for two NaCN concentrations, with and without pure oxygen, are presented in Figure 13.10 with the computed total NaCN consumption for the four tests in Table 13.19.

It is apparent that the NaCN consumption is directly related to the concentration used, i.e. there is an excess of cyanide for all the tests. The high recovery for the last test ("Oxide E") at lower NaCN indicates that optimization can be done to improve cyanide consumption. The use of pure oxygen tends to improve the kinetics and the gold recovery.

Figure 13.10 Leach kinetics with various levels of NaCN




Source: Intertek, 2022.

Table 13.19 Leaching results at differing NaCN levels

| Test Name | Sample ID | $P_{80}$ (µm) | DO (ppm) | NaCN (ppm) | NaCN Cons (kg/t) | Au REC. (%) |
|---|---|---|---|---|---|---|
| Oxide 2 | Ox MC | 75 | 8 | 1,000 | 5.1 | 92.3 |
| Oxide 4 | Ox MC | 75 | 8 | 500 | 2.8 | 90.7 |
| Oxide 5 | Ox MC | 75 | 20 | 1,000 | 5.3 | 94.1 |
| Oxide E | Ox MC | 75 | 20 | 250 | 1.3 | 95.4 |

Source: Intertek, 2022.

#### 13.4.2.3 Kinetic leach of variability composites

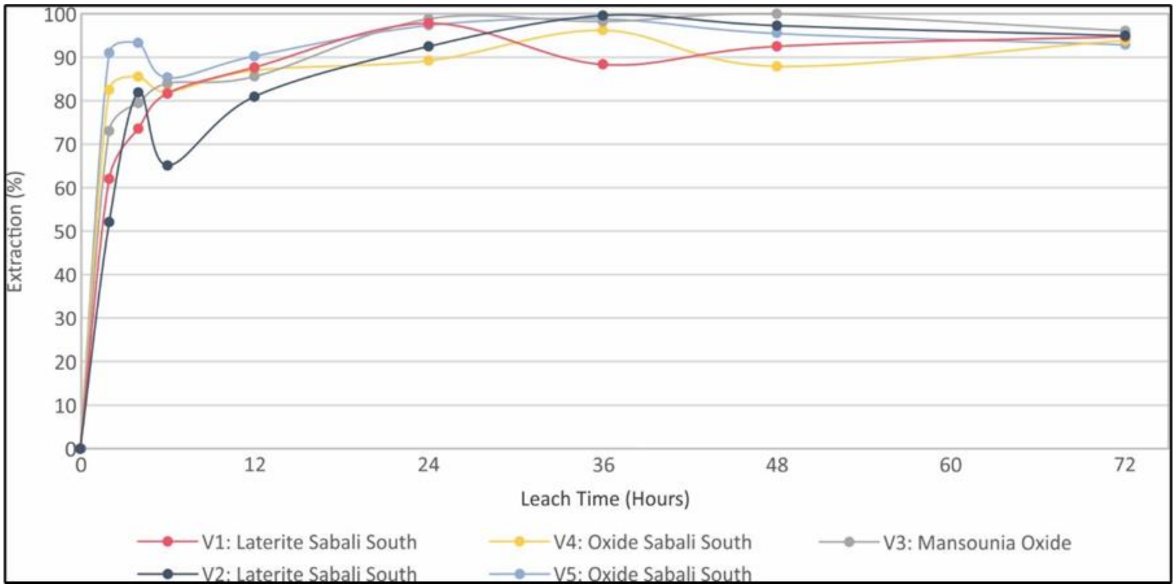
Five variability samples were tested for leach kinetics, including two laterite samples (Table 13.18) with Figure 13.11 presenting the extraction results. Excellent recoveries were achieved for all samples, and relatively quickly as compared to previous results. The overshoot is regarded as insignificant and relies on liquid gold analysis uncertainties. Detailed leaching results are presented in Table 13.20.

Table 13.20 Detailed results for variability samples

| Test Name | Sample ID | $P_{80}$ (µm) | DO (ppm) | NaCN (ppm) | NaCN Cons (kg/t) | Au Tails (g/t) | Au REC. (%) |
|---|---|---|---|---|---|---|---|
| V1 | Lat Sabali South | 106 | 20 | 1000 | 4.9 | 0.05 | 94.7 |
| V2 | Lat Sabali South | 106 | 20 | 1000 | 5.0 | 0.02 | 94.9 |
| V3 | Oxide Mansounia | 75 | 20 | 1000 | 4.7 | 0.12 | 96.0 |
| V4 | Oxide Sabali South | 75 | 20 | 1000 | 5.2 | 0.12 | 93.8 |
| V5 | Oxide Sabali South | 75 | 20 | 1000 | 4.7 | 0.14 | 92.9 |

Source: Intertek, 2022.

Figure 13.11 72-hour kinetic tests for variability samples




Source: Intertek, 2022.

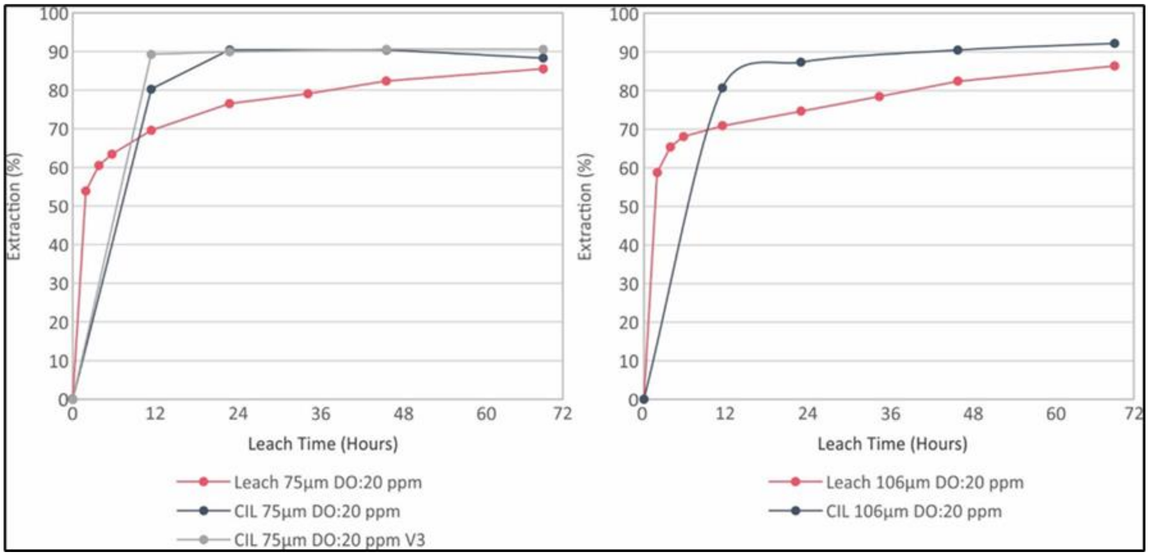
### 13.4.3 CIL tests

Following the slow kinetics observed in the first set of leach tests, an attempt was made to perform leaching in the presence of activated carbon i.e. CIL. This was motivated by the potential presence of graphitic carbon in the ore and by possible preg-robbing, or preg-borrowing phenomenon, that could result in slower kinetics and lower final recoveries.

#### 13.4.3.1 Kinetic CIL of main composites

The two main composites for oxide (Ox_Comp) and fresh (Fr_Comp) ore were used (Table 13.18) for this testwork with 1,000 ppm of NaCN, D.O. of 20 ppm and 10 g/L of activated carbon. To produce the kinetic curves, four bottles were run with the same parameters, but each stopped at different times: one bottle was stopped at 12 hours, one at 24 hours, one at 48 hours, and one at 72 hours. Figure 13.12 shows the comparative results for oxide and fresh ore with and without carbon. In addition to the main composite, a CIL test was also completed on the oxide V3 sample originating from the Sabali South deposit on the Mansounia licence.

Figure 13.12 72-hour kinetic tests with and without addition of activated carbon (left: oxide, right: fresh)




Source: Intertek, 2022.

In Figure 13.12, the beginning of the curve for the CIL would most probably be steeper if additional time intervals were sampled. Recovery results with the use of activated carbon are much improved than only leach, both in terms of kinetics and in final recovery (Table 13.21).

Table 13.21 Comparative leaching and CIL results

| Test Name | Sample ID | $P_{80}$ (µm) | DO (ppm) | NaCN (ppm) | NaCN Cons (kg/t) | Au Tails (g/t) | Au REC. (%) |
|---|---|---|---|---|---|---|---|
| Oxide Leach | Ox MC | 75 | 20 | 1,000 | 5.3 | 0.16 | 94.1 |
| Oxide CIL | Ox MC | 75 | 20 | 1,000 | 4.5 | 0.01 | 99.4 |
| Fresh Leach | Fr MC | 106 | 20 | 1,000 | 5.5 | 0.25 | 86.3 |
| Fresh CIL | Fr MC | 106 | 20 | 1,000 | 5.5 | 0.08 | 92.1 |
| Variability CIL | OxV3 | 75 | 20 | 1,000 | 5.1 | 0.01 | 99.6 |

Source: Intertek, 2022.

The better results are likely due to the presence of preg-robbing and/or preg-borrowing minerals that would slow the kinetics, and capture some of the gold. Another possibility is that competing leaching minerals are present and their rapid adsorption to the activated carbon can ease the leaching and adsorption of gold. In this case, efficient carbon regeneration will be important.

The design residence time stemming from the leach-only tests can be reduced considering CIL.

#### 13.4.3.2 Additional CIL variability testwork (May 2022)

Following the improved recovery results from the composite CIL tests, additional batch CIL testwork on selected variability samples primarily from Sabali South were performed, as well as selected samples from Sabali North, Sabali Central, and SGA.

A total of 30, 1 m samples, were selected for additional CIL variability testwork from across SGA, Sabali North, Sabali Central, and Sabali South (Table 13.22). Samples were selected across zones of different lithologies and regoliths where uncertainty remained regarding gold recoveries. The location and spatial distribution of the variability samples are presented in Figure 13.13. The 48-hour gold recoveries of the variability samples testworks are presented in Table 13.22.

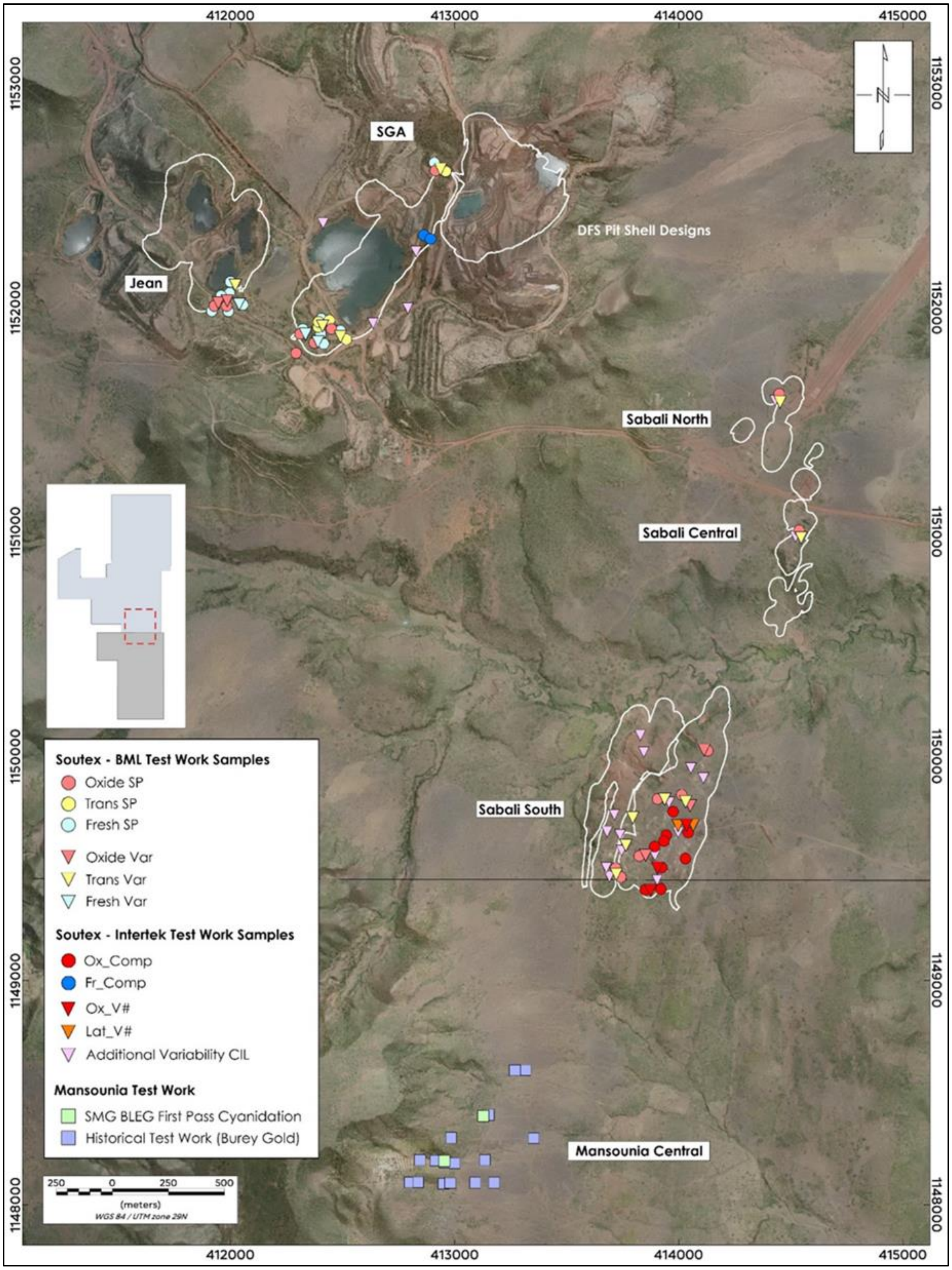
Table 13.22 Sample selection and results for the additional CIL variability testwork

| Deposit | Drillhole ID | From (m) | To (m) | Regolith | Head Calc. (Au g/t) | Head Assay (Au g/t) | Tails Grade (Au g/t) | Au Recovery (%) |
|---|---|---|---|---|---|---|---|---|
| Sabali South | SRC22-024 | 66 | 67 | Trans/Lower Sap | 1.63 | 1.73 | 1.12 | 31.4 |
| Sabali South | SRC21-069 | 78 | 79 | Trans/Lower Sap | 1.70 | 1.59 | 1.08 | 36.1 |
| Sabali South | SRC21-086 | 60 | 61 | Trans/Lower Sap | 1.30 | 1.41 | 1.10 | 15.4 |
| Sabali South | SRC21-069 | 108 | 109 | Trans/Lower Sap | 1.49 | 1.42 | 0.50 | 66.5 |
| Sabali South | SRC21-437 | 124 | 125 | Bed Rock Fresh | 1.61 | 1.62 | 0.72 | 55.4 |
| Sabali South | SRC22-011 | 119 | 120 | Bed Rock Fresh | 1.42 | 1.49 | 0.66 | 53.6 |
| Sabali South | SRC22-026 | 118 | 119 | Bed Rock Fresh | 2.89 | 2.87 | 1.07 | 62.7 |
| Sabali South | SRC21-100 | 25 | 26 | Upper Saprolite | 0.85 | 0.98 | 0.10 | 88.4 |
| Sabali South | SRC21-418 | 30 | 31 | Upper Saprolite | 0.96 | 0.78 | 0.12 | 87.8 |
| Sabali South | SRC21-433 | 29 | 30 | Upper Saprolite | 0.97 | 0.88 | 0.06 | 93.8 |
| Sabali South | SRC21-423 | 95 | 96 | Trans/Lower Sap | 1.24 | 1.37 | 0.58 | 52.8 |
| Sabali South | SRC21-221 | 48 | 49 | Trans/Lower Sap | 0.77 | 0.87 | 0.31 | 59.5 |
| Sabali South | SRC21-433 | 47 | 48 | Trans/Lower Sap | 1.54 | 1.80 | 0.32 | 79.3 |
| Sabali South | SRC21-411 | 117 | 118 | Bed Rock Fresh | 1.04 | 1.02 | 0.39 | 63.1 |
| Sabali South | SRC21-221 | 132 | 133 | Bed Rock Fresh | 1.62 | 1.71 | 0.98 | 39.9 |
| Sabali South | SRC21-434 | 99 | 100 | Bed Rock Fresh | 1.32 | 1.28 | 0.27 | 79.2 |
| Sabali South | SRC21-221 | 79 | 80 | Trans/Lower Sap | 1.17 | 1.23 | 0.66 | 43.9 |
| Sabali South | SRC21-096 | 44 | 45 | Trans/Lower Sap | 1.67 | 1.66 | 0.96 | 42.3 |
| Sabali North | DD20-002 | 25 | 26 | Upper Saprolite | 1.55 | 1.56 | 0.02 | 98.8 |
| Sabali North | DD20-002 | 57 | 58 | Trans/Lower Sap | 1.36 | 1.41 | 0.98 | 28.1 |
| Sabali North | DD20-001 | 84 | 85 | Bed Rock Fresh | 0.92 | 0.89 | 0.32 | 65.9 |
| Sabali Central | DD20-003 | 38 | 39 | Upper Saprolite | 1.55 | 1.73 | 0.01 | 99.4 |
| Sabali Central | DD20-003 | 61 | 62 | Trans/Lower Sap | 2.24 | 2.21 | 1.47 | 34.4 |
| Sabali Central | DD20-004 | 68 | 69 | Trans/Lower Sap | 1.29 | 1.40 | 0.53 | 58.8 |
| Sabali Central | DD20-004 | 101 | 102 | Bed Rock Fresh | 1.46 | 1.80 | 0.87 | 40.4 |
| SGA | GDG21-007 | 50 | 51 | Bed Rock Fresh | 1.46 | 1.33 | 0.06 | 96.0 |
| SGA | GDD21-001 | 276 | 277 | Bed Rock Fresh | 0.67 | 0.71 | 0.14 | 79.7 |
| SGA | GDD21-001 | 418 | 419 | Bed Rock Fresh | 2.03 | 2.08 | 0.31 | 84.5 |
| SGA | GDG21-005 | 144 | 145 | Bed Rock Fresh | 1.69 | 1.64 | 0.72 | 57.5 |
| SGA | GDG21-001 | 98 | 99 | Bed Rock Fresh | 0.42 | 0.38 | 0.01 | 97.6 |

Source: Intertek and SMG, 2022.

In addition to the tests realized at Intertek, Figure 13.13 also shows the location of the holes used for the FS-phase testing (BML testwork samples).

Figure 13.13 Location of the Sabali South CIL variability samples, Mansounia samples, and FS super composites and variability samples




Source: Soutex, 2023.

The variability results confirmed the recovery pattern across Sabali North, Central, and South, which is mostly affected by the weathering, with high recovery near the surface and lower recoveries in the lower layers. It also highlights the difference with SGA which is showing average Au tails of 0.25 g/t in five fresh rock samples, even with relatively deep intervals.

## 13.5 FS metallurgical testing

PFS testwork results suggested a processing route but still contained some gaps that needed to be filled in order to meet the standards of an FS, and in order to improve the accuracy of the design and reduce the risks of the Project implementation.

The main goals of this additional round of testing was to identify the leaching conditions and reagents consumption for the plant's CIL circuit. CIL testing is favoured because of the previous results (Intertek, 2022) showing better kinetics than direct leaching. The direct leaching route was also studied to validate the premisses of faster kinetics using CIL. Additionally, AMD, gravity concentration, oxygen consumption, and cyanide detoxification were also realized as part of this testwork.

Base Metallurgical Laboratories Ltd (BML), in Canada, was chosen to perform this test programme, being the object of the report "*Metallurgical Study of the Robex Kiniero Project, BL1148, May 2023*" (BML, 2023).

### 13.5.1 Samples selection

Assay lab chip bulk rejects (oxide, transition, fresh, and waste material) samples were collected from five (5) different zones in order to best represent the Kiniero FS reserves:

- Jean.
- Sector Gobelé A.
- Sabali North.
- Sabali Central.
- Sabali South.

Four (4) super (SP) composites (oxide, fresh, transition, and cyanide destruction (CD)) were assembled from the received material. The oxide, fresh, transition, and CD composites includes only material from the current reserves.

Additionally, ten waste samples and 31 variability samples were also tested. Among the variability samples, some samples are currently out of the reserves and are considered as prospective.

Table 13.23 summarizes the number of samples tested from each zone for the super composites and variability samples.

Table 13.23 Samples tested to assemble the super composites and variability samples

| Zone | Number of subsamples | | | | |
|---|---|---|---|---|---|
| | OXIDE | FRESH | TRANS | DETOX | GEOCHEM |
| Number of Samples for the Super Composites | | | | | |
| Jean | 2 | 10 | | 3F 2T 2Ox | - |
| Sector Gobelé A | 6 | 10 | 5 | 3F 2T 2Ox | - |
| Sabali North | 7 | - | - | 2 Ox | - |
| Sabali Central | 3 | - | - | 2 Ox | - |
| Sabali South | 3 | - | - | - | - |
| Number of Variability Samples | | | | | |
| Jean | 3 | 3 | 1 | - | 3F 2T 1Ox |
| Sector Gobelé A | 3 | 4 | 3 | - | 1F 1T |
| Sabali North | 2 | - | - | - | 1 Ox |
| Sabali Central | 2 | - | - | - | 1 Ox |
| Sabali South | 3 | - | - | - | - |
| Investigative | | | 10 | | |
| **Total (31)** | **13** | **7** | **14** | **0** | **0** |

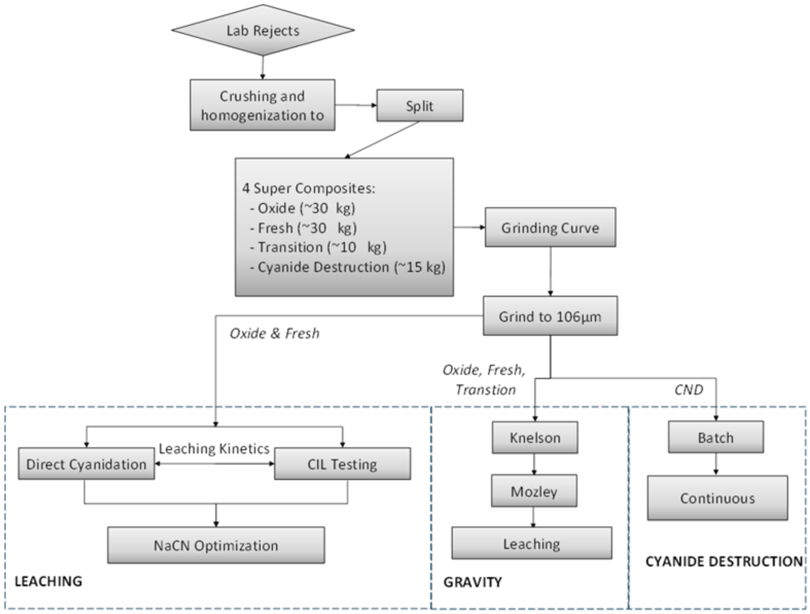
Source: Soutex, 2023.

The samples selected to build the oxide and fresh super composites (oxide and fresh) were chosen for reflecting spatial variability and also to reflect the planned ore feed grade for the life-of-mine (LOM). For the transition super composite, only SGA material was available, the quantity of samples in the variability being close to the super composite. For the detox sample, head grade was not so decisive, only mineralization should be present. For the geochemical samples, waste rock and detox tails were targeted. In the variability testing, investigative samples from the transition in Sabali Central, North, and South were also targeted.

### 13.5.2 FS testwork programme

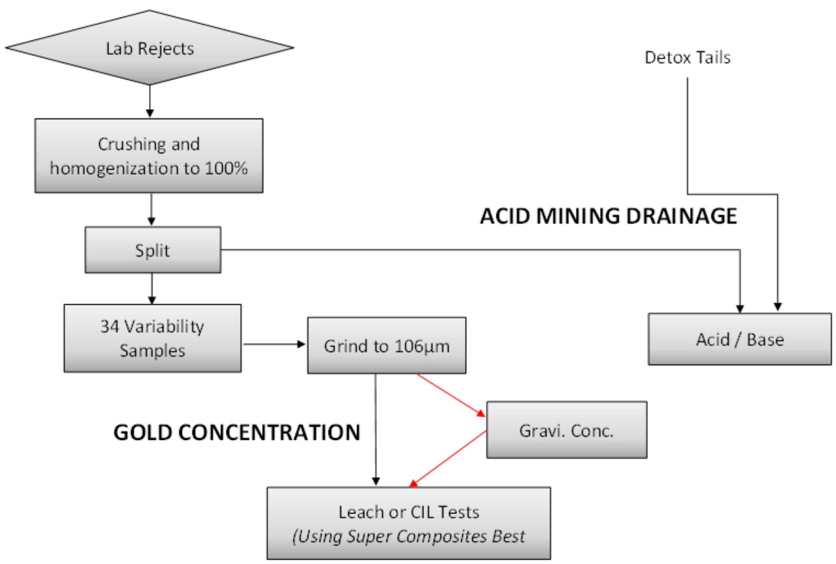
Figure 13.14 and Figure 13.15 provides the sample preparation and testwork flowsheet for respectively the super composites and variability samples as realized at BML.

Figure 13.14 Super composites preparation and testwork flowchart




Source: Soutex, 2023.

Figure 13.15 Variability samples preparation and testwork flowchart




Source: Soutex, 2023.

A grinding curve was produced to achieve a precise $P_{80}$ of 106 µm for the super composites and variability samples cyanidation testwork. For variability samples, no grinding curve was possible due to low sample mass, best available grinding curve was used.

CIL and direct cyanidation (1 kg bottle roll tests) were performed on the fresh and oxide super composites. The goal of these leaching tests was to:

- Confirm the leaching capacity of the ore.
- Compare the leaching kinetics (direct cyanidation versus CIL).
- Optimize the gold recovery.

Tests involving prior gravity concentration before CIL were conducted in order to assess if recovery could be increased, leach kinetics improved (due to coarse gold) and overall leach feed head grades flattened for easier analysis. A Knelson Concentrator followed by a Mozley Table was used.

Previous NaCN consumption obtained during the work supporting the 2022 Technical Report (Mining Plus, 2022) was abnormally high and serious doubts were held about the testing conditions during the bottle roll tests at that stage. For the (Mining Plus, 2022) design criteria, laboratory test results were not used, using instead conservative benchmark form similar sites. For the FS level of accuracy required for this Technical Report, accurate laboratory tests were mandatory.

A high number of variability samples were identified, not only on reserves but also on resources for which recovery was poor in PFS testing (investigative samples).

An oxygen uptake test was realized in order to provide design criteria for the sizing of the oxygen plant.

Cyanide destruction testing was performed on the CD composite (mineralized material of any grade). Batch test followed by continuous tests were performed in order to assess the residence time and minimum reagent dosage to reach the tailings discharge target of lower than 50 CNWAD. The project takes place in Guinée Conakry where cyanide compounds can quickly be disintegrated by the sun, which is why a higher CNWAD value can be targeted.

Acid Base Accounting (ABA) evaluation was performed on the waste material composite as well as on tailings samples (the results associated to this assessment are presented in Section 20).

### 13.5.3 FS testwork results

#### 13.5.3.1 Head assays

Head assays for main composites as well as for variability samples are presented in Table 13.24. For the super composites, the resulting gold grade is within an acceptable range but deviates significantly that the forecasted average which is about 35% higher. Stemming from this bias, the expected plant recoveries will be therefore more accurately estimated using resulting gold tails and average feed grade than the test calculated test recoveries.

Table 13.24 Samples head assays (samples marked with * were investigative samples)

| **Sample** | **Elements** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Au** | **Ag** | **S** | **C** | **SO4** | **S2** | **TOC** | **Cg** |
| **Method** | **FAAS** | **ICP** | **LECO** | **LECO** | **GRAV** | **GRAV** | **LECO** | **LECO** |
| Units | g/t | g/t | % | % | % | % | % | % |
| Fresh SP | 1.01 | 1.1 | 0.93 | 2.13 | 0.04 | 0.89 | 0.05 | 0.01 |
| Oxide SP | 0.90 | 0.5 | 0.10 | 0.05 | 0.07 | 0.03 | 0.04 | <0.01 |
| Trans. SP | 0.86 | 0.6 | 0.74 | 0.13 | 0.08 | 0.66 | 0.03 | <0.01 |
| Detox | 1.57 | 1.5 | 0.35 | 0.87 | 0.03 | 0.33 | 0.05 | <0.01 |
| Trans VAR-1 * | 1.33 | 1.6 | 3.04 | <0.01 | 0.10 | 2.94 | 0.02 | <0.01 |
| Trans VAR-2 | 2.50 | 0.9 | 0.19 | 2.94 | 0.03 | 0.16 | 0.02 | <0.01 |
| Trans VAR-3 | 10.3 | 5.7 | 0.01 | 0.08 | <.01 | 0.01 | 0.06 | 0.01 |
| Trans VAR-4 | 0.93 | 0.2 | 0.38 | 0.06 | 0.04 | 0.02 | 0.02 | 0.01 |
| Trans VAR-5 * | 0.96 | 6.9 | 2.28 | 0.38 | 0.03 | 2.25 | 0.05 | <0.01 |
| Trans VAR-6* | 1.18 | 1.8 | 3.50 | 0.18 | 0.13 | 3.37 | 0.01 | <0.01 |

| Sample | Elements | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Au | Ag | S | C | SO4 | S2 | TOC | Cg |
| Method | FAAS | ICP | LECO | LECO | GRAV | GRAV | LECO | LECO |
| Trans VAR-7* | 1.43 | 1.4 | 1.94 | 0.11 | 0.07 | 1.87 | 0.09 | <0.01 |
| Trans VAR-8* | 0.86 | 0.1 | 0.01 | 0.06 | <0.01 | 0.03 | 0.04 | <0.01 |
| Trans VAR-9 | 1.07 | 0.6 | 0.14 | 0.29 | <0.01 | 0.15 | 0.03 | 0.01 |
| Trans VAR-10* | 1.09 | 1.2 | 2.99 | 0.03 | 1.81 | 1.18 | 0.01 | <0.01 |
| Fresh VAR-1 | 0.94 | 1.1 | 1.60 | 1.45 | 0.04 | 1.56 | 0.38 | 0.05 |
| Fresh VAR-2 | 1.03 | 1.4 | 2.73 | 2.16 | 0.05 | 2.68 | 0.02 | <0.01 |
| Fresh VAR-3 | 1.94 | 0.9 | 0.65 | 1.80 | 0.03 | 0.62 | 0.04 | 0.01 |
| Fresh VAR-4 | 1.01 | 0.5 | 0.38 | 1.73 | 0.02 | 0.36 | 0.03 | 0.01 |
| Fresh VAR-5 | 1.57 | 0.4 | 0.21 | 1.26 | 0.04 | 0.17 | 0.03 | 0.01 |
| Fresh VAR-6 | 1.51 | 2.4 | 4.17 | 1.06 | 0.12 | 4.05 | 0.03 | < 0.01 |
| Fresh VAR-7 | 0.67 | 0.8 | 0.09 | 1.33 | <0.01 | 0.09 | 0.06 | 0.03 |
| Oxide VAR-1 | 0.44 | 0.3 | 0.02 | 0.04 | <.01 | 0.02 | 0.02 | < 0.01 |
| Oxide VAR-2 | 1.79 | 0.4 | 0.04 | 0.01 | <.01 | 0.04 | 0.02 | < 0.01 |
| Oxide VAR-3 | 0.47 | 0.3 | 0.03 | 0.84 | <.01 | 0.03 | 0.77 | 0.01 |
| Oxide VAR-4 | 0.98 | 0.6 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | < 0.01 |
| Oxide VAR-5 | 1.11 | < 0.1 | 0.02 | <0.01 | 0.01 | <0.01 | 0.01 | < 0.01 |
| Oxide VAR-6 | 0.54 | < 0.1 | 0.02 | 0.01 | 0.01 | <0.01 | 0.02 | < 0.01 |
| Oxide VAR-7 | 1.55 | 0.3 | 0.01 | <0.01 | <0.01 | 0.02 | 0.02 | < 0.01 |
| Oxide VAR-8 | 0.73 | 0.5 | 0.08 | 0.05 | <0.01 | 0.09 | 0.05 | < 0.01 |
| Oxide VAR-9 | 1.25 | 0.4 | 0.02 | 0.04 | <0.01 | 0.03 | 0.04 | < 0.01 |
| Oxide VAR-10 | 0.78 | 0.1 | 0.08 | 0.02 | <0.01 | 0.09 | 0.02 | < 0.01 |
| Oxide VAR-11 | 0.98 | 0.2 | 0.10 | 0.10 | <0.01 | 0.11 | 0.07 | < 0.01 |
| Oxide VAR-12 | 1.01 | 0.6 | 0.71 | 0.02 | 0.11 | 0.60 | 0.02 | < 0.01 |
| Trans VAR-11 * | 0.76 | 0.9 | 1.99 | 0.02 | 0.03 | 1.96 | 0.01 | < 0.01 |
| Oxide VAR-14 | 1.34 | 0.4 | 0.10 | 0.02 | 0.05 | 0.05 | 0.02 | < 0.01 |
| Trans VAR-14 * | 1.70 | 0.6 | 4.99 | 0.02 | 0.09 | 4.90 | 0.03 | <0.01 |
| Trans VAR-13 * | 0.80 | 0.5 | 9.10 | 0.02 | 0.18 | 8.92 | 0.01 | <0.01 |
| Trans VAR-12 * | 0.67 | 0.9 | 11.10 | 1.34 | 0.02 | 11.08 | 0.62 | <0.01 |

Source: BML, 2023.

The level of silver observed is low and confirms the CIL processing route.

#### 13.5.3.2 Cyanidation of fresh and oxide super composites

Cyanidation tests results made on the fresh and oxide super composite are gathered in Table 13.25. The specific analysis for is detailed in the sections below. All tested targeted a $P_{80}$ of 106 µm and were performed with pure oxygen sparging (D.O. > 10 ppm).

In Table 13.25, gold recovery is not shown as it is not as relevant as gold tails. Gold recovery is very sensitive to feed grade which is different from one sample to another due to the granularity of gold and its influence in sampling. Therefore, the focus is on Au tails, which in conjunction with expected Au feed grade for the orebody, gives the best estimate of gold recovery. For instance, given oxide reserves of 1.25 g/t and fresh ore reserves of 1.65 g/t, Au tails of 0.1 g/t in oxide and 0.23 g/t in fresh results in recoveries of respectively 92% and 86% for oxide and fresh.

Table 13.25 Direct leach, CIL, and gravity concentration results

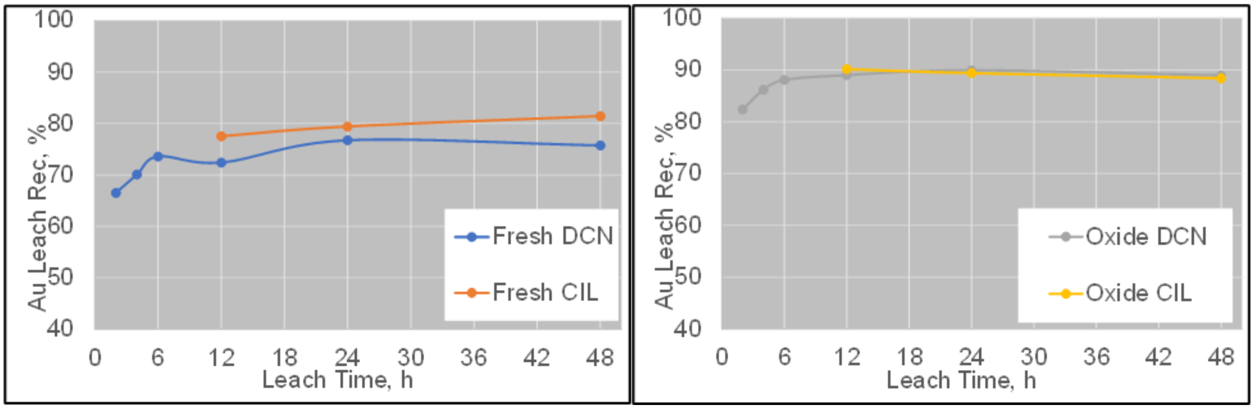
| | | | | | | Au Grade | |
|---|---|---|---|---|---|---|---|
| **Test Type** | **Sample ID** | **Leach Time (h)** | **NaCN** | **Consumption (kg/t)** | | **Hd (cal)** | **CNTL** |
| | | | **ppm** | **NaCN** | **$Ca(OH)_2$** | **g/t** | **g/t** |
| DCN | Fresh SP | 48 | 1,000 | 0.92 | 1.04 | 1.03 | 0.25 |
| CIL | Fresh SP | 48 | 1,000 | 1.28 | 0.92 | 1.21 | 0.23 |
| CIL | Fresh SP | 24 | 1,000 | 1.09 | 0.84 | 1.17 | 0.24 |
| CIL | Fresh SP | 24 | 500 | 0.82 | 0.80 | 1.09 | 0.22 |
| CIL | Fresh SP | 24 | 250 | 0.51 | 1.12 | 1.07 | 0.23 |
| CIL | Fresh SP | 12 | 1,000 | 0.91 | 0.88 | 1.02 | 0.23 |
| DCN | Oxide SP | 48 | 1,000 | 0.68 | 4.19 | 0.99 | 0.11 |
| CIL | Oxide SP | 12 | 1,000 | 0.54 | 4.25 | 0.97 | 0.10 |
| CIL | Oxide SP | 24 | 1,000 | 0.48 | 4.29 | 0.85 | 0.09 |
| CIL | Oxide SP | 24 | 500 | 0.23 | 2.95 | 0.93 | 0.10 |
| CIL | Oxide SP | 24 | 250 | 0.42 | 2.68 | 1.00 | 0.10 |
| CIL | Oxide SP | 48 | 1,000 | 0.67 | 4.31 | 0.86 | 0.10 |
| Grav-CIL | Fresh SP | 12 | 1,000 | 0.50 | 1.22 | 1.26 | 0.28 |
| Grav-CIL | Fresh SP | 24 | 1,000 | 0.64 | 1.25 | 1.22 | 0.23 |
| Grav-CIL | Fresh SP | 36 | 1,000 | 0.97 | 0.87 | 1.23 | 0.23 |
| Grav-CIL | Fresh SP | 48 | 1,000 | 1.01 | 0.89 | 1.34 | 0.26 |
| Grav-CIL | Oxide SP | 12 | 1,000 | 0.54 | 2.90 | 1.08 | 0.11 |
| Grav-CIL | Oxide SP | 24 | 1,000 | 0.62 | 3.08 | 1.08 | 0.11 |
| Grav-CIL | Oxide SP | 36 | 1,000 | 0.75 | 3.12 | 0.98 | 0.10 |
| Grav-CIL | Oxide SP | 48 | 1,000 | 0.85 | 2.72 | 0.99 | 0.09 |
| CIL | Trans SP | 24 | 500 | 0.49 | 2.97 | 1.02 | 0.25 |
| Grav-CIL | Trans SP | 24 | 500 | 0.44 | 2.51 | 1.03 | 0.23 |

Source: BML, 2023.

#### 13.5.3.3 Kinetics comparison (direct cyanidation versus CIL)

CIL and direct cyanidation kinetics are compared in the first 12 tests of Table 13.25. For direct cyanidation, kinetics was measured at 2, 4, 6, 12, 24, 36, and 48 hours. For CIL, different bottles were realized in Figure 13.16.

Figure 13.16 Direct cyanidation versus CIL kinetics




Source: BML, 2023.

From the kinetics curves from Figure 13.16, it is obvious that CIL brings an advantage in terms of retention time in comparison to direct leach. This confirms the tendency observed in the PFS test phase. The curves seem to show a small recovery gain after 24 hours. However, analysing the tails grade from Table 13.25 shows that the tails Au grade reaches the minimum after 12 hours for oxide and after 24 hours for fresh ore. The higher recovery for the 48 hours CIL tests is due to the higher head grade from this given sample. For this reason, a conservative value of 24 hours could be used for the CIL retention time.

#### 13.5.3.4 Gravity concentration + CIL

In Table 13.25, the calculated head grades of the various tests without gravity concentration are variables due to the granular aspect of gold in the sampling procedure. By recovering the coarse gold, it was expected that gravity concentration tests could provide similar grades feeding the CIL from one bottle to the other. The standard deviations of the recalculated head grades were compared for direct CIL and for gravity concentration + CIL. This resulted in a marginal reduction of the calculated head grade standard deviation 0.01 for oxide and 0.02 for fresh ore. The gravity gold recovery was 6.6 % for oxide and 20% for fresh ore.

On the super composites, gravity concentration did not bring much improvement compared to only CIL, the final Au tails being almost identical. Only the transitional composite showed a marginal improvement. The overall relevance of a gravity recovery circuit can therefore be questioned.

#### 13.5.3.5 Reagent optimization

NaCN consumption for all tests was far below the figures experienced during the PFS test phase and was also closer to the historical SEMAFO operation. Consumption in the range 0.4 kg/t are observed for oxide, and 0.8 kg/t for fresh ore.

Lime consumption was in average 0.9 kg/t for fresh ore and 3.0 kg/t for oxide.

### 13.5.4 Variability samples

Various samples were submitted to a CIL test protocol for variability analysis. Among these samples, some were orebody variability samples, and some were prospective samples located outside of the current pit shell designs. The prospective samples were selected following poor recovery results obtained as part of the works supporting the previous 2022 Technical Report (Mining Plus, 2022). All variability tests were submitted to 24-hour CIL with 500 ppm NaCN. The grind target was somehow scarce, especially on the oxide sample, due to some samples already in a native dust form. Additional gravity concentration and CIL tests were run on the poorer recovery samples.

Table 13.26 shows the CIL results on the variability samples that are part of the mineralization within the current pit shell designs.

Table 13.26 CIL: Results for variability samples

| Test Type | Sample ID | Consumption (kg/t) | | S | C | Au | Hd (cal) | CNTL |
|---|---|---|---|---|---|---|---|---|
| | | NaCN | $Ca(OH)_2$ | % | % | g/t | g/t | g/t |
| CIL | Oxide Var-1 | 0.30 | 5.36 | 0.02 | 0.04 | 0.44 | 0.75 | 0.08 |
| CIL | Oxide Var-14 | 0.41 | 5.57 | 0.10 | 0.02 | 1.34 | 1.61 | 0.16 |
| CIL | Oxide Var-2 | 0.29 | 6.94 | 0.04 | 0.01 | 1.79 | 1.90 | 0.11 |
| CIL | Oxide Var-3 | 0.40 | 7.28 | 0.03 | 0.84 | 0.47 | 0.59 | 0.04 |
| CIL | Oxide Var-4 | 0.28 | 1.84 | 0.01 | 0.01 | 0.98 | 1.13 | 0.15 |
| CIL | Oxide Var-5 | 0.13 | 2.74 | 0.02 | <0.01 | 1.11 | 1.67 | 0.55 |
| Grav-CIL | Oxide Var-5 | 0.08 | 2.24 | 0.02 | 0.01 | 1.11 | 1.30 | 0.05 |
| CIL | Oxide Var-6 | 0.22 | 2.46 | 0.02 | 0.01 | 0.54 | 0.70 | 0.02 |
| CIL | Oxide Var-7 | 0.66 | 5.33 | 0.01 | <0.01 | 1.55 | 0.95 | 0.08 |
| CIL | Oxide Var-8 | 0.23 | 6.91 | 0.08 | 0.05 | 0.73 | 0.85 | 0.21 |
| CIL | Oxide Var-9 | 0.25 | 2.94 | 0.02 | 0.04 | 1.25 | 1.12 | 0.09 |
| CIL | Oxide Var-10 | 0.46 | 3.58 | 0.08 | 0.02 | 0.78 | 1.16 | 0.17 |
| CIL | Oxide Var-11 | 0.59 | 6.03 | 0.10 | 0.10 | 0.98 | 1.19 | 0.06 |
| CIL | Oxide Var-12 | 0.73 | 2.30 | 0.71 | 0.02 | 1.01 | 1.22 | 0.21 |
| CIL | Trans Var-2 | 0.33 | 2.32 | 0.19 | 0.14 | 2.50 | 3.10 | 0.18 |
| CIL | Trans Var-3 | 0.52 | 7.36 | 0.01 | 0.08 | 10.30 | 5.46 | 0.07 |
| CIL | Trans Var-4 | 0.58 | 1.39 | 0.38 | 0.06 | 0.93 | 0.62 | 0.06 |
| CIL | Trans Var-9 | 0.25 | 1.84 | 0.14 | 0.29 | 1.07 | 0.81 | 0.06 |
| CIL | Fresh Var-1 | 0.65 | 1.30 | 1.60 | 1.45 | 0.94 | 0.91 | 0.53 |
| Grav-CIL | Fresh Var-1 | 0.66 | 1.70 | 1.60 | 1.45 | 0.94 | 0.72 | 0.38 |
| CIL | Fresh Var-2 | 0.90 | 1.41 | 2.73 | 2.16 | 1.03 | 1.01 | 0.67 |
| Grav-CIL | Fresh Var-2 | 0.76 | 1.16 | 2.73 | 2.16 | 1.03 | 0.92 | 0.58 |
| CIL | Fresh Var-3 | 0.72 | 1.32 | 0.65 | 1.80 | 1.94 | 1.12 | 0.33 |
| Grav-CIL | Fresh Var-3 | 0.52 | 1.16 | 0.65 | 1.80 | 1.94 | 0.96 | 0.25 |
| CIL | Fresh Var-4 | 0.45 | 1.13 | 0.38 | 1.73 | 1.01 | 1.13 | 0.42 |
| Grav-CIL | Fresh Var-4 | 0.50 | 1.12 | 0.38 | 1.73 | 1.01 | 0.93 | 0.29 |
| CIL | Fresh Var-5 | 0.35 | 1.45 | 0.21 | 1.26 | 1.57 | 1.11 | 0.11 |
| CIL | Fresh Var-6 | 1.03 | 1.16 | 4.17 | 1.06 | 1.51 | 1.33 | 0.13 |
| CIL | Fresh Var-7 | 0.36 | 1.44 | 0.09 | 1.33 | 0.67 | 0.53 | 0.08 |

Source: BML, 2023.

Surprisingly, for the selected poorer recovery variability samples, the addition of gravity concentration prior to CIL seam to increase the overall recovery at various levels (between 3% and 35%). Given the relatively low cost of the gravity circuit and also the advantage of preventing thievery at the grinding circuit, it is recommended to keep a gravity concentration circuit to process part of the cyclone underflow.

For oxide and fresh samples, the recoveries confirm the results obtained with the super composite. For transition, the variability samples lead to better recovery than the super composite.

Table 13.27 shows the CIL results on the variability samples that are outside of the current pit designs but are prospective samples, mostly from Sabali South.

Table 13.27 CIL results for investigative samples

| Test Type | Sample ID | Consumption (kg/t) | | S | C | Au | Hd (cal) | CNTL |
|---|---|---|---|---|---|---|---|---|
| | | NaCN | $Ca(OH)_2$ | % | % | g/t | g/t | g/t |
| CIL | Trans Var-11 | 0.40 | 4.34 | 1.99 | 0.02 | 0.76 | 0.84 | 0.63 |
| Grav-CIL | Trans Var-11 | 0.36 | 3.48 | 1.99 | 0.02 | 0.76 | 1.38 | 0.53 |
| CIL | Trans Var-1 | 1.02 | 1.90 | 3.04 | <0.01 | 1.33 | 1.43 | 1.16 |
| Grav-CIL | Trans Var-1 | 0.78 | 1.66 | 3.04 | 0.01 | 1.33 | 1.46 | 0.99 |
| CIL | Trans Var-5 | 1.01 | 2.15 | 2.28 | 0.38 | 0.96 | 1.10 | 0.28 |
| CIL | Trans Var-6 | 0.55 | 2.11 | 3.50 | 0.18 | 1.18 | 1.31 | 0.84 |
| Grav-CIL | Trans Var-6 | 0.46 | 2.08 | 3.50 | 0.18 | 1.18 | 1.31 | 0.81 |
| CIL | Trans Var-7 | 0.94 | 3.19 | 1.94 | 0.11 | 1.43 | 1.73 | 0.55 |
| CIL | Trans Var-8 | 0.04 | 2.99 | 0.01 | 0.06 | 0.86 | 1.09 | 0.11 |
| CIL | Trans Var-10 | 2.51 | 27.1 | 2.99 | 0.03 | 1.09 | 1.29 | 0.95 |
| Grav-CIL | Trans Var-12 | 0.74 | 3.68 | 11.10 | 1.34 | 0.67 | 0.76 | 0.53 |
| Grav-CIL | Trans Var-13 | 0.96 | 2.42 | 9.10 | 0.02 | 0.80 | 0.99 | 0.48 |
| Grav-CIL | Trans Var-14 | 0.72 | 2.38 | 4.99 | 0.02 | 1.70 | 1.85 | 1.15 |

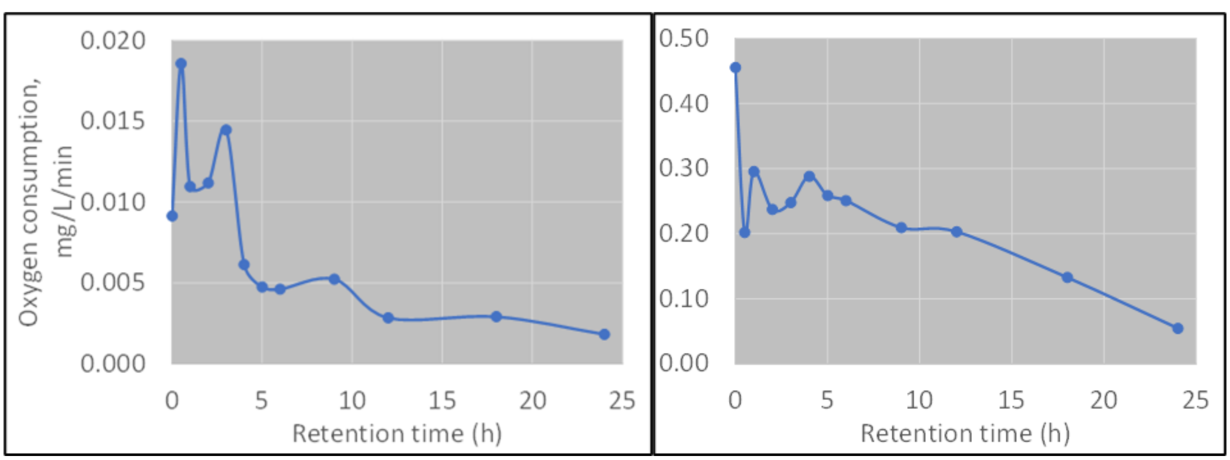
Source: BML, 2023.

From the tested investigative samples, two-out-of-ten are showing good leaching performances, confirming the 2022 Technical Report (Mining Plus, 2022) premises that the lower layers of the Sabali complex are more refractory than the other Kiniero orebodies.

#### 13.5.4.1 Oxygen uptake tests

An oxygen uptake test was realized on oxide and fresh ore in order to provide design criteria for the sizing of the oxygen plant. For the oxide, the oxygen consumption was very low as illustrated in the left of Figure 13.17. The fresh composite performed as expected with high-oxygen consumption rate in the first five hours and started to reduce after that.

Figure 13.17 Oxygen uptake rate (left: oxide, right: fresh)




Source: BML, 2023.

#### 13.5.4.2 Cyanide destruction

Cyanide destruction testing was performed on the cyanide destruction composite (mineralized material of any grade). This sample is a mix of oxide, transition, and fresh ore. Batch test followed by continuous tests were performed in order to assess the residence time and minimum reagent dosage to reach the tailings discharge target of lower than 50 CNWAD. Table 13.28 shows the results of the continuous detox test. Various operating conditions were tested in order to aim at a low-reagent consumption and residence time.

Table 13.28 Detox tests results

| Test | Retention Time | Discharge Chemistry (Solution) | | | | | Reagent Add. (g/g CNWAD) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | pH | CNt | CNWAD | Cu | Fe | SO2 | Lime | Cu |
| | min | | mg/L | mg/L | mg/L | mg/L | Equiv. | | mg/L sol. |
| Feed | - | - | 151.2 | 134.6 | 8.87 | 5.94 | - | - | - |
| CND-C1 | 45 | 8.06 | 2.27 | 1.71 | 0.13 | <1 | 5 | 15.9 | 50 |
| CND-C2 | 45 | 8.05 | 2.65 | 2.09 | 0.38 | <1 | 3 | 5.20 | 50 |
| CND-C3 | 45 | 8.13 | 1.57 | 1.01 | 0.06 | <1 | 3 | 9.07 | 25 |
| CND-C4 | 20 | 8.07 | 1.74 | 1.18 | 0.07 | <1 | 3 | 4.54 | 25 |
| CND-C5 | 20 | 8.03 | 1.73 | 1.17 | 0.11 | <1 | 3 | 2.20 | 5 |
| CND-C6 | 20 | 8.23 | 3.71 | 3.15 | 1.71 | <1 | 2 | 2.18 | 5 |
| CND-C7 | 20 | 8.20 | 3.24 | 2.68 | 1.60 | <1 | 2 | 2.16 | 0 |

Source: BML, 2023.

### 13.6 Conclusions and recommendations

The additional tests made on the reserve samples allow sizing the remaining parts of the processing plant. Gold recovery values recommended for the economic evaluation of the Project are presented in Table 13.29 for the various lithologies of the reserve model. As mentioned earlier, the gold tails value obtained for the super composites are used to compute the expected recovery. In the case of transition, since there is a discrepancy between the super composite and the variability samples average Au tails, the arithmetic average is computed according to the number of sample intervals (result: 0.17 g/t).

Table 13.29 Recommended gold recovery values by lithologies for the Project

| Lithology | LOM Head Grade (g/t) | SP testing Au tails (g/t) | Var Testing Au Tails (g/t) | Estimated Au Recovery (%) |
|---|---|---|---|---|
| Laterite | 1.25 | | | 92 |
| Oxide | 1.25 | 0.10 | 0.11 | 92 |
| Transition | 1.60 | 0.23 | 0.09 | 89 |
| Fresh | 1.65 | 0.23 | 0.26 | 86 |

Source: Soutex, 2023.

The oxide recovery and grade values presented in Table 13.29 do not represent the recovery of the legacy stockpiles. The recovery estimation for these stockpiles originating from SGA, is also based on a Au tails of 0.1 g/t Au and considering an average grade of 0.41 g/t. This results in an estimated recovery of 76% for those stockpiles.

# 14 Mineral Resource estimates

## 14.1 Summary

This Technical Report comprises the updated Mineral Resources for the Kiniero Gold Project. Mineral Resource estimates have been completed for the following deposits:

- SGA (incorporating SGA (Gobelé A, B, C), Gobelé D, NEGD, and East-West).
- Jean (incorporating Jean West and Jean East).
- Sabali South (previously known as Sabali Extension, inclusive of Mansounia North of the Mansounia licence area).
- Sabali North and Central (previously known as Sabali East).
- Mansounia Central.
- West Balan.
- Banfara.
- Stockpiles.

The Mineral Resource estimates for the SGA and Jean deposits have been completed by Mr Nicholas Szebor, Principal Geologist at AMC Consultants (UK) Limited. Mineral Resource estimates for the remaining deposits and stockpiles were completed by Mr Justin Glanvill, a full-time employee of Robex Resources Inc. The QP, Mr Ingvar Kirchner, has supervised and reviewed the Mineral Resource estimates completed by both Mr Nicholas Szebor and Mr Justin Glanvill and takes responsibility for the estimates presented herein.

The Mineral Resource estimates build upon the estimates completed as part of a 2022 NI 43-101 Technical Report (Mining Plus, 2022) and includes additional drilling completed as of 17 August 2022.

## 14.2 Source of data

### 14.2.1 Overview

The Mineral Resource estimates are based on sampling data exported from the Microsoft Access database operated by SMG. The database incorporates drilling data from SEMAFO for the Kiniero licence area, Burey Gold data for the Mansounia licence, as well as the more-recent drilling completed by SMG. The date of closure for the sample database informing the in situ Mineral Resources is 17 August 2022. The date of database closure for the stockpile Mineral Resources is 12 November 2022. The effective cut-off date for the Mineral Resource estimates is 12 November 2022.

A summary of the data exported for use in the Mineral Resource estimates is summarized in Table 14.1.

Table 14.1 Summary of drilling data used in the Mineral Resource estimates

| Deposit | Drillhole Type | Total Drillholes used in MRE | Total Metres (m) | Previous (SEMAFO and/ or Burey Gold) | SMG | Number of Holes Excluded | Number of Assays |
|---|---|---|---|---|---|---|---|
| SGA | RC[c] | 1,732 | 124,162 | 1,668 | 64 | 0 | 118,174 |
| | DDH | 260 | 38,028 | 256 | 4 | 0 | 33,484 |
| Sabai North and Central | RC | 342 | 31,435 | 261 | 81 | 50 | 31,415 |
| | DDH | 16 | 1,996 | 0 | 16 | 7 | 2,828 |
| Jean | RC | 568 | 34,152 | 555 | 13 | 0 | 32,017 |
| | DDH | 121 | 12,495 | 121 | 0 | 1 | 10,394 |
| Banfara | RC | 355 | 19,480 | 355 | 0 | 10 | 19,093 |
| | DDH | 1 | 100 | 1 | 0 | 0 | 161 |
| Sabali South | RC | 586 | 56,026 | 0 | 586 | 0 | 56,026 |
| | DDH | 19 | 2,618 | 0 | 19 | 7 | 4,084 |
| West Balan | RC | 1,425 | 110,235 | 1357 | 68 | 278 | 109,977 |
| | DDH | 7 | 679 | 7 | 0 | 6 | 810 |
| Mansounia Central | RC | 339 | 29,367 | 326 | 13 | 22 | 29,383 |
| | DDH | 19 | 2,083 | 19 | 0 | 2 | 1,775 |
| Stockpiles | Auger | 855 | 12,297 | 0 | 855 | 0 | 8,512 |
| **Total** | | **6,645** | **475,153** | **4,926** | **1,719** | **383** | **458,133** |

[c] Excludes grade control drilling.
Source: AMC, 2023.

For the Mineral Resource estimates, the following data exclusions have been made:

- Historical grade control drilling for SGA has been omitted due to uncertainties regarding its veracity.
- Trenching, RAB, and auger drilling (with the exception of the stockpiles) have been omitted owing to a lower level of confidence in the data.
- One diamond drillhole for Jean has been omitted due to a lack of survey data.

### 14.2.2 Data validation

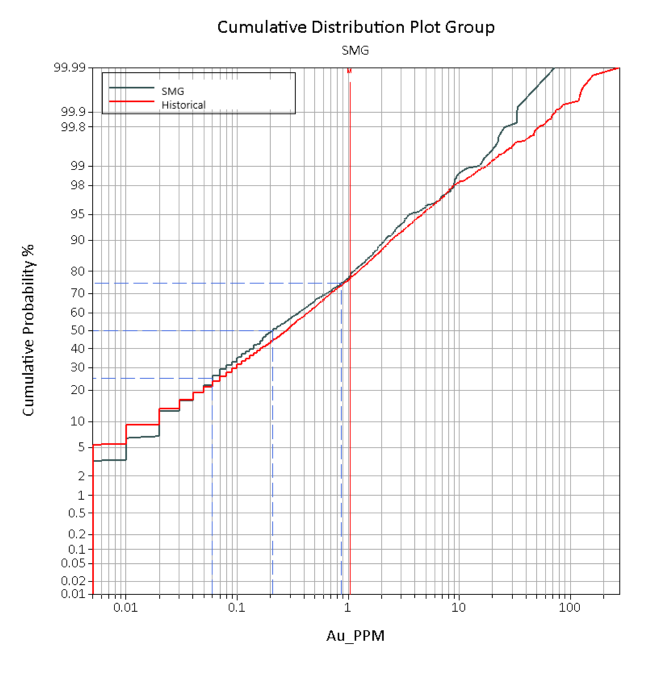
The drillhole data were validated during the import into both Leapfrog Geo and Datamine Studio RM software packages. Validation checks included:

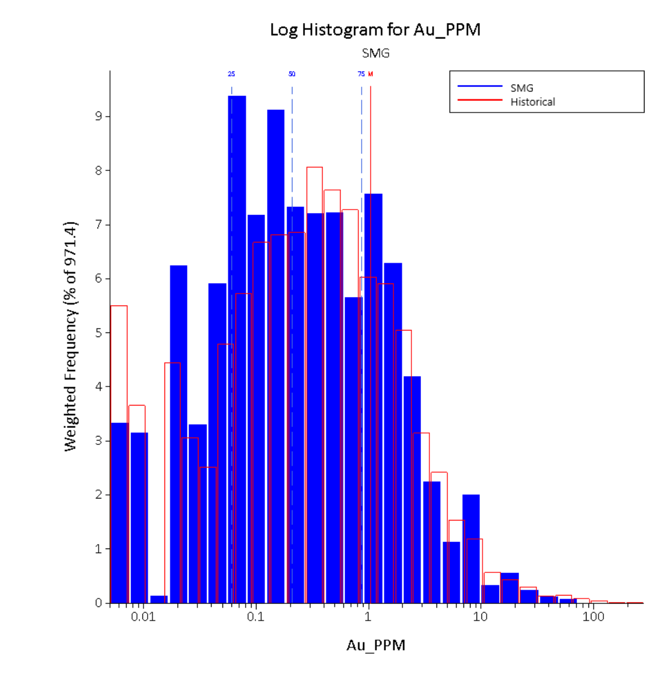
- Intervals exceeding hole length.
- Negative or zero length intervals.
- Inconsistent downhole survey records.
- Duplicate samples or out of sequence and overlapping intervals.
- Absent and trace assay records, noting how these have been recorded in the database.
- Erroneous collar positions.

Where errors were identified, these were reviewed, checked in the sample database, and subsequently corrected. A number of absent assays within the sample database are flagged with grade values including "-77777", "-66666", and "-99". These have all subsequently been set as absent for the grade estimates.

Checks were undertaken to ascertain whether any potential bias exists between the more recent SMG drilling and the historical drilling data. Figure 14.1 shows log probability and log histogram plots comparing the historical and more recent SMG drilling from the SGA deposit. To reduce information effect on the analysis, sample data was limited to areas with both SMG and historical drilling. The selected sample data was subsequently declustered to reduce the influence of information effect. Overall, no grade bias is exhibited by either the historical or SMG data, with similar grade population trends noted.

Figure 14.1 Statistical comparison of SMG and historical sample grade populations




Source: AMC, 2023.

## 14.3 Geological and mineralization interpretation

Modelling covered six areas and stockpiles/waste dumps. The six areas are as follows:

- The SGA and Jean deposits are proximal to one another, so these were incorporated into a single block model.
- Sabali South.
- Sabali North and Central.
- West Balan.
- Banfara.
- Mansounia.

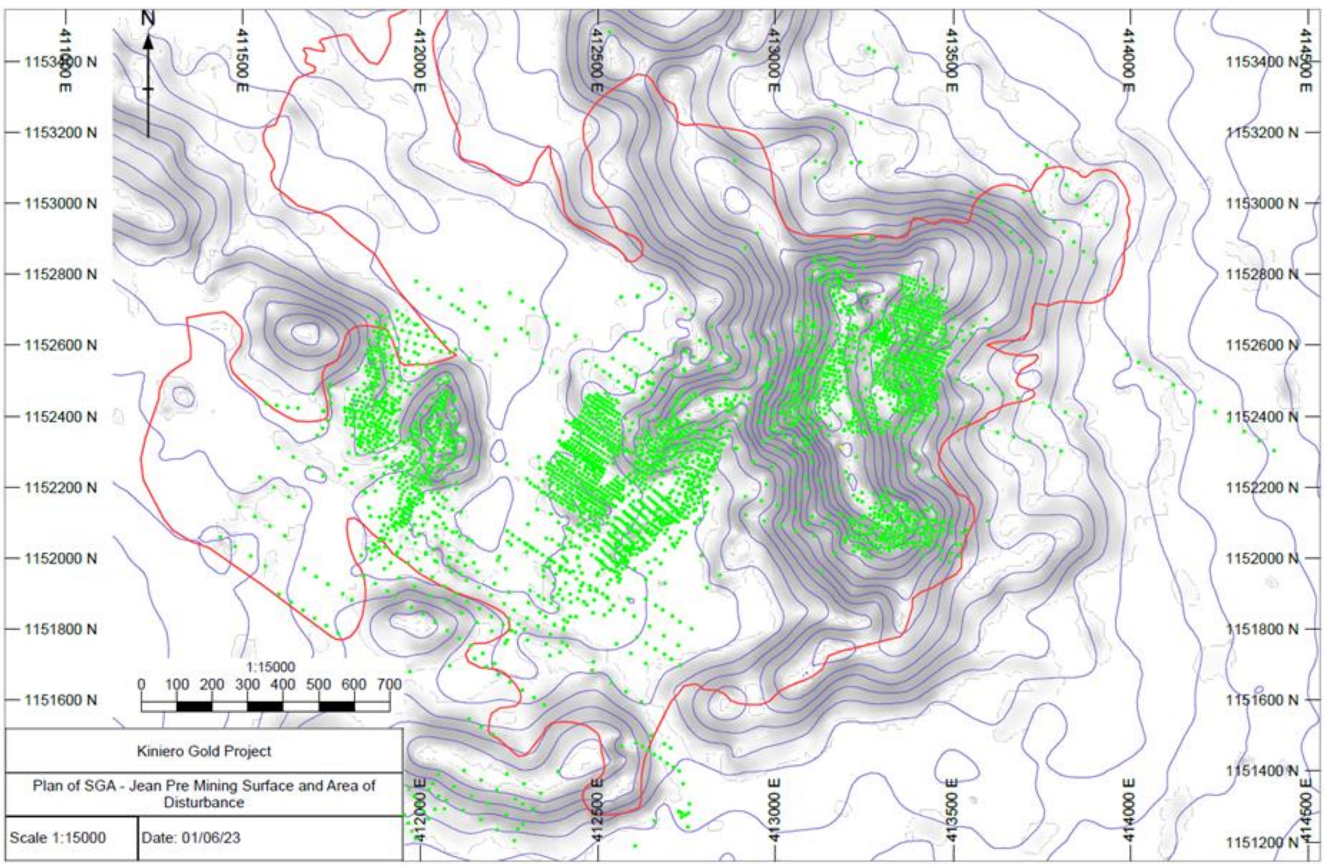
The following sections describe the key components modelled for the gold deposits and used for the estimates.

### 14.3.1 Topography

For modelling, an initial wireframe surface was created representing the approximate pre-mining surface prior to any mining activity having taken place within the Project. An example of the pre-mining surface at SGA and Jean is shown in Figure 14.2, including the area of disturbance shown by the red outline, and the location of drillhole collars in green. All geological interpretations are bounded by this approximate pre-mining surface. The pre-mining surface was constructed based on a combination of recent LiDAR surveys, satellite data, historical SEMAFO surveys, and in places adjusted with historical drillhole collars.

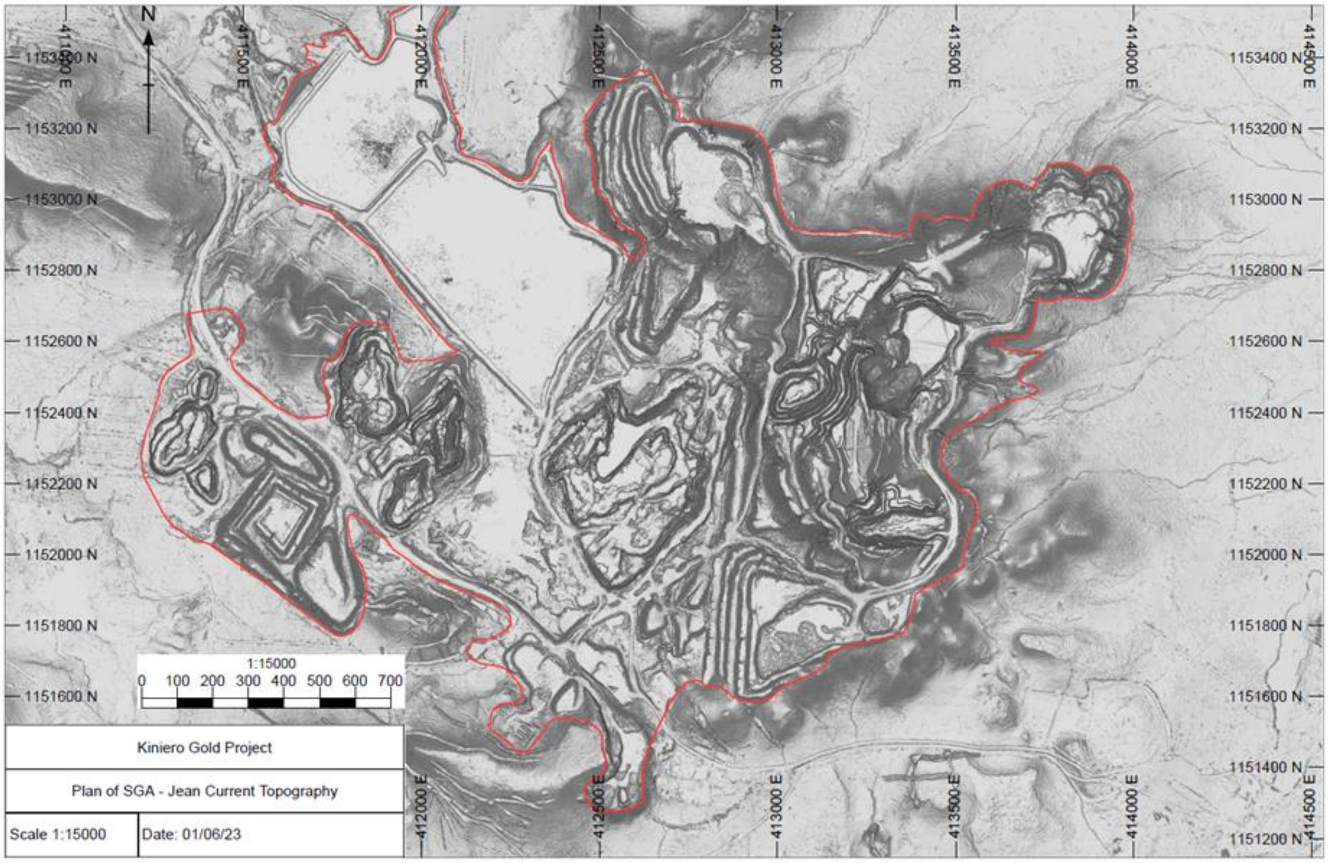
Subsequent mining activities have been accounted for through the depletion of the final grade estimates using the most recent LiDAR survey finalized in June 2021 (Figure 14.3). Digitized historical pit surveys have also been used to account for mining beneath the current flooded pit water levels.

Figure 14.2 SGA and Jean pre-mining topography and area of disturbance




Source: AMC, 2023.

Figure 14.3 SGA and Jean current topography and area of disturbance




Source: AMC, 2023.

### 14.3.2 Structural models

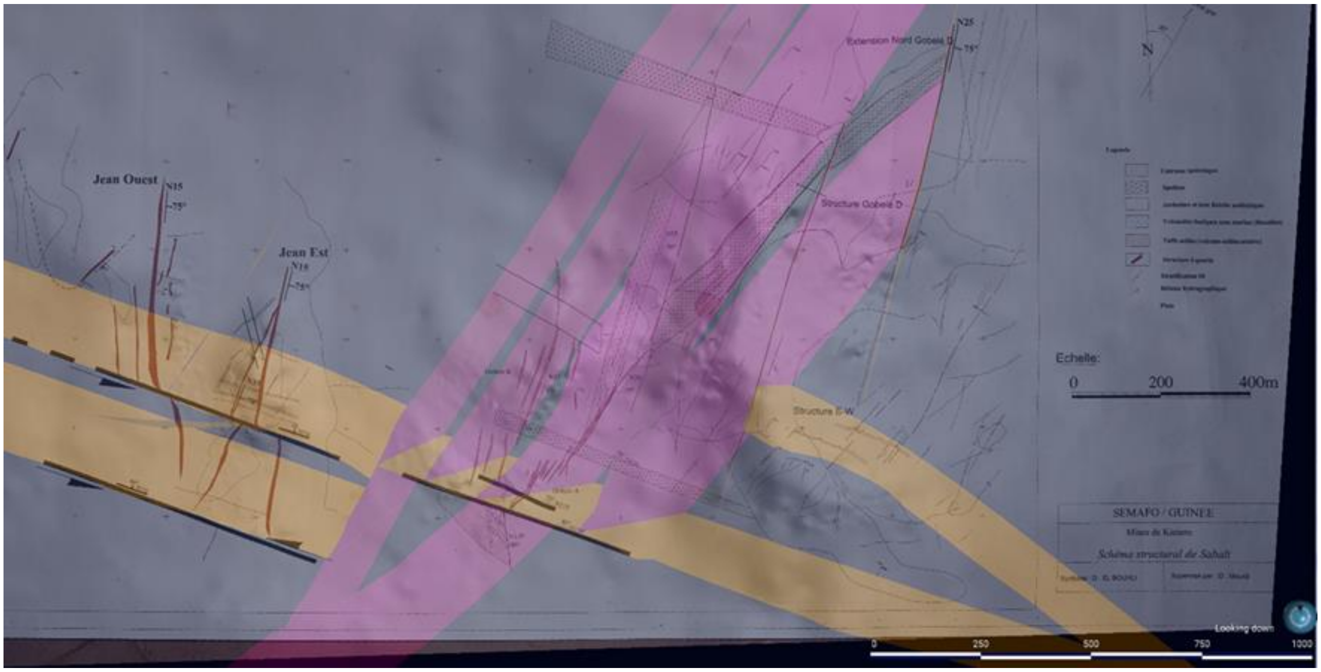
Limited structural data are available across the Project. However, where available, it has been used to define key faults as a guide to controls and limits on the mineralization interpretations.

At the SGA and Jean deposits, historical geological maps show the presence of mapped faults (Figure 14.4). These fault plans were digitized in Leapfrog Geo to act as an initial structural model. This initial structural model was then compared against the available drilling data considering any features which had been logged, or abrupt changes in lithology or grade.

Review of the drilling data showed a limited number of intercepts which had been logged as breccia. When reviewed against the preliminary fault model a spatial correlation was noted between the faults and the breccia. Drillhole intervals logged as breccia have been interpreted to potentially reflect fault breccia. The fault model was subsequently adjusted for the faults to intercept intervals logged as breccia. In total, 13 faults have been modelled for the SGA and Jean deposits. The resultant fault blocks have been used to bound the mineralization interpretations. A plan of the SGA and Jean fault blocks is shown in Figure 14.5.

Reviewing the sample gold grade data against the fault model, it was noted that in some areas abrupt changes occurred in the extent of mineralization, and dislocations in overall grade trends coincided with the modelled faults. This observation helps to support the fault model used in this Mineral Resource estimate. However, it is strongly recommended that further structural work and analysis be undertaken.

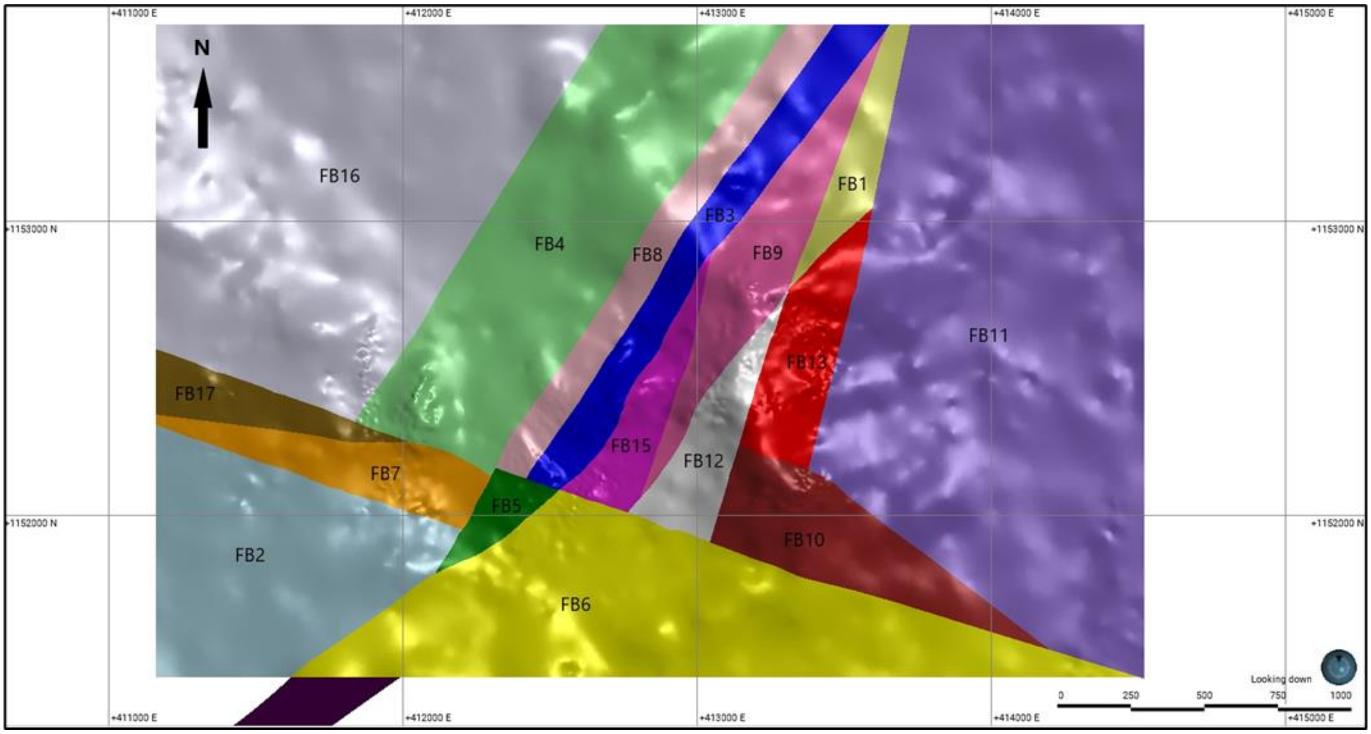
Figure 14.4 Historical SGA and Jean fault plan with digitized faults overlaid




Source: AMC, 2023.

A preliminary interpretation of a structural model has been completed for Sabali South. During modelling of the mineralization, sample grades showed dislocations and abrupt changes from mineralized to non-mineralized areas. These changes may represent the location of faults bounding the mineralization. Conceptual faults/domain boundaries were subsequently modelled and have been used to bound the mineralization interpretations. Conceptual faults/domain boundaries were also constructed for all remaining deposits.

Figure 14.5 SGA and Jean fault block plan




Source: AMC, 2023.

### 14.3.3 Lithology and weathering

The geological logging completed across the Project is heavily dominated by the laterite, saprolite, and saprock (transitional) weathering profile. The remaining lithologies are typically volcaniclastic rock types comprising felsic, mafic and intermediate volcanics and tuffs. Other more limited lithologies include igneous units such as andesite and basalt, metasediments such as schist and marble, and quaternary sediments. The dominance of the deep weathering profile in the logging precluded the development of a lithology model for the Project. For the Mineral Resource estimates, regolith (weathering) models were generated for each deposit in Leapfrog Geo.

Except for Sabali South, the following key weathered units have been modelled:

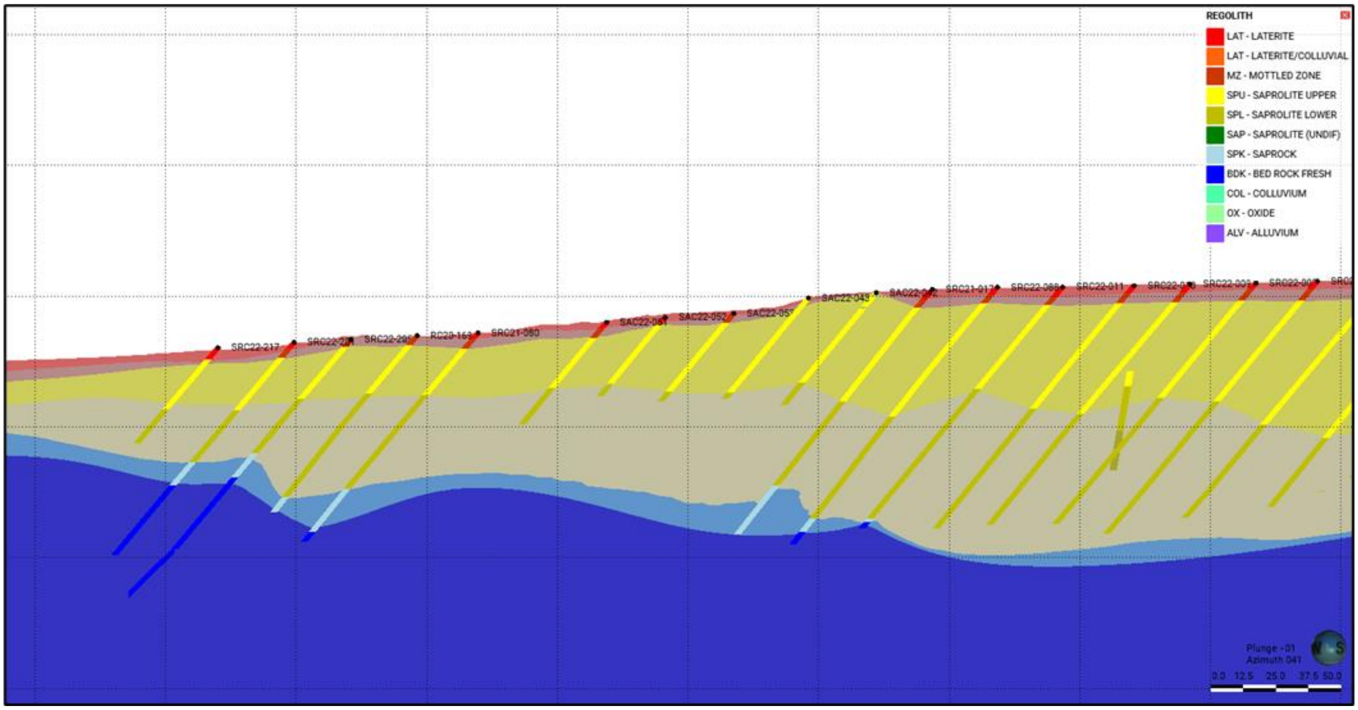
- Laterite.
- Saprolite.
- Saprock (transition).
- Fresh.

At Sabali South, more recent logging and the nature of the deposit has enabled more detailed modelling of the regolith. This included splitting the laterite into laterite and mottled domains, and the saprolite into an upper and lower saprolite.

Some inconsistencies were identified within the logging which resulted in some localized erroneous interpretations of the different weathering profile boundaries. To correct for this, a staged approach was adopted for generating the weathering model based on the level of confidence in the logging data. The more recent SMG drilling data was used initially given the greater confidence in the logging. The weathering surfaces were constructed based on the SMG logging and using the pre-mining surface as a reference surface. The initial interpretations of the weathering surfaces were then checked on a section-by-section basis and additional historical logging data incorporated where it was deemed reasonable.

An example of the weathering interpretation for Sabali South is shown in Figure 14.6.

Figure 14.6 Example cross-section of weathering interpretation at Sabali South




Source: AMC, 2023.

### 14.3.4 Mineralization

Sample data was reviewed statistically and visually to assess for any observable controls on the spatial distribution and extents of the mineralization. Filtering of the samples within the deposits to grades >1 g/t Au indicated the presence of structural controls on the mineralization. The presence of structural controls was also observed during the site visit with mineralization trends observed within the existing open pits. Whilst such trends exist at the larger-scale, the small-scale distribution of mineralization is more complex. Mineralization is hosted in veinlets and stockworks, with veinlet widths in the order of millimetre to tens-of-centimetres. The complexity of the stockworks and the lack of orientated core and structural logging prevent definitive interpretation of all individual mineralized zones, although the corridors of mineralization are evident.

The mineralized zones were interpreted using Leapfrog Geo based on initial structural and mineralization trend analyses. Reviewing the distribution of sample grades >1 g/t Au, the large-scale grade trends were defined for each deposit. Structural planar data points were initially generated through the deposit, with each point representing the more localized dip and dip direction of the mineralization at that location. These structural data points were then used to create the overall structural trends in Leapfrog Geo to help guide the mineralization interpretations. The data points were used either "as is" or were used to form structural iso-forms before generating the structural trends.

Individual mineralized zones have been constructed using Leapfrog Geo to generate grade shells guided by the structural trends. Several processes have been used.

- The first approach used an indicator Radial Basis Function (RBF) interpolant whereby indicator probability shells are generated for gold grades based on natural breaks in the sample grade distributions. As the indicator grades increased, the resultant interpretations showed a breakdown in continuity. This approach has been adopted for all deposits except for SGA and Jean. The indicator RBF interpolants used the structural trends to guide the interpretations with a spheroidal model and base ranges of between 50 m to 100 m. The resultant grade shells for the mineralization corridors (lodes) correspond to a natural cut-off grade of 0.3 g/t Au and use a probability threshold (ISO value) of between 0.3 and 0.5. For deposits where a structural model was available, the lode interpretations have been completed honouring the fault-block divisions.
- A second approach was adopted for the SGA and Jean deposits. Whilst the indicator RBF method provided reasonable results for the other deposits, the resolution of this method did not adequately account for the high degree of variability in the mineralization at a small-scale at Jean and SGA. Greater flexibility was therefore required to help define the lodes. A standard RBF approach was subsequently applied to Jean and SGA using the structural trends to guide the interpretation, and a range of ISO values applied. Grade shells were generated for the lodes on a fault-block-by-fault-block basis. The RBF interpolants use a spheroidal model with base ranges of 50 m to 100 m. The resultant RBF interpolants were reviewed in section and in plan, comparing against the sample data and a previous indicator RBF interpretation. Additional manual refinements to guide and constrain the interpretations were completed by using additional polylines. The resultant lode grade shells correspond to a natural cut-off grade of approximately 0.3 g/t Au and are based on ISO values ranging from 0.3 to 0.5.

At Sabali South and Mansounia, possible supergene mineralization has been identified during SMG's more-recent exploration works. Due to weak and gradational definition of the supergene material, additional work is required to improve understanding the extents of the supergene domains. At Sabali South, the supergene domain is constrained within the laterite and mottled weathering units. At Mansounia, the supergene domain was manually interpreted on a section-by-section basis.

Grade shells for all deposits were exported from Leapfrog Geo into Datamine Studio RM for subsequent modelling works. These grade shells form the basis of numerous lodes defining individual mineralized zones. These lodes are estimated individually but have been regrouped according to the fault blocks as combined mineralized zones for the purposes of statistical evaluation and variography.

## 14.4 Exploratory data analysis

### 14.4.1 Sample selection and flagging

Fault blocks, grade shells, and weathering profile wireframes generated in Leapfrog Geo were used to select samples falling within the wireframe boundaries. Flagging fields were applied to the data and model as follows:

- MINZONE—the fault-block constrained division of the mineralized zones.
- LODE or SUBDOM—the individual mineralized zones.
- REGOLITH—the oxidation-related weathering unit.

For Sabali South and Mansounia, samples within areas modelled as supergene mineralization were treated as distinct domains.

For the SGA and Jean model area, samples were also flagged to define whether they are situated in areas which have already been mined. This was undertaken to assess whether there is a difference in the sample grade populations which may warrant the exclusion of the mined samples from the grade estimates. A statistical and visual review of the data showed that the remaining in situ mineralization and the mined-out material displayed similar grade population distributions. For the Mineral Resource estimates, the Jean and SGA data set has been used in its entirety.

A summary of the final domains used for the Mineral Resource estimation is provided in Table 14.2.

Table 14.2 Summary of Project grouped mineralized zone, weathering, and individual domain flagging

| **Deposit** | **Description** | **MINZONE Codes** | **LODE Codes** | **REGOLITH Codes** |
|---|---|---|---|---|
| SGA-Jean | Hosted in fault block 2, south of Jean East pit deposit | 2 | SUBDOM<br>201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 801, 802, 803, 804, 805, 806, 807, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1701, 1702, 1703, 1704, | LAT=laterite<br>SA=saprolite<br>TR=transitional<br>FR=fresh |
| | Hosted in fault block 3, Gobelé B deposit | 3 | | |
| | Hosted in fault block 4, northern part of Jean East deposit | 4 | | |
| | Hosted in fault block 5, area south of Gobelé B deposit | 5 | | |
| | Hosted in fault block 6, southern extension of Gobelé A deposit | 6 | | |
| | Hosted in fault block 7, southern pit of Jean East, and mineralization east of the open pit | 7 | | |
| | Hosted in fault block 8, Gobelé C deposit | 8 | | |
| | Hosted in fault block 9, Gobelé D deposit | 9 | | |
| | Hosted in fault block 10, East-West deposit | 10 | | |
| | Hosted in fault block 12, Gobelé D deposit | 12 | | |
| | Hosted in fault block 13, NEGD deposit | 13 | | |
| | Hosted in fault block 15, Gobelé A deposit | 15 | | |
| | Hosted in fault block 16, Jean West deposit | 16 | | |
| | Hosted in fault block 17, mineralization between the northern and southern ends of Jean East pit | 17 | | |

| Deposit | Description | MINZONE Codes | LODE Codes | REGOLITH Codes |
|---|---|---|---|---|
| | | | 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713 | |
| Banfara | Main ore zone | 1 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74 | LAT=laterite<br>SA=saprolite<br>TR=transitional<br>FR=fresh |
| | Secondary zone | 2 | | |
| | North-Western Block | 3 | | |
| | South-Western Block | 4 | | |
| Sabali North and Central | Sabali Central | 1 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 | LAT=laterite<br>SA=saprolite<br>TR=transitional<br>FR=fresh |
| | Sabali North – central block | 2 | | |
| | Sabali North South-West Block | 3 | | |
| | Sabali North South-East Block | 4 | | |
| | Sabali North North East Block | 5 | | |
| | Sabali North Northern Extension | 6 | | |
| Sabali South | West Block | 1 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82 | LAT=laterite<br>MOT=mottled zone<br>SA=upper saprolite<br>SL=lower saprolite<br>TR=transitional<br>FR=fresh |
| | Central one | 2 | | |
| | Central two | 3 | | |
| | East Block | 4 | | |
| | Supergene mineralization | 9 | | |
| Mansounia Central | North Western Block | 1 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71 | SL=lower saprolite<br>TR=transitional<br>FR=fresh |
| | Central domain | 2 | | |
| | South Eastern block | 3 | | |
| | Supergene mineralization | 9 | | |
| West Balan / Derekena | Derekena Block 1 | 1 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, | LAT=laterite<br>SA=saprolite<br>TR=transitional<br>FR=fresh |
| | Derekena Block 4 | 4 | | |
| | West Balan West Extension | 5 | | |
| | West Balan Main | 6 | | |
| | East Balan Block 7 | 7 | | |
| | East Balan Block 8 | 8 | | |
| | East Balan Block 9 | 9 | | |
| | Laterite | 10 | | |

| Deposit | Description | MINZONE Codes | LODE Codes | REGOLITH Codes |
|---|---|---|---|---|
| | | | 107, 108, 109, 111, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 167, 168, 170, 171, 172, 173, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 199, 200, 201, 203, 204, 205, 206, 207, 208, 211, 212, 213, 214, 216, 217, 218, 219, 220, 222, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 240, 241, 242, 243, 244, 245, 246, 247, 250, 252, 255, 256, 257, 258, 260, 261, 262, 263, 264, 266 | |
| Stockpiles | Rom Pad Stockpile | 1_1 | Not used | Not used |
| | Workshop Stockpile | 2_2 | | |
| | Banfara Dump | 3_3 | | |
| | Jean Main Dump | 4_4 | | |
| | East-West Dump | 6_6 | | |
| | SGA South Dump | 7_7 | | |
| | SGA Main Dump | 8_8 | | |
| | NEGD Dump | 9_9 | | |
| | West Balan Dump 1 | 10_1 | | |
| | West Balan Dump 2 | 10_2 | | |
| | West Balan Dump 3 | 10_3 | | |
| | West Balan Dump 4 | 10_4 | | |
| | West Balan Dump 5 – Main | 10_5 | | |

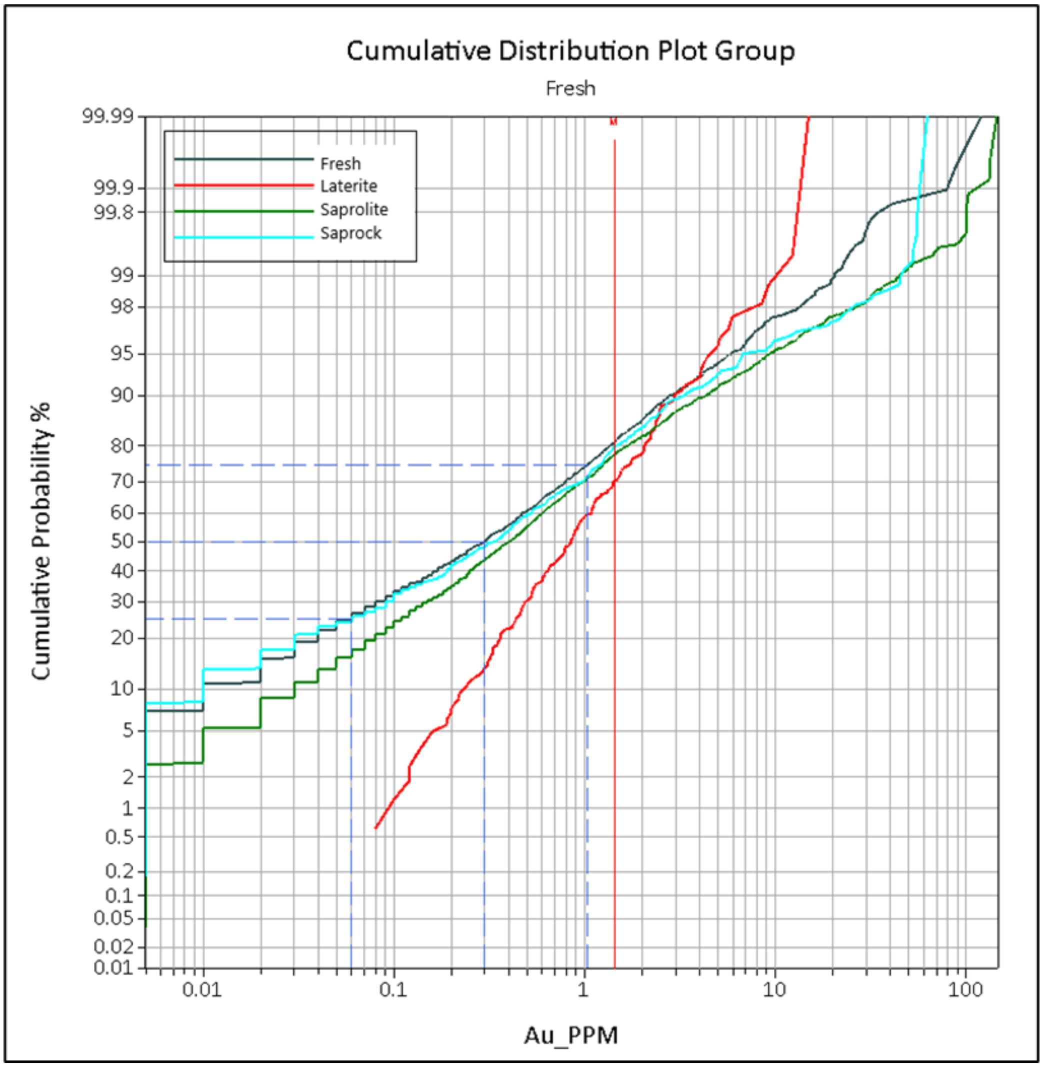
Source: AMC, 2023.

### 14.4.2 Statistics

The selected samples were reviewed statistically and visually to assess the need for high-grade caps, and any additional subdomaining (e.g. high-grade zones). An assessment was also made regarding whether the weathering profile had a material effect on grade populations warranting the use of the regolith as additional subdomains for the purpose of grade estimation.

Figure 14.7 shows an example Au log probability plot for the SGA-Jean MINZONE 15 domain split by weathering profile subdomain. Similar plots were generated for the other domains and deposits. Reviewing the statistical results for the grade populations on a weathering domain basis, showed that there is a reasonable correlation in grade populations between weathering domains. Whilst the laterite domain does show a greater degree of variability between MINZONEs, it is a function of the limited quantity of samples rather than a specific mineralogical feature. Considering the relatively similar statistics for the weathering divisions and the limited data within the individual lodes, the grades are estimated across the weathering profile domains.

Figure 14.7 Example Au log probability plot of SGA-Jean MINZONE 15 by weathering




Source: AMC, 2023.

Statistical analysis was conducted for each deposit on a mineralized domain basis, grouping the individual lodes within the fault-blocks defined the MINZONE. An example statistical summary for SGA- Jean is provided in Table 14.3. Overall, the mineralized domains typically display a lognormal distribution with a positive skew, as shown in Figure 14.8. On review, there is a significant amount of short-scale variability of grade within the lodes and mineralized domain divisions that preclude the definition and use of high-grade and low-grade domains within the lodes.

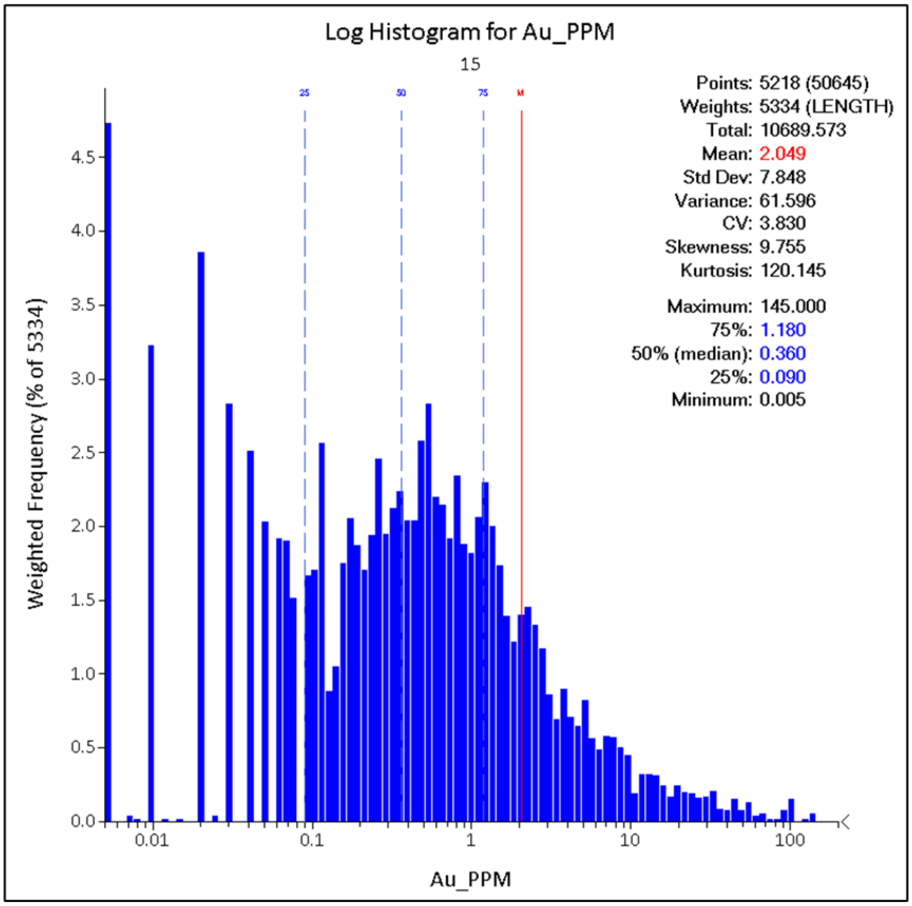
Raw sample lengths are commonly 1 m throughout all deposits (e.g. Figure 14.10). Intervals with absent Au grades have been left as absent (selective sampling of the drillholes is not prevalent in the mineralized zones).

Table 14.3 SGA-Jean selected sample Au statistics by MINZONE (grouped lodes)

| Deposit | MINZONE | No Assayed Samples | Min (Au g/t) | Max (Au g/t) | Mean (Au g/t) | Variance | Standard Deviation | Coefficient of Variation |
|---|---|---|---|---|---|---|---|---|
| Jean | 2 | 413 | 0.005 | 42.80 | 1.31 | 15.45 | 3.93 | 3.00 |
| SGA | 3 | 8,788 | 0.005 | 276.85 | 1.28 | 28.74 | 5.36 | 4.19 |
| Jean | 4 | 5,220 | 0.005 | 261.00 | 1.89 | 59.37 | 7.70 | 4.08 |
| SGA | 5 | 1,542 | 0 | 250.00 | 1.80 | 100.56 | 10.03 | 5.57 |
| SGA | 6 | 1,910 | 0.005 | 84.30 | 2.07 | 42.92 | 6.55 | 3.17 |
| Jean/SGA | 7 | 1,994 | 0 | 130.50 | 2.38 | 68.27 | 8.26 | 3.48 |
| SGA | 8 | 1,807 | 0.005 | 193.00 | 1.39 | 32.83 | 5.73 | 4.11 |
| SGA | 9 | 9,068 | 0.005 | 170.00 | 1.78 | 27.24 | 5.22 | 2.93 |
| SGA | 10 | 2,170 | 0.005 | 166.00 | 2.20 | 66.23 | 8.14 | 3.70 |
| SGA | 12 | 1,526 | 0.005 | 202.00 | 1.50 | 45.81 | 6.77 | 4.51 |
| SGA | 13 | 5,355 | 0.005 | 116.00 | 1.51 | 25.53 | 5.05 | 3.36 |
| SGA | 15 | 5,218 | 0.005 | 145.00 | 2.05 | 61.60 | 7.85 | 3.83 |
| Jean | 16 | 4,695 | 0.005 | 219.00 | 1.47 | 43.92 | 6.63 | 4.52 |
| Jean | 17 | 941 | 0.005 | 58.00 | 1.66 | 21.83 | 4.67 | 2.82 |

Source: AMC, 2023.

Figure 14.8 Example Au log histogram of SGA-Jean MINZONE 15




Source: AMC, 2023.

### 14.4.3 Grade capping

To reduce the impact of high-grade assays on the grade estimates, grade capping has been applied on a deposit and fault block mineralized domain basis. Grade capping has been applied prior to compositing to help minimize grade smearing between highly variable assay results from intervals within the same hole.

Based on the review of the selected sample statistics, the majority of the mineralized domains exhibit the presence of high-grade outliers which form the positive skew tail seen in the histograms (e.g. Figure 14.8). The presence of high-grade outliers in a sample data set can exert a bias on grade estimates, resulting in an overestimation within the block model. To help ascertain the presence of high-grade outliers and the potential impact they might have on the grade estimates, sample data was reviewed visually and statistically, including quantile analysis on a domain basis (example in Table 14.4) and metal-at-risk assessments.

Whilst the quantile analyses and probability plots can provide some indication of potential grade cap intervals, for strongly positively skewed data further detailed analysis is required to ascertain the grade cap within the positive tail of the sample population. Sample data for each mineralized domain was sorted in descending grade order and the grade difference between each sample calculated. An example for SGA-Jean MINZONE 15 is shown in Figure 14.9. In this example the difference between sequentially increasing assay grades shows the biggest jumps in grade difference occur above approximately 50 g/t Au. Grades above this grade cap level are typically more variable and their high-grades have the potential to exert bias on subsequent grade estimates. For SGA-Jean MINZONE 15 a grade cap of 50 g/t Au was applied. A similar approach was applied for the other mineralized domains and deposits.

Gold grade capping values have been selected where both the high-grade histogram tail becomes discontinuous and the metal represented by the samples above this value have a material impact on the total metal content. There is a compromise between stabilizing the distribution and the resultant estimate while honouring the metal represented by the valid sample assays. The metal-at-risk approach attempts to manage this compromise, and when coupled with good domaining, can significantly minimize the impact of these outliers. Additional outlier management through non-linear techniques or distance-limited estimates can further improve the quality of the resultant estimates if necessary.

Where high-grade outliers were identified, a visual check of the drillhole data was carried out to assess whether additional distinct high-grade zones could be defined.

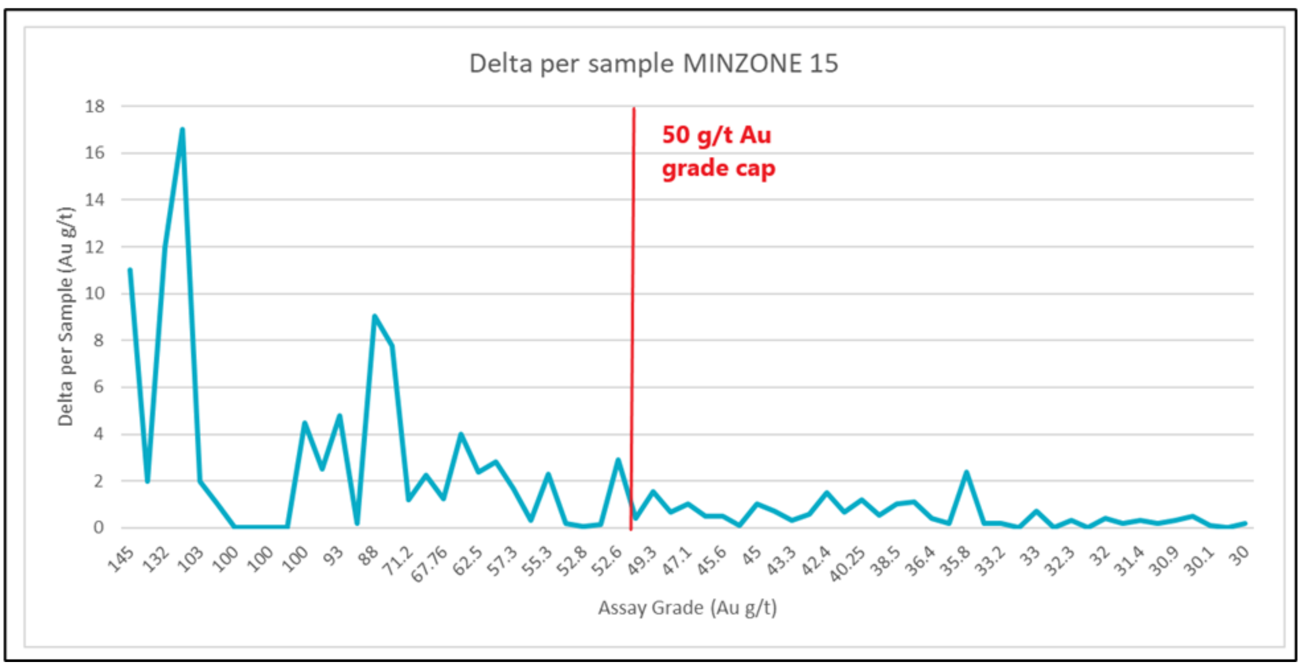
No high-grade caps have been applied to the stockpile/dump model where data was estimated differently.

Table 14.4 Quantile analysis for SGA-Jean MINZONE 15

| MINZONE | Quantile % From | Quantile % To | Number of Samples | Mean Au (g/t) | Min Au (g/t) | Max Au (g/t) | Metal (%) |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 10 | 521.00 | 0.01 | 0.01 | 0.02 | 0.05 |
| 15 | 10 | 20 | 522.00 | 0.04 | 0.02 | 0.06 | 0.18 |
| 15 | 20 | 30 | 522.00 | 0.09 | 0.06 | 0.12 | 0.43 |
| 15 | 30 | 40 | 522.00 | 0.17 | 0.12 | 0.23 | 0.84 |
| 15 | 40 | 50 | 522.00 | 0.29 | 0.23 | 0.36 | 1.41 |
| 15 | 50 | 60 | 521.00 | 0.46 | 0.36 | 0.56 | 2.26 |
| 15 | 60 | 70 | 522.00 | 0.72 | 0.56 | 0.92 | 3.53 |
| 15 | 70 | 80 | 522.00 | 1.20 | 0.92 | 1.53 | 5.84 |
| 15 | 80 | 90 | 522.00 | 2.30 | 1.53 | 3.58 | 11.23 |
| 15 | 90 | 100 | 522.00 | 15.20 | 3.58 | 145.00 | 74.24 |
| 15 | 90 | 91 | 52.00 | 3.78 | 3.58 | 4.04 | 1.84 |
| 15 | 91 | 92 | 52.00 | 4.35 | 4.05 | 4.62 | 2.12 |
| 15 | 92 | 93 | 52.00 | 4.95 | 4.64 | 5.20 | 2.41 |
| 15 | 93 | 94 | 52.00 | 5.82 | 5.36 | 6.30 | 2.83 |
| 15 | 94 | 95 | 53.00 | 6.98 | 6.30 | 7.60 | 3.46 |
| 15 | 95 | 96 | 52.00 | 8.40 | 7.60 | 9.30 | 4.09 |
| 15 | 96 | 97 | 52.00 | 11.03 | 9.30 | 13.00 | 5.37 |
| 15 | 97 | 98 | 52.00 | 15.66 | 13.03 | 19.00 | 7.62 |
| 15 | 98 | 99 | 52.00 | 25.33 | 19.20 | 32.30 | 12.32 |
| 15 | 99 | 100 | 53.00 | 64.93 | 33.00 | 145.00 | 32.19 |
| 15 | 0 | 100 | 5218.00 | 2.05 | 0.01 | 145.00 | 100.00 |

Source: AMC, 2023.

Figure 14.9 Example Au plot of the delta between high grade samples for SGA-Jean MINZONE 15




Source: AMC, 2023.

A summary of the grade capping applied to the Project is shown in Table 14.5.

Table 14.5 Grade capping summary

| Deposit | MINZONE | Cap (Au g/t) | Nº. Samples | Samples Affected (%) | Metal Affected (%) |
|---|---|---|---|---|---|
| Jean and SGA | 2 | 12 | 12 | 3 | 46.0 |
| | 3 | 27 | 39 | <1 | 20.5 |
| | 4 | 50 | 17 | <1 | 18.0 |
| | 5 | 25 | 12 | <1 | 38.7 |
| | 6 | 40 | 18 | <1 | 22.4 |
| | 7 | 50 | 14 | <1 | 21.9 |
| | 8 | 35 | 5 | <1 | 14.3 |
| | 9 | 35 | 32 | <1 | 12.6 |
| | 10 | 40 | 19 | <1 | 27.2 |
| | 12 | 20 | 17 | 1 | 33.4 |
| | 13 | 25 | 26 | <1 | 18.3 |
| | 15 | 50 | 29 | <1 | 23.5 |
| | 16 | 35 | 27 | <1 | 26.9 |
| | 17 | 17 | 12 | 1 | 27.1 |
| Banfara | 1 | 25 | 9 | <1 | 32.7 |
| | 2 | 5 | 7 | 2.5 | 32.8 |
| | 3 | 6 | 2 | <1 | 8.9 |
| | 4 | 6 | 9 | 1.9 | 25.5 |
| Sabali South | 1 | 15 | 6 | <1 | 22.3 |
| | 2 | 14 | 14 | <1 | 12.7 |
| | 3 | 20 | 3 | <1 | 3.3 |
| | 4 | 32 | 13 | <1 | 7.5 |
| | 9 | 10 | 6 | <1 | 9 |
| Sabali North | 1 | 21 | 8 | <1 | 16.5 |
| | 2 | 7 | 3 | 1.35 | 24 |
| | 3 | 9 | 6 | 2.7 | 46 |
| | 4 | 23 | 5 | <1 | 31 |
| | 5 | n/a | | | |
| | 6 | n/a | | | |
| West Balan | 1 | 9 | 16 | 3.5 | 46 |
| | 4 | 6 | 4 | 6.5 | 25 |
| | 5 | 10 | 8 | 1.5 | 22 |
| | 6 | 110 | 6 | <1 | 29 |
| | 7 | 45 | 10 | <1 | 12 |
| | 8 | 20 | 5 | <1 | 13.5 |
| | 9 | 22 | 7 | <1 | 8 |

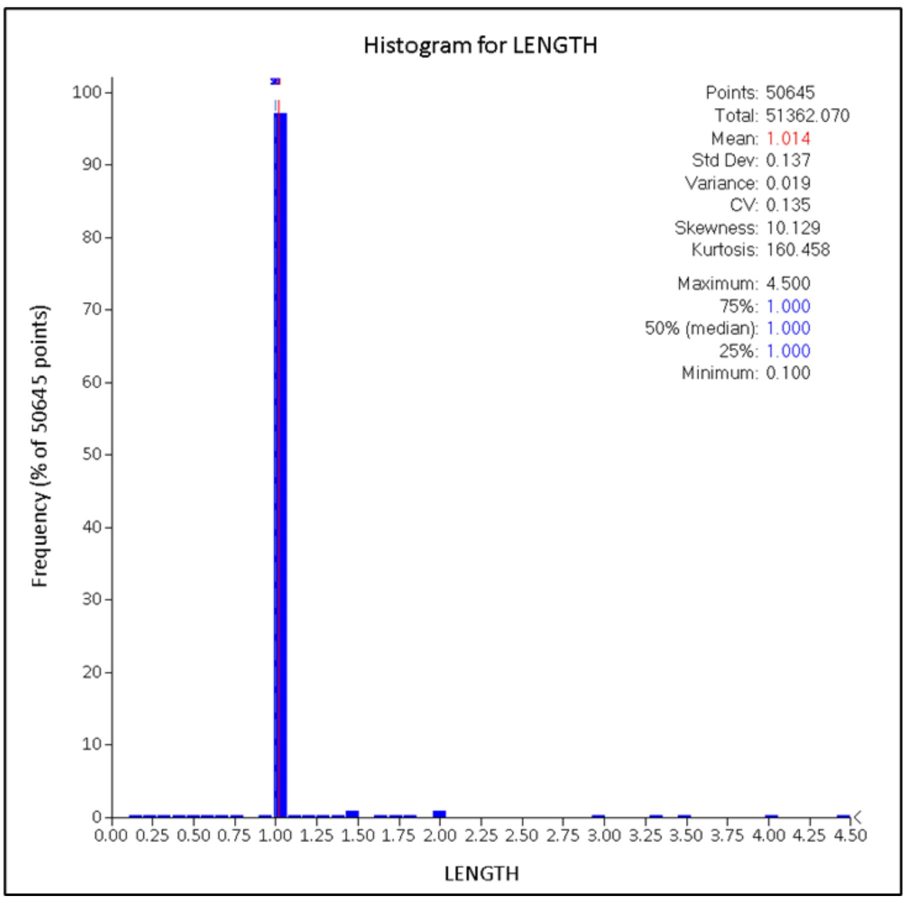
| Deposit | MINZONE | Cap (Au g/t) | Nº. Samples | Samples Affected (%) | Metal Affected (%) |
|---|---|---|---|---|---|
| | 10 | 25 | 7 | <1 | 19 |
| Mansounia Central | 1 | 9 | 3 | <1 | 8 |
| | 2 | 2.5 | 1 | <1 | 5 |
| | 3 | 19 | 2 | <1 | 6 |
| | 9 | 6.5 | 3 | <1 | 3 |

Source: AMC, 2023.

### 14.4.4 Compositing

To ensure all the samples for the variography and grade estimation stages have equal support, the sample data sets were composited. Most of the raw sample data has been sampled on a 1 m interval as shown for the SGA-Jean data in Figure 14.10. A 2 m composite interval was adopted for all deposits with the exception of Sabali South which was composited to 1 m. A statistical review of the sample composites relative to the grade capped data prior to compositing shows no significant changes in the mean grades or standard deviations of the sample populations (e.g. Table 14.6 and Figure 14.11). Through compositing, the grade distributions have developed a more refined log normal distribution. This reflects the reduction in short-scale variability attributed to alternating individual low-grade and higher-grade samples downhole.

Figure 14.10 Histogram of SGA-Jean raw sample interval lengths for mineralized intervals (MINZONE>0)



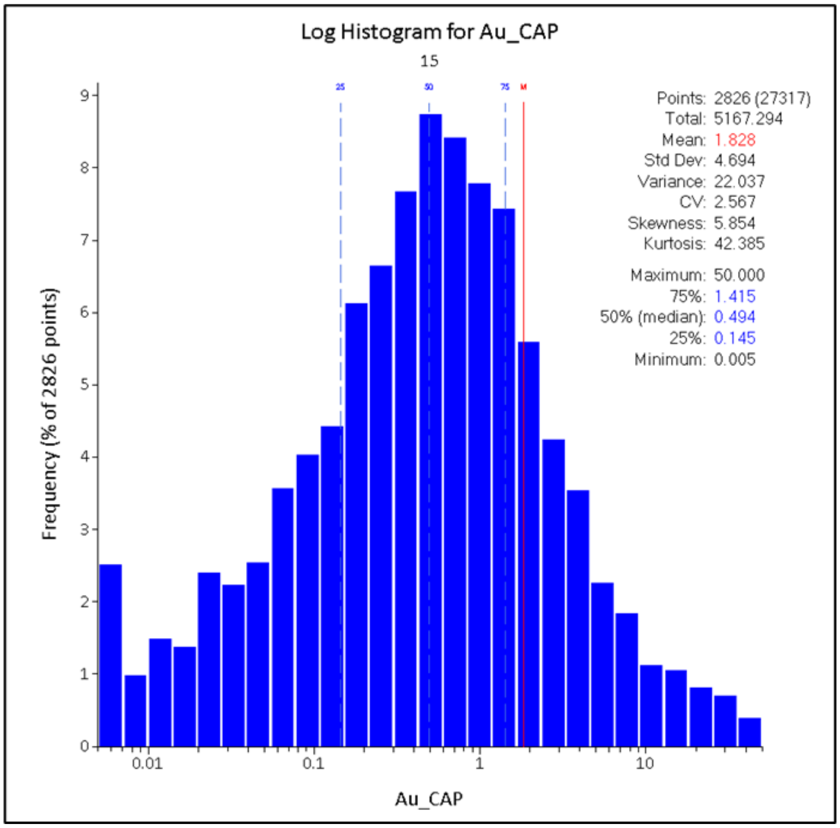

Source: AMC, 2023.

Table 14.6 Example summary statistics post-grade capping and compositing for SGA-Jean

| Deposit | MINZONE | N°. Assayed Samples | Min (Au g/t) | Max (Au g/t) | Mean (Au g/t) | Variance | Standard Deviation | Coefficient of Variation |
|---|---|---|---|---|---|---|---|---|
| Jean | 2 | 224 | 0.005 | 7.72 | 1.05 | 2.74 | 1.66 | 1.57 |
| SGA | 3 | 4,671 | 0.005 | 27.00 | 1.14 | 5.56 | 2.36 | 2.06 |
| Jean | 4 | 2,839 | 0.005 | 43.75 | 1.71 | 12.81 | 3.58 | 2.09 |
| SGA | 5 | 852 | 0.003 | 20.59 | 1.30 | 6.86 | 2.62 | 2.01 |
| SGA | 6 | 1,077 | 0.005 | 40.00 | 1.94 | 21.90 | 4.68 | 2.41 |
| Jean/SGA | 7 | 1,117 | 0.005 | 44.14 | 2.17 | 24.43 | 4.94 | 2.27 |
| SGA | 8 | 980 | 0.005 | 23.75 | 1.29 | 6.68 | 2.59 | 2.00 |
| SGA | 9 | 4,759 | 0.005 | 33.20 | 1.68 | 8.74 | 2.96 | 1.76 |
| SGA | 10 | 1,185 | 0.005 | 31.00 | 1.95 | 18.15 | 4.26 | 2.19 |
| SGA | 12 | 837 | 0.005 | 20.00 | 1.22 | 5.42 | 2.33 | 1.91 |
| SGA | 13 | 2,883 | 0.005 | 25.00 | 1.35 | 6.13 | 2.48 | 1.83 |
| SGA | 15 | 2,826 | 0.005 | 50.00 | 1.85 | 22.43 | 4.74 | 2.56 |
| Jean | 16 | 2,558 | 0.005 | 31.91 | 1.27 | 9.14 | 3.02 | 2.37 |
| Jean | 17 | 509 | 0.005 | 17.00 | 1.42 | 7.05 | 2.65 | 1.87 |

Source: AMC, 2023.

Figure 14.11 Example Au log histogram of SGA-Jean MINZONE 15 post-grade capping and compositing




Source: AMC, 2023.

## 14.5 Variography

### 14.5.1 Introduction

Variography was reviewed for capped gold grades at all deposits to:

- Determine the presence of anisotropy within the deposits.
- Determine spatial continuity of mineralization along the principal main anisotropic orientations.
- Produce suitable variogram model parameters for use in ordinary kriging gold grade interpolation.
- Assist in the Discrete Gaussian model change-of-support calculations used for calibration of the search neighbourhoods for the grade estimates (SGA-Jean).

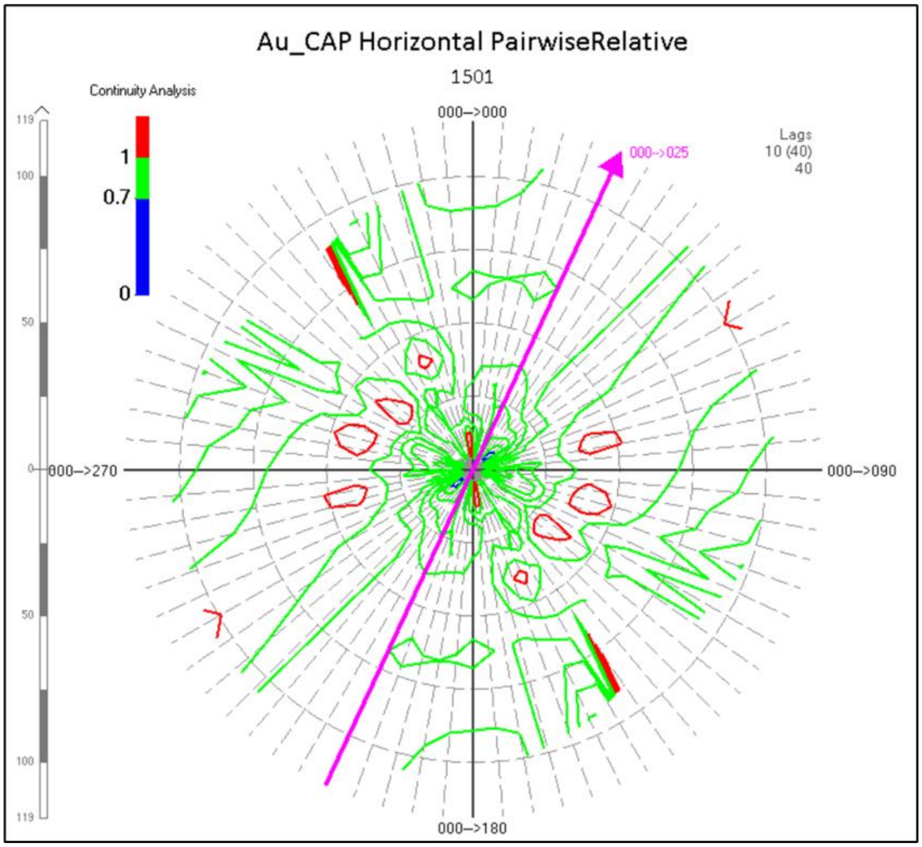
Variography has been carried out for the deposits using a combination of Snowdon Supervisor, Geovariances Isatis, and Datamine Studio RM.

### 14.5.2 Analysis

To facilitate the variography analysis, a subset of the data for each deposit domain was selected. These subsets correspond to the individual lode within each MINZONE (fault-block domain) for which there is the greatest amount of sample data to inform the analysis.

Global continuity plots (e.g. Figure 14.12) and directional variograms were initially produced for each domain subset to help ascertain the principal directions of anisotropy.

Figure 14.12 Example variogram continuity plot for SGA MINZONE 15 – lode/subdomain 1501



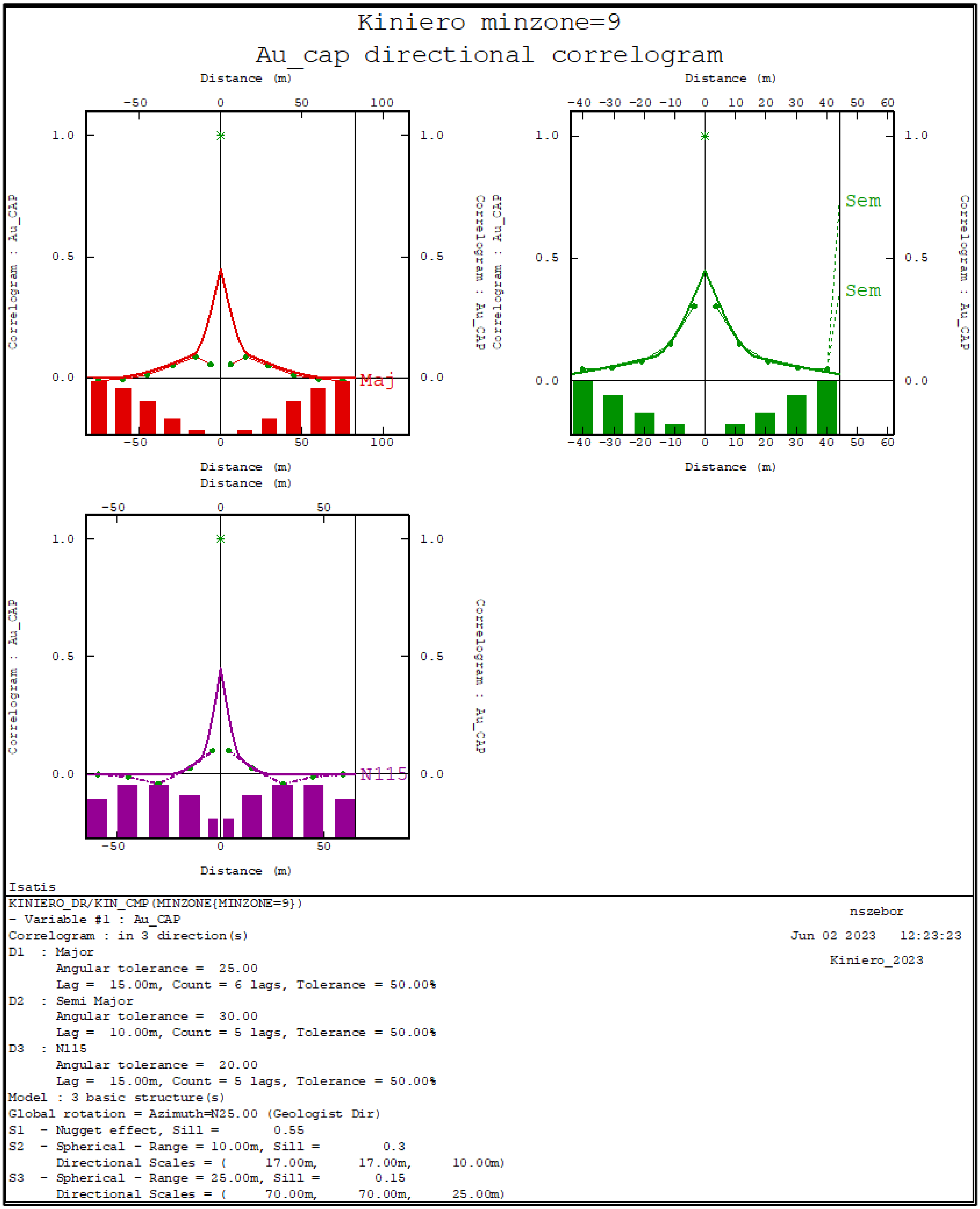

Source: AMC, 2023.

The continuity plots and directional variograms were then used to guide the subsequent anisotropy orientations for further variography.

For the variography, a mix of correlograms and pairwise relative variograms were used for modelling purposes (all generally referred to here as variograms), with variograms generated for the major, semi-major, and minor directions of continuity. An example of the directional correlogram models for SGA MINZONE 9 is shown in Figure 14.13. To ascertain the small-scale “nugget” variability, downhole correlograms were carried out using a lag of 2 m.

Whilst directional variogram models could be generated for a number of the domains for each deposit, some domains lacked sufficient data to derive reasonable models. In these instances, variogram models from an immediate adjacent area was adopted, or omnidirectional variograms were used. Spherical models with two structures have been fitted to the experimental models. A summary of the resultant variography models is provided in Table 14.7.

Figure 14.13 Example correlograms for SGA MINZONE 9 – lode/subdomain 901




Source: AMC, 2023.

## Table 14.7 Variography model summary

| Deposit | MINZONE | Rotation Angles (degrees) | | | Nugget | Sill 1 | Range Structure 1 (m) | | | Sill 2 | Range Structure 2 (m) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Major Axis | Semi Major Axis | Minor Axis | (C0%) | (C1%) | Major | Semi Major | Minor | (C2%) | Major | Semi Major | Minor |
| | | (dip/dip dir) | (dip/dip dir) | (dip/dip dir) | | | Axis | Axis | Axis | | Axis | Axis | Axis |
| Jean | 2 | 80/100 | 00/190 | 10/280 | 0.37 | 0.37 | 13 | 24 | 8 | 0.18 | 48 | 47 | 13 |
| SGA | 3 | 00/030 | 85/120 | 05/300 | 0.55 | 0.35 | 20 | 14 | 11 | 0.10 | 55 | 45 | 20 |
| Jean | 4 | 80/100 | 00/190 | 10/280 | 0.37 | 0.37 | 13 | 24 | 8 | 0.18 | 48 | 47 | 13 |
| SGA | 5 | 00/030 | 85/120 | 05/300 | 0.55 | 0.35 | 20 | 14 | 11 | 0.10 | 55 | 45 | 20 |
| SGA | 6 | 00/025 | 55/115 | 35/295 | 0.55 | 0.25 | 70 | 17 | 10 | 0.20 | 105 | 35 | 25 |
| Jean/SGA | 7 | 80/100 | 00/190 | 10/280 | 0.37 | 0.37 | 13 | 24 | 8 | 0.18 | 48 | 47 | 13 |
| SGA | 8 | 00/038 | 48/128 | 42/308 | 0.55 | 0.35 | 7 | 7 | 5 | 0.10 | 22 | 22 | 12 |
| SGA | 9 | 00/025 | 40/115 | 50/295 | 0.55 | 0.30 | 17 | 17 | 10 | 0.15 | 70 | 70 | 25 |
| SGA | 10 | 00/085 | 45/175 | 45/355 | 0.55 | 0.25 | 10 | 7 | 5 | 0.20 | 30 | 15 | 12 |
| SGA | 12 | 00/025 | 40/115 | 50/295 | 0.55 | 0.30 | 17 | 17 | 10 | 0.15 | 70 | 70 | 25 |
| SGA | 13 | 00/034 | 50/140 | 40/320 | 0.55 | 0.25 | 10 | 10 | 10 | 0.20 | 50 | 35 | 35 |
| SGA | 15 | 00/025 | 55/115 | 35/295 | 0.55 | 0.25 | 70 | 17 | 10 | 0.20 | 105 | 35 | 25 |
| Jean | 16 | 00/016 | 85/106 | 05/286 | 0.55 | 0.2 | 10 | 10 | 8 | 0.25 | 28 | 28 | 20 |
| Jean | 17 | 80/100 | 00/190 | 10/280 | 0.37 | 0.37 | 13 | 24 | 8 | 0.18 | 48 | 47 | 13 |
| Sabali South | All | Omnidirectional | | | 0.61 | 0.17 | 8 | 8 | 8 | 0.22 | 48 | 48 | 48 |
| Sabali North | All | Omnidirectional | | | 0.44 | 0.28 | 6 | 6 | 6 | 0.28 | 20 | 20 | 20 |
| Banfara | All | Omnidirectional | | | 0.37 | 0.3 | 10 | 10 | 10 | 0.34 | 43 | 43 | 43 |
| West Balan | 1,4,5,6 | 40/050 | 50/230 | 00/140 | 0.55 | 0.28 | 19 | 12 | 14 | 0.45 | 40 | 36 | 16 |
| West Balan | 7 | 40/050 | 50/230 | 00/140 | 0.8 | 0.45 | 14 | 14 | 16 | 0.35 | 58 | 57 | 34 |
| Mansounia Central | 1,2,3,9 | Omnidirectional | | | 0.54 | 0.29 | 8 | 8 | 8 | 0.17 | 21 | 21 | 21 |

Source: AMC, 2023.

Overall, the variogram results show high-nugget values reflective of the inherent small-scale grade variability encountered at the Project. Spatial grade continuity displays short ranges along the major and semi-major axis, typically <50 m.

## 14.6 Block models

Block models were constructed for each of the deposits, in the case of SGA and Jean these deposits have been grouped into a single block model. Block models were generated in Datamine Studio RM and assigned the respective key domain codes for the mineralization (MINZONE, subdomain/lode, e.g. Table 14.2) and weathering profiles.

The block models have been rotated around the vertical axis (Z-axis) to align the blocks to the overall strike orientations of the mineralization.

A larger parent cell size was applied for Mansounia Central to reflect the larger average sample spacing at this deposit.

A summary of the block model prototypes is provided in Table 14.8.

Table 14.8 Block model parameter summary

| Deposit | Model Origin | | | Rotation (degrees) | Parent Cell Size (m) | | | Number of Cells | | | Sub cell Size | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X | Y | Z | | X | Y | Z | X | Y | Z | X | Y | Z |
| SGA-Jean | 410439 | 1151652 | 135 | 025 | 5 | 12.5 | 5 | 769 | 277 | 115 | 2.5 | 6.25 | 2.5 |
| Sabali South | 412450 | 1148693 | -210 | 016 | 5 | 12.5 | 5 | 396 | 206 | 237 | 0.5 | 1.25 | 1.0 |
| Sabali North and Central | 413008 | 1150485 | -200 | 025 | 5 | 12.5 | 5 | 389 | 201 | 233 | 0.5 | 1.25 | 1.0 |
| West Balan | 407798 | 1155833 | -190 | 070 | 5 | 12.5 | 5 | 509 | 391 | 235 | 0.5 | 1.25 | 1.0 |
| Banfara | 410455 | 1152072 | 60 | 025 | 5 | 12.5 | 5 | 237 | 107 | 146 | 0.5 | 1.25 | 1.0 |
| Mansounia Central | 411485 | 1147988 | 0 | 052 | 10 | 25 | 10 | 197 | 107 | 93 | 1.0 | 1.25 | 1.0 |

Source: AMC, 2023.

## 14.7 Bulk density

Bulk density measurements have been completed by previous operators of the Project, as well as more recently by SMG as detailed in Section 11.2.

The density measurements were checked for correlation with gold grade. No relationships were identified.

The spatial distribution of the density samples precludes the estimation of density values into the block models. For the purpose of the Mineral Resource estimates, average densities based on a deposit and weathering profile unit have been assigned. Density measurements have not been taken for West Balan and Banfara; however, given their proximity and similarity to SGA they have been assigned the same density values.

Density data was also reviewed to assess for any outlier measurements which may bias the statistical averages. No significant outliers were identified.

A summary of the final bulk densities applied to the Mineral Resource block models is provided in Table 14.9.

Table 14.9 Summary of bulk densities applied to Mineral Resource block models

| **Deposit** | **Weathering** | **Average Density (t/m³)** |
|---|---|---|
| Jean | Laterite (laterite and mottled) | 1.81 |
| | Saprolite (upper and lower) | 1.59 |
| | Saprock | 2.31 |
| | Fresh | 2.64 |
| SGA, West Balan and Banfara | Laterite (laterite and mottled) | 1.85 |
| | Saprolite (upper and lower) | 1.75 |
| | Saprock | 2.45 |
| | Fresh | 2.76 |
| Sabali South | Laterite | 2.21 |
| | Mottled | 1.82 |
| | Upper Saprolite | 1.58 |
| | Lower Saprolite | 1.77 |
| | Saprock | 2.1 |
| | Fresh | 2.61 |
| Sabali North and Central | Laterite (laterite and mottled) | 2.12 |
| | Saprolite (upper and lower) | 1.48 |
| | Saprock | 2.18 |
| | Fresh | 2.71 |
| Mansounia | Laterite (laterite and mottled) | 1.91 |
| | Saprolite (upper and lower) | 1.6 |
| | Saprock | 2.47 |
| | Fresh | 2.65 |

Source: AMC, 2023.

A density of 1.5 t/m³ has been applied to the stockpiles. The choice of this density is based on the historical workings completed by SEMAFO and supported by some check measurements completed by SMG. To check the potential stockpile densities, SMG excavated five pits on the stockpiles. The material extracted was weighed and the pit lined with a plastic sheet before being filled with water to calculate the volume of material extracted. The resultant measurements showed densities ranging between 1.14 t/m³ and 2.04 t/m³. The level of compaction and density will vary according to type of material on the stockpiles and age of the stockpiles.

## 14.8 SGA-Jean search strategy and grade interpolation

### 14.8.1 Dynamic anisotropy

To better reflect the small changes in strike and dip orientations of the mineralization, dynamic anisotropy has been applied to alter the search ellipse orientation on a block-by-block basis.

For SGA and Jean, strings representing the local strike and dip of mineralization throughout the mineralization were created. Given the inherent internal small-scale variability of mineralization at SGA and Jean, this approach was considered to give the greatest degree of control on search orientations. Dynamic anisotropy for the other deposits utilizes structural trend wireframes which have been constructed in Leapfrog Geo and based on the same trends used for the implicit wireframe modelling.

Based on the strings and wireframes a series of points were produced correlating to each point along the strings, or in the case of the wireframes each triangle. This was completed using the ANISOANG function in Datamine Studio RM. Each point generated contains calculated dip and dip direction records.

Using the resultant ANISOANG point file, dip and dip directions are estimated into the block models using a single non-expanding estimation run. Each block within the mineralized zones retains the dip and dip direction which is used to adjust the search ellipse orientations during grade estimation.

### 14.8.2 Grade estimation parameters

Grade estimates for the mineralized zones were carried out using ordinary kriging as the principal interpolation method.

A three-stage approach was completed for the estimation of SGA, Jean, and Sabali South. The aim of the three-stage approach is to provide a distance-limited estimate for higher grade samples. This approach helps to reduce the potential influence of the higher-grades on adjacent lower-grade areas.

The first-stage comprises an initial estimation run to flag blocks in the model which are in immediate proximity to higher-grade samples. A review of the flagged, grade-capped, and composited sample data was undertaken to ascertain inflection points in the sample populations in the higher-grade ranges. A summary of the higher-grade flag limits for SGA and Jean is provided in Table 14.10.

Samples with grades equalling or exceeding the high grade flag limits shown in Table 14.10 were assigned a value of "1" in an indicator field with all other samples being set a flag of "0". The flag field was then estimated into the block model using each individual mineralized orebody subdomain, for each MINZONE, as the unique estimation domain. A total of 241 subdomains were estimated for SGA and Jean. Estimates for the flagging field were completed using a single nearest neighbour (NN) estimation process (Table 14.11).

Table 14.10 SGA-Jean high-grade indicator flagging limits for distance restriction processes

| Deposit | MINZONE | High Au Grade Flag Lower Limit (g/t) |
|---|---|---|
| Jean | 2 | 10 |
| SGA | 3 | 15 |
| Jean | 4 | 25 |
| SGA | 5 | 15 |
| SGA | 6 | 25 |
| Jean/SGA | 7 | 25 |
| SGA | 8 | 25 |
| SGA | 9 | 20 |
| SGA | 10 | 25 |
| SGA | 12 | 10 |
| SGA | 13 | 25 |
| SGA | 15 | 25 |
| Jean | 16 | 25 |
| Jean | 17 | 25 |

Source: AMC, 2023.

Following the estimation of the high-grade indicator field for the distance restriction processes into the models, a second-stage restricted ordinary kriged (ROK); uses a deliberately limited search neighbourhood) grade estimation was carried out. This second-stage ROK estimate comprised estimating grades into the blocks which had been flagged in the stage 1 NN estimate as being in higher-grade areas. This second-stage of the estimation process used all grades within the sample composite file and was carried out for the key fields of MINZONE and SUBDOMAIN basis. A summary of the estimation parameters applied is shown in Table 14.11. The final third estimation stage also used the ROK process and estimated all remaining blocks which had not been flagged as being proximal to the high-grades defined by the indicators. For this third-stage estimation run, any sample composites flagged as high-grade were excluded. The same estimation parameters (Table 14.11) used for ROK estimation of the high-grades were used for this third estimation run. This process effectively restricted high-grades above the defined thresholds to blocks within the immediate vicinity of the high-grade composites

The ROK estimations completed for SGA-Jean were undertaken as an iterative process. A key part of refining the grade estimates was through the use of change-of-support calibration checks to assist with definition of an appropriate search neighbourhood. The general search parameters for SGA-Jean were then used to guide the estimation parameters for the other deposits at Kiniero. Additional checks were also carried out on a visual basis, and through the grade estimate validations (Section 14.10). Adjusted parameters included the high-grade flag limits, estimation search parameters, grade estimation minimum and maximum numbers of composites, and the maximum number of samples from any given drillhole.

## Table 14.11 Summary of SGA-Jean search parameters

| Deposit | Estimation Stage | MINZONE | Search Ellipse Ranges | | | Search Ellipse Orientation | | | First Pass | | Second Pass | | | Max. Nº. of comps from any drillhole |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Major Axis (m) | Semi-Major Axis (m) | Minor Axis (m) | Major Axis (º) | Semi-Major Axis (º) | Minor Axis (º) | Min. Nº. of Comps Used | Max. Nº. of Comps Used | Search volume factor | Min. Nº. of comps used | Max. Nº. of comps used | |
| SGA/Jean | High-grade flag (Stage 1) using indicator field and NN estimation process | 2 | 25 | 25 | 5 | Dynamic anisotropy | | | 4 | 10 | | | | 3 |
| | | 3 | 25 | 10 | 10 | | | | 4 | 10 | | | | 3 |
| | | 4 | 80 | 80 | 15 | | | | 4 | 10 | | | | 3 |
| | | 5 | 25 | 5 | 5 | | | | 4 | 10 | | | | 3 |
| | | 6 | 25 | 15 | 5 | | | | 4 | 10 | | | | 3 |
| | | 7 | 12.5 | 12.5 | 5 | | | | 4 | 10 | | | | 3 |
| | | 8 | 25 | 7.5 | 5 | | | | 4 | 10 | | | | 3 |
| | | 9 | 25 | 20 | 20 | | | | 4 | 10 | | | | 3 |
| | | 10 | 10 | 10 | 12.5 | | | | 4 | 10 | | | | 3 |
| | | 12 | 25 | 12.5 | 12.5 | | | | 4 | 10 | | | | 3 |
| | | 13 | 25 | 12.5 | 12.5 | | | | 4 | 10 | | | | 3 |
| | | 15 | 80 | 40 | 15 | | | | 4 | 10 | | | | 3 |
| | | 16 | 15 | 12.5 | 5 | | | | 4 | 10 | | | | 3 |
| | | 17 | 15 | 12.5 | 5 | | | | 4 | 10 | | | | 3 |
| | High-grade and lower-grade ROK estimates (Stage 2 and 3) | 2 | 80 | 80 | 10 | | | | 4 | 8 | 3 | 4 | 8 | 3 |
| | | 3 | 80 | 80 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 4 | 80 | 80 | 15 | | | | 4 | 8 | 3 | 4 | 8 | 3 |
| | | 5 | 80 | 80 | 10 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 6 | 80 | 40 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 7 | 80 | 80 | 15 | | | | 4 | 8 | 3 | 4 | 8 | 3 |
| | | 8 | 25 | 25 | 12 | | | | 4 | 7 | 4 | 4 | 7 | 3 |
| | | 9 | 80 | 40 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 10 | 40 | 15 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 12 | 80 | 40 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 13 | 80 | 30 | 30 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 15 | 80 | 40 | 15 | | | | 4 | 7 | 3 | 4 | 7 | 3 |
| | | 16 | 80 | 80 | 15 | | | | 4 | 8 | 3 | 4 | 8 | 3 |
| | | 17 | 80 | 80 | 15 | | | | 4 | 8 | 3 | 4 | 8 | 3 |

Source: AMC, 2023.

### 14.8.3 SGA and Jean change-of-support calibration

#### 14.8.3.1 Overview

To help check the suitability of the estimation parameters being employed for the SGA-Jean deposits, a change-of-support calibration exercise was conducted. The change-of-support estimates utilize the sample data and variogram models to estimate theoretical metal, tonnage, and grade curves at the point scale (sample data), panel scale (25 m along-strike, 12.5 m across-strike, 5 m vertical) and selective mining unit (SMU) scale (12.5 m along-strike, 5 m across-strike, 5 m vertical). Using these theoretical curves, the actual block model grade estimates can be plotted against the curves. The grade estimate curves should plot between the panel and SMU theoretical curves, and ideally sit closer to the SMU theoretical curve.

For change-of-support estimates to work, the following is required:

- Suitable domaining of the sample data set.
- Stable declustering of the composite data.
- Robust variogram models.

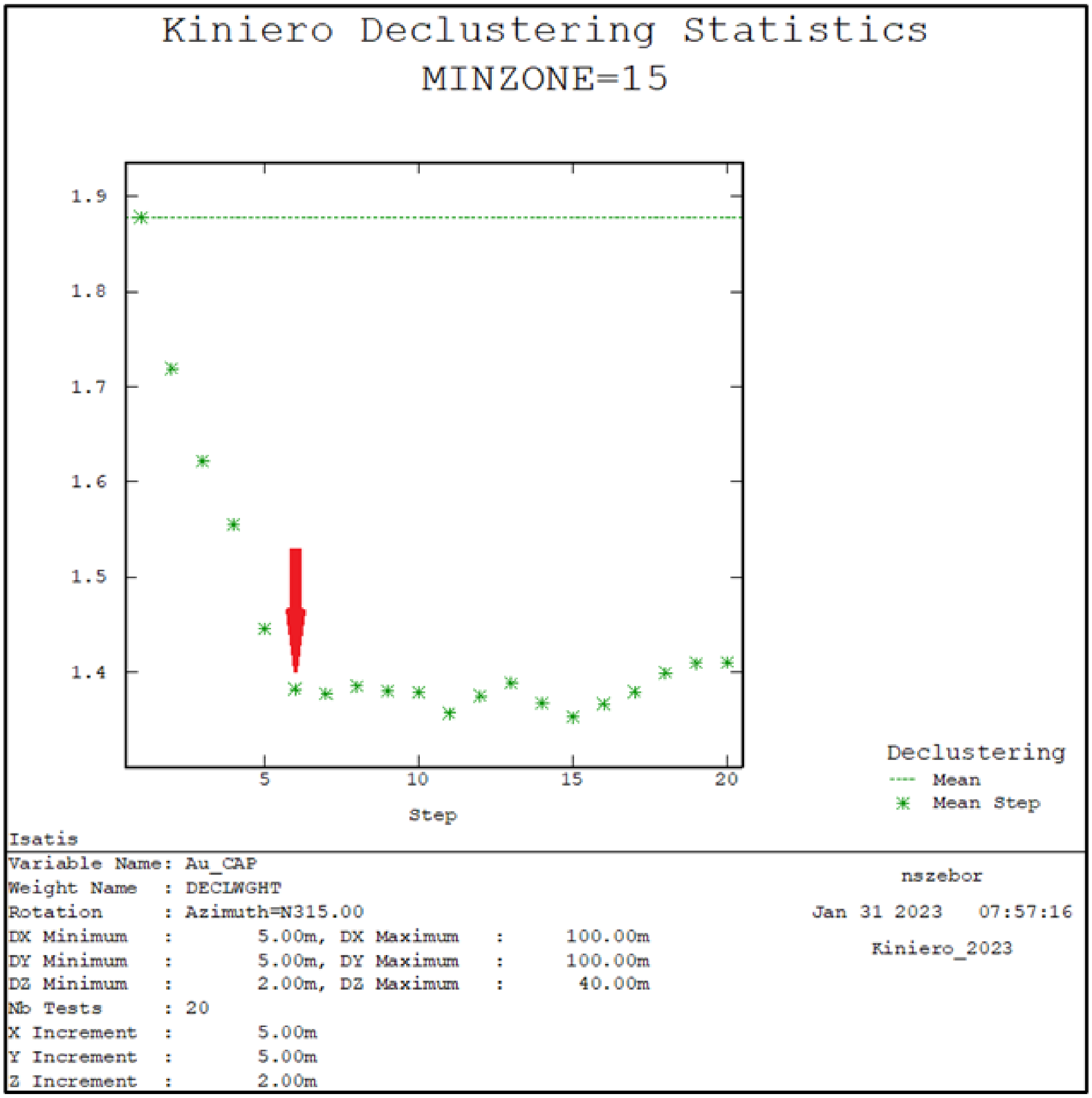
For the purpose of the SGA and Jean change-of-support calculations, stable declustering solutions and variogram models could only be completed for MINZONE 15 and MINZONE 9. These domains were used to calibrate the grade estimates and the resultant estimation parameters (minimum and maximum number of samples) applied to the remaining domains.

#### 14.8.3.2 Declustering

Declustering is important given it moderates data-clustering, including both high and low-grades. Declustering was attempted for all MINZONE domains and was completed using ISATIS rotated cell declustering algorithm. The declustering used the diagnostic output plots (Figure 14.14) produced in ISATIS to guide the selection of the declustering solution.

MINZONE 15 yielded the most robust declustering solution. Other domains which provided declustering solutions included MINZONE 9 and 4. Poor declustering solutions were obtained for the other domains. The results for MINZONE 15 showed that a declustering size of 30 m by 30 m by 12 m would result in an average mean grade of 1.38 g/t Au with a corresponding reduction in variance.

Figure 14.14 SGA MINZONE 15 declustering diagnostic plot




Source: AMC, 2023.

#### 14.8.3.3 Gaussian anamorphosis and Gaussian variograms

Gaussian distributions have unique and desirable properties within geostatistics—namely they can be fully defined by the mean and variance – N(0,1)—essentially a mean of zero and a variance of 1.

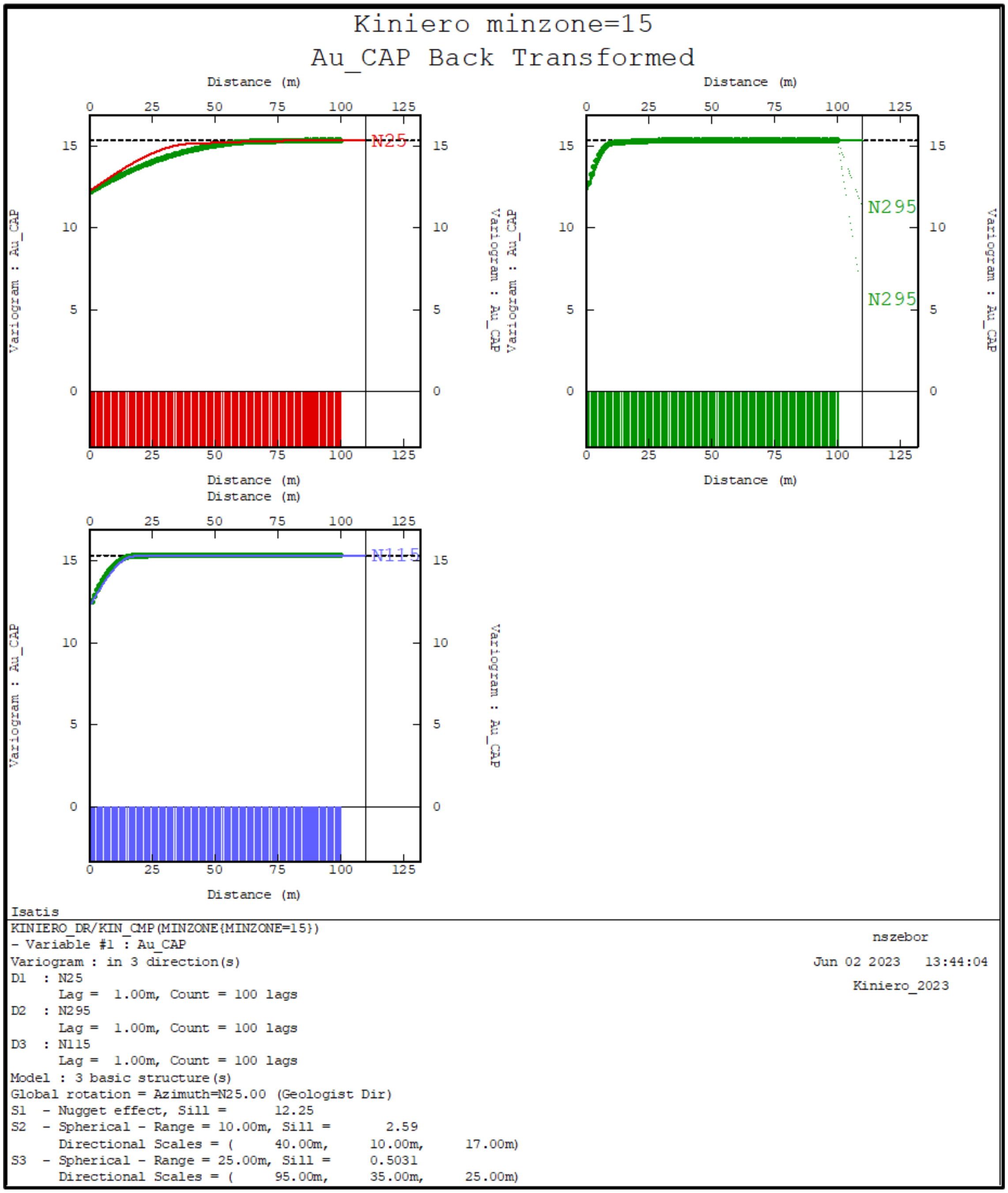
Hard-rock precious metal distributions do not have Gaussian distributions but typically have something that more resembles log or near log normal, positively skewed distributions.

By using hermite polynomials within ISATIS, it is possible to map the skewed non-parametric distributions onto a Gaussian distribution and work in Gaussian space.

This process is known as Gaussian anamorphosis and is key to the change-of-support process which adjusts the point (declustered sample) variance of the data to match an expected variance of a chosen block size. Larger blocks (panel estimates) will have lower block variance and infer lower mining selectivity, while smaller blocks for SMU models will have a higher block variance and increased apparent selectivity. SMU models are useful where grade control and mining will eventually allow more selectivity than suggested by typical panel models.

The resultant transformed Gaussian grades were then used to generate normal variogram models which were subsequently back-transformed from Gaussian to raw Au grades in ISATIS (e.g. Figure 14.15). The ranges used in the back-transformed variogram models correspond to the ranges originally defined in the correlogram models (Section 14.5).

Figure 14.15 Example back-transformed variogram results for SGA MINZONE 15




Source: AMC, 2023.

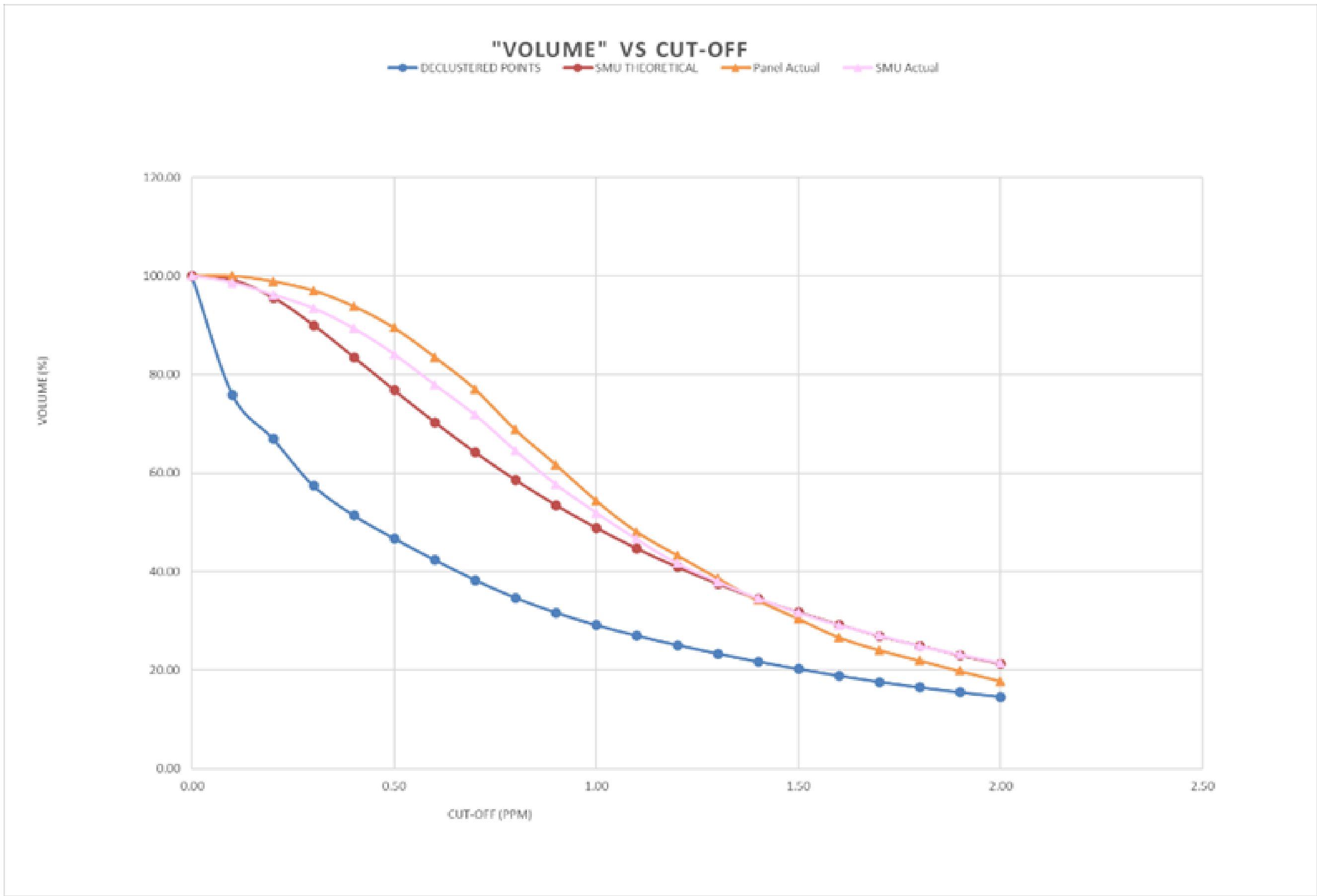
#### 14.8.3.4 Change-of-support

A change-of-support adjustment was applied for SGA MINZONE 15 and 9 to produce theoretical estimates correlating with a panel estimate (25 m along-strike, 12.5 m across-strike and 5 m vertical) and SMU scale (12.5 m along-strike, 5 m across-strike, 5 m vertical) block dimensions.

Using the change-of-support calculations, theoretical curves were generated for the declustered sample composite data (point scale), panel estimate, and SMU estimates scales. The theoretical curves included curves for volume (Figure 14.16), grade (Figure 14.17), and metal (Figure 14.18).

The Mineral Resource grade estimates were plotted onto the change-of-support graphs to assess how much grade smoothing or selectivity was being exhibited by the grade estimates. The estimation search parameters were subsequently adjusted on an iterative basis to dial-in the actual grade estimates closer to the target theoretical SMU estimates shown in the calibration curves.

Figure 14.16 Change-of-support volume calibration curves for SGA MINZONE 15




Source: AMC, 2023.

Figure 14.17 Change-of-support mean grade calibration curves for SGA MINZONE 15


Source: AMC, 2023.

## 14.9 Search and estimation strategy – other deposits

This section details the search and estimation strategy for the Sabali South, North and Central, Mansounia Central, Banfara, and West Balan deposits.

### 14.9.1 Dynamic anisotropy

Structural data points were digitized manually for each of the deposits to control the mineralization trends. These structural data points were then used to estimate Leapfrog form interpolants for the mineralization domains at each of the deposits. These were then imported into Datamine Studio RM as wireframe surfaces.

The Datamine Studio RM process ANISOANG was used to generate trend data points with the dip and dip directions of the mineralization trends as defined by the form interpolant wireframe surfaces.

Using the resultant ANISOANG point file, dip, and dip directions are estimated into the block models using a single non-expanding estimation run. Each block within the estimated retains the dip and dip direction which is used to adjust the search ellipse orientations during grade estimation.

### 14.9.2 Grade estimation parameters

As for SGA-Jean, ROK with a multi-pass search was used to estimate grades into the block models for each of the deposits. The minimum, maximum, and average distances of the samples used to estimate a block were determined for all estimates and used to guide the manual classification process. All estimates of the mineralized zones were generated using the MINZONE and LODE key fields (or equivalents thereof).

All deposits were estimated using a distance-limited approach to restrict the influence of higher-grade samples on the local estimates as used for SGA-Jean. The data distribution per domain was reviewed and a high-grade "shoulder" in the distribution was selected and iteratively adjusted up or down based on estimation results. Samples above this shoulder were flagged with a 1 and this value was estimated into the block model using NN estimation and a 12.5 m by 12.5 m by 5 m search ellipse oriented using dynamic anisotropy. This search ellipse was selected based on the densest data spacing and therefore limits the range of influence of the high-grade samples to one full section line spacing i.e. 25 m by 25 m by 10 m.

The primary grade search ellipses used are based on the average variogram range and an imposed anisotropy of 5:1 or 10:1 and was set to either 50 m by 50 m by 10 m (or 5 m). Qualitative kriging neighbourhood analyses (QKNA) were not appropriate or robust due to poor quality variograms.

The high-grade domain (defined by the NN process outlined above) was then estimated using ROK and all of the available data, while the "low" grade domains (outside of the high-grade domain blocks) were estimated using ROK while excluding the high-grade flagged samples. In this manner, a directional soft-boundary-in, hard-boundary-out of the high-grade domains was effected. This approach limited the influence of the valid higher-grade samples to a restricted volume where standard linear estimation would have required heavy capping or additional subdomaining.

Both ROK estimation passes used a deliberately limited number of composite data for the SMU estimates. No octants were used, and any negative kriging weights were retained (mitigated substantially by the restricted search neighbourhood). The laterite or supergene estimates were set to estimate the domain in a reasonable manner. These domains warrant further investigation to refine the definition process, particularly in areas outside of the immediate vicinity of the primary structures. The main grade search parameters are summarized in (Figure 14.13) and the high-grade value used to define the distance limits are presented in (Table 14.12).

Table 14.12 High-grade restriction value per mineralized domain

| Deposit and MINZONE | | High Grade Restrict Au (g/t) |
|---|---|---|
| Sabali North and Central | 1 | 12 |
| | 2 | n/a |
| | 3 | 6 |
| | 4 | 14 |
| | 5 | 5 |
| | 6 | n/a |
| Sabali South | 1 | 6 |
| | 2 | 6 |
| | 3 | n/a |
| | 4 | 22 |
| | 9 (Supergene) | n/a |
| West Balan | 1 | n/a |
| | 4 | n/a |
| | 5 | n/a |
| | 6 | 18 |
| | 7 | 20 |
| | 8 | 11 |
| | 9 | 12 |
| | 10 | n/a |
| Banfara | 1 | 11 |
| | 2 | n/a |
| | 3 | n/a |
| | 4 | n/a |
| Mansounia Central | 1 | 5 |
| | 2 | n/a |
| | 3 | 8 |
| | 9 (Supergene) | n/a |

Source: AMC, 2023.

### 14.9.3 Change-of-support

Change-of-support calculations were not completed for Sabali South, Central, and North, nor for West Balan, Banfara, and Mansounia Central due to weaker variograms and challenges in developing stable declustering parameters.

The SGA and Jean work guided the estimation parameters and neighbourhood selection in these domains. Calibrated estimation may be possible with refined domaining and additional data.

## Table 14.13 Summary of search parameters for Sabali corridor and other deposits

| Deposit | Domains | Search Ellipse Ranges | | | Search Ellipse Orientation | | | First Pass | | Second Pass | | | Max. Nº. of comps from any drillhole |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Major Axis (m) | Semi-Major Axis (m) | Minor Axis (m) | Major Axis (º) | Semi-Major Axis (º) | Minor Axis (º) | Min. Nº. of Comps Used | Max. Nº. of Comps Used | Search volume factor | Min. Nº. of comps used | Max. Nº. of comps used | |
| Sabali North and Central | Main Zones | 50 | 50 | 5 | Dynamic anisotropy | | | 6 | 9 | 5 | 6 | 9 | 3 |
| Sabali South | Main Zones | 50 | 50 | 5 | Dynamic anisotropy | | | 6 | 9 | 5 | 6 | 9 | 3 |
| | Supergene | 50 | 50 | 20 | Planar | | | 6 | 9 | 5 | 6 | 9 | 3 |
| West Balan | Main Zones | 50 | 50 | 10 | Dynamic anisotropy | | | 6 | 9 | 5 | 6 | 9 | 3 |
| | Laterite | 50 | 50 | 20 | Planar | | | 6 | 9 | 5 | 6 | 9 | 3 |
| Banfara | Main Zones | 50 | 50 | 5 | Dynamic anisotropy | | | 6 | 9 | 5 | 6 | 9 | 3 |
| Mansounia Central | Main Zones | 50 | 50 | 10 | Dynamic anisotropy | | | 6 | 9 | 5 | 6 | 9 | 3 |
| | Supergene | 50 | 50 | 20 | Planar | | | 6 | 9 | 5 | 6 | 9 | 3 |

Source: AMC, 2023.

## 14.10 Validation

A statistical and visual validation assessment of the block model grade estimates was carried out to check that the grade estimates conform to the sample composite data on which the estimates are based.

Validation methods employed included:

- Visual assessment.
- Global statistical grade validation.
- Grade profile analysis.

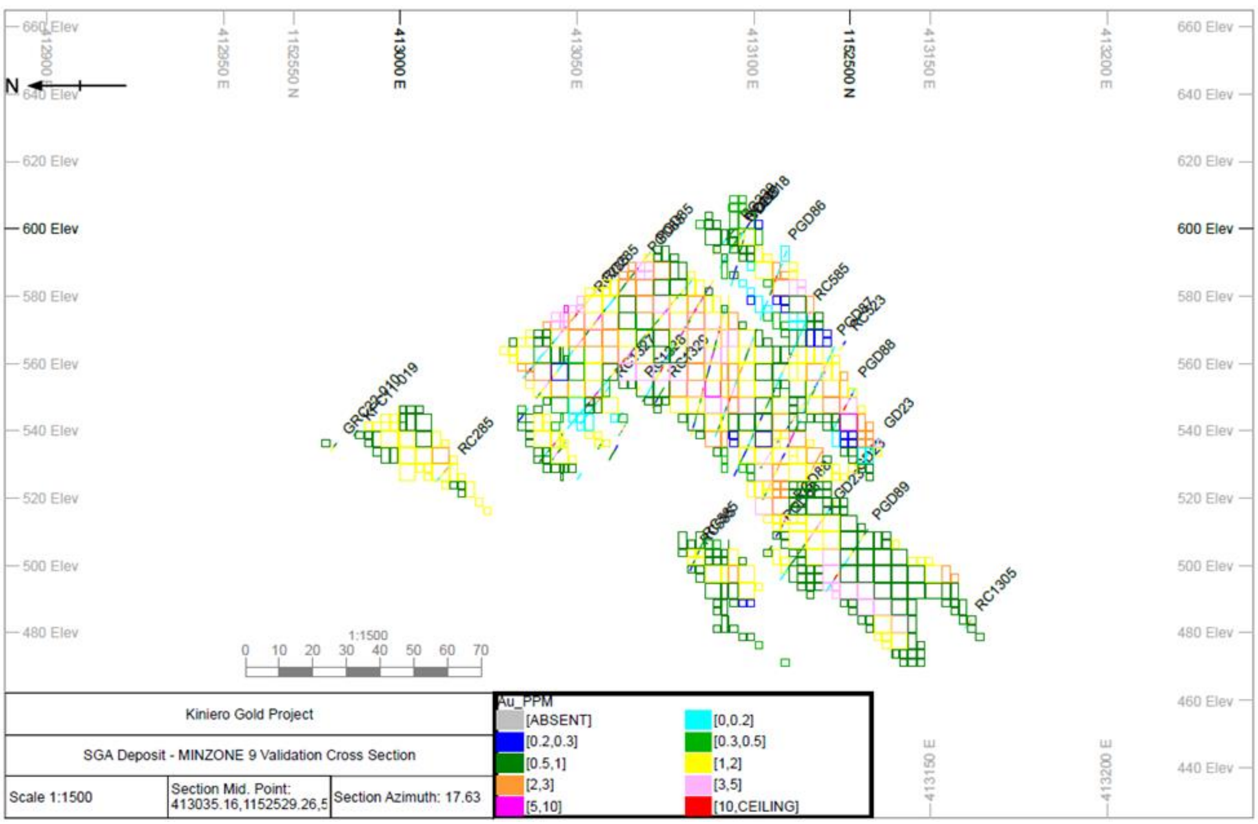
### 14.10.1 Visual

Visual checks of the grade estimates were carried out in plan, cross-section, and longitudinal section, correlating the sample composite grades against the block model estimated grades.

An example validation cross-section for SGA MINZONE 19 is shown in Figure 14.18.

Overall, the block models for each of the deposits shows the estimated grades to correlate with the sample composite data on which the estimates are based.

Figure 14.18 Example validation cross-section for SGA MINZONE 9 looking northeast




Source: AMC, 2023.

### 14.10.2 Average grades

A global grade comparison was carried out on a domain-by-domain basis for each of the deposits, comparing the block model estimated grades against the sample composite data. A global grade comparison provides a check on the reproduction of the mean grade of the composite data against the model over the global domain. Typically, the mean grade of the block model should not be significantly greater than that of the samples from which it has been derived, subject to the sample clustering and spacing at a 0 g/t cut-off grade. As seen in the validation curves for SGA-Jean in Section 14.8.3.4, the grades for the SMU blocks are expected to be lower than the declustered composite data throughout a spectrum of cut-off grades above 0 g/t due to the volume-variance changes between composites and ROK estimated SMU blocks.

An example summary of the global statistical comparison for SGA and Jean is provided in Table 14.14.

The average block model estimated grades show an expected reasonable correlation to the mean composite grades. The global grade comparison is not robust. Where differences occur, this typically relates to data clustering or zonal anisotropy (noting that the general table below combines multiple lodes within the MINZONE fault-block domains). The reported model also include a certain amount of extrapolated grade areas which also contributes to a variance. A lack of robust declustering solutions for each of the domains prevents deriving declustered grades for each domain.

These are expected and reasonable outcomes.

Table 14.14 Summary of SGA and Jean global statistical comparisons

| Deposit | MINZONE | Average Composite Grade (Au g/t) | Average Block Model Estimate Grade (Au g/t) |
|---|---|---|---|
| Jean | 2 | 1.05 | 0.98 |
| SGA | 3 | 1.14 | 1.09 |
| Jean | 4 | 1.71 | 1.40 |
| SGA | 5 | 1.30 | 1.18 |
| SGA | 6 | 1.94 | 1.47 |
| Jean/SGA | 7 | 2.17 | 1.59 |
| SGA | 8 | 1.29 | 1.32 |
| SGA | 9 | 1.68 | 1.47 |
| SGA | 10 | 1.95 | 2.05 |
| SGA | 12 | 1.22 | 0.87 |
| SGA | 13 | 1.35 | 1.39 |
| SGA | 15 | 1.85 | 1.32 |
| Jean | 16 | 1.27 | 1.27 |
| Jean | 17 | 1.42 | 1.69 |

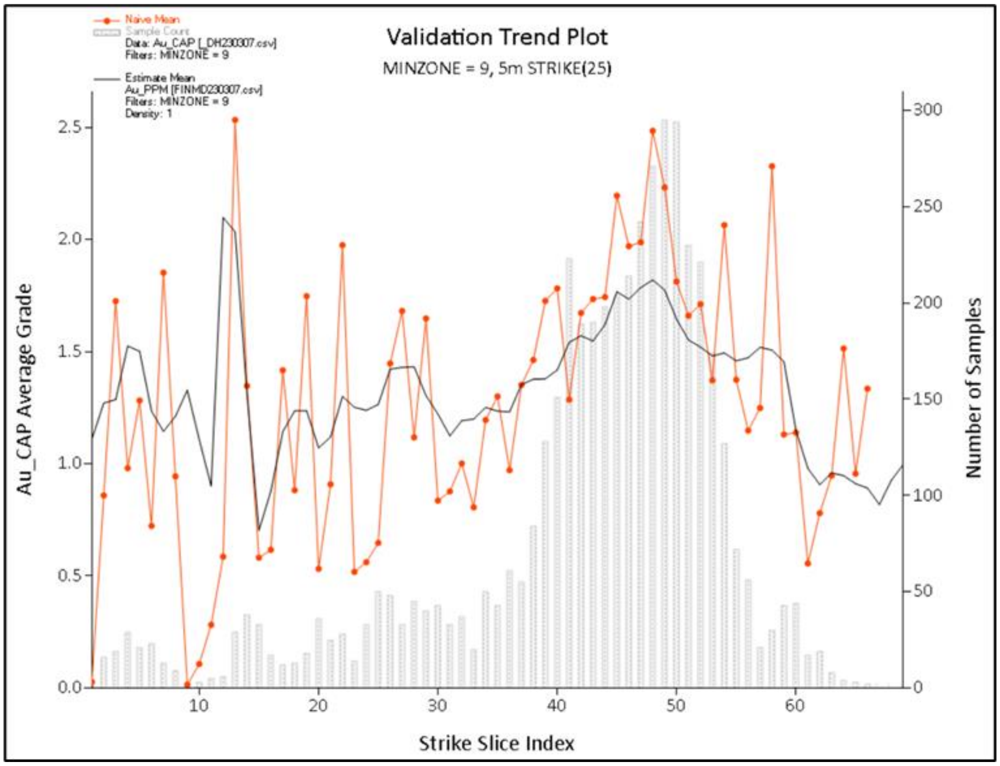
Source: AMC, 2023.

### 14.10.3 Grade profiles

To provide a greater resolution of detail than the global grade comparison, a series of local grade profile comparisons, also known as swath plots, has also been carried out for each of the deposits. A grade profile plot is a graphical representation of the grade distribution through the deposit derived from a series of swaths or bands, orientated along eastings, northings, or vertically. For each swath, the average grade of the composite data and the block model are correlated.

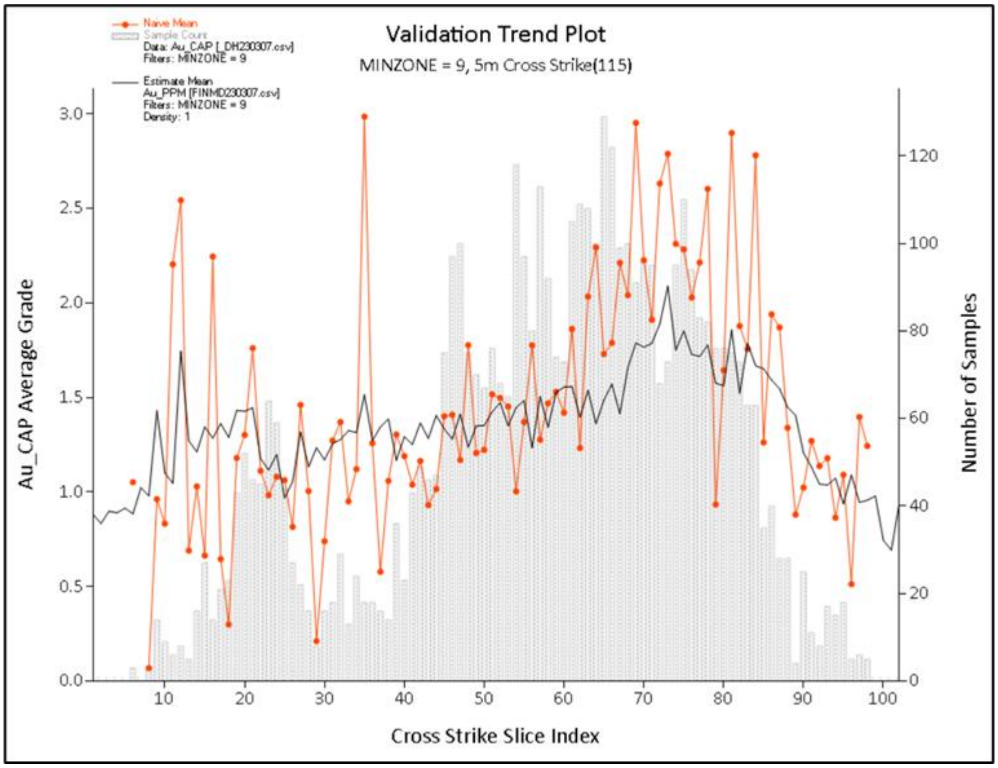
Example swath plots for SGA and Sabali South are shown in Figure 14.19 to Figure 14.22. Overall, the swath plot results show a reasonable correlation between the block model grade estimates and the sample composite data on which they are based. The use of a distance limited grade estimation method for SGA, Jean, and Sabali South, whereby the influence of high-grade samples is reduced, is evidenced in areas of the swath plots where high-grade averages are shown.

Figure 14.19 Example along-strike swath plot for SGA MINZONE 15



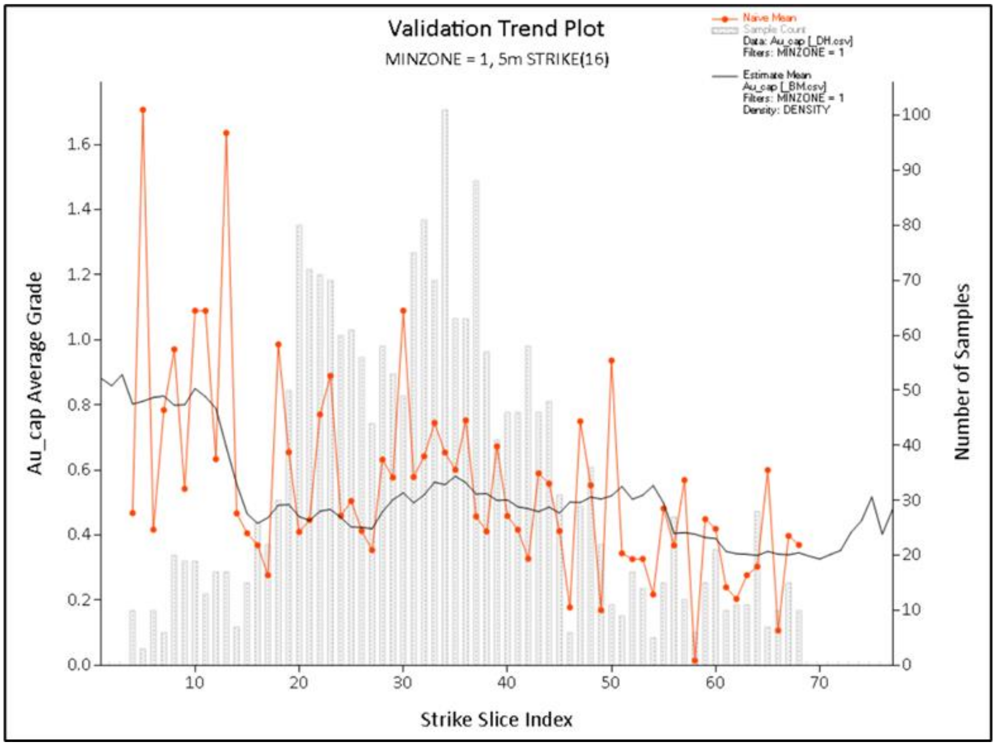

Source: AMC, 2023.

Figure 14.20 Example across-strike swath plot for SGA MINZONE 15



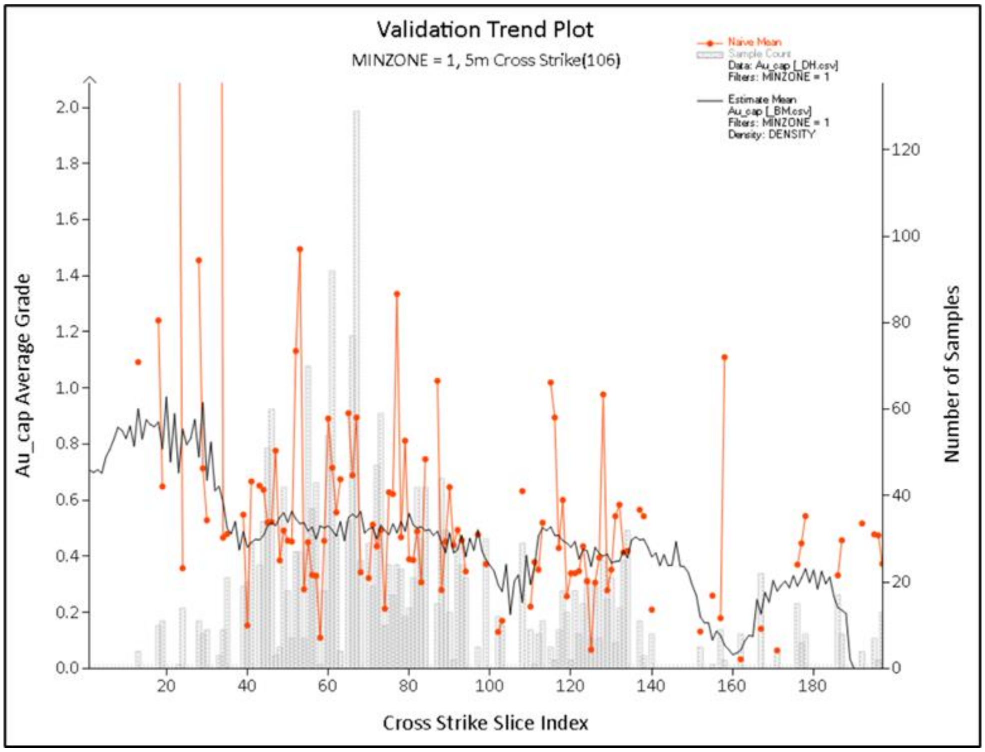

Source: AMC, 2023.

Figure 14.21 Example along-strike swath plot for Sabali South MINZONE 1




Source: AMC, 2023.

Figure 14.22 Example across-strike swath plot for Sabali South MINZONE 1




Source: AMC, 2023.

### 14.10.4 Validation summary

Based on the visual and statistical validation checks carried out by the QP, no significant indications of overestimation or underestimation were identified. The QP considers the estimated block model grades to be a fair representation of the contributing composite sample data.

## 14.11 Depletion and dumps

Open-pit mining activity has taken place historically at SGA, Jean, and Banfara deposits. Historical surveys prior to the cessation of mining activities have been digitized and developed into digital terrain models (DTMs). The most recent LiDAR survey does not provide survey information below the current pit flood waters. The LiDAR survey has therefore been merged with the historical pit surveys. The resultant topographic DTM has been used to deplete the block models for historical mining activity.

Comparing the recent LiDAR survey with the pre-mining surface enables definition of waste rock dumps, stockpiles, and backfill. These areas have been flagged within the block models and assigned a density of 1.5 t/m$^3$.

## 14.12 Reasonable prospects for eventual economic extraction

To report a Mineral Resource in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards on Mineral Resources and Reserves (CIM Definition Standards), there needs to be the reasonable prospect for eventual economic extraction (RPEEE).

To ascertain the Mineral Resources amenable to open-pit extraction, pit optimizations have been carried out on the block models using Whittle software. Table 14.15 summarizes the pit optimization parameters applied and the respective cut-off grades for reporting.

Table 14.15 Pit optimization parameters summary

| Inputs | Units | SGA | Jean | Sabali South | Sabali North and Central | West Balan | Banfara |
|---|---|---|---|---|---|---|---|
| Gold Price | US$/oz | 1,950 | 1,950 | 1,950 | 1,950 | 1,950 | 1,950 |
| Selling Cost | US$/oz | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 |
| Royalty | % | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| Selling Price | US$/g | 58.86 | 58.86 | 58.86 | 58.86 | 58.86 | 58.86 |
| Annual Discount Rate | %/annum | 5 | 5 | 5 | 5 | 5 | 5 |
| Mining Cost (Laterite) | US$/bcm | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| Mining Cost (Saprolite) | US$/bcm | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| Mining Cost (Saprock) | US$/bcm | 2.30 | 2.30 | 2.30 | 2.30 | 2.30 | 2.30 |
| Mining Cost (Fresh) | US$/bcm | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 | 3.51 |
| Mining Recovery | % | 95 | 95 | 95 | 95 | 95 | 95 |
| Mining Dilution | % | 16 | 20 | 18 | 19 | 18 | 21 |
| Processing Cost (Laterite) | US$/t ROM | 20.78 | 20.80 | 21.41 | 20.69 | 20.89 | 20.80 |
| Processing Cost (Saprolite) | US$/t ROM | 15.56 | 15.63 | 15.72 | 15.73 | 16.13 | 15.63 |
| Processing Cost (Saprock) | US$/t ROM | 21.34 | 21.36 | 21.54 | 21.37 | 21.77 | 21.36 |
| Processing Cost (Fresh) | US$/t ROM | 27.13 | 27.15 | 27.17 | 27.12 | 27.52 | 27.15 |
| Gold Recovery (Laterite) | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Gold Recovery (Saprolite) | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Gold Recovery (Saprock) | % | 92.0 | 92.0 | 62.5 | 50.0 | 92.0 | 92.0 |
| Gold Recovery (Fresh) | % | 86.0 | 86.0 | 60.0 | 65.0 | 86.0 | 86.0 |
| Breakeven cut-off grade (Laterite) | g/t | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Breakeven cut-off grade (Saprolite) | g/t | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 |
| Breakeven cut-off grade (Saprock) | g/t | 0.5 | 0.5 | 0.7 | 0.9 | 0.5 | 0.5 |
| Breakeven cut-off grade (Fresh) | g/t | 0.6 | 0.6 | 0.9 | 0.8 | 0.6 | 0.6 |

Source: AMC, 2023.

## 14.13 Mineral Resource classification

To classify the Mineral Resources at the Project, the QP has taken into account the following factors:

- Quality of data.
- Geological continuity and complexity.
- Spatial grade continuity.
- Quality of the interpretations and resultant Mineral Resource estimates.

Given the high degree of small-scale grade variability at each of the deposits, the QP is of the opinion that there are insufficient levels of confidence to report Mineral Resources at a Measured category. Whilst continuity was exhibited at a large-scale, the small-scale variability is likely to impact on the confidence placed in short-term mine planning. To provide greater confidence in short-term mine plans, the QP recommends extensive grade control drilling and sampling works to be undertaken.

Mineralized zones which have been modelled yet contain only a single drillhole intercept have not been assigned a Mineral Resource classification. This is due to the uncertainty in defining the mineralized volume and subsequent grade estimates.

Areas of the deposits classified as Indicated correspond to individual orebodies which have more than three drillholes informing them, and where the drillhole spacing is <30 m. Block models were reviewed in section and in plan, considering the distance between the blocks being estimated and the samples informing them. Consideration was also given for the geological complexity and suitability of the grade estimates. The use of wireframes to define the Indicated Mineral Resources helped to ensure continuity in the application of classifications.

Mineralization not making the criteria for Indicated and with drillholes spacing <100 m was typically classified as Inferred, including orebodies estimated based on two to three drillholes. Orebodies informed by two to three drillholes, but showing high geological complexity, clustering of sample data, or low-confidence grade estimates were downgraded to unclassified. Areas estimated where drillhole spacing is >100 m were also left unclassified.

## 14.14 Stockpiles

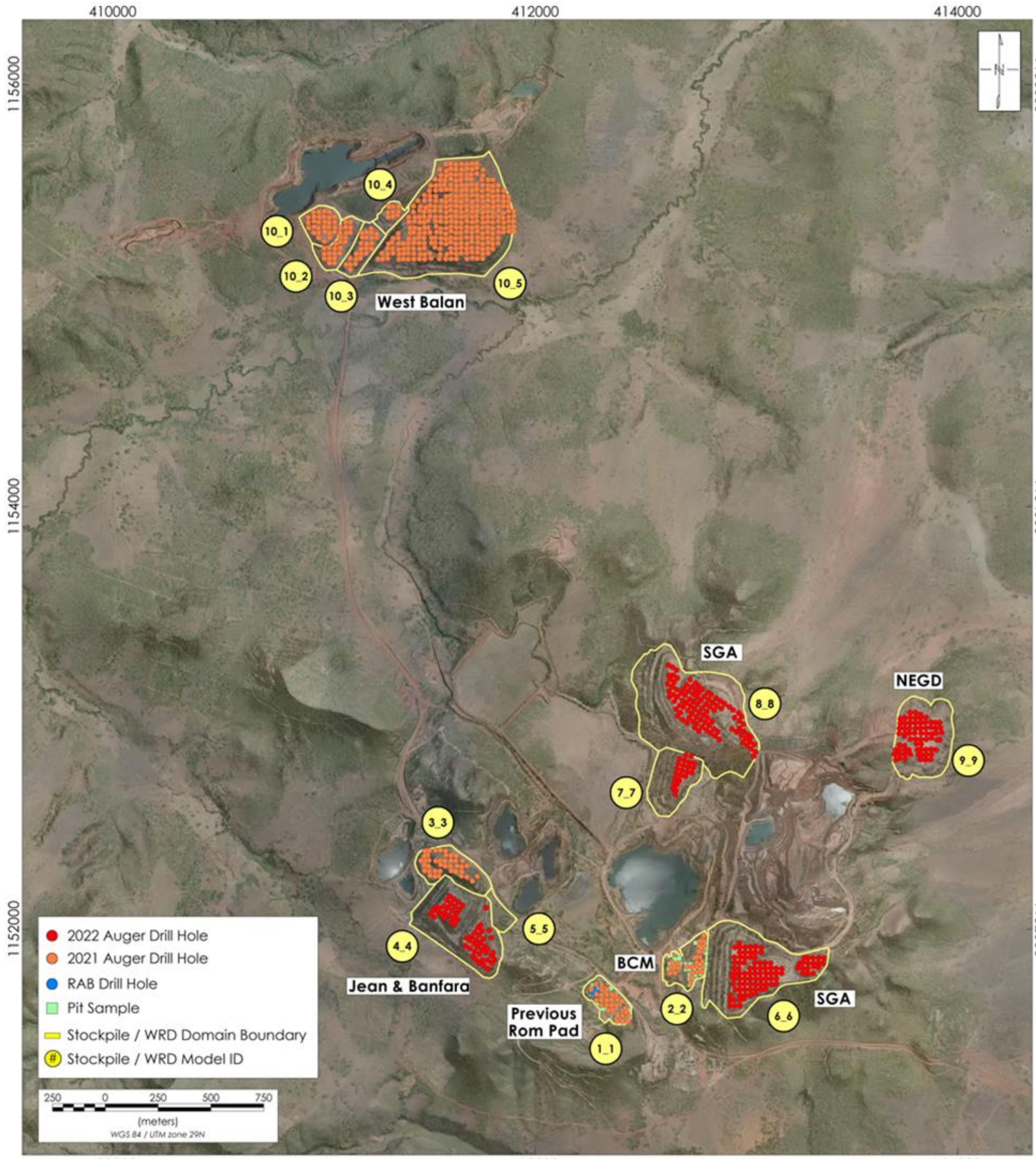
SMG has completed an extensive campaign of auger drilling (Table 14.16) on all available low-grade stockpiles and historical waste rock depositories (Figure 14.23) in an effort to quantify the contained metal. This was driven by the fact that the previous operators had a relatively high-grade cut-off (relative to current applied cut-offs for the different material types) and a very selective approach to mining. This meant that there was a high probability that mineralized material was discarded that might now be considered potentially economic.

Table 14.16 Summary of auger drilling completed at Kiniero

| Area | Type | Holes | Samples | Length (m) | Average Au (g/t) |
|---|---|---|---|---|---|
| Regional | Auger | 41 | 0 | 205 | - |
| Sector Gobelé A | Auger | 144 | 2,358 | 3,878 | 0.11 |
| SEMAFO Stockpiles | Auger | 877 | 8,683 | 12,473 | 0.35 |
| Jean | Auger | 36 | 456 | 911 | 0.15 |
| Zone C | Auger | 139 | 1,872 | 3,778 | 0.12 |

Source: AMC, 2023.

Figure 14.23 Relative locations of auger drilling and dump boundaries



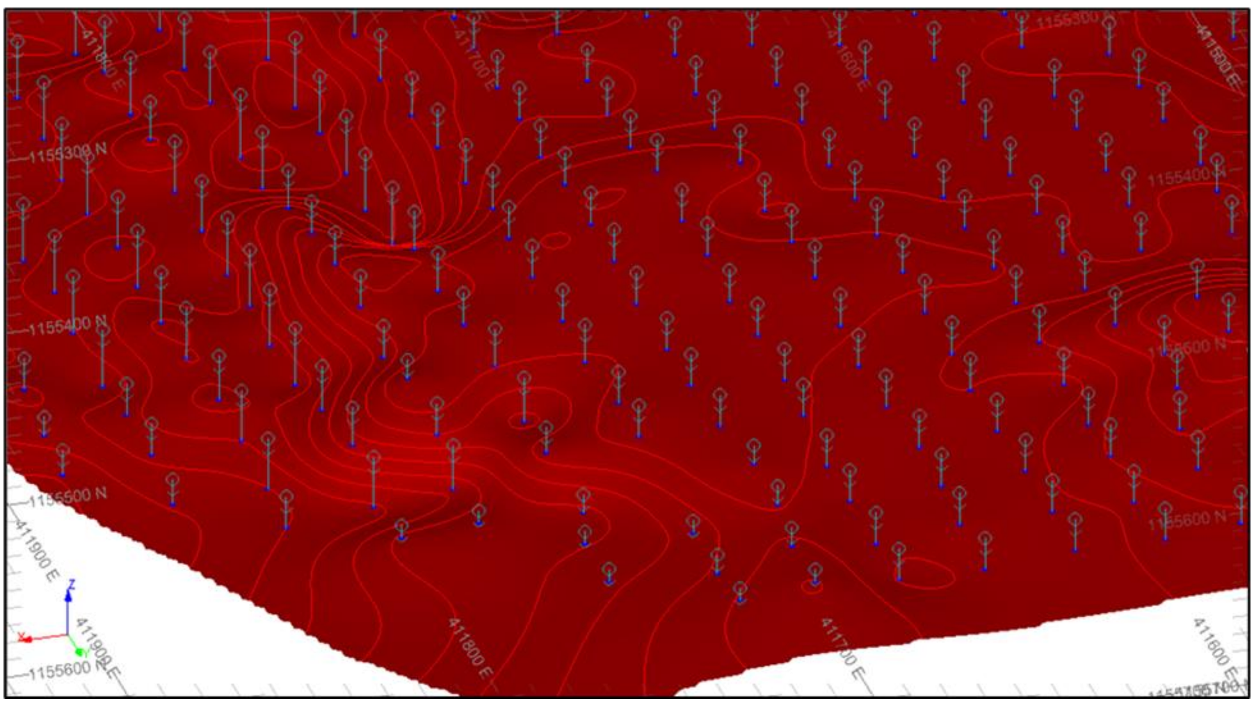

Source: SMG, 2023.

The modelling of the stockpiles used the auger data, pre-mining topography, and the 2021 LiDAR survey to define the total and informed volumes. The process is summarized as follows:

- Define outlines of each stockpile. This process was guided by the 2021 LiDAR survey data.
- Using the latest export from the database, select the auger samples within the dump boundaries.
- Generate a base-of-data surface (Figure 14.24) from the depth extents of the auger holes (some points deleted to make a reasonable surface). The full extents of the auger holes were used, and the surface contoured in Datamine Studio RM.
- Selection of drilling data above the base-of-data surface to deal and clip any of the holes that extend below the pre-mining surface (Figure 14.25).
- Generate a volumetric block model between the LiDAR topography and the pre-mining topography using a 25 m x 25 m single-cell seam block model. This model was flagged above and below the base-of-data (DUMP=1 – informed, DUMP=0 – no information) (Figure 14.26).
- Full length composites were generated from the selected samples and estimated into each dump domain using inverse distance weighting squared (IDW2) into the 25 m by 25 m blocks, using three to six composites and a single search with a 100 m radius.

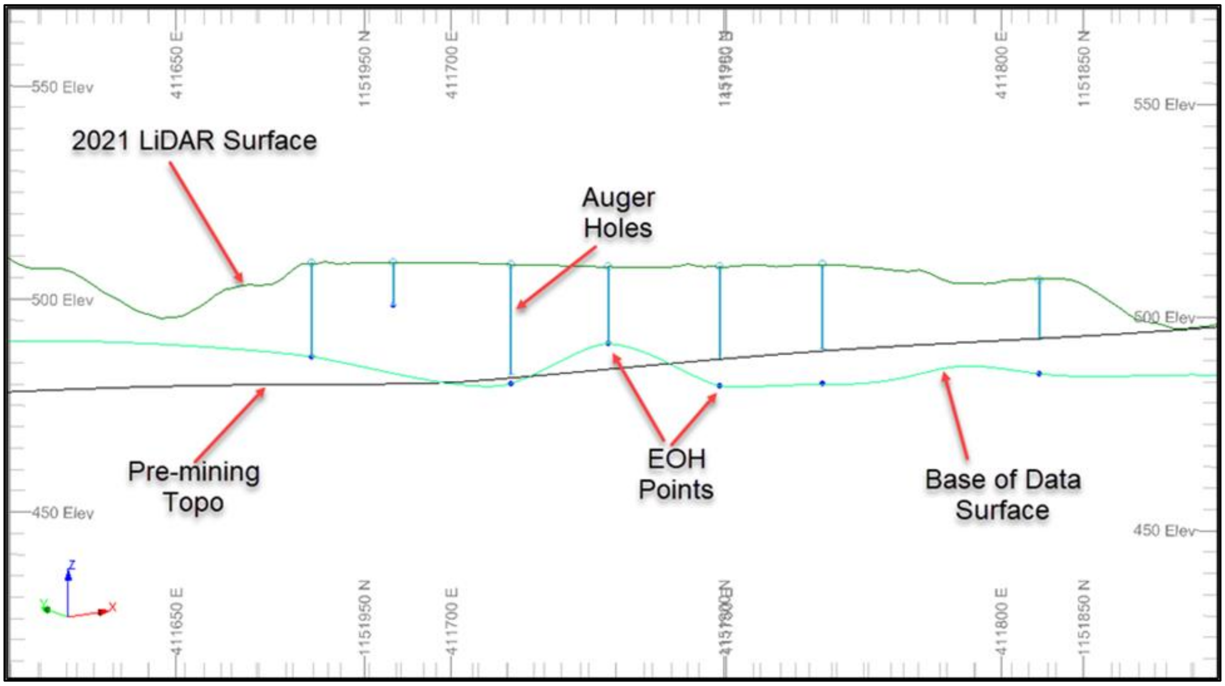
The resultant stockpile estimates were validated visually and statistically with the volume-weighted average grade of the stockpiles in close agreement with the selected composites (Figure 14.27).

Figure 14.24 Example oblique view of the base-of-data surface, looking south-west



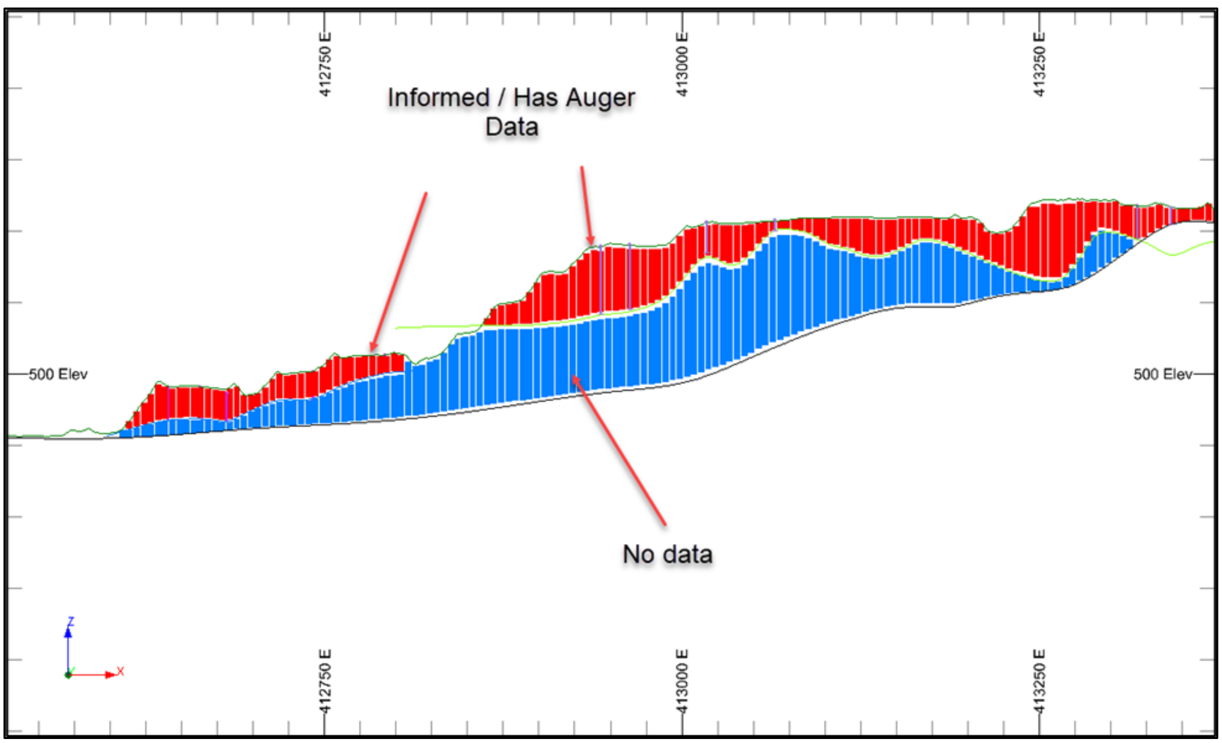

Source: SMG, 2023.

Figure 14.25 Example of samples clipped to base-of-data surface and pre-mining topography



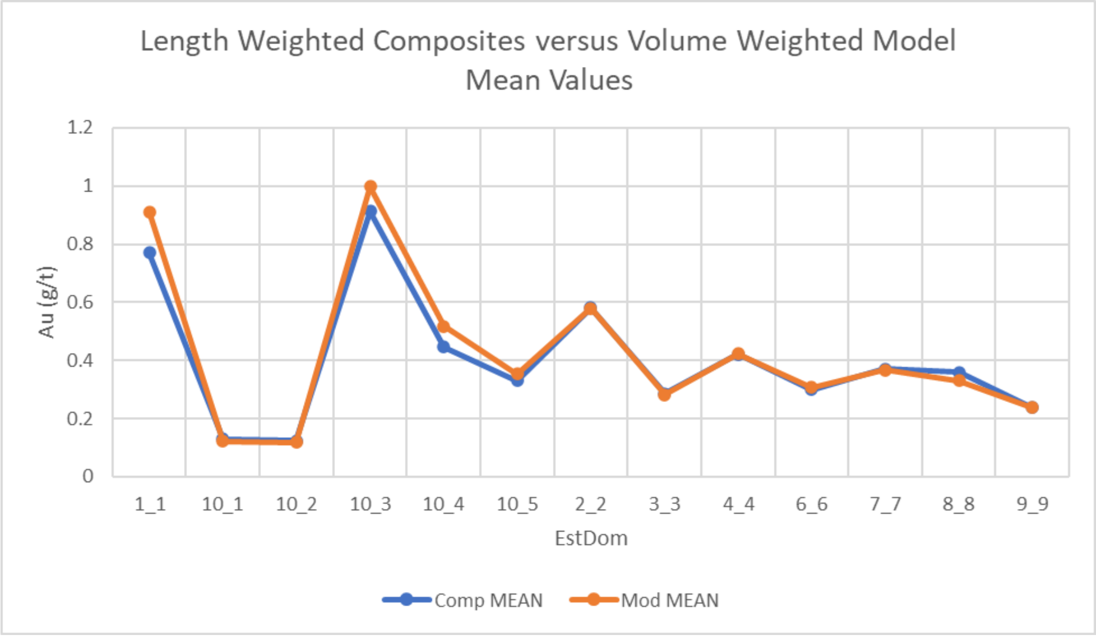

Source: SMG, 2023.

Figure 14.26 Example of stockpile seam block model, looking north




Source: SMG, 2023.

Figure 14.27 Comparison of mean stockpile estimated grades versus sample composites




Source: SMG, 2023.

Stockpiles reported as Mineral Resources have been limited to those dumps which exhibit an average grade >0.3 g/t Au and for which there are reasonable prospects that the stockpiles can be processed economically. The dumps which can be reported as Mineral Resources comprise:

- ROM stockpile.
- BCM stockpile.
- West Balan stockpile.
- Jean stockpile.
- South dump stockpile.
- SGC stockpile.
- North dump stockpile.

All stockpiles eligible to be reported as Mineral Resources have been classified as Indicated except for part of the West Balan stockpile which has been classified as Inferred. The area classified as Inferred corresponds to an area where a single high-grade sample is located at the periphery of the stockpile. Its location means there is less adjacent samples to constrain the estimate resulting in the high-grade sample exerting a significant influence on the surrounding grade estimates.

Stockpiles Mineral Resources are reported in their entirety. The models are not intended to infer any possibility of meaningful selectivity during recovery. Classification is only on the basis that all material is recovered and processed.

### 14.15 Mineral Resource reporting

The Mineral Resource estimates for the Project have been carried out in accordance with the CIM Definition Standards and are reported with an effective date of 12 November 2022.

The geological models used to prepare this Mineral Resource estimate have been prepared by Mr Nicholas Szebor, a Principal Geologist with AMC Consultants (UK) Limited and Mr Justin Glanvill, Resource Geologist with Robex Resources Inc. The QP, Mr Ingvar Kirchner, a Principal Geologist with AMC Consultants (Pty) Ltd has reviewed and supervised the estimation of the Mineral Resources.

Mr Ingvar Kirchner is a Qualified Person who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Mr Kirchner is a full-time employee of AMC Consultants and has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration, and to the activity being undertaken to qualify as a Qualified Person as defined by NI 43-101.

Table 14.17 summarizes the Mineral Resources for the Project. Mineral Resources are reported at a range of cut-off grades reflecting the different deposits and weathering units and the associated processing recoveries. The breakeven cut-off grades are summarized in Table 14.15.

Table 14.17 Summary Kiniero Gold Project Mineral Resources

| Deposit | Indicated | | | Inferred | | |
|---|---|---|---|---|---|---|
| | **Tonnes (Mt)** | **Au grade (g/t)** | **Contained Gold (koz)** | **Tonnes (Mt)** | **Au grade (g/t)** | **Contained Gold (koz)** |
| SGA | 11.04 | 1.57 | 556 | 9.64 | 1.54 | 479 |
| Jean | 4.31 | 1.81 | 251 | 1.63 | 1.68 | 88 |
| Sabali North and Central | 1.48 | 1.18 | 56 | 0.27 | 0.98 | 9 |
| Sabali South | 11.74 | 0.92 | 347 | 2.93 | 1.03 | 97 |
| West Balan | 2.11 | 1.48 | 100 | 0.84 | 1.51 | 41 |
| Banfara | 0.90 | 1.07 | 31 | 0.78 | 1.46 | 37 |
| Mansounia Central | - | - | - | 12.32 | 0.84 | 333 |
| **Total in situ** | **31.59** | **1.32** | **1,342** | **28.42** | **1.18** | **1,082** |
| Stockpiles | 11.61 | 0.37 | 139 | 0.19 | 1.31 | 8 |
| **Grand total** | **43.20** | **1.07** | **1,481** | **28.61** | **1.19** | **1,090** |

Notes:

1. Mineral Resources are not Reserves until they have demonstrated economic viability based on a feasibility study or pre-feasibility study.
2. The effective date of the Mineral Resources is 12 November 2022.
3. The date of closure for the sample database informing the in situ Mineral Resources is 17 August 2022. The date of date of database closure for the stockpiles is 12 November 2022.
4. Cut-off grades for Mineral Resource reporting are:
    a. SGA, Jean and Banfara: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.5 g/t Au, fresh 0.6 g/t Au.
    b. Sabali South: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.7 g/t Au, fresh 0.9 g/t Au.
    c. Sabali North and Central: laterite 0.5 g/t Au, saprolite (oxide) 0.3 g/t Au, saprock (transition) 0.9 g/t Au, fresh 0.8 g/t Au.
    d. West Balan: laterite 0.5 g/t Au, saprolite (oxide) 0.4 g/t Au, saprock (transition) 0.5 g/t Au, fresh 0.6 g/t Au.
    e. Stockpiles reported as Mineral Resources have been limited to those dumps which exhibit an average grade >0.3 g/t Au.
5. These are based on a gold price of US$1,950/oz and costs and recoveries appropriate to each pit and type of feed.
6. The QP for this Mineral Resource estimate is Mr Ingvar Kircher
7. Mineral Resources are reported inclusive of any Reserves.
8. Open-pit Mineral Resources have been constrained using conceptual open pits based on a gold price of 1,950 US$/oz.
9. The Mineral Resource has been compiled in accordance with the guidelines outlined in CIM Definition Standards.
10. Totals presented in this table are reported from the Mineral Resource models and are subject to rounding and may not sum exactly.

# 15 Mineral Reserve estimates

Mineral Resources and Mineral Reserves are reported in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). CIM (CIM, 2014) definitions were followed for Mineral Reserves.

Mineral Reserves were estimated by AMC using a gold price of US$1,650/oz with an Effective Date of 01 June 2023.

## 15.1 Mineral Reserves summary

The Kiniero Mineral Reserves are composed of open-pit Mineral Reserves of 21,410 kt at an average grade of 1.27 g/t Au containing 872 koz Au and historic stockpiles of 6,255 kt at an average grade of 0.48 g/t Au containing 96 koz Au. The consolidated open pit and stockpile Probable Reserves for Kiniero are presented in Table 15.1.

Table 15.1 Kiniero Mineral Reserves 01 June 2023

| Probable Mineral Reserves | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mining area | Oxide | | | Transition | | | Fresh | | | Total | | |
| | Tonnes (Kt) | Au Grade (g/t) | Au (koz) | Tonnes (kt) | Au Grade (g/t) | Au (koz) | Tonnes (kt) | Au Grade (g/t) | Au (koz) | Tonnes (kt) | Au Grade (g/t) | Au (koz) |
| Jean | 745 | 1.13 | 27 | 840 | 1.69 | 46 | 2,608 | 1.64 | 138 | 4,193 | 1.56 | 211 |
| SGA | 633 | 1.28 | 26 | 862 | 1.67 | 46 | 3,649 | 1.60 | 188 | 5,143 | 1.57 | 260 |
| SGD | 1,286 | 1.14 | 47 | 253 | 1.30 | 11 | 1,895 | 1.51 | 92 | 3,434 | 1.36 | 150 |
| Sabali South | 6,255 | 0.80 | 162 | 1,318 | 1.32 | 56 | 18 | 1.71 | 1 | 7,590 | 0.90 | 219 |
| Sabali North and Central | 1,049 | 0.97 | 33 | 0.00 | 0.00 | 0 | 0 | 0.00 | 0 | 1,049 | 0.97 | 33 |
| **Subtotal all pits** | **9,968** | **0.92** | **295** | **3,273** | **1.51** | **158** | **8,170** | **1.59** | **419** | **21,410** | **1.27** | **872** |
| Stockpiles | 6,255 | 0.48 | 96 | | | | | | | 6,255 | 0.48 | 96 |
| **Total Ore Reserves** | **16,223** | **0.75** | **391** | **3,273** | **1.51** | **158** | **8,170** | **1.59** | **419** | **27,665** | **1.09** | **968** |

Notes:

1. CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM, 2014) were used for reporting of Mineral Reserves.
2. Mineral Reserves are estimated using a long-term gold price of US$1,650 per troy oz for all mining areas.
3. Mineral Reserves are stated in terms of delivered tonnes and grade before process recovery.
4. Mineral Reserves are defined by pit optimization and are based on variable break-even cut-offs as generated by process destination and metallurgical recoveries.
5. Metal recoveries are variable dependent on material type and mining area (Table 15.9 of this Technical Report).
6. Open-pit dilution and geological ore loss is applied through the application of 1 m dilution skins to the resource block model using Mining Shape Optimiser (MSO).
7. Mining recovery of 99% applied to diluted open-pit inventories to account for operational losses.
8. The QP responsible for this item of the Technical Report is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimates.
9. Effective date of Mineral Reserves is 01 June 2023.
10. Tonnage and grade measurements are in metric units. Contained Au is reported as troy ounces.
11. Totals may not compute exactly due to rounding.

## 15.2 Mineral Reserves estimation method

The process through which the Mineral Reserves were determined was as follows:

1. Mineable Shape Optimiser (MSO) was applied to the resource block models to generate mining shapes and determine dilution and ore losses. The mining shapes were applied to the resource block models to generate diluted block models.
2. Geotechnical slope regions and pit optimization inputs, including mining and processing costs, were added to the diluted block models to create mining block models.
3. Pit optimization was undertaken on the mining block models using Datamine Studio NPV Scheduler and pit shells were selected from the results to form the basis of design.
4. Pit designs were created using Datamine Studio OP based on the selected pit shells and geotechnical and operational design criteria. The pit designs were split into practical mining phases.
5. Pit phase designs were imported into NPV Scheduler and a strategic schedule run to optimize net present value (NPV) while honouring project constraints. Following the strategic schedule, a production schedule was produced in MineSched based on the strategic schedule sequencing and practical mining constraints (Section 16).
6. Following scheduling, a further mining recovery of 99% was applied to the open-pit ore to form the final Mineral Reserve estimate.

The following sections detail the inputs, method, and results of the approach summarized above.

## 15.3 Resource block models

The Kiniero Mineral Reserves are comprised of five open-pit mining areas and seven historic stockpiles as follows:

- Open-pit mining areas:
  - Jean.
  - SGA.
  - SGD: This is the combination of Gobelé D (GOB D) and Northeast Gobelé D (NEGD).
  - Sabali South
  - Sabali North and Central.
- Stockpiles:
  - ROM stockpile.
  - BCM stockpile.
  - West Balan stockpile.
  - Jean stockpile.
  - South Dump stockpile.
  - SGC stockpile.
  - North Dump stockpile.

The following resource block models were used as the basis for the Mineral Reserve:

- SGA, SGD, and Jean: SGA_JEANBM2.dm.
- Sabali South: sabsth_amc2.dm.
- Sabali North and Central: sabnth_amc.dm.
- Stockpiles: 230411_dmp_AMC.dm Stockpiles.

## 15.4 Dilution and losses

To account for dilution and losses, MSO was used within Datamine Studio OP to generate diluted block models prior to pit optimization. MSO applies an algorithm on the resource block model to generate mineable shapes as 3D wireframes which:

- Meet minimum mining dimension criteria.
- Include dilution skins of specified thickness.
- Provide a diluted ore grade above the specified cut-off grade.

The MSO algorithm was applied to Indicated resources only. The gold grade for Inferred resources was set to zero in the input block model prior to running.

Indicated material above cut-off grade that did not fall within the mineable shapes generated by MSO was considered as ore loss.

### 15.4.1 MSO inputs

The inputs used for MSO are summarized in Table 15.2.

Table 15.2 MSO inputs

| Parameter | Units | SGA | SGD | Jean | Sabali South | Sabali North and Central |
|---|---|---|---|---|---|---|
| **MSO Inputs** | | | | | | |
| Block model | - | SGA_JEANBM2.dm | SGA_JEANBM2.dm | SGA_JEANBM2.dm | sabsth_amc2.dm | sabnth_amc.dm |
| Minimum shape width (X axis) | m | 2 | 2 | 2 | 2 | 2 |
| Maximum shape width (X axis) | m | 100 | 100 | 100 | 100 | 100 |
| Minimum pillar between shapes | m | 2 | 2 | 2 | 2 | 2 |
| Minimum shape length (Y axis) | m | 6.25 | 6.25 | 6.25 | 5 | 5 |
| Vertical flitch height (Z axis) | m | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Near-side dilution | m | 1 | 1 | 1 | 1 | 1 |
| Far-side dilution | m | 1 | 1 | 1 | 1 | 1 |
| **Pit rim cut-off grade** | | | | | | |
| Laterite | g/t | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Oxide | g/t | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Transitional | g/t | 0.5 | 0.5 | 0.5 | 0.7 | 0.9 |
| Fresh | g/t | 0.6 | 0.6 | 0.6 | 0.9 | 0.8 |

Source: AMC, 2023.

Mining will be undertaken on 5 m benches with 2.5 m flitches and the resource block models have been created to fit with the 5 m vertical framework. Minimum mining dimensions of 6.25 m x 2.5 m x 2 m and 5 m x 2.5 m x 2 m are within the capabilities of the Komatsu PC1250 excavators proposed for mining.

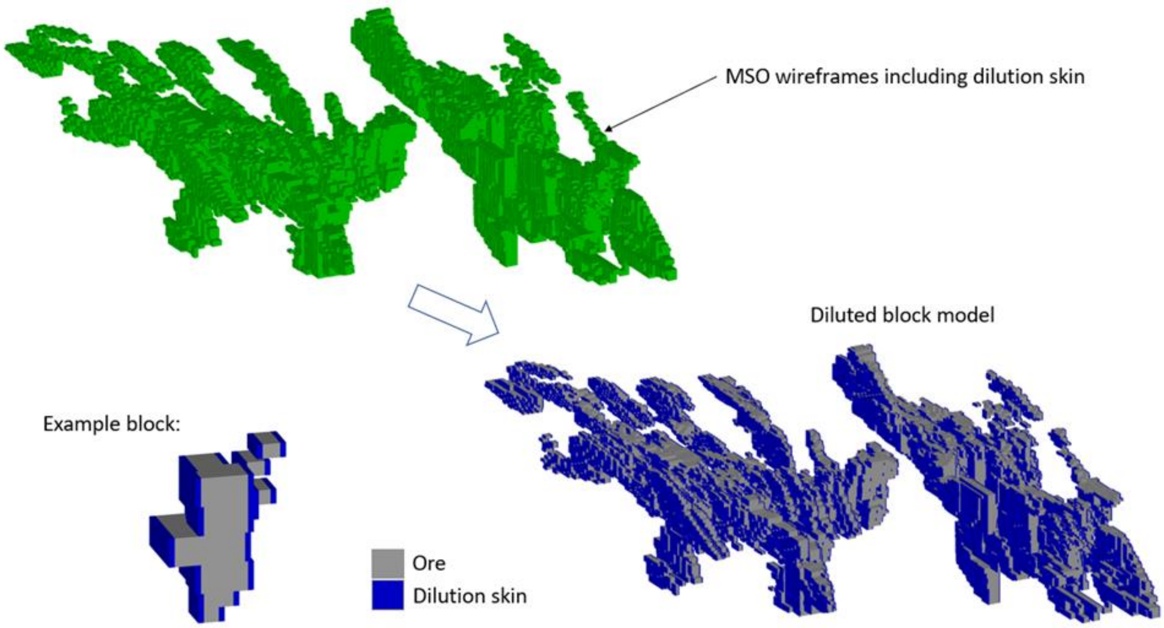
Ore categorization in the pits will be based on grade-control drilling with no clear visual differentiation of grade. To account for this, a 1 m wide dilution skin was applied to both the hangingwall and footwall of each individual orebody.

Cut-off grades were applied in MSO by material type and mining area to account for varying metallurgical recoveries and processing costs. The key inputs to these cut-off grade calculations are described in Section 15.6.

### 15.4.2 MSO results

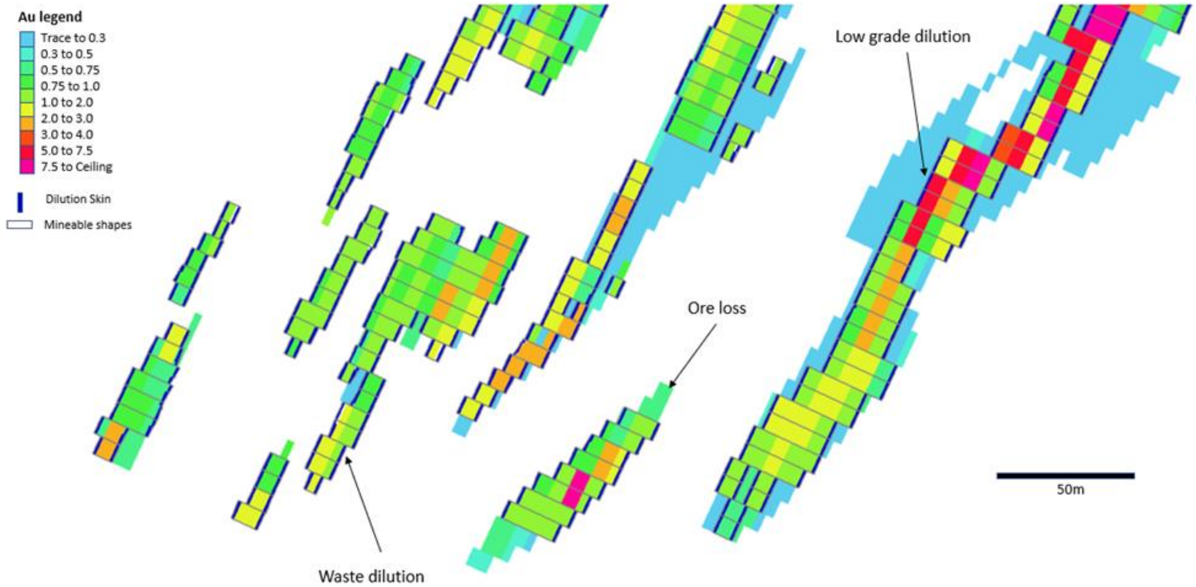
Examples of the resulting MSO wireframes and diluted block models are presented in Figure 15.1, Figure 15.2, and Figure 15.3.

Figure 15.1 Example MSO wireframe output and diluted block model for Jean



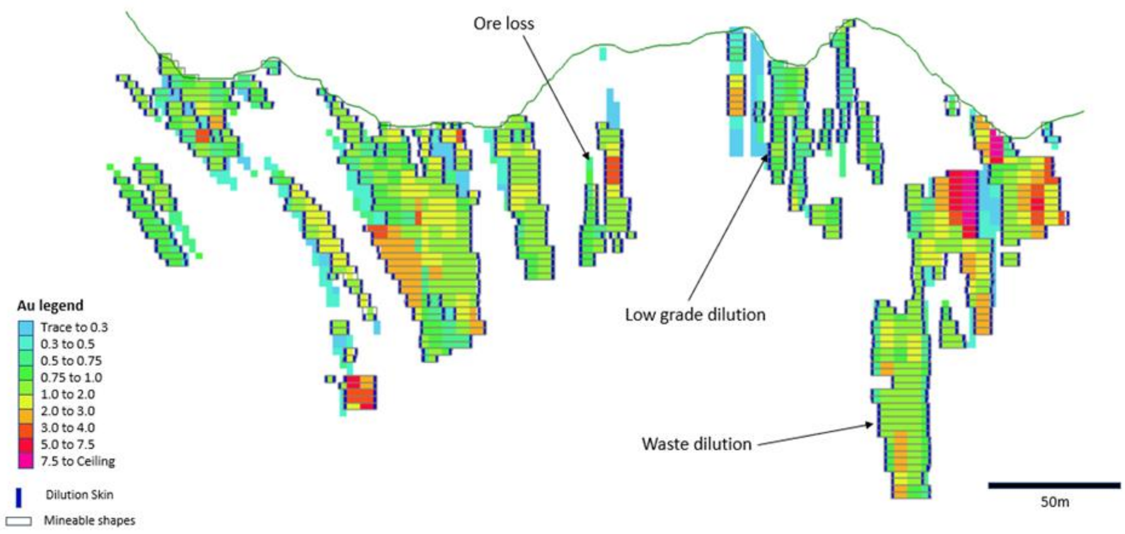

Source: AMC, 2023.

Figure 15.2 Typical plan view showing MSO shapes and diluted block model




Source: AMC, 2023.

Figure 15.3 Typical cross-section showing MSO shapes and diluted block model




Source: AMC, 2023.

As shown in Figure 15.2 and Figure 15.3, dilution skins added to the edge of orebodies might comprise of:

- Waste (at zero gold grade).
- Inferred material (treated as waste at zero gold grade).
- Low-grade material excluded from the MSO shapes due to width or grade.

The total dilution and loss generated for each deposit, along with a breakdown of the dilution is summarized in Table 15.3. Note that these figures are for the entire volume of Indicated material diluted in MSO and are not constrained to optimization or design wireframes.

Table 15.3 MSO results

| Parameter | Units | SGA | SGD | Jean | Sabali South | Sabali North and Central |
|---|---|---|---|---|---|---|
| **Total dilution and losses** | | | | | | |
| Total dilution | % | 16.4 | 11.5 | 17.2 | 18.1 | 18.8 |
| Total losses | % | 4.2 | 2.0 | 4.6 | 14.6 | 13.6 |
| **Dilution breakdown** | | | | | | |
| Dilution (adjacent indicated blocks) | % | 7.4 | 2.7 | 5.3 | 11.2 | 6.0 |
| Au grade | g/t | 0.41 | 0.57 | 0.56 | 0.47 | 0.91 |
| Dilution (waste) | % | 8.3 | 7.9 | 11.6 | 6.7 | 12.6 |
| Au grade | g/t | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dilution (Inferred) | % | 0.8 | 0.9 | 0.4 | 0.2 | 0.2 |
| Au grade | g/t | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Source: AMC, 2023.

Lower dilution and losses are seen in SGD due to wider and more persistent orebodies. The highest dilution and losses seen in the Sabali areas are a result of narrower, lower grade and less continuous orebodies.

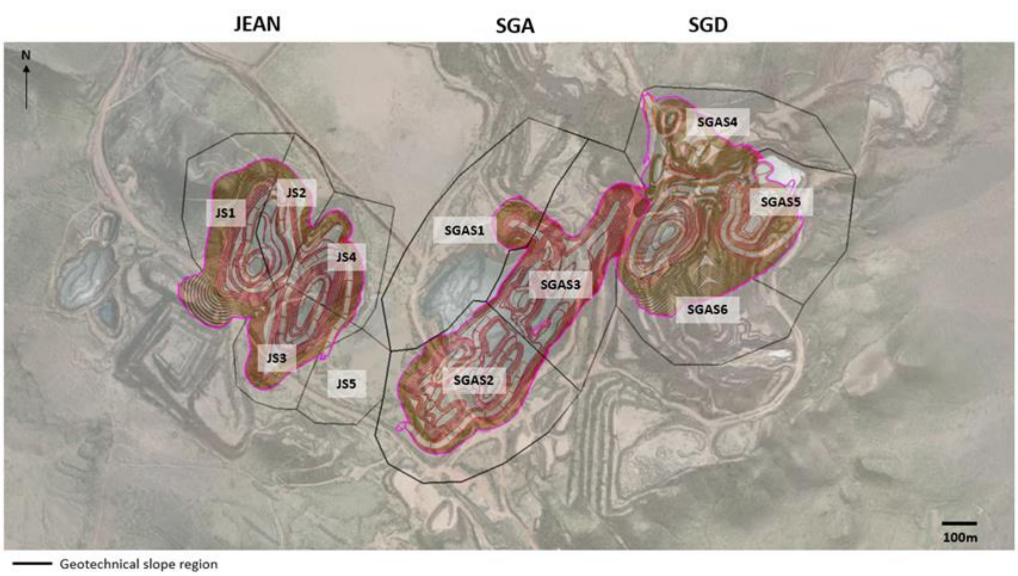
The weighted average gold grade for each mineable shape was incorporated into the diluted block model for use as the input grade for pit optimization.

## 15.5 Geotechnical inputs

Pit slope angles were provided by TREM Rock Mechanics Engineering (TREM) (Section 16.1). Inter-ramp slope angles (IRA) were provided by TREM by pit area and material type. These angles were then developed into overall slope angles (OSA) by assessing approximate slope heights and required ramp intersections, using the previous PFS mine designs as a guide.

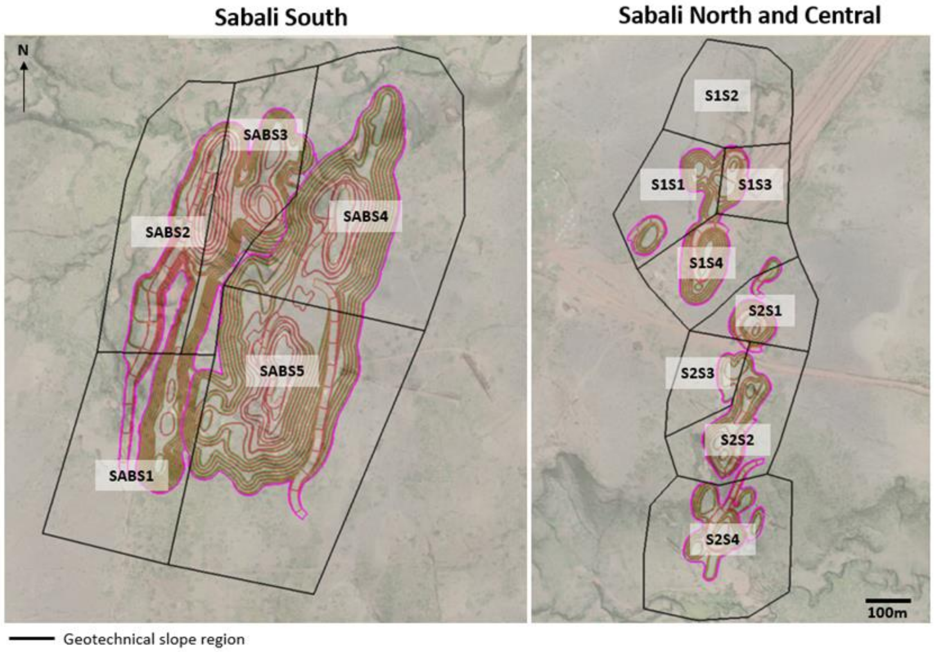
The geotechnical slope regions are shown in Figure 15.4 and Figure 15.5.

Figure 15.4 Geotechnical slope regions Jean, SGA, and SGD




Source: Geotechnical zones provided by TREM.

Figure 15.5 Geotechnical slope regions Sabali South and Sabali North and Central




Source: Geotechnical zones provided by TREM.

The slope angles and geotechnical parameters for each slope region are shown in Table 15.4 to Table 15.8.

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Table 15.4 SGA and SGD geotechnical slope criteria

| Slope Zone | Lithology | Bench face angle (degrees) | Bench Height (m) | Berm width (m) | Inter-ramp slope angle (degrees) | Predicted slope height (m) | Dual-lane ramps | Single-lane ramps | OSA (degrees) |
|---|---|---|---|---|---|---|---|---|---|
| SGAS1 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | | | 41 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 4.7 | 57 | 20 | | 1 | 39 |
| SGAS2 | Laterite | 60 | 5 | 4.0 | 36 | 20 | | | 36 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | | | 41 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.0 | 56 | 40 | | 1 | 46 |
| SGAS3 | Laterite | 60 | 5 | 4.0 | 36 | 20 | | | 36 |
| | Saprolite | 60 | 5 | 0.5 | 56 | 20 | | | 56 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.0 | 56 | 40 | | | 56 |
| SGAS4 | Laterite | 60 | 5 | 4.0 | 36 | 20 | | | 36 |
| | Saprolite | 60 | 5 | 4.0 | 36 | 60 | | | 36 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 4.7 | 57 | 20 | | | 57 |
| SGAS5 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | | | 41 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.5 | 54 | 60 | 1 | 1 | 39 |
| SGAS6 | Laterite | 60 | 5 | 4.0 | 36 | 20 | | | 36 |
| | Saprolite | 60 | 5 | 4.8 | 33 | 80 | | | 33 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 4.7 | 57 | 20 | | | 57 |

Source: TREM, 2023, modified by Robex and AMC, 2023.

## Table 15.5 Jean geotechnical slope criteria

| Slope Zone | Lithology | Bench face angle (degrees) | Bench Height (m) | Berm width (m) | Inter-ramp slope angle (degrees) | Predicted slope height (m) | Dual-lane ramps | Single-lane ramps | OSA (degrees) |
|---|---|---|---|---|---|---|---|---|---|
| JS1 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 4.0 | 36 | 60 | | | 36 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.2 | 55 | 50 | 1 | 1 | 38 |
| JS2 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | | | 41 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.0 | 56 | 30 | 1 | 1 | 31 |
| JS3 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | | | 41 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | | 55 |
| | Fresh | 80 | 10 | 5.2 | 55 | 50 | 1 | 1 | 38 |
| JS4 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | 1 | | 32 |
| | Transition | 80 | 10 | 6.0 | 52 | 30 | 1 | | 36 |
| | Fresh | 80 | 10 | 5.0 | 56 | 30 | 1 | | 38 |
| JS5 | Laterite | 60 | 5 | 2.7 | 42 | 10 | | | 42 |
| | Saprolite | 60 | 5 | 2.9 | 41 | 40 | 1 | | 32 |
| | Transition | 80 | 10 | 5.2 | 55 | 20 | | 1 | 38 |
| | Fresh | 80 | 10 | 4.7 | 57 | 20 | | 1 | 39 |

Source: TREM, 2023, modified by Robex and AMC, 2023.

### Table 15.6 Sabali South geotechnical slope criteria

| Slope Zone | Lithology | Bench face angle (degrees) | Bench Height (m) | Berm width (m) | Inter-ramp slope angle (degrees) | Predicted slope height (m) | Dual-lane ramps | Single-lane ramps | OSA (degrees) |
|---|---|---|---|---|---|---|---|---|---|
| SABS1 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 3 | 40 | 40 | | | 40 |
| | Transition | 80 | 10 | 8 | 46 | 50 | 1 | | 37 |
| | Fresh | 80 | 10 | 6.5 | 50 | 20 | | | 50 |
| SABS2 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 0.5 | 56 | 20 | | | 56 |
| | Transition | 80 | 10 | 8 | 46 | 30 | | 1 | 36 |
| | Fresh | 80 | 10 | 6.5 | 50 | 20 | | | 50 |
| SABS3 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 3 | 40 | 40 | | | 40 |
| | Transition | 80 | 10 | 8 | 46 | 30 | | 1 | 36 |
| | Fresh | 80 | 10 | 6.5 | 50 | 20 | | | 50 |
| SABS4 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 5.5 | 31 | 70 | | | 31 |
| | Transition | 80 | 10 | 8 | 46 | 50 | | 2 | 34 |
| | Fresh | 80 | 10 | 6.5 | 50 | 20 | | | 50 |
| SABS5 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 5.5 | 31 | 70 | 1 | | 27 |
| | Transition | 80 | 10 | 8 | 46 | 30 | | 1 | 36 |
| | Fresh | 80 | 10 | 6.5 | 50 | 20 | | | 50 |

Source: TREM, 2023, modified by Robex and AMC, 2023.

### Table 15.7 Sabali North geotechnical slope criteria

| Slope Zone | Lithology | Bench face angle (degrees) | Bench Height (m) | Berm width (m) | Inter-ramp slope angle (degrees) | Predicted slope height (m) | Dual-lane ramps | Single-lane ramps | OSA (degrees) |
|---|---|---|---|---|---|---|---|---|---|
| S1S1 | Laterite | 60 | 5 | 3 | 40 | | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | | | | 34 |
| | Transition | 80 | 10 | 7 | 49 | | | | 49 |
| | Fresh | 80 | 10 | 6 | 52 | | 1 | | 40 |
| S1S2 | Laterite | 60 | 5 | 3 | 40 | | | | 40 |
| | Saprolite | 60 | 5 | 6 | 29 | | | | 29 |
| | Transition | 80 | 10 | 7 | 49 | | | | 49 |
| | Fresh | 80 | 10 | 6 | 52 | | | | 52 |
| S1S3 | Laterite | 60 | 5 | 3 | 40 | | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | | | | 34 |
| | Transition | 80 | 10 | 7 | 49 | | | | 49 |
| | Fresh | 80 | 10 | 6 | 52 | | 1 | | 40 |
| S1S4 | Laterite | 60 | 5 | 3 | 40 | | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | | | | 34 |
| | Transition | 80 | 10 | 7 | 49 | 2 | | | 20 |
| | Fresh | 80 | 10 | 6 | 52 | | | | 52 |

Source: TREM, 2023, modified by Robex and AMC, 2023.

Table 15.8 Sabali Central geotechnical slope criteria

| Slope Zone | Lithology | Bench face angle (degrees) | Bench Height (m) | Berm width (m) | Inter-ramp slope angle (degrees) | Predicted slope height (m) | Dual-lane ramps | Single-lane ramps | OSA (degrees) |
|---|---|---|---|---|---|---|---|---|---|
| S2S1 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | 40 | | | 34 |
| | Transition | 80 | 10 | 7 | 49 | 20 | | | 49 |
| | Fresh | 80 | 10 | 6 | 52 | 20 | | | 52 |
| S2S2 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | 40 | 1 | | 27 |
| | Transition | 80 | 10 | 7 | 49 | 20 | | | 49 |
| | Fresh | 80 | 10 | 6 | 52 | 20 | | | 52 |
| S2S3 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 6 | 29 | 60 | | 1 | 27 |
| | Transition | 80 | 10 | 7 | 49 | 30 | | 1 | 38 |
| | Fresh | 80 | 10 | 6 | 52 | 20 | | | 52 |
| S2S4 | Laterite | 60 | 5 | 3 | 40 | 10 | | | 40 |
| | Saprolite | 60 | 5 | 4.5 | 34 | 40 | | 1 | 29 |
| | Transition | 80 | 10 | 7 | 49 | 30 | | 1 | 38 |
| | Fresh | 80 | 10 | 6 | 52 | 20 | | 1 | 36 |

Source: TREM, 2023, modified by Robex and AMC, 2023.

For any areas consisting of waste dump or backfill material, an OSA of 25 degrees, assuming 30-degree face angles, 5 m benches, and 2 m berms, was used.

## 15.6 Pit optimization inputs

The key pit optimization inputs are summarized in Table 15.9.

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## Table 15.9 Pit optimization inputs

| Parameter | Units | SGA | SGD | Jean | Sabali South | Sabali North and Central |
|---|---|---|---|---|---|---|
| **Revenue** | | | | | | |
| Gold price | US$/oz Au | 1,650 | 1,650 | 1,650 | 1,650 | 1,650 |
| Royalty | % | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |
| Treatment and refining charges | US$/oz AU | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 |
| Net gold price | US$/g Au | 49.74 | 49.74 | 49.74 | 49.74 | 49.74 |
| Discount rate | % | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| **Mining dilution and recovery** | | | | | | |
| Mining dilution | - | MSO block model | MSO block model | MSO block model | MSO block model | MSO block model |
| Mining recovery | % | 95 | 95 | 95 | 95 | 95 |
| **Process gold recoveries** | | | | | | |
| Laterite | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Oxide | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| Transitional | % | 92.0 | 92.0 | 92.0 | 62.5 | 50.0 |
| Fresh | % | 86.0 | 86.0 | 86.0 | 60.0 | 65.0 |
| **Mining Costs** | | | | | | |
| Drill-and-blast | | | | | | |
| Laterite | US$/bcm | 0.74 | 0.74 | 0.74 | 0.74 | 0.74 |
| Oxide | US$/bcm | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Transitional | US$/bcm | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 |
| Fresh | US$/bcm | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 |
| Load-and-haul manpower | US$/bcm | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| Load-and-haul fixed costs | US$/bcm | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| Load-and-haul fuel burn | L/bcm | 1.62 | 1.62 | 1.62 | 1.62 | 1.62 |
| Fuel price | US$/L | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| Load-and-haul fuel cost | US$/bcm | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 |
| Load-and-haul contractor cost | US$/bcm | (BENCH * -0.0168)+10.652 | (BENCH * -0.0168)+10.652 | East: (BENCH * -0.0166)+10.094 West: (BENCH * -0.0198)+11.49 | (BENCH * -0.0015)+1.6655 | (BENCH * -0.0267)+13.333 |
| **Processing and additional ore costs** | | | | | | |
| Processing | | | | | | |
| Laterite | US$/t | 14.50 | 14.50 | 14.50 | 14.50 | 14.50 |
| Oxide | US$/t | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 |
| Transitional | US$/t | 14.50 | 14.50 | 14.50 | 14.50 | 14.50 |
| Fresh | US$/t | 20.40 | 20.40 | 20.40 | 20.40 | 20.40 |
| Grade control | | | | | | |
| Laterite | US$/t | 0.72 | 0.72 | 0.74 | 0.61 | 0.63 |
| Oxide | US$/t | 0.77 | 0.77 | 0.84 | 0.83 | 0.91 |
| Transitional | US$/t | 0.55 | 0.55 | 0.58 | 0.71 | 0.61 |

| Parameter | Units | SGA | SGD | Jean | Sabali South | Sabali North and Central |
|---|---|---|---|---|---|---|
| Fresh | US$/t | 0.49 | 0.49 | 0.51 | 0.51 | 0.49 |
| Ore re-handle mine ore pad (MOP)-ROM | | | | | | |
| Laterite | US$/t | 0.00 | 0.00 | 0.00 | 0.75 | 0.00 |
| Oxide | US$/t | 0.74 | 0.61 | 0.73 | 0.83 | 0.77 |
| Transitional | US$/t | 0.73 | 0.61 | 0.72 | 0.77 | 0.70 |
| Fresh | US$/t | 0.69 | 0.57 | 0.68 | 0.70 | 0.67 |
| Ore re-handle ROM management | US$/t | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| Ore re-handle fuel burn | L/t | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| Fuel price | US$/L | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| Ore re-handle fuel cost | US$/t | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Corporate overheads | US$/t | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 |
| Site general and administration | US$/t | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 |
| Sustaining CapEx | US$/t | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| **Total processing cost** | | | | | | |
| Laterite | US$/t | 20.78 | 20.78 | 20.80 | 21.41 | 20.69 |
| Oxide | US$/t | 15.56 | 15.44 | 15.63 | 15.72 | 15.73 |
| Transitional | US$/t | 21.34 | 21.21 | 21.36 | 21.54 | 21.37 |
| Fresh | US$/t | 27.13 | 27.01 | 27.15 | 27.17 | 27.12 |
| **Pit rim cut-off grade** | | | | | | |
| Laterite | g/t | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Oxide | g/t | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Transitional | g/t | 0.5 | 0.5 | 0.5 | 0.7 | 0.9 |
| Fresh | g/t | 0.6 | 0.6 | 0.6 | 0.9 | 0.8 |

Source: Robex and AMC, 2023.

A 20 m minimum mining width was applied to the pit shells in NPV Scheduler to account for practical mining constraints.

A gold price of US$1,650/oz Au, provided by Robex, was used as the basis for cut-off grade calculations to determine the economic viability of the Mineral Reserves. A government royalty of 5.5% along with refining charges of US$12.02 were applied to generate a net gold price of US$49.74/g Au.

Drill-and-blast costs are based on contractor drilling and consumable costs supplied by Auxin Guinee Mining Service (Auxin), the preferred drill-and-blast provider. Auxin will build an emulsion manufacturing facility at Kiniero to supply Robex and other operations in Eastern Guinea.

The key assumptions used to derive the drill-and-blast costs in Table 15.9 are summarized in Table 15.10.

.

Table 15.10 Drill-and-blast cost inputs

| Parameter | Units | Laterite | Saprolite | Transition | Fresh |
|---|---|---|---|---|---|
| **Drillhole physicals** | | | | | |
| Hole diameter | mm | 127 | 127 | 127 | 140 |
| Burden | m | 3.5 | 3.8 | 3.6 | 3.5 |
| Spacing | m | 4.0 | 4.4 | 4.1 | 4.0 |
| Bench height | m | 5.0 | 5.0 | 5.0 | 5.0 |
| Effective subdrill | m | 0.5 | 0.3 | 1.0 | 1.0 |
| Hole length | m | 5.5 | 5.3 | 6.0 | 6.0 |
| Stem length | m | 2.2 | 2.2 | 2.2 | 2.2 |
| % Blasted | % | 40 | 1 | 60 | 100 |
| Explosive density | kg/t | 1.15 | 1.15 | 1.15 | 1.15 |
| Explosive kg/hole | kg | 48 | 45 | 55 | 67 |
| Explosive column length | m | 3.3 | 3.1 | 3.8 | 3.8 |
| bcm per hole | bcm | 70 | 84 | 74 | 70 |
| bcm per drilled m | bcm | 14 | 17 | 15 | 14 |
| **Powder Factor** | **kg/bcm** | **0.69** | **0.54** | **0.75** | **0.96** |
| | **kg/t** | **0.31** | **0.32** | **0.31** | **0.38** |
| **Drill-and-blast costs per drillhole** | | | | | |
| Explosive | US$/hole | 73.46 | 69.00 | 84.59 | 102.79 |
| Accessories | US$/hole | 17.50 | 17.50 | 17.50 | 17.50 |
| Drilling | US$/hole | 13.75 | 10.60 | 15.00 | 21.00 |
| Fixed monthly cost | US$/hole | 25.47 | 30.42 | 26.85 | 25.47 |
| **Total** | **US$/hole** | **130.18** | **127.52** | **143.94** | **166.76** |
| **Drill-and-blast costs per bcm** | | | | | |
| Bulk explosive | US$/bcm | 0.42 | 0.01 | 0.69 | 1.47 |
| Accessories | US$/bcm | 0.10 | 0.00 | 0.14 | 0.25 |
| Drilling | US$/bcm | 0.08 | 0.00 | 0.12 | 0.30 |
| Fixed monthly cost | US$/bcm | 0.15 | 0.00 | 0.22 | 0.36 |
| **Total** | **US$/bcm** | **0.74** | **0.02** | **1.17** | **2.38** |

Source: Robex, 2023.

Grade control will be key in outlining dig plans for mining due to there being no visual method for determining grade or ore categories during operations. Grade control will be undertaken using RC drilling on a 6 m grid pattern ahead of mining. The key inputs to the grade control costs are summarized in Table 15.11.

.

Table 15.11 Grade-control cost inputs

| Parameter | Unit | Value |
|---|---|---|
| Drillhole spacing | X (m) | 6 |
| | Y (m) | 6 |
| Area | m² | 36 |
| Assay interval | m | 1 |
| Drill cost per metre | US$/m | 28.5 |
| Assay cost | US$ ea | 7.5 |
| Bench height | m | 30 |
| Hole angle | deg | 50 |
| Hole length | m | 35 |
| Drill cost per bcm tested | US$/bcm | 0.65 |
| Assay cost per bcm tested | US$/bcm | 0.24 |
| Total cost per bcm tested | US$/bcm | 0.89 |
| Overdrill factor | % | 50% |
| Total drill cost per bcm ore | US$/bcm | 0.97 |
| Total assay cost per bcm ore | US$/bcm | 0.36 |
| **Total cost per bcm ore** | **US$/bcm** | **1.34** |

Source: Robex, 2023.

Drilling and assay costs are based on quotations received by Robex during January 2023. Final drilling costs are yet to be finalized and will change from those used in this study. The US$1.34/bcm grade-control cost was applied to individual material densities for each deposit to generate the US$/t values in Table 15.9.

Load-and-haul costs are based on the following:

- Load-and-haul contractor cost: A regression formula based on costs supplied by the preferred mining contractor, following a tender process completed in January 2023.
- Load-and-haul manpower: This was calculated using the supplied manning list provided by the preferred mining contractor with salaries entered from the Robex salary matrix.
- Load-and-haul fixed costs: Contractor fixed costs, including ancillary plant costs, PPE and consumables, and logistics.
- Load-and-haul fuel cost: Fuel-burn figures taken from January 2023 contractor quotations and the estimated fuel price based on other local mining companies.

Processing costs and metallurgical recoveries have been estimated and supplied by Soutex. Soutex will manage and operate the processing plant on behalf of Robex for the LOM.

The on-site general and administration costs of US$2.68 by Robex includes: Robex site staff, environmental monitoring requirements, camp and transportation costs, corporate costs associated with head office and technical team, and insurance and financial services.

Sustaining capital of US$0.58/t was included to account for the Phase 1B tailings lift.

## 15.7 Pit optimization results

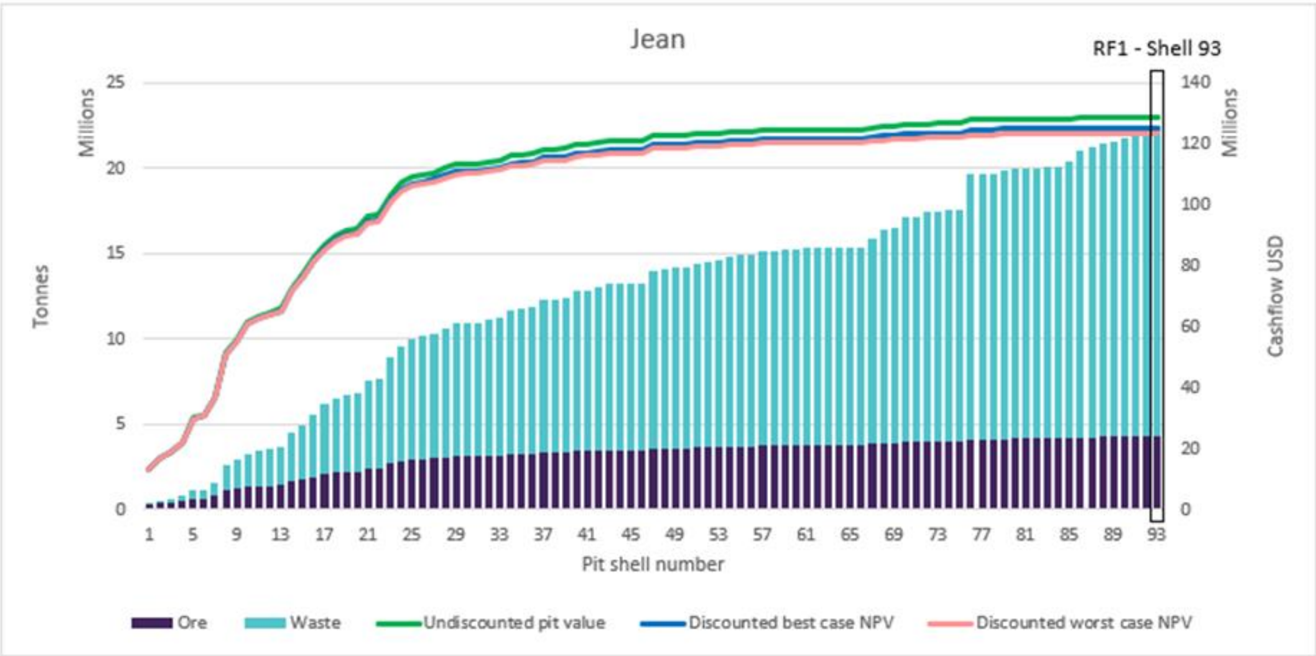
Pit optimization was undertaken in NPV Scheduler on four separate block models (Jean, SGA and SGD, Sabali South, and Sabali North and Central). The optimizations were carried out by varying the revenue factor (RF) which is the factor by which NPV Scheduler scales the revenue per block to generate a series of nested pit shells. The nested pit shells indicate the likely order in which mining would take place. The RF for each optimization was varied up to RF 1 in increments of 1%.

NPV Scheduler generated two discounted open-pit cashflows as follows:

- Best case cashflow: The sequence that gives the maximum value by mining nested shells in the order they are generated by NPV Scheduler. This method gives the best value; however, it does not take into account practical mining sequence or the spatial relationship between pushbacks.
- Worst case cashflow: The simplest mining sequence whereby pits are mined in their entirety from top-to-bottom "bench-by-bench". This gives the most practical mining solution but lowest relative value.

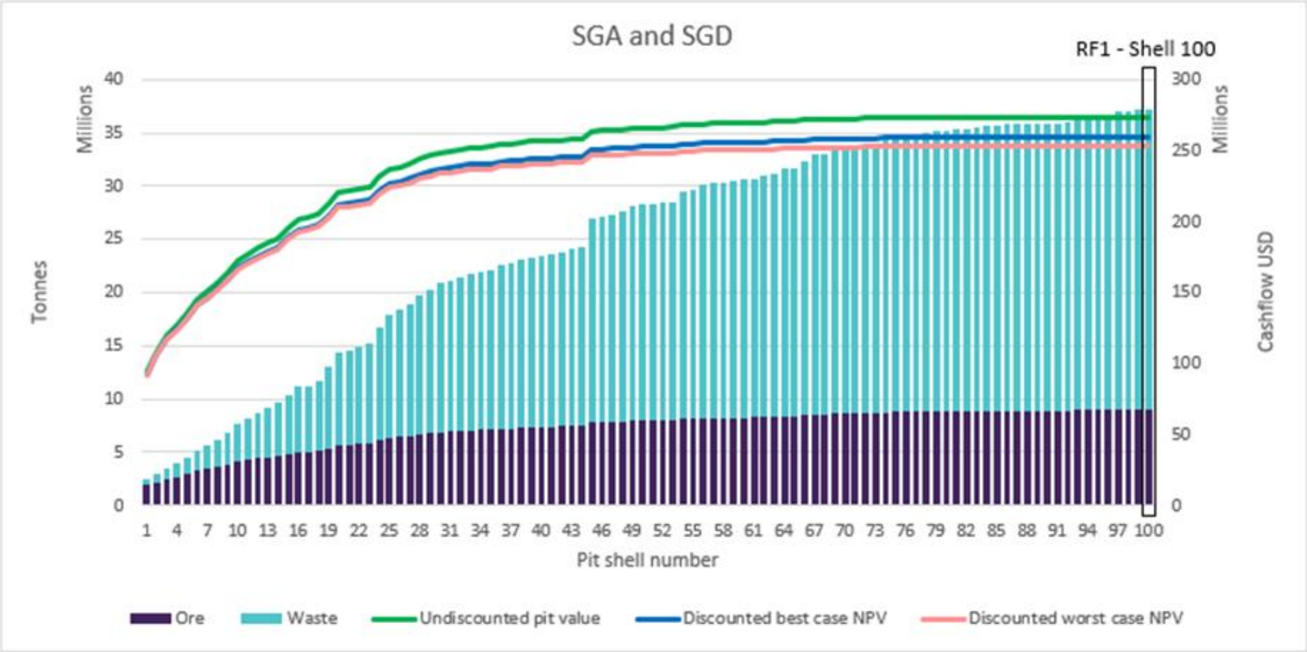
The results of the pit optimizations are shown in Figure 15.6 to Figure 15.9.

Figure 15.6 Pit optimization results – Jean



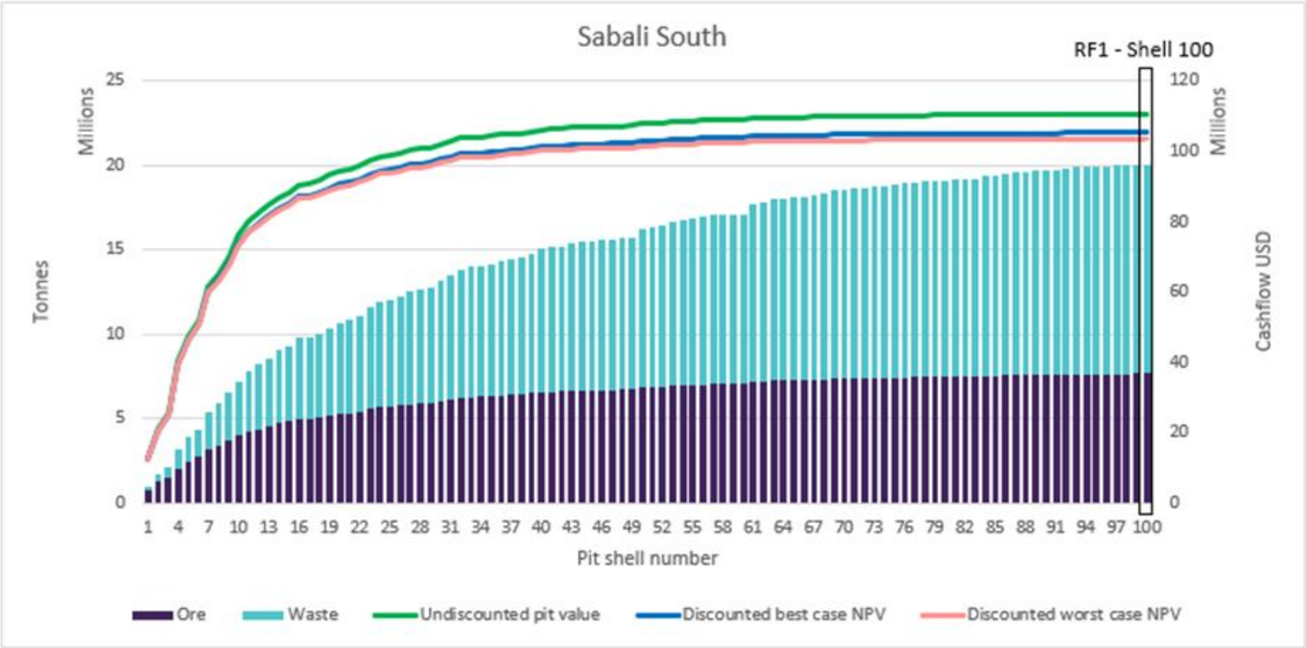

Source: Robex and AMC, 2023.

Figure 15.7 Pit optimization results – SGA and SGD



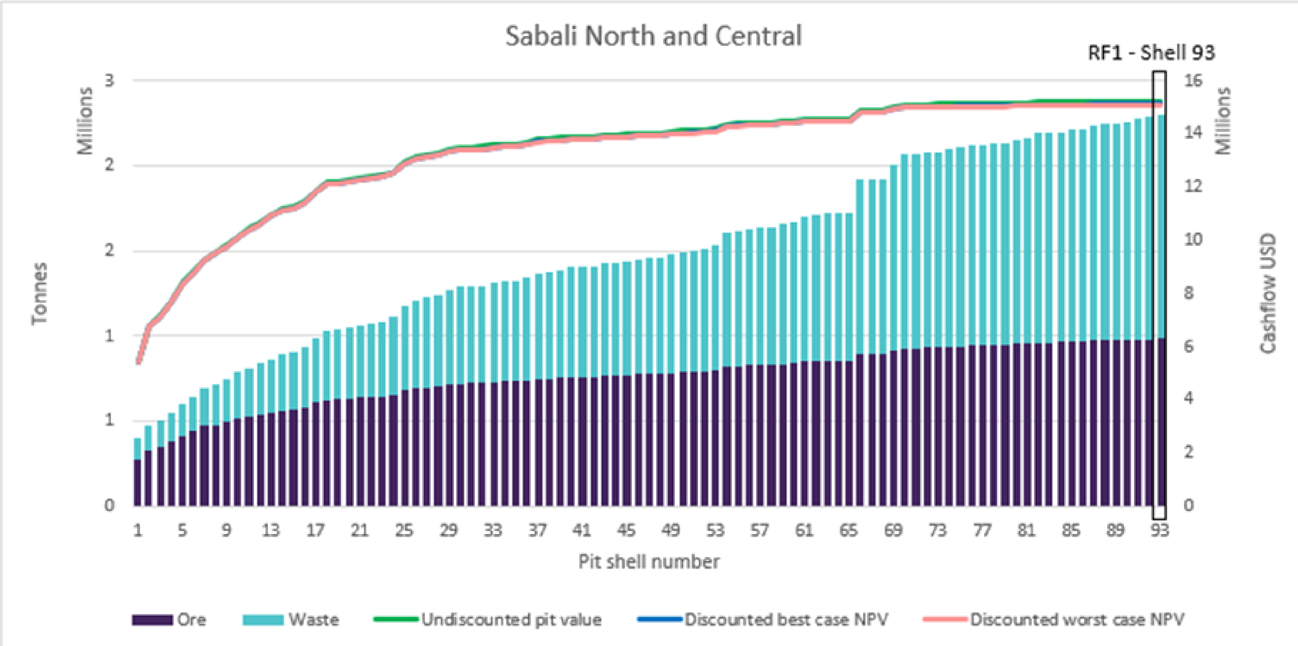

Source: Robex and AMC, 2023.

Figure 15.8 Pit optimization results – Sabali South




Source: Robex and AMC, 2023.

Figure 15.9 Pit optimization results – Sabali North and Central




Source: Robex and AMC, 2023.

AMC makes the following observations on the optimization results presented in Figure 15.6 to Figure 15.9:

- Similar best-case and worst-case discounted cashflow profiles indicate the nature and geometry of the orebody provide an equal amount of ore and waste as the pits get deeper. This means that the top-down mining sequence is not unduly detrimental to project value.
- Given the relatively short mine-life of the optimized pits, cashflows are not impacted significantly by discount rate.

Robex's strategy is to maximize the gold contained in the Mineral Reserves and thus the RF1 pit shells were selected to form the basis of design.

## 15.8 Pit designs

Pit designs were produced using Datamine software and are based on:

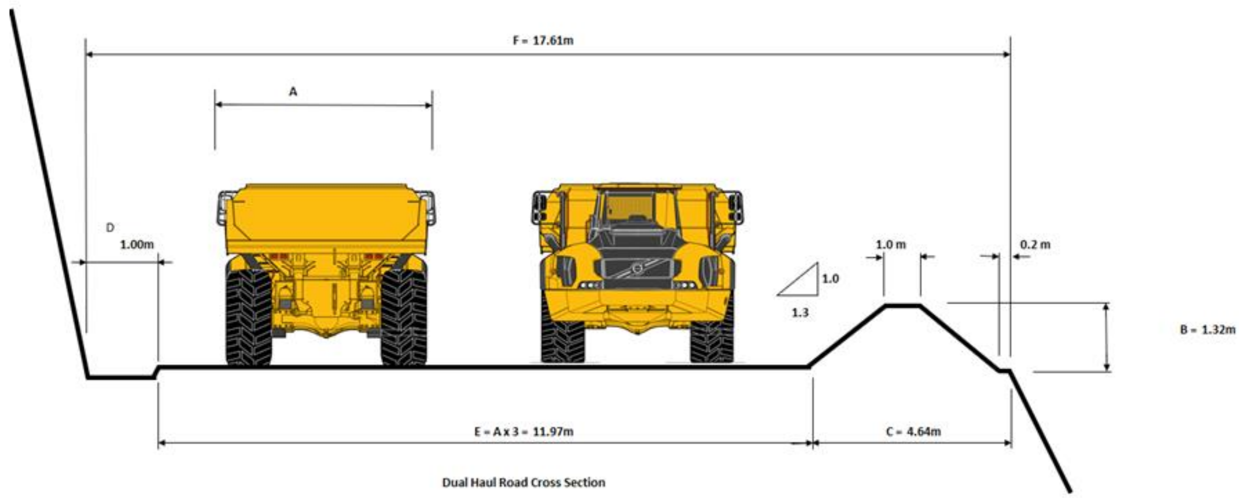
- The selected RF1 pit shell wireframes from pit optimization.
- The pit slope design criteria specified in Table 15.4 to Table 15.8.
- Dual-lane ramp width of 18 m and 10% maximum gradient.
- Single-lane ramp width of 12 m and 12.5% maximum gradient.
- Minimum mining width of 20 m.

Single-lane and dual-lane ramp widths were determined based on Volvo AH60 trucks. The widths used include an allowance for running surface, a sufficient safety berm and drainage. The 18 m wide dual-lane design criteria is illustrated in Figure 15.10.

## Figure 15.10 Dual-lane ramp width

0.5 x Tyre Dia 2.6 x Height + 1.2 a = 3

| Truck | A Operating Width m | Tyre | Tyre Diameter. m | B Bund Height m | C Bund Width | D Drain Width | E Minimum Pavement | F Total Width m | F - Drain Total Width m |
|---|---|---|---|---|---|---|---|---|---|
| Volvo A60H | 3.99 | 33.25R29 | 2.65 | 1.32 | 4.64 | 1.00 | 11.97 | 18 | 16.61 |



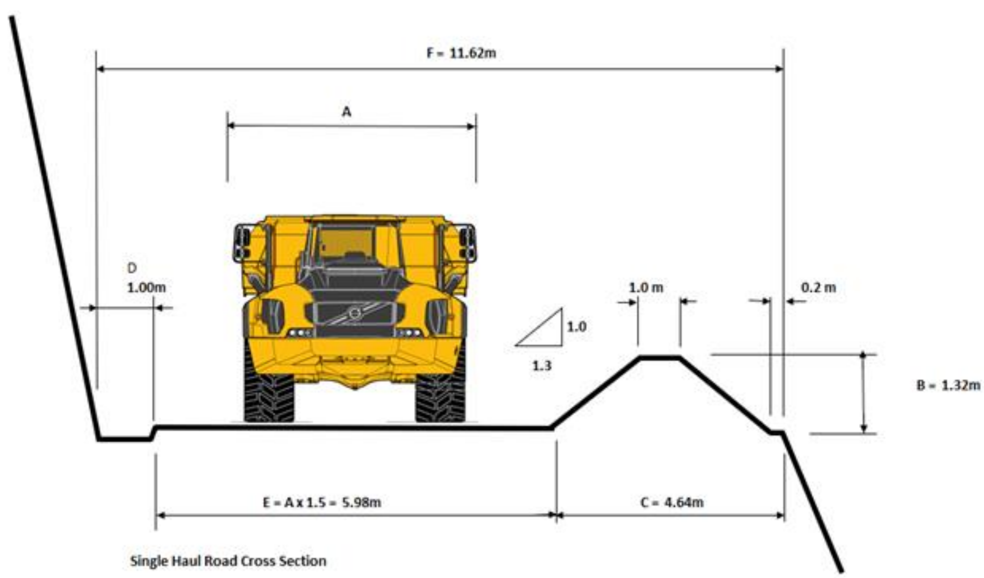

Source: Robex and AMC, 2023.

The bottom six to eight benches of each pit will be accessed with 12 m wide single-lane ramps at a gradient of 12.5% to account for the anticipated reduction in traffic intensity. The design criteria for the single-lane ramps are shown in Figure 15.11.

## Figure 15.11 Single-lane ramp width

0.5 x Tyre Dia 2.6 x Height + 1.2 a = 1.5

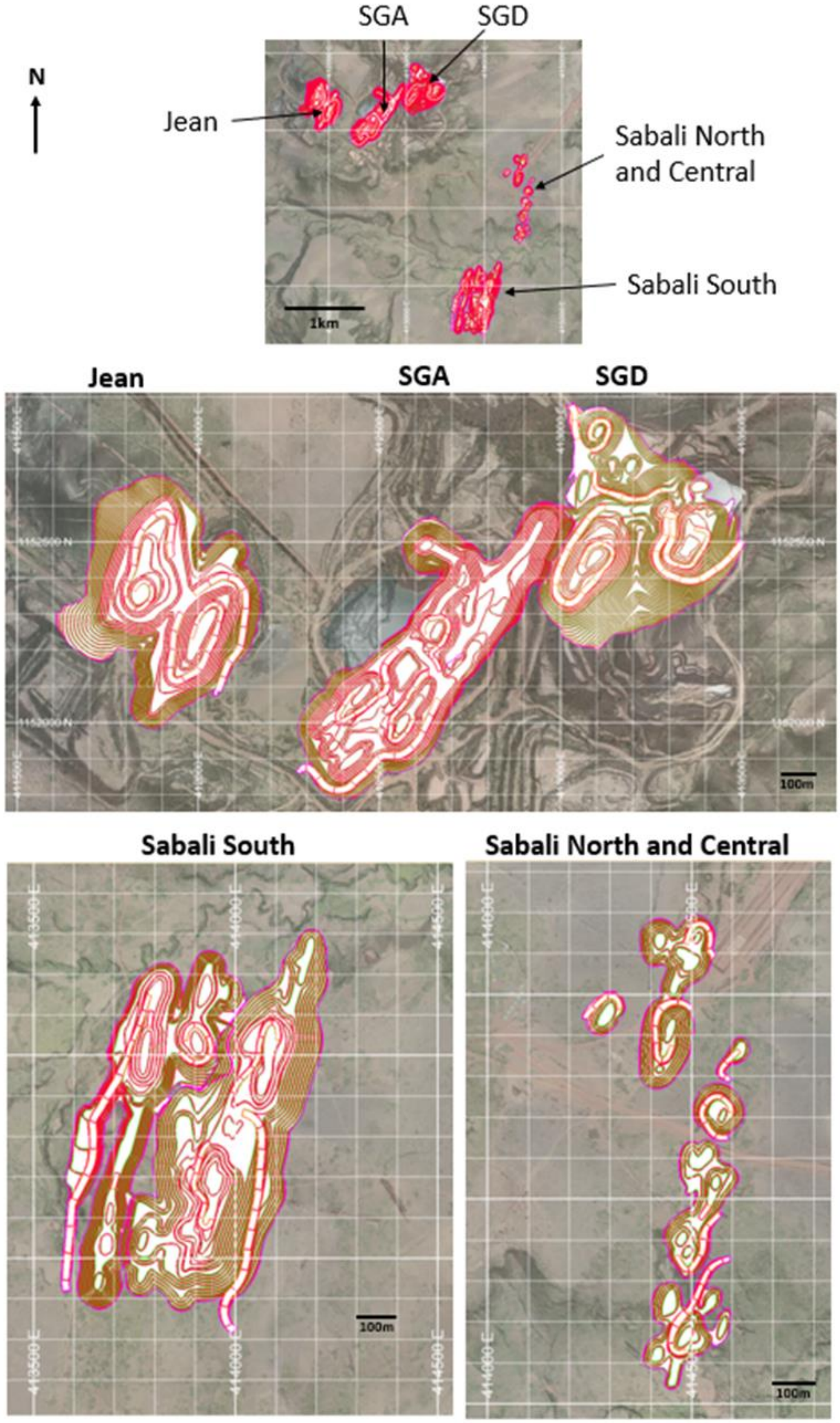
| Truck | A Operating Width m | Tyre | Tyre Diameter. m | B Bund Height m | C Bund Width | D Drain Width | E Minimum Pavement | F Total Width m |
|---|---|---|---|---|---|---|---|---|
| Volvo A60H | 3.99 | 33.25R29 | 2.65 | 1.32 | 4.64 | 1.00 | 5.98 | 12 |




Source: Robex and AMC, 2023.

The ultimate pit designs are illustrated in Figure 15.12.

Figure 15.12 Ultimate pit designs




Source: AMC, 2023.

Pit designs were evaluated against the mining block models to provide quantities of ore and waste and associated gold grades. These quantities were compared against the selected pit optimization shells. The results of the evaluation and comparison are summarized in Table 15.12.

Table 15.12 Comparison of pit optimization shells to pit designs

| Pit | Item | Ore tonnes (kt) | Au Grade (g/t) | Au (koz) | Waste tonnes (kt) | Total tonnes (kt) | Strip ratio (W:O) |
|---|---|---|---|---|---|---|---|
| Jean | Pit shell | 4,421 | 1.56 | 222 | 19,912 | 24,333 | 4.5 |
| | Pit design | 4,236 | 1.56 | 213 | 16,060 | 20,296 | 3.8 |
| | Difference | -185 | 0 | -9 | -3,852 | -4,038 | -1 |
| | Difference % | -4% | 0% | -4% | -19% | -17% | -16% |
| SGA | Pit shell | 5,494 | 1.56 | 276 | 16,099 | 21,593 | 2.9 |
| | Pit design | 5,190 | 1.57 | 262 | 15,531 | 20,721 | 3.0 |
| | Difference | -305 | 0 | -13 | -567 | -872 | 0 |
| | Difference % | -6% | 1% | -5% | -4% | -4% | 2% |
| SGD | Pit shell | 3,632 | 1.35 | 158 | 14,897 | 18,529 | 4.1 |
| | Pit design | 3,464 | 1.36 | 151 | 14,160 | 17,624 | 4.1 |
| | Difference | -167 | 0 | -6 | -737 | -905 | 0 |
| | Difference % | -5% | 1% | -4% | -5% | -5% | 0% |
| Sabali South | Pit shell | 8,125 | 0.90 | 235 | 13,802 | 21,927 | 1.7 |
| | Pit design | 7,663 | 0.90 | 221 | 12,674 | 20,337 | 1.7 |
| | Difference | -462 | 0 | -15 | -1,129 | -1,591 | 0 |
| | Difference % | -6% | -1% | -6% | -8% | -7% | -3% |
| Sabali North and Central | Pit shell | 1,100 | 0.98 | 35 | 1,821 | 2,920 | 1.7 |
| | Pit design | 1,058 | 0.97 | 33 | 1,952 | 3,010 | 1.8 |
| | Difference | -41 | 0 | -1 | 131 | 90 | 0 |
| | Difference % | -4% | 0% | -4% | 7% | 3% | 11% |
| **Total** | **Pit shell** | **22,771** | **1.26** | **925** | **66,532** | **89,303** | **2.9** |
| | **Pit design** | **21,611** | **1.27** | **880** | **60,378** | **81,989** | **2.8** |
| | **Difference** | **-1,161** | **0** | **-45** | **-6,154** | **-7,315** | **0** |
| | **Difference %** | **-5%** | **0%** | **-5%** | **-9%** | **-8%** | **-4%** |

Note: Pit designs and shells have been evaluated at 100% mining recovery. An additional 1% ore loss was applied to the final schedule output informing the Mineral Reserve estimate.

Source: AMC, 2023.

As shown in in Table 15.12, ore and metal content between optimization shells and design vary on average by 5%. This is within the expected tolerances for converting a pit shell into a practical mine design and is the result including practical access and mining widths to designs which cannot be accurately accounted for in optimization. Waste tonnages have been reduced by 9% through relocation of ramps and tightening of designs in waste areas.

## 15.9 Historic stockpiles

Due to previous mining operations, there are historic oxide stockpiles located across the Kiniero site. Seven of these stockpiles have been drilled, modelled, and classified as Indicated resources and have been included in the Mineral Reserves. The higher-grade stockpile will be used to supplement ore production during start-up while the lower grade stockpiles will be processed at the end of mine-life.

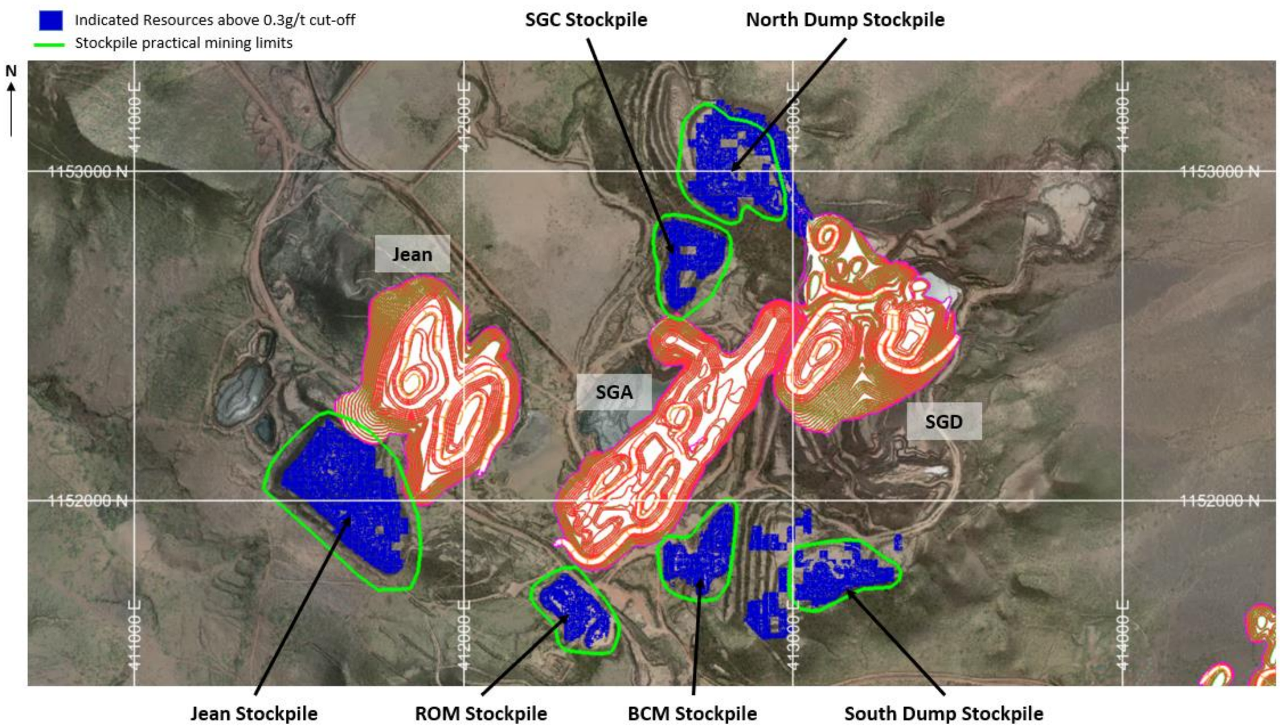
Mineral Reserves for the stockpiles were generated from the resource block models through the following steps:

1 The resource block models were filtered to include only Indicated material above a cut-off grade of 0.3g/t Au (Table 15.13).

2 Practical mining limits were applied to each stockpile to ensure consistent mining zones while also maintaining haulage access requirements.

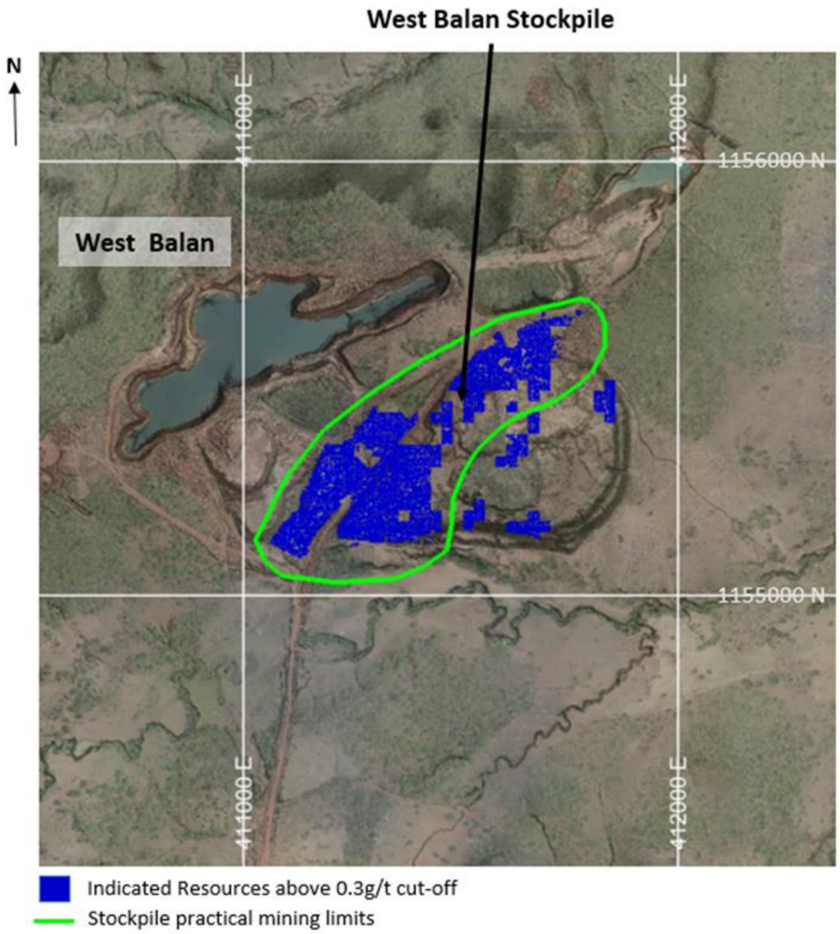
Six of the stockpiles are located around the Jean, SGA, and SGD mining areas and are shown in Figure 15.13. The West Balan stockpile is located approximately 2.5 km north of the Jean Stockpile, adjacent to the West Balan pit and is shown in Figure 15.14.

Figure 15.13 Stockpile locations in main mining area




Source: AMC, 2023.

Figure 15.14 West Balan stockpile location




Source: AMC, 2023.

The 0.3 g/t cut-off grade applied to the stockpiles was calculated by taking the pit optimization inputs by mining area and adjusting to:

- Remove grade control costs as the grade control drilling has been completed.
- Include additional haulage costs to account for the distance of haulage from West Balan.

The key inputs for the stockpile cut-off grade calculation are summarized in Table 15.13.

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Table 15.13 Stockpile cut-off grade inputs

| Parameter | Units | SGA | SGD | Jean | ROM Stockpile | BCM Stockpile | West Balan |
|---|---|---|---|---|---|---|---|
| **Revenue** | | | | | | | |
| Gold price | US$/oz Au | 1,650 | 1,650 | 1,650 | 1,650 | 1,650 | 1,650 |
| Royalty | % | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |
| Treatment and refining charges | US$/oz AU | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 | 12.02 |
| Net gold price | US$/g Au | 49.74 | 49.74 | 49.74 | 49.74 | 49.74 | 49.74 |
| Discount rate | % | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| **Process gold recoveries** | | | | | | | |
| Oxide | % | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 | 92.0 |
| **Processing and additional ore costs** | | | | | | | |
| Processing (Oxide) | US$/t | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 |
| Ore re-handle MOP-ROM (Oxide) | US$/t | 0.74 | 0.61 | 0.73 | 0.73 | 0.73 | 0.97 |
| Ore re-handle ROM management | US$/t | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.89 |
| Ore re-handle fuel burn | L/t | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| Fuel price | US$/L | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| Ore re-handle fuel cost | US$/t | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Corporate overheads | US$/t | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 |
| Site general and administration | US$/t | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 |
| Sustaining CapEx | US$/t | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| Total processing cost (oxide) | US$/t | 14.80 | 14.67 | 14.79 | 14.79 | 14.79 | 15.23 |
| **Pit rim cut-off grade** | | | | | | | |
| Oxide | g/t | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |

Source: Robex and AMC, 2023.

An oxide process recovery of 92% was used to determine the mineable portions of the stockpiles.

The resulting Mineral Reserves for the stockpiles broken down by individual areas is presented in Table 15.14.

Table 15.14 Stockpile Mineral Reserves by location

| Stockpile | OXIDE | | | | | |
|---|---|---|---|---|---|---|
| | Domain | Density ($t/m^3$) | Volume ($m^3$) | Tonnes (kt) | Au Grade (g/t) | Au (koz) |
| ROM Stockpile | 1_1 | 1.5 | 137 | 205 | 0.94 | 6 |
| BCM Stockpile | 2_2 | 1.5 | 218 | 326 | 0.58 | 6 |
| West Balan Stockpile | 10_3 | 1.5 | 121 | 182 | 1.03 | 6 |
| | 10_4 | 1.5 | 56 | 85 | 0.61 | 2 |
| | 10_5 | 1.5 | 545 | 818 | 0.49 | 13 |
| Jean Stockpile | 4_4 | 1.5 | 1,535 | 2,303 | 0.43 | 32 |
| South Dump Stockpile | 6_6 | 1.5 | 447 | 671 | 0.43 | 9 |
| SGC Stockpile | 7_7 | 1.5 | 450 | 674 | 0.38 | 8 |
| North Dump Stockpile | 8_8 | 1.5 | 660 | 991 | 0.43 | 14 |
| **Total Probable Mineral Reserves** | | **1.5** | **4,170** | **6,255** | **0.48** | **96** |

Source: Robex and AMC, 2023.

# 16 Mining methods

## 16.1 Geotechnical and slope stability analysis

This section provides a comprehensive overview of the mining slope geotechnical programmes completed as part of the FS.

### 16.1.1 Background and summary

Locally, the host rocks of the Kiniero deposit consist of a series of inter-banded mafic volcanic lavas, volcaniclastic sediments, and fine-grained tuffs (with a thickness of a few tens of metres) that have been variously intruded by scattered sills and dykes. Gold in the region typically occurs as Au-quartz-vein lode-type deposits which are associated with pyrite in steeply dipping structures within major slip faults/shears striking north-east to south-west.

The lithologies of these deposits have undergone deep weathering and intense meteoritic alteration, commonly showing a 30 m to 80 m thick highly oxidized saprolitic horizon developed over the fresh bedrock (FR). The saprolite (SAP) is a multicoloured, soft friable material, which results from the kaolinization of the original feldspars in the volcanics. SAP weathering is progressive with upper and lower SAP regions defined at some sites. The upper SAP (SPU) is weaker, generally of lower in situ density, and void of any distinguishable geological structure. The lower SAP (SPL) is characterized by preserved geological structure and is sometimes (but not always) notably stiffer, denser, and stronger than the SPU.

At depth the sediments and volcanics are strong and fresh (the volcanics having compressive strengths in the order of 100 Mpa and more) allowing for steeper mining slope angles.

The change from the weak oxidized saprolite into stronger fresh bedrock is sometimes transitional over a few to tens of metres as defined by a modelled transitional "TR" zone. At surface, the saprolite is typically capped by a hard and impermeable, 4 m to 10 m thick, laterite "LAT".

The Kiniero prospects (Figure 16.1) can be differentiated geotechnically based on topography and depth and composition of the main lithologies as listed below:

1 Laterite "LAT" (including a "mottled" zone at its base),
2 Saprolite "SAP" (sub lithologies SPU and SPL defined where applicable),
3 Transitional "SPK" otherwise known as "TR", and
4 Fresh bedrock "BDK" otherwise known as "FR"

An updated 3D model of the main lithological zones was available and used to inform the geotechnical investigations. Where weaker saprolite cover at Jean, SGA, and SGD is typically less than 50 m thick it is significantly thicker at the Sabali sites. The SAP thickness increases from the north to the south and is especially thick (80 m and more) at Sabali South. Consequently, targeted mining at the northern prospects (Jean, SGA, and SGD) reaches below the transitional zone and far into the fresh bedrock whereas mining at Sabali South does not penetrate the bedrock. The Sector Gobelé D prospects (GOBD and NEGD) are differentiated from Jean and the Sector Gobelé A (SGA) prosects in that topographically they are elevated, and mining here falls predominantly above natural ground water levels.

Geotechnical data for this FS has been sourced through the outcomes of the following initiatives:

1 Updated lithological models.
2 Geohydrological review.
3 Diamond drilling and on-site geotechnical logging programmes conducted during 2020, 2021, and 2022.
4 During each drilling programme, a selection of core samples was packaged and sent away for laboratory testing to derive intact rock and soil engineering characteristics.
5 Soil and rock strengths have been measured during the on-site logging, making use of a 4.5 kg/cm$^2$ hand penetrometer and a portable hydraulic point load index test rig. A robust data set exists to complement the laboratory test results.
6 A comprehensive benchmarking study of saprolite slope stability industry experience was conducted by SMG during 2020 (SMG, 2020). This has been used to gauge the slope design criteria presented in this section.

### 16.1.2 Geotechnical data set

The locations of the geotechnically logged diamond drillholes relative to the targeted mining prospects are shown in Figure 16.1.

During 2020 and 2021, SMG drilled nine (9) geotechnically focused diamond holes from which soil and rock core was extracted (reportedly of size HQ3 or diameter ~61 mm). The holes were all inclined and orientated making structural orientation measurements possible (in areas where direction lines could be successfully transferred). Three (3) drillholes covered the SGA prospect with each of the Sabali prospects: Sabali North (SabN), Sabali Central (SabC), and Sabali South (SabS) being covered by two drillholes each. No drillhole coverage was available for either the Jean or the Sector Gobelé D (GOBD and NEGD) sites.

The geotechnical database was expanded in 2022 to include the Jean and SGD prospects and to improve on existing coverage at SGA and Sabali. An additional 33 drillholes have been added to the data set, bringing the total to 5,375 m of geotechnically focused logging over 42 drillholes. An additional 2,006 m of geotechnical logging has also been completed on another ten diamond drillholes spread across the sites (GDD21-001, JDG22-001 to 005, and SDD22-001 to 004). These holes do not officially form part of the planned geotechnical drilling programmes but do offer additional geotechnical logging information for consideration.

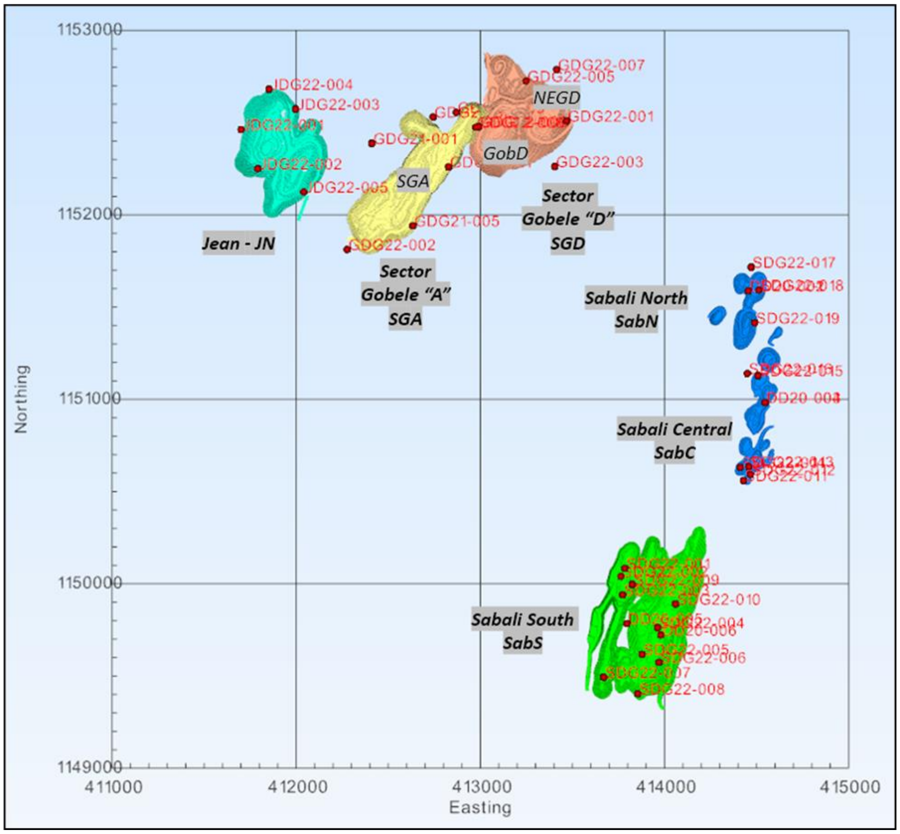
Statistics for conducted geotechnical logging, site measurements, and laboratory testing are presented per mining prospect in Table 16.1 to Table 16.5.

It is noted that the soil triaxial (TCS) test results from batch 1 of the 2022 laboratory testwork programme, was still outstanding at the time of writing of this report (as indicated in *red italics* in Table 16.4). This has limited the amount of data available for this assessment. So too was all laboratory data for the entire regiment of batch 2 samples (soil and rock), which only left site in 2023.

Given the findings of this study, it is believed that the risk to FS pit designs, due to these test results not being included, is low. The data is, however, crucial for completeness of the geotechnical data set (to fill gaps and to verify strengths) and will likely lead to mining pit optimizations and possibly some project upside.

The batch 1 (TCS) and the batch 2 laboratory test results should be incorporated into the geotechnical data set once available and the stability model parameters reviewed, and the models rerun.

## Figure 16.1 Geotechnical drillhole locations relative to the mining prospects




Source: TREM, 2023.

## Table 16.1 Geotechnical data set statistics—logged metres

| Lith. | Jean | SGA | GOBD | NEGD | Sab N | Sab C | Sab S | Total |
|---|---|---|---|---|---|---|---|---|
| LAT | 21.5 | 43.3 | 0 | 33.0 | 49.0 | 41.0 | 77.5 | 265.3 |
| SPU | 171.7 | 94.1 | 35.5 | 235.5 | 147.5 | 271.5 | 413.7 | 1,369.5 |
| SPL | 31.5 | 55.2 | 22.5 | 45.0 | 41.0 | 219.5 | 527.9 | 942.6 |
| SPK | 53.8 | 86.9 | 49.5 | 65.0 | 73.5 | 67.5 | 143.1 | 539.3 |
| BDK | 451.9 | 594.2 | 192.5 | 357.3 | 278.0 | 336.3 | 48.0 | 2,258.1 |
| | 730.4 | 873.7 | 300.0 | 735.8 | 589.0 | 935.8 | 1,210.2 | 5,374.8 |

Source: TREM, 2023.

## Table 16.2 Count of valid readings taken—site soil strength using hand penetrometer

| Lith. | Jean | SGA | GOBD | NEGD | Sab N | Sab C | Sab S | Total |
|---|---|---|---|---|---|---|---|---|
| LAT | 11 | 23 | | 17 | 24 | 28 | 49 | 152 |
| SPU | 68 | 45 | 21 | 134 | 223 | 120 | 348 | 959 |
| SPL | 13 | 32 | 4 | 31 | 168 | 25 | 400 | 673 |
| SPK | | 2 | | 5 | 22 | 5 | 12 | 46 |
| BDK | | 1 | | | 3 | | | 4 |
| | 92 | 103 | 25 | 187 | 440 | 178 | 809 | 1,834 |

Source: TREM, 2023.

## Table 16.3 Count of valid readings taken—site rock strength using point load tester

| Lith. | Jean | SGA | GOBD | NEGD | Sab N | Sab C | Sab S | Total |
|---|---|---|---|---|---|---|---|---|
| LAT | | | | | | | | |
| SPU | | 2 | | 2 | | 4 | | 8 |
| SPL | | 7 | 15 | | 10 | 13 | 2 | 47 |
| SPK | 2 | 31 | 30 | 51 | 38 | 46 | 105 | 303 |
| BDK | 154 | 491 | 94 | 321 | 296 | 340 | 95 | 1,791 |
| | 156 | 531 | 139 | 374 | 344 | 403 | 202 | 2,149 |

Source: TREM, 2023.

## Table 16.4 Geotechnical data set statistics—laboratory soil testing

| Batch | Weathering Domain/Lithology | Sieve and Plasticity | Shear box | Triaxial | Total |
|---|---|---|---|---|---|
| 2020 / 2021 | LAT - LATERITE | 10 | | | 10 |
| | SAP - SAPROLITE | 38 | | | 38 |
| 2022 batch 1 | LAT - LATERITE | 7 | 1 | 1 | 9 |
| | MZ – MOTTLED ZONE | 9 | 2 | 2 | 13 |
| | SPU – SAPROLITE UPPER | 19 | 11 | 13 | 43 |
| | SPL – SAPROLITE LOWER | 44 | 16 | 6 | 66 |
| 2022 batch 2 | LAT - LATERITE | 1 | | | 1 |
| | MZ – MOTTLED ZONE | 5 | 1 | | 6 |
| | SPU – SAPROLITE UPPER | 13 | 2 | 4 | 19 |
| | SPL – SAPROLITE LOWER | 15 | 13 | 5 | 33 |
| | | 161 | 46 | 31 | 238 |

Note: Results pending at time of writing.
Source: TREM, 2023.

## Table 16.5 Geotechnical data set statistics—laboratory hard rock testing

| Batch | Weathering Domain/Lithology | UCM (UCS+E) | Triaxial TCS | Tensile UTB | JNT BFA | JNT Direct Shear | Total |
|---|---|---|---|---|---|---|---|
| 2020/2021 | LAT - LATERITE | 3 | | 1 | | | 4 |
| | SAP - SAPROLITE | 4 | 6 | 4 | | | 14 |
| | BDK - BED ROCK FRESH | 18 | 22 | 18 | | | 58 |
| 2022 batch 1 | LAT - LATERITE | 1 | | | | | 1 |
| | SPK - SAPROCK | 15 | 3 | 11 | 3 | 3 | 35 |
| | BDK - BED ROCK FRESH | 37 | 6 | 26 | 16 | 6 | 91 |
| 2022 batch 2 | LAT - LATERITE | 3 | | | | | 3 |
| | SPK - SAPROCK | 7 | 6 | 2 | 4 | 6 | 25 |
| | BDK - BED ROCK FRESH | 28 | 19 | 26 | 10 | 14 | 97 |
| | | 116 | 62 | 88 | 33 | 29 | 328 |

Note: Results pending at time of writing.
Source: TREM, 2023.

### 16.1.3 Material strengths and properties

#### 16.1.3.1 Lithological makeup (geological complexity)

Locally, the host rocks of the Kiniero deposit consist of a series of inter-banded mafic volcanic lavas, volcaniclastic sediments, partially metamorphosed metasediments and fine-grained tuffs that have been variously intruded by scattered sills and dykes.

Both the shallow lying saprolites and the deeper (and comparatively much stronger) fresh bedrock units exhibit high variability in geological makeup. This makes sample selection for site-based and laboratory testing complex. The units need to be modelled as a continuum representing the interbanded whole, but sampling can only be taken from one geological unit at a time.

To facilitate sensible selection of samples for testing (and to guide later averaging biases for the slope assessments) the geological makeup has been analysed with summary results presented in Table 16.6. The table presents the contributions of the various logged geologies, measured as logged metres of core and expressed as a percentage of the total core meters for each main geotechnical domain (LAT, SAP, SPK, or BDK). The table compares the various mining prospects, each being subdivided by geotechnical domain and logged geology.

Some observations made from these assessments are summarized below:

1 Sediment, metasediment and volcanics dominate locally. Volcaniclastic sediments, like tuff, are encountered notably less. SGA is the exception, where tuff accounts for 25%-35% of the total SPL, SPK, and BDK geological constituents.

2 The upper saprolite SPU is dominated by sediments across all mining prospects. Clays and siltstones dominate here. SGA is again the exception, where larger contributions from breccia and greywacke are observed.

3 The deeper geotechnical units (starting from within the lower saprolite SPL) contain less sediment with notable increases in metasediment and/or volcanics. For all prospects the deep BDK is dominated by volcanics – especially andesite and basalt. Metasediments also feature strongly alongside the volcanics except for Sector Gobelé D (GOBD and NEGD) where little to no metasediment was logged. These areas differ from the other sites in that they are elevated and are housed within a local topographical high (a prominent hill).

4 As a result of the above, focus for strength testwork sampling resided with samples of sediment (CLY and SLT), metasediment (MSD) and volcanics (AND and BAS). For SGA a concerted focus on BRE, GWK, and TUFF was also made.

5 These assessments have also been used to guide the biasing of the assumed average material properties for the various slope stability assessments conducted.

## Table 16.6 Geological composition of main lithological units by pit

| KINIERO LITHOLOGICAL MODEL 2023 DFS (geotechnical drillholes) | | LATERITE | CLY - Clay | SLT - Siltstone | BRE - Breccia | GW - Greywacke | SH - Shale | SDT - Sandstone | SED - Sediments (undifferentiated) | CGL-Conglomer. | CHT - Chert | BSH - Black Shale | METASEDIMENTS | BAS - Basalt | AND - Andesite | DIO - Diorite | VOL - Volcanics (undifferentiated) | GN - Granodiorite | TON - Tonalite | TUF - Tuff | CLY - Clay | VSED - (undifferentiated) | SLT - Siltstone | BRX - Brecciated | LAT - Laterite | SDT - Sandstone | NR - No Recovery | VQ - Quartz Vein | FAL - Fault |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LAT | SEDIMENTS | | | | | | | | | | MSD | VOLCANICS | | | | | | VOLCANO SEDIMENTS | | | | | | | OTHER | | |
| Jean | LAT - LATERITE | 87.6% | | | | | | | | | | | | | | | | | | | | | | | | | 12.4% | | |
| | SPU - SAPROLITE UPPER | | 24.6% | 60.0% | | 7.6% | 1.6% | 0.9% | | | | | | | 3.0% | | | | | | | | | | | | 2.4% | | |
| | SPL - SAPROLITE LOWER | | 25.3% | 44.8% | | | | 1.8% | | | | | 27.1% | | | | | | | | | | | | | | 1.0% | | |
| | SPK - SAPROCK | | | 9.1% | | | | | | | | | 13.9% | 63.2% | 13.8% | | | | | | | | | | | | | | |
| | BDK - BED ROCK FRESH | | | | 7.7% | 0.5% | | | | | | | 35.1% | 33.3% | 20.0% | 1.6% | | 1.9% | | | | | | | | | | | |
| Sector Gobele A SGA | LAT - LATERITE | 63.0% | 11.0% | | | | | | | | | | | | | | 2.9% | | | | | | | | 23.1% | | | | |
| | SPU - SAPROLITE UPPER | | 25.6% | 6.4% | 9.4% | 34.0% | | | | | | | | | | | | | | | 5.3% | | 5.8% | | | | 13.6% | | |
| | SPL - SAPROLITE LOWER | | 21.8% | | 12.6% | 8.7% | | | | | | | | 15.3% | | | | | | 34.1% | | | 7.6% | | | | | | |
| | SPK - SAPROCK | | | 1.7% | 24.5% | | | 3.4% | 1.1% | | | | | 38.1% | | | | | | 21.1% | | | | 9.4% | | | 0.6% | | |
| | BDK - BED ROCK FRESH | | | | 12.1% | | | | 5.5% | | 0.6% | | 10.1% | 34.7% | 4.2% | | 5.0% | | | 24.6% | | 2.5% | 0.2% | 0.4% | | | | 0.1% | |
| Sector Gobele D GOBD | LAT - LATERITE | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SPU - SAPROLITE UPPER | | 14.1% | 38.0% | | 47.9% | | | | | | | | | | | | | | | | | | | | | | | |
| | SPL - SAPROLITE LOWER | | | 80.0% | | 20.0% | | | | | | | | | | | | | | | | | | | | | | | |
| | SPK - SAPROCK | | | 21.6% | | | | | | | | | | 78.4% | | | | | | | | | | | | | | | |
| | BDK - BED ROCK FRESH | | | | | | | | | | | | | 99.1% | 0.9% | | | | | | | | | | | | | | |
| Sector Gobele D NEGD | LAT - LATERITE | 100.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SPU - SAPROLITE UPPER | | 22.2% | 72.8% | | 1.1% | | | | | | | | 3.9% | | | | | | | | | | | | | | | |
| | SPL - SAPROLITE LOWER | | | 81.5% | | | | | | | | | | 18.5% | | | | | | | | | | | | | | | |
| | SPK - SAPROCK | | | 12.9% | | | | | | | | | | 76.6% | 10.5% | | | | | | | | | | | | | | |
| | BDK - BED ROCK FRESH | | | | | 7.6% | | | | | | | | 84.8% | 6.2% | 0.2% | | | | | | | | | | | | 1.1% | |
| Sabali North | LAT - LATERITE | 100.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SPU - SAPROLITE UPPER | | 41.3% | 25.8% | | 15.4% | 5.8% | | | | | | 11.8% | | | | | | | | | | | | | | | | |
| | SPL - SAPROLITE LOWER | | | | | 40.6% | | | | | | | 35.7% | | 15.1% | | | | | | | | | | | | | | 8.6% |
| | SPK - SAPROCK | | | | | 3.1% | | | | | | | 4.5% | 36.9% | 52.6% | | | | | 3.0% | | | | | | | | | |
| | BDK - BED ROCK FRESH | | | | 1.5% | | 5.4% | 6.0% | | | | | 9.8% | 29.9% | 47.4% | | | | | | | | | | | | | | |
| Sabali Central | LAT - LATERITE | 100.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SPU - SAPROLITE UPPER | | 64.1% | 8.5% | | 1.0% | | | | | | | 7.7% | | 16.1% | | | | | 1.7% | | 0.9% | | | | | | | |
| | SPL - SAPROLITE LOWER | | 14.7% | 3.6% | | | | 4.8% | | | | | 44.7% | | 21.4% | | | | | 9.9% | | | | | | | | 0.8% | |
| | SPK - SAPROCK | | | | 1.6% | | | 5.0% | | | | | 47.1% | 17.3% | 12.9% | | | | | 13.3% | | 2.8% | | | | | | | |
| | BDK - BED ROCK FRESH | | | | 15.4% | | 0.3% | 5.5% | | 6.3% | | 0.6% | 30.0% | 13.7% | 18.2% | | | 3.7% | | 5.5% | | 0.9% | | | | | | | |
| Sabali South | LAT - LATERITE | 96.9% | | | | | | | | | | | | | | | | | | | | | | | | | 3.1% | | |
| | SPU - SAPROLITE UPPER | | 49.0% | 16.6% | | 1.0% | 6.2% | | | | | | 14.9% | | 8.2% | | 0.3% | | | | | 2.5% | | | | | 1.0% | 0.4% | |
| | SPL - SAPROLITE LOWER | | 17.9% | 5.1% | | 1.7% | 2.9% | 2.3% | | | | | 54.5% | | 5.2% | | | 0.4% | | | 4.5% | 3.6% | 1.1% | | | 0.4% | 0.2% | 0.1% | |
| | SPK - SAPROCK | | | | | 1.8% | | 1.6% | | | | | 44.0% | | 9.3% | | | 2.2% | 6.2% | 3.9% | 24.8% | 2.2% | 0.7% | | | 2.0% | | 0.3% | 1.0% |
| | BDK - BED ROCK FRESH | | | | 0.2% | | | | | | | | 67.2% | | 15.0% | 11.7% | | | 0.8% | | 1.2% | 3.4% | | | | 0.3% | | 0.2% | |

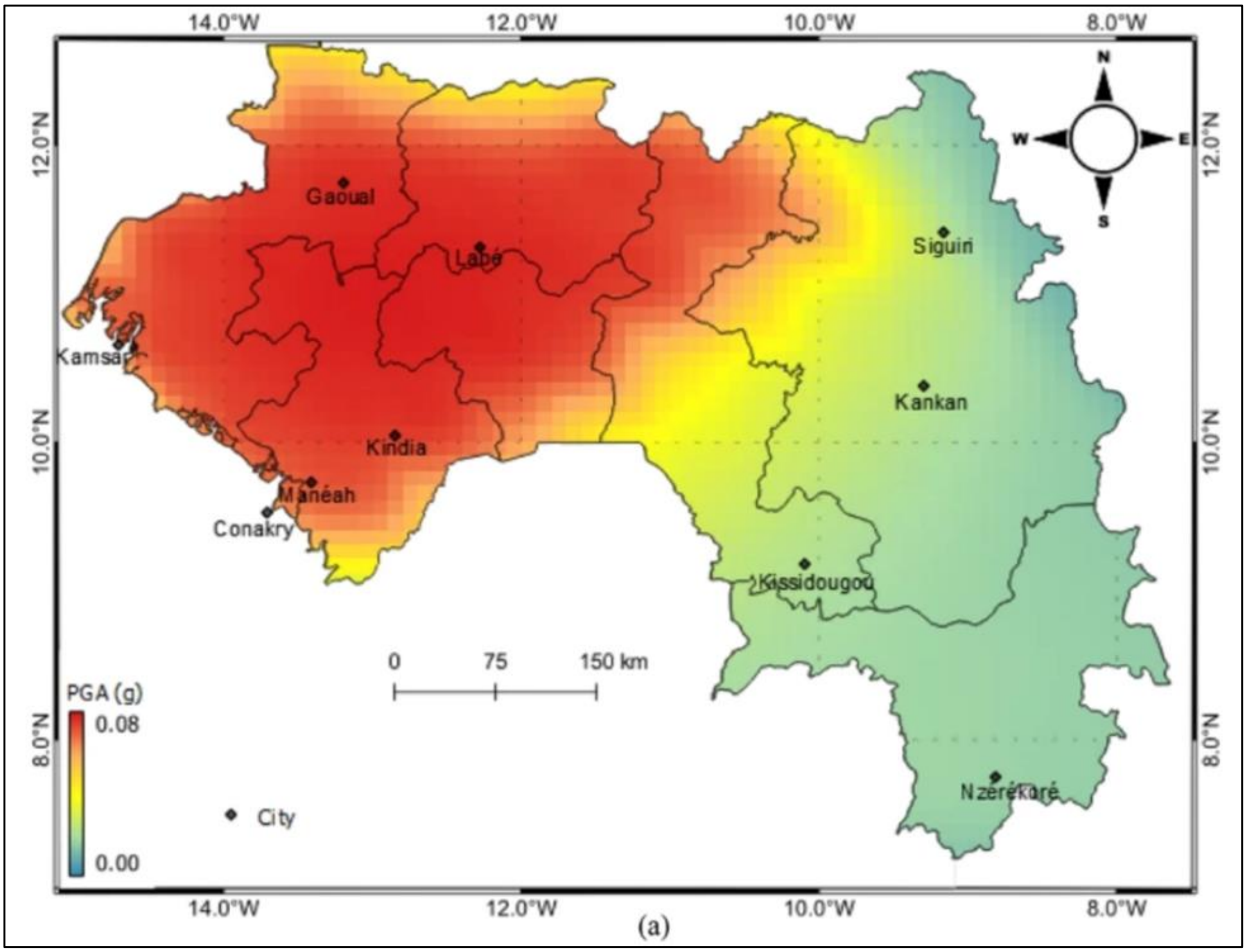
Source: TREM, 2023.

#### 16.1.3.2 Seismic setting

Seismic hazard mapping of Africa has been conducted by the Global Seismic Hazard Assessment Program in 1999. Guinea is located on a stable continental region in West Africa, this is a region characterized by infrequent seismic events.

Irinyemi et al (Irinyemi, 2022) developed a homogenized 100-year catalogue compiled from different seismic sources. Figure 16.2 shows the hazard map for Guinea in terms of mean peak ground acceleration (PGA) for a 10% probability of exceedance in 50 years. The results show that the highest level of seismic hazard is computed in north-west Guinea, where the maximum PGA is 0.08 g. The Kiniero site, indicated using a blue star in Figure 16.2, is located within an area of lower seismic hazard where the mean expected PGA is ~0.03 g to 0.04 g.

Figure 16.2 Seismic map of Guinea indicating an expected PGA of 0.03 g to 0.04 g with a 10% probability of exceedance in 50 years




Source: Irinyemi, 2022.

#### 16.1.3.3 Groundwater

Hydrological work conducted as part of this study notes the following regarding groundwater and the hydrogeological environment for the Project areas:

- There are two main aquifers identified in the area. An upper aquifer, associated with the lateritic horizon, and a deeper fractured rock aquifer.
  - a The upper aquifer ranges between surface and 10 m below, while the deeper aquifer has groundwater levels currently at depth of 25 m to 35 m below surface.
  - b The exception is Sector Gobelé D (GOBD/NEGD) where the mining prospects are elevated by hilly topography far above the current groundwater level.
  - c A natural topographical low (stream/river) is present between the Sabali Central and the Sabali South prospects. Here groundwater levels may reach surface.
- Both the laterite and the saprolite units indicate low permeabilities. As a result:
  - a Surface runoff water can potentially build-up in volume and in-speed, leading to increased risk of pit flooding and/or erosional damage to slopes. The importance of proper surface water management controls is hereby emphasized.
  - b drainage or recharge of groundwater locked in the saprolite units is likely to be hindered by the low permeabilities. Excavated saprolite slopes are likely to be well saturated (as is confirmed through the laboratory testing) and will not readily self-drain. Material strengths have therefore been determined in this saturated state (samples preserved on site before shipping) and stability models have been assigned the higher wet density values for input as primary stress loading in the conducted slope stability assessments.
- Initial estimates indicate that the saprolite units at Sabali South (south of the river) are likely more permeable than those of the other mining prospects. Further work understanding implications on the slopes (if any) is warranted.
- The SPK domain is expected to act as a bottom fractured aquifer. Any trapped water from the saturated SAP above, that manages to travel along subvertical structures, is likely to report to the pits at the slope faces at the exposed SPK/BDK contact. Since SAP permeabilities are low, high volumes of groundwater influx are not anticipated.
- It remains imperative that surface water runoff be properly managed to protect the pits from flooding during the rainy season.

It is assumed that groundwater levels remain at current levels with a moderate pull down to the pit floor as mining progresses. Groundwater in the SAP is rather accounted for in the modelling by using wet density as the loading input.

#### 16.1.3.4 Material properties

Soil and rock strength and rock mass quality has been assessed from the detailed geotechnical logging of forty-two (42) drillholes spread across the targeted mining prospects (Figure 16.1). Results from the conducted on-site (and laboratory) rock and soil strength testing programmes have also been included.

**Soil strength – LAT/SAP**

The strength of the soil units LAT and SAP are defined through their physical properties (particle size distributions and water content). These units are assigned Mohr-Coulomb shear strength parameters (determined through triaxial/shear box testing) for slope design purposes (defining Cohesion Co and friction angle $\varphi$ limits).

Sieve analyses show high variability in particle size distributions between samples of SAP sediment (Figure 16.3). This illustrates the variability that is inherent throughout the SAP domain. Conducted soil plasticity index analyses confirm that the Kiniero soils are predominantly silty across all mining prospects.

SAP strength and density tends to increase from surface to where the lower SAP makes contact with the transitional SPK. The trend is, however, far from consistent or predictable. Hand penetrometer testwork shows just how variable soil strength of the SAP from a single drillhole can be. Figure 16.4 shows an example of hand penetrometer strength readings taken along the length of drillhole GDG22-001 (located to the south-east of NEGD). After an initial build up from 150 kPa to >500 kPa the strength of SAP (which is consistently described in logs as being a silt) is observed to oscillate between 250 kPa and >500 kPa. The oscillations do not smooth out with increased depth and strength is not progressively increasing with depth as is observed at some of the other drillholes.

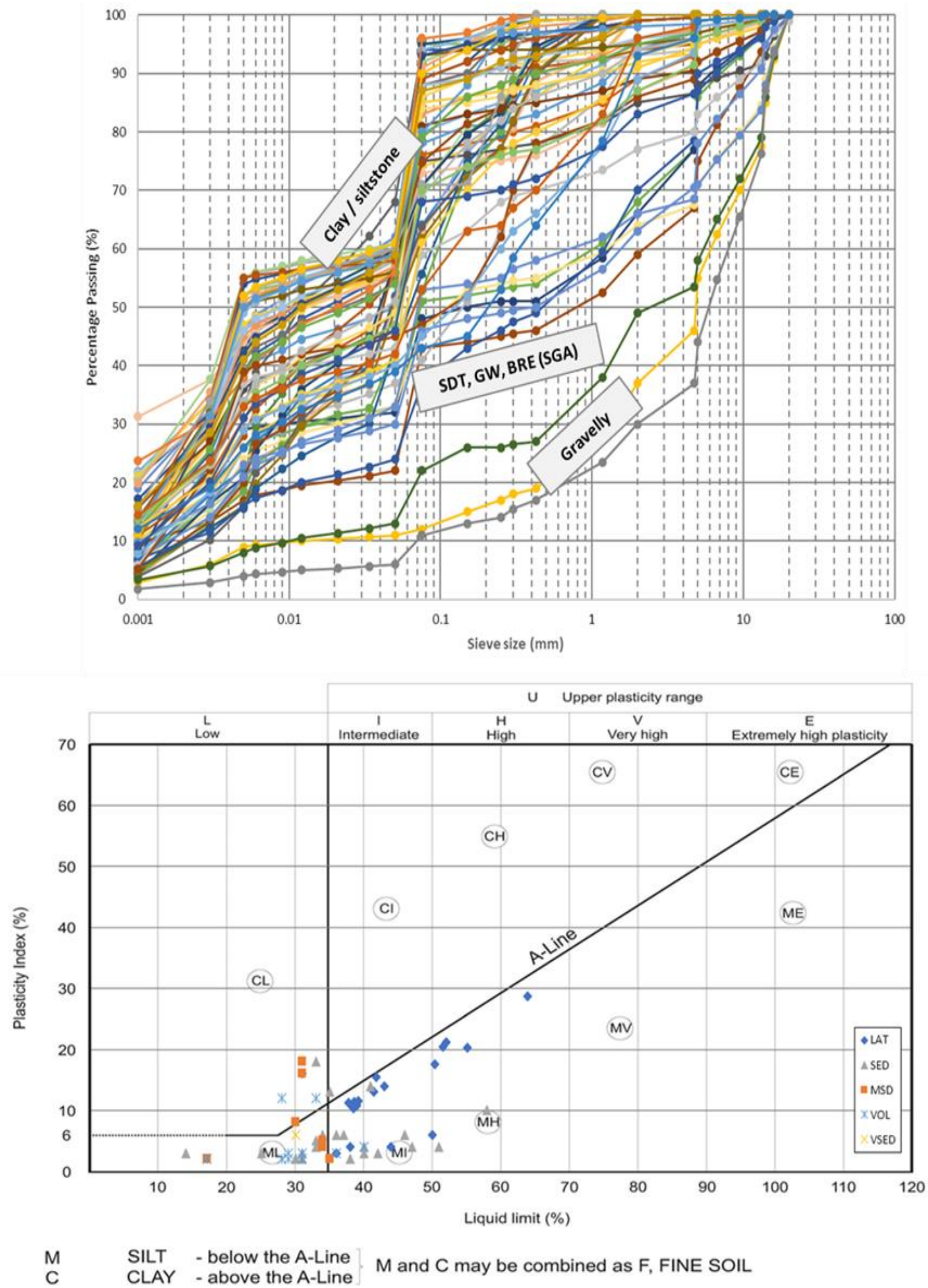
The understanding gained is that density and strength in the SAP is inter-banded and variable just like the variability observed with geology (Section 16.1.3.1). Banding need not be defined by changes in geology. Changes in material properties may occur locally, and over small distances, due to alternating states of weathering and/or alteration.

Averaging of measured soil properties (while being mindful of the most prominent constituents of the system) works well in this situation for design purposes. The high variabilities observed (i.e., variabilities in density and/or soil strength) need not be taken as a negative attribute for design purposes. Inter-banded systems of alternating softer and harder materials can offer considerable reinforcement over systems where the softer materials persist of much larger intervals.

Site observations suggest that exposed 50 m-80 m saprolite slopes at SGA and SGD stand at rather steep angles (>40° in some cases) and this inter-banded nature of alternating weak and strong material properties may be one of the contributing factors.

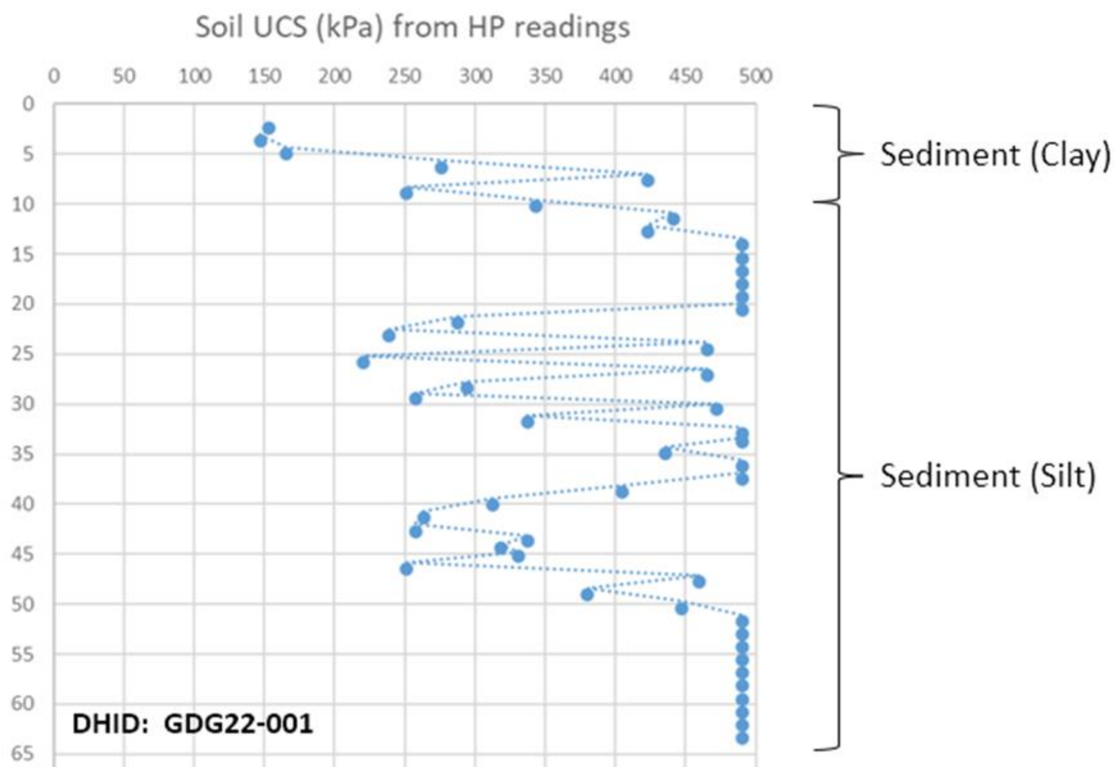
Cohesion Co and friction angle φ has been determined based on triaxial testwork from previous studies, supplemented with the batch 1 direct shear test results from 2022. At the time of writing, none of the 2022 planned triaxial test results were available for use. The site-logged hand penetrometer readings have been used to verify or guide the cohesion intercepts for the Mohr-Coulomb failure criteria fits. Final material properties for the LAT and SAP units per mining prospect are presented in Table 16.9.

Figure 16.3 Laboratory results for SAP showing sieve analysis (top) and plasticity index (bottom)




Source: TREM, 2023.

Figure 16.4 Variability in strength for a silty SAP from hand penetrometer readings




Source: TREM, 2023.

**Rock strength – SPK/BDK**

Slope design in the hard rock units relies on both rock strength classification (typically through laboratory testwork) and rock mass classification using one of several published classification systems (i.e. rock mass rating (Bieniawski, Z.T., 1989), mining rock mass rating (MRMR) (Laubscher, 1990), Q (NGI, 2015), or GSI after (Hoek and Marinos, 2000)).

Rock strength has been obtained for the Kiniero rock units through laboratory testwork and through on-site measurements using a portable hydraulic point load index (PLI) test rig with more than 2,100 hard rock samples tested. The PLI allows for an estimate of rock uniaxial compressive strength (UCS) that is more robust than can be gained from laboratory testing because more samples can be tested covering a wider area.

The PLI test results from the programme shown in Table 16.3 above are presented below in Table 16.7. The UCS values (Mpa) are colour coded for easier observation of trends.

- The PLI values for the SPU and SPL should be thought of as upper limits of SAP strength and not average values; the average values being more accurately portrayed by the conducted hand penetrometer measurements.
- The data shows a clear distinction between the northern and the southern mining prospects. Average strength of transitional and fresh rock at Jean, SGA, and SGD far exceeds that obtained for the Sabali sites.
- This is good news for the FS slopes since the largest SPK and BDK exposures will occur in the northern prospects. Little to no exposure is expected at the Sabali sites.

- The main difference between the BDK at the northern sites and the southern (Sabali) sites is that the northern BDK is dominated by volcanics (VOL) specifically andesites and basalts, whereas the Sabali BDK is dominated metasediment (MSD) and some volcanoclastic sediments (VSED), which are poorly represented at the northern deposits.

Table 16.7 Average rock UCS (Mpa) from PLI testwork per mining prospect

| Domain | Lith type | Jean | SGA | GOBD | NEGD | Sab N | Sab C | Sab S | Total |
|---|---|---|---|---|---|---|---|---|---|
| SPU | SED | | | | 3.3 | 2.1 | | | 2.5 |
| | VSED | | 17.5 | | | | | | 17.5 |
| SPL | SED | | 10.3 | 9.5 | | 4.9 | | | 7.7 |
| | MSD | | | | | | 6.3 | 16.1 | 8.1 |
| | VOL | | 5.5 | | | | 5.6 | | 5.5 |
| | VSED | | 9.4 | | | | | | 9.4 |
| SPK | SED | | 28.9 | 15.8 | 9.0 | 90.0 | | | 27.6 |
| | MSD | 106.2 | | | | 11.3 | 9.6 | 22.6 | 19.6 |
| | VOL | | 171.9 | 43.6 | 42.2 | 44.6 | 10.5 | 23.8 | 47.9 |
| | VSED | | 15.7 | | | | 27.1 | 5.5 | 9.0 |
| BDK | SED | 128.0 | 116.9 | | 93.7 | 69.4 | 40.1 | 69.9 | 89.3 |
| | MSD | 104.4 | 96.2 | | | 52.4 | 46.6 | 58.6 | 72.8 |
| | VOL | 187.5 | 190.8 | 149.6 | 151.2 | 88.6 | 64.5 | 69.2 | 133.3 |
| | VSED | | 150.6 | | | | 16.5 | 67.3 | 125.4 |
| | | 143.3 | 152.8 | 110.6 | 128.9 | 75.6 | 44.7 | 36.2 | 101.6 |

Source: TREM, 2023.

Rock mass classification can only be conducted where recovered core displays clear geological structure (jointing). At Kiniero, rock mass classification is particularly relevant to the TR and FR units but has also been determined for limited sections of SAP where geological structure is still adequately preserved (usually deeper and within the SPL).

Table 16.8 presents rock mass quality statistics for the hard rock units encountered during geotechnical logging. Two common classification systems are compared (GSI and rock mass rating). At the northern sites "fair" rock mass quality dominates with RMR between 50 and 55. As reported in previous studies, rock mass quality appears to decrease from the north to the south with the hard rock materials at Sabali South being classified the worst as "poor" to borderline "fair" quality.

A major finding from this review is that previously quoted rock mass qualities appear to have been overstated. They were admittedly based only on very little actual logging data. Where in the previous studies rock mass rating (RMR) values in the range of 55 to 70 (fair to good rock mass quality) were reported, these (through the detailed logging conducted as part of this FS) have been reduced to RMR <50 (poor to fair rock mass quality) and are believed to be more representative of actual conditions observed.

Table 16.8 Average rock mass ratings from drillhole logging per mining prospect

| Rock mass quality | | GSI | RMR | Class |
|---|---|---|---|---|
| SPK - SAPROCK | Jean | 41 | 46 | Fair |
| | Sector Gobelé A - SGA | 36 | 41 | Fair to Poor |
| | Sector Gobelé D - GOBD/NEGD | 40 | 45 | Fair |
| | Sabali (North + Central) | 36 | 41 | Fair to Poor |
| | Sabali South | 34 | 39 | Poor to Fair |
| BDK - FRESH BED ROCK | Jean | 50 | 55 | Fair to Good |
| | Sector Gobelé A - SGA | 48 | 53 | Fair |
| | Sector Gobelé D - GOBD/NEGD | 46 | 51 | Fair |
| | Sabali (North + Central) | 43 | 48 | Fair |
| | Sabali South | 37 | 42 | Fair to Poor |

Source: TREM, 2023.

**Material strength parameters**

Material strength properties have been derived and updated during this study. These are presented in Table 16.9 and have been used in the determination of the mining slope design guidelines presented in Section 16.1.4.

Table 16.9 Soil and rock material strength properties as assumed for the Kiniero FS

| Main Lithology | Mining Target | Intact Material Properties | | | | | Rock mass Properties (Hoek-Brown) | | | | | | Mohr-Coulomb fit | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wet Density (kg/cm$^2$) | Friction Angle φ (°) | Cohesion Co (kPa) | UCS (Mpa) | mi | UCS (Mpa) | mi | GSI | mb | s | a | Φ (°) | Co kPa |
| Laterite LAT | All | 23.5 | 30 | 15 | 0.350 | - | - | - | - | - | - | - | 36 | 7 |
| Saprolite SAP | Jean | 19.5 | Limited data | Limited data | 0.338 (SPU)<br>0.407(SPL) | - | - | - | - | - | - | - | 29 | 50 |
| | SGA | 22.5 | 28 (SPU)<br>33 (SPL) | 50 (SPU)<br>50 (SPL) | 0.371 (SPU)<br>0.448 (SPL) | - | - | - | - | - | - | - | 31 | 50 |
| | SGD | 20 (SPU)<br>24 (SPL) | 28 (SPU)<br>37 (SPL) | 50 (SPU)<br>50 (SPL) | 0.327 (SPU)<br>0.472 (SPL) | - | - | - | - | - | - | - | 34 | 50 |
| | Sab (N and C) | 18 (SPU)<br>23.5 (SPL) | 35 (SED)<br>27 (VOL) | 30 (SED)<br>25 (VOL) | 0.263 (SPU)<br>0.333 (SPL) | - | - | - | - | - | - | - | 35 | 30 |
| | Sabali S | 19 (SPU)<br>21.5 (SPL) | 25 (SPU)<br>28 (SPL) | 30 (SPU)<br>60 (SPL) | 0.324 (SPU)<br>0.382 (SPL) | - | - | - | - | - | - | - | 31 | 50 |
| Transitional SPK | All | 23 | - | - | 21 (SED)<br>39 (VOL) | 10 (SED)<br>15 (VOL) | 25 | 15 | 35 | 1.472 | 0.0007 | 0.516 | 43.7 | 345 |
| Fresh bedrock BDK | Jean | 28 | - | - | 108 (SED)<br>188 (VOL) | 10 (SED)<br>15 (VOL) | 150 (MSD, AND, BAS) | 12 | 50 | 2.012 | 0.0039 | 0.506 | 57.5 | 1,276 |
| | SGA | 28 | - | - | 112 (SED)<br>181 (VOL) | 10 (SED)<br>15 (VOL) | 150 (BRE,BAS, TUFF) | 12 | 48 | 1.873 | 0.0031 | 0.507 | 57.1 | 1,171 |
| | SGD | 28 | - | - | 94 (SED)<br>151 (VOL) | 8 to 10 | 125 (AND,BAS, GW) | 9 | 46 | 1.308 | 0.0025 | 0.508 | 53.3 | 976 |
| | Sab (N and C) | 28 | - | - | 50 (SED)<br>78 (VOL) | 10 (SED)<br>8 (VOL) | 70 (AND,BAS, MSD) | 8 | 43 | 1.044 | 0.0018 | 0.509 | 48.0 | 602 |
| | Sabali S | 28 | - | - | 59 (SED)<br>69 (VOL) | 8 to 10 | 65 (AND,DIO, MSD) | 9 | 37 | 0.948 | 0.0009 | 0.514 | 46.9 | 485 |

Source: TREM, 2023.

### 16.1.4 Slope design guidelines

#### 16.1.4.1 Acceptance criteria

Acceptance criteria are utilized to establish the required performance of pit slopes with respect to safety, ore recovery, and financial return. Both the deterministic slope stability factor-of-safety (FOS) and probability-of-failure (POF) are compared against the acceptance criteria defined in Table 16.10 for each stability assessment conducted.

Table 16.10 Typical FOS and POF acceptance criteria values

| Slope Scale | Consequence of failure | FOS (min) | POF (min) |
|---|---|---|---|
| Single Bench | Low | 1.1 | 25% |
| Multi-benched stack / Inter-ramp | Moderate | 1.2 | 20% |
| Overall Slope | High | 1.3 | 5% |

Modified from: Read and Stacey, 2009.

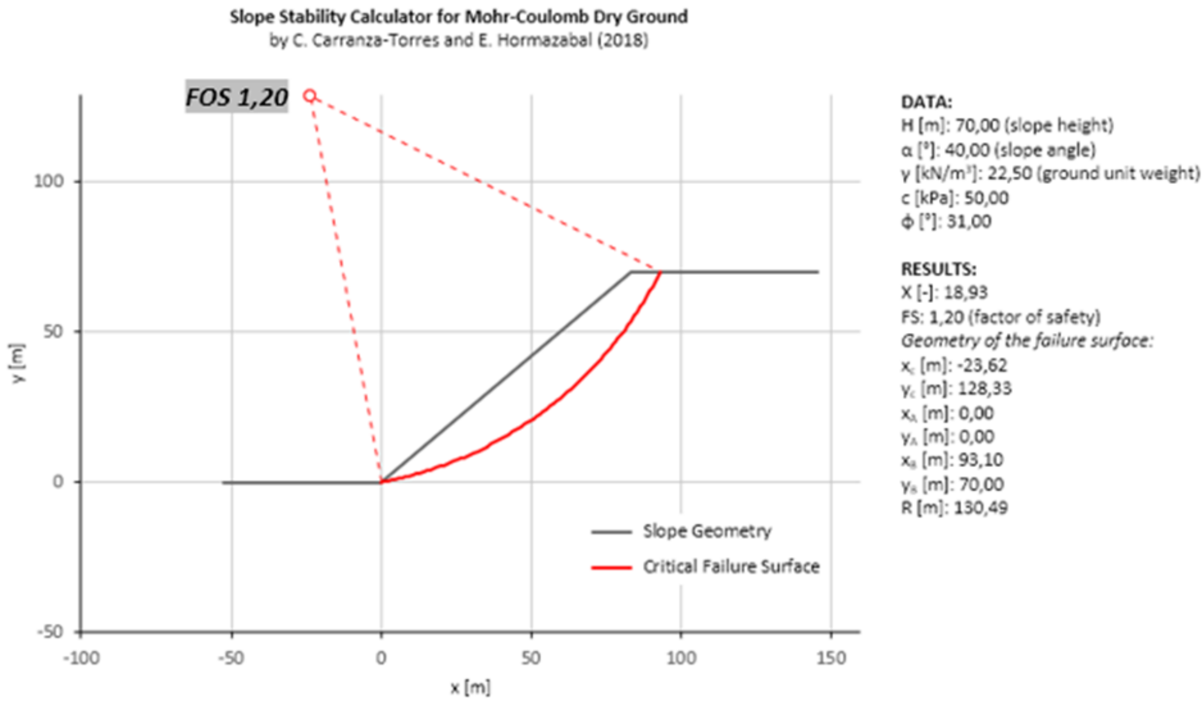
#### 16.1.4.2 Methodology

Limit-equilibrium analysis has been undertaken to assess the stability of expected slope geometries and to provide a set of slope design guidelines (Section 16.1.4.3).

A basic slope stability modelling programme has been used to develop suitable slope geometry design guidelines that were then passed on to the mining team for the detailed mining design. The model is an adaptation of the 1983 Hoek and Bray soil slope design charts (as described in Wyllie and Mah, 2005) that tests a given slope geometry for stability based on assumed material shear strength properties and the Mohr-Coulomb failure criteria. An output from this model for prospect SGA assuming a 70 m slope in SAP at an overall angle of 40° is shown in Figure 16.5. The model predicts a slope FOS of 1.20 (below 1.3), highlighting the need to flatten this slope. Note that the model assumes dry conditions, so the influence of a presumably saturated SAP is accounted for using a higher modelled "wet" density of 22.5 $kN/m^3$ (as opposed to the measured dry bulk density which is 17.1 $kN/m^3$).

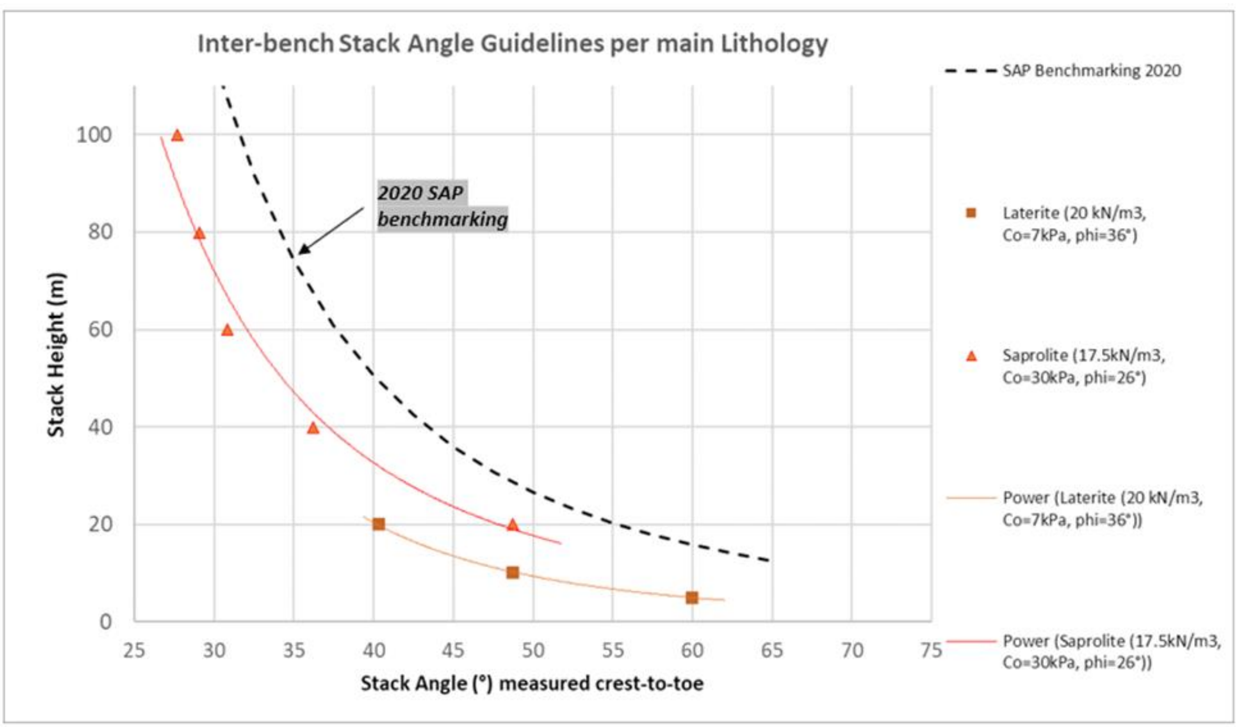
Iteratively testing of probable LAT and SAP slope heights against different slope angles has led to the development of a slope design chart for each Kiniero mining prospect (Figure 16.6 shows the result for the Sabali North and Central deposits). The maximum allowable slope angle of a multiple-benched stack can be read off for different stacked slope height requirements. For comparison, the findings from the 2020 SAP slope benchmarking exercise (SMG, 2020) have been included on the design chart as a dashed black curve. Where the FS recommendations for Sabali North and Central are more stringent than those from the benchmarking, the recommendations for Jean, SGA, and SGD follow the benchmarked guidelines closely.

Figure 16.5 Modelled slope stability for a 70 m high SAP slope at 40° at SGA: FOS = 1.2




Source: TREM, 2023.

Figure 16.6 LAT and SAP slope design chart for Sabali North and Sab Central from limit equilibrium analyses




Source: TREM, 2023.

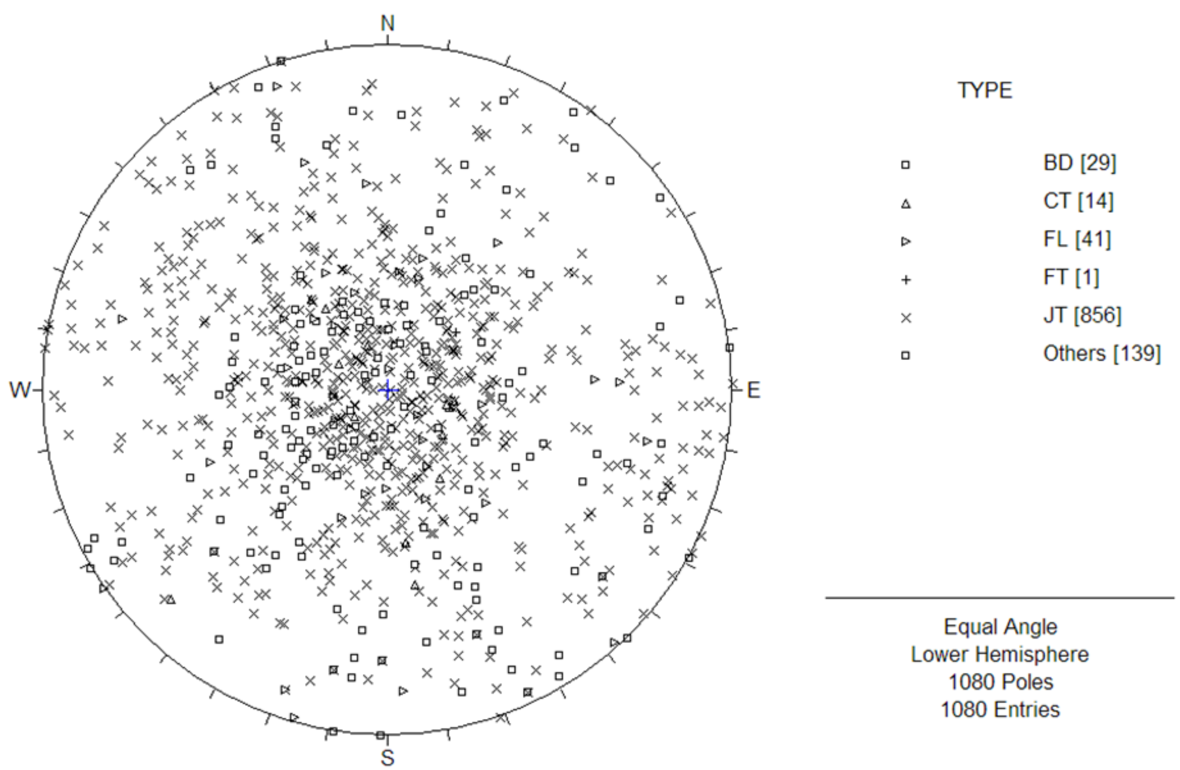
Limit-equilibrium analysis can also be used to assess the stability of the hard rock slopes, but this relies on careful consideration of the assumed rock mass strength parameters. For jointed rock, use of the Hoek-Brown failure criteria (Hoek-Brown, 2002) is preferred above the Mohr-Coulomb method that is applicable to soils. The Hoek-Brown method it is specifically adapted to take a jointed and broken rock mass into account through the GSI rock mass quality rating. Applicable Hoek-Brown failure parameters have been determined for the Kiniero TR and FR domains and are presented in Table 16.9 above.

The problem with the limit equilibrium approach with stronger rock masses is that often the modelled safety factors are very high and fail to adequately account for all likely slope stability risk agencies. Hard rock slope failures are driven predominantly by geological structure interactions which, under the right conditions, can lead to a combination of well-published slope failure mechanisms (including planar, wedge, and toppling failures). Substantial and accurate joint orientation data is needed to assess these interactions through kinematic analysis.

2,721 valid joint orientation readings have been taken from orientated drillhole core. Of these, more than half are closed vein (VN) structures, which are intrinsically scattered in orientation and have been removed to allow for joint sets to be defined for stability assessments.

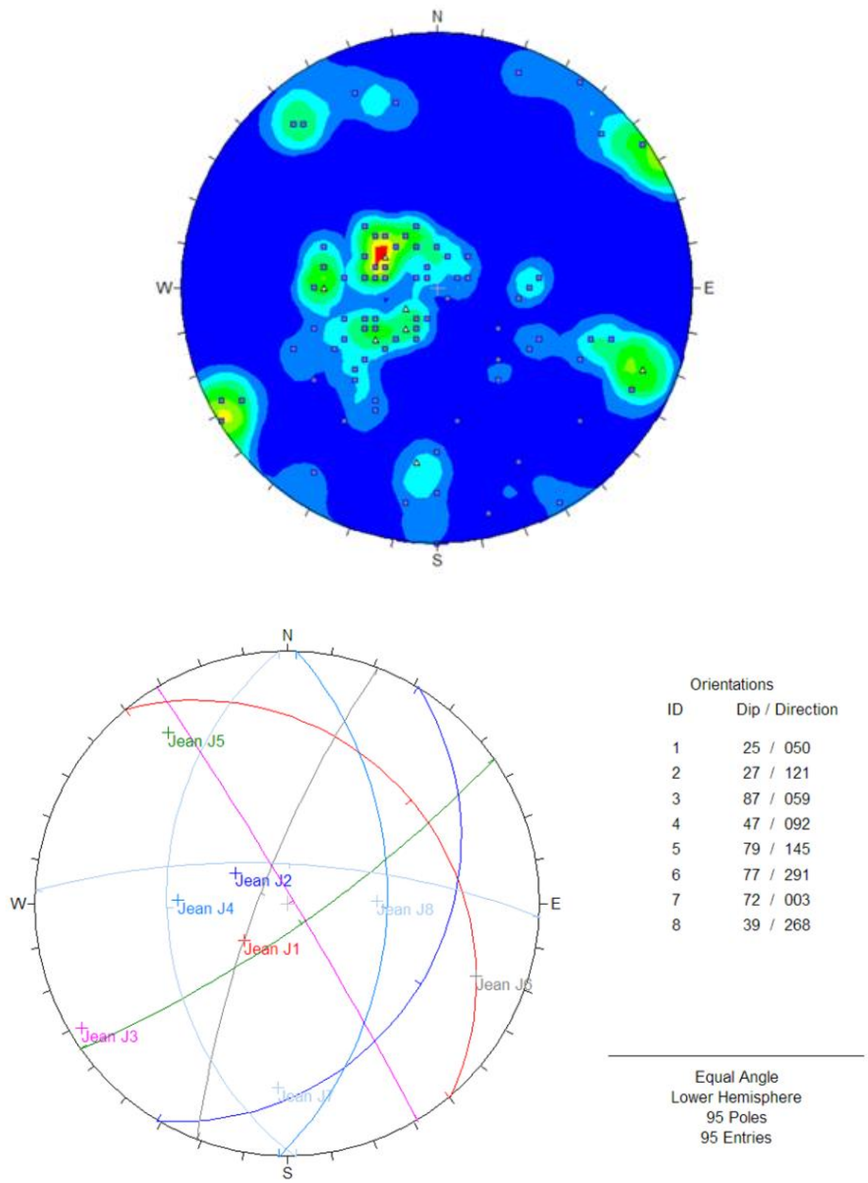
The remaining structures across all mining prospects are indicated on a stereoplot in Figure 16.7. After veining VN, joints JT are the most prevalent identified type.

Figure 16.7 All structure (except VN) across all mining prospects




Source: TREM, 2023.

Figure 16.8 Example of structural analysis—defining joint sets for Jean



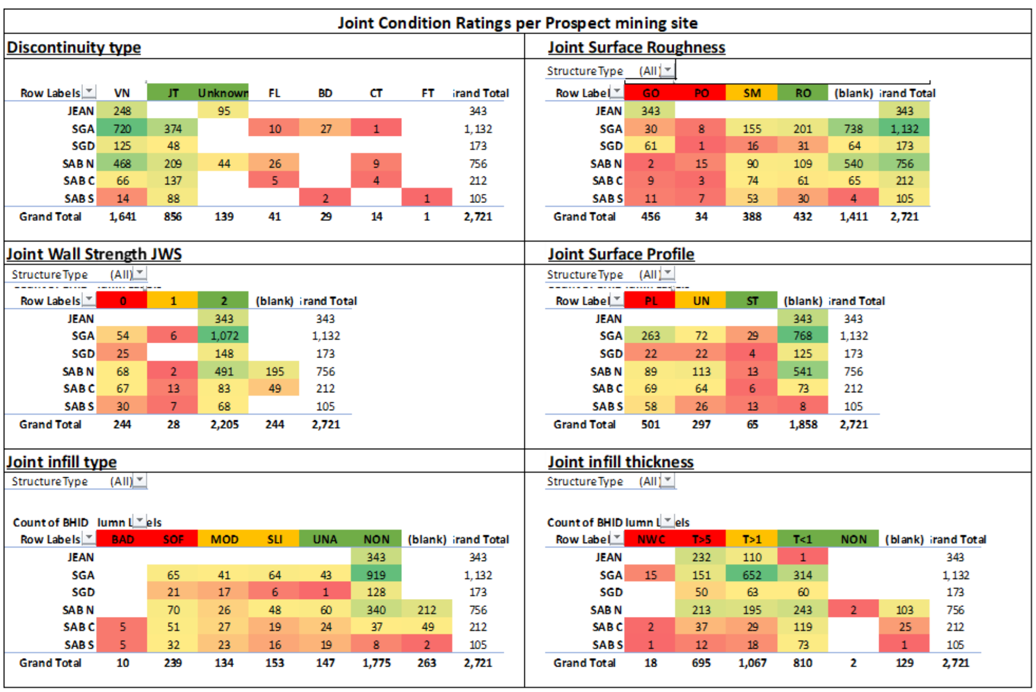

Source: TREM, 2023.

Possible joint sets and associated planar, wedge or toppling failures have been assessed at each mining prospect. So too has joint condition as measured during the geotechnical logging exercises (Figure 16.8). The figure shows a series of tables presenting statistics around discontinuity type, joint surface roughness, joint wall strength, joint surface profile, and joint infill type and thickness. The top headings are colour coded according to geotechnical risk and the statistics according to statistical weight (count). Green counts located below red headings indicate higher risk joint surface conditions.

The kinematic assessment conducted has led to the following understanding of hard rock slope stability for the moderate to steep SPK and BDK slopes (50°-55°) allowed for in the FS slope criteria:

- The northern prospects Jean, SGA, and SDG dominate hard rock kinematic consideration. The Sabali sites all have FS pit shells contained within the softer SPU and SPL domains.
- No accounts of kinematically possible planar failure have been identified to date. The risk of large slope failures according to the planar mechanism is considered low.
- One limited account of wedge failure is noted on west facing slopes at Jean, but the two joint sets involved are supported by only a few measurements and overall, the risk of failure according to the wedge mechanism is considered notable but low.
- Toppling failure is kinematically possible across all the northern mining prospects (when hard BDK slopes are exposed). Steeply dipping (near vertical) northeast to southwest trending joints are commonly noted and these can interact with shallower structure (i.e., bedding), resulting in toppling across both the longer east-and-west facing mining faces. Toppling risk is most applicable to single- or double-bench stacks (smaller slope scale), and can be reduced using typical mining face preparation controls (proper blast design, battering back of blocky faces, face scaling before and during each shift, and in the worst cases, smooth-wall blasting can be considered).

Figure 16.9 Joint wall condition statistics per mining prospect



**Joint Condition Ratings per Prospect mining site**

**Discontinuity type**

| Row Labels | VN | JT | Unknown | FL | BD | CT | FT | Grand Total |
|---|---|---|---|---|---|---|---|---|
| JEAN | 248 | | 95 | | | | | 343 |
| SGA | 720 | 374 | | 10 | 27 | 1 | | 1,132 |
| SGD | 125 | 48 | | | | | | 173 |
| SAB N | 468 | 209 | 44 | 26 | | 9 | | 756 |
| SAB C | 66 | 137 | | 5 | | 4 | | 212 |
| SAB S | 14 | 88 | | | 2 | | 1 | 105 |
| Grand Total | 1,641 | 856 | 139 | 41 | 29 | 14 | 1 | 2,721 |

**Joint Surface Roughness**

StructureType (All)

| Row Labels | GO | PO | SM | RO | (blank) | Grand Total |
|---|---|---|---|---|---|---|
| JEAN | 343 | | | | | 343 |
| SGA | 30 | 8 | 155 | 201 | 738 | 1,132 |
| SGD | 61 | 1 | 16 | 31 | 64 | 173 |
| SAB N | 2 | 15 | 90 | 109 | 540 | 756 |
| SAB C | 9 | 3 | 74 | 61 | 65 | 212 |
| SAB S | 11 | 7 | 53 | 30 | 4 | 105 |
| Grand Total | 456 | 34 | 388 | 432 | 1,411 | 2,721 |

**Joint Wall Strength JWS**

StructureType (All)

| Row Labels | 0 | 1 | 2 | (blank) | Grand Total |
|---|---|---|---|---|---|
| JEAN | | | 343 | | 343 |
| SGA | 54 | 6 | 1,072 | | 1,132 |
| SGD | 25 | | 148 | | 173 |
| SAB N | 68 | 2 | 491 | 195 | 756 |
| SAB C | 67 | 13 | 83 | 49 | 212 |
| SAB S | 30 | 7 | 68 | | 105 |
| Grand Total | 244 | 28 | 2,205 | 244 | 2,721 |

**Joint Surface Profile**

StructureType (All)

| Row Labels | PL | UN | ST | (blank) | Grand Total |
|---|---|---|---|---|---|
| JEAN | | | | 343 | 343 |
| SGA | 263 | 72 | 29 | 768 | 1,132 |
| SGD | 22 | 22 | 4 | 125 | 173 |
| SAB N | 89 | 113 | 13 | 541 | 756 |
| SAB C | 69 | 64 | 6 | 73 | 212 |
| SAB S | 58 | 26 | 13 | 8 | 105 |
| Grand Total | 501 | 297 | 65 | 1,858 | 2,721 |

**Joint infill type**

StructureType (All)

Count of BHID Column Labels

| Row Labels | BAD | SOF | MOD | SLI | UNA | NON | (blank) | Grand Total |
|---|---|---|---|---|---|---|---|---|
| JEAN | | | | | | 343 | | 343 |
| SGA | | 65 | 41 | 64 | 43 | 919 | | 1,132 |
| SGD | | 21 | 17 | 6 | 1 | 128 | | 173 |
| SAB N | | 70 | 26 | 48 | 60 | 340 | 212 | 756 |
| SAB C | 5 | 51 | 27 | 19 | 24 | 37 | 49 | 212 |
| SAB S | 5 | 32 | 23 | 16 | 19 | 8 | 2 | 105 |
| Grand Total | 10 | 239 | 134 | 153 | 147 | 1,775 | 263 | 2,721 |

**Joint infill thickness**

StructureType (All)

Count of BHID Column Labels

| Row Labels | NWC | T>5 | T>1 | T<1 | NON | (blank) | Grand Total |
|---|---|---|---|---|---|---|---|
| JEAN | | 232 | 110 | 1 | | | 343 |
| SGA | 15 | 151 | 652 | 314 | | | 1,132 |
| SGD | | 50 | 63 | 60 | | | 173 |
| SAB N | | 213 | 195 | 243 | 2 | 103 | 756 |
| SAB C | 2 | 37 | 29 | 119 | | 25 | 212 |
| SAB S | 1 | 12 | 18 | 73 | | 1 | 105 |
| Grand Total | 18 | 695 | 1,067 | 810 | 2 | 129 | 2,721 |

Source: TREM, 2023.

### 16.1.4.3 Summary of slope design criteria

Geotechnical analysis has been completed based on site logging of forty-two (42) diamond drillholes and related laboratory and field testwork. The outcomes have been used to derive a set of slope geometry guidelines per main lithological unit for each mining prospect area. Guidelines are presented both graphically and in table form for the mining prospect groups as indicated below:

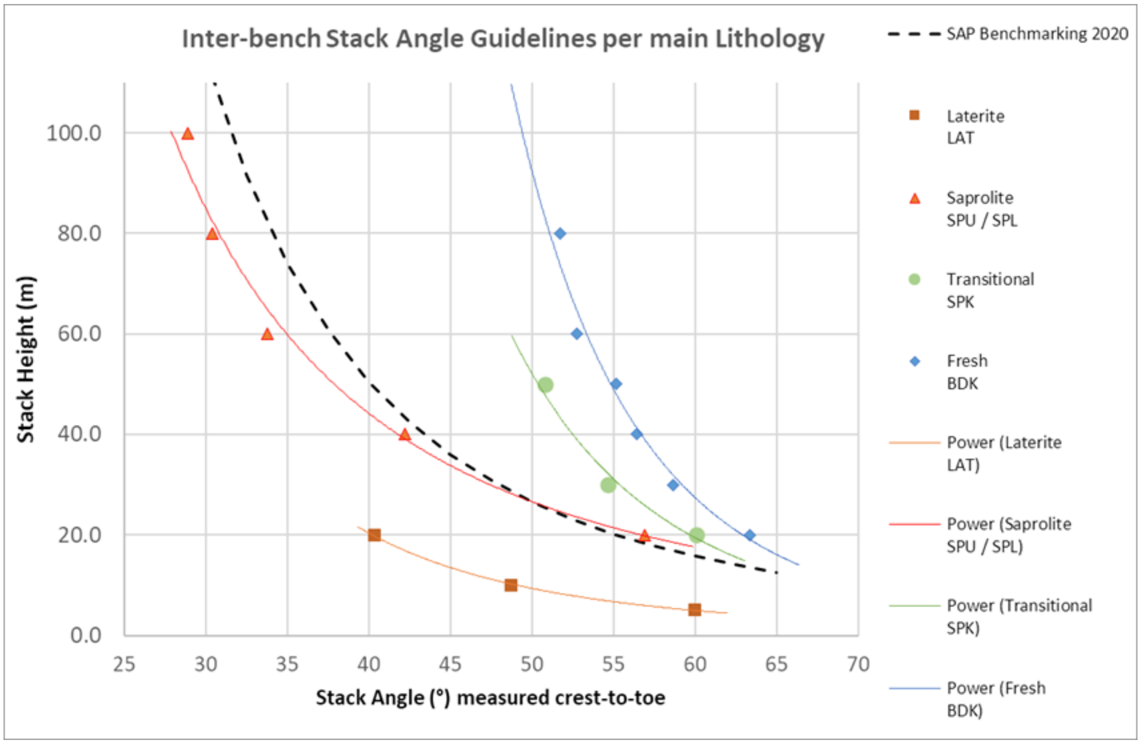
- Northern prospects Jean, SGA, and SGD Table 16.11 and Figure 16.10.
- Sabali prospects SabN and SabC Table 16.12 and Figure 16.11.
- Sabali South prospects Sabali South Table 16.13 and Figure 16.12.

Table 16.11 Geotechnical guidelines for slope geometries at Jean, SGA, and SGD

| Geotech Lith | Slope height H (m) | Batter angle (α) ° | Bench Height h (m) | Bench width (m) | IR angle (°) ctc | IBSA angle (°) ctt | Stacked benches |
|---|---|---|---|---|---|---|---|
| Laterite LAT | 5 | 60 | 5 | 0 | 60.0 | 60.0 | 1 benches |
| | 10 | 60 | 5 | 3 | 40.3 | 48.7 | 2 benches |
| | 20 | 60 | 5 | 4 | 36.0 | 40.3 | 4 benches |
| Saprolite SPU / SPL | 20 | 60 | 5 | 0.5 | 55.9 | 56.9 | 4 benches |
| | 40 | 60 | 5 | 3 | 40.3 | 42.2 | 8 benches |
| | 60 | 60 | 5 | 5 | 32.4 | 33.8 | 12 benches |
| | 80 | 60 | 5 | 6 | 29.4 | 30.4 | 16 benches |
| | 100 | 60 | 5 | 6.5 | 28.0 | 28.9 | 20 benches |
| Transitional SPK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 8 | 45.7 | 60.0 | 2 benches |
| | 30 | 80 | 10 | 8 | 45.7 | 54.6 | 3 benches |
| | 50 | 80 | 10 | 8 | 45.7 | 50.8 | 5 benches |
| Fresh BDK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 6.5 | 50.4 | 63.4 | 2 benches |
| | 30 | 80 | 10 | 6.5 | 50.4 | 58.6 | 3 benches |
| | 40 | 80 | 10 | 6.5 | 50.4 | 56.4 | 4 benches |
| | 50 | 80 | 10 | 6.5 | 50.4 | 55.1 | 5 benches |
| | 60 | 80 | 10 | 7 | 48.8 | 52.8 | 6 benches |
| | 80 | 80 | 10 | 7 | 48.8 | 51.7 | 8 benches |

Source: TREM, 2023.

Figure 16.10 Geotechnical guidelines for slope geometries at Jean, SGA, and SGD



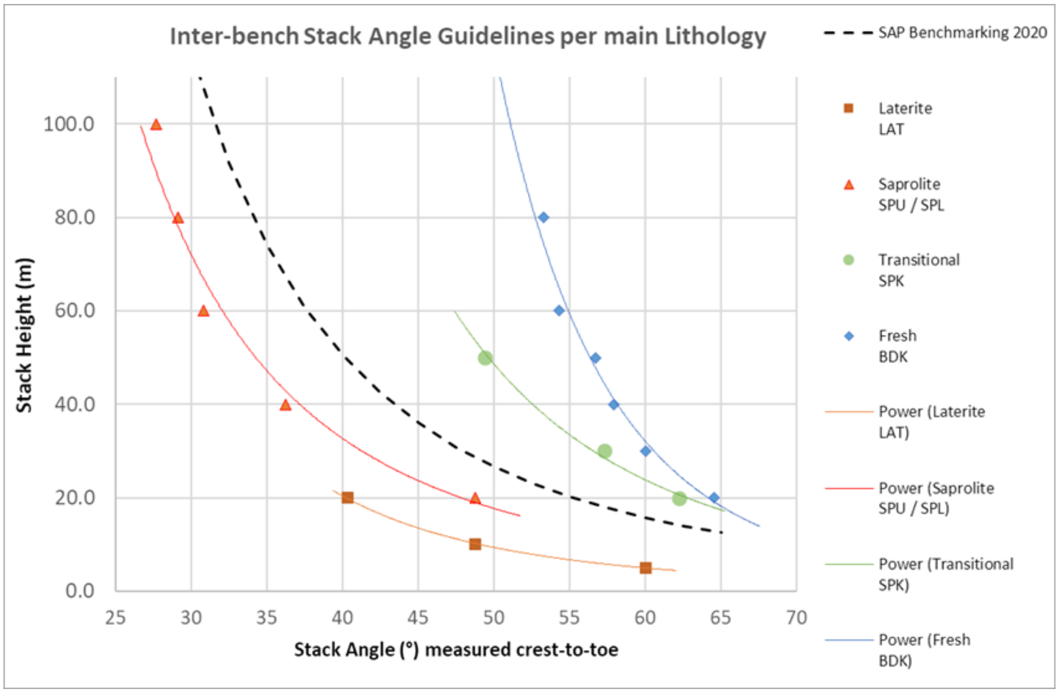

Source: TREM, 2023.

Table 16.12 Geotechnical guidelines for slope geometries at SabN and SabC

| Geotech Lith | Slope height H (m) | Batter angle (α) ° | Bench Height h (m) | Bench width (m) | IR angle (°) ctc | IBSA angle (°) ctt | Stacked benches |
|---|---|---|---|---|---|---|---|
| Laterite LAT | 5 | 60 | 5 | 0 | 60.0 | 60.0 | 1 benches |
| | 10 | 60 | 5 | 3 | 40.3 | 48.7 | 2 benches |
| | 20 | 60 | 5 | 4 | 36.0 | 40.3 | 4 benches |
| Saprolite SPU / SPL | 20 | 60 | 5 | 2 | 45.7 | 48.7 | 4 benches |
| | 40 | 60 | 5 | 4.5 | 34.1 | 36.2 | 8 benches |
| | 60 | 60 | 5 | 6 | 29.4 | 30.8 | 12 benches |
| | 80 | 60 | 5 | 6.5 | 28.0 | 29.1 | 16 benches |
| | 100 | 60 | 5 | 7 | 26.8 | 27.7 | 20 benches |
| Transitional SPK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 7 | 48.8 | 62.2 | 2 benches |
| | 30 | 80 | 10 | 7 | 48.8 | 57.3 | 3 benches |
| | 50 | 80 | 10 | 8.5 | 44.3 | 49.4 | 5 benches |
| Fresh BDK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 6 | 52.2 | 64.5 | 2 benches |
| | 30 | 80 | 10 | 6 | 52.2 | 60.0 | 3 benches |
| | 40 | 80 | 10 | 6 | 52.2 | 57.9 | 4 benches |
| | 50 | 80 | 10 | 6 | 52.2 | 56.7 | 5 benches |
| | 60 | 80 | 10 | 6.5 | 50.4 | 54.3 | 6 benches |
| | 80 | 80 | 10 | 6.5 | 50.4 | 53.3 | 8 benches |

Source: TREM, 2023.

Figure 16.11 Geotechnical guidelines for slope geometries at SabN and SabC



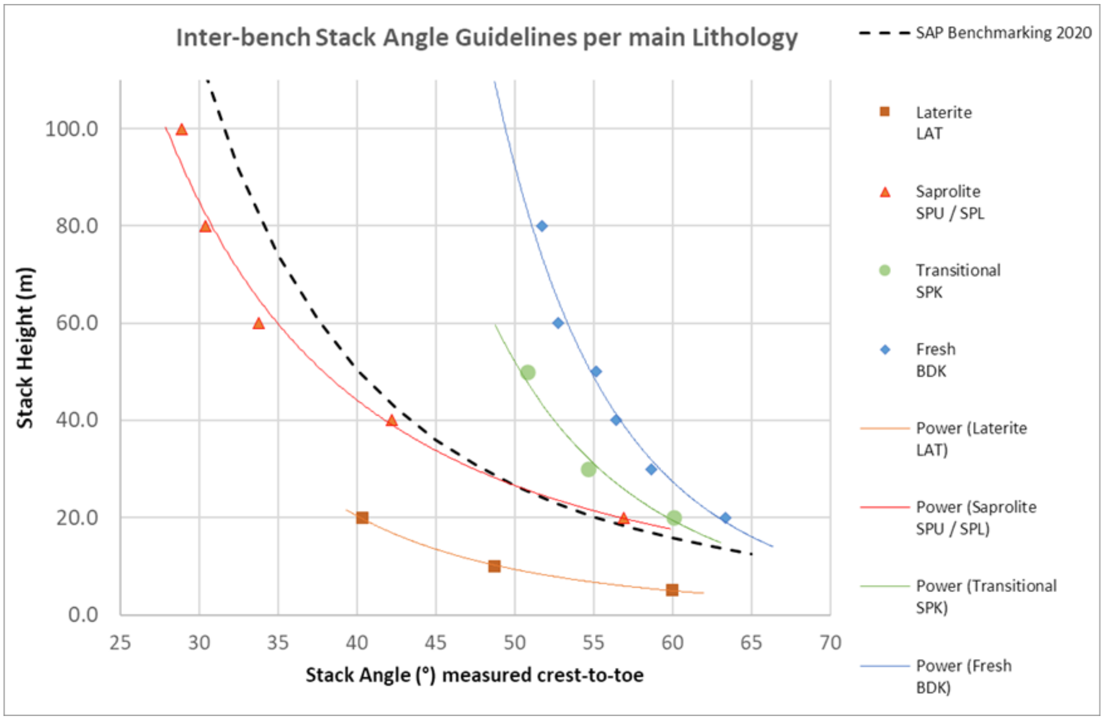

Source: TREM, 2023.

Table 16.13 Geotechnical guidelines for slope geometries at SabS

| Geotech Lith | Slope height H (m) | Batter angle (α) ° | Bench Height h (m) | Bench width (m) | IR angle (°) ctc | IBSA angle (°) ctt | Stacked benches |
|---|---|---|---|---|---|---|---|
| Laterite LAT | 5 | 60 | 5 | 0 | 60.0 | 60.0 | 1 benches |
| | 10 | 60 | 5 | 3 | 40.3 | 48.7 | 2 benches |
| | 20 | 60 | 5 | 4 | 36.0 | 40.3 | 4 benches |
| Saprolite SPU / SPL | 20 | 60 | 5 | 0.5 | 55.9 | 56.9 | 4 benches |
| | 40 | 60 | 5 | 3 | 40.3 | 42.2 | 8 benches |
| | 60 | 60 | 5 | 5 | 32.4 | 33.8 | 12 benches |
| | 80 | 60 | 5 | 6 | 29.4 | 30.4 | 16 benches |
| | 100 | 60 | 5 | 6.5 | 28.0 | 28.9 | 20 benches |
| Transitional SPK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 8 | 45.7 | 60.0 | 2 benches |
| | 30 | 80 | 10 | 8 | 45.7 | 54.6 | 3 benches |
| | 50 | 80 | 10 | 8 | 45.7 | 50.8 | 5 benches |
| Fresh BDK | 10 | 80 | 10 | 0 | 80.0 | 80.0 | 1 benches |
| | 20 | 80 | 10 | 6.5 | 50.4 | 63.4 | 2 benches |
| | 30 | 80 | 10 | 6.5 | 50.4 | 58.6 | 3 benches |
| | 40 | 80 | 10 | 6.5 | 50.4 | 56.4 | 4 benches |
| | 50 | 80 | 10 | 6.5 | 50.4 | 55.1 | 5 benches |
| | 60 | 80 | 10 | 7 | 48.8 | 52.8 | 6 benches |
| | 80 | 80 | 10 | 7 | 48.8 | 51.7 | 8 benches |

Source: TREM, 2023.

Figure 16.12 Geotechnical guidelines for slope geometries at SabS




Source: TREM, 2023.

### 16.1.5 Design verifications

Once completed, the final FS pit designs (those shown in Figure 16.1) were checked against the design criteria. Where deemed necessary, additional slope assessments have been conducted based on the actual geometries to test and verify stability.

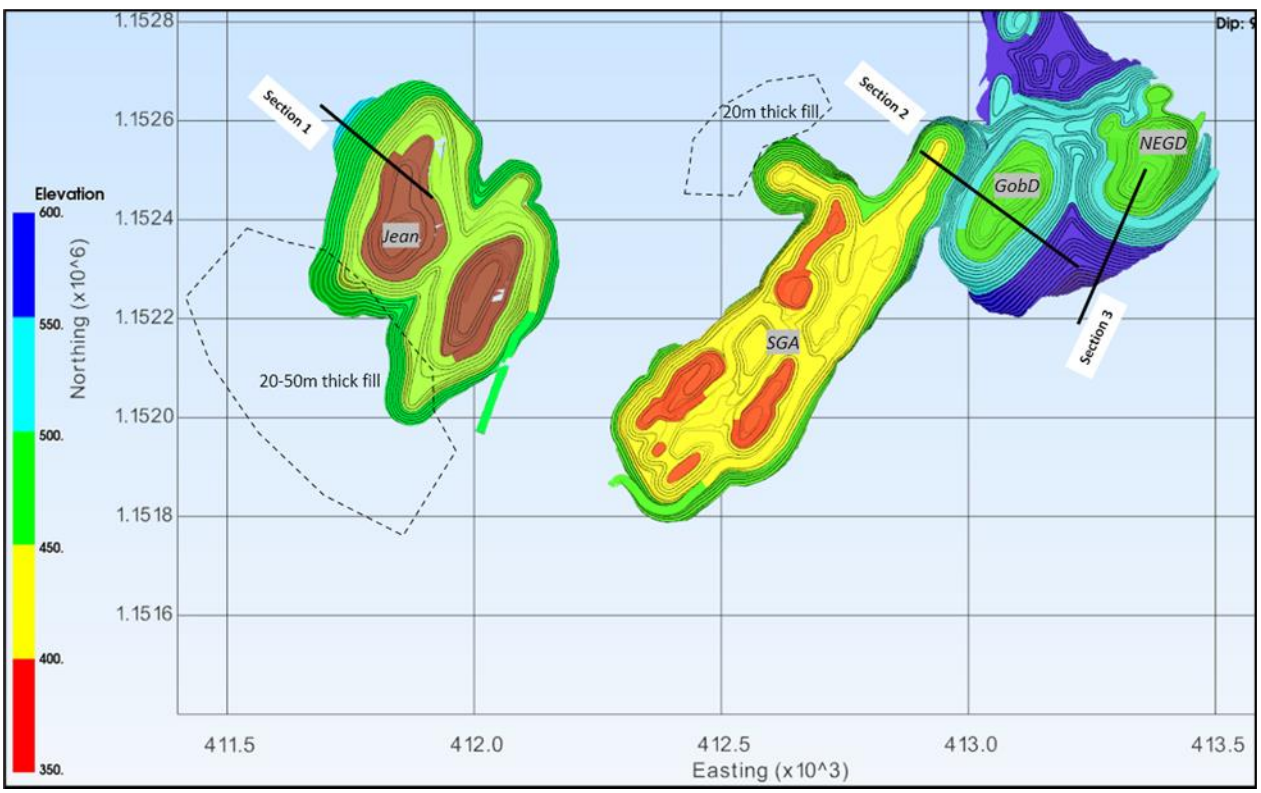
At Jean and Gobelé, three (3) sections were identified that represent areas where risk was deemed highest due to high and steep overall slopes (Figure 16.13). Verification of sectional slice no. 3 is presented below. For full verification detail (all sections including those at Sabali) refer to the detailed mining geotechnical report (TREM, 2023).

Section 3 cuts through the southern slope of NEGD and is shown in Figure 16.14. The overall slope is 163 m high with the saprolite cover being 96 m. This is the largest of the exposed SAP slopes considering the 2023 FS pit shells.

The saprolite bench stack slopes at 37° which is 5-7 degrees higher than that recommended for ~90 m by the design criteria initially provided (Table 16.10). One reason why the pit optimization software may have produced this result is that the 96 m height applies to a relatively small, localized section and the slope and height drops off reasonably quickly (to approximately 60 m) either side of the chosen section location. Checking 60 m against the slope guideline (Table 16.10) suggests maximum slope angle of 35°, which is still 2° lower than the actual FS design.

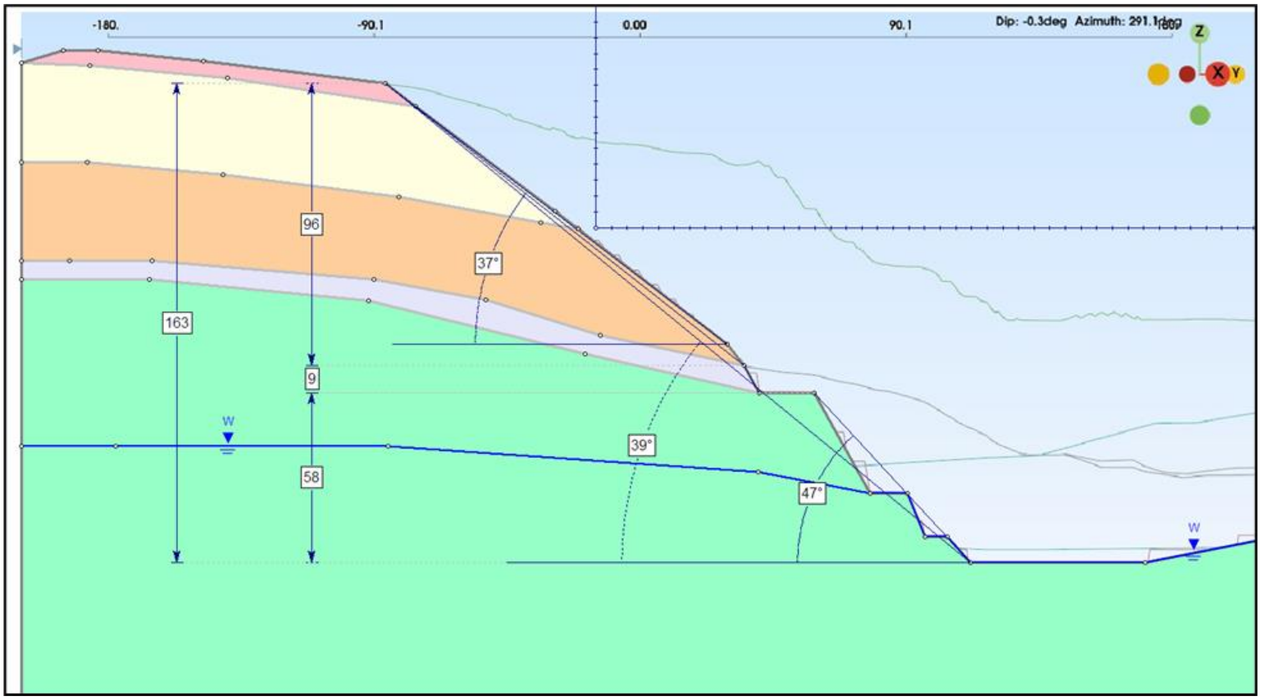
The BDK stacked slope stands at a reasonable 47° over its ~60 m height. This slope does not raise immediate concern. The overall slope angle is approximately 40°, which is steeper than recommended.

Figure 16.13 Selected higher risk slope sections through the final FS designs




Source: TREM, 2023.

Figure 16.14 Section through the southern slope at NEGD




Source: TREM, 2023.

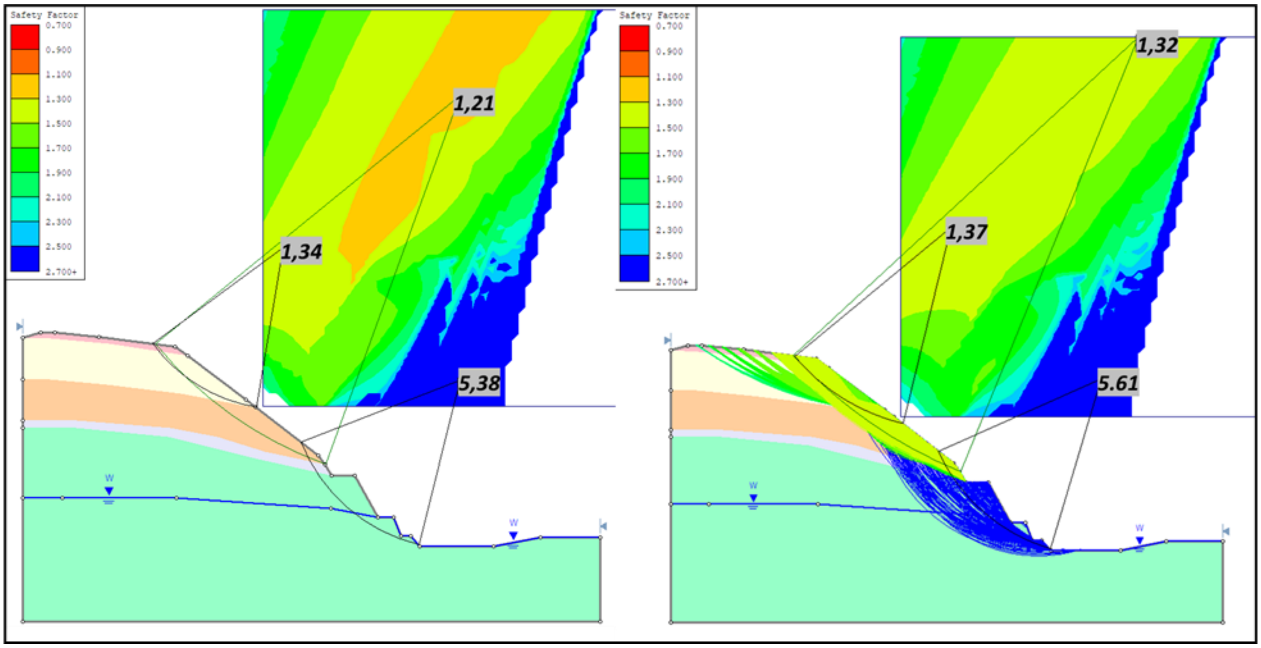
The section 3 geometry was modelled using limit equilibrium software (SLIDE) and the revised material properties from Table 16.9. It is noted that the friction angle assumptions for the lower saprolite at SGD are notably higher than those for the SPL at SGA (37 degrees versus 33 degrees). Both properties have been run with the slope safety factors presented in Figure 16.15. Groundwater has been modelled based on the current levels provided by the geohydrological work completed for this study.

Assuming the lower SGA material properties (and the full 96 m slope height), the SLIDE assessment produces a safety factor of ~1.2 for the overall slope. This is below the acceptance criteria which requires minimum FOS = 1.3. A pushback of the upper half of the SAP slope (the SPU portion) will be necessary to reduce the overall slope angle under these assumed conditions.

Rerunning the same model geometry with the SGD material strength (37° for SPL instead of 33°) yields and acceptable FOS = 1.32. This is close to the acceptance criteria and is likely conservative, given that the average slope height on the southern slope of NEGD is 20 m-25 m lower than the modelled 96 m.

Given that the 60 m-90 m SAP slope towers above the main ramp on the southern slope, it may still be wise to introduce a geotechnical berm midway to break the slope and to return this slope to the original numbers suggested by the slope design criteria. This recommendation must be carried forward to (and should be further investigated) during the implementation stage of the final design. That said, it is observed that a nearby ~90 m high SAP slope currently stands stable at an overall slope angle of ~40°. This slope stands just to the west of the section 3 location within the north-eastern quadrant of the current GOBD pit. This evidence bears testament to the ability of the Sabali saprolites to stand for years at steep slope angles, especially in this elevated Sector Gobelé D area.

Figure 16.15 Modelled slope safety factor assuming the SGA (LHS) and the SGD (RHS) material properties




Source: TREM, 2023.

Similar slopes have been analysed/verified at Jean but are not included in this report. Similar to the assessment for section 3 at NEGD, the overall slopes are near the upper limits of safety and ultimately pass the slope safety factor acceptance criteria.

Similar studies within the shallower SAP slope for the Sabali and Sabali South have also been conducted (again not presented here) and have been found to pass the slope safety factor acceptance criteria.

With the exception of the SGD section 3 slope, the FS design slopes across all mining prospects fall well within the FS slope design recommendations originally made.

It is recommended that a geotechnical safety berm is added to the SGD southern pit wall to reduce the overall slop angle. This would have an insignificant impact on the strip ratio and mine plan and will be incorporated in the next design phase.

## 16.2 Hydrogeology

A hydrogeological study to support the FS was conducted by Geostratum (Marais, 2023).

Several hydrogeological units or aquifers were identified at the site, consisting of:

- Laterite and alluvial unit or aquifer: The upper lateritic unit could from localized aquifers. Groundwater is also likely to be hosted in the alluvial deposits associated with main rivers.
- Saprolite unit: The saprolite hydrogeological unit has normally a lower hydraulic conductivity.
- Transitional or saprock unit and upper fractured rock: This zone is the main aquifer unit. It is divided based on borehole test data into the Jean-SGA aquifer and the more productive (higher transmissivity and borehole yields) Sabali aquifer.

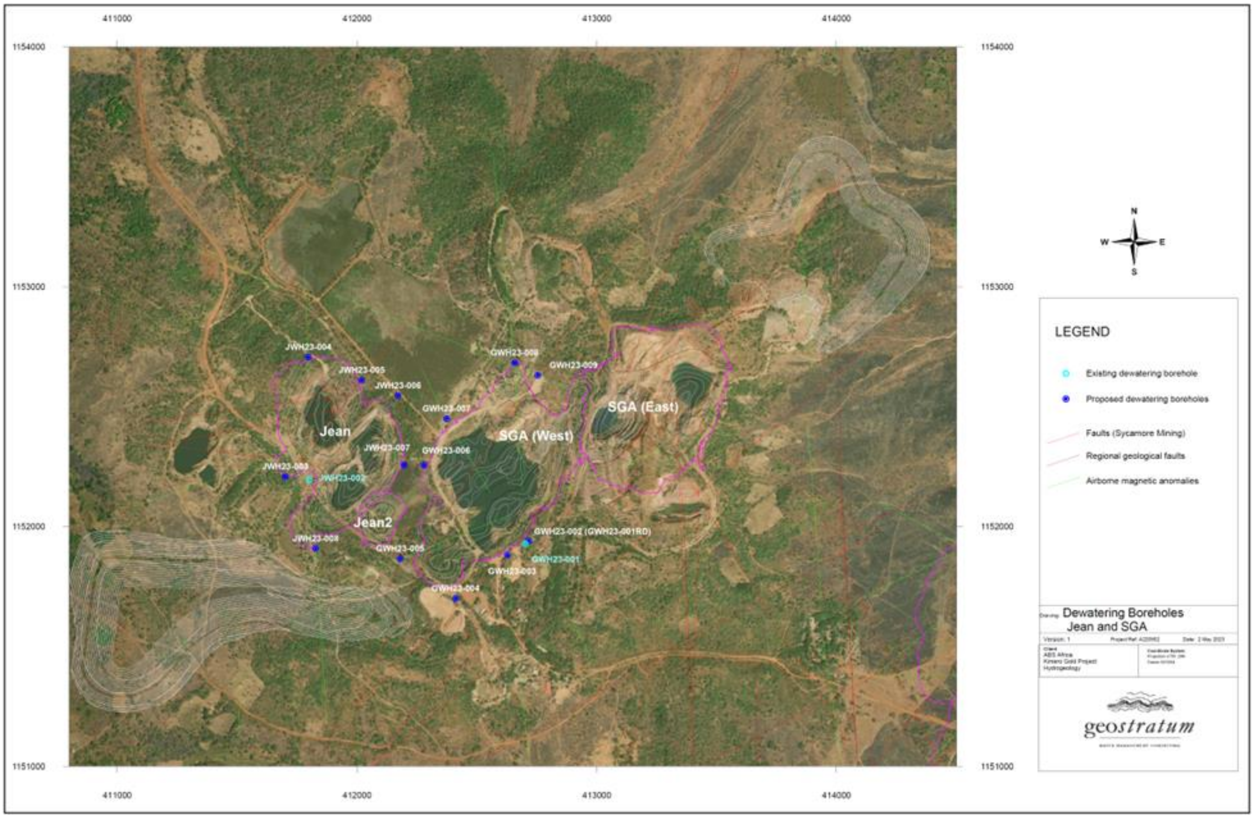
The measured depth to groundwater level ranges between 0 m and 27.2 m with groundwater flow gradients from the higher ridges in the west, towards the various streams that drain the area towards the Niandan River in the east.

Groundwater dewatering volumes were calculated using a numerical groundwater flow model. Two groundwater scenarios were modelled:

- In-pit dewatering only.
- In-pit and out-of-pit dewatering boreholes.

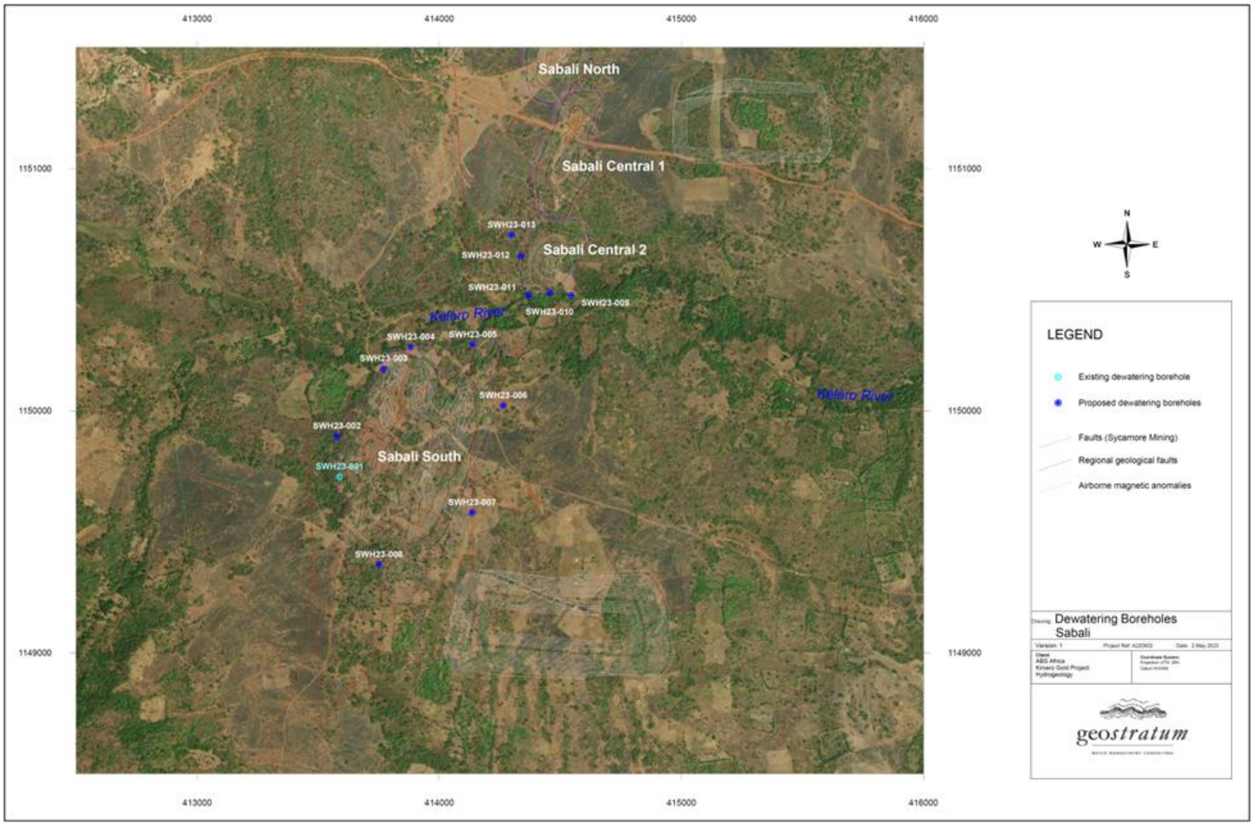
Borehole dewatering are the preferred dewatering method. Dewatering boreholes were proposed at Jean (7 in total), SGA (8 to 9 in total), Sabali Central 2 (5), and Sabali South (8 in total) based on expected groundwater inflow volumes (Figure 16.16 and Figure 16.17). The calculated groundwater pit inflows for the two scenarios are shown below, with Sabali South and Sabali Central 2 likely to have highest peak groundwater inflow rates.

Figure 16.16 Existing and proposed dewatering boreholes at Jean and SGA




Source: Geostratum, 2023.

Figure 16.17 Existing and proposed dewatering boreholes in the Sabali Corridor




Source: Geostratum, 2023.

The water inflow rates and recommendations in the Geostratum report (Marais, 2023), adapted for the feasibility mine plan, were used to develop a dewatering strategy.

### 16.2.1 Open-pit dewatering strategy

The open-pit dewatering strategy was designed to take consideration of the following:

- Existing pit lake dewatering prior to mining.
- Borehole dewatering to advance groundwater drawdown cones ahead of mining.
- In-pit dewatering from surface and groundwater inflows.

The annual volumes used as the basis for the dewatering calculations are summarized in Table 16.14.

Table 16.14 Dewatering annual volumes

| Parameter | Units | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|
| **SGA** | | | | | | | | | | |
| Borehole dewatering | 000 $m^3$ | 0 | 428 | 642 | 642 | 268 | 0 | 0 | 0 | 0 |
| Pit Dewatering | 000 $m^3$ | 1,244 | 704 | 309 | 298 | 0 | 0 | 0 | 0 | 0 |
| Inflows (Rain + groundwater Inflows - evaporation) | 000 $m^3$ | 38 | 51 | 154 | 201 | -68 | 0 | 0 | 0 | 0 |
| **Jean** | | | | | | | | | | |
| Borehole dewatering | 000 $m^3$ | 0 | 0 | 0 | 0 | 410 | 547 | 46 | 0 | 0 |
| Pit Dewatering | 000 $m^3$ | 0 | 0 | 0 | 312 | 346 | 108 | 0 | 0 | 0 |
| Inflows (Rain + groundwater Inflows - evaporation) | 000 $m^3$ | 0 | 0 | 0 | 2 | 21 | 16 | -18 | 0 | 0 |
| **SGD** | | | | | | | | | | |
| Borehole dewatering | 000 $m^3$ | 0 | 0 | 0 | 0 | 0 | 0 | 482 | 642 | 428 |
| Pit Dewatering | 000 $m^3$ | 0 | 0 | 0 | 0 | 0 | 283 | 270 | 56 | 59 |
| Inflows (Rain + groundwater Inflows - evaporation) | 000 $m^3$ | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -5 |
| **Sabali North and Central** | | | | | | | | | | |
| Borehole dewatering | 000 $m^3$ | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 236 | 0 |
| Pit Dewatering | 000 $m^3$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inflows (Rain + groundwater Inflows - evaporation) | 000 $m^3$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sabali South** | | | | | | | | | | |
| Borehole dewatering | 000 $m^3$ | 0 | 882 | 1,512 | 1,260 | 0 | 0 | 0 | 0 | 0 |
| Pit Dewatering | 000 $m^3$ | 0 | 119 | 263 | 262 | 0 | 0 | 0 | 0 | 0 |
| Inflows (Rain + groundwater Inflows - evaporation) | 000 $m^3$ | 0 | 60 | 22 | 168 | 0 | 0 | 0 | 0 | 0 |

Source: Robex, 2023.

## 16.3 Dilution and losses

Dilution and losses were generated for the mining block models using MSO within Datamine Studio OP. The method and resulting dilution and losses are described in Section 15.4.

Further to the modelled dilution and losses, a 99% mining recovery was applied to all ore on a bench-by-bench basis following development of the production schedule to account for operational ore losses. The waste tonnages on each bench were adjusted accordingly to account for the misallocation of the 1% ore to the waste dumps. The 1% ore loss accounts for one to two truck loads misplaced every day for the LOM.

## 16.4 Mining method

Mining at Kiniero will be undertaken by conventional contractor-operated truck and excavator open-pit mining in the SGA, Jean, SGD, Sabali South, Sabali North and Central pits. Mining will be undertaken using Komatsu PC1250 sized excavators mining on 5 m benches and 2.5 m flitches loading 55 t Volvo A60H haul trucks.

Mining in upper oxide layers will be free-dig with drill-and-blast required in areas that mine through the transitional material into fresh rock. The free-dig nature of the oxide and transitional zones has been confirmed by extensive previous mining at site. Drill-and-blast will be required for approximately 1% of the oxide material, 40% of the laterite, 60% of the transitional, and 100% of the fresh.

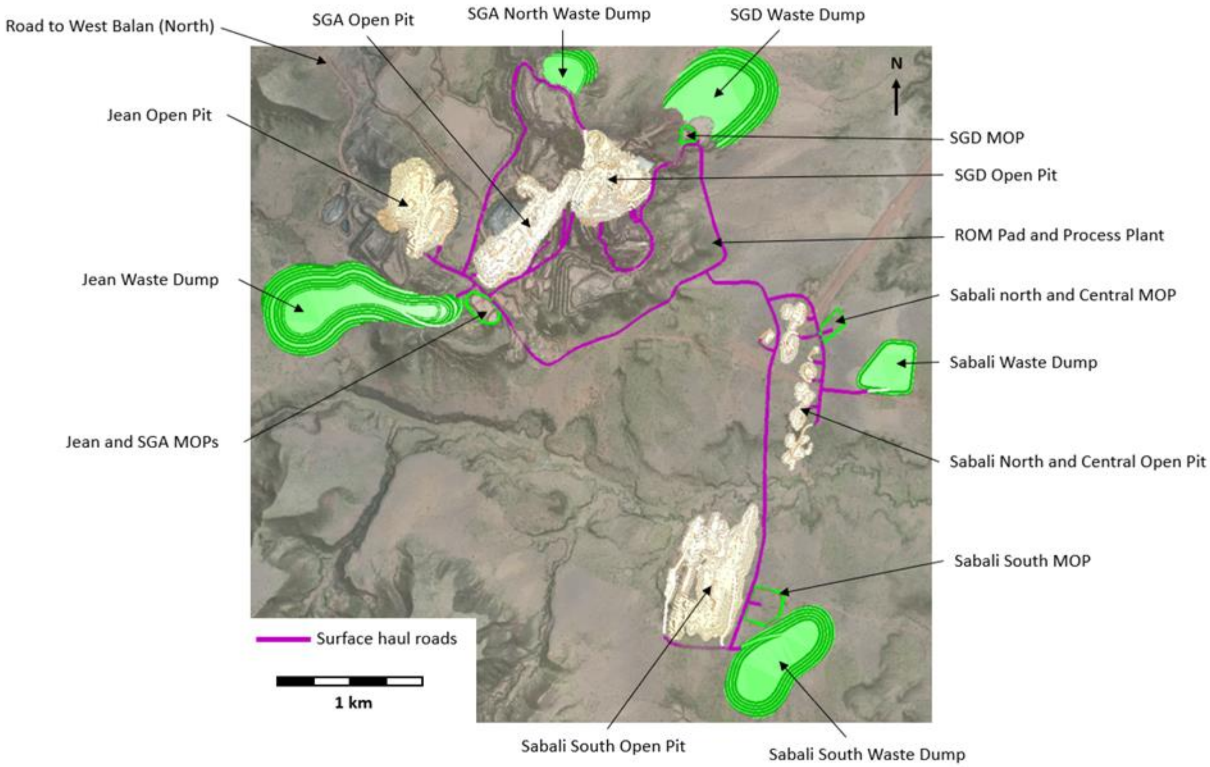
Ore will be categorized by material and grade through in-pit grade control and will be hauled to mine ore pad (MOP) stockpiles by the Volvo A60H fleet. All ore will be rehandled at the MOPs by a fleet of Komatsu WA600 front-end loaders (FEL) which will load Ginaf HD5380T 60 t road haul trucks to deliver the ore to the process plant. Waste will be hauled to the nearest available waste dump by the Volvo A60H fleet.

Historic mining in Jean, SGA, and SGD have resulted in pit lakes that require dewatering and clean-up prior to mining.

## 16.5 Key mining infrastructure

The key mining infrastructure including pits, waste dumps, stockpiles and haulage routes is shown in Figure 16.18.

Figure 16.18 Key mining infrastructure layout




Source: AMC, 2023.

MOPs and waste dumps are located at similar distances from pit exits resulting in haulage cycle times are comparable for ore and waste movements.

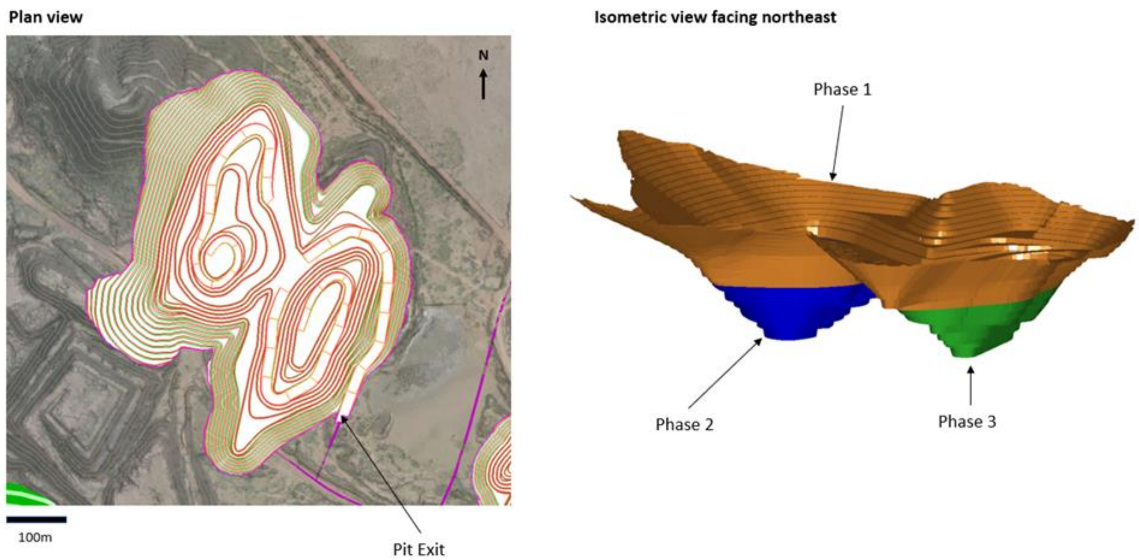
## 16.6 Pit designs and phases

Pit slope design criteria are based on the geotechnical work completed by TREM as described in Section 15.5. Operational design criteria and pit design evaluations relative to the pit optimization are described in Section 15.8.

The ultimate pit designs for each open pit were divided into phases to allow for practical mining and access around existing workings and transition between mining areas. These phases were used as the basis for strategic and production scheduling.

The pit phases for Jean are presented in Figure 16.19.

Figure 16.19 Jean pit design and phases

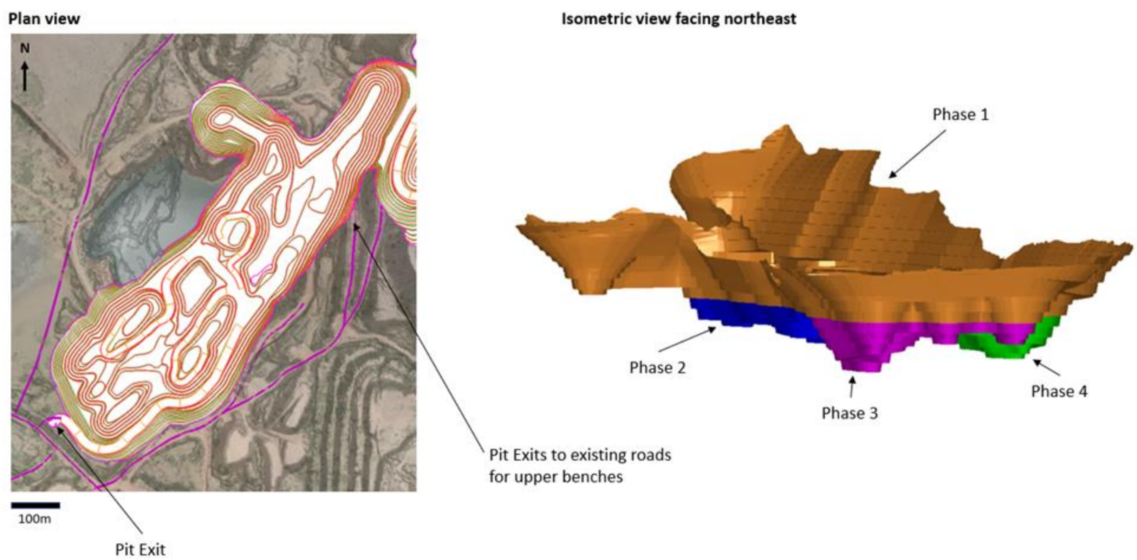



Source: AMC, 2023.

Jean Phase 1 consists of the upper benches from 530 m to 420 m elevation. The ramp in Phase 1 has been located to allow the independent mining of Phase 2 and 3 (benches 415 m to 360 m) following the completion of Phase 1.

The pit phases for SGA are presented in Figure 16.20.

Figure 16.20 SGA pit design and phases



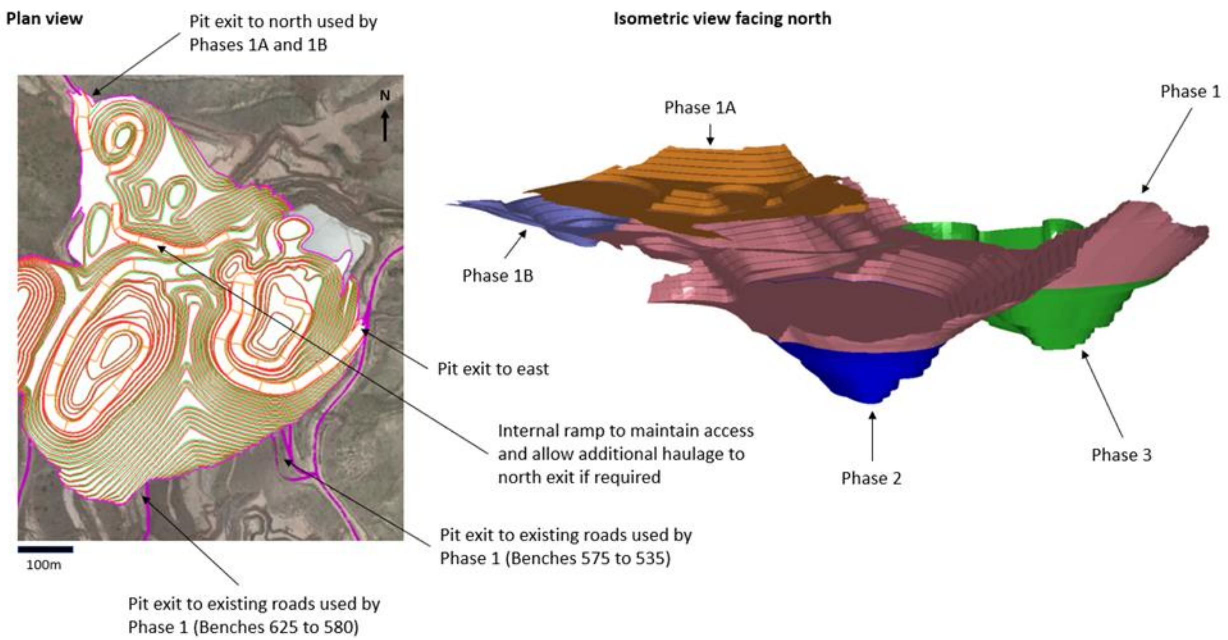

Source: AMC, 2023.

SGA Phase 1 consists of the upper benches from 560 m to 470 m elevation. These benches will exit along existing roads to the east and west of the deposit. On completion of mining Phase 1 down 420 m elevation, Phases 2, 3, and 4 can be mined independently due to location of separate ramps.

At the time of this report, Robex is undertaking additional resource definition drilling in the north-eastern end of SGA, and AMC recommends that this area is reviewed and redesigned to reflect updates during detailed engineering.

The pit phases for SGD are presented in Figure 16.21.

Figure 16.21 SGD pit design and phases




Source: AMC, 2023.

The northern end of the SGA pit design interacts with the SGD pit design and cuts off existing haul-road access to the upper northern end of SGD Phase 1. For this reason, a northern pit exit has been included so that Phases 1A and 1B are able to haul waste to the SGA North Waste Dump and ore to the Jean MOP until access is re-established to the eastern and southern pit exits.

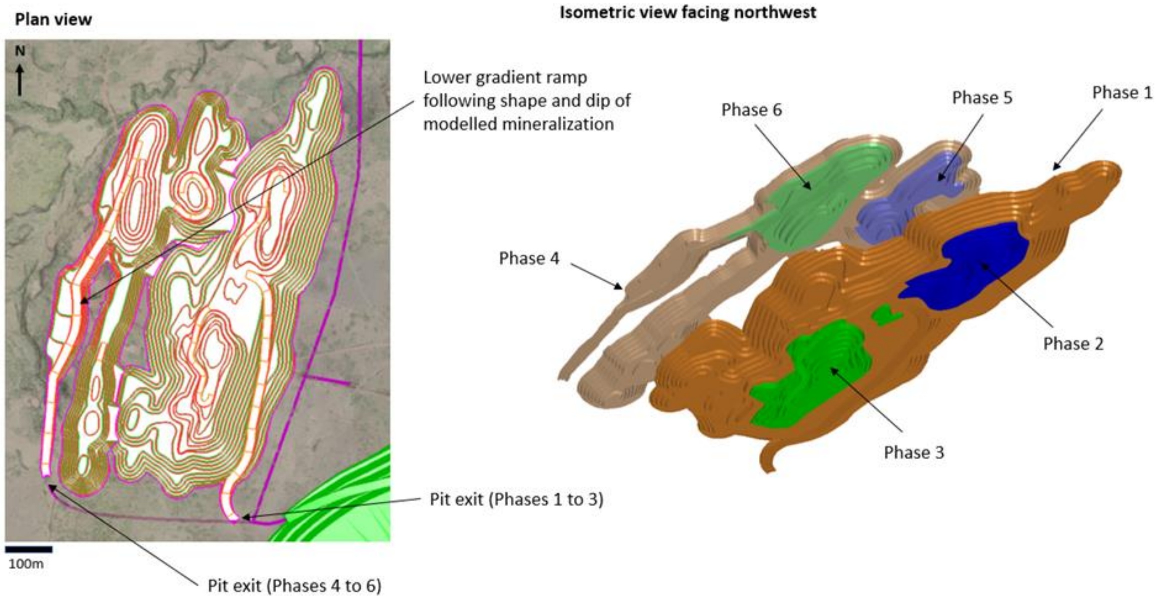
The southern peak of SGD will be mined using existing surface haul roads on the south-western and north-eastern slopes from 625 m to 535 m elevation. These existing roads will require ongoing re-profiling and modification to ensure safe access to and from the subsequent mining benches.

Phase 2 (520 m to 455 m elevation) can commence on completion of Phase 1; however, must be mined before Phase 3 to maintain access. Phase 3 (520 m to 455 m elevation) can commence once Phase 2 is completed.

An internal ramp has been included to connect the northern and southern areas of Phase 1 to maintain access in the future and also allow alternate phase splits between north and south to be investigated during future mine planning.

The pit phases for Sabali South are presented in Figure 16.22.

Figure 16.22 Sabali South pit design and phases



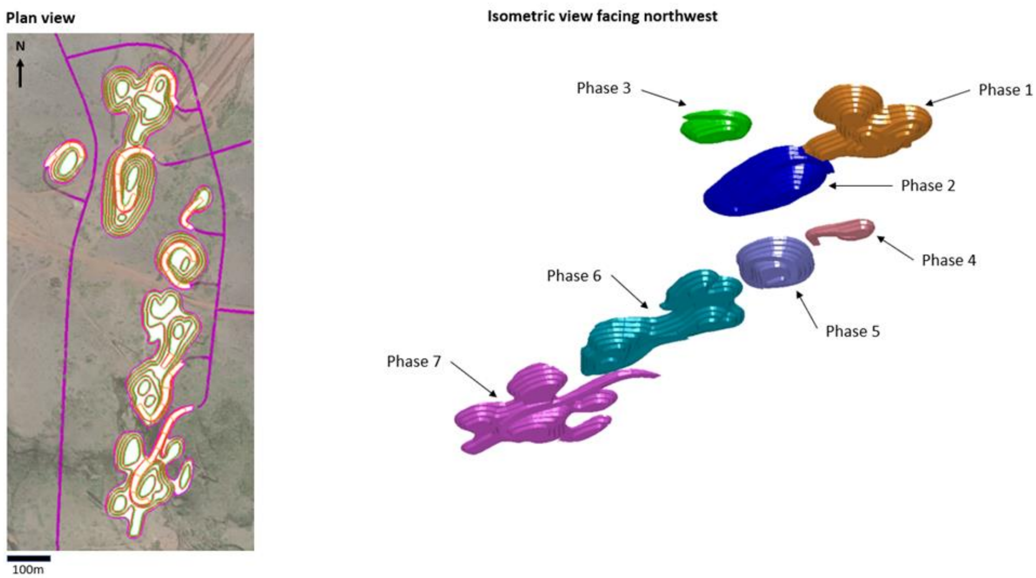

Source: AMC, 2023.

The Sabali South pit is located in an area of relatively flat topography with no previous mining activity. On the completion of Phase 1 (465 m to 410 m elevation), Phases 2 and 3 (405 m to 375 m elevation) can be mined independently via their own separate ramps.

The Phase 4 access ramp (450 m to 415 m elevation) has been designed to follow the trend of mineralization and gradient was reduced to develop a best-fit trench along the modelled ore. Due to access requirements, Phase 5 (410 m to 385 m) must be mined before Phase 6 (410 m to 375 m).

The pit phases for Sabali South and Central are presented in Figure 16.23.

Figure 16.23 Sabali South and Central pit design and phases




Source: AMC, 2023.

The Sabali South and Central pits are relatively small compared to the other mining areas and will be mined relatively quickly, preferably during the dry season. For the purposes of scheduling, the pits were split into seven phases; however, due to their size, the sequencing of these phases is not critical and does not impact neighbouring pits.

## 16.7 Waste dump designs

All waste from mining will be hauled by Volvo A60H trucks to five waste dump locations:

- Jean Waste Dump: Located south of the Jean pit, this dump will be filled with all of the waste generated through mining Jean and SGA.
- SGA North Waste Dump: Located to the north of SGA and SGD, this dump will be filled with waste from the northern extents of SGD Phase 1 while access to the SGD Waste Dump is unavailable.
- SGD Waste Dump: Located to the north-east of SGD, will be filled with the remaining waste mined in SGD that is not sent to the SGA North Waste Dump.
- Sabali Waste Dump: Located to the east of the Sabali North and Central pits, this dump will be filled with the waste from these pits.
- Sabali South Waste Dump: located adjacent to the southern pit exits of Sabali South pit, this dump will be filled with all the waste from Sabali South.

Waste dumps were designed in Datamine Studio OP to take account of the following:

- Account for the waste volumes in the production schedule for each pit, assuming a swell factor of 33%.
- Minimize waste haulage distances.
- Avoid covering known extensions of mineralization.
- Minimize impact on environmentally and socially sensitive areas.
- Tie-in with other road and stockpile infrastructure layout.
- Be within mining exploitation licence areas.

The design criteria used for the waste dumps are summarized in Table 16.15.

Table 16.15 Waste dump design parameters

| Parameter | Units | Value |
|---|---|---|
| Swell factor | % | 33 |
| Lift face angle | Degrees | 33 |
| Lift height | m | 5 m double stacked to 10 m |
| Berm width | m | 7.5 |
| Geotechnical berm width (every max. 50m) | m | 20 |
| Ramp width | m | 18 |
| Ramp gradient | 1 in | 10 |

Source: Robex and AMC, 2023.

The waste dumps designs generated are shown in Figure 16.18.

The volumes, footprints and maximum heights of the waste dump designs are summarized in Table 16.16.

Table 16.16 Waste dump design volume, footprint and height

| Waste Dump | Capacity ($Mm^3$) | Footprint (000 $m^2$) | Maximum height (m) |
|---|---|---|---|
| Jean Waste Dump | 21.3 | 541.4 | 80 |
| SGA North Waste Dump | 1.5 | 82.8 | 45 |
| SGD Waste Dump | 10.0 | 352.5 | 70 |
| Sabali South Waste Dump | 10.0 | 353.6 | 50 |
| Sabali Waste Dump | 1.8 | 125.9 | 20 |

Source: Robex and AMC, 2023.

AMC completed a Limit equilibrium stability analysis of the waste dump designs (de Veth, 2023). Using the highest slope of the Jean Waste Dump as a representative slope, the study concluded that the waste dump design parameters and final designs are within acceptable FOS assuming appropriate drainage is maintained.

## 16.8 Strategic schedule

A strategic schedule was completed in NPV Scheduler by Robex and reviewed by AMC. The key aim of the strategic schedule was to identify the optimal sequence for the pits and historic stockpiles to inform and guide the production schedule.

The mining block models, pit phase designs and historic stockpile inventories were input into NPV Scheduler along with all the key financial and cost inputs from optimization (Table 15.9). NPV Scheduler then used these inputs to maximize NPV while also honouring the following constraints.

Total material mined of 1 Mt per month.

- 4.3M kWh monthly process specific energy total.
- 361.6 kt limit on oxide material to process.
- 65% fresh material.

The preferred sequence from the strategic schedule was:

- Mining begins with SGA and Sabali South phases 1 to 3.
- This is followed by mining of Jean.
- This is followed by the remainder of Sabali South, SGD, and Sabali North and Central.
- The ROM, BCM, and West Balan historic stockpiles are mined at the beginning of the schedule to supplement mine ore production.
- The lower grade Jean, South Dump, North Dump, and SGC historic stockpiles are mined once the remainder of the mining inventory has been processed. Due to its marginal grade, earlier blending of this material would detract from project NPV.

The sequence generated by the strategic schedule was used as the basis for the mine schedule which is described in the following sections.

## 16.9 Production schedule

The production schedule was completed by AMC in MineSched using the pit designs and phases described in Section 16.6 and diluted mining block models described in Section 15. The key outcomes of the production schedule are:

- 9.5 year mine life with 7.5 years of mining followed by two years of stockpile processing.
- 81.7 Mt total open-pit material mined.
  - 21.4 Mt of ore at 1.27 g/t Au mined
  - 60.3 Mt of waste mined.
  - 2.8:1 waste to ore strip ratio.
  - 6.3 Mt of historic stockpile ore at 0.48 g/t Au.

### 16.9.1 Key production schedule inputs and targets

The key constraints used in production schedule were:

- Mining commencing on 01 May 2024.
- Follow optimized mining sequence determined in strategic scheduling.
- Mining rate of 1.2 Mt per month reduced to 0.8 Mt in the wet season.
- Maximum process plant oxide throughput of 361.6 Mt per month.
- Maximum process plant power consumption of 4.3M kWh per month.
- Minimize mining in the Sabali areas during the wet season.

The production ramp-up assumptions used for mining and the process plant are summarized in Table 16.17. Mining ramp-up was applied to mining rates following adjustment for the first wet season.

Table 16.17 Mining and process plant ramp-up assumptions for scheduling

| Month | Mining Ramp-up | Process Plant Ramp-up |
|---|---|---|
| Month 1 | 50% | 50% |
| Month 2 | 75% | 70% |
| Month 3 | 100% (wet season) | 80% |
| Month 4 | 100% (wet season) | 90% |
| Month 5 | 100% (wet season) | 100% |

Source: Robex and AMC, 2023.

To calculate the total energy requirements for the process plant, Soutex provided the specific energy values presented in Table 16.18 which were applied to the block model by material type.

Table 16.18 Specific energy inputs

| Ore type | Specific energy per tonne (kWh) |
|---|---|
| Laterite | 17.0 |
| Oxide | 8.5 |
| Transitional | 17.0 |
| Fresh | 31.6 |

Source: Soutex, 2023.

Specific energy values multiplied by tonnages of materials and were used to honour the 4.3M kWh monthly process power capacity limit.

A mining block size of 100 m by 100 m was used to define mining blocks in MineSched. These mining blocks were combined with a 400 m vertical lag in all directions to ensure practical advance rates between monthly scheduling periods.

Following scheduling in MineSched, in addition to the ore losses described in Section 15.4, the mining schedule was adjusted by bench and material to account for a 99% ore mining recovery. The mining recovery factor accounts for ore misplaced on waste dumps during operations and represents between one and two truck loads per day for LOM. Waste tonnages were adjusted accordingly by bench and material to accommodate the misplaced ore.

### 16.9.2 Production schedule results

The production schedule is summarized annually by mining area in Table 16.19.

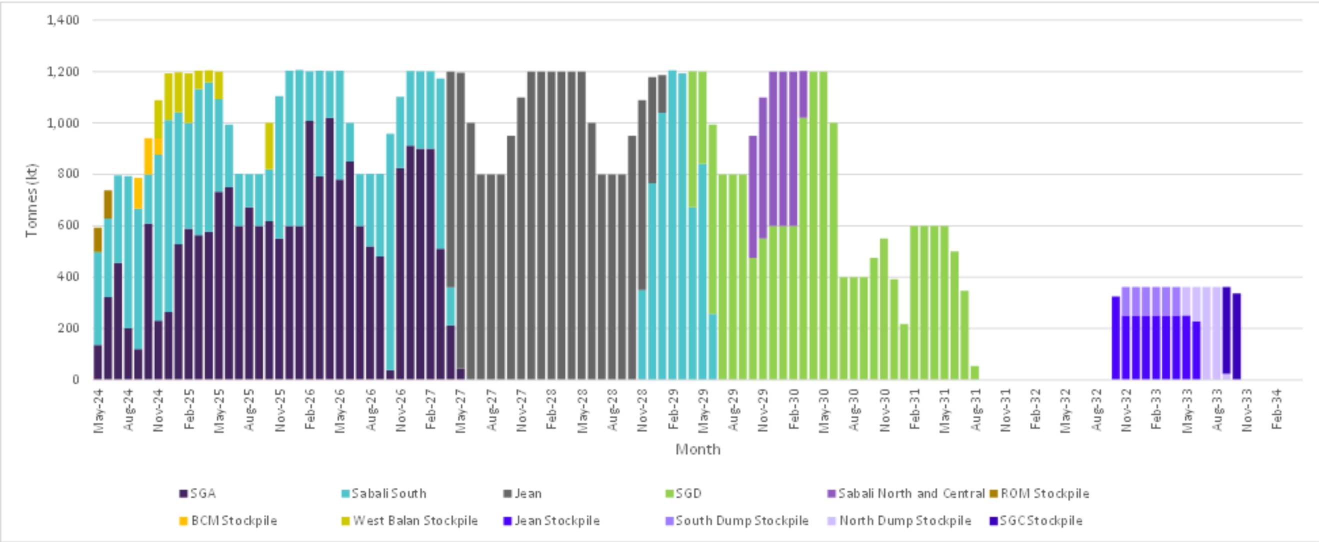
## Table 16.19 Production schedule table

| **Open pit name** | **Parameter** | **Units** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SGA | Waste | kt | 2,150 | 5,796 | 5,917 | 1,700 | 0 | 0 | 0 | 0 | 0 | 0 | **15,563** |
| | Ore | kt | 187 | 1,581 | 2,508 | 867 | 0 | 0 | 0 | 0 | 0 | 0 | **5,143** |
| | Grade | g/t Au | 1.18 | 1.51 | 1.59 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **1.57** |
| Sabali South | Waste | kt | 2,553 | 2,712 | 2,416 | 711 | 1,018 | 3,304 | 0 | 0 | 0 | 0 | **12,713** |
| | Ore | kt | 1,180 | 1,862 | 1,848 | 701 | 98 | 1,903 | 0 | 0 | 0 | 0 | **7,590** |
| | Grade | g/t Au | 0.71 | 0.80 | 0.95 | 1.43 | 0.75 | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | **0.90** |
| Jean | Waste | kt | 0 | 0 | 0 | 7,664 | 8,368 | 66 | 0 | 0 | 0 | 0 | **16,098** |
| | Ore | kt | 0 | 0 | 0 | 978 | 3,136 | 79 | 0 | 0 | 0 | 0 | **4,193** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 1.21 | 1.68 | 1.45 | 0.00 | 0.00 | 0.00 | 0.00 | **1.56** |
| SGD | Waste | kt | 0 | 0 | 0 | 0 | 0 | 5,339 | 6,324 | 2,310 | 0 | 0 | **13,972** |
| | Ore | kt | 0 | 0 | 0 | 0 | 0 | 313 | 1,913 | 1,208 | 0 | 0 | **3,434** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.08 | 1.38 | 1.39 | 0.00 | 0.00 | **1.36** |
| SBL | Waste | kt | 0 | 0 | 0 | 0 | 0 | 1,216 | 742 | 0 | 0 | 0 | **1,958** |
| | Ore | kt | 0 | 0 | 0 | 0 | 0 | 409 | 640 | 0 | 0 | 0 | **1,049** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.15 | 0.86 | 0.00 | 0.00 | 0.00 | **0.97** |
| **Subtotal open pit** | **TMM** | **kt** | **6,069** | **11,951** | **12,688** | **12,622** | **12,619** | **12,629** | **9,618** | **3,518** | **0** | **0** | **81,715** |
| | **Waste** | **kt** | **4,703** | **8,508** | **8,333** | **10,075** | **9,385** | **9,925** | **7,065** | **2,310** | **0** | **0** | **60,304** |
| | **Ore** | **kt** | **1,366** | **3,443** | **4,356** | **2,546** | **3,233** | **2,704** | **2,553** | **1,208** | **0** | **0** | **21,410** |
| | **Grade** | **g/t Au** | **0.77** | **1.13** | **1.32** | **1.44** | **1.65** | **0.95** | **1.25** | **1.39** | **0.00** | **0.00** | **1.27** |
| | | | | | | | | | | | | | |
| **Historic stockpile name** | **Parameter** | **Units** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **Total** |
| ROM Stockpile | Ore | kt | 205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **205** |
| | Grade | g/t Au | 0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.94** |
| BCM Stockpile | Ore | kt | 326 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **326** |
| | Grade | g/t Au | 0.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.58** |
| West Balan Stockpile | Ore | kt | 329 | 756 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,085** |
| | Grade | g/t Au | 0.53 | 0.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.59** |
| Jean Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 824 | 1,479 | **2,303** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.43 | **0.43** |
| South Dump Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 223 | 448 | **671** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.43 | **0.43** |
| North Dump Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 991 | **991** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | **0.43** |
| SGC Stockpile | Ore | kt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 674 | **674** |
| | Grade | g/t Au | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | **0.38** |
| **Subtotal historic stockpiles** | **Ore** | **kt** | **860** | **756** | **0** | **0** | **0** | **0** | **0** | **0** | **1,047** | **3,591** | **6,255** |
| | **Grade** | **g/t Au** | **0.65** | **0.62** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.43** | **0.42** | **0.48** |

Source: AMC, 2023.

The total material movement (TMM) tonnage by mining area is shown as tonnages in Figure 16.24. Mining of the open pits is shown from May 2024 to August 2031. The tonnages shown in 2032 and 2033 are the material movements from historic stockpiles to the process plant.

Figure 16.24 Total tonnage by mining area (including historic stockpiles)

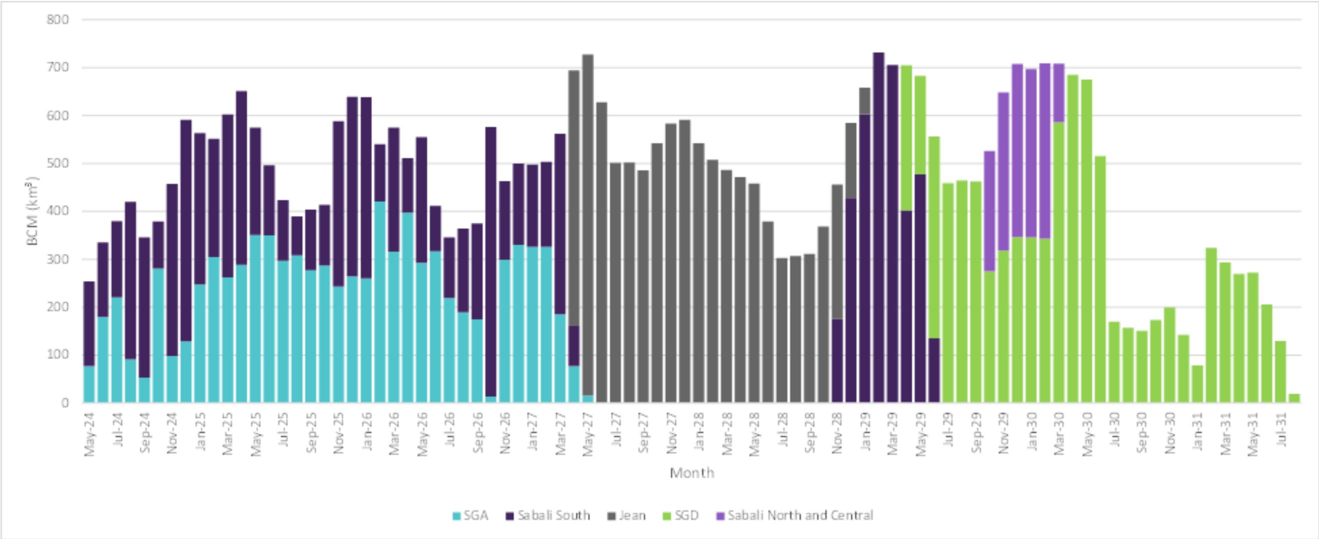



Source: AMC, 2023.

As shown in Figure 16.24, the production schedule follows the sequence generated by the strategic schedule and includes ramp-up and ramp-down in productivities around the wet seasons. Due to the lower topography of the Sabali area and softer nature of the contained material, where possible, mining has been minimized in Sabali South and Sabali North and Central during the wet seasons.

The TMM volumes (bcm) by open-pit mining area are presented in Figure 16.25.

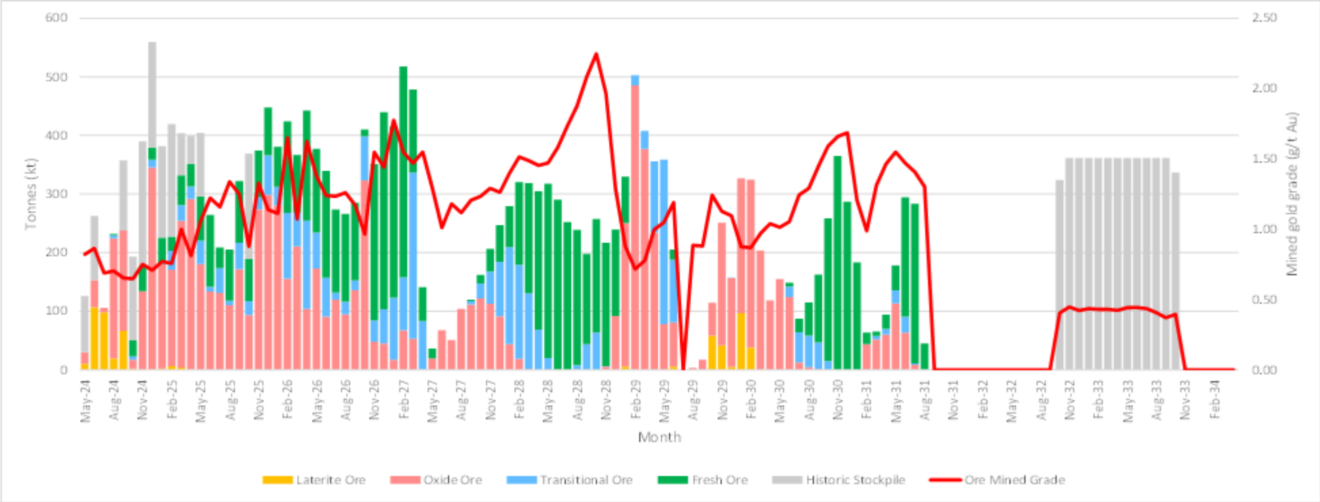
Figure 16.25 Total bcm by mining area (open pits only)




Source: AMC, 2023.

Monthly ore tonnages mined along with average mined head grade are presented in Figure 16.26.

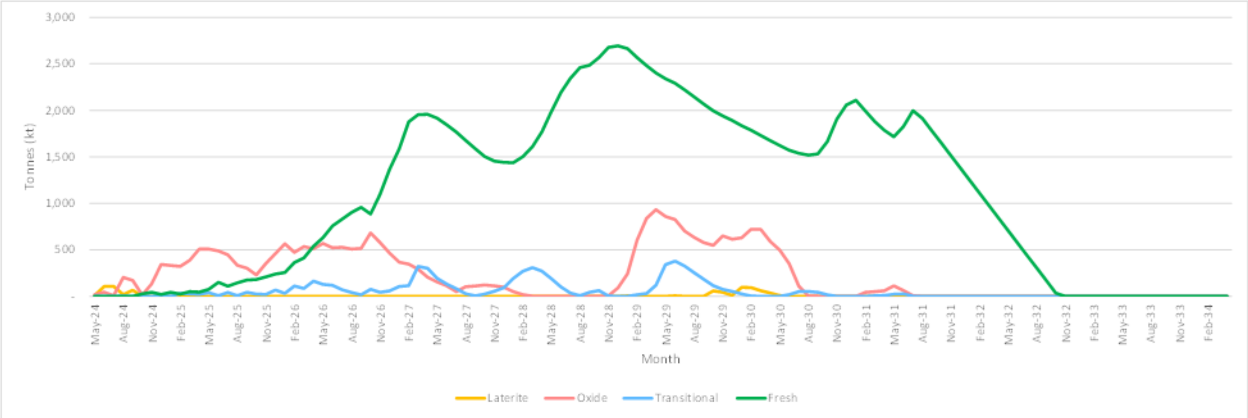
Figure 16.26 Ore profile by ore type




Source: AMC, 2023.

The tonnage balances of the MOP stockpiles are shown in Figure 16.27.

Figure 16.27 MOP stockpile tonnage balances



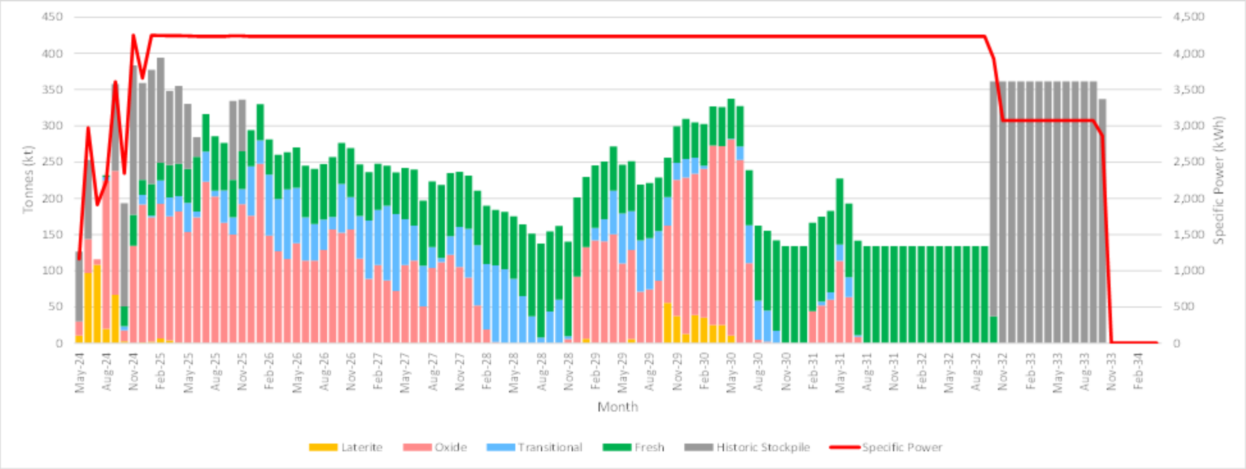

Source: AMC, 2023.

As shown in Figure 16.27, the key stockpiles are low-grade oxide which peaks at approximately 0.5 Mt and lower grade fresh ore which reaches a maximum of approximately 2.5 Mt. The stockpiled fresh ore occurs due to:

- The relatively high specific energy of the fresh material compared to the relatively small increase in grade means that oxide material is always treated preferentially. Apart from the highest grade fresh rock.
- Mining at the base of the larger open pits being predominantly in fresh material. Pits are mined to completion in the schedule to maintain practicality. Due to the wet season water inflows, it does not make sense to delay mining of pit bases.

The resulting process schedule targeting 4.3M kWh power consumption is presented in Figure 16.28.

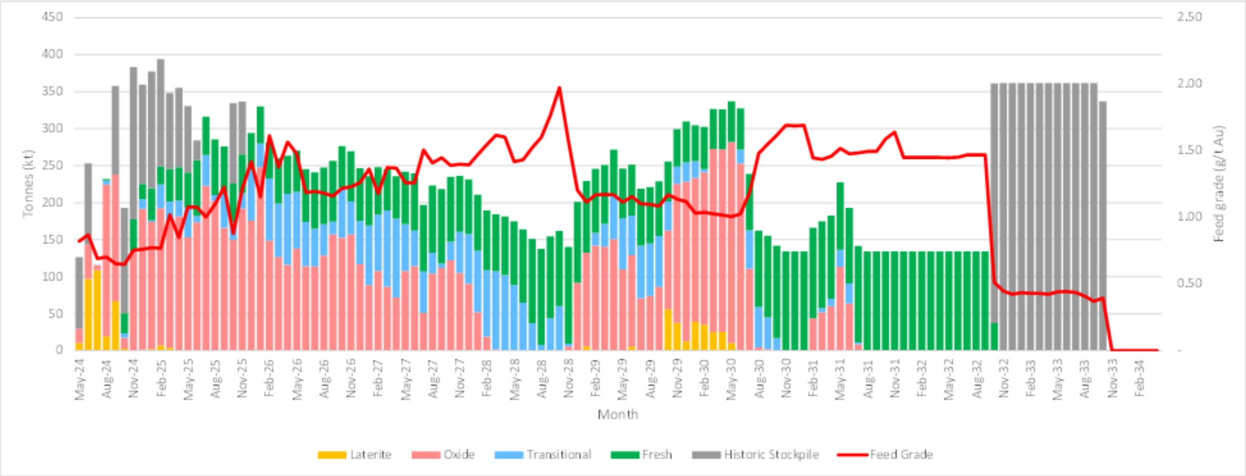
Figure 16.28 Process feed schedule (showing specific power)




Source: AMC, 2023.

The process schedule including average feed head grade is presented in Figure 16.29.

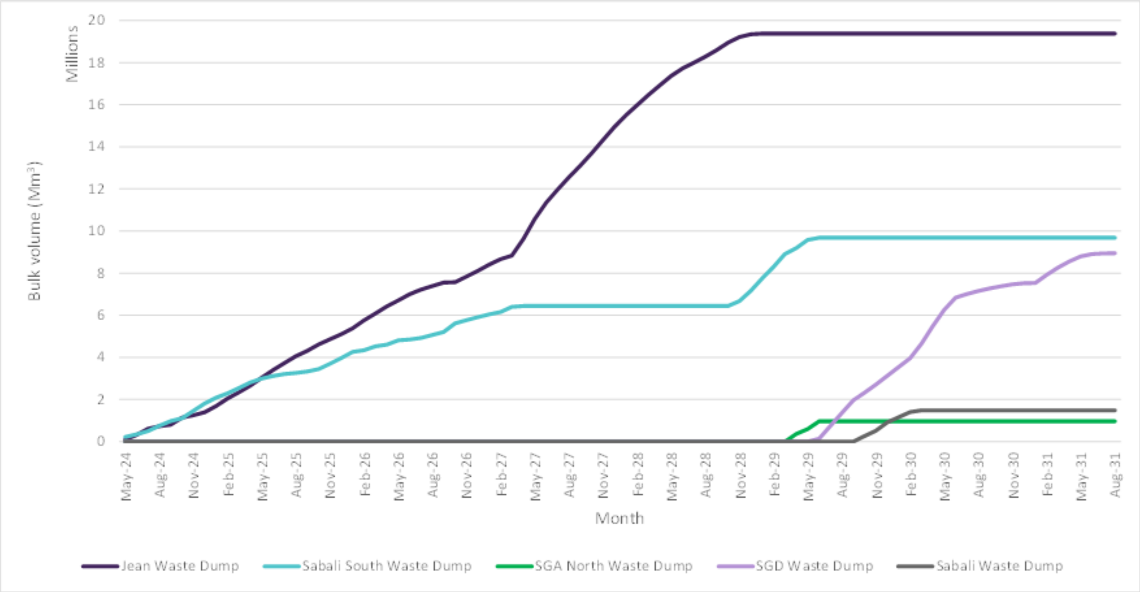
Figure 16.29 Process feed schedule (showing feed grade)




Source: AMC, 2023.

The cumulative volumes of waste hauled to the waste dumps, including a 33% bulk volume factor, are shown in Figure 16.30.

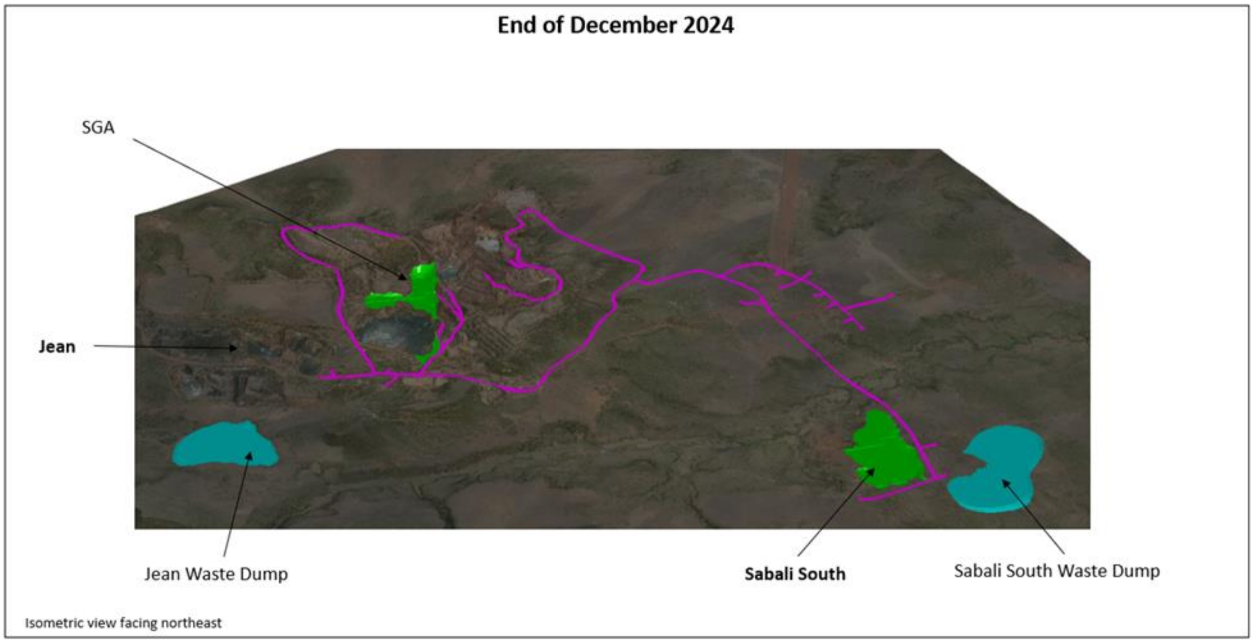
Figure 16.30 Waste dump profiles




Source: AMC, 2023.

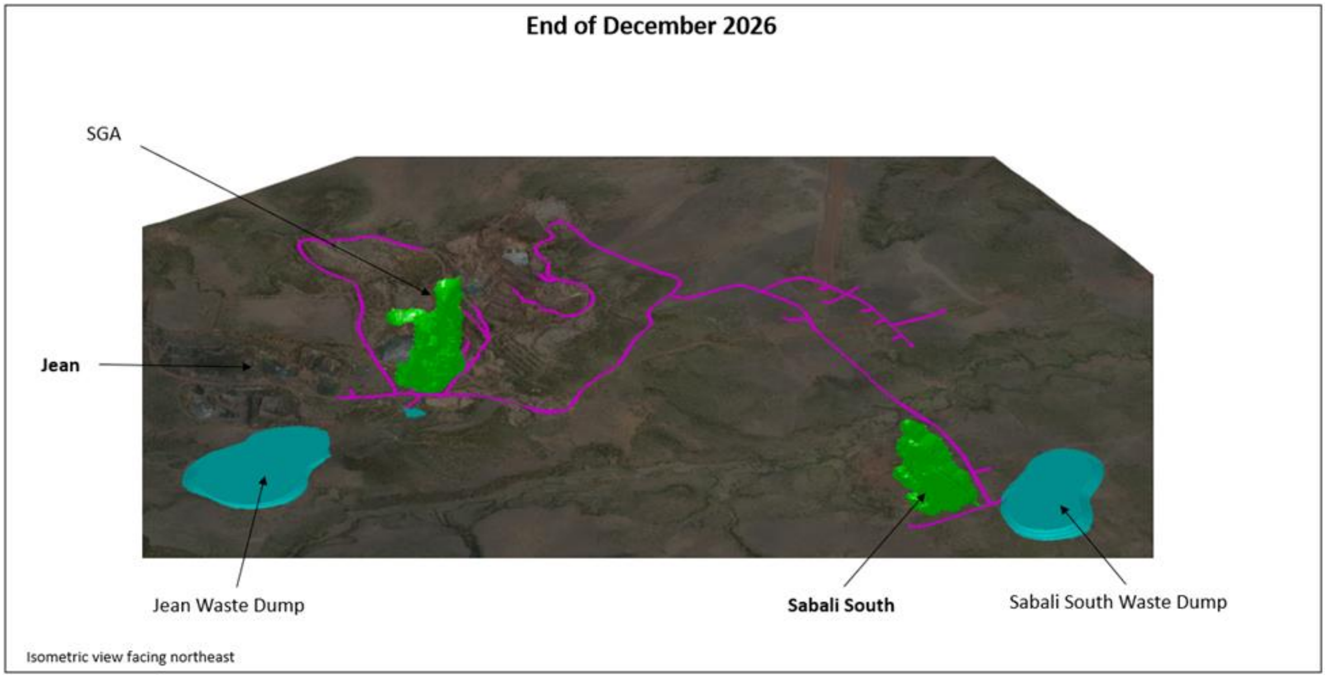
To show the advancement of mining visually, surfaces representing the end of calendar year for years 1, 3, 5, and 7 are presented in Figure 16.31 to Figure 16.34.

Figure 16.31 Mining end of Year 1



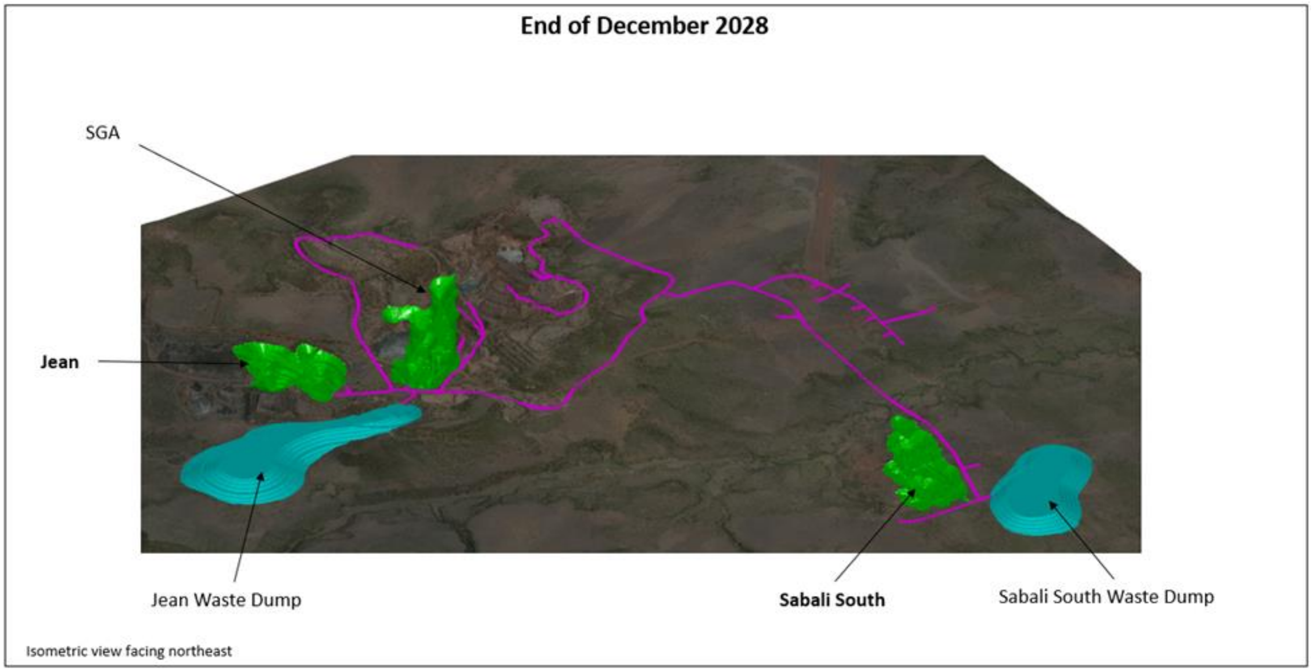

Source: AMC, 2023.

Figure 16.32 Mining end of Year 3



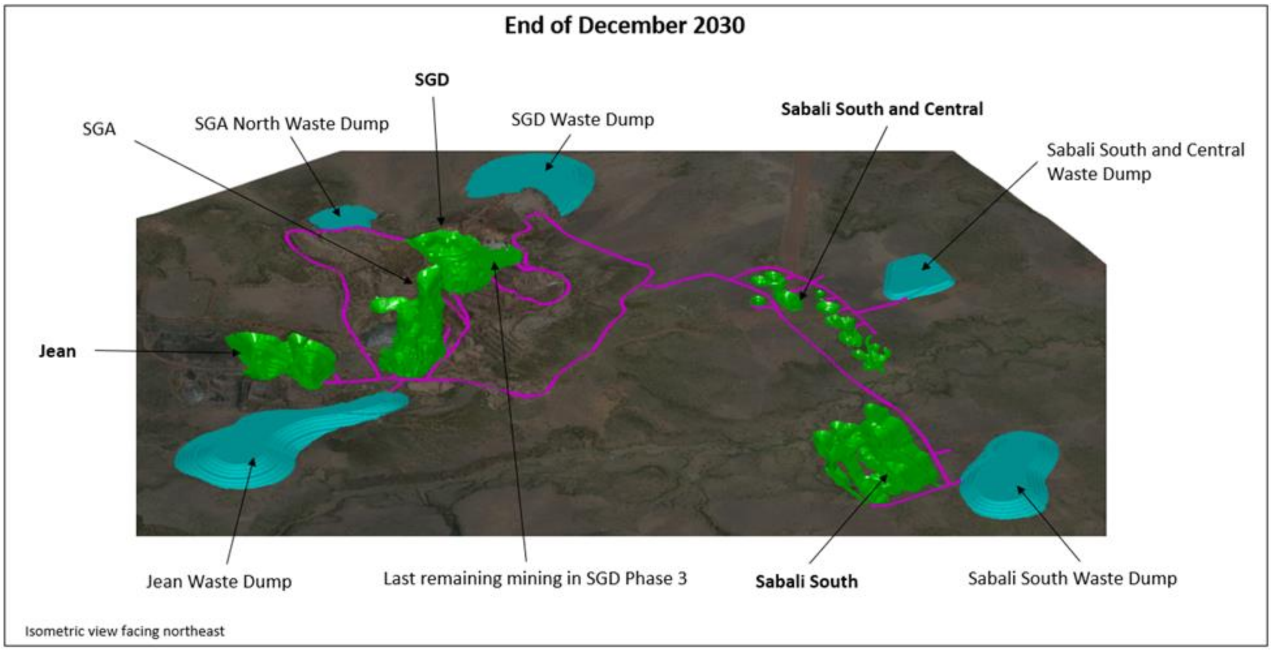

Source: AMC, 2023.

Figure 16.33 Mining end of Year 5




Source: AMC, 2023.

Figure 16.34 Mining end of Year 7



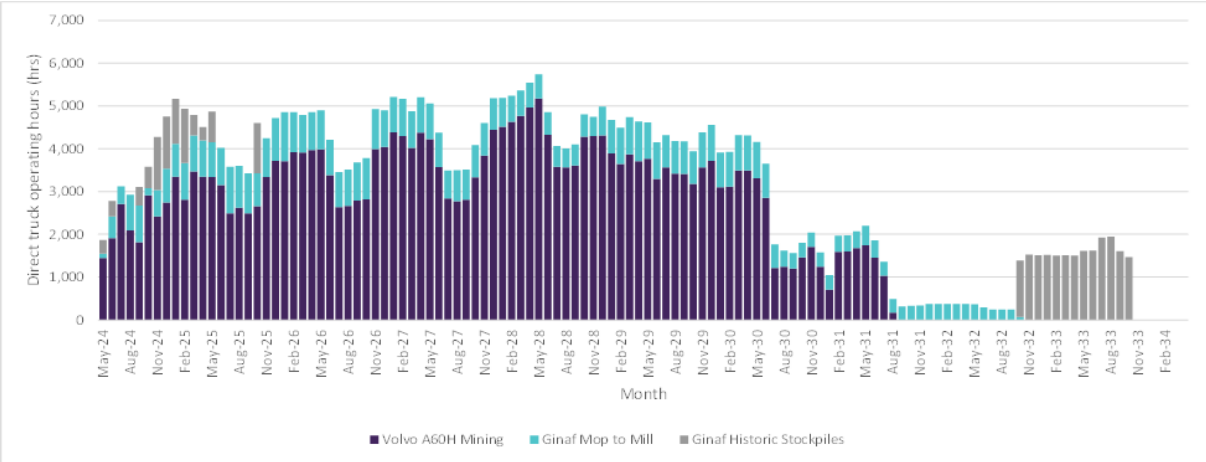

Source: AMC, 2023.

## 16.10 Haulage analysis

Kiniero will be mined by a contractor. Contractor tenders included haulage analyses as part of their cost estimates. AMC undertook a separate haulage analysis in MineSched to provide confirmation of expected equipment number and provide input to the mining cost model.

AMC generated a haulage network string file in Datamine which was imported into MineSched to describe haulage routes from each mining source to destination. The rimpull and retardation data for the Volvo A60H trucks was entered into MineSched along with a load time of 2.67 minutes and a dump time of 1 minute. This data combined with the gradients and distances in the haulage network strings was used to generate cycle times and truck hours. The resulting truck hours are presented in Figure 16.35.

Figure 16.35 Truck hours




Source: AMC, 2023.

The haulage network included haulage strings between the MOP stockpiles, historic stockpiles, and the mill. This material will be hauled by the Ginaf 60 t for which the Volvo A60H speeds were assumed.

The truck hours from MineSched were used to generate equipment and fuel requirements in the mining cost model.

## 16.11 Mining equipment

Mining equipment will be provided by the mining contractor and the costs are built into the contractor quotations. The key mining equipment requirements calculated from the production schedule outputs are summarized in Table 16.20.

Table 16.20 Mining equipment

| Equipment | Model | Maximum number required |
|---|---|---|
| Excavator | Komatsu PC1250 | 4.0 |
| Excavator (rock breaker) | Komatsu PC600 | 2.0 |
| Haul truck | Volvo A60H | 12.0 |
| Drill rig | Taiye TY390 | 3.0 |
| Explosives truck | Auxin BZCH-15 | 1.0 |
| Dozer | Komatsu D275 | 4.0 |
| Grader | GD755 | 1.1 |
| Water truck | Volvo A60H | 1.1 |
| Loaders | Komatsu WA-600 | 4.0 |
| Surface haul truck | Ginaf | 5.0 |
| Service truck | Volvo A60 (service truck) | 2.0 |
| Fuel truck | Volvo A60 (fuel truck) | 2.0 |
| Vibrating roller | Ham HC160 | 1.0 |
| Tyre truck | - | 1.0 |
| Forklift | - | 1.0 |
| Hiab truck | - | 1.0 |
| 4 x 4 spares truck | - | 1.0 |
| 50 t crane | Grove RT550 | 1.0 |
| Bus | - | 2.0 |
| Toyota 4x4 | Land Cruiser | 9.0 |
| Lighting Towers | - | 16.0 |

Source: Robex and AMC, 2023.

## 16.12 Mining personnel

A total of 390 mining personnel is required to support mining operations. Management and technical services staff will be provided by Robex with the remaining staff provided by the mining contractor. A summary of the number of staff by area is shown in Table 16.21.

## Table 16.21 Mining personnel summary

| **Area** | **No. of staff** |
|---|---|
| Management and technical services (Robex staff) | 52 |
| Contractor open pit mining staff | 248 |
| Contractor drill and blast staff | 26 |
| Contractor grade control staff | 30 |
| Contractor surface haulage staff | 34 |
| **Total mining staff** | **390** |

Source: Robex, 2023.

The personnel requirements broken down by area and department are summarized in Table 16.22 to Table 16.26.

## Table 16.22 Mining personnel—Robex staff

| **Department** | **Description** | **Quantity** |
|---|---|---|
| Mine Production | Mining Manager | 1 |
| Mine Production | Open Pit Superintendent | 1 |
| Mine Production | Mine Planning Manager | 1 |
| Mine Production | Senior Mining Engineer | 2 |
| Mine Production | Mining Engineer | 2 |
| Mine Production | Chief Production Geologist | 1 |
| Mine Production | Production Geology Manager | 1 |
| Mine Production | Senior Resource Geologist | 1 |
| Mine Production | Production Geologist | 4 |
| Mine Production | Pit Technician | 24 |
| Mine Production | Chief Mine Surveyor | 1 |
| Mine Production | Mine Surveyor | 4 |
| Mine Production | Survey Assistant | 4 |
| Mine Production | Dewatering Supervisor | 1 |
| Mine Production | Dewatering Attendants | 4 |
| **Total** | | **52** |

Source: Robex, 2023.

## Table 16.23 Mining personnel—contractor open-pit mining staff

| **Department** | **Description** | **Quantity** |
|---|---|---|
| Project Management and Admin | Project Manager | 1 |
| Project Management and Admin | Security Superintendent | 1 |
| Project Management and Admin | Trainers commissioning / OEM | 1 |
| Project Management and Admin | Safety Superintendent | 1 |
| Project Management and Admin | Engineering Superintendent | 1 |
| Project Management and Admin | L&H Superintendent | 1 |
| Project Management and Admin | L&H Shift Supervisor | 3 |
| Project Management and Admin | Maintenance Superintendent | 1 |
| Project Management and Admin | Maintenance Supervisor | 4 |
| Project Management and Admin | Accountant | 1 |

| Department | Description | Quantity |
|---|---|---|
| | | |
| Senior Staff | HR Officer | 1 |
| Senior Staff | Safety Officer | 4 |
| Senior Staff | Training Supervisor | 2 |
| Senior Staff | Trainers | 2 |
| Senior Staff | Engineer - Snr | 1 |
| Senior Staff | Store Controller | 2 |
| Senior Staff | Accounts Admin Assistants. | 1 |
| | | |
| Junior Staff | Labourers / General | 4 |
| Junior Staff | HR Assistant | 1 |
| Junior Staff | QA Assistants Drilling | 2 |
| Junior Staff | Bus Driver | 3 |
| Junior Staff | Storemen | 2 |
| Junior Staff | Sign Writer | 1 |
| | | |
| Operators | PC1250-11 | 16 |
| Operators | A60H | 44 |
| Operators | D9 | 16 |
| Operators | 14M | 8 |
| Operators | A45G (WC) | 8 |
| Operators | A45G (Service) | 4 |
| Operators | A45G (Fuel) | 4 |
| Operators | 349D2 | 4 |
| Operators | LH Leading Hands | 8 |
| | | |
| Maintenance | Welder | 4 |
| Maintenance | Senior HD Mechanic | 3 |
| Maintenance | Auto electrician | 8 |
| Maintenance | HD Mechanic Foreman | 12 |
| Maintenance | Snr Welder | 8 |
| Maintenance | LV Mechanic | 4 |
| Maintenance | Trade Assistant | 28 |
| Maintenance | HD mechanic | 20 |
| Maintenance | Tyre fitter | 8 |
| **Total** | | **248** |

Source: Robex, 2023.

## Table 16.24 Mining personnel—contractor drill-and-blast staff

| Department | Description | Quantity |
|---|---|---|
| Management | Project Manager | 1 |
| Management | Pit Supervisor | 2 |
| Management | HSE Supervisor | 1 |
| Management | Maintenance Supervisor | 1 |
| | | |
| Operators | Drilling Operator | 4 |
| Operators | MMU Operator | 1 |
| Operators | Magazine Master | 1 |
| Operators | Plant Assistant | 1 |
| Operators | Drilling Assistant | 6 |
| Operators | Blasting Assistant | 4 |
| Operators | Maintenance Assistant | 4 |
| **Total** | | **26** |

Source: Robex, 2023.

## Table 16.25 Mining personnel—contractor grade control staff

| Department | Description | Quantity |
|---|---|---|
| Management | Site Manager | 1 |
| Management | Drilling Supervisor | 2 |
| Management | HSE Officer | 1 |
| | | |
| Operators | Drillers | 9 |
| Operators | Drilling Offsider | 9 |
| Operators | Mechanic | 2 |
| Operators | Mechanic | 1 |
| Operators | Welder | 1 |
| Operators | Welder | 1 |
| Operators | Driver | 2 |
| Operators | Admin | 1 |
| **Total** | | **30** |

Source: Robex, 2023.

## Table 16.26 Mining personnel—contractor surface haulage staff

| Department | Description | Quantity |
|---|---|---|
| Management | Shift Boss | 3 |
| Management | Maintenance Supervisor | 1 |
| | | |
| Operators | FEL Operator | 5 |
| Operators | Truck Drivers | 20 |
| Operators | Mechanics | 5 |
| **Total** | | **34** |

Source: Robex, 2023.

# 17 Recovery methods

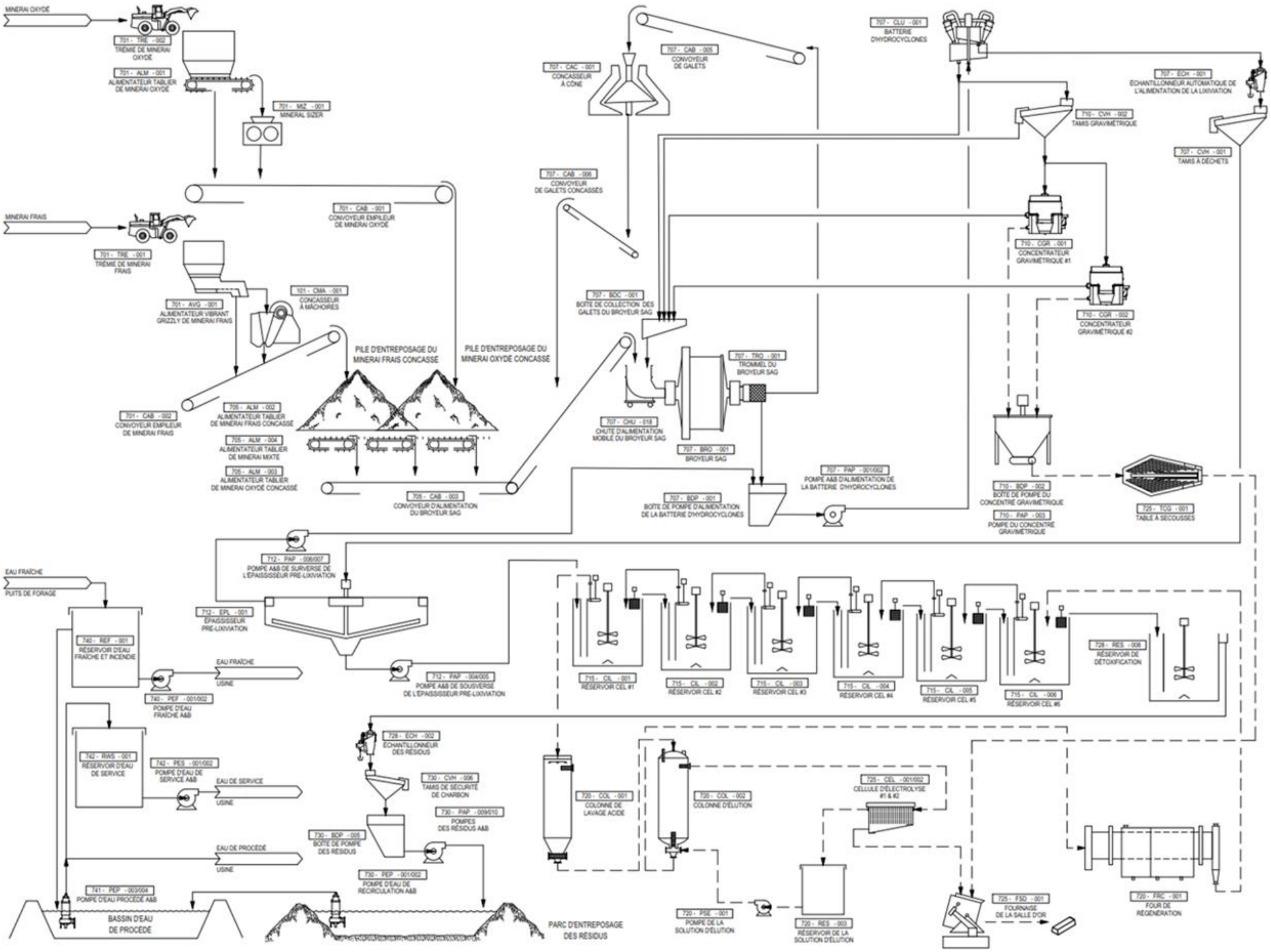
## 17.1 Process design

The process plant design is based on a robust metallurgical flowsheet developed for flexible operation between the various types of ore (oxide, transition, and fresh ore) while maintaining the throughput and gold recovery. Ore from the Project will be processed on-site, at close distance to the various pits. The gold will be recovered in a beneficiation plant that has been designed to process a blend of oxide, laterite, transition, and fresh ores from various ore deposits. Oxide and upper transition ores require less comminution energy than fresh ore. However, they present other challenges in handling due to the sticky nature of saprolite, justifying dedicated crushing devices for oxide and for fresh ore. The process plant design has been based on a nominal capacity of 3.0 Mtpa. The flowsheet includes various processes including two crushing routes, semi-autogenous grinding (SAG) milling, gravity concentration, thickening, CIL leaching, Zadra elution, gold electrowinning and carbon regeneration, and SO2 detoxification, that are well proven in the industry.

### 17.1.1 Selected process flowsheet

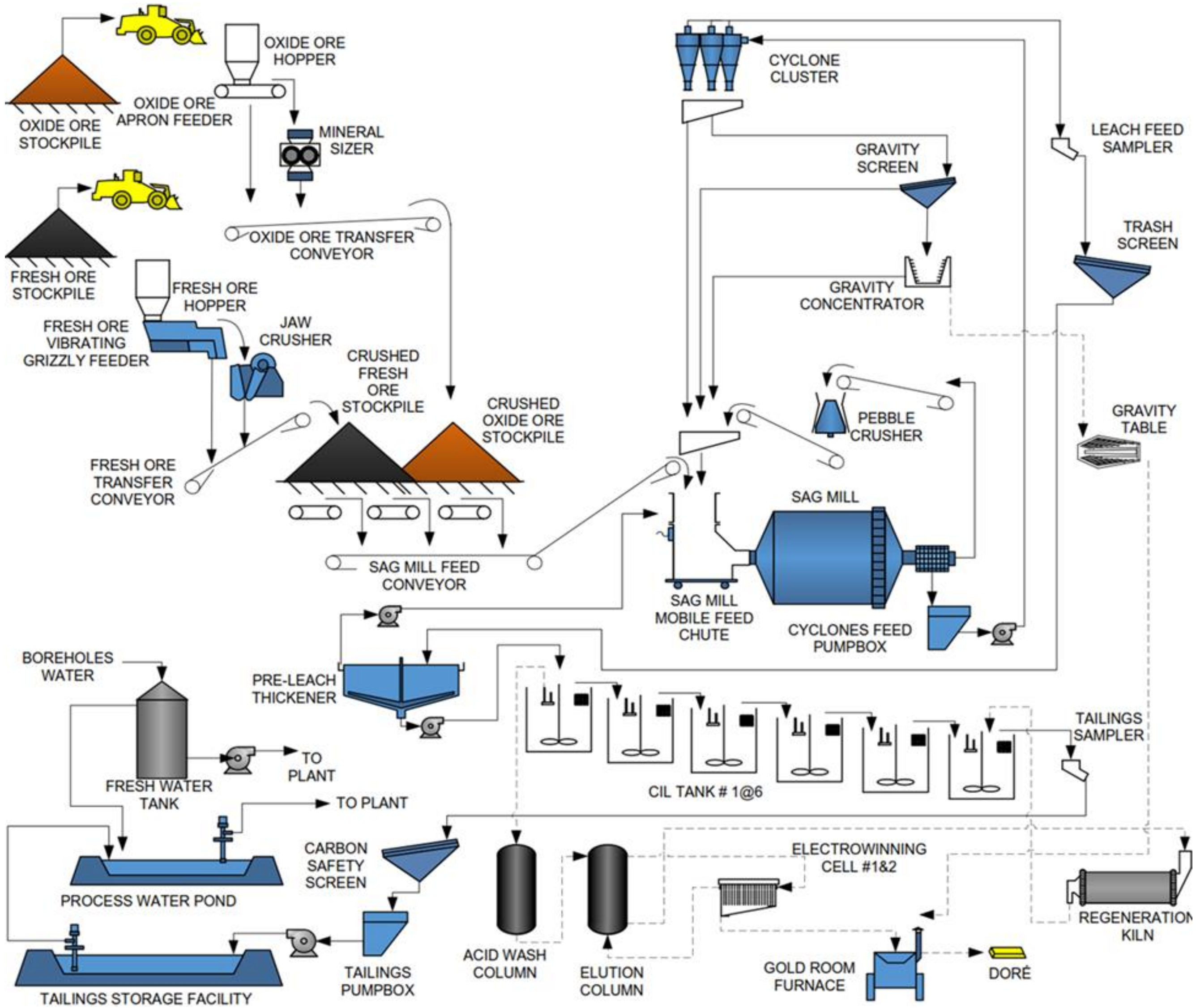
The general process flow diagram is illustrated in Figure 17.1. A high-level process flow diagram of the processing plant in English is presented in Figure 17.2. The general arrangement of the Project process plant is presented in Figure 17.3, and the corresponding 3D representation is shown in Figure 17.4.

Figure 17.1 Process plant general process flow diagram (official drawing in French)



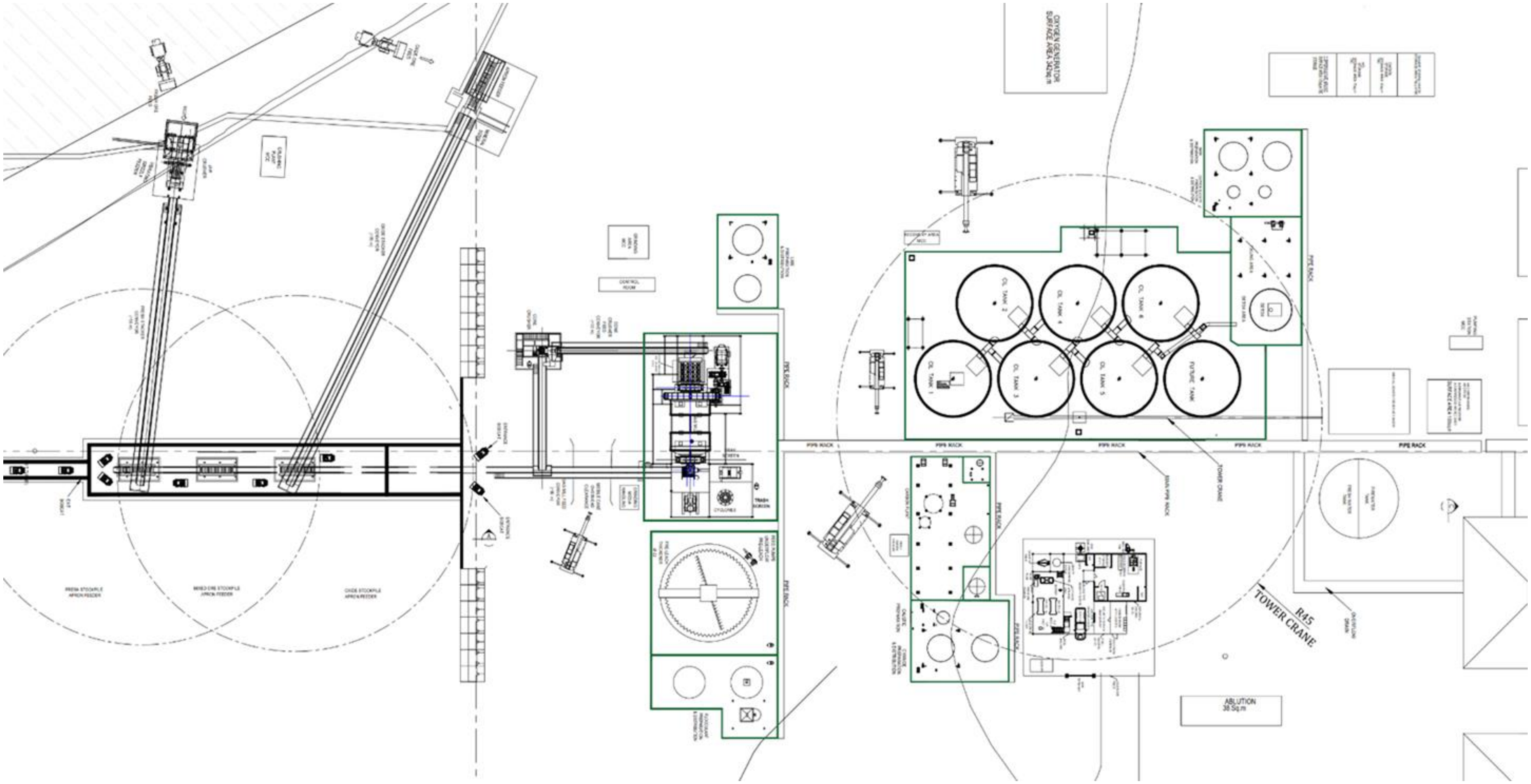

Source: Soutex, 2023.

Figure 17.2 Process plant simplified block flow diagram (equipment names in English)




Source: Soutex, 2023.

Figure 17.3 Layout of the processing plant




Source: Wacom, 2023.

Figure 17.4 3D layout of the processing plant


Source: Wacom, 2023.

### 17.1.2 Key process design criteria

The Project plant main-design criteria are presented in Table 17.1, with the source description codes described in Table 17.2.

Table 17.1 Project plant main-design criteria

| Parameter | Unit | Value | Source |
|---|---|---|---|
| **General** | | | |
| Process Plant Operating Time | % | 92.0 | C |
| Operating Days per Year | d/y | 365 | B |
| Operating Hours per Day | h/d | 24 | B |
| Annual Throughput | t/y | 3,000,000 | A |
| Gold Recovery - Average | % | 89.5 | E |
| Gold Recovery (Fresh Ore) | % | 86.0 | I |
| Gold Recovery (Oxide Ore) | % | 92.0 | I |
| Gold Recovery (Transition Ore) | % | 92.0 | G |
| Gold Production | ozt/y | 122,000 | E |
| Process Plant Throughput | t/h | 372 | E |
| **Ore Characteristics** | | | |
| Laterite Ore Feed Proportion | % | 2.0 | A |
| Oxide Ore Feed Proportion | % | 55.8 | E |
| Transition Ore Feed Proportion | % | 6.8 | A |
| Fresh Ore Feed Proportion | % | 35.4 | A |
| Ore Specific Gravity - Average | - | 2.80 | E |
| Ore Blend Bulk Density - Average | $t/m^3$ | 1.44 | E |
| Ore Blend Au Grade - Average | g/t | 1.42 | E |
| **Oxide Ore Crushing** | | | |
| Oxide Ore Crushing Operating Time | % | 70.0 | C |
| Crusher Type (Oxide) | - | Mineral Sizer | C |
| Stockpile Total Capacity | t | 10,056 | |
| Stockpile Live Capacity | t | 2,212 | |
| **Fresh Ore Crushing** | | | |
| Fresh Ore Crushing Operating Time | % | 70.0 | B |
| Crusher Type (Fresh) | - | Jaw Crusher | C |
| Product Particle Size, P80 | mm | 76 | C |
| Stockpile Total Capacity | t | 10,774 | |
| Stockpile Live Capacity | t | 2,370 | |
| Total Live Capacity (3 Feeders) | h | 19 | |
| **Milling** | | | |
| Bond Ball Work Index - Oxide Ore | kWh/t | 6.0 | G |
| Bond Ball Work Index - Transition Ore | kWh/t | 12.0 | G |
| Bond Ball Work Index - Fresh Ore | kWh/t | 24.1 | I |
| **SAG Mill** | | | |
| Diameter | m | 7.00 | C |
| Length | m | 9.90 | C |
| SAG Mill Motor Power | kW | 7,800 | C |
| Cyclone Overflow P80 | µm | 106 | I |

| Parameter | Unit | Value | Source |
|---|---|---|---|
| **Gravity Separation** | | | |
| Gravity Circuit Gold Recovery | % | 15 | G |
| **Pre-Leach Thickening** | | | |
| Thickener Type | - | High Rate Thickener | C |
| Thickener Diameter Required | m | 18.0 | H |
| Flocculant Dosage - OPEX | g/t | 30.0 | I |
| Thickener Underflow Pump Discharge % Solids | % | 51.5 | G |
| **Carbon-in-Leach (CIL)** | | | |
| CIL Residence Time | h | 24 | I |
| CIL Design Feed % Solids | % w/w | 50.0 | E |
| Oxide Ore Lime Consumption | kg/t | 3.0 | I |
| Fresh Ore Lime Consumption | kg/t | 0.8 | I |
| Oxide Ore Cyanide Consumption | kg/t | 0.4 | I |
| Fresh Ore Cyanide Consumption | kg/t | 0.8 | I |
| Operating pH | - | 10.5 | C |
| Number of CIL Tanks | - | 6 | C |
| Live Volume per Tank (Calculated) | $m^3$ | 2,328 | E |
| **Carbon Plant** | | | |
| Batch Column Capacity (AW and Elution) | t | 4.0 | C |
| Elution Type | | Pressurized Zadra | C |
| Elution Frequency | nb/d | 1.0 | C |
| HCl Consumption | L/d | 371 | E |
| Caustic Consumption | kg/d | 575 | E |
| **Gold Room** | | | |
| Gravity Table Type | - | Shaking Table | C |
| Number of Electrowinning Cells | - | 2 | D |
| **Oxygen Plant** | | | |
| Daily Consumption (Pure Oxygen) | t/d | 5.3 | I |
| Oxygen Plant Design Capacity (Pure Oxygen) | t/d | 6.3 | E |
| **Detoxification** | | | |
| Detoxification Process | - | $SO_2/O_2$ | C |
| Detoxification Tank Residence Time | h | 0.5 | I |
| Lime Addition Rate [$Ca(OH)_2$]:[CN-WAD] (w/w) | - | 3.0 | C |
| SMBS Addition Rate [SMBS]:[CN-WAD] | - | 3.7 | E |
| Copper Sulphate Addition Rate | kg/h | 76.2 | E |
| Oxygen Addition [$O_2$]:[$SO_2$] Ratio (w/w) | - | 0.5 | C |
| **Tailings** | | | |
| Solids Feed Rate Design Capacity | t/h | 558.4 | E |
| **Water Systems** | | | |
| Fire Water Storage Capacity | $m^3$ | 250 | E |
| Process Water Storage Capacity | $m^3$ | 40,000 | C |
| Event Pond Storage | $m^3$ | 3,570 | E |

Source: Soutex, 2023.

Table 17.2 Source code descriptions

| Source Description | Source Code |
|---|---|
| Criteria Provided by Owner | A |
| Standard Industry Practice | B |
| Soutex Recommendation | C |
| Vendor-Originated Criteria | D |
| Criteria from Process Calculations | E |
| Engineering Handbook Data | F |
| Assumption from Similar Projects | G |
| Criteria Provided by "Technology Supplier" | H |
| Metallurgical Test Result | I |
| International, National, Local and Industry Design Codes and Regulations | J |
| Budget Quote from Supplier | K |
| Existing Equipment Specifications / Process Data | L |

Source: Soutex, 2023.

## 17.2 Recovery process description

### 17.2.1 Crushing and stockpiling

The crushing area of the Project processing plant contains two parallel crushing lines, each feeding from a different section of the crushed ore stockpile.

Laterite, transition, and fresh ores from the ROM pad are reclaimed by front-end loaders (FELs) and delivered to the fresh ore hopper, which is protected by a coarse fixed grizzly. A rock breaker is present at the fixed grizzly in order to break oversized material blockages. The fresh ore vibrating grizzly feeder reclaims the ore from the hopper, with the grizzly coarse oversize sent for crushing in the jaw crusher. The crushed ore along with the passing fraction of the grizzly feeder is unloaded onto the fresh ore stacker conveyor. The fresh ore stacker conveyor feeds to the south section of the crushed ore stockpile.

Oxide ores from the ROM pad are reclaimed by FELs and delivered to the oxide ore hopper, which is protected by a coarse fixed grizzly. A rock breaker is also present at the fixed grizzly to break oversized blockages. The oxide ore apron feeder reclaims ore from the hopper onto the mineral sizer. The mineral sizer then unloads onto the oxide ore stacker conveyor which delivers the oxide ores to the north section of the crushed ore stockpile. Dust from the apron feeder is also recovered by the oxide ore stacker conveyor. When the mineral sizer is unavailable for a long period, it is possible to displace it on a rail system allowing bypassing of the oxide ore from the mineral sizer. In this situation, the fixed grizzly should be temporarily replaced by a smaller mesh-size grizzly.

A mix of crushed oxide and fresh ores are reclaimed from the crushed ore stockpile respectively by three (3) underground apron feeders and transported to the SAG mill by the SAG mill feed conveyor. The alternative or combined use of the three (3) apron feeders will allow a mix of ores to reach the targeted ore hardness to feed the SAG mill.

### 17.2.2 Milling and gravity concentration

The grinding of the crushed ore will be performed using a SAG mill in a closed circuit with hydrocyclones. The choice of the mill and its sizing was confirmed by JKSimMet simulations (SimSAGE, 2023). Stemming from the simulations report conclusions, a SAG mill in conjunction with a pebble crusher was proposed.

The ground ore exiting the SAG mill passes through the SAG trommel and flows by gravity to the cyclone feed pumpbox. The trommel oversize will be directed to the pebble crusher. Tramp steel will be collected by a magnet to protect the crusher. The pebble crusher is fed by a vibratory feeder. The pebble crusher could be bypassed, and the pebbles directly recirculated to the SAG mill.

Lime is added in the cyclone feed pumpbox to achieve an alkaline pH, and to prevent HCN gas formation in the CIL circuit. The cyclone underflow is recirculated to the SAG mill. A portion of the cyclone underflow is sent to the gravity screen and the gravity concentrator. Gravity concentrate is pumped by batch to the gold room.

The cyclone overflow is sampled in the CIL feed sampler before being fed to the trash screen which removes light tramp material such as plastic and wood. The slurry then flows by gravity to the pre-leach thickener feed box.

### 17.2.3 Pre-leach thickening

In the thickener, flocculant is added, and the slurry thickened, to achieve an appropriate leaching feed percent solids. The pre-leach thickener underflow is sent to the CIL feed box, with the pre-leach thickener overflow returned to the SAG mill as makeup water.

### 17.2.4 Carbon-in-leach (CIL)

Sodium cyanide is added to the CIL feed box to achieve the cyanide concentration target. Lime is added in the CIL in order to correct the pH when necessary. From the CIL feed box, the slurry is fed to CIL Tank #1 (or #2 given the option of a bypass) where pure oxygen is sparged into the tanks. The slurry then progresses to the CIL tanks which are equipped with:

- Oxygen spargers to maintain a high dissolved oxygen level in the tanks.
- An agitator to ensure the slurry and carbon suspension.
- An interstage screen to retain the carbon while the slurry flows downstream to the next tank.
- Carbon transfer pumps to lift the loaded carbon counter current from the slurry.

Regenerated carbon adsorbing the leached gold is introduced into the last CIL tank and progresses counter current from the slurry (from the last CIL tank to the first one). The slurry containing loaded carbon is pumped from CIL Tank #1 to the loaded carbon screen, where the loaded carbon is recovered.

After the last CIL tank, an additional tank will be used as a detoxification reactor in order to eliminate residual cyanide from the tailings before to be sent to the tailing pond.

The slurry at the output of the detoxification tank is sampled in the tailings sampler to account for gold losses. The slurry then goes through the carbon safety screen for harvesting carbon, in case of an interstage screen leak. The screen undersize flows by gravity to the tailings pumpbox where the tailings are pumped to the TSF.

An oxygen plant provides oxygen enriched gas flow (up to 93%) to both the CIL tanks and the detoxification process.

### 17.2.5 Carbon plant

The loaded carbon recovered by the loaded carbon screen is discharged into the acid wash column. The loaded carbon is washed with hydrochloric acid to remove any carbonates that were trapped on the carbon surface during the CIL stage. At the end of the acid wash, the acid solution in the column is neutralized with addition of caustic soda. The neutralized solution is then drained, and the loaded carbon rinsed with water and transferred to the elution column.

The carbon water circuit provides pressurized recirculated water allowing for the carbon transfer from the acid wash column discharge to the elution column inlet.

The elution process desorbs the gold adsorbed onto the activated carbon by circulating a preheated barren solution in the elution column, where the gold is transferred from the carbon into the solution. This process is performed under a pressurized column to achieve solution temperature over 130°C to accelerate the desorption kinetics. The pregnant solution emanating from the elution column is cooled before being transferred to the electrowinning cells, where gold is plated onto cathodes. The barren solution at the discharge of the electrowinning cells is returned to the elution solution tank, and the repetitive cycle continues. The barren solution, prior to the elution process, is prepared in the elution solution tank with the addition of freshwater, caustic soda, and cyanide.

At the end of the cycle, the eluted carbon is drained from the column and sent to the stripped carbon dewatering screen. The regeneration kiln screw feeder then feeds the regeneration kiln with the drained carbon. The regeneration kiln allows any organic material to be burned into the carbon pores. The method heats the eluted carbon to high temperatures (650°C to 750°C) under an oxygen reduced atmosphere to avoid ignition. Re-activated carbon exiting the kiln discharges directly to the quench tank, where it is rapidly cooled in water. From the quench tank, carbon will be transferred by an eductor to the carbon sizing screen. Sizing screen oversize will gravitate to CIL tank #6 with a bypass option to CIL tank #5. Sizing screen undersize will be discarded to the fine carbon settling tank. Fresh carbon will be added to the CIL circuit via the carbon quench tank.

### 17.2.6 Gold room

The gravity concentrator concentrate is cleaned of magnetic material by the gravity concentrate magnet, following which the gravity table receives the concentrate and separates the high-density material, i.e. the gold, from the lower density material, the tailings. The tailings are pumped back to the grinding circuit while the concentrate is dried in the calcination oven.

Upon completion of two to four elution cycles (depending on carbon gold concentration), the cell covers are removed, and gold sludge is washed off the cathodes and the bottom of the cell with a hand-held high-pressure washer. The gold sludge settles in the sludge settling tank. The gold sludge is filtered in table batch vacuum filters and then dried in the oven.

Dried sludge along with gravity concentrate are mixed with flux (silica, sodium nitrate, borax, and soda ash), prior to charging into the induction gold furnace to produce slag and doré. The doré will be cleaned, assayed, stamped, and stored in a secure vault ready for dispatch. The furnace slag produced will periodically be returned to the grinding circuit and the contained gold will be recovered in the circuit.

## 17.3 Water management

### 17.3.1 Process water

Process water is classified as such if it could be used in the process but could contain contaminants. The main process water source is water recirculated from the TSF that has been in contact with either plant chemicals or slurry. It is continuously recirculated from the TSF, to the process water pond and to the processing plant, mainly in the milling area. A pump located in the process water feeds the process water distribution network of the mill. This pond is mainly fed by the supernatant water of the tailings pond that is recycled. Although it is operated in a closed circuit, there are still some process water losses, particularly by evaporation in the ponds (tailings pond and process water pond). Raw water is added to the process water pond through the freshwater tank overflow to compensate for the process water losses.

### 17.3.2 Service water

To use as much recycle water as possible from the TSF, a service water network is planned. Service water will use raw water and upgrade it through a filtration unit. The filtration will allow using the service water namely for reagent preparation, gravity concentration, and gland seal water.

### 17.3.3 Raw water

Raw water will be extracted from boreholes and/or mining pit lakes, and then stored in the freshwater tank. Raw water from the tank will then be distributed across the plant by the raw water pumps for critical use (safety shower, refinery, laboratory). Raw water will also be used as makeup water for process water during the dry season.

### 17.3.4 Fire water

Firewater will be supplied from the freshwater tank with a dedicated outlet at a lower level ensuring a minimal dedicated volume. Firewater will be provided by a conventional fire water pump skid, comprising an electric and a diesel fire water pump, equipped with a jockey pump to maintain system pressure.

### 17.3.5 Event pond

The process plant is designed to operate with zero discharge of process solutions to the local environment. To ensure compliance, the plant has been provided with a lined event pond designed to contain any foreseeable spillage event. The event pond is designed to contain the runoff from a one-in-a-100-year storm event occurring simultaneously with the catastrophic failure of the largest slurry containing vessel within the plant site. Solution accumulating in the event pond will be returned periodically to the tailings.

## 17.4 Tailings disposal

Slurry from the tailings pump box will be pumped to the TSF, where it will decant and accumulate. Residual cyanide will degrade naturally through hydrolysis and ultraviolet (UV) irradiation. Supernatant reclaimed water will contain traces of cyanide and will be pumped back to the process water pond near to the plant, representing a key contribution to the plant process water consumption.

## 17.5 Plant air service

Two air compressors, designed to operate in a lead-lag configuration, will provide the plant compressed air and instrumentation air. The compressed air will be stored in the compressed air receiver. Instrumentation air will circulate through the instrument air dryer to be dried and stored in the instrument air receiver. Instrumentation air will be distributed to the required plant areas for use in air-actuated valves, hose points for tools, and other applications.

### 17.6 Oxygen plant

An upgraded oxygen gas flow, up to 93% oxygen, will be produced by an oxygen plant (vacuum pressure swing absorption). Air from the atmosphere will be filtered and supplied by a reversible blower to a heat exchanger and a nitrogen adsorber vessel. Enriched oxygen gas produced is stored in a receiver and supplied to the mill by a compressor. The oxygen is added to the CIL tanks and detoxification tank by spargers.

### 17.7 Reagents and consumables

The major reagents to be utilized at the Project process plant will be:

- Sodium cyanide (NaCN): will be delivered in double-bagged briquettes, each weighing 1,000 kg. The NaCN mixing and storage area will be bunded along with the caustic soda mixing and storage area. A sump pump will service the area, pumping any spillages to the leach feed box.
- Sodium hydroxide (NaOH): also known as caustic soda, will be delivered as pearls in 25 kg bags. The sodium hydroxide mixing and storage area will be bunded along with the NaCN mixing and storage area. A sump pump will service the area and will pump any spillages to the leach feed box.
- Hydrated lime ($Ca(OH)_2$): will be delivered in super bags of 1,000 kg each. The hydrated lime mixing and storage area will be bunded and serviced by a sump pump that will pump any spillages to the lime mixing tank.
- Sodium metabisulphite (SMBS) is used in the detoxification process and is delivered to site in bulk bags.
- Copper sulphate ($CuSO_4$) is used in the detoxification process and is delivered to site in 1,200 kg bags in the form of copper sulphate pentahydrate.
- Carbon: activated carbon is delivered in 550 kg bags.
- Hydrochloric acid (HCl): will be delivered as a solution of 32% HCl in a 1 kL bulk tote. The hydrochloric acid storage and sump area will be protected with an acid-resistant liner. A dedicated sump pump will pump any spillages to the tailings pump box.
- Flocculant: flocculant powder will be delivered in bulk bags of 25 kg. Any spillages in the flocculant area will be pumped by a dedicated sump pump to the pre-leach thickener.
- Grinding balls: delivered in 210 L drums with grinding balls of 100 mm and 125 mm diameters delivered to site.
- Fluxes: silica, sodium nitrate, borax, and soda ash are used in the doré furnace.

The expected annual consumption for reagents is presented in Table 17.3. In addition to that presented in Table 17.3, anti-scalant will also be required to reduce scaling in the piping and equipment, while sulfamic acid will be required to de-scale the elution heat exchangers periodically.

Table 17.3 Expected annual reagent consumption rates

| Reagent | Unit | Annual Consumption |
|---|---|---|
| Sodium Cyanide | T | 1,680 |
| Caustic Soda | T | 221 |
| Lime | T | 7,560 |
| SMBS | T | 1,752 |
| Copper Sulphate | T | 240 |
| Carbon | T | 88 |
| 32% Hydrochloric Acid | t | 142 |
| Flocculant | t | 110 |
| Grinding Balls | t | 1,638 |
| Smelting Reagents | t | 10 |

Source: Soutex, 2023.

## 17.8 Energy consumption

The selected electrical supply is based on a hybrid system of diesel generators with a capacity of approximately 16,400 kW, as well as a photovoltaic (PV) plant with total capacity of approximately 17,820 kW. The hybrid power supply has been based on an Energy Supply Agreement (ESA) with Vivo Energy, an Independent Power Producer (IPP).

Electrical power for the Project is detailed in Section 18.5. The average power demand for the process plant is estimated to be 10 MW, with an annual power consumption of 70.6 GWh (an average of 23.5 kWh/t).

## 17.9 Electricity and instrumentation

A main electrical substation (MES), located at the process plant, will connect all the incomers feeders from the power plant. A redundancy feeder is planned for the lines between the MES and the power plant. The medium voltage (MV) distribution will be radial, from the MES to the loads on the site. These lines will reach different process plant and mining site locations. The electrical distribution will use several types of installation including buried cables, overhead line, and cable lay in trays.

### 17.9.1 Process plant

The process plant will have a voltage system of 400 V AC, 50 Hz for the process loads and services. The SAG mill main motor will operate at 15 kV. Five electrical substations are planned to be installed in different units of the process plant. These buildings will be used to install the motor control centres (MCC), programmable logic controller (PLC), and telecommunication in a controlled environment. The substations are planned to be prefabricated type. All electrical motor starters will be operated remotely through the PLC. Based on their operation, different motor starter types will be selected for a reliable service. All the instruments and motor-controlled valves will be connected to different PLC panels located in the substations.

### 17.9.2 Camp site

The power capacity of the existing Sabali camp will be increased to accommodate the refurbishment. Underground cables will be used to feed this area. Two new camps are planned to be added to the infrastructure, the Cite Kiniero and the contractor camp. These camps will be fed by a new overhead line from the MES.

### 17.9.3 TSF area

The tailing area infrastructures will be fed by a new overhead line installed along the access road to facilitate installation and maintenance.

### 17.9.4 Old mining site

The area of the old mining site will be revamped with a new distribution to accommodate new clients and fix power outage issue. This area will be fed by underground cables along the road, to minimize damage with heavy haul traffic.

## 17.10 Plant control system

The plant control system will be based on a Supervisory Control and Data Acquisition (SCADA) system, with the main displays in a central control room, with a PLC-based control system. The objective is to have the whole operation accessible from the control room, where most of the process control decisions and actions will take place. Two terminals are planned to be installed at a strategic location on-site. These terminals will allow operators to have access to process data on-site.

Instruments, actuators, and control loops will be accessible through the SCADA system. The objective is to maximize remote control and minimize ground operator intervention. The PLC system will control all the loops and interlocks in the plant.

## 17.11 Sampling and assays

Two automated accounting grade samplers will be installed:

- A feed sampler installed at the cyclone overflow prior to the trash screen.
- A tailings sampler located at the output of the last CIL tank.

A metallurgical laboratory and an assay laboratory will be commissioned as part of the Project (Section 18.9). The metallurgical laboratory will be equipped to perform sample preparation and various leaching tests. The assay laboratory will perform the assays by atomic absorption, fire assay, and cyanide-soluble analyses. The assay laboratory will serve both the plant and the mine (for grade control and exploration).

# 18 Project infrastructure

This section describes the infrastructure remaining from previous operations and additions and upgrades required to support to re-commissioning of the Project.

## 18.1 Access roads and logistics

### 18.1.1 National road Conakry to Kouroussa

An evaluation of the Conakry-Kiniero route was conducted between 7 and 14 September 2020 covering a total distance of 628 km, to evaluate the current state of the road and the likely impact on heavy-load haulage along the route. It assessed for areas likely to deteriorate during rain events and will require follow-up assessments prior to the transport of key equipment.

#### 18.1.1.1 Maximum, height, width, and mass

Pedestrian bridges on the motorway in Conakry limit the maximum loaded truck heights to 5.15 m. The Linsan Bridge after the town of Kindia limits truck widths to 3.95 m. The maximum total truck mass (truck + trailer + load) cannot exceed 60 t, which is the maximum carrying capacity of the recently re-built Linsan bridge. There are also the steel bridges built between 1930 and 1950 between Sanicia and Kouroussa where maintenance is not routine, and the load not guaranteed. Logistics consulting firm African Maritime Agencies Guinea (AMA) set the company a 50 t maximum payload capacity along this route.

There are currently no official regulations relating to road traffic and axle load in Guinea. However, AMA's health, safety, and environmental policy recommends that the weight of the loaded truck does not exceed 11 t per axle in accordance with Economic Community of West African States (ECOWAS) requirements.

#### 18.1.1.2 General road condition

The initial 50 km between Conakry Port and the town of Coyah is in reasonably good condition, after which the road starts to deteriorate with potholes, unsurfaced sections and maintenance/construction work being regular features. It is advised that one or two light escort vehicles accompany convoys of abnormal loads or hazardous materials. It is critical that selected road haul contractors are familiar with the entire route and familiar with the road condition at the time of planned transport.

### 18.1.2 Access road from Kouroussa to Kiniero

Three access routes to the Project are available from Kouroussa depending on the season:

- From Kouroussa south via the N31 to Saman then via Ballan to Kiniero town. This route is passable all year with both a low water bridge (dry season only) as well as a barge crossing over the Niger River at Diareguela. From Kouroussa, the road is gravel all the way to Kiniero.
- From Kouroussa to Kankan via the N1 with a turn off at Soronkoni via Serakoro to Kiniero. At Kiniero there is only a ford river crossing available. Thus this route is only available for vehicle access during the dry season (December to May). The first section of the road is paved up until the turnoff at Soronkoni from where it is a gravel road.
- From Kouroussa to Kiniero via the disused railway bridge, with the construction of a new gravel road directly to Kiniero. This will be open all year round and reduce the dependency on the river crossings.

### 18.1.3 Internal road access

#### 18.1.3.1 Site access road

Currently the Property access is from the Balan-Kiniero regional road with the Kiniero Gold Mine turn off approximately 1.5 km from Kiniero town. With the development of the Sabali South pit the access road will be rerouted. The new mine access road will follow a route further south of the existing airstrip.

The new access road will be an 8 m wide laterite capped gravel road equipped with suitable drainage and slopes. The new route does not cross any rivulets or streams and thus culverts will only be required to ensure proper drainage and water management.

#### 18.1.3.2 Main camp to site access road

The Kiniero Gold Mine access road described above ends at the Main Camp entrance gate. From the Main Camp there is currently a 1.3 km gravel road to the previous mine-site access control gate. This road is generally in a good state of repair and provides the primary access route to the SGA and Jean open pits, and other deposits beyond. A new access road, to the new plant precinct and ROM pad will require construction.

The existing 1.3 km access road to the main access control gate is to be refurbished by grading, compaction, and recapping of the road surface. In addition, drainage channels will be replaced and culverts installed where required, to avoid damage.

#### 18.1.3.3 Site internal roads

Site internal roads consist of maintenance service roads and haul roads including:

- Maintenance service roads.
- Main offices via diesel bay and mine offices to old TSF, providing general site access. Existing road approximately 1 km long.
- New TSF access and ring road for pipeline inspections and return water pump station access approximately 8 km long.
- SGA pit haul road: existing road approximately 2.5 km long, servicing all the SGA pits.
- Jean pit haul road: existing road approximately 2.0 km long, servicing the Jean pit.
- Sabali North and Central pit haul road: new haul road approximately 3.3 km long, servicing all the Sabali pits.
- Sabali South haul road: new haul road approximately 3.5 km long, servicing the Sabali South pit.

All of the existing roads (both service roads and haul roads) will require grading, resurfacing, and repair of stormwater drains and culverts. The new Sabali South haul road is to be constructed along the route as indicated and will require one crossing of a community road used by residents. This crossing will be equipped with stop signs and points men to regulate traffic flow and safety.

### 18.1.4 Airstrip

The existing SEMAFO airfield is situated approximately 0.5 km east of the Main Camp. The gravel airstrip is 20 m wide and 1,500 m long, running in a south-west to north-east direction to align with the predominant wind direction. The main apron is located at the south-western end of the airfield. Indications from previous SEMAFO employees is that the airstrip was seldom used for fixed-wing aircraft, despite being rated for this use. Helicopters were previously used to transport doré bars.

The airstrip has been extensively renovated by SMG, fenced, and equipped with a communications tower and radio. The airstrip is currently awaiting re-permitting to allow regular use.

Current indications are that the mining activities at the Sabali North pit will encroach on the south-western end (apron) of the current airstrip. As a result, the airstrip may need to either be shortened, or will require an extension of the landing strip to the north-eastern end.

## 18.2 Waste rock facilities

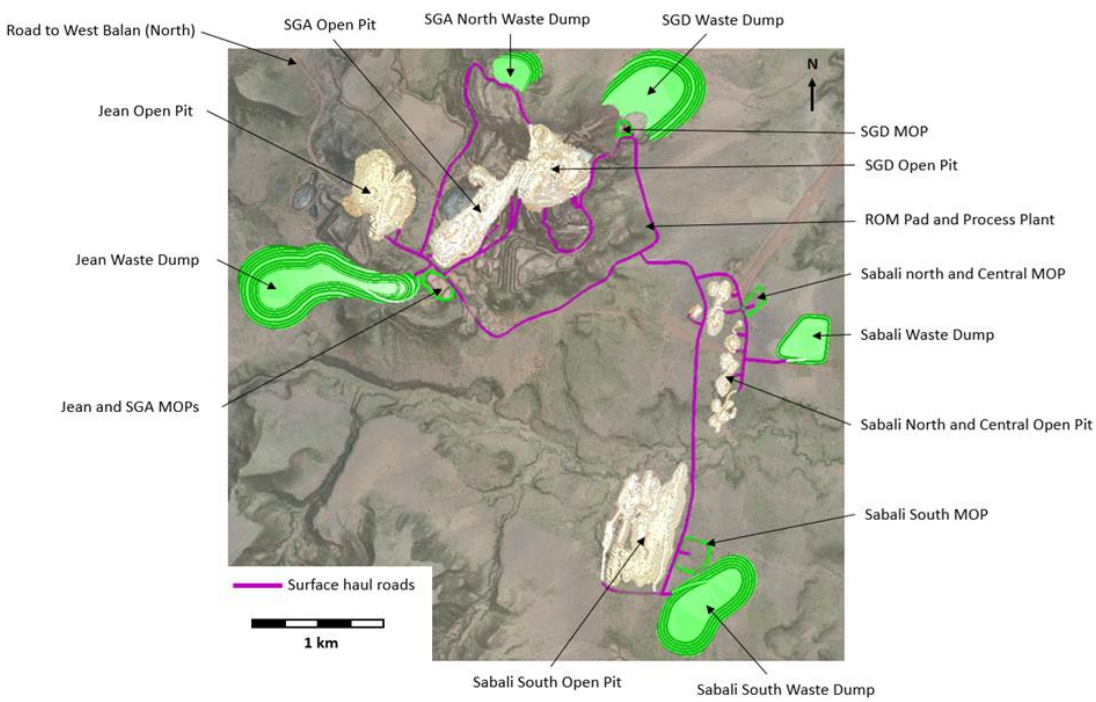
All waste from mining will be hauled by Volvo A60H trucks to five waste dump locations:

- Jean waste dump: located south of the Jean pit, this dump will be filled with all of the waste generated through mining Jean and SGA.
- SGA North waste dump: located to the north of SGA and SGD, this dump will be filled with waste from the northern extents of SGD Phase 1 while access to the SGD waste dump is unavailable.
- SGD waste dump: located to the north-east of SGD, will be filled with the remaining waste mined in SGD that is not sent to the SGA North waste dump.
- Sabali waste dump: Located to the east of the Sabali North and Central pits, this dump will be filled with the waste from these pits.
- Sabali South waste dump: located adjacent to the southern pit exits of Sabali South pit, this dump will be filled with all the waste from Sabali South.

The designs, volume and sequence of waste dumps are described in Section 16.

A general layout showing the location of the waste dumps and key mining infrastructure is shown in Figure 18.1.

Figure 18.1 Layout of key mining infrastructure




Source: AMC, 2023.

## 18.3 Tailings storage facilities

Epoch was commissioned by SMG to undertake the detailed design of the new TSF, based on work carried out in the 2022 PFS and supplementary work and studies carried out since the 2022 PFS design. The work completed by Epoch is documented in the report "*Kiniero Gold Mine Detailed Design of TSF*" (Epoch, 2023).

The proposed TSF is required to accommodate 36 Mt of tailings over a LOM of 12 years, at a rate of 250 ktpm (3 Mtpa). The required storage volume for the tailings has been calculated based on an estimated average in situ dry density of the tailings product of 1.39t/$m^3$, a particle SG of 2.77 t/$m^3$, and an estimated average in situ void ratio of 1.

The tailings will be pumped to the TSF in a slurry comprising 45%-55% solids by mass. At an estimated particle SG of 2.77 t/$m^3$, the slurry density will be between 1.40-1.54 t/$m^3$.

The proposed TSF site has been selected as the preferred site for the development of the Kiniero Mine TSF based on the evaluation of the candidate sites. The TSF site was selected due to:

- The reduced rock/earth fill volume required to construct the main embankment of the TSF.
- The opportunity for phasing the TSF allows for the capital expenditure of the TSF construction to be spread over 3 phases (1A, 1B, and 2).
- The site allows for a facility that would be 27 m high, fully lined with a downstream raised full-containment wall, leading to potentially fewer failure modes to the TSF.
- The elevation to the processing plant is more favourable than other options and avoids the need for a deposition line to run over the large ridge between the existing TSF and other site options, which is favourable in terms of pumping costs.
- The site would be less exposed during operational and closure phases.
- Rehabilitation and closure of the TSF lends itself to relatively simple closure principles, where the long-term storage of water to the TSF could be avoided, utilizing existing stormwater diversions to direct surface runoff away and off of the TSF. The relatively smaller downstream embankment surface area for the TSF would require less material for the rehabilitation and vegetation of downstream slopes to the TSF.

### 18.3.1 Information used to support TSF design

- A number of studies have been undertaken to help inform the TSF design, these have included:
- Characterization of the tailings particle size distribution, strength properties, and hydraulic conductivity.
- Assessment of tailings geochemistry and pollution potential.
- Surface water hydrology and definition of storm events.
- Site specific geotechnical investigation.
- Hydrogeological Studies Contaminant Transport modelling for the Project area.
- Seismic assessment.

The geochemical characterization tests included whole rock analyses and static tests. These were used to make a relative assessment of the risk associated with the material composition with regard to leachable concentrations in comparison against the Guinea Standard, as well as World Health Organisation (WHO) and IFC Environmental, Health and Safety (EHS) guidelines.

The surface water assessment was conducted by Peens and Associates with the objective of defining monthly average rainfall and evaporation figures for use in the water balance calculations for the TSF. The assessment also defined the storm events for a range of durations and recurrence intervals, as called for by the Global Industry Standard on Tailings Management (GISTM) guidelines, published by the International Council on Mining and Metals (ICMM).The assessment has yielded estimates of design rainfall as a function of recurrence interval and event duration as shown in Table 18.6.

Table 18.1 Design rainfall as a function of recurrence interval and event duration

| **Event Duration (days)** | **Recurrence Interval (years)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **2** | **10** | **20** | **50** | **100** | **200** | **500** | **1000** | **10000** |
| | **P [Occurrence] Based on Planned Life of Facility** | | | | | | | | |
| | 100% | 72% | 46% | 22% | 11% | 6% | 2% | 1% | 0.1% |
| | **Rainfall (mm)** | | | | | | | | |
| **24 hours** | 86 | 128 | 145 | 168 | 187 | 207 | 233 | 255 | 331 |
| **3** | 125 | 182 | 205 | 234 | 257 | 281 | 311 | 335 | 410 |
| **5** | 154 | 215 | 239 | 270 | 296 | 321 | 353 | 379 | 459 |
| **7** | 179 | 251 | 280 | 317 | 347 | 376 | 415 | 446 | 540 |
| **30** | 398 | 542 | 591 | 652 | 698 | 741 | 797 | 839 | 976 |

Source: Epoch, 2023.

A probabilistic seismic hazard assessment (PSHA) and a deterministic seismic hazard assessment (DSHA) have been carried out for the Kiniero TSF to determine estimated seismic design parameters for the analysis of the TSF. The PSHA has been carried out as per the GISTM guidelines (ICMM, 2020) with respect to return periods for the various consequence classifications for which seismic ground motion parameters are evaluated.

The Kiniero TSF is on the West African Craton which had, for a time, been considered to be aseismic. The GISTM guidelines require, however, that the potential for seismicity and the resulting peak ground accelerations at the TSF site be incorporated into stability assessments of the facility.

The DSHA has concluded that the site is infrequently seismic and that the PGA associated with the earthquake that took place in Guinea in 1983 of magnitude Ms 6.2 (Langer & Bollinger, 1985) would be 0.0017g. The PSHA has determined a range of peak ground acceleration (PGA) values to be applied to the analysis of the facility based on its consequence classification as shown in Table 18.2.

Table 18.2 Results of PSHA as a Function of consequence classifications (ICMM, 2020)

| **Consequence Classification** | **Seismic Criteria – Annual Exceedance Probability** | | **Determined PSHA Peak Ground Acceleration Values** | |
|---|---|---|---|---|
| | **Operations and Closure (Active Care)** | **Passive-Closure (Passive Care)** | **Operations and Closure (Active Care)** | **Passive-Closure (Passive Care)** |
| Low | 1/200 | 1/10,000 | 0.0017g | 0.0501g |
| Significant | 1/1,000 | 1/10,000 | 0.0075g | 0.0501g |
| High | 1/2,475 | 1/10,000 | 0.0178g | 0.0501g |
| Very High | 1/5,000 | 1/10,000 | 0.0305g | 0.0501g |
| Extreme | 1/10,000 | 1/10,000 | 0.0501g | 0.0501g |

Source: Epoch, 2023.

A stage capacity analysis has been carried out on the TSF to confirm its capacity to store the LOM tailings production and to serve as the basis for the formulation of a site development strategy. The results of the analyses are summarized in Table 18.3, based on a LOM of 12 years and a tailings deposition rate of 250 ktpm (3 Mtpa) and an in-situ dry density of 1.377 t/$m^3$. The analyses show that, in order to satisfy the tailings storage requirements:

- The TSF would be developed to a height of 27 m.
- The TSF would terminate with a final rate of rise of 0.97 m/yr.

The height of the TSF as well as the rates of rise within each phase are considered to be well within accepted norms for the development of a TSF.

Table 18.3 Summary of stage capacity calculations for the Kiniero TSF

| Parameter | Units | Phase 1A | Phase 1B | Phase 2 | Total |
|---|---|---|---|---|---|
| Storage Capacity | yrs | 2.5 | 1.6 | 7.9 | 12 |
| Datum Level | m.a.m.s.l. | 408 | 408 | 408 | 408 |
| Max Crest Elevation | m.a.m.s.l. | 425 | 425 | 435 | 435 |
| Max Height above Datum | m | 17 | 17 | 27 | 27 |
| Phased TSF Capacity | Mt | 7.5 | 4.9 | 23.8 | 36.2 |
| Phased TSF Capacity | $10^6 \times m^3$ | 5.4 | 3.5 | 17.2 | 26.16 |
| Tailings Crest Area | ha | 72.19 | 133 | 237 | 237 |
| Footprint Area | ha | 94.5 | 143 | 270 | 270 |
| Terminal Rate of Rise | m/yr | 2.59 | 2.36 | 0.97 | 0.97 |

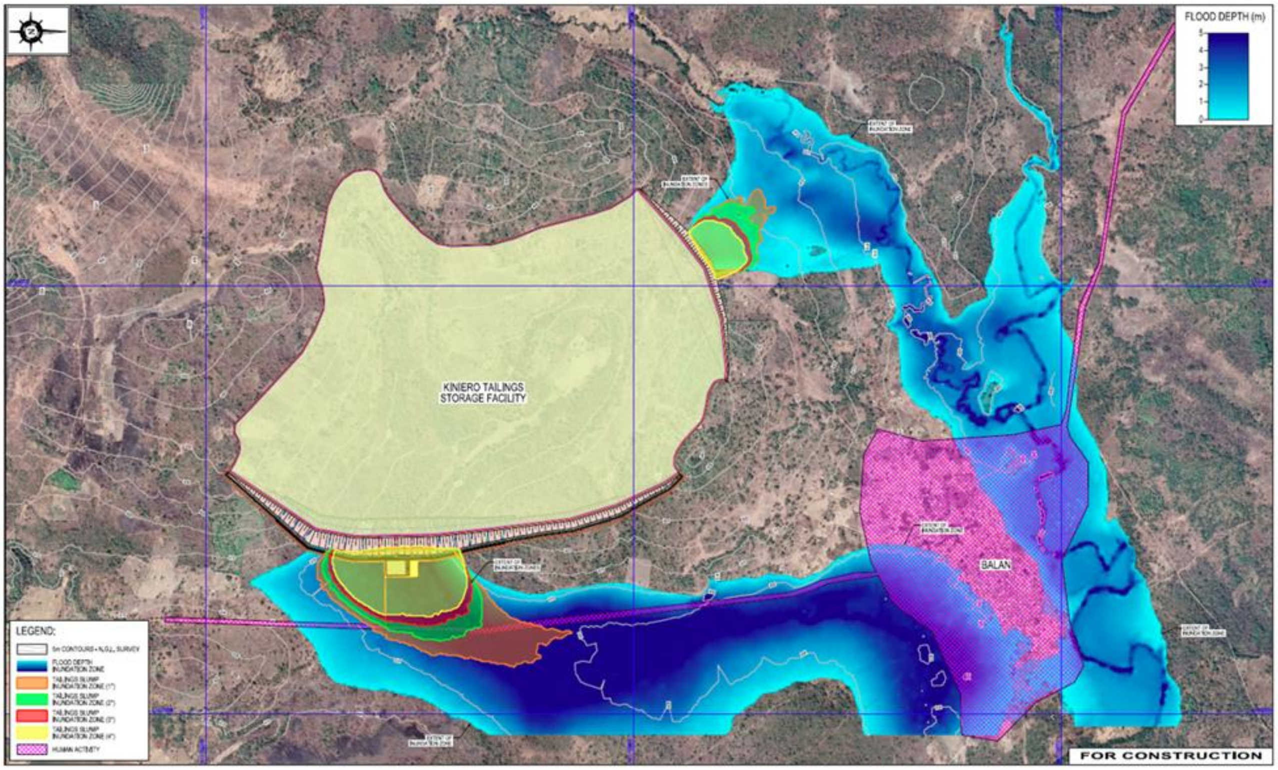
Source: Epoch, 2023.

### 18.3.2 Consequence classification

Figure 18.2 shows the total inundation zone for the TSF. The Process 1 outflow indicates that the inundation zone from both the eastern and northern breaches would result in an outflow wave following drainage paths to the north of the TSF toward the village of Balan and toward the Niandan River. The process water contained on the TSF would be diluted by the influx of rainwater stored on the facility during the “rainy-day” scenario and would likely be diluted by surface water runoff entering water courses flowing toward Balan.

The analysis has included an outflow boundary condition to the east of Balan where surveys are no longer available. The outflow boundary condition is intended to prevent flow backing up within the model and may give perceived increases in flow velocity. The Process 2 outflow results are depicted in Figure 18.2 for both the northern and eastern breach assessments and indicate the extents of tailings slump failures for outflow slopes of 1°-4°. The results indicate inundation areas which would require post-breach clean-up by means of a mechanical operation.

Figure 18.2 Project TSF zone of influence




Source: Epoch, 2023.

The requirements for the design of TSF as specified by the GISTM (ICMM, 2020) are a function of a Consequence Classification Matrix, which is intended to provide a consistent manner with which to establish minimum external loading design criteria for the safe design of tailings facilities and also provides a basis for recommended management and governance frameworks.

The estimated Population at Risk (PAR) has been broken down for each considered area (Main Road, Balan, and areas immediately downstream of the TSF). The population of Balan is based on the population census included in Insuco's social baseline assessment (Insuco, ABS, 2022). It is noted that although these areas have been used to arrive at a conservative PAR, the majority of structures in Balan are outside of the zone of inundation for both breach assessments. The total estimated population at risk, based on the assessment as described, is between 842 and 945 for the eastern and northern breach areas respectively.

The estimated PAR has been used in the assessment of potential fatality rates which have been assessed considering the U.S Department of the Interior Bureau of Reclamation estimates the consequences from dam failure through empirical interpretation of dam failure and flood event case histories (RCEM Methodology). The factors that influence the fatality rate includes the flood severity, warning time, and flood severity understanding.

Fatality rates are particularly sensitive to warning given to areas within the inundation zone. As a result, the fatality rate has been assessed separately for fatality rates associated with "little or no warning" as well as fatality rates associated with "adequate warning" to demonstrate the importance of TSF monitoring systems, emergency planning, and downstream warning systems.

The management and mitigation of risk associated with flood severity assessments would form part of the mine's responsibility in complying with the standard to implement an Emergency

Preparedness and Response Plan (EPRP) which is intended to "*Provide a detailed, site-specific plan developed to identify hazards of the tailings facility, assess capacity internally and externally to respond, and prepare for an emergency and to respond if it occurs.*" (ICMM, 2020).

In the case whereby "Little to No Warning" was given to residents downstream of the TSF in the town of Balan, the estimated fatality rate resulting from a breach of the TSF was estimated to be 80 people and would result in a Very High consequence classification. In the case whereby "Adequate Warning" was given to residents downstream of the TSF in the town of Balan, the estimated fatality rate resulting from a breach of the TSF was estimated to be three people and would result in a High consequence classification, illustrating the importance of monitoring of the TSF and the development and implementation of early warning systems.

It is intended that a combination of proactive and reactive systems will be implemented to provide early warning of any problems experienced on the TSF, as well as to ensure that emergency response and preparedness plans are timeously activated, should the need arise. It is expected that measures to implemented together with the development of the proposed TSF. It is proposed that downstream berms be constructed by the mine from chemically stable waste rock from mining operations to add further mitigation controls in the interest of protecting downstream populations. These measures, if adequately designed, may further reduce the consequence classification of the facility by mitigating the severity and direction of estimated flood waves.

Epoch has consulted ABS to assess the zones of inundation (ZoI) from an environmental, health, cultural, and social perspective. Their assessment has supplemented the consequence classification considerations based on global industry standard on tailings management (ICMM, 2020).

In consideration of the inundation areas and the consequence criteria outlined by the GISTM, the TSF is considered to have a consequence classification of Very High based on the number of residents in Balan who may be affected (PAR) by a release of tailings.

Although the TSF has been assigned a consequence classification of Very High, it must be noted that with the correct implementation of extensive monitoring and early warning systems, the consequence of a breach with respect to loss of life could be lowered to a High consequence classification.

Based on the assessment, Epoch has recommended that:

- The TSF be classified as a having a Very High consequence of failure and that it be designed, constructed, and operated in accordance with the requirements for such a facility, with specific reference to:
  - Minimizing the storage of excess slurry water and stormwater runoff.
  - The development of a comprehensives set of Trigger Alert Response Plans to facilitate the monitoring and management of excess water storage and slope stability.
  - The implementation of a comprehensive system of monitoring instrumentation and inspections to ensure that any potential instability of the facility is detected.
  - The development of an EPRP.
- A series of attenuation berms and diversion walls be constructed so as to mitigate and channel the effects of a potential release of tailings from the facility, with the intention of further reducing the population at risk (PAR) and the potential for loss of life.
- The DBA and associated consequence classification be reviewed, and updated as necessary, on an annual basis.
- Measures be taken to improve the accuracy of the DBA and consequence classification by, for instance:

- Extending the survey to the area to the east of Balan to improve the accuracy of the assessment in that area.
- Rheology testing: performing laboratory tests on the tailings' material to determine rheological properties unique to the product processed by the plant, to provide updated data which can be used in future dam-breach analysis updates.
- Assessment of the liquefaction potential of the tailings deposited to the TSF to either confirm the assumption that the tailings have the potential to liquefy or indicate that a new approach may be taken in the assumptions made in the modelling of the outflow of tailings.

- This document be incorporated into the EPRP for downstream villages and any immediate downstream infrastructure within the indicated inundation zone.
- The facilities should be monitored on a regular basis to ensure early warning systems are in place and that updates and insight to the design can be implemented on a regular basis.

### 18.3.3 TSF design

The design of the proposed TSF has been based on the stage capacity analysis, site development plan, and consequence classification and has included:

- Water balance calculations to estimate rates of excess slurry and stormwater runoff and associated capacity to supply the plant with process water. These calculations illustrate that:
  - In the dry season (November–April) between 35% and 50% of the slurry makeup water requirement could be returned to the plant, depending on the efficiency with which the water is returned.
  - In the wet season (May–October) there will be periods when the plant makeup water requirements can be satisfied by water returned from the TSF.
  - Based on rainfall depths of between 410 mm for a three-day event of 10,000-year recurrence interval, the TSF has been assessed to contain the associated runoff of approximately 973,064 $m^3$.
- Design of embankments to the TSF and its associated foundations.
- Design of a system of box-cut drains to the eastern TSF containment embankment to limit any seasonal build-up within the embankments foundations.
- Design of a system of elevated toe drains to the TSF to enable drainage and consolidation of tailings.
- Design of an elevated crest drain to the Phase 1 embankment anchor trench to optimize the use of the anchor trench with a second drain to the TSF.
- The selection of a suitable containment barrier to the TSF comprising a 300 mm clay layer underlying a 1,500 micron, textured (single-sided), electrically conductive HDPE geomembrane.
- The design of a curtain drain within the eastern containment embankment as a measure to reduce the build-up of a phreatic surface within the wall should the containment barrier be compromised for whatever reason.
- Design of leakage detection drains to monitor the performance of the containment barrier to the TSF.
- Design of surface water diversions to the external catchments of the TSF.
- Design of a seepage sump to collect seepage water conveyed from the TSF.
- Design of an emergency and post closure spillway to the TSF.

A containment barrier has been selected for the TSF based on the Class C containment barrier as described by (NEM:WA GN 635 (Act No. 59 of 2008)) which comprises a layer system of the following (from the bottom-up):

- Base preparation layer to include an underdrainage and monitoring system.
- 300 mm compacted clay layer (in 2 mm by 150 mm thick layers).
- 1.5 mm thick HDPE geomembrane.
- 100 mm silty sand protection layer or geosynthetic of equivalent performance.
- 300 mm thick finger drain of geotextile covered aggregate.
- Waste body/tailings.

Although the permeability requirements of the compacted clay layers of a Class C lining system are not specified in (NEM:WA GN 636 (Act No. 59 of 2008)), the Act does reference similar performance standards for lining systems design in accordance with the Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998) which require the clay layer to be specified such that:

- Each layer comprises a 150 mm thick compacted clay-liner layer.
- The layer must be compacted to a minimum density of 95% Standard Proctor maximum dry density at a water content wet of optimum moisture +2%.
- Any soil used for a compacted soil liner must have a minimum Plasticity Index (PI) of 10 and a maximum that will not result in excessive desiccation cracking.
- The maximum particle size must not exceed 25 mm.
- Interfaces between clay layers must be lightly scarified to assist in bonding the layers together.
- The measured outflow rate must not exceed 1E-08 m/s.

HDPE liner permeabilities have been selected (Table 18.4) based on guidance by the International Commission on Large Dams (ICOLD, 2010) and work by John Scheirs on Polymeric Geomembranes (Scheirs, 2009).

Table 18.4 Selected containment barrier composition for TSF

| **Class C Barrier with 1.5 mm HDPE Liner** | | |
|---|---|---|
| **Layer Description** | **Estimated Permeability (m/s)** | **Layer Thickness (m)** |
| Tailings | 6.81 E-09 | 29 |
| 1.5 mm HDPE Liner | 1E-12 | 0.0015 |
| 150 mm Compacted Clay Layer | 1E-08 | 0.15 |
| 150 mm Compacted Clay Layer | 1E-08 | 0.15 |
| **<1E-08m/s** | | |

Source: Epoch, 2023.

A compacted foundation layer with a geosynthetic liner has been proposed as a containment barrier for the TSF. The facility is to be fully lined with a 1,500 micron, textured (bottom-side) HDPE liner with an electrically conductive base. The liner will be required to conform to the latest GRI-GM 13 specifications at the time of order and will be required to resist any acidic solution potentially formed within the TSF and be required to be of a permeability low enough to mitigate leachate flow into the groundwater stream.

The geometry of Kiniero TSF stability assessment has been considered using selected cross-sections of the TSF. The stability assessment informing this Technical Report, does not contain all information required to conduct an in-depth stability assessment of the TSF. Sufficient information was available to conduct an initial assessment which has comprised information from the TREM engineering factual report (TREM, 2023) as well as laboratory testwork from STL on tailings samples and gradings of material intended for embankment construction and engineered fills. At the time of the assessment, results from the TREM site investigation were yet to be disclosed in its final report. Geotechnical parameters for stability modelling have thus been assumed based on borehole logs and test pit profiles of the site along with typical properties commonly experienced with these materials. The strength parameters of the available waste stockpile material have not yet been assessed and the assumption has been made that the identified stockpile material would be of suitable physical characteristics for the construction of the containment embankment. Stockpile material is currently undergoing laboratory testing to confirm these assumptions.

Results of the initial stability assessment of the Kiniero TSF showing the factors of safety (FOS) are given below in Table 18.5.

Table 18.5 Results of Kiniero stability assessment

| Assessment | Functional Drains | Blocked Drains | Pseudo-Static |
|---|---|---|---|
| Phase 1 Drained Assessment | 2.033 | 2.023 | 1.724 |
| Phase 1 Undrained Assessment | 1.745 | 1.744 | 1.520 |
| Phase 2 Drained Assessment | 1.912 | 1.878 | 1.613 |
| Phase 2 Undrained Assessment | 1.743 | 1.742 | 1.523 |
| Phase 2 Top Liner Tear Drained | 1.909 | 1.577 | 1.613 |
| Phase 2 Top Liner Tear Undrained | 1.746 | 1.518 | 1.300 |

Source: Epoch, 2023.

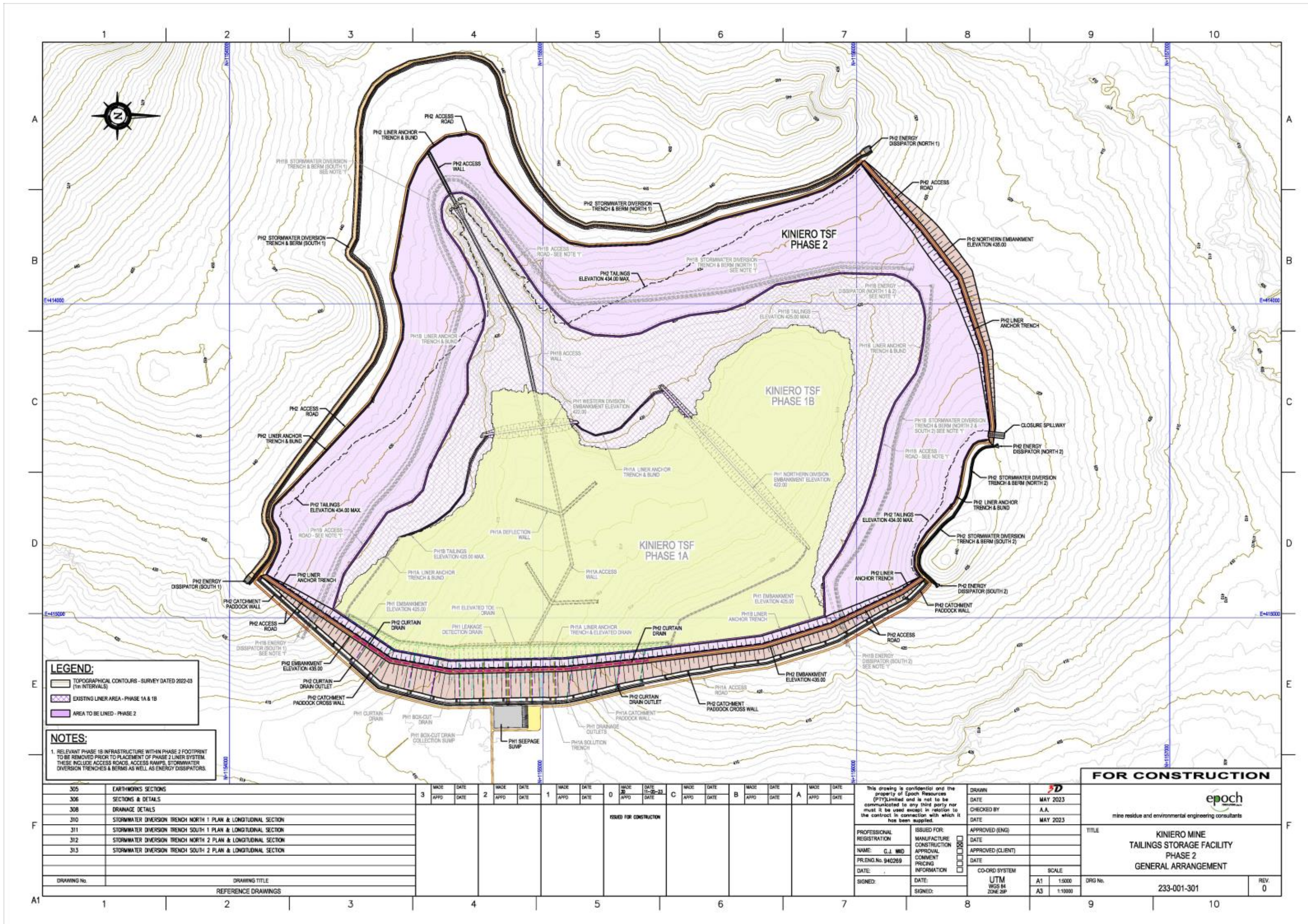
From the initial assessment, all loading conditions present acceptable FOS.

The TSF will be constructed as a phased, fully lined, full containment facility, commencing with deposition from the crest of the TSF containment embankment. The construction of the facility will incorporate:

- Site clearance and topsoil stripping.
- The construction of the TSF containment embankment.
- The construction of the Phase 1A division walls.
- The installation of a box-cut drain to limit seasonal build-up within the foundations to the TSF embankment.
- The installation of an elevated toe drain to the inside toe of the southern TSF embankment to promote the consolidation and settlement of tailings and control the phreatic surface within the TSF.
- The installation of an elevated crest drain to the Phase 1 embankment anchor trench.
- The installation of a curtain drain within the southern containment embankment.
- The supply and installation of a slurry delivery system to the perimeter of the TSF.
- The construction of a pool access wall to the facility to facilitate the return of excess slurry water and stormwater runoff by a pumping mechanism.
- The installation of a containment barrier to the TSF under strict QA/QC supervision, comprising an HDPE geomembrane and compacted layer of low-permeability clayey material.
- The construction of surface water diversion and containment systems to ensure the separation of clean and dirty water runoff.
- The construction of a perimeter access road to the TSF and associated dams.

A plan showing the final Phase 2 general arrangement is shown in Figure 18.3.

## Figure 18.3 Kiniero TSF general arrangement




Source: Epoch, 2023.

## 18.4 Water supply

Water for operations is to be sourced from the proposed TSF (prioritized), dewatering of historical pits, and boreholes.

As part of the environmental studies completed and the hydrological surveys, all water sources were sampled, and water-quality tested. The water quality results were compared to World Health Organisation (WHO) drinking water standards as well as the International Finance Corporation (IFC) effluent standards of 2007. According to these, the water quality of all the sources comply with the standards required for industrial water discharge and are thus suitable for use during operations, with the exception of the TSF return water which is to be isolated within the process water circuit.

Water from the TSF will be returned to the processing plant as process water via a dedicated pumping system.

Based on the water qualities of the Sector Gobelé A complex pits and the Jean complex pits, dewatering of these areas can be done directly into the raw water catchment dam from where it is to be pumped to an elevated raw water header tank system. If the raw water catchment dam is at full capacity, dewatering activates can continue by releasing into the adjacent stormwater trench surrounding the existing TSF from where it will flow to the TSF stormwater catchment system.

Borehole water will be prioritized for use as potable water supply, particularly at the accommodation camps. Only excess borehole water from pit dewatering activities will be released into the process water supply system.

Potable water will be required for the mine site camp, contractors camp, and the Robex village camp during operations and construction via boreholes.

Allowance has been made for the procurement and installation of five industrial Reverse Osmosis (RO) units. The units are commercial off-the-shelf designs and will be connected to existing potable water storage and distribution infrastructure. The RO units for the camps will be supplied from existing boreholes near each camp.

## 18.5 Power supply and electrical

The Project is located at a remote location near to the Kiniero village in the Kouroussa region. The Guinea national grid is not available to the Project; thus an on-site power generation solution is required.

This solution will consist of a diesel-solar and battery storage hybrid power plant consisting of diesel generators with a capacity of approximately 13,286 kW, a Solar Photo-Voltaic (PV) plant with total capacity of approximately 18,030 kWp/14,400 kW and the Battery Energy Storage System with a capacity of 06 MWh/12 MW.

The benefits of the hybrid system include:

- Reduced carbon footprint relative to a thermal-only power solution.
- Lower energy costs.
- Reduced diesel consumption and thus less transport of diesel required (reduced traffic load).
- Enhanced security of power supply.

The hybrid power plant has been developed based on Vivo Energy providing power as an Independent Power Producer (IPP). Vivo Energy will be responsible for all energy requirements of the mine. The diesel generator will be the prime source of power supply. The PV battery plant will be displacing the thermal generation by up to 40% during the solar hours with support from a battery energy storage system (BESS). The PV battery and diesel generator plant will be connected directly to the main switchboard of the mine at a high voltage of 15 KV through a dedicated power line infrastructure. The distribution will supply the camp, plant, mining workshops, and TSF via the mine's main switchboard. The general layout of the proposed Project power facility is presented in Figure 18.4.

Figure 18.4 General infrastructure layout for Project power facility


Source: Vivo Energy, 2022.

### 18.5.1 Basis of design

The proposed power facility has been designed and simulated according to the following design criteria (Table 18.6) and weather criteria (Table 18.7), which has been applied to the requisite equipment selection.

Table 18.6 Power supply design criteria

| **Parameter** | **Units** | **Value** |
|---|---|---|
| Design lifetime | Years | ≥15 |
| Design ambient temperature | °C | ≤40 |
| Design elevation above sea level | m | <473 |
| Design wind speed | m/sec | ≤44 |
| Design maximum rainfall | mm/month | 386 |

Source: Vivo Energy, 2022.

Table 18.7 Power supply weather design criteria

| **Month** | **Global Horizontal Irradiance (kWh/m²)** | **Diffused Horizontal Irradiance (kWh/m²)** | **Temp (°C)** | **Wind Speed (m/sec)** | **Relative humidity (%)** | **Rainfall (mm)** |
|---|---|---|---|---|---|---|
| January | 179.1 | 159.0 | 25.8 | 2.7 | 31 | 2 |
| February | 173.3 | 133.8 | 28.4 | 2.7 | 28 | 2 |
| March | 189.5 | 119.8 | 30.3 | 2.8 | 35 | 22 |
| April | 181.8 | 107.3 | 29.9 | 3.1 | 46 | 56 |
| May | 182.7 | 113.5 | 27.8 | 2.8 | 60 | 129 |
| June | 162.6 | 96.4 | 25.7 | 2.6 | 71 | 197 |
| July | 156.7 | 91.0 | 24.7 | 2.6 | 80 | 252 |
| August | 153.6 | 90.2 | 24.3 | 2.6 | 85 | 331 |
| September | 163.7 | 109.1 | 24.6 | 2.1 | 84 | 330 |
| October | 176.2 | 128.4 | 25.2 | 1.8 | 78 | 170 |
| November | 171.9 | 149.7 | 25.6 | 2.0 | 61 | 36 |
| December | 175.1 | 164.7 | 25.3 | 2.4 | 40 | 6 |
| **Annual Total/Average** | **2066.3** | **1,462.9** | **26.5** | **2.5** | **58** | **1,533** |

Source: Vivo Energy, 2022.

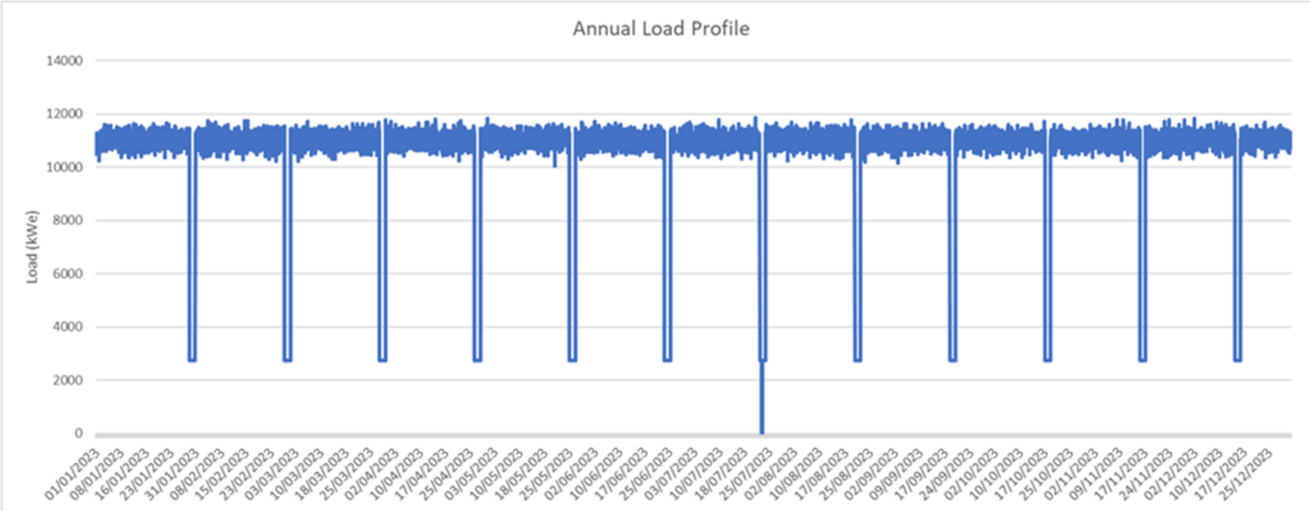
#### 18.5.1.1 Load profile

Vivo Energy adopted a load profile comprising the following parameters:

- Average power (steady-state): 11,033 kWe.
- Average power: 10,555 kW.
- Peak power: 11,850 kW.
- Outage hours: 504 hours.

A visual representation of the load profile over a one-year cycle is presented in Figure 18.5, with mine outages taken into consideration.

Figure 18.5 Annual load profile – annualized (kW)




Source: After Vivo Energy, 2023.

#### 18.5.1.2 Facility overview

The proposed power generation plant for the mine comprises the following main plant subsections:

- Solar PV plant: 18.03 MWp/14.4MWac.
- BESS plant: 12MW/6MWh
- Thermal power plant: 13286kWe.
- Balance of plant.

The PV plant will be located to the south of the main mine infrastructure footprint, secured by a perimeter fence with an inner fence in individual locations. The energy produced from this PV plant will be transmitted via an overhead power line at a voltage of 15 KV that will be connected to the main switchboard of the mine. The thermal power plant, as well as the BESS plant, will be located adjacent to the mine's main switchyard and connected independently to the main switchboard. The Diesel – Solar Hybrid power plant "Facility" will produce sufficient energy to cater for the mine's power requirements without creating power quality imbalances, whilst maximizing process plant up-time. The balance of the PV plant infrastructure will convert all the subsections of this facility to a common 15 kV connection voltage. A hybrid controller, or Energy Management System (EMS), has been proposed to coordinate the energy being exported by the solar PV, BESS, and thermal power plant, respectively. The EMS will be parameterized to always maximize the export of solar and BESS energy, whilst increasing the reduction of carbon emissions and reliability of the mine's internal grid.

The proposed facility will consist of a PV plant, with an installed capacity of 18.03 MWp and a potential output capacity of 14.4 MWac, that will be constructed on a level ground surface approximately 31 ha in area. The PV plant will comprise predominantly solar modules, a tracker structure, inverters, and an electrical balance of the plant. The power produced by the solar modules is based on DC power. Inverters are required to convert the DC power into alternating current (AC) power to be used by the Project. String inverters have been proposed on this concept which are more efficient, simple to install, and provides more flexibility of changing an inverter with a spare quickly and easily should an unrepairable fault occur, thereby restoring the power in rapid time. The string inverter concept also provides maximum redundancy to the plant. If any one inverter fails, only that array/strings of modules connected to that particular inverter will stop production (250 KW) and the balance power will be flowing to the mine.

All power exported from the string inverters at the solar PV plant will be combined onto LV panels, or mini substations, to minimize the quantity of connection points to the step-up transformers, forming a power block of 5 MVA. Each of the power blocks' transformers will convert, or step-up, the AC power from a double pole 800 Vac to 15 kVac. The MV Station will integrate all power blocks to provide an output to the Project at the interconnection point. The revenue metering for the PV plant will be located with the output terminals of the feeder switchgear at the fence line of the solar PV plant.

The BESS will consist of a 12 MW Power Conversion System (PCS) and a 6 MWh battery. Two 6 MVA step-up transformer stations will be installed to convert the lower AC voltage from the PCS to the required 15 kV. The proposed BESS technology is based on lithium-ion battery technology.

The approximate general arrangement of the proposed thermal and BESS plant is shown in Figure 18.6.

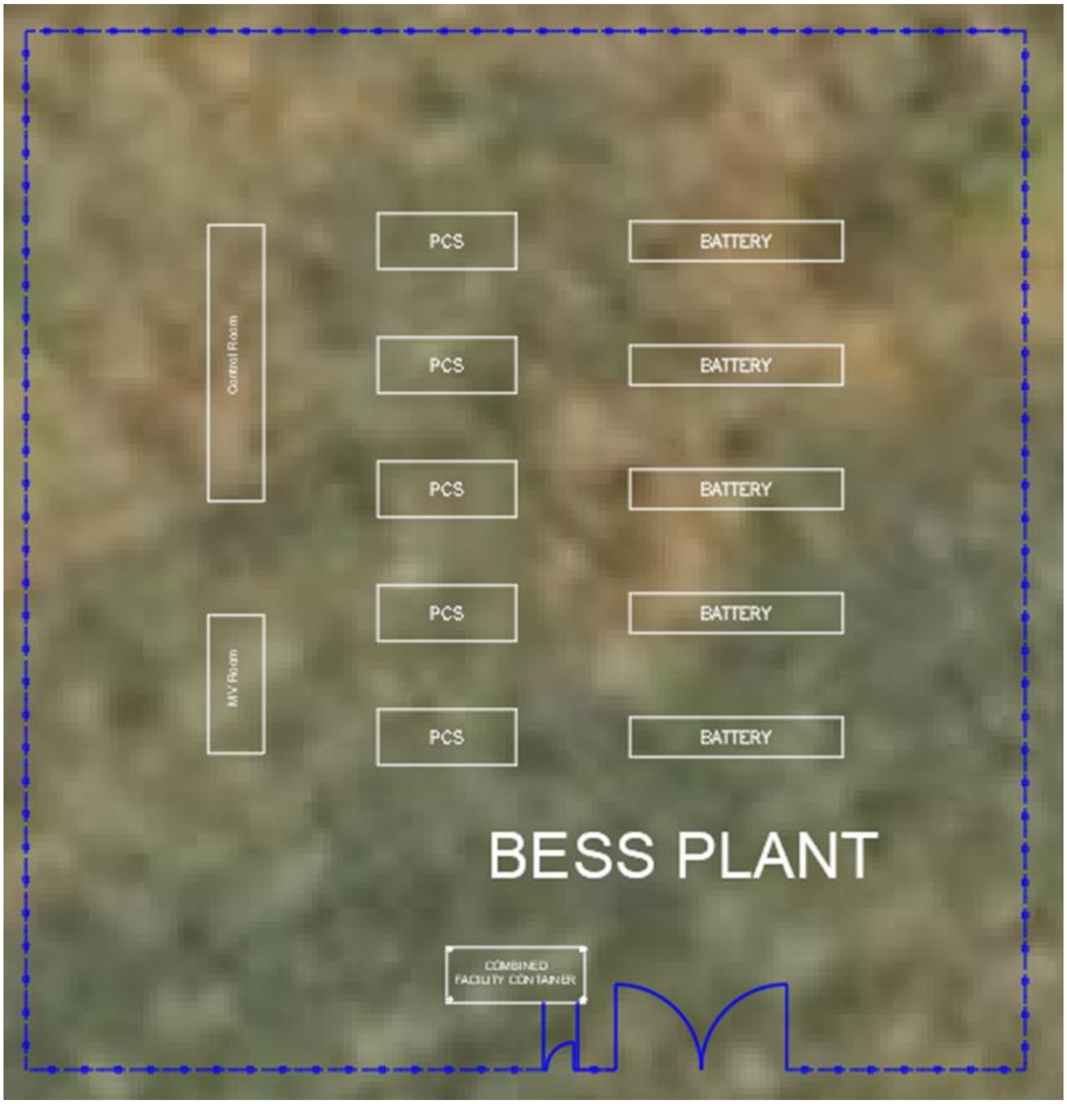
The proposed BESS will provide a few services that include, but are not limited to, the following:

- Spinning reserve.
- Frequency regulation.
- Voltage support.
- Capacity smoothing during bad weather conditions transitioning the plant from thermal to solar at sunrise, and vice versa at sunset.
- Grid forming.

In addition, the BESS will be capable of supporting daily smooth parallel operation from solar to thermal power when the sun starts setting, and again for when the sun starts rising, from thermal power to solar power. In the event of a diesel engine stopping unexpectedly, the BESS will carry the deficit of the charge, and provide the necessary energy while the EMS allows for the diesel engine to start-up. Once the diesel engine has restarted and achieved the load requirements, the BESS will ease off and be charged with solar energy when/if available.

The battery will be charged solely from the power coming from the PV Plant. This power will enter the PCS on the AC side whereupon the PCS will convert this AC power to DC power through rectifiers in order to charge the battery. When power is required from the BESS, power from the battery will enter the PCS on the DC side and the PCS will convert this DC power to AC power through its inverters. The output from the PCS will be connected to a 6 MVA step-up transformer. This step-up transformer will convert the 400 V coming from the PCS to 15 kV.

Figure 18.6 General arrangement of the thermal and BESS plant




Source: Vivo Energy, 2023.

The thermal power plant will be located adjacent to the BESS plant, next to the mine's main switchyard. The thermal power plant concept will comprise 14 diesel engines, each with a capacity of ~1,000 KVA. As such a total installed thermal capacity of 14,000 kVA has been designed with an engine baseload redundancy of N+2. This allows the thermal power plant the capacity to provide the peak power demand when major loads are being started, whilst still having an engine on standby, which can also be used when other engines are being serviced. Should more power be required when an engine is being serviced/overhauled, then the EMS will engage the BESS to provide the required temporary additional power demand.

The thermal power plant will be equipped with a day tank-storage capacity of 2x 60 M3 diesel volume to ensure availability of fuel for uninterrupted operation. The governors and the control system of the diesel power plant are automated and completely synchronized with the mine main power distribution system. The engines capacity is determined so that even during the PV operation, a minimum capacity of engines will be operational to ensure power supply to the mine, and to provide reference voltage to the PV system to generate and push power into the micro grid.

A hybrid controller or EMS has been proposed that encompasses all the power generation nodes in a redundant control module to ensure EMS maximum uptime. The EMS is responsible for:

- Interrogating the mine's load in real-time and through high-speed controllers, to engage the necessary generation nodes through an algorithm that provides the lowest cost of energy at any point in time.
- Maximizing the export of solar energy provided this energy is available with the support of the BESS to always maximize the export of renewable energy.
- Making sure that the mine's internal power grid always remains in balance.
- Improving the reliability of the mine's internal power grid.

The Project will require an EMS that is able to engage a large amount of power generation nodes, whilst monitoring numerous load circuits.

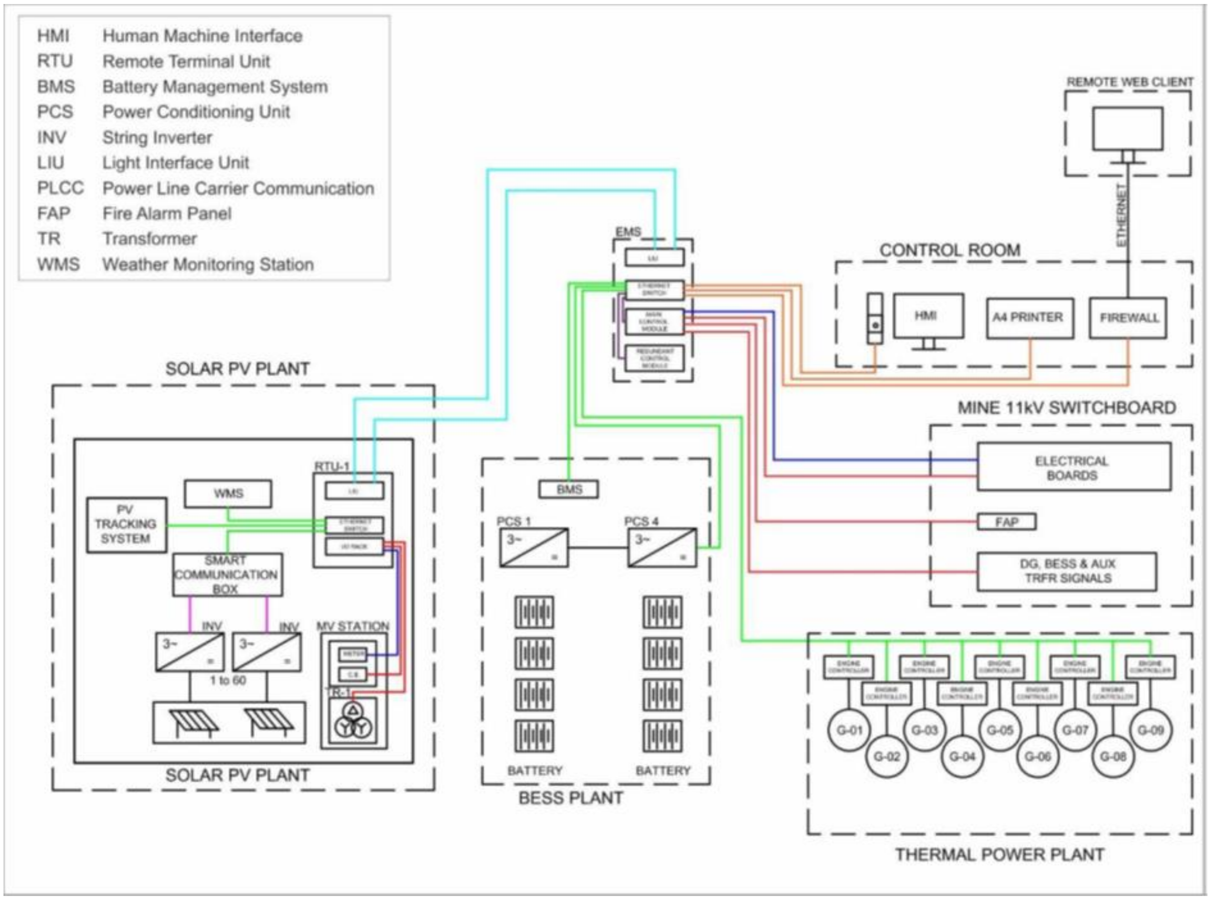
The EMS and supervisory control and data acquisition (SCADA) system will be located in a control room to be equipped with air conditioning and the necessary fire protection. The EMS and the SCADA system will interface to:

- Each of the diesel engines at a central cubicle located in the same control room using a communication cable.
- The PV plant, weather monitoring station, MV Station, and tracker system.
- The BESS plant, including the PCS, battery, and MV Station.
- Metering points at the interconnection point.
- Metering point/s at the Kiniero Mine load.

All the EMS equipment (Figure 18.7) will be located at the control room, and will comprise:

- Main control cabinet. The EMS will adopt the different algorithms specific to the diesel engines, the solar PV or the BESS. The EMS parameters are to be stored in the control cabinet due to the plant optimizations during the performance testing phase of the Project.
- Redundant control cabinet. A replica of the main control cabinet that will resume control if the main control cabinet fails. This will ensure that the EMS is online permanently.
- Ethernet switch which allows for the interface of all the equipment (as described above) to one point.
- Workstation which functions as a scheduler and as the software interface to the EMS. The workstation allows the operator to set the priority of generation, adjust operating parameters, and adjust thresholds.
- Web router, allowing for the interface to the cloud whereby data can be uploaded to a remote control room and adjustments made from a remote location.
- Logging and reporting, provided through an historian whereby custom-made reports and recorded data is stored indefinitely for analyses and further optimization.

Figure 18.7 Schematic of typical architecture for EMS




Source: Vivo Energy, 2023.

## 18.6 Fuel supply and storage

The Project (diesel) requirements are based on the fleet operations, mine operations, and the power plant consumptions. The remote site location warrants a need for reliability in supply and storage capacities. Vivo Energy will be responsible for the design, transportation to site, construction of a fuel farm, light vehicles and heavy vehicles fuel supply station, fuel dispensing systems, erection and installation of power plant fuel depot, and any interconnection facilities and ancillary equipment for the delivery of diesel to the relevant dispensing points. This includes all specifications and all applicable codes and standards, completion, start-up, testing, and commissioning of the storage facilities. Furthermore, Vivo Energy will be in charge of managing the entire logistics of fuel supply to the mine on a continuous basis, and taking care of the operation and maintenance of the storage facilities at site. The fuel supply will commence from the construction phase of the mine using self-bunded storage tanks. As the mine progresses towards the operation phase, there would be a permanent fuel depot constructed and operated by Vivo Energy.

The construction of the fuel storage facility will occur in two phases:

- Phase 1: During the construction period until the end of March 2024, a temporary storage facility will be established. This temporary facility will comprise two (2) self-bunded tanks with a combined storage capacity of 136 $m^3$.
- Phase 2: Once the project enters its operational phase, a permanent storage facility will be commissioned. These facilities will consist of:
  - Twenty-six (26) self-bunded tanks with a total storage capacity of 1,846 $m^3$ for fuel.
  - 70 $m^2$ concrete paved area for lubricants storage.

## 18.7 Site buildings and facilities

### 18.7.1 Accommodation

Accommodation facilities consists of two existing mine camps and one proposed camp, namely:

- Main Camp (Camp Sabali), situated at the Kiniero Mine entrance utilized by management, expatriates, and head office personnel; already existing. The camp is equipped for 70 occupants and includes bungalow accommodation, mess hall, diesel-power generators, water boreholes, offices, and recreation facilities.
- Staff Camp (Cite Kiniero), situated 1 km from Kiniero village on the main road between the mine and Balan town, already existing; for Robex junior staff and visitors. Can accommodate 140 occupants, with diesel-power generators, borehole water, recreation facilities (to be refurbished), mess hall and laundry (to be built).
- Contractor Camp, situated between Main Camp and Staff Camp, along the site access road, for the contractor staff (mining, drill-and-blast, power, lab); to be built. Will be sized to accommodate 150-200 people and will include recreation facilities, mess hall, and laundry.

SMG proposes to employ a large number of the mine employees from the local communities in Balan and Kiniero towns, which will help reduce reliance on mine-supplied accommodation.

### 18.7.2 Warehouses and stores

#### 18.7.2.1 Main plant warehouse and yard

The main plant warehouse will be built during the processing plant construction, and located east of the processing plant. It will have a covered surface area of 600 $m^2$. It will be furnished with shelves (41 bays, 480 $m^2$ of shelving available) and host the spare parts for the plant and the ancillary equipment. The main plant warehouse will also contain offices, meeting rooms, and air conditioned room for temperature sensitive equipment/parts (15 $m^2$).

The yard area will be built adjacent to the main plant warehouse. It has a surface of 3,000 $m^2$, uncovered. It will be furnished with 18 bays comprising 156 $m^2$ of shelving space.

#### 18.7.2.2 Plant workshop warehouse

A small warehouse will be built within the processing plant.

#### 18.7.2.3 Exploration warehouse

An exploration warehouse already exists, located next to the old processing plant. It has a surface of 800 $m^2$. It is currently used as the main temporary warehouse and will stay the main warehouse during the construction phase. This warehouse will subsequently be refurbished to serve as the exploration warehouse.

#### 18.7.2.4 Reagents storage

The recommended inventory is for six months of reagents to provide capacity during the rainy season. The proposed area required per reagent is shown in Table 18.8.

Table 18.8 Summary of reagent storage requirements

| Item | Quantity | Unit | Storage Space ($m^2$) |
|---|---|---|---|
| A (Acid) | 6 months | | |
| HCL | 3 | Container | 39 |
| SMBS | 37 | Container | 481 |
| Copper Sulphate | 5 | Container | 65 |
| B (Base) | 6 Months | | |
| NaOH | 5 | Container | 65 |
| Carbon | 2 | Container | 26 |
| Fusion reagent | 1 | Container | 13 |
| Mill balls | 32 | Container | 416 |
| C (Cyanide) | 6 Months | | |
| Cyanide | 42 | Container | 546 |
| D (Dome) | 3 Months | | |
| Lime | 95 | Container | 1,229 |

Source: SMG, 2023.

#### 18.7.2.5 Plant workshop

The plant workshop will be built east of the processing plant. It will be split between a welding area, a mechanical area, and an electrical area. It will contain lifting frames, a 5 t crane and the offices for the maintenance team.

#### 18.7.2.6 Light vehicle workshop

A light vehicle workshop already exists at the Project and is located west of the old processing plant. This facility was originally the SEMAFO heavy-vehicle workshop and is fitted with lifts and gantry cranes that are rated for removing heavy-vehicle engines and changing haul-truck trays.

#### 18.7.2.7 Mining contractor workshops and facilities

The mining contractor will supply and install five main facilities:

- 2 x Allshelter CATA1412OM (14 m x 12 m footprint):
  - Welders bay.
  - Tyre bay.
- 3 x Allshelter CATA1724OM (17 m by 24 m footprint):
  - Main workshops.
  - Service bay.
  - Stores.

An external storage area will also be allocated for the storage of GET.

### 18.7.3 Security infrastructure

All valuable installations, and in particular the process plant, will be fenced with concertina wire at the top and bottom, the fence will be about 2.5 m high. Closed-circuit television (CCTV) cameras will cover the entire site. Access to the gold room will be controlled by security badges restricting access to authorized personnel only. The room will have an advanced alarm system and CCTV.

The main access to the site will be controlled by a checkpoint about 1.5 km from the process plant, with security badges, turnstiles, and control on entering and exiting personnel.

A security company is currently working on site to control the entry/exit as well as sensitive zones and equipment. About 200 guards from the security company will be working during production. A military patrol is currently living next to the Sabali Camp.

#### 18.7.4 Offices and general administration

The existing office building located next to the old processing plant and is in a reasonable structural condition. It will be used during the construction period for the in-house team and the mining contractor team. Afterwards it will host the technical services teams (including mining contractor, mining in-house team, geology, drill and blast contractor). The technical services office infrastructure includes the following: reception area, 10 offices, boardroom, drawing office, washroom facilities, a print room, parking, server room, tearoom. There is the option to extend the building in the future towards the East. Foundations already exist for an extension.

A new administration office will be built between Camp Sabali and the Processing Plant. This office will include: 15 offices, a tearoom, washroom facilities, a server room, an open space area, parking, a boardroom, a tearoom. It will host the following functions: Management, HR, Finance, Health & Safety, Environment, Community, IT, Projects.

### 18.8 Explosives facilities

#### 18.8.1 Emulsion manufacturing facility

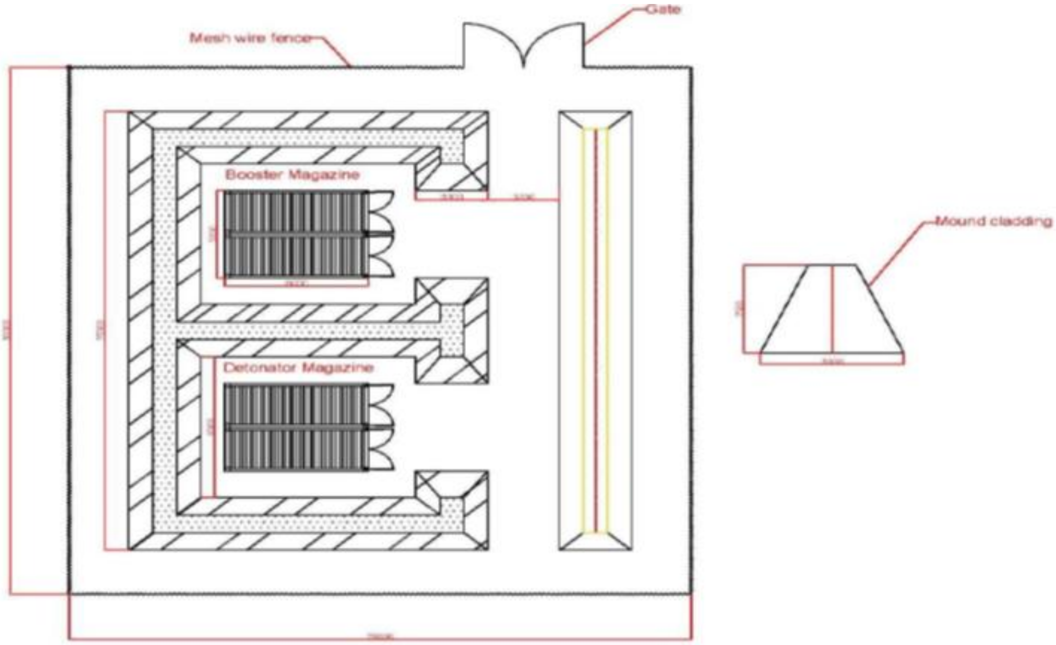
AUXIN will establish and own a brand new mobile emulsion on-site plant with an annual production capacity of 6,000 t emulsion matrix to guarantee the stable supply on Kiniero site, and matching with 2×30t capacity ISO tanks to store. This on-site plant will be completely modular, with less infrastructure, quick installation, and low cost.

Emulsion matrix will be manufactured on the Kiniero Mine site and pumped into on-site tanks with a diaphragm pump then loaded from the on-site tanks to a mobile manufacturing unit for daily charging consumption. Explosive storage magazine

#### 18.8.2 High-explosive magazine

A magazine will be constructed to the north of the old tailings facility dam wall. It will be constructed with two magazine buildings, one for detonators and one for boosters. The magazines will be separated by 3 m wide and 2.5 m high bunds that will surround each magazine building. The design is shown in Figure 18.8.

Figure 18.8 Magazine design




Source: SMG, 2023.

## 18.9 Laboratory

### 18.9.1 Overview

The Project will include a mine-site laboratory to cater for sample preparation and assaying of samples from both exploration and mining operations (grade control and processing plant). The laboratory will be subcontracted to an independent laboratory operator WESTAGO SARL (WESTAGO), and will be situated downhill from the processing plant, and adjacent to the geological core shed.

SMG commissioned WESTAGO to design a process plant, associated capital and operating costs, and sample preparation and assay flowsheets for the laboratory. The laboratory will comprise:

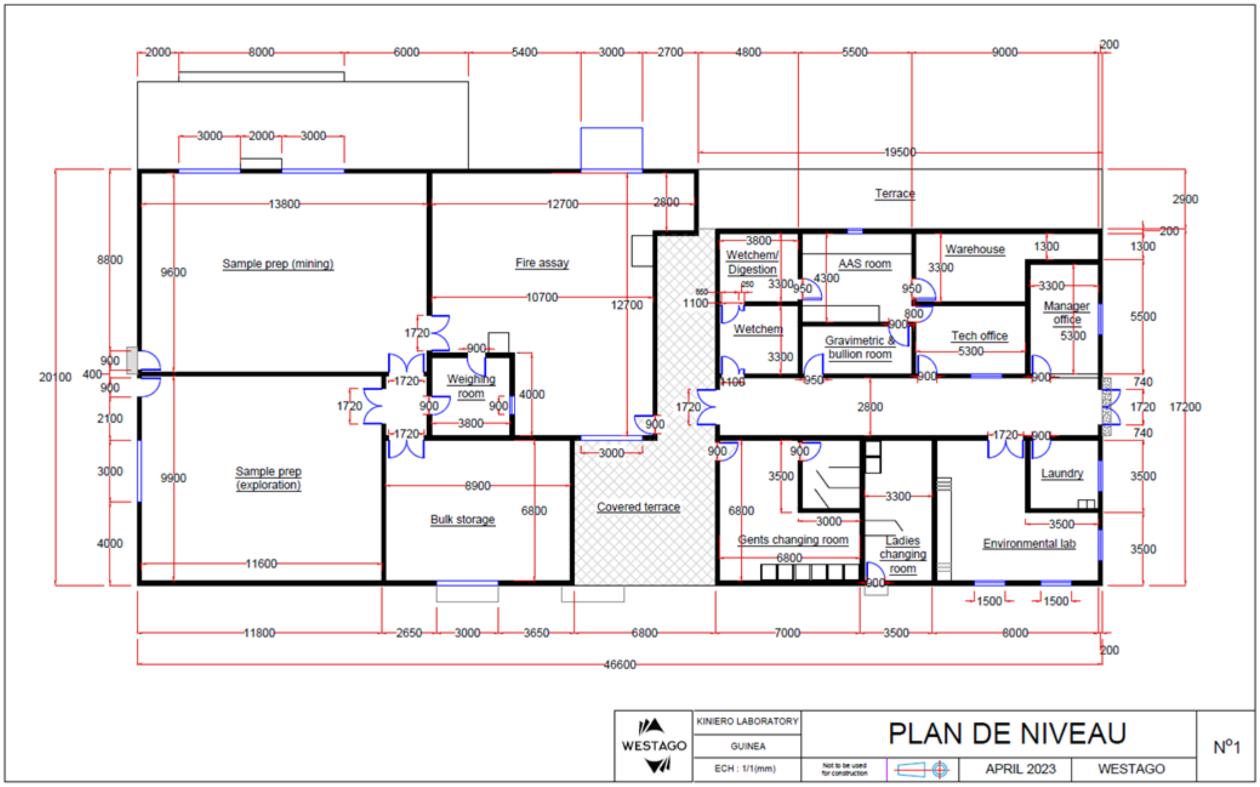
- Sample preparation room for mining operation samples.
- Sample preparation room for exploration samples.
- Fire assay room, including a weighing room.
- Two wet chemistry rooms, including a RO production device, fume cupboards with scrubber.

An analytical instrument room.

- Bullion room.
- Two offices.
- Bulk warehouse.
- Air-conditioned warehouse.
- Laundry room.
- Environmental laboratory room.
- Ladies and gents changing rooms.

Figure 18.9 shows the planned layout of the Kiniero laboratory.

## Figure 18.9 Plan of Kiniero laboratory




Source: WESTAGO SARL, 2023.

The laboratory will operate 24 hours-a-day, through two 12-hour shifts, and is designed to handle up to 1,000 samples per day.

The laboratory will follow Standard Operating Procedures (SOPs) and use approved and controlled methods for analysis which are inline with ASTM or ISO standards. The laboratory will operate a quality management and monitoring system which will include QA/QC submissions. These submissions will be in addition to SMG's own QC submissions to the laboratory. QA/QC submissions will include duplicate samples, blanks, and CRMs.

To track sample submissions and results the laboratory will operate a Laboratory Information Management System (LIMS). This will include the use of barcode labels and the electronic transfer of results from instruments into LIMS.

The laboratory will comprise the following facilities:

- Building of approximately 860 m$^2$ comprising a sample reception area, sample tray cleaning station, and a compressor.
- Sample preparation room for processing plant and mining samples. The room will contain:
  - Two drying ovens.
  - Two crushers.
  - Four workstations.
  - Four pulverizers.
  - One balance scale.
  - Dust extraction.

- Sample preparation room for exploration samples containing:
  - Three drying ovens.
  - Two crushers.
  - Four workstations.
  - Four pulverizers.
  - One balance scale.
  - Dust extraction.
- Fire assay room comprising:
  - Three fusion furnaces (electrical).
  - Three cupellation furnaces (electrical).
  - One ashing furnace.
  - Weighing room with two balance scales.
  - One knocking bench.
  - One fluxing station.
- Two wet chemistry rooms comprising:
  - Fume hood cupboards with scrubber.
  - Hot plates.
  - Emergency shower.
- Instrumental/analytical room:
  - Two atomic absorption spectrometers (AAS).
  - Two fume extractors.
- Environmental laboratory:
  - Fume hood cupboard with stand/fan/scrubber/duct/dose pump/pH controller.
  - Two sinks.
  - Millipore filtration system.
  - Vacuum pump.
  - Portable turbidity meter.

## 18.10 Communications

The Kiniero site is connected to the internet, a contract is in place with Orange Guinee. The bandwidth is currently of 20 Mbps and will be upgraded to 40 Mbps during construction. WiFi will be available in all site facilities. The fleet of mobile phones will be operational from June 2023 with call and data included. The fleet of approximately 50 radios will be operational at the end of 2023.

# 19 Market studies and contracts

## 19.1 Markets

Gold trades in an open market and therefore a market study is not required to assess gold demand. The Project will produce gold doré which is readily marketable and sold "ex-works" or on a "delivered" basis to several international refineries. There are no indications of the presence of penalty elements that may impact the price or render the product unsaleable.

## 19.2 Gold price

Table 19.1 provides a summary of the gold price forecasts for 2023 to 2027. The base-case gold price for the financial model is US$1,650/oz The gold price for constraining the Mineral Resource is US$1,950/oz and for Mineral Reserves US$1,650/oz.

Table 19.1 Gold price forecast

| | 2023[fct] | | | | | 2024[fct] | 2025[fct] | 2026[fct] | 2027[fct] |
|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2[d] | Q3[d] | Q4[d] | Year | Year | Year | Year | Year |
| **London Bullion Market Association quarterly mean, SPGMI forecast price[d]** | 1,890 | 1,986 | 1,980 | 1,995 | 1,963 | 1,950 | 1,925 | 1,900 | 1,915 |
| **Consensus high** | 1,925 | 2,100 | 2,150 | 2,250 | 2,106 | 2,300 | 2,550 | 2,227 | 2,262 |
| **Consensus low** | 1,750 | 1,750 | 1,750 | 1,750 | 1,750 | 1,700 | 1,600 | 1,615 | 1,600 |

Notes:

- As of 24 May 2023.
- [fct] = forecast.
- [d] S&P Global Market Intelligence (SPGMI) forecasts from Q2 2023 onward.

Source: S&P Global Market Intelligence, 2023.

## 19.3 Refinery terms

Based on quotations received from refiners by Robex for its Nampala operation in Mali, it is anticipated that the terms will be 99.95% payable with refining and transport costs of US$1.90/oz.

## 19.4 Doré transportation

The doré will be sold "ex-works" and transported by the refiner from the Project to Conakry by air, as controlled by the Bank of Guinea. The doré will then be exported outside of the country to a refinery.

# 20 Environmental studies, permitting and social or community impact

The baseline description was initially prepared and reported in the Environmental and Social Impact Assessment (ESIA) by ABS Africa and Insuco Guinée Limited (Insuco). The ESIA was submitted in May 2020 (ABS, 2020) in support of the application to the Government of Guinea (GOG) for the conversion of the Kiniero exploration permits to exploitation permits. The March 2020 ESIA Report (ABS, 2023) and associated specialist studies was subsequently updated to assess the latest changes pertaining to the Project, namely the:

- Updated pit designs and site layout.
- Updated mining schedule.
- Pit dewatering strategy.
- Inclusion of the Sabali South pits and waste rock dumps to the south.
- Inclusion of a new TSF to the north-east of the existing TSF, which provides increased capacity to the facility designed in 2020.
- Inclusion of a new processing plant to the east of the SGA pits, with an increased processing capacity of 3 Mtpa.

## 20.1 Baseline description (receiving environment)

### 20.1.1 Physiography and geology

The Project is situated in the Upper (Haute) Guinea geographical region consisting of northern savannah, with the physiography described in Section 5. Geologically the Project is situated within the south-western sector of the Siguiri Basin, with a detailed description of the geology and mineralization presented in Section 7.

### 20.1.2 Soils, land use, and land capability

Based on historical information and the latest pedological site investigation conducted in September 2020 (ESS, 2021), the soils of the Project have been characterized and classified using the World Reference Base for Soil Naming, and includes:

- Alluvial plains which comprise a variety of moderately deep sandy profiles and areas of deeper soil profiles comprising wet based soils and wetland soils. A range of moist grassland and hydromorphic form soils that manifest as floodplain wetlands and zones of accumulation of transported materials.
- A transition zone, or lower midslope landforms, just upslope of the streams and rivers. Associated with flat or gently sloping landforms. These sites are characterized by a mix of shallow and slightly deeper sandy loams and sandy clay loams that are underlain for the most part by soft plinthites and/or soft saprolite.
- Flat to slightly more undulating terrains that characterize the midslopes that comprise of relic ferricrete pavements (lateritic pavements) and shallow-rooted soils, recognizable by the absence of large trees and dense vegetation. The generally shallow soils (<400 mm) and presence of water at or close to surface within the vadose zone typifies this zone. The soils associated with the hard pan ferricrete are separated out as a dominant group based on their shallow-rooting depths and distinctive "inhibiting" layer that occurs at, or close to, surface.
- "Crest slope soils" that are associated with different pedological processes in areas of positive erosion and the depletion of materials. This group of soils is considered to be associated with a change in geology, with a change in the grading of the materials, the structure and colour of the soils.

A large part of the area is affected by the previous mining infrastructure and associated facilities established as part of the previous mining activities associated with SEMAFO. The main land use for the Project area is agricultural, where annual crops are distributed throughout, and concentrated around existing drainage lines.

### 20.1.3 Climate

A description of the climate of the Project is presented in Section 5.

### 20.1.4 Air quality

Various existing sources contribute to pollutants in the region. A comprehensive emissions inventory for the region has not been prepared, but source types present in the area, and the pollutants associated with such sources, are described qualitatively with the aim of identifying pollutants that may be of importance in terms of potential cumulative air quality impacts. Local sources of fugitive dust and gaseous emissions include artisanal mining, vehicle activity on unpaved roads, subsistence farming, small-scale livestock farming, wildfires, and wind erosion from exposed areas. Household fuel burning and refuse burning also constitutes a significant local source of low-level emissions. Baseline air quality is generally considered to be good due to the limited industries and traffic in the area, with elevated dust levels experienced during the dry season.

### 20.1.5 Noise receptors

Noise receptors within a 5 km radius of the Project area are described in Table 20.1.

Table 20.1 Sensitive noise receptors

| Type | Description |
|---|---|
| Villages | Sérakoro to the east, Kiniero to the south-east, and Ballan to the north, Mansounia, Konson and Missamana to the south-west. |
| Hamlets | Faraballan to the west and Dalanigbè and Kobane to the north-west. |
| Seasonal Agricultural Camps/shelters | Banfran to the west, Bréla to the north-west, and Bonbondön to the north. |

Source: ABS Africa, 2023.

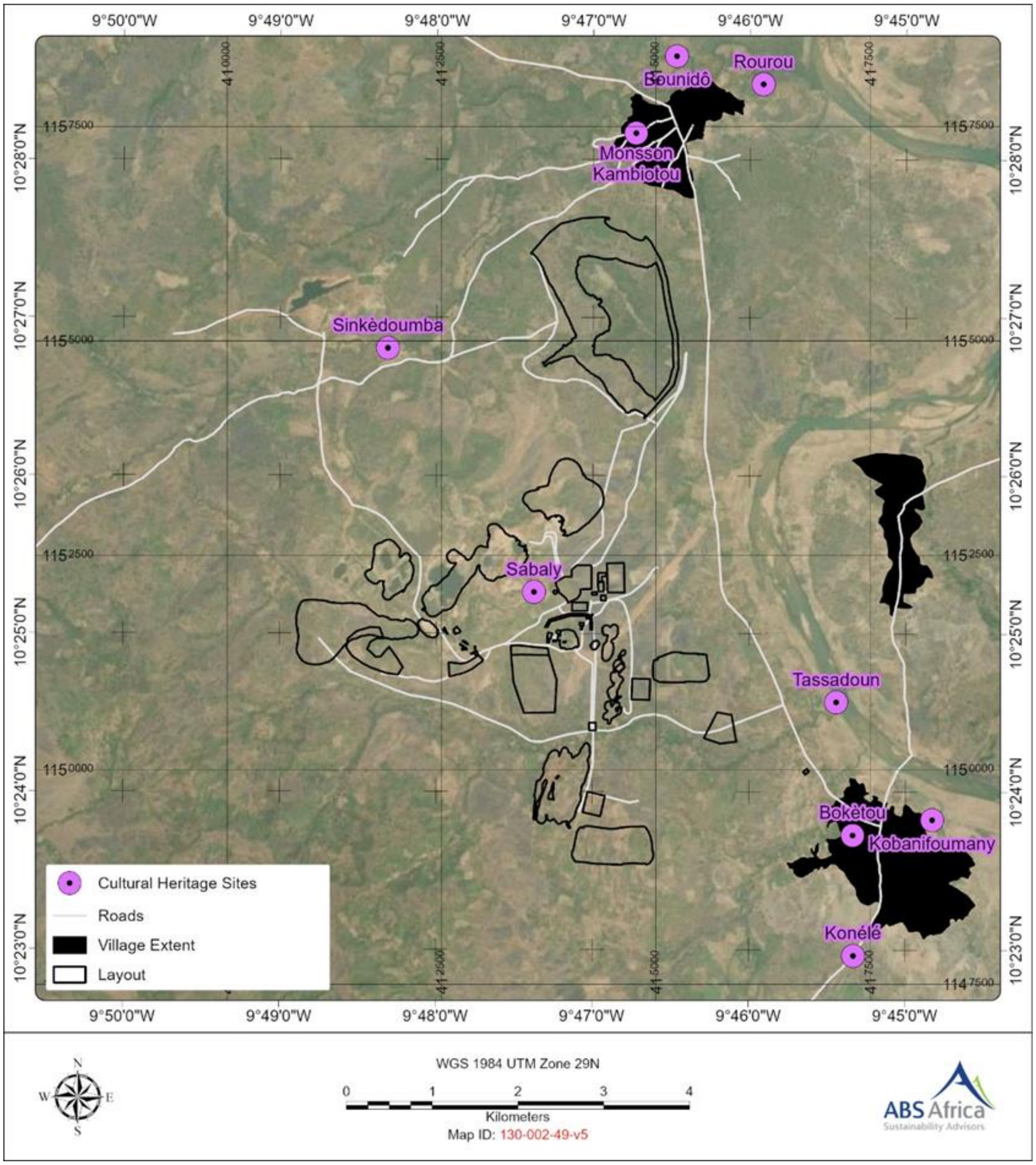
Since there are no major industries, roads, or commercial activities present in most of the Project area, noise levels throughout (away from localized noise sources) are estimated to be between 40 dBA and 45 dBA during the day and 35 dBA to 40 dBA during the night. The most significant noise sources in these areas are expected to be natural sources such as birds, insects, and animals. Closer to the villages and hamlets, higher noise levels (45 dBA to 50 dBA during the day and 40 dBA to 45 dBA during the night) can be expected, with the major contributing sources in these areas being vehicle traffic, community noise, generators, music, workshops, domestic animals, livestock, as well as bird and insect noise. In the areas where artisanal mining is conducted, higher baseline noise levels can be expected, estimated at 50 dBA to 60 dBA during times that artisanal mining is conducted, with low noise levels (35 dBA to 40 dBA) during the night if no artisanal mining is conducted. Noise sources in these areas can include mining, panning, and crushing activities, conversations, generators, and vehicle traffic.

### 20.1.6 Cultural heritage

A total of 13 cultural heritage sites have been identified in the vicinity of the Kiniero Gold Mine (Figure 20.1). Most of the sites have links with the history and the establishment of the villages, which are believed to be key to the prosperity of the communities (fertility of women, abundant harvests, gold, etc.). These sites are therefore important to village communities.

Two sites are in proximity to the proposed development of the Project. Neither is directly affected by infrastructure placement. These are the sites of "Sinkedoumba", which depends on the customary authority of Ballan, and "Sabaly", which belongs to the territory of Kiniero. These two sites can be relocated, subject to conditions by the respective Elder Council in charge.

Figure 20.1 Cultural heritage sites




Source: ABS Africa, 2023 and Insuco, 2023a.

### 20.1.7 Surface water

The Project is situated within the Niandan Catchment, located in the Niger River catchment area. The surface water environment and drainage hydrology are discussed in Section 5.

### 20.1.8 Hydrogeology

A summary of the hydrogeology of the Project is presented in Section 16.2, which is based on a hydrogeological study conducted by Geostratum (Marais, 2023).

A hydrocensus was undertaken in 2020, identifying 19 community hand-dug wells or existing Kiniero Gold Mine boreholes in and around the Project area. In addition, six (6) monitoring boreholes (KMBH1 to KMBH6) were drilled for the 2020 groundwater investigation at the different proposed open-pit localities. An additional three dewatering test boreholes were drilled and tested in 2023 at the Jean, SGA, and Sabali South pits. These boreholes were pump tested and water-quality samples taken for analysis. Five (5) boreholes were also drilled (2023) at the TSF site.

The measured depth to groundwater level ranges between 0.6 m and 27.2 m from the various hydrocensus, monitoring, and test boreholes. The groundwater flows are from the higher lying north-west–south-east-striking ridges that characterize the Project towards the Niandan River in the east, and locally towards the Sinké and Kéléro Rivers that transects the permit area.

Groundwater quality samples were collected for analysis. The water quality results were compared to the International Finance Corporation (IFC) "Mine Effluent Discharge Guidelines" (IFC, 2007) and the World Health Organisation (WHO) "Guidelines for Drinking-water" (WHO, 2017). In general, all the parameters analysed complied with the water quality guidelines. At individual boreholes pH, nitrate, arsenic, and lead variously exceeded the guideline values.

Hydrogeological drillhole data indicated that most aquifer features were intersected in the transitional (saprock) and fresh rock units of the andesitic basalt dominant lithology of the Jean and SGA area, and the pyroclastite and acid lava at the Sabali area. Groundwater yields in the saprolite weathering is low, while some shallow hand-dug pits tap the laterite and alluvial deposits to the east of the Project site or associated with larger rivers. Drilling and test data shows a large variation in borehole yield and aquifer properties, typically of these secondary aquifers where groundwater flow is dominated by fracture flow (and associated weathering). Test data furthermore suggests that the groundwater yield and transmissivity associated with aquifer features in the pyroclastite and acid lava at Sabali (especially closer to the Kéléro River) is higher compared to the aquifer properties at Jean and SGA.

A numerical groundwater model was constructed and calibrated for the proposed mine-site, with the aim of simulating groundwater dewatering at open-pit areas and potential groundwater quality risks associated with mine waste facilities. Groundwater inflows at the proposed open-pit areas are seen as low to moderate, with peak inflows varying between 162 $m^3$/day and 6,916 $m^3$/day. The highest groundwater inflow was calculated for the proposed Sabali South pit. A borehole dewatering strategy, together with in-pit dewatering, are proposed for Jean, SGA, Sabali Central, and Sabali South pit areas. This strategy has environmental advantages as it reduces the pit contact water volume.

Based on the simulated modelling (Geostratum, 2023) potential elevated arsenic concentrations (compared to baseline groundwater quality) was identified in the waste rock and tailings material (up to 0.3 mg/L) by the geochemical assessment. The TSF will, however, be lined to mitigate potential contaminant risk. Robex is furthermore committed to the International Cyanide Management Code, and it is not expected that the weak acid dissociable (WAD) cyanide concentrations will exceed 50 mg/L. Potential contamination from the waste rock dumps is likely to be site-specific and would not have a significant detrimental impact on receptors. A groundwater monitoring programme and management plan have been formulated for implementation.

### 20.1.9 Environmental geochemistry

In 2020, samples for geochemical testing were selected to most effectively cover the range of lithologies present within ore zones to be exploited. A total of 23 samples were selected during July 2020:

- Four samples representing oxide and transitional material from the SGA and Sabali South deposit. The SGA oxide sample was prepared as a composite of material from six individual cores. The Sabali South oxide and transitional samples were also composites of nine and seven cores, respectively.
- Drill cores from Sabali South (two), Sabali North (six), West Balan (three), and simulated tailings generated during metallurgical testing. The tailings were generated from transitional and oxide material from West Balan and a blend of transition and oxide material from SGA.
- Four samples were taken from the existing tailings impoundment.
- A fresh rock sample collected from a location to the west of the deposit and included as a reference.

The static tests performed on the samples (The Moss Group, 2020) indicate that there is very limited risk of acid generation from the oxide material. Samples from the transition zones (Sabali and SGA) did have a higher sulphur grade, which relates to a higher potential acidity value. The net acid generation (NAG) tests confirmed acid-generating potential which needs to be managed accordingly. A Sabali North sample could also be classified as potentially acid-forming, showing the mobilization of arsenic during the reagent water leach tests, to a final concentration exceeding the GOG standard . It is recommended that appropriate kinetic leach tests be conducted on the material classified as potentially acid-forming to assess rates of acid generation and arsenic mobilization.

In 2021, an additional 26 samples were collected and analysed (The Moss Group, 2021). The first batch consisted of a Eugene Nel Composite (ENC) tailings sample (high-moisture content) and two core samples (composite 1 and 2). The composite samples were made up of material from four locations at SGA. The second batch of material consisted of an additional 23 samples. The drill core samples covered the Sabali South and SGA areas, while the Jean samples were taken from within the pit. In addition, a waste rock sample was collected from three of the existing waste rock dumps at SGA, Gobelé D, and Jean. The static tests performed on the 26 samples indicate that there is very limited risk of acid generation for the SGA material, as well as the material from the Jean deposit. The material from the existing waste rock dumps was also classified as low risk. Samples from the transition and fresh rock zones in the Sabali South deposit did have consistently lower acid-neutralizing potential than the SGA material. This material was classified as "uncertain" or potentially acid-forming and was more prone to mobilization of potentially hazardous elements. The ENC tailings material can be considered high-risk in terms of both acid generation and metal liberation. The material does have substantial acid-neutralizing capacity, which is likely to delay the onset of acid generation. It is recommended that further kinetic testwork be undertaken on this material.

In 2022, a total of 12 samples from seven drillholes were analysed (The Moss Group, 2022). The first three samples were taken at different depths from drill hole DD20-001 in the Sabali North deposit and covered oxide, transitional, and fresh material. The second three samples were taken from drillhole DD20-004 in the Sabali Central deposit and covered the oxide, transitional, and fresh rock zones. The final six samples, two each from the oxide, transitional, and fresh zones, were obtained from five different holes in the Mansounia North deposit. In summary, the static tests performed on the 12 samples indicate that there is very limited risk of acid generation for the oxide and fresh rock material. The transition zone samples from the Mansounia North deposit do have acid-generating potential and appear to be partially weathered, so there was metal mobilization during the reagent water leach tests. A kinetic test on this material would provide further clarity on the extent of the associated risk. The oxide zone material from the Sabali North and Mansounia

North deposits showed significant arsenic mobilization. The static tests do represent a worst-case scenario, due to the small particle size and high degree of mineral liberation, so a kinetic test using larger particle size material would provide a more accurate assessment of the rate of arsenic mobilization and associated risk.

In 2023, a total of eight samples were analysed as part of the DFS (The Moss Group, 2023). Seven of the samples consisted of waste rock from areas that have not been characterized during previous phases of work. Two of the holes (GRC022-009 and GRC22-012) were from the SGA pit and covered the oxide, transition, and fresh rock zones. The remaining two samples were from the Sabali North (DD20-002) and Sabali South (SRC22-095) pits, both from the oxide zone. The eighth sample represented a composite tailings sample prepared from material from 17 chip and half core samples from holes in the SGA, Jean, Sabali South, and Sabali Central pits. In summary, the static tests performed on the eight samples indicate that there is an insignificant risk of acid generation in all cases. The detoxified tailings sample did show significant arsenic mobilization, but this could be due to the test protocol employed. The reagent leach assay for this sample is being repeated using the Australian Standard Leaching Procedure (AS 4439.1) methodology.

#### 20.1.10 Water quality

##### 20.1.10.1 Surface water

During the first hydrocensus in March 2020, and second hydrocensus in May/June 2020, a total of 22 surface water samples were taken. Analysis of the water character showed that in terms of cations the samples were mostly sodium dominant (13 out of 22 samples). Calcium was the dominant cation in six samples, while magnesium, potassium, and aluminium were also dominant in one sample each. In terms of anions bicarbonate is by far the dominant anion (19 out of 22 samples) while sulphate, hydroxide, and chloride are the dominant anions in one sample each. Elevated arsenic concentrations were detected at existing pit lakes at Gobelé, Jean West, and Balan. The measured arsenic concentrations range between 0.014 mg/L and 0.033 mg/L. At arsenic concentrations less than 0.01 mg/L no health effects are expected. Concentrations between 0.01 mg/L and 0.2 mg/L are still considered to be tolerable and are below the IFC Mining Effluent Guidelines (IFC, 2007).

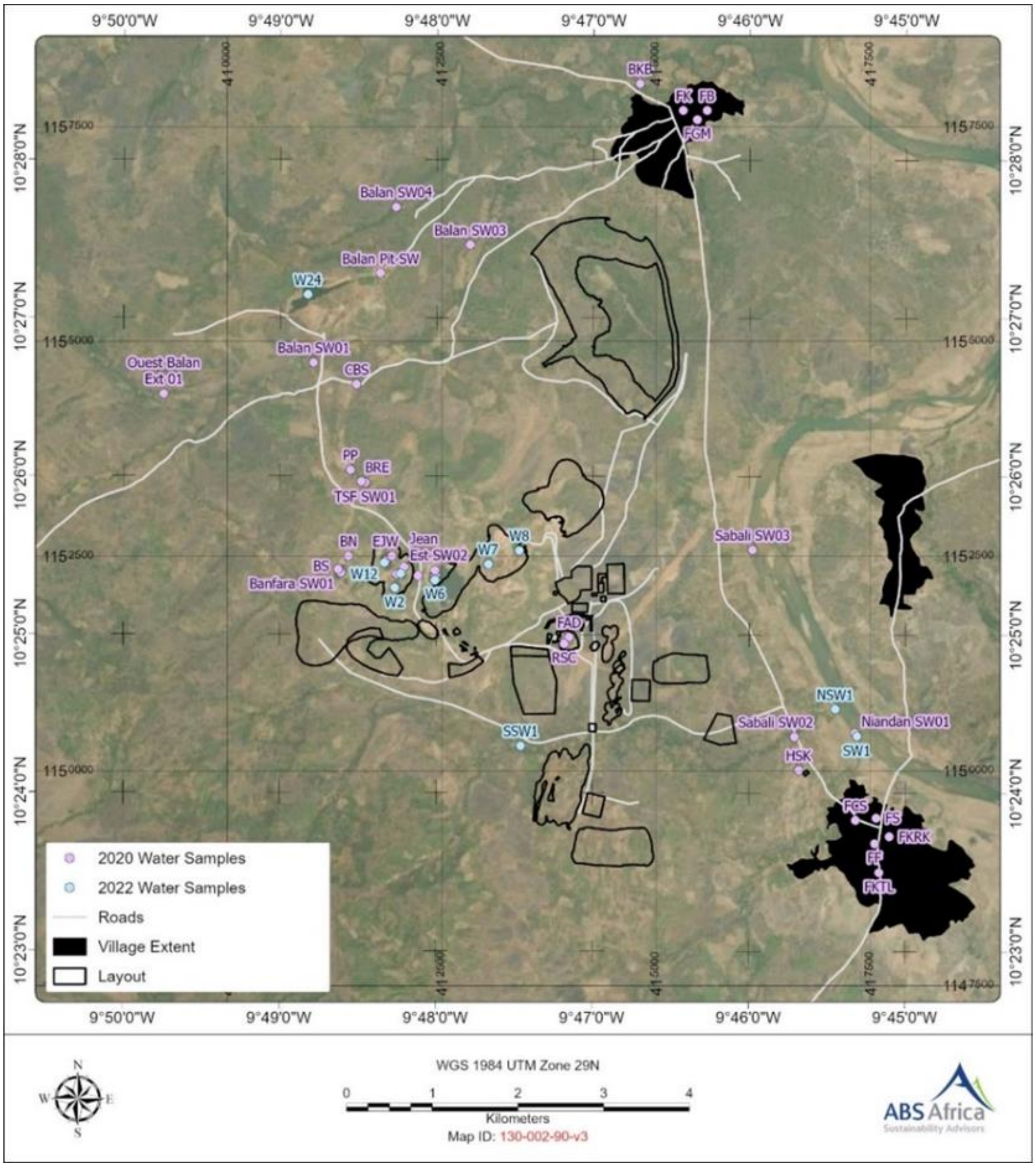
A total of 31 surface water samples were collected in May 2022, which consisted of pit lake samples, sampled at different depths, from the existing flooded pits: West Balan, Jean, and SGA. Additional surface water samples were collected from the Kéléro stream below the proposed Sabali Central pits, and the downstream confluence with the Niandan River. The water quality results were compared to the IFC "Effluent Guidelines for Mining" (IFC, 2007), and WHO "Guidelines for Drinking Water Quality" (WHO, 2017). Based on the results, the water quality of the existing pit-lakes is generally compliant with only minimal exceedances, as summarized below:

- Samples W24-0M (West Balan), W12-0M (Jean Pit 2) and W7-18M (SGA Pit 2) exceeded the IFC Effluent Guideline for Oil and Grease (10 mg/L) (IFC, 2007).
- Sample W7-2M (SGA Pit 2) exceeded the WHO Drinking Water Guideline for Manganese (0,08 mg/L) (WHO, 2017).
- Samples at Jean Pit 3 (W13-0M, W13-2M, and W13-15M) and SGA Pit 1 (W6-0M) exceeded the WHO Drinking Water Guideline for Arsenic (0,01 mg/L) (WHO, 2017).
- Water qualities for Jean Pit 1 and SGA Pit 3 presented no exceedances in terms of the IFC Effluent or WHO Drinking Water Quality Guidelines (IFO, 2017) and (WHO, 2017).

For the pre-development dewatering phase, Robex is proposing blending water from different pits to ensure that the water being released complies with the host-country water quality standards as well as the IFC Effluent Guidelines (IFC, 2017) at the point of release. A monitoring plan has been designed to sample water-quality daily, to ensure compliance. A compliance point, downstream of the decant point, has been identified where the water quality is required to comply with the receiving water quality objectives, that are based on the baseline assessment completed. No surface water use for domestic purposes has been identified in the area downstream of the release point.

The surface and groundwater samples collected in 2020 and 2022 as shown in Figure 20.2.

Figure 20.2 Surface and groundwater water sampling sites




Source: ABS Africa, 2023.

#### 20.1.10.2 Groundwater

A total of 11 groundwater samples were taken during the hydrocensus carried out in May/June 2020, as well as the six newly drilled groundwater monitoring boreholes (KMBH1 to KMBH6). Groundwater chemical analysis showed that, in general, all the parameters analysed complied with both the IFC Mining Effluent Guidelines (IFC, 2007) as well as the WHO Drinking Water Quality Guidelines (WHO, 2017). Only pH and nitrate exceed the WHO guideline values in individual boreholes.

Borehole PP, located in the area down gradient of the historical TSF, indicated a pH value of 5.7 which falls outside the acceptable range of 6 to 9 as specified in the IFC guidelines. The nitrate concentrations are elevated in boreholes FB (23 mg/L), FK (12 mg/L) and FGM (12 mg/L), exceeding the WHO drinking water quality guideline value of 11.3 mg/L NO3-N (50 mg/L NO3). At borehole KMBH3 the arsenic concentration measured 0.022 mg/L, which exceeds the WHO drinking water quality guideline of 0.01 mg/L. All boreholes comply with the IFC Effluent Standard of 0.1 mg/L. The lead concentrations in boreholes KMBH2 (0.065 mg/L), KMBH5 (0.092 mg/L) and KMBH6 (0.012 mg/L) exceed the WHO drinking water quality guideline 0.01 mg/L. All the boreholes comply with the IFC Effluent Standard of 0.2 mg/L. In terms of cations the samples are mostly calcium dominant (12 out of 17 samples). Magnesium is dominant in three samples and sodium is dominant in two samples. In terms of anions, bicarbonate is by far the dominant anion (16 out of 17 samples) while chloride is the dominant anion in the remaining sample.

The hydrogeology report (Marais, 2023) indicated that the 2023 dewatering borehole samples at Sabali (SWH23-001), Jean (JWH23-002), and SGA (GWH23-001) had manganese concentrations ranging between 0.149 and 0.341 mg/L, which exceed the WHO Drinking water guideline value of 0.08 mg/L. However, no other constituents, apart from manganese (Mn), exceeded the IFC Mining Effluent Guidelines or WHO Guidelines for drinking water.

### 20.1.11 Flora

The Project is situated in a belt of woodland, open savannah, and grassland in north-eastern Guinea that falls within the West Sudanian Savannah Terrestrial Ecoregion, close to the boundary with the Guineo-Congolian Forest-Savannah Mosaic ecoregion. The Sudanian Region is a regional centre of plant endemism with approximately 2,750 species, of which 960 (35%) are endemic. Several vegetation types are characteristic of the Sudanian Region, two of which occur in the general vicinity of the Project, namely "Undifferentiated Sudanian Woodland" and "Sudanian Woodland with abundant Isoberlinia". Dominant woody species in these Sudanian woodlands are Isoberlinia species, especially Isoberlinia doka, as well as Afzelia africana, Burkea africana, Combretum spp. and Terminalia spp.

Twenty-three (23) red-listed species are known to occur in the general vicinity of the Project, particularly in the area between Kankan and Kourousso. Eighteen (18) of these are considered to be threatened, i.e. have a status of Vulnerable (VU), Endangered (EN), or Critically Endangered (CR). Six threatened and two Near Threatened (NT) species were confirmed to occur in the Project area during 2020 fieldwork, and four other species have a high or moderate likelihood of being present. The most important vegetation communities in the Project that support these species are grassland on lateritic hardpans, broad-leaved woodland/tree savannah, and riparian forest.

The 2020 dry season fieldwork resulted in a list of 129 plant species being identified, which was supplemented by the 2020 wet season fieldwork data and a combined list of 212 species produced. As part of the biodiversity assessment, surveys were conducted on-site in April 2020 and August 2020. Each of the six vegetation communities surveyed during the April 2020 and August 2020 fieldwork is summarized in Table 20.2 below and shown in Figure 20.3.

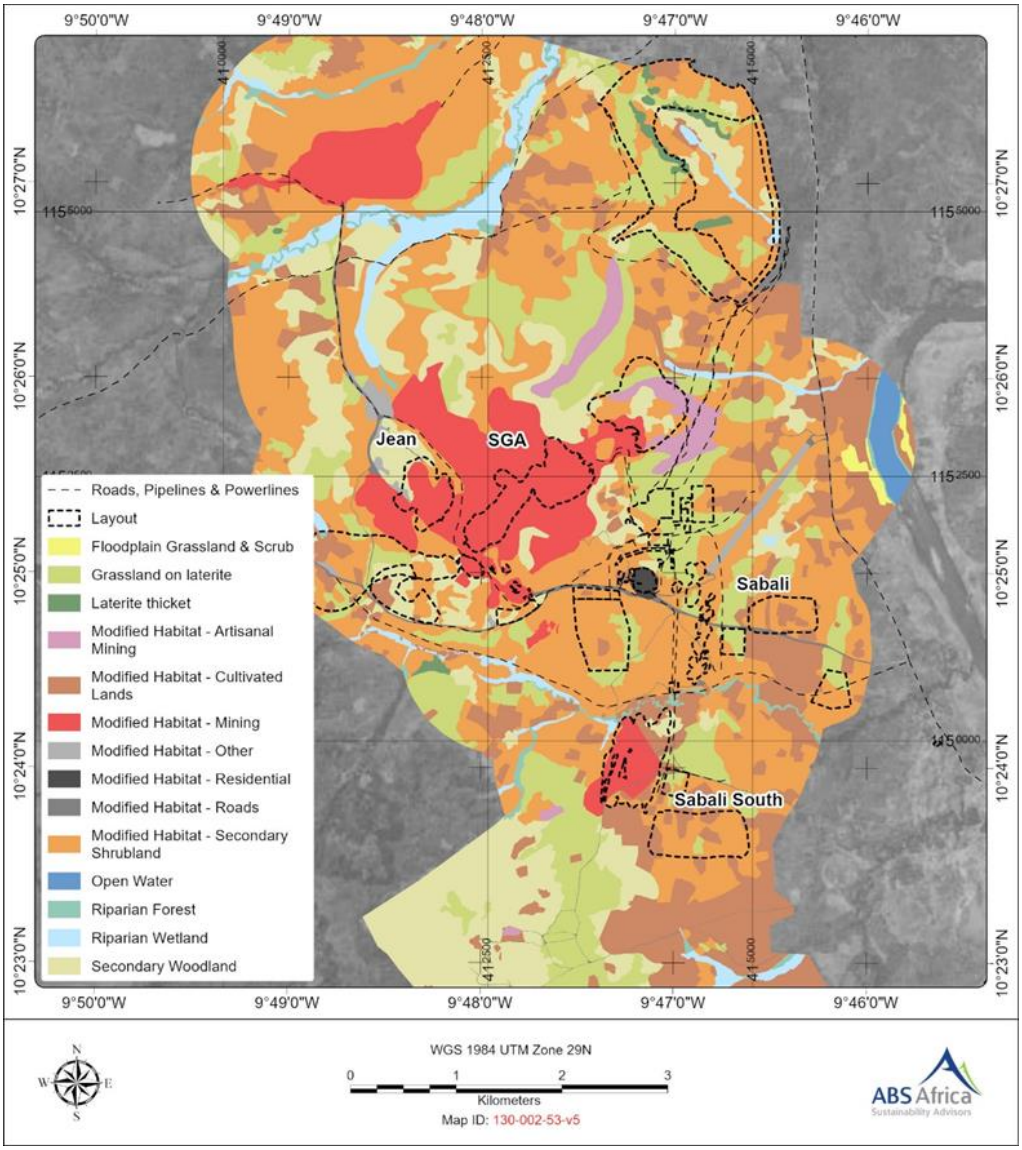
An additional wet season survey was conducted during August 2022. The survey focused on ground-truthing the southern portion of the study area (Mansounia area) and the north-eastern portion of the study area where the footprint of the proposed TSF is located which was not surveyed previously. In addition, the 2020 survey sites were also revisited. The 2022 survey identified an additional 110 species and infraspecific taxa. Based on the findings of the latest survey, a new species of conservation significance, Aspilia lisowskiana (VU B2ab(iii)), a daisy that grows in wet grasslands located near the existing landing strip was recorded. This site is excluded from infrastructure footprints and the mine should seek to protect this site from settlement and cultivation.

## Table 20.2 Vegetation communities associated with the Project

| Vegetation Community | Description |
|---|---|
| **Grassland on laterite hardpans** | This is an open to sparsely wooded habitat with very few trees and shrubs that is characteristic of the lateritic plains or plateaus (bowé). Grassland species composition is difficult to assess during the dry season, particularly since grasses, which are usually the dominant life forms in this habitat, have been burnt or lack diagnostic features for identification. However, this was corrected during wet season fieldwork. The dominant grasses encountered in these grasslands during fieldwork were *Andropogon gayanus, Monocymbium cf. ceresiiforme, Cternium cf. villosum* and *Hyparrhenia cf. diplandra.* The herbaceous layer is moderately diverse in this community and included semi-woody pyrophytes such *as Lepidagathis pobegunii, Eriosema glomeratum* and *Cochlospermum tinctorium*, as well as herbaceous species such as *Cleome gynandra, Indigofera macrophylla* and *Lippia chevalieri*. Scattered trees and shrubs included *Crossopteryx febrifuga, Entada abyssinica, Guiera senegalensis, Lannea acida* and *Parkia biglobosa*. The only species of conservation concern recorded in these grasslands during fieldwork was *Lepidagathis pobeguinii*, which is classified as NR. |
| **Tall thicket on laterite hardpans** | This is a narrow, fragmented plant community that is located at the edges on laterite hardpans. Evergreen trees and shrubs are the dominant life forms and woody lianes are also prominent. Several tree and shrub species are either confined to this community, or are shared with the Riparian Forest community, including *Albigia zygia, Cola cordifolia, Craterispermum laurinum, Gardenia sokotensis, Lecaniodiscus cupanioides, Leptactina senegambica, Manilkara obovata* and *Spondias mombin.* Typical woody lianes are *Landolphia dulcis* and *Saba senegalensis*. No species of conservation concern were recorded during fieldwork, although two VU tree species potentially occur, namely *Afzelia africana* and *Khaya senegalensis*. |
| **Broad-leaved woodland/tree savannah** | This would have been the dominant vegetation community in the project area of influence (PAOI), but now occurs in scattered fragments in various stages of regeneration. Woodland in a more advanced state of regeneration is characterized by more trees and a more closed canopy, whereas woodland with a very broken canopy and a dominance of woody shrubs or young trees is considered to be more degraded. Typical tree species are *Daniellia oliveri, Detarium microcarpum, Lannea acida, L. velutina, Lophira lanceolata, Parinari curatellifolia, Parkia biglobosa, Terminalia macroptera, Pericopsis laxiflora* and *Pterocarpus erinaceus*, while common woody shrubs include *Annona senegalensis, Entada abyssinica, Gardenia erubescens* and *Hymenocardia acida*. The herbaceous understory stratum was dominated by tall grass species such as *Hyparrhenia cf. diplandra, Panicum maximum* and *Pennisetum polystachyum*. Small, semi-woody dwarf shrubs (pyrophytes) are a feature of the woodland understory, including *Eriosema glomeratum, Cochlospermum* species, *Pavetta crassipes and Clerodendrum polycephalum*. Herbaceous forbs that were added to the list during wet season fieldwork included *Vernonia perrottetii, Vernoniastrum cf. camporum, Celosia argentea, Pandiaka involucrata, Uraria picta* and *Spermacoce verticillata.* Threatened plant species recorded in broad-leaved woodland were one EN species (Pterocarpus erinaceus), and three VU species (*Afzelia africana, Khaya* senegalensis and *Vitellaria paradoxa*). |
| **Riparian wetland** | Riparian Wetlands are generally linear, fragmented habitats along seasonal drainage lines throughout the PAOI. Herbaceous plant species are dominant in this community and include tall grasses such as *Pennisetum polystachyum* and *Hyparrhenia cf. diplandra*, as well as Cyperaceae species such as *Cyperus difformis* and *Fuirena umbellata*. Typha species *(aff. domingensis*) is dominant along edges of modified wetlands, such as dams, and usually only occurs where standing water is present in Riparian Wetlands. No species of conservation concern were recorded during fieldwork. |
| **Riparian (gallery) forest** | Riparian Forest occurs in narrow, fragmented strips of habitat along seasonal drainage lines throughout the PAOI. Trees and woody shrubs are the dominant life forms. Typical forest trees include *Bridelia micrantha, Carapa procera, Diospyros mespiliformis, Khaya senegalensis, Manilkara obovata, Spondias mombin and Sterculia tragacantha, Alchornea cordifolia* and *Nauclea latifolia* form a distinct shrub stratum at the forest edge, while *Pterocarpus santalinoides, Myrianthus* serratus, *Uvaria chamae* and *Syzygium Guineanse* are characteristic species of the river edge. Raphia sudanica forms dense riparian thickets along certain streams and is usually the dominant species in such thickets. Species of conservation concern reported from this vegetation community were *Raphia sudanica* (NT) and *Khaya senegalensis* (VU). |
| **Degraded secondary shrubland/scrub** | This is the dominant vegetation community in the PAOI and occurs throughout, representing areas that were historically covered in broad-leaved woodland/tree savannah. This community represents Modified Habitat as a result of a significantly different floristic composition and physical structure to the original vegetation community it represented (broad-leaved woodland). Woody shrubs are dominant, and trees are less prominent than in woodland. Alien plant species are prominent in this community, including woody species such as *Acacia auriculiformis*, *A. mangium, Anacardium occidentale, Cassia siamea, Gmelina arborea, Chromolaena odorata, Leucena leucocephala* and *Psidium guajava*. Indigenous shrubs and small trees in this community are usually pioneer species that are able to colonise disturbed ground, such as *Annona senegalensis, Dichrostachys cinerea, Hymenocardia acida, Terminalia macroptera* and *Trema orientalis*. Herbaceous species include tall grasses such as *Hyparhenia cf. diplandra* and *Pennisetum polystachyum*. No species of conservation concern were recorded during fieldwork. |

Source: ABS Africa, 2023.

Figure 20.3 Vegetation communities




Source: ABS Africa, 2023.

## 20.1.12 Fauna

### 20.1.12.1 Mammals

Approximately 170 mammal species are known to occur in the West Sudanian Savannah Terrestrial Ecoregion, with 94 species being recorded from the Parc National du Haut Niger, located to the west of the Project (Figure 20.4). However, due to the degraded state of natural habitats in the immediate vicinity of the Project and the high human density, it is unlikely that many of these species will occur at the Project.

Dry and wet season fieldwork in 2020 resulted in confirmed sightings of three species (striped ground squirrel (Xerus erythropus), African savanna hare (Lepus victoriae), red river hog (Potamochoerus porcus) and discussions with local villagers yielded confirmation of seven additional species that occur in the vicinity of the PAOI. Wet season fieldwork did not add further species to this list. Additionally, Patas Monkey (Erythrocebus patas) and Gambian Sun Squirrel (Heliosciurus gambianus) have subsequently been observed by SMG.

Twelve mammal Species of Conservation Concern (SCC) are known to occur in the nearby Parc National du Haut Niger, although only four NT species have a moderate to high likelihood of occurring in the Project area, namely Guinea baboon (Papio papio), African clawless otter (Aonyx capensis), spotted-necked otter (Hydrictis maculicollis) and yellow-backed duiker (Cephalophus silvicultor). Local villagers confirmed the presence of Guinea baboon in the general vicinity of the Project, but this could not be confirmed during fieldwork.

A faunal survey was conducted in November 2022. The fieldwork added a further four species to the list, namely African Civet (Civetticis civetta), Four-toed Hedgehog (Atelerix albiventris), Gambian Rat (Cricetomys gambianus) and Common Warthog (Phacochoerus africanus). The total updated number of confirmed mammal species recorded within the Project site is thus twelve. The most frequently encountered mammal species during November 2022 fieldwork was the Gambian Sun Squirrel (Heliosciurus gambianus) with ten sightings, with the next highest being two camera trap records of Gambian Rat. All other mammals had only one encounter each, reflecting the low abundance of mammals within the Project area.

#### 20.1.12.2 Avifauna

Approximately 550 bird species are known to occur in the West Sudanian Savannah Terrestrial Ecoregion, with 300 species being recorded from the nearby Parc National du Haut Niger, west of the Project (Figure 20.4). However, the Project does not reflect the full range of habitats present in the Parc National du Haut Niger and much of the area is in a degraded state, and avifaunal species richness is likely to be significantly lower.

Dry season fieldwork in 2020 produced 102 species, while wet season fieldwork increased this total to 114 species, although true species richness is likely to be more than 150 species. Birds are usually associated with habitats, and these species-habitat relationships are referred to as avifaunal assemblages. There are five assemblages present in the Project area, namely woodland, grassland, forest/thicket, wetland/open water, and modified habitat assemblages. During the November 2022 survey a total of 158 bird species were confirmed, 34 of which were new to the species list. This brought the total updated species list in the Project area to 228.

Thirteen (13) bird SCC are known to occur in the general vicinity of the Project area, of which eight species are classified as threatened (CR, EN, or VU). Two species were confirmed during fieldwork, namely the Hooded Vulture (Necrosyrtes monachus) and the White-backed Vulture (Gyps africanus).

#### 20.1.12.3 Herpetofauna (reptiles and amphibians)

The West Sudanian Savannah Terrestrial Ecoregion supports at least 130 reptile species and 25 amphibian species, including nine reptiles and three amphibians that are strictly endemic to the ecoregion. Some of these endemics potentially occur within the Project, including Brown Running Frog (Kassina fusca), White-bellied Worm Snake (Myriopholis albiventer), and Mocquard's Cylindrical Skink (Chalcides pulchellus).

Fieldwork produced confirmation of the occurrence of two reptiles (West African Agama (Agama Africana) and the Fat-tailed Gecko (Hemitheconyx caudicinctus) and three amphibian species: African Groove-crowned Frog (Hoplobatrachus occipitalis), Golden-backed Frog (Amnirara galamensis) and an unidentified reed frog (Hyperolius species). 2022 fieldwork added six species, including Puffadder (Bitis arietans), Ball Python (Python regius), and Ornate Frog (Hildebrandtia ornata).

Four threatened reptile species are known to occur in the general vicinity of the Project, although all are aquatic species that have a low likelihood of occurring in the Project. One species, namely Ball Python, is assessed as NT and a single animal was observed within laterite thicket during November 2022 fieldwork. This species is likely to be resident within the Project area, albeit in low density. No threatened amphibians are likely to occur. Several reptiles and amphibians that are endemic to the West Sudanian Savannah ecoregion potentially occur in the Project, although these are generally widespread species that are classified as Least Concern (LC).

### 20.1.13 Aquatic ecosystems

An aquatic survey was completed in August 2022 (Nepid, 2023). Eighteen (18) sites were visited, where each site was surveyed within approximately 50 m from the centre point and covered a stream length of approximately 100 m. During the 2022 survey, seven natural and two artificial types of aquatic ecosystem were identified within the Project area. The three main natural aquatic ecosystem types within the Project area were:

- Seeps (Bowes): These types of wetlands are widespread throughout Guinea and parts of Mali, but they support a unique assemblage of wetland and aquatic plants and have been classified by Kew Gardens as Threatened Habitat (Couch et al., 2019). The Project area included two such seeps, one that covered an area of ~24 ha, located within the proposed TSF alternative, and a smaller seep to the north and outside of the proposed TSF alternative, that covers an area of ~0.2 ha.
- Valley Bottom Wetlands: These types of wetlands were present mainly in the upper reaches of watercourses in the Project area. Most of these wetlands within the Project area were used for the cultivation of rice. Areas that were not cultivated tended to support a high abundance and diversity of submerged and emergent aquatic plants, and these provided suitable substrates for seasonal colonisation by aquatic macroinvertebrate and seasonal cover for smaller species of fish.
- Upper Foothills: Four such streams, all draining westwards to the Niandan River, were present in the Project area. These streams were characterized by a closed canopy, wooded riparian zone with a high diversity of trees and shrubs.

The composition and abundance of benthic diatoms in the Project area in August 2022 was characterized by high biological water quality with low organic load, low concentrations of nutrients, and low salinity. Aquatic macroinvertebrates recorded in Seeps (Bowes) and Valley Bottom Wetlands in the Project area in August 2022 comprised mostly hardy taxa that tolerate water quality deterioration. By contrast, aquatic macroinvertebrates recorded in Foothill Streams comprised a high diversity of taxa, including taxa that are sensitive to water quality deterioration.

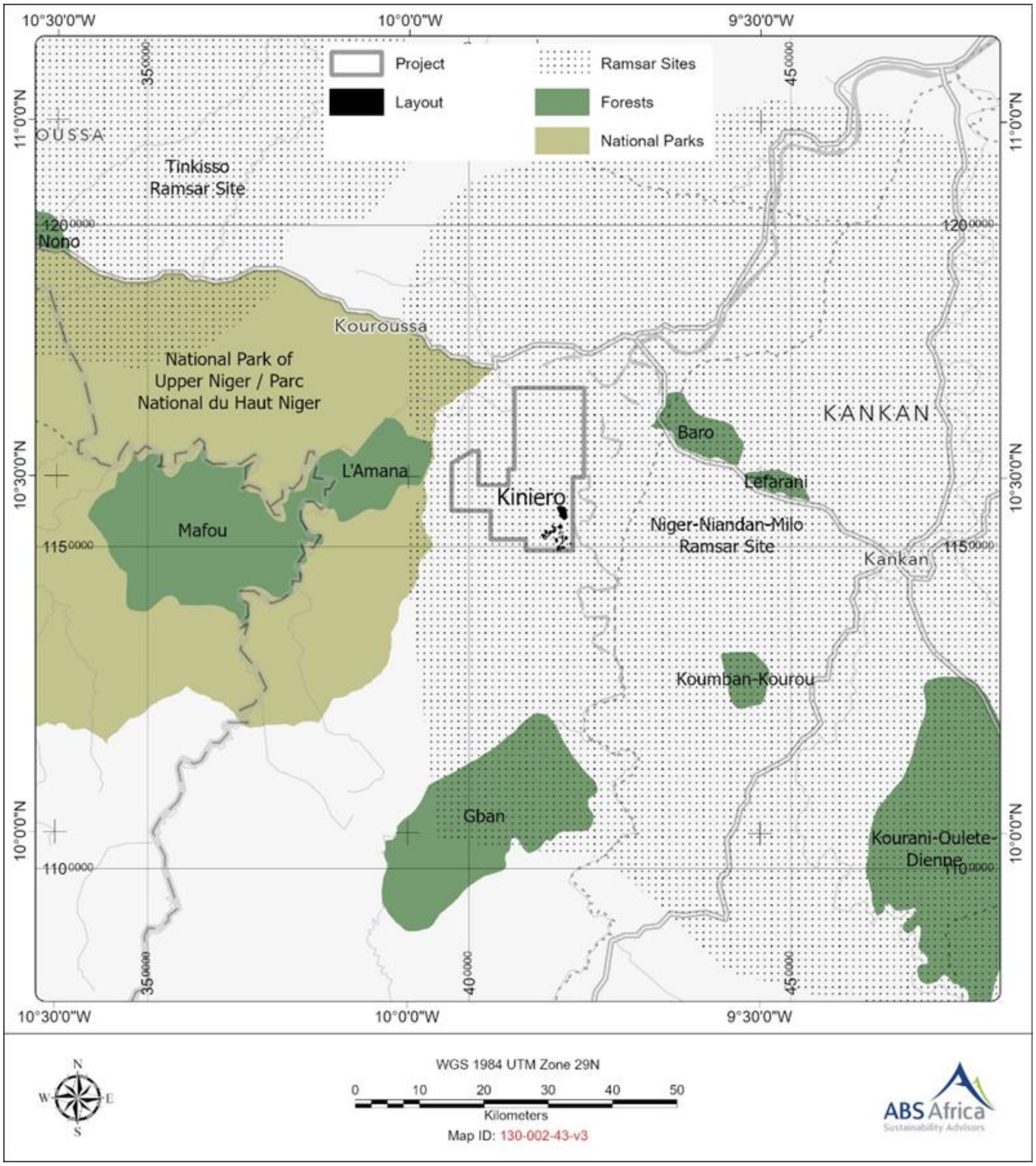
Fish species recorded in August 2022 comprised a relatively high diversity of species, with a total of 20 species recorded. The results indicate that the two main aquatic ecosystem types, namely Valley Bottom Wetlands and Upper Foothill Streams, were ecologically intact at the time of the survey. Two species of threatened fish could occur in the Project area, namely Epiplatys lamottei and Enteromius raimbaulti, and both are listed by the International Union for the Conservation of Nature as VU; however, neither of these species were recorded in August 2022. However, an undescribed species of Guppy (Micropanchax cf. pfaffi) was recorded at two survey sites in August 2022. This species does not appear to be range-restricted, as it was also recorded at two sites near the town of Mandiana, more than 100 km from the Project.

### 20.1.14 Protected areas

The Project is located approximately 15 km from the eastern boundary of the Parc National du Haut Niger (Figure 20.4) a recently proclaimed National Park that has been established around the Mafou Forest, the last remnant of subtropical dry forest in Guinea. The Project is situated within the Niger-

Niandan-Milo Ramsar Site (No. 1164), one of 16 Ramsar sites in Guinea. Ramsar sites are wetlands of international importance, particularly for waterfowl. The Ramsar site includes parts of the catchments of three large rivers, namely the Niger, Niandan, and Milo, and is representative of a network of wetlands that have an important hydrological role in West Africa. Classified forests are located in the vicinity of the Project, of which the closest are forêt classée de L'Amana (18 km north-west), forêt classée de Baro (22 km north-east) and forêt classée de Léfarani (30 km north-east) (Figure 20.4). The Project is situated 35 km east of the Mafou Important Bird Area (IBA), the only IBA in north-eastern Guinea. The IBA supports populations of numerous biome-restricted bird species such as Violet Turaco (Musophaga violacea), Red-throated Bee-eater (Merops bulocki), Blue-bellied Roller (Coracias cyanogaster), Bearded Barbet (Pogonornis dubius), and Fox Kestrel (Falco alopex), some of which are likely to also occur in the Project area.

## Figure 20.4 Protected areas




Source: ABS Africa, 2023.

### 20.1.15 Social

The socio-economic baseline study was completed by Insuco as part of the ESIA which was submitted to the GOG in May 2020. The baseline study was further updated with an additional survey undertaken in October 2020.

In 2022, as part of the socio-economic impact assessment update, the social survey area was broadened to include the new TSF option to the north, as well as the Sabali South and Mansounia deposits to the south (in the Mansounia licence area) previously not covered in the 2020 surveys. The updated study is included in the 2022 ESIA update.

The key findings from the baseline study (Insuco, 2023a) are presented below:

- Kiniero is one of the 12 sub-prefectures and eleven rural communes of the Prefecture of Kouroussa, in the Upper Guinea region. It is located 55 km west of the capital of the Prefecture. It was established in 1962 as a district and set up as a Rural Development Community in 1992.
- The Kiniero Sub-prefecture is divided into 16 districts: Famoudouya, Karinkana, Katala, Sekoro, Faraniokoma (which are the five districts that constitute Kiniero Centre), Ballan one and Ballan two (which constitute the village of Ballan), Missamana, Konson, Mansogna, Bagbe, Djirlan, Mamoudouya, Sokouralakoro, Fada-ballan, Dalanigbe (also belonging to Ballan).
- The estimated number of households for the entire study area is 2,037, of which almost a third reside in Kiniero. The second largest village is Ballan (centre), with 358 households. By adding the number of households in the hamlet of Dalanigbè to the population of Ballan, where a significant number of artisanal miners reside, provides a total of 571 households. The villages of Mansounia, Konson, and Missamana are approximately equivalent in terms of households, as there are 233 households for Konson, 258 for Mansounia, and 280 for Missamana. The Faraballan sector, is said to be home to only 36 households.
- The ethnic distribution shows a large Malinke majority, an ethnic group indigenous to the area and, more broadly, to Upper Guinea. Approximately 98% of the heads of households surveyed belong to the Malinke ethnic group. The Peuhl ethnic group is the only other ethnic group represented, with four households, i.e. 1%, all of which arrived in the area recently due to economic opportunities. Lastly, only one household of the Kissi ethnic group and one household of the Lele ethnic group were recorded in the study population.
- Qualitative surveys have revealed a significant proportion of foreigners on gold panning sites, mainly from Burkina Faso, but also from Senegal, Mali, and Sierra Leone.
- The Upper Guinea area is dominated by the Muslim religion. The results of the household survey are in-line with this trend, with 100% of the individuals more than seven-years-old in the surveyed households being Muslim.
- Artisanal gold panning in the Kiniero Sub-prefecture appears to have experienced strong growth in recent years. By extrapolation of the data from the household survey, 4,367 individuals are said to be engaged in an activity related to artisanal gold panning, whether primary or secondary. In the six localities within the Project area, this represents 20.22% of the population more than six years of age. Among 15–30-year-olds, almost half of individuals, all genders combined, practice gold panning (46.2%). In the villages of the Mansounia licence area, 15–30-year-olds practicing gold panning represent only 31% of the population. This economic activity is the second most prominent activity after agriculture, both in terms of the number of practitioners and the income generated.
- At household level, gold panning occupies an important place, with 27% of households declaring it as the main source of income. Agriculture is the most common economic activity, with 60% of households considering this activity as the main source of income. Trade is considered by only 5% of households as the main source of income.

- Artisanal gold panning accounts for 24% of income in the Project area. This activity occupies a central place in the local economy. Community revenues from gold panning in Tomboloma were partly used to finance community goods. Boreholes, places of worship, and schools remain the primary beneficiaries of this income source.
- Despite the importance of gold panning in the area, agriculture retains a central place in the local economy and remains the activity mainly practiced by local households. Income from agricultural production alone accounts for almost half of the income (43%). Rice production remains the main agricultural product, with 96% self-consumed. Other food crops, mainly cassava and fonio (grain), occupy the second place in terms of income. Third is vegetable crops, which are highly profitable in relation to the area cultivated, and then perennial crops, mainly consisting of cashew and mango trees.
- The primary school network included at least one primary school in each village or town. There are four primary schools identified in Kiniero, as well as a middle school and a high school. In addition to the conventional schools, Kiniero also has a Franco-Arab middle school with about sixty pupils. The high school building was built in 2007 by SEMAFO. Among the individuals more than six years of age who make up the household survey, 31% of them went to school for at least one year, a non-enrolment rate of the population of 69%.
- Technical and vocational training remains relatively undeveloped with only 3% of those more than 15 years of age having benefited from it. The main training themes are mechanical/plumbing/electrical, reported by 32% of individuals who have benefited from vocational and technical training, mainly men. In second place, with 20%, the textile craft trades, training mainly carried out by women.
- More than 99% of the population of the study area speaks Malinké, which remains the preferred language in the study area. French is spoken by just over one-in-ten people, compared to only 0.5% that can speak English. Other languages spoken include Soussou and Arabic (each spoken by 2% of the population), and Poulard (1%). The level of illiteracy of the population concerned was estimated at 85%.
- The survey of health infrastructure carried out in the area has identified nine health facilities available to communities. Of these facilities, eight concern conventional medicine. In Kiniero, nearly half of these facilities, including a health centre, remains the main public health service in the area. This centre was built in 2009 by the State and co-financed by SEMAFO and the Commune. It now suffers due to a lack of funding and its maintenance is only linked to private initiatives. The village of Kiniero is also home to three private clinics, two of which are the initiative of private doctors and the third of a nurse.
- At Ballan, there are two health facilities, one in Ballan centre and the second in the district of Dalanigbe, established in 2019 by the State at the request of the Mayor. As for the Mansounia area, only two facilities have been identified: a health centre in Mansounia and a health post in Missamana. Konson does not have a health facility in its territory.
- During the global health crisis of the COVID-19 pandemic, there was a strong awareness of the risks associated with this viral disease. The entire population of the Project area appeared to be complying with state health guidelines (wearing masks, prohibition of groupings of more than 20 people, and social distancing). While the observation is valid in Kiniero, Ballan, Faraballan, as well as on the traffic corridors connecting these localities with each other, the situation is different at artisanal gold panning sites. Within the various regions, no specific health measures seem to be applied at these sites. Workers do not wear masks or follow any recommended hygiene measures.
- The survey team's interviews did not highlight any challenges in accessing water, even if this subject had been raised as a concern in the context of the recommissioning of the mining activities. The infrastructure surveyed was relatively evenly distributed throughout the study area. Of the 42 water access points identified, 25 are in Kiniero, six in Ballan, four in Missamana, three in Konson, and two in Faraballan and Mansounia. This census considers only

community infrastructure and not private wells in concessions. More than 95% of the infrastructure is operational. Four out of five households report taking no action for improving their drinking water quality. The only effective actions to purify drinking water included boiling or chlorination, practised by only one household in ten.

- Most household use traditional latrines, with 97% of households surveyed using this type of facility. Only four households reported using improved latrines. The remainder relieve themselves outdoors. Some 95% of households have latrines at their place of residence.
- Four waste disposal points were identified during the survey. These consist of uncontrolled dumps with no treatment or access control. Three facilities are in Kiniero and one facility in Ballan. No waste collection, sorting, and treatment system was found in the survey area.
- None of the villages are connected to the public electricity network. All the identified installations are privately owned and are only made available to the community against payment to owners by the users. The level of electrification is good when compared to other rural areas of Guinea, with 46% of households having access to electricity. Among households with access to electricity, the main source is the connection to a generator (54%), with solar installations accounting for approximately 33%. Approximately 8% mention the use of batteries. Among the ten mosques identified, nine of them are equipped with their own solar power supply system.
- The level of banking of households is low, with only 4% of households owning a bank account. The use of conventional bank loan services, as well as microfinance, is limited.

## 20.2 Environmental water balance

A monthly average water balance was developed for the Project using monthly average rainfall data for the area. The water balance relied on available climate data, CIL plant water requirements, TSF water balance, as well the geohydrology study completed as part of the Project. The TSF returns, pit seeps, out of pit dewatering as well flooded pits provide adequate resources to meet the processing requirements of the plant during the dry and wet seasons. No additional storage or water sources is currently required for the facility.

- The water balance was developed with the understanding that the plant will require approximately 256,653 $m^3$ of makeup water per month.
- Fresh makeup water of approximately 41,908 $m_3$/month is needed from groundwater resources in the area. This will be provided from dedicated boreholes as well as the out of pit dewatering holes.
- Water from the TSF will be prioritized in terms of returns to the plant as supply to meet the 256,653 $m^3$/month requirement. The plant requires approximately 41,908 $m^3$ of fresh water that will be supplied from out of pit dewatering boreholes as well as freshwater boreholes to be established.
- When the TSF returns cannot meet the makeup requirements of the plant, pit seeps and inflows will be used to make up the shortfall. When pit seeps and inflows exceed the makeup requirements, excess water will be released into the environment in a controlled manner.
- If the TSF returns and pit seeps cannot meet the makeup requirements of the plant, the shortfall will be made up from out of pit dewatering boreholes.
- Excess water from the out of pit dewatering boreholes will be released into the environment when not required for the plant or mining areas.
- Water will only be released into the environment when the quality complies with the IFC effluent standards.

## 20.3 Stakeholder engagement

Stakeholder engagement was initially undertaken as part of the scoping phase and compilation of the ESIA submitted to the GOG in May 2020. Stakeholder meetings commenced in February 2020 and continued through April 2020, with a total of 34 individual meetings being held during this period, and prior to the submission of the ESIA in May 2020. As part of the 2020 PFS, additional meetings were conducted in October 2020. As part of the update of the GOG ESIA, further stakeholder engagement was conducted in April 2022 as part of the update of the Social Impact Assessment (SIA), as per the GOG requirements.

Key aspects and comments raised by the community during these engagements (Insuco, 2023b) includes:

- Need to prioritize local employment.
- Loss of income due to limited access to existing artisanal areas.
- Damage to existing cultural sites, or inability to access cultural sites.
- Sterilization of land due to the placement of mining infrastructure and buffer zones.
- Community health and safety.

## 20.4 Environmental and social impacts and risks

The environmental and social impacts and risks were assessed and are summarized in Table 20.3.

Table 20.3 Environmental and social impacts and risks

| Aspect | Impact |
|---|---|
| Topography and landscape | The historical mining activities affected the topography of the area and resulted in various residual pits, waste rock dumps, run-of-mine (ROM) pad, stockpiles, TSF, and associated facilities. The continued development of the mine will result in the extension of the existing pits and waste rock dumps around the SGA and Jean resource areas. A new pit and associated waste rock dump will be established at Sabali North, Central, and South. This will continue over the life-of-mine and will remain permanent features following the reclamation and closure of the mine. A new TSF will be established to the north of the existing TSF. |
| | The TSF, pits, and waste rock dump facilities have been designed to ensure a stable landform taking into consideration the geotechnical characteristics of the material as well as a risk assessment should the facilities fail. |
| Soils, land use, and land capability | Limited soil resources are expected to be lost due to erosion (wind and water) of unprotected soils as well as exposure to contaminants, such as reagents, hydrocarbons, etc. With proper mitigation measures these losses are expected to be limited. |
| | The loss of the utilization of the soil resource will impact the land-use practice of subsistence agriculture and grazing and the natural wilderness status of the areas that have not already been affected by artisanal mining, while the limited traditional hunting and the gathering of medicinal plants will also stop within the mine lease area. These activities are perceived to be of social, and to some extent, economic benefit to the local people and receiving environments. |
| Land use | Land use will change in the mining areas as well as the areas earmarked for the placement of infrastructure. In these areas the land use will primarily change from agriculture to wilderness. Exclusion zones will also be established to ensure the safety of community members in the area. |
| | Some artisanal mining areas will be affected and is discussed in the Social Impact Assessment section. |
| Terrestrial ecology | The following key impacts are associated with the proposed development: |
| | Habitat fragmentation and associated reduced/disrupted ecosystem functioning. |
| | Loss of natural habitat resulting from pre-construction and construction activities such as the clearing of vegetation for site access, siting of infrastructure, and mining of open pits. |
| | Loss of conservation-important plant species due to construction of access/haul roads and siting of facilities loss of medicinal plants and/or access to these plant species due to construction of access/haul roads and siting of facilities. Introduction/proliferation of alien invasive species. Increased utilization of plant resources as a result of an influx of people into the Project area. Ecosystem degradation and loss of ecosystem services. |
| Aquatic ecology | Impact of elevated sediments on aquatic ecosystems. |
| | Impact of altered water quality on aquatic ecosystems. |
| | Impact of waste rock dump on aquatic ecosystems. |
| | Impact of decanting on aquatic ecosystems. |
| | Loss and/or degradation of natural ecosystems within the Ramsar site. |
| | Impact of influx of people on aquatic resources within the Ramsar site. |
| | Impact of pit dewatering on surrounding drainage lines, rivers, and catchments. Based on the current dewatering strategy, some water from SGA pit will be pumped to existing flooded pits with similar quality water with a view to using it during the plant commissioning phase. The water will also be used as makeup water during the low and no rainfall months. The balance of the water will be released into the Sinké, Bariko, as well as other catchment areas at a rate of approximately 250,000 $m^3$/month. Based on the water quality results from the pit lakes, it is determined that the water will be compliant with the IFC effluent guidelines (IFC, 2017) and can therefore be released. The water released within the catchment is well within the natural range of flows in the river. In order to avoid sub-daily fluctuations that may be caused by power outages, a storage facility that spills by gravity into the receiving watercourse will be required. The storage facility would serve to dampen short-term fluctuations in discharge and also trap sediments. Also, a pipeline to convey water from the pits to the discharge point would be preferable to an open canal. |
| Surface water resources | Contamination of surface water due to hydrocarbon spills and product spills. |
| | Surface water contamination due to the storage and handling of hazardous materials and chemicals. |
| | Interference with natural drainage due to construction of access and haulage roads and pit diversion channel. |
| | Increased sediment load in water sources due to erosion from construction activities. |
| | Predevelopment pit-lake dewatering. |
| Geohydrology/groundwater | Potential groundwater impacts during the construction phase would be minor with the correct water-management measures. These include small-scale pit dewatering and potential hydrocarbon spillages from contraction machinery. Potential risks are small, and no environmental receptors or community water points are foreseen to be impacted on. |
| | Groundwater drawdown cones would develop due to operational mine dewatering. Both in-pit dewatering only, and borehole dewatering scenarios were investigated with larger dewatering cones expected for the borehole dewatering scenario compared to in-pit only dewatering. The extent of the groundwater drawdown zone is in the order of 400 m to 1,450 m along more permeable geological features, depending on the open-pit area and dewatering scenario. A smaller dewatering cone would develop in the low permeable saprolite. |
| | Mine dewatering at Sabali, Jean, and SGA deposits could potentially reduce the groundwater baseflow contribution to the Kéléro and Sinké Rivers respectively. The calculated reduction in potential stream flow is small, less than 2.4 % for the Kéléro River and less than 0.12 % for the Sinké Rivers. Discharge of pit dewatering boreholes will, however, counteract the risk of streamflow reduction. |
| | Arsenic was identified as a potential source of groundwater contamination, likely to emanate from the TSF and waste rock dumps. Both tailings and waste rock material are likely non-acidic forming (NAF) as suggested from testwork. The TSF will be lined and thus a low to insignificant groundwater quality impact is foreseen. A worst-case TSF contaminant transport modelling scenario was simulated, assumes widespread imperfection in the liner system. The predicted contaminant plume at the end of the 12-year operational life would be confined to TSF footprint and less than 150 m downstream of the main embankment. This long-term groundwater plume could further migrate approximately 250 m to 300 m downstream of the main embankment as simulated for the post-closure risk assessment. Potential simulated groundwater contamination plumes associated with waste rock dumps are site-specific and of low intensity at the end of the operational life. The long-term (100-year) groundwater plume prediction suggests a westward migration of the SGA and Sabali waste rock dumps and a northern migration at the Jean waste rock dump, towards small unnamed tributaries of the Niandan River and Sinké River. The risk is, however, low in terms of impacting stream water quality. The predicted groundwater contaminant plumes at the end of the operational life and post-closure are not likely to impact on environmental receptors or community water supply points. |
| | Post-closure groundwater contamination could potentially impact the Sinké River, downgradient of the TSF. A similar risk exists for the Bariko River, downstream of the Jean – SGA pit-lakes and waste rock dumps. Salt balance type calculations (worst-case scenario) associated with the simulated contaminant plumes, suggests, that the impact would be small to negligible. The increase in groundwater arsenic concentration next to the Sinké River, associated with the contaminant plume from the TSF, is likely to comply with IFC Mine Effluent Discharge Guidelines (IFC, 2017). |
| | Pit lakes would develop at the different open pits at cessation of mining. Surface decant or pit overflow could take place at Sabali Central 2 and Sabali South into the Kéléro River, within 10 years after mining stops. The calculated surface decant rate from the Sabali Central 2 and Sabali South pits into the Kéléro River is approximately 725 $m^3$/day. The impact on the Kéléro River quality is likely to be acceptable in terms of IFC Mine Effluent Discharge Guidelines (IFC, 2017), based on the water quality data analysed from existing pit-lakes in the Kiniero area. |
| Air quality | The main activities during the operational phases which are likely to increase the Particulate Matter (PM) and gaseous emissions includes: various material handling steps (loading and unloading from trucks, loading, and unloading at stockpiles, crushing, and screening), emissions from drilling and blasting activities, wind-blown dust emissions, as well as entrainment and tailpipe emissions from vehicle sources. |
| | During the operational phase, the mining of the earmarked resource areas will be done in sequence, and not at the same time, hence the significance of the potential impacts of the mining and associated activities during the operational phase, would likely be low. Blasting at the pits will not be a regular occurrence, hence the potential impacts associated with blasting are usually low due to the short duration of the blast, and the gaseous emissions deriving from the explosives are expected to be insignificant compared to gaseous emissions from vehicle tailpipe emissions. |
| | Dispersion modelling simulations (Airshed, 2020a) were undertaken to determine highest hourly, highest daily, and annual average ground level concentrations for each of the pollutants considered for the operational phase. Use was made of Guinean air quality standards as well as the WHO Air Quality Guidelines (WHO, 2017) and comparative international guidelines and standards. While simulated highest daily and annual average $PM_{10}$ concentrations exceed the GOG and WHO air quality guidelines (WHO, 2017) in the immediate vicinity of the mining operations, no exceedances of either the GOG standard or the WHO air quality guidelines were simulated at any sensitive receptors in the Project area. While mining operations at the Sabali North and Central pits are active, exceedances of the WHO air quality guidelines and WHO interim target (IT-1) could, however, be experienced at the mine camp. Similar to simulated $PM_{10}$ concentrations, simulated highest monthly dust fallout is high in the immediate vicinity of the mining operation but negligibly low at any of the identified sensitive receptor locations. Simulated concentrations of other pollutants, including $PM_{2.5}$, CO, $NO_2$, and $SO_2$ are very low throughout the Project area and negligible at sensitive receptor locations, with local sources of these pollutants, such as public vehicles and domestic fuel burning expected to contribute significantly more to ambient levels of the pollutants at these locations. |
| | Greenhouse gas emissions were quantified for the operations using the estimated design power requirements and fuel usage provided. In the quantification of emissions, use was made of the 2006 Intergovernmental Panel on Climate Change Guidelines (IPCC,2008) for mobile and stationary diesel combustion. The estimated total greenhouse gas emissions of the Project is 50227,8 tonnes $CO_2$eq/annum. The greenhouse gas emissions from the Project is not likely to result in a noteworthy contribution to climate change on its own. |
| | Key impacts from the latest 2023 DFS layout, is provided below: |

| Aspect | Impact |
|---|---|
| | Atmospheric dispersion modelling simulations showed that fugitive dust generated by mining, hauling, and materials handling operations could exceed the WHO Air Quality Guideline for Daily $PM_{10}$ concentrations up to approximately ~1 km from the pits and waste rock dumps. Daily $PM_{10}$ concentrations were the most significant air quality impact simulated, all other pollutants and averaging periods have less significant impacts. The Sabali South operations are approximately 2.5 km from the town of Kiniero and are therefore not expected to result in exceedances of the WHO Air Quality Guidelines s at the town of Kiniero for any of the pollutants assessed. |
| | Given that at the new proposed TSF location, cumulative impacts from the TSF together with other mining, hauling, and processing operations will be minimal due to the large distance between the TSF and other operations. The impact of wind-blown dust emissions from the TSF is expected to not exceed the WHO Air Quality Guideline (WHO, 2017) for $PM_{10}$ and $PM_{2.5}$, or the adopted assessment criteria (600 mg/m²/day) for dust fallout at sensitive receptors in Ballan. |
| | Wind-blown dust from the TSF might be noticeable, as deposited nuisance dust on surfaces. This could occur in the town of Ballan during periods of high windspeed events from the south-east, which, according to the meteorological data set used, are expected to occur approximately 1.1% of the time, or 95 to 100 hours per year in total. It is recommended that best-practice dust control measures be implemented on the TSF and that the TSF be continually rehabilitated to avoid long-term (and even post-closure) dust impacts at the town of Ballan. It is recommended that dust fallout monitoring be conducted at Ballan. If sampled dust fallout rates at Ballan exceed 600 mg/m²/day, further mitigation measures, either sourced-based or receptor-based should be considered. If high dust fallout rates are continuously monitored at Ballan, $PM_{10}$ monitoring should be conducted at this location as well. The community of Ballan should be engaged and encouraged to report any air quality or dust-related complaints. If complaints regarding dust from the TSF are received from the community, these should be investigated, and further mitigation and dust control measures should be investigated. |
| Noise | Based on the Noise Impact Assessment (Airshed, 2020b) no sensitive receptors are located within a distance of 500 m from the mine complex and areas to be mined, and the receptors are thus not expected to experience an increase of 3 dBA over the baseline noise levels. The mine camp/village, however, is approximately 150 m from the Sabali North satellite pit and might be impacted. Monitoring will confirm the modelling predictions in terms of the compliance with the host country and IFC PS requirements and standards. |
| | IFC guidelines for residential, institutional, and educational receptors of 55 dBA (daytime) and 45 dBA (night-time), as well as the IFC guideline for increase from baseline noise level (3 dBA) and the South African National Standard (SANS) (10103) guideline (SANS, 2008) for community response to increase in environmental noise levels, were adopted as assessment criteria. Based on the propagation simulation results, the change from baseline noise levels at the identified sensitive receptors will be imperceptible, with less than 1 dBA increase in noise levels simulated at all sensitive receptor locations, both during the day and during the night. An increase of 3 dBA from baseline levels can be expected up to 2 km from the mining, hauling, and processing operations, but it is unlikely that the operations will be audible at distances further than this. It is therefore unlikely that any complaints would be received from the nearby communities regarding noise generated by the mining, processing, or hauling activities. When the mining activities at the Sabali North and Central pits are active, noise levels at the mine camp/village could be 10 dBA to 15 dBA higher than baseline levels due to nearby mining and hauling activities. It is recommended that noise levels at the mine camp be sampled prior to construction/refurbishment and again during the operational phase of the Sabali North and Central pits. If mining and hauling operations result in disturbances at the mine camp, receptor-based mitigation should be considered. |
| | Based on the latest DFS layout and updated noise propagation modelling results (Airshed, 2023), mining operations are expected to be audible up to ~1.6 km from the operations and disturbing up to ~800 m from the operations during the night. Daytime noise impacts are expected to be less significant than night-time impacts due to higher baseline daytime noise levels in the study area. Based on this, operations at the Sabali South will not be disturbing to the residents of Kiniero during the night, although operations could be audible at the residences on the western side of Kiniero during the night. |
| Blasting and vibration | The mine camp is the only habitable infrastructure in close proximity to the mine, with the nearest pit and waste rock dump located approximately 150 m away (Sabali North satellite pit). The camp might need to be repositioned for the completion of this phase of the Project. Monitoring data will be used to confirm whether the blasting impact is significant on the camp and whether it will need to be repositioned. All sensitive receptors (villages and hamlets) are located more than 1 km away from active mining areas. |
| | Based on the Blasting and Vibration Impact Assessment (Rorke, 2023), in terms of ground vibration and air blast, blasting impact will have a Low Negative impact significance for blasting in all pits. For people in Kiniero mine camp it will be necessary to provide blast time notification. There is zero negative impact from blast-induced ground vibration for people further than 400 m from blasting and zero impact to buildings further than 300 m from blasting based on the proposed blast designs. |
| | In terms of fly rock control, unmitigated blasting will present a Medium-High Negative impact significance for blasting in all pits with the main consequence being safety of people from injury and protection of buildings and infrastructure from damage. Post-mitigation, the significance will drop to Low. The control measures include moving people to beyond 1,000 m from blasting, and special stemming control methods for infrastructure and people who cannot be moved that are closer than 500 m from blasting. |
| | In terms of poisonous blasting fumes, specifically nitrous oxide fumes, caused by incomplete or inefficient detonation of explosives, the negative impact significance will be Medium Low. However, mitigation measures will be needed to prevent persistent occurrence of nitrous oxide fumes. This will involve investigation and correction of the cause of the fumes. |
| | There is a risk that incorrectly stored nitrates will dissolve or spill causing potential high-nitrate content in the nearby feeder stream to the Sinké River. The negative impact significance has been rated as Medium High but will be Medium Low with mitigation that involves storage control measures. The mitigation measures have been incorporated into the Project design. |
| Cultural heritage | A number of heritage sites have been identified in the Project zone of influence. The Project layout has been adjusted to ensure that these sites are not directly affected by project infrastructure and that the facilities can be accessed safely for community rituals, etc. A safety protocol will be established to ensure the continued safe access and use of these facilities. |
| | The new plant and ROM are situated approximately 150 m from the “Sabaly” cultural heritage site, which will impact the access and use of the heritage site by the local community. The site is highly visited by both the village community and the neighbouring villages. The heritage site can be relocated under certain conditions. |
| Social Impact Assessment | The recommissioning of the mine will have an immediate positive impact in terms of local employment of community members. National, regional, and local businesses and contractors will benefit both directly and indirectly from Project-related construction and operational activities due to the purchase of goods and services. Increased incomes and profits of local businesses and major suppliers of goods and services manufactured and supplied in Guinea will be realized. This increased revenue to local businesses will in turn contribute positively to the local economy through expanded local employment, increased disposable incomes, and growth in the local consumer-base. |
| | The development will also result in training and education of local community members, decrease in unemployment and increase in family income, influx of people due to employment opportunities, development of a local market for goods and services (direct and indirect services to the mine), loss of agricultural resources, possible loss of temporary infrastructure and shelters, closure of some artisanal mining areas, limitation of access to cultural heritage sites, disturbance of the natural environment and associated ecosystem services (water, air, and land pollution), increased road traffic, as well as a possible deterioration in access to reliable and good-quality water for domestic use. |
| | The Project will require an estimated workforce of approximately 300 workers during the peak period of the construction phase, and approximately 700 workers in the operational phase. |
| Protected areas | The proposed development is located within the Niger-Niandan-Milo Ramsar Site (No. 1164). The post mitigation impact of the planned development on the Ramsar site is not expected to be significant, due to the relatively small area affected compared to the larger site, as well as the fact that the majority of infrastructure will be placed on previously disturbed areas. The Project will, however, result in the loss and/or degradation of natural ecosystems within the Project zone of influence. Mitigation will be focused on supporting the GOG in the improved management and protection of the Ramsar site. |

Source: ABS Africa, 2023.

## 20.5 Environmental and Social Management Plan (ESMP)

In response to issues and potential impacts identified in the impact assessment phase, SMG has designed, and will implement, a variety of mitigation measures to reduce, minimize, or eliminate adverse effects that could result from development of the Project. In general, the mitigation measures proposed in support of this Technical Report are designed to:

- Reduce or eliminate the adverse effect through life-of-mine planning and engineering design wherever possible.
- Minimize adverse effects by limiting the degree or magnitude of the action and its resulting effects.
- Remedy the adverse effect by rehabilitating the affected environment.
- Develop and implement ESMPs to manage, monitor, and review adverse effects.
- Develop and implement social management plans to enhance positive social impacts (e.g. employment).
- Compensate for the adverse effect by replacing or providing substitute resources or environments.

Monitoring measures will be used to ensure that actions taken are effective in ameliorating both foreseen and unforeseen effects. In addition to describing specific actions to mitigate potential effects, the overall philosophy of SMG is described herein with respect to its obligations to minimize and mitigate adverse effects on the environment within the Project area. Various plans will be developed and implemented as per the requirements of the IFC Performance Standards (IFC, 2012) including the following:

- Community health and safety management plan.
- Local employment management plan.
- Plan for managing relations with artisanal gold miners.
- Livelihood restoration plan for artisanal miners and agricultural assets lost.

To ensure no net loss of natural habitat, the following will be implemented:

- An area needs to be identified within the development area as a set-aside to conserve a representative portion of the natural habitat that will be lost within the current infrastructure layout. This set-aside should incorporate the full spectrum of vegetation communities that are going to be impacted by the Project layout and should include natural habitat represented by the following vegetation communities:
  - Grassland on laterite hardpans.
  - Tall thicket on laterite hardpans.
  - Broad-leaved woodland/tree savannah.
  - Riparian wetland.
  - Riparian (gallery) forest.
- A management plan is being developed for the set-aside that will focus on maintaining the ecological processes that support the represented habitats, such as fire, pollinators and dispersal agents, migratory corridors, etc.
- At least one monitoring plot of 20 m by 20 m will be established within each of the vegetation communities within the set-aside and these plots should be monitored on an annual basis; data to be collected should include full species lists, dominance (cover-abundance), proportion of flowering plants, and presence of invasive alien species.

The Project is situated within a Ramsar site, and the layout directly affects areas of high ecological importance and natural habitat areas as per IFC PS6 definitions. To date no critical habitat triggers have been identified in the Project area. Based on paragraph 15 of the IFC PS6 guidelines (IFC, 2017), in areas of natural habitat, mitigation measures will need to be designed to achieve no net loss of biodiversity where feasible. Appropriate actions include:

- Avoiding impacts on biodiversity through the identification and protection of set-asides.
- Implementing measures to minimize habitat fragmentation, such as biological corridors.
- Restoring habitats during operations and/or after operations.
- Implementing biodiversity offsets.

## 20.6 Reclamation and mine closure

Decommissioning, reclamation, and closure will be carried out in accordance with the provisions of the 2011 Mining Code of the Republic of Guinea (as amended by the 2013 Bill), The Code on The Protection and Development of The Environment (Order No. 045/PRG/87) (Environmental Code, 1987), as well as the International Mining Industry's Best Practice Guidelines, and will comply with the conclusions and recommendations of the ESIA and the related management plan.

The 2011 Mining Code of the Republic of Guinea (2011, partially amended in 2013) specifies the closure and rehabilitation needs, including opening a trust account and making the necessary financial provision to ensure that rehabilitation activities can be completed.

SMG's objective for the rehabilitation and closure of the Kiniero Gold Mine is to ensure that the site is left in a condition that is safe and stable where long-term environmental impacts are minimized, and any future liability to the community and future land-use restrictions are minimized. The final post-mining land use will be determined in consultation with the local communities, Ministry of Mines and Geology, as well as other departments responsible for environmental and social aspects. The land-uses to be identified during this process are likely to include:

- Areas for agriculture.
- Areas for livestock grazing.
- Wildlife habitats.

For health and safety reasons, as well as the protection of specific rehabilitations works, specific areas within the Project may be designated as exclusion zones. Natural soil covers and vegetation will be re-established, as far as possible, over these areas but access by humans and/or livestock to these zones will be strictly prohibited. The following closure objectives form part of the conceptual closure plan:

- All structures on-site not desirable or usable post-closure will be demolished and building material removed/disposed of.
- Hazardous material, equipment, and contaminated soils and steel structures will be disposed of safely and in an environmentally acceptable manner.
- The process plant and other areas used for the handling and storage of hazardous materials will be decontaminated.
- Rehabilitation of disturbed areas to a final land-use capability that is practical and best-suited for the final landform, taking into consideration the socio-economic activities of the receiving communities.
- At the end of the mine life, the residual facilities will include open pits, waste rock dumps, a TSF, diversion structures, and supporting infrastructure.

The ultimate end use of the rehabilitated areas is considered to have three major objectives:

- Re-establishment to the greatest feasible degree of vegetation on the disturbed areas.
- Reintegration of the disturbed areas outside the mine footprint into the agricultural and other prevalent economies.
- Redevelopment of the disturbed land by working with and involving the local community to assist the local community in working towards a more sustainable form of livelihood.

A summary of the reclamation and closure cost estimate for the Project is provided in Table 20.4. Table 20.5 reflects the estimated closure liability associated with the Project. The projected annual spent on reclamation and closure activities in presented in Table 20.6.

Table 20.4 Project reclamation and closure cost estimates

| **Reclamation And Closure - Summary Costing** | | **Value (US$)** |
|---|---|---|
| Plant and Associated Infrastructure | | 1,626,682 |
| General Admin and Support Infrastructure | | 1,447 934 |
| **Pits** | | |
| *Jean Pit* | | 247,335 |
| *SGA Pit* | | 248,946 |
| *Sabali North Pit* | | 51,023 |
| *Sabali Central Pit* | | 80,171 |
| *Sabali South Pit* | | 210,770 |
| Roads | | 108,298 |
| **ROM Pads** | | 119,897 |
| **Waste Rock Dumps** | | |
| *Jean WRD* | | 2,040,593 |
| *SGA WRD* | | 1,000,750 |
| *Sabali WRD* | | 390,209 |
| *Sabali South WRD* | | 1,171,292 |
| TSF Phase 1 and 2 | | 9,460,000 |
| **Environmental Monitoring (included in monitoring budget)** | | |
| **Subtotals** | | **18,203,898** |
| Contingency (allowance for unquantified works) | 5% | 437,195 |
| Contractors Preliminary and General Costs | 10% | 874,390 |
| Project Management, Engineering Design, and Environmental Permitting | 5% | 437,195 |
| **Totals** | | **19,952,678** |

Note: TSF subtotal included items 12, 13, and 14.
Source: ABS Africa, 2023.

## Table 20.5 Projected reclamation and closure liability over LOM

| Description | Construction Phase | | Operational Phase | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Y 0 (US$) | Y 1 (US$) | Y 2 (US$) | Y 3 (US$) | Y 4 (US$) | Y 5 (US$) | Y 6 (US$) | Y 7 (US$) |
| **Totals** | 2,010,308 | 5,580,410 | 7,204,257 | 9,848,316 | 14,553,599 | 16,070,639 | 17,119,228 | 19,952,678 |

Source: ABS Africa, 2023.

## Table 20.6 Projected annual expenditure on reclamation and closure activities

| Description | Construction Phase | | Operational Phase | | | | | | Decommissioning and Closure Phase | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Y 0 (US$) | Y 1 (US$) | Y 2 (US$) | Y 3 (US$) | Y 4 (US$) | Y 5 (US$) | Y 6 (US$) | Y 7 (US$) | Y 8 (US$) | Y 9 (US$) | Y 10 (US$) | Y 11 (US$) | Y 12 (US$) |
| Cashflow Spent on Rehabilitation | - | - | 720,426 | 984,832 | 1,455,360 | 1,607,064 | 1,711,923 | 1,995,268 | 5,387,223 | 2,194,795 | 1,298,596 | 1,298,596 | 1,298,596 |
| Balance | - | - | 720,426 | 1,705,257 | 3,160,617 | 4,767,681 | 6,479,604 | 8,474,872 | 13,862,095 | 16,056,889 | 17,355,485 | 18,654,082 | 19,952,678 |

Source: ABS Africa, 2023.

## 20.7 Pit dewatering strategy

Water from the flooded pits will be dewatered into the Bariko and Kéléro Rivers during the wet season of 2023 at a rate not exceeding the acceptable release rate. A monitoring programme has been developed to provide for the sampling of the water quality prior to release into the environment. Some water is likely to be diverted to the Bariko Pit as storage to be used during the startup of the plant. Water quality sampling indicates that the water quality of the flooded pits is generally compliant with the IFC effluent standards and that with the planned sequencing the water quality objectives and guideline values can be met. A monitoring programme has been developed and will be implemented prior to the implementation of the dewatering programme.

## 20.8 Stormwater management

The following stormwater management principles have been adopted for the Project:

- Clean water must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system, while preventing or minimizing the risk of spillage of clean water into dirty water systems.
- Dirty water must be collected and contained in a system separate from the clean water system. The risk of spillage or seepage into clean water systems must be minimized. The containment of dirty or polluted water will minimize the impact on the surrounding water environment.
- The stormwater management principles must be sustainable across the life-of-mine, and different hydrological cycles must incorporate principles of risk management. Portions of the stormwater management principles, such as those associated with waste management facilities, may have to remain after mine closure since management is required until such time that the impact is considered negligible, and the risk no longer exists.

## 20.9 Economic displacement and livelihood restoration

The Project will result in the economic displacement of some members of the community and requires the development of a Livelihood Restoration Plan (LRP). The LRP must allow for the identification of available resources, the affected parties, and an assessment of the losses, to determine the preferred compensation method and compensation quantification. The LRP must include a plan for the restoration of income that allows affected people to not suffer a net economic loss due to the development.

It is mandatory that before the start of the development, all assets likely to be affected need to be identified and catalogued. A moratorium must be announced, once the survey is completed, to prohibit any further development in the areas affected by this moratorium. The major phases of the plan will include:

- The identification of impacts and the zone of influence.
- The identification of right holders.
- The evaluation of losses.
- The definition of compensation.
- The execution of the compensation component.
- Follow-up and closure.

A provision of approximately US$3 million to be spent over a period of three to five years is made for compensation associated with agricultural assets and production losses suffered.

## 20.10 Environmental Monitoring Plan

Environmental and social monitoring will be used to determine the impact and change of the environment due to site activities. A budget will be provided for monitoring and maintenance of vegetation establishment as well as for environmental monitoring after closure of the site.

Environmental monitoring data (surface and groundwater, air quality, noise, soils, etc.) will be collected and analysed, and monitoring reports will be compiled over a period of:

- Eighteen (18) months after closure to coincide with the phase of dismantling and reclamation of the Project.
- Five additional years after the completion of the decommissioning and closure phase.

The following registers will be maintained:

- Project permits and licences.
- EIA and ESMP.
- All matters related to compliance monitoring, environmental performance and ESMP implementation.
- Health, Safety and Environment attendance records and Health, Safety and Environment training material.
- A list of all persons receiving job-related training.
- Environmental monitoring and verification data/reports and results of inspections performed.
- Copies of all written ESMP instructions/approvals/exemptions issued to contractors.
- The approved method statements and codes of practice for specific activities and facilities.
- Waste management files.
- Maintenance records of vehicles and equipment.
- Maintenance and inspection of all safety equipment, e.g. fire extinguishers.
- Photographic documents of the development and restoration of the site.
- A properly completed and signed environmental incident/non-compliance report for each incident or environmental non-compliance reported.
- An up-to-date register of external communications.
- Completed and updated form and register of complaints and external grievances for each external complaint received.
- A register of contacts in case of emergency.
- A register of dangerous substances and the associated Material Safety Data Sheets.

The annual environmental monitoring budget is approximately US$183,000 and allows for air quality, noise, surface, and groundwater quality monitoring, as well as social monitoring programmes.

## 20.11 Environmental and Social Management System (ESMS), IFC Action Plans and Operational Readiness

A series of IFC Action Plans will be required once the FS has been completed and a decision is made to implement the Project. This is likely to be developed within a six-month period. An initial budget of US$120,000 has been budgeted for the development of the various plans, with life-of-mine provision of US$150,000 for the implementation and monitoring of these plans.

## 20.12 Community development programme

SMG will promote the economic independence of local communities and focus on helping small businesses. Despite the business opportunities related to the Project, SMG aims to help diversify local businesses beyond mining. In addition to spending, employment, royalties, etc., there are opportunities for SMG to contribute positively to the local community while not assuming the role of social service. SMG will ensure that its contributions paid to the local community will promote sustainable community development so that development can continue after the presence of the Project.

A provision as a percentage of pre-tax profit will be allocated for the community development plan, which will focus on the following aspects:

- Health and education.
- Infrastructure and water supply.
- Agriculture.
- Small businesses.
- Recruitment and training of local workers.
- Artisanal mining.
- In-migration.

## 20.13 Risk and opportunities

The following risks and opportunities have been identified (Table 20.7):

- Kinetic testwork is recommended on the TSF material as well as the higher risk transitional material identified that is currently classified as uncertain, or potentially acid forming. If the material is acid-forming, then a plan will be required to ensure that the higher risk material is encapsulated within the lower risk material to prevent the forming of AMD.
- A site-wide monthly water and salt balance is required once additional geochemical testwork has been completed.
- Stormwater management and a flood protection berm will be required by the Sabali South pit, depending on final pit design.

Table 20.7 Identified risks and opportunities of the Project

| Risk | Description | Mitigation |
|---|---|---|
| Environmental incidents due to spills or accidents. | Local or international incident caused by accidental spill of cyanide or other hazardous chemicals into the Niger River or the during crossing of River or event within the Niger-Niandan-Milo Ramsar site. | Hazardous Materials Management Plan. Cyanide Management Plan. Cyanide Supplier Risk Assessment and Compliance with Cyanide Code. |
| Withdrawal/suspension of licence due to poor environmental/social performance. | Environmental incidents or conflict with community resulting in the withdrawal of the environmental licence/permit. | Environmental and Social Management System. Active community engagement. |
| Vehicle accidents resulting in loss of life. | Interaction between mine traffic and public/private vehicles resulting in accidents and loss of life. | Traffic management plan. Separation of mine traffic and public traffic |
| Water treatment required for poor quality leachate post-closure. | Geochemical testwork undertaken found that some samples from the transitional zone may be acid-forming or is uncertain. Treatment may be required of post-closure pit lake water prior to release. | Additional testing, including kinetic testwork on material classified as potentially acid-forming or uncertain. Waste Management Plan for material with uncertain AMD potential. |
| Environmental Liability due to historical contamination from SEMAFO mining activities. | SMG is exempted from the liabilities associated with historical SEMAFO mining activities, but historical liabilities would need to be identified and quantified and agreed with the GOG. | Site contamination assessment. Environmental Monitoring. Audit of past incidents and spills. |
| Disruption of operations and damage to property. | Community Unrest - Economic Displacement and loss of Income - Artisanal Miners and Agriculture. | Income and Livelihood Restoration Plan. |
| Disruption of operations and damage to property. | Community Unrest - Community Expectations resulting in conflict and community action. | Fair recruitment policy and the promotion of local employment. |
| Disruption of operations and damaged to property. | Influx of people and competition for employment resulting in community action and conflict. | Influx Management Plan. Fair recruitment policies advancing local employment. Community Development Plan. |
| Need for the relocation of mine camp due to exceedances of air quality/noise standards and blasting impacts. | Exceedance of dust and noise standards may result in the need for the relocation of the mine camp to an alternative location outside the direct zone if influence. | Monitoring. Dust suppression. Relocation of camp to ensure compliance.<br><br>Implement Blast Management Plan and recommended monitoring. |
| Stormwater management | Disruption of operations or damage to infrastructure due to lack of stormwater management and infrastructure. | Dewatering and water infrastructure |
| Delay in commissioning of mine due to a delay in dewatering of flooded pits. | Dewatering and storage requirements to ensure access to resources | Water balance sensitivity analysis. Confirmation of volume of water to be removed from pits. Assess suitability of existing infrastructure and facilities. |
| Non-compliance of pre-development dewatering water quality with host country and IFC effluent guidelines, requiring establishment of treatment plant. | If water being released for predevelopment dewatering does not comply with the host country water quality standards as well as the IFC Effluent Guidelines, water will not be suitable for release into the environment. | Should monitoring show that the water being released into the environment for dewatering does not comply with the IFC Effluent |

| **Risk** | **Description** | **Mitigation** |
|---|---|---|
| | The mitigation will impact the CapEx and OpEx of the pre-development dewatering programme. | Guidelines, water treatment options will need to be investigated. Mitigation options includes establishment of storage facility or a water treatment plant. |
| Flooding risk of Sabali South pits due to proximity to the 1:100 yr. flood line. | Loss of life, damage to property and disruption of production. | Stormwater management plan and construction of flood protection infrastructure. |
| Disruption of operations and possible loss of life. | Flooding of pits and haul routes due to extreme rainfall event. | Dewatering infrastructure and adequate stockpiling |
| Disruption of availability of work force impacting on productivity due to vector-related diseases. | Malaria resulting in high incidence of sick days and need for treatment. | Malaria control and management protocol. Awareness. Treatment protocols. |
| Increase in reclamation and closure liability. | An increase in reclamation and closure liability due to a change in the closure objectives (such as backfill). | Annual review of reclamation and closure liability and associated closure objectives. Annual engagement with GOG. |
| Proposed new TSF proximity to the village of Ballan (800 m). | Potential wind-blown dustfall impacts to the Ballan village situated downwind from the TSF site. | Air quality dispersion modelling risks will need to be confirmed with recommended on-site monitoring at Ballan and effectiveness of mitigation confirmed. |
| Compliance with IFC PS6 | Approximately 235 ha of natural habitat is directly affected by the current 2023 FS layout. Biodiversity set-asides will be required in order to ensure no net loss. | Biodiversity management plan and set-aside strategy will be required if natural habitat cannot be avoided. Viable alternatives to be assessed. Provide support to the GoG in the improved management and protection of the Ramsar site. |
| Pre-development dewatering strategy | Treatment of pit-lake water required if water quality not compliant with IFC effluent standards, prior to release into environment. | Pit lake water quality compliance with IFC Effluent standards to be confirmed through monitoring during the dewatering process. |
| National government projects sterilizing Mineral Resources. | Concept studies have been proposed for the damming of the Niandan River. Two options were considered for the damming of the river, the Fomi Dam, and the Moussako Dam. The area to be inundated by the Fomi Dam will affect some of the Mineral Resources of Kiniero and Mansounia, while the Moussako flooded area is further south and does not directly affect the Mineral Resources identified. It is understood that no plans are currently in place for the development of either of these facilities and no permitting is in place. | Continue engagement with the GOG as a stakeholder and affected party. |
| Livelihood Restoration Plan | The livelihood restoration plan is currently being developed and the financial compensation can only be confirmed once the asset survey has been completed. It is possible that the current provision is not adequate to compensate the affected parties. | Complete LRP. |

Source: ABS Africa, 2023.

## 20.14 ESIA conclusions

The Project is being undertaken with due consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements. The economic benefit of this development is significant and viewed as a positive development by the community. With mining projects of this nature, there are also negative impacts which will require planning, mitigation, and monitoring during the construction, operational, decommissioning, and closure phases of the Project. These have been included in the ESIA. Based on the assessment completed in the ESIA, no fatal flaws have been identified. Mitigation measures and monitoring programmes have been identified and developed for impacts that require mitigation.

# 21 Capital and operating costs

The capital cost (CapEx) and operating cost (OpEx) estimates for the Project were prepared by the following parties:

- The mining CapEx and OpEx were estimated by Robex and AMC.
- The process plant CapEx and OpEx were estimated by Soutex.
- The TSF CapEx and OpEx were estimated by Epoch.
- The general and administration (G&A) operating costs were estimated by Robex and reviewed by AMC.

All costs in this section are presented in US dollars (US$).

## 21.1 CapEx estimate

The initial CapEx cost is estimated at US$159.9 million. Sustaining CapEx is estimated at US$74.2 million giving a LOM total CapEx of US$234.1 million. The LOM CapEx is summarized in Table 21.1.

Table 21.1 LOM CapEx summary

| Category | Initial CapEx (US$k) | Development CapEx post construction (US$k) | Sustaining LOM CapEx (US$k) | Total LOM CapEx (US$k) |
|---|---|---|---|---|
| Mining | 9,064 | | 3,091 | 12,155 |
| Process Plant | 91,346 | | 13,279 | 104,625 |
| TSF | 19,648 | 29,372 | 6,640 | 55,660 |
| Infrastructure | 8,617 | | | 8,617 |
| G&A | 15,730 | | | 15,730 |
| Other costs | 6,102 | | 505 | 6,606 |
| Closure costs | | | 19,866 | 19,866 |
| Contingency | 9,389 | 1,473 | | 10,862 |
| **Total** | **159,896** | **30,845** | **43,381** | **234,122** |

Source: Robex, AMC, Soutex, Epoch, 2023.

CapEx estimates presented in this section reflect total project costs from January 2023 to end of mine life. As some equipment purchases and construction activities have commenced on site, CapEx incurred up to 01 July 2023 is considered a sunk cost in the economic analysis (Section 22).

Initial CapEx is defined as costs incurred up to April 2024.

### 21.1.1 Mining CapEx

The open-pit mining CapEx was estimated by Robex and AMC and totals US$12.2 million LOM. The mining CapEx is summarized in Table 21.2.

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Table 21.2 Open-pit mining CapEx

| Category | Initial CapEx (US$k) | Sustaining Capital (US$k) | Total LOM CapEx (US$k) |
|---|---|---|---|
| Pit Preparation | 1,644 | 102 | 1,746 |
| Contractor mobilization and site establishment | 4,461 | - | 4,461 |
| Contractor de-mobilization | - | 866 | 866 |
| Pre-production grade control | 488 | - | 488 |
| Dewatering | 1,812 | 2,123 | 3,935 |
| Geology, survey, and mining software | 658 | - | 658 |
| **Total** | **9,064** | **3,091** | **12,155** |

Source: Robex and AMC, 2023.

Contractor mobilization and de-mobilization costs are based on current contractor quotations and include costs for mobilization and establishment of the mining equipment detailed in Section 16.

Pit preparation costs are derived from current contractor OpEx quotations applied to establishment of mining areas prior to mining.

Pre-production grade control drilling is based on current contractor grade control drilling costs and laboratory assay costs.

Dewatering costs include drilling of boreholes and purchase and installation of borehole and in-pit dewatering pumps. Sustaining capital includes the maintenance of these pumps.

Miscellaneous items include initial mining software and survey equipment purchases.

Mine haul-road construction costs included in the mining cost model were re-assigned to infrastructure capital costs (Section 21.1.4).

### 21.1.2 Process plant CapEx

The process equipment initial capital costs were estimated by Soutex, GCM, and GMI and total US$91.3 million. The initial capital costs are summarized in Table 21.3.

Table 21.3 Process plant CapEx summary

| Area | Initial CapEx (US$k) |
|---|---|
| Processing equipment | 19,918 |
| Electrical and instrumentation | 11,650 |
| Construction | 46,300 |
| Indirect costs | 13,478 |
| **Total** | **91,346** |

Source: Soutex, 2023.

Detail of the process plant CapEx breakdown are described in the following sections and Table 21.4 to Table 21.7.

Table 21.4 Process plant equipment CapEx

| Area | Initial CapEx (US$k) |
|---|---|
| Fresh Ore Crushing and Stockpiling | 731 |
| Oxide Ore Crushing and Stockpiling | 1,174 |
| Ore Reclaim | 749 |
| Milling | 9,226 |
| Gravimetric Concentration | 425 |
| Pre-Leach Thickening | 818 |
| CIL | 1,680 |
| Carbon Acid Wash and Carbon Stripping | 1,291 |
| Carbon Regeneration | 314 |
| Refinery | 29 |
| Detoxification | 1,011 |
| Reagents Preparation | 513 |
| Tailings | 357 |
| Compressed Air | 253 |
| Oxygen Plant | 813 |
| Fire Protection | 72 |
| Water Utilities | 313 |
| Metallurgical Laboratory | 150 |
| **Total** | **19,918** |

Source: Soutex, 2023.

The SAG mill has already been purchased and being manufactured at the time of this Technical Report. Further equipment has been ordered and paid for, and is being manufactured (e.g. jaw crusher, mineral sizer, apron feeders, oxygen plant, agitators, interstage screens).

For approximately one third of the equipment in Table 21.4 (long-lead items) the supplier has already been selected after a tendering process and the order will be placed imminently. For the next third of the equipment, tenders were sent, and proposals are under review. For the final third, the tenders are being prepared, and the cost is estimated from previous quotes for smaller items.

The programmable logic controller (PLC), electrical and instrumentation initial capital costs were estimated by GCM and are summarized in Table 21.5.

Table 21.5 Process plant electrical and instrumentation CapEx by area

| **Area** | **Area cost (US$k)** |
|---|---|
| PLC | 255 |
| Instrumentation | 1,016 |
| Electrical | 5,037 |
| Piping | 3,379 |
| Valves | 1,803 |
| Warehouse tooling | 160 |
| **Total Electrical and Instrumentation Equipment** | **11,650** |

Source: Soutex, 2023.

The process plant construction costs are summarized in Table 21.6.

Table 21.6 Process plant infrastructure construction CapEx

| **Area** | **Initial CapEx (US$k)** |
|---|---|
| Construction management | 8,966 |
| Construction works, including: | 31,819 |
| General contract cost | 270 |
| Mobilization | 740 |
| Demobilization | 526 |
| Construction recurring cost | 2,010 |
| Plant and Infrastructure lump sum | 23,721 |
| Buildings lump sum | 4,552 |
| Steel works | 5,514 |
| **Total** | **46,300** |

Source: Soutex, 2023.

The contractor for the construction of the process plant and the main infrastructure (warehouse, workshop, admin office, reagent storage, assay lab) has been selected and the final construction costs have been agreed. More than 50% of the cost is lump-sum based, reducing the risk of cost overrun.

The construction costs already paid include the construction management, the steel works, and the metal sheeting.

The process plant indirect costs are summarized in Table 21.7.

Table 21.7 Indirect process plant CapEx

| Area | Initial CapEx (US$k) |
|---|---|
| Shipping | 4,083 |
| Spares, First fill, Vendors services | 8,100 |
| Commissioning Consultant | 1,095 |
| Independent QA/QC | 200 |
| **Total** | **13,478** |

Source: Soutex, 2023.

The indirect process plant costs are estimated from the contract proposal for commissioning and benchmarked for shipping, spares, first fill, and vendor services.

The sustaining capital costs for the process plant provided are related to the processing maintenance costs. The figures were estimated based on Soutex's experience of similar operations in West Africa. The maintenance costs of the processing plant are estimated at US$0.48/t milled over the LOM.

The TSF management costs were estimated by Epoch based on rates supplied for a similar facility being operated in Africa. The estimate has been based on a two-year, renewable contract. The TSF management costs are estimated at US$0.24/t milled based on a 9.5 year LOM.

The yearly sustaining capital expenditure represent US$0.72/t of ore milled which has been used in the mine planning assumptions, for a total of US$19.9 million over the LOM.

Table 21.8 Process plant and TSF sustaining CapEx

| Area | Unit Cost (US$/t processed) | Total LOM (US$m) |
|---|---|---|
| Processing Sustaining Costs | 0.48 | 13.3 |
| TSF Management Costs | 0.24 | 6.6 |
| **Total Sustaining CapEx** | **0.72** | **19.9** |

Source: Epoch and Soutex, 2023.

### 21.1.3 TSF CapEx

The TSF CapEx is based on the TSF design produced by Epoch which is presented in Section 8. The required works were tendered to contractors by Epoch to provide cost quotations for individual work packages by TSF phase. The TSF CapEx is summarized by phase in Table 21.9.

Table 21.9 TSF CapEx by phase

| Category | Phase 1A (US$k) | Phase 1B (US$k) | Phase 2 (US$k) | Total (US$k) |
|---|---|---|---|---|
| TSF site clearance | 950 | 990 | 1,376 | **3,315** |
| TSF embankments | 5,104 | 150 | 10,307 | **15,561** |
| Geomembrane | 5,110 | 5,789 | 7,073 | **17,971** |
| Drainage | 3,606 | 0 | 0 | **3,606** |
| Slurry delivery line | 694 | 1,426 | 1,079 | **3,199** |
| Decant system | 1,050 | 0 | 0 | **1,050** |
| Solution trench | 298 | 0 | 0 | **298** |
| Seepage sump | 878 | 0 | 0 | **878** |
| Access road | 64 | 45 | 60 | **169** |
| Stormwater diversion works | 105 | 369 | 442 | **915** |
| Miscellaneous | 208 | 111 | 157 | **477** |
| Preliminary and general costs | 1,581 | | | |
| **Total** | **19,648** | **8,879** | **20,493** | **49,021** |

Source: Epoch, 2023.

The TSF will be raised in three phases using primarily mine waste material, as well as existing historical mine waste material. Phase 1A will be developed during the construction period with Phase 1B in 2026 and Phase 2 in 2028/2029.

TSF management sustaining CapEx is included with the process plant sustaining CapEx (Table 21.8).

### 21.1.4 Infrastructure CapEx

The infrastructure CapEx is summarized in Table 21.10.

Table 21.10 Infrastructure CapEx by area

| Area | Initial CapEx (US$k) |
|---|---|
| Site roads, Haul roads, Site access road | 1,300 |
| ROM pad | 179 |
| Accommodation and Catering | 1,745 |
| Assay Lab Equipment | 1,189 |
| Vehicles | 1,959 |
| Water management | 542 |
| Miscellaneous | 1,703 |
| **Total** | **8,617** |

Source: Robex, 2023.

Road construction costs are based on current contractor quotations provided on a US$ per square metre basis. The contractor rates were applied to the designed road network to generate the road CapEx estimate.

ROM pad construction costs are based on current contractor quotations.

Accommodation and catering includes the renovation of the existing camps, the construction of a contractor camp and the construction of two kitchens and lunchrooms. The cost is based on current contractor quotations.

The costs for assay lab equipment are based on detailed quotes or proforma invoices. Cost of vehicles (including light vehicles, forklifts, ambulance, etc.) are based on quotes or proforma invoices.

Water-management costs include water diversion, filtration, and connections—which are based on benchmarked data.

Miscellaneous costs include security, airfield upgrade, existing electrical system upgrade, waste management, and various tools. The cost is based on quotes and benchmarks.

### 21.1.5 G&A and other CapEx

G&A costs incurred during the pre-production period have been capitalized and are summarized in Table 21.11.

Table 21.11 G&A CapEx by area

| Area | Initial CapEx (US$k) |
|---|---|
| Owners team salaries | 6,784 |
| Site related services[e] | 4,240 |
| Insurances, auditing, legal etc. | 411 |
| Fuel | 4,295 |
| **Total** | **15,730** |

[e] Include catering, housekeeping, internet, security, personnel transport, office rental, medical.
Source: Robex, 2023.

The fuel consumption during the construction period is based on the estimate provided by all contractors and a fuel price of US$0.77 per litre. The salaries are based on existing salaries with an increase to reflect the ramp-up in employee numbers. Site-related costs and other costs are based on current site pre-production costs.

Other costs associated with the project are summarized in Table 21.12.

Table 21.12 Other CapEx by area

| Area | Initial CapEx (US$k) |
|---|---|
| Licences and permits | 1,086 |
| Environment | 427 |
| Health and Safety | 108 |
| Community | 920 |
| IT | 738 |
| Land compensation | 450 |
| Engineering and QA/QC | 2,877 |
| **Total** | **6,606** |

Source: Robex, 2023.

Environment, health and safety, and community are based on quotes for the related projects, similar equipment, and benchmarking.

### 21.1.6 Contingency

A contingency of 8% was applied to all initial capital costs, apart from the TSF where a 5% discount was applied.

### 21.1.7 Working capital

The working capital allowance has been calculated to cover the construction period of plant operation and mining, from 01 January 2023 to April 2024, equivalent to the end of the construction period. The working capital is included in the G&A OpEx.

### 21.1.8 Exchange rates

The foreign exchange rate is flat for which no allowances for potential variations have been made. The Robex functioning currency is the Euro (€) which is pegged to the Central African Franc (CFA) and the Robex reporting currency is CAD. The foreign exchange risk will be managed at the group level with the Nampala operation. The US$:EUR exchange rate used in the initial capital is 1.10:1.

### 21.1.9 CapEx exclusions

Exclusions to the CapEx estimates include:

- Project sunk costs (e.g. processing and electrical equipment downpayments for the processing plant including US$8 million related to the SAG mill and US$10 million related to the processing plant construction, already executed work on detailed engineering, past camps renovation, community and environmental studies, site road upgrade).
- Import duties and taxes on the basis that the Project will be exempt.
- Capital expenditure invested on the Project until end of April 2023, including capital invested by previous owners (Management, SEMAFO and Sycamore Mining).
- Exchange and commodities fluctuations.
- Cost inflations.

## 21.2 OpEx estimate

The LOM OpEx estimates are summarized in Table 21.13.

Table 21.13 Summary of LOM OpEx

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore processed) | OpEx (US$/oz) |
|---|---|---|---|
| Refining and transport charges | 1.6 | 0.1 | 1.9 |
| Mining Costs | 296.5 | 10.7 | 348.5 |
| Processing Costs | 355.1 | 12.8 | 417.5 |
| General and Administration (Guinea) | 58.9 | 2.1 | 69.2 |
| **Total on site OpEx** | **712.1** | **25.7** | **837.1** |
| General and Administration (outside Guinea) | 32.3 | 1.2 | 38.0 |
| **Total OpEx including off-site G&A** | **744.4** | **26.9** | **875.1** |

Source: Robex, 2023.

### 21.2.1 Refining and transport charges

Robex is currently contracted for refining and transport charges with Argor for its mining operations in Mali (Nampala). The contract terms for Nampala have been applied to Kiniero and are presented in Table 21.14.

Table 21.14 Refining and transport charges

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore processed) | OpEx (US$/oz) |
|---|---|---|---|
| Refining | 0.3 | 0.01 | 0.4 |
| Transport charges | 1.3 | 0.05 | 1.5 |
| **Total** | **1.6** | **0.06** | **1.9** |

Source: Robex, 2023.

### 21.2.2 Mining OpEx

Mining OpEx was estimated from various sources:

- The mining contract submission: February 2023.
- Drill-and-blast contract submission: Auxin – April 2023.
- Grade control drilling submission: FTE – April 2023.
- Fuel cost: Vivo – February 2023.

The costs were compiled assuming that all the mining and civil work will be executed through a mining contract.

Mining OpEx varies from the costs used in pit optimization (Section 15) due to updated contractor quotations based on the feasibility pit designs and schedule. The updated costs were used to complete the OpEx estimate (Table 21.15).

Table 21.15 Mining OpEx

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore mined) | OpEx (US$/oz) |
|---|---|---|---|
| Drill-and-blast Variable | 26 | 0.3 | 30 |
| Load-and-haul Variable | 128 | 1.6 | 150 |
| Contractor Fees Fixed | 53 | 0.6 | 62 |
| Mines Services | 4 | 0.0 | 4 |
| Grade Control | 19 | 0.2 | 22 |
| Diesel | 68 | 0.8 | 80 |
| **Total** | **296** | **3.6** | **349** |

Source: Robex and AMC, 2023.

### 21.2.3 Process plant OpEx

Processing plant operating costs have been compiled by Soutex and Robex from multiple sources and are presented in Table 21.16.

Table 21.16 LOM process OpEx summary

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore processed) | OpEx (US$/oz) |
|---|---|---|---|
| Power | 153 | 5.5 | 180 |
| Reagents and Consumables | 110 | 4.0 | 129 |
| Detox | 18 | 0.7 | 21 |
| Labour and Assays | 34 | 1.2 | 40 |
| Rehandling and ROM Management Costs | 40 | 1.4 | 47 |
| **Total** | **355** | **12.8** | **418** |

Source: Soutex, 2023.

- Power costs were estimated by Vivo combining solar and thermal solutions:
  - The process plant electricity consumption estimate is based on the installed power for all driven equipment, excluding standby equipment. Electrical load factors and utilization factors are applied to the installed power to arrive at the annual average power draw, which is then multiplied by total hours operated per annum and the electricity price to obtain the annual cost. The unit cost of power of US$0.23 per kWh.
  - An 8% decrease in power costs when the processing plant is milling oxide mineral.
- Labour costs:
  - Labour rates including base salaries, benefits, bonuses; and overhead burdens were provided by Robex based on their existing site complement (Nampala internal cost structure) and based on a salary grid benchmarked against multiple operations in Guinea. An allowance was made in the estimates for reduced expatriate numbers as nationals are trained to occupy more senior roles.
  - The process plant labour costs have been estimated by Robex and amount to approximately US$3.5 million per year of production.
- Consumable prices have been based on quotations from existing suppliers in Mali who supply cross-border to Guinea.
- Reagent consumption is based on historical metallurgical testwork and current testwork, as realized in H1 2022.
- Process operating costs have been compiled for various plant feed mixes. These mixes are theoretical and provide a guidance for the mine scheduling.
- Maintenance: Material and other costs are taken into account in the sustaining capital cost.

The process plant OpEx by material type is presented in Table 21.17.

Table 21.17 Process OpEx by material type

| Area | Units | Design | Laterite | Oxide | Transition | Fresh | Stockpile |
|---|---|---|---|---|---|---|---|
| Proportion LOM | % | 100% | 2% | 34% | 12% | 30% | 23% |
| Plant Feed | Mtpa | 27,665 | 574 | 9,393 | 3,273 | 8,170 | 6,255 |
| **Cost Category** | | | | | | | |
| Power | US$/t | 5.53 | 6.40 | 2.81 | 6.40 | 10.33 | 2.81 |
| Reagents and Consumables | US$/t | 3.98 | 4.51 | 3.12 | 4.51 | 5.36 | 3.12 |
| Detox | US$/t | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| Others Costs | US$/t | 1.22 | 1.39 | 0.64 | 1.39 | 2.26 | 0.64 |
| Rehandling and ROM Management Costs | US$/t | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 |
| **Total** | **US$/t** | **12.82** | **14.41** | **8.68** | **14.41** | **20.04** | **8.68** |

Source: Soutex, 2023.

### 21.2.4 General and administration OpEx

The G&A OpEx estimate is summarized in Table 21.18.

Table 21.18 G&A OpEx summary

| Area | Total OpEx (US$m) | OpEx unit cost (US$/t ore processed) | OpEx (US$/oz) |
|---|---|---|---|
| G&A Guinea | 59 | 2.1 | 69 |
| G&A Outside Guinea | 32 | 1.2 | 38 |
| **Total** | **91** | **3.3** | **107** |

Source: Robex, 2023.

The G&A costs were estimated based on Robex's experience of operating in Mali for several years, gazetted rates for land tax and similar costs, rates and quotations from reputable service providers such as Robex's current catering contractor and insurance providers, and a build-up of the expected G&A organization chart from first principles.

G&A costs were estimated to average US$10.0 million annually, or approximately US$4.3/t ore milled (excluding stockpile tonnage) over the LOM, not including pre-production.

These costs include insurance, permitting, office supplies, general management, accounting, communications, informational technology, environmental and social management, human resources, purchasing and procurement, health and safety, security, international travel, and camp operating costs. In most cases, these services represent fixed costs for the site with some exceptions such as camp and transportation costs of employees.

The G&A costs exclude certain costs such as the transport and refining of gold and royalty payments which are included in the economic analysis. Environmental rehabilitation costs, which are treated as separate line items in the financial model, are included in the sustaining capital.

# 22 Economic analysis

## 22.1 Introduction

The economic assessment of the Project has been conducted using a pre-tax and post-tax cashflow model prepared by Robex.

Input data was provided from a variety of sources, including the various consultants' contributions to this Technical Report, pricing obtained from external suppliers and contractors and exchange rates, and Project-specific financial data such as the expected project taxation regime received from Robex. The assessment was based upon:

- Capital cost estimates were prepared by Robex and AMC for mining, Soutex for the process plant, Epoch for the TSF starter dam, and from Robex with regards to site water-management systems and G&A.
- Mine schedule and mining operational cost estimates based on contract mining operations, as developed by Robex and AMC for the Technical Report.
- Processing operating cost estimates prepared by Soutex.
- G&A costs estimates prepared by Robex and reviewed by the QP.
- Metallurgical performance characterized by testwork completed for the Technical Report.
- Sustaining capital cost estimates for the mine development provided by Robex and AMC, and TSF stage development provided by Epoch.
- Royalty, tax, discount rates, and other model inputs provided by Robex.
- Environmental and social costs by ABS Africa and Insuco.
- Closure costs estimated by ABS Africa.
- The cashflow analysis excludes any effects due to inflation and all dollars are expressed in real US$ as at 01 July 2023.
- Only cashflows after 01 July 2023, are taken into consideration. All costs prior to 01 July 2023, are considered sunk and have been excluded from the economic analysis.
- Gold price assumed at US$1,650/oz for the LOM.
- The cashflow analysis is based on full equity funding and any cost of borrowing is excluded.

The cashflow model reports:

- All costs in real US$ exclusive of escalation or inflation.
- A net present value (NPV) at a 5% discount rate.
- An internal rate-of-return (IRR) based on pre-tax and post-tax net cashflows.

The estimated amount of in situ Proven and Probable Mineral Reserve and Measured and Indicated Mineral Resources (including legacy stockpiles) are respectively 968 koz and 1,442 koz (Table 22.1).

### Table 22.1 Mineral Reserve and Resource inputs to economic analysis

| **Mineral Reserves and Mineral Resources** | **Units** | **Value** |
|---|---|---|
| In situ Probable Reserves | koz | 872 |
| In situ Legacy Stockpile Reserves | Koz | 96 |
| **Total Ore Reserves** | **koz** | **968** |
| In situ Indicated Resources (inclusive of Reserves) | koz | 1,342 |
| In situ Legacy Stockpile Indicted Resources (inclusive of Reserves) | koz | 139 |
| **Total Ore Indicated Resources** | **koz** | **1,481** |

Source: Robex, 2023.

The Project is expected to have a LOM of 9.5 years from the start of the operations. The production information on which the cashflow model is based is summarized in Table 22.2.

### Table 22.2 Mining and processing physicals summary

| **Financial** | **Units** | **Value** |
|---|---|---|
| Mining Operations – Metrics | | |
| LOM Total Mineral tonnes mined | tonnes | 81,715 |
| LOM Waste tonnes | tonnes | 60,304 |
| LOM Ore tonnes mined | tonnes | 21,410 |
| Average grade mining | g/t | 1.27 |
| LOM strip ratio | W:O | 2.8 |
| LOM | years | 9.5 years |
| Processing Operations – Metrics | | |
| LOM tonnage processed | tonnes | 27,665 |
| Average grade feed | g/t | 1.09 g/t |
| Production and Costs Summary | | |
| LOM production | koz Au | 851 |
| Average first three years of production pa | koz Au | 105 |
| Average LOM production per annum | koz Au | 90 |
| AISC | US$/oz | 980 |

Source: Robex, 2023.

The estimated annual recovered gold production is summarized in Table 22.3.

## Table 22.3 Annual gold production

| | Years | 1-3 | 4-6 | 7-10 | Total |
|---|---|---|---|---|---|
| Gold Production | koz | 279 | 296 | 276 | **851** |
| Average Production Rate per year | koz | 105 | 99 | 69 | **90** |

Note: Years 1-3 are based on a 2.5 year, assuming first gold poured in May 2024.
Source: Robex, 2023.

As of 01 July 2023, based on a gold price of US$1,650/oz and a discount rate of 5%, the Project is estimated to have a NPV of US$251 million (pre-tax basis) and US$170 million (post-tax). The Project is estimated to have an IRR of 42% (pre-tax) and 31% (post-tax), while the payback period is estimated at 3.4 years (pre-tax) and 4.3 years (post-tax).

The project economics are summarized in Table 22.4.

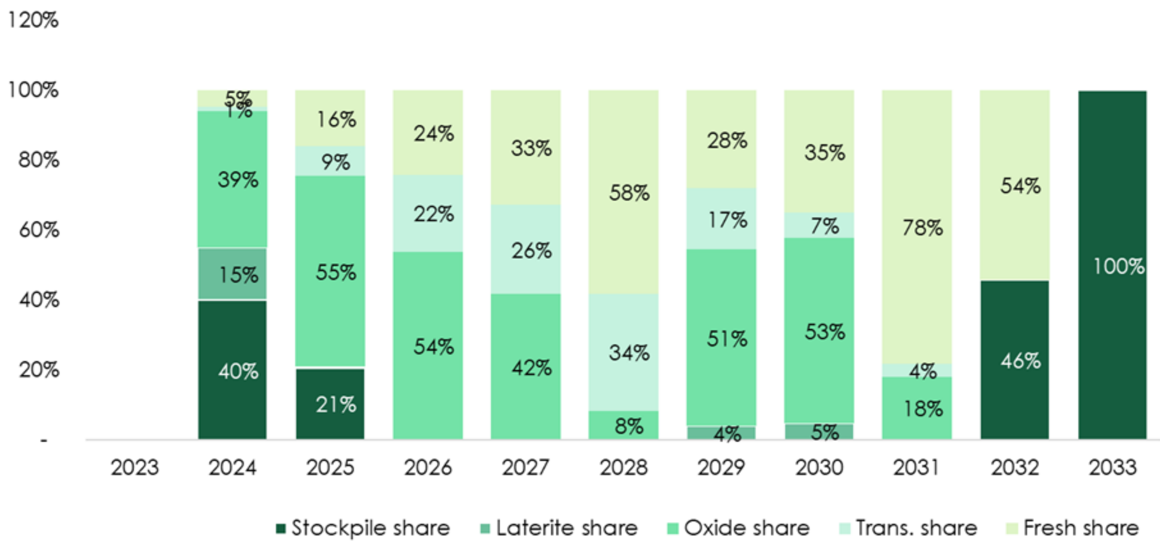
## Table 22.4 Summary of NPV, IRR, and payback for pre and post-tax analysis

| As of 1 July 2023 | Unit | Pre-Tax | Post-Tax |
|---|---|---|---|
| Net Present Value 5% | US$m | 251 | 170 |
| Internal Rate of Return | % | 42 | 31 |
| Payback Period | years | 3.4 | 4.3 |

Source: Robex, 2023.

The annual mine production shown by material type and percentage contribution to the total tonnes is shown in Figure 22.1.

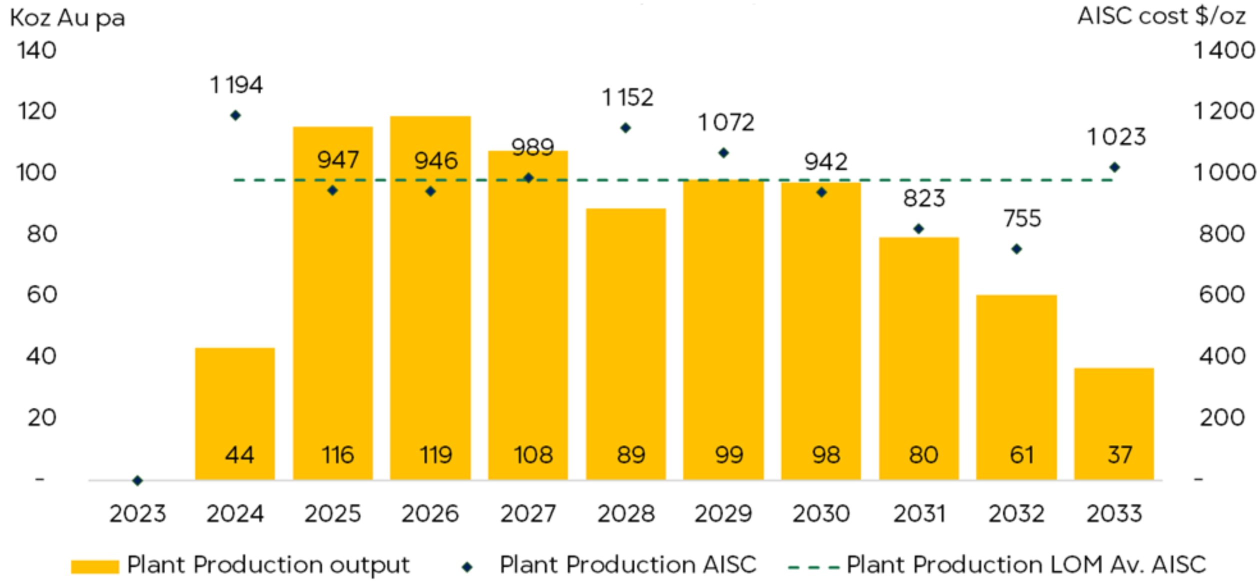
## Figure 22.1 Production by material type




Source: Robex, 2023.

The annual gold production and all in sustaining costs (AISC) are shown in Figure 22.2.

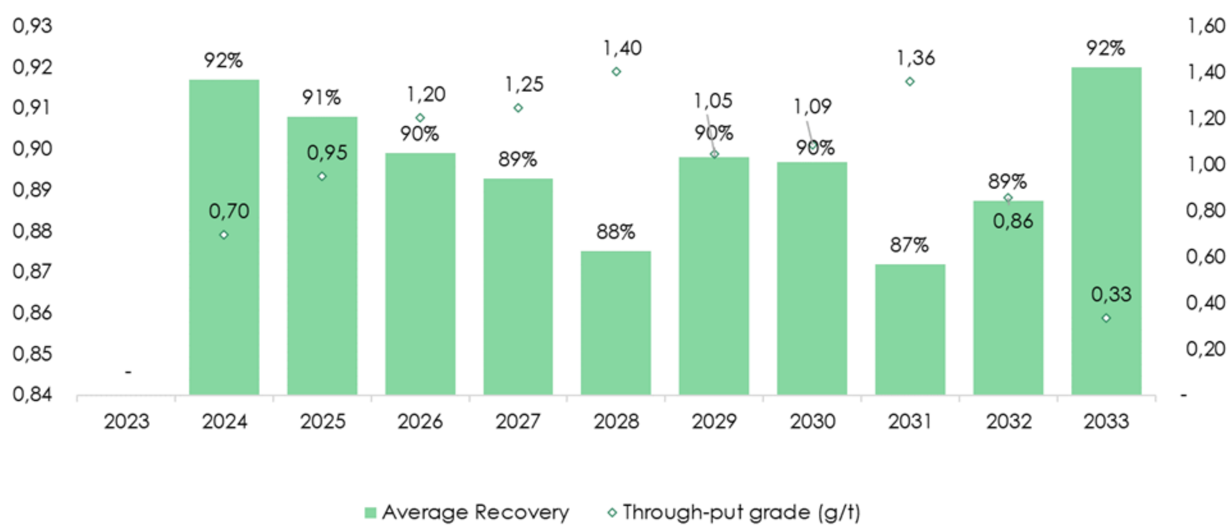
Figure 22.2 Estimated gold production profile (koz) and AISC (US$/oz)




Source: Robex, 2023.

The average process recoveries and head grade are presented in Figure 22.3.

Figure 22.3 Blended recovery (%) and head grade (g/t)




Source: Robex, 2023.

## 22.2 Total capital costs

The total initial capital costs are summarized in Table 22.5.

Table 22.5 Initial capital costs

| Category | Initial CapEx (US$k) |
|---|---|
| Mining | 9,064 |
| Process Plant | 91,346 |
| TSF | 19,648 |
| Infrastructure | 8,617 |
| G&A | 15,730 |
| Other costs | 6,102 |
| Closure costs | |
| Contingency | 9,389 |
| **Total** | **159,897** |

Source: Robex, 2023.

The initial capital costs of US$159.9 million represent the Project capital estimate from 01 January 2023 until the first gold poured (expected in May 2024). From 01 January 2023 until 30 June 2023, the Company is expected to spend US$26.7 million out of the total initial capital costs, (equivalent to 17% of the total) and are considered sunk in the NPV calculation, which starts on 01 July 2023.

The total capital costs from 01 July 2023 until the end of the LOM stand therefore at US$164 million.

## 22.3 Total operating costs

The operating costs used in the economic analysis are summarized in Table 22.6.

Table 22.6 Operating costs summary

| Across the LOM, starting July 1st 2023 | Total US$m | Unit Cost US$/t ore milled | Costs per oz US$/oz |
|---|---|---|---|
| Refining and transport charges | 1.6 | 0.1 | 1.9 |
| Mining costs | 296.5 | 10.7 | 348.5 |
| Processing costs | 355.1 | 12.8 | 417.5 |
| G&A Guinea | 58.9 | 2.1 | 69.2 |
| **Total Site Costs** | **712.1** | **25.7** | **837.1** |
| Government royalty | 91.2 | 3.3 | 107.3 |
| Private royalties | 7.0 | 0.3 | 8.3 |
| **Total Operating Costs** | **810.3** | **29.3** | **952.6** |
| Sustaining costs | 23.5 | 0.8 | 27.6 |
| **All In Sustaining Costs (AISC)** | **833.8** | **30.1** | **980.2** |
| G&A outside Guinea | 32.3 | 1.2 | 38.0 |
| Development costs | 164.1 | 5.9 | 192.9 |
| Closure costs | 19.9 | 0.7 | 23.4 |
| **Total Costs** | **1,050.0** | **38.0** | **1,234.5** |

Source: Robex, 2023.

## 22.4 Assumptions and qualifications

### General

- The cashflow model begins on 01 July 2023 with first gold poured in May 2024. Any previous expenditure (sunk costs) have not been carried forward or included in the model.
- Annual mined tonnage and head grade have been based on the mining schedule as presented in Section 16.
- The mining, processing, and G&A costs are based on the operating cost estimates presented in Section 21.
- Gold recovery is based on testwork and interpretation presented in Section 14.
- The capital costs are based on the estimates presented in Section 21.
- Closure costs of US$19.9 million have been included.
- No residual value has been estimated for the asset.
- The cashflow model assumes full equity funding.
- No provision has been made for interest on the cost of capital.
- No provision has been made for corporate head office costs during construction and operations.
- No provision has been made for escalation or inflation.

### Gold Price

- A gold price of US$1,650/oz has been applied in the cashflow model.

### By products

- There is no by-product mineral.

### Refining terms

- Gold is assumed to be payable at 99.95%.
- Refining costs have been included at US$0.36/oz.
- Transport costs inclusive of insurance have been included at US$1.5/oz.

### Government Royalties

- The GOG benefits from a 15% free-carried interest.
- Gold is subject to a government royalty which is based on a percentage of the spot gold price as described in the Table 22.7.

Table 22.7 Royalty inputs

| Royalties | % |
|---|---|
| Guinean State royalty | 5.00% |
| SOGUIPAMI royalty | 0.50% |
| Local development royalty | 1.00% |

Source: Robex, 2023.

### Privates Royalties

- The Project currently carries a 0.5% private royalty (in addition to the government royalty).

**Taxes**

- The treatment of depreciation and corporate taxes are based on Robex's understanding of current Guinea tax laws.
- Robex is currently negotiating a "mining convention" which will modify the tax structure of the company in Guinea. The previous conventions signed to date by other mining companies are public and available here: https://www.resourcecontracts.org/. The corporate tax exemptions for mineral projects ranges from 5 to 12 years which, based on the current reserve, means that the project should be exempt of all CIT paid during the LOM.
- To remain conservative, Robex has included the basic rate in Guinea of 30% in the post-tax NPV.

**Depreciation**

- For tax and accounting calculation the assets are depreciated in straight line amortization over the LOM.

**Working capital**

- Pre-production costs for working capital have been included in the initial CapEx estimate in Section 21. The pre-production and the current site maintenance is also included in the G&A initial CapEx.
- Once first production is passed, the working capital has been estimated with asset variation and payment terms for creditors and debtors.

## 22.5 Cashflow analysis

### Table 22.8 Pre-tax cashflow

| **Production Summary** | **Unit** | **Total** | **H2 2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **2034** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mine Total** | | | | | | | | | | | | | | |
| Total Material Mined | kt | 81,715 | - | 6,069 | 11,951 | 12,688 | 12,622 | 12,619 | 12,629 | 9,618 | 3,518 | - | - | - |
| Waste | kt | 60,304 | - | 4,703 | 8,508 | 8,333 | 10,075 | 9,385 | 9,925 | 7,065 | 2,310 | - | - | - |
| Ore | kt | 21,410 | - | 1,366 | 3,443 | 4,356 | 2,546 | 3,233 | 2,704 | 2,553 | 1,208 | - | - | - |
| Grade | g/t | 1.27 | - | 0.8 | 1.2 | 1.4 | 1.5 | 1.7 | 1.0 | 1.3 | 1.4 | - | - | - |
| **In situ Gold (Reserves)** | **koz** | **872** | **-** | **34** | **125** | **185** | **118** | **171** | **82** | **103** | **54** | - | - | - |
| **Strip Ratio** | **W:O** | 2.8 | **-** | **3.4** | **2.5** | **1.9** | **4.0** | **2.9** | **3.7** | **2.8** | **1.9** | - | - | - |
| **Processing Total** | | | | | | | | | | | | | | |
| Ore Processed | kt | 27,665 | - | 2,020 | 3,932 | 3,187 | 2,787 | 2,050 | 3,028 | 2,891 | 1,889 | 2,290 | 3,591 | - |
| Grade | g/t | 1.09 | - | 0.70 | 0.95 | 1.20 | 1.25 | 1.40 | 1.05 | 1.09 | 1.36 | 0.86 | 0.33 | - |
| **Recovered Gold** | **koz** | **851** | **-** | **44** | **116** | **119** | **108** | **89** | **99** | **98** | **80** | **61** | **37** | **-** |
| **Cashflow Summary** | **Unit** | **Total** | **H2 2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **2034** |
| **Net Revenues** | **US$m** | **1,402** | **-** | **72** | **191** | **196** | **178** | **147** | **162** | **161** | **132** | **101** | **61** | **-** |
| Royalties | US$m | (98) | - | (5) | (13) | (14) | (12) | (10) | (11) | (11) | (9) | (7) | (4) | - |
| **Cash Operating Costs** | **US$m** | **(743)** | **-** | **(48)** | **(98)** | **(101)** | **(96)** | **(94)** | **(95)** | **(83)** | **(57)** | **(39)** | **(31)** | **-** |
| Mining | US$m | (296) | - | (22) | (42) | (47) | (45) | (50) | (43) | (32) | (16) | - | - | - |
| Processing | US$m | (355) | - | (20) | (44) | (40) | (39) | (35) | (40) | (39) | (34) | (34) | (31) | - |
| G&A Guinea | US$m | (59) | - | (3) | (9) | (9) | (8) | (6) | (8) | (8) | (5) | (3) | - | - |
| G&A Outside Guinea | US$m | (32) | - | (2) | (5) | (5) | (4) | (3) | (5) | (4) | (3) | (2) | - | - |
| **Operating EBITDA** | **US$m** | **561** | **-** | **20** | **79** | **81** | **70** | **43** | **56** | **67** | **65** | **54** | **26** | **-** |
| *EBITDA Margin* | % | *40%* | - | *27%* | *42%* | *41%* | *39%* | *29%* | *34%* | *41%* | *50%* | *54%* | *42%* | - |
| Sustaining Capital | US$m | (23) | - | (1) | (3) | (2) | (3) | (2) | (3) | (2) | (2) | (2) | (3) | - |
| **Mine Direct Cashflows** | **US$m** | **537** | **-** | **18** | **77** | **79** | **67** | **41** | **52** | **65** | **63** | **53** | **23** | **-** |
| Working Capital Movement | US$m | - | - | 6 | (1) | 2 | (1) | 1 | (1) | (2) | (2) | 2 | (3) | - |
| Taxes | US$m | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Mine Net Operating Cashflows** | **US$m** | **537** | **-** | **24** | **76** | **81** | **66** | **42** | **51** | **63** | **61** | **54** | **21** | **-** |
| Growth or extension Capital | US$m | (164) | (78) | (55) | - | (9) | - | (12) | (10) | - | - | - | - | - |
| **Mine Net Investing Cashflows** | **US$m** | **373** | **(78)** | **(31)** | **76** | **72** | **66** | **30** | **41** | **63** | **61** | **54** | **21** | **-** |
| ABEX Capital | US$m | (20) | - | - | (1) | (1) | (1) | (2) | (2) | (2) | (5) | (2) | (1) | (3) |
| **Mine Free Cashflows** | **US$m** | **353** | **(78)** | **(31)** | **75** | **71** | **65** | **29** | **40** | **61** | **56** | **52** | **19** | **(3)** |

| | | |
|---|---|---|
| **Project NPV as of July 1st 2023** | **US$m** | **251** |
| **Project IRR as of July 1st 2023** | **%** | **42%** |

Source: Robex, 2023.

## Table 22.9 Post-tax cashflow

| **Production Summary** | **Unit** | **Total** | **H2 2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **2034** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mine Total** | | | | | | | | | | | | | | |
| Total Material Mined | kt | 81,715 | - | 6,069 | 11,951 | 12,688 | 12,622 | 12,619 | 12,629 | 9,618 | 3,518 | - | - | - |
| Waste | kt | 60,304 | - | 4,703 | 8,508 | 8,333 | 10,075 | 9,385 | 9,925 | 7,065 | 2,310 | - | - | - |
| Ore | kt | 21,410 | - | 1,366 | 3,443 | 4,356 | 2,546 | 3,233 | 2,704 | 2,553 | 1,208 | - | - | - |
| Grade | g/t | 1.27 | - | 0.8 | 1.2 | 1.4 | 1.5 | 1.7 | 1.0 | 1.3 | 1.4 | - | - | - |
| **In situ Gold (Reserves)** | **koz** | **872** | **-** | **34** | **125** | **185** | **118** | **171** | **82** | **103** | **54** | - | - | - |
| **Strip Ratio** | **W:O** | 2.8 | **-** | **3.4** | **2.5** | **1.9** | **4.0** | **2.9** | **3.7** | **2.8** | **1.9** | - | - | - |
| **Processing Total** | | | | | | | | | | | | | | |
| Ore Processed | kt | 27,665 | - | 2,020 | 3,932 | 3,187 | 2,787 | 2,050 | 3,028 | 2,891 | 1,889 | 2,290 | 3,591 | - |
| Grade | g/t | 1.09 | - | 0.70 | 0.95 | 1.20 | 1.25 | 1.40 | 1.05 | 1.09 | 1.36 | 0.86 | 0.33 | - |
| **Recovered Gold** | **koz** | **851** | **-** | **44** | **116** | **119** | **108** | **89** | **99** | **98** | **80** | **61** | **37** | **-** |
| **Cashflow Summary** | **Unit** | **Total** | **H2 2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** | **2033** | **2034** |
| **Net Revenues** | **US$m** | **1,402** | **-** | **72** | **191** | **196** | **178** | **147** | **162** | **161** | **132** | **101** | **61** | **-** |
| Royalties | US$m | (98) | - | (5) | (13) | (14) | (12) | (10) | (11) | (11) | (9) | (7) | (4) | - |
| **Cash Operating Costs** | **US$m** | **(743)** | **-** | **(48)** | **(98)** | **(101)** | **(96)** | **(94)** | **(95)** | **(83)** | **(57)** | **(39)** | **(31)** | **-** |
| Mining | US$m | (296) | - | (22) | (42) | (47) | (45) | (50) | (43) | (32) | (16) | - | - | - |
| Processing | US$m | (355) | - | (20) | (44) | (40) | (39) | (35) | (40) | (39) | (34) | (34) | (31) | - |
| G&A Guinea | US$m | (59) | - | (3) | (9) | (9) | (8) | (6) | (8) | (8) | (5) | (3) | - | - |
| G&A Outside Guinea | US$m | (32) | - | (2) | (5) | (5) | (4) | (3) | (5) | (4) | (3) | (2) | - | - |
| **Operating EBITDA** | **US$m** | **561** | **-** | **20** | **79** | **81** | **70** | **43** | **56** | **67** | **65** | **54** | **26** | **-** |
| *EBITDA Margin* | **%** | *40%* | - | *27%* | *42%* | *41%* | *39%* | *29%* | *34%* | *41%* | *50%* | *54%* | *42%* | - |
| Sustaining Capital | US$m | (23) | - | (1) | (3) | (2) | (3) | (2) | (3) | (2) | (2) | (2) | (3) | - |
| **Mine Direct Cashflows** | **US$m** | **537** | **-** | **18** | **77** | **79** | **67** | **41** | **52** | **65** | **63** | **53** | **23** | **-** |
| Working Capital Movement | US$m | - | - | 6 | (1) | 2 | (1) | 1 | (1) | (2) | (2) | 2 | (3) | - |
| Taxes | US$m | (105) | - | (3) | (18) | (20) | (15) | (8) | (8) | (13) | (11) | (8) | (0) | - |
| **Mine Net Operating Cashflows** | **US$m** | **433** | **-** | **21** | **57** | **60** | **51** | **35** | **43** | **49** | **50** | **46** | **21** | **-** |
| Growth or extension Capital | US$m | (164) | (78) | (55) | - | (9) | - | (12) | (10) | - | - | - | - | - |
| **Mine Net Investing Cashflows** | **US$m** | **269** | **(78)** | **(34)** | **57** | **51** | **51** | **23** | **33** | **49** | **50** | **46** | **21** | **-** |
| ABEX Capital | US$m | (20) | - | - | (1) | (1) | (1) | (2) | (2) | (2) | (5) | (2) | (1) | (3) |
| **Mine Free Cashflows** | **US$m** | **249** | **(78)** | **(34)** | **57** | **50** | **50** | **21** | **31** | **47** | **44** | **44** | **19** | **(3)** |

| | | |
|---|---|---|
| **Project NPV as of July 1st 2023** | **US$m** | **170** |
| **Project IRR as of July 1st 2023** | **%** | **31%** |

Source: Robex, 2023.

## 22.6 Sensitivity analysis

The Project value was assessed by undertaking sensitivity analyses on the gold price, operating costs, and capital costs. The Project is most sensitive to changes in the gold price and then operating costs. The results of sensitivity analyses are presented in the tables below.

### Gold price

Table 22.10 Pre-tax NPV gold price sensitivity

| | **Discount multiple US$m** | | |
|---|---|---|---|
| **Gold Price (US$/oz)** | **0.0%** | **5.0%** | **10.0%** |
| **1,950** | 591 | 437 | 329 |
| **1,800** | 472 | 344 | 254 |
| **1,650** | 354 | 251 | 179 |
| **1,500** | 235 | 158 | 104 |
| **1,350** | 116 | 65 | 29 |

Source: Robex, 2023.

Table 22.11 Post-tax NPV gold price sensitivity

| | **Discount multiple US$** | | |
|---|---|---|---|
| **Gold Price (US$/oz)** | **0.0%** | **5.0%** | **10.0%** |
| **1,950** | 418 | 301 | 218 |
| **1,800** | 335 | 235 | 165 |
| **1,650** | 251 | 170 | 113 |
| **1,500** | 167 | 103 | 59 |
| **1,350** | 82 | 37 | 6 |

Source: Robex, 2023.

### Capital and operating costs

The sensitivities for capital expenditure and operational expenditures are shown in the tables below. The changes are applied to the LOM capital on the CapEx and OpEx.

Table 22.12 Pre-tax NPV CapEx sensitivity

| | **Discount multiple US$** | | |
|---|---|---|---|
| **CapEx Flex** | **0.0%** | **5.0%** | **10.0%** |
| **15.0%** | 329 | 228 | 157 |
| **7.5%** | 341 | 239 | 168 |
| **0.0%** | 354 | 251 | 179 |
| **(7.5%)** | 366 | 263 | 190 |
| **(15.0%)** | 378 | 274 | 201 |

Source: Robex, 2023.

### Table 22.13 Post-tax NPV CapEx sensitivity

| | Discount multiple US$ | | |
|---|---|---|---|
| **CapEx Flex** | **0.0%** | **5.0%** | **10.0%** |
| **15.0%** | 233 | 151 | 94 |
| **7.5%** | 242 | 160 | 104 |
| **0.0%** | 251 | 170 | 113 |
| **(7.5%)** | 260 | 179 | 122 |
| **(15.0%)** | 269 | 188 | 131 |

Source: Robex, 2023.

### Table 22.14 Pre-tax NPV OpEx sensitivity

| | Discount multiple US$ | | |
|---|---|---|---|
| **OpEx Flex** | **0.0%** | **5.0%** | **10.0%** |
| **15.0%** | 291 | 198 | 134 |
| **7.5%** | 323 | 225 | 156 |
| **0.0%** | 354 | 251 | 179 |
| **(7.5%)** | 384 | 277 | 201 |
| **(15.0%)** | 414 | 302 | 222 |

Source: Robex, 2023.

### Table 22.15 Post-tax NPV OpEx sensitivity

| | Discount multiple US$ | | |
|---|---|---|---|
| **OpEx Flex** | **0.0%** | **5.0%** | **10.0%** |
| **15.0%** | 202 | 128 | 76 |
| **7.5%** | 227 | 149 | 95 |
| **0.0%** | 251 | 170 | 113 |
| **(7.5%)** | 275 | 190 | 130 |
| **(15.0%)** | 298 | 210 | 147 |

Source: Robex, 2023.

# 23 Adjacent properties

A geographical overview of immediate neighbouring development and exploration properties with respect to the Kiniero Property is presented in Figure 7.6. The ownership, activity, and Mineral Resources and Mineral Reserves of the neighbouring properties that have been publicly disclosed are listed below.

- ASX-listed Predictive Discovery (PDI) holds the Bankan Project (Kaninko and Saman Research Permits covering ~200 km²) bordering the Project to the north-west. The south-east Saman target is approximately 15 km north-north-west and the north-east Bankan target approximately 36 km north-west of the Kiniero plant. On 6 February 2023, PDI issued an ASX announcement (Predictive Discovery Limited, 6 February 2023) detailing an updated Indicated Mineral Resource in accordance with the JORC Code (2012) containing 42.7 Mt at 1.27 g/t Au for 1.7 Moz Au, and a further 34.1 Mt of Inferred at 2.22 g/t Au at the north-east Bankan and Bankan Creek projects.
- North of the Project is the Kouroussa Project covering ~16.5 km² held by AIM-listed Hummingbird Resources (HUM). Located approximately 3 km north-east of the town of Kouroussa, 30 km north-north-west of the Kiniero plant. On 30 June 2022 HUM released an announcement and accompanying presentation titled "*2022 Updated Company Reserves and Resources Statements*" (HUM, 2022), reporting Ore Reserves at Kouroussa to be 4.86 Mt at 4.15 g/t Au for 647 koz Au. Mineral Resources comprise 8.17 Mt at 3.33 g/t Au (876 koz Au) in Indicated classification and 4.195 Mt at 2.41 g/t Au (325koz Au). These Mineral Resources and Ore Reserves were prepared in accordance with the JORC Code (2012).

The nearest operating gold mines in Guinea to the Project are:

- Managem-owned Tri-K Gold Mine, located 105 km north-north-east of the Kiniero Property. A mining permit was issued in March 2015 and first gold pour achieved in June 2021. The mine produces a 120 koz Au a year with a Mineral Reserve estimate of 1.565 Moz and Mineral Resources of 411 koz Au (31 December 2020).
- AngloGold Ashanti's 12 Mtpa Siguiri Mine (130 km north-north-east)—a 2018 plant upgrade/modification enabled combined feed of 6 Mtpa oxide and 6 Mtpa fresh sulphide ore through the plant, as at 31 December 2022, reported Mineral Resource of 15.20 Mt at 0.65 g/t Au (0.32 Moz Au) in Measured, 187.32 Mt at 0.99 g/t Au (5.97 Moz Au) in Indicated, and 79.08 Mt at 1.16 g/t Au (2.95 Moz Au) in Inferred (gold price of US$1,750/oz). Included within the Mineral Resources are Mineral Reserves of 15.2 Mt at 0.65 g/t Au (0.32 Moz Au) in Proven and 75.68 Mt at 0.83 g/t Au (2.02 Moz Au) Probable categories.
- Nordgold's 6.5 Mtpa Lefa Mine (145 km north)—the Lefa processing plant includes a front-end crushing circuit, two SAG mills, two ball mills, and a CIP circuit.

The QP has not verified the information in the reports and the information is not necessarily indicative of the mineralization within the Kiniero Property.

# 24 Other relevant data and information

To the best of the QP's knowledge there is no other relevant data, additional information, or explanation necessary to make this Technical Report understandable and not misleading.

# 25 Interpretation and conclusions

It is concluded that the Project work completed to date, including exploration, site development, mineral processing, and associated studies leading to the current Mineral Resource and Mineral Reserve estimates, has demonstrated the technical and economic viability of the Project.

## 25.1 Permitting

The Property comprises two licence areas. The Kiniero licence area comprises four exploitation permits which were granted on 17 December 2020, with one permit granted on 04 November 2022, and valid for a period of 15 years (renewable).

The second licence area is the Mansounia licence area. This licence comprised two exploration permits which were granted on 06 April 2020 and valid for three years, and has therefore expired. An exploitation licence application was filed with the CPDM in Q1, 2023, prior to the expiration date of 5 April 2023 for the exploration licences, for 50% of the Mansounia licence area. This application is still being processed.

The QP understands that there are no immediate impediments to prevent the Mansounia exploitation licence being granted. However, until the licence is granted a risk does remain, whereby failure to acquire the licence would prevent production from the southern part of Sabali South. A lack of exploitation and exploration licences over the Mansounia Central deposit would also preclude its reporting and subsequent incorporation into a mine plan. The Mansounia Central deposit does not form part of the mine plan presented in this Technical Report.

## 25.2 Geology

The mineralization contained within the Property is in keeping with vein-hosted lode type mineralization of the Birimian-style with strong structural controls. Previous mining and more recent exploration indicate that the gold mineralization occurs in veins a few millimetres to tens of metres in width, with predominantly quartz-sulphide mineral assemblages and differing secondary minerals depending on the degree of alteration and/or overprinting.

The Property has experienced intense weathering resulting in a deep weathering and leaching profile with the development of a surface laterite colluvium and a saprolitic zone near the surface.

At a large scale the structural controls on the mineralization can be observed, with drillhole assays in several of the deposits showing linear strike orientations, this is increasingly evident when filtering at grades >1 g/t Au. At a smaller scale, within drillholes, and between adjacent holes, the mineralization is more complex and variable with "nuggety" mineralization. The small-scale variability reflects the narrow veinlet and stockwork mineralization. From a sampling perspective the variable orientations of the veinlets can impact obtaining representative samples, and may contribute to the grade variability observed. Comparing the sample grade populations for the diamond and RC drilling, no bias between the two methods were observed.

Given the inherent compositional and distributional heterogeneity of the gold mineralization, a robust grade control programme informing a short-term mine plan would be required for the Property.

## 25.3 Exploration

Extensive exploration works have been carried out across the property by both historical operators and more recently SMG. Exploration has predominantly been completed through RC and diamond drilling with drillhole spacings ranging between 100 m and 12.5 m in more informed areas.

Geological logging of the drillholes has been completed in a largely standardized manner. Due to the extensive weathering profile the main units logged comprise laterite, saprolite, saprock (transition), and volcaniclastic units. Whilst the information logged is sufficient for use in the Mineral Resource estimates, the QP did notice additional information was being recorded in the log sheets as comments. These comments do not form part of the standardized logging, however, they do contain some important information pertaining to the veinlets including orientation information which could be used to guide subsequent geological models.

Sample preparation and assays have been completed at reputable and accredited laboratories. QA/QC procedures have been implemented by previous operators as well as SMG to support the accuracy and precision of assays. Overall the QA/QC results indicate no significant levels of sample contamination and reasonable levels of accuracy. Three of the CRMs submitted by SMG were the same as those used by SEMAFO in 2012. Comparing the results indicates a greater degree of accuracy was achieved by SEMAFO in 2012, this may indicate the current assay laboratories may have scope for improving accuracy.

Field and pulp duplicate samples have been inserted as part of the QA/QC procedures. The field duplicate results show a moderate- to low-level of repeatability. The QP is of the opinion that the degree of precision and repeatability for the field duplicates, is in keeping with the mineralization style and nuggety nature of the gold mineralization at Kiniero. The pulp duplicates show an improvement in precision compared to the field duplicates, however, the QP is of the opinion that the improvement is less than would be expected at the pulverization stage. This may indicate that some grouping or segregation errors are present when taking a split of the pulverized material.

Overall, the QP is of the opinion that the drillhole data is adequate for use in Mineral Resource estimates.

## 25.4 Mineral Resources

Data used for the estimation of Mineral Resources incudes drillhole data obtained from the previous operators SEMAFO and Burey Gold. This was verified and supported by additional surface RC and diamond drilling conducted by SMG. The Mineral Resource estimates are consistent with CIM Definition Standards (2014) referred to in NI 43-101. It is the opinion of the QP that the information and analysis described in this report are sufficient for reporting Mineral Resources.

Mineral Resource estimates have been completed for the following deposits:

- SGA (incorporating SGA (Gobelé A, B, C), Gobelé D, NEGD, and East-West).
- Jean (incorporating Jean West and Jean East).
- Sabali South (previously known as Sabali Extension, inclusive of Mansounia North of the Mansounia licence area).
- Sabali North and Central (previously known as Sabali East).
- Mansounia Central.
- West Balan.
- Banfara.
- Stockpiles.

Depletion for historical mining activities has been completed using the most recent LiDAR survey finalized in June 2021 and historical pit surveys. The QP has compiled the LiDAR and historical surveys into a current topographic survey. The QP is of the opinion that the topographic survey is a fair representation of the current Project area and adequately accounts for mining depletion.

Limited structural data are available across the Kiniero Gold Project. However, where available, it has been used to define key faults as a guide to controls and limits on the mineralization interpretations. Mineralization has been interpreted using the overall grade trends to guide the interpretation. Additional, structural measurements of mineralized veinlets would assist future modelling works aiding to the interpretation of structural trends and controls. Whilst the approach taken enables the large scale features to be modelled, the small scale veinlets and stockworks display a complexity for which wireframe models cannot be generated.

Supergene mineralization has been interpreted at Sabali South and Mansounia Central. Due to weak and gradational definition of the supergene material, additional work is required to improve understanding the extents of the supergene domains.

A distance limited ordinary kriging (OK) grade estimation approach was used for the Mineral Resource estimates. This approach was adopted to help reduce the potential influence of the higher-grades on adjacent lower grade areas. The resultant grade estimates were validated and show a reasonable correlation to the sample composite data on which they are based with no indications of significant over-or-under estimation.

Mineral Resources for the Kiniero Property as of 17 August 2022, and based on a gold price of US$1,950/oz are as follows:

- 31.59 Mt of in situ mineralized material at an average grade of 1.32 g/t Au, containing 1.34 Moz in the Indicated category.
- 28.42 Mt of in-situ mineralized material at an average grade of 1.18 g/t Au, containing 1.08 Moz in the Inferred category.
- 11.61 Mt of stockpiles at an average grade of 0.37 g/t Au, containing 0.14 Moz in the Indicted category.
- 0.19 Mt of stockpiles at an average grade of 1.31 g/t Au, containing 8 koz in the Inferred category.

Additional drilling and mining activities may provide additional information resulting in changes to the geological interpretations and Mineral Resource estimates. As material information becomes available it should be compared against the Mineral Resource models. Where material deviations between new information and the Mineral Resource estimates is noted, then the Mineral Resource models should be updated accordingly.

Alternative approaches to the Mineral Resource estimation methods, including geological interpretation, choice of compositing, variography and estimation approaches, may result in changes to the reported Mineral Resource numbers.

There are no known environmental, permitting, socio-economic, legal, title, taxation, marketing, political, or other relevant factors that could materially affect the Mineral Resources.

## 25.5 Mineral Reserves

Mineral Resources and Mineral Reserves are reported in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). CIM (CIM, 2014) definitions were followed for Mineral Reserves.

Mineral Reserves were estimated by AMC using a gold price of US$1,650/oz with an Effective Date of 01 June 2023.

The Kiniero Mineral Reserves are composed of open-pit Mineral Reserves of 21,410 kt, at an average grade of 1.27 g/t Au, containing 872 koz Au, and historic stockpiles of 6,255 kt at an average grade of 0.48 g/t Au containing 96 koz Au.

The QP is of the opinion that the modifying factors applied to the Mineral Reserve estimates are reasonable and supported by appropriate technical studies.

The QP responsible for this item of the Technical Report is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimates.

## 25.6 Mining

Mining at Kiniero will be undertaken by conventional contractor-operated open-pit mining in the SGA, Jean, SGD, Sabali South, Sabali North, and Central pits. Mining will be undertaken using Komatsu PC1250 sized excavators mining on 5 m benches and 2.5 m flitches loading 55 t Volvo A60H haul trucks.

Mining in upper oxide layers will be free-digging with drill-and-blast required in areas that mine through the transitional material into fresh rock. The free-dig nature of the oxide and transitional zones has been confirmed by extensive previous mining at site. Drill-and-blast will be required for approximately 1% of the oxide material, 40% of the laterite, 60% of the transitional, and 100% of the fresh.

Ore will be categorized by material and grade through in-pit grade control and will be hauled to MOP stockpiles by the Volvo A60H fleet. All ore will be rehandled at the MOP by a fleet of Komatsu WA600 FELs which will load Ginaf HD5380T 60 t road haul trucks to deliver the ore to the process plant. Waste will be hauled to the nearest available waste dump by the Volvo A60H fleet.

The proposed mining method and fleet will be used to deliver the following:

- 9.5 year mine life with 7.5 years of mining, followed by two years of stockpile processing.
- 81.7 Mt total open-pit material mined.
  - 21.4 Mt of ore at 1.27 g/t Au mined.
  - 60.3 Mt of waste mined.
  - 2.8:1 waste to ore strip ratio.
  - 6.3 Mt of historic stockpile ore at 0.48 g/t Au.

The QP is of the opinion that the mining methods outlined and proposed mining equipment for the Project are appropriate for the scale of proposed operations.

## 25.7 Processing and recovery methods

Various metallurgical testwork campaigns have been completed by SMG and Robex in support of the Project, relying on sample material that has been selected from the differing deposits. These testwork campaigns have validated the historical metallurgical processing plant performance and helped with FS-level design parameters for the process plant design.

Mineral processing for the Project will comprise CIL with gold electrowinning, in addition to gravity circuits to produce doré. The gold will be recovered in a beneficiation plant that has been designed to process a blend of oxide, laterite, transition, and fresh ores from various ore deposits.

Due to the sticky nature of the oxide ore there is a risk of ratholing, reducing the supply of oxide material through the processing plant. The process plant design incorporates three apron feeders which provides the option of feeding the process plant with fresh material only.

The International Cyanide Management Code (ICMC) provides guidance in relation to cyanide weak acid dissociable (Cn WAD) limits. There is risk that from time to time, the 50 ppm Cn WAD limit is exceeded, causing noncompliance to ICMC regulations. The plant as designed has the ability to increase the usage of detox reagents, as well as increase the proportion of tailings actually processed through the detox tank.

A lack of retention time within the CIL may result in a reduction in gold recovery. The pulp launder has been designed to reduce the risk of bypass, therefore making full use of the current volume. In extreme cases, tonnage could be reduced with certain ores requiring longer leach time.

In some operations, scaling of piping within the process plant can cause pipes to be obstructed. Scaling may present an issue to the Project during operation which would impact the process plant operation. Monitoring of the piping will be required along with the use of anti-scalant if required.

Water availability should not cause significant problems due to the amount of precipitation in the region and the planned water supply to the plant from the TSF. The design team has included within the design water filtration devices in order to increase the amount of reused water from the TSF (through the service water system).

Feed to the SAG mill will be from oxide and fresh ore sources and the blend may prove challenging to maintain. Changes to the ore feed may result in changes to the P80 and therefore the SAG mill capacity and ore liberation. Variable frequency drives on the SAG mill will provide some control to mitigate the potential risk, as well as direct modulation of the three apron feeder speeds. Finally, the mill ball charge could also be increased for slower dynamic changes.

Considering the amount of operating and testing data available on the Kiniero deposit, the QP considers the level of risk associated with recovery hypotheses and plant design reasonable at this feasibility stage.

## 25.8 Infrastructure

Road access from the capital city Conakry to the town of Kouroussa is via the N1 route. The road is generally in good condition between Conakry Port and the town of Coyah, however, after which the road begins to deteriorate (potholes and unsurfaced sections). It is advised that one or two light escort vehicles accompany convoys of abnormal loads or hazardous materials. It is critical that selected road-haul contractors are familiar with the entire route and familiar with the road condition at the time of planned transport.

From Kouroussa to the Project access is via one of three routes. The N31 route to Saman then via Ballan to Kiniero town provides year round access with a low water bridge in the dry season, and barge during other periods. Another route is from Kouroussa to Kankan via the N1 with a turnoff at Soronkoni via Serakoro to Kiniero. At Kiniero there is only a ford river crossing limiting access to the dry season.

The Property includes an airfield approximately 0.5 km east of the Main Camp. The airstrip has been extensively renovated by SMG, fenced, and equipped with a communications tower and radio. The airstrip is currently undergoing re-permitting. Mining activities at Sabali North will likely encroach onto the southern parts of the runway necessitating an extension of the runway at the north-eastern end.

A hybrid diesel-solar and battery storage power plant is proposed for the Project. The hybrid power plant has been developed based on Vivo Energy providing power as an Independent Power Producer (IPP). Vivo Energy will be responsible for all energy requirements of the mine.

The Project currently operates with existing infrastructure and access roads from previous operators. The Project will necessitate additional upgrade and maintenance works as part of the mine re-commissioning and operation.

## 25.9 Tailings storage facilities

The TSF design was carried out prior to the completion of other studies supporting this Technical Report and has not considered final geotechnical investigations or the geohydrological assessments. The TSF design should be revisited to assess any risks which may present themselves from studies published after this submission.

The TSF will have sufficient tailings storage capacity to satisfy the minimum life of mine tailings storage requirement of 3 Mtpa for a period of 12 years.

The TSF has been classified as a Very High Consequence facility in accordance with the Global Industry Standard on Tailings Management (GISTM) consequence classification matrix (ICMM, 2020). The classification of the TSF was based on the dam break assessment carried out in accordance with CDA guidelines (CDA, 2019). The TSF consequence is based on its potential inundation zone which extends to include the public main road to Balan, the outskirts of Balan and areas to the east of Balan toward the Niandan River. Based on the consequence classification the design has included:

- Provision for the construction of a downstream raised, fully lined, full containment wall to the TSF.
- An assessment of the surface water hydrology and the determination of design rainfall events as specified by the guidelines (ICMM, 2020).
- A seismic assessment of the TSF and mine site, and determination of external seismic loadings as specified by the guidelines (ICMM, 2020).

A geotechnical investigation of the TSF site was undertaken by TREM at the beginning of the wet season between 18 April and 7 May 2022. TREM has submitted a draft/factual report (TREM, 2023) which supplied an overview of the site as well as test pit and borehole log profiles. However, at the time of the submission of this Detailed Design Report, a detailed final report from the investigation was not available to undertake further study on tested samples from the TSF site and input from the investigative team.

A stability assessment of the proposed TSF was undertaken and considered both drained and undrained loading conditions for a range of scenarios. The scenarios included cases of functioning and dysfunctional drains, a 100 mm tear in the geomembrane to the containment barrier at the PH1/PH2 embankment interface as well as a pseudo-static analysis for the TSF.

Strength parameters of available waste stockpile material have not yet been assessed and the assumption has been made that the identified stockpile material would be of suitable physical characteristics for the construction of the containment embankment. Stockpile material is currently undergoing laboratory testing to confirm these assumptions.

Although embankment and foundation parameters were estimated based on their gradings and material descriptions, the initial assessment indicated that all loading conditions present acceptable Factors of Safety for the TSF.

An assessment of the tailings geochemistry and pollution potential has been carried out on samples sourced from the existing TSF as well as simulated tailings samples from the West Balan and Gobelé open pits. The assessment has concluded that:

- The geochemical characterization plot, which uses both Acid Base Accounting (ABA) and Net Acid Generation (NAG) test data, indicated that the simulated tailings samples, and samples from the existing TSF, could all be classified as non-acid forming or uncertain (TSF 04 presents as Uncertain) and therefore these materials can be considered low risk from an acid-generating potential.

An assessment of the ENC tailings sample resulted in the liberation of high concentrations of metals from the ENC tailings during the NAG test. The concentrations exceeded the International Finance Corporation (IFC) Environmental, Health and Safety (EHS) and WHO drinking water guidelines for a range of elements. However, the predicted percentage of the tailings extracted from the ENC tailings source to be represented in the total volume of the TSF is unknown.

- The reagent water leach test on the ENC tailings yielded an alkaline pH, consistent with calcite and other acid neutralizing minerals and limited mobilization of potentially hazardous elements. The exception was arsenic, which was measured at a concentration above the Guinean environmental standard. The results indicated that there had been little to no oxidation of the material and that the leaching of the acid neutralizing minerals is likely to result in an elevated pH for some time.
- The geochemical characterization plot, which uses both ABA and NAG test data, indicated and confirm that the ENC tails should be considered as potentially acid-forming.
- The Moss Group concluded that the ENC tailings material can be considered high-risk in terms of both acid generation and metal liberation.

The third assessment carried out by the Moss group analysed a detoxified single sample prepared from material from 17 RC chip and half core samples from holes in the SGA, Jean, Sabali South, and Sabali Central pits.

- The acid digestion trace element data for the sample identified arsenic, copper, antimony, and zinc at concentrations that exceeded the South African total concentration threshold for non-hazardous waste (TCT 0).
- The reagent leach data showed leached arsenic levels which exceeds Guinean Standards, WHO limits for drinking water, IFC EHS Mining Guidelines waste discharge, and the South African leachable concentration threshold for non-hazardous waste (LCT 0).

The tailings sample would classify as a Type 3 waste under South African guidelines (NEM:WA GN 635 (Act No. 59 of 2008)). Considering this classification, a risk-based approach in consideration with the guideline, would require a Class C barrier system for the containment of waste.

- Based on the assessment of the tailings geochemistry, provision has been made for lining the TSF with a 1.5 mm HDPE geomembrane onto recompacted clayey soils within the TSF basin and overlayed on compacted low permeability saprolitic material imported to the basin to cover exposed lateritic outcrops.
- A series of diversion trenches have been designed to accommodate the IDF and channel surface water flow away from the TSF.
- The assessment of the site rainfall patterns (Peens, 2020) has resulted in the selection of a design rainfall event of 410 mm for a three-day event with recurrence interval of 1-in-10,000 years for the assessment of supernatant pond Trigger Alert levels.

The assessment of the site rainfall patterns has resulted in the selection of a design rainfall event of 350 mm based on estimated rainfall of:

- 410 mm for a three-day event with recurrence interval of 1-in-10,000 years.

Based on analyses of the TSF water balance it has been concluded that:

- Between 45 and 50% of the slurry water pumped to the facility would be available for return to the plant after entrainment.
- While stormwater runoff to the basin of the facility would supplement the water available for reuse during the rainy season, it is unlikely that such water would ever entirely negate the need for plant make-up water to be sourced elsewhere.
- The TSF should be designed to accommodate the short-term storage of up 973,064 $m^3$ of excess runoff associated with the design storm event.
- The TSF has sufficient freeboard in the event that the IDF is encountered. The operator's strict control of the pond and seasonal freeboard is a critical control.

The proposed TSF has been designed as a fully lined, full containment facility. The containment embankment is designed in 2 phases. The Phase 1 embankment would be constructed to an elevation of 425 mAMSL, the Phase 2 embankment comprises a downstream lift to an elevation of 435 mAMSL. The embankment is to be constructed with a 15 m wide crest, a downstream slope of 1V:3H, and an upstream slope of 1V:2.5H and it will be developed to a height of up to 27 m above datum, at which time it will have a rate of rise of 0.97 m/yr.

## 25.10 Metal sales

The Project will produce gold doré which is readily marketable and sold "ex-works" or on a "delivered" basis to several international refineries. There are no indications of the presence of penalty elements that may impact the price or render the product unsaleable.

## 25.11 Economic analysis

The overall project execution strategy is feasible on the basis of the analysis undertaken. The forecast input parameters should be subject to periodic review, and any significant deviation from the assumptions used in this Technical Report should be considered as potentially requiring a review of the investment and operating strategy.

## 25.12 Environmental

The Project is being undertaken with due consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements. The economic benefit of this development is significant and viewed as a positive development by the community. With mining projects of this nature, there are also negative impacts which will require planning, mitigation, and monitoring during the construction, operational, decommissioning, and closure phases of the project. These have been included in the ESIA. Based on the assessment completed in the ESIA, no fatal flaws have been identified. Mitigation measures and monitoring programmes have been identified and developed for impacts that require mitigation.

Potential risks identified for the Project includes social disruption, dewatering water quality, TSF dustfall, historical mining liabilities, and the ongoing development of the Livelihood Restoration Plan (LRP).

Social unrest and community action against the operation may occur due to conflict with the mine which may impact on the safety of personnel and mine production. The mine currently has good community relations including monthly engagement meetings. Robex/SMG will continue to facilitate good relations with the communities and artisanal miners to reduce the risk of social disruption.

During the pre-development pit dewatering there is a risk of non-compliance in terms of water quality, both with the GOG and IFC effluent guidelines. This may necessitate investigation of water treatment options or an alternative dewatering strategy. SMG currently implements water quality monitoring. Potential mitigation measures may include the establishment of a storage facility, use of existing pits for water storage, or a water treatment plant.

The proposed TSF location is situated in proximity to the village of Ballan. There is a risk of windblown dustfall from the TSF into the community impacting public health and non-compliance. SMG currently implements dust monitoring and dust suppression measures. As the Project advances, SMG will need to look at air quality dispersion modelling risks with on-site monitoring at Ballan village to confirm the effectiveness of dust suppression methods.

SMG is exempted from the liabilities associated with the historical SEMAFO mining activities; however, these historical liabilities need to be identified, quantified, and agreed with GOG. Failure to do so may leave to historical liabilities becoming part of the Robex/SMG liabilities.

The LRP is currently being developed and implemented, however, the overall final cost for the LRP is still to be calculated. The LRP affects those agricultural assets within the Project area which will need the LRP and associated compensation before construction in these areas can commence. Risks therefore exist that the current provisions made by Robex/SMG may be insufficient, and any delay in implementation may impact construction in affected areas. Robex/SMG is currently engaging with stakeholders regarding compensation. Ongoing works will seek to complete the LRP process and implement it in a timely manner.

## 25.13 Key risks

A range of project risk areas related to environmental, social, permitting, technical, financial, and others are assessed to provide a risk level perspective for the Project. The key risks are summarized in Table 25.1.

## Table 25.1 Project risk matrix

| # | Risk Name | Risk Description | Cause(s) Description | Consequence(s) Description | Primary Consequence Type | Secondary Consequence Type | Existing Controls | Probability | Consequence | Rating | Qualitative Result | Phase Affected | Mitigation(s) | Post Mitigation Risk Estimate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Probability | Consequence | Rating | Qualitative Result |
| Mining | High pit walls in the south of SGD and west Jean. | Highest slopes on project. | Overall slope higher than anticipated during design phase causing overall slope angle to be steeper than recommended. | Slope failure. | Quality and Technical Integrity | Schedule | Stability analysis has been performed which shows factor of safety at limits of feasibility. | C | 4 | C4 | Significant | OPS | Add geotechnical berm and investigate other potential measures such as slope monitoring and support. | E | 4 | E4 | Medium |
| Mining | Water inflow in open pits. | Inflow of excessive water into mine workings causing schedule delays. | Rain during wet season or excessive groundwater inflow. | Loss of production. | Schedule | Cost | Productivities have been reduced in the wet season in the production schedule. A plan has been developed to dewater using boreholes and in-pit sumps prior to mining taking place. | C | 3 | C3 | Significant | OPS | Ensure sufficient in-pit pumping capacity and development of sumps. Ensure that dewatering boreholes are established prior to mining. | D | 2 | D2 | Low |
| Mining | Inability to achieve mine plan. | Mine planning targets for ore and waste movement not achieved. | Contractor unable to mobilize in time or meet production targets. | Loss of production. | Schedule | Cost | Contractor engaged early, already visited site and prepared cost estimates based on feasibility. | D | 4 | D4 | Significant | OPS | Continued engagement with contractor. Continued assessment of equipment requirements and mine plan. Other contractors available. | E | 3 | E3 | Medium |
| Mining | Mining around existing pits. | Potential for slope failures or working at height hazards. | Pits mined around potentially unstable existing workings. | Slope failure, equipment damage, injury. | Safety/Health | Schedule | Minimum mining width applied to designs. | C | 5 | C5 | High | OPS | Development of safe working procedures for existing workings. Continued monitoring of existing slopes. | E | 4 | E4 | Medium |
| Mining | Unforeseen conditions in pits below current waterline. | Silt build-up and/or variation to modelled pit depletion. | More than 10 years of pit bases being underwater. Validity of depletion surfaces. | Delay to mining. | Schedule | Cost | Budget and time in place for dewatering and clean-up. Where depletion surfaces not available, conservative projections used. | C | 3 | C3 | Significant | OPS | If unforeseen circumstances encountered, re-locate mining to other available locations. | D | 3 | D3 | Medium |
| Geology | Grade variability from Mineral Resource model. | Actual production grades differ from those in the Mineral Resource block model. | Mineralization at Kiniero is highly variable including small-scale "nuggety" grades. | Loss of production. | Schedule | Quality and Technical Integrity | None | B | 3 | B3 | Significant | OPS | Implement comprehensive grade control programme, including close spaced sampling and grade control models for short-term planning. | D | 2 | D2 | Low |

| # | Risk Name | Risk Description | Cause(s) Description | Consequence(s) Description | Primary Consequence Type | Secondary Consequence Type | Existing Controls | Probability | Consequence | Rating | Qualitative Result | Phase Affected | Mitigation(s) | Post Mitigation Risk Estimate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Probability | Consequence | Rating | Qualitative Result |
| Geology | Changes to mineralization interpretation. | Mineralization at Kiniero is complex and variable and may differ from the Mineral Resource estimate. | Mineralization at Kiniero is variable, subsequent mining and exploration may show alternative interpretations. | Loss of production and requirement to update Mineral Resource. | Schedule | Quality and Technical Integrity | Extensive work undertaken on the interpretations informing the Mineral Resource estimate. | C | 3 | C3 | Significant | OPS | Review grade control, mining, and exploration data on regular basis and compare to Mineral Resource estimate model. Update Mineral Resource estimate if material changes are noted. | D | 2 | D2 | Low |
| Geotechnical | Pending geotechnical laboratory testwork. | Soil triaxial (TCS) test results from batch 1 of the 2022 laboratory testwork programme are still outstanding. So too are all of the "batch 2" results. The Jean prospect is the highest exposed. | Project timing difficulties. Necessary updates to early sample lists. Delays with dispatch, shipping and RSA lab execution. | Reduced amount of data available for the FS assessment. Not all planned for lab testing data has been considered. May result in changes to the mine design criteria. | Quality and Technical Integrity | Cost | Lab testwork has been complemented by field testwork (HP and PLI testing). | D | 3 | D3 | Medium | EXEC | 1. All outstanding lab results to be incorporated into the geotechnical data set and the impact assessed.<br>2. Design criteria and numerical models to be updated if deemed necessary. | D | 2 | D2 | Low |
| Geotechnical | Major structures. | More work is required on the model of major structures. N-S structures picked up by in the 1980s pose potential to destabilize the pit walls (predominantly east-facing walls). | Deep LAT/SAP makes identification of major structures challenging. Limited to no revised work on this since the 1980s. | Major and prominent structures (if located close to and sub-parallel to the pit walls) may drive slope failures necessitating revised slope designs. | Quality and Technical Integrity | Safety/Health | Structure of the northern prospects tends to be tighter and more welded than is the case at Sabali. Continued exploration drilling that is planned. | C | 3 | C3 | Significant | OPS | 1. Update database with pending lab results.<br>2. Dedicate some new structural drillholes to target the planned main pit shell walls (confirm past understanding of main structural trends).<br>3. Rerun slope models<br>4. Quantify the impact and cost of necessary slope adjustments. | D | 2 | D2 | Low |
| Licences | Mansounia licence. | Convert Mansounia exploration licence to an exploitation licence. | Fulfil all legal requirements to convert the current Mansounia exploration licence to and exploitation licence. | Unable to mine into the Mansounia licence. Includes the southern portion of Sabali South and the Mansounia Central deposit | Legal & Regulatory | Schedule | Awareness and tracking of licence conversion requirements, ongoing meeting of requirements. | D | 3 | D3 | Medium | EXEC | Tracking and achieving the requirements for licence conversion and obtaining licence. | E | 1 | E1 | Low |
| Environmental and Social | Social Disruption. | Social unrest, community action against operation. | Community disrupt operations due to conflict with mine. | Unable to perform activities on-site, personnel safety. | Reputation/Social/Community | Schedule | Good community relations, monthly community engagement meetings. | C | 3 | C3 | Significant | OPS | Continuous good relations and communication with local communities and artisanal miners. | D | 3 | D3 | Medium |

| # | Risk Name | Risk Description | Cause(s) Description | Consequence(s) Description | Primary Consequence Type | Secondary Consequence Type | Existing Controls | Probability | Consequence | Rating | Qualitative Result | Phase Affected | Mitigation(s) | Post Mitigation Risk Estimate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Probability | Consequence | Rating | Qualitative Result |
| Environmental and Social | Dewatering water quality non-compliance. | Non-compliance of pre-development dewatering water quality with host country and IFC effluent guidelines resulting in the need to treat the water prior to discharge or finding alternative dewatering strategy. | Non-compliance of pre-development dewatering water quality with host country and IFC effluent guidelines. | Water treatment options will need to be investigated or alternative dewatering strategy implemented. | Environment | Cost | Water quality monitoring. | C | 2 | C2 | Medium | EXEC | Mitigation options includes establishment of storage facility, existing pits, or a water treatment plant. | C | 1 | C1 | Low |
| Environmental and Social | Dustfall impacts from TSF on Ballan village situated nearby. | Proposed new TSF proximity to the village of Ballan (800 m). Potential wind-blown dustfall impacts resulting in non-compliance and health impacts on community. | Potential wind-blown dustfall impacts from the TSF on the Ballan Village during the dry season. | Dustfall impact to Ballan village resulting in non-compliance and possible health concerns. | Reputation/Social/Community | Legal & Regulatory | Dust monitoring and dust suppression measures. | B | 2 | B2 | Medium | OPS | Air quality dispersion modelling risks will need to be confirmed with recommended on-site monitoring at Ballan and effectiveness of mitigation confirmed. | D | 1 | D1 | Low |
| Environmental and Social | Ongoing Livelihood Restoration Plan (LRP) resulting in additional CapEx and delay in project development. | The LRP is currently being developed and implemented and the actual cost will be confirmed once completed. Current provision may not be adequate. | The latest layout directly affects agricultural assets within the Project area, which will need the implementation of the LRP and associated compensation before construction in these areas can commence. | Cost as well as possible delay of construction in affected areas. | Cost | Schedule | Engagement and Compensation. | B | 2 | B2 | Medium | EXEC | Complete LRP process and implement in a timely manner. | C | 1 | C1 | Low |
| Environmental and Social | Historical SEMAFO environmental liability. | Environmental Liability due to historical contamination from SEMAFO mining activities. | SMG is exempted from the liabilities associated with historical SEMAFO mining activities, but historical liabilities would need to be identified and quantified and agreed with the GOG. | Risk of historical liabilities becoming part of current liabilities once construction and operational phases have started, if not identified and agreed with GOG. | Cost | Reputation/Social/Community | Agreement with GOG. | D | 2 | D2 | Low | EXEC | Site contamination assessment. Environmental monitoring. Audit of past incidents and spills. | E | 1 | E1 | Low |
| TSF | Catastrophic failure of TSF. | Catastrophic failure of main bank. | TSF design failure, geotechnical, excessive rainfall beyond design capacity. | Tailings flow impacting surrounding area including Balan village, and Niandan River. | Safety/Health | Environment | Detailed geotechnical studies and design studies including lined TSF and high factors of safety (FOS). | E | 5 | E5 | Significant | OPS | TSF design incorporates drainage and design features to mitigate risks, ongoing TSF monitoring. | E | 4 | E4 | Medium |

| # | Risk Name | Risk Description | Cause(s) Description | Consequence(s) Description | Primary Consequence Type | Secondary Consequence Type | Existing Controls | Probability | Consequence | Rating | Qualitative Result | Phase Affected | Mitigation(s) | Post Mitigation Risk Estimate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Probability | Consequence | Rating | Qualitative Result |
| TSF | Cyanide seepage. | Cyanide seepage from TSF. | Failure of TSF allowing cyanide solution into adjacent areas. | Public health and environment, regulatory. | Safety/Health | Environment | Detox plant, lined TSF, and seepage sumps. Aligned with the cyanide code with annual audits. | D | 3 | D3 | Medium | OPS | Active monitoring, cyanide kits on-site. | E | 2 | E2 | Low |
| Processing | Ratholing of oxide stockpile during the rainy season. | The sticky nature of the oxide ore will cause ratholing and sometimes oxide shortages at the SAG mill. | Oxide material is very sticky. | Proportion of oxide will be reduced in the mill and the overall throughput will be reduced. | Cost | Quality and Technical Integrity | Design has 3 apron feeders to give flexibility to ore feed. It is possible to operate the plant on fresh ore only. | A | 3 | A3 | Significant | OPS | Study to evaluate the return on investment for installing an emergency feeder bin. | B | 2 | B2 | Medium |
| Processing | Cyanide (Cn) exceeding 50 ppm Cn Weak Acid Dissociable (WAD) at reject. | From time to time, the Cn WAD concentration could go higher than the ICMC limit of 50 ppm Cn WAD. | Variability in ore and in process plant operation. | Non-compliance of ICMC regulations. | Legal & Regulatory | Environment | The amount of detox reagent can be increased in addition to processing the whole tailings flow instead of the current designed percentage. | A | 2 | A2 | Significant | OPS | Implement a tight control of Cn WAD sampling and monitoring; add a second tank as floor space and $O_2$ is available. | D | 2 | D2 | Low |
| Processing | Too low retention time at CIL. | Lack of retention time at the CIL could decrease Au recovery. | Lack of retention time in the CIL. | A too low retention time could reduce the Au recovery. | Quality and Technical Integrity | Cost | Reduce the tonnage and optimal pulp launder configuration to avoid bypass. | D | 3 | D3 | Medium | OPS | Add a seventh tank as floor space and $O_2$ is available. | E | 2 | E2 | Low |
| Processing | Scaling of the piping. | In some operations scaling can cause piping to obstruate or to plug. | There is no data about scaling up to now, but service water system could increase this risk. | The inner size of the piping will decrease, causing bottlenecks. | Quality and Technical Integrity | Cost | No data available. | E | 3 | E3 | Medium | OPS | Monitoring of piping will be made and use anti-scalant if necessary. | E | 2 | E2 | Low |
| Processing | SAG mill stability issues. | Variable feed sources might create difficulties maintaining the circulating load. | The blend of fresh and oxide might be difficult to maintain. | The p80 grind size will be variable and the capacity will oscillate. | Quality and Technical Integrity | Cost | Variable Frequency Drive (VFD) on the SAG mill to accommodate varying feed. Recovery is weakly affected by p80. | B | 2 | B2 | Medium | OPS | Advanced control of the SAG mill could be implemented if problems occur. | E | 2 | E2 | Low |
| Processing | Presence of contaminants in gravity concentrate. | Toxic contaminants could cause worker health risks. | As, Hg, Se are toxic. | Health implications. | Safety/Health | Reputation/Social/Community | No | E | 4 | E4 | Medium | OPS | Analysis of gravity concentrate; blood tests for workers. | E | 2 | E2 | Low |
| Processing | Lack of process water. | Lack of process water impacting process plant operation. | Lack of water during dry season. | Reduction in process plant operation and production. | Schedule | Cost | TSF provides a significant water source; water pond is of a large size. | C | 2 | C2 | Medium | OPS | Additional boreholes and pit dewatering. | E | 2 | E2 | Low |

Source: AMC, 2023.

# 26 Recommendations

The following recommendations on the various aspects of the Project are made by the QPs and contributing authors of this Technical Report.

## 26.1 Geology and Mineral Resources

Mineralization within the Property displays strong structural controls which has a bearing on the geological interpretations and subsequent Mineral Resource estimates. Further work should be completed to understand the structural controls on mineralization, including completion of orientated drillholes and structural logging.

Supergene mineralization has been interpreted at Sabali South and Mansounia Central. Additional work is warranted to better understand the extents and controls on the supergene mineralization. Work should include more-detailed geological logging and assessments on grade associations.

The mineralization displays a high "nugget effect" which can be affected by sample sizes, and the sample preparation stages. A detailed sampling study including development of sampling nomograms, may help define a preferred sampling protocol. Refinements to the sampling protocol may reduce grade variability attributed to fundamental sampling errors. A reduction in sampling-induced grade variability may assist in improving the variography results.

Variograms should be further refined as additional drilling data becomes available, and refinements to the mineralization domains established. Additional drillhole data and improved subdomaining may assist in improved variogram structures.

For the Sabali South Mineral Resource estimates a 1 m composite interval has been applied, differing from the 2 m composites applied to the other deposits. A comparison of the use of a 1 m versus 2 m composite at Sabali South indicates a reduction in variability and greater grade smoothing. For future Mineral Resource updates consideration should be given to using a 2 m composite length to further align the Sabali South estimation composites with those applied at the other deposits. Whilst not a fundamental change to the overall estimation method, it would further increase consistency in the application of estimation methods.

Given the inherent compositional and distributional heterogeneity of mineralization within the Project, a comprehensive grade control programme is recommended to support mining operations. The grade control programme should include robust close spaced sampling, with assaying supported by QA/QC procedures. Grade control samples should be incorporated into a grade control block model to support short-term mine planning, and delineation of ore and waste on a production area basis.

## 26.2 Mining

Ongoing geotechnical studies and monitoring will be required to improve the knowledge of the rock mass quality and optimize slope stability parameters.

During detailed design, a geotechnical berm should be added to the upper portions of the SGD southern slopes to reduce overall slope angle. The location of the slopes between historic workings and a natural peak mean that the additional berm will not add excessive waste and should not have a significant impact on the mine plan. Other options include focused slope monitoring and or installing artificial slope support at strategic locations.

Further work is required to refine the regional structural geology model. Advances since the 2022 PFS have produced substantial growth in the understanding of the saprolite and fresh rock materials and how these will impact mined slope stability. Regional structures (dykes and faults) that intersect the area (often corresponding with geographical paleo-lows, like the one that separates Sabali North and Central from Sabali South) need to be quantitatively assessed for geotechnical risk to the Project.

A typical and fit-for-purpose slope monitoring plan needs to be developed for use during steady-state mining.

Following updated resource drilling, the northern extents of the SGA pit should be re-optimized and re-designed to better define the interaction between SGA and SGD.

The following optimizations should be considered post-feasibility:

- Review additional intermediate pit phases to ensure a steady volume of oxide material to blend with fresh and maintain process power constraints.
- Review material grade bins, particularly in the fresh material, to deliver optimal grade to the process plant while also minimizing stockpiles.

On commencement of mining ensure that grade control drilling is planned sufficiently in advance to provide a data set that can be reconciled against the diluted block models and initial process production.

Continue to compile the necessary geotechnical, hydrogeological, and metallurgical data to support the inclusion of additional satellite pits including Mansounia Central, Derekana (West Balan), and Banfara, which may provide the additional oxide ore required to optimize the process schedule

### 26.3 Processing and recovery methods

Based on the assessment, the QP has recommended that:

- For mitigating the risk of ratholing and eventual erratic feed at the SAG mill, works should be undertaken to consider an emergency feeder, that would allow feed to the SAG mill feed conveyor directly using a FEL.
- If Detox and/or CIL leach retention time is found insufficient once in operation, a study should be completed to consider adding tanks (floor space is already available) to the process plant.
- If the mill feed and recirculating load is found difficult to operate, implementation of advanced control methods should be considered.
- Water availability is not a significant issue; however, an extreme dry season may require provision for additional boreholes and pit dewatering equipment.
- Once in operation, tests should be undertaken on both the gravity concentrate ore in addition to gravity table and gold room worker blood tests. The tests are to be conducted to assess potential exposure to toxic metals such as As, Se, and Hg.
- Once in operation, monitoring of the process piping should be done regularly to assess scaling of the pipes.
- Once in operation, additional leach tests should be made on the oxide legacy stockpile. Current recovery assumption is conservative, fixing the Au tails at 0.1 g/t Au.

## 26.4 TSF

Based on the design of the TSF, the QP has recommended that:

- A competent construction team with sufficient resources, a strong, demonstrated history of construction managerial experience, and good quality control be appointed to undertake the construction of the TSF.
- A competent lining installation team with a strong, demonstrated experience of successfully installing geomembrane to similar-sized facilities with good quality control be appointed to undertake the installation of the liner to the TSF.
- An appropriate QA/QC plan must be undertaken during the construction of the TSF.
- An electrical leak integrity survey needs to be considered after completion of the TSF geomembrane installation for each phase of the TSF prior to tailings deposition to ascertain that the facility has been constructed in accordance with the design intent.
- A specialist tailings operating contractor be employed to operate the TSF, preferably an operator/company specializing in TSF operations with an extensive history of experience.
- Due to the high rainfall experienced in the area, it is recommended that the construction of the TSF preparatory works be undertaken during the dry season months and must be scheduled as such to prevent delays.
- The Phase 1A and Phase 1B trenches have been designed to function simultaneously and should be constructed as such.
- Backup pumps, turrets, and power supply should be available to assist with decant from the TSF in any event of loss of electrical power or breakdown of return water infrastructure.
- Further analysis must be carried out in an amendment to this assessment to consider transient analyses and material parameters for embankments and engineered fills. Analysis should be based on the final geotechnical report submission from TREM, and the outstanding data for stockpile material intended for use which is currently undergoing laboratory testing.
- Consideration should be given to the results of the updated assessment in terms of TSF geometry and the need for any other additional stabilizing measures.
- A comprehensive monitoring plan be adhered to for the facility to allow for the development of early warning systems, operational performance tracking, and data gathering to develop a knowledge base for the TSF and assist in the execution of a closure plan for the facility.
- It is recommended that a detailed, engineered closure design, be undertaken for the TSF prior to closure. This is in order to comply with the requirements of the GISTM as well as host country legislation as outlined in the conceptual closure plan for the TSF.

Based on the Dam Break Assessment, the QP has recommended that:

- The TSF be classified as a having a Very High Consequence of failure and that it be designed, constructed, and operated in accordance with the requirements for such a facility, with specific reference to:
  - Minimizing the storage of excess slurry water and stormwater runoff.
  - The development of a comprehensive set of Trigger Alert Response Plans to facilitate the monitoring and management of excess water storage and slope stability.
  - The implementation of a comprehensive system of monitoring instrumentation and inspections to ensure that any potential instability of the facility is detected.
  - The development of an EPRP.
- A series of attenuation berms and diversion walls be constructed so as to mitigate and channel the effects of a potential release of tailings from the facility, with the intention of further reducing the population at risk (PAR) and the potential for Loss of Life.

- The DBA and associated Consequence Classification be reviewed, and updated as necessary, on an annual basis.
- Measures be taken to improve the accuracy of the DBA and Consequence Classification by, for instance:
  - Extending the survey to the area to the east of Balan to improve the accuracy of the assessment in that area.
  - Rheology testing—performing laboratory tests on the tailings' material to determine rheological properties unique to the product processed by the plant to provide updated data which can be used in future dam breach analysis updates.
  - Assessment of the liquefaction potential of the tailings deposited to the TSF to either confirm the assumption that the tailings have the potential to liquefy or indicate that a new approach may be taken in the assumptions made in the modelling of the outflow of tailings.
- This document be incorporated into the EPRP for downstream villages and any immediate downstream infrastructure within the indicated inundation zone.
- The facilities should be monitored on a regular basis to ensure early warning systems are in place and that updates and insight to the design can be implemented on a regular basis.

## 26.5 Environmental

Based on the Environmental and Social Impact Assessment (ESIA) undertaken, the QP has recommended the following:

Kinetic testwork is recommended on the TSF material as well as the higher risk transitional material identified that is currently classified as uncertain, or potentially acid-forming. If the material is acid-forming, then a plan will be required to ensure that this material is encapsulated within the lower risk material to prevent the formation of Acid Mine Drainage (AMD).

The FS layout directly affects agricultural assets within the Project area, which requires the completion of the implementation of the Livelihood Restoration Plan (LRP) and associated compensation prior to construction in these areas. The LRP is currently being developed and implemented and the actual compensation cost will be confirmed once the LRP has been completed.

Water from the existing flooded pits will need to be dewatered into the Bariko and Kéléro Rivers during the wet season of 2023 at a rate not exceeding the acceptable release rates as provided in the ESIA. A monitoring programme has been developed to provide for the sampling of the water quality prior to the release into the environment. Should the pre-development dewatering water quality not comply with the IFC effluent guidelines, treating the water prior to discharge, or finding an alternative dewatering strategy will be required. Options include the establishment of a storage facility or a water treatment plant.

The proposed new TSF is situated approximately 800 m from the edge of the Ballan village. Based on the latest air quality (AQ) dispersion modelling, potential wind-blown dustfall impacts may result in non-compliance and health impacts on the Ballan community. It is recommended that the AQ dispersion modelling risks be confirmed with the recommended onsite monitoring at Ballan village, and the effectiveness of the mitigation measures confirmed.

A series of IFC Action Plans will be required as part of the project implementation. As part of the Action Plans, a Biodiversity Management Plan must be developed that outlines mitigation and monitoring measures, to minimize adverse impacts on biodiversity within the Project area and promote its conservation. An EPRP must also be developed that addresses the various emergency scenarios identified, including the specific TSF dam failure and safety monitoring measures as provided in Epoch's detailed design report for the TSF (Epoch, 2023). The Environmental and Social Management Plan (ESMP) and IFC Action Plans must be incorporated into the Project's overall Environmental and Social Management System (ESMS). They will need to be implemented and monitored on site during the pre-construction, construction, operation, and closure/reclamation phases.

As part of the ESMP, an environmental monitoring plan and budget has been provided for air quality, noise, surface, and groundwater quality monitoring, as well as social monitoring programmes. The monitoring plan must be implemented in accordance with the ESMP during the pre-construction, construction, operation, and closure/reclamation phases of the Project, to monitor and ensure compliance with the specific standards as outlined in the monitoring plan.

As part of the Project's SWMP, stormwater management and flood protection berms may be required by the Sabali South pit, depending on the final pit design. These need to be designed in accordance with best practice based on the flooding risk posed.

For power and water use, it is recommended that efficient practices are implemented, and alternative supply options are continuously investigated in order to optimize the power and water supply options used on site. The site-wide water balance must be calibrated and reviewed on a regular basis to ensure efficient use of water resources.

# 27 References


**Section 2**

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(CIM, 2014) "*Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards – for Mineral Resources and Mineral Reserves*", May 2014.

**Section 3**

(CPDM, 2021) "*Legal opinion on the validity and the good standing of the mining titles held by Sycamore Mine Guinée SAU and Penta Goldfields SAU in Republic of Guinea*", CPDM (Centre de Promotion et de Développement Minières), 2011.

(CABINET D'AVOCATS BAO ET FILS, 2021a) Due Diligence Report provided and the letter titled, 2021.

**Section 4**

**Codes and Laws**

Guinean Mining Code, 2011. Amended 2011 Mining Code of the Republic of Guinea.

The Code for the Protection and Development of the Environment (1987, 1989, 2019).

The Land and State Code (1992).

The Local Government Code (2006).

The Planning Code (1998).

The Rural Land Policy (2001).

The Forest Code (1991).

The Pastoral Code (1995).

The Labour Code (2014).

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The Public Health Code (1997).

Guinea Land Code (1992).

**Section 6**

(SEMAFO, 2008/2009) "*Technical Report on the Mineral Resources and Reserves, Kiniero Gold Mine, Guinea*", SEMAFO Inc., M Crevier, dated December 2008 and updated March 2009.

(Runge, 2009) "*Mineral Resource Estimate, Mansounia Gold Deposit, Guinea, West Africa*", Runge Limited, J Barnett, dated January 2009.

(Runge, 2012) "*Resource Estimate Update, Mansounia Gold Deposit, Guinea, West Africa*", Runge Limited, K Lowe, dated May 2012.

**Section 9**

(WGS, 84) World Geodetic System, 1984.

(EGM, 96) Earth Gravitational Model, 1996.

**Section 10**

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**Section 17**

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**Section 23**

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# 28 QP Certificates

The QP Certificates for this Technical Report are contained herein.

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AMC consultants mine smarter

## CERTIFICATE OF AUTHOR

I, Alan Turner, CEng, MIMMM of Maidenhead, United Kingdom, do hereby certify that:

1 I am currently employed as a Principal Mining Engineer with AMC Consultants (UK) Limited, with an office at Building 3, 1st Floor, Concorde Park, Concorde Road, Maidenhead Berkshire SL6 4BY United Kingdom.

2 This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023, (the "Technical Report") prepared for Robex Resources Inc. ("the Issuer").

3 I graduated from the University of Exeter with a Bachelor of Science (BSc) degree in Applied Geology and a Master of Science (MSc) degree in Mining Engineering. I am a Chartered Engineer (CEng) in good standing with the Institute of Materials, Minerals and Mining (IMMM) in London (no. 608611). I have practiced my profession continuously as a Mining Engineer for 19 years and with AMC since 2017.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

4 I have visited the property on 16-19 January 2023, for 4 days.

5 I am responsible for Sections 15, 16, 19, 22, and parts of Sections 1, 18, 21, 25, 26 of the Technical Report.

6 I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of NI 43-101.

7 I have not had prior involvement with the property that is the subject of the Technical Report;

8 I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9 As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023
Signing Date: 22 June 2023

*Original signed by*

________________________

Alan Turner, CEng, MIMMM
Principal Mining Engineer
AMC Consultants (UK) Limited

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## CERTIFICATE OF AUTHOR

I, Ingvar Kirchner, BSc (Hons), FAusIMM, MAIG, of Perth, Western Australia, Australia, do hereby certify that:

1 I am currently employed as the Geology Manager Perth / Principal Geologists with (AMC Consultants Pty Ltd), with an office at 1100 Hay Street, West Perth, Western Australia 6005, Australia.

2 This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023, (the "Technical Report") prepared for Robex Resources Inc. ("the Issuer").

3 I am a graduate of Monash University in Melbourne, Victoria, Australia (BSc Hons Geology in 1987). I am in good standing as a Fellow of the Australasian Institute of Mining and Metallurgy (#108770) and Member of the Australian Institute of Geoscientists (#4727) I have 36 years of mining industry experience in open pit and underground mining, drilling, Mineral Resource estimation, reconciliation studies, technical audits, due diligence studies, and public reporting of a wide range of metal deposits in accordance with key international reporting codes.

1 I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

4 I have not visited the property. Nick Szebor, also a qualified person for this project, has completed the site visit on behalf of AMC Consultants.

5 I am responsible for Section 14 and parts of Section 1, 25, and 26 of the Technical Report.

6 I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of NI 43-101.

7 I have not had prior involvement with the property that is the subject of the Technical Report.

8 I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9 As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023
Signing Date: 22 June 2023

*Original signed by*

________________________

Ingvar Kirchner, FAusIMM and MAIG
Geology Manager Perth / Principal Geologist
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## CERTIFICATE OF AUTHOR

I, Nicholas Szebor, CGeol (London), EurGeol, FGS, of Maidenhead, United Kingdom, do hereby certify that:

1 I am currently employed as the General Manager, Maidenhead / Principal Geologist with AMC Consultants (UK) Limited, with an office at Building 3, 1st Floor, Concorde Park, Concorde Road, Maidenhead Berkshire SL6 4BY United Kingdom.

2 This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023, (the "Technical Report") prepared for Robex Resources Inc. ("the Issuer").

3 I am a graduate of Camborne School of Mines in Penryn, Cornwall, UK (Master of Science in Mining in 2006), and the University of Wales in Bangor, UK (Bachelors of Science in Ocean Science in 2004). I am a member in good standing of the European Federation of Geologists (License #1174), Geological Society of London (License #1015279), and a fellow of the Geological Society of London (License #1015279). I have 16 years of experience within the mineral industry working in roles including consultancy and production. My experience covers a range of commodities, geological settings, exploration, and production environments, including underground and open-pit operations. This experience has been obtained across the mining lifecycle from early-stage exploration to production and mine closure. And I have carried out mineral resource estimates to international reporting codes including JORC, CIM (NI 43-101), and SAMREC. I am familiar with Birimian gold deposits in West Africa, having studied the geology of the region, and having worked on other projects in the region. I am familiar with the styles of mineralization both in terms of exploration methods, sampling and Mineral Resource estimation.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

4 I have visited the property on 16-19 January 2023, for 4 days.

5 I am responsible for Sections 2-12, 23, 24, 27, and parts of Sections 1, 25, 26 of the Technical Report.

6 I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of NI 43-101.

7 I have not had prior involvement with the property that is the subject of the Technical Report;

8 I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9 As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023
Signing Date: 22 June 2023

*Original signed by*

Nicholas Szebor, CGeol (London), EurGeol, FGS
General Manager, Maidenhead / Principal Geologist
AMC Consultants (UK) Limited

**CERTIFICATE OF AUTHOR**

I, Antoine Berton, Ph.D., P. Eng., member of the Ordre des Ingénieurs du Québec (OIQ) do hereby certify that:

1. I am currently employed as a Senior Metallurgist, with Soutex Inc., located at 1990 rue Cyrille-Duquet, Local 204, Québec, Qc, G1N 4K8, Canada.

2. This certificate applies to the Technical Report titled "Technical Report, Kiniero Gold Project, Guinea" (the "Technical Report") prepared for Robex Resources ("the Issuer"), which has an effective date of 01 June 2023 – the date of the most recent technical information.

3. I am a graduate of the Université Laval (B.S Physics 1998, M.Sc. & Ph.D. Metallurgical Engineering, 2004). I am a Chartered Professional in the discipline of Physics Engineering and a registered member of the Ordre des Ingénieurs du Québec (OIQ). I have practiced my profession continuously since 2004. My relevant experience includes 17 years as a mineral processing consultant. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101; I have worked in various gold engineering projects as well as operation namely for IAMGold, Agnico Eagle, Orezone, Hummingbird and Robex.

4. I did visit the Kiniero gold property in November 2022.

5. I am responsible for Sections 13 and 17, and parts of Sections 1, 18, 21, 25, and 26.

6. I am independent of the Issuer and related companies applying all of the tests in Section 13 of the NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as metallurgist.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June, 2023
Signing Date: 22 June 2023

*Original signed by*

---

Antoine Berton, P.Eng, Ph.D, OIQ 128618
Senior Metallurgist
Soutex Inc.

## CERTIFICATE OF AUTHOR

I, Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons, Johannesburg, South Africa, do hereby certify that:

1. I am currently employed as a Director with ABS Africa (Pty) Ltd, located at Suite 2 Block C, Carlswald Close Office Park, corner of New & Seventh Roads, Carlswald, Midrand, South Africa, 1685.
2. This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023, (the "Technical Report") prepared for Robex Resources Inc. ("the Issuer").
3. I am a graduate of the Potchefstroom University of Christian Higher Education (now North West University) with a B.Sc. Hons in Environmental Management in 1996. I am an Environmental Scientist and a registered member of the South African Council for Natural Scientific Professions. I have practiced my profession continuously since 1997. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
4. I completed a personal inspection of the Property from the 9/02/2020 to 14/02/2020 and 9/11/2022 to 12/11/2022.
5. I am responsible for Sections 20, and parts of Sections 1, 25, and 26 of the Technical Report.
6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of NI 43-101.
7. I have not had prior involvement with the property that is the subject of the Technical Report;
8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43 101 and Form 43-101F1.
9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023

Signing Date: 22 June 2023

*Original signed by*

---

Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons., a registered scientist with the South African Council for Natural Scientific Professions
Director
ABS Africa (Pty) Ltd.

# CERTIFICATE OF QUALIFIED PERSON

I, Guy John Wiid, PrEng, C.Eng do hereby certify that:

1. I am a Professional Tailings Engineer employed by Epoch Resources (Pty) Ltd of Viscount Rd Office Park, 8 Viscount Rd, Bedfordview, Johannesburg, South Africa.
2. This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023 (the "Technical Report") prepared for Robex Resources Inc ("the Issuer").
3. I am a graduate with a BSc Eng (Civil) from The University of the Witwatersrand in 1988. I also obtained an MSc Eng (Civil) from the University of the Witwatersrand in 1995. I have worked as a Tailings Engineer for a total of 32 years since 1990. I am a member of the Engineering Council of South Africa (No. 940269), and a Chartered Engineer with the American Society of Civil Engineers (No. 9945778). I have read the definition of "Qualified Person" set out in National instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be, a "Qualified Person" for the purposes of NI 43-101.
4. I have not visited the property but have reviewed all technical documentation available pertaining to those Sections of the report for which I am responsible. Site visits have been completed on my behalf by Mr Alasdair Allen, Mr Gustaf Rohde and Mr Tony A'Bear who are employed by Epoch Resources (Pty) Ltd.
5. I am responsible for parts of Sections 1, 18, 21, 25, and 26.
6. I am independent of the Issuer and related companies applying all of the tests set out in Section 1.5 of NI 43-101.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I have read NI 43-101 and Form 43-101F1; the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
9. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023

Signing Date: 22 June 2023

*Original signed by*

___________________________

GJ Wiid PrEng, C.Eng (ECSA 940269)
Professional Tailings Engineer
Epoch Resources (Pty) Ltd

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**CERTIFICATE OF AUTHOR**

I, Jody Thompson, Mining Geotechnical Engineer of South Africa, do hereby certify that:

1 I am currently consulting as a Principal Mining Geotechnical Engineer through company TREM Engineering cc, with an office at 5 Mountford street, Newcastle, 2940, KwaZulu Natal, South Africa.

2 This certificate applies to the technical report titled "Technical Report, Kiniero Gold Project, Guinea" with an effective date of 01 June 2023, (the "Technical Report") prepared for Robex Resources Inc. ("the Issuer").

3 I am a graduate of Mining Engineering from the University of Pretoria. I am an experienced Professional in the discipline of Mining Rock Mechanics Engineering am the holder of the Chamber of Mines of South Africa Certificate of Competency in Rock Engineering (COMREC no 399); am a registered member of the South African Institute of Mining and Metallurgy (SAIMM); the South African Institute of Rock Engineering (SANIRE); and the International Society of Rock Mechanics (ISRM). I have (22 Years) of experience within the mineral industry working in roles including operational management of the geotechnical departments of international mining companies AngloAmerican and Petra Diamonds in South Africa. I have served and signed off as the principal mining geotechnical engineer on many feasibility studies both as a trusted sub consultant to established consultants including inter-alia SRK consulting, WorleyParsons and RoyalHaskoning DHV; and also through my own firm TREM Rock Engineering.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

4 I have visited the property on 5 to17 September 2022 spending at least 8 days onsite while conducting my duties. In addition, I have benefited from follow up visits by my own team of trusted geotechnical logging specialists who have also visited site on my behalf for data capturing.

5 I am responsible for parts of Section 16 and Section 26.

6 I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of NI 43-101.

7 I have had prior involvement with the property that is the subject of the Technical Report in the form of assisting with the "*Kiniero Gold Project, Guinea Pre-Feasibility Study*", (NI 43-101 Technical Report), Mining Plus, report dated 16 September 2022;

8 I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9 As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 01 June 2023
Signing Date: 22 June 2023

*Original signed by*

______________________

Mr. Jody Thompson, B.Eng, COMREC, MSAIMM, MISRM
Mining Rock Mechanics Engineer
TREM Engineering cc

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