Fortuna Silver Mines Inc: Séguéla Gold Mine, Côte d'Ivoire

TECHNICAL REPORT

Effective Date: December 31, 2023

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1 Summary

1.1 Introduction

Fortuna Silver Mines Inc. (Fortuna) has compiled a Technical Report (the Report) on the Séguéla Gold Mine (the "Séguéla Mine or the Séguéla Project) located in the Worodougou Region of the Woroba District, Côte d'Ivoire.

The Séguéla open pit gold mine is operated by Roxgold Sango S.A. (Roxgold Sango), a 90 % indirectly-owned Fortuna subsidiary, with the remaining 10 % interest held by the government of Côte d'Ivoire.

The Report discloses updated Mineral Resource and Mineral Reserve estimates for the Project.

Costs are in US dollars (US$) unless otherwise indicated.

1.2 Property Description, Location and Access

The Séguéla Mine is located approximately 500 km from Abidjan, via major highways to the town of Séguéla. The open pit mine is managed by Roxgold Sango. The operation has a relatively small surface infrastructure consisting primarily of the concentration plant, electrical power station, water storage facilities, tailings storage facility (TSF), waste dumps, stockpiles, and workshop facilities. The open pits at the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits are connected by unsealed roads. Additional structures located in the mine area include offices, dining hall, laboratory, core logging and core storage warehouses.

Roxgold Sango holds an exploration permit (Permis de Recherche Miniére No. 638) and an exploitation permit (Permis d'Exploitation Minière No.56).

Permis de Recherche Miniére No. 638, which surrounds Permis d'Exploitation Minière No.56, is a three-year permit that Roxgold Sango has exercised for a second renewal, having submitted the application on July 20, 2023, and awaiting Ministerial signature. The permit covers an area of 270.1 km^2.

Provided minimum expenditure requirements are met, exploration permits in Côte d'Ivoire are subject to automatic grants of renewal applications for two terms of three years each, and a special third term of no more than two years.

In addition to the Environmental Permit obtained on September 22, 2020, the exploitation permit (Permis d'Exploitation No. 56) was granted by the Council of Ministers on December 9, 2020, and signed as a decree by the President of Côte d'Ivoire (Decree No.2020-960). This permit covers an area of 353.6 km^2 and is valid for 10 years. The permit is thereafter renewable for successive 10-year periods. All the deposits are located on this permit.

The Séguéla Mine is accessible year-round by road vehicle. Bituminized national highways facilitate transport between Abidjan, Yamoussoukro, and the nearest major town, Séguéla (population c. 65,000). From Séguéla, unsealed roads provide access to the mine through the village of Fouio (population c. 3,000).

The Project is located within a tropical savannah climatic region on the southern margin of the Sahel savannah. This climatic zone is typified by high average temperatures, and a distinct wet season and dry season. The average annual temperature for the Séguéla Mine area is 25.3°C, with an annual average rainfall of 1,268 mm. August and September are the wettest months of the year. Mining operations are conducted year-round.

The Séguéla Project occurs in a region of low forested hills, with elevations averaging 347 m above sea level. The vegetation of the region is tropical savannah woodland. The area surrounding the Séguéla Project is extensively cropped for cashews, and to a lesser extent, cacao.

1.3 History

The Séguéla permit (Permis de Recherche Miniére No. 252) was granted to a local Ivorian company, Geoservices CI in February 2012. The Project was subsequently transferred to a local Ivorian joint venture company, Mont Fouimba Resource (Mont Fouimba) in late 2012. In 2013 the permit was transferred to Apollo Consolidated Ltd (Apollo), which was the 51 % shareholder in Mont Fouimba, with Geoservices CI holding the remaining 49 % interest. In February 2016, Apollo announced the signing of an Option to Purchase Agreement by Newcrest Mining Ltd (Newcrest), for the Séguéla Project. Newcrest acquired the adjacent permit (Permis de Recherche Miniére No. 638) on 19 October 2016. In February 2017, the permit was transferred to LGL Exploration CI S.A; a wholly-owned Newcrest subsidiary. In April 2019, Roxgold Inc. (Roxgold) acquired the Séguéla Project from Newcrest through the acquisition of LGL Exploration CI S.A. In July 2021 Roxgold was acquired by Fortuna.

On 23 July 2020, Roxgold through its wholly-owned local entity LGL Exploration CI SA, lodged an application for an exploitation permit (Permis d'Exploitation No. 56). Permis d'Exploitation No. 56 effectively replaced Permis de Recherche Miniére No. 252. LGL Exploration CI SA subsequently transferred Permis d'Exploitation No. 56 to Roxgold Sango by Ministerial Order dated May 25, 2021.

Prior to this period, there is evidence to suggest that the ground contained within permit no. 252 was held by Randgold Resources (Randgold), with press releases from Apollo referring to trenching completed by Randgold over the Gabbro, Porphyry and Agouti prospects within the current permit limits.

Roxgold Sango commenced construction of the mine in September 2021 with commissioning activities starting in April 2023 and the first gold doré pour occurring on May 24, 2023.

1.4 Geology Setting, Mineralization and Deposit Types

The Séguéla Project is situated within the Paleoproterozoic (Birimian) Baoule-Mossi Domain of the West African Craton. Two cycles of volcanism/sedimentation are recognized within the Birimian rocks of the Baoule-Mossi Domain; each followed by a period of orogenesis, and together described as the Eburnian Orogeny which is dated c. 2.19–2.08 Ga. Rocks of the Baoule-Mossi Domain are primarily polyphase granitoids, and volcano-sedimentary sequences forming granite-greenstone terranes. The first cycle of sedimentation and orogenesis (Eburnian 1) is described by the accumulation of volcanic and volcaniclastic rocks; then subsequently intruded by early stage granitoids. Following a period of uplift and erosion, the Eburnian 2 cycle is described by the filling of intra-montaine basins with predominantly arenaceous sediments of the Tarkwaian Series.

The Antenna deposit occurs within a greenstone package deposited during Eburnian 1, that comprises (west to east) an ultramafic hangingwall, which is in presumed fault contact with an interlayered package of felsic volcaniclastic rocks and flow banded rhyolitic units, which are then in contact with a mafic (basaltic) footwall unit. The faulted contacts between the mafic/ultramafic units and the felsic assemblage converge to the south of the deposit forming a wedge shape to the felsic package.

The Antenna deposit is considered to be an example of an orogenic lode-style gold system, hosted by a brittle-ductile quartz-albite vein stockwork predominantly contained within flow banded rhyolite units. The stockwork lode varies in width roughly in proportion with the widths of the rhyolitic units that host it (approximately 3–40 m) and extends over a strike length of approximately 1,350 m. Stockwork veins that host mineralization show two principal orientations: steep east-dipping and steep west-dipping. Veins in the steep west-dipping orientation range from ptygmatically folded to undeformed, while veins in the east-dipping direction may be variably boudinaged to undeformed. This evidence suggests syn-deformational emplacement of the vein sets during west and east movement along the main fault structures within the region. Mineralization occurs as free gold, associated with pyrite and pyrrhotite. Alteration assemblages associated with this mineralization assemblage vary from proximal intense silica–albite ± biotite ± chlorite alteration, through medial silica–albite-sericite ± chlorite assemblages, to more distal sericite-carbonate (ankerite/calcite) and carbonate-magnetite assemblages. Pyrite is the dominant sulfide associated with higher-grade mineralization within proximal alteration zones, while sulfide mineralogy is pyrrhotite-dominated in medial and distal assemblages and is associated with lower-grade gold mineralization.

The Ancien deposit is associated with an interpreted D2 sinistral shear zone, informally referred to as the Ancien shear, within the east domain. The host lithologies comprise (from west to east) a chloritic pillow basalt footwall overlain by a foliated/sheared tholeiitic basalt unit, which is in turn overlain by a second chloritic pillow basalt hanging wall unit that is gradational into a coarser grained porphyritic basalt unit. Generally narrow quartz-feldspar–biotite porphyries crosscut and intrude all other lithologies and are interpreted as late-stage intrusions.

Both the Koula and Sunbird deposits are situated within the same package of mafic rocks as the Ancien deposit, which is informally referred to as the Ancien–Koula corridor. Similar to Ancien, both Koula and Sunbird are hosted within a strongly foliated/sheared thoeliitic basalt unit within a broader sequence of pillow basalt.

At the Ancien, Koula, and Sunbird deposits, significant mineralization is restricted to the more reactive and competent tholeiitic basalt unit and is best developed in zones of strong brittle–ductile brecciation and shearing, with selective sericite ± silica alteration and intense quartz and quartz–carbonate veining. Mineralization occurs as free gold, predominantly as small grains within microfractured milky-white quartz veins and associated with pyrite and lesser pyrrhotite at Ancien, that trends to being more pyrrhotite dominant at Koula. Generally lower-grade mineralization is also developed at the margins of felsic porphyries that intrude the tholeiitic basalt, and in zones of increased brecciation and veining within these porphyries.

The Boulder and Agouti deposits are both located within a distinct northerly-trending litho-structural corridor that extends from Boulder in the south to the Gabbro prospect in the north. Regional mapping has defined a broad package of pillow basalts and intercalated basaltic sediments, flanked to the west by a discontinuous gabbro unit and regionally extensive doleritic sequence. The basaltic units are extensively intruded by quartz–feldspar–biotite porphyritic felsic intrusions.

Gold mineralization at the Boulder and Agouti prospects is associated with strongly foliated or mylonitized, quartz/quartz–carbonate veined basalt and the margins of the felsic intrusions. Generally lower-grade mineralization occurs internal to the felsic intrusions where they are brecciated or extensively veined. The highest gold grades generally correlate with the intersection of north–northeast- and northwest-trending structures. Mineralization occurs as free gold within a network of milky white quartz veins and associated with foliation or quartz/quartz–carbonate vein-controlled pyrite and minor pyrrhotite.

1.5 Exploration, Drilling and Sampling

Exploration has been undertaken by Randgold (pre-2012), Apollo (2012–2016), Newcrest (2016–2017) and Roxgold Sango (2019 onwards).

Exploration activity included construction of a 40-person exploration camp and core storage/logging facilities, geological mapping, purchase and interpretation of aeromagnetic data, soil, trench, and artisanal dump sampling, and aircore (AC) and reverse circulation (RC) drilling. Xcalibur Airborne

Geophysics Pty Ltd of South Africa conducted an aeromagnetic survey across the Project area in December 2019 and January 2020, with the results used to further enhance the prospectivity mapping and structural understanding of the mineralization controls.

As of the effective date of the Report, Roxgold Sango has completed 248,483 m of RC and core drilling (DD) since Roxgold Inc.'s acquisition of the Séguéla Project in April 2019 from Newcrest. Roxgold Sango has an ongoing program of reconnaissance AC and RC drilling across the Project area as new prospects are identified. Those prospects that demonstrate suitable mineral continuity and grade are advanced with additional drilling to improve confidence and to provide suitable samples for metallurgical and geotechnical testing. Projects that have advanced to resource definition (RC and DD) drilling include the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits. Core drilling typically used HQ sized core (63.5 mm diameter) until the final hole depth is reached. A reduction to NQ (47.6 mm diameter) may rarely be required if poor ground conditions are encountered. Down-hole deviation was monitored using a Reflex Instruments device at 12-m intervals and then at 30-mintervals thereafter. Core recoveries are high, averaging 99 %, reflecting the competent nature of the host lithologies.

Drill collar surveys were carried out using a site based differential global positioning system (DGPS) instrument that was calibrated with the regional geodesic system.

Downhole surveys generally used Reflex EZ-GYRO downhole camera, with the Reflex EZ-SHOT retained for backup and survey check purposes. Instruments were provided by the drilling contractor and calibrated prior to use on site.

DD holes were generally drilled on patterns of 25 to 30 m centers to support potential classification as Indicated Mineral Resources and approximately 50 m centers for Inferred Mineral Resources.

Sampling of core was performed by Roxgold Sango personnel. From the drill site, core was transported by truck to a secure logging facility at the Roxgold field office where it was photographed and logged by a geologist. Selective sampling was employed where, at the discretion of the geologist, samples were collected from visible alteration or vein zones outside of the expected intercepts. All core was sampled at 1.0 m intervals, except where a significant geological change occurred. Core was cut in half lengthwise using an electrical rock saw. Half of the sample was placed inside a labelled plastic sample bag. The remaining half was returned to the core box for archiving. Samples were then inserted into woven polypropylene bags prior to being transported by truck to the preparation and assay laboratory.

Roxgold Sango implemented logging onto Maxwell LogChief data capture software in 2019, enabling the direct capture and traceability of logging data via dropdown menus and pre-set codes to promote data hygiene. Prior to 2019, all logging was onto pre-set excel spreadsheets before importation into the database. Reviews of the logging data and associated model interpretation are carried out on a regular basis by the site senior geological team and on each QP site visit.

Samples were submitted to ALS Laboratories (ALS) in Yamoussoukro for preparation and analysis. Core samples received by ALS are passed through a primary crush via oscillating jaw crushers to a >70% pass through a <2 mm size. The AC, RC and DD samples are then passed through a riffle splitter to achieve a 250 g split. This split material is pulverized in its entirety to a >85% pass through 75 µm. This pulp is then rolled on a plastic sheet for homogenization, and an aliquot is taken to fill a paper Geochem bag (approximately 200 g).

Prepared samples from the Yamoussoukro laboratory were then shipped via commercial courier to ALS's analytical facility in either Ouagadougou, Burkina Faso, or Kumasi, Ghana.

Samples submitted for assay were analyzed by ALS by fire assay of a 50 g charge using an atomic absorption spectroscopy (AAS) finish (ALS code Au-AA24). Samples returning >10,000 ppb Au were reanalyzed by fire assay of a 50 g charge with a gravimetric finish (ALS code Au-GRA22). From December

2019, all samples with visible gold noted in drill hole logging, or returning >50,000 ppb Au from the routine fire assay analysis, were also analyzed by the screen fire assay technique (ALS code Au_SCR24 – 106 µm metal screen) to determine the percentage of gold present in the coarse fraction versus the fine fraction. These analytical techniques are considered total and appropriate for the style of mineralization. Results of the screen fire analysis as of the effective report date indicate a reasonable correlation with the primary fire assay analysis.

ALS laboratories are independent of Roxgold Sango. ALS maintain certification in accordance with the most relevant quality certification standards for the activities which they undertake, namely ISO9001:2015 for survey/inspection activity and ISO 17025:2005 UKAS ref 4028 for laboratory analysis. Other than initial sample collection splitting and bagging at the Séguéla Mine, Roxgold Sango personnel and its consultants and contractors were not involved in the laboratory sample preparation and analysis.

Assay data are electronically reported from the laboratory in Microsoft Excel and pdf format and imported into the database after validation, along with the corresponding assay certificates.

The quality assurance/quality control (QAQC) program involves establishing appropriate procedures and the routine insertion of certified reference material (CRMs), blanks, and duplicates to monitor the sampling, sample preparation and analytical process. Evaluation of the QAQC data indicates that the analytical data are sufficiently accurate and precise to support the Mineral Resource and Mineral Reserve estimation.

1.6 Data Verification

Roxgold Sango staff follow a stringent set of procedures for data storage and validation, performing verification of data on a monthly basis. The operation employs a Database Administrator who is responsible for overseeing data entry, verification and database maintenance. A separate Database Auditor is responsible for performing a detailed independent review of the database on a quarterly basis and submitting a report to Fortuna management detailing the findings. Any issues identified are immediately resolved by the administrator.

Data used for the Mineral Resource estimation are stored in the commercial SQL database system Datashed, which hosts both mine-related data and drilling related results (exploration and infill drilling).

As a component of the 2023 Mineral Resource estimate, a preliminary validation of the database was performed by the Database Administrator in June 2023. The database has a series of automated import, export, and validation tools to minimize potential errors. Any inconsistencies identified were corrected during the analysis with the database then handed over in Microsoft Access format to the QP for final review on June 30, 2023.

In addition, data verification by the QP was also conducted through the inspection of selected drill core to assess the nature of the mineralization and to confirm geological descriptions as well as the inspection of geology and mineralization in open pit workings of the Antenna deposit.

A series of plan and cross sections were generated displaying the lithologic and mineralization interpretation by the Roxgold Sango geology and exploration departments and reviewed by the QP.

Mr. Veillette has performed an internal audit on the TSF, water management, waste dump and open pit geotechnical/hydrological aspects. Mr. Veillette is of the opinion that geotechnical and hydrogeology studies are of a sufficient level to support the estimation of Mineral Reserves and Mineral Resources.

Mr. Criddle has reviewed the extensive body of metallurgical investigation comprising several phases of testwork and, in addition, has been personally involved in the development and construction of the Séguéla Mine. In the opinion of the Mr. Criddle, the Séguéla metallurgical samples tested, and the ore that is presently treated in the plant are representative of the orebody as a whole in respect to grade and metallurgical response. Differences between deposits are minimal with regard to metallurgical recovery.

The QPs are of the opinion that the data verification programs performed on the data collected by Roxgold Sango are adequate to support the geological interpretations, the analytical and database quality, and Mineral Resource and Mineral Reserve estimation at the Séguéla Gold Mine.

1.7 Mineral Processing and Metallurgical Testing

Previous owner, Newcrest, conducted a round of Leachwell assay test work on 61 samples from drill hole SGDD001 in 2018. Comparison of the Leachwell tests to fire assays for the samples set (four-hour bottle roll used for leach testing of a nominal 1 kg sample) demonstrated a near 1:1 correlation of results. This was used to conclude that the material is non-refractory, and therefore amenable to standard carbon-in-leach (CIL) treatment for extraction.

Roxgold supervised the metallurgical testing work completed by the ALS Metallurgy assay lab in Perth, Australia on representative samples from the Antenna, Agouti, Boulder, Ancien, Koula and Sunbird deposits between 2019 to 2023. Seven test work programs were performed.

As the Antenna deposit hosts the majority of the estimated Mineral Reserves and this ore will be the majority of mill feed ore projected for the life-of-mine plan (LOMP). As a result, this mineralization was examined more comprehensively and represents the basis for the mineral processing design criteria. Satellite deposits in the form of the Agouti, Boulder, Ancien, Koula and Sunbird were also tested throughout the seven programs for confirmation purposes and in support of Mineral Resource and Mineral Reserve estimation. Test work included comminution test work, head assays, mineralogical analysis, grind establishment test work, gravity gold recovery and cyanide leach test work, flotation test work, carbon adsorption test work, oxygen uptake test work, preg-robbing test work, cyanide detox test work, sedimentation and rheology test work, and acid mine drainage test work.

Samples tested were reasonably competent with average Bond rod and ball mill work indices of 21.8kWh/t and 19.7 kWh/t respectively. The results showed the mineralization was amenable to a simple comminution circuit design.

The test work showed that leaching is substantially complete within 24 hours and there is no apparent preg-robbing or refractory characteristics in the ores tested. Furthermore, it showed a fast-initial leaching rate with more than 80% of the stage extraction completed within the first two hours of cyanidation. The highest gold recovery was achieved for tests incorporating gravity recovery and elevated dissolved oxygen levels for the duration of the leach.

The ore tested across all deposits exhibited a degree of grind sensitivity with an optimal grind size of 75 µm selected for all extraction test work. The results of that program were very encouraging, indicating free milling of the ore with good leach kinetics and overall recoveries averaging 94.5 %.

A single stage semi-autogenous grind (SAG) circuit followed by gravity concentration and cyanidation of the gravity tailings was the configuration adopted for the process plant.

It is the opinion of the QP that an average gold recovery of 94.5 % can be expected, based on the life-of-mine average gold grade of 3.06 g/t.

1.8 Mineral Resource Estimates

Roxgold Sango, under the supervision of the QP, has completed Mineral Resource estimates for the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits based on the drill hole data available to June 30, 2023 and reported as of December 31, 2023, taking into account production related depletion to this date.

The Mineral Resources are reported insitu, using the 2014 CIM Definition Standards, exclusive of those Mineral Resources converted to Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. A summary of the Mineral Resources is presented in Table 1.

Table 1: Mineral Resources as of December 31, 2023

Indicated Mineral Resources		COG (g/t Au)	Tonnes (Mt)	Au (g/t)	Au (koz)
Open pit	Antenna	0.55	1.33	1.32	57
	Agouti	0.65	0.30	1.69	16
	Ancien	0.65	0.19	2.79	17
	Koula	0.60	0.05	5.84	10
	Boulder	0.60	0.43	1.13	16
	Sunbird	0.55	0.55	1.77	31
	Total	**0.55–0.65**	**2.86**	**1.60**	**147**
Underground	Ancien	2.40	0.19	3.79	23
	Koula	2.40	0.04	4.54	7
	Sunbird	2.40	1.56	4.05	203
	Total	**2.40**	**1.80**	**4.03**	**233**
Total Indicated Mineral Resources			**4.66**	**2.54**	**381**

Inferred Mineral Resources		COG (g/t Au)	Tonnes (Mt)	Au (g/t)	Au (koz)
Open pit	Antenna	0.55	1.73	1.61	90
	Agouti	0.65	0.05	1.53	2
	Ancien	0.65	0.02	0.89	1
	Koula	0.60	0.37	4.44	53
	Boulder	0.60	0	-	-
	Sunbird	0.55	0.02	2.29	2
	Total	**0.55–0.65**	**2.19**	**2.09**	**147**
Underground	Ancien	2.40	0.15	3.82	19
	Koula	2.40	0.29	3.24	30
	Sunbird	2.40	0.42	3.62	49
	Total	**2.40**	**0.86**	**3.53**	**98**
Total Inferred Mineral Resources			**3.05**	**2.50**	**245**

See notes on following page:

- *Mineral Resources are reported insitu, using the 2014 CIM Definition Standards.*
- *Mr. Eric Chapman, P.Geo., is the Qualified Person responsible for Mineral Resources and is a full time employee of Fortuna Silver Mines Inc.*
- *Mineral Resources are reported as of December 31, 2023.*
- *Mineral Resources are reported on a 100 % basis. Fortuna holds a 90 % interest in the Séguéla Gold Mine. The remaining 10 % interest is held by the State of Côte d'Ivoire.*
- *Mineral Resources are reported exclusive of those Mineral Resources modified to produce Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*
- *Mineral Resources potentially amenable to open pit mining methods are reported at a gold cut-off grade of 0.55 g/t Au for Antenna and Sunbird, 0.60 g/t Au for Koula and Boulder, and 0.65 g/t Au for Ancien and Agouti. Mineral resources are constrained within optimized pit shells.*
- *Mineral Resources potentially amenable to underground mining methods are reported inside MSO shapes at a gold cut-off grade of 2.4 g/t Au based on sublevel stoping mining method.*
- *Mineral Resources are based on a gold price of US$1,840/oz.*
- *All figures have been rounded to reflect the relative accuracy of the estimates and totals may not add due to rounding.*

Factors which may affect the Mineral Resource estimates include:

- Metal price and exchange rate assumptions.

- Changes to the technical inputs used to estimate gold content (e.g. bulk density estimation, grade interpolation methodology).
- Changes to the geological interpretation (e.g. post-mineralization dykes and structural offsets such as faults and shear zones).
- Additional depletion due to artisanal mining activities beyond those already identified and excluded from the estimate.
- Changes to geotechnical and mining assumptions, including the minimum mining thickness; or the application of alternative mining methods.
- Changes to process plant recovery estimates if the metallurgical recovery in certain domains is lesser or greater than currently assumed.
- Final negotiated terms of the Mining Convention.
- Changes to governmental regulations.
- Changes to environmental, permitting and social license assumptions.

The Mineral Resource estimates for the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits incorporate data from RC and DD holes to date comprising 130,566.75 m of drilling from 925 holes. Drill hole spacings range nominally from 50 x 50 m to 25 x 25 m within the modelled areas.

The Antenna, Ancien, Koula and Sunbird models were built using Datamine Studio RM software. The Agouti and Boulder models were developed using Leapfrog Geo and Datamine Studio RM software. All gold assays from drill holes were composited to 1 m intervals within the mineralized wireframes. Top-cuts were applied to individual domains based on an analysis of gold grade outliers within the statistical data populations.

Geostatistical exploratory data analysis, variogram modelling and Mineral Resource model validation was conducted using Snowden Supervisor software.

The Mineral Resource model gold grades were estimated using a combination of ordinary kriging and inverse distance weighting methods using a multiple pass approach to inform the models. Grade estimates were validated visually by sectional comparison and through statistical approaches that encompass traditional validation methods, such as swath plots comparing composite and block model values for each deposit.

Models and drill hole data use the WGS84 (Zone 29N) coordinate system. The Antenna, Ancien, Koula and Sunbird block models used parent cell sizes of 5 x 5 x 5 m, oriented variously along the ordinate axes to best align with the strike of the mineralization, with subcelling used to ensure exact filling of the domain wireframes. The Agouti and Boulder deposits used a parent cell of 2.5 x 5 x 5 m and 3.5 x 5 x 5 m, respectively in the respective XYZ axis to provide sufficient volume resolution to the modelled mineralization lodes. After gold grades had been estimated and densities assigned to the subcelled model the blocks were regularized to the parent cell size to represent the planned selective mining unit (SMU) size.

Density values were assigned to the Mineral Resource models based on ascribed oxidization state and lithological unit, with mineralization being assigned the density of its predominant host. A density of 1.8 t/m^3 was assigned to transported and alluvial sediments, with a range of 1.8–2.5 t/m^3 assigned to the oxidized weathered profile and a range of 2.7–3.2 t/m^3 assigned to fresh rock lithologies.

The Mineral Resource estimates are reported constrained by pit optimizations generated in Deswik, and are based on the following parameters:

- Assumed gold price of $1,840/oz.
- Processing recovery of 94.5 %.

- Overall slope angles of 36.8° for oxide material, 44.2° for transitional material and 51° for fresh material except for Sunbird that used slope angles of 36.8° for oxide material, 36.5° for transitional material and 50° for fresh material.
- Average mining cost of $3.12/t mined, based on distance from pit to processing facility.
- Average total processing costs (including G&A) of $24.25/t processed.
- Selling costs which include:
  - 6% royalty on revenue.
  - Refining and transport costs of $7.00/oz with a payability of 99%.

The Mineral Resource models were classified into Indicated and Inferred Mineral Resource categories based on analysis of the following criteria: number of samples informing the estimate, sample spacing, average sample distance, kriging efficiency and slope of regression outputs, drill hole and sample QAQC thresholds, geological confidence in modelled interpretations, grade continuity, and level of geological understanding at each deposit.

1.9 Mineral Reserve Estimates

The Mineral Reserve estimate has an effective date of December 31, 2023, and reported using the 2014 CIM Definition Standards.

Mineral Reserves are based on conversion of Indicated Mineral Resources to Probable Mineral Reserves within the final pit designs guided by the ultimate pit shells generated from open pit optimizations at a gold price of $1,600/oz Au. Each deposit has undergone pit optimization, detailed mine design, mine scheduling, and cashflow analysis, demonstrating a technically achievable and economically viable mine plan supporting the Mineral Reserve estimate. The Mineral Reserves are reported inclusive of mining dilution and mining recovery represented by regularizing the block models to an appropriate SMU size.

Proven Mineral Reserves are estimated for stockpiled material. All Inferred Mineral Resources are treated as non-revenue generating waste rock. Mineral Resources potentially amenable to underground mining methods have not been converted to Mineral Reserves as additional evaluation is required to confirm reasonable confidence in the modifying factors applied for reporting.

Mineral Reserves are reported in Table 2 at the point of delivery to the process plant, using the 2014 CIM Definition Standards.

Table 2: Mineral Reserves as of December 31, 2023

Location	Proven			Probable			Proven & Probable		
	Tonnes (Mt)	Grade (g/tAu)	Metal (000 oz)	Tonnes (Mt)	Grade (g/t Au)	Metal (000 oz)	Tonnes (Mt)	Grade (g/tAu)	Metal (000 oz)
Stockpile	0.44	2.06	29	-	-	-	0.44	2.06	29
Antenna	-	-	-	4.35	2.30	321	4.35	2.30	321
Koula	-	-	-	1.45	5.77	268	1.45	5.77	268
Ancien	-	-	-	1.81	3.80	221	1.81	3.80	221
Agouti	-	-	-	0.90	2.39	70	0.90	2.39	70
Boulder	-	-	-	0.71	1.73	39	0.71	1.73	39
Sunbird	-	-	-	2.10	3.04	206	2.10	3.04	206
Total	**0.44**	**2.06**	**29**	**11.33**	**3.09**	**1,125**	**11.76**	**3.05**	**1,154**

Please see notes on following page:

- *Mineral Reserves are reported at the point of delivery to the process plant, using the 2014 CIM Definition Standards.*
- *Mr. Raul Espinoza, P.Eng., is the Qualified Person responsible for Mineral Reserves and is a full time employee of Fortuna Silver Mines Inc.*
- *Mineral Reserves are reported as of December 31, 2023.*
- *Mineral Reserves are reported on a 100 % basis. Fortuna holds a 90 % interest in the Séguéla Gold Mine. The remaining 10 % interest is held by the State of Côte d'Ivoire.*
- *Mineral Reserves are reported at an incremental gold grade cut-off of 0.65 g/t Au for Antenna, 0.72 g/t Au for Agouti, 0.69 g/t Au for Boulder, 0.66 g/t Au for Koula, 0.73 g/t Au for Ancien, and 0.66 g/t Au for Sunbird deposit. The estimate is based on a gold price of US$1,600/oz, metallurgical recovery of 94.5%, surface mining costs of $3.12/t, processing costs of $15.42/t and G&A costs of 8.83/t.*
- *Overall slope angles applied are 36.8° for oxide material, 44.2° for transitional material and 51° for fresh material except for Sunbird that uses slope angles of 36.8° for oxide material, 36.5° for transitional material and 50° for fresh material.*
- *The Mineral Reserves are reported with modifying factors of mining dilution and mining recovery represented by regularizing the block models to an appropriate selective mining unit (SMU) block size.*
- *Each deposit has undergone pit optimization, detailed mine design, mine scheduling, and cashflow analysis, demonstrating a technically achievable and economically viable mine plan supporting this Mineral Reserve.*
- *All figures have been rounded to reflect the relative accuracy of the estimates and totals may not add due to rounding.*

Factors which may affect the Mineral Reserve estimates include:

- Metal price and exchange rate assumptions.
- Changes to metallurgical recovery assumptions.
- Changes to the input assumptions used to derive the mineable shapes applicable to the open pit mining methods used to constrain the estimates.
- Changes to the forecast dilution and mining recovery assumptions.
- Changes to the cut-off values applied to the estimates.
- Variations in geotechnical, hydrogeological and mining method assumptions.
- Final negotiated terms of the Mining Convention.
- Changes to environmental, permitting and social license assumptions.

1.10 Mining Methods

Six deposits: Antenna, Ancien, Agouti, Boulder, Koula, and Sunbird are scheduled for mining in the LOMP. The overall mining and production strategy is to maintain ore tonnes to achieve an annual production throughput of 1.46 Mtpa, increasing to 1.57 Mtpa by 2026, by sequencing pit stages and processing feed based on grade, operational requirements, plant throughput and material characteristics for the plant. The mine schedule delivers 12 Mt averaging 3.06 g/t Au to the mill over the remaining 7.5-year mine life.

Mining activities are conducted using a mining contractor and use conventional drill, blast, load, and haul mining methods. Drilling and blasting are used for oxide, transitional and fresh ROM ore material and waste, followed by conventional truck and excavator operations within the pits for the movement of ore and waste. Some free digging has been assumed for some of the oxide material, but generally drilling and blasting is applied. Bench height assumption for extraction of ore and waste material is 5 m taken in two digging flitches of 2.5 m in accordance with the capabilities of the mining equipment. Where possible in high waste stripping pit stages, 10 m bench heights will be used at an appropriate standoff distance from known mineralization.

Mining costs and equipment requirements are based on the existing mining contract with the mining contractor Mota-Engil. The mining schedule consists of a lower mining rate for 2024 moving a total material mined of 5.9 million BCM/annum, with a ramp up in total mining movement in 2025 onwards in line with mill feed requirements and stripping ratios. The initial mining equipment required to meet the mining schedule for 2024 is one 200 t excavator, one to two 120 t excavator, and one 80 t excavator, and eight to ten 90 t haul trucks. Additional mining equipment required to meet the mining schedule for 2025 to 2031 includes an additional 200 t excavator and an additional six to eight 90 t haul trucks. The annual mining rate after 2024 peaks in 2026 at 10.0 million BCM. A common pool of equipment will be used and scheduled across all active pits so that movement between the pits is minimized.

Roxgold Sango will use a mining contractor for the initial 5.5 years of operations. Afterward, and depending on the extension of the life of mine, mining operations will transition to an owner-operation model, or the contractor will be retained as the operator.

Detailed pit stage designs were prepared based on the results of the pit optimizations and incorporating appropriate wall angles, geotechnical berms, minimum mining widths, and access ramps with sufficient width for the equipment selected. Waste dumps were designed for each individual open pit, with the intention of minimizing haulage distance for the movement of waste material from the open pit to the adjacent surface waste dump, taking into consideration surface water drainage, as well as existing and planned infrastructure locations. The dumps were designed using a 37º rill, and a 15-m berm every 10 vertical meters to achieve a footprint consistent with the requirements of rehabilitated waste dumps at closure.

A total of 15 mining stages were designed and scheduled, consisting of individual pits or pit stages within a final pit design. The mining schedule sequences pit stages such that ROM ore material within the Mineral Reserve is mined, when practical, to target higher grade ore and lower strip ratios early and balance plant feed requirements and material characteristic types.

1.11 Processing and Recovery Methods

The processing facilities comprise a single stage primary crush/SAG milling comminution circuit where the mineralized material is drawn from the ROM ore bin via an apron feeder, scalped via a vibrating grizzly with the undersize reporting directly to the discharge conveyor and the oversize reporting to a primary jaw crusher for further size reduction. All crushed and scalped material is conveyed to a surge bin. Crushed ore and water is fed to the mill.

The mill operates in closed circuit with hydrocyclones, with cyclone underflow reporting to the mill feed. A portion of the cyclone underflow slurry is fed to the gravity circuit for recovery of gravity gold. The gravity concentrator tailings flow to the cyclone feed hopper, while the gravity concentrate report to an intensive leach circuit. Gold in solution is recovered in a dedicated electrowinning system.

Screened cyclone overflow is thickened prior to the CIL circuit. Loaded carbon drawn from the CIL circuit is stripped by the split AARL method. The resultant gold in solution is recovered by electrowinning. Recovered gold from the cathodes is filtered, dried, and smelted in a furnace to doré bars.

A forecast gold recovery rate of 94.5 % is estimated for the LOMP.

The QP considers process requirements to be well understood, and consistent based on the actual observed conditions in the operating plant. There is no indication that the characteristics of the material planned for mining will change and therefore the recovery assumptions applied for future mining are considered as reasonable for the LOMP.

1.12 Infrastructure

The infrastructure and services adequately support the current operations and planned open pit operations, as well as the processing plant. This infrastructure consists of a process plant, a mine service area (offices, workshops, and a warehouse), a TSF, a water storage facility, waste dumps, mine access and haulage roads, an explosives magazine, an electrical grid connection, and an accommodation camp.

The tailings system consists of two parallel tailings lines and associated tailings pumps. The TSF is a side-valley storage formed by two multi-zoned earth-fill embankments, designed to accommodate 13.0 Mt of tailings, and built using the downstream construction methodology. The TSF was designed to comply to

ANCOLD (2019) guidelines, is currently transitioning to comply with the Global Industry Standard of Tailings Management criteria, and includes a HDPE geomembrane liner.

A water storage dam supplied with runoff water, mine dewatering and underground water is the main collection and storage pond for clean raw and process water.

Power supply is through a connection to the Côte d'Ivoire electricity grid by a 2,400 m tee into the 90 kV powerline from the Laboa to Séguéla substation. The Séguéla substation is fed via an existing 90 kV transmission line from the 225/90 kV Laboa substation. The Laboa substation is part of a 225 kV ring main system around the country where various sources of generation are connected and, being a large ring main, offers a great deal of redundancy at 225 kV. The grid supply from Côte d'Ivoire is, by world standards, economically priced and much more financially favorable than other options including self-generation as the tariff is based on a mix of hydro and thermal generation with a large portion of hydro.

The QP is confident that all mine and process infrastructure and supporting facilities are included in the present general layout to ensure that they meet the needs of the mine plan and production rate.

1.13 Market Studies

Gold is a freely traded commodity on the world market for which there is a steady demand from numerous buyers.

The Fortuna financial department provides the mine with gold price projections for inclusion in budget and business plan preparations. Pricing is based on long-term analyst and bank forecasts, with a gold price of $ 1,600/oz used for estimating Mineral Reserves and cash flow analysis and $ 1,840/oz for estimating Mineral Resources.

A contract is in place with METALOR Technologies S.A. for the receipt of gold doré from Roxgold Sango, to process/refine and either to buy or transfer the precious metal to a metal account designated by Roxgold Sango.

A contract is in place with Mota-Engil Cote d'Ivoire mining to conduct mining services on behalf of Roxgold Sango and consists of ROM feed, mine development, grade control drilling, drill and blast, and load and haul activities.

Contracts are in place with Tseebo Solutions Group Proprietary Limited, Total Energies, Cote d'Ivoire Energies, Group 4 Securities and SGS laboratory testing services to provide catering services, fuel supply, power supply, security services, and metallurgical assaying and testing for the project on behalf of the client.

1.14 Environmental Studies and Permitting

Roxgold Sango contracted the consulting firm CECAF to undertake the project baseline studies and compile the environmental and social impact assessment (ESIA) required to obtain the environmental decree. The ESIA identifies the potential social and environmental impacts of the development of the project and proposed mitigation measures. Part of the ESIA included the development of a conceptual resettlement action plan which was necessary for any physical or economic displacement of people or communities as a result of the project's development as well as a conceptual mine closure plan.

Following environmental and social studies, public consultations, and governmental examination, the ESIA for the Séguéla Mine was approved by the Ministry of Environment and Sustainable Development by decree signed on September 22, 2020 (Decree No.00261 dated September 22, 2020, on ESIA approval for the exploitation of a gold mine in Séguéla department). This decree allowed the mine to be built and exploited in accordance with the conditions listed in the environmental permit application file and the decree.

Artisanal and small-scale mining (ASM) activities in the Séguéla area and its surroundings can be characterized as unauthorized, dispersed, intermittent and not mechanized. Currently, there is no permanent illegal or authorized ASM settlements on the identified deposits of the Séguéla Mine or nearby, with only a few hundred ASM miners present from time to time in the Project area outside of the mining operation areas.

The implementation of a stakeholder management plan has ensured good relationships between Roxgold Sango and the local authorities, village leaders and landowners. In addition, regular monitoring of the occupancy of the land around the deposits and prospects and the intervention of the authorities to avoid the establishment of organized ASM has led to an effective control of the ASM activities in the Séguéla mining area.

As at the effective date of this Report, the projected total cost required to close present and future infrastructure is US$ 11.9 million as developed from the conceptual mine closure plan prepared by Roxgold Sango with the assistance of specialized consultants CECAF International and Trajectory.

The peak total greenhouse gas emission is projected at 67,676 tCO_2e. Based on fuel and energy consumption and the total production of gold, the energy and GHG emission intensities are estimated at 4.39 GJ/oz and 0.58 tCO_2e/oz, respectively.

1.15 Sustaining Capital and Operating Costs

Sustaining capital and operating cost estimates are based on the established cost experience gained from the operation, projected budgets, and quotes from manufacturers and suppliers. Overall, the cost estimation is of sufficient detail, that, with the current experience of operating at the Séguéla mine, Mineral Reserves can be declared. All costs are US dollar (US$). The total sustaining capital cost through the LOMP is estimated to be US$188.5 million, respectively, over the 7.5-year mine life.

Sustaining capital cost requirements over the LOMP include mainly mine development requirements for each deposit, waste capitalized stripping, subsequent lifts required for the TSF and related studies, purchase of minor mining equipment and plant equipment, permitting and environmental.

The total LOMP operating cost for the Séguéla mine is estimated at US$ 80 per tonne of ore processed.

Long-term projected operating costs are derived from the mining and processing needs throughout the life of mine, outlined in the executed contract between Roxgold Sango and Mota-Engil Cote d'Ivoire. These costs consider site-related expenses and operating costs essential for the operation and are analyzed based on a cost structure may not correspond to the operating costs reported by financial statements of Fortuna. Site costs pertain to activities conducted on the property including mine, plant and indirect costs related to general services and administrative on-site. Additionally, other operating expenses cover costs associated with gold transportation (distribution), community support activities and management fee from Fortuna corporate.

1.16 Economic Analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 of Form 43-101F1 -*Technical Reports* for technical reports on properties currently in production and where no material production expansion is planned.

The Mineral Reserve declaration in this Report is supported by a positive cashflow for the period set out in the LOMP.

1.17 Conclusions

The conversion of Mineral Resources to Mineral Reserves was undertaken using industry-recognized methods, and estimated operational costs, capital costs, and plant performance data.

1.18 Risks and Opportunities

Analysis of the results of the investigations has identified a series of risks and opportunities associated with each of the technical aspects considered for the development of the mining operation.

The key risks include:

- Changes to metal price assumptions.
- Changes to the technical inputs used to estimate gold content (e.g. bulk density estimation, grade interpolation methodology).
- Geological interpretation (e.g. dykes and structural offsets such as faults and shear zones).
- Depletion due to artisanal mining activities.
- Changes to geotechnical, hydrogeological, and mining assumptions, including the minimum mining thickness; or the application of alternative mining methods.
- Changes to process plant recovery estimates if the metallurgical recovery in certain domains is lesser or greater than currently assumed.
- Changes in the characteristics and/or throughput of the tailings could result in changes to the achieved densities in the TSF, requiring adjustments to the design.
- Geochemical testing of the tailings should be continued at points throughout the life of the facility to ensure that initial testing remains valid.
- The LOMP assumes that all requisite approvals and permits for the relocation of the communications antenna adjacent to the Sunbird deposit and those required for the plant expansion in 2026 will be obtained. It is believed that such approvals and permits can be obtained but there is no certainty that this will be the case. A delay in permitting would require adjustments to the LOMP that could reduce cash flows in 2026 onwards, however any change would not be regarded as material based on the current performance of the processing plant and the multiple deposits available to mine at the Séguéla Project.
- The most recent wet season proved to be disruptive causing some delays to deliveries and personnel to site. The road to the Project requires upgrading to an all-weather road including culverts and crowing and erosion protection.
- Rip rap armoring was not completed during construction since no waste rock was available. Rip rap armoring as per design is required for the TSF spillway, water storage dam spillway, and diversion ditch to prevent downstream sedimentation and improve dam safety (limit erosion of water retaining structures).
- Any changes to the LOMP or throughput will impact upon the tailings management requirements for the site. Any significant increases in total throughput may require an expansion review of the current TSF (in particular, the proximity to the plant site) and reconsideration of the closure plan.
- The availability and reliability of grid power supply presents a risk. The extended use of diesel generation will have an impact on power costs.
- The nearby communities have expectations relating to job creation, community development and improvement in services and infrastructure. Meeting these expectations and minimizing impacts to regional infrastructure and community livelihood is a challenge resulting in possible

dissatisfaction with Roxgold Sango and the associated risks of community action against the project and loss of social license to operate.

The key opportunities include:

- The Séguéla Project covers the entire greenstone belt exposure that hosts the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits. Exploration over the Séguéla Project has the potential to expand known mineralization, advance known prospects to drill stage, and discover new prospects.
- Optimization of the open pit and underground mining transition of the Koula, Ancien and Sunbird deposits. Optimal transition point from open pit to underground, lifting the pit floor up, reducing strip ratio and waste movement yielding an increase in the overall project NPV.
- Optimization in geotechnical pit slope angles for mine design improvements and reduction in the overall strip ratio.
- Optimization of plant throughput and investigation on the potential for future expansion.
- Investigations into installing a solar farm. Subject to the successful completion of an economic study, a solar farm should result in lower electricity prices and provide some level of security around continuous supply to essential services.
- Potential to implement a system whereby the supernatant pond is decanted via a barge equipped with submersible pump. This system is reliant on numerous factors, including the resultant beach slope, and the level of control required over the supernatant pond location.
- Maximize the benefit of the operation for local communities as an opportunity for social and economic development, including social infrastructures, professional skills and all the other aspects of the Sustainability Development Goals (SDGs) where possible.
- A good working relationship with local government, state services, traditional authorities, communities and other stakeholders such as the artisanal miners, is in place due to the quality of the early stakeholder's engagement at the project. The opportunity to strengthen these existing relationships will help mitigate the risks associated with unmet expectations amongst the community and other stakeholders.

1.19 Recommendations

Analysis of the results and findings from each major area of investigation suggests several recommendations for further investigations to mitigate risks and improve the base case designs to be considered during the operation of the mine. Each recommendation is not contingent on the results of other recommendations and can be completed in a single phase, concurrently. A summary of the recommendations as provided is as follows:

1.19.1 Exploration

- Additional definition drilling (infill and extension) where applicable, in order to support potential upgrade of some or all of the Inferred Mineral Resources and extend the known mineralization at an estimated drill cost of $2,000,000.
- Routine collection of density measurements should be maintained for core and included for in pit sampling to better establish densities in the block model. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Target down-dip underground potential at each deposit, in particular Ancien, Koula and Sunbird at an estimated drilling cost of $2,000,000.

- Review and re-rank existing regional exploration results and prospects followed by selective drill testing of those proximal to the defined Mineral Resource estimates with a drill program estimated at $2,000,000.
- Detailed structural analysis of all deposits, based on high-quality oriented drill core, with a view to developing exploration models for analogue or related systems elsewhere within the Séguéla Project. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.

1.19.2 Mining

- Revising pit optimization parameters, cost estimates, scheduling, and cashflow forecasts with actual operational data as it is collected. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular company operating costs.
- Conducting a geotechnical investigation into steeper batter angles of 90˚ and wider berm widths of 10 m in fresh rock. This recommendation will cost approximately $30,000.
- Ongoing collection of geotechnical data is required to further refine the geotechnical model, to confirm assumptions made as inputs in this assessment, and to review performance of slopes, batters, and spill berm widths during operations. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular mine operating costs.
- Ongoing assessment of slope, batter and spill berm width performance. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular mine operating costs.
- Conducting detailed waste rock dump sequencing to increase discounted cashflow. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Reviewing drill and blast parameters in consultation with the mining contractor to identify potential areas of improvement. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Preparing drill and blast designs and procedures to achieve acceptable blasting impacts when blasting close to the TSF. This recommendation will cost approximately $30,000.
- Further optimizations of the mining strategy as well as optimized mine designs and scheduling resulting in a reduction in stripping ratio and overall project waste movement requirements to improve mine economics. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Optimization on the open pit and potential underground mining transition of the Koula, Ancien and Sunbird deposits. Review the optimal transition point from open pit to underground. This recommendation will be completed in-house with existing personnel with assistance of outside consultants to complete the study. This recommendation will cost approximately $150,000.
- Study the modifying factors applicable to underground mining at the Ancien, Koula, and Sunbird deposits to investigate the potential for converting underground Mineral Resources to Mineral Reserves, including metallurgical test work, geotechnical drilling and study and hydrogeology study. Activities will be completed in-house with existing personnel with assistance from outside consultants to complete the study. This recommendation will cost approximately $700,000.

- Operations should improve pit slope monitoring systems (2 x TM50, prisms and monitoring platform), by providing one system for Antenna and another portable system for the other pits as required at an estimated cost of $150,000.
- Perform a cost analysis and obtain the necessary permits for relocating the telecommunication antenna currently situated at the edge of the Sunbird pit design. It is recommended the relocation study is performed in 2024 to ensure appropriate capital expenditure and time is assigned to the activity to prevent potential delays in mining the Sunbird deposit, planned to commence in the fourth quarter of 2025. This study will be completed using the internal resources and will be part of normal operating costs.

1.19.3 Processing

- Carbon adsorption modelling for various combinations of carbon movement rates and concentration profiles should be considered. The test results from the FS indicate that gold adsorption is below average for this slurry which was unexpected given the 'clean' nature of the ores. Confirmatory test work is recommended but not essential as the impact on the CIL / elution circuit design will be modest. This will be completed using the internal resources and will be part of normal operating costs.
- Installation of a substantial filter system to improve the raw water quality. This recommendation will cost approximately $100,000.
- Installation of a reverse osmosis plant to improve elution performance by utilizing potable water rather than filtered raw water, at an estimated budget of approximately $200,000.
- Install a rock breaker at the jaw crusher to improve throughput at an approximate cost of $1.0 M.

1.19.4 Tailings Management

- A TSF conceptual study should be completed to investigate the maximum capacity of the current TSF location and any other new potential locations such as open pit co-disposal if no additional area is available for some pits to accommodate future growth. This will require a budget of about $50,000.
- Determine the required TSF buttress size for the West and East dams to decrease the consequence classification as per Global Industry Standard of Tailings Management guidelines. This will require moving the tailings delivery and return pipeline trench, powerline and fence alignments along the western area of the TSF. An estimated cost of $1.0 M will be required during LOMP to execute these activities.
- Further Global Industry Standard of Tailings Management work is recommended, such as revising the dam break analysis once the TSF design is updated as per above and updating of the Operation, Monitoring and Surveillance manual, Trigger Action Response Plan and Emergency Preparedness Response Plan documents is required at an estimated cost of $100,000.
- As per Global Industry Standard of Tailings Management requirements, ongoing visits by the Independent Tailings Review Board and Dam Safety Review are recommended at an estimated cost of $80,000.

1.19.5 Environmental and Social

- Continue climate data collection on site to establish variation between the mine site and other long-term monitoring data sources. This will be completed using existing resources and is part of the normal operating cost.

- Continue to engage effectively with all the stakeholders as the mine develops including those concerned by the impact on regional infrastructure. This will be completed using Séguéla's resources as part of normal operating costs.
- Undertake further studies to investigate the impacts of the Mine on water quality and the long-term potential impacts of the TSF on surface and ground water quality, including the refinement of a transient state model at an estimated cost of US$50,000 and the creation and updating of a site wide water balance at an estimated cost of US$75,000.
- The diversion ditch crossing the main public road is currently undersized, with two additional 2m x 2m culverts required. This work has an estimated cost of US$100,000.
- Rip rap armoring was not completed during initial construction since no waste rock was available. Rip rap armoring as per design is required for the TSF spillway, water storage dam spillway, and diversion ditch to prevent downstream sedimentation and improve dam safety. The work has an estimated cost of US$600,000.
- Locate additional air quality and noise monitoring points at the boundary between the project infrastructure and the closest villages to provide a more robust baseline. This will be completed utilizing Séguéla's resources as part of normal operating cost.
- Cover designs or dust suppression trails be considered for the waste rock dumps and tailings facilities to minimize the generation of windblown dust from the surface of these facilities. This will be completed utilizing the projects resources and part of normal operating cost.

2 Introduction

2.1 Introduction

This technical report (the Report) was prepared by Mr. Paul Weedon, MAIG, Mr. Eric Chapman, P.Geo., Mr. Raul Espinoza, FAusIMM (CP), Mr. Mathieu Veillette, P.Eng., and Mr. Paul Criddle, FAusIMM., for Fortuna Silver Mines Inc. (Fortuna) on the Séguéla gold mine (Séguéla Mine or the Séguéla Project) in accordance with the disclosure requirements of Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101).

The Séguéla Mine is operated by Roxgold Sango S.A. (Roxgold Sango), a company incorporated, registered, and operating in accordance with the laws of Côte d'Ivoire, which is a 90 % indirectly-owned Fortuna subsidiary. The remaining 10 % interest is held by the State of Côte d'Ivoire.

Construction of the mine commenced in September 2021. Mining of the Antenna pit started in March 2023, commissioning activities started in April 2023, and the first gold doré pour occurred on May 24, 2023.

2.2 Report Purpose

The Report discloses updated Mineral Resource and Mineral Reserve estimates for the Séguéla Project.

Mineral Resource and Mineral Reserve estimates are reported using the 2014 CIM Definition Standards - for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

Costs are in US dollars (US$) unless otherwise indicated.

2.3 Qualified Persons

The following Qualified Persons are responsible for Report preparation:

- Mr. Paul Weedon, MAIG, Senior Vice President of Exploration - Fortuna Silver Mines Inc.
- Mr. Eric Chapman, P.Geo., Senior Vice President of Technical Services - Fortuna Silver Mines Inc.
- Mr. Raul Espinoza, FAusIMM (CP), Director of Technical Services Fortuna Silver Mines Inc.
- Mr. Mathieu Veillette, P.Eng., Director, Geotechnical, Tailings and Water - Fortuna Silver Mines Inc.
- Mr. Paul Criddle, FAusIMM, Technical Consultant.

2.4 Scope of Personal Inspection

Mr. Eric Chapman visited the Séguéla Project on multiple occasions, the most recent site visit being from October 10 to 15, 2023. During his site visits, Mr. Chapman has reviewed data collection, drill core, storage facilities, database integrity, procedures, and geological model construction. Discussions on geology and mineralization were held with Roxgold Sango personnel, and field site inspections were performed including a review of the open pit geology of the Antenna deposit, and inspection of operating drill machines. He worked with site geological personnel reviewing aspects of data storage (database) and analytical quality control.

Mr. Paul Weedon visited the mine on multiple occasions, the most recent site visit being from April 21 to 24, 2023. During these visits, Mr. Weedon reviewed drilling performance, sample and data collection, site quality assurance and quality control (QAQC) records and geological model development for all of the Project deposits.

Mr. Raul Espinoza conducted a site visit to the Séguéla Project from June 17 to 23, 2023. During this visit, Mr. Espinoza reviewed current mining methods, road access, and discussed the Mineral Reserve estimation methodology, metallurgical testwork and processing, operating and capital expenditure requirements with Roxgold Sango personnel.

Mr. Mathieu Veillette performed a site visit from September 30 to October 4, 2023. During that visit he performed an internal audit on the tailings storage facility (TSF), water management, waste rock storage facility (WRSF), and open pit geotechnical/hydrological aspects. Mr. Veillette had numerous discussions with the Mine Manager, Responsible Tailings Facility Engineer (RTFE), Environmental Superintendent for water management, Séguéla Project personnel and geotechnical engineers.

Mr. Paul Criddle visited the Séguéla Project on numerous occasions, the most recent site visit being from July 27 to 29, 2022. During these visits, Mr. Criddle reviewed all aspects of operational, metallurgical and processing performance, and development activities.

2.5 Effective Dates

This Report has a number of effective dates, as follows:

- June 30, 2023: date of database cut-off for assays used in the estimation of Mineral Resource and Mineral Reserves.
- December 31, 2023: date of production-related depletion.
- Date of the Mineral Resource estimate: December 31, 2023
- Date of the Mineral Reserve estimate: December 31, 2023

The overall effective date of this Report is the date of the Mineral Reserves and Mineral Resource estimate and is December 31, 2023.

2.6 Previous Technical Reports

Fortuna has not previously filed a technical report on the Séguéla Project. Prior to Fortuna obtaining its Project interest, Roxgold had filed the following report:

- Criddle, P., Anderson, H., Weedon, P., Morgan, D., Bailey, G., McLeay, S., and Morrison, N., 2021. NI 43-101 Technical Report: Séguéla Project, Feasibility Study, Worodougou Region, Côte d'Ivoire, prepared for Roxgold Inc., effective date 19 April 2021.

2.7 Information Sources and References

Reports and documents listed in Section 27 of this Report were used to support preparation of the Report. Additional information was provided by Roxgold Sango and other consultants in their areas of expertise.

2.8 Acknowledgements

The QPs would like to acknowledge the support and collaboration provided by Séguéla site personnel during the preparation of this Report.

3 Reliance on Other Experts

Roxgold Sango retains copies of the relevant legal titles as provided by the State of Côte d'Ivoire to the Séguéla permits.

The QPs have not independently reviewed ownership of the Séguéla Gold Mine and any underlying agreements, mineral tenure, surface rights or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from Roxgold Sango, Fortuna, and legal experts retained by Roxgold Sango and Fortuna for this information through the following document:

- Abi Koffi Marius Avocat Barreau D'Abidjan, 2024. Legal Opinion Séguéla Mine – prepared for Fortuna and Roxgold Sango dated January 15, 2024.

The information is used in Sections 4.1 and 4.2. The information is also used in support of the Mineral Resource estimate in Section 14 and the Mineral Reserve estimate in Section 15.

4 Property Description and Location

4.1 Project Location

The Séguéla Project is located approximately 500 km from Abidjan, within the Woroba District; part of the Worodougou administrative region in the west of Côte d'Ivoire (Figure 1).

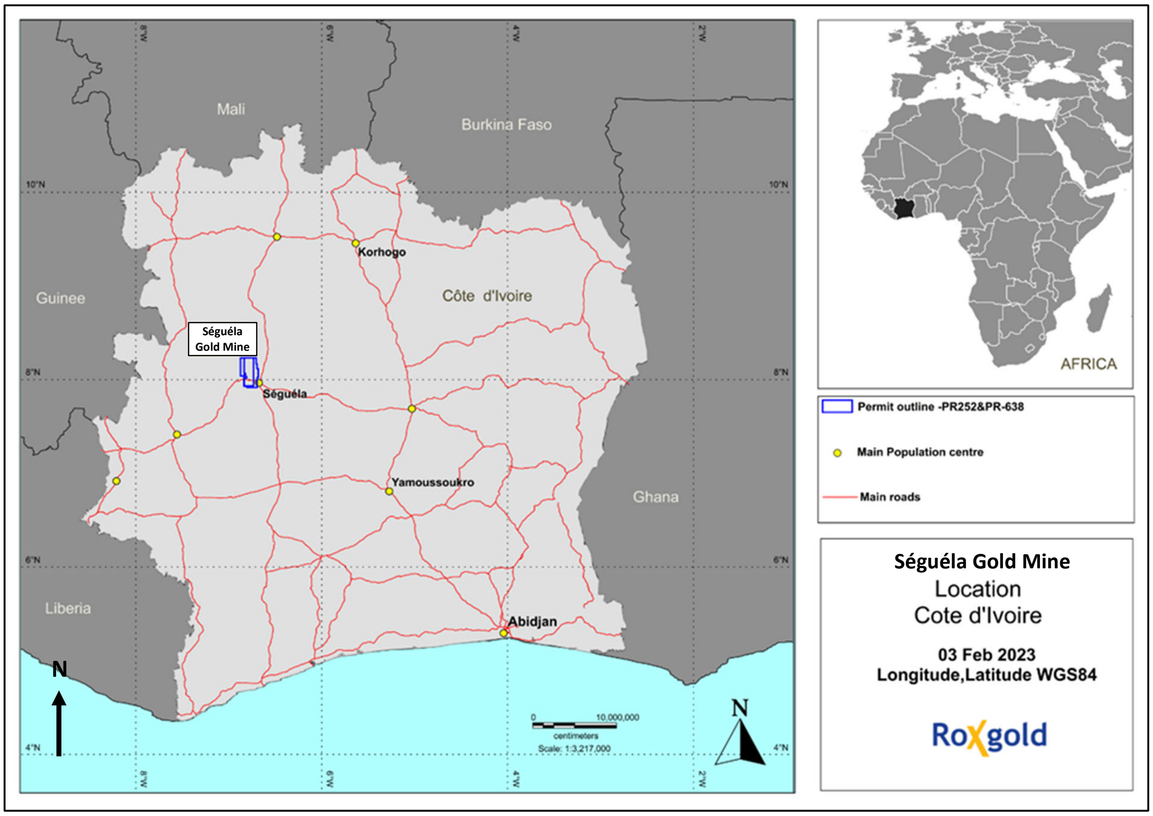

Figure 1: Location plan, Séguéla Gold Mine

4.2 Ownership

The Séguéla Project is owned 90 percent by Fortuna, and 10 percent by the State of Côte d'Ivoire. Fortuna acquired its project interest in 2021, following a merger with Roxgold Inc. (Roxgold). The Séguéla Mine is operated by Fortuna's in-country subsidiary, Roxgold Sango S.A.

4.3 Mineral Tenure and Surface Rights

4.3.1 Mineral Tenure

The Séguéla Project consists of an exploitation permit (Permis d'Exploitation No. 56), and a Mineral Exploration Permit (Permis de Recherche Miniére No. 638). The permit locations are shown in Figure 2.

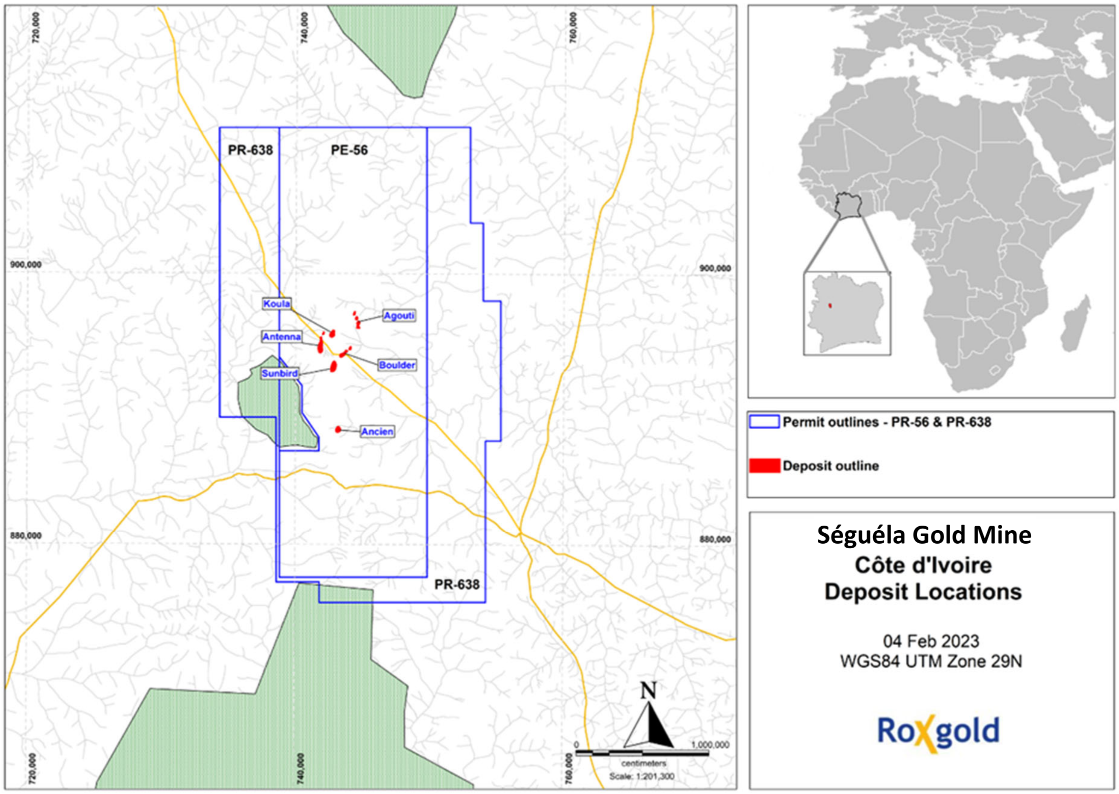

Figure 2: Séguéla Gold Mine – permit and deposit locations

Permis d'Exploitation No. 56 was granted by the Ivorian government on December 9, 2020, and is valid for an initial period of 10 years. The permit is thereafter renewable for successive 10-year periods. The permit has an area of 353.6 km^2.

The permit co-ordinates for Permis d'Exploitation No. 56 are provided in Table 3.

Table 3: Permis de'Exploitation No. 56, corner coordinates, UTM Zone 29P, WGS84

Permit Corner	Easting	Northing
A	738,682.15	910,739.83
B	749,703.67	910,800.92
C	749,888.40	877,610.21
D	738,858.71	877,551.29
E	738,812.51	886,898.37
F	741,761.91	886,919.23
G	741,755.12	887,922.64
H	740,489.98	889,738.89
I	740,479.35	891,732.21
J	738,772.88	893,835.85

There is an Ivorian State requirement that an exploitation permit be held directly by a local entity, which may then be beneficially owned by the foreign entity. The State of Côte d'Ivoire is entitled to a 10 % free-carried interest in this local entity, which cannot be diluted.

The initial four-year term of Permis de Recherche Miniére No. 638, which surrounds Permis d'Exploitation No. 56, expired on October 28, 2020. Renewal of the permit required a 25 % reduction in surface area to 270.1 km^2. The renewal of Permis de Recherche Miniére No. 638 was approved with an expiry date of October 18, 2023. An application for the second renewal was submitted on 20 July 2023 and is awaiting

Ministerial signature. Provided minimum expenditure requirements are met, mineral exploration permits in Côte d'Ivoire are subject to automatic grants of renewal applications for two terms of two years each, and a special third term of no more than three years.

The permit co-ordinates for Permis de Recherche Miniére No. 638 are provided in Table 4.

Table 4: Permis de Recherche Miniére No. 638 (first renewal), corner coordinates, UTM Zone 29P, WGS84

Permit Corner	Easting	Northing
A	734,243.08	910,716.03
B	738,682.11	910,739.86
C	738,858.67	877,551.32
D	749,888.36	877,610.24
E	749,703.63	910,800.95
F	752,949.00	910,819.47
G	752,989.43	903,750.90
H	753,938.71	903,756.32
I	753,971.48	898,009.25
J	755,288.40	898,016.75
K	755,347.05	887,690.41
L	754,182.99	887,683.85
M	754,249.40	875,790.25
N	741,840.23	875,723.10
O	741,832.27	877,228.90
P	738,615.33	877,212.01
Q	738,551.44	889,381.07
R	734,355.32	889,359.09

4.3.2 Surface Rights

Mineral exploration permits, within their boundaries, entitle the holder exclusive surface rights to explore for the nominated mineral commodities specified (in this case, gold), as well as encumbrance-free disposal of materials extracted during exploration process. Such permits allow for beneficial ownership to be held by a foreign entity.

Roxgold Sango has full and unrestricted surface rights to the land covered by the exploitation permits. The perimeter of the exploitation permit is free to access and is not subject to any kind of restriction.

4.4 Royalties

Franco-Nevada Corporation holds a 1.2 % net smelter return (NSR) royalty for gold produced from the Séguéla Mine. Roxgold Sango has the right to repurchase up to 50 % of the Franco-Nevada Corporation royalty on a pro rata basis based on the sale price of A$20 million for a period of up to three years from March 30, 2021.

The State of Côte d'Ivoire is entitled to production royalties as summarized in Table 5. The royalty is based on the gross revenue from gold produced from exploitation activities on the land subject to the exploitation permit, and any renewal, extension, variation, conversion, modification, replacement or substitution thereof, and any mining licence granted in respect of the whole or part of, or which relates to the same ground as, the area which is from time to time the subject of the exploitation permit, and any similar actions permitted under the local mining laws, after deduction of transportation and refining costs.

Table 5: Côte d'Ivoire government royalty rates

Royalty	Gold Price
3.0%	Up to US$1,000
3.5%	US$1,000 to US$1,300
4.0%	US$1,300 to US$1,600
5.0%	US$1,600 to US$2,000
6.0%	Above US$2,000

Roxgold Sango is subject to the payment of an annual surface royalty by area of the exploitation permit each year, payable within 60 days of the anniversary date of the exploitation permit. A similar annual surface royalty is payable in respect to the exploration permits. The Company confirmed that the payment of surface royalties is up-to-date with most recent payment made in 2023.

4.5 Permitting

To the extent known, all permits that are required by the laws of Côte d'Ivoire for the mining operation have been obtained. Permitting is discussed in Section 20 of this Report.

4.6 Social and Environmental Considerations

Environmental and social considerations are discussed in Section 20.

4.7 Comments on Section 4

In the opinion of the QPs:

- Fortuna was provided with a legal opinion that supported that the exploitation and exploration permits held by Roxgold Sango for the Séguéla Mine are valid, and that Roxgold Sango has a legal right to mine the deposit.
- Fortuna was provided with a legal opinion that supported that Roxgold Sango has unrestricted surface rights to the land covered by the exploitation and exploration permits held by Roxgold Sango. The surface rights are sufficient in area for the mining operation infrastructure and tailings facilities.
- Fortuna was provided with a legal opinion that outlined the royalties payable for the exploitation permit held by Roxgold Sango.
- Fortuna is not aware of any environmental issues that may impact operational activities at the Séguéla Gold Mine.

Fortuna advised the QPs that to the extent known, there are no other significant factors and risks that may affect access, title or right or ability to perform work at the mine.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access

The Séguéla Project is accessed by sealed road from Abidjan, via Yamoussoukro using the A3 National Highway to Yamoussoukro, then the A6 National Highway to Daloa, and then the A5 National Highway to the township of Séguéla. From Séguéla town (population c. 65,000), the Séguéla Mine is accessed via dirt roads through the villages of Bolo and Fouio (population c. 3,000) (refer to Figure 1). The 230 km between Abidjan and Yamoussoukro is via a dual carriageway sealed road. The travel time between Abidjan and the Séguéla Project (approximately 450 km) is typically eight hours.

Dirt roads within the Séguéla Project area provide access for year-round exploration activities.

There is an airport at the Séguéla township that is currently undergoing an upgrade for suitability of use for commercial aircraft. The airport is capable of landing light to medium propeller aircraft however it is currently out of service due to upgrading of the runway and associated infrastructure; the resumption of services is at present unclear.

5.2 Topography, Elevation and Vegetation

The Séguéla Mine and the township of Séguéla occur in a region of low forested hills, with elevations averaging 347 m above sea level. The vegetation of the region is tropical savannah woodland (Köppen Classification: Aw).

Proximal to the mine, native vegetation has been supplanted by cashew plantations, and to a lesser extent, cotton and cacao farms.

5.3 Climate

The Séguéla Mine is located within a tropical savannah climatic region, which is typified by high average temperatures, and a distinct wet season and dry season. The average annual temperature is 25.3°C, with an annual average rainfall of 1,268 mm. August and September are the wettest months of the year. Temperatures do not vary greatly over the course of the year, with average monthly temperatures ranging from 23.5°C in August, to 26.9°C in

Mining operations are conducted year-round.

5.4 Local Resources and Infrastructure

The nearest major settlement to the Séguéla Mine is the township of Séguéla (population c. 65,000). The town is the administrative centre of both the local Woroba District, and the greater Worodougou administrative region in the west of Côte d'Ivoire.

The mine is accessed from Yamoussoukro by sealed road of variable quality and is also home to

5.4.1 Sources of Power

Power is supplied to the site via a 90kVa power line from the National Grid via overhead transmission lines with back-up generating capacity installed at the accommodation village and the exploration camp.

5.4.2 Water and Consumable Supplies

Non-potable water is obtained at the Séguéla Mine from local bores. Potable water is obtained from an on-site reverse osmosis plant.

Food supplies are sourced either locally or from Yamoussoukro and are transported by road.

Fuel, machinery, and equipment supplies are readily available from the major port city of Abidjan or from Yamoussoukro, transported by road.

5.4.3 Mining Personnel

Both the closest local village of Bolo and the township of Séguéla are sources of unskilled labor. Skilled labor and technical staff are readily sourced from both Yamoussoukro and Abidjan on a fly-in/fly-out or drive-in/drive-out basis.

5.4.4 Infrastructure

The surface area of the Séguéla Project is sufficient for the infrastructure necessary for an open pit mining operation. The area comfortably accommodates the accommodation camp, tailings storage areas, waste disposal, and processing facilities.

5.5 Comment on Section 5

In the opinion of the QPs, the existing infrastructure, availability of staff, the existing power, water, and communications facilities, the methods whereby goods are transported to and from the mine site, and any planned modifications or supporting studies are well-established, or the requirements to establish such, are well understood by Fortuna, and support the declaration of Mineral Resources and Mineral Reserves and the proposed mine plan.

There are sufficient surface rights held to support the life-of-mine plan (LOMP) and mining operations on a year-round basis.

6 History

6.1 Exploration History

The exploration history for the Séguéla Project area, where known, is summarized in Table 6.

Table 6: Exploration history

Year	Operator	Work Completed
Unknown	Randgold	16 trenches (210 m) at the Gabbro, Gabbro South, Porphyry and Agouti prospects. A number of trenches returned elevated gold values at Gabbro, Gabbro South, and Agouti. Minor gold anomalism was encountered at Porphyry.
2012	Geoservices CI	Permis de Recherche Miniére No. 252, now Permis d'Exploitation No. 56) granted.
2012	Mont Fouimba Resources	Ownership transferred from Geoservices CI.
2013	Apollo Consolidated Ltd. (Apollo)	Acquired a 51 % interest in Mont Fouimba Resources. Soil sampling, trenching and artisanal dump sampling.
2014–2015	Apollo	Trenching and soil sampling at Antenna South, Kwenko and Gabbro South prospects. 25 reverse circulation drill holes (2,398 m). Six of the drill holes did not encounter mineralization; the remainder were weakly to well gold mineralized. Trenching over Barana prospect; some elevated gold values returned. Trenching and dump sampling over minor artisanal workings at the Antenna prospect; a number of elevated gold values returned.
2016–2019	Newcrest Mining Limited	Option to Purchase Agreement. Geological mapping, stream sediment sampling (66 samples) and reconnaissance rock chip sampling (104 samples). Drilling at Antenna prospect from 2016–2017 including 733 aircore holes (11,154 m), 27 diamond drill holes (5,790 m), 88 reverse circulation drill holes (10,058 m), and 55 reverse circulation drill holes with diamond core tails (11,101 m). Drilling at Agouti prospect from 2017–2018 including 1,092 aircore holes (11,058 m), 1 diamond drill hole (102 m), and 19 reverse circulation drill holes (3,017 m). Drilling at Boulder prospect from 2017–2018 including 1,246 aircore holes (14,742 m), 14 reverse circulation drill holes (1,828 m), and 2 reverse circulation drill holes with diamond core tails (326 m). Drilling at Ancien prospect from 2018–2019 including 92 aircore holes (1,756 m), 2 reverse circulation drill holes (221 m), and 1 reverse circulation drill hole with diamond core tail (141 m).
2017	LGL Exploration CI S.A (LGL Exploration)	Project interest transferred to LGL Exploration, a Newcrest subsidiary.
2019	Roxgold	Acquires LGL Exploration. Roxgold Sango set up as the in-country operating subsidiary.
2021	Fortuna	Acquired Roxgold and continued to use the Roxgold Sango entity as the in-country operating subsidiary.

6.2 Production History

Gold production commenced under the management of Roxgold Sango with the first gold pour taking place on May 24, 2023 (Fortuna, 2023a). In the period up to the end of 2023, the operation had processed 807,617 tonnes averaging 3.42 g/t Au and produced 83,435 ounces of gold (Fortuna, 2024).

7 Geological Setting and Mineralization

7.1 Regional Geology

Côte d'Ivoire is underlain by the Archaean-Protoerozoic Leo-Man shield, which comprises the lower half of the West African Craton. The shield itself is further divided into the Archaean Kenema-Man Domain, and the Paleoproterozoic (Birimian) Baoulé-Mossi Domain (Bessoles, 1977) (Figure 3).

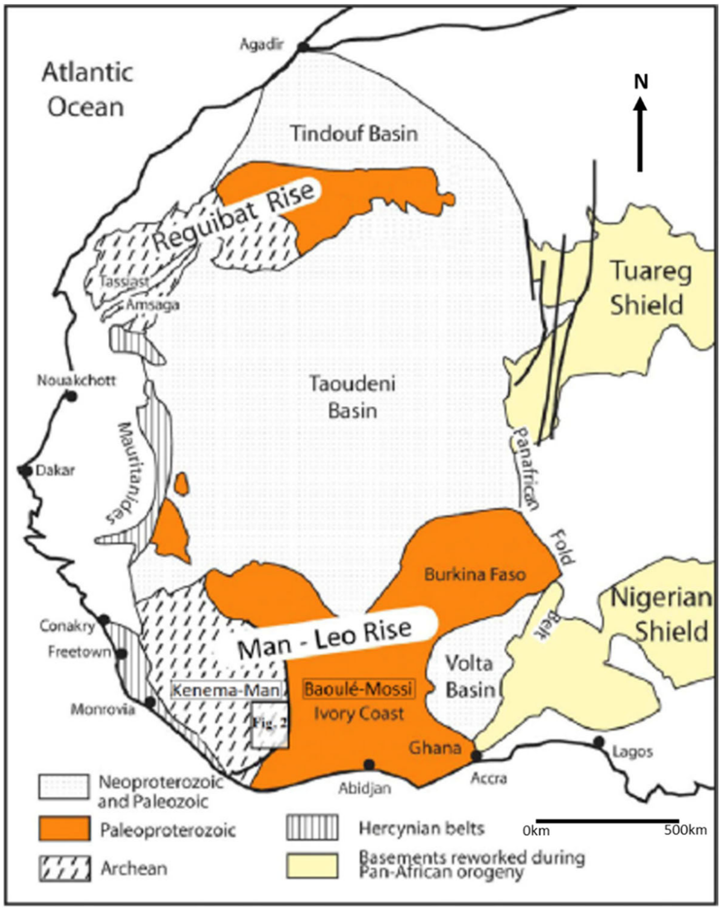

Figure 3: Archaean-Proterozoic of the West African Craton (Peucat et al., 2005)

The Paleoproterozoic domain is characterized by greenstone-granitoid assemblages that principally consist of volcanic, volcano-sedimentary, and sedimentary sequences separated by extensive tonalite-trondhjemite-granodiorite and granite provinces. The volcanic and volcano- sedimentary rocks belong to the Birimian Supergroup, which is interpreted to have formed in the context of volcanic arcs and oceanic plateaus. The Birimian volcanic and volcano-sedimentary units are unconformably overlain at several places across the craton by detrital shallow-water sedimentary rocks, the Tarkwaian sediments (Feybesse et al., 2006). The volcanic, volcano-sedimentary and sedimentary complex has been intruded by several generations of granitoids, emplaced during discrete magmatic pulses from 2180 to 1980 Ma.

Two cycles of volcanism/sedimentation are recognized within the Birimian rocks of the Baoule-Mossi Domain; each followed by a period of orogenesis, and together described as the Eburnian Orogeny which is dated at 2190–2080 Ma. The first cycle is associated with major crustal thickening (Allibone et al., 2002, Feybesse et al., 2006) between 2130–2100 Ma, transitioning to a second phase through 1980 Ma which was responsible for the development of regional-scale transcurrent shear zones. These shear zones are generally the key hosts for gold mineralization in the Birimian rocks.

Metamorphic grades range from greenschist to amphibolite facies throughout the region and generally show tight to isoclinal folding in a north–northeast to south–southwest orientation, generally reflecting the development of the regional-scale transcurrent shear zones.

7.2 Prospect and Local Geology

The geology of the Séguéla Project area is dominated by two litho-structural domains colloquially termed the West Domain and East Domain, which are separated by a north–south-trending mylonite zone (Figure 4). The East Domain, which hosts the Agouti, Ancien, Boulder, Sunbird and Koula deposits, predominantly comprises high strain granitoids, orthogneisses, andesite and basaltic units, and schists. The West Domain, which hosts the Antenna deposit, consists of mafic volcanic (basalts) and hypabyssal (sills and dykes) rocks, rhyolitic lava flows and volcaniclastic rocks, and minor granitoids.

Regional mapping is suggestive of at least two stages of deformation:

- D_1 manifesting as a steeply-plunging stretching lineation formed during initial north–northwest- to northwest-directed thrusting with rotation anticlockwise to a sub-vertical plunge during the subsequent D2 event.
- D_2 resulted in the development of a stretching lineation in response to sinistral shearing, imparting a project scale steep to near-vertical dip present through the central part of the project area, and best developed in what are considered to be synkinematic (schistose) granitoid sequences and andesitic/basaltic units. This contrasts with a sub-horizontal stretching lineation developed in the eastern andesite and schist domains, with the boundary coinciding with an interpreted thrust.

Mineralization at Antenna is interpreted to relate to west–northwest–east–southeast shortening during the D1 event although this is still uncertain. Mineralization in the East Domain, which hosts the Agouti, Boulder, Ancien, Sunbird and Koula deposits is interpreted to relate to the D2 deformation event.

Mineralization at Antenna is hosted by brittle-ductile quartz-albite vein stockworks, preferentially associated with sericite-biotite-(silica) altered rhyolite lava flow units.

Mineralization at Boulder and Agouti is hosted by quartz and quartz–carbonate vein networks, associated with extensive porphyritic felsic intrusions emplaced into sheared to mylonitic, sericite-biotite altered tholeiitic and pillow basalts.

Mineralization at Ancien, Sunbird and Koula is hosted by quartz and quartz–carbonate vein networks within sheared, sericite-biotite altered tholeiitic basalt units.

Visible gold (up to 5 mm) is common in all six deposits, particularly at the high-grade Sunbird, Koula and Ancien deposits, with pyrite and pyrrhotite the dominant sulfide species.

U/Pb zircon dating from a rhyolite sample approximately 1 km north of Antenna returned an age of 2,169 ±11Ma, corresponding to the lower Birimian stratigraphy.

The deposit locations are shown in Figure 8.

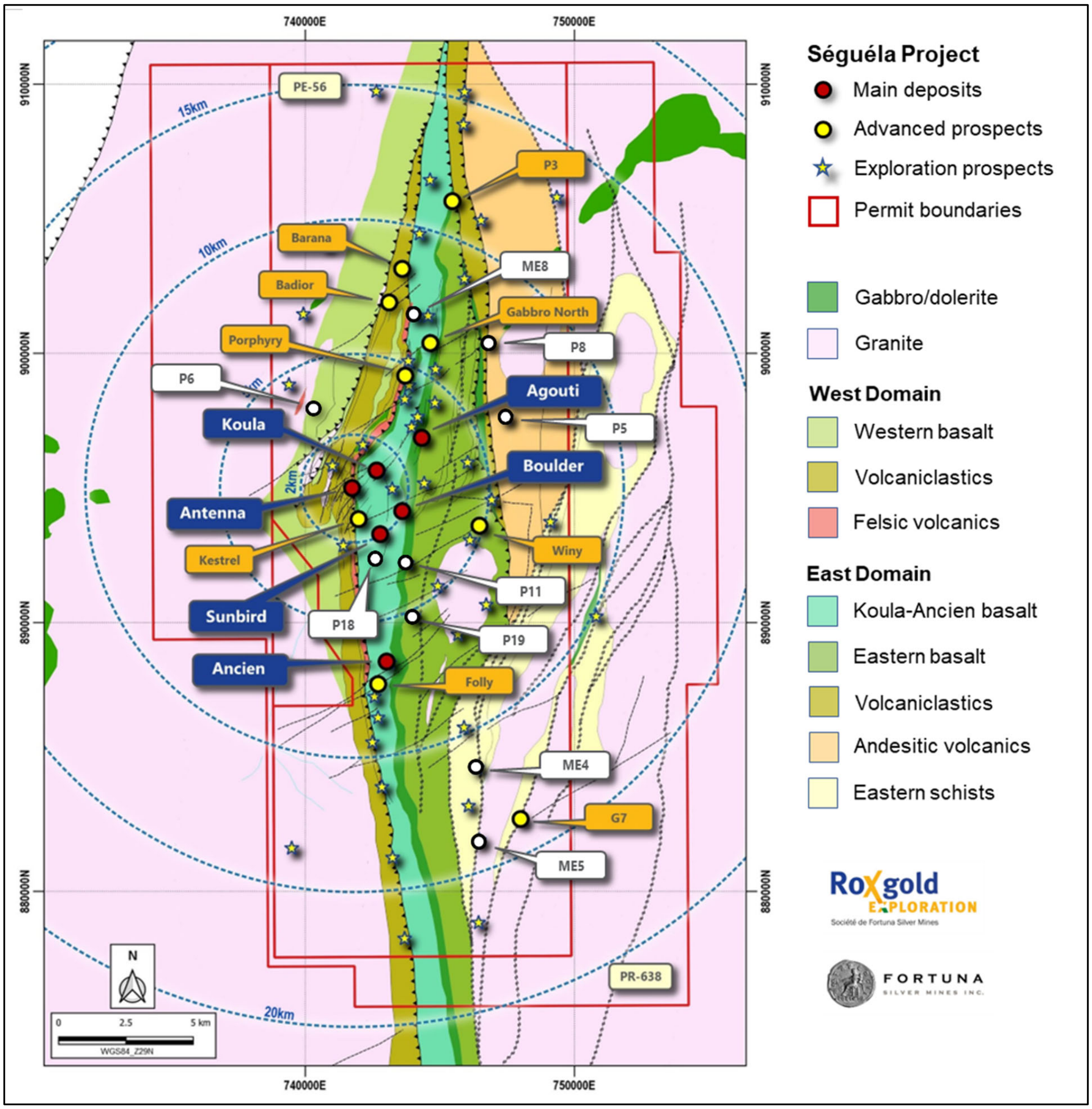

Figure 4: Local geology of the Séguéla Gold Mine
Source: Roxgold Sango, 2023

7.3 Antenna Deposit

The Antenna deposit occurs within a greenstone package that comprises (west to east) an ultramafic hanging wall, which is in presumed fault contact with an interlayered package of felsic volcaniclastic rocks and flow banded rhyolitic units, which are then in contact with a mafic (basaltic) footwall unit.

The faulted contacts between the mafic/ultramafic units and the felsic assemblage converge to the south of the deposit forming a wedge shape to the felsic package (Figure 5).

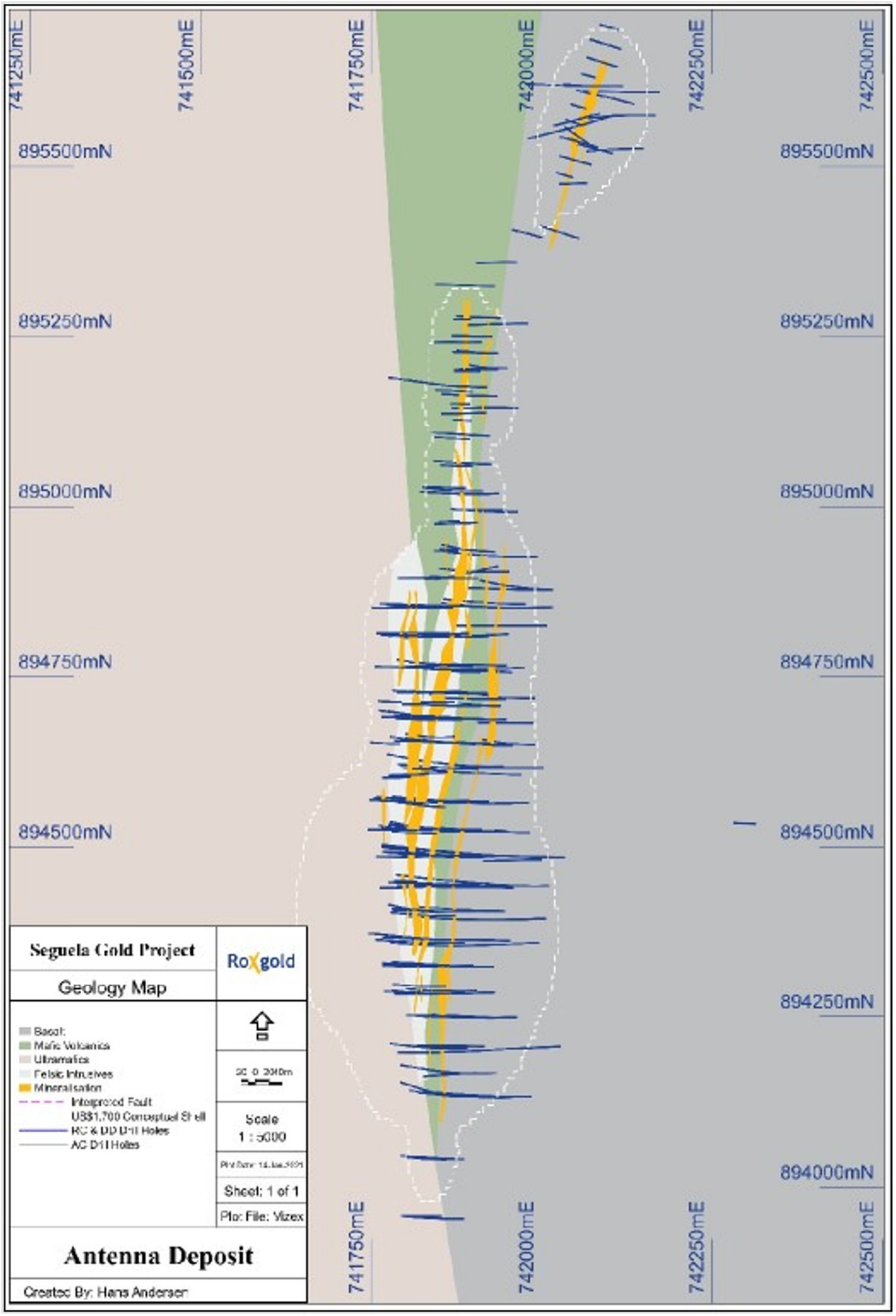

Figure 5: Antenna deposit geology

Note: Ultramafic rocks to the west and basaltic rocks to the east bound an interlayered package of volcaniclastic sediments (brown) and rhyolites (yellow). Mineralization is predominantly confined to the rhyolites.
Source: Roxgold Sango, 2021

The Antenna deposit is a brittle–ductile quartz–albite vein stockwork predominantly contained within the flow banded rhyolite units. The stockwork lode varies in width roughly in proportion with the widths of the rhyolitic units that host it (approximately 3–40 m) and extends over a strike length of approximately 1,350 m. Stockwork veins which host mineralization show two principal orientations: steep east-dipping, and steep west-dipping. Veins in the steep west-dipping orientation range from ptygmatically folded to undeformed, while veins in the east-dipping direction may be variably boudinaged to undeformed. This suggests syn-deformational emplacement of the vein sets during west over east movement along the main fault structures within the region. Mineralization occurs as free gold, associated with pyrite and pyrrhotite. Alteration assemblages associated with this mineralization assemblage vary from proximal intense silica–albite ± biotite ± chlorite alteration, through medial silica–albite–sericite ± chlorite assemblages, to more distal sericite–carbonate (ankerite/calcite) and carbonate–magnetite assemblages. Pyrite is the dominant sulfide associated with higher-grade mineralization within proximal alteration zones, while sulfide mineralogy is pyrrhotite-dominated in medial and distal assemblages, and is associated with lower-grade gold mineralization. An example of the mineralized quartz veining at the Antenna deposit is provided in Figure 6.

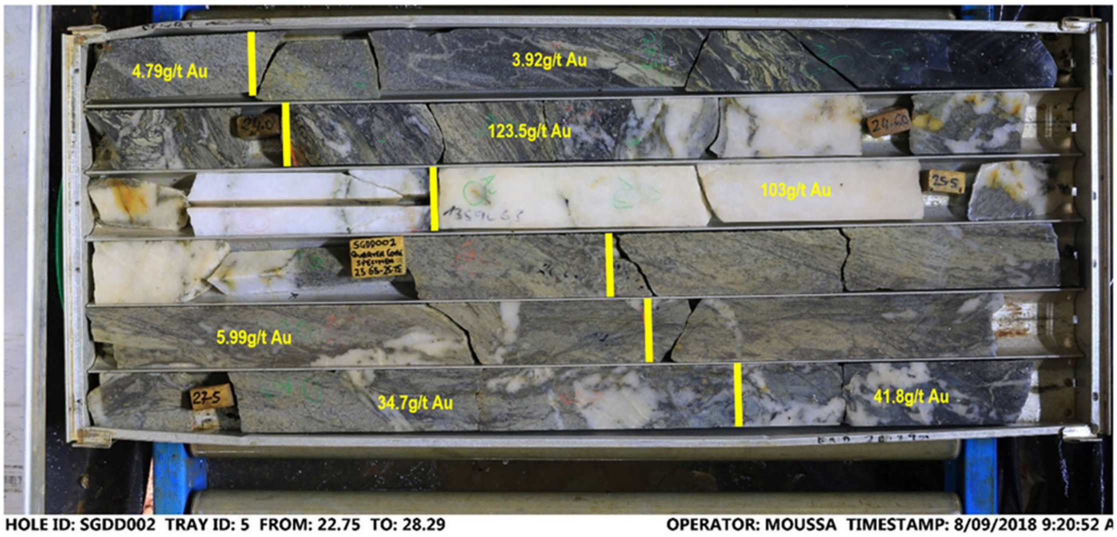

Figure 6: Example drill core from Antenna deposit – SGDD002 (Note – core tray length is 1 meter)

7.4 Agouti and Boulder Deposits

The Boulder and Agouti deposits are located within a distinct northerly-trending litho-structural corridor that extends from Boulder in the south to Gabbro in the north (Figure 7). The deposits consist of a stockwork array of veins and are variable in width up to 40 meters with a cumulative strike length at Boulder of approximately 1.5 kilometers and 1.3 kilometers at Agouti.

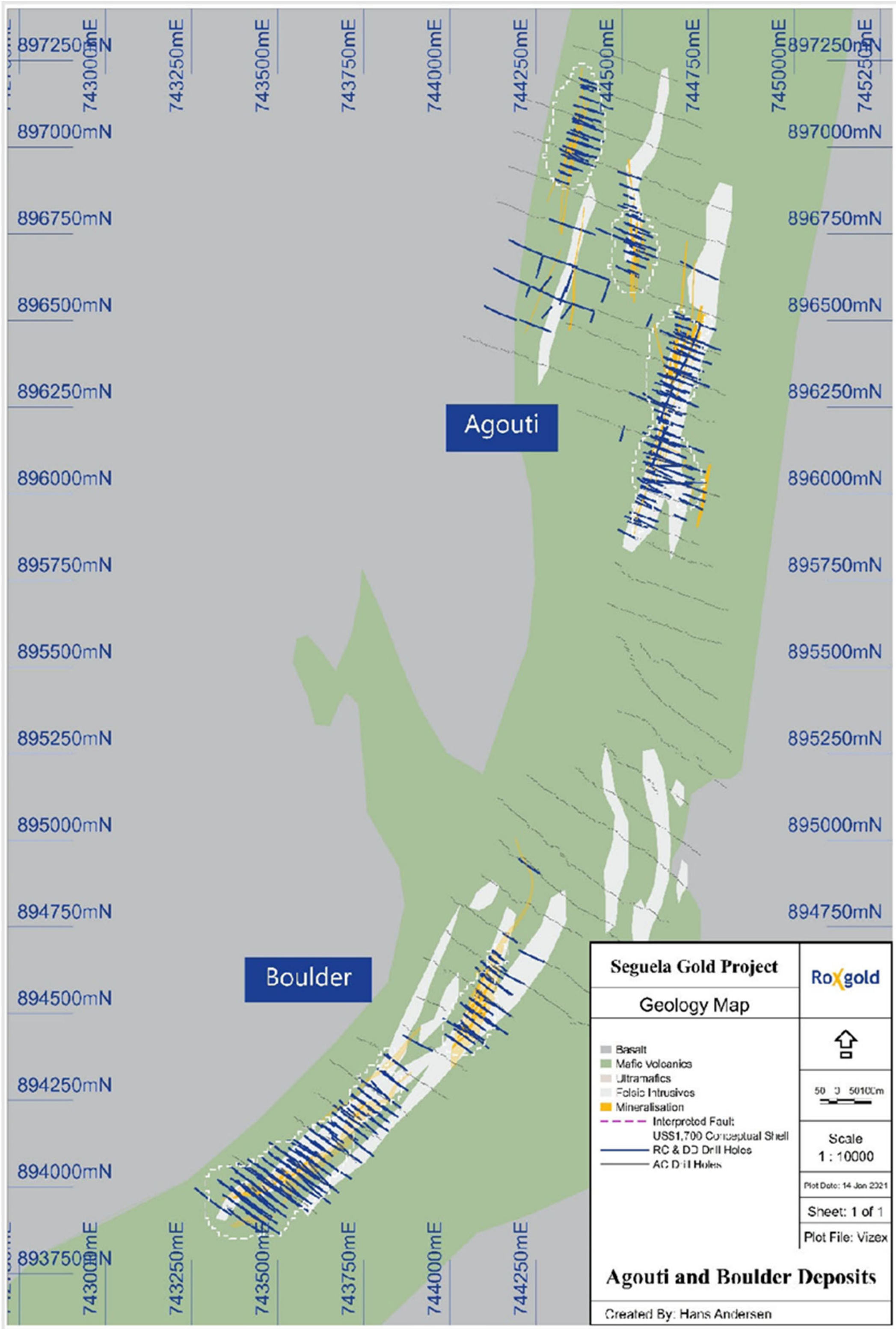

Figure 7: Agouti and Boulder geology

Source: Roxgold Sango, 2021

Regional mapping has defined a broad package of pillow basalts and intercalated basaltic sediments, flanked to the west by a discontinuous gabbro unit and regionally extensive doleritic sequence. The basaltic units are extensively intruded by quartz–feldspar-biotite porphyritic felsic intrusions.

Ground magnetic surveys across the Boulder-Agouti trend have highlighted two main structural trends, within the overall northerly-trending corridor. Regionally extensive north–northeast- to northeast-trending structures are interpreted to be early D2 thrusts, with dilational zones potentially facilitating the emplacement of felsic intrusions. A later set of northwest-striking structures offset the earlier north–northeast- to northeast-trending structures, with dextral movement in the order of tens of meters (Figure 8).

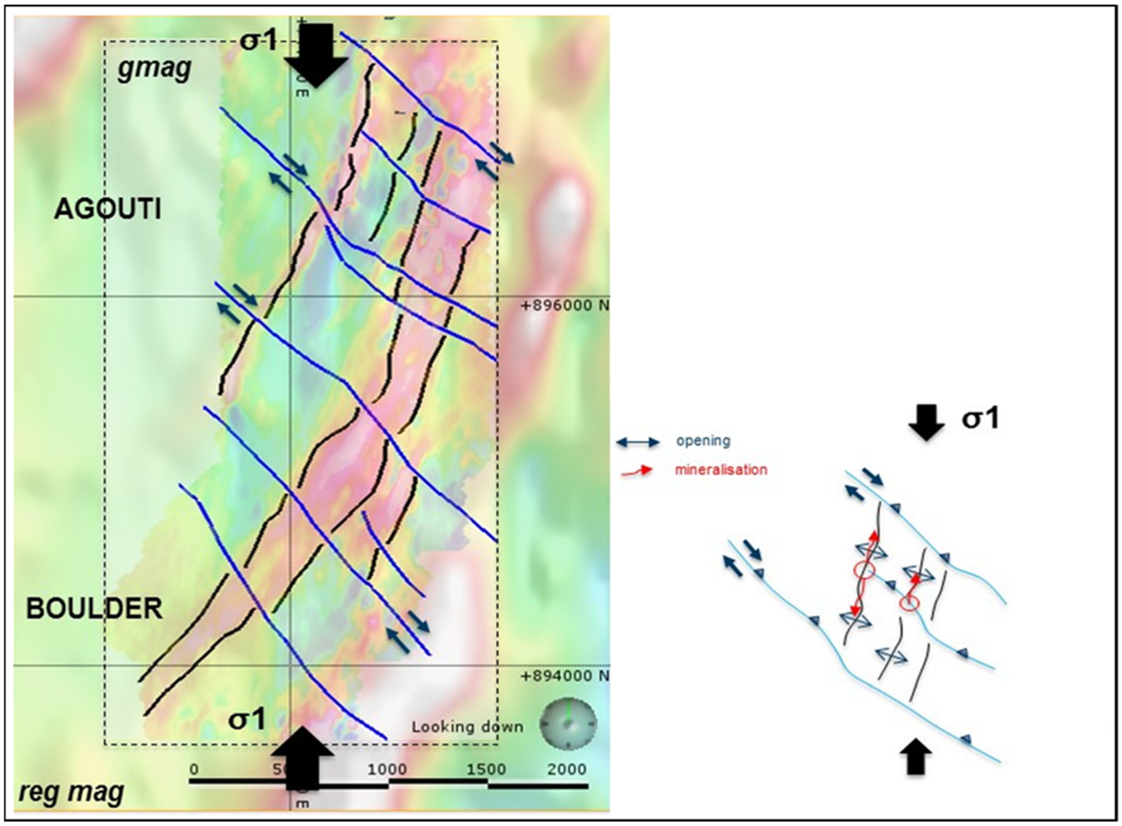

Figure 8: Structural interpretation of the Boulder-Agouti corridor over ground/aeromagnetic imagery
Source: Roxgold Sango, 2021

Outcrop mapping in the Boulder area suggests the corridor may represent a broader northwest-trending thrust-fold package, with the felsic intrusions exploiting zones of weakness. The corridor remains poorly explored to the south of Boulder and north of Agouti.

Gold mineralization is associated with strongly foliated or mylonitized, quartz/quartz–carbonate veined basalt and the margins of the felsic intrusions. Generally, lower grade mineralization occurs internal to the felsic intrusions where they are brecciated or extensively veined. The highest gold grades generally correlate with the intersection of north–northeast and northwest-trending structures. Mineralization occurs as free gold within a network of milky white quartz veins, and associated with foliation or quartz/quartz-carbonate vein controlled pyrite and minor pyrrhotite (Figure 9).

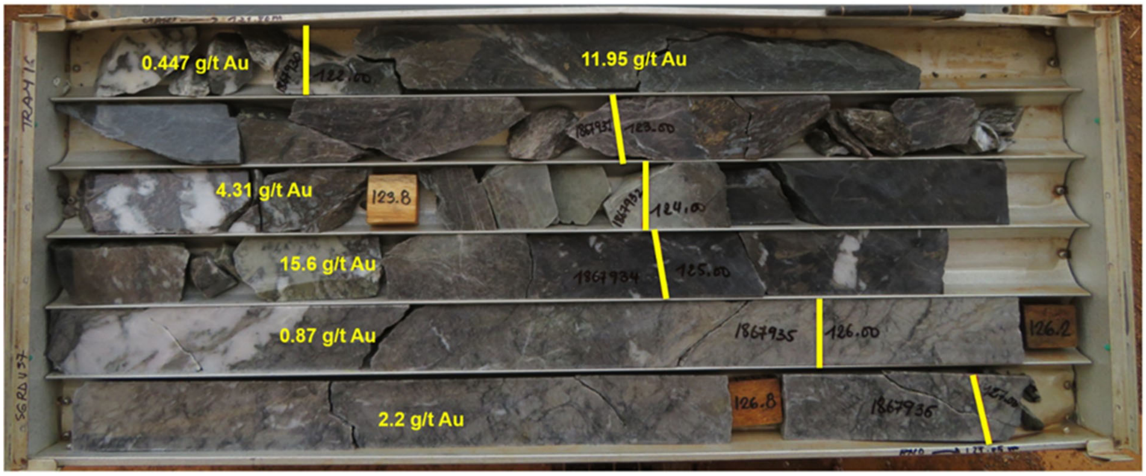

Figure 9: Example of mineralization from Boulder and Agouti deposits – SGRD437 at Boulder deposit (Note – core tray length is 1 meter)

7.5 Ancien Deposit

The high-grade Ancien deposit is located within a thick package of magnetically quiet pillow basalts, tholeiitic basalts and minor mafic sediments that form the westernmost part of the East Domain. The deposit is associated with an interpreted D2 sinistral shear zone, informally labelled the Ancien Shear, (Figure 10) and comprises (from west to east) a chloritic pillow basalt footwall overlain by a foliated/sheared tholeiitic basalt unit, which is in turn overlain by a second chloritic pillow basalt hanging wall unit.

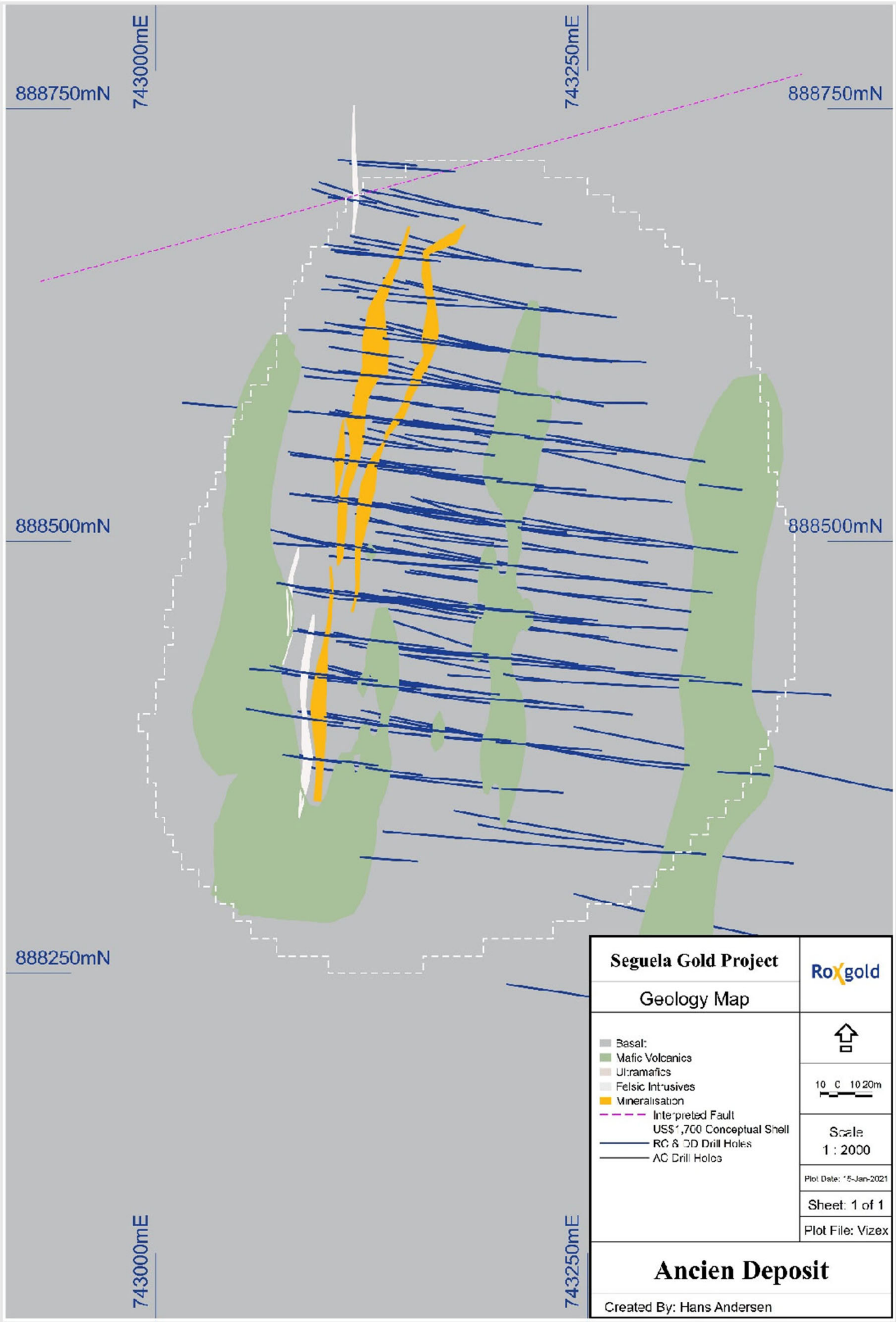

Figure 10: Geology map for Ancien deposit
Source: Roxgold Sango, 2021

Coarser-grained sequences within the pillow basalts are geochemically equivalent to the pillow basalts and are interpreted to be part of the volcanic stratigraphy, rather than later intrusions. Generally narrow quartz-feldspar-biotite rhyolite to dacite porphyry intrusions and calc alkaline lamprophyric dykes are altered and foliated and therefore interpreted to have been emplaced prior to the deformation and mineralizing events.

Multielement geochemistry and petrology suggests the hanging wall and footwall pillow basalts are the same unit, interpreted to be tightly folded about a generally north trending, moderately to steeply east dipping anticlinal hinge (Figure 11).

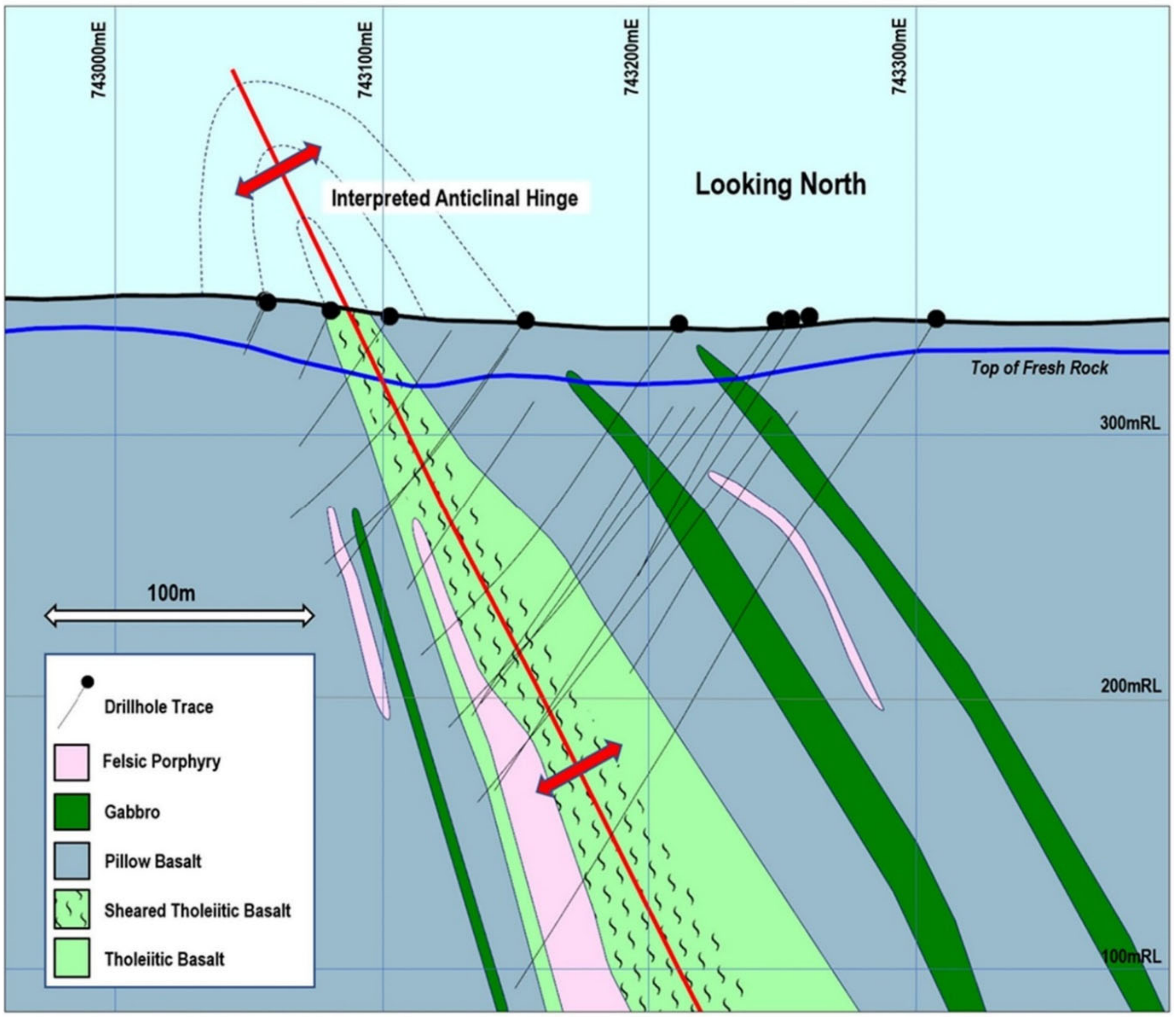

Figure 11: Ancien deposit schematic geological cross-section
Source: Roxgold Sango, 2023

The anticline theory is supported by the thickness of the tholeiitic basalt unit, which increases from a few meters near surface at the northern end of the deposit, to greater than 120m at depth. The anticline possibly pinches out at the northern end of the deposit against the Ancien Shear, potentially explaining the apparently abrupt termination of tholeiitic basalt in this area. The Ancien Shear is interpreted as the main conduit for mineralizing fluids, with the interaction of folding and later northwest-t and northeast-trending structures important in focusing these fluids.

Significant mineralization is restricted to the more reactive and competent tholeiitic basalt unit and is best developed in zones of strong brittle-ductile brecciation and shearing, with selective sericite ± silica alteration and intense quartz and quartz-carbonate veining. Mineralization occurs as free gold, predominantly as small grains within microfractured milky-white quartz veins and associated with pyrite and lesser pyrrhotite (Figure 12).

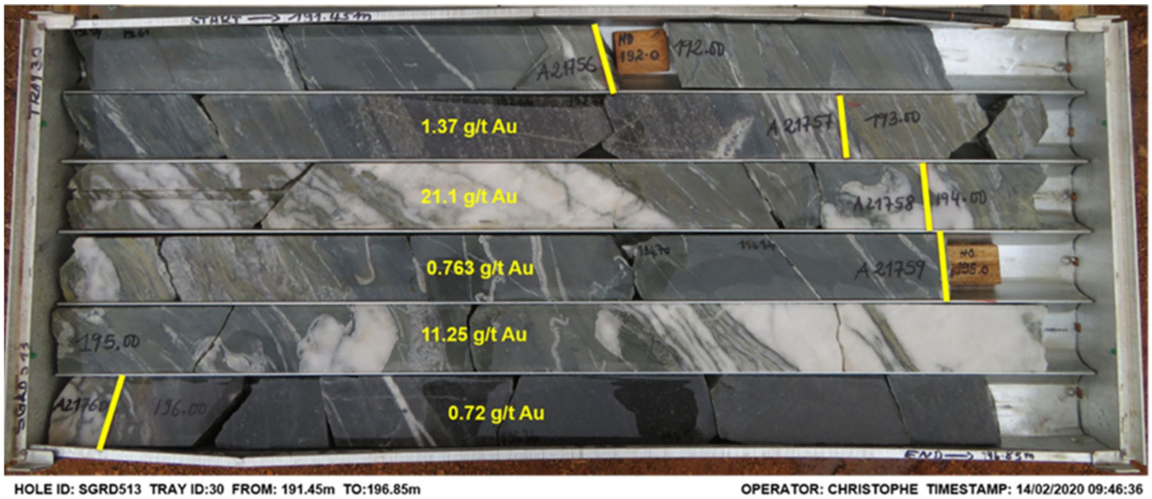

Figure 12: Example of mineralization from Ancien deposit – SGRD513 (Note – core tray length is 1 meter)

Generally, lower-grade mineralization is also developed at the margins of felsic porphyries that intrude the tholeiitic basalt, and in zones of increased brecciation and veining within these porphyries. Significant mineralization has been intersected over a strike length of greater than 350m and to a vertical depth of greater than 300m and has a moderately to steeply south-plunging core of high-grade mineralization. This high-grade core of the deposit is associated with the most intense deformation and veining and is interpreted to be associated with the hinge zone of the postulated anticline. The deposit remains open down-dip and down-plunge.

7.6 Koula Deposit

The high-grade Koula deposit is situated within the same package of mafic rocks as the Ancien deposit located 7 km to the south, which is informally labelled the Ancien–Koula corridor.

The Koula deposit is hosted within a strongly foliated/sheared tholeiitic basalt unit with a chloritic pillow basalt hanging wall and footwall (Figure 13).

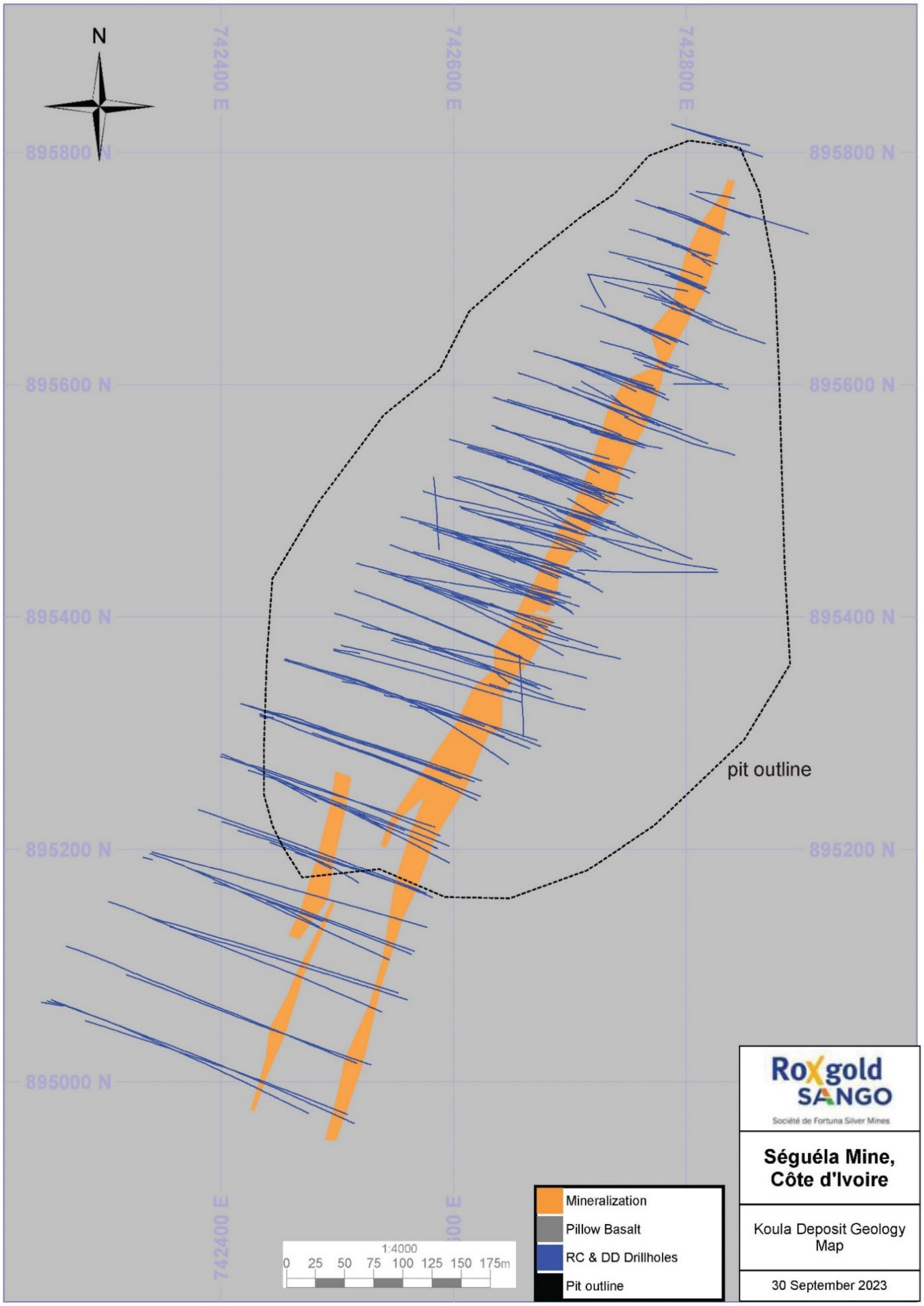

Figure 13: Geology map for Koula deposit
Source: Roxgold Sango, 2023

Coarser-grained sequences within the pillow basalts are geochemically equivalent to the pillow basalts which are interpreted to be part of the volcanic stratigraphy, rather than later intrusions. Felsic intrusions are rare, but geochemically distinct late mafic intrusions of dolerite to gabbro are relatively common in the broader stratigraphic sequence.

The structural setting and history of the Koula deposit is developing with ongoing drilling; however, the deposit appears similar to Ancien. The deposit is hosted by a near vertical north–northeasterly-trending shear zone of up to 15 m true width, with veining logged up to 10 m thick within the shear zone. There is some evidence from structural measurements from drill core of tight, south plunging, anticlinal folding, with the deposit interpreted to represent the sheared eastern limb or core of the anticlinal structure. Further drilling is required to confirm this interpretation. As with Ancien, the north–northeasterly-trending shear zone is interpreted as the main conduit for mineralizing fluids, with the interaction of folding and later northwest and northeast structures important in focusing these fluids during the mineralization event.

Significant mineralization at Koula is restricted to the tholeiitic basalt unit and is best developed in discrete zones of strong shearing, biotite–sericite-(silica) alteration and intense recrystallized quartz and quartz–carbonate veining. Mineralization occurs as free gold, predominantly as small grains within recrystallized and microfractured milky-white quartz veins, and associated with disseminated to blebby, foliation controlled pyrrhotite and lesser pyrite (Figure 14).

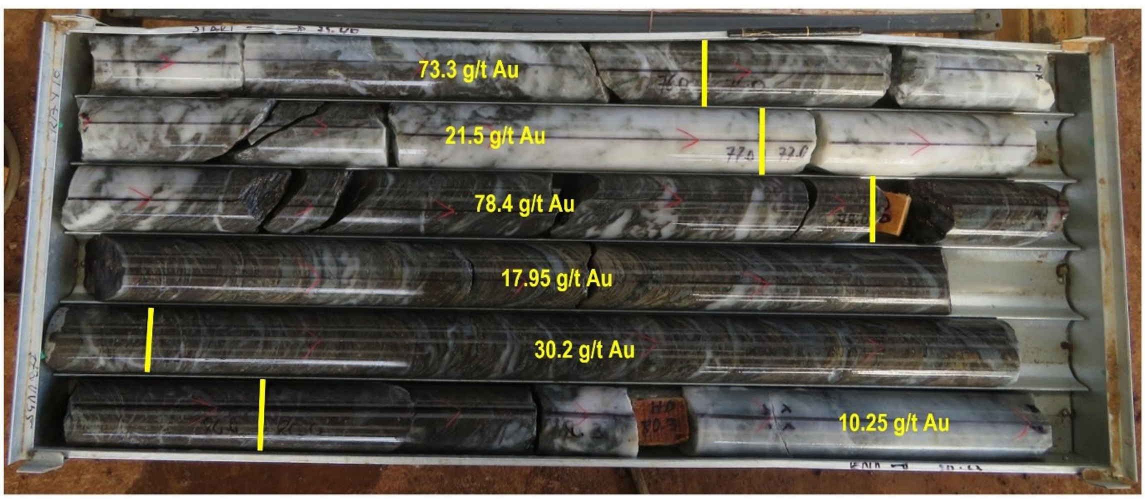

Figure 14: Example of mineralization from the Koula deposit – SGDD072 (Note – core tray length is 1 meter)

The predominance of biotite and pyrrhotite at Koula is indicative of higher temperature hydrothermal fluids compared to Ancien, where sericite and pyrite are the more dominant species. This change in mineral species suggests a temperature gradient (increasing) from south to north, which is important for ongoing exploration of the Ancien–Koula corridor.

Drilling to date has defined the Koula deposit over a 650m strike length and to a depth of greater than 350m vertically. The deposit remains open at depth and down plunge to the south, presenting a priority target for ongoing exploration.

7.7 Sunbird Deposit

The Sunbird deposit is hosted within the same package of mafic rocks as both the Ancien and Koula deposits, within the Ancien–Koula corridor. Analogous to the mineralization setting of Koula, Sunbird is hosted within a strongly foliated/sheared tholeiitic basalt unit with a chloritic pillow basalt hanging wall and footwall (Figure 15).

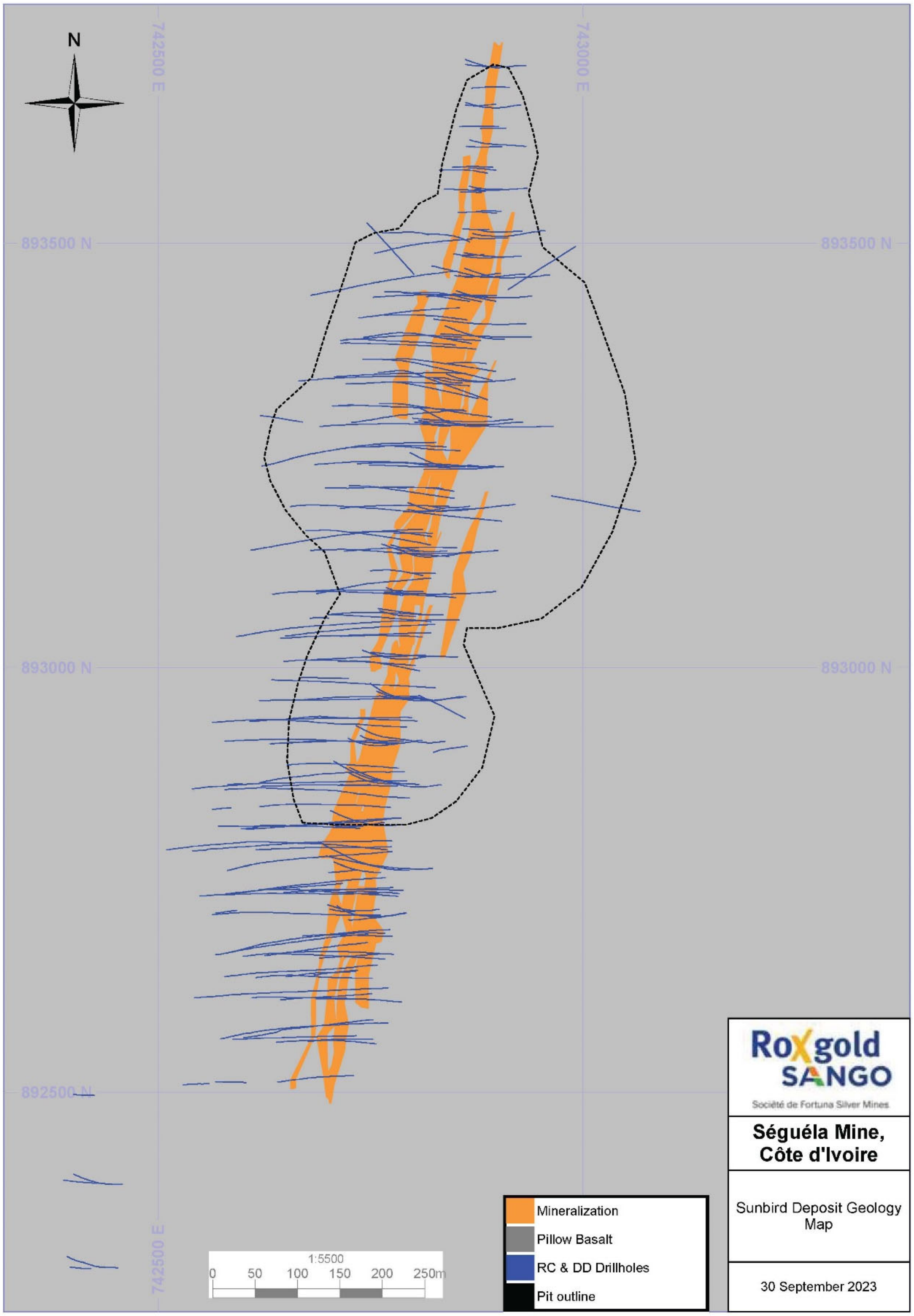

Figure 15: Geology map for Sunbird deposit

Source: Roxgold Sango, 2023

Coarser grained sequences within the pillow basalts are geochemically equivalent to the pillow basalts, which are interpreted to be part of the volcanic stratigraphy, rather than later intrusions. Felsic and dioritic intrusions, though uncommon, both occur within the deposit stratigraphy, and are generally foliation/stratigraphy concordant in strike.

Mineralization appears to be hosted along two preferential planes; that of the general stratigraphy, and that of the pervasive shear foliation within the area, which occurs at a low angle to the stratigraphy. The deposit is hosted predominantly by a near vertical north-striking shear zone within the generally sub-vertical, north–northeast-striking stratigraphy. Additional drilling is required to confirm this interpretation.

Significant mineralization at Sunbird is predominantly restricted to the tholeiitic basalt unit, though minor lenses of mineralization have been interpreted within the rhyolite, diorite and also the pillow basalts. Mineralization is best developed in discrete zones of strong shearing, biotite-sericite-(silica) alteration and intense recrystallized quartz and quartz–carbonate veining. Mineralization occurs as free gold, predominantly as small grains within recrystallized and microfractured milky-white quartz veins, with individual veins up to 5 m wide. The highest grade portions of the Sunbird deposit exhibit a moderate southerly plunge, which is concordant with the intersection lineation of the prevailing shear orientation and the stratigraphy within the area.

Drilling to date has defined the Sunbird deposit over a 1,200m strike length and to a depth of greater than 450m vertically. The deposit remains open at depth and down plunge to the south, and drilling is continuing to test the deposit's extents.

7.8 Comment on Section 7

In the opinion of the QPs, knowledge of the settings, lithologies, and structural and alteration controls on mineralization at the Antenna, Ancien, Agouti, Boulder, Koula, and Sunbird deposits is sufficient to support Mineral Resource and Mineral Reserve estimation.

8 Deposit Types

8.1 Mineralization Styles

The deposits at the Sequala Mine are considered orogenic lode-style systems as per the criteria of Goldfarb and Groves (2015), Groves and Santosh (2016) (Figure 16). Orogenic deposits may form in a wide range of host lithology environments, however the majority are noted as associated typically with volcano-plutonic or clastic sedimentary terrains. Across the Birimian terrane of West Africa several notable examples of orogenic deposits are present, including the Obuasi, Prestea-Bogoso and Ahafo-Subika deposits in Ghana, Fekola, Sadiola, and Loulo-Gounkoto in western Mali, Yaramoko and Hounde in Burkina Faso, and Tongon, Ity, and Abujar in Cote d'Ivoire amongst others. Orogenic gold deposits are typically products of structurally controlled hydrothermal mineralization systems. Such deposits exhibit strong relationships with regional arrays of major structures and shear zones connected to long-lived, crustal-scale faults and deformation zones. Across West Africa mineralizing systems are typically associated with second and third order shears, usually within 25 km of major first order, crustal scale faults and shear zones.

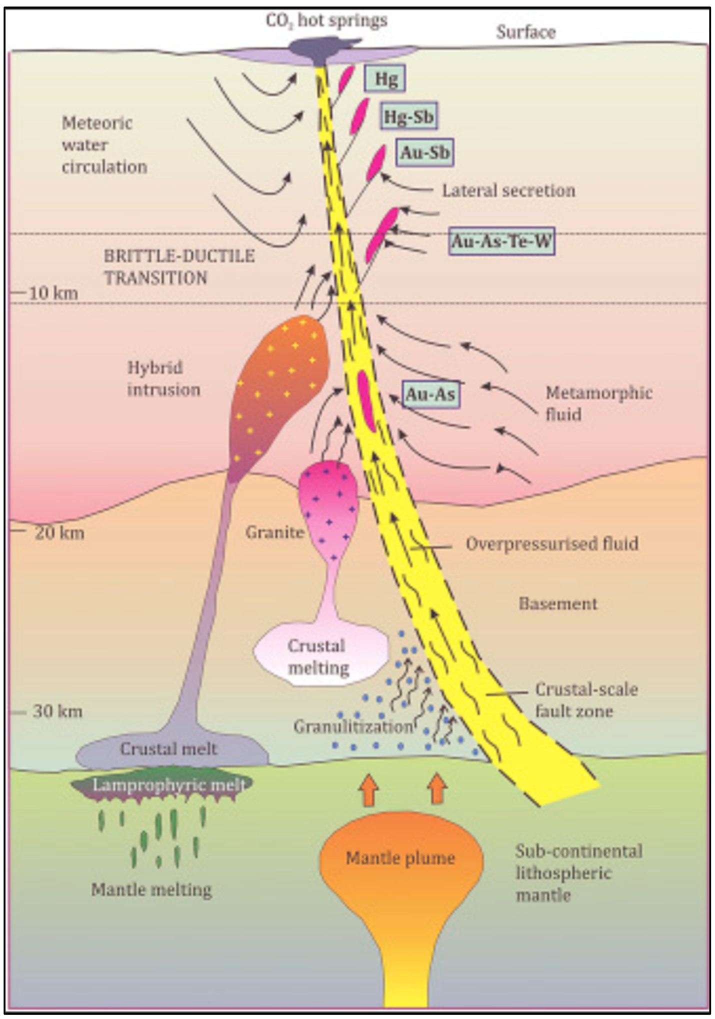

Figure 16: Schematic representation of the variety of proposed models for orogenic gold and fluid sources in the crust. Goldfarb and Groves (2015); Groves and Santosh (2016).

Metamorphism to greenschist facies is typical although there are examples of amphibolite facies present in the Birimian. Gold mineralization is usually attributed to syn to post peak metamorphism, although several mineralizing events may be noted and associated with interpreted reactivation of existing structures.

Gold mineralization is typically associated with a network of quartz veins containing subordinate amounts of carbonate, tourmaline, sulfides, and native gold. Veins may vary from stockwork in relatively shallow brittle environments through to laminated veins in deeper more ductile systems. Gold in these quartz vein networks is typically free milling and commonly visible, although several examples of variably refractory systems associated with arsenopyrite or pyrite have been noted in the Birimian orogenic deposits. Alteration is commonly represented by the presence of albite, carbonate, hematite, biotite, white mica, and tourmaline overprinting. Alteration halos are relatively poorly developed, commonly in the order of 5-15 meters.

The Antenna, Agouti and Boulder deposits are hosted by brittle-ductile quartz–albite vein stockworks, often associated with flow banded rhyolite units or porphyritic intrusions. The Ancien, Sunbird and Koula deposits are hosted by brittle-ductile quartz and quartz–carbonate vein networks associated with strongly to intensely sheared tholeiitic basalt.

8.2 Comments on Section 8

The deposits within the Séguéla Project are considered examples of orogenic lode-style deposits, based on the following:

- Hosted by high iron ultramafic/mafic and volcaniclastic units, with local minor rhyolitic units.
- The Séguéla deposits are hosted on second order regional structures (interpreted as transcurrent regional shear zones) which have exhibited a complex structural history and demonstrate clear controls on mineralization.
- Greenschist metamorphism is prevalent.
- Mineralization is hosted by brittle-ductile quartz–albite and quartz-carbonate vein stockworks.

In the QP's opinion an exploration model that uses an orogenic deposit model is reasonable as a regional targeting tool.

9 Exploration

9.1 Introduction

Exploration at the Séguéla Project has been undertaken by Randgold (pre-2012), Apollo (2012–2016), Newcrest (2016–2018) and Roxgold Sango (2019–present).

Early exploration included construction of a 40-person exploration camp and core storage/logging facilities, geological mapping, purchase and interpretation of aeromagnetic data, soil, trench and artisanal dump sampling, aircore (AC), reverse circulation (RC), RC drilling with a core tail (RDC), and core (DD) drilling.

Since April 2019, Roxgold Sango has completed reconnaissance widespread AC and RC drilling across several areas including, but not limited to, Ancien, Agouti, Boulder, Bouti, P1, Elephant, Folly, P3, Kwenko West, Gabbro, Porphyry, Rollier, and Sunbird areas, and resource definition RC and DD drilling at Antenna, Ancien, Agouti, Boulder, Koula and Sunbird..

9.2 Grids and Surveys

Data are collected in Universal Transverse Mercator (UTM) coordinates, in the Zone 29P. The WGS84 datum is used for reference.

9.3 Geophysics

Xcalibur Airborne Geophysics Pty Ltd of South Africa completed an aeromagnetic/radiometric survey across the project in December 2019 and January 2020, with the results used to further enhance the prospectivity mapping and structural understanding of the mineralization controls (Figure 17 and Figure 18).

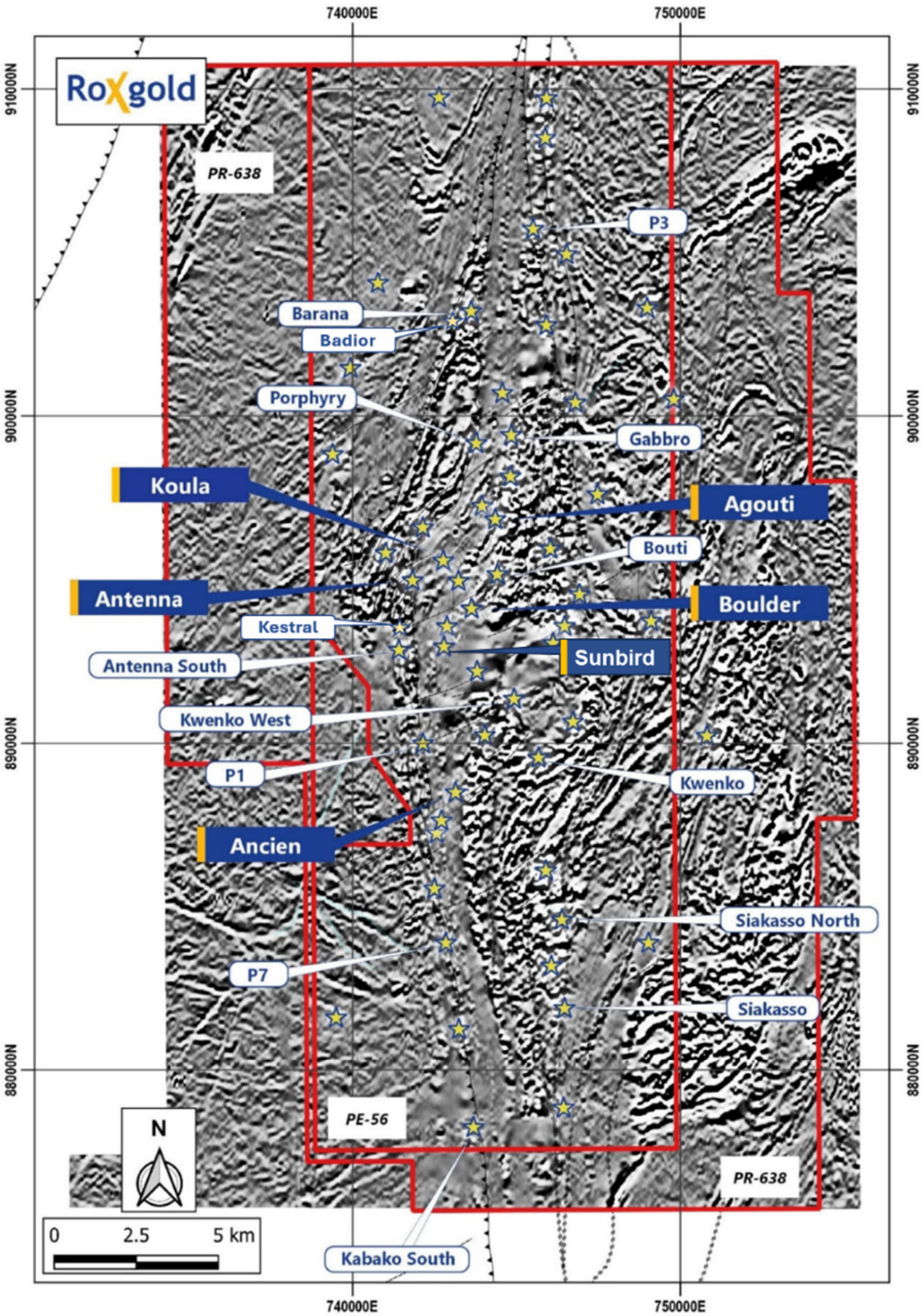

Figure 17: Xcalibur 2019/2020 Séguéla aeromagnetics/radiometrics survey – grey scale second vertical derivative of TMI magnetics imagery (Yellow stars represent identified prospects)

Source: Roxgold Sango, 2023

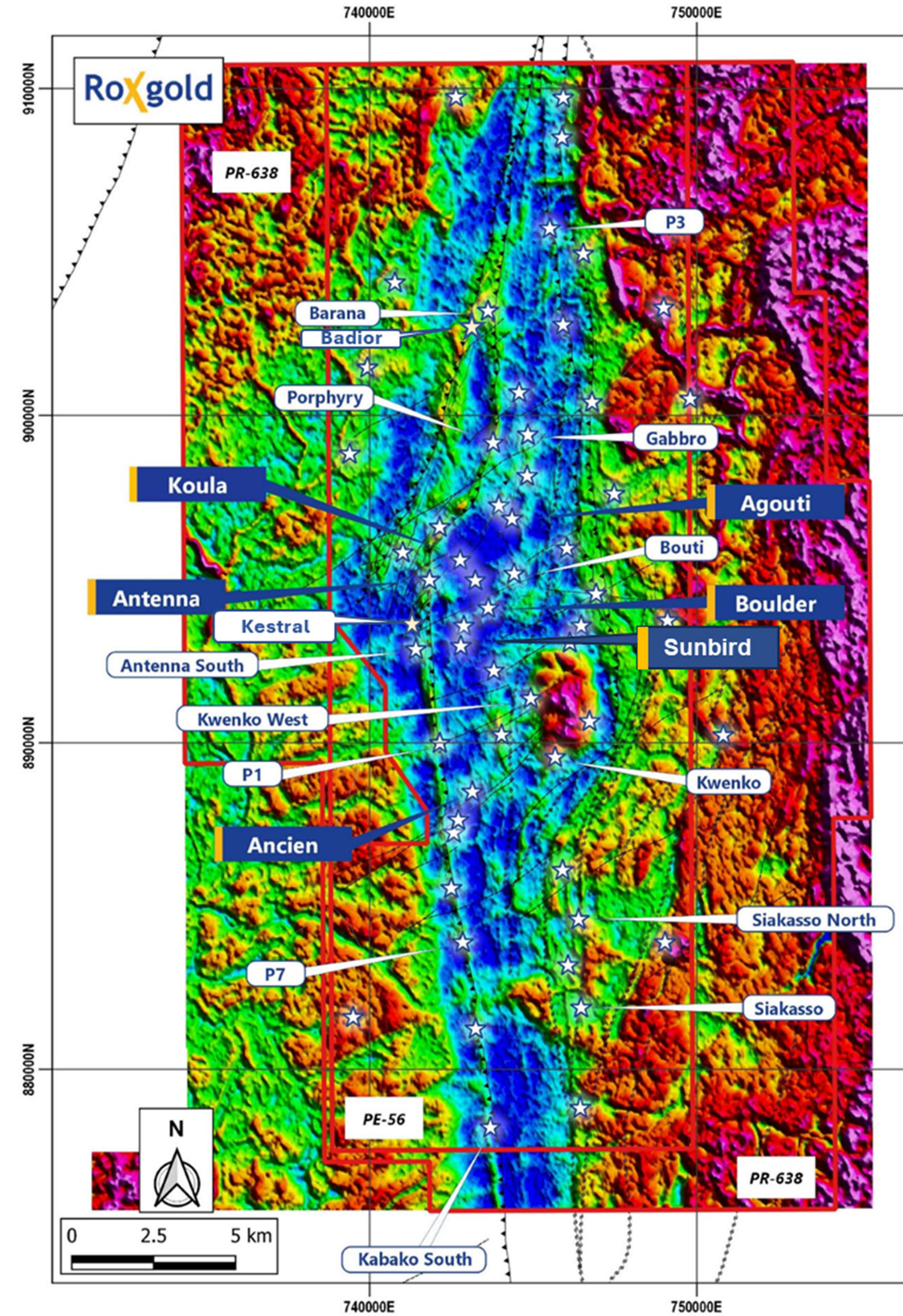

Figure 18: Xcalibur 2019/2020 Séguéla aeromagnetics/radiometrics survey – total count radiometrics imagery
Source: Roxgold Sango, 2023

9.4 Geochemistry

At the time of Roxgold Inc.'s acquisition of the Séguéla Project from Newcrest in April 2019, 28 prospects had been identified from historic geochemistry and geophysical surveys, with exploration activities actively drill testing nine of these in 2019 and 2020. Ongoing prospect mapping, mapping and sampling of artisanal workings, rock chip sampling and auger sampling, in conjunction with interpretation of existing geochemical and geophysical datasets, has so far identified more than 30 prospects (Figure 19). The discovery of the Koula, Sunbird, Barana, Kestral and Badior deposits, are directly attributable to these target generation activities.

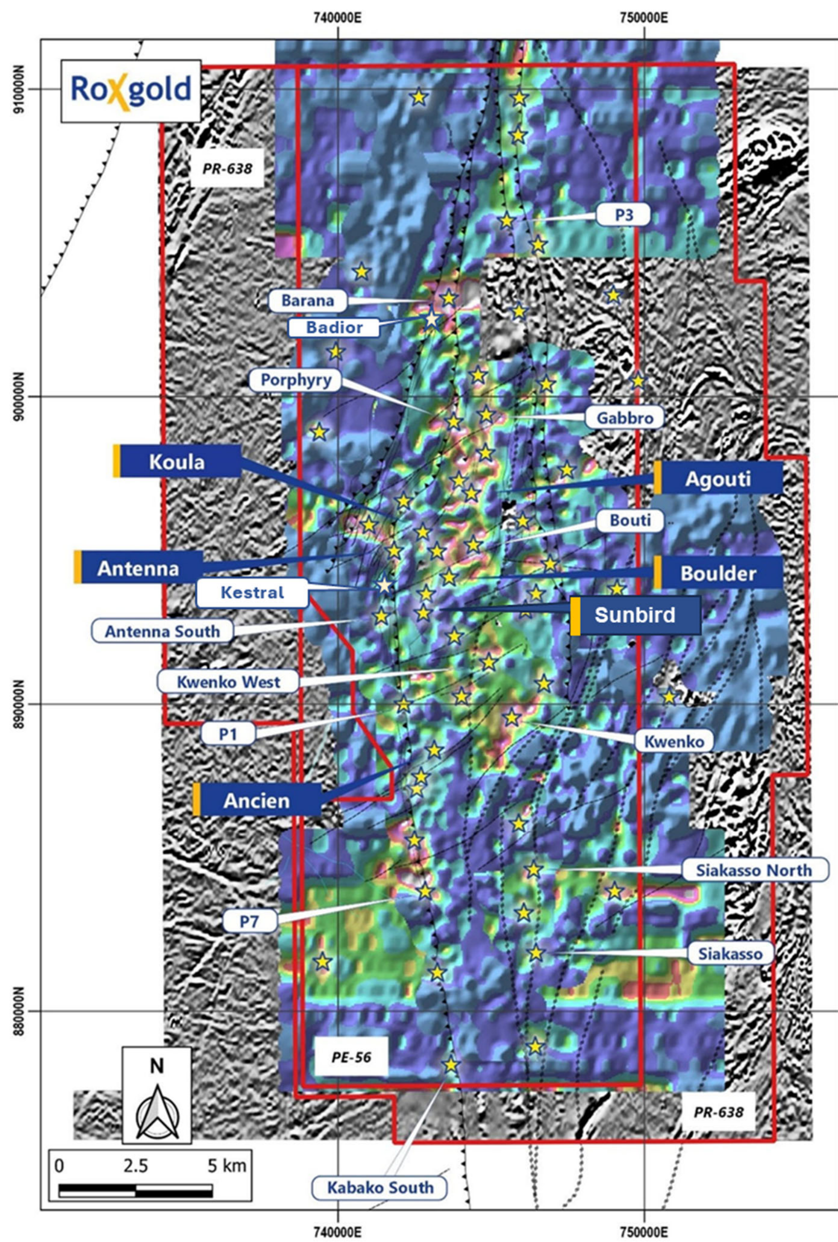

Figure 19: Séguéla prospects (yellow stars) superimposed on gridded auger and soil gold (Au) geochemistry. Background image is 2VD TMI magnetics

Source: Roxgold Sango, 2023

9.5 Petrography

To further assist with the interpretation of multielement geochemistry, a representative suite of 18 core samples from the Antenna, Boulder, Agouti, Ancien and Gabbro deposits was submitted for petrographic analysis in February 2020. The descriptions provided of lithologies, alteration, veining and mineralization assemblages were used to further refine the geological and mineralization understanding.

9.6 Comments on Section 9

Exploration activities are ongoing with mapping and auger geochemistry continuing to identify and define priority targets for follow up AC, RC and diamond drilling.

In the opinion of the QPs:

- The mineralization style and setting of the Séguéla Project is sufficiently well understood to support the Mineral Resource and Mineral Reserve estimation.
- Exploration methods are consistent with industry practices and are adequate to support continuing exploration and Mineral Resource estimation.
- Exploration results support Roxgold Sango's interpretation of the geological setting and mineralization.
- Continuing exploration may identify additional mineralization that may warrant drill testing.

10 Drilling

10.1 Summary of Drilling

Drilling across the Séguéla Project has been conducted by Apollo and Newcrest, and since April 2019 by Roxgold Sango.

10.1.1 Historical Drilling

No details are available regarding the depths and locations of RC drill holes completed by Apollo in 2014. No drilling undertaken by Apollo is used in the Mineral Resource estimate.

Between March 2016 and December 2017, Newcrest conducted a campaign of drilling over the Antenna prospect which included preliminary reconnaissance AC drilling, then resource definition RC, DD and RCD drilling. In total, 38,104.3 m of drilling was completed over the Antenna prospect (Table 7).

Table 7: Summary of Newcrest drilling over the Séguéla Project 2016 and 2017

Prospect	Year	Hole Type	No. of Collars	Total Meters
Antenna	2016	AC	544	8,057
	2017	AC	189	3,097
	2016	DD	2	310.9
	2017	DD	25	5,479.6
	2016	RC	9	978
	2017	RC	79	9,080
	2016	RCD	14	2,721.3
	2017	RCD	41	8,380.4
Total			**903**	**38,104.3**
Agouti	2017	AC	992	9,871
	2017	RC	14	2,177
	2017	DD	1	102.4
	2018	AC	100	1,187
	2018	RC	5	840
Total			**1,112**	**14,177**
Boulder	2017	AC	1,196	13,844
	2017	RC	5	557
	2017	RCD	1	141.5
	2018	AC	50	898
	2018	RC	9	1,271
	2018	RCD	1	185
Total			**1,262**	**16,897**
Ancien	2018	AC	92	1,756
	2018	RC	2	221
	2019	RCD	1	141.3
Total			**95**	**2,118**

Newcrest's 150 RC, DD and RCD holes totaling 26,065 m define the Antenna deposit on drill hole spacings that range from 20 m to 100 m apart along a strike extent of 1,700 m. Newcrest also completed a total of 33,192.2 m of AC, RC, DD and RCD drilling at Agouti, Ancien, and Boulder prior to April 2019. Drill hole collar locations for all holes drilled by Newcrest are displayed in Figure 20

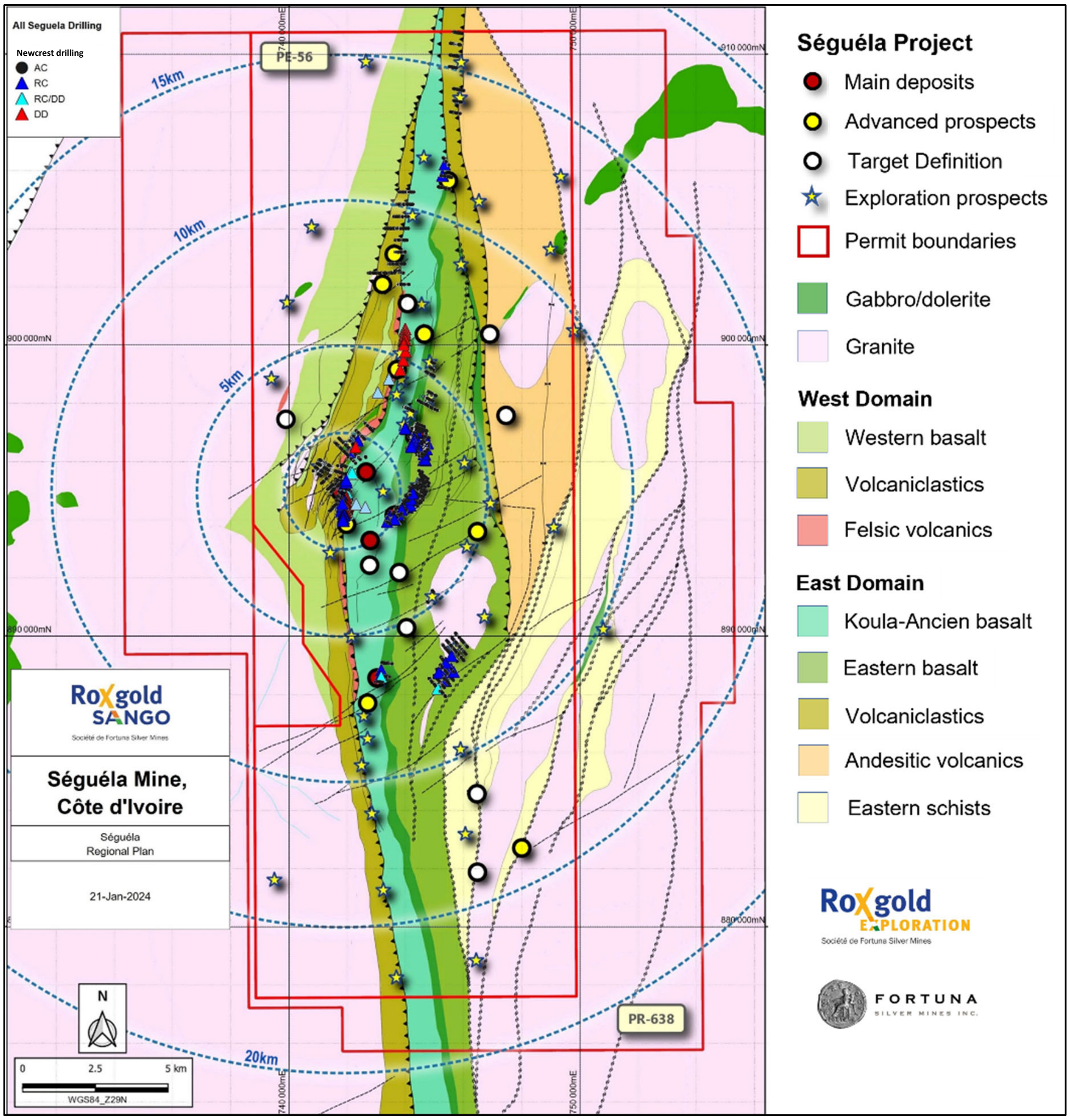

Figure 20: Collar plan showing location of Newcrest drill holes by type

10.1.2 Roxgold Sango Drilling

Since April 2019 to June 30, 2023, Roxgold Sango has drilled a total of 6,018 holes totaling 232,398 meters that included auger, diamond and RC drilling (Table 8).

Table 8: Summary of Roxgold Sango Séguéla Gold Mine drilling

Hole Type	No. of holes	Meters
Auger	4,482	20,441
DD*	93	19,795
RC	1,100	110,667
RCD	343	81,495
Total	**6,018**	**232,398**

**DD includes geotechnical diamond drilling*

Drill programs targeted a variety of prospects that were identified via geophysical anomalies, surface mapping and surface sampling across the Séguéla Project (Figure 21). If mineralization was identified at a prospect further drilling was programmed.

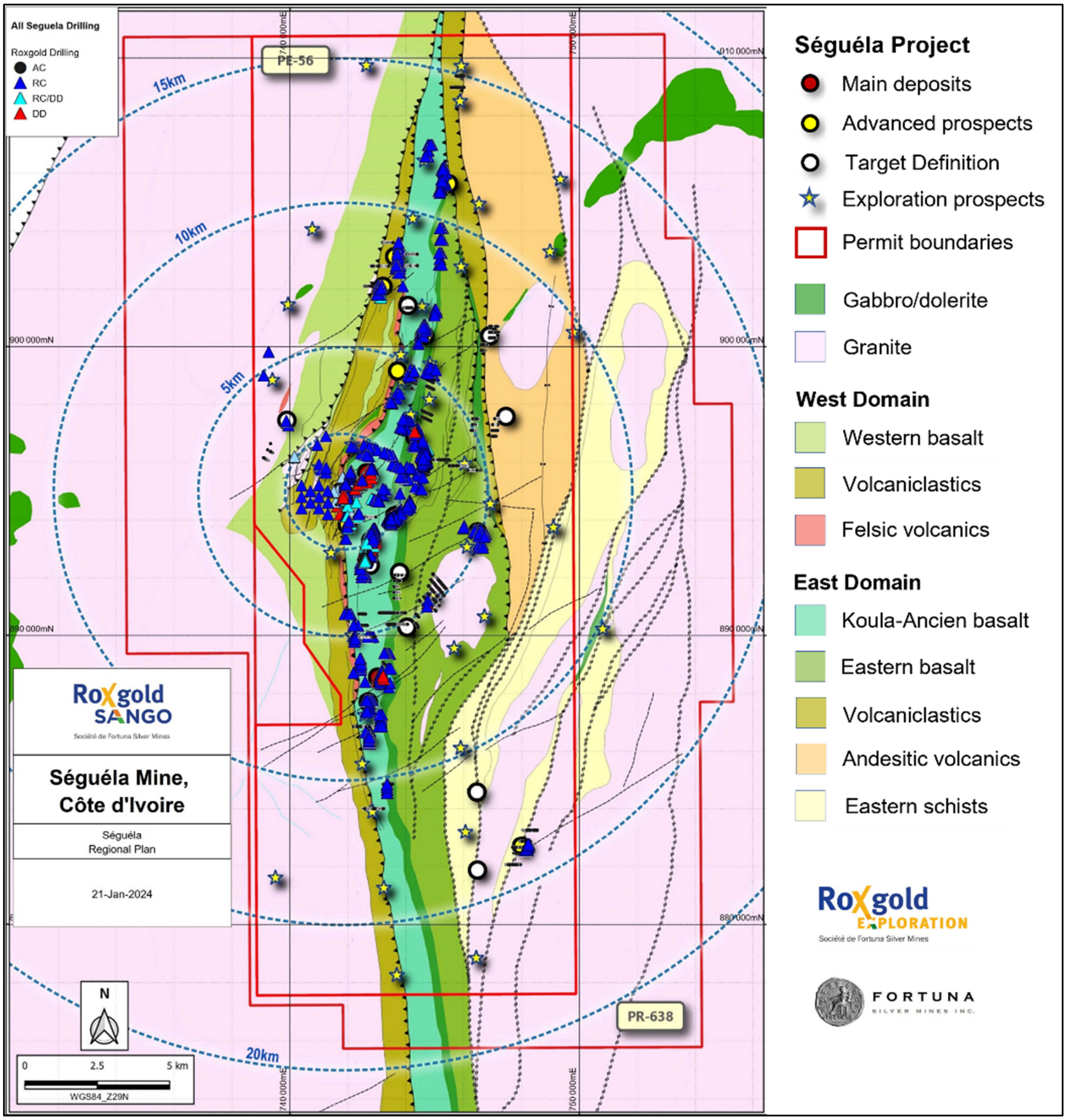

Figure 21: Collar plan showing location of Roxgold Sango drill holes by type

Of the prospects drilled, Roxgold Sango identified six to prioritize where significant gold mineralization had been identified. Resource definition drilling has been conducted for the Antenna, Agouti, Ancien, Boulder, Sunbird and Koula deposits (Table 9) as at the effective date of this Report.

Table 9: Summary of Roxgold Sango Séguéla Gold Mine resource drilling

Project	Hole Type	No. of Collars	Total Meters
Antenna	DD*	8	1,089
	RC	68	5,641
	RCD	13	2,462
Agouti	DD*	10	907
	RC	188	17,947
	RCD	13	2,276
Ancien	DD*	5	663
	RC	71	7,063
	RCD	84	17,390
Boulder	DD*	1	107
	RC	156	17,118
	RCD	8	1,662
Koula	DD*	8	1,283
	RC	66	7,077
	RCD	79	16,595
Sunbird	DD*	29	9,072
	RC	68	8,143
	RCD	50	14,072
Total		**925**	**130,567**

**DD includes geotechnical diamond drilling*

All drilling was completed by a third-party drill contractor, Geodrill Ltd.

Drilling at the Antenna deposit was designed to infill and support upgrade areas of Inferred Mineral Resource to Indicated Mineral Resources, as well as to try and extend areas of mineralization.

Drilling at the Agouti, Ancien, Boulder, Koula and Sunbird deposits were designed to advance the projects through the stages of Mineral Resource definition and increased confidence. Drilling is ongoing at the Ancien, Sunbird and Koula deposits with down-dip exploratory drilling testing for underground mining potential.

AC drilling was used for geochemical data collection and is not used for any resource modelling.

Drill hole location plans for the Antenna (Figure 22), Ancien (Figure 23), Agouti (Figure 24), Boulder (Figure 25), Koula (Figure 26) and Sunbird (Figure 27) deposits are shown by drill type.

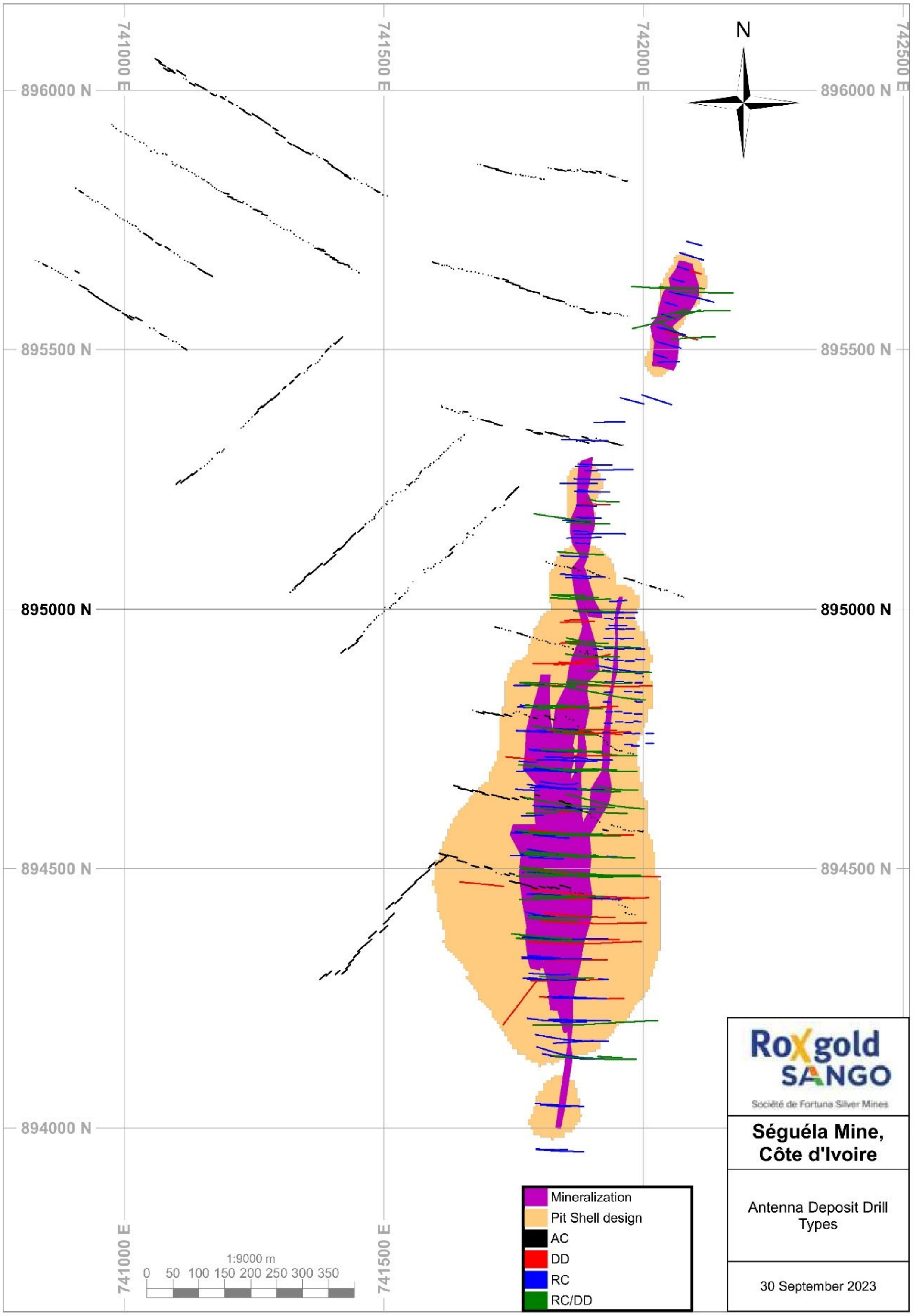

Figure 22: Antenna deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type

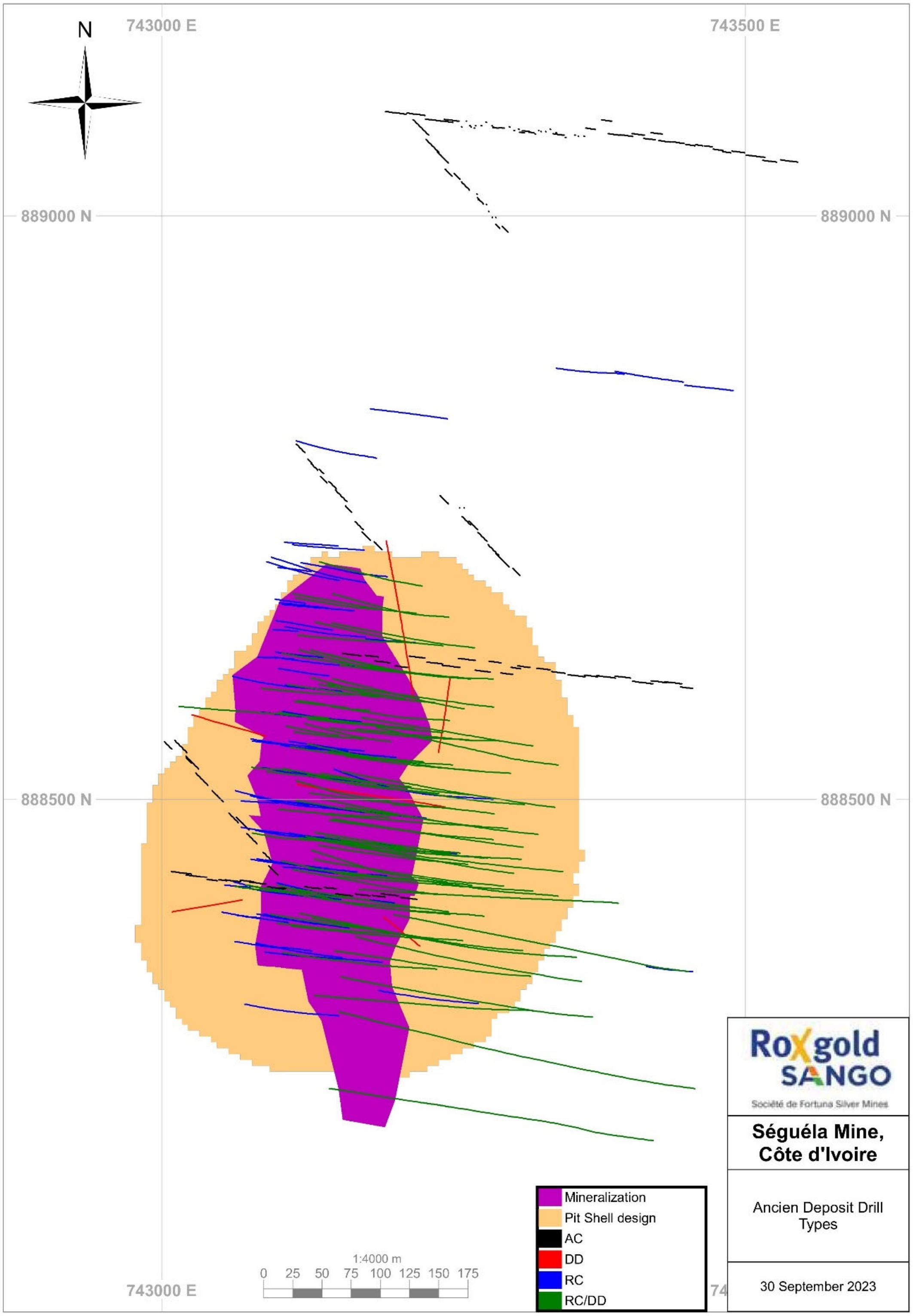

Figure 23: Ancien deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type

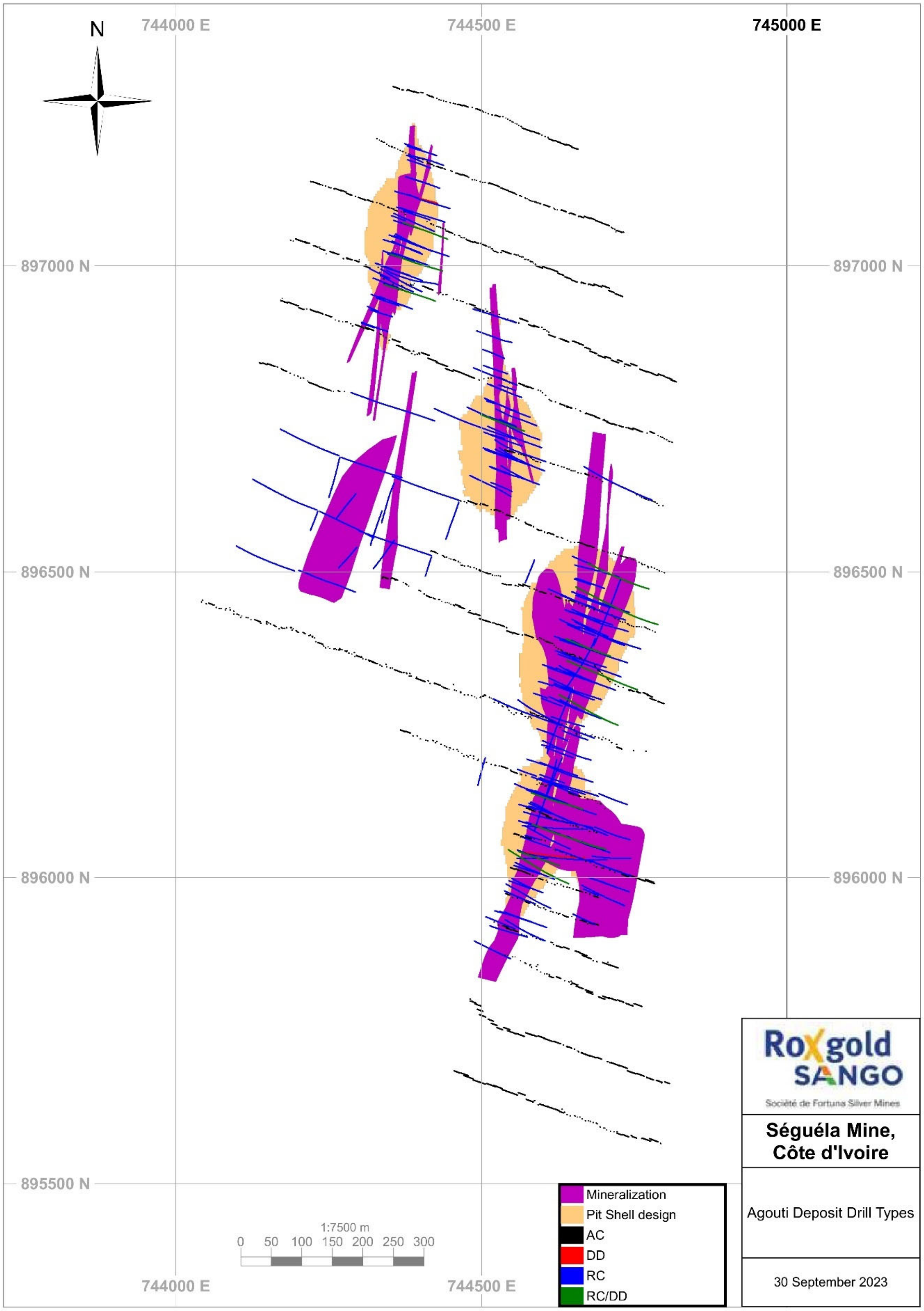

Figure 24: Agouti deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type

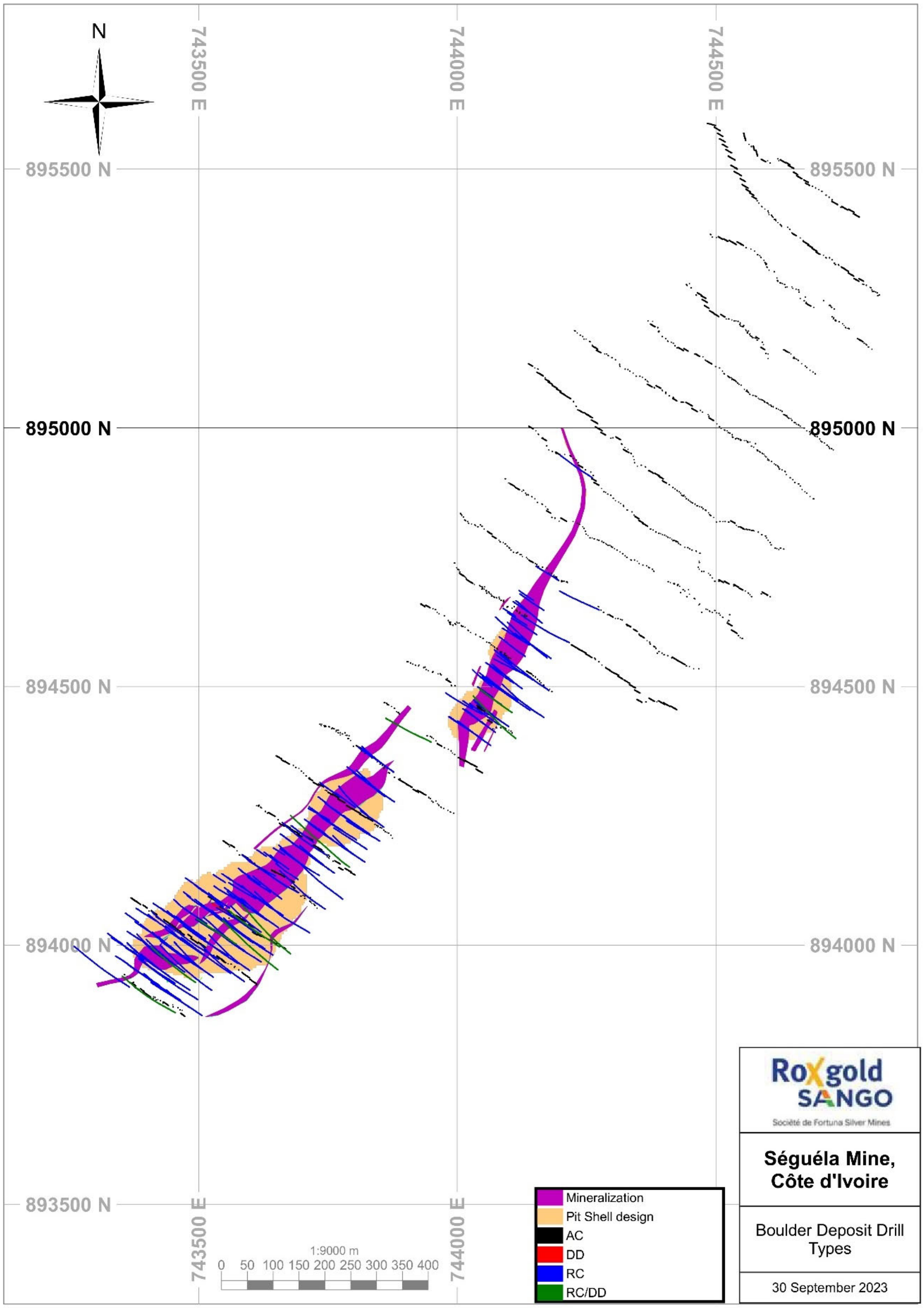

Figure 25: Boulder deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type

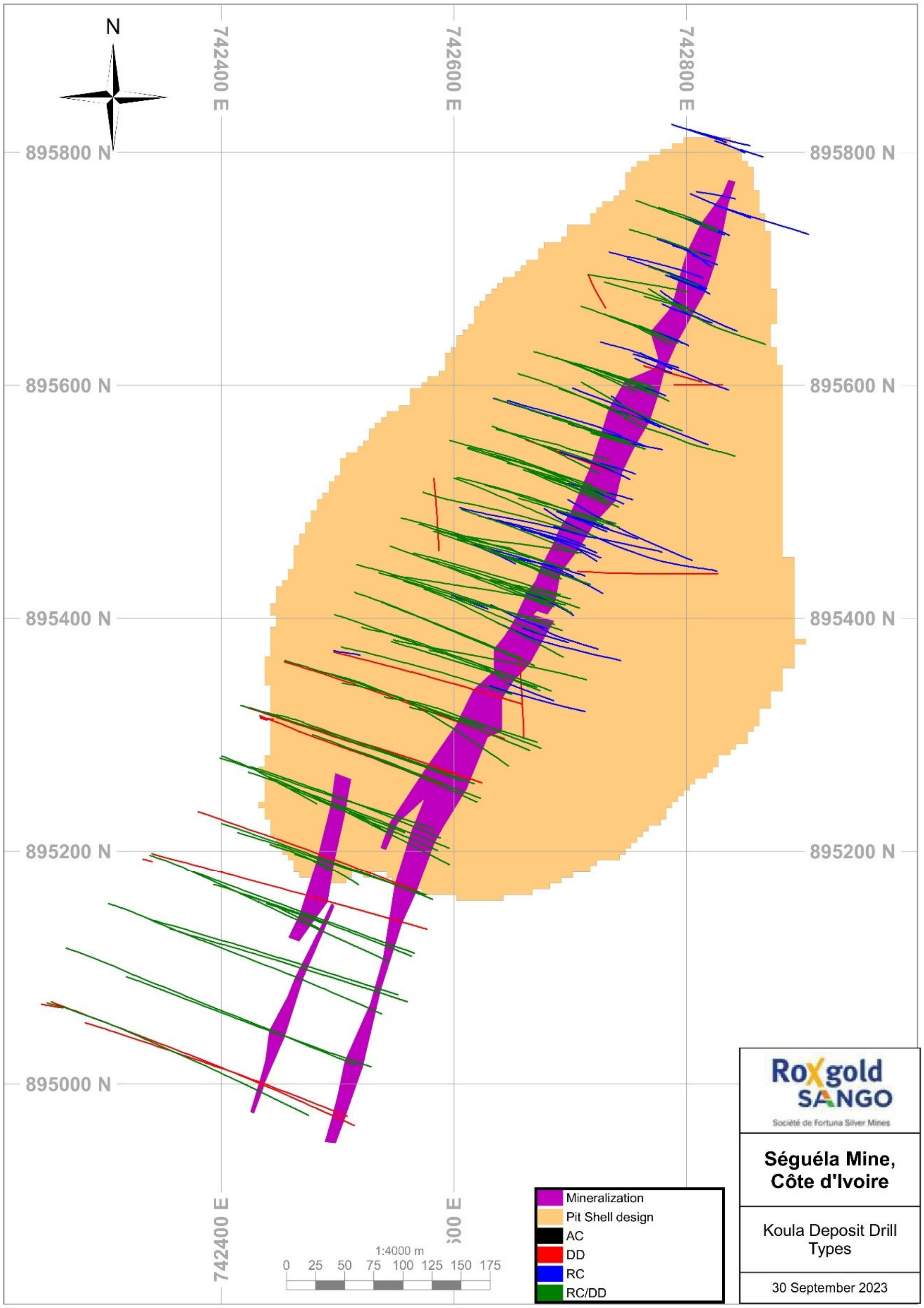

Figure 26: Koula deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type

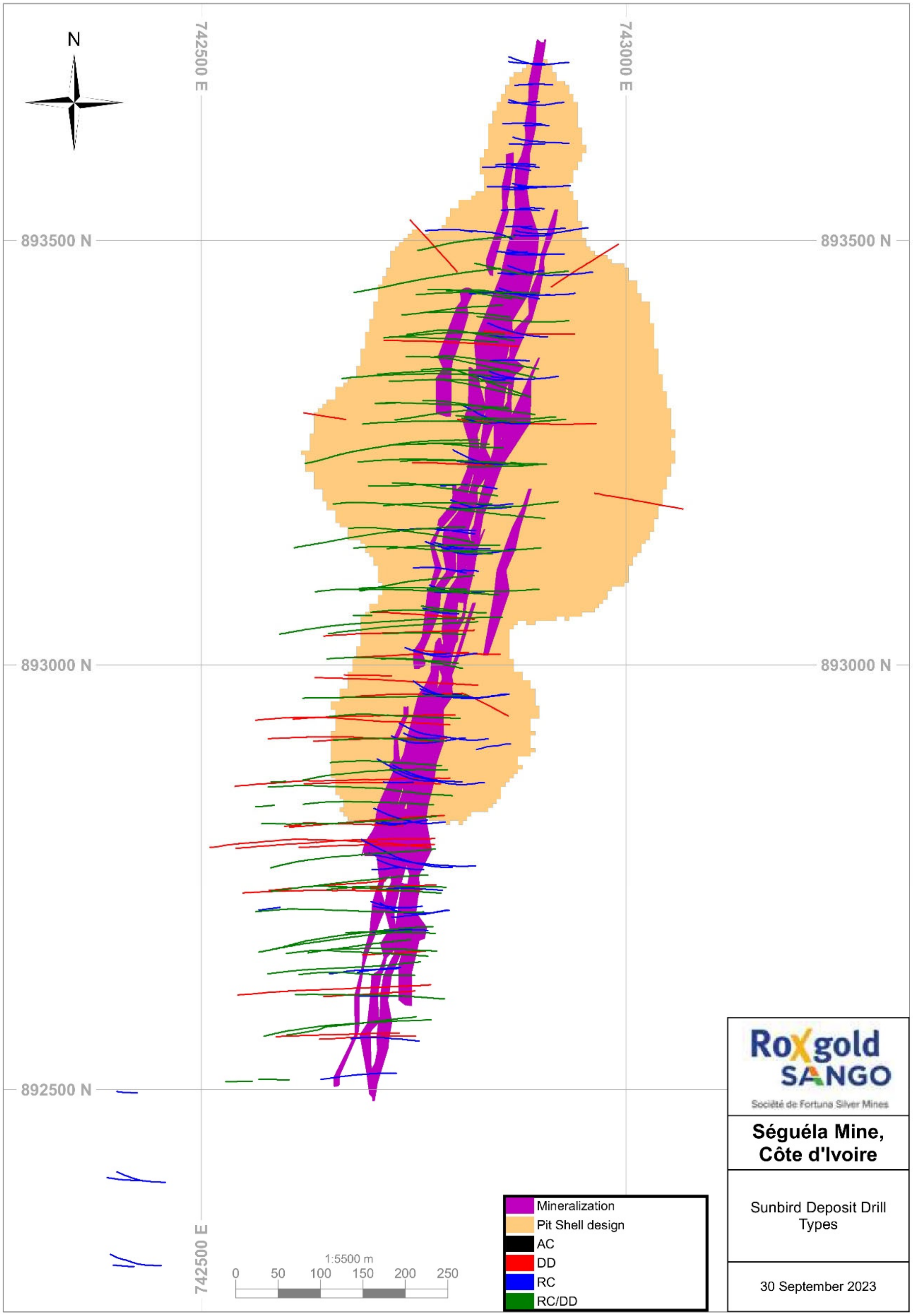

Figure 27: *Sunbird deposit collar plan showing mineralization wireframes, pit design outline, and drill holes by type*

10.1.3 Extent of Drilling

The extent of drilling varies for each of the deposits that have defined Mineral Resources. Most deposits have been drilled based on a grid of exploration holes approximately 20 to 25 m apart.

The Antenna deposit has been drilled over a strike length of approximately 1,700 m (north to south) and to depths around 250 m from surface. Exploration drilling has increased in depth to the south.

The Ancien deposit has been drilled over a strike length of approximately 500 m (north to south) and to depths of 320 m from surface. Similar to Antenna, exploration drilling has increased in depth to the south.

The Koula deposit has been drilled over a strike length of approximately 1,000 m (north–northeast to south–southwest) and to depths of 400 m from surface. Exploration drilling has increased in depth in response to the plunge of the mineralization to the southwest.

The Agouti deposit is split into three main mineralized zones where resources have been estimated. The Eastern zone has been drilled over a strike length of 700 m (north–northeast to south–southwest) to a depth of 200 m from surface; the Central zone has been drilled over a strike length of 300 m (north to south) to a depth of 150 m from surface; and the Western zone has been drilled over a strike length of 300 m (north–northeast to south–southwest) to a depth of 125 m from surface. The drilling follows the plunge of the mineralization generally getting deeper towards the south–southwest.

The Boulder deposit has been drilled over a strike length of approximately 1,500 m (northeast to southwest) and to depths of 200 m from surface.

The Sunbird deposit has been drilled over a strike length of approximately 1,400 m (north to south) and to depths around 400 m from surface. Exploration drilling has increased in depth to the south, as it follows the plunge of the mineralization.

10.1.4 Grade Control Drilling and Drilling Conducted Post Resource Estimation Data Cut-off Date

A campaign of grade control RC drilling has been conducted at the Antenna, Ancien and Koula deposits to provide additional data for the definition of ore and waste diglines in the first phase of mining in each pit. All grade control drilling is by RC drill rigs and subject to Fortuna's standard QAQC program with the insertion of standards, blanks and duplicates. Results are monitored on an ongoing basis and reported monthly. Drilling comprised 229 holes totaling 7,148 m in Ancien and 133 holes totaling 5,013 m in Koula. Comparisons between the reserve model and grade control model for both deposits showed lower tonnes, grades and ounces, in the upper levels of the pit associated with oxide and transitional material that had been exploited by artisanal mining after the initial drilling program had been completed.

Exploration drilling has been conducted at Ancien, Badior, Barana, Kestral and P11 with a total of 51 holes for 8,430 m completed as at the effective date of this Report. Results of the drilling are detailed in Table 10.

Table 10: Exploration drilling results at the Séguéla Mine post data cut-off date – intervals of interest

Hole ID	Hole Type	Easting	Northing	RL (m)	Total Depth (m)	Azimuth (°)*	Dip (°)*	From (m)	To (m)	Interval (m)	ETW** (m)	Au (g/t)	Deposit
SGRD1656	RC/DD	743307	888573	352	225.7	277	-60	180	182	2	1.4	5.54	Ancien
							Incl.	180	181	1	0.7	10.3	Ancien
SGRD1657	RC/DD	743346	888518	349	276.1	277	-60	228	231	3	2.1	2.76	Ancien
								239	250	11	7.7	27.06	Ancien
							incl.	241	243	2	1.4	138.45	Ancien
SGRD1658	RC/DD	743366	888467	348	348	277	-55	268	269	1	0.7	5.47	Ancien
SGRD1659	RC/DD	743335	888395	354	336.3	277	-55	270	274	4	2.8	2.99	Ancien

Hole ID	Hole Type	Easting	Northing	RL (m)	Total Depth (m)	Azimuth (°)*	Dip (°)*	From (m)	To (m)	Interval (m)	ETW** (m)	Au (g/t)	Deposit
								306	322	16	11.2	1.14	Ancien
SGRD1661	RC/DD	743409	888381	351	400.4	277	-55					NSI	Ancien
SGRD1663	RC/DD	888361	743405	356	400.4	277	-55	346	374	28	19.6	5.98	Ancien
							incl.	352	354	2	1.4	12.95	Ancien
							and	358	360	2	1.4	16.38	Ancien
							and	362	364	2	1.4	36.35	Ancien
SGRD1664	RC/DD	743403	888335	371.24	400.2	2.77	-55	361	383	22	15.4	2.23	Ancien
							incl.	368	369	1	0.7	11.25	Ancien
							and	370	371	1	0.7	10.15	Ancien
SGRC1520	RC	743062	901901	393	97	270	-60					NSI	Badior
SGRD1632	RC/DD	743156	901797	393	270.8	270	-60					NSI	Badior
SGRC1633	RC	743732	902550	367	78	270	-60	39	40	1	0.7	5.09	Barana
								55	63	8	5.6	1.38	Barana
SGRC1634	RC	743826	902549	367	160	270	-60	77	86	9	6.3	1.38	Barana
								90	94	4	2.8	2.82	Barana
SGRC1635	RC	743647	902700	372	100	270	-60					NSI	Barana
SGRC1636	RC	743694	902698	371	123	270	-60					NSI	Barana
SGRC1637	RC	743755	902699	371	120	270	-60	21	28	7	4.9	0.83	Barana
SGRC1638	RC	743682	902900	372	100	270	-60					NSI	Barana
SGRC1639	RC	743734	902902	372	120	270	-60	76	79	3	2.1	2.48	Barana
SGRC1640	RC	743704	903001	375	107	270	-60					NSI	Barana
SGRC1641	RC	743748	903001	376	100	270	-60	71	73	2	1.4	6.87	Barana
							incl.	71	72	1	0.7	13.15	Barana
SGRC1642	RC	743713	903099	372	100	270	-60	30	36	6	4.2	1.46	Barana
SGRC1643	RC	743757	903098	380	100	270	-60					NSI	Barana
SGRC1644	RC	743736	903400	371	104	270	-60	12	15	3	2.1	1.71	Barana
								41	45	4	2.8	1.72	Barana
SGRC1645	RC	743787	903400	368	100	270	-60					NSI	Barana
SGRC1646	RC	743724	903301	374	100	270	-60					NSI	Barana
SGRC1647	RC	743773	903301	376	120	270	-60	43	45	2	1.4	90.90	Barana
							Incl.	43	44	1	0.7	180.5	Barana
SGRC1648	RC	743735	903498	366	120	270	-60					NSI	Barana
SGRC1649	RC	743783	903500	366	132	270	-60					NSI	Barana
SGRD1650	RC/DD	743769	902799	358	203.6	270	-60					NSI	Barana
SGRC1651	RC	743806	902701	367	112	270	-60					NSI	Barana
SGRC1652	RC	743819	902799	370	120	270	-60	57	64	7	4.9	0.74	Barana
SGRD1653	RC/DD	742113	893851	421	266	270	-55	194	200	6	4.2	2.71	Kestral
SGRD1654	RC/DD	742128	893804	419	290.2	270	-55					NSI	Kestral
SGRD1655	RC/DD	742090	893751	411	230	270	-60					NSI	Kestral
SGRD1654	RC/DD	742128	893804	419	290.2	270	-55					NSI	Kestral

Hole ID	Hole Type	Easting	Northing	RL (m)	Total Depth (m)	Azimuth (°)*	Dip (°)*	From (m)	To (m)	Interval (m)	ETW** (m)	Au (g/t)	Deposit
SGRD1655	RC/DD	742090	893751	411	230	270	-60					NSI	Kestral
SGRC1676	RC	742009	893999	397	50	270	-55					NSI	Kestral
SGRC1677	RC	742033	894000	414	100	270	-55					NSI	Kestral
SGRC1678	RC	742010	894050	421	50	270	-55					NSI	Kestral
SGRC1679	RC	742034	894051	419	100	270	-55					NSI	Kestral
SGRD1680	RC/DD	742113	893699	426	280.4	270	-55					NSI	Kestral
SGRD1681	RC/DD	742141	893649	403	330.3	270	-55					NSI	Kestral
SGRC1660	RC	743881	892798	381	100	90	-60					NSI	P11
SGRC1662	RC	743830	892799	388	100	90	-60	6	17	11	7.7	0.62	P11
								35	52	17	11.9	1.64	P11
SGRC1670	RC	743703	892600	399	131	90	-60	101	115	14	9.8	2.6	P11
SGRC1671	RC	743882	892999	388	100	90	-60	8	19	11	7.7	0.58	P11
SGRC1672	RC	743831	892997	389	100	90	-60	84	90	6	4.2	0.91	P11
SGRC1673	RC	743931	893198	390	100	90	-60					NSI	P11
SGRC1674	RC	743881	893197	401	100	90	-60					NSI	P11
SGRC1675	RC	743830	893200	415	100	90	-60					NSI	P11
SGRC1667	RC	743780	892802	387	107	90	-60	77	79	2	1.4	3.2	P11
								84	94	10	7	1.13	P11
								98	105	7	4.9	1.16	P11
SGRC1668	RC	743804	892600	377	100	90	-60						P11
SGRC1669	RC	743750	892599	391	100	90	-60	10	16	6	4.2	3.78	P11
							incl.	14	15	1	0.7	15.35	P11
								47	65	18	12.6	2.55	P11
SGRC1682	RC	743089	901800	396	140	270	-55	65	73	8	5.6	16.70	Badior
	RC						incl	70	71	1	0.7	121.00	Badior
	RC							77	79	2	1.4	13.45	Badior
	RC						incl	77	78	1	0.7	24.20	Badior
	RC							83	86	3	2.1	13.01	Badior
	RC						incl	85	86	1	0.7	33.00	Badior
SGRC1683	RC	743095	901850	389	130	270	-55	59	63	4	2.8	1.66	Badior
	RC							67	76	9	6.3	17.32	Badior
	RC						incl	67	69	2	1.4	49.50	Badior
	RC						and	71	72	1	0.7	44.60	Badior
	RC							86	92	6	4.2	2.28	Badior
SGRC1685	RC	743130	901950	385	190	270	-55	75	79	4	2.8	2.46	Badior
SGRD1686	RC/DD	743128	901851	386	192.1	268		142	144	2	1.4	4.86	Badior
	RC/DD							189	192.1	3.1	2.2	1.79	Badior
SGRD1687	RC/DD	743165	901950	383	270	270	-55	NSI					Badior
SGRD1688	RC/DD	743161	902003	391	268	268	-51	NSI					Badior
SGRD1689	RC/DD	743128	902003	393	190.7	270	-55	159	162	3	2.1	10.71	Badior

Hole ID	Hole Type	Easting	Northing	RL (m)	Total Depth (m)	Azimuth (°)*	Dip (°)*	From (m)	To (m)	Interval (m)	ETW** (m)	Au (g/t)	Deposit
	RC/DD						incl	161	162	1	0.7	29.60	Badior
SGRD1690	RC/DD	743133	902003	396	310.3	268	-52	NSI					Badior
SGRC1691	RC	742887	893798	431	60	90	-60	NSI					Sunbird
SGRC1692	RC	742861	893797	432	110	90	-60	NSI					Sunbird
SGRD1693	RC/DD	742584	892987	518	420.5	90		371	381	10	7.0	2.88	Sunbird
	RC/DD							395	397	2	1.4	5.57	Sunbird
	RC/DD						incl	395	396	1	0.7	10.10	Sunbird
SGRD1694	RC/DD	742510	892710	539	134					0	0.0		Sunbird
SGRD1695	RC/DD	742532	892511	538	375.1	90	-60	341	362	21	14.7	4.99	Sunbird
	RC/DD						incl	347	350	3	2.1	27.70	Sunbird
SGRD1696	RC/DD	742573	892512	547	310.3	90	-60	235	240	5	3.5	4.91	Sunbird
	RC/DD						incl	236	237	1	0.7	16.90	Sunbird
	RC/DD							263	265	2	1.4	6.17	Sunbird
	RC/DD							280	285	5	3.5	2.82	Sunbird
	RC/DD						incl	284	285	1	0.7	12.70	Sunbird
SGRD1697	RC/DD	742534	892461	544	390	90	-60	NSI					Sunbird
SGRD1698	RC/DD	742577	892460	520	300.4	90	-60	200	212	12	8.4	4.87	Sunbird
	RC/DD						incl	200	201	1	0.7	14.15	Sunbird
	RC/DD						and	203	204	1	0.7	24.50	Sunbird
	RC/DD							218	236	18	12.6	1.54	Sunbird
	RC/DD							242	253	11	7.7	0.98	Sunbird

*Azimuth and dip values taken at collar location
**ETW = estimated true width
NSI = No significant intervals of interest

10.2 Drill Techniques and Procedures

10.2.1 Apollo RC Drilling

Drilling and sampling techniques and procedures for Apollo RC drilling are unknown.

10.2.2 Newcrest and Roxgold Sango AC and RC drilling

For Newcrest and Roxgold Sango drilling, AC and RC samples were collected from the face sampling auger bit (AC) or face sampling pneumatic hammer (RC - 5.25-inch diameter) via the inside return tube in their entirety, into 60 L plastic sample bags. Samples were kept dry through the use of sufficient air pressure during drilling to exclude both dust suppression water injected during drilling and preclude the influx of groundwater.

In the case of RC drilling, if wet samples were encountered by the Newcrest or Roxgold Sango geologists at the time of drilling, the drilling contractor was given a further 2 m to return to dry sampling, otherwise the methodology was switched to a core tail.

10.2.3 Newcrest and Roxgold DD Drilling

HQ or NQ2 diameter drill core (63.5 mm and 50.6 mm, respectively) was retrieved via conventional wireline methods and placed into metal core trays, which were clearly marked with hole IDs and depth ranges, on an embossed aluminum permatag that was attached to the core tray.

10.3 Drill Logging

10.3.1 Newcrest and Roxgold Sango AC and RC Logging

RC and AC drilling samples were logged at the rig from drill spoils on a per-meter basis, with reference samples of the drill chips for every meter of RC drilling completed collected into plastic chip trays, clearly labelled with their respective depths and hole IDs and stored under cover at the Séguéla Project camp sample storage racks.

Geological logging was conducted by the supervising geologists using a set of standardized Newcrest/Roxgold Sango codes for geology, alteration and veining. Structural measurements were collected using a kenometer aligned to the bottom of hole orientation line on the core of each drill hole.

All logging was undertaken by qualified geologists. The level of detail in the RC logging is considered by the QP to be appropriate for use in Mineral Resource estimation.

10.3.2 Newcrest and Roxgold DD Core Logging

All Newcrest and Roxgold Sango drill core was depth marked and orientated at the drilling site by trained field technicians. Orientation marks from each core run were aligned along pieces of core on a per-tray basis.

The orientation marks were then drawn on the core as a continuous line where possible; solid lines indicating well oriented core aligned between at least two orientation marks. Dashed lines were used to represent core that aligned to only a single orientation mark (lower confidence). Orientated and depth-marked drill core was retrieved from the operating drill rigs at least daily and returned to the core storage and logging facilities at the Séguéla Project exploration camp. Core to be logged was racked in entire holes at working height, and the core was then logged for recovery (%) per core run, and geotechnical parameters such as natural breaks per meter, and rock quality designation.

Geological logging was conducted by the supervising geologists using a set of standardized Newcrest/Roxgold Sango codes for geology, alteration and veining. Structural measurements were collected using a kenometer aligned to the orientation line on the core of each drill hole.

All logging was undertaken by qualified geologists. The level of detail in the logging is considered appropriate by the Qualified Person for use in Mineral Resource estimation.

10.4 Recovery

Core recovery for the drilling completed to-date at the Séguéla Project averages greater than 98 % in oxide material, and 99 % in transitional and fresh material. Core recovery within mineralized zones is generally high (averaging 99 %).

10.5 Drill hole Surveying

10.5.1 Collar Surveying

No record has been recovered of the survey methods used to locate collars drilled by Apollo.

Collar surveying for Newcrest and Roxgold Sango drilling was completed on an ad-hoc campaign basis by commercial surveyors using RTK global positioning system (GPS) equipment. Surveys are reported to be accurate within 0.1 m. No significant errors were noted in the location of the drill holes selected.

10.5.2 Downhole Surveying

No details are available of the downhole survey methods used by Apollo.

Newcrest and initial Roxgold Sango RC, DD and RCD drill holes were all surveyed downhole at 18 m, 30 m and 50 m depths, then at either 15 m, 30 m or 50 m intervals, thereafter, depending on observed deviation. Reflex EZ-SHOT equipment was used to conduct the surveys "in-rod". From January 2020 onwards, downhole directional surveys for resource drilling were routinely conducted using a north-seeking Reflex EZ-GYRO, with the Reflex EZ-SHOT retained for backup and survey check purposes. Gyro surveys were generally conducted at 12 m intervals and then at 30 m intervals thereafter. Gyroscope surveys were prioritized over EZ-SHOT surveys in the database. AC holes being typically short (maximum depth 42 m) were not surveyed downhole as deviation was not, and is not, considered to be a material risk over such lengths.

10.6 Representative Drill Sections

Representative drill sections are provided for the Antenna (Figure 28), Ancien (Figure 29), Koula (Figure 30), Agouti (Figure 31), Boulder (Figure 32) and Sunbird (Figure 33) deposits.

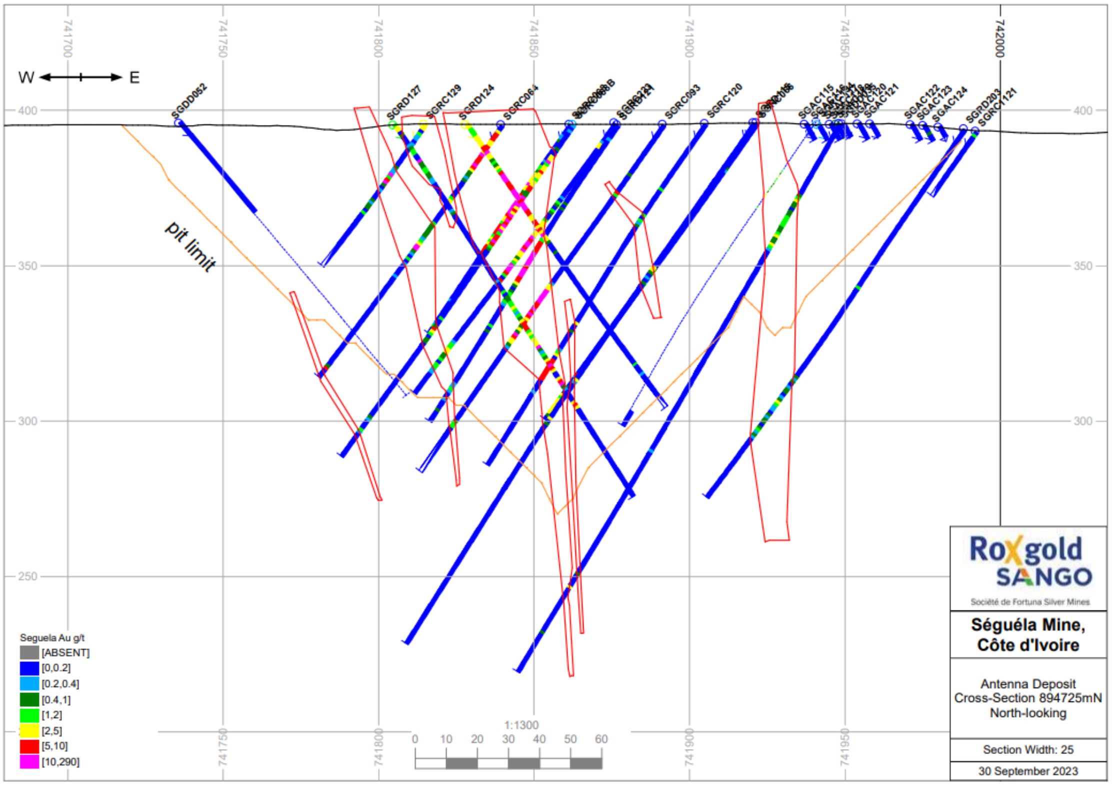

Figure 28: Antenna deposit cross-section (894725mN) showing modelled mineralization

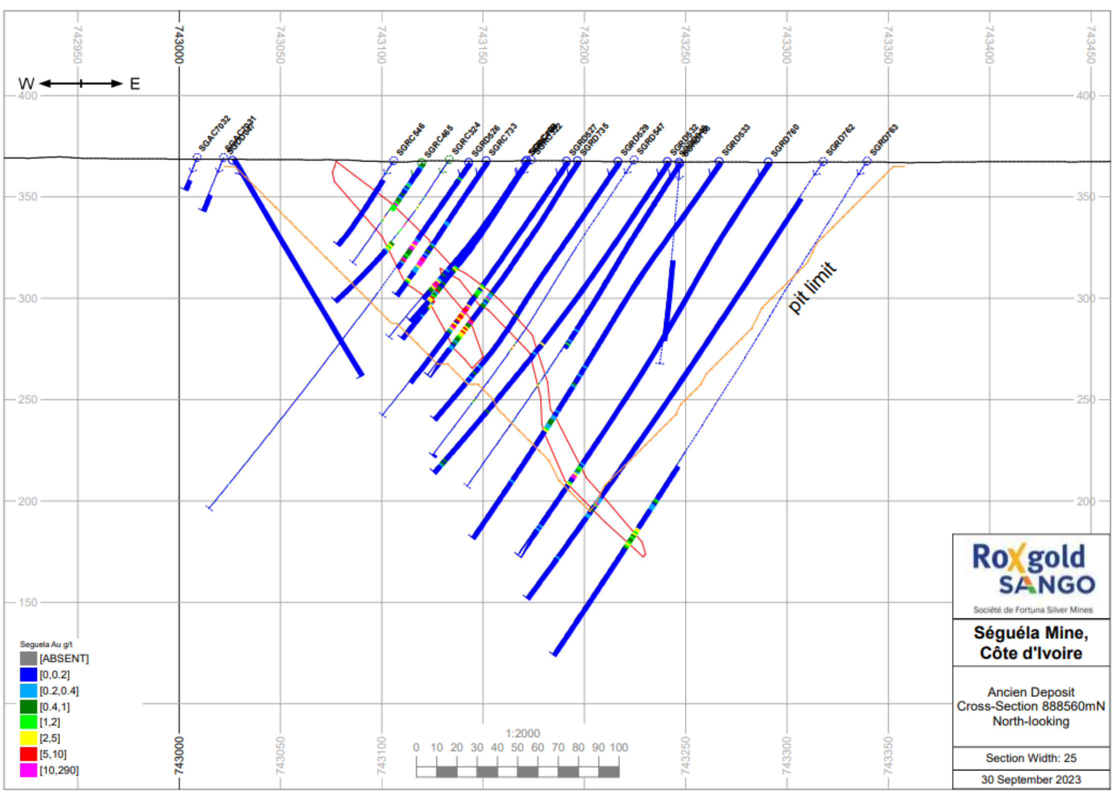

Figure 29: Ancien deposit cross-section (888560mN) showing modelled mineralization

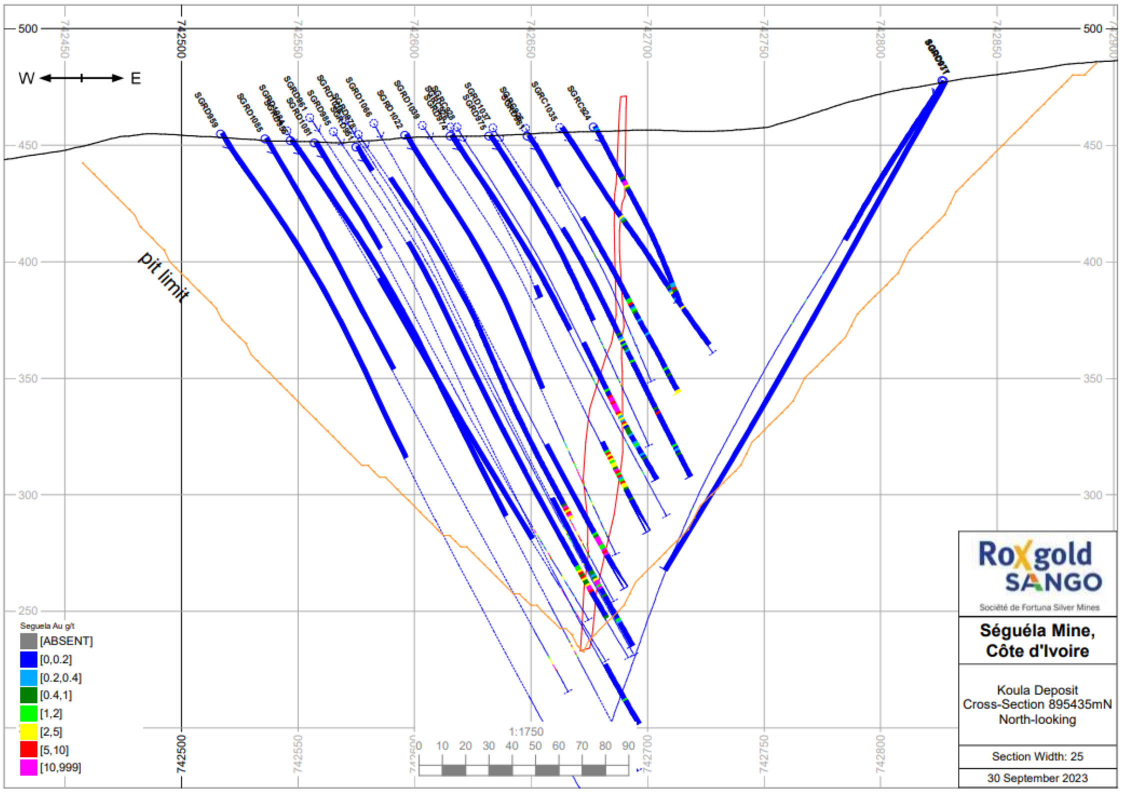

Figure 30: Koula deposit cross-section (895435mN) showing modelled mineralization

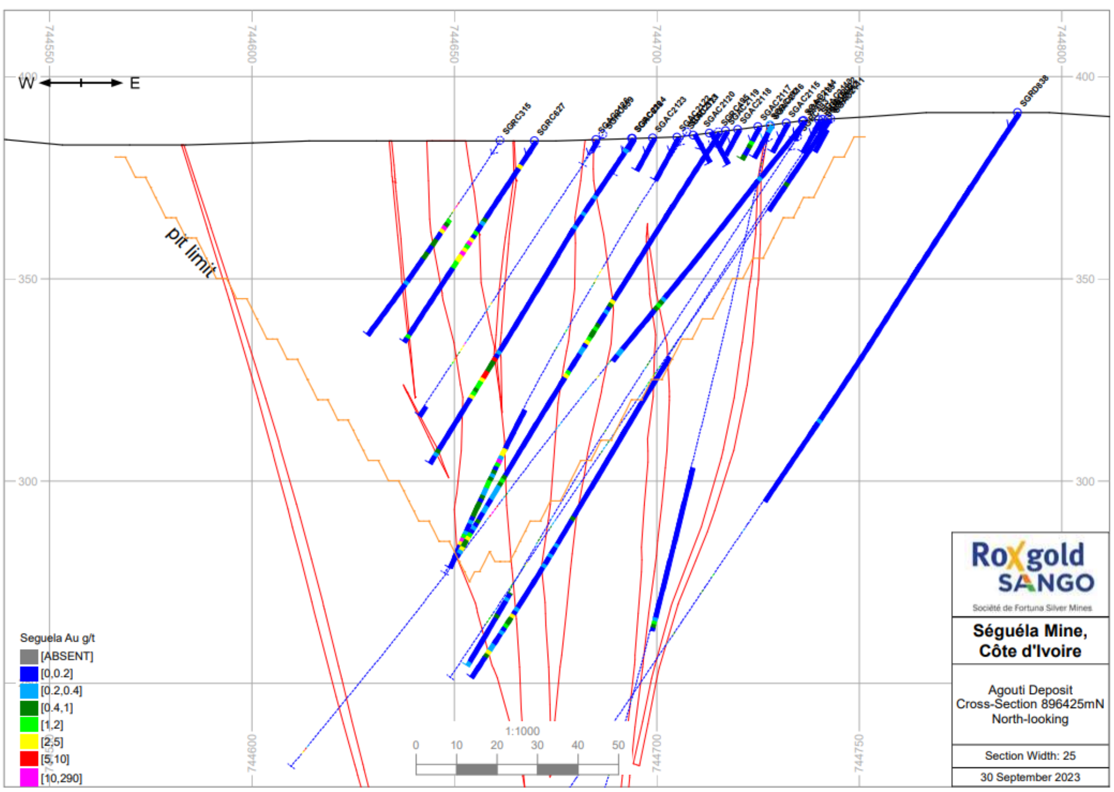

Figure 31: Agouti deposit cross-section (896425mN) showing modelled mineralization

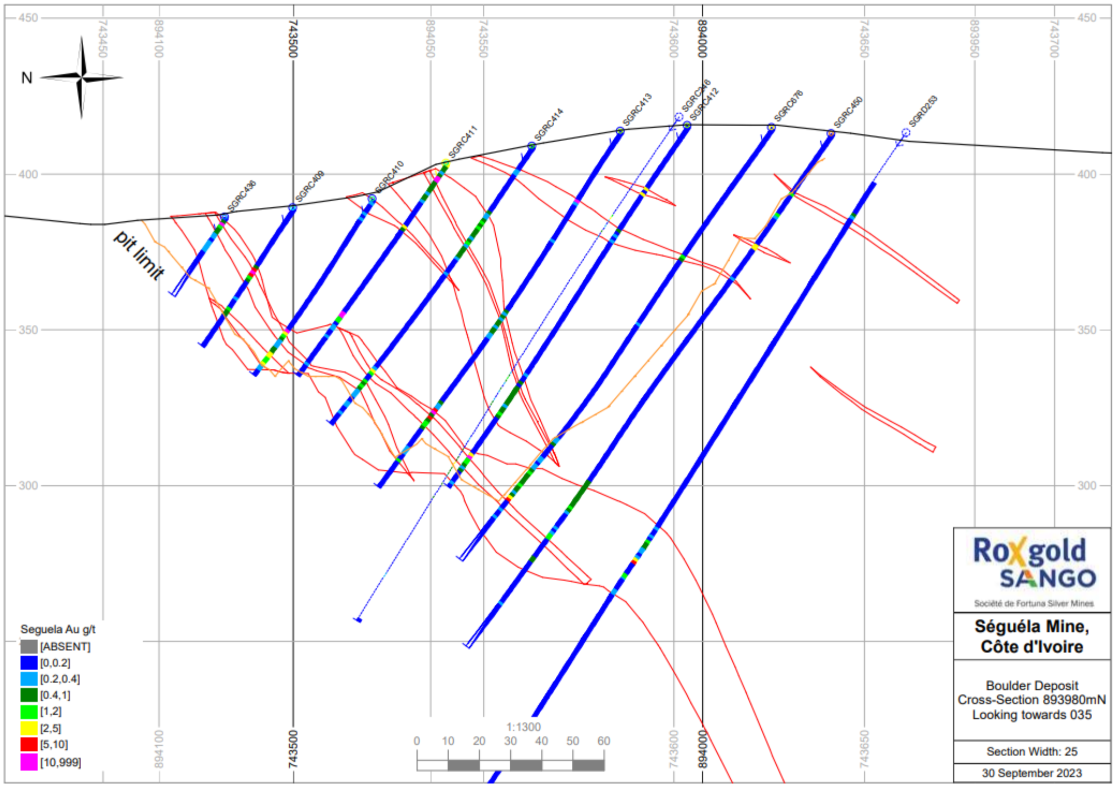

Figure 32: Boulder deposit cross-section (893980mN) showing modelled mineralization

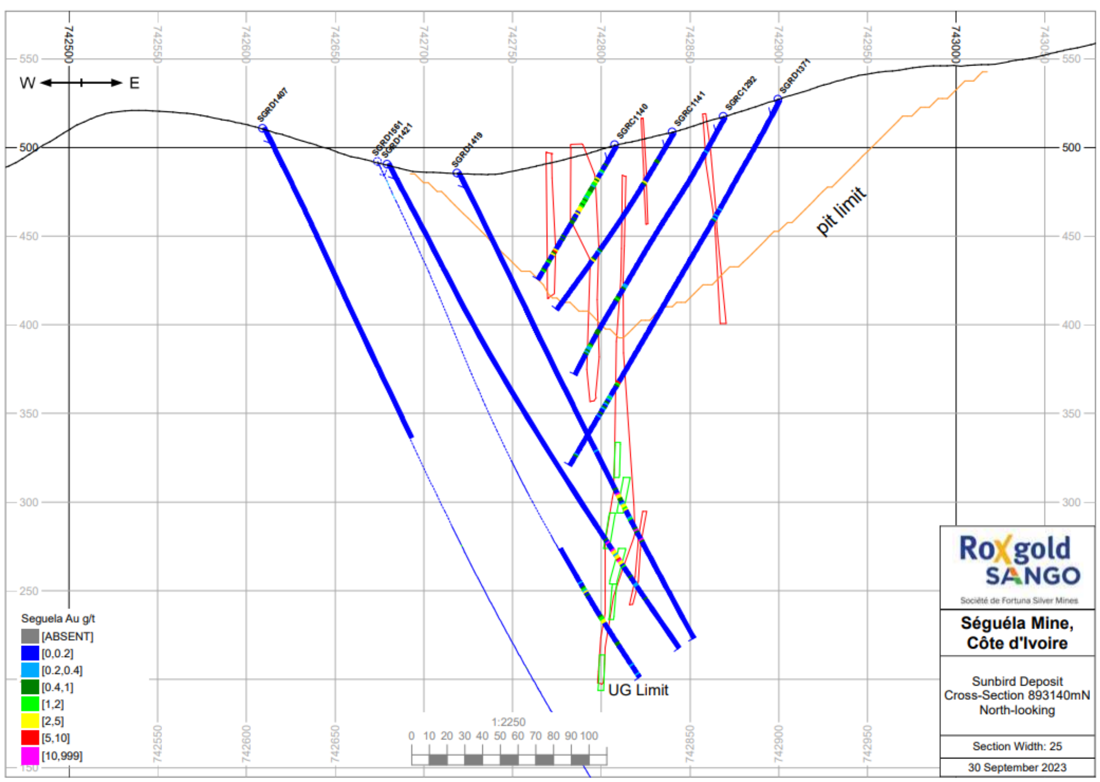

Figure 33: Sunbird deposit cross-section (893980mN) showing modelled mineralization

10.7 Sample Length Versus True Thickness

The relationship between the sample intercept lengths and the true width of the mineralization varies in relation to the intersection angle between the steeply-dipping zone of mineralized veins and the inclined nature of the core holes. Calculated estimated true widths (ETWs) are always reported together with actual sample lengths by taking into account the angle of intersection between drill hole and the mineralized structure. Exaggeration of the true width of the mineralization does not occur during modeling as the actual vein contacts are modeled in three-dimensional space to create vein solids that are subsequently used to constrain the estimation of Mineral Resources.

10.8 Summary of Drill Intercepts

Table 11 provides a list of typical drill hole intercepts encountered at the Séguéla Gold Mine at the Antenna, Ancien, Agouti, Boulder, Koula, and Sunbird deposits. It should be noted that the intervals listed are a subset for reference purposes only and do not represent the total mineralized intervals encountered from the 925 drill holes drilled at the Séguéla Gold Mine.

Table 11: Example of typical drill results at the Séguéla Gold Mine

Hole ID	Easting	Northing	Elevation	Azimuth (°)*	Dip (°)*	From (m)	To (m)	Drilled Interval (m)	ETW** (m)	Au (g/t)	Deposit
SGDD042	743576	894051	367	305	-55	21	39	18	12.6	0.29	Boulder
SGRC211	743612	894097	445	305	-55	58	77	19	13.3	1.71	Boulder
SGRC291	744641	896048	362	295	-55	19	22	4	2.8	2.97	Agouti
SGRC315	744660	896406	386	295	-55	19	32	13	9.1	15.27	Agouti
SGRC849	742628	895409	432	290	-60	No Significant Interval					Koula
SGRC854	742794	895560	455	290	-60	84	96	12	8.4	32.05	Koula
SGRD1409	742582	892761	524	384.5	-60	286	287	1	0.7	14.50	Sunbird
SGRC1094	742894	893512	461	270	-60	0	7	7	4.9	1.47	Sunbird
SGDD041	741836	894764	366	271	-55	0	1	1	0.7	1.21	Antenna
SGRC201	741811	894764	366	275	-55	0	28	28	19.6	1.69	Antenna
SGRD244	743174	888591	359	272.5	-55	42	50	8	5.6	0.60	Ancien
SGRC329	743153	888685	327	282	-55	1	24	23	16.1	19.73	Ancien
SGRC849	742628	895409	432	290	-60	No Significant Intervals					

*Azimuth and dip values taken at collar location
**ETW = Estimated True Width

10.9 Comments on Section 10

The QP has the following observations and conclusions regarding drilling conducted at the Séguéla Project since 2016:

- Data were collected using industry standard practices.
- Drill orientations are appropriate to the orientation of the mineralization for the areas where Mineral Resources have been estimated (see Section 10.6 for representative cross-sections showing drill orientations to mineralization).
- Core logging meets industry standards for exploration of epithermal-style deposits. Geotechnical logging is sufficient to support the Mineral Resource estimation.
- Collar surveys have been performed using industry-standard instrumentation.
- Downhole surveys performed during the drill programs have been performed using industry-standard instrumentation.
- Drilling information is sufficient to support the Mineral Reserve and Mineral Resource estimates.

11 Sample Preparation, Analyses and Security

11.1 Drill Sampling

Sampling techniques for Apollo drilling have not been recorded.

11.1.1 AC and RC Sampling

The same sampling procedures were used for the Newcrest and Roxgold programs.

AC and RC drilling spoils were collected at the drill rig on a per-meter basis in their entirety into plastic sample bags (60 L bags). Sufficient air was used in both AC and RC drilling to maintain dry samples and to ensure very high percentages of recovery per-meter. The Qualified Person is satisfied that samples recoveries for RC drilling were near complete, and unlikely to materially affect the accuracy or reliability of results. Should the supplied air for each drilling method be insufficient to maintain a dry hole and to adequately lift the sample, the drilling contractor was permitted a further 2 m of drilling to rectify the situation before the hole was terminated prematurely by the supervising geologist. Samples were riffle split at the rig site through a standalone three-tier splitter to yield a 12.5 % split collected in a pre-numbered calico sample bag for submission to the analytical laboratory. The remaining rejects were stored at the collar site until assay results for that particular hole were returned.

Once assays had been received, only coarse reject samples corresponding to significant intercepts (>0.2 g/t Au) were retained, with bulk rejects bags stored at the Séguéla Project exploration camp in bag farms proximal to the core storage and logging facilities. Reject sample security was maintained through the positioning of the bag farm proximal to the continuously manned camp, and the movement and storage of samples being supervised by Newcrest or Roxgold staff. Security of reject samples is not considered a material risk. The remaining samples bags were emptied into a purpose-dug pit, and backfilled.

11.1.2 Core Sampling

The same sampling procedures were used for the Newcrest and Roxgold programs.

Following logging and meter marking of the core, intervals selected for assay were cut sub-parallel and slightly offset to the orientation mark using Almonte automated core saws. Core was sampled comprehensively from top to bottom of hole on standardized 1 m intervals and half-core samples were placed into pre-numbered calico bags for submission. The same side of the core was consistently sampled down each hole. Samples were exclusively collected at whole meter intervals and were not broken or truncated at geological boundaries. The decision to do so was driven by the desire to maintain a uniform sample support across all styles of drilling.

The unsampled half-core was replaced in the respective core trays and stored at the Séguéla Project exploration camp.

11.2 Sample Preparation and Analytical Laboratories

Sample preparation and analysis for the Newcrest and Roxgold programs were performed by ALS laboratories (ALS) in Yamoussoukro (sample preparation), Ouagadougou, Burkina Faso (analysis), or Kumasi, Ghana (analysis). ALS is independent of Roxgold Sango and was independent of Newcrest. ALS maintains certification in accordance with the most relevant quality certification standards for the activities which they undertake, namely ISO9001:2015 for survey/inspection activity and ISO 17025:2005 UKAS ref 4028 for laboratory analysis.

The check assay laboratory was the Bureau Veritas (BV) laboratory in Abidjan that is also certified in accordance with ISO9001 and ISO 17025 standards for laboratory analysis. BV is independent of Roxgold Sango and was independent of Newcrest.

11.3 Sample Preparation

Newcrest and Roxgold samples were submitted to the ALS Yamoussoukro laboratory for preparation.

Pieces of core submitted are passed through a primary crush via oscillating jaw crushers to meet a >70% passing <2 mm size.

The AC, RC and DD core samples were passed through a riffle splitter to achieve a 250 g split. This split material is pulverized in its entirety to >85% passing 75 µm. This pulp is rolled on a plastic sheet for homogenization, and an aliquot is taken to fill a paper geochemistry bag (approximately 200 g).

11.4 Sample Security

No information is available for the Apollo drilling sample security.

For Newcrest and Roxgold Sango AC, RC, and DD drilling, samples were collected by trained staff, placed into pre-numbered calico or plastic bags, then placed into double bagged polyweave bulk bags which were wire or zip tied closed and shipped by commercial courier to the ALS laboratory where they were taken into custody with a signed receipt.

Prepared samples from the Yamoussoukro laboratory were then shipped via commercial courier to ALS's analytical facilities in either Ouagadougou or Kumasi.

The QP believes the security and integrity of the samples submitted for analyses is un- compromised, given the adequate record keeping, storage locations, sample transport methods, and the analytical laboratories' chain of custody procedures.

11.5 Analytical Methods

Assaying techniques for Apollo drilling are not documented.

Samples submitted for assay by Newcrest and Roxgold Sango were analyzed by ALS using fire assay of a 50 g charge using an atomic absorption spectroscopy (AAS) finish (ALS code Au-AA24). Samples returning >10,000 ppb Au were reanalyzed by fire assay (FA) of a 50 g charge with a gravimetric finish (ALS code Au-GRA22). From December 2019, all samples with visible gold noted in drill hole logging, or returning >50,000 ppb Au from the routine fire assay (FA) analysis, were also analyzed by the screen fire assay (SFA) technique (ALS code Au_SCR24 – 106 µm metal screen) to determine the percentage of gold present in the coarse fraction versus the fine fraction. These analytical techniques are considered total and appropriate for the style of mineralization. Results of the SFA analysis as of the effective date of this Report indicate a reasonable correlation with the primary FA analysis.

Pulps were analyzed at BV by FA of a 50-g charge using an AAS finish (BV code FA450). Samples returning >10,000 ppb Au were reanalyzed by FA of a 50-g charge with a gravimetric finish (BV code FA550). These methods are equivalent and directly comparable to the ALS methods used for the original gold analysis.

Other than initial sample collection splitting and bagging at the Séguéla Mine, Roxgold Sango personnel and its consultants and contractors were not involved in laboratory sample preparation and analysis.

It is the QP's opinion that security, sample collection, preparation and analytical procedures undertaken on the Séguéla Mine during the 2016 to 2021 drill programs are appropriate for the sample media and mineralization type and conform to industry standards.

11.6 Bulk Density Determinations

Bulk density values for the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits have been determined for each individual lithology via the collection of a density measurements using the Archimedes method (water immersion measurements) based on drill core sampled across each of the deposits. Newcrest and Roxgold Sango personnel on site were responsible for the collection of this data according to standardized density data collection procedures common to all Newcrest global operations and continued by Roxgold Sango. Where density measurements had not been collected for a particular lithotype (e.g. friable or unconsolidated oxides/alluvial sediments) reference densities were assigned from the AusIMM Field Geologist's Manual (AusIMM, 2001).

11.7 Quality Assurance and Quality Control

11.7.1 Overview and Summary of Methodology

No documented QA/QC procedures are available for the Apollo drilling.

Drilling conducted by Newcrest and Roxgold Sango was subject to a well-established routine series of QA protocols, with defined QC procedures and parameters for assessment of assay data. Sample preparation is subject to ALS's standard QA protocols, which are designed to ensure consistently homogeneous and representative analytical sub-samples. Site protocol ensures routine use of blind certified reference material (CRM) insertions into the sample stream. This includes insertion of blank samples at a nominal rate of 1:25, and insertion of field duplicates and coarse crush re-split duplicates. During active drill campaigns a selection of pulps from significant drill intersections are also re-submitted to BV that acts as a second, independent check laboratory for analysis.

QC results are automatically scanned upon receipt and loading of digital data from the analytical laboratory (daily during active drilling campaigns) and are flagged using a set of predetermined thresholds for CRMs/blanks. Samples outside tolerance trigger an investigation conducted by the supervising site geologists, and if more than one CRM "fails" within a submitted batch, the entire batch is re-assayed. Assay data are held in quarantine until the review of the daily QC report has been conducted and approved by the supervising geologist.

11.7.2 Database

The database for the Séguéla Mine is currently maintained in Maxwell's Datashed system, managed by two database administrators from the Séguéla Project exploration office. Data collected in the field (geological logging, collar information, drill hole metadata) are collected digitally using a Toughbook laptop, validated daily at the end of shift by the supervising geologist, and then digitally directly synchronized into the database. Additional validation checks are completed weekly by the administrators for relational consistency within the data collected that week (from-to sample interval overlaps, data exceeding recorded holes depths, missing data intervals etc.).

11.7.3 Certified Reference Materials

Analytical data accuracy is monitored through the insertion of CRMs into the sample stream. These CRMs are sourced from three main commercial suppliers globally: OREAS and Geostats Pty Ltd in Australia, and AMIS in South Africa.

Analytical values for a given standard that lie outside a tolerance of ± 2 standard deviations from the reference value are considered warnings. Should two or more CRMs within a batch trigger warnings, the batch is considered to have failed with respect to accuracy; it is re-assayed, and an investigation is undertaken into the causes of the spurious results. If a CRM returns a value outside ±3 standard deviations from the reference value, it is deemed to have failed and the batch is re-assayed, and an investigation undertaken.

Generally, the QAQC results returned from the analysis of all CRMs from the Newcrest and Roxgold programs are deemed acceptable, and the gold analyses are suitable for use in the estimation of Mineral Resources. No specific concerns are apparent from the data and control chart plots for all CRM analyses.

11.7.4 Field Duplicates

Re-splits of the returned drilling chips, or the second half of drill core were submitted as duplicate samples at a ratio of 1:10 samples. During daily QC analysis, duplicate pairs that returned relative differences greater than 20 % were considered spurious and triggered investigation into the precision associated with a particular batch's results.

Figure 34 and Figure 35 present half-core duplicates and re-split RC chip samples.

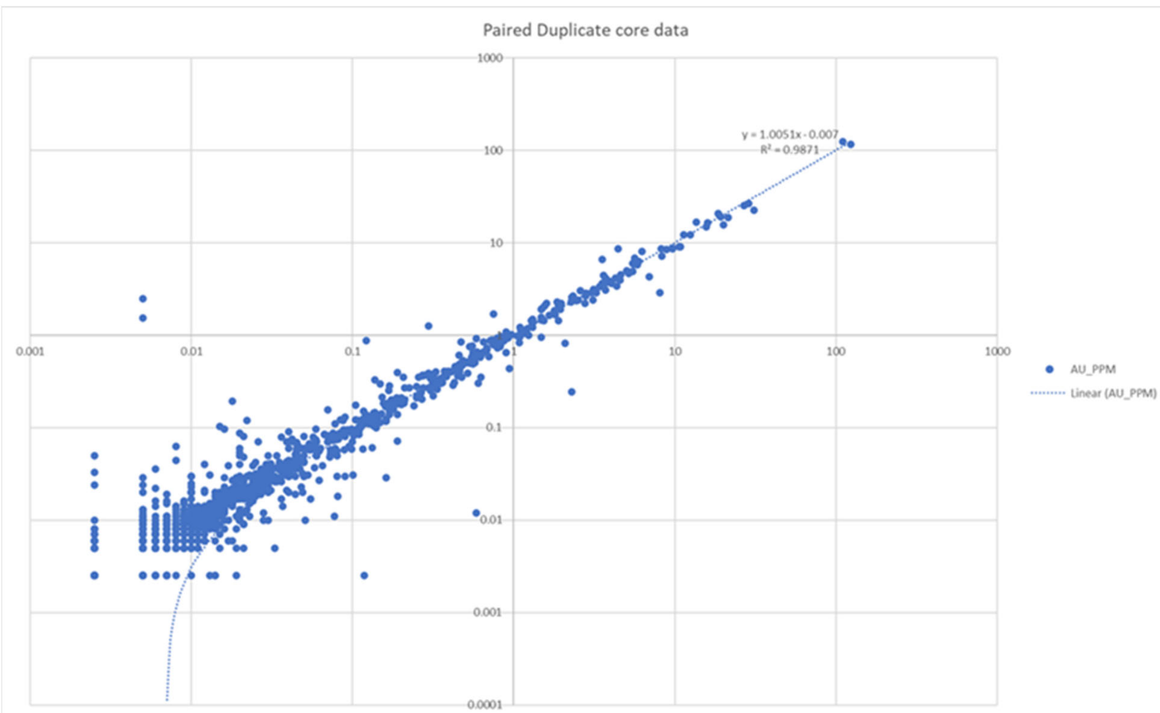

Figure 34: Half-core duplicate results (Source: Roxgold Sango, 2023)

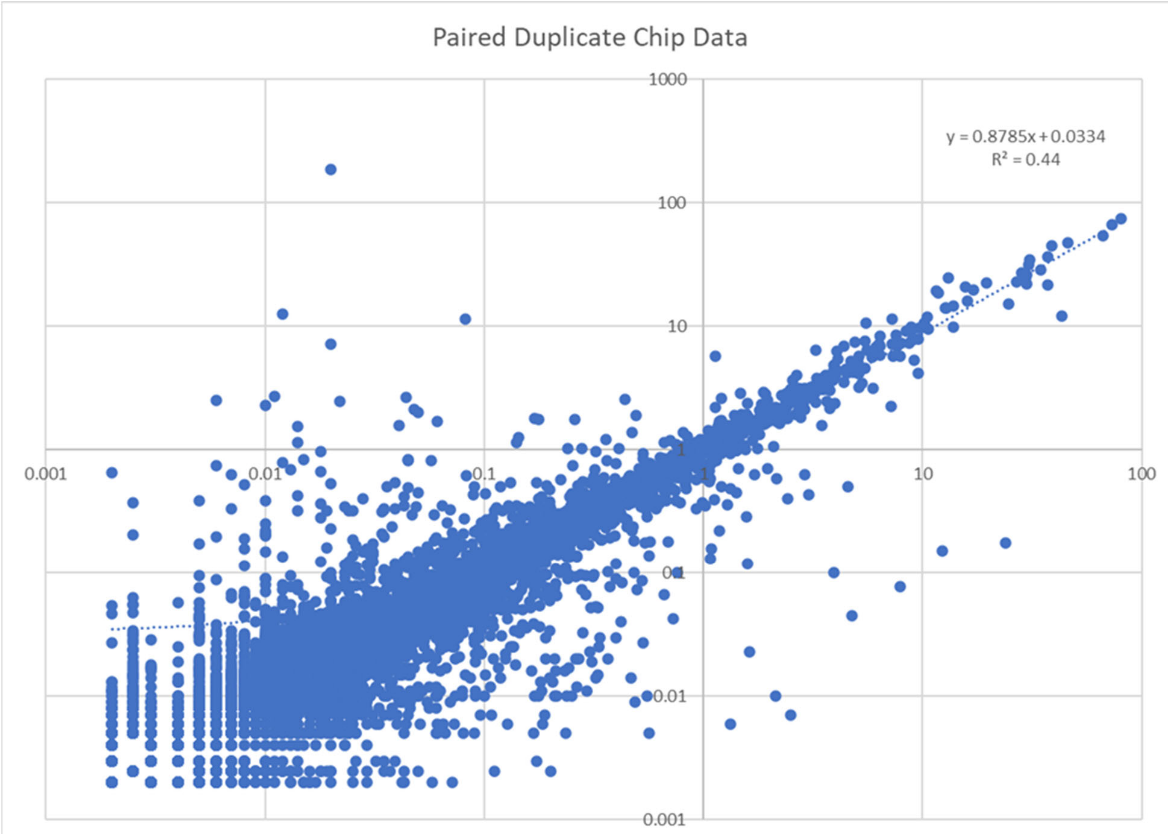

Figure 35: Re-split drill chip duplicate results (2016-2018. Source: Roxgold Sango, 2023)

In both the case of duplicate core and chips, the data show very high correlation coefficients, and linear regressions very close to unity. Duplicate results for both core and chips are deemed acceptable and indicate no concerns with sample quality at the Séguéla Mine.

11.7.5 Umpire Analysis

A sub-set of 281 half-core sample pulps were submitted to BV for umpire analysis. Similarly, a sub-set of 251 RC chips samples pulps were also submitted. Comparative quantile-quantile (Q-Q) plots of original and umpire results for both core and RC chip data subsets show excellent correlation between the ALS (original) and BV (umpire) laboratory results (Figure 36 and Figure 37).

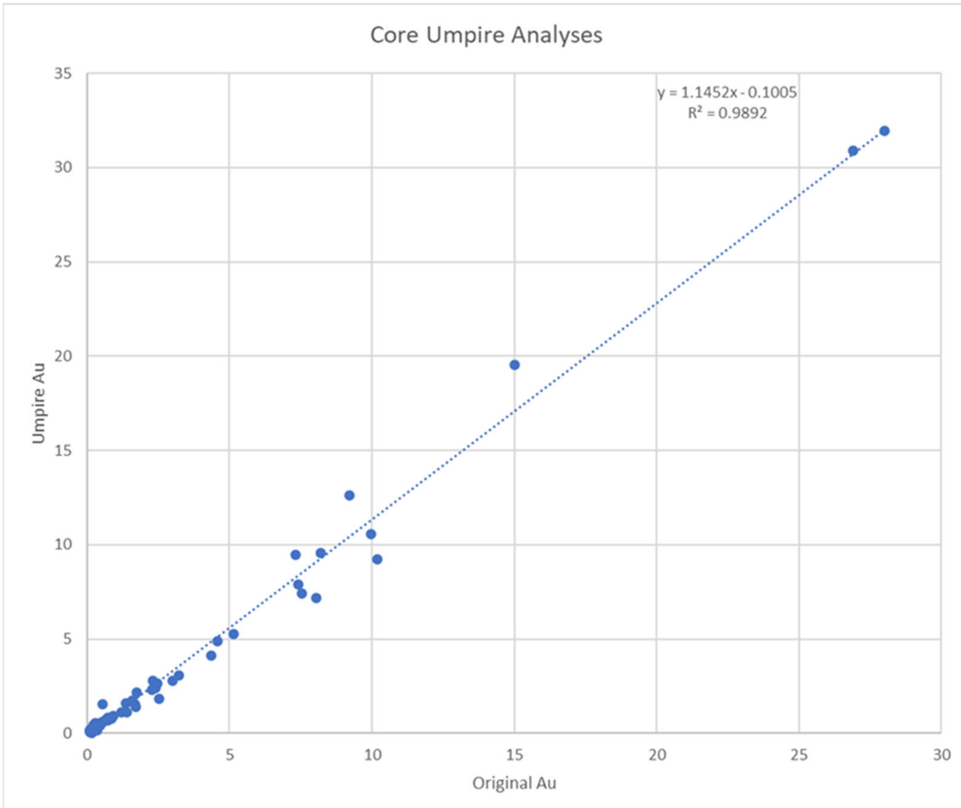

Figure 36: Umpire analysis - drill core samples

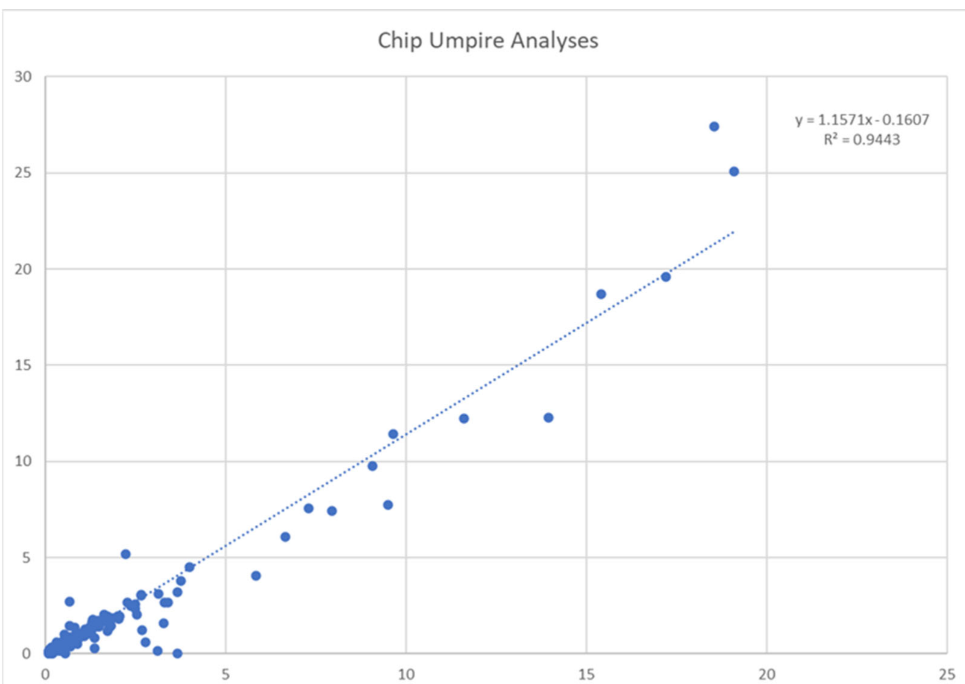

Figure 37: Umpire analysis - RC Chip samples (Source: Roxgold Sango, 2023)

The performance of the umpire analysis indicates no concerns with the gold analyses at the Séguéla Mine.

11.8 Comments on Section 11

It is the opinion of the QP that the sample collection and preparation, analytical techniques, security and QAQC protocols implemented for the Séguéla Mine are consistent with standard industry practice and are suitable for the reporting of exploration results and for use in Mineral Resource and Mineral Reserve estimation. The sampling procedures are adequate for and consistent with the style of gold mineralization under consideration.

Analytical results are considered to pose minimal risk to the overall confidence level of the Mineral Resource estimates.

12 Data Verification

12.1 Laboratory Inspection

Roxgold Sango staff routinely visit the sample preparation laboratory operated by ALS Laboratories, in Yamoussoukro. The purpose of the site visits is to inspect the drill sample preparation facilities, and to discuss QA protocols for sample preparation and dispatch with the ALS staff.

12.2 Site Visit

All of the QP's have visited the Séguéla Mine on multiple occasions with the most recent site visits detailed in Section 2.5.

There were no negative outcomes from the site inspections.

12.3 Verification of Geological Data

Ground verification consisted of inspection by Mr. Weedon of sub-cropping geology and mineralization where observable, a review of the core logging and sample storage facilities, inspection of drill core stored on site, and confirmation of the location of historical drill holes.

The bulk of drilling conducted at the Séguéla Project is well stored and remains in good condition in secure racks. Core trays are clearly labelled with permatags. Significant assay intercepts of mineralization were verified against their respective core intervals.

There were no negative outcomes from the above site inspection.

Mr. Chapman reviewed the data capture procedures for geological logging and sample interval recording during discussions with the Roxgold Sango database managers. Discussions were also held with the database managers concerning the receipt and import of assay data from ALS.

Validation of the final database provided to the QP included checks for overlapping intervals, missing survey data, missing assay data, missing lithological data and missing collars. No errors were identified in the extracts used to inform the Mineral Resource estimates.

12.4 Verification of Sampling and Assaying

12.4.1 Visual Inspection

Drill core was inspected in the field by Mr. Weedon during multiple site visits. Drill core was visually compared to assay results and geological logs for numerous holes. Gold mineralization was evident and visually consistent with the recorded geological logging and reported assay results.

Significant intercepts appear to correlate with the intensity of host rock alteration and quartz veining recorded in the field.

12.4.2 Data Excluded

All AC drilling has been excluded from the Séguéla Gold Mine Mineral Resource estimates. Hole SGRC151 was excluded from the Mineral Resource estimate for Agouti due to survey errors. All dedicated geotechnical holes were excluded from the Mineral Resource estimates due to no assays being collected. Otherwise, all RC and DD drilling conducted by Newcrest and Roxgold Sango were used in the estimation of the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird Mineral Resources.

12.5 Geotechnical and Hydrogeology

Mr. Veillette has been providing technical support to the Séguéla Mine since October 2022. Mr. Veillette helps coordinate and manage the Engineer of Record (EoR) for the TSF and water management. He also provides support with respect to geotechnical and hydrogeological aspects for the open pits and waste dumps. He reviews all technical documents related to geotechnical, tailings and water for the operation. Mr. Veillette has performed an internal audit on the TSF, water management, waste dump and open pit geotechnical/hydrological aspects and is of the opinion that geotechnical and hydrogeology studies for these facilities is of a sufficient level to support the estimation of Mineral Reserves and Mineral Resources.

12.6 Metallurgical Recoveries

Mr. Criddle has reviewed the extensive body of metallurgical investigation comprising several phases of testwork and, in addition, has been personally involved in the development and construction of the Séguéla Mine. In the opinion of the Mr. Criddle, the Séguéla metallurgical samples tested, and the ore that is presently treated in the plant are representative of the orebody as a whole in respect to grade and metallurgical response. Differences between deposits are minimal regarding metallurgical recovery.

12.7 Mineral Resource Estimation

The Mineral Resource estimation methodology, as described in Sections 14 of this Report, is defined in Fortuna's MRMR procedural manual, which is based on CIM (2019) best practice guidelines.

Validation of data used in the estimates from Mr. Chapman includes the following:

- Site visit to review core, surface workings and discuss estimation methodology.
- Database validation checks (as described in Section 12.3).
- Review of the wireframe modeling to define geological, structural and mineralization domains.
- Review of the statistical evaluation to confirm domaining was appropriate and adhered to the geological interpretation.
- Modeled variograms review to assess if they correspond to experimental variography.
- Review of cross validation and reconciliation results.
- Statistical checks on each field contained in the resource block model to confirm minimum/maximum values are not exceeded.
- Review of the Mineral Resource confidence classification.
- Checks that the reported Mineral Resources correspond with the block model estimates.

The QP is of the opinion that the Mineral Resource estimation was performed using standard industry practices and is suitable for use in Mineral Reserve estimation.

12.8 Mineral Reserve Estimation

The Mineral Reserve estimation methodology, as described in Section 15 of this Report, is defined in Fortuna's MRMR procedural manual, which is based on the CIM (2019) best practice guidelines.

Each step of the process is documented, and a checklist developed that is signed by Roxgold Sango staff and Mr. Espinoza.

Mr. Espinoza has visited the Séguéla Mine several times during 2022 and 2023 to personally verify the mine infrastructure, mine operations practices, as well as the conditions of the rock mass for the development of the open pits as described on Section 16. Mr. Espinoza holds regular virtual meetings with the Roxgold Sango technical services staff to review operational results on a monthly basis.

Additional reviews completed by the QP to support the Mineral Reserve estimation process included:

- Ensuring all aspects of Mineral Reserve estimation and reporting adhere to Fortuna's "Technical Information Policy".
- Reviewing and confirming that parameters used in the calculation of cut-off grades are based on current market and operational considerations and conform to CIM (2019) best practices.
- Reviewing and confirming operational parameters, including dilution and mining recovery factors, through block model regularization to the selective mining unit size.
- Discussions on pit optimization results to estimate Mineral Reserves in conjunction with the technical services and mine operations staff.
- Discussions with Roxgold staff on various LOMP scenarios and their operational applicability.
- Review of monthly reconciliation results using Fortuna's internal procedures.

12.9 Comments on Section 12

Data verification undertaken by the QPs has shown no significant issues with the integrity of the data used in the estimation of Mineral Resources and Mineral Reserves.

Visual validation of the drill hole locations and mineralized intersections was undertaken against hard copy drill sections. Relative to each other and the cross-sections provided, the drill holes used as the basis for the Mineral Resource estimates were considered acceptable for confidence classification and public reporting.

The sampling techniques and data are of sufficient quality to support Mineral Resource estimates.

The QPs verified the data which underpins this Report. The QPs are of the opinion that the data verification procedures undertaken adequately support the integrity of the data used in the estimation of Mineral Resources and Mineral Reserves.

13 Mineral Processing and Metallurgical Testing

Roxgold Sango has undertaken mineral processing and metallurgical testwork at the Antenna, Agouti, Boulder, Ancien, Sunbird and Koula deposits.

The previous project owner, Newcrest, conducted a round of Leachwell assay testwork on 61 samples from drill hole SGDD001 in 2018. Comparison of the Leachwell tests to fire assays for the samples set (four-hour bottle roll used for leach testing of a nominal 1 kg sample) demonstrated a near 1:1 correlation of results. These results supported the conclusion that the material was non-refractory, and therefore amenable to standard CIL treatment for extraction.

Seven testwork programs were performed at the ALS Metallurgy laboratory in Balcatta, Perth, Western Australia, Australia under the supervision of Roxgold Inc. or Roxgold Sango:

- A19864 conducted between April and June 2019.
- A20661 conducted between December 2019 and January 2020.
- A20721 conducted between February and July 2020.
- A21926 conducted between January and February 2021.
- A21707 conducted between January and February 2021.
- A23013 conducted between November 2021 and February 2022.
- A24535 conducted between April and June 2023.

Testwork included the following assessments:

- Comminution:
  - Bond impact crushing work index (CWi) determination.
  - SMC testwork.
  - Bond abrasion index (Ai) determination.
  - Bond rod mill work index (RWi) determination.
  - Bond ball mill work index (BWi) determination.
- Head assays.
- Mineralogical analysis.
- Grind establishment.
- Gravity gold recovery and cyanide leach.
- Flotation.
- Carbon adsorption.
- Oxygen uptake.
- Preg-robbing.
- Cyanide detox.
- Sedimentation and rheology.
- Acid mine drainage.

As the Antenna deposit hosts the majority of the Mineral Resource and it forms the majority of mill feed ore, it was examined more comprehensively, and the mineralization represents the basis for the mineral processing design criteria. Satellite deposits in the form of Agouti, Boulder, Ancien, Sunbird and Koula were also tested throughout the seven programs for confirmation purposes, and in support of Mineral Resource and Mineral Reserve estimates.

13.1 ALS Laboratories Preliminary Economic Assessment Testwork Program (A19864 and A20661)

13.1.1 Samples

The first consignment of samples was received at ALS Metallurgy on 9 April 2019. A second consignment of (waste) samples was received on July 11, 2019. All assay samples generated during the preliminary economic assessment (PEA) test program were submitted for analysis to the on-site ALS assay laboratory in Balcatta. The following analytical methods were employed:

- Gold in solids: Fire assay/ Inductively coupled plasma optical emission spectroscopy (ICP-OES) Gold in solution: Direct inductively coupled plasma mass spectrometry (ICPMS).
- Carbon speciation: Labfit CS2000 analyzer.
- Sulphur speciation: Sherritt method/CS2000 analyzer.
- Arsenic: D7 acid digest/ICPOES.
- Antimony, mercury, and tellurium: D1 low-temp acid digest/ICPOES.
- General elemental scan: Various acid digests/ICPOES and/or ICPMS.

Perth tap water was used for all testwork.

13.1.2 Antenna Deposit

Antenna samples were reasonably competent with RWi and BWi of 22.7kWh/t and 19.7 kWh/t respectively, indicating the material would be amenable to a simple comminution circuit design.

The mineralized material tested exhibited a degree of grind sensitivity with an optimal grind size of 75 µm selected for all extraction testwork. The results of that program, which tested 14 separate samples from Antenna, indicated potential for free milling of the mineralized material with good leach kinetics and overall extractions. Key results are summarized in Table 12.

Table 12: Key results from the Antenna metallurgical testwork program

Test	Range of Results	Average Result
Calculated Head Assay (g/t Au)	1.62–10.3	3.1
Overall Gold Extraction (%)	92.0–97.1	94.5
Gravity Gold Recovery (%)	28–60	38
Cyanide Consumption (kg/t)	0.09–0.30	0.20
Lime Consumption (kg/t)	0.27–1.96	0.45

The Antenna samples were prepared by initially selecting suitable samples for determination of unconfined compressive strength (UCS) and crushing work index (CWi) determinations. No suitable specimens were available for UCS determination. A single sample was then selected from each individual Antenna sample for CWi testing. In total, 12 samples were submitted for CWi determination. The CWi test remnants were recovered and combined with the remaining material for each sample.

Each individual sample was crushed to minus 25 mm, and a sub-sample split out and used to prepare a 50 kg Master Composite. The remaining material from each sample was control-crushed to 100 % minus 3.35 mm and each sample assigned a Variability Composite number (Table 13).

Table 13: Details of the Antenna variability samples

	Depth (m)		
Hole ID	**From**	**To**	**ALS Composite ID**
SGRD047	175	179	Antenna VC01
SGRD061	168	172	Antenna VC02
SGRD069	101	105	Antenna VC03
SGRD080	174	178	Antenna VC04
SGRD090A	149	153	Antenna VC05
SGDD001	70	74.4	Antenna VC06
SGRD014	52	56	Antenna VC07
SGDD002	35	39	Antenna VC08
SGDD002	107	111	Antenna VC09
SGDD007	24	28	Antenna VC10
SGRD103	96	100	Antenna VC11
SGDD014	96	100	Antenna VC12
SGDD035	37	42	Antenna VC13

The variability composites were homogenized and split into representative 1.0 kg charges for use in the variability extractive testwork program.

The Master Composite (-25 mm) was homogenized, and sub-samples split out for comminution tests (SMC, Ai, RWi, and BWi). The remaining material from these tests was control-crushed to 100 % passing 3.35 mm, homogenized, and split into representative 1.0 kg charges for use in the Master Composite extractive testwork program.

13.1.3 Bond Impact Crushing Work Index

Twelve individual samples were selected and prepared for CWi determination. All samples were cut to ensure they were in the size range -76 +51 mm. The CWi was determined using an Impact Crushability Test Unit. A summary of results is presented in Table 14.

Table 14: Summary of the Antenna Bond impact crushing work index (CWi) results

Bond Impact Crushing Work Index (kWh/t)				
Ore Type	**Average**	**Maximum**	**Minimum**	**Standard Deviation**
Antenna	11.0	19.3	4.8	4.8

These results are indicative of a material with moderate hardness.

13.1.4 SMC Testwork

A sub-sample of the Antenna Master Composite was submitted for SMC testwork.

The standard (full) JKTech drop-weight testwork provides ore-specific parameters for use in the JK Sim Met Mineral Processing Simulator Software and JK Sim Met Crusher model. The SMC test was developed by SMC Testing Pty Ltd to provide a cost-effective means of obtaining these parameters from drill core or broken rock samples in situations where limited quantities of material are available.

The SMC test generates a relationship between specific input energy (kWh/t) and the proportion of fragmented/broken product passing a specified sieve size. The results are used to determine the drop-weight index (DWi), which is a measure of the strength of the mineralized sample when broken under impact conditions. The DWi is directly related to the JK rock breakage parameters A and b and can be used to determine the values of these parameters.

A summary of results is presented in Table 15.

Table 15: Summary of the Antenna SMC testwork results

Derived Values								
Ore Type	**DWi (kWh/m³)**	**SG**	**A**	**b**	**Mia (kWh/t)**	**Mih (kWh/t)**	**Mi (kWh/t)**	**t_a**
Antenna	9.0	2.77	82.7	0.37	23.9	18.8	9.7	0.29

These results are indicative of a material with high hardness.

13.1.5 Bond Abrasion Index

Sub-samples of the Antenna composites were tested to determine the Ai value. A summary of results is presented in Table 16.

Table 16: Summary of the Antenna Bond abrasion (Ai) results

Composite ID	Bond Abrasion Index
Antenna	0.4128

These results are indicative of an abrasive material.

13.1.6 Bond Rod Mill Work Index

A sub-sample of the Antenna composites was control-crushed to 100 % passing 12.7 mm. The crushed sample was thoroughly homogenized, and a representative sub-sample submitted for RWi determination at a closing screen size of 1,180 µm. A summary of results is presented in Table 17.

Table 17: Summary of the Antenna Bond rod mill work index (RWi) results

	Micrometers				
Ore Type	**F80**	**P80**	**Grp (g/rev)**	**Test Aperture Pi (µm)**	**Bond BWi (kWh/t)**
Antenna	9,983	833	4.066	1180	22.7

These results are indicative of a material with high hardness.

13.1.7 Bond Ball Mill Work Index

A sub-sample of the Antenna composites was control-crushed to -3.35 mm and tested using the standardized procedure to determine the BWi. A closing screen size of 106 µm was used. A summary of results is presented in Table 18.

Table 18: Summary of the Antenna Bond ball mill work index (BWi) results

	Micrometers	

Ore Type	F80	P80	Grp (g/rev)	Test Aperture Pi (µm)	Bond BWi (kWh/t)
Antenna	2,494	78	0.896	106	19.7

These results are indicative of a material with moderate to high hardness.

13.1.8 Head Assays

Sub-samples of each testwork composite were submitted for comprehensive head assays. A summary of results is presented in Table 19.

Table 19: Summary of the Antenna head assay results

Composite ID	Au (g/t)	Au (g/t)	C_{TOTAL} (%)	$C_{ORGANIC}$ (%)	S_{TOTAL} (%)	S^{2-} (%)
Antenna VC1	10.9	11.3	0.27	0.03	3.02	2.82
Antenna VC2	4.90	5.12	0.48	<0.03	1.36	1.28
Antenna VC3	1.76	2.05	0.30	<0.03	0.76	0.50
Antenna VC4	2.45	2.60	0.21	<0.03	1.04	0.96
Antenna VC5	2.55	2.26	0.42	<0.03	0.96	0.80
Antenna VC6	3.85	2.48	0.75	<0.03	1.18	0.96
Antenna VC7	3.05	2.60	0.03	<0.03	1.02	0.88
Antenna VC8	1.98	1.53	0.48	<0.03	1.32	1.18
Antenna VC9	2.51	2.65	0.51	<0.03	0.76	0.60
Antenna VC10	2.04	2.25	<0.03	<0.03	<0.02	<0.02
Antenna VC11	2.05	1.86	0.54	<0.03	1.04	0.80
Antenna VC12	1.48	2.03	0.42	<0.03	1.16	0.82
Antenna VC13	1.52	1.23	2.79	<0.03	1.12	0.78
Antenna Master	3.02	2.80	0.51	<0.03	1.20	0.94
Boulder Master	31.0	21.1	0.33	0.03	0.22	0.20
Agouti Master	1.17	1.18	1.14	<0.03	0.74	0.58

Variability in the duplicate gold assays usually indicates the presence of coarse gold, which appears to be the case for most samples. Negligible organic carbon suggests the samples are unlikely to exhibit preg-robbing behavior during cyanide leaching. Most samples contain moderate levels of sulfides.

13.1.9 Mineralogical Analysis

A sub-sample of the Antenna Master Composite was ground to P80 passing 75 µm and submitted for gravity upgrading/separation ahead of mineralogical analysis. The ground sample was passed through a 3" Knelson KC-MD3 gravity concentrator, with the following specifications:

- Feed rate ~750 g/min.
- 1,500 rpm (60 G).
- 3.5 L/min fluidizing water.

The Knelson concentrate was further concentrated by hand-panning, with the final pan concentrate submitted for detailed mineralogical analysis (QEMSCAN). The pan tailings were combined with the Knelson tail. A sub-sample of the combined gravity tail was split out and submitted for bulk mineralogy (XRD).

The main findings are summarized in the following sub-sections.

13.1.10 Bulk Mineralogy

Pyrite makes up 26.2 % of the gravity concentrate fraction and approximately 1 % of the gravity tail. In the gravity concentrate, the pyrite has a P80 of approximately 98 µm and is well-liberated (85.5 % occurring as 'well-liberated' and another 11.0 % as 'high-grade middlings').

Pyrrhotite is present, making up 7.3 % of the gravity concentrate and <1 % in the gravity tail. A trace of arsenopyrite (0.11 %) was detected in the gravity concentrate.

Silicates are the main gangue minerals, dominated by quartz, albite, and micas, followed by chlorite and clay minerals (smectite, vermiculite, illite and kaolinite). A minor amount of carbonates (dolomite–ankerite/calcite) is also present.

13.1.11 Gold Mineralogy

Twenty free, coarse gold grains were found during the optical examination. The gold grains ranged in size from 50–300 µm.

Thirty-one gold grains were detected by QEMSCAN analysis. The gold grains had typical compositions of 93–100 % Au + 7–0 % Ag.

Two gold grains out of the total 31 grains detected by QEMSCAN occurred as free gold. These were about 15 µm in size and contributed approximately one-third of the total elemental gold detected. Fifteen gold grains occurred in pyrite; these ranged in size from 2–15 µm and contributed nearly half of the total gold detected. A further 11 gold grains occurred within one single silicate-pyrrhotite particle. These ranged in size from 2–10 µm each and accounted for nearly 18 % of the total gold detected; the last three gold grains occurred in one silicate particle and were each <5 µm in size, contributing <2 % of the total gold.

13.1.12 Cyanide Leach

Initially, sub-samples of the Antenna Master Composite were submitted for cyanide leach testwork. The objectives of the tests were to determine:

- Impact of grind size on gold extraction.
- The presence of gravity-recoverable-gold, and the impact on overall gold recovery if gravity gold is recovered prior to leaching.

Following this, sub-samples of the variability samples were submitted for testing to determine gold recovery via gravity and cyanide leaching.

For all samples, including the Antenna Master Composite, the gravity/leach tests were conducted at P80 75 µm. A summary of results is presented in Table 20.

Table 20: Antenna master composite cyanide leach and grind size variability testwork results

Test No.	Grind Size P80	Au Head Grade (g/t)			Au Extraction (%)			Tail Au	Reagents (kg/t)	
(BK12-)	(µm)	Assay	Calc'd	Grav.	4-hr	24-hr	48-hr	Grade (g/t)	NaCN	Lime
399	150		3.04	-	71.3	88.2	89.1	0.33	0.30	0.43
400	106		3.40	-	70.7	90.1	91.8	0.28	0.33	0.38
401	75		3.45	-	72.3	93.9	94.3	0.20	0.33	0.47
432	75	2.91	3.28	34.0	89.7	93.2	94.1	0.20	0.33	0.36

The results show that gold extraction improved at finer grind sizes.

Despite relatively high gravity gold recovery of 34 %, removal of the gravity component did not result in any improvement in overall extraction after 48 hours of leaching.

Results from the gravity/leach tests on the variability samples are summarized in Table 21.

Table 21: Summary of the Antenna variability gravity/cyanide leach testwork results

Test No	Sample ID	Au Head Grade (g/t)			Au Extraction (%)			Au Tail	Reagents (kg/t)	
[BK12-]		Assay	Calc'd	Grav	4-hr	24-hr	48-hr	Grade (g/t)	NaCN	Lime
433	Antenna VC01	11.1	10.3	37.8	89.6	90.5	92.1	0.82	0.09	0.39
434	Antenna VC02	5.01	5.06	28.7	90.0	92.3	92.0	0.41	0.19	0.27
435	Antenna VC03	1.91	2.25	59.7	94.3	97.1	97.1	0.07	0.16	0.34
436	Antenna VC04	2.53	2.43	40.3	88.0	91.5	92.4	0.19	0.16	0.27
437	Antenna VC05	2.41	2.41	40.9	91.8	94.1	94.4	0.14	0.19	0.32
438	Antenna VC06	3.17	2.51	38.8	90.0	95.1	95.4	0.12	0.30	0.38
439	Antenna VC07	2.83	2.77	29.7	92.5	95.1	94.6	0.15	0.30	0.31
440	Antenna VC08	1.76	1.95	38.9	88.6	94.4	95.1	0.10	0.19	0.31
441	Antenna VC09	2.58	2.90	33.7	93.2	96.6	93.8	0.18	0.16	0.28
442	Antenna VC10	2.15	1.84	35.2	91.2	95.9	97.0	0.06	0.30	1.96
443	Antenna VC11	1.96	2.00	41.7	92.2	95.0	95.0	0.10	0.16	0.35
444	Antenna VC12	1.76	2.02	41.8	86.8	94.9	96.3	0.08	0.16	0.34
445	Antenna VC13	1.38	1.62	28.4	87.0	90.5	92.6	0.12	0.26	0.34

Gravity gold recovery was consistently high, ranging from 28–60 %. Overall gold extraction was also high for all samples, ranging from 92–98 %.

Lime consumption for Antenna VC10 was significantly higher than all other samples tested. It was noted that this sample contains no carbonates and, therefore, no natural pH buffering capacity.

13.1.13 Flotation

A sub-sample of the Antenna Master Composite was ground to P80 passing 150 µm, and submitted for flotation testwork. The objective of the test was to determine the likely gold recovery to a bulk sulfide flotation concentrate. Depending on flotation response, the concentrate would then be submitted for fine-grinding and cyanide leach testwork. A summary of results is presented in Table 22.

Table 22: Summary of the Antenna flotation testwork results

Flotation Concentrate						Flotation Tail	
Test No. (BKF-)	Mass (%)	Au		S^{2-}		Au (g/t)	S^{2-} (%)
		Grade (g/t)	Recovery (%)	Grade (%)	Recovery (%)		
2023	5.64	50.9	85.4	18.9	96.6	0.52	0.04

Sulfide recovery was very high, at almost 97 %.

Despite the high S2- recovery, gold recovery to concentrate was only 85 %. This was to be expected, given the mineralogical analysis (at P80 75 µm) found some gold grains associated with silicates and silicate-pyrrhotite particles.

No further testwork was conducted on the flotation products.

13.1.14 Agouti Deposit

The sample tested as part of A19864 was crushed to minus 20 mm. The crushed material was homogenized, and sub-samples split out for comminution tests (Ai, RWi, and BWi). All comminution test products were retained and on completion of these tests, combined with the reserve minus 20 mm material and control-crushed to 100 % passing -3.35 mm to produce a master composite for extraction testwork. The crushed material was thoroughly homogenized and split into representative 1.0 kg charges using a rotary sample divider. The 1.0 kg charges were used for the extractive testwork program.

The samples tested as part of A20661 were individually control-crushed to -3.35 mm. Sub-samples were split out and combined to generate the master composite, which was thoroughly homogenized and split into representative 1.0 kg charges for us in the testwork program. The reserve material for eight selected samples was used for variability testing. These samples were (individually) homogenized and split into representative 1.0 kg charges.

13.1.15 Bond Abrasion Index

Sub-samples of the Agouti composites were tested to determine the Ai value. A summary of results is presented in Table 23.

Table 23: Summary of the Agouti Bond abrasion index (Ai) results

Composite ID	Bond Abrasion Index
Agouti	0.1253

These results are indicative of a moderately abrasive material.

13.1.16 Bond Rod Mill Work Index

A sub-sample of the Agouti composites was control-crushed to 100 % passing 12.7 mm. The crushed sample was thoroughly homogenized, and a representative sub-sample submitted for RWi determination at a closing screen size of 1,180 µm. A summary of results is presented in Table 24.

Table 24: Summary of the Agouti Bond rod mill work index (RWi) results

	Micrometers		Grp (g/rev)	Test Aperture Pi (µm)	Bond BWi (kWh/t)
Ore Type	F_{80}	P_{80}			
Agouti	10,336	854	5.146	1180	19.8

These results are indicative of a material with moderate to high hardness.

13.1.17 Bond Ball Mill Work Index

A sub-sample of the Agouti composites was control-crushed to -3.35 mm and tested to determine the Bond BWi. A closing screen size of 106 µm was used. A summary of results is presented in Table 25.

Table 25: Summary of the Agouti Bond ball mill work index (RWi) results

	Micrometers		Grp (g/rev)	Test Aperture Pi (µm)	Bond BWi (kWh/t)
Ore Type	F_{80}	P_{80}			
Agouti	2,897	77	1.066	106	16.7

These results are indicative of a material with moderate hardness.

13.1.18 Head Assays

Sub-samples of each testwork composite were submitted for comprehensive head assays. A summary of results is presented in Table 26.

Table 26: Summary of the Agouti head assay results

Composite ID	Au (g/t)	Au (g/t)	C_{TOTAL} (%)	$C_{ORGANIC}$ (%)	S_{TOTAL} (%)	S^{2-} (%)
Agouti Master – A19864	1.17	1.18	1.14	<0.03	0.74	0.58
Agouti Master – A20661	13.0	15.7	1.29	0.18	0.86	0.52
Agouti SGRC308	4.18	3.79	1.98	0.15	0.38	0.26
Agouti SGRC276	4.13	1.97	0.33	0.09	0.20	0.16
Agouti SGRC290	1.73	1.77	0.09	0.09	<0.02	<0.02

Variability in the duplicate gold assays usually indicates the presence of coarse gold.

13.1.19 Cyanide Leach

Sub-samples of the Agouti master composite and variability samples were submitted for cyanide leach testwork. The objectives of the tests were to determine:

- Impact of grind size on gold extraction.
- The presence of gravity-recoverable-gold, and the impact on overall gold recovery if gravity gold is recovered prior to leaching.

Results from the gravity/leach tests are summarized in Table 27.

Table 27: Summary of the Agouti variability gravity/cyanide leach testwork results

		Au Head Grade (g/t)			Au Extraction (%)			Au Tail	Reagents (kg/t)	
Test No [BK12-]	Sample ID	Assay	Calc'd	Grav	4-hr	24-hr	48-hr	Grade (g/t)	NaCN	Lime
446	Agouti Master	1.18	1.28	45.6	89.2	96.0	96.5	0.05	0.26	0.28
085	Agouti Master – A20661	14.4	11.5	47.4	89.5	96.4	96.8	0.37	0.26	0.69
088	Agouti SGRC308	3.99	4.36	22.6	89.0	92.2	92.5	0.33	0.23	0.69
089	Agouti SGRC276	3.05	2.68	54.1	94.8	97.5	97.8	0.06	0.16	0.28
090	Agouti SGRC290	1.75	2.34	24.2	93.4	96.4	97.0	0.07	0.26	2.65

Gravity gold recovery was consistently high, ranging from 22.6–54.1 %. Overall gold extraction was also high for all samples, ranging from 92.5–97.5 %.

13.1.20 Boulder Deposit

The sample tested as part of A19864 was crushed to -20 mm. The crushed material was homogenized, and sub-samples split out for comminution tests (Ai and BWi). All comminution test products were retained and combined with the reserve -20 mm material on completion of these tests. This material was combined with the RC chip sample (SGRC139 31-35 m). The combined material was control- crushed to 100% passing -3.35 mm to produce a master composite for extraction testwork. The crushed material was thoroughly homogenized and split into representative 1.0 kg charges using a rotary sample divider. The 1.0 kg charges were used for the extractive testwork program.

The samples tested as part of A20661 were individually control-crushed to -3.35 mm. Sub-samples were split out and combined to generate the master composite, which was thoroughly homogenized and split into representative 1.0 kg charges for us in the testwork program. The reserve material for eight selected samples was used for variability testing. These samples were (individually) homogenized and split into representative 1.0 kg charges.

13.1.21 Bond Abrasion Index

Sub-samples of the Boulder composites were tested to determine the Bond Ai value A summary of results is presented in Table 28.

Table 28: Summary of the Boulder Bond Abrasion (Ai) results

Composite ID	Bond Abrasion Index
Boulder	0.3763

These results are indicative of an abrasive material.

13.1.22 Bond Rod Mill Work Index

The Boulder composite was not submitted for RWi determination, due to limited sample mass availability.

13.1.23 Bond Ball Mill Work Index

A sub-sample of the Boulder composite was control-crushed to -3.35 mm and tested to determine the Bond BWi. A closing screen size of 106 µm was used. A summary of results is presented in Table 29.

Table 29: Summary of the Boulder Bond Ball Mill Work Index (BWi) results

	Micrometers		Grp (g/rev)	Test Aperture Pi (µm)	Bond BWi (kWh/t)
Ore Type	F_{80}	P_{80}			
Boulder	3,005	83	0.843	106	21.1

These results are indicative of a material with moderate to high hardness.

13.1.24 Head Assays

Sub-samples of each testwork composite were submitted for comprehensive head assays. A summary of results is presented in Table 30.

Table 30: Summary of the Boulder head assay results

Composite ID	Au (g/t)	Au (g/t)	C_{TOTAL} (%)	$C_{ORGANIC}$ (%)	S_{TOTAL} (%)	S^{2-} (%)
Boulder Master – A19864	31.0	21.1	0.33	0.03	0.22	0.20
Boulder Master – A20661	5.37	4.47	1.47	0.12	0.56	0.42
Boulder SGDD042	2.12	2.15	1.41	<0.03	0.72	0.62
Boulder SGRC261	2.45	1.56	1.14	0.06	0.38	0.28
Boulder SGRC316	4.30	4.18	1.92	0.03	0.36	0.32

Variability in the duplicate gold assays usually indicates the presence of coarse gold.

13.1.25 Cyanide Leach

Sub-samples of the Boulder master composite and variability samples were submitted for cyanide leach testwork. The objectives of the tests were to determine:

- Impact of grind size on gold extraction.
- The presence of gravity-recoverable-gold, and the impact on overall gold recovery if gravity gold is recovered prior to leaching.

Results from the gravity/leach tests are summarized in Table 31.

Table 31: Summary of the Boulder variability gravity/cyanide leach testwork results

		Au Head Grade (g/t)			Au Extraction (%)			Au Tail	Reagents (kg/t)	
Test No [BK12-]	**Sample ID**	**Assay**	**Calc'd**	**Grav**	**4-hr**	**24-hr**	**48-hr**	**Grade (g/t)**	**NaCN**	**Lime**
447	Boulder Master – A19864	26.1	17.7	52.2	90.8	99.0	98.3	0.30	0.19	0.33
087	Boulder Master - A20661	4.92	4.46	35.2	92.6	94.8	94.8	0.23	0.19	1.03
093	Boulder SGDD042	2.14	2.59	44.7	90.1	92.9	92.9	0.19	0.19	0.28
094	Boulder SGRC261	2.01	1.61	37.0	92.4	94.2	93.8	0.10	0.19	0.28
095	Boulder SGRC316	4.24	3.87	45.5	95.1	97.3	97.3	0.11	0.23	0.58

The calculated head grade for the Boulder Composite (17.7 g/t Au) was significantly lower than the assayed head grade (26.1 g/t Au). This is most likely due to the spotty nature of the gold in this material. It is expected that repeat tests might yield higher gravity gold recovery, and therefore higher calculated head grade. If this was the case, overall gold recovery would be higher than the reported 98.3 %.

Gravity gold recovery was consistently high, ranging from 35.2–52.2 %. Overall gold extraction was also high for all samples, ranging from 92.9–98.3 %.

13.1.26 Ancien Deposit

The samples tested as part of A20661 were individually control-crushed to -3.35 mm. Sub-samples were split out and combined to an Ancien Master Composite. This Composite was thoroughly homogenized and split into representative 1.0 kg charges for us in the testwork program. The reserve material for eight selected samples was used for variability testing. These samples were (individually) homogenized and split into representative 1.0 kg charges.

13.1.27 Head Assays

Sub-samples of each testwork composite were submitted for comprehensive head assays. A summary of results is presented in Table 32.

Table 32: Summary of the Ancien head assay results

Composite ID	Au (g/t)	Au (g/t)	C_{TOTAL} (%)	$C_{ORGANIC}$ (%)	S_{TOTAL} (%)	S^{2-} (%)
Ancien Master	15.7	17.9	1.11	0.09	0.28	0.20
Ancien SGRC329	35.1	32.6	0.06	0.03	<0.02	<0.02
Ancien SGRC244	12.0	8.27	2.22	<0.03	0.48	0.40

Variability in the duplicate gold assays usually indicates the presence of coarse gold.

13.1.28 Cyanide Leach

Sub-samples of the Ancien master composite and variability samples were submitted for cyanide leach testwork. The objectives of the tests were to determine:

- Impact of grind size on gold extraction.

- The presence of gravity-recoverable-gold, and the impact on overall gold recovery if gravity gold is recovered prior to leaching.

Results from the gravity/leach tests are summarized in Table 33.

Table 33: Summary of the Ancien variability gravity/cyanide leach testwork results

		Au Head Grade (g/t)			Au Extraction (%)			Au Tail	Reagents (kg/t)	
Test No [BK12-]	**Sample ID**	**Assay**	**Calc'd**	**Grav**	**4-hr**	**24-hr**	**48-hr**	**Grade (g/t)**	**NaCN**	**Lime**
086	Ancien Master	16.8	15.6	45.9	95.5	97.8	98.6	0.22	0.26	1.54
091	Ancien SGRC329	33.9	32.6	32.7	94.8	97.0	98.2	0.58	0.23	1.33
092	Ancien SGRD244	10.1	9.0	57.9	95.5	98.2	98.5	0.14	0.18	0.46

Gravity gold recovery was consistently high, ranging from 32.7–57.9 %. Overall gold extraction was also high for all samples, ranging from 98.2–98.6 %.

13.1.29 Acid Mine Drainage

Acid mine drainage prediction analysis was conducted on sub-samples of the Antenna Master Composite, as well as the Agouti and Boulder composites and the waste samples. A summary of results is presented in Table 34.

Table 34: Summary of the acid mine drainage (AMD) testwork results

Composite ID	ANC	TAPP	NAG	NAPP	pH	Conductivity (ms/cm)
	Kg (H2SO4)/t					
SAMPLES						
Antenna	81	36.6	-4	-44.4	9.88	0.539
Boulder	49	6.7	-4	-42.3	10.97	0.511
Agouti	187	22.6	-4	-164.4	10.74	0.588
WASTE SAMPLES						
SGDD015 - 14m	10	<1	-3	-9.4	6.92	0.116
SGDD001 - 17m	12	<1	-3	-11.4	6.78	0.095
SGRC192 - 48m	46	<1	-3	-45.4	10.24	0.204
SGRC193 - 38m	47	<1	-3	-46.4	10.4	0.195
SGRC200 - 62m	44	1.22	-3	-42.8	9.72	0.163
SGRC201 - 84m	214	3.05	-3	-211.0	11.28	0.756
SGRC206 - 15m	18	<1	-3	-17.4	8.02	0.092

The results indicate that none of the three composites, or the seven waste samples, are likely to be acid-generating.

13.2 ALS Laboratories FS Testwork Program (A20721)

13.2.1 Metallurgical Samples

Roxgold selected drill core samples for the A20721 metallurgical test program. An individual composite (Comp #3) was not prepared for sample SGDD010 due to insufficient sample being available (all of it was used for the Master Composite instead).

The Master Composite for the A20721 program was prepared by splitting and then combining portions from each drill core sample.

13.2.2 Mineralogy

A portion of the Antenna Master Composite (A20721 MC) was ground to a P80 of 75 µm and then pre-treated through gravity concentration ahead of the mineralogical analysis. A two-stage gravity concentration procedure (centrifugal concentrator followed by hand-panning) was used to produce the gravity concentrate. The pan tailings were combined into the first stage tailings. Detailed mineralogical analysis, using QEMSCAN, was performed on the final concentrate. The gravity tailings sample was submitted for bulk mineralogical analysis (XRD).

13.2.3 Bulk Mineralogy

Findings included:

- Pyrite constitutes 20.1 % of the gravity concentrate and approximately 1 % of the gravity tailings sample. Pyrite grains in the concentrate have a P80 of approximately 92 µm and are mostly liberated with 84.3 % being classified as well-liberated and another 12.3 % as "high grade middlings".
- The pyrrhotite content of the concentrate is estimated at around 9.6 %, but it is below the detection limit in the tailings sample.
- Gangue minerals include quartz, albite, and micas accompanied by lesser quantities of chlorite and clay minerals. Minor occurrences of carbonates were also noted.

13.2.4 Gold Mineralogy

Findings included:

- Twelve native gold grains were detected. These occur as gold-silver alloy with a low silver content of <10 %.
- Four of the twelve gold grains detected by QEMSCAN occurred as free gold. These ranged in size from 5–20 µm and constitute approximately 80 % of the total gold detected. The remaining eight grains were mostly enclosed in pyrite and ranged in size from 2–15 µm.

13.2.5 Head Assays

Selected head assays for the A20721 composite samples from the Antenna pit are tabulated in Table 35.

Table 35: A20721 Antenna samples head assays

Sample ID	Au 1 (g/t)	Au 2 (g/t)	Au mean (g/t)	Ag (ppm)	Hg (ppm)	As (ppm)	C_{org}(%)	S_{tot}(%)	S^{2-} (%)
COMP # 1	2.35	2.81	2.58	<0.1	<2	<10	<0.03	0.24	0.16
COMP # 2	1.61	1.83	1.72	<0.1	<2	<10	<0.03	0.98	0.68
COMP # 4	1.14	1.06	1.10	<0.1	<2	40	<0.03	0.5	0.38
COMP # 5	2.09	1.84	1.97	<0.1	<2	<10	<0.03	0.62	0.48
COMP # 6	4.91	6.08	5.50	<0.1	<2	20	<0.03	1.46	1.18
COMP # 7	1.69	1.74	1.72	0.3	<2	40	<0.03	1.46	1.16
COMP # 8	2.49	2.46	2.48	<0.1	<2	40	<0.03	1.04	0.9
COMP # 9	1.30	1.76	1.53	<0.1	<2	10	<0.03	0.44	0.36
COMP # 10	1.93	1.73	1.83	<0.1	<2	30	<0.03	1.6	1.36
COMP # 11	4.21	4.90	4.56	<0.1	<2	60	<0.03	1.58	1.2

Sample ID	Au 1 (g/t)	Au 2 (g/t)	Au mean (g/t)	Ag (ppm)	Hg (ppm)	As (ppm)	C_{org}(%)	S_{tot}(%)	S^{2-} (%)
COMP # 12	4.0	3.64	3.82	<0.1	<2	140	0.15	0.46	0.32
COMP # 13	2.24	2.28	2.26	<0.1	<2	<10	<0.03	0.62	0.44
COMP # 14	2.45	2.87	2.66	<0.1	<2	30	<0.03	1.36	1.26
COMP # 15	2.33	2.69	2.51	<0.1	<2	40	<0.03	1.48	1.32
COMP # 16	1.50	1.29	1.4	<0.1	<2	<10	<0.03	1.16	0.88
COMP # 17	3.06	2.76	2.91	<0.1	<2	20	<0.03	1.78	1.3
COMP # 18	3.26	2.28	2.77	<0.1	<2	10	<0.03	0.94	0.68
Antenna MC	2.87	2.48	2.68	<0.1	0.3	20	0.06	0.94	0.72

The average gold grade for each sample is the arithmetic mean of two duplicate separate fire assays. The differences between the duplicate fire assays indicate the presence of coarse gold grains or coarse high-grade gold-bearing particles such as sulfides. These differences appear to be more pronounced at higher grades (see comp #18 and #6 for example). This observation strengthened the case for including a gravity concentration step in the flowsheet.

Negligible organic carbon and mercury contents suggested that these deleterious elements would likely not present significant problems when processing mineralized material.

Silver levels were consistently low and were ignored for design purposes. Some arsenic was found in most of the samples, but the average level was sufficiently low to assume that it too would not present a significant problem.

Table 36 shows the head grades measured for the Ancien, Agouti and Boulder samples tested during the A20721 program. The levels of deleterious elements were also low and do not present any concerns.

Table 36: A20721 Other pits samples head assays

Sample ID	Au 1 (g/t)	Au 2 (g/t)	Au mean (g/t)	Ag (ppm)	Hg (ppm)	As (ppm)	C_{org}(%)	S_{tot}(%)	S^{2-} (%)
VC01	1.22	1.25	1.24	<0.1	0.6	10	0.24	0.26	0.22
VC02	1.47	1.37	1.42	<0.1	0.3	70	0.15	0.7	0.64
VC03	1.54	1.58	1.56	<0.1	0.3	60	0.15	0.86	0.76
VC04	3.4	3.07	3.24	<0.1	0.3	30	0.15	1.38	1.26
VC05	9.35	8.66	9.01	<0.1	0.9	80	0.15	1.2	0.94
VC06	2.52	3.62	3.07	<0.1	<0.3	<10	0.33	0.5	0.36
VC07	2.73	3.29	3.01	<0.1	0.3	<10	0.09	0.22	0.16
VC08	2.12	1.48	1.80	<0.1	0.6	20	0.12	1.62	1.14
VC09	8.33	13.6	10.97	<0.1	0.6	20	0.06	2.94	2.44
VC10	2.0	1.62	1.81	<0.1	<0.3	100	<0.03	1.12	1.08
VC11	1.8	2.6	2.22	<0.1	<0.3	30	0.18	0.44	0.34
VC12	22.9	19.3	21.10	<0.1	0.6	20	0.15	0.44	0.34
VC13	11.3	9.4	10.35	<0.1	0.6	40	0.18	0.74	0.64
VC14	16.5	14.8	15.65	<0.1	0.6	20	0.12	0.18	0.12
VC15	3.22	4.3	3.76	<0.1	<0.3	40	0.12	0.56	0.52
VC16	13.5	8.47	10.99	<0.1	0.6	20	<0.03	0.42	0.28
VC17	2.24	3.86	3.05	<0.1	0.3	<10	0.24	0.24	0.12
Boulder Master	1.17	1.17	1.17	<0.1	0.6	10	<0.03	0.72	0.58
Agouti Master	1.1	1.19	1.15	<0.1	0.3	<10	<0.03	0.46	0.28
Ancien Master	9.08	10.20	9.64	<0.1	0.6	50	<0.03	0.78	0.50

13.2.6 Comminution Results

CWi tests were performed on a selection of the Antenna drill core samples. These results are tabulated in Table 37.

Table 37: Impact crushability results (CWi in kWh /Mt)

Sample #	Antenna	Boulder	Agouti	Ancien
1	6.4	6.7	6.4	9.6
2	6.1	8.3	7.8	9.5
3	12.2	8.4	6.2	6.4
4	9.5	6.3	6.0	3.2
5	6.1	9.6	1.6	3.3
6	6.1	6.4	4.6	6.4
7	11.0	9.4	7.7	6.4
8	9.0	9.5	6.1	7.9
9	13.8	6.3	6.2	9.8
10	9.4	6.6	9.5	9.7
Ave	9.0	7.8	6.2	7.2
85^{th} percentile	11.8	9.5	7.7	9.7

For this set of Antenna samples, the average CWi was 9.0 kWh/t and the 85^{th} percentile value was 11.8 kWh/t. The average specific gravity (SG) measured for these samples was 2.62. The average and 85^{th} percentile values for these samples were marginally lower than that of the samples tested during the A19864 phase. When combining these with the previous results the combined average was 10.1 kWh/t and the 85^{th} percentile value was 13.9 kWh/t.

The Boulder, Agouti and Ancien samples were generally softer than the Antenna samples.

SMC and bond index comminution testing was performed on a selection of samples and Master Composites. Table 38 summarizes the result obtained.

Table 38: Comminution testwork results

Sample ID	DWi (kWh/m^3)	SG	JK Parameters				Bond Indices (kWh/t)		
			A	b	A x b	ta	RWi	BWi	Ai
Antenna MC	8.0	2.75	73.7	0.47	34.6	0.33	20.8	-	0.4340
Antenna COMP # 8	9.0	2.80	100	0.31	31.0	0.29	-	20.5	-
Antenna COMP # 14	8.4	2.77	100	0.33	33.0	0.31	-	20.2	-
Antenna COMP # 16	8.6	2.81	81.1	0.40	32.4	0.30	-	18.5	-
Antenna Average:	**8.5**	**2.78**	**88.7**	**0.4**	**32.8**	**0.31**	**-**	**19.7**	**-**
Agouti MC	8.6	2.79	77.5	0.42	32.6	0.30	-	18.0	-
Boulder MC	8.5	2.73	87.1	0.37	32.2	0.31	-	16.3	-
Ancien MC	8.0	2.78	89.4	0.39	34.9	0.32	-	16.8	-

The Antenna samples tested were of above average hardness but marginally softer than the Antenna Master Composite originally tested. Combining the four new results for Antenna with the initial data resulted in an average Axb of 32.3 and an 85^{th} percentile value of 30.8. In terms of the BWi, the combined average is 19.7 kWh/t and the 85^{th} percentile is at 20.4 kWh/t.

The Agouti, Boulder and Ancien samples yielded similar results to Antenna.

The UCS of four of the Antenna samples were also tested and yielded a value of 177.1 MPa. This classifies the mineralized material as "hard/strong". Five samples of each of the Boulder, Agouti and Ancien samples yielded averaged UCS values of 43, 72 and 55 MPa respectively. This classifies these ores as "medium hard/strong".

13.2.7 Flowsheet Options Tested

Given the consistently high (mid-90 %) overall gold recoveries as well as the high average gravity gold recovery recorded during previous testing, this program focused entirely on a conventional CIL flowsheet with gravity concentration.

13.3 Gravity-Cyanidation Results for the A20721 Program

13.3.1 Grind and Cyanide Addition Optimization

Table 39 summarizes the results from the grind and cyanide series of testwork.

Table 39: Antenna MC gravity-cyanidation test results (Grind and Cyanide Series)

Test No.	Test Conditions		Residue Au (g/t)	Gold Extraction (%)				Reagent Consumption (kg/t)	
	Grind P80 (µm)	Initial NaCN (%)		Gravity	4-hr	24-h	48-hr	NaCN	Lime
BK13492	150	0.05	0.220	38.9	79.3	89.7	91.8	0.17	0.46
BK13493	106	0.05	0.165	38.6	86.0	91.6	93.9	0.22	0.24
BK13494	75	0.05	0.130	38.1	84.9	90.7	95.2	0.22	0.28
BK13495	75	0.10	0.125	38.8	92.2	94.1	95.3	0.39	0.29
BK13496	75	0.02	0.145	40.9	70.1	93.8	94.3	0.10	0.35

Figure 38 presents a graph of the final residue grades, analyzed by duplicate fire assay, versus the grind size of the sample. The result shows a linear correlation between the fineness of the grind and the residue grade (confirming a similar trend observed during the PEA testwork program).

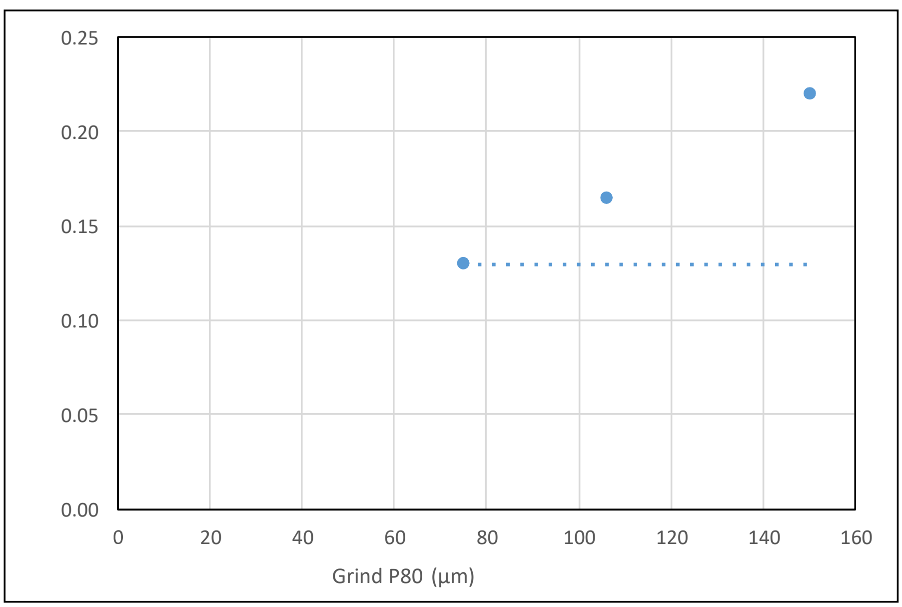

Figure 38: Residue gold grade versus grind P80 for A20721 Antenna MC (ALS, 2020)

Figure 39 presents a graph of the final residue grades, analyzed by duplicate fire assay, versus the initial NaCN concentration used in the series.

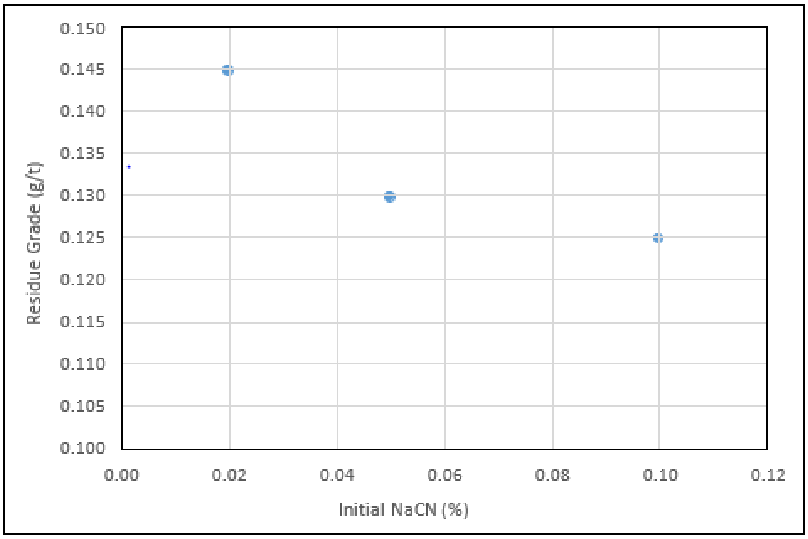

Figure 39: Residue gold grade versus cyanide strength for A20721 Antenna MC (ALS, 2020)

The graph shows a decrease in residue grade from 0.130–0.125 g/t Au as the cyanide concentration was increased from 0.05–0.1 %. However, the difference of 0.005 g/t Au is smaller than the analytical error margin (fire assays are reported to 2 decimal places only) and therefore a mathematical averaging difference only. In contrast, the cyanide consumption increased from 0.22 to 0.39 kg/t is significant. Given this outcome, an initial cyanide addition of 0.05 % was adopted for the remainder of the program as this allows for complete gold leaching while not overestimating the cyanide consumption that could be achieved on the full-scale plant.

13.3.2 Other Leach Parameters Optimization

Table 40 summarizes the results from the tests exploring the effects of air sparging, lead nitrate addition, a 24-hour residence time as well as pre-oxygenation. All these tests were performed at a P80 grind of 75 µm and with an initial cyanide concentration of 0.05 %.

Table 40: Antenna MC gravity-cyanidation tests results (other parameters)

Test	Condition varied	Residue Au (g/t)	Gold Extraction (%)					Reagent Consumption (kg/t)	
			Gravity	2-hr	8-hr	24-h	48-hr	NaCN	Lime
BK13513	Air Sparge	0.150	39.9	62.6	87.8	93.7	94.3	0.18	0.34
BK13514	50 %w/w solids	0.135	39.5	74.8	94.5	94.9	94.9	0.12	0.35
BK13515	Pb $(NO_3)_2$	0.135	37.4	89.4	91.1	93.2	95.2	0.17	0.39
BK13516	CIL	0.135	42.4	86.2	94.0	94.0	94.5	0.39	0.29
BK13647	24hr	0.150	39.6	68.0	90.7	94.5	-	0.05	0.45
BK13826	24hr; 4hpre-ox	0.140	44.7	88.0	93.6	94.9	-	0.11	0.33

The residue gold grade values are all very similar and within the accuracy of the test procedure. However, the two highest residue grades were recorded when air sparging only was used and at the 24-hour leach duration.

Cyanide consumption was elevated when carbon was added, however, there is no indication whether the carbon was pre-conditioned in cyanide solution.

Figure 40 shows the average gold extraction versus leach duration curve for all 17 tests combined (Table 41).

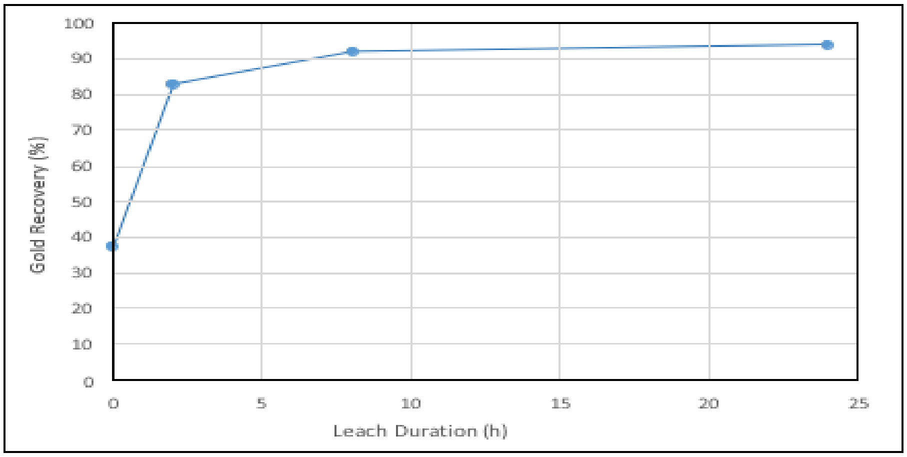

Figure 40: A20721 Antenna variability samples leach kinetics (ALS, 2020)

Individual curves were combined to smooth out analytical variations to allow for a more precise assessment of the kinetics. Figure 40 shows that leaching is substantially complete within 24 hours and there is no apparent preg-robbing.

Figure 40 also shows a fast initial leaching rate for the gravity tailings sample with more than 80 % of the stage extraction completed within the first two hours of cyanidation. This fast initial leaching rate renders this material amenable to a hybrid CIL configuration, where the conventional CIL is preceded by a pre-leach tank. Most of the gold will leach in the pre-leach tank, which provides several downstream benefits with respect to the efficiency of the adsorption process.

Table 41: Antenna variability samples gravity – cyanidation tests results (A20721)

Sample ID	Head Au Grade (g/t)		Residue Au (g/t)	Gold Extraction (%)				Reagent Consumption (kg/t)	
	Assayed	Calc'd		Gravity	2-hr	8-hr	24-hr	NaCN	Lime
COMP #1	2.58	2.44	0.10	24.0	85.4	94.0	95.9	0.12	1.00
COMP #2	1.72	2.88	0.13	52.1	86.2	93.3	95.5	0.12	0.29
COMP #4	1.10	1.20	0.07	20.0	85.8	93.4	94.2	0.04	0.74
COMP #5	1.97	1.11	0.07	34.4	86.8	91.7	94.1	0.10	0.31
COMP #6	5.50	3.92	0.30	34.2	86.2	91.1	92.5	0.12	0.27
COMP #7	1.72	1.58	0.15	23.1	83.1	87.4	90.8	0.12	0.28
COMP #8	2.48	2.41	0.20	35.8	86.4	90.8	91.9	0.10	0.30
COMP #9	1.53	1.89	0.06	51.5	88.2	96.1	96.8	0.10	0.66
COMP #10	1.83	2.55	0.15	45.2	86.7	92.0	94.1	0.09	0.23
COMP #11	4.56	4.65	0.21	41.2	72.8	92.7	95.6	0.07	0.34
COMP #12	3.82	2.77	0.16	43.8	88.5	94.9	94.2	0.03	0.34
COMP #13	2.26	1.40	0.07	54.8	86.2	94.4	95.4	0.11	0.31
COMP #14	2.66	2.75	0.18	33.8	81.1	89.5	93.5	0.10	0.30
COMP #15	2.51	2.15	0.16	34.6	84.3	92.0	92.8	0.10	0.29
COMP #16	1.40	1.67	0.06	51.2	72.4	95.3	96.7	0.10	0.31
COMP #17	2.91	2.62	0.22	22.0	78.5	89.9	91.6	0.14	0.26
COMP #18	2.77	2.70	0.13	39.7	77.5	90.8	95.2	0.16	0.37
Averages	**2.55**	**2.39**	**0.14**	**37.7**	**83.3**	**92.3**	**94.2**	**0.10**	**0.39**

The overall gold recoveries recorded for the 17 Antenna VC samples are plotted against the gravity gold recovery in Figure 41.

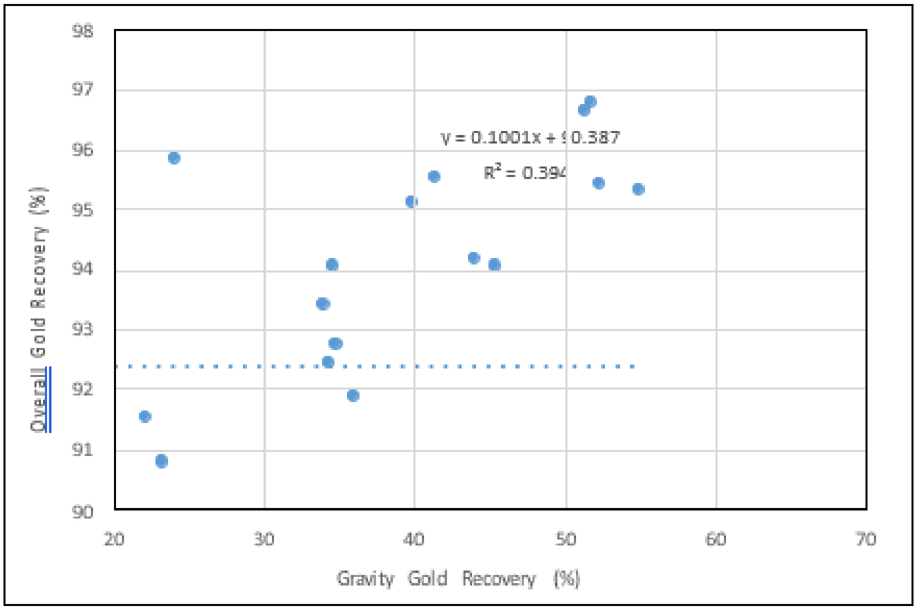

Figure 41: Gold Recovery versus gravity recovery - all A20721 variability samples (ALS, 2020)

A straight-line fit indicates a positive correlation, as expected, but a poor correlation coefficient, which indicates that the recovery achievable is not dependent on the recovery of coarse gold by gravity concentration.

Figure 42 shows the overall gold recovery versus head grade plot for the 17 Antenna variability samples.

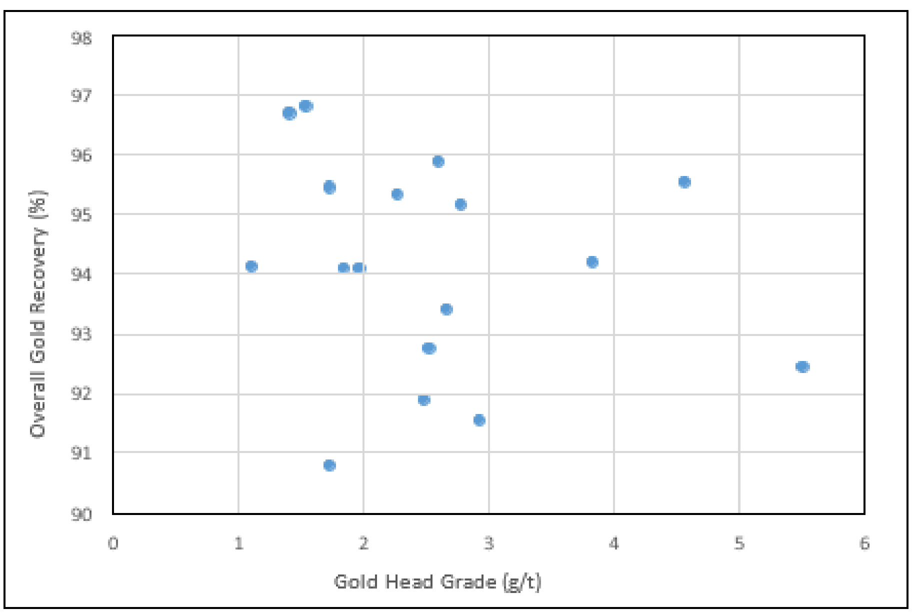

Figure 42: Gold Recovery versus head grade for Antenna variability samples A20721 (ALS, 2020)

It is evident that there is no trend between recovery and gold grade for this domain. All the samples tested yielded recoveries exceeding 90 %, which indicates that there are no refractory "pockets" within the mineralization. This confirms and strengthens a similar finding from the PEA variability tests.

Figure 43 presents a graph of the final residue grades, analyzed by duplicate fire assay, versus the assayed head grade for the seventeen Antenna variability samples.

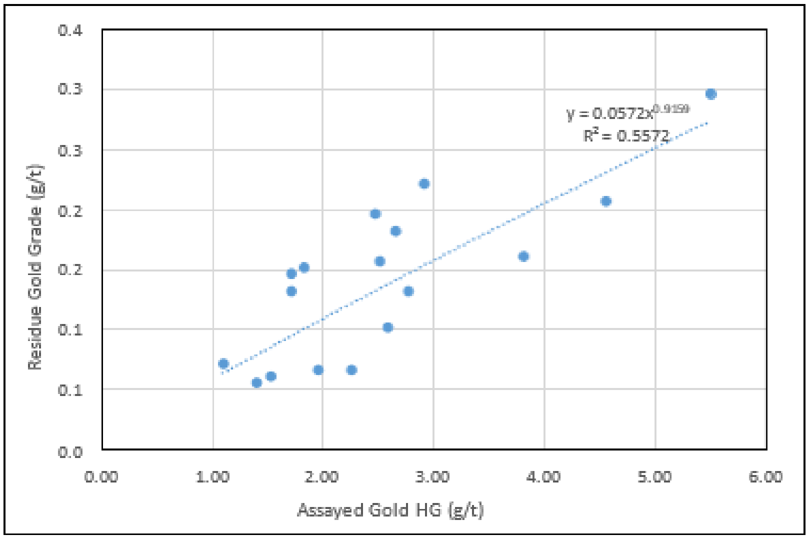

Figure 43: Residue gold grade versus head grade for Antenna variability samples (ALS, 2020)

A straight-line fit yielded an acceptably high correlation coefficient (R2) of 0.557. These results are used, in conjunction with the corresponding PEA data, to derive a recovery model.

The average cyanide and lime consumptions for the 17 variability samples are low at 0.10 kg/t and 0.39 kg/t respectively. While the lime consumption is similar to the PEA results, the cyanide consumption was significantly lower, likely due to the shorter leach duration.

13.3.3 Satellite Pits Variability Sample Test Results

Table 42 summarizes the results of tests comprising of gravity concentration followed by cyanidation of the gravity tailings performed on the variability samples taken from the satellite pits for the feasibility study program (A20721).

Table 42: Ancien, Boulder and Agouti variability samples gravity-cyanidation results (A20721)

Pit	Sample ID	Head Au Grade(g/t)		Residue Au (g/t)	Gold Extraction (%)				Reagent Cons (kg/t)	
		Assayed	Calc'd		Gravity	2-hr	8-hr	24-hr	NaCN	Lime
Boulder	VC01	1.24	1.23	0.16	11.0	79.0	85.9	87.4	0.12	0.57
	VC02	1.42	1.41	0.24	12.4	80.1	80.7	83.0	0.12	0.53
	VC03	1.56	1.86	0.20	22.8	84.5	88.1	89.5	0.16	0.52
Agouti	VC04	3.24	3.23	0.23	24.0	87.0	90.4	92.9	0.19	0.71
	VC05	9.01	9.96	0.98	25.2	78.0	88.4	90.2	0.16	0.54
	VC06	3.07	2.64	0.20	23.1	78.3	90.4	92.4	0.12	0.41
	VC07	3.01	4.14	0.25	49.4	88.1	94.2	94.0	0.15	0.39
	VC08	1.80	3.69	0.12	50.8	68.6	90.3	96.8	0.21	0.44
	VC09	9.78	7.78	0.25	66.8	75.5	87.5	96.8	0.26	0.43

Pit	Sample ID	Head Au Grade(g/t)		Residue Au (g/t)	Gold Extraction (%)				Reagent Cons (kg/t)	
		Assayed	Calc'd		Gravity	2-hr	8-hr	24-hr	NaCN	Lime
Ancien	VC10	1.81	1.63	0.19	18.7	87.9	87.2	88.4	0.16	0.51
	VC11	2.22	2.30	0.13	38.9	86.7	93.0	94.6	0.11	0.36
	VC12	21.10	17.01	0.32	50.7	95.3	97.6	98.1	0.16	0.42
	VC13	10.35	15.08	0.24	62.5	87.7	96.8	98.4	0.11	0.36
	VC14	15.65	12.62	0.10	65.4	91.0	98.3	99.2	0.10	0.34
	VC15	3.76	3.49	0.10	58.7	87.9	94.5	97.1	0.12	0.42
	VC16	11.19	10.92	0.21	56.8	92.2	97.3	98.1	0.14	0.40
	VC17	3.05	4.08	0.09	47.7	86.2	97.3	97.8	0.12	0.35
Ancien MC		9.65	10.73	0.38	47.8	91.5	95.2	96.5	0.05	0.44
Agouti MC		1.15	1.14	0.10	37.4	85.0	89.6	91.2	0.14	0.41
Boulder MC		1.17	1.29	0.15	18.3	82.7	87.3	88.7	0.12	0.35
Ave		5.76	5.81	0.23	39.4	84.7	91.5	93.6	0.14	0.45

All the tests were performed on samples ground to a P80 of 75 µm and followed the same cyanidation procedure as described previously. Note that these tests were performed for 24 hours as opposed to the 48 hours duration used in the PEA.

Figure 44 shows the average gold extraction versus leach duration curve for all 17 tests combined.

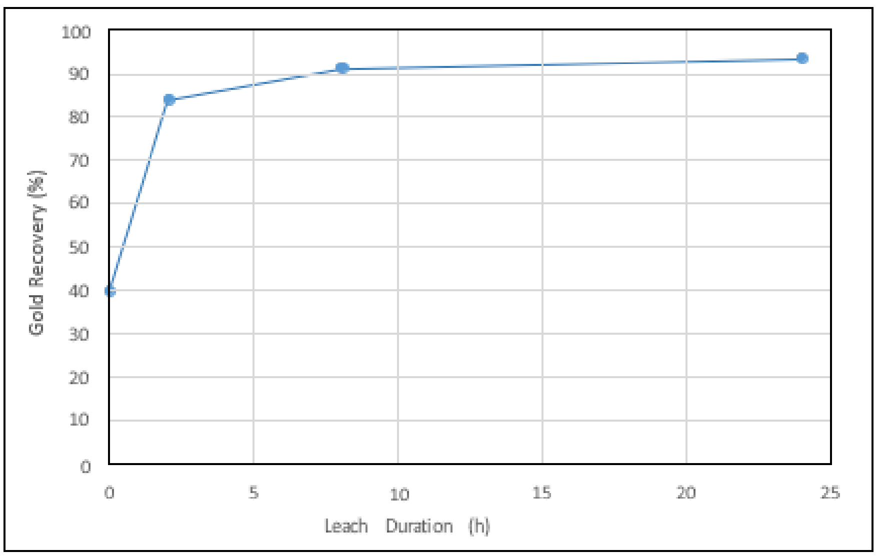

Figure 44: A20721 satellite pits variability and MC samples leach kinetics (ALS, 2020)

Individual curves were combined to smoothen out analytical variations in order to allow for a more precise assessment of the kinetics. As was the case for Antenna, the graph shows that leaching is substantially complete within 24 hours and there is no apparent preg-robbing.

Figure 44 also shows a fast initial leaching rate for the gravity tailings samples, which supports the decision to include a pre-leach tank.

The overall gold recoveries recorded for the seventeen variability samples are plotted against the gravity gold recovery in Figure 45. A strong positive correlation validates the decision to include a gravity recovery step in the flowsheet.

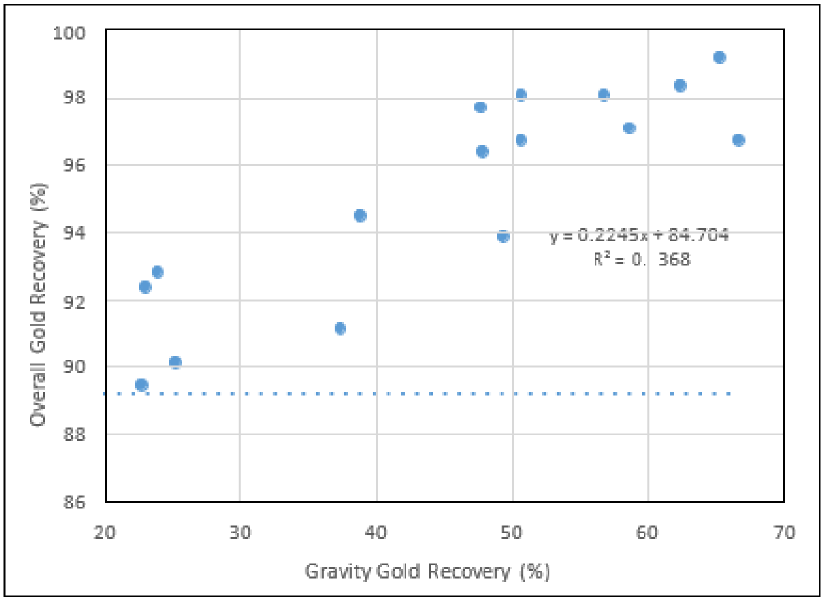

Figure 45: Gold recovery versus gravity recovery - A20721 satellite pits (ALS, 2020)

As was the case for Antenna, there is no discernible correlation between overall or gravity gold recovery and head grade for these variability composites. Residue grades are weakly correlated to head grade, but this data is not used in the overall recovery model, which is based on Antenna results only.

The average cyanide and lime consumptions for the 17 variability samples are similar to Antenna rates at 0.14 kg/t and 0.45 kg/t, respectively. The cyanide consumption is lower than that recorded during the PEA, likely due to the shorter leach duration.

13.3.4 Miscellaneous Test Results

A preg-robbing test was conducted on a slurry of ground Antenna Master Composite. Gold was added to a level of 10 mg/L and the slurry was bottle-rolled for 24 hours with intermediate sampling and analysis of the solution gold concentration. It was found that none of the gold adsorbed from the solution and hence that the mineralized sample did not contain any preg-robbing components.

A lime demand test was conducted at a slurry density of 40 %w/w solids. A total of 0.17 kg/t hydrated lime was added to adjust the slurry pH to 10.5 units. This is well below the lime consumption recorded during most of the cyanidation tests.

Exploratory cyanide detoxification testing was conducted for future reference. Table 43 summarizes the results obtained.

Table 43: Antenna MC detoxification results (SO_2 – air method)

Test Conditions	Residual TotalCyanide (mg/L)	Reagent Consumption (kg/t)		
		$Na_2S_2O_5$	$CuSO_4.5H_2O$	Lime (60% CaO)
5:1 SO_2:WAD CN	9.0	0.27	0.48	1.26
4:1 SO_2:WAD CN	8.7	0.22	0.47	0.80
3:1 SO_2:WAD CN	13.2	0.16	0.45	0.63
reduced Cu add'n	31.6	0.16	0.22	0.46
no copper add'n	137.8	0.16	0.00	0.40

The total cyanide content of the pregnant leached solution was 169 mg/L at the start of the 15-minute residence time test and the slurry fed to the reactor contained 50 %w/w solids. Lime was added to maintain the solution pH at approximately 8.5 units. Sodium metabisulphite powder was added to provide the sulfur dioxide.

A 3:1 sulfur dioxide to weakly acid-dissociable (WAD) cyanide ratio appeared to be sufficient when targeting a 50 mg/L total cyanide effluent. Comparison of the last three tests, all performed at a 3:1 SO_2:WAD ratio, indicated that a copper addition of around 0.22 kg/t is required to produce a sub-50 mg/L effluent.

An oxygen uptake test was conducted on an Antenna Master Composite sample at a pH of 10 and a grind P_{80} of 75 µm. Table 44 presents the oxygen uptake rate recorded at specific durations into the test.

Table 44: Oxygen uptake rate results

Time (h)	Oxygen uptake rate(mg/L/min)
1	0.0184
2	0.0073
3	0.0081
4	0.0078
5	0.0075
6	0.0081
24	0.0035

The sample exhibited a low oxygen uptake rate.

13.3.5 Gravity Recoverable Gold Test

A sample of the Antenna Master Composite (A20721) was subjected to a staged gravity recovery procedure where the sample was ground finer in increments with a gravity concentration step executed at each grind. Table 45 summarizes the results obtained.

Table 45: Antenna MC gravity recoverable gold

Product	Grind Size(µm)	Mass (%)	Au (g/t)	Au Dist'n(%)
Stage 1 Con	P_{80} 850	0.12	449	19.9
Stage 2 Con	P_{50} 75	0.17	410	26.2
Stage 3 Con	P_{80} 75	0.16	188	11.4
Stage 3 Tail	P_{80} 75	99.55	1.14	42.5
Combined Con		0.45	340	57.5
TOTAL		**100.0**	**2.67**	**100.0**

The results show that most of the gravity recoverable gold was extracted in the first two coarser grinds.

The total gravity recoverable gold fraction was 57.5 % of the feed, reporting to a concentrate of 0.45 % of the sample mass and at a concentrate grade of 340 g/t Au.

This result exceeds the gravity gold recoveries recorded during the cyanidation test programs, which averaged around 40 % gravity gold recovery.

13.3.6 Carbon Adsorption Test

Carbon adsorption tests were performed to assess the amenability of the slurry to gold recovery from the solution onto activated carbon.

Figure 46 presents the results of adsorption equilibrium loading test performed by contacting various amounts of carbon to samples of the leached Antenna Master Composite slurry for a duration of several days.

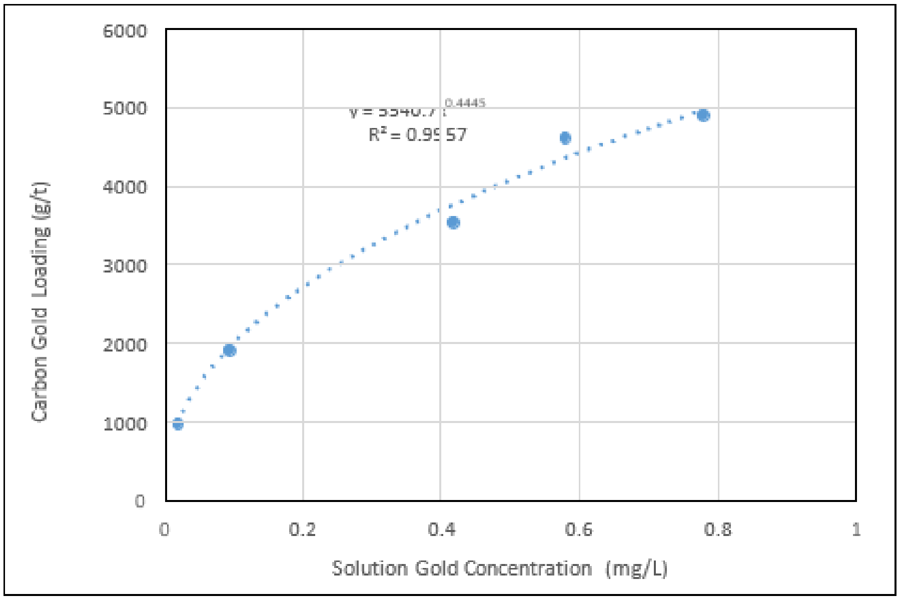

Figure 46: Adsorption equilibrium - Antenna MC (ALS, 2020)

Figure 46 shows the maximum achievable loading on carbon at various solution gold concentrations at room temperature. The Freundlich isotherm, Y = 5541 C 0.445 with Y the loading on the activated carbon at equilibrium (g/t) and C the solution gold concentration (mg/L) in equilibrium with this carbon is shown to fit the data well.

Figure 47 presents the results of an adsorption kinetic loading test performed by contacting a measured amount of carbon with a 6 kg sample of leached Antenna Master Composite slurry.

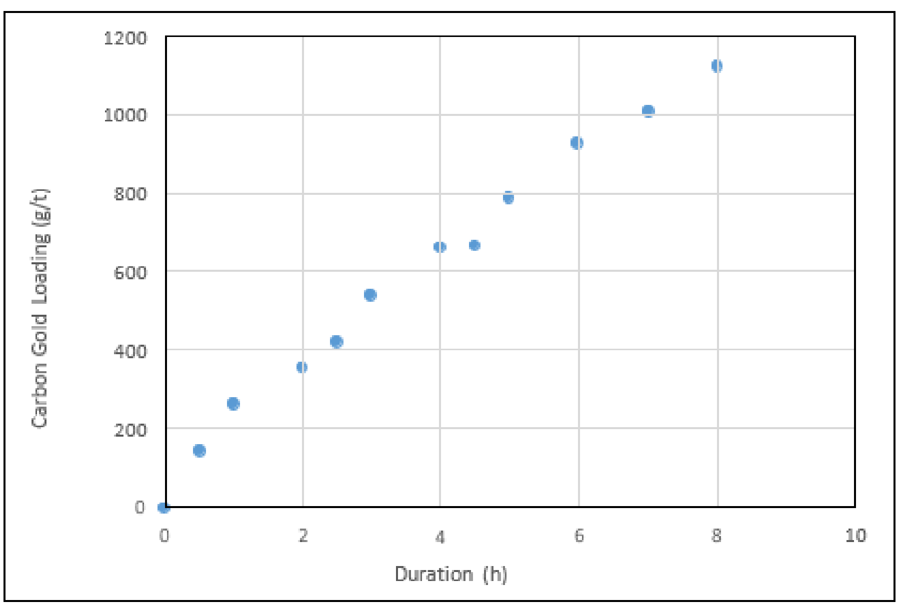

Figure 47: Adsorption kinetics sequential tripe contact batch test - Antenna MC (ALS, 2020)

The leached slurry was replaced with a fresh batch at the 2-hour mark and again at the 4-hour mark to maintain a high gold in solution concentration and simulate the counter-current movement of carbon in industrial scale adsorption plants.

From the test data the Fleming model constants were derived as:

- Fleming k = 104 hr^{1}.
- Fleming n = 0.718.

13.3.7 Sedimentation and Rheology Test Results

A sample of the Antenna Master Composite was subjected to rheology testing. Figure 48 and Figure 49 present the results graphically.

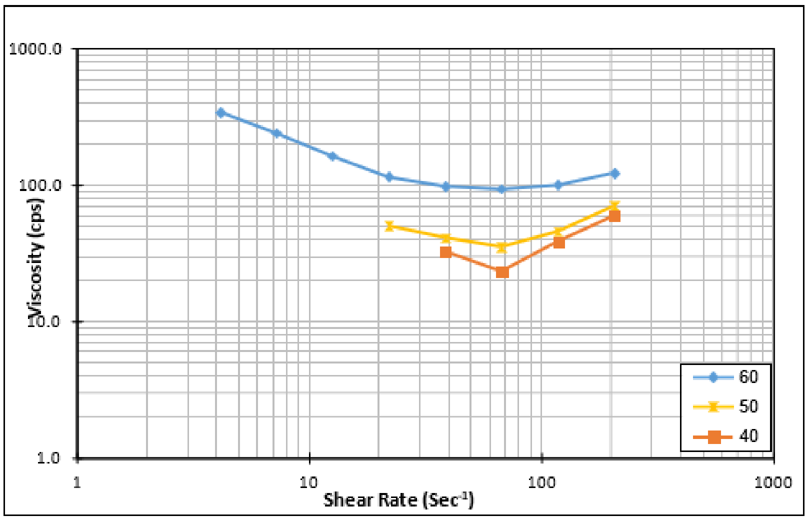

Figure 48: Viscosity versus shear rates at three densities (%slides) for the Antenna MC slurry (ALS, 2020)

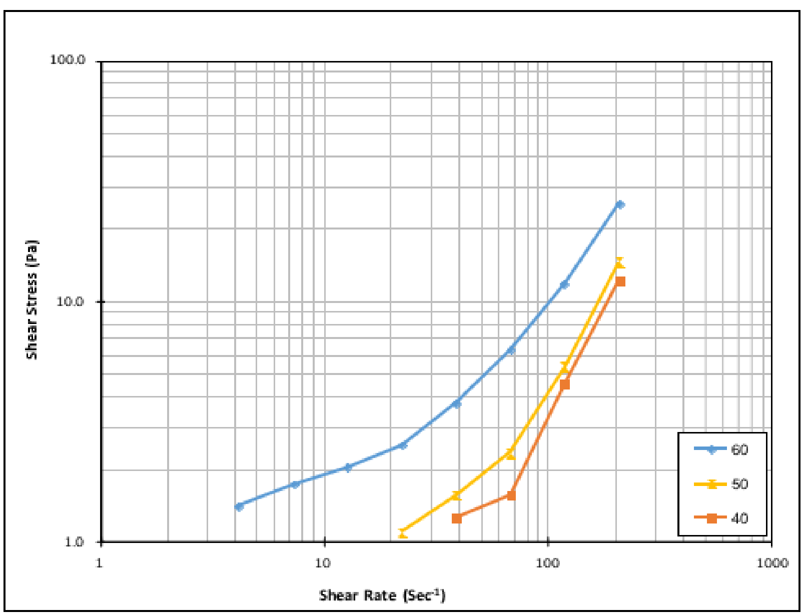

Figure 49: Shear Stress versus rate for three densities (% solids) for the Antenna MC slurry (ALS, 2020)

A yield stress lower than 10 Pa was measured for all but the highest shear rate indicating that the slurry will not be difficult to pump or agitate.

A sample of Antenna Master Composite was subjected to sedimentation testing by Outotec testing facility using a laboratory scale dynamic high-rate thickener. The P80 of the sample was determined to be 82 µm and 60 g/t Magnaflocc M10 flocculant was added throughout. Note that Outotec stated that there was insufficient sample to allow flocculant optimization hence it is possible that lower addition rates would produce equivalent results. Table 46 summarizes the results from three tests performed at different feed fluxes.

Table 46: Antenna MC dynamic thickening results

Feed		Underflow		Overflow
Flux ($t/m^2.h$)	Liquor Rise Rate (m/h)	Density (% solids w/w)	Yield Stress (Pa)	Suspended Solids (ppm)
0.5	2.46	64.4	31	230
1.0	4.93	60.6	24	280
1.5	7.39	59.4	53	330

The desired underflow density of approximately 54 %w/w solids was exceeded over the range tested. For the purposes of maintaining a reasonably clear overflow product and to allow surge capacity Outotec recommended a design flux rate of 1.0 t/ (m2.h) and a feed density of 22 %w/w solids.

The dynamic thickening testwork conducted by Outotec used a flocculant dosing rate of 60 g/t. However, flocculant screening tests showed that the settling rate was largely insensitive to the flocculant addition rate once it exceeded 40 g/t. Due to limited sample quantity, Outotec was not able to perform more thickening tests to optimize the flocculant dosing rate.

At the end of 2020, Roxgold Sango was able to conduct additional thickening testwork on a pre-leach thickener sample with BASF to determine the optimal flocculant dosage and verify the appropriate thickener feed solids. The BASF thickening testwork confirmed that Magnafloc 10 is the best performing flocculant for mineralization in terms of settling rate and overflow clarity. The ideal solids in the thickener feedwell for efficient settling was determined to be at 15–17 % w/w. The recommended flocculant dosing rate was 20 g/t. Figure 50 to Figure 52 show the BASF testwork results.

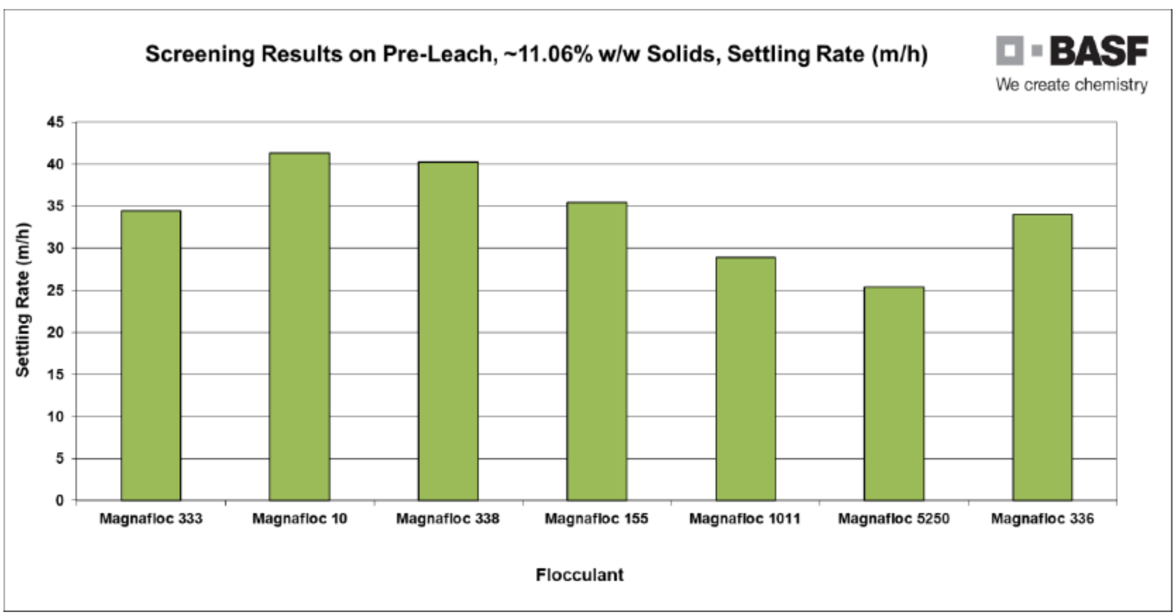

Figure 50: BASF flocculant screening results – flocculant type versus settling rate (ALS, 2020)

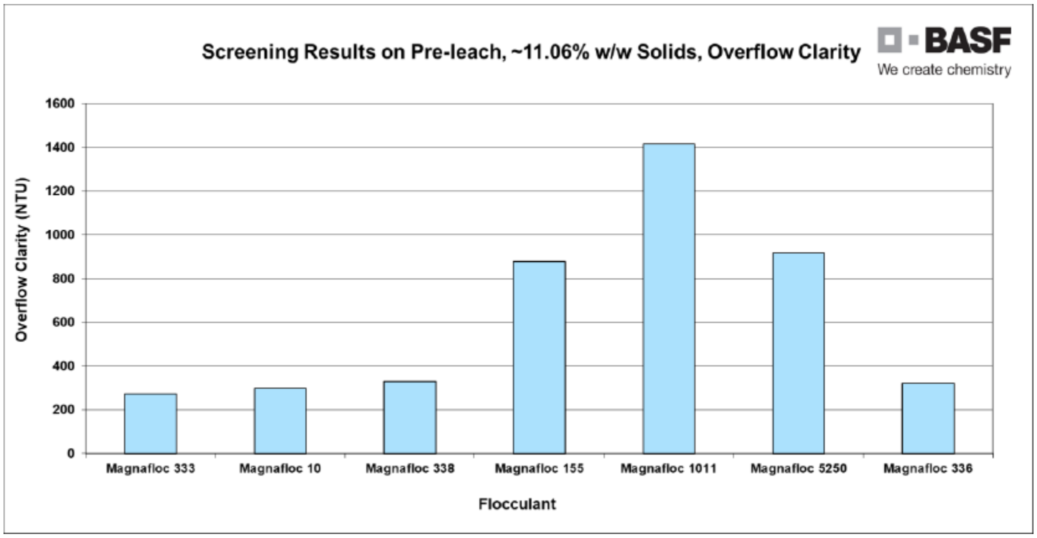

Figure 51: BASF flocculant screening results – flocculant type versus overflow clarity (ALS, 2020)

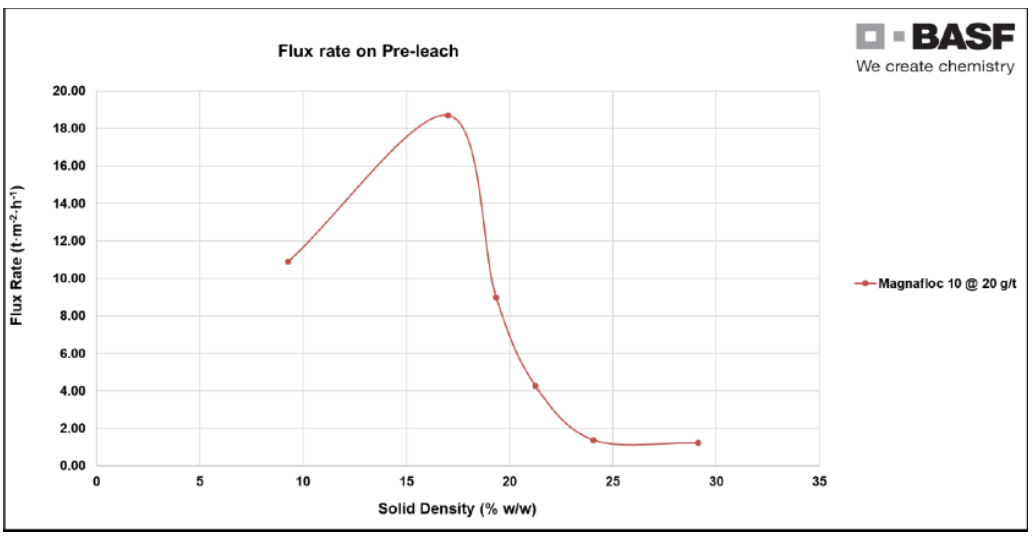

Figure 52: BASF settling testwork results – feed solids versus flux rate (ALS, 2020)

13.4 ALS Laboratories Feasibility Study Koula Update Testwork Program (A21926 and A21707)

13.4.1 Metallurgical Samples

Roxgold Sango selected drill core samples for both the A21926 and the A21707 metallurgical testwork program.

13.4.2 Head Assays

Selected head assays for the A21926 composite samples from the Koula deposit are tabulated in Table 47.

Table 47: Selected head assays for Koula composites

Comp ID	Au1 (g/t)	Au2 (g/t)	Au3 (g/t)	AuAVE (g/t)	Ag (ppm)	AS (ppm)	C-org (%)	Hg (ppm)	Stot (%)	S^{2-} (%)
Master	4.32	4.72	7.02	5.35	1.5	40	0.09	<0.1	1.30	0.84
VC01	1.45	1.37	1.31	1.38	0.3	<10	<0.03	<0.1	0.92	0.60
VC02	2.14	2.38	2.76	2.48	0.3	20	0.09	<0.1	0.72	0.42
VC03	3.17	2.42	1.71	2.438	<0.3	30	0.03	<0.1	1.06	0.60
VC04	3.91	4.47	4.29	4.22	0.3	<10	<0.03	<0.1	1.24	0.80
VC05	7.66	7.31	6.79	7.25	2.1	<10	0.06	<0.1	0.88	0.66
VC06	9.8	8.06	7.14	8.33	2.7	40	0.06	<0.1	1.38	0.98
VC07	7.51	7.47	6.36	7.11	0.6	<10	0.06	<0.1	0.80	0.54
VC08	56.1	58.8	57.3	57.4	3.9	40	0.24	0.3	1.24	0.84
VC09	18.3	17.3	16.9	17.5	1.2	30	0.06	<0.1	1.52	1.24
VC10	13	14.1	15	14.0	1.8	40	<0.03	<0.1	1.12	0.78

The average gold grade for each sample is the arithmetic mean of the triplicate fire assays. The large differences between the triplicate fire assays indicates the presence of gold nuggets in the Koula mineralized samples. The three composites observed as having the least nugget effect were VC01, VC08 and VC09. These three composites also had the lowest gravity gold recovery. All of the other composites had reasonably high gravity gold recovery, which again strengthened the case for including a gravity concentration step in the flowsheet.

Negligible organic carbon and mercury contents suggested that these deleterious elements would likely not present significant problems when processing this deposit.

Silver grades were consistently low compared to the gold grades, however, silver content in the Koula mineralized material was at a higher level than the Antenna ore. This is expected since Koula's mineralogy similar to that of the Ancien deposit.

Some arsenic was found in most of the samples, but the average level was sufficiently low to assume that it too will not present a significant problem.

13.4.3 Comminution Results

A summary of various comminution test results from the A21926 program is presented in Table 48.

Table 48: Koula comminution testwork summary

Ore Type	Project #	Unconfined Compressive Strength (MPa)					Bond Work Indices (kWh/t)		
		1	2	3	4	5	CWi	RWi	*BWi
Koula	A21926	7	29	8	26	9	6.90	19.5	16.3

*Closing screen size of 106 µm.

Comparing the Koula comminution parameters to those measured for samples from the other deposits, the average CWi, RWi, BWi values are all within similar ranges. The UCS results for Koula appear to be lower than results from other deposits indicating that Koula mineralized material is slightly less competent than the others. The comminution results from the A21926 program have no impact on the existing comminution design.

13.4.4 Gravity-Cyanidation Results

Table 49 presents a summary of the various tests conducted on the Koula master composite for gold from the A21926 program.

Table 49: Koula master composite testwork results for gold

Test #	Comp ID	Au Head Grade (g/t)		Au Extraction (%)						Au Tail Grade (g/t)	Reagents (kg/t)	
		Assay	Calc'd	Grav	2-hr	4-hr	8-hr	24-hr	48-hr		NaCN	Lime
BK14863 (Direct Leach)	Master Comp	5.35	5.35	-	48.4	63.2	78.3	92.4	94.6	0.29	0.17	0.67
BK14864 (Gravity/Leach)			5.00	53.3	89.3	93.4	94.5	95.6	95.4	0.23	0.17	0.60
BK14865 (Gravity/Leach – 6 hrs O_2)			4.24	37.0	87.0	92.8	93.6	94.7	94.1	0.25	0.17	0.58

Test #BK14863 directly leached the master composite (no gravity separation) with oxygen sparging. The results showed that gold recovery continued to increase after 24 hours of leaching.

Test #BK14864 had gravity separation followed by leaching of the gravity tails with oxygen sparging. Test #BK14865 had gravity separation followed by leaching of the gravity tails, but with oxygen sparging for only six hours. These two tests yielded similar recoveries but faster leach kinetics. Both leach curves began to plateau at 24 hours. It can be observed from this testwork that if gravity separation was included, a 24-hour leach time would be sufficient.

The highest gold recovery was achieved for the test incorporating gravity recovery and elevated dissolved oxygen levels for the duration of the leach.

Table 50 presents a summary of the Koula variability testwork for gold from the A21926 program.

Table 50: Koula variability testwork for gold

Test #	Comp ID	Au Head Grade (g/t)		Au Extraction (%)						Au Tail Grade (g/t)	Reagents (kg/t)	
		Assay	Calc'd	Grav	2-hr	4-hr	8-hr	24-hr	48-hr		NaCN	Lime
BK14878	VC01	1.38	1.65	19.5	85.7	88.0	89.7	91.9	93.0	0.12	0.22	0.41
BK14879	VC02	2.43	2.62	54.2	86.1	89.9	94.6	96.0	96.0	0.11	0.17	0.43
BK14880	VC03	2.43	2.38	46.0	88.0	92.5	94.1	95.6	96.0	0.10	0.20	0.49
BK14881	VC04	4.22	5.62	58.3	92.3	93.8	94.8	96.0	96.4	0.20	0.20	0.41
BK14964	VC05	7.25	7.07	70.7	95.5	96.2	97.4	98.3	97.9	0.15	0.11	0.42
BK14883	VC06	8.33	7.53	42.8	83.5	89.0	91.9	93.1	96.0	0.30	0.22	0.39
BK14884	VC07	7.11	6.43	35.0	82.2	89.7	93.5	94.7	95.5	0.29	0.20	0.44
BK14885	VC08	57.40	48.60	18.6	62.6	79.0	91.1	95.6	96.3	1.81	0.22	0.47
BK14886	VC09	17.50	22.00	18.1	71.9	80.3	92.3	94.7	94.7	1.16	0.22	0.43
BK14887	VC10	14.00	17.30	41.5	92.5	95.2	95.5	97.6	97.4	0.46	0.30	1.90
Average				**40.5**	**84.0**	**89.4**	**93.5**	**95.4**	**95.9**		**0.21**	**0.58**

The Koula variability testwork shows an average gravity gold recovery of 40.5 %. However, one of the composites (VC05) yielded a 70 % gravity gold recovery which increased the average significantly. Without VC05, the average would be only 37.1 %. Gravity gold recovery at full-scale tends to be about 25 % less than the testwork results, hence, no impact to the existing gravity circuit design is expected.

The Koula overall gold recovery averaged 95.3 % at the end of 24-hour leach period. This is similar to the design recovery of 95 %, which was based on Antenna variability testwork results only at the time. Koula mineralized material would likely be blended with other ore, hence, the existing 95 % gold recovery in the plant design criteria still holds.

The average cyanide consumption was 0.20 kg/t from the variability testwork; however, the measurement was completed after 48 hours of leaching. Since the targeted leach residence time was only 24 hours, the cyanide consumption in full-scale should be less, hence no impact to the existing cyanide consumption in the plant design criteria is expected.

The average lime consumption was 0.58 kg/t from the variability testwork, however, one of the composites (VC10) had significantly higher lime consumption than the rest. The head analysis showed VC10 to have the lowest calcium percentage, which could mean the lowest amount of CaCO3 (lime), explaining why that sample's lime consumption was higher than the remainder. Without VC10, the average would be 0.43 kg/t. The measurement for lime consumption was completed after 48 hours of leaching. Since the targeted leach residence time is only 24 hours, the lime consumption in full-scale should be less, hence, no impact is expected to the existing lime consumption rate in the plant design criteria.

Table 51 presents a summary of the various tests conducted on the Koula master composite for silver from the A21926 program.

Table 51: Koula master composite testwork results for silver

Test #	Comp ID	Ag Head Grade (g/t)		Ag Extraction (%)						Ag Tail Grade (g/t)
		Assay	Calc'd	Grav	2-hr	4-hr	8-hr	24-hr	48-hr	
BK14863 (Direct Leach)	Master Comp	1.50	1.05	-	24.8	30.4	35.8	41.0	42.7	0.60
BK14864 (Gravity/Leach)			0.69	19.2	51.2	51.2	51.2	53.8	56.4	0.30
BK14865 (Gravity/Leach – 6 hrs O_2)			0.93	11.3	39.3	39.3	39.3	33.5	35.4	0.60

The highest silver recovery was achieved for the test incorporating gravity recovery and elevated dissolved oxygen levels for the duration of the leach. Silver recovery continued to increase beyond the 24-hour period for the master composite.

Table 52 presents a summary of the Koula variability testwork for silver from the A21926 program.

Table 52: Koula variability testwork for silver

Test #	Comp ID	Ag Head Grade(g/t)		Ag Extraction (%)						Ag Tail Grade (g/t)
		Assay	Calc'd	Grav	2-hr	4-hr	8-hr	24-hr	48-hr	
BK14878	VC01	0.30	0.41	5.9	54.6	54.6	59.2	59.2	63.5	<0.3
BK14879	VC02	0.30	0.33	19.8	49.7	49.7	49.7	55.1	55.1	<0.3
BK14880	VC03	<0.3	0.41	14.8	54.0	58.8	58.8	63.2	63.2	<0.3
BK14881	VC04	0.30	0.54	27.9	68.8	68.8	68.8	72.1	72.1	<0.3
BK14964	VC05	2.10	1.07	25.5	42.3	42.3	42.3	42.3	44.0	0.60
BK14883	VC06	2.70	0.86	19.5	54.3	58.8	61.0	63.1	65.2	0.30
BK14884	VC07	0.60	0.65	14.5	45.3	48.3	51.1	51.1	53.8	0.30
BK14885	VC08	3.9	4.1	14.0	58.5	76.9	88.7	89.2	85.4	0.60
BK14886	VC09	1.2	1.7	13.8	69.0	76.9	88.0	91.2	91.2	<0.3
BK14887	VC10	1.8	1.4	25.6	73.6	76.4	75.0	76.3	78.8	0.30
Average				**18.1**	**57.0**	**61.1**	**64.3**	**66.3**	**67.2**	

The gravity silver recovery averaged 18.1 % and the overall silver recovery averaged at 66.3 % for the Koula variability testwork. Although the existing plant design criteria has not considered silver, it is expected the carbon loading and the electrowinning capacity has sufficient margin to handle the silver from Koula ore.

13.5 ALS Laboratories Feasibility Study Sunbird Update Testwork Program (A23013)

13.5.1 Metallurgical Samples

Roxgold Sango selected drill samples from eight drill holes for the A23013 metallurgical testwork program to confirm the characteristics of the Sunbird deposit (Table 53).

Table 53: Samples used for A23013 testwork

Composite ID	Sample Type	Mass (kg)
SCRC1280	RC Chip	5.6
SGRC1278	RC Chip	5.8
SGRC1297	RC Chip	5.3
SGDD089	Quarter-core	21.0
SGRC1300	RC Chip	6.1
SGRC1296	RC Chip	5.5
SGRC1285	RC Chip	5.8
SGRC1306	RC Chip	5.7

13.5.2 Head Assays

Selected head assays for the A23013 composite samples from the Sunbird deposit are tabulated in Table 54.

Table 54: Selected head assays for Sunbird composites

Composite ID	Au-1 (g/t)	Au-2 (g/t)	Au-3 (g/t)	Au (ave) (g/t)
SCRC1280	3.15	2.65	2.77	2.86
SGRC1278	0.78	0.84	1.5	1.04
SGRC1297	2.78	3.12	2.58	2.83
SGDD089	16.4	14.2	17.1	15.9
SGRC1300	6.51	5.02	5.35	5.63
SGRC1296	6.58	5.69	5.07	5.78
SGRC1285	2.28	2.18	2.34	2.27
SGRC1306	3.09	3.37	3.49	3.32

The average gold grade for each sample is the arithmetic mean of the triplicate fire assays. The differences between the triplicate fire assays indicate the presence of gold nuggets in the Sunbird mineralized samples, a point that correlates well with the high levels of visible gold recorded in drill core. The composites averaged a reasonably high gravity gold recovery of 40 %, which is consistent with the metallurgical testwork for the other deposits.

Silver grades are consistently low compared to the gold grades, and comparable to those recorded at Koula.

Some arsenic was found in most of the samples, but the average level is sufficiently low to assume that it too will not present a significant problem (50 ppm to <10 ppm).

13.5.3 Comminution Results

A summary of various comminution test results from the A23013 program is presented in Table 55.

Table 55: Sunbird comminution testwork summary

Ore Type	Project #	Bond Work Indices (kWh/t)	
		Ai	*BWi
Sunbird	A23013	0.1265	13.8

*Closing screen size of 106 µm.

Comparing the Sunbird comminution parameters to those measured for samples from the other deposits, the average values are all within similar ranges. The comminution results from the A23013 program have no impact on the existing comminution design.

13.5.4 Gravity-Cyanidation Results

Table 56 presents a summary of the various tests conducted on the Sunbird master composite for gold from the A23013 program.

Table 56: Sunbird master composite testwork results for gold

Test #	CompID	Au Head Grade (g/t)		Au Extraction (%)					Au Tail Grade (g/t)	Reagents (kg/t)	
		Assay	Calc'd	Grav	4-hr	8-hr	24-hr	48-hr		NaCN	Lime
BK16724	SGRC1280	2.86	2.22	25.0	88.0	89.7	90.9	92.1	0.18	0.31	0.81
BK16725	SGRC1278	1.04	0.74	38.7	90.1	90.8	92.6	93.2	0.05	0.20	0.51
BK16726	SGRC1297	2.83	2.33	24.4	85.0	86.6	88.1	89.3	0.25	0.31	0.80
BK16727	SGDD089	15.9	14.6	67.4	94.1	94.9	96.0	97.4	0.38	0.22	0.53
BK16728	SGRC1300	5.63	5.02	49.2	90.1	93.7	94.9	95.8	0.21	0.26	0.59
BK16729	SGRC1296	5.78	3.91	43.1	93.3	94.5	95.2	95.6	0.17	0.29	0.73
BK16730	SGRC1285	2.27	1.73	28.7	86.2	88.1	89.7	90.7	0.16	0.26	0.75
BK16731	SGRC1306	3.32	3.00	48.4	94.4	95.0	96.8	96.8	0.10	0.22	0.62

The Sunbird variability testwork shows an average gravity gold recovery of 40.6 %. However, one of the composites (BK16727) yielded a 67.4 % gravity gold recovery which increased the average significantly. Without BK16727, the average would be only 36.8 %. Gravity gold recovery at full-scale tends to be about 25 % less than the testwork results, hence, no impact to the existing gravity circuit design is expected.

The Sunbird overall gold recovery averaged 93 % at the end of 24-hour leach period. This is similar to the design recovery of 95 %, which was based on Antenna variability testwork results only at the time. Sunbird mineralized material would likely be blended with other ore, hence, the existing 95 % gold recovery in the plant design criteria still holds.

The average cyanide consumption was 0.26 kg/t from the variability testwork; however, the measurement was completed after 48 hours of leaching. Since the targeted leach residence time is only 24 hours, the cyanide consumption in full-scale should be less, hence no impact to the existing cyanide consumption in the plant design criteria is expected.

The average lime consumption was 0.66 kg/t from the variability testwork, however the measurement for lime consumption was completed after 48 hours of leaching. Since the targeted leach residence time is only 24 hours, the lime consumption in full-scale should be less, hence, no impact is expected to the existing lime consumption rate in the plant design criteria.

13.6 ALS Metallurgy Update Testwork Program – Sunbird (A23013)

ALS Metallurgy conducted a defined program of metallurgical testwork on various samples from the Sunbird deposit.

Testwork was conducted between April and June 2023, and included the following:

- Composite generation and sample preparation
- Comminution testwork, including:
  - UCS determination.
  - CWi determination.
  - RWi determination.
- BWi determination.
- Grind establishment testwork.
- Gravity gold recovery and cyanide leach testwork.

13.6.1 Comminution Testwork Samples

Roxgold Sango selected drill samples from twenty-five drill holes for the A24535 metallurgical testwork program to confirm the characteristics and of the Sunbird deposit, as a follow up from testwork program A23013 completed between November 2021 and February 2022.

13.6.2 Master Composite

A total of 32 quarter core and RC chip samples were received and combined to generate the Master Composite.

13.6.3 Variability Composite

A total of 67 quarter core and RC chip samples were received and combined to generate 10 variability composites.

13.6.4 Unconfined Compressive Strength

Five samples were provided for UCS determination.

The UCS results classified the Sunbird mineralized material as weak to medium strength characteristics.

13.6.5 Bond Impact Crushing Work Index

Ten individual samples were selected and prepared for Bond CWi determination. All samples were cut to ensure they were in the size range -76 +51 mm. The CWi was determined using an Impact Crushability Test Unit. A summary of results is presented in Table 57.

Table 57: Summary of Sunbird Bond impact CWi results

Composite ID	No. of Specimens Tested	Average	Maximum	Minimum	Standard Deviation
Sunbird	10	17.0	22.3	9.25	4.85

The results are indicative of a material with moderate hardness.

13.6.6 Bond Rod Mill Work Index

Ten half core composites were combined and control-crushed to 100 % passing 12.7 mm. The crushed sample was thoroughly homogenized, and sub-sample of the crushed material submitted for Bond RWi determination at a closing screen size of 1,180 µm. A summary of results is presented in Table 58.

Table 58: Summary of Sunbird Bond RWi results

Composite ID	F_{80}	P_{80}	Grp (g/rev)	Test Aperture Pi (µm)	Bond RWi (kWh/t)
Sunbird	9,692	834	4.752	1180	20.7

The results are indicative of a material with moderate to high hardness.

13.6.7 Bond Ball Mill Work Index

Twelve quarter core samples were combined and control-crushed to -3.35 mm and tested to determine the Bond BWi. A closing screen size of 106 µm was used. A summary of results is presented in Table 59.

Table 59: Summary of Sunbird Bond BWi results

Composite ID	F_{80}	P_{80}	Grp (g/rev)	Test Aperture Pi (µm)	Bond RWi (kWh/t)
Sunbird	2,411	70	1.326	106	13.5

The results are indicative of a material with moderate to high hardness.

13.6.8 Head Assays

Results for the head assays of the composite samples taken at Sunbird are presented in Table 60.

Table 60: Summary of Sunbird head assays

Composite ID	Au-1 (g/t)	Au-2 (g/t)	Au -3 (g/t)	Au (ave)	C_{TOTAL} (%)	$C_{ORGANIC}$ (%)	Fe (%)	S_{TOTAL} (%)	$S_{SULPHIDE}$	S_iO_2 (%)
VC1	0.99	0.66	0.73	0.79	2.10	0.06	5.70	0.24	0.14	53.0
VC2	1.62	1.34	1.52	1.49	0.03	0.06	9.48	<0.02	<0.02	55.4
VC3	4.44	4.04	3.97	4.15	2.34	0.06	6.56	1.00	0.88	51.6
VC4	3.94	4.10	3.99	4.01	2.88	0.06	7.06	1.26	1.06	45.4
VC5	1.04	0.96	1.30	1.10	1.41	0.06	4.78	0.56	0.36	69.4
VC6	3.21	3.09	3.05	3.12	2.31	0.06	7.12	0.90	0.68	51.6
VC7	3.09	2.50	2.67	2.75	2.55	0.06	6.82	0.88	0.68	48.2
VC8	5.62	5.83	5.43	5.63	0.03	0.06	8.20	<0.02	<0.02	58.8
VC9	11.1	11.1	12.4	11.9	1.65	0.06	4.92	0.30	0.22	57.2
C10	4.21	4.65	4.40	4.42	1.89	0.06	5.68	0.84	0.72	57.4
Master	3.30	3.92	3.40	3.54	2.25	0.06	6.52	1.02	0.72	53.6

Variability in the triplicate gold assays usually indicates the presence of coarse gold, which appears to be the case for most samples. Negligible organic carbon suggests the samples are unlikely to exhibit preg-robbing behavior during cyanide leaching. Most samples contain moderate levels of sulfides.

13.6.9 Gravity/Cyanide Leach Testwork

For the Master Composite, three different tests were completed:

- Direct whole-ore cyanide leach (no gravity gold recovery).
- Gravity gold recovery, followed by cyanide leaching (with oxygen sparging throughout).

- Gravity gold recovery, followed by cyanide leaching (with oxygen sparging for 6 hours).

The objectives of the tests were to determine:

- Impact of grind size on gold extraction.
- The presence of gravity-recoverable-gold, and the impact on overall gold recovery if gravity gold is recovered prior to leaching.

Variability composites were submitted for testing to determine gold recovery via gravity and cyanide leaching (Table 61).

Table 61: Sunbird master composites gravity/cyanide leach test results

Test No	Au Head Grade (g/t)			Au Extraction (%)				Au Tail	Reagents (kg/t)	
	Assay	Calc'd	Grav	2-hr	8-hr	24-hr	48-hr	Grade (g/t)	NaCN	Lime
BK19274	3.54	3.39	-	54.2	89.0	93.9	94.4	0.19	0.21	0.46
BK19277	3.54	3.64	40.4	90.1	94.1	94.9	95.6	0.16	0.12	0.35
BK19278	3.54	3.58	29.9	87.5	91.6	94.2	94.7	0.19	0.16	0.43

For all composites, gravity/leach tests were conducted at P80 75 µm.

Results show that removal of gravity gold prior to leaching significantly improves leach kinetics. Despite this, overall recovery after 24 hour of leaching was almost identical for all three tests.

Results for the variability composites gravity/cyanide leach tests at Sunbird are presented in Table 62.

Table 62: Sunbird variability composites gravity/cyanide leach test results

Test No (BK-)	Au Head Grade (g/t)			Au Extraction (%)				Au Tail	Reagents (kg/t)	
	Assay	Calc'd	Grav	2-hr	8-hr	24-hr	48-hr	Grade (g/t)	NaCN	Lime
19289	0.79	2.43	69.6	95.4	97.4	98.0	98.1	0.05	0.19	0.28
19290	1.49	2.17	35.7	88.3	94.1	97.0	97.5	0.06	0.16	6.41
19291	4.15	4.00	36.1	89.7	92.8	94.6	94.9	0.21	0.15	0.35
19292	4.01	3.50	15.8	87.8	92.4	92.4	93.7	0.22	0.26	0.70
19293	1.10	1.18	38.3	85.5	92.9	94.1	94.9	0.06	0.19	0.24
19294	3.12	2.59	39.0	86.1	92.5	93.9	95.0	0.13	0.14	0.36
19295	2.75	4.14	54.5	89.3	94.7	95.6	96.0	0.17	0.15	0.31
19296	5.63	5.69	26.6	85.4	90.0	94.6	95.3	0.27	0.14	4.47
19297	11.9	6.27	60.5	91.8	95.6	97.1	97.5	0.16	0.14	0.26
19298	4.42	4.87	19.9	78.7	87.7	87.9	89.9	0.49	0.14	0.25

Overall gold extraction was generally very high, above 93.7 %, with only one exception at 89.9 %. Gravity gold was also high for most composites, between 27–70 %. Cyanide and lime consumption was generally low except for two instances.

The large disparity between calculated and assayed head grades is most likely attributed to high coarse gold content.

Test work completed for Sunbird confirmed that the mineralized material characteristics were similar to the other deposits.

13.7 Miscellaneous Testwork – Oxygen Sparging Requirement

A summary of the oxygen uptake rate testwork for the master composite is presented in Table 63 for the A21707 program.

Table 63: Oxygen uptake rate testwork for master composite (A21707 program)

Time (hours)	Oxygen Uptake Rate* (mg/L/min)	
	Test 1 (NaCN = Nil)	Test 2 (NaCN = 500 ppm)
0**	-0.1637	-0.0727
1	-0.1734	-0.0736
2	-0.1432	-0.0405
3	-0.1493	-0.0323
4	-0.1548	-0.0175
5	-0.146	-0.0261
6	-0.1451	-0.0379
24	-0.0691	0.0065

*Ambient temperature

** Baseline data prior to aeration

Test 2 had a significantly lower oxygen uptake rate than Test 1 due to the presence of cyanide. The reactive species that were being oxidized in the pre-oxidation stage were possibly already oxidized by the cyanide, hence, their demand for oxygen could significantly be reduced.

Table 64 presents the gravity/leach testwork results from the A21707 program.

Table 64: Gravity/Cyanide leach testwork for master composite (A21707 program)

Test ID	Test Description	Au Head Grade (g/t)		Au Extraction (%)						Tail Au Grade (g/t)	Reagents (kg/t)	
		Assay	Calc	Grav	2hr	4hr	8hr	24hr	36hr		NaCN	Lime
BK14631	Bottle-roll, Continuous O_2 Sparging	2.31	2.15	30.0	75.9	86.5	89.6	93.8	94.6	0.12	0.07	0.58
BK14632	Vat Leach, 15ppm DO	2.31	2.11	30.6	79.9	83.2	87.4	91.0	91.0	0.19	0.26	0.63
BK14633	Vat Leach, 15ppm DO First 3 hrs	2.31	2.16	29.8	80.3	88.0	87.6	92.4	93.3	0.15	0.24	0.63
BK14635	Vat Leach, 3-hr Pre-ox	2.31	2.30	28.0	75.8	85.6	87.7	88.6	93.0	0.16	0.43	0.49

The lowest tail grade and cyanide consumption were achieved for BK14631, which was the bottle-roll test with constant oxygen-sparging. Historically, bottle-roll tests have had consistently lower cyanide consumption than vat leach tests. Out of the three vat leach tests, BK14633 performed best with just oxygen sparging during the first three hours of leaching. Based on the results, a pre-oxidation step was not required for the Séguéla Mine.

13.8 Recovery Equations for Mine Modelling

All of the Antenna test results for both the PEA and feasibility study programs were used to derive an empirical correlation between the residue grade and head grade, which was then used to formulate a recovery equation. Figure 53 shows the plot of the residue versus head grades.

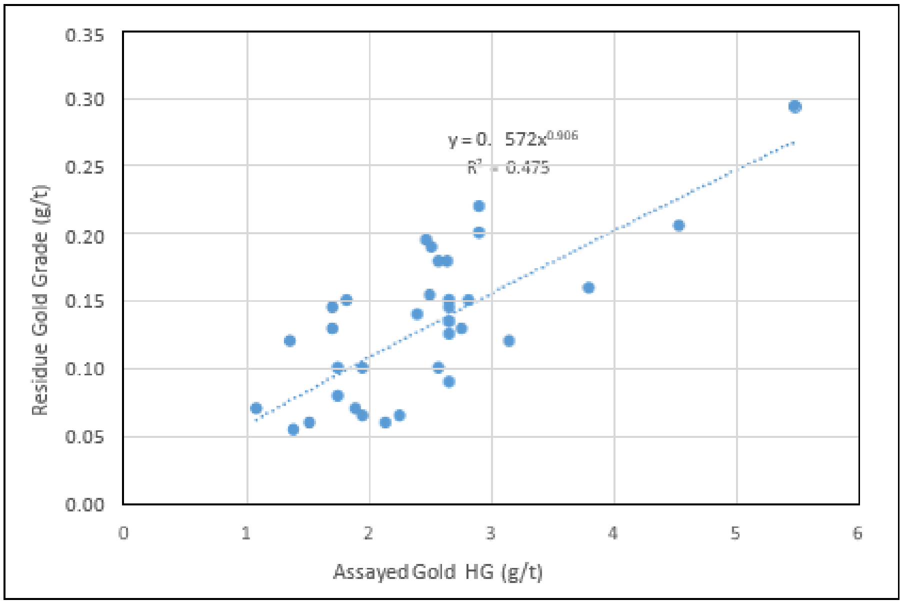

Figure 53: Residue gold grade versus head grade for Antenna tests (ALS, 2020)

Of the 53 tests conducted on Master Composite and variability samples, five tests were excluded as those were performed at grinds that differed from the selected optimum to test the effect of liberation on gold extraction. The results for VC1 and VC2 were also excluded as the residue grades for these two samples were significantly above the expected values and they also had head grades that far exceeded the projected LOMP grade and were therefore considered outliers. The remaining 46 test results were included in Figure 53.

The correlation coefficient was poor, but it was similar for a linear and exponential trendline so the poor R2 is due to regular variability in the data and not due to the choice of empirical equation. The correlation between residue and head grade is thus:

- Residue Grade = 0.0572 * Head Grade$^{0.906}$

From this the recovery equation can be formulated as:

- Recovery = 100-100*(0.0572*HG$^{-0.094}$)

This recovery represents extraction, through gravity concentration followed by cyanidation, from the ground mineralization only, and does not include other losses such as the dissolved gold loss in the CIL tails stream or gold adsorbed onto carbon fines.

This equation yields a residue grade of 0.141 g/t Au at the feasibility study LOMP head grade of 2.8 g/t Au, which equates to an extraction of 94.8 %. Deducting losses of 0.3 % (0.008 g/t), the overall forecast gold recovery decreases to 94.5 % at this grade.

13.9 Process Design Criteria

Based on the testwork completed, a flowsheet featuring single stage semi-autogenous grinding (SAG) followed by gravity concentration and cyanidation of the gravity tailings was adopted.

The conventional six-stage CIL is preceded by a pre-leach stage. All tanks are injected with oxygen via the agitator down shaft. The pre-leach stage allows adsorption to proceed from a higher initial solution gold concentration, which improves adsorption efficiency and limits gold lock-up on the carbon inventory. It also ensures that there is very little additional leaching occurring in the final CIL stage, which allows a lower dissolved gold loss in the plant tailings stream.

Process design criteria adopted or derived from the testwork are tabulated in Table 65.

Table 65: Process design criteria

Criterion	Units	Average	Design
CWi	kWh/t	10.1	19.3
Axb [1]	-	32.3	30.6
Specific Gravity	-	2.82	
Bond Ball Mill Work Index[1]	kWh/t	19.7	20.7
Abrasion Index	-	0.42	
Grind P_{80}	µm	75	
Bond Rod Mill Work Index	kWh/t	21.8	22.7
Gravity Gold Recovery (Testwork)	%	38.6	
Gravity Gold Recovery (Full-Scale)[2]	%	29.0	40
Sedimentation flux	$t/(m^2.h)$	1.0	
Flocculant Consumption	g/t	20	60
Cyanidation Duration	h	24	
Cyanidation Density	% w/w solids	50	
Leach Cyanide Strength (Initial)	g/L	0.5	
Leach NaCN Consumption[3]	kg/t	0.12	0.17
Leach CaO Consumption[3]	kg/t	0.41	0.57
Fleming kinetic constant (k)	1/h	104	
Fleming parameter (n)	-	0.718	

Notes:

- *OMC used highest of five test results due to low number of data points*
- *Full-scale plant gravity gold recovery discounted by 25 % from test results*
- *A 40 % design allowance applied to average consumptions to allow for peak fluctuations. Based on 76 % CaO lime used during testwork*

13.10 Comments on Section 13

It is the opinion of the QP that metallurgical testwork is representative of the material planned to be processed in the LOMP, including material expected to be sourced from the Antenna, Ancien, Koula, Agouti, Boulder and Sunbird open pit mining operations. Recoveries experienced during the commissioning and ramp up stage of the process plant fed by mineralized material extracted from the Antenna deposit supports this opinion.

14 Mineral Resource Estimates

14.1 Introduction

Mineral Resources were estimated for of six deposits, Antenna, Ancien, Agouti, Boulder, Koula and Sunbird.

The resource estimation methodology included the following procedures:

- Validation of the drilling database.
- Modelling of mineralized wireframes that were generated based on logged lithology and sample grade values.
  - At the Antenna, Koula, Ancien and Sunbird deposits, strings were generated for gold mineralization using downhole plots of assayed grade at a nominal cut-off grade of 0.2 g/t Au. Geological logging was used to guide lode interpretation.
  - At the Agouti and Boulder deposits the mineralization was modelled using the 'vein' function in Leapfrog Geo to create discreet domains for estimation. Mineralization was modelled at a nominal cut-off grade of 0.2 g/t Au.
- Modelling of geological wireframes for host/waste lithologies.
- Validation of wireframes.
- Data compositing for statistical analysis and validation.
- Application/review of top cuts based on statistical analysis.
- Construction of the block model.
- Grade interpolation using ordinary kriging (OK) and inverse distance weighted (ID) techniques.
- Mineral Resource classification, validation and reporting.
- Generation of pit shells to constrain the reporting of Mineral Resources potentially amenable to open pit mining methods.
- Definition and reporting of underground Mineral Resources based on mineable shape optimizer (MSO).

The drilling database used to estimate the Mineral Resources was audited internally by Roxgold Sango and Fortuna personnel. In the opinion of the QP, the current drilling information is sufficiently reliable to interpret with confidence the boundaries of gold mineralization and that the assay data are sufficiently reliable to support Mineral Resource estimation.

14.2 Database Cut-Off

The models were prepared using all drilling information available as of June 30, 2023. The Sunbird estimate has changed with available data and the interpretation supporting the estimate has been updated. The Antenna, Ancien, Agouti, Boulder and Koula deposits have been the subject of limited to no additional drilling information since the previously published estimates in 2022 and the changes to those estimates are primarily due to application of reasonable prospects of eventual economic extraction criteria.

Drilling activities remain ongoing at the Séguéla Mine with a focus early-stage exploration and resource definition drilling of high-priority targets.

14.3 Software

Drill hole visualization and 3D modelling of mineralization for the Antenna, Koula, Ancien and Sunbird deposits were undertaken using Dassault Systemes' Surpac mining software package. 3D modelling of host geology units was undertaken in Seequent's Leapfrog Geo software package. Mineral Resource estimation was conducted in Datamine's Studio RM mining software package. Classical and geostatistical analysis of the input data for the purposes of Mineral Resource estimation was conducted using Snowden's Supervisor exploratory data analysis software package.

Drill hole visualization and 3D modelling of mineralization and host geology for the Agouti and Boulder deposits was undertaken using a combination Leapfrog Geo and Micromine. Validation of both mineralization and geology wireframes, block model creation and Mineral Resource estimation were conducted using Studio RM. Classical and geostatistical analysis of the input data for the purposes of Mineral Resource estimation was conducted using Supervisor.

14.4 Geological Interpretation

3D wireframes of the host lithologies, including the weathering profile and alluvial cover, were generated by Roxgold Sango for all deposits using Leapfrog Geo.

The QP imported these wireframes into Studio RM and reviewed them against the logged geology from the drill hole database. Wireframes were validated to ensure their "solidity" and to enable their use in subsequent Mineral Resource modelling. In all cases, the wireframes were found to be suitably representative of the deposit stratigraphy.

Typical cross-sections showing logged and modelled geology is provided for the Antenna (Figure 54), Ancien (Figure 55), Koula (Figure 56), Agouti (

Figure *57*), Boulder (Figure 58) and Sunbird (Figure 59) deposits. These wireframes once validated, were used in Mineral Resource estimation.

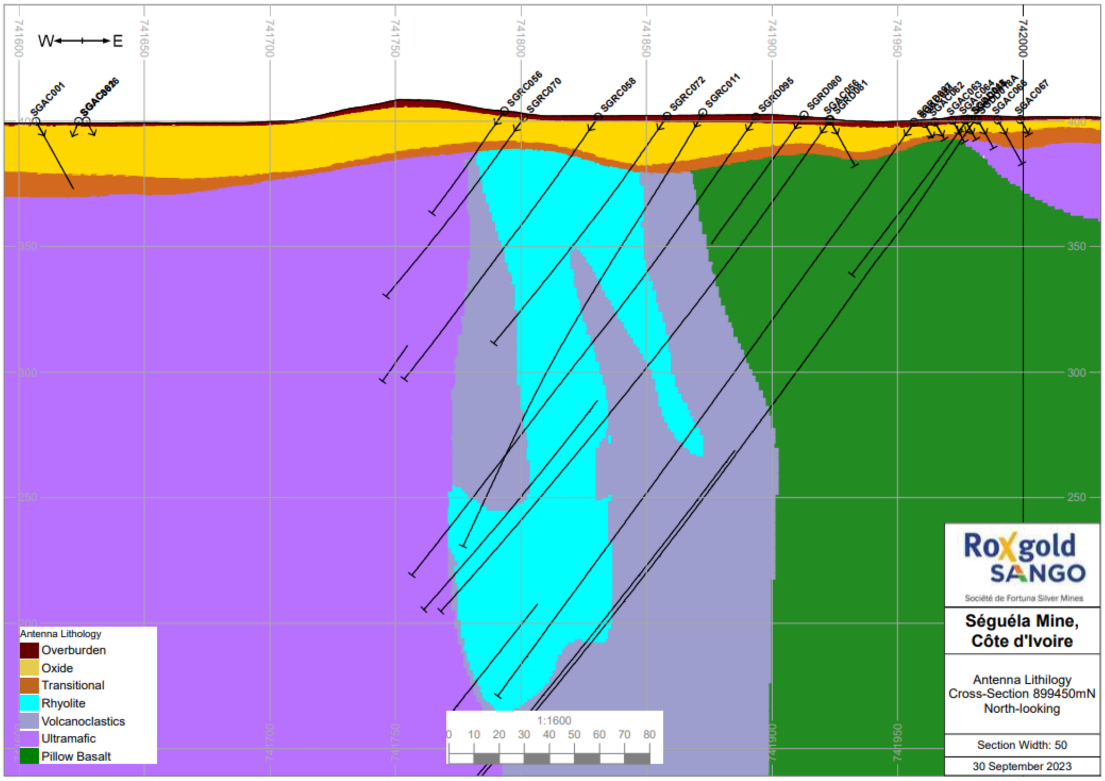

Figure 54: Geology cross-section 894550 mN, Antenna deposit (±25 m)

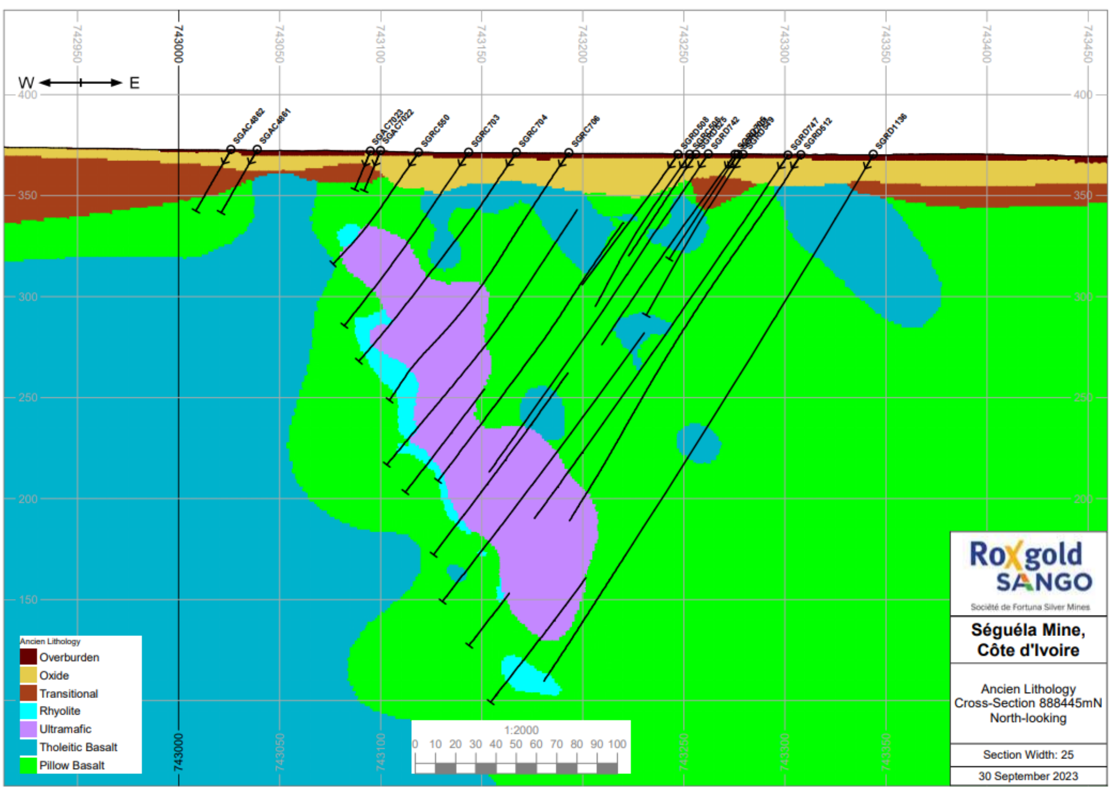

Figure 55: Geology cross-section 888445 mN, Ancien deposit (±12.5 m)

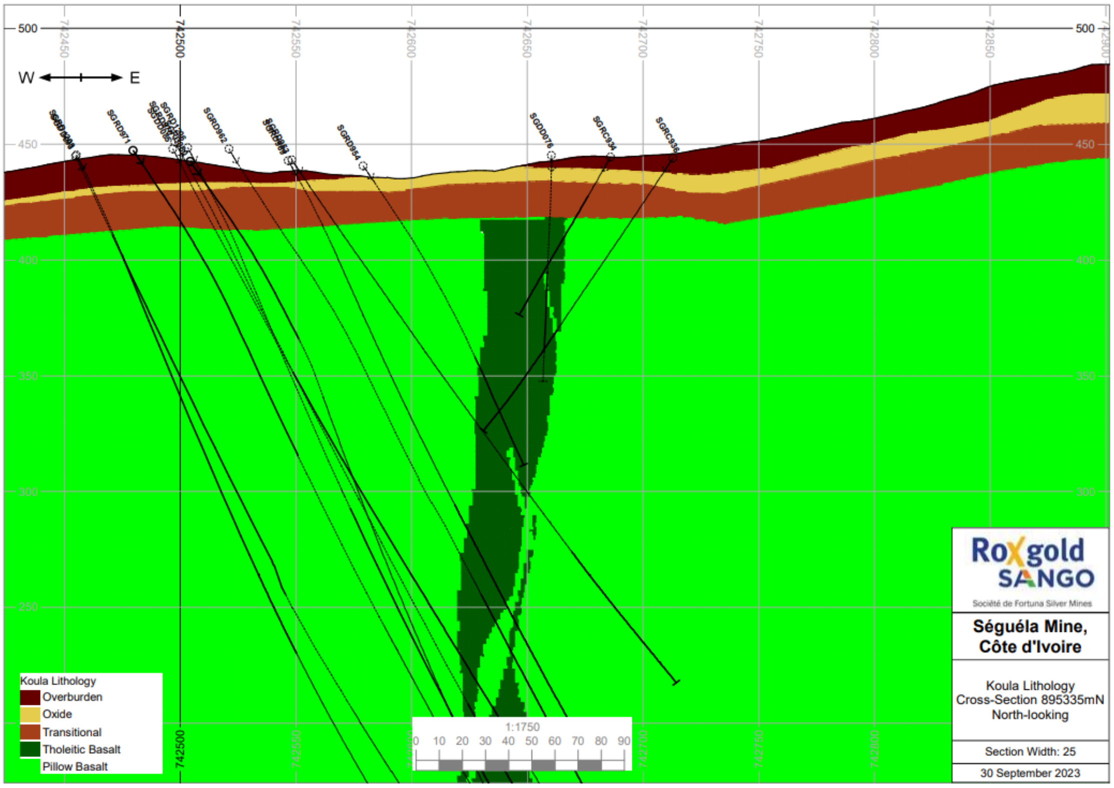

Figure 56: Geology cross-section 895395 mN, Koula deposit (±12.5 m)

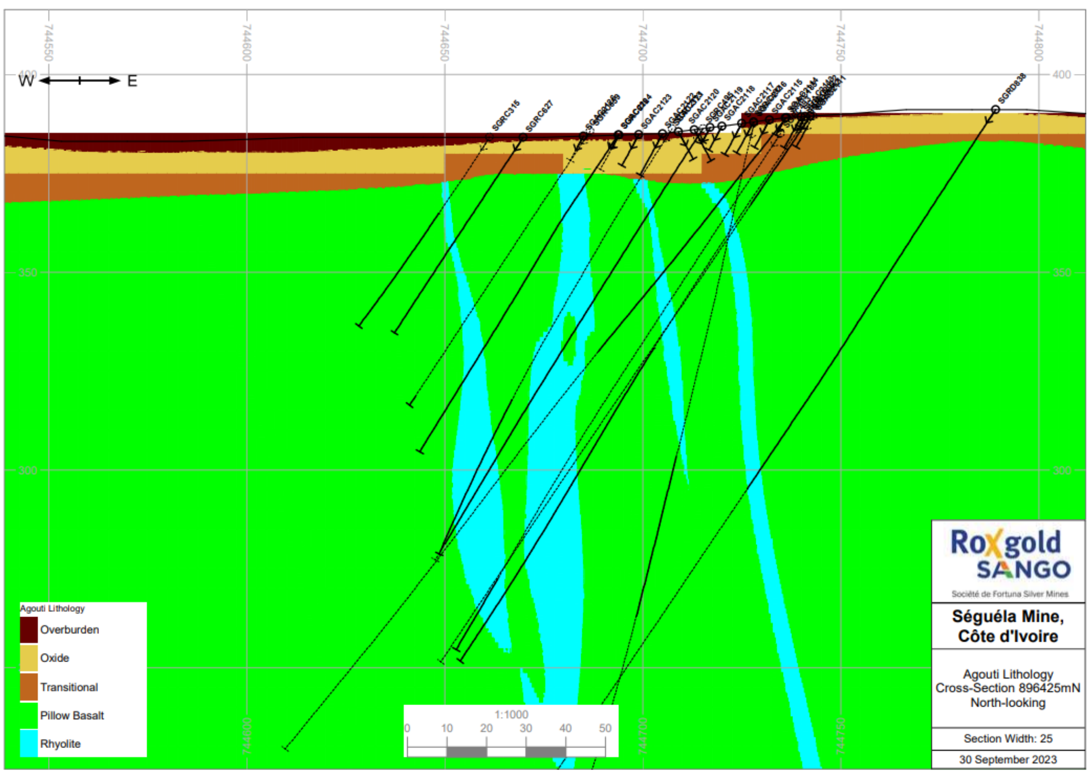

Figure 57: Geology cross-section 896425 mN, Agouti deposit (±12.5 m)

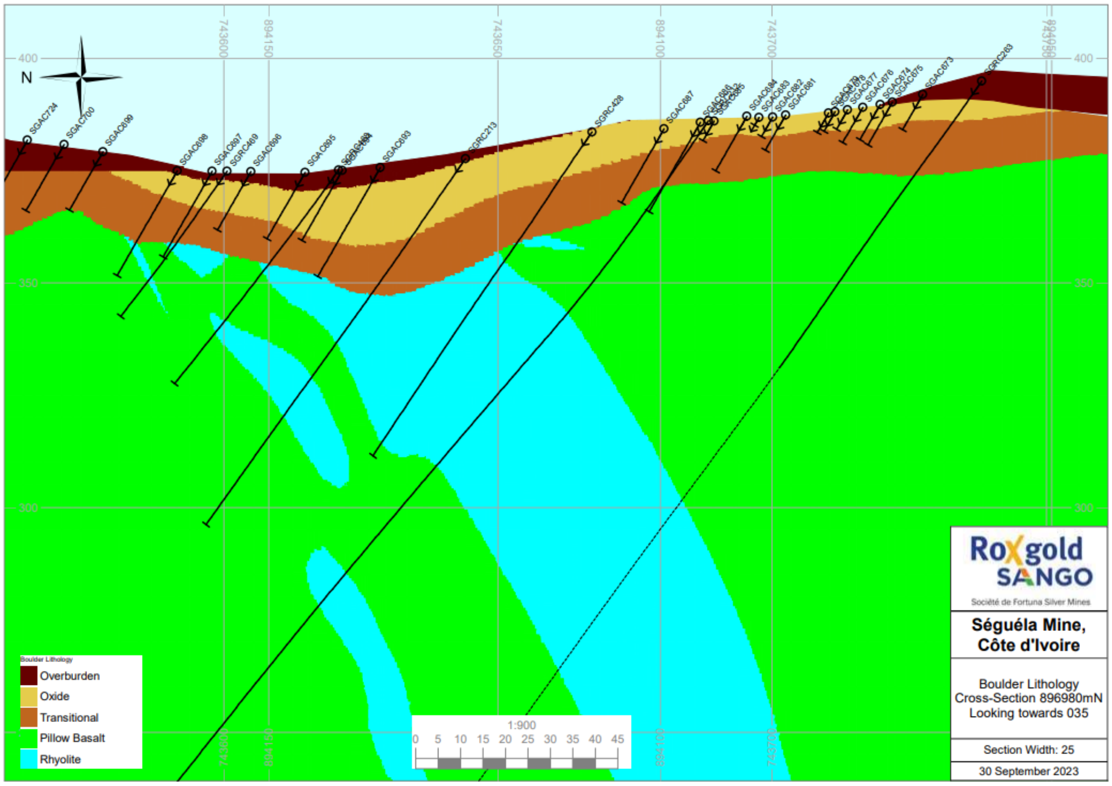

Figure 58: Geology cross-section 893980mN, Boulder deposit (±12.5 m)

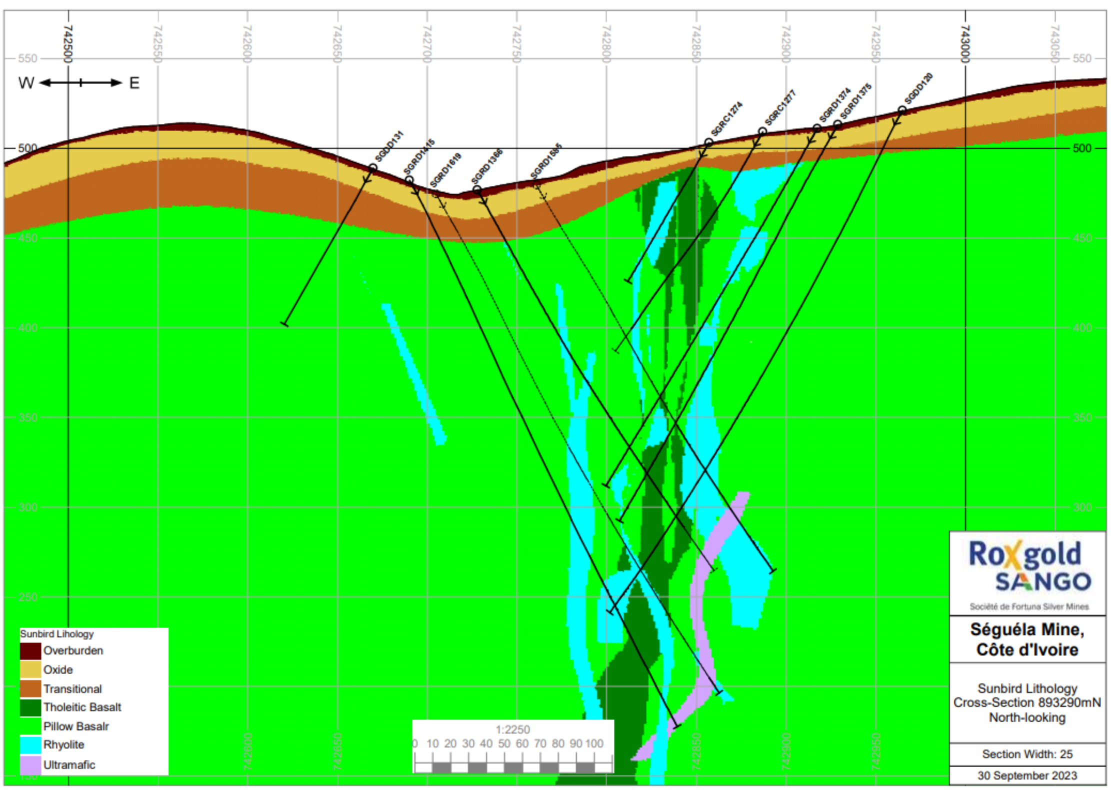

Figure 59: Geology cross-section 892880 mN, Sunbird deposit (±12.5 m)

14.5 Preparation of Mineralization Wireframes

14.5.1 Antenna, Ancien, Koula and Sunbird Deposits

Strings were generated for the Antenna, Ancien, Koula and Sunbird deposits using downhole assay data to enclose mineralized envelopes at a nominal cut-off grade of 0.2 ppm Au. Minimum downhole thicknesses required for inclusion were set at a nominal 2 m, with maximum internal dilution also set at 2 m. Three dimensional solid wireframes were then constructed, imported into Studio RM, and validated to ensure that where the wireframes were intersected by a drill hole, the solids were "snapped" to the corresponding assay intervals. Figure 60 to Figure 65 show the interpreted mineralization wireframes.

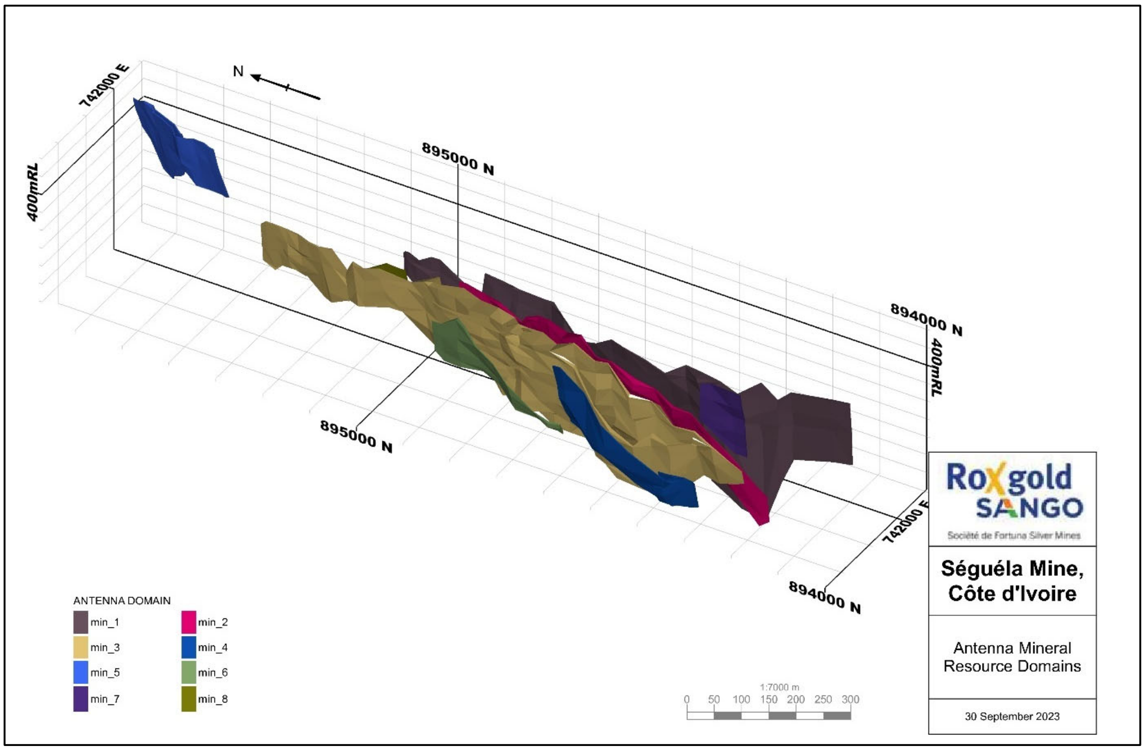

Figure 60: Mineralization wireframes – Antenna deposit

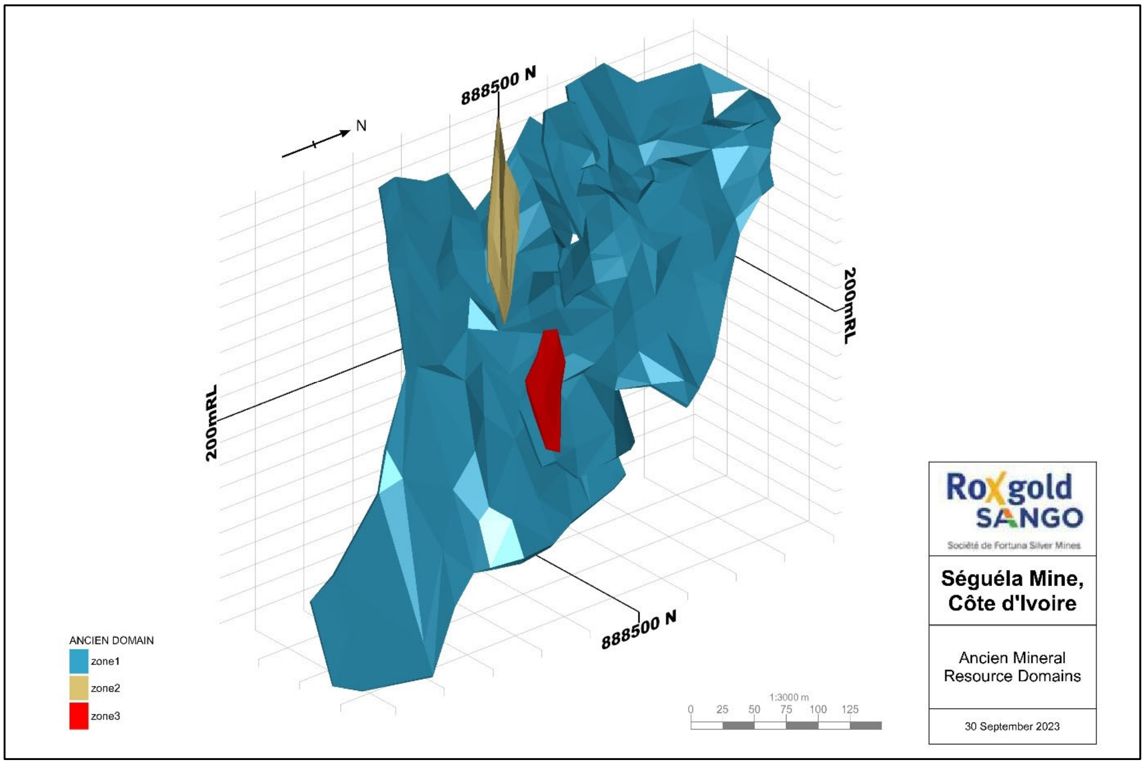

Figure 61: Mineralization wireframes – Ancien deposit

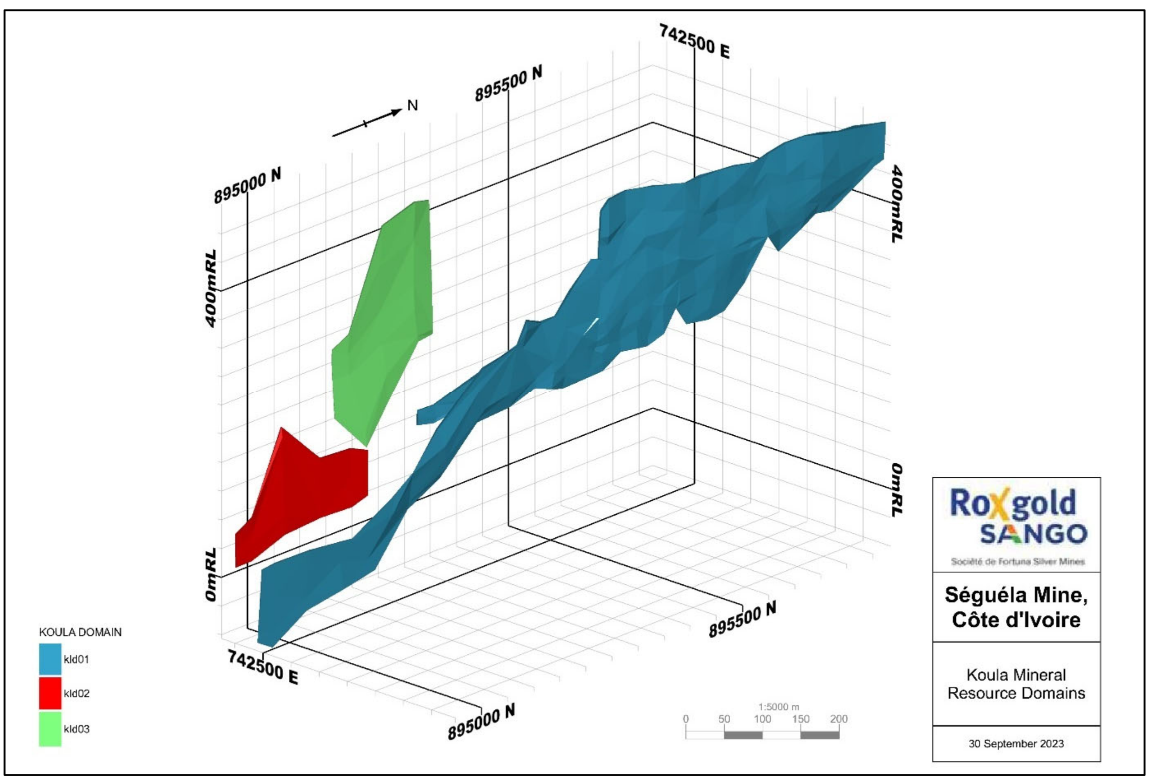

Figure 62: Mineralization wireframes – Koula deposit

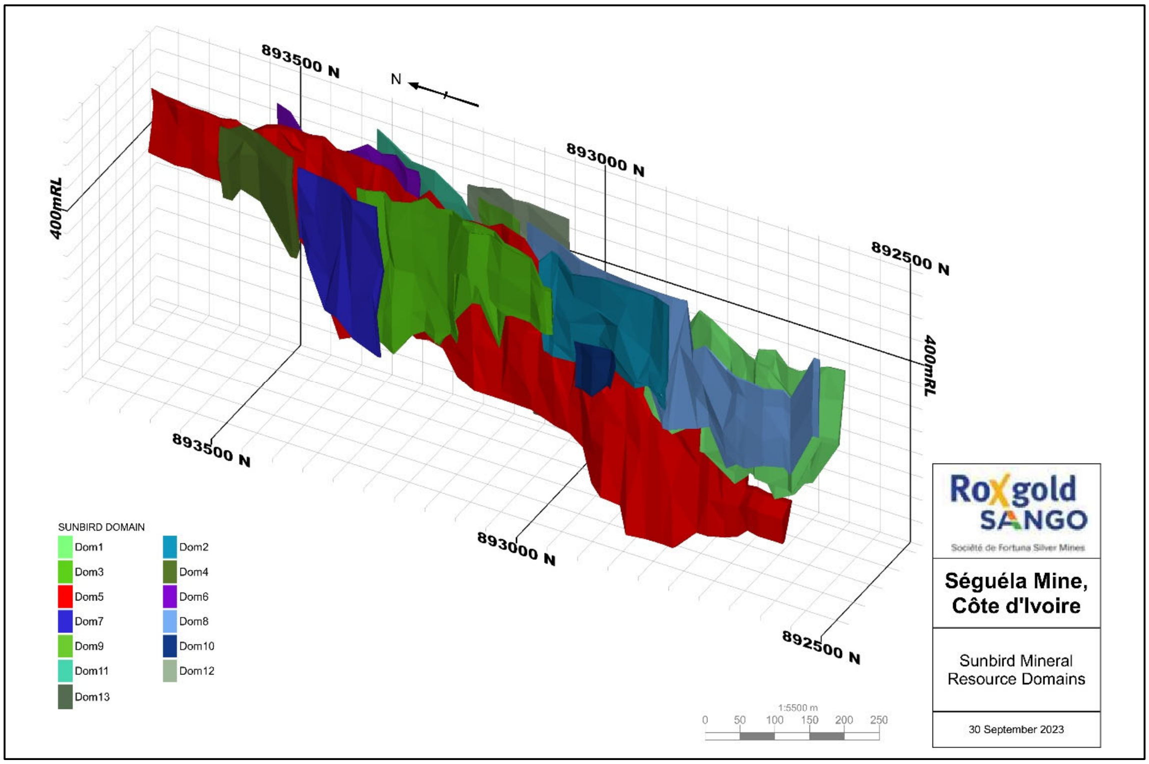

Figure 63: Mineralization wireframes – Sunbird deposit

14.5.2 Agouti and Boulder Deposits

Mineralized domains for the Agouti and Boulder deposits were modelled using the 'vein' function in Leapfrog Geo. Modelling at the satellite deposits used a nominal cut-off grade of 0.2 g/t Au to define mineralization volumes. Minimum downhole thicknesses required for inclusion were typically set at a nominal 2 m, with maximum internal dilution also set at 2 m. Modelled domains were imported into Studio RM, validated to ensure volume integrity, and that wireframes were snapped to drilling.

Interpreted mineralization wireframes for the Agouti and Boulder deposits are presented in Figure 64 and Figure 65.

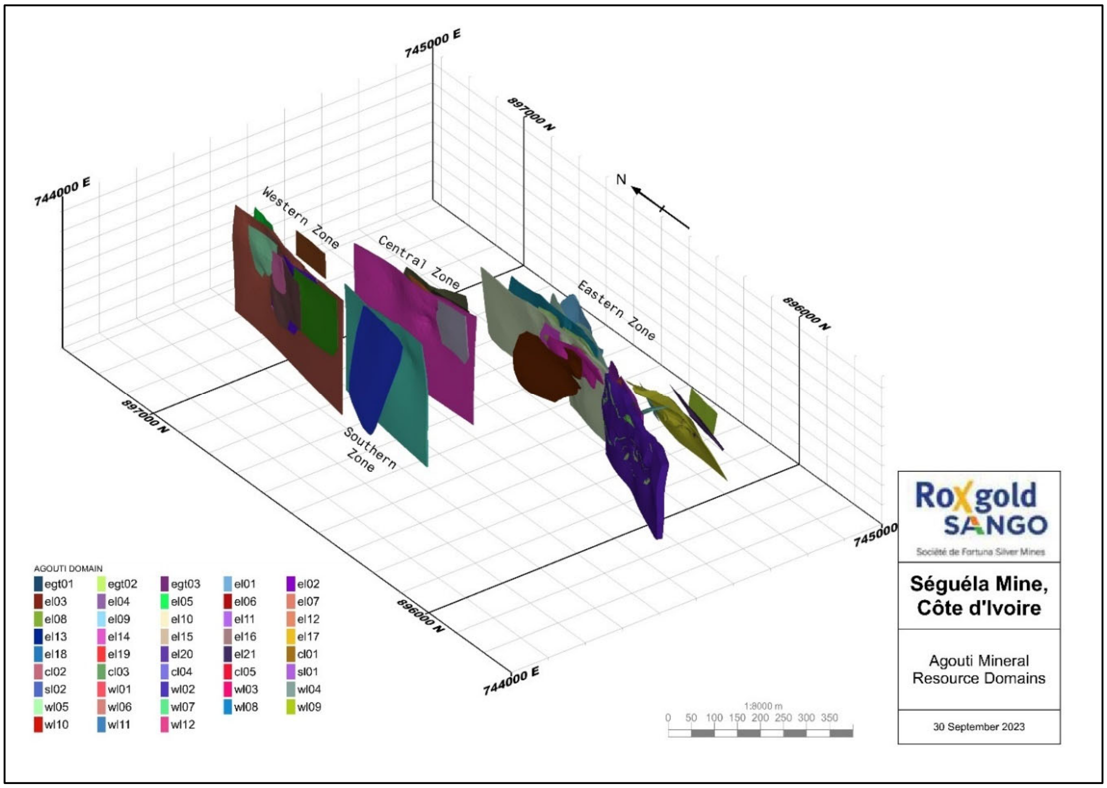

Figure 64: Mineralization wireframes – Agouti deposit

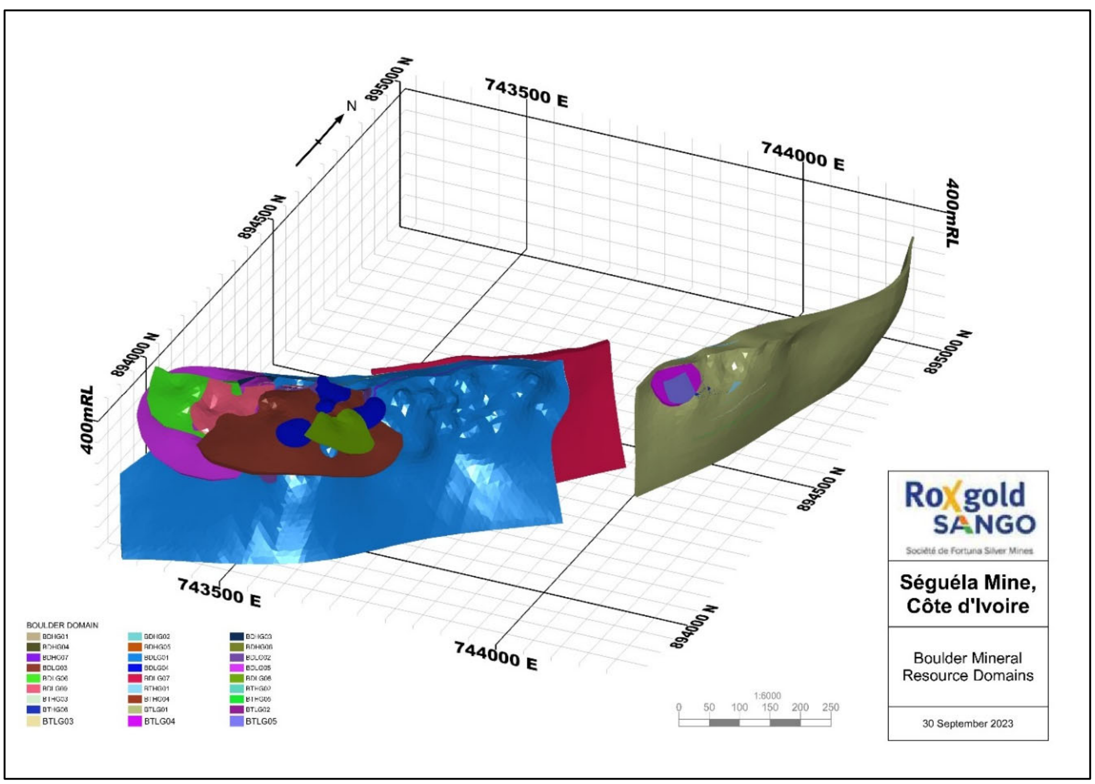

Figure 65: Mineralization wireframes – Boulder deposit

14.6 Topography

The topographic surface used at the Antenna, Koula, Ancien and Sunbird deposits is based collectively on LiDAR drone surveys conducted by qualified surveyors. Extracts of the complete Project topographic survey are taken to cover each of the relevant deposits Mineral Resource estimation purposes. Topographic surfaces used for the Agouti and Boulder deposit modelling are based upon shuttle radar topography mission (SRTM) data at full resolution.

14.7 Weathering

Modelled weathering surfaces below the respective topographic surfaces were used to flag the oxide states in the deposit block models. Modelled surfaces were based on recorded geological logs with intersection points digitized to the base of the corresponding interval that informed the 3DM surface. The regolith profile typically comprised transported overburden, oxide material (upper and lower saprolites), transitional material (saprolite rock) and fresh rock. The Mineral Resources were reported inclusive of oxide material, with adjustments made for the lower densities of this material.

14.8 Statistical Analysis

Prior to estimation, input data were statistically spatial reviewed for gold distribution and continuity.

The histograms and log-probability plots modelled did not indicate any clear evidence for mixed populations. Consequently, a nominal 0.2 g/t Au cut-off grade was used to define the mineralization solids as described in Section 14.5, in combination with the logged and modelled lithology, using the QPs experience with similar deposits, and a visual appraisal of the spatial continuity of the data at varying grade cut-offs.

14.9 Drill hole Coding

Solid wireframes for each mineralized envelope were used to select drill hole samples. Samples were then selected for individual mineralized envelopes and flagged for each mineralization zone.

14.10 Sample Compositing

Drill holes were typically sampled at 1 m intervals regardless of drilling technique. Samples were not shortened or truncated at geological boundaries. With the exception of a limited number of end-of-hole samples that were very short, >99 % of the samples for the respective deposits were 1 m in length. Consequently, all input data was composited to 1 m.

14.11 Geostatistical Analysis

14.11.1 Spatial Domaining

The geometry, orientation and summary statistics of each deposit were reviewed.

Mineralization at Antenna is primarily contained with anastomosing, interlinked vein networks, hosted within brittle-ductile shear structures within rhyolite. Subordinate to this is shear/vein mineralization that occurs along the hanging wall contact between the volcaniclastic units and the hanging wall basaltic lithologies. These spatial domains were grouped together on the basis of their geometry, and the common petrogenetic framework and proposed mineralization timing.

The mineralization at Agouti forms four mineralized trends that are informally termed the Eastern, Central, Western and Southern (refer to Figure 64) zones. The main area of mineralization is the eastern trend. Domains separated into three distinct zones from south to the north. Interpreted cross faults disrupt the domains. The domain grouping is based on spatial location and orientation.

The mineralization at Boulder forms two zones (Figure 65), which are separated along strike.

Mineralization at Ancien and Koula is primarily hosted within network vein systems developed in shear bands in basaltic lithologies.

Mineralization at Sunbird is contained within vein networks that follow shear zones within the basaltic host lithologies. However, a secondary control over mineralization at Sunbird is also recognized, with mineralization hosted in a unit of tholeiitic basalt. The local shear zone strike orientation transects this tholeiitic basalt at a low angle, and gently southerly-plunging high-grade mineralized shoots are observed within Sunbird corresponding to the intersection between the tholeiite and shear zone.

14.11.2 Global Summary Statistics

Antenna Deposit

Basic summary statistics for the gold grades at the Antenna deposit are presented in Table 66 and shown in Figure 66.

Table 66: Summary statistics by estimation domain – Antenna deposit

Statistic	Value
Number	4,614
Minimum	0.00
Maximum	123.50
Mean	2.69
Median	0.96
Standard deviation	5.84
Coefficient of variation	2.17

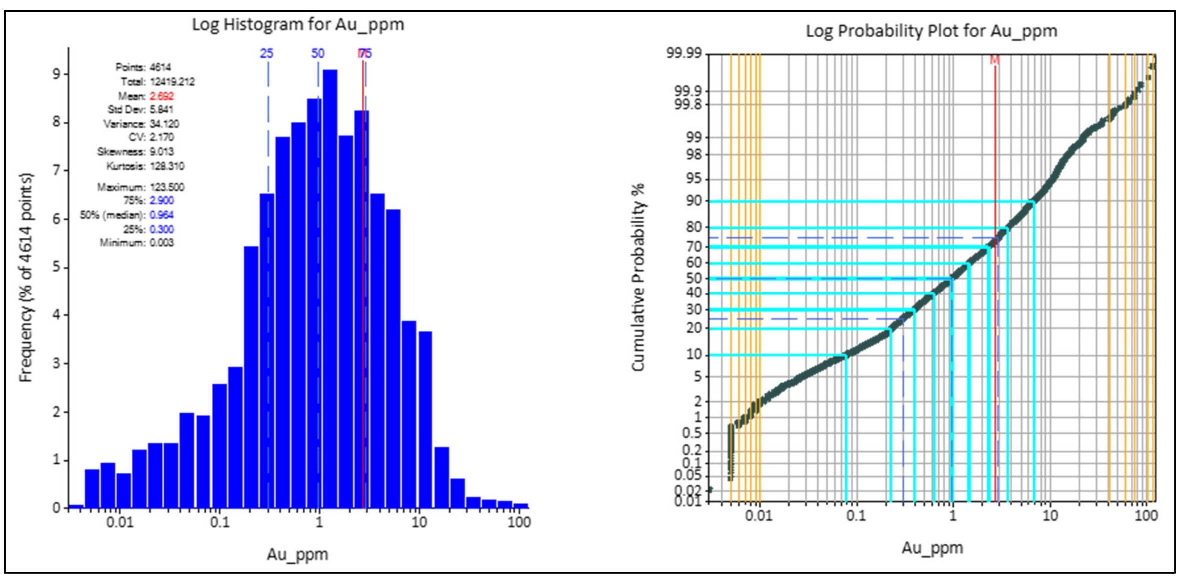

Figure 66: Main Domain histogram and log-probability plot – Antenna deposit

Ancien Deposit

Basic summary statistics for the gold grades in each domain of the Ancien deposit are presented in Table 67 and shown in Figure 67.

Table 67: Summary statistics by estimation domain – Ancien deposit

Statistic	Value
Number	1,992
Minimum	0.00
Maximum	216.00
Mean	4.00
Median	0.62
Standard deviation	12.79
Coefficient of variation	3.20

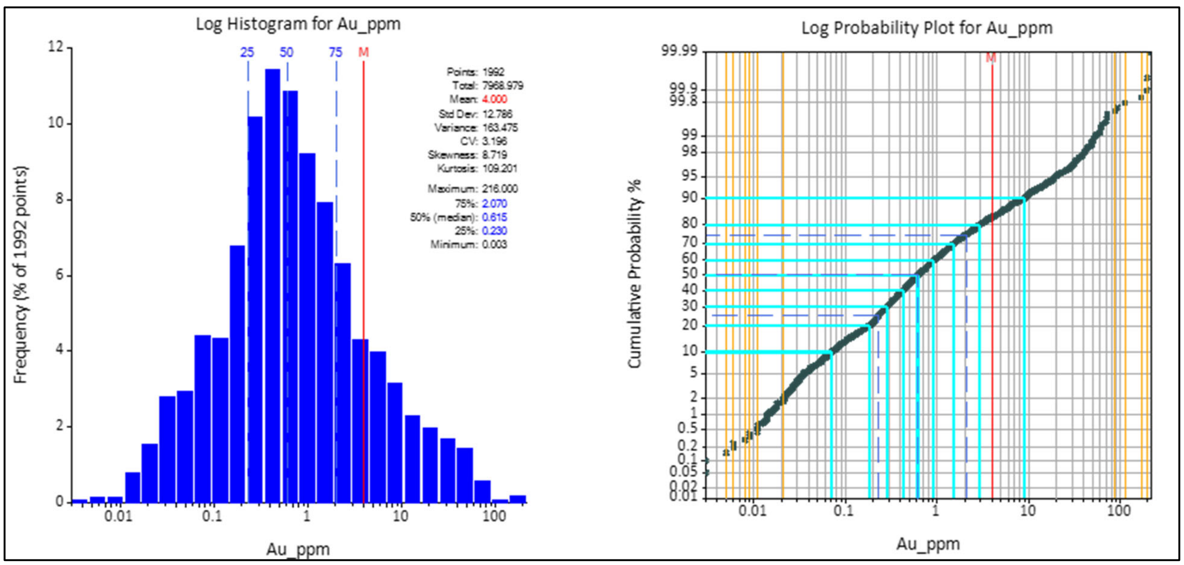

Figure 67: Histogram and log-probability plot – Ancien deposit

Agouti Deposit

Basic summary statistics for the gold grades in each domain of the Agouti deposit are presented in Table 68 and Figure 68.

Table 68: Summary statistics by estimation domain – Agouti deposit

Statistic	Eastern Trend (4-24)	Central Trend (25-29)	Western Trend (32-43)	Combined
Number	1,735	332	419	2,486
Minimum	0.00	0.00	0.00	0.00
Maximum	173.5	88.00	38.3	173.50
Mean	1.69	1.99	1.97	1.78
Median	0.37	0.38	0.72	0.42
Standard deviation	7.48	7.98	3.76	7.07
Coefficient of variation	4.43	4.00	1.91	3.98

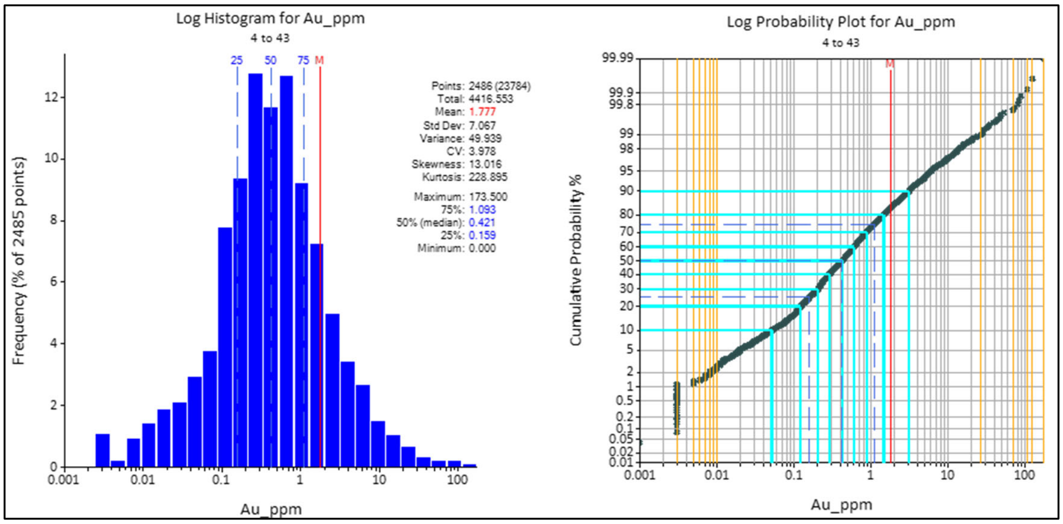

Figure 68: Histogram and log-probability plot - Agouti deposit

Boulder Deposit

Basic summary statistics for the gold grades in each domain of the Boulder deposit are presented in Table 69 and shown in Figure 69.

Table 69: Summary statistics by estimation domain – Boulder deposit

Statistic	Boulder LG (101-109)	Boulder HG (111-117)	Bouti LG (201-215)	Bouti HG (211-216)	Combined
Number	4,354	431	2,165	339	7,289
Minimum	0.00	0.01	0.00	0.08	0.00
Maximum	61.28	106.10	10.27	20.10	106.10
Mean	0.40	3.89	0.22	1.33	0.60
Median	0.22	1.43	0.13	0.79	0.22
Standard deviation	1.25	10.0	0.38	2.06	2.80
Coefficient of variation	3.10	2.58	1.72	1.54	4.70

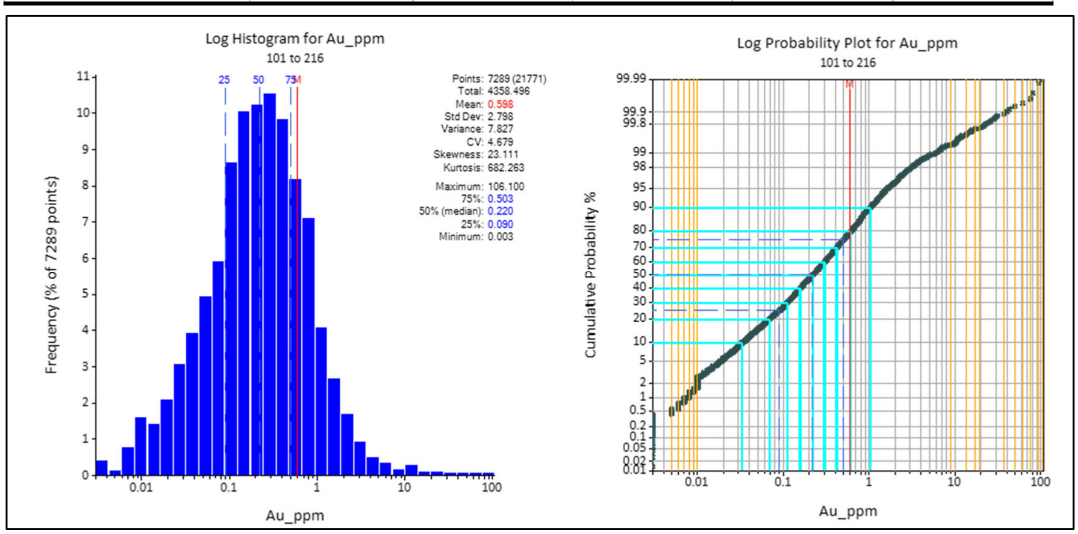

Figure 69: Histogram and log-probability plot – Boulder deposit

Koula Deposit

Basic summary statistics for gold grades within each estimated domain of the Koula deposit are presented in Table 70 and shown in Figure 70.

Table 70: Summary statistics by estimation domain – Koula deposit

Statistic	Value
Number	1,674
Minimum	0.01
Maximum	336.00
Mean	7.58
Median	1.24
Standard deviation	22.30
Coefficient of variation	2.94

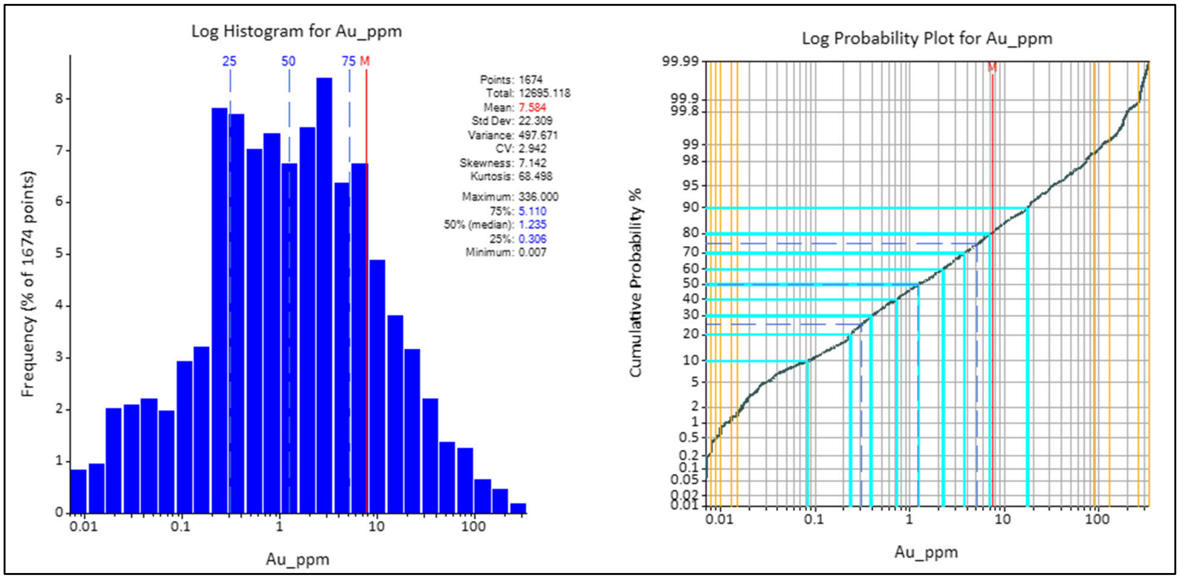

Figure 70: Histogram and log-probability plot – Koula deposit

Sunbird Deposit

Basic summary statistics for gold grades within the estimation domains of the Sunbird deposit are presented in Table 71 and shown in Figure 71.

Table 71: Summary statistics by estimation domain – Sunbird deposit

Statistic	Value
Number	4,524
Minimum	0.00
Maximum	160
Mean	2.54
Median	0.39
Standard deviation	8.50

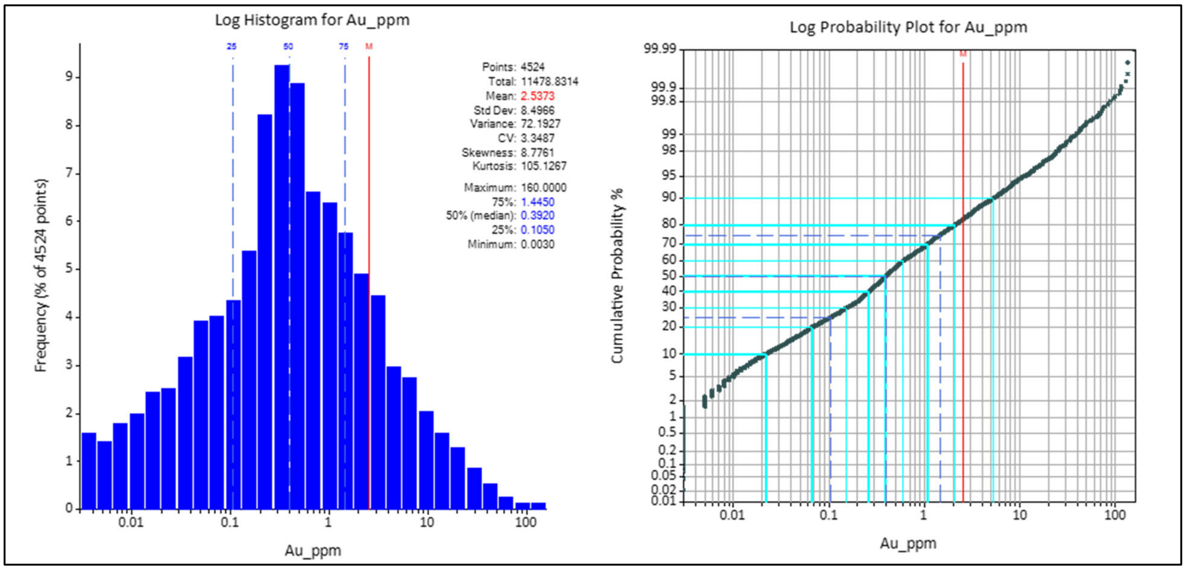

Figure 71: Histogram and log-probability plot - Sunbird deposit

14.12 Treatment of Outliers (Top-Cut Selection)

Top-cuts were selected following statistical review of the sample population using histograms and log-probability plots. The cutting strategy was applied based on the following:

- Data skewness
- Effect on cumulative probability plot distribution
- Spatial position of extreme grades.

Grades above the selected cut were set to the cut value. The applied top-cuts on a per-mineralization solid basis are detailed in Table 72.

Table 72: Top-cuts applied for the Séguéla Gold Mine Mineral Resource estimation by mineralized domain

Deposit	Domain	Top-cut (g/t Au)
Sunbird	101	56
	102	24
	103	82
	104	5
	105	100
	106	6
	107	1.5
	108	20
	109	7.5
	110	2.2
	111	1.2
	112	2
	113	6.7
Agouti	1	4
	2	1
	3	1.4
	4	50
	5	25

Deposit	Domain	Top-cut (g/t Au)
	6	3
	7	0.35
	8	1.15
	9	2
	10	27
	11	1.7
	12	2.5
	13	1.5
	14	9
	15	30
	16	13
	17	1.7
	18	1.5
	19	6
	20	9
	21	2.9
	22	3
	23	0.8
	24	6.5
	25	45
	26	1.35
	27	1.05
	28	1.5
	29	0.75
	32	7.5
	33	12
	34	6.7
	35	6.5
	36	-
	37	1.3
	38	3.2
	39	1
	40	1.6
	41	-
	42	1.25
	43	1.09
Ancien	1	100
	2	4.6
	3	4
Boulder	101	8
	102	1.7
	103	7
	104	6
	105	2.6
	106	1.4
	107	2

Deposit	Domain	Top-cut (g/t Au)
	108	0.9
	109	2.25
	111	4
	112	21
	113	30
	114	25
	115	50
	116	30
	117	8.5
	201	3
	202	0.8
	203	0.5
	204	0.7
	205	-
	211	11
	212	4
	213	2.6
	214	6
	215	6
	216	3.5
Antenna	101	13.5
	102	13.5
	103	40
	104	10
	105	11
	106	10
	107	2.5
	108	3
Koula	101	112
	102	4
	103	20

14.13 Variography

Exploratory data analysis and assessment of spatial continuity for the relevant the input data of each deposit was conducted using Supervisor. Spatially congruent domains in each deposit were grouped, and experimental semi-variograms were constructed accounting for observed anisotropy in each of the three principal continuity directions identified within the data. Model semi-variograms were fitted to the experimental results.

In general, the spatial continuity was adequately described by a nugget component, and two spherical components for the semi-variogram models. The modelled semi-variograms were used in subsequent quantitative kriging neighborhood analysis for search parameter optimization, and for Mineral Resource estimation. The semi-variogram model parameters used for each deposit are presented, along with relevant estimation domains, in Table 73.

Table 73: Estimation and search parameters for estimation domains

Deposit	Domain	Min. Samp.	Max. Samp.	Major Dist.	Semi Major Dist.	Minor Dist.	RM Rotations			c0	c1	Ranges (m)	c2	Ranges (m)
							Z	X	Z					
Sunbird	all	4	16	65	45	10	100	90	-10	0.432	0.424	33,16,2	0.145	74,57,11
Koula	all	4	24	42	24	4	115	95	-40	0.606	0.324	42,24,2	0.069	204,50,10
Ancien	all	4	24	60	24	7	105	65	-55	0.405	0.443	24,5,2	0.152	99,20,6
Antenna	all	4	20	70	33	13	100	75	-45	0.481	0.279	25,21,7	0.24	77,53,18
	105	4	20	70	33	13	100	75	-45	0.481	0.279	25,21,7	0.24	77,53,18
Agouti	1, 15, 22, 24	6	22	35	14	9	105	70	0	0.428	0.507	27,26,3	0.065	78,30,10
	2, 16, 19	6	24	27	13	5	110	85	-55	0.627	0.283	92,30,6	0.09	124,39,16
	3, 14, 18, 20, 21	6	24	22	8	4	85	70	-160	0.293	0.592	32,15,5	0.116	66,22,11
	4 to 7	6	30	100	20	6	100	85	-150	0.331	0.378	107,2,6	0.291	168,16,15
	8, 9	6	26	35	35	6	110	90	60	0.399	0.266	47,73,4	0.335	109,119,9
	10	6	26	23	15	5	30	35	65	0.614	0.249	45,30,7	0.137	70,45,16
	11	6	30	100	20	6	100	85	-150	0.331	0.378	107,2,6	0.291	168,16,15
	12 to 13	6	26	35	35	6	110	90	60	0.399	0.266	47,73,4	0.335	109,119,9
	17	6	20	35	15	8	105	60	180	0.405	0.257	61,27,15	0.338	79,34,18
	23	2	4	30	30	30	100	110	0	0.401	0.599	20,20,20	-	-
	15, 26, 27, 28, 29	6	22	50	12	4	90	90	0	0.428	0.507	108,35,4	0.065	145,36,7
	30 to 31	4	8	60	12	5	100	85	-150	0.331	0.378	107,2,6	0.291	168,16,15
	32 to 43	6	20	40	26	7	100	90	-115	0.528	0.268	67,32,10	0.203	122,78,20
Boulder	101	4	20	35	31	11	140	45	-20	0.393	0.478	35,30,10	0.129	160,75,45
	102	4	20	45	26	10	130	70	130	0.335	0.32	45,25,10	0.345	90,65,30
	103	4	20	50	35	10	120	30	60	0.447	0.375	50,35,10	0.178	90,70,20
	104	4	20	50	35	10	105	25	45	ID Estimation				
	105	4	20	30	30	10	155	35	50	0.348	0.522	25,25,10	0.13	75,60,25
	106	4	20	50	35	10	-40	135	50	ID Estimation				

Deposit	Domain	Min. Samp.	Max. Samp.	Major Dist.	Semi Major Dist.	Minor Dist.	RM Rotations			c0	c1	Ranges (m)	c2	Ranges (m)
							Z	X	Z					
	107	4	20	60	45	15	140	70	160	0.333	0.269	60,45,15	0.398	160,90,30
	108	Assigned average grade												
	109	4	20	50	35	10	130	55	50	ID Estimation				
	111	4	20	50	35	10	115	45	140	ID Estimation				
	112	4	20	50	35	10	135	65	130	ID Estimation				
	113	4	20	30	21	10	130	50	35	0.391	0.322	30,20,10	0.287	60,40,20
	114	4	20	40	30	8	150	45	75	0.301	0.453	40,30,8	0.247	80,65,15
	115	4	20	60	35	11	130	45	170	0.251	0.514	60,35,10	0.235	140,60,20
	116	4	20	35	25	6	130	50	50	0.362	0.388	35,25,6	0.249	80,60,15
	117	4	20	45	31	9	130	60	20	0.231	0.579	45,30,8	0.19	125,70,20
	201	4	20	35	31	11	115	65	155	0.484	0.324	35,30,10	0.192	80,55,35
	202	4	20	50	35	10	125	130	170	ID Estimation				
	203	Assigned average grade												
	204	4	20	50	35	10	120	45	150	ID Estimation				
	205	Assigned average grade												
	211	4	20	35	25	9	130	55	50	0.42	0.389	35,25,8	0.191	65,45,15
	212	4	20	45	31	9	115	45	30	0.462	0.467	45,30,8	0.071	85,50,15
	213	4	20	55	31	9	115	50	140	0.315	0.441	55,30,8	0.244	110,65,20
	214	4	20	50	35	10	115	50	160	ID Estimation				
	215	4	20	45	36	9	120	50	150	0.476	0.448	45,35,8	0.076	75,50,15
	216	4	20	50	35	10	105	55	150	ID Estimation				

14.14 Quantitative Kriging Neighborhood Analysis

Search parameters to be used in conjunction with the modelled semi-variograms were quantitatively optimized for each estimation domain using Supervisor. A selection of potential block sizes considered appropriate for modelling the individual deposits were first assessed, with the final selection being a parent block size suitable to the dimensions of the mineralization and informing data density. Parent block sizes are provided in Table 74.

Table 74: Block model parameters by deposit

Deposit	Axis	Extent (m)		Block size (m)
		Minimum	Maximum	
Antenna	Easting	741480	742250	5
	Northing	893850	895800	5
	RL	100	550	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	ANT_REGMOD_230818v2_Sep.dm (Studio RM v1.13)		
Ancien	Easting	742900	743460	5
	Northing	888200	888800	5
	RL	0	410	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	ANC_REGMOD_230818v2.dm (Studio RM v1.13)		
Agouti	Easting	744000	745000	2.5
	Northing	895700	897330	5
	RL	160	480	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	AGT_REGMOD_230818v1.dm (Studio RM v1.13)		
Boulder	Easting	743070	744505	3.5
	Northing	893600	895150	5
	RL	150	550	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	bdr_regmod_230820v3.dm (Studio RM v1.13)		
Koula	Easting	742320	742940	5
	Northing	894930	895870	5
	RL	-100	520	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	KOU_REGMOD_230820v2.dm (Studio RM v1.13)		
Sunbird	Easting	742435	743160	5
	Northing	892360	893780	5
	RL	30	600	5
	Discretization	3 x 3 x 3 (XYZ)		
	Block Model File	SB_REGMOD_230819v2.dm (Studio RM v1.13)		

Selections for each parameter were made based on the assessment of maximizing both kriging efficiency and estimate slope of regression statistics, while minimizing the number of negative kriging weights encountered. Selected parameters for each estimation domain were shown in Table 73.

14.15 Block Model

Block models aligned with the national UTM grid – WGS84 datum were created to encompass the full extent of the individual deposits. Block model parameters were shown in Table 74.

14.16 Grade Interpolation

The mineralized domain wireframes were used as hard boundaries in grade interpolation. A combination of OK and ID methods (Table 73) was selected for grade interpolation in the mineralized zones. OK was selected for domains with adequate sample data to inform a variogram. It is considered by the QP to be appropriate for this style of deposit.

Estimates were performed on a parent block basis with block discretization (refer to Table 74) selected to provide an equal distribution across the parent block in all directions. The search radii used a quadrant search method to improve sample selectivity for each estimate.

An oriented "ellipsoid" search was used to select data for interpolation. Search ellipsoid orientations were based on orientations derived from variogram analysis. Search ellipsoid parameters were presented in Table 73.

A combination of two to three-pass expanding searches was used to complete estimation for gold, based on the variogram ranges. Typically, estimate searches used a first pass search radii ranging from 45–60 m, and second pass search radii ranging from 70–120 m along strike. The minimum number of samples was set to four or six and the maximum number of samples per drill hole was set to three or five samples for both passes, ensuring data from at least two drill holes was used to inform the interpolation. An average domain composite grade was used to inform remaining un-estimated blocks at the Antenna, Ancien, Koula and Sunbird deposits, while a default grade of 0.01 g/t Au was assigned to unestimated blocks at the Agouti and Boulder deposits. Typically, >85 % of the blocks were estimated consistently in the first two passes, and >99 % of blocks were populated after three passes.

14.17 Bulk Density Assignment

Fixed bulk density values were assigned to individual lithologies based on water immersion measurements of drill core. Density values by lithology are presented in Table 75.

Table 75: Density values by lithology – Séguéla Gold Mineral Resource estimates

Lithology	Density Value (g/cm^3)					
	Antenna	Ancien	Agouti	Boulder	Koula	Sunbird
Basalt (Tholeiitic)	2.80	2.83			3.02	2.81
Basalt (Pillow)	2.80	-	2.81	2.81	3.02	2.90
Gabbro	-	2.94				
Dolerite	-	-				
Ultramafic	3.20	2.92				2.85
Felsic / Rhyolite	2.75	2.74	2.69	2.67		2.7
Volcaniclastics	-	-				
Transitional	1.9	2.5	2.2	2.2	2.2	2.5
Oxide	1.9	1.9	1.8	1.8	1.8	2.2
Overburden	1.8-	1.8	1.8	1.8	1.8	1.8

Core samples varied from 0.1–1 m in length and encompassed all coherent lithologies encountered. Mineralization was assigned the density of the relevant host lithology.

Tonnage estimates are reported on a dry basis.

14.18 Model Validation

Initial validation of the block models was undertaken using a variety of methods, including: checks for un-estimated mineralization blocks, incorrect or absent assignation of density values, and mineralized blocks or blocks with density values above topography.

Following these checks, swath plots were generated along the three principal axes to assess the representivity of estimated grade profiles in comparison to the input composite grades. Swath plots were generated on a per-mineralization solid basis. Swath plots indicate a suitable level of adherence of the estimated grades to the expected values observed within the input composite data.

Examples of swath plots for the deposits are presented in Figure 72 to Figure 77.

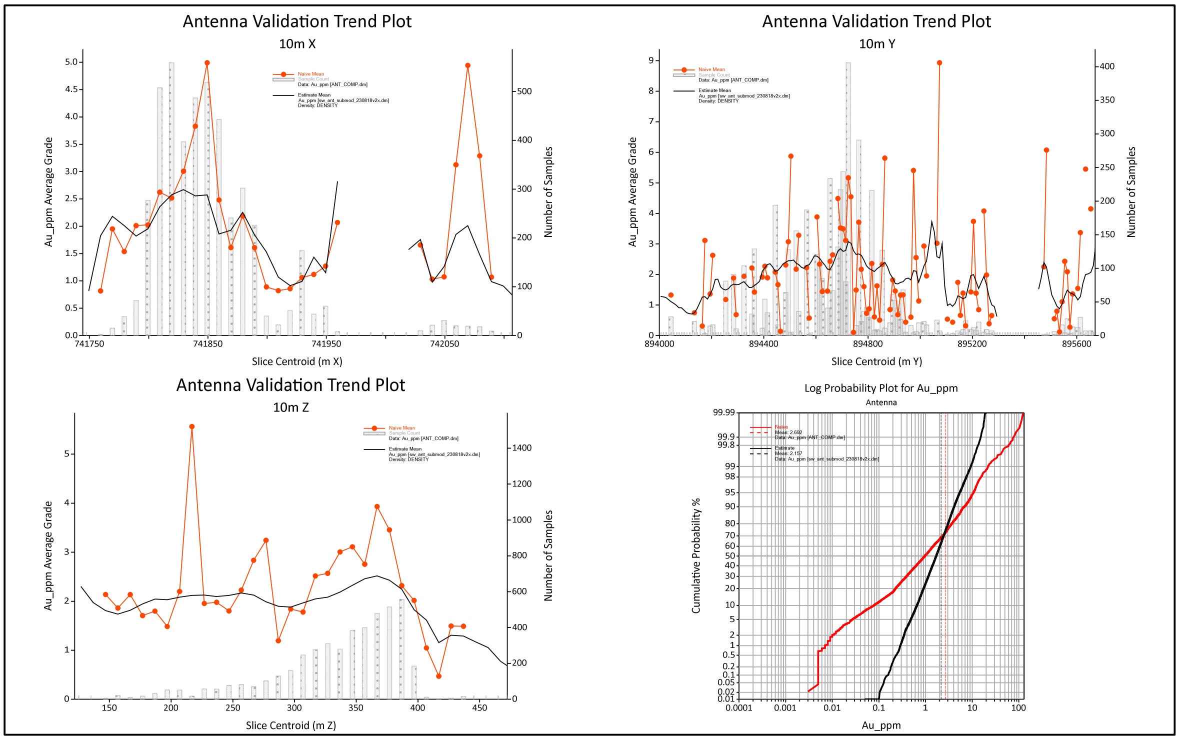

Figure 72: Antenna validation plots

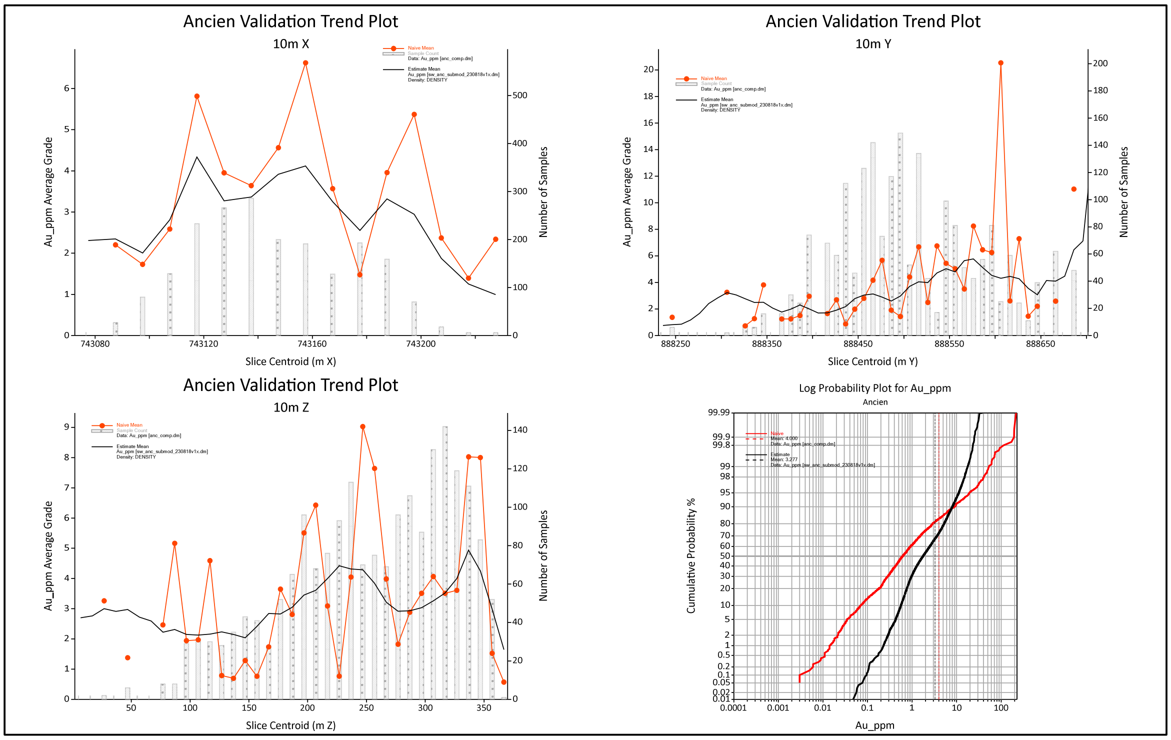

Figure 73: Ancien validation plots

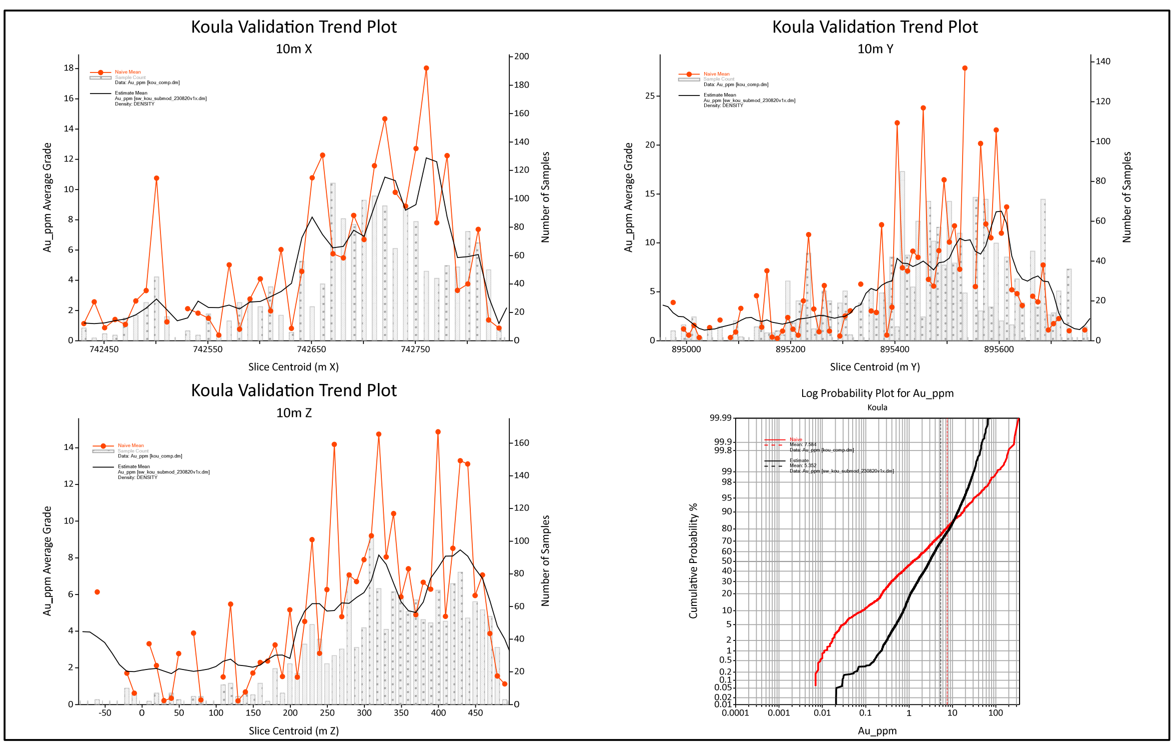

Figure 74: Koula validation plots

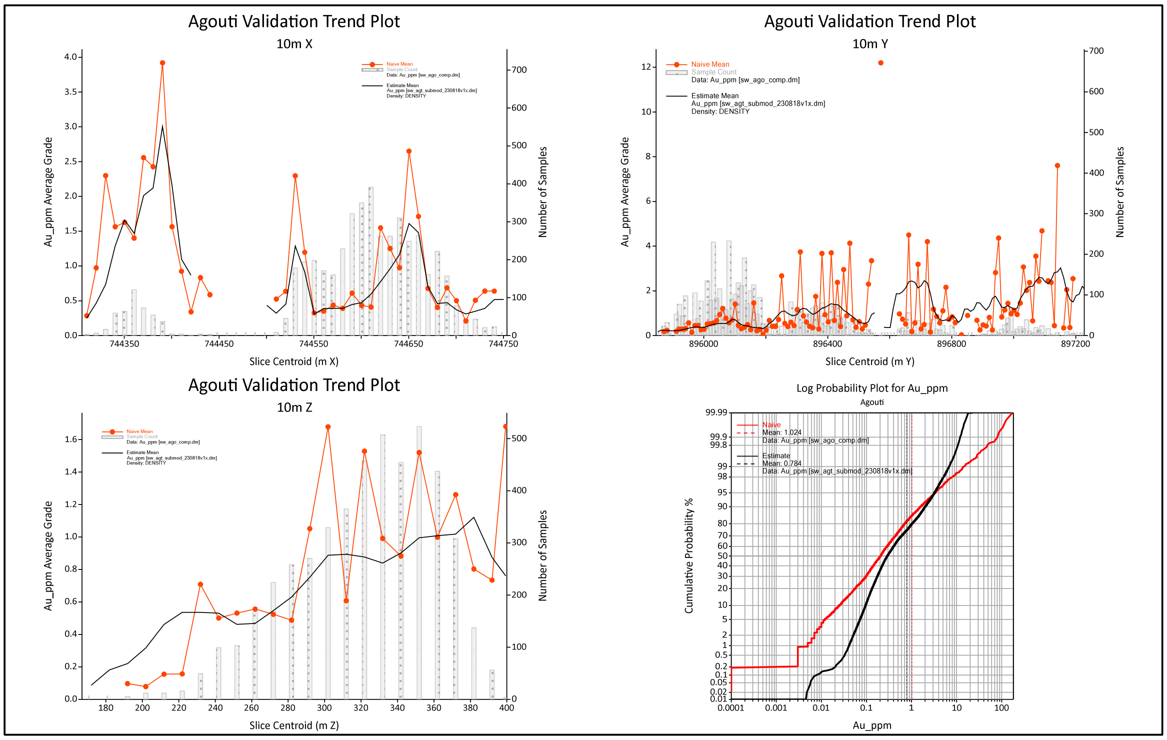

Figure 75: Agouti validation plots

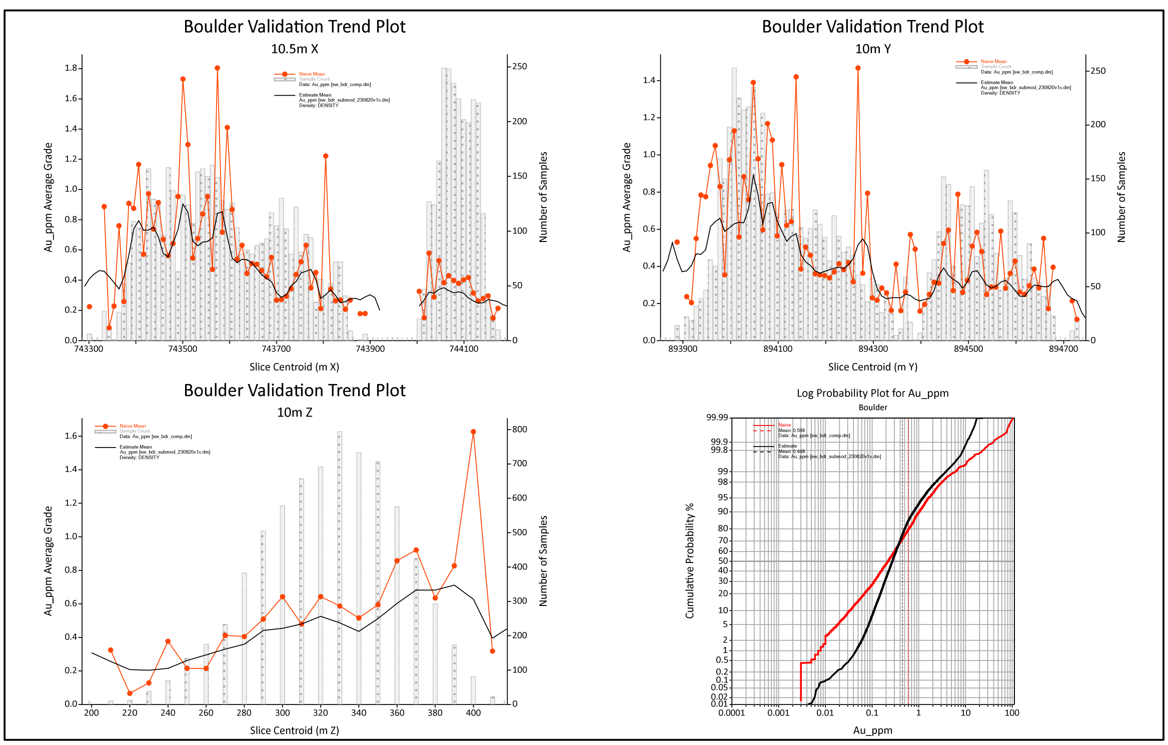

Figure 76: Boulder validation plots – Combined domains (101-216)

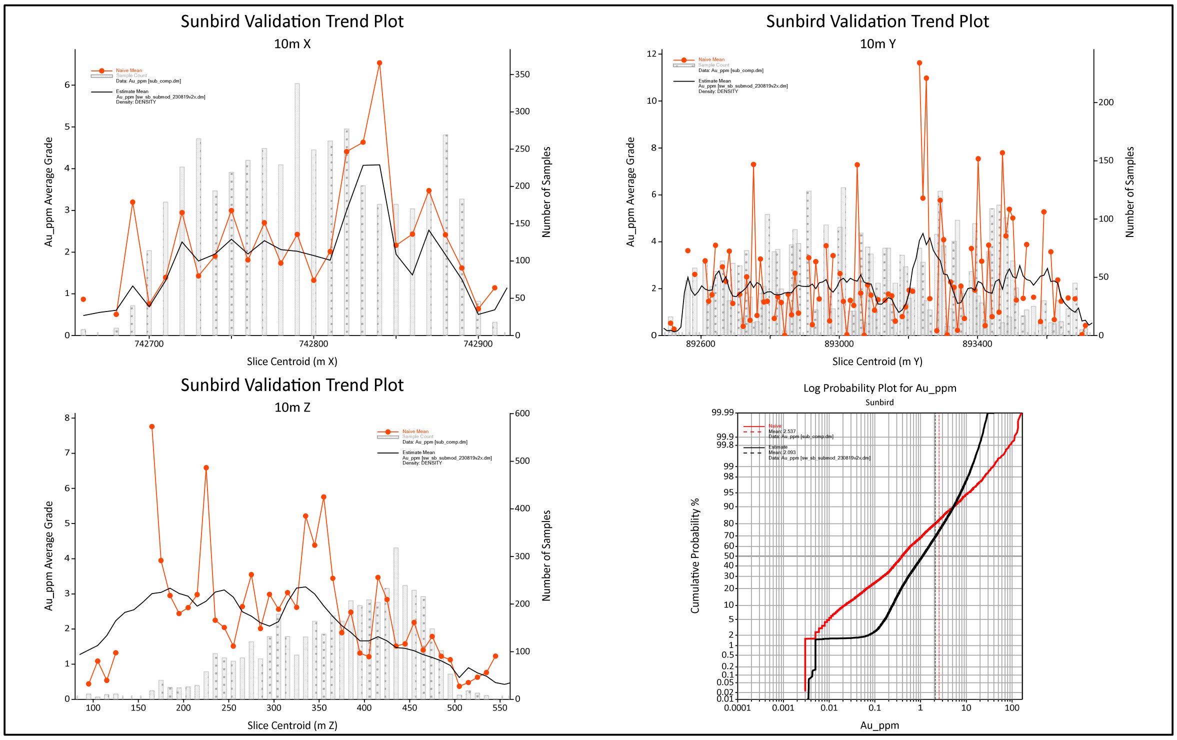

Figure 77: Sunbird validation plots

14.19 Mineral Resource Classification

The Mineral Resource estimate is reported using the confidence classifications set out in the 2014 CIM Definition Standards.

14.19.1 Mineral Resource Classification Parameters

Mineral Resource classification was applied to each model using classification boundary strings assigned to the block model in a cookie-cutter fashion on a per mineralization lode basis. Strings define a region of blocks that, on average, met the following criteria:

- The Mineral Resource was classified as Indicated where the majority of blocks were informed in the first pass, the average distance to informing samples was <60 m, drill hole spacing was <50 m between sections and <40 m on each section, and there were more than two drill holes on each section.
- The Mineral Resource was classified as Inferred where drilling had been completed on broader pattern (pierce points generally having a separation of >80 m) and geological continuity was reasonable. Geological evidence is considered sufficient to imply but not verify geological and grade continuity.
- No Measured Mineral Resources were classified.

Figure 78 to Figure 83 present the Mineral Resource classifications for each of the deposits.

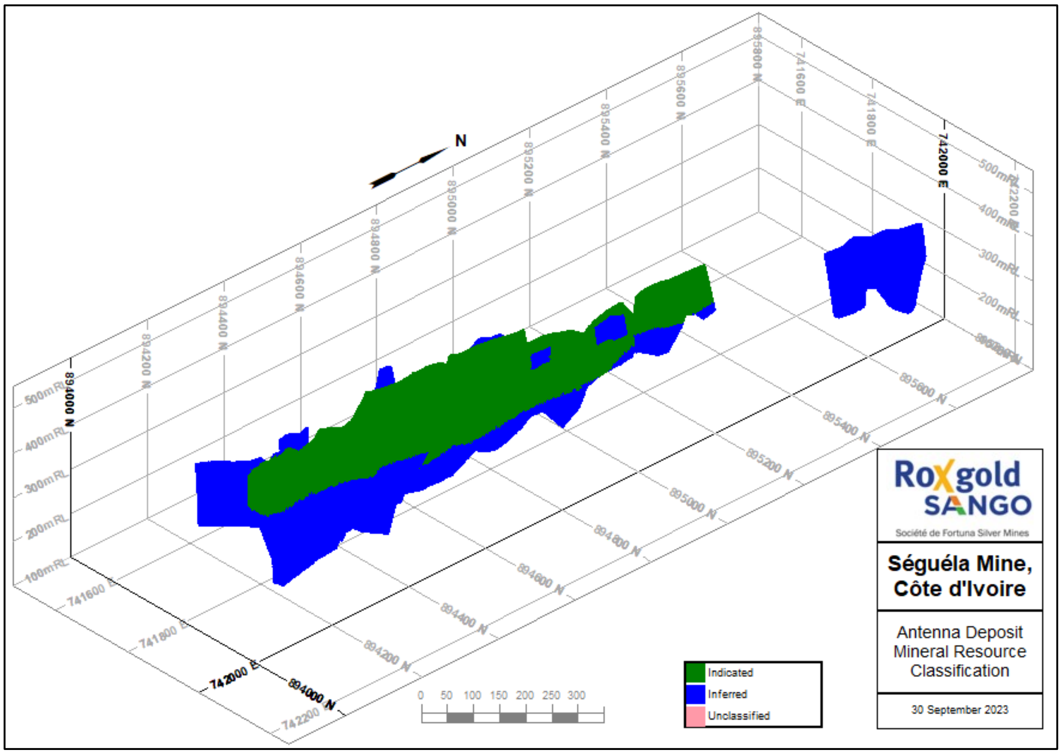

Figure 78: Antenna deposit Mineral Resource classification

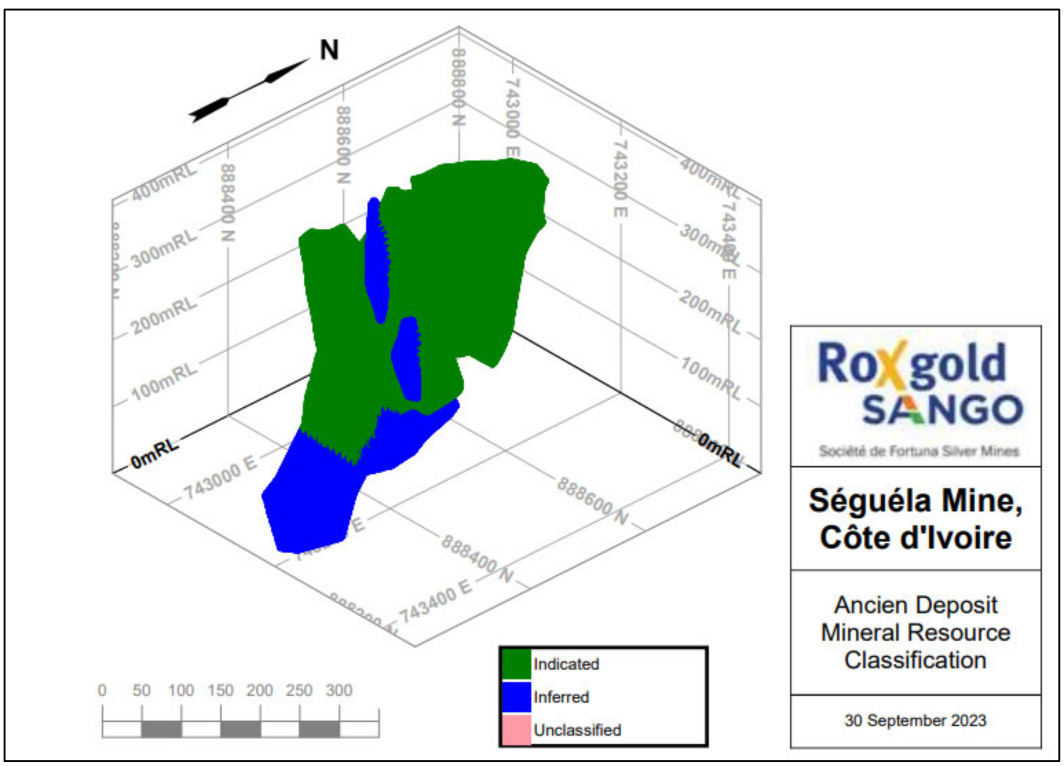

Figure 79: Ancien deposit Mineral Resource classification

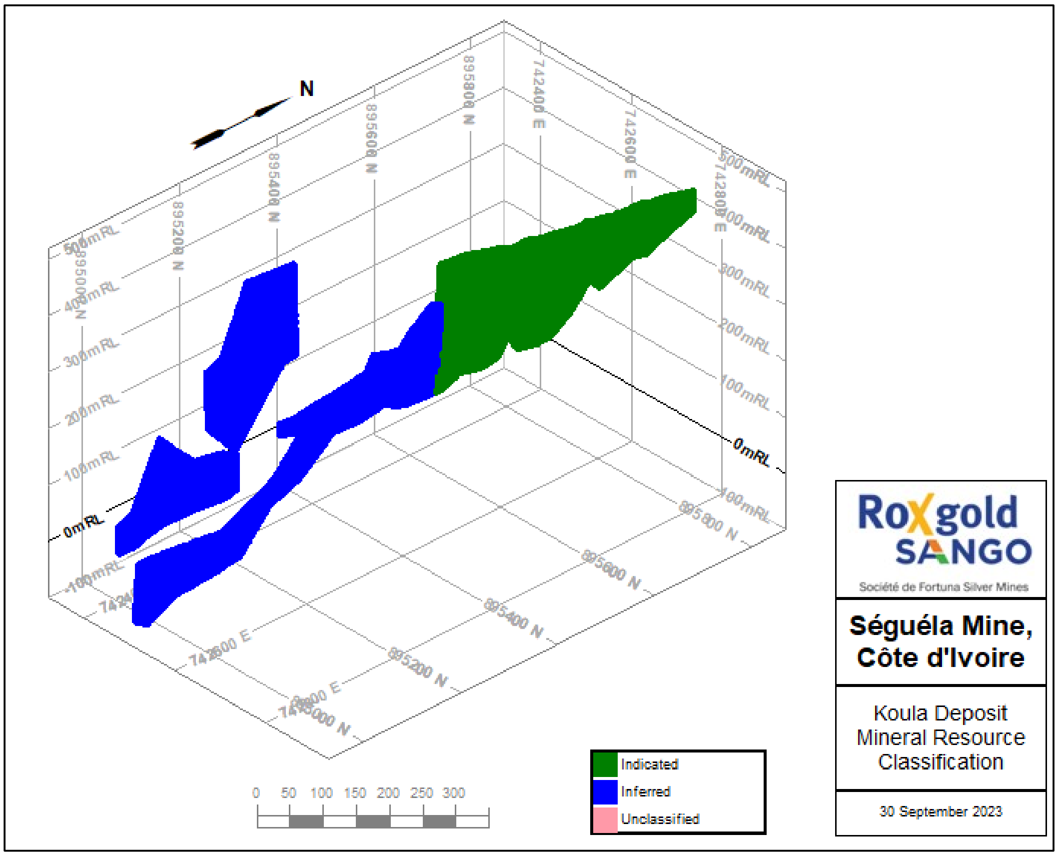

Figure 80: Koula deposit Mineral Resource classification

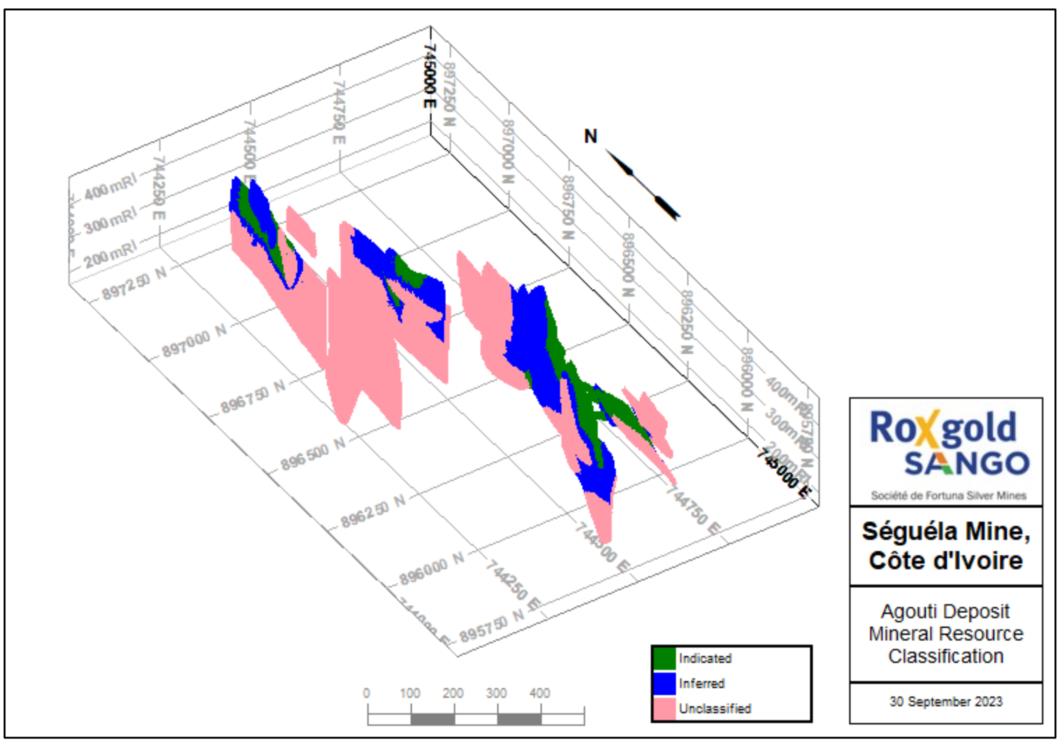

Figure 81: Agouti deposits Mineral Resource classification

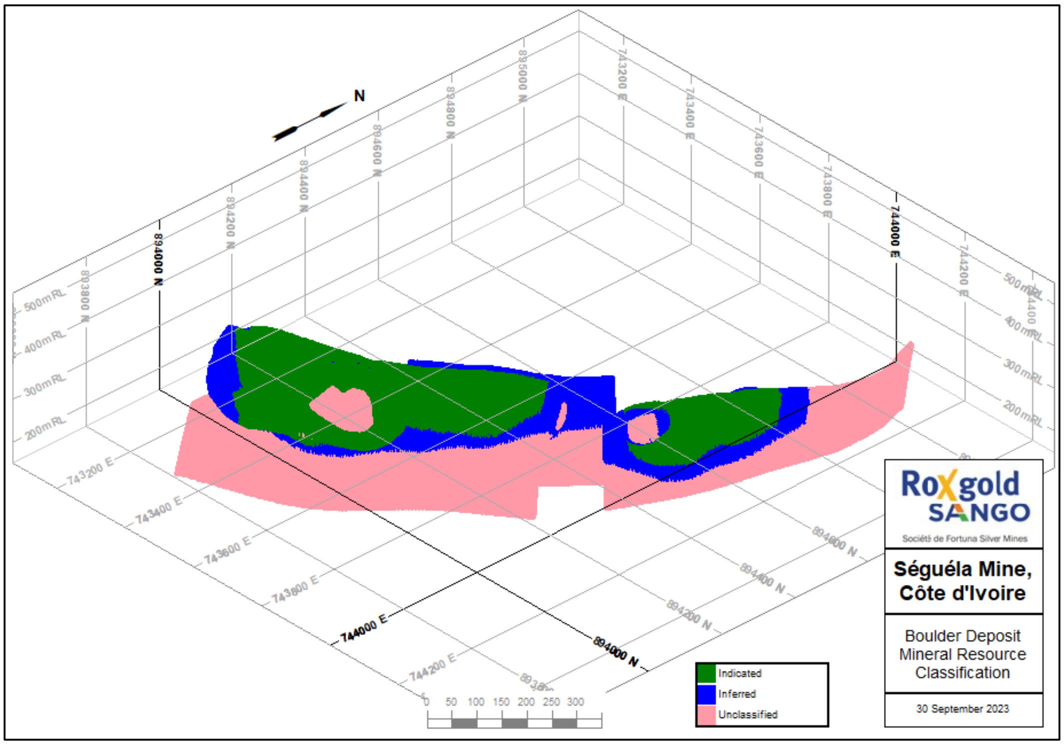

Figure 82: Boulder deposits Mineral Resource classification

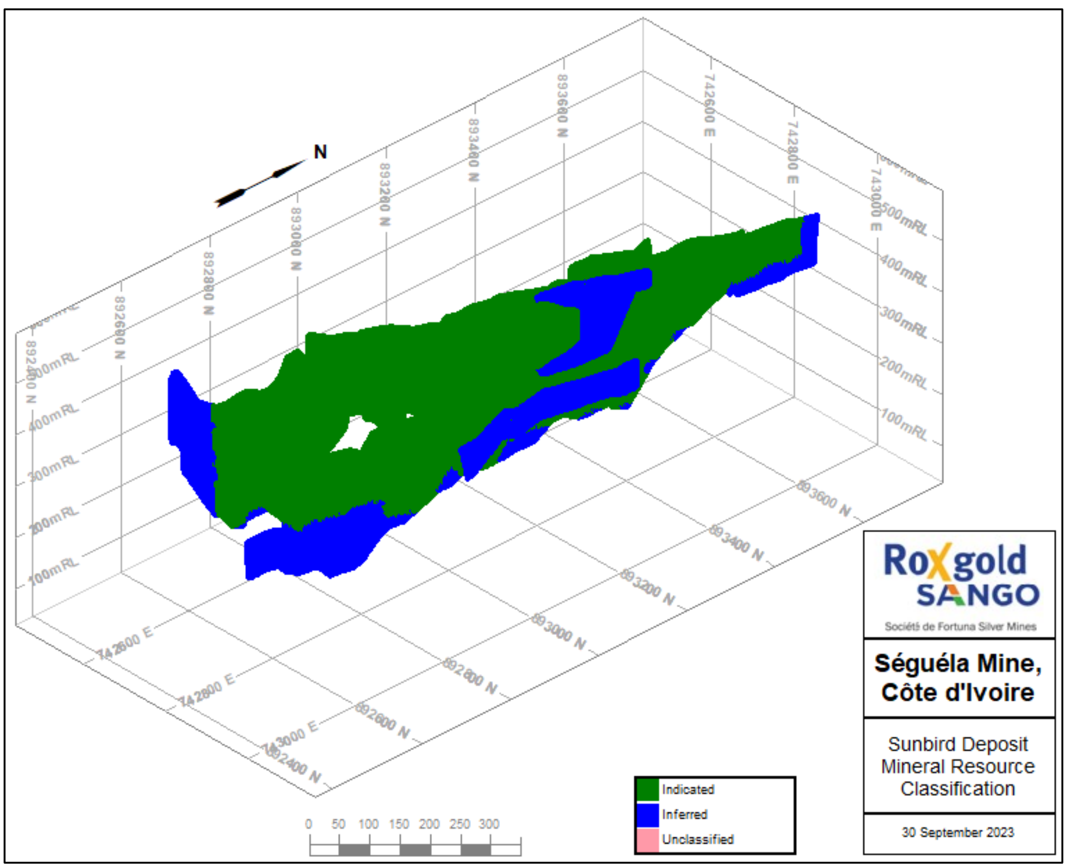

Figure 83: Sunbird deposit Mineral Resource classification

14.19.2 Reasonable Prospects for Eventual Economic Extraction

Mineral Resources were subject to an optimization process, whereby the in-ground value of each block was calculated using nominated values for: gold price, metal recoveries, mining dilution, mining costs, processing and selling costs. The gold price provided by Fortuna's Corporate Finance Department is based on the average three-year future financial institution projections and five-year trailing gold price with a 15 % upside.

Open Pit

These values were then used to generate a theoretical open pit via the Lerchs-Grossmann algorithm within Deswik.

Parameters used for the optimization include:

- Assumed gold price of $1,840/oz.
- Processing recovery of 94.5 %.
- Overall slope angles of 36.8° for oxide material, 44.2° for transitional material and 51° for fresh material except for Sunbird that used slope angles of 36.8° for oxide material, 36.5° for transitional material and 50° for fresh material.
- Average mining costs of $3.12/t mined.
- Average total processing costs (including G&A) of $24.25/t processed.
- Selling costs which include:
  - 6% royalty on revenue.
  - Refining costs of $7.00/oz Au with a payability of 99%.

Underground

Drilling has demonstrated that mineralization continues at reasonable widths and elevated grades below the defined pits at the Ancien, Koula and Sunbird deposits.

The underground potential below these pits was tested at these three deposits using the MSO tool within Datamine.

Parameters used for the optimization include:

- 2.4 g/t Au cut-off grade based on operational cost at Fortuna's Yaramoko Gold Mine, bench-marked against a first principal cost model exercise completed by Roxgold Sango.
- 1.8 m minimum mining width.
- 0.6 m dilution applied to both hanging wall and footwall.
- Total stope shape minimum mining width of 3.0 m.
- 20m length stopes along strike and 20 m level spacing.
- 10 m minimum mineable stope strike length.

14.20 Mineral Resource Estimate

The Mineral Resource estimate for the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits is reported in Table 76, at varying cutoffs based upon the application of varying costs during pit shell and stope optimization. Mineral Resources are reported assuming open pit and underground mining methods.

Mineral Resources for Antenna are depleted to account for mining production conducted up to December 31, 2023. If artisanal mining was known to have taken place, then mineralized material associated with this activity was excluded from the Mineral Resources using a cookie cutter approach with a buffer zone to account for potential additional areas not identified by surveys or drilling.

Mineral Resources potentially amenable to underground mining methods are reported inside MSO shapes that account for operational dilution at the specified minimum mining width of 1.8 m with 0.6 m dilution distributed evenly across the hanging wall and footwall.

Mineral Resources are reported insitu, exclusive of those Mineral Resources modified to produce Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 76: Mineral Resource estimate

Indicated Mineral Resources		**COG (g/t Au)**	**Tonnes (Mt)**	**Au (g/t)**	**Au (koz)**
Open pit	Antenna	0.55	1.33	1.32	57
	Agouti	0.65	0.30	1.69	16
	Ancien	0.65	0.19	2.79	17
	Koula	0.60	0.05	5.84	10
	Boulder	0.60	0.43	1.13	16
	Sunbird	0.55	0.55	1.77	31
	Total	**0.55–0.65**	**2.86**	**1.60**	**147**
Underground	Ancien	2.40	0.19	3.79	23
	Koula	2.40	0.04	4.54	7
	Sunbird	2.40	1.56	4.05	203
	Total	**2.40**	**1.80**	**4.03**	**233**
Total Indicated Mineral Resources			**4.66**	**2.54**	**381**

Inferred Mineral Resources		**COG (g/t Au)**	**Tonnes (Mt)**	**Au (g/t)**	**Au (koz)**
Open pit	Antenna	0.55	1.73	1.61	90
	Agouti	0.65	0.05	1.53	2
	Ancien	0.65	0.02	0.89	0
	Koula	0.60	0.37	4.44	53
	Boulder	0.60	0	-	-
	Sunbird	0.55	0.02	2.29	2
	Total	**0.55–0.65**	**2.19**	**2.09**	**147**
Underground	Ancien	2.40	0.15	3.82	19
	Koula	2.40	0.29	3.24	30
	Sunbird	2.40	0.42	3.62	49
	Total	**2.40**	**0.86**	**3.53**	**98**
Total Inferred Mineral Resources			**3.05**	**2.50**	**245**

Notes:

- *Mineral Resources are reported insitu, using the 2014 CIM Definition Standards.*
- *Mr. Eric Chapman, P.Geo., is the Qualified Person responsible for Mineral Resources and is a full time employee of Fortuna Silver Mines Inc.*
- *Mineral Resources are reported as of December 31, 2023.*
- *Mineral Resources are reported on a 100% basis. Fortuna holds a 90% interest in the Séguéla Gold Mine. The remaining 10% interest is held by the State of Côte d'Ivoire.*
- *Mineral Resources are reported exclusive of those Mineral Resources modified to produce Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

- *Mineral Resources potentially amenable to open pit mining methods are reported at a gold cut-off grade of 0.55 g/t Au for Antenna and Sunbird, 0.60 g/t Au for Koula and Boulder, and 0.65 g/t Au for Ancien and Agouti. Mineral resources are constrained within optimized pit shells.*
- *Mineral Resources potentially amenable to underground mining methods are reported inside MSO shapes at a gold cut-off grade of 2.4 g/t Au based on sublevel stoping mining method.*
- *Mineral Resources are based on a gold price of US$1,840/oz.*
- *All figures have been rounded to reflect the relative accuracy of the estimates and totals may not add due to rounding.*

Factors which may affect the Mineral Resource estimates include:

- Metal price and exchange rate assumptions.
- Changes to the technical inputs used to estimate gold content (e.g. bulk density estimation, grade interpolation methodology).
- Changes to the geological interpretation (e.g. post-mineralization dykes and structural offsets such as faults and shear zones).
- Additional depletion due to artisanal mining activities beyond those already identified and excluded from the estimate.
- Changes to geotechnical and mining assumptions, including the minimum mining thickness; or the application of alternative mining methods.
- Changes to process plant recovery estimates if the metallurgical recovery in certain domains is lesser or greater than currently assumed.
- Final negotiated terms of the Mining Convention.
- Changes to governmental regulations.
- Changes to environmental, permitting and social license assumptions.

14.21 Previous Mineral Resource Estimates

Mineral Resources have changed since the previous publicly reported numbers as of December 31, 2022. Changes include:

- Additional drilling, including infill drilling of the Sunbird deposit.
- Changes to reporting shell input parameters including, but not limited to, adjustments in the mining and processing costs with updated input data.
- Mining depletion of the Antenna deposit based on production.
- Inclusion of Mineral Resources identified as potentially amenable to underground mining methods.

14.22 Comments on Section 14

Mineral Resources were classified using the 2014 CIM Definition standards.

Mineral Resources for the Antenna, Ancien, Agouti, Boulder, Koula, and Sunbird deposits were estimated using data of suitable reliability and industry standard practices.

The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that could potentially affect the Mineral Resource estimate that are not discussed in this Report.

There is upside potential for the estimates if mineralization that is currently classified as Inferred can be upgraded to higher-confidence Mineral Resource categories.

15 Mineral Reserve Estimates

15.1 Introduction

A process was followed to convert the Mineral Resources to Mineral Reserves that was underpinned by a design, schedule, and economic evaluation. Only Mineral Resources considered potentially amenable to open pit mining methods have been considered for conversion to Mineral Reserves as insufficient detailed data had been collected to apply modifying factors to Mineral Resources considered potentially amenable to underground mining methods. The process included:

- Pit optimizations were run on the Mineral Resource models, using Deswik software's Pseudoflow algorithm. The nested pit shells resulting from the Pseudoflow algorithm were assessed, with deposit specific pits staging shells selected as the basis for detailed designs with consideration for economic and operational risks on the potential net present value (NPV).
- Mineral Resource block models for each deposit included gold grade, oxidation state, rock type, density values and confidence category classification.
- All pit optimizations, designs, schedules, and cashflow estimates were completed using Indicated Mineral Resources, with all Inferred Mineral Resources treated as non-revenue generating waste rock.
- Modifying factors were applied to the mined physicals; including dilution and recovery factors based on typical mining factors by regularizing the block models to a typical selective mining unit (SMU) block size.
- Open pit mine designs were produced to align with the preferred ultimate pit shells and incorporate appropriate geotechnical batter and berm parameters, appropriate ramp widths, and minimum mining widths to access all Mineral Reserves.
- Open pit stage designs were designed to prioritize the lowest cash cost, highest grade, operational constraints and to meet quantity and material type requirements for the plant mill feed.
- The open pit mine designs were scheduled using MineSched to produce a mine plan, using proposed productivity rates, and following an appropriate mining sequence to maintain mill feed and plant material characteristic requirements.
- The resulting mining schedule was evaluated in a financial model. Mining costs were derived from the active mining contract with Mota-Engil and pricing submission for the Sunbird deposit from Mota-Engil. Processing, general administration, and selling costs were based on the life of mine financial model and compared against actual costs for August 2023, a full production month for the Séguéla Mine. Cost estimates are described in Section 21.

The following block model constraints were used to convert Indicated Mineral Resources to Probable Mineral Reserves:

- Use the SMU regularized block models.
- Within the ultimate pit designs.
- Below the site topography surface.
- Above the marginal cut-off grade.

15.2 Cut-off Grade Derivation

Table 77 provides the cost and revenue parameters used to estimate the cut-off grade for each deposit.

Table 77: Cut-off grade inputs

Factor	Unit	Assumption
Gold Price	$US / oz	1,600
Royalty	%	6.0
Gold Payability	%	99.0
Refining and Selling Cost	$US / oz	7.00
Mill Recovery	%	94.5
Milling Cost	$US / t ore	15.42
G&A Cost	$US / t ore	8.83
Sustaining Capital Cost	$US / t ore	3.81 - 4.67
ROM Loader Cost	$US / t ore	0.44
Grade Control Cost	$US / t ore	0.39 – 1.67
Ore Differential by Deposit:		
Ore Differential - Antenna	$US / t ore	0.58
Ore Differential - Agouti	$US / t ore	1.65
Ore Differential - Ancien	$US / t ore	2.94
Ore Differential - Boulder	$US / t ore	1.11
Ore Differential - Koula	$US / t ore	0.58
Ore Differential - Sunbird	$US / t ore	0.44

The cut-off grade for each deposit was calculated by applying the economic parameters above and using the formula below:

$$Cut\text{ - }off\,Grade(g/t) = \frac{operating\ cost\,(\$/t)}{(Recovery(\%)\ x\ Revenue(\$/g))}$$

The resultant cut-off grade applied to each deposit is shown in Table 78.

Table 78: Estimated cut-off grade by deposit

Pit	Breakeven COG (g/t)	Incremental COG (g/t)
Antenna	1.07	0.65
Agouti	1.33	0.72
Ancien	1.61	0.73
Boulder	1.24	0.69
Koula	2.03	0.66
Sunbird	1.95	0.66

The cut-off grades applied are the breakeven cut-off grade and incremental cut-off grade. The breakeven cut-off grade is the grade at which all the cost is equal to the revenue (Hall, 2014) and includes selling cost, refining cost, mining cost, processing cost, general and administration cost, capital cost and metallurgical recovery. These cost parameters are used to complete pit optimization and define the ultimate pit shell.

The incremental cut-off grade does not include mining costs where these costs are allocated to mine the higher-grade material. The incremental cut-off grade is referred to as the milling cut-off grade and includes selling cost, refining cost, processing cost, general and administration cost, capital cost and metallurgical recovery, used to define whether the material is sent as waste or ore.

Once the ultimate pit shell is determined the incremental cut-off grade is used to determine classification between ore and waste, and due to all the material is required to be excavated from the ultimate pit shell including all the cost that makes up the breakeven cut-off grade, the assumption is that the higher-grade material within the ultimate pit will pay for the mining cost to mine the lower grade material, and the remaining decision made is to whether to send the material to the waste dump or run-of-mine (ROM) pad.

The primary difference in cut-off grade values between each deposit is the difference in ore differential between each pit. The ore differential is the cost difference to mine and haul ore compared to waste. The key difference between each pit being the different distances to haul ore to the ROM pad. The cut-off grade is used to determine whether the material mined will generate a profit following associated operating and selling costs.

15.3 Mineral Reserve Estimate

The resulting Mineral Reserve estimate with an effective date of December 31, 2023, is shown in Table 79.

Table 79: Mineral Reserve estimate

Location	Proven			Probable			Proven & Probable		
	Tonnes (Mt)	Grade (g/tAu)	Metal (000 oz)	Tonnes (Mt)	Grade (g/tAu)	Metal (000 oz)	Tonnes (Mt)	Grade (g/tAu)	Metal (000 oz)
Stockpile	0.44	2.06	29	-	-	-	0.44	2.06	29
Antenna	-	-	-	4.35	2.30	321	4.35	2.30	321
Koula	-	-	-	1.45	5.77	268	1.45	5.77	268
Ancien	-	-	-	1.81	3.80	221	1.81	3.80	221
Agouti	-	-	-	0.90	2.39	70	0.90	2.39	70
Boulder	-	-	-	0.71	1.73	39	0.71	1.73	39
Sunbird	-	-	-	2.10	3.04	206	2.10	3.04	206
Total	**0.44**	**2.06**	**29**	**11.33**	**3.09**	**1,125**	**11.76**	**3.05**	**1,154**

Notes:

- *Mineral Reserves are reported at the point of delivery to the process plant, using the 2014 CIM Definition Standards.*
- *Mr. Raul Espinoza, P.Eng., is the Qualified Person responsible for Mineral Reserves and is a full time employee of Fortuna Silver Mines Inc.*
- *Mineral Reserves are reported as of December 31, 2023.*
- *Mineral Reserves are reported on a 100% basis. Fortuna holds a 90% interest in the Séguéla Gold Mine. The remaining 10% interest is held by the State of Côte d'Ivoire.*
- *Mineral Reserves are reported at an incremental gold grade cut-off of 0.65 g/t Au for Antenna, 0.72 g/t Au for Agouti, 0.69 g/t Au for Boulder, 0.66 g/t Au for Koula, 0.73 g/t Au for Ancien, and 0.66 g/t Au for Sunbird deposit. The estimate is based on a gold price of US$1,600/oz, metallurgical recovery of 94.5%, surface mining costs of $3.12/t, processing costs of $15.42/t and G&A costs of 8.83/t.*
- *Overall slope angles applied are 36.8° for oxide material, 44.2° for transitional material and 51° for fresh material except for Sunbird that uses slope angles of 36.8° for oxide material, 36.5° for transitional material and 50° for fresh material.*
- *The Mineral Reserves are reported with modifying factors of mining dilution and mining recovery represented by regularizing the block models to an appropriate selective mining unit (SMU) block size.*
- *Each deposit has undergone pit optimization, detailed mine design, mine scheduling, and cashflow analysis, demonstrating a technically achievable and economically viable mine plan supporting this Mineral Reserve.*
- *All figures have been rounded to reflect the relative accuracy of the estimates and totals may not add due to rounding.*

Factors which may affect the Mineral Reserve estimates include:

- Metal price and exchange rate assumptions.
- Changes to metallurgical recovery assumptions.

- Changes to the input assumptions used to derive the mineable shapes applicable to the open pit mining methods used to constrain the estimates.
- Changes to the forecast dilution and mining recovery assumptions.
- Changes to the cut-off values applied to the estimates.
- Variations in geotechnical, hydrogeological and mining method assumptions.
- Final negotiated terms of the Mining Convention.
- Changes to environmental, permitting and social license assumptions.

15.4 Comparison with Previous Mineral Reserves

A previous Mineral Reserve estimate was announced with an effective date of December 31, 2022. Changes in the Mineral Reserve are due to changes in the estimation methodology, with updated parameters since the December 31, 2022, estimate, as well as additional Mineral Resource drilling occurring since this date.

The difference between the Mineral Reserve estimates is due to the following:

- The inclusion of the Sunbird deposit into the Mineral Reserve based on Mineral Resource drilling and mining study work completed to the effective date of this Report.
- The December 31, 2022, Mineral Reserve pit designs were guided by pit optimizations which included revenue from Inferred Mineral Resource.
- Pit optimizations in the December 31, 2022, Mineral Reserve estimate included ramp widths in the overall slope angles by applying a negative 3˚ deduction, rather than estimating the true total ramp width and number of ramp passes.
- Changes in pit optimization parameters and marginal cut-off grade estimation, including higher operating and selling costs, and actual contract mining cost executed on April 1, 2022, with an established mining contractor Mota-Engil.
- Change in mining dilution and mining recovery methodology from global factors to regularized block models by SMU sizes.
- All pits have been re-optimized and re-designed based on the latest parameters and Mineral Resource estimates.

15.5 Comments on Section 15

Mineral Reserves are reported using the 2014 CIM Definition Standards.

Mineral Reserves assume open pit mining methods, and in the opinion of the QP, are reported appropriately with the application of reasonable mining recovery and dilution factors and a breakeven cut-off grade based on contractor mining costs, actual processing and smelting costs; actual metallurgical recoveries achieved in the plant; and reasonable long-term metal prices based on market consensus.

There are no other known environmental, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that would materially affect the estimation of Mineral Reserves that are not discussed in this Report.

There is upside potential for the estimates if mineralization that is currently classified as Mineral Resources potentially amenable to underground mining methods can be converted to Mineral Reserves following appropriate technical studies, or if higher gold prices support a larger open pit.

16 Mining Methods

16.1 Introduction

The mine plan is based on conventional open pit mining methods and conventional equipment, utilizing the services of a mining contractor.

The overall mining and production strategy is to maintain a mill processing throughput of 1.46 Mtpa initially and increase to 1.57 Mtpa in 2026, by sequencing pit stages and processing feed requirements and material characteristics. The mine life based on Probable Mineral Reserves is 8.2 years.

Drilling and blasting are planned for oxide, transitional and fresh ore and waste, followed by conventional excavator and truck operations within the pits for the movement of ore and waste. Free digging will be conducted in the oxide zones if practical, otherwise blasting has been assumed for all the weathering horizons. Bench heights for extraction of ore and waste material is 5 m taken in two digging flitches of 2.5 m. Where possible in high waste stripping pit stages, 10 m bench heights will be used at an appropriate standoff distance from known mineralization.

Mining costs and equipment requirements are predominantly based on the existing mining contract with mining contractor Mota-Engil. The mining schedule consists of a lower mining rate for 2024, with a ramp up in total mining movement when commencing higher waste stripping pit stages, requiring additional mining equipment. The initial mining equipment required to meet the mining schedule for 2024 is one 200 t excavator, one to two 120 t excavator, and one 80 t excavator, along with eight to ten 90 t haul trucks. The total material mined in 2024 is equivalent to 5.9 million BCM. The mining equipment required to meet the mining schedule for 2025 onwards is an additional 200 t excavator and an additional six to eight 90 t haul trucks. The annual rate of mining movement after 2024 peaks in 2026 at 10.0 million BCM. A common pool of equipment will be used and scheduled across all of the active pits so that movement between the pits is minimized.

Roxgold Sango will use Mota-Engil as the mining contractor until March 2028, after which mining is planned to transition to Owner operator.

ROM ore is trucked from the pits to the ROM pad and tipped onto the ROM pad to be reclaimed and loaded to the crusher feed bin using front end loaders operated by the mining contractor.

16.2 Mine Geotechnical

Roxgold Sango commissioned Entech to undertake a geotechnical assessment (Entech, 2021). The study evaluated the potential for slope instabilities and prepared slope design parameter recommendations for the proposed open pit mining at the Agouti, Ancien, Antenna, Boulder, and Koula deposits.

In 2023, MineGeotech completed a geotechnical assessment (MineGeotech, 2023) for the Sunbird pit to determine design parameters for pit optimization and design processes.

16.2.1 Data Confidence

A dedicated geotechnical drilling program was designed by Entech to investigate local ground conditions. A geotechnical material property testing program was designed to capture information pertinent to characterizing and understanding the mechanical behavior of the different materials expected to be encountered.

For the Sunbird deposit a drilling program was designed by MineGeotech to investigate material characteristics specific to the deposit. A geotechnical material property testing was completed to capture information pertinent to characterizing and understanding the rock mass and was supported by completion of kinematic and numerical analysis to provide bench configuration and assessment of overall stability respectively.

A total of 35 dedicated geotechnical DD holes and 30 historical DD holes, located in the vicinity of the Agouti, Ancien, Antenna, Boulder, Koula and Sunbird pit walls, and totaling ~9,213 m, were used for the collection of detailed geotechnical data, including rock mass and structure characterization, and oriented structural data.

Samples were selected from the drill core of the dedicated geotechnical drill holes for material properties testing including particle size distribution, Atterberg limits, consolidated undrained triaxial strength, uniaxial compressive strength, uniaxial tensile strength, elastic constant (Young's Modulus and Poisson's Ratio), and Hoek triaxial and direct shear tests.

The extent of drill hole and material properties testing coverage is considered sufficient to undertake geotechnical assessments.

16.2.2 Ground Conditions

The depth to the base of complete oxidation wireframes in proximity to the pit walls is on average approximately 8 m at Agouti, 28 m at Ancien, 9 m at Antenna, 8 m at Boulder, 7 m at Koula, and 15 m at Sunbird. The drill holes used for the geotechnical assessment encountered the base of complete oxidation at an average depth of approximately 8 m at Agouti, 15 m at Ancien, 12 m at Antenna, 15 m at Boulder, 9 m at Koula, and 15 m at Sunbird.

The depth to the top of fresh rock wireframes in proximity to the pit walls is on average approximately 11 m at Agouti, 30 m at Ancien, 18 m at Antenna, 17 m at Boulder, 22 m at Koula and 30 m at Sunbird. The drill holes used for the geotechnical assessment encountered the top of fresh rock at an average depth of approximately 16 m at Agouti, 32 m at Ancien, 30 m at Antenna, 34 m at Boulder, 29 m at Koula, and 30 m at Sunbird. Entech and MineGeotech used the top of fresh rock wireframes for deriving slope design parameter limits in fresh rock following discussions with Roxgold Sango.

According to Bieniawski's rock mass rating (RMR), the major rock types encountered at each deposit can be summarized as follows in the fresh rock:

- Agouti: Good rock.
- Ancien: Good to very good rock.
- Antenna: Good rock.
- Boulder: Good rock.
- Koula: Good rock.
- Sunbird: Good rock.

16.2.3 Slope Design Analysis

Slope design modelling and analysis was undertaken, including kinematic, spill berm width, and limit equilibrium slope stability, to develop the slope design parameter recommendations.

Entech adopted the Slope Design Acceptance Criteria outlined in Read and Stacey (2009). A pragmatic approach to slope design was adopted and implemented on a case-by-case basis, which, at times relied on scheduling to complete mining activities at a faster rate where exposure to high risk and deep sections of the pits occurs. Given the phased approach to the mining sequence with each phase being mined in a relatively short period of time, slope design is largely in accordance with the Slope Design Acceptance Criteria, and tailored to the upper limits of the slope design criteria.

The kinematic analysis indicated that batter-scale failures (planar, wedge and toppling) are possible and ground control issues at the bench scale (including crest loss and localized slips and failures) can be expected. However, failed material should largely be contained by the recommended spill berm widths.

The limit equilibrium slope stability analysis indicated that slope instability at an inter-ramp or overall scale is unlikely within the design.

Geotechnical input parameters for intact rock and rock mass strength were developed based on information gathered from the geotechnical logging and material properties testing programs, as well as Entech's judgement used in conjunction with experience in similar settings and review of similar geotechnical engineering literature.

An observational design approach should be taken where regular review of bench-scale performance is undertaken and adjusted if necessary.

16.2.4 Slope Design Parameters

The slope design elements, geometries and terminology used for analysis and design are provided in Figure 84.

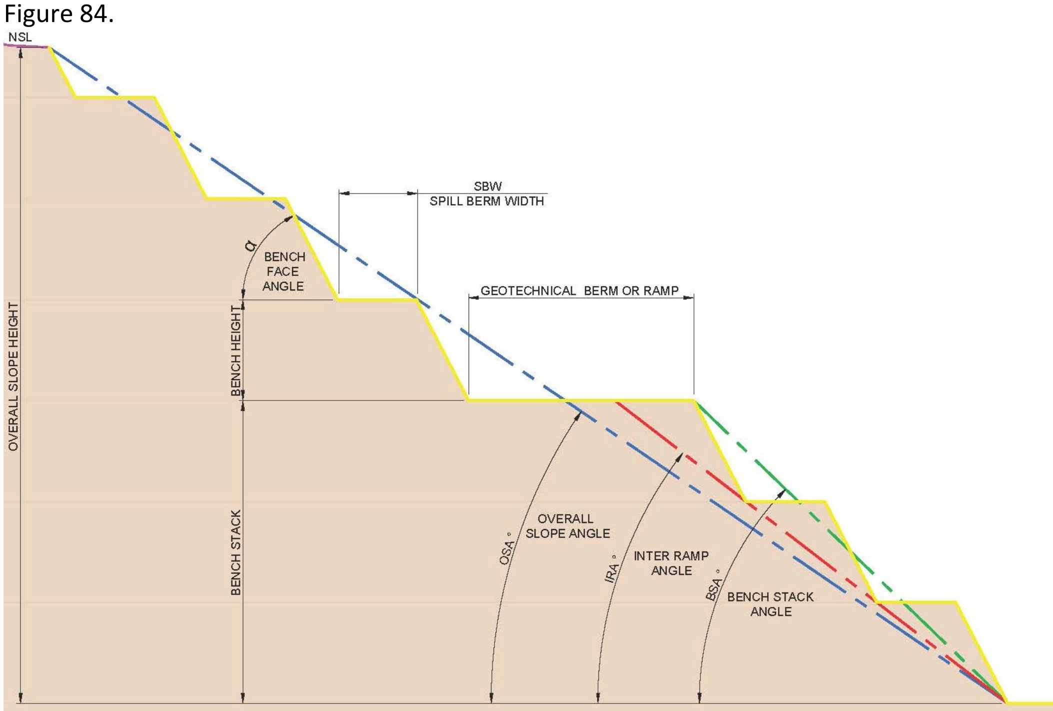

Figure 84: Pit slope design elements, geometries, and terminology (source: Read & Stacey, 2009)

Table 80 to Table 85 detail the slope design parameter recommendations for each deposit.

Table 80: Slope design parameter recommendations for Agouti.

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Agouti 1 – West	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 20 mbs	Transitional	20	60	9	44.2
	20 mbs to base of pit	Fresh	20	80	8	60
Agouti 1 – East	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 20 mbs	Transitional	20	60	9	44.2
	20 mbs to base of pit	Fresh	20	80	8	60

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Agouti 2 – West	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Agouti 2 – East	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Agouti 3 – West	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 20 mbs	Transitional	20	60	9	44.2
	20 mbs to base of pit	Fresh	20	80	8	60
Agouti 3 – East	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 20 mbs	Transitional	20	60	9	44.2
	20 mbs to base of pit	Fresh	20	80	8	60

Notes: Transitional material may have a bench height/spill berm width configuration of 20 m/9 m or 10 m/5 m, where required
mbs = meters below surface

Table 81: Slope design parameter recommendations for Ancien

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Ancien – West	Surface to 30 mbs	Transported/Oxide	10	50	5	36.8
	30 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Ancien – North	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 30 mbs	Transitional	20	60	9	44.2
	30 mbs to base of pit	Fresh	20	80	8	60
Ancien – East	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 30 mbs	Transitional	20	60	9	44.2
	30 mbs to base of pit	Fresh	20	80	8	60
Ancien – South	Surface to 30 mbs	Transported/Oxide	10	50	5	36.8
	30 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60

Notes: Transitional material may have a bench height/spill berm width configuration of 20 m/9 m or 10 m/5 m, where required
mbs = meters below surface

Table 82: Slope design parameter recommendations for Antenna.

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Antenna – West	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 30 mbs	Transitional	20	60	9	44.2
	30 mbs to base of pit	Fresh	20	80	8	60
Antenna – East	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 30 mbs	Transitional	20	60	9	44.2
	30 mbs to base of pit	Fresh	20	80	8	60
Antenna – South	Surface to 20 mbs	Transported/Oxide	10	50	5	36.8
	20 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60

Notes: Transitional material may have a bench height/spill berm width configuration of 20m/9m or 10m/5m, where required
mbs = meters below surface

Table 83: Slope design parameter recommendations for Boulder

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Boulder 1 – Northwest	Surface to 15 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Boulder 1 – Northeast	Surface to 15 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Boulder 1 – Southeast	Surface to 15 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Boulder 1 – Southwest	Surface to 40 mbs	Transported/Oxide	10	50	5	36.8
	40 mbs to 70 mbs	Transitional	20	60	9	44.2
	70 mbs to base of pit	Fresh	20	80	8	60
Boulder 2 – Northwest	Surface to 15 mbs	Transported/Oxide	10	50	5	36.8
	15 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Boulder 1 – Southeast	Surface to 15mbs	Transported/Oxide	10	50	5	36.8
	15 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60

Notes: Transitional material may have a bench height/spill berm width configuration of 20m/9m or 10m/5m, where required
mbs = meters below surface

Table 84: Slope design parameter recommendations for Koula

Domain	From/To	Material	Bench Height (m)	Bench Face Angle (deg)	Spill Berm Width (m)	Inter-Ramp Angle (deg)
Koula – West	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 30 mbs	Transitional	20	60	9	44.2
	30 mbs to base of pit	Fresh	20	80	8	60
Koula – North	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 15 mbs	Transitional	20	60	9	44.2
	15 mbs to base of pit	Fresh	20	80	8	60
Koula – East	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 40 mbs	Transitional	20	60	9	44.2
	40 mbs to base of pit	Fresh	20	80	8	60
Koula – South	Surface to 10 mbs	Transported/Oxide	10	50	5	36.8
	10 mbs to 25 mbs	Transitional	20	60	9	44.2
	25 mbs to base of pit	Fresh	20	80	8	60

Notes: Transitional material may have a bench height/spill berm width configuration of 20m/9m or 10m/5m, where required
mbs = meters below surface

Table 85: Slope Design parameter recommendations for Sunbird

Geotechnical Domains	Sector	Azimuth From (deg)	Azimuth to (deg)	Bench Height (m)	Bench Face Angle (deg)	Berm Width (m)	Inter-Ramp Angle (deg)
Saprolite	A	0	360	10	50	5	36.8
Transitional	B	300	80	10	85	5	65
	C	80	120	10	55	6.5	37
	D	120	250	10	85	5	65

Geotechnical Domains	Sector	Azimuth From (deg)	Azimuth to (deg)	Bench Height (m)	Bench Face Angle (deg)	Berm Width (m)	Inter-Ramp Angle (deg)
	E	250	300	10	55	6.5	37
Fresh	F	300	80	20	90	11	65
	G	80	120	20	80	12	52
	H	120	260	20	90	11	65
	I	260	300	20	80	12	52

Notes: Transitional material may have a bench height/spill berm width configuration of 20m/9m or 10m/5m, where required
mbs = meters below surface

The slope design parameter recommendations are based on the following assumptions:

- Best practice management of surface water runoff.
- Dewatered or dry slope conditions.
- Monitoring of ground water drawdown within wall limits through the application of monitoring bores equipped with vibrating wire piezometers.
- Implementation of a thorough ground control management plan with provision for:
  - Good wall blasting practices which includes pre-split blasting of final walls and achievement of spill berm widths, limited crest loss, and clean batters.
  - Sound wall scaling practices.
  - Appropriate, fit for purpose and routine monitoring of walls.
  - Ongoing collection of geotechnical data (i.e. mapping) and wall performance metrics.
  - Regular geotechnical review.
- If the slope design parameters are not being achieved, including spill berm widths and toe checks, then drill and blast practices and/or spill berm widths must be reviewed.
- The mining operation perform a detailed risk assessment prior to implementation of the slope design parameters.

16.3 Hydrogeology

An initial hydrogeological study was conducted in 2019 to characterize the groundwater regime. Subsequently, a preliminary desktop assessment was undertaken in 2020 to review all available information, assess groundwater conditions and develop a conceptual model of the site and surrounding areas. Following this a site investigation was designed to improve knowledge regarding groundwater resources and provide estimates of potential pit dewatering estimates and impacts across the site. This drilling and aquifer testing investigation was conducted from July to September 2020, targeting discrete geological structures and specific lithologies at the Antenna deposit.

A total of nine bores were installed and pump tested to gain aquifer parameter information. A number of findings were made including that depth to the static water varies from 2.95 to 6.59 meters below ground level, pit dewatering will be required at the Antenna deposit, and that groundwater flow from the south to the north generally follows the topography at the Antenna deposit. Analyses of the aquifer test data by the Cooper and Jacob method show transmissivities ranged from 2.2 m^2/day to 384.2 m^2/day, which are consistent with fractured rock permeability. These results were used to construct a numerical model to estimate pit inflow rates, which range from 0.0 to 134.7 m^3/hr for the Antenna deposit depending on the stage of the mining schedule. Additionally, numerical modelling results show a cumulative dewatering drawdown impact around the ore bodies may occur to about 15 km by 8 km in lateral extent. The results and aquifer parameters gained from the program were extrapolated to inform a high-level hydrogeological evaluation across the site.

Water samples collected in March 2020, show water quality is generally better than the directives set by the European Union/Organisation Management Service (UE/OMS) standards, except for turbidity and total iron which exceed these standards. Fourteen water samples collected in August 2020 show elevated selenium levels in all of the bores, with lead levels elevated in five bores. Results show elevated cadmium in two bores.

Another drilling and testing hydrogeological site investigation was conducted from December 2020 to March 2021, in order to advance groundwater knowledge, refine and improve numerical model simulations and predictions. This investigation was designed using information collected and evaluated from the drilling investigation conducted earlier in 2020 to inform the groundwater assessment. Drilling and testing for this program was undertaken at the Agouti, Ancien, Antenna and Boulder deposits, where a total of 13 pumping and monitoring bores were drilled and constructed and used in the subsequent aquifer test program.

The data collected from this program was assessed and analyzed for incorporation into an updated and refined groundwater numerical model and used in estimating groundwater resources and possible environmental impacts.

The numerical model is required to be updated from the initial steady-state calibrated model to a more refined transient-state model, based on the updated mine schedules to provide an estimate of pit dewatering requirements as mining advances at each deposit. This information may also be used to inform the operations water balance, anticipate dewatering volumes, as well as forecast dewatering drawdown impacts.

The Sunbird groundwater analysis is based on the report completed by Knight Piesold (Drew, 2021). Some extrapolation has had to be made for the Sunbird deposit based on the analysis in the report as deposits on which the report was focused are about 1–2 km from Sunbird.

MineGeotech believes that the hydraulic conductivity values, a parameter required for slope design analysis provided by Knight Piesold are reasonable, except for the oxide/saprolite layer where it is believed that the proposed value is too high for predominantly clay material.

To complete the slope design analysis the hydraulic conductivity of Antenna pit was used as Sunbird is part of the east domain to the east of the Antenna pit.

For the saprolite/oxide layer, generic published values have been used (Heath, 2004), giving the following values for each domain:

- Saprolite - 1e-5m/d.
- Transitional - 1e-1m/d.
- Fresh - 1e-3m/d.

16.4 Pit Optimizations

16.4.1 Mining Block Model

Block models were provided in Datamine format. The Antenna, Ancien, Koula, and Sunbird block models were regularized to 5 x 5 x 5 m dimensions, the Agouti and Boulder block models were regularized to 5 x 5 x 2.5 m dimensions. The block model regularization was used to represent mining dilution and mining recovery inherent within the block model tonnes and grade.

Prior to conducting the pit optimization, the block models had the following modifications:

- Different rock type codes were added to distinguish ore from waste within the block model based on the cut-off grades for each deposit.

- All operating costs including mining, processing, selling, and general and administrative costs were estimated for each block within the block model.
- Revenue was estimated for each ore block within the block model based on the estimated metallurgical recoveries and the forecast long-term gold price.
- Geotechnical domains were applied based on the material type and wall orientation as per the geotechnical recommendations.

16.4.2 Optimization Parameters

Financial Inputs and Selling Costs

Table 86 shows the financial parameters applied in the pit optimization. Table 87 shows the selling costs applied within the pit optimization.

Table 86: Financial parameters applied in pit optimization

Input	Unit	Value
Currency	$ Currency	US Dollars
Discount rate	%	5.0
Gold price	US$/oz	1,600

Table 87: Selling costs applied in pit optimization

Input	Unit	Value
Royalty	% Revenue	6.0
Refining and selling costs	US$/oz	7.0
Payability	%	99.0

Mining Costs

Table 88 summarizes the mining costs and parameters applied within the pit optimizations. Table 89 and Table 90 show the variable load and haul costs by bench for waste and ore respectively. Mining dilution and recovery is represented within the block model regularization.

Table 88: Mining costs applied in pit optimization

Input	Unit	Value
Mining dilution	%	Included in SMU
Mining recovery	%	Included in SMU
Ore load and haul costs	US$/bcm	Variable by pit and bench
Waste load and haul costs	US$/bcm	Variable by pit and bench
Drilling cost	US$/bcm	0.54–0.86
Blasting cost – oxide	US$/bcm	1.18–1.24
Blasting cost – transitional	US$/bcm	1.57–1.63
Blasting cost – fresh	US$/bcm	1.80–2.14
Mining overheads	US$/bcm	0.24–0.25
Diesel cost	US$/bcm	1.44–2.20
Closure cost	US$/bcm	0.09

Table 89: Waste load and haul costs in US$/bcm

Elevation	Agouti	Ancien	Antenna	Boulder	Koula	Sunbird
Bench 1	2.95	2.42	0.50	2.76	4.46	3.17
Bench 2	2.89	1.88	0.57	2.69	4.38	3.22
Bench 3	2.83	1.83	0.64	2.62	4.22	3.29
Bench 4	2.78	1.82	0.71	2.55	4.09	3.33
Bench 5	2.68	1.84	0.78	2.48	3.99	3.33
Bench 6	2.50	1.83	0.85	2.39	3.93	3.31
Bench 7	2.38	1.89	0.92	2.32	3.85	3.34
Bench 8	2.32	1.94	1.02	2.25	3.78	3.36
Bench 9	2.29	2.00	1.27	2.20	3.70	3.40
Bench 10	2.33	2.06	1.66	2.15	3.65	3.44
Bench 11	2.41	2.12	1.97	2.11	3.60	3.49
Bench 12	2.61	2.13	2.34	2.06	3.57	3.54
Bench 13	2.77	2.16	2.54	2.03	3.55	3.59
Bench 14	2.89	2.15	2.81	2.11	3.08	3.65
Bench 15	2.91	2.18	2.89	2.21	3.00	3.69
Bench 16	2.96	2.16	2.93	2.30	2.98	3.75
Bench 17	2.95	2.21	2.90	2.37	3.02	3.81
Bench 18	3.19	2.24	2.91	2.45	3.00	3.88
Bench 19	3.26	2.27	2.98	2.48	3.04	3.95
Bench 20	3.15	2.29	2.97	3.66	3.02	4.02
Bench 21	2.94	2.33	2.96	4.61	3.05	4.10
Bench 22	3.10	2.37	2.95	4.72	3.13	4.16
Bench 23	2.86	2.43	3.02	4.69	3.17	4.23
Bench 24	2.89	2.47	3.11	4.91	3.21	4.30
Bench 25	2.89	2.53	3.22	5.28	3.27	4.37
Bench 26	2.89	2.58	3.32	5.62	3.33	4.44
Bench 27	2.89	2.61	3.41	5.84	3.38	4.52
Bench 28		2.59	3.50	5.84	3.39	4.58
Bench 29		2.61	2.62	5.84	3.41	4.64
Bench 30		2.59	2.66	5.84	3.44	4.72
Bench 31		2.64	2.67		3.46	4.79
Bench 32		2.73	2.68		3.45	4.86
Bench 33		2.85	2.68		3.46	4.93
Bench 34		2.89	2.68		3.44	5.00
Bench 35		2.91	2.67		3.47	5.06
Bench 36		2.87	2.63		3.42	5.13
Bench 37		2.85	2.53		3.43	5.20
Bench 38		2.78	2.51		3.47	5.27
Bench 39		2.74	2.54		3.47	5.34
Bench 40		2.90	2.56		3.47	5.41
Bench 41		2.93	2.60		3.48	5.47

Elevation	Agouti	Ancien	Antenna	Boulder	Koula	Sunbird
Bench 42		2.89	2.64		3.51	5.54
Bench 43		2.98	2.68		3.52	5.61
Bench 44		2.92	2.81		3.56	5.69
Bench 45+		3.14	2.88		3.60	5.76

Table 90: Ore load and haul costs in US$/bcm

Elevation	Agouti	Ancien	Antenna	Boulder	Koula	Sunbird
Bench 1	7.64	11.85	2.85	5.57	5.11	4.69
Bench 2	7.64	11.85	2.85	5.57	5.11	4.69
Bench 3	7.64	11.85	2.85	5.57	5.11	4.69
Bench 4	7.64	11.85	2.85	5.57	5.11	4.69
Bench 5	7.56	12.17	2.85	5.57	5.11	4.69
Bench 6	7.49	12.17	2.92	5.57	5.11	4.69
Bench 7	7.40	12.40	2.99	5.57	5.11	4.69
Bench 8	7.23	11.59	3.06	5.57	5.11	4.69
Bench 9	7.07	11.87	3.13	5.57	5.11	4.76
Bench 10	7.14	12.05	3.20	5.44	5.03	4.77
Bench 11	7.07	12.21	3.27	5.38	4.96	4.62
Bench 12	7.06	12.01	3.34	5.30	4.89	4.68
Bench 13	7.21	12.11	3.34	5.21	4.81	4.76
Bench 14	7.33	12.18	3.34	5.19	4.63	4.81
Bench 15	7.51	11.68	5.06	5.27	4.49	4.84
Bench 16	7.56	11.33	4.94	5.35	4.46	4.89
Bench 17	7.59	11.54	4.44	5.43	4.53	4.97
Bench 18	7.57	11.69	4.16	5.50	4.53	5.06
Bench 19	7.77	11.40	4.11	5.51	4.57	5.13
Bench 20	7.74	11.42	4.11	5.58	4.65	5.21
Bench 21	7.49	11.17	4.07	6.20	4.64	5.28
Bench 22	7.26	10.89	4.00	7.54	4.55	5.35
Bench 23	7.45	10.80	3.98	8.51	4.71	5.42
Bench 24	7.22	10.24	3.96	8.19	4.88	5.49
Bench 25	7.28	9.68	4.07	8.58	4.95	5.55
Bench 26	6.18	9.26	4.17	8.73	5.04	5.62
Bench 27	6.18	9.28	4.30	9.49	5.16	5.68
Bench 28		9.30	4.43	9.97	5.06	5.75
Bench 29		9.08	4.23	11.02	5.16	5.81
Bench 30		9.06	4.32	11.02	5.26	5.89
Bench 31		8.85	4.38		5.29	5.95
Bench 32		8.94	4.43		5.38	6.01
Bench 33		9.14	4.47		5.47	6.07
Bench 34		9.43	4.50		5.61	6.13
Bench 35		9.44	4.48		5.65	6.21
Bench 36		9.62	4.48		5.74	6.29

Elevation	Agouti	Ancien	Antenna	Boulder	Koula	Sunbird
Bench 37		9.37	4.46		5.79	6.35
Bench 38		9.43	4.42		5.87	6.42
Bench 39		9.27	4.34		5.90	6.49
Bench 40		9.20	4.32		5.93	6.57
Bench 41		9.46	4.33		5.47	6.64
Bench 42		9.69	4.39		5.51	6.71
Bench 43		9.46	4.37		5.52	6.79
Bench 44		9.86	4.42		5.40	6.86
Bench 45+		9.56	4.80		5.30	6.94

ROM Costs

Table 91 shows the ROM costs applied to ore.

Table 91: ROM costs applied in pit optimization

Input	Unit	Value
Processing cost	US$/t ROM	15.42
Sustaining capital costs	US$/t ROM	3.81–4.67
General and administrative costs	US$/t ROM	8.83
Grade control costs	US$/t ROM	0.39–1.67
Crusher feed costs	US$/t ROM	0.44

Processing Recoveries

A processing recovery of 94.5% was applied.

Overall Slope Angles

The overall slope angles applied incorporate the following:

- Geotechnical batter and berm parameters for each weathering and pit wall orientation domain, as outlined in Section 16.2 of this Report.
- Vertical depth of geotechnical domain.
- Ramp width and number of ramp passes within each geotechnical domain.

Table 92 shows the overall slope angles applied in the pit optimization for each deposit.

Table 92: Overall slope angles applied in the pit optimizations

Weathering	Agouti	Ancien	Antenna	Boulder	Koula	Sunbird
Oxide	36.8	36.8	36.8	36.8	36.8	36.8
Transitional	44.2	44.2	44.2	44.2	44.2	36.5
Fresh	50.2	49.6	46.6 – 48.3	53.3	51.0	50.0

16.4.3 Optimization Outcomes

A set of nested pit shells were produced by the Deswik pseudoflow function. The nested shells were used to determine trends in mineralization and higher-grade areas that would offer opportunities to stage pits to increase discounted cashflow.

Table 93 shows the selected pit shells used to guide the ultimate pit designs for each deposit.

Table 93: Optimization results

Final Pit Shell Deposit	Revenue Factor	Total Mined Mt	Waste Mined Mt	Strip Ratio t:t	ROM Feed Mt	GradeAu g/t	Au Produced Moz
Antenna	1.00	34.2	28.9	5.45	5.3	2.41	0.39
Agouti	1.00	8.6	7.6	7.69	1.0	2.40	0.07
Ancien	1.00	26.2	24.3	13.06	1.9	3.85	0.22
Boulder	1.00	5.8	5.1	7.29	0.7	1.83	0.04
Koula	1.00	31.8	30.3	20.28	1.5	5.83	0.26
Sunbird	1.00	34.1	31.8	14.36	2.2	3.05	0.21

Revenue factor 1 pit shells were chosen for the ultimate pit extents due to the relatively short mine life of each individual pit. Figure 85 to Figure 90 show total tonnes and indicative undiscounted discounted cashflow for each nested pit shell within each deposit. Each set of nested pit shells informed pit stage designs. Trends in stripping ratio and cash costs were used to prioritize and sequence lowest stripping ratio and lowest cash cost ounces, while maintaining appropriate minimum mining widths.

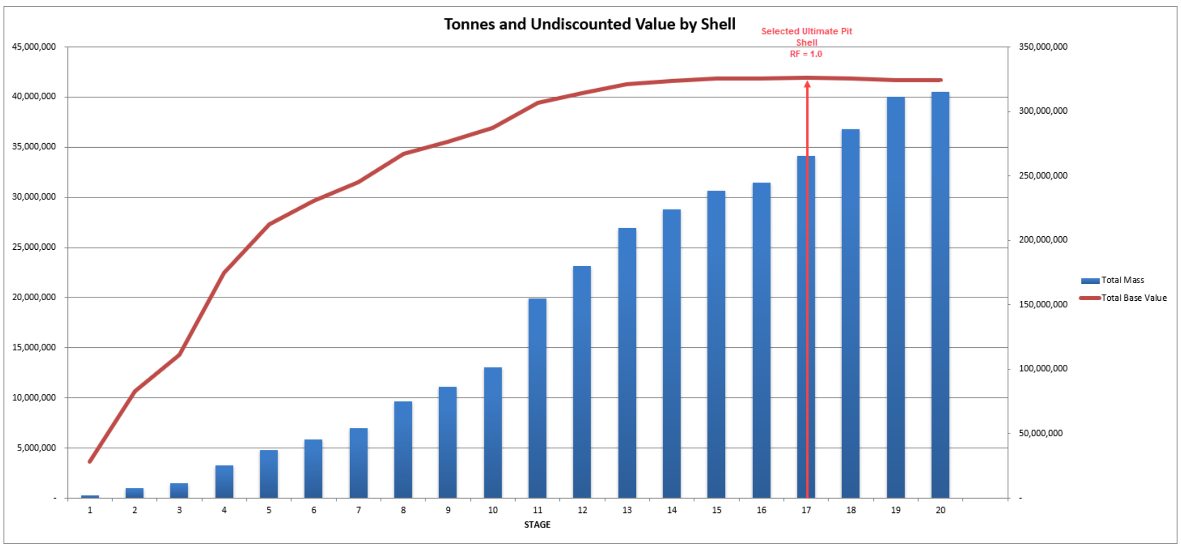

Figure 85: Antenna pit optimization results – selected ultimate pit shell

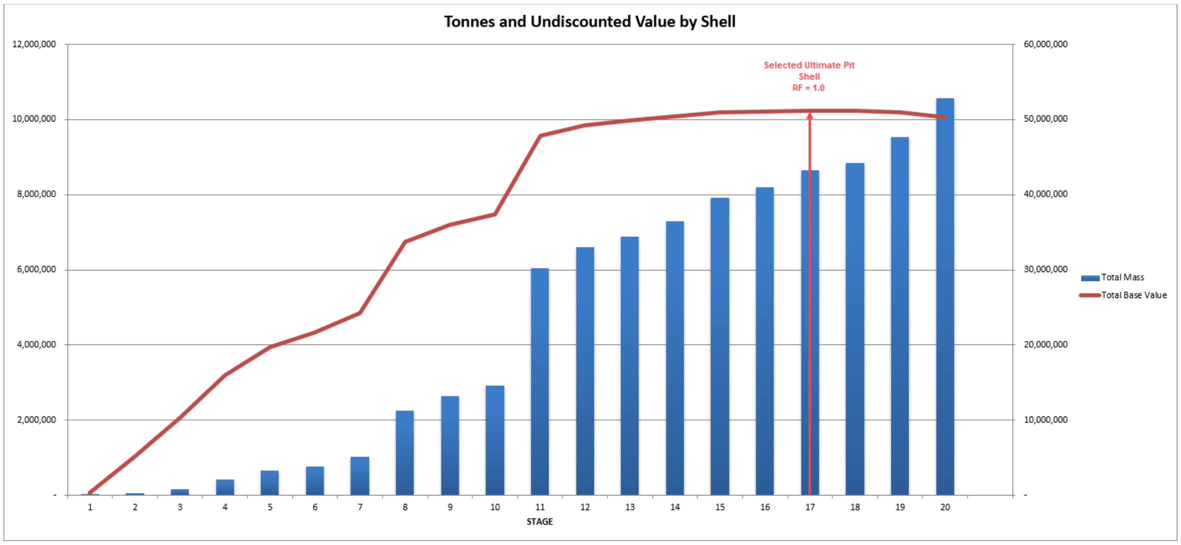

Figure 86: Agouti pit optimization results – selected ultimate pit shell

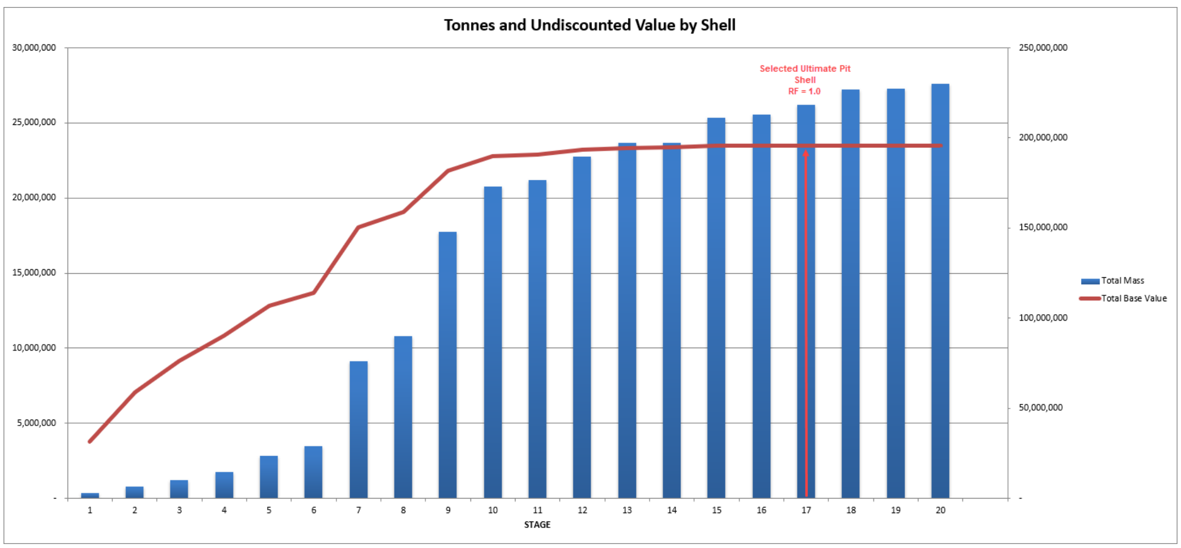

Figure 87: Ancien pit optimization results – selected ultimate pit shell

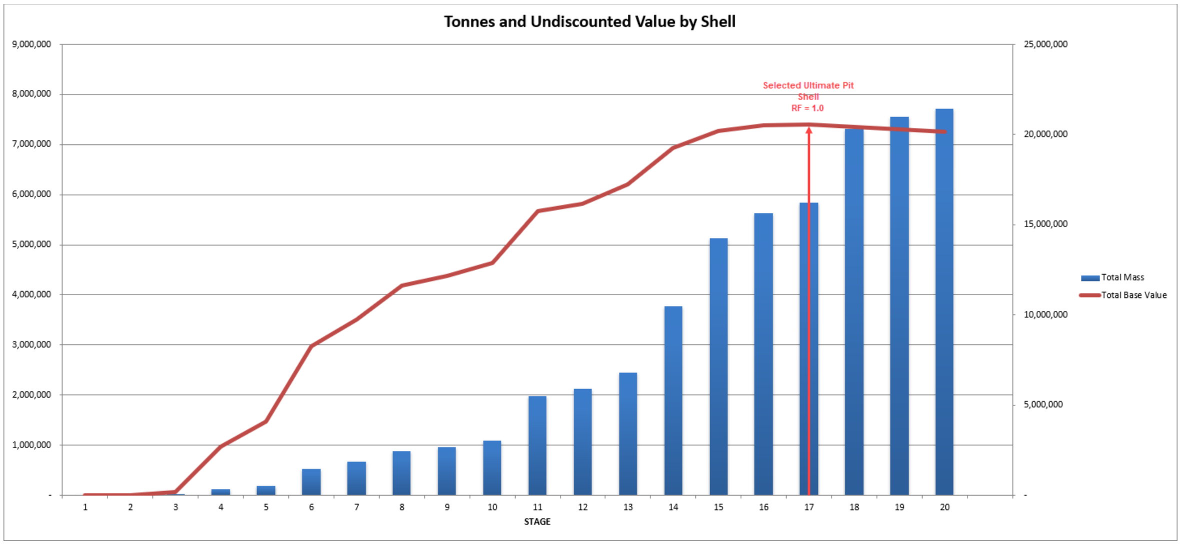

Figure 88: Boulder pit optimization results – selected ultimate pit shell

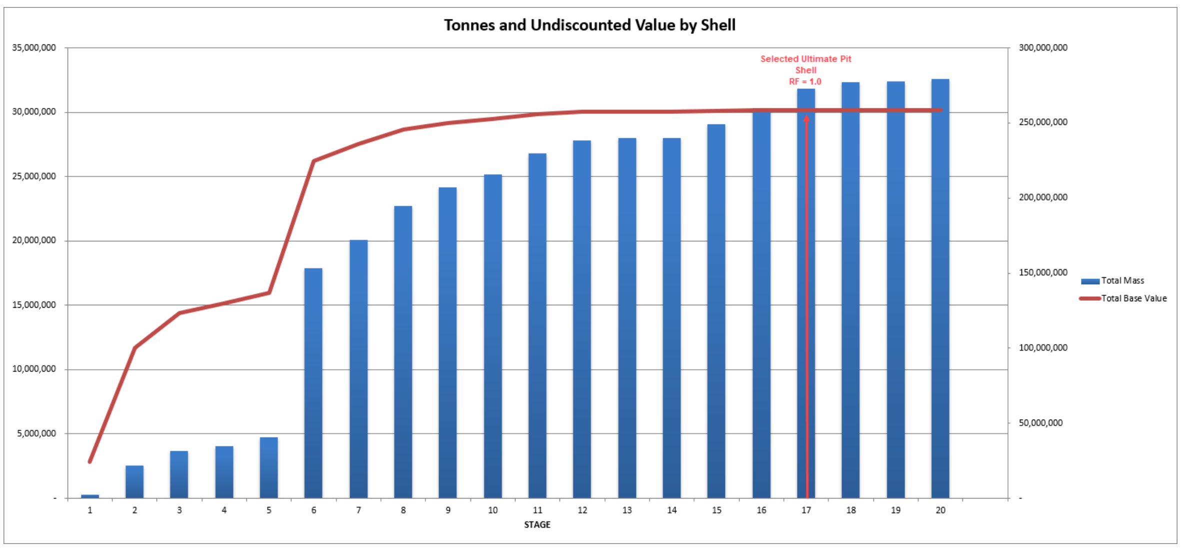

Figure 89: Koula pit optimization results – selected ultimate pit shell

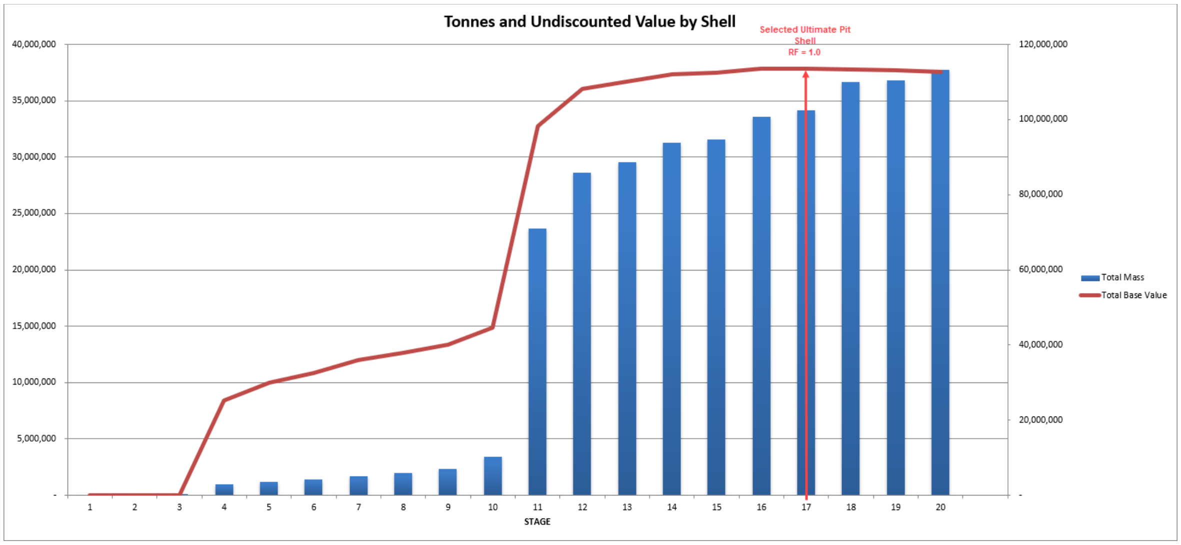

Figure 90: Sunbird pit optimization results – selected ultimate pit shell

16.5 Mine Design

16.5.1 Pit Design

Detailed pit stage designs were prepared based on the results of the pit optimizations and incorporating appropriate wall angles, geotechnical berms, minimum mining widths, and access ramps with sufficient width for the equipment selected.

Pit Design Parameters

The geotechnical parameters applied to the pit designs include batter face angles, berm widths, and overall slope angles (Figure 91).

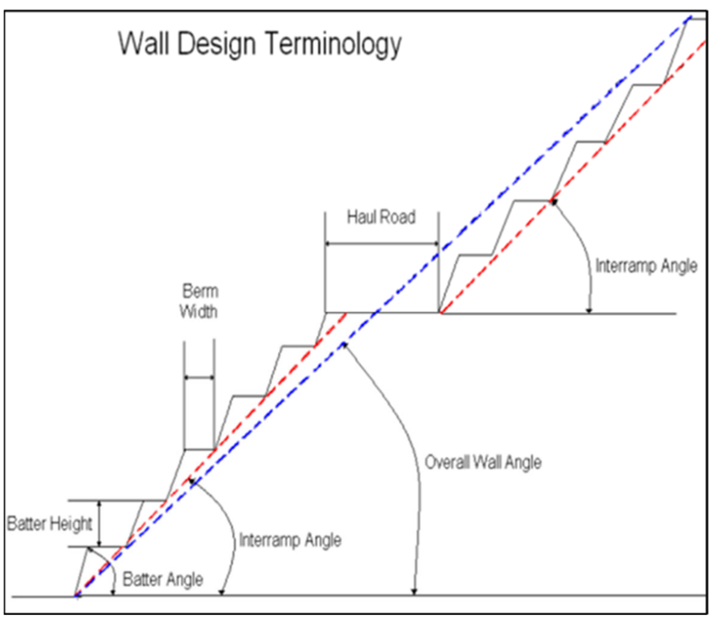

Figure 91: Pit wall design terminology

Pit ramps were designed with the following characteristics:

- Dual lane ramps are a total of 24.8 m wide, including 19.5 m distance for safe passing of two of the selected CAT 777E haul truck, a 4.8 m wide bund, and a 0.5 m drain width.
- Single lane ramps are a total of 15.0 m wide, including 9.7 m distance for sufficient room for a single CAT 777E haul truck, a 4.8 m wide bund, and a 0.5 m drain width.
- Gradient of 1:10 for all dual lane ramps.
- Gradient of 1:9 for single lane ramps for the final 40 vertical meters of each ultimate pit.
- Single lane ramps have an overtaking lane every 20 vertical meters.
- Ramps exit the pit in the direction of the waste rock dumps.
- All pits include a goodbye cut at a maximum depth of 5 m.

Pits were designed to have a minimum mining width of 20 m and a minimum cutback width of 25 m.

Antenna

The Antenna Mineral Reserves will be mined in three pit stages, prioritizing the highest grade, lowest waste stripping ore. Figure 92 shows the Antenna pit stage designs.

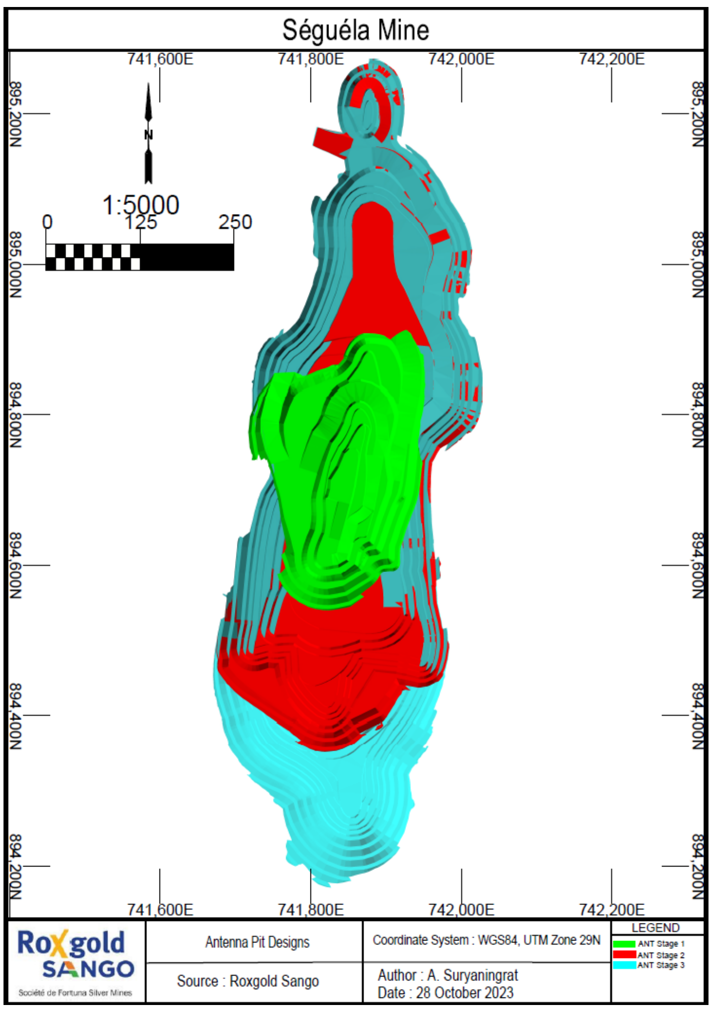

Figure 92: Antenna pit stage designs

Pit optimizations that include revenue from Inferred Mineral Resource show the potential for a stage 4 pit design, so the Antenna stage 3 design has been planned such that if further Mineral Resource drilling increases the confidence of the Mineral Resource estimate at depth, a final pit cutback on the south-western pit wall is possible.

The Antenna pit is located within 1 km of the Séguéla processing plant and ROM pad. Ore from the Antenna pit is hauled to the ROM pad and waste rock is hauled to the Antenna waste rock dump located north of the TSF. Antenna waste rock will be used for all future lifts of the TSF, as well as to form a buttress for the tailings at the end of the mine life.

Agouti

The Agouti Mineral Reserves will be mined in three pit stages prioritizing the production output and lowest waste stripping ore. Figure 93 shows the three Agouti pit stages.

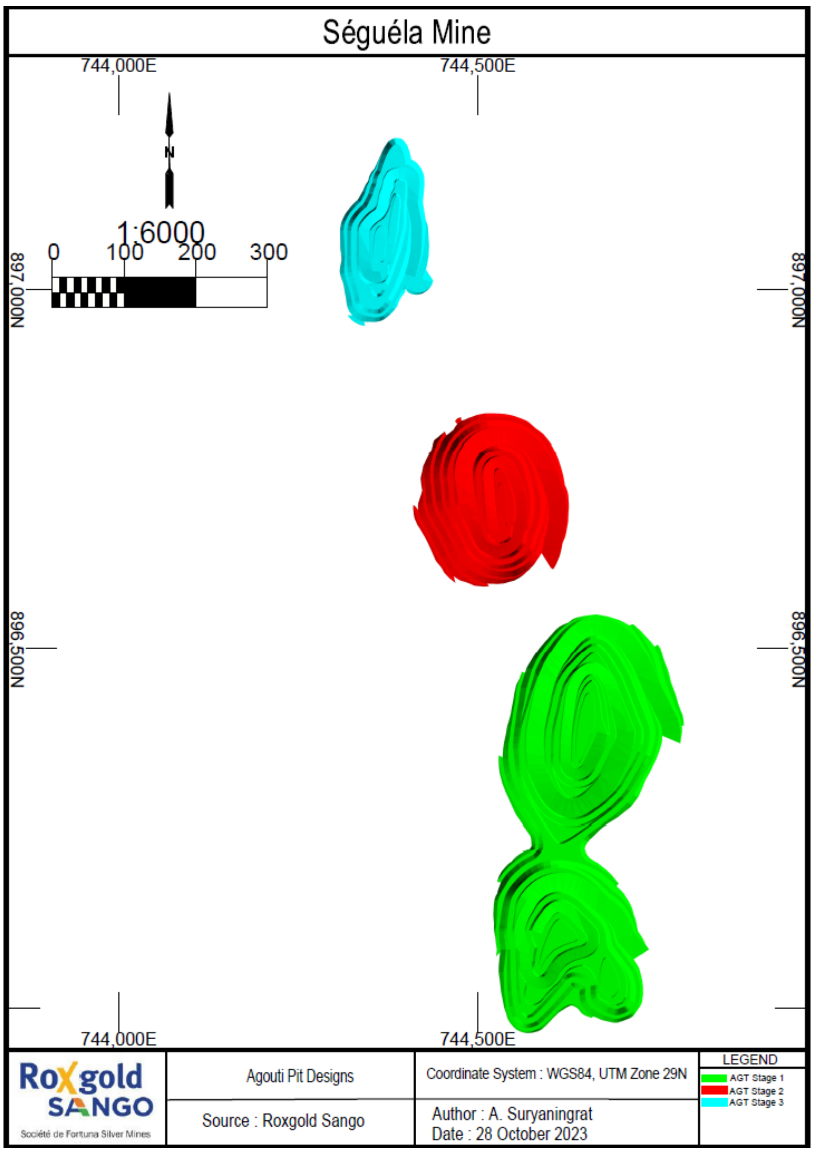

Figure 93: Agouti pit stage designs

The Agouti deposit is located approximately 3.4 km to the northeast of the Séguéla processing plant and ROM pad. Ore from the Agouti pits will be hauled to the ROM pad and waste rock will be hauled to the Agouti waste rock dump located to the east of the Agouti pits.

Ancien

The Ancien Mineral Reserves will be mined in three pit stages prioritizing the highest grade, lowest waste stripping ore. Figure 94 shows the Ancien pit stage designs.

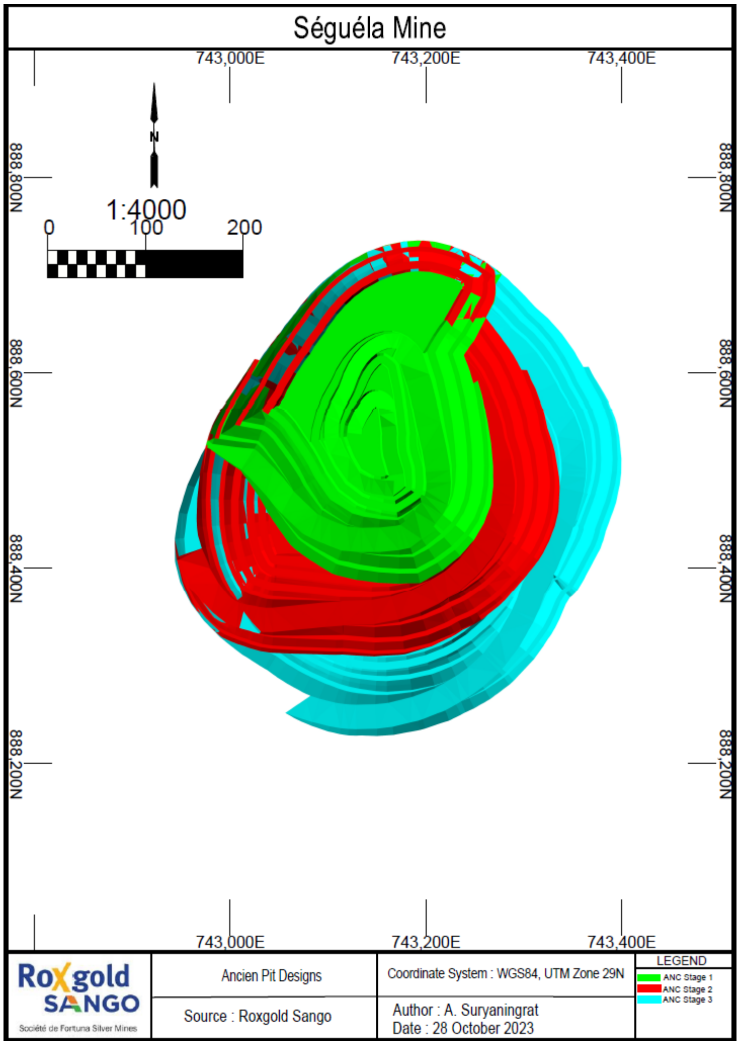

Figure 94: Ancien pit stage designs

The Ancien mineralization remains open at depth and after additional drilling occurs, a trade-off study will be completed to establish the open pit to underground transition depth that results in the highest discounted cashflow.

The Ancien deposit is located approximately 6 km to the south of the Séguéla processing plant and ROM pad. Ore from the Ancien pit will be hauled to the ROM pad and waste rock will be hauled to the Ancien waste rock dump located to the north-west of the Ancien pit.

Boulder

The Boulder Mineral Reserves will be mined in two pit stages prioritizing the highest production output and lowest waste stripping ore. Figure 95 shows the Boulder pit stages.

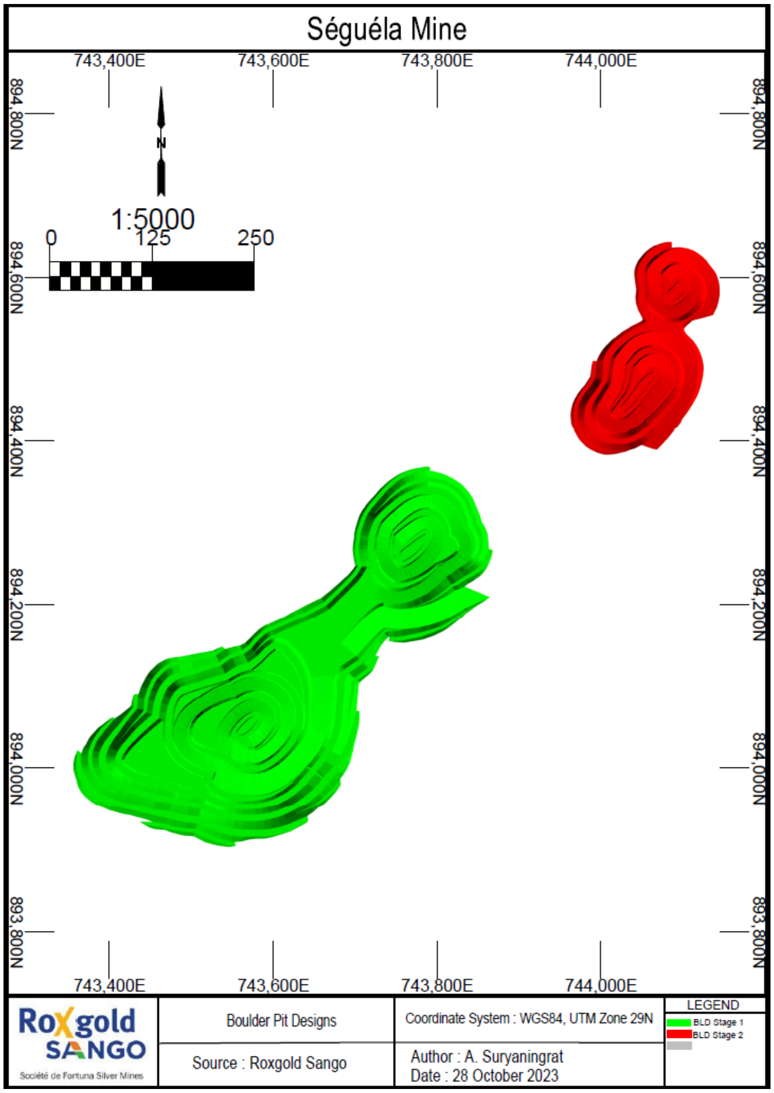

Figure 95: Boulder pit stage designs

The Boulder pit is sensitive to economics, with gold price having the largest impact on the ultimate pit size. There is potential for a final cutback on the Boulder deposit if the gold price increases and/or other Séguéla Project cost parameters reduce sufficiently.

The Boulder deposit is located approximately 2.5 km to the southeast of the Séguéla processing plant and ROM pad. Ore from the Boulder pit will be hauled to the ROM pad and waste rock will be hauled to the Boulder waste rock dump and Sunbird–Boulder waste rock dump located north-west and south-east respectively.

Koula

The Koula Mineral Reserves will be mined in two pit stages prioritizing the highest grade, lowest waste stripping ore. Figure 96 shows the Koula pit stages.

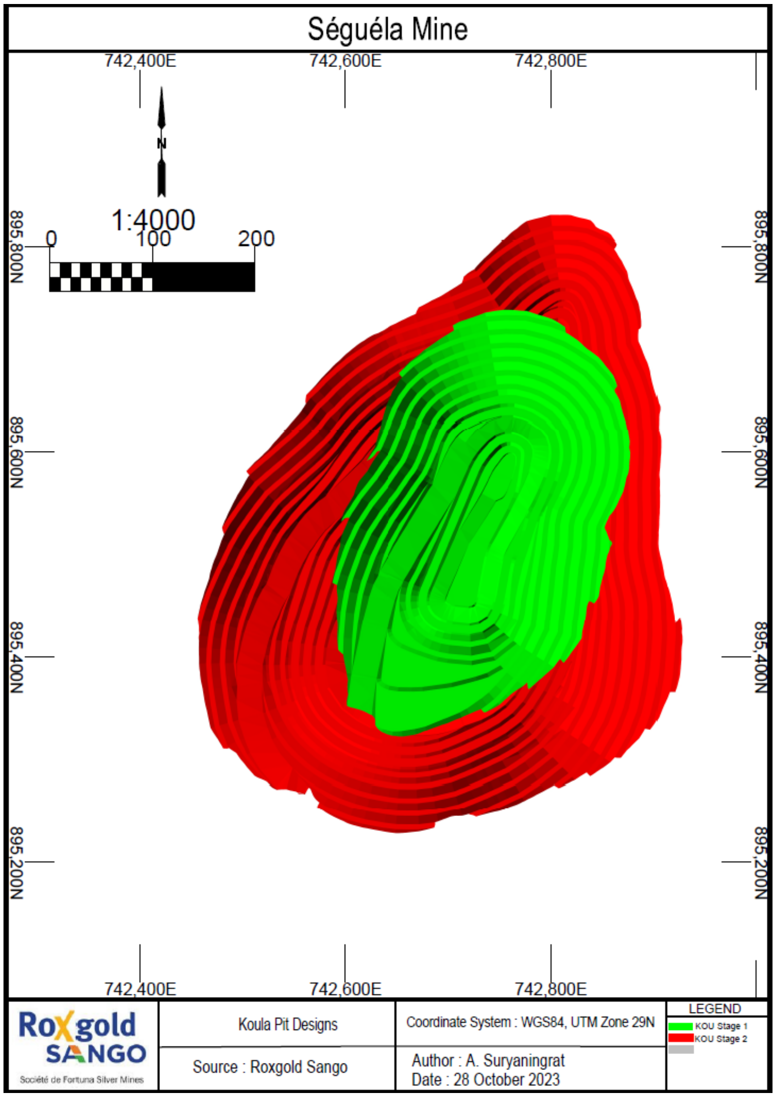

Figure 96: *Koula pit stage designs*

Koula has an adjacent lens of Inferred Mineral Resource below the pit and mineralization remains open at depth. After additional drilling, both the pit staging, and ultimate pit dimensions will be subject to change. Like Ancien, after additional drilling occurs, a trade-off study will be completed to establish the open pit to underground transition depth that results in the highest discounted cashflow.

The Koula deposit is located approximately 1.5 km to the east of the Séguéla processing plant and ROM pad. Ore from Koula will be hauled to the ROM pad and waste rock will be hauled to the Koula waste rock dump located to the north-west of the Koula pit.

Sunbird

The Sunbird Mineral Reserves will be mined in two pit stages prioritizing the highest grade, lowest waste stripping ore. Figure 97 shows the Sunbird pit stage designs.

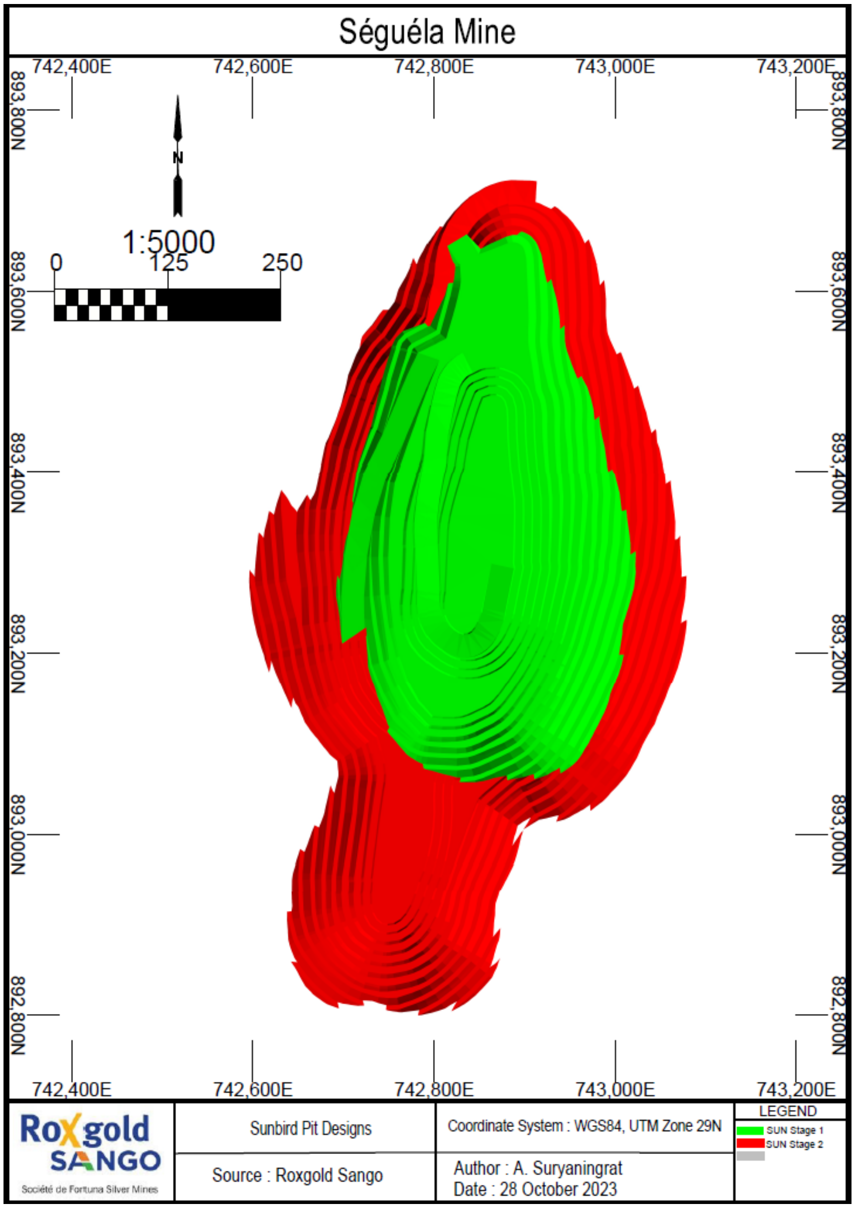

Figure 97: Sunbird pit stage designs

The Sunbird deposit has Inferred Mineral Resources both along strike to the south of the Sunbird pit, as well as at depth which is sensitive to cost. Additional drilling may support another pushback for the pit but at current costs and estimated tonnages and grades, Sunbird has the potential to support underground operations during or following the open pit mining.

The Sunbird deposit is located approximately 2.5 km to the south of the Séguéla processing plant and ROM pad. Mineralized material from Sunbird will be hauled to the ROM pad and waste rock will be hauled to the Sunbird–Boulder waste rock dump located to the northeast of the Sunbird pit and southeast of the Boulder pit.

16.5.2 Summary of Mineral Reserves and Waste by Pit

Table 94 summarizes the Mineral Reserves estimated for each pit, showing waste stripping ratio and waste tonnes, as well as ROM tonnes, grade, and ounces.

Table 94: Pit Mineral Reserve and waste characteristics

Pit	Stripping Ratio (Wt:Ot)	Waste Tonnes (Mt)	ROM Tonnes (Mt)	Au Grade (g/t)	Ounces (koz)
Antenna	5.3	24.5	4.4	2.34	321
Ancien	14.4	26.2	1.8	3.80	221
Agouti	10.5	9.6	0.9	2.39	70
Boulder	11.1	7.9	0.7	1.73	39
Koula	25.9	38.3	1.4	5.77	268
Sunbird	20.3	40.1	2.1	4.04	206
Total	**12.7**	**146.6**	**11.8**	**3.05**	**1,154**

Note: Total Mineral Reserves includes stockpile material totaling 0.44 Mt averaging 2.06 g/t Au containing 29 koz of gold.

16.5.3 Waste Dumps

Waste dumps were designed for each deposit, with the intention of minimizing haulage distance for the movement of waste material from the open pit to the adjacent surface waste dump. Designs included consideration of surface water drainage, and existing and planned infrastructure locations. The dumps were designed using a 37º rill, using a 15 m berm every 10 vertical meters to achieve a footprint consistent with the requirements of rehabilitated waste dumps at closure. Figure 98 shows the location of each of the waste rock dump designs within the mining area layout.

Table 95 shows the waste rock dump capacities in loose cubic meters (LCM) for each of the waste rock dump designs.

Table 95: Waste rock dump capacities

Waste Rock Dump	Capacity (Million LCM)
Antenna	11.7
Koula	25.9
Ancien	18.9
Agouti	9.1
Sunbird-Boulder	18.2
Total	**83.8**

There is sufficient waste rock dump volume capacity within the existing waste rock dump designs to support the Mineral Reserve estimates. Total waste volume produced by the life of mine schedule is 55.8 million BCM and given a 25 % swell factor and 5 % compaction factor, the total waste rock dump capacity required for the life of mine is 66.3 million LCM. There is sufficient contingency within the waste rock dump designs for any future additional cutbacks of the Antenna, Koula, and Sunbird pits.

The mine design and schedule does not include any pit backfilling using waste rock.

There is no known potentially acid forming waste rock at the Séguéla Mine.

16.6 Mining Area Layout

The Séguéla Gold Mine mining area layout is shown in Figure 98.

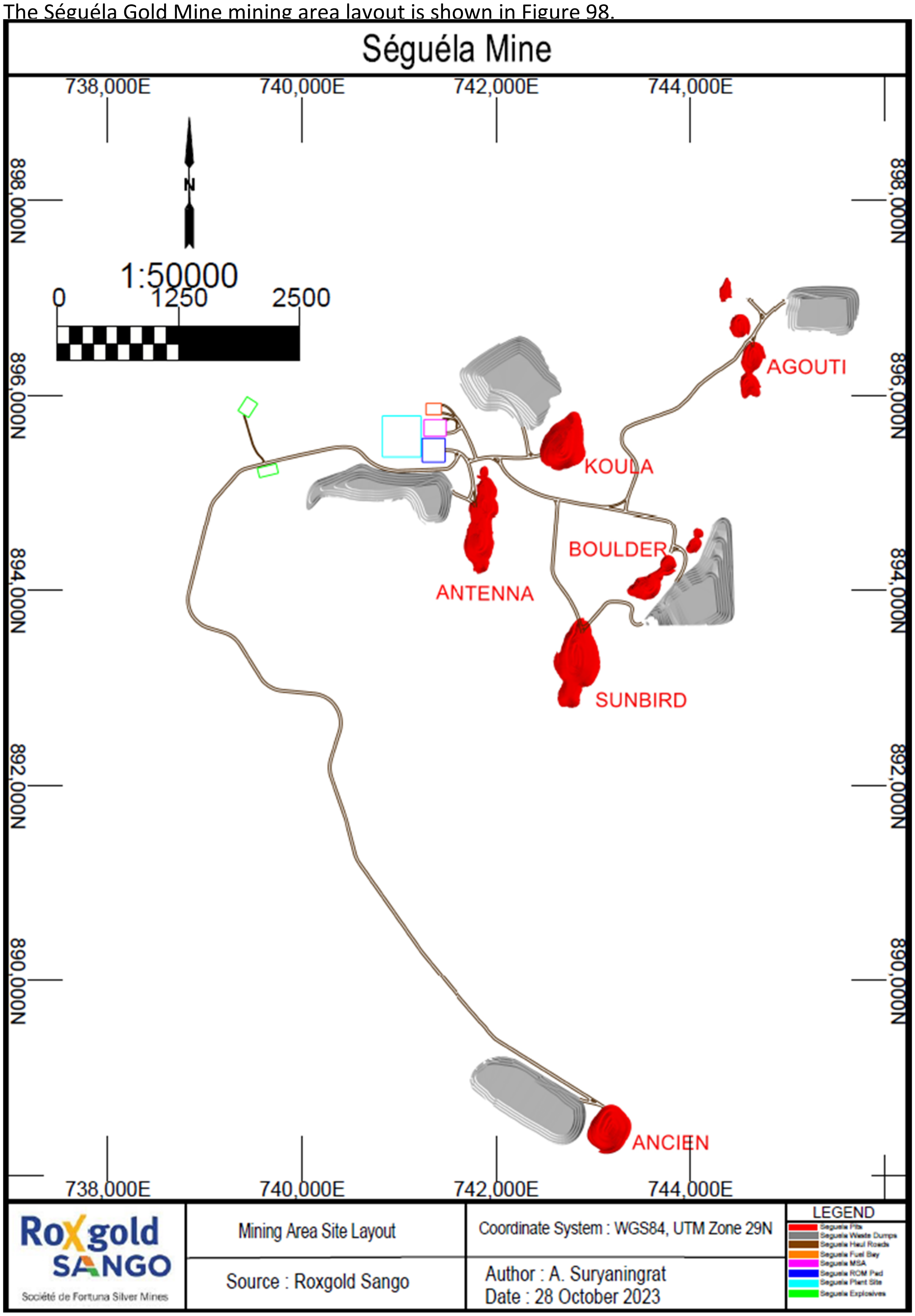

Figure 98: Mining area layout showing pits, waste rock dumps, haul roads, explosives magazine and bulk storage facility, mining services area, and ROM pad

16.7 Mining Operations

Conventional drill and blast, load and haul open pit mining is being used to extract mineralized material from the Antenna pit. ROM ore is defined by grade control procedures in the pit and delivered by truck to the ROM pad, located adjacent to the Séguéla processing facility. Waste rock is hauled to the closest waste rock dump.

A mining contractor will be used for the initial 5.5 years of operations. Afterward, and depending on the extension of the life of mine, mining operations will transition to an owner-operation model, or the contractor will be retained as the operator.

A common pool of equipment will be used and scheduled across all active pits, so that movement of equipment between the pits is minimized and consumable and spare parts are shared within the fleet.

Mining activities operate 24 hours per day, seven days a week with work occurring on morning, afternoon and night shifts. The scope of work for the mining contractor consists of the following:

- ROM crusher feed using loaders on the ROM stockpile.
- Clearing and grubbing.
- Topsoil removal and stockpiling
- Grade control drilling.
- Haul road construction and maintenance.
- Drilling and blasting.
- Loading and hauling
- Maintaining the heavy vehicle maintenance workshop.
- Maintaining the mining contractor's offices.
- Maintaining the washdown facility
- Maintaining an oil and lubricant storage and dispensing capability.
- Maintaining surface stores facilities.
- Maintaining a surface laydown area.

16.7.1 Drill and Blast, Excavate, Load and Haul

The Séguéla Gold Mine is mined by conventional truck and excavator operation for the mining of ore and waste. Drill and blasting are planned for oxide, transitional and fresh ore and waste material. Some free digging of oxide material is planned for weathering zones when feasible. Table 96 summarizes the drill and blast parameters used. To minimize dilution and ore loss, all mineralized material is drilled and blasted with 5 m bench heights and be mined in 2.5 m flitch heights. To minimize costs and increase productivity, in high waste stripping pit stages, waste not directly adjacent to mineralized material will be drilled and blasted with 10 m bench heights where possible. All mining equipment are supplied by the contractor and all equipment costs are fully considered in the contractor's schedule of rates.

Table 96: Drill and blast assumptions

Material Type	Bench Height (m)	Diameter (mm)	Powder Factor	Burden (m)	Spacing (m)	Subdrill (m)
Oxide	5.0	127	0.30	5.00	5.80	0.50
Transitional	5.0	127	0.50	3.90	4.50	0.50
Fresh Other Pits	5.0	127	0.70	3.30	3.80	0.50
Fresh Antenna Pit	5.0	127	0.90	2.90	3.40	0.50
Oxide	10.0	127	0.30	5.75	6.60	1.73
Transitional	10.0	127	0.50	4.35	5.00	1.31
Fresh Other Pits	10.0	127	0.70	3.75	4.30	1.13
Fresh Antenna Pit	10.0	127	0.90	3.20	3.70	0.96

Two 200 t excavators are the primary excavators for most material movement over the LOMP; one has been in operation since start-up in February 2023, with mobilization of the second unit planned in late 2024. The 200 t excavators are complemented by 120 t and 80 t excavators for supplementary mining and wall scaling. The combined excavator fleet has sufficient capacity to meet the production requirements of the mine plan at 1.46 Mtpa initially and then ramping up to 1.57 Mtpa from 2025 onwards. It is expected that the fleet of excavators and trucks will be adjusted over the mine life to meet production requirements. As detailed in Table 97, the excavator fleet has an average of five excavators over the life of the mine.

A total of 18 trucks are planned for in-pit mining activities over the LOMP, to accommodate hauling from the operating benches to the ROM pad and waste rock dumps. A fleet of eight CAT 777E trucks (90 t) is currently being used for production activities. A further eight CAT 777E trucks will be mobilized in during 2024 with additional units added as required from 2025.

The Cat 777E truck fleet is used to haul waste material to the waste dump adjacent to each pit and ore to the ROM pad. The furthest ore haulage route is from Ancien to Antenna being approximately 12 km. The long-haul scenario from Ancien will be conducted using the fleet of CAT 777E trucks without the requirement of double handling or a dedicated overland haulage fleet.

The combination of fleet sizes for the excavators and trucks will provide sufficient capacity and flexibility to fulfill the LOMP production schedule in the most cost-effective manner.

16.7.2 Ancillary and Support Fleet

The ancillary and support mining fleet includes dozers, graders, water trucks and service trucks.

The ancillary fleet is required to construct roads, strip and clear vegetation and topsoil, complete rehabilitation works, maintain dumps and stockpiles and carry out general clean-up operations around mining faces and provide support to the primary excavation equipment.

Front-end loaders are used on the ROM pad to feed the ore crusher with a blend from ROM ore stockpiles, removal of oversized boulders, road construction and rehabilitation work.

16.7.3 Other Mining Infrastructure

A workshop that maintains the mine fleet has been constructed for the mining contractor, along with the required offices and storage facilities for the contractor to conduct their operations.

16.7.4 Equipment and Personnel Requirements

The estimate of equipment requirements over the mine life are described in Table 97, which will be shared across the various deposits. The estimated personnel requirements over the mine life are described in Table 98.

Table 97: LOMP mining equipment requirements

Mining Fleet Load & Haul	Max LOM	2024	2025	2026	2027	2028	2029	2030	2031
Excavator 200t	2	1	2	2	2	2	2	2	2
Excavator 120t	3	2	2	3	3	3	3	2	1
Excavator 80t	1	1	1	1	1	1	1	1	1
Trucks Cat 777E	18	10	16	18	18	18	18	14	14
Ancillary									
Dozer	7	6	7	7	7	7	7	6	6
Grader Cat	3	3	3	3	3	3	3	2	2
Watercart	3	2	3	3	3	3	3	3	3
ROM Loader	2	2	2	2	2	2	2	2	2
Rock Breaker	1	1	1	1	1	1	1	1	1
Compactor	1	1	1	1	1	1	1	1	1
Drill & Blast									
Blast Hole Drill Rig	6	4	6	6	6	6	6	4	4
Grade Control Drill Rig	2	2	2	2	2	2	2	2	2
MPU (Bulk Explosive Truck)	2	1	2	2	2	2	2	2	2

The mining personnel levels required over the life of mine is shown in Table 98.

Table 98: LOMP mining personnel requirements

Personnel	Max LOM	2024	2025	2026	2027	2028	2029	2030	2031
Roxgold Sango Mine Department									
Mine Manager	1	1	1	1	1	1	1	1	1
Geologists	8	8	8	8	8	8	8	8	8
Mining Engineers	10	10	10	10	10	10	10	10	10
Geotechnical Engineers & Assistants	5	5	5	5	5	5	5	5	5
Surveyors & Assistants	7	7	7	7	7	7	7	7	7

Personnel	**Max LOM**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Admin & Technicians	14	14	14	14	14	14	14	14	14
Contractor Management & Support									
Project Manager	1	1	1	1	1	1	1	1	1
Site Engineers	6	6	6	6	6	6	6	6	6
SHEQ Manager	1	1	1	1	1	1	1	1	1
H&S and Training Coordinator	1	1	1	1	1	1	1	1	1
HS&E Training Officer	12	8	12	12	12	12	12	12	12
Administrative & HR Manager	1	1	1	1	1	1	1	1	1
Admin / Clerks / Assistants	15	15	15	15	15	15	15	15	15
Surveyor & Assistants	3	3	3	3	3	3	3	3	3
Stores Supervisor	1	1	1	1	1	1	1	1	1
Stores	4	4	4	4	4	4	4	4	4
Watchmen	15	12	15	15	15	15	15	15	15
Contractor Mining Personnel									
Production Manager	1	1	1	1	1	1	1	1	1
Mine Superintendent	4	4	4	4	4	4	4	4	4
Shift Supervisor	8	8	8	8	8	8	8	8	8
Shotfirer	6	3	4	6	6	6	6	4	4
Blast crew	16	12	14	16	16	16	16	12	12
Excavator Operator	34	12	24	34	34	34	34	24	12
Dump Truck Operator	72	32	60	72	72	72	72	56	32
Dozer Operator	20	12	20	20	20	20	20	20	12
ROM Loader Operator	8	8	8	8	8	8	8	8	8
All Round Operator	54	30	46	54	54	54	54	46	30
Driller	30	16	24	30	30	30	30	24	16
Driller assistant	30	16	24	30	30	30	30	24	16
Dewatering crew	12	6	12	12	12	12	12	12	6

Personnel	Max LOM	2024	2025	2026	2027	2028	2029	2030	2031
Contractor Maintenance Personnel									
Maintenance Manager	1	1	1	1	1	1	1	1	1
Workshop Supervisor	1	1	1	1	1	1	1	1	1
Mechanical Planning Engineer	1	1	1	1	1	1	1	1	1
Workshop Supervisor	4	3	4	4	4	4	4	4	4
Inspector and Conditions Monitoring	2	2	2	2	2	2	2	2	2
Heavy Duty Fitter	42	12	34	42	42	42	42	34	34
Service Person	24	10	18	24	24	24	24	14	14
Auto Electrician	7	5	7	7	7	7	7	7	7
Boilermaker	8	4	6	8	8	8	8	6	4
Tire Crew	12	6	8	12	12	12	12	8	8
Diesel Truck Operator & Assistants	10	10	10	10	10	10	10	10	10
Service Truck Operator & Assistants	10	10	10	10	10	10	10	10	10
Workshop Operators	10	6	8	10	10	10	10	8	8

16.8 Mining and Production Schedule

16.8.1 Scheduling Parameters

A mining and production schedule was prepared based on the following scheduling parameters:

- Monthly scheduling periods.
- Processing throughput ramp up from 1.46 Mtpa and increasing to 1.57 Mtpa by 2026.
- Mined tonnage as required to ensure sufficient ore stocks are available at the grades required to meet gold production expectations
- Pit stage sequencing is determined by several criteria. Whenever feasible, the schedule prioritizes higher-grade and lower strip ratio pit stages early on to facilitate higher gold production and delay the costs associated with waste mining.
- Slower mining rate in low waste stripping and deeper benches where grade control, drill and blast, pit dewatering, and small work areas will reduce mining productivity.
- Higher mining rate in high waste stripping and higher benches where 10 m bench heights are blasted, and there are reduced requirements for dewatering and grade control drilling.
- Maximum vertical rate of advance of 75 m/year.
- Mining delays due to inclement weather from August through to October each year.
- All Inferred Mineral Resources are treated as waste rock with zero grade.

16.8.2 Schedule Results

Geovia MineSched was used to produce the mining and production schedule using the scheduling parameters outlined in Section 16.8.1 of this Report. Table 99 summarizes the mining and production schedule outcomes.

Table 99: Mining and production schedule results

Schedule Item	Units	Value
Total ROM Ore Processed	Mt	11.8
Total ROM Ore Grade	g/t	3.04
Total Waste Mined	Mt	146.6
Stripping Ratio	Waste (t): Ore (t)	12.7
Mining Life	Months	90
Total Mine Life	Years	7.5

The life of mine production schedule shown in Table 99 includes planned production for the fourth quarter of 2023 and 2024 through to 2031.

The resulting schedule has a mine life of 7.5 years. Figure 99 and Figure 100 shows the mined volume and tonnes by deposit. Figure 101 shows both the crusher feed tonnes and grade. Figure 102 shows the stockpile tonnes over the life of mine.

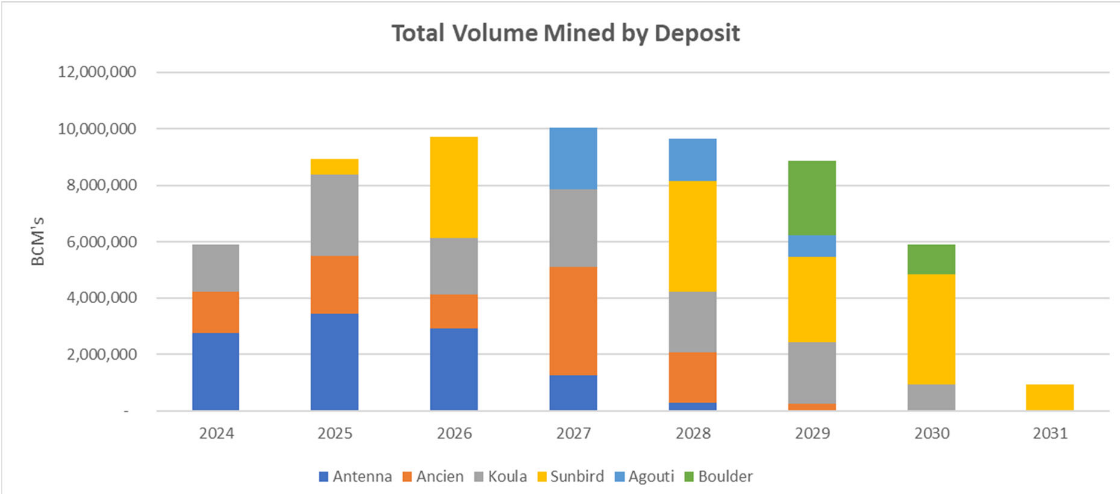

Figure 99: Volume mined by deposit

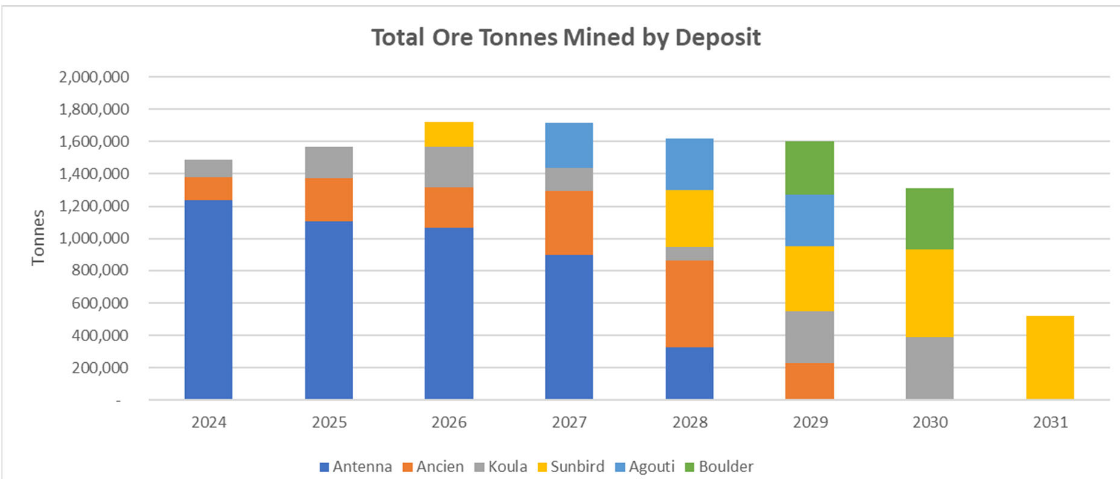

Figure 100: Tonnes mined by deposit

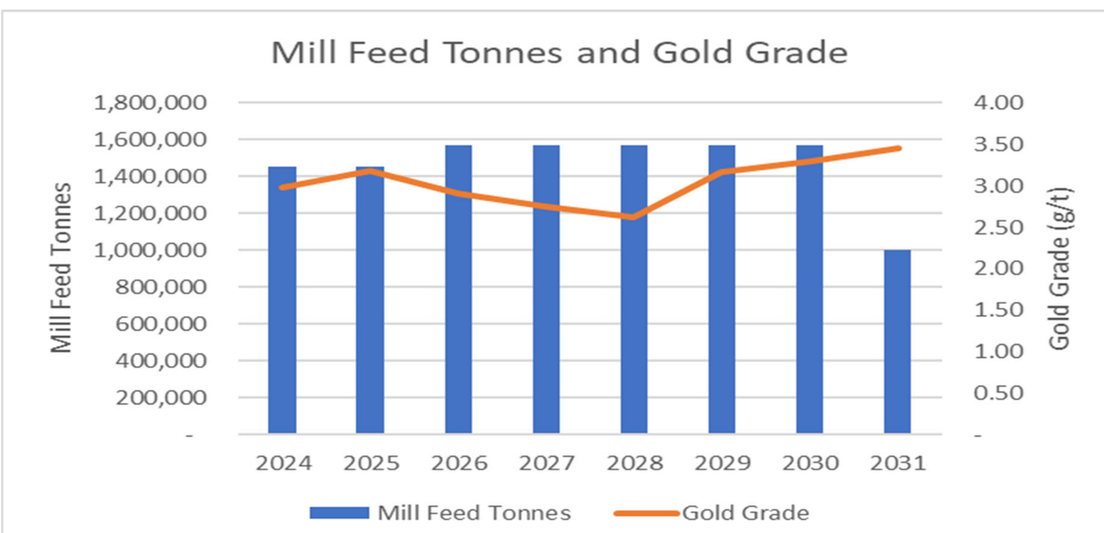

Figure 101: Crusher feed tonnes and grade

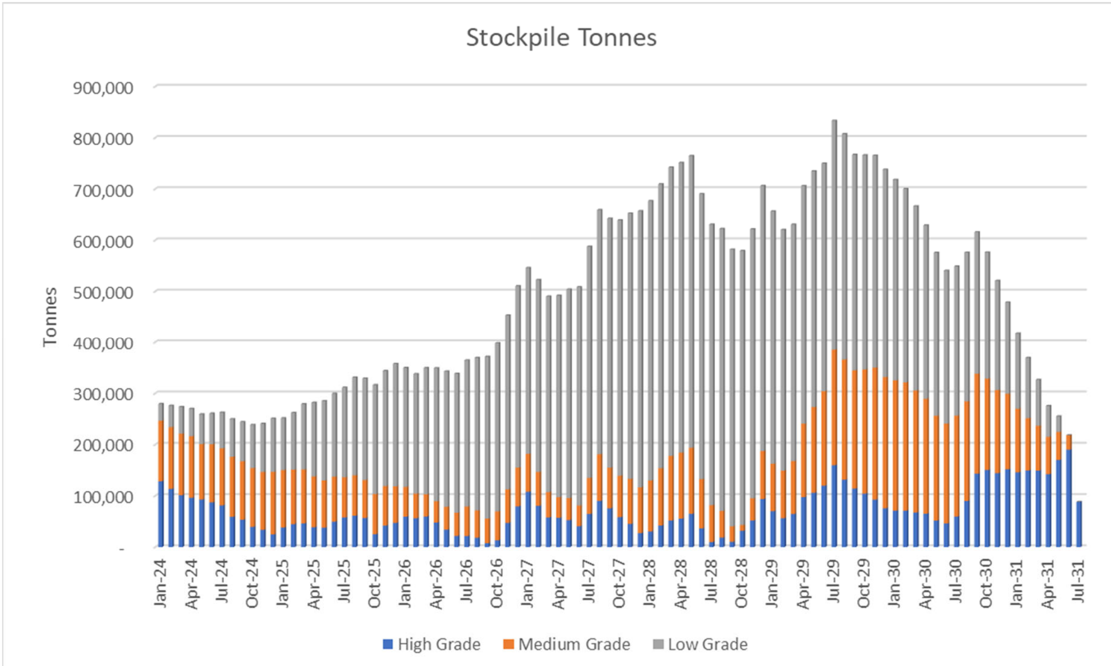

Figure 102: Stockpile tonnes

The mining and production schedule demonstrates a technically achievable operation for the life of mine. A relativity lower mining movement is maintained until late 2024 and then increases in line with mobilization of additional mining fleet in 2025 and 2026 when the total mining movement increases with the higher waste stripping pit stages in two distinct steps up. The key risk to achieving the mine plan is being ahead in mine development, waste stripping and grade control activities to access deposits and increased confidence in the mineralization to be able to mine in sequence. The schedule is generally de-risked by the ability to substitute pit stages with similar waste stripping ratios, as well as maintaining sufficient ROM stockpiles.

16.9 Comments on Section 16

The QP is of the opinion that:

- The mining method being used is appropriate for the Antenna deposit and is regarded as appropriate for each of the Ancien, Koula, Boulder, Agouti and Sunbird deposits. The open pit mine design, TSF design, and equipment fleet selection are appropriate to reach production targets.
- The mine life is estimated as 7.5-years for the open pit operation.
- The mine plan is based on a successful mining philosophy and planning is considered low risk.
- All mine infrastructure and supporting facilities meet the needs of the current mine plan and production rate.

There is upside potential if the Inferred Mineral Resources can be upgraded to higher confidence categories with additional work and subsequently converted to Mineral Reserves. There is also upside potential if those Mineral Resources considered potentially amenable to underground mining methods can be converted to Mineral Reserves with additional study.

17 Recovery Methods

In late April 2023, Roxgold Sango commenced commissioning of the Séguéla processing plant with the first gold pour occurring in May 2023.

17.1 Process Plant

The process plant design is based on a metallurgical flowsheet envisioned to produce gold doré at optimum recovery while minimizing initial capital expenditure and operating costs. The flowsheet consists of crushing, milling, gravity recovery, a carbon-in-leach (CIL) circuit, carbon elution and a gold recovery circuit. CIL tails are disposed of as tails in the HDPE-lined TSF.

The key criteria for equipment selection are suitability for duty, reliability, and ease of maintenance. The plant layout is conceived to provide ease of access to all equipment for operating and maintenance requirements whilst, in turn, maintaining a layout that will facilitate construction progress in multiple areas concurrently. Provision has been made for expansion should future Mineral Reserves warrant an increase in throughput while maintaining grind size (75 µm) and recovery (94.5 %). Specifically, ensuring there is sufficient space in the plant layout to facilitate the conversion of the single-stage semi-autogenous grinding circuit (SS SAG) into a semi-autogenous grinding (SAG) and ball milling circuit (SABC). Alternatively, with minimal capital cost, the throughput could be increased to 1.57 Mtpa by maintaining the SS SAG circuit but coarsening the grind to 106 µm.

The key project design criteria for the plant are:

- Nominal throughput of 1.25 Mtpa.
- Crushing plant availability of 75%.
- Plant availability of 91.3% for grinding, gravity concentration, leach plant and gold recovery operations.

17.2 Process Plant Performance

The plant commenced commissioning in late April 2023 and has ramped up steadily whereby in September 2023, regular plant throughputs of 180 dry tonnes per hour were achieved. Gold production has been increasing with improvements in head grade, recovery and mill availability.

Performance testing was carried out from August 15 to 26, 2023, as set out in the agreement between Roxgold and its EPCM contractor. The main key performance indicators for the crusher and mill throughput were exceeded and the gold recovery parameters met. The SAG mill availability of 96.2 % was achieved. All gold recovery centers such as the gravity circuit, CIL, elution and electrowinning performed as designed. Table 100 outlines the process plant performance summary to December 31, 2023.

Table 100: Process plant performance summary

Parameter	Unit	Q2 2023	Q3 2023	Q4 2023	Total 2023
Ore Processed	(dmt)	109,605	310,387	387,624	807,617
Plant Runtime	(%)	48.1	86.6	95.7	86.3
Throughput	dtph	103	162	186	159
Grade Processed	(g/t)	1.56	3.83	3.62	3.42
Gold Recovery - Total	(%)	89.6	93.4	94.9	93.9
Gold Recovered	(oz)	4,917	35,695	42,824	83,435

*Totals may not add due to rounding

Deposition of tailings into the TSF commenced with first ore through the SAG mill and has continued according to the TSF Operating Manual's beaching schedule. The decant return water provides the bulk of the process water with the raw water being used to top up as required and in accordance with the design.

17.3 Process Plant Design Criteria

The process plant consists of the following circuits:

- Primary crushing of ROM material.
- A surge bin with overflow stockpile to provide buffer capacity ahead of the grinding circuit.
- Grinding circuit: SS SAG mill with cyclones.
- Gravity recovery of cyclone underflow by a semi-batch centrifugal gravity concentrator, followed by intensive cyanidation of the gravity concentrate and electrowinning of the pregnant leach solution in a dedicated cell located in the gold room.
- Trash screening and thickening of cyclone overflow prior to leaching.
- Gold leaching in a CIL circuit.
- Acid washing of loaded carbon and split AARL-type elution followed by electrowinning and smelting to produce doré. Carbon regeneration by rotary kiln.
- Disposal of tailings to the TSF.

The most pertinent design criteria to the plant are summarized in Table 101.

Table 101: Summary of the plant design criteria

Parameter	Units	Value
Plant Throughput	Mtpa	1.25
Gold Head Grade (LOMP)	g/t Au	2.8
Crushing Plant Availability	%	75
Leach and Refinery Availability	%	91.3
Bond Crusher Work Index (CWi) – Design	kWh/t	19.3
SMC Axb		30.6
Ore Specific Gravity	t/m^3	2.82
Angle of Repose	degrees	37
Material Moisture Content	%	5.0
Feed Size	F_{100}	800
Crushing Plant Product Size, P80	mm	150
Cyclone Overflow Size, P80	µm	75
Design Gravity Gold Recovery - Design	%	40
Overall Gold Recovery – Design (Without Gravity)	%	95.0
Leach Time – Target	h	24
Leach Tails Solution Grade	g/m^3 Au	0.01
Sodium Cyanide Addition (NaCN)	kg/t ore	0.22
Lime Addition (at 93% CaO purity)	kg/t ore	0.33
Elution Column Size	tonnes	4.0
Number of Carbon Strip Per Week	#	6
Leach Tails CN_{WAD}	ppm	50 to 100

An overall process flow diagram depicting the unit operations incorporated in the selected process flowsheet is presented in Figure 103.

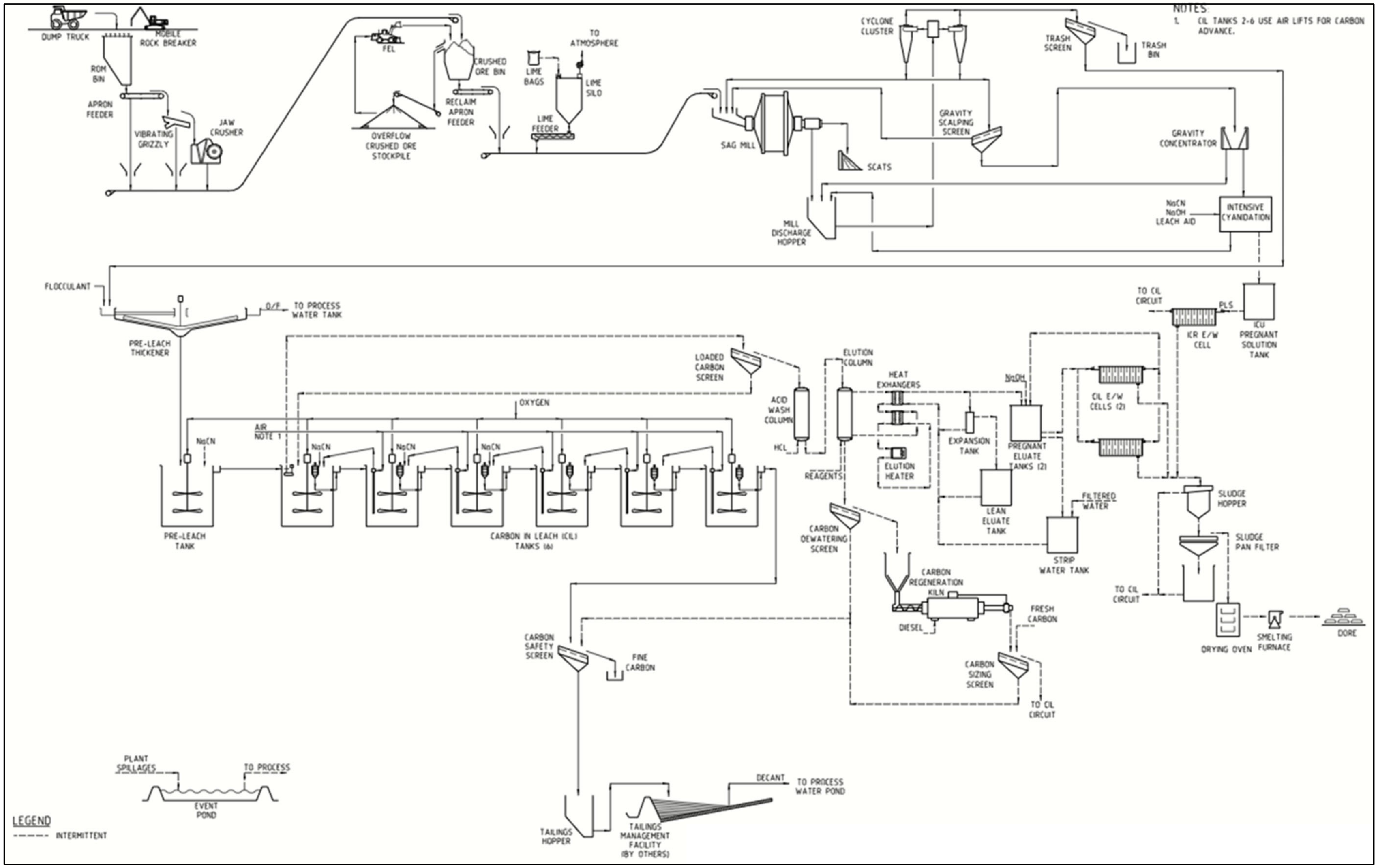

Figure 103: Séguéla Gold Mine process flow (Source: Roxgold Sango, 2023)

17.4 Process Plant Description

17.4.1 Materials Handling and Crushing Circuit

ROM material is trucked from the pit to the ROM pad and dumped on the ROM pad to be reclaimed by a Cat 988 front end loader and loaded to the ROM bin. A mobile rock breaker is utilized to break oversize rocks at the top of the feed bin.

Mineralized material is drawn from the ROM bin via an apron feeder, scalped via a vibrating grizzly with the undersize reporting directly to the discharge conveyor and the oversize reporting to a primary jaw crusher for further size reduction. All crushed and scalped mineralized material will by conveyed to a surge bin, which provides approximately 30 minutes of surge capacity.

The crushing circuit is designed for 75 % availability, whereas the milling operation is designed for 91.3 % availability, resulting in excess crushed mineralized material while the crusher is operational. The excess crushed ore allows for routine crusher maintenance without interrupting feed to the mill.

The crushed ore bin is equipped with an apron feeder to regulate feed into the SAG mill. Crushed ore drawn from the surge bin feeds the SAG mill circuit via the mill feed conveyor. Lime is added via a storage bin for pH control as required.

The material handling and crushing circuit includes the following key equipment:

- ROM hopper.
- Apron feeder.
- Vibrating grizzly.
- Mobile rock breaker.
- Primary jaw crusher.
- Crushed ore bin.
- Mill feed apron feeder.

17.4.2 Reclaim, Grinding and Classification Circuit

The primary grinding circuit consists of a SAG mill that operates in closed circuit with a classifying cyclone pack. Oversize from the SAG mill trommel is directed to a scats bunker and returned to the mill feed via a front-end loader, while the undersize gravitates to the cyclone feed pump box where it is pumped to the classifying cyclones. The cyclone overflow gravitates to a trash screen prior to the pre- leach thickener, while the underflow gravitates to the SAG mill feed chute for further grinding. A portion of the cyclone underflow feeds the gravity concentration circuit.

The grinding circuit includes the following key pieces of equipment:

- SAG mill.
- Classification cyclones.

17.4.3 Gravity Recovery Circuit

The gravity circuit comprises of a centrifugal concentrator complete with a feed scalping screen. Feed to the circuit is extracted from the cyclone underflow discharge launder and flows by gravity to the scalping screen. Gravity scalping screen oversize at +2 mm reports by gravity to the mill feed. Scalping screen undersize is fed to the centrifugal concentrator. Gravity tails gravitate to the mill discharge hopper.

Operation of the gravity concentrator is semi-batch and the gravity concentrate is collected in the concentrate storage cone and subsequently leached by the intensive cyanidation reactor circuit (ICR).

The gravity recovery circuit includes the following key pieces of equipment:

- Gravity feed scalping screen.
- Gravity concentrator.

17.4.4 Intensive Cyanidation Reactor

Concentrate from the gravity concentrator is sent to the intensive cyanidation reactor to recover the contained gold by cyanide leaching.

The concentrate from the gravity concentrator is discharged to the intensive cyanidation reactor gravity concentrate storage cone and de-slimed before transfer to the intensive cyanidation reactor.

ICR leach solution (2% NaCN and 2 % NaOH) is made up within the heated intensive cyanidation reactor vessel feed tank. Oxygen is sparged into the reactor vessel. From the feed tank, the leach solution is circulated through the reaction vessel for approximately 16 hours, then drained back into the feed tank. The leached residue within the reaction vessel is washed, with wash water recovered to the solution tank, and then the solids are pumped to the mill discharge hopper.

Intensive cyanidation reactor pregnant solution is pumped to the intensive cyanidation reactor pregnant solution tank and recovered as gold sludge using a dedicated electrowinning cell. The sludge is combined with the sludge from the carbon elution electrowinning cells and smelted or separately smelted for metallurgical accounting purposes.

The intensive cyanidation reactor circuit includes the following key pieces of equipment:

- Gravity concentrate storage cone.
- Intensive cyanidation reactor.
- Reactor vessel feed tank heater.
- Intensive cyanidation reactor pregnant solution tank.
- Intensive cyanidation reactor electrowinning cell.

17.4.5 Pre-Leach Thickening

Cyclone overflow gravitates over the trash screen, to remove foreign material prior to leaching. Trash reports to the trash bin and is periodically removed for emptying. Screen undersize gravitates to the pre-leach thickener where the solids concentration is increased prior to the leach feed. Thickener overflow gravitates to the process water tank and the underflow is pumped to the CIL circuit.

The pre-leach circuit includes the following key pieces of equipment:

- Trash screen.
- Pre-leach thickener.

17.4.6 Leaching and Adsorption Circuit

The leach circuit consists of one pre-leach tank and six CIL tanks. Oxygen can be sparged to each of the tanks to maintain adequate dissolved oxygen levels for leaching.

Cyanide solution is added into the pre-leach tank and the first three CIL tanks as required.

Fresh/regenerated carbon from the carbon regeneration circuit is returned to the last tank of the CIL circuit and is advanced counter-currently to the slurry flow by airlifts. The inter-tank screen in each CIL tank retains the carbon whilst allowing the slurry to flow by gravity to the downstream tank. This counter-current process is repeated until the carbon, by then loaded with gold, reaches the first CIL tank via an air lift system. A recessed impeller pump is used to transfer slurry from the first CIL tank to the loaded carbon recovery screen mounted above the acid wash column in the elution circuit.

Slurry from the last CIL tank gravitates to the vibrating carbon safety screen to recover any carbon leaking from worn screens or overflowing tanks. Screen underflow gravitates to the tailings hopper before being pumped to the HDPE lined TSF. Screen oversize (recovered carbon) is collected in the fine carbon bin for potential return to the circuit.

The leach and carbon adsorption circuit includes the following key pieces of equipment:

- Pre-leach tank.
- CIL tanks.
- Loaded carbon recovery screen.
- Carbon safety screen.

17.4.7 Carbon Acid Wash, Elution and Regeneration Circuit

Prior to carbon stripping (elution), loaded carbon is treated with a 3 % hydrochloric acid solution to remove calcium, magnesium and other salt deposits that would otherwise render the carbon less active leading to less efficient subsequent elutions.

Loaded carbon from the loaded carbon recovery screen flows by gravity to the acid wash column.

Entrained water is drained from the column and the column is then refilled with a 3 % hydrochloric acid solution, from the bottom up. Once the column is filled with the carbon, it is left to soak in the acid solution for 30 mins after which the spent acid solution is rinsed from the carbon and discarded to the TSF via the tails hopper.

The acid washed carbon is then transferred to the elution column for carbon stripping. The acid wash circuit includes the following key equipment:

- Acid wash column.

Carbon stripping (elution) uses the split AARL process. The elution sequence commences with pre-soaking the carbon at a temperature of 95°C with a 2 % w/w NaOH and 2% w/w NaCN solution. Upon completion of the pre-soak, the elution is performed under pressure at a temperature of 125°C.

Four bed volumes of low-grade (lean) eluate from the previous elution are passed through the column at a rate of 2 BV/h. The pregnant eluate from this initial 4 BV cycle is discharged into a pregnant solution tank, which serves to decouple the elution process from the subsequent electrowinning unit operation. Once the lean eluate is exhausted, new incoming strip solution (6 BV) is sourced from the strip solution tank. Only 2 BV of this strip solution reports to the pregnant eluate tank, with the last 4 BV used for cooling down the carbon before being directed to the lean eluate tank for re-use in the next elution cycle.

Upon completion of the cool down sequence, the carbon is hydraulically transferred to the carbon regeneration kiln feed hopper via a de-watering screen.

The stripping circuit includes the following key pieces of equipment:

- Elution column.
- Strip solution heater with heat exchangers.
- Strip solution tank.
- Pregnant solution tanks.

- Electrowinning cells.

Carbon is reactivated in a diesel fired rotary kiln. Dewatered barren carbon from the stripping circuit is held in the kiln feed hopper. A screw feeder feeds the carbon into the reactivation kiln, where it is heated to 700°C – 750°C in an atmosphere of superheated steam to restore the activity of the carbon. Re-activated carbon exiting the kiln is quenched with water and flows onto the carbon sizing screen. Sizing screen oversize is transferred to the last CIL tank to replenish the CIL carbon inventory. Sizing screen undersize reports to the carbon safety screen.

Fresh carbon, to make up for attrition losses, is added to the last CIL tanks by opening a new bag and dumping it directly above the tank from the leach area upper level.

The carbon reactivation circuit includes the following key pieces of equipment:

- Carbon dewatering screen.
- Regeneration kiln including feed hopper and screw feeder.
- Carbon sizing screen.

17.4.8 Electrowinning and Gold Room

Gold is recovered from the pregnant eluate by electrowinning and smelted to produce doré bars.

The pregnant eluate is pumped through two electrowinning cells with stainless steel mesh cathodes. Gold is deposited on the cathodes and the resulting barren solution gravitates back to the pregnant solution tank until a targeted low gold concentration is achieved. One additional electrowinning cell is dedicated for processing ICR pregnant solution. Barren solution from all electrowinning is discharged to CIL Tank 1.

Upon completion of one or more cycles of electrowinning, the cathodes are removed, and gold sludge is washed off the cathodes at a dedicated wash box with a high-pressure water cleaner. The gold bearing sludge is recovered from the wash water by decantation. The sludge is dried in an oven, mixed with fluxes, and smelted in a diesel fired furnace to produce gold doré.

The electrowinning and smelting process take place within a secure and supervised gold room equipped with access control, intruder detection and closed-circuit television surveillance.

The electrowinning circuit and gold room includes the following key pieces of equipment:

- Electrowinning cells with rectifiers.
- Sludge vacuum filter.
- Drying oven.
- Flux mixer.
- Induction smelting furnace with bullion moulds and slag handling system.
- Bullion vault and safe.
- Dust and fume collection system.
- Gold room security system.

17.5 Reagent Handling and Storage

For the management of unexpected reagent spills, the reagent preparation and storage facilities are located within containment areas designed to accommodate 110 % of the volume of the largest tank. Where required, each reagent system is located within its own containment area to facilitate its return to its respective storage vessel and to avoid the mixing of incompatible reagents. Storage tanks are equipped with level indicators, instrumentation, and alarms to ensure spills do not occur during normal operation. Appropriate fire and safety protection, eyewash stations, and Safety Datasheet (SDS) stations are located throughout the facilities. Sumps and sump pumps are provided for spillage control.

The following reagent systems are installed: quicklime, sodium cyanide, sodium hydroxide, hydrochloric acid, flocculant, activated carbon, anti-scalant and smelting fluxes.

17.6 Control Systems and Instrumentation

The plant control system is a network of programmable logic controllers (PLCs) sitting beneath a supervisory control and data acquisition (SCADA) network layer. The programmable logic controllers perform the necessary controls and interlocking while the SCADA terminals monitor the PLCs and provide an interface for operator interaction.

Communication of the programmable logic controllers and SCADA terminals is achieved via a plant wide Ethernet network, the backbone of which consists of dedicated, single mode, fiber optic cables.

Field instrumentation and drive status signals are interfaced to the plant control system by fiber optic communications installed as optical fiber ground wire onto the high-voltage power lines. Vendor packages are connected to the SCADA network via a communications link, where appropriate.

17.7 Electrical Reticulation

Power distribution within the plant area and vicinity is three-phase, 50 hertz at 11 kV and 415 v. The accommodation camp is connected and powered by the nearby existing 33 kV power line.

Power consumption for each general plant area is metered.

The 11 kV power distribution cables are generally underground within the plant area, while all other plant cabling is in above-ground cable racks attached to buildings and structural steelwork.

Overhead power lines have been installed where no interference may be caused to mobile equipment, e.g. cranes. Overhead power lines are installed to the following remote locations outside the plant area:

- Tailings storage facility.
- Water storage dam.

Power supply to the bores is provided by either diesel generators, solar photovoltaics (PV), or the site's power distribution network.

17.8 Services and Utilities

17.8.1 High- and Low-Pressure Air

High pressure air at 700 kPa is produced by compressors. The entire high-pressure air supply is dried and used to satisfy both plant air and instrument air demand. Dried air is distributed via the air receivers located throughout the plant.

Low pressure air for the leach tanks is supplied by air blowers.

17.8.2 Oxygen Plant

A vendor supplied pressure swing adsorption oxygen plant has been installed to provide oxygen to the CIL circuit, and intensive leach reactors.

17.8.3 Raw Water Supply System

Raw water is stored in a raw water storage tank and supplied to all users requiring clean water with low dissolved solids, such as:

- Fire water for use in the sprinkler and hydrant system.
- Feed to the water filtration system.
- Reagent make-up.

17.8.4 Process Water Supply System

Water, which will be used in a wide range of services, is sourced primarily from the TSF decant return steam or where the presence of cyanide and other contaminants is not desired, from the water storage dam. Potable water is sourced from local bores and treated in a reverse osmosis plant, located at the accommodation camp. Mine dewatering is directed to the water storage dam.

Pre-leach thickener overflow and TSF decant water meet the main process water requirements. Raw water provides any additional make-up water requirements.

17.8.5 Potable Water

Bore water is treated to provide potable water. Potable water is stored in the camp potable water tank and pumped to the camp buildings and the potable water tank at the process plant site. To prevent back contamination of the drinking water supply, no potable service points, or direct connection of this water to process equipment.

17.8.6 Filtered Water

Raw water is treated to provide water to a two-stage filter system. Filtered water is stored in a tank and pumped to the elution circuit and to various slurry pumps as gland water.

17.8.7 Sewage

Sewage from the process plant is forwarded by a sewage pumping system to the camp sewage treatment plant where it is treated along with the camp site sewage. The treated water is used as irrigation water for the camp's vegetation and gardens.

17.9 Comments on Section 17

The QP considers process requirements to be well understood with commissioning and ramp up operating data confirming design assumptions. There is no indication that the characteristics of the material being mined will change and therefore the processing and recovery assumptions applied for future mining, including that mined from the other deposits, are considered as reasonable for the LOMP. The plant is of a conventional design and uses readily available consumables.

18 Project Infrastructure

The general layout of the Séguéla Mine is illustrated in Figure 104.

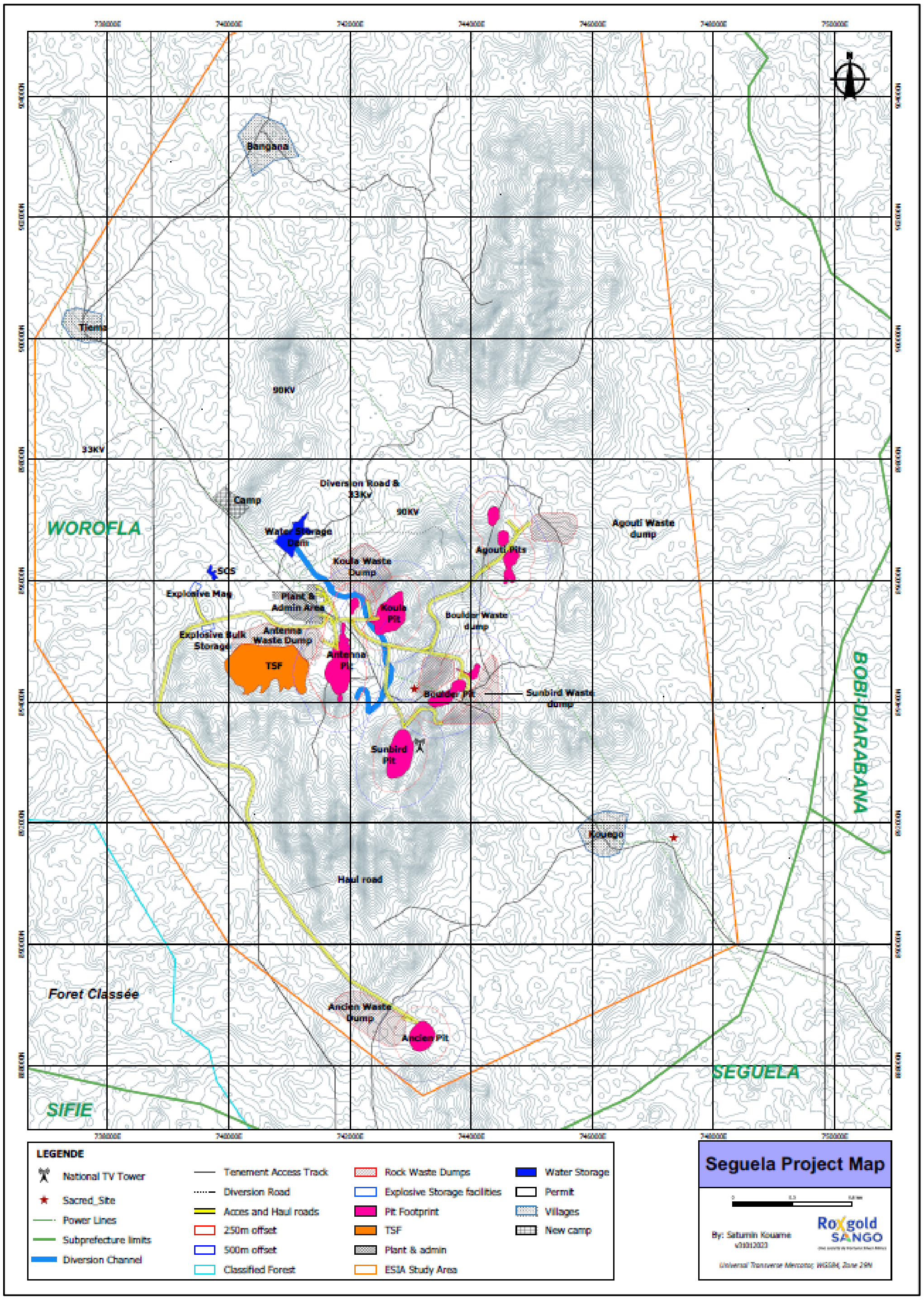

Figure 104: Layout of the Séguéla Gold Mine

18.1 Process Plant

Ore is currently transported from the Antenna open pit deposit via haul truck and placed in stockpiles on the ROM pad located adjacent to the process plant. As the other pits are accessed, ore will be transported in the same manner. Ore is fed by a front-end loader from the ROM stockpiles, or directly tipped into the primary crusher. Ore is drawn from the ROM bin via an apron feeder and scalped via a vibrating grizzly with the undersize reporting directly to the discharge conveyor and the oversize reporting to a primary jaw crusher for further size reduction. All crushed and scalped material is conveyed to a surge bin.

A single stage SAG milling circuit is in operation. Crushed ore and water are fed to the mill and discharged via a trommel. Trommel oversize is collected in a scats bunker.

The tailings system comprises a pipeline and associated tailings pumps. The TSF consists of an HDPE lined side-valley storage formed by two multi-zoned earth-fill embankments.

The water storage dam is the primary collection and storage pond for clean raw and process water.

The process plant and specific infrastructure is located within a high security area. General site infrastructure buildings are situated outside the high security area bounded by a single perimeter security fence. The camp, TSF, and water storage facility are located outside the process plant security fence but are contained within their own fences. Entry to the main administration area is via the main access security building with access to the process plant high security area via an additional security building that incorporates turnstiles, change room and laundry.

18.2 Mine Services Area

The mine services area is located within the general security perimeter fence. In this area, the following contractor functions/items are included:

- Changeroom.
- Workshops.
- Warehouse.
- Offices.

18.3 Tailings Storage Facility

Roxgold Sango engaged Knight Piésold Pty Ltd (KP) to conduct the design of the TSF and surface water management.

The TSF consists of a zoned side-valley earth fill embankment, forming a total footprint area of approximately 34.3 ha for the Stage 1 TSF and 84.2 ha for the final TSF.

A conceptual study is recommended to determine the maximum practical capacity of the TSF. For the TSF to be GISTM (Global Industry Standard of Tailings Management) compliant, it will be necessary to buttress the entire TSF. The current design includes a large waste dump buttress for the north dam. The east and west dams will also require buttressing to lower the consequence classification. To buttress the west dam, the tailings delivery and return pipeline trench, power line and property fence will need to be moved westward from the current design location. The tailings delivery and return pipeline trench is currently partially filled with sediment that must be removed to provide sufficient capacity in case there is a rupture in the tailings pipeline.

Various GISTM related work is planned for 2024 such as: site visits from the Independent Tailings Review Board; Dam Safety Review; revised dam breach study to update the Operation Monitoring Surveillance manual; Trigger Action Response Plan and Emergency Preparedness Response Plan. Once these key documents are updated, GISTM related community work should commence.

The TSF embankment will be constructed via annual raises to suit storage requirements and the availability of suitable mine waste. The Stage 1 TSF is designed to provide 16 months of storage capacity, to allow Stage 2 construction to be carried out during the subsequent dry season. Downstream raise construction methods will be used throughout operation and the embankments will generally be buttressed using mine waste to form an integrated waste landform. A seepage collection system was installed within and downstream of the TSF embankment.

The entire TSF basin area has been cleared, grubbed and topsoil stripped. A compacted soil liner has been constructed over the entire TSF basin area, comprising either reworked in-situ material or imported low permeability material. A 1.5 mm HDPE geomembrane liner has been installed over the entire TSF basin area (overlying the compacted soil liner) and on the upstream embankment face.

The TSF design incorporates an underdrainage system to reduce pressure head acting on the soil liner, reduce seepage losses, increase tailings densities, and improve the geotechnical stability of the embankments. It comprises an upstream toe drain and a network of finger drains and collector drains. The underdrainage system drains by gravity to a collection tower located at the lowest point in the TSF. In addition, a groundwater collection system has been installed beneath the low permeability soil liner that also serves to detect any potential leaks in the liner system. Solution recovered from the underdrainage and groundwater systems is released to the top of the tailings mass via submersible pump, reporting to the supernatant pond.

Supernatant water is removed from the TSF via submersible pumps located within decant towers, constructed at start-up, and raised during operation. Solution recovered from the decant system is pumped back to the plant for re-use in the process circuit.

An operational emergency spillway will always be available during TSF operation. The closure spillway will be located at the final supernatant pond location and will be constructed to ensure all rainfall runoff from the TSF will safely discharge after operations cease.

Tailings are discharged by sub-aerial deposition, using a combination of spigots at regularly spaced intervals from the embankments. A soil lined pipeline containment trench has been constructed during Stage 1 to contain both the tailings delivery pipeline and decant return pipeline to the plant site.

The stability and seepage performance of the facility has been designed to international guidelines and standards. Monitoring instrumentation has been incorporated into the design to facilitate detection of any potential issues which may arise during operations.

The monitoring includes:

- Monitoring bores and surface water sampling stations downstream of the TSF.
- Standpipe piezometers within each embankment to monitor the phreatic surface.
- Settlement pins on embankment crests to monitor embankment movement.

The piezometers and monitoring bores are checked monthly for water levels and quarterly for water quality.

At the end of the TSF operation, the downstream faces of the embankments will have an overall slope profile of 3H:1V with 5 m wide benches located at 10 m height intervals. The downstream profile will be inherently stable under both normal and seismic loading conditions. The embankment downstream faces will be re-vegetated once the final downstream profile is achieved.

At closure, the TSF should be fully water-shedding. After the water in the TSF has been proven to be benign, runoff can be allowed to discharge via the closure spillway. The TSF closure spillway will be excavated through the eastern ridge line, discharging into the adjacent drainage course downstream of the TSF. Rehabilitation of the tailings surface will commence upon termination of deposition into the TSF. The closure spillway will be constructed in such a manner as to allow rainfall runoff from the surface of the rehabilitated TSF to flow into the surrounding natural drainage system.

It is anticipated that a low permeability layer, overlying a capillary break layer comprising mine waste rock material, will be required on the final tailings surface to reduce rainfall infiltration into the tailings mass.

The finished surface will be shallow ripped and seeded with shrubs and grasses.

18.4 Sediment Management

Sediment control structures include sediment dams that have been constructed in the downstream reaches of catchments impacted by site infrastructure. the sediment control structures are designed to limit maximum water depth as much as practicable for safety reasons. Further source control is used to reduce the amount of sediment generated.

18.5 Water Management

Preliminary water balance modelling indicates that the volume of the water storage dam will be cyclical. Additional key water management findings from the water balance modelling include the following:

- The TSF is designed to hold the tailings plus the design rainfall conditions, and thus has sufficient storm water storage capacity for all design storm events and rainfall sequences.
- The supernatant pond should be removed (and treated if necessary) as soon as practicable after decommissioning.
- Process water shortfall is expected to occur under average and design dry climatic conditions. Peak shortfalls occur in the initial stages of operation, primarily due to the lower runoff volumes into the TSF.
- A water storage dam storage capacity of 500,000 m^3 is required to provide sufficient make-up water, supplemented by pit dewatering. The water storage dam has been constructed early to allow a full wet season for filling prior to commissioning.
- Under design dry conditions, with a pit dewatering rate of 16.5 L/s or greater (which is expected based on the groundwater assessment), there is sufficient make up water available to the plant from the water storage dam. The water balance needs to be updated with data from the wet and dry season cycle to verify if more diversions can be put in place such as above the TSF catchment.
- Rip rap armoring was not completed during construction since no waste rock was available. Rip rap armoring as per design is required for the TSF spillway, water storage dam spillway, and diversion ditch to prevent downstream sedimentation and improve dam safety (limit erosion of water retaining structures).
- The diversion ditch crossing the main public road is currently undersized. Two additional 2m x 2m culverts are required to be installed to reduce the risk of breaching the public road.

18.6 Water Storage Facility

The water storage dam is the main collection and storage pond for clean process water on site and is designed to be able to store up to 500,000 m^3 of water at the maximum operating level. The water storage dam has a catchment area of 183 ha (expanding to a total of 687 ha with the Antenna pit diversion channel catchment). The water collected in the water storage dam is pumped back to the plant to supply plant raw water requirements, and process make-up water requirements.

Upon decommissioning, the water storage dam will remain in place. Water balance modelling indicates that the water storage dam stored volume will be cyclical. If the pit diversion is not decommissioned, the water storage dam will continue to discharge each wet season.

As at the effective date of this Report, the water storage dam capacity is sufficient for plant and site requirements.

18.7 Water Supply and Sewage

18.7.1 Process Water

Process water is decant water returned from the TSF and water containing reagents and other contaminants circulating within the process plant system. The site process water tank provides surge capacity in the event of an interruption to the supply of TSF return water. Provision has also been made to top-up the process water from the raw water system should this be required. Process water is delivered to a process water pond or tank adjacent to the process plant via the following sources:

- Overflow from the raw water tank.
- Tailings storage facility decant return water.
- Pre-leach thickener overflow.

From the process water tank, process water is distributed by duty and standby single stage process water pumps. The main uses for process water include:

- Slurrying of new feed in the SAG mill.
- Dilution of mill discharge for classification.

18.7.2 Raw and Fire Water

The plant's raw water is supplied from the water storage dam to a tank located adjacent to the process plant.

Water drawn from an elevated suction nozzle part way up the tank is distributed for use as raw water, process water make-up and, after treatment, as filtered water.

A second suction nozzle at the base of the raw water tank supplies the fire water pumps. The difference in elevation between the two nozzles ensures that in the event of an interruption to the raw water supply there is always a reserved quantity of water available for firefighting.

Raw water is reticulated through the plant by dedicated raw water pumps and used for:

- Dust suppression.
- General area washdown.
- Flushing water in the acid wash.
- Cathode washing.
- Reagent make-up.
- Raw water will be made available to the mine services area.

The fire water system comprises:

- An electrical jockey pump.
- An electrical fire water pump.
- A diesel standby fire water pump.
- Fire water main including standpipes, hydrants and hose reels.
- Fire water will be distributed to the mine services area including the diesel storage facility.

The fire water distribution header pressure is maintained by the electric jockey water pump. An electric fire water pump automatically starts on a drop in line pressure. The diesel fire water pump automatically starts if the line pressure continues to drop below the target supply pressure or during a power failure.

18.7.3 Filtered (Including Gland Seal) Water

Some raw water uses require water with a low suspended solids content (mill cooling water, elution circuit and pump gland seals). To satisfy this need, a portion of the raw water is subjected to water treatment by filtration. Filtered water is stored within a dedicated filtered water storage tank from where it is pumped to the various end users by dedicated duty and standby pumps. The pressure of a portion of the filtered water is boosted through a second stage booster pump to render it suitable for the higher-pressure duties (gland seals).

18.7.4 Potable Water

Potable water is sourced from the accommodation camp potable water system. A satellite storage tank is provided at the process plant and water distributed from that tank goes through a further stage of ultraviolet sterilization to ensure its suitability. Potable water is distributed to site buildings and safety shower/eyewash stations.

18.7.5 Raw Water Supply Pipeline

The main water supply pipeline is from the water storage facility to the process plant and camp water treatment plant. The pipe route from the water storage facility is adjacent to the access road to the processing plant. The water storage dam pipeline is connected to the raw water tank within the process plant and the accommodation camp.

18.7.6 Water Supply Development

The water storage dam was constructed prior to the 2022 wet season to ensure sufficient water was stored before the plant went into production. Production bores have been developed to supplement the mine dewatering and water storage facility flows.

18.7.7 Pump Stations

Pumping stations are located in the following areas:

- Floating pump from the water harvesting and storage facilities to supply raw water to the process plant.
- Decant pump station from the TSF to pump water back to the processing plant.
- Open pit dewatering pumping station to dewater the mine and supply water to the processing plant via settling pond.
- Treated sewage to the TSF or sewage facility.
- Potable water pump from camp to plant.

18.7.8 Water Management

The process plant operators at the wet plant control room control the water delivery from the water storage facility to the plant raw water tank.

18.7.9 Sewage

A sewage treatment system, located at the camp site, has been installed to service the administration and plant buildings and the 170-person accommodation camp. Sewage from the plant is pumped to the treatment facility at the camp via a pump station fitted with macerating sewage pumps.

All sewage water is treated before the treated effluent is pumped to the tailings storage or sewage facility.

18.8 Mine Access and Haulage Roads

An existing public road has been diverted around the plant site and various mining infrastructure. The public road has been re-routed to the east of the Boulder pit, continuing north-west around the Koula pit, and reconnects to the existing public road near the process plant site and water storage dam.

The plant site is accessed by a new section of road that is connected to the existing public road. The plant access road continues beyond the plant main entrance to provide access to the 90 kV switchyard and the fuel depot adjacent to the mine services area.

The design basis for the diversion roads is as follows:

- Formation width 8 m (2 x 3.5 m traffic lanes plus 2 x 0.5 m shoulders).
- Design speed 40 km/h on the process plant (30 km/h posted limit) and camp access road and on the approach curves to the junction.
- Maximum 10 % vertical grade.
- Unsealed wearing surface.
- Intersections designed to accommodate semi-trailer type vehicles (19 m semi-trailer).
- LIDAR topography contour data.

A network of haul roads has been developed based on the location of the Antenna, Koula, Ancien, Boulder, Sunbird and Agouti pits. Adjacent to the open pits are storage areas for mine waste that may be hauled and used as structural fill for TSF embankment construction and raises.

The design basis for the haul roads are as follows:

- Design vehicle: CAT 777 haul truck.
- LIDAR topography contour data.
- Maximum 8 % vertical grade, 40 km/h design speed (20 km/h inside facilities).
- Pavement width 24.4 m (excluding safety berms, including side ditches, >3.5 x width of widest haulage vehicle).
- 2 x 10.7 m wide traffic lanes.
- 2 m safety berm height.
- Unsealed wearing surface.

18.9 Mining Contractor's Infrastructure

An area adjacent to the process plant has been demarcated as the mining services area. The mining contractor has provided its own workshop, store facilities, offices, washdown area and waste oil management facility, which are located within the mining contractor's area. The washdown slab incorporates a silt and oil trap, and an oil separator removes any contaminant oil from the wastewater before it is recycled into the wash bay facility, with excess water used for dust suppression. The mining contractor manages the safe removal of waste oil by using approved suppliers of waste oils as required by law.

Treatment and disposal of sewage from the contractor's area is through the sewage treatment facility located at the camp.

Explosive materials are stored in a magazine and bulk emulsion plant segregated 500 m from each other and located in a remote area, well away from people and major infrastructure, adhering to the separation distance requirements. The magazine and bulk emulsion plant is secured within a fenced compound and surrounded by embankments. The magazine is always manned with security.

18.10 Administration and Plant Buildings

The following buildings are located within the low security area:

- Main entrance guardhouse.
- Projects office.
- Warehouse.
- Emergency response building.
- Mess hall.
- Exploration office.
- Core shed.
- Security building with clinic and change room (access control to the process plant).

The administration building provides a meeting room, male and female ablutions, kitchen, and offices for management, mine and process plant technical services and administrative personnel.

The administration office is fitted throughout with split-system air-conditioners and reticulated power from an uninterruptible power supply to service computers and peripherals. A parking lot is located at the front of the administration building.

The security and first aid building are located at the mine entrance. The security office houses a security reception area and the security manager's office. The first aid area houses the nurse and the doctor within the low security area. A parking lot is also located at this building for site visitors.

The following buildings are located within the high security area:

- Plant workshop.
- Reagents store.
- Motor control center building.
- Plant control rooms.
- Plant office building.
- Plant mess hall.
- Gold room building.
- Laboratory.

The high security, laundry and change room building are located at the entrance to the high security area. This building has a guard house, in/out one-way turnstiles, a laundry room, and male and female change rooms. This building also includes an ablution section that is only accessible from the high security area.

The plant workshop is a single steel framed building arranged in three separate areas for mechanical, electrical, and welding workshops.

The warehouse and reagent stores are single steel framed buildings with eaves height that are at least 6 m to allow for good crane and forklift access. The warehouse has an outdoor fenced enclosure for laydown storage. Delivery vehicles for both the warehouse and reagent stores report to the security office in the high security area for inspection before and after deliveries are made.

The laboratory and sample preparation buildings comprise:

- Unloading and drying area.
- Wet chemical room.

- Balance room.
- Atomic absorption equipment room.
- Fire assay area.
- Metallurgical laboratory.
- Environmental laboratory.
- Grade control preparation area.
- Exploration and sample preparation area.
- Offices and stores.
- Male and female ablutions.

Electrical medium voltage and low voltage switch rooms are located near the processing facility.

A process control room is located above the CIL tanks and able to view the mill on one side and the CIL circuits on the other. The control room includes a titration room.

The plant office includes a kitchenette, male and female toilets, a meeting room, and office areas for the maintenance superintendent, plant foreman (electrical, mechanical, and mill), maintenance planner, and plant metallurgists.

The gold room is a steel-clad building. The building houses the leach reactor, calcine oven, electrowinning cells, smelting furnace, safe (enclosed within a concrete vault), and associated equipment. A supervisor workstation is installed in the gold room; this workstation is equipped with a telephone and data connection. A secure area with inner and outer doors ensures that the gold room remains sealed during bullion transfer to the transport vehicle. All operations within the gold room will be subject to full-time closed-circuit television (CCTV) surveillance with security alarms provided to the security coordinator.

Two mess halls are incorporated in the plant and administration building areas. Both buildings have verandas attached to them. All meals are prepared at the village or accommodation camp outside the high security area and transported into the high security mess at mealtimes.

18.11 Accommodation Camp

The accommodation camp houses the senior level construction and operations personnel. The remaining personnel are accommodated in the nearby town of Séguéla (house rentals, hotels, etc.).

The accommodation camp and facilities are for 170 staff not residing in the local area. The camp is located east of the process plant and consists of the following major components:

- 3 x 4-person manager style self-contained units complete with bedroom, ensuite bathroom and toilet.
- 14 x 12-person single room units complete with bedroom, ensuite bathroom and toilet.
- Kitchen, dining, and wet mess facility.
- Water treatment plant.
- Sewage treatment plant.
- Laundry facilities.
- Administration office.
- General ablution block.
- Recreation facilities.
- Security fencing/gates and security office.

18.12 Power Supply

Power supply to the site is via a grid connection to the 90 kV powerline from the Laboa to the Séguéla substation. The transmission line terminates at a substation/switchyard located adjacent to the process plant site. The substation has a 90/11 kV step-down transformer and provides an 11 kV supply to the plant substation.

A grid supply from Côte d'Ivoire is, by world standards, economically priced and much more financially favorable than other options including self-generation as the tariff is based on a mix of hydro and thermal generation with a large portion of hydro.

The company La Société des Energies de Côte d'Ivoire (CI-ENERGIES) own the National Interconnected Transmission System in Côte d'Ivoire, and Compagnie Ivoiriennne d'Electricite (CIE) manages the electricity generation and transmission network for the Government.

In the event of a power outage, there is a generator at the plant and one at the accommodation camp. The plant emergency generator is sized to operate drives that are deemed critical, such as agitators and pumping stations.

The electrical loading figure estimates are shown in Table 102.

Table 102: Electrical load estimates for the Séguéla Gold Mine

Connected load	**12 MW**
Maximum demand	9.5 MW
Average annual demand	7.6 MW*
Energy consumption	66.6 GWhr/yr

**At a load power factor of 0.95 lagging.*

The maximum demand is defined as the maximum average load over any 30-minute period. The load factor is relatively constant except for the crushing circuit which is assumed to operate 75 % of the time. The plant is assumed to operate 91.3 % of the time. Power factor correction equipment has been provided to ensure a load power factor of 0.95 lagging. The average load is defined as the average load if averaged across any one year.

There is an existing 33 kV powerline that runs within proximity to the Antenna and Boulder pits. As a result, 6.7 km of these powerlines were relocated.

18.13 Fuel Supply

Bulk fuel supply is provided by a fuel storage facility constructed north of the mine services area and stores diesel for the mine trucks, light vehicles, and users at the process plant. Day storage tanks are provided in the process plant. Diesel fuel dispensing is provided for mine trucks and light vehicles. The fuel supply and facilities are under a contract arrangement with an independent fuel provider.

18.14 Communications

Mobile phone coverage exists at the mine site. Telecommunications have been expanded to include voice, email, and internet traffic for the process plant, camp, and main office.

18.15 Plant Security

From a security perspective the Séguéla Project footprint has been configured as small as possible so that security personnel and systems have to cover as minimal an area as possible. The security provision consists of:

- Access control to the mine lease at several locations (including mine, plant and camp).
- Read in/read out access control.
- Two-stage gates for vehicle access.

- Electronic surveillance including CCTV within the plant area and at several key locations around the property.
- Physical and visual barriers.
- Fencing (double, single and cattle).
- Lighting.
- Patrols.
- Double security fencing encloses the process plant. This is demarcated as the high security area. A single security fence encloses the mining contractor's area, main administration building area, laboratory, camp, magazine, and tailings storage facility. The security fence consists of a 1.8 m high fence with razor wire at the top of the support posts.
- Electronic security has been provided by a reputable security system provider and will be audited by an independent security consultant experienced in security installations in Africa. It will be monitored by the security contractor.
- Installation of and integrated security solution consists of a combination of various access control points, coupled with intruder detection devices, supported by CCTV cameras located across the site. Some of the remote cameras and access control locations are interlinked via the installation of a line- of-sight wireless network connection with a common receiver located appropriately to operate within "line of site" protocols.

18.16 Comments on Section 18

The QPs are of the opinion that the infrastructure required to support the open pit LOMP is in place.

19 Market Studies and Contracts

19.1 Market Studies

Gold is a freely traded commodity on the world market for which there is a steady demand from numerous buyers.

19.2 Commodity Pricing

The Fortuna financial department provides Roxgold Sango with gold price projections for inclusion in budget and business plan preparations. Pricing is based on long-term analyst and bank forecasts, with a gold price of $ 1,600/oz used for estimating Mineral Reserves and cash flow analysis, and $ 1,840/oz for estimating Mineral Resources.

19.3 Contracts

As part of Fortuna's socio-economic commitment to the region and other local stakeholders, Fortuna's preference is to award contracts to local businesses to the extent possible. Fortuna's objective is to focus on opportunities for the residents and businesses of the region to participate in the Séguéla Mine, thereby establishing a role as an active member of the community and participant in the sustainable development of the region.

Numerous contracts are in place to conduct services on behalf of Roxgold Sango and are managed by Roxgold Sango, with major contracts including:

- Receipt of gold doré from Roxgold Sango with METALOR Technologies S.A. to process/refine and either to buy or transfer the precious metal to a metal account designated by Roxgold Sango
- Provision of mining services with Mota-Engil Cote d'Ivoire including ROM feed, mine development, grade control drilling, drill & blast, and load & haul activities to be conducted safely and efficiently within the production requirements range in accordance with the specifications, plans and schedules.
- Provision for Séguéla Gold Mine catering and facilities services with Tseebo Solutions Group Proprietary Limited (ATS).
- Power supply for Séguéla Gold Mine facilities and infrastructure including camp facilities, processing plant and administration facilities provided by Cote d'Ivoire Energies.
- Fuel supply for Séguéla Gold Mine equipment and infrastructure including the Mining Services Contractors equipment, a free issue item by Roxgold Sango provided by Total Energies.
- Séguéla Gold Mine site security for all areas within Roxgold Sango's tenement provided Group 4 Securities (G4S).
- Processing plant and grade control metallurgical assaying and testing provided by SGS laboratory.

19.4 Comments on Section 19

The QP has reviewed the information provided by Fortuna on metal price projections and exchange rate forecasts and notes that the information provided is consistent with what is publicly available for industry norms.

Long-term metal price assumptions used in this Report are based on a consensus of price forecasts for those metals estimated by numerous analysts and major banks. Over several years, the actual metal prices can change, either positively or negatively, from what was earlier predicted. If the assumed long term metal prices are not realized, this could have a negative impact on the operation's financial outcome. At the same time, higher than predicted metal prices could have a positive impact.

The doré produced by the mine is readily marketable.

The QP has reviewed the marketing assumptions and the current major contract areas, and considers the information acceptable for use in estimating Mineral Reserves and in the economic analysis that supports the Mineral Reserves.

20 Environmental Studies, Permitting and Social or Community Impact

20.1 Environmental Studies

Following environmental and social studies, public consultations and examination by the applicable Governmental Authorities, on September 22, 2020, the Ministry of Environment and Sustainable Development in Côte d'Ivoire approved an environmental and social impact assessment (ESIA) for the Séguéla Mine (Decree No.00261) for the construction and operation of the Séguéla Mine in the Séguéla department. The ESIA allowed the Séguéla Mine to be built and to operate in accordance with the conditions listed in the environmental permit application and the decree.

The ESIA also included a conceptual resettlement action plan (RAP) for any physical or economic displacement of people or communities as a result of the Séguéla Project, and a conceptual mine closure plan. Roxgold Sango finalized and validated the operational RAP with key stakeholders including concerned communities, local authorities, and government technical services in December 2022, along with a Stakeholder Engagement Plan, Livelihood Restauration Plan and Cultural Heritage Management Plan. These documents were prepared following International Finance Corporation Performance Standards guidelines.

Any significant changes to the future operations at the Séguéla Project that may impact the environment, the community and social relations may require Roxgold Sango to inform of any material changes and/or submit an application to update the ESIA to the relevant authorities for approval. In 2024, Roxgold Sango intends to file such an application to the National Environmental Agency (ANDE), which will advise on the steps for updating the ESIA according to the proposed development and exploitation of the Sunbird deposit.

The potential to conduct underground mining has been identified at the Ancien, Koula and Sunbird deposits. Appropriate underground mining, geotechnical and economic studies remain to be completed. In the event that underground mining is determined to be feasible, Roxgold Sango will be required to submit an application to the relevant authorities for approval Roxgold Sango to submit an application to update the ESIA to the relevant authorities for approval to update the ESIA.

20.2 Permitting

Beyond those requirements explicitly stipulated in Ivorian Law No. 2014-138 of March 24, 2014 containing the Mining Code, the Mineral Exploration class of permit within Côte d'Ivoire is not subject to environmental legislation (which applies only to Exploitation Permits). To the best of Fortuna's knowledge, there are no other known encumbrances or permitting requirements for the Séguéla Mine permit.

The primary environmental approval required to develop the Séguéla Project was decreed by the Ivorian Environment Minister which was necessary for the issuance of the mining license. Roxgold Sango contracted the consulting firm CECAF to undertake the project baseline studies and compile the ESIA required to obtain the environmental decree. The ESIA identifies the potential social and environmental impacts of the development of the project and proposed mitigation measures. Part of the ESIA, which includes a conceptual Resettlement Action Plan, was developed for any physical or economic displacement of people or communities as a result of the development of the mine. The ESIA also included a conceptual mine closure plan.

Following environmental and social studies, public consultations and governmental examination, the ESIA for the Séguéla Mine was approved by the Ministry of Environment and Sustainable Development by decree signed on September 22, 2020 (Decree No.00261 dated September 22, 2020, on ESIA approbation for the exploitation of a gold mine in Séguéla department). This environmental decree allowed the mine to be built and requires it to operate in accordance with the conditions listed in the environmental permit application file and the decree.

Following the environmental decree, an exploitation permit is granted by right, by decree taken in Council of Ministers, to the holder of the exploration permit which proved by way of a feasibility study that there is a deposit within its exploration permit.

The holder of an exploitation permit has an exclusive right to exploit the deposits within the limits of its perimeter, and the right to transport or to arrange the transport of the extracted ore, the right to trade with the ore on the internal or external markets and to export it. It is also allowed to establish the necessary facilities to condition, treat, refine and transform the ore.

Unlike exploration permits, exploitation permits are indivisible, immovable rights that may be mortgaged subject to approval by the Minister of Mines and Industry.

The Mining Code requires the exploitation permit holder to establish a company under Ivorian law, the sole purpose of which is to exploit the deposit located within the perimeter. The permit will then be transferred to this exploitation company.

The exploitation permit was granted by the Council of Ministers on December 9, 2020. This permit covers an area of 353.6 km^2 and is valid for 10 years.

A mining convention is then negotiated between the state and the holder of the Exploitation Permit. The negotiation of the mining convention remains in progress as of the effective date of this Report.

The convention's main purpose is to stabilize the tax and customs regime applicable to the exploitation operations; however, the mining code does not limit its purpose, and other essential rights, obligations and conditions may be incorporated into the convention. The decree implementing the mining code further provides for the main obligations to be included in the mining convention, the rights and obligations of the titleholder and the undertakings of the State. In any case, the convention cannot derogate from the provisions of the mining code and the decree implementing the mining code.

In exchange for the exploitation permit, the State obtains a 10 % free-carried and non-dilutable participation in the share capital of the operating company.

Other permits and approvals required for mine activities (e.g. fuel and explosives) have been obtained prior to the commencement of the relevant works. Roxgold Sango has initiated the process of obtaining its classification under the Installations Classified for Environmental Protection scheme from the Ivorian Anti-Pollution Centre). This process is statutorily required to start after the beginning of production at the Séguéla Project and is scheduled for completion in the first quarter of 2024.

20.3 Environmental Monitoring

Operations comply with national environmental requirements. Roxgold Sango monitors the environmental aspects of its operations following the monitoring requirements of the ESIA as detailed in the Environment and Social Monitoring Plan. Additional requirements may arise through the Installations Classified for Environmental Protection process, which is to be finalized in the first quarter of 2024 with the Ivorian Anti-Pollution Centre . If additional programs are required, they will be added to the existing monitoring programs.

Regular monitoring reports must be communicated at least annually to the regulators ANDE and CIAPOL. The following subsections summarize the key components of the environmental monitoring programs.

Air, Noise and Vibration Monitoring

Major sources of air emissions in the Séguéla Mine area include dust from road traffic and rock crushing, as well as gas emissions from the plant. The air quality monitoring plan includes measurement of total particles, PM10 and PM2.5, in addition to nitrogen and sulfur oxide levels. Dust monitoring includes potential exposure of neighboring communities. The noise monitoring program includes LA_{eq} noise measurement for day and at night periods at different locations to take into account the diversity of activities that are sources of noise, as well as the different noise receptors, including potential community receptors. Ground vibration and acoustic overpressure are measured by the blasting contractor for each blast and reported to the site Environmental team for compilation and monitoring.

Water Monitoring

The water monitoring program includes surface, ground, waste and potable water monitoring at multiple locations on the mine site, worker accommodation camp, and neighboring communities, as defined by the impact assessment, based on type and magnitude of emissions, sources, effects, and receptors. Monitoring parameters and periodicity depend on water types analyzed, and are also based on impact assessment, with periodicity ranging from daily to quarterly. Monitoring parameters include physical, chemical and biological indicators. It is important to note that the mine site is designed to have no industrial water discharge into the environment as the water from the tailings facility is recycled into the process plan.

Biodiversity Monitoring

Prior to mine construction, floristic inventories were undertaken with the national Water and Forestry services, which resulted in tree nurseries and planting to compensate for the disruption caused due to the new infrastructure. These nurseries and planting initiatives are monitored in terms of growth and yield. As part of the work permit system for the mine site, the Environmental department is notified before any physical work is performed to authorize and monitor any additional impacts on biodiversity. Visual inspections of the TSF include observations of any deceased fauna in the TSF area, with no occurrences reported as of the effective date of this Report.

Waste Management Monitoring

The Séguéla Project has a dedicated waste sorting and management center. The waste management plan includes waste stream quantification, treatment, and reporting as appropriate for the different types of waste generated by operations, including industrial, domestic, inert, hazardous, and non-hazardous waste streams. Relevant waste streams are treated by specialized external waste management contractors that are certified by national regulators CIAPOL and the National Waste Management Agency (ANAGED). Mining waste, including waste rock and tailings, are quantified, treated and controlled by the respective mining and process departments, according to the prescriptions indicated in the ESIA and the project design. Monitoring of acid rock drainage as well as multi-element leaching, and enrichment potential is performed monthly.

Energy and GHG Monitoring

The quantification of greenhouse gas emissions is carried according to the Fortuna Scope 1 and 2 Carbon Footprint Calculation Handbook. This includes the monitoring of total fuel consumption per mine unit, broken down by non-renewable sources (e.g., diesel, gasoline, liquified petroleum gas) and renewable sources (e.g., biofuels, biomass), total electricity consumption, total heating consumption, total cooling consumption, total steam consumption. The data are reported on a monthly basis.

Artisanal Mining Monitoring

Artisanal and small-scale mining (ASM) activities in the Séguéla area and its surroundings can be characterized as unauthorized, dispersed, intermittent and not mechanized. As of the effective date of this Report, there is no permanent illegal or authorized ASM settlements on the identified deposits of the Séguéla Mine or nearby, with only a few hundred ASM miners present from time to time in the Project area outside of the mining operation areas. The implementation of a stakeholder management plan has ensured a good relationship between Roxgold Sango and the local authorities, village leaders and landowners. In addition, regular monitoring of the occupancy of the land around the deposits, exploration prospects and targets and the intervention of the authorities to avoid the establishment of organized ASM lead to an effective control of the ASM activities in the Séguéla Mine area.

Tailings Storage Facility Monitoring

There are routine dam safety inspections to monitor dam performance during operations. The stability and seepage performance of the TSF has been designed to meet international guidelines and standards. Monitoring instrumentation has been incorporated into the design to facilitate detection of any potential issues which may arise during operations. The monitoring program includes monitoring bores, downstream surface water sampling, standpipe piezometers within TSF embankments to monitor the phreatic surface, settlement pins on embankments to monitor movement. Piezometers and monitoring bores are checked monthly for water levels and quarterly for water quality.

20.4 Social and Community Impact

20.4.1 Stakeholder Engagement

In Côte d'Ivoire, a consultative and participative approach is in many ways part of the culture of the society and adopted by governmental authorities. This is evident for example, through the numerous decentralized structures and multi-stakeholders' committees from the central government to villages. In the case of large scale projects like a mine, there are rules and regulations to ensure the implementation of standard engagement processes, such as Law No. 96-766 of October 3, 1996 on the Environment Code which mentions that everyone has the right to be informed about the state of the environment and to participate in pre-decision-making processes that may have an adverse effect on the environment or the environmental permitting process that includes mandatory public consultations (Articles 35).

Roxgold Sango recognizes stakeholder engagement as a prerequisite for acquiring and maintaining the sustainable Social License to Operate and as a core element for good social risk management. Roxgold therefore sees stakeholder engagement as a broader, more inclusive, and continuous process that should span the entire life of mine.

Since the implementation of a Roxgold stakeholder engagement framework in 2019, regular consultations have been held with the national Government and local authorities, both traditional (village chiefs and notabilities) and governmental (administration and technical services), as well as local organizations such as village-level women's, youth, religious or artisanal mining associations. A Mining Project Community Monitoring Committee was created in November 2020 including stakeholders from the local authorities, villages' leaders, youth women and persons directly affected by the Séguéla Project (e.g., landowners and farmers). Since 2022 stakeholder engagement activities have been recorded as part of Community Relations performance tracking, including with communities and local authorities.

By the end of the first quarter of 2021, a first training program for the neighboring communities was organized with 42 young people trained as masons, carpenters, plumbers, and electricians. All were hired by the Séguéla Project. In 2022, a total of 25 local youth were trained as process operators and junior metallurgists at a dedicated mining training center including an internship at Fortuna's Yaramoko Mine, with 23 hired in 2023 to work at the Séguéla Mine (21 at the process plant and 2 with contractors). Also in 2023, a further 20 youths were trained in machinery driving.

The formal Stakeholder Engagement Plan was presented and validated by the Mining Project Community Monitoring Committee on December 21, 2022.

20.4.2 Social Investment and the Local Development Fund

An operating mining company in Côte d'Ivoire, must contribute to community development via a Local Development Fund according to Decree No. 2014-397. Roxgold Sango's local development program aims to contribute to the sustainable development of its host communities. It is organized in two main components:

(a) Statutory Contribution to the Local Development Mining Fund: this commenced when production began in May 2023, and amounts to 0.5 % of gross revenues of the mine per year over the life of mine. The amount will vary depending on productions and the price of gold.

(b) Voluntary Contributions to Local Development through investments in:

- Water and sanitation – assistance in road and village allotment clearing and creation of sanitation committee in Kouégo which provides waste management support.
- Education – construction of school classrooms in the villages of Bangana and Kouégo.
- Food security – development of a market gardening project in support of women reconverting from traditional ASM, and development of casava fields with the women of the impacted villages.
- Community health and safety – safety driving awareness in conjunction with a fuel supply partner.

20.4.3 Land Acquisition

The development of the Séguéla Project involved the deployment and operation of physical assets including mining pits, waste rock dumps, process plant, a TSF and assorted infrastructure. This development resulted in economic and physical displacement in the Séguéla Project area and was managed by Roxgold Sango in accordance with Ivorian law and International Finance Corporation Performance Standard 5.

A Resettlement Plan was prepared and validated by the Mining Project Community Monitoring Committee in December 2022 and presents the commitments agreed by all parties to cover eligibility, entitlements, implementation schedules and accompanying measures such as cultural heritage management and livelihood restoration programs.

As of December 2022, resettlement covered 1,161 ha of land, including 377 ha of crops owned by seven landowners and 193 farmers, as well as 68 households with 109 dormitories and 98 ancillary structures requiring physical relocation. In addition, six sacred sites were affected, with mitigation measures described in the Cultural Heritage Management plan. Financial resources allocated for Resettlement Action Plan implementation include 460 million West African Francs (FCFA) in compensation for land, 850 million FCFA for crops, and 230 million FCFA for buildings, as well as human resources to carry out activities through the Roxgold Sango Sustainable Development team, assisted by specialized consultants and partners.

Impacted households are eligible for the Livelihood Restoration Program, which outlines measures taken to replace income impacted by project activities beyond compensation. The Séguéla Project also pays special attention to vulnerable households and women in terms of consultation and programming. The Livelihood Restoration Program is articulated around the following programs:

- Production for production programs.

- Financial education programs.
- Livestock support programs.
- Micro credit programs.
- Vulnerable persons support programs.

20.5 Mine Closure

Roxgold Sango is committed to conducting its mineral exploration, development and operating activities in a manner consistent with internationally recognized guidelines and principles for Sustainable Development and Corporate Social Responsibility. Applicants for exploitation permits are obliged to provide, at the same time as the ESIA, a plan for the closure and rehabilitation of the mine. Roxgold Sango included a conceptual mine closure plan in its ESIA which will be continually updated through the life of the Séguéla Mine. The conceptual mine closure plan assumes that mined areas will be reclaimed to a safe and environmentally sound condition consistent with closure commitments developed in compliance with the Mining Code (Law No. 2014-138 dated 24 March 2014) of Côte d'Ivoire, applicable regulations, and consistent with International Finance Corporation Performance Standards and other guidelines.

In accordance with the Mining Code of Côte d'Ivoire, holders of exploitation permits are required to open an escrow account for the rehabilitation of the environment domiciled in a financial institution of first rank in Côte d'Ivoire. This account is used to cover the costs related to the environmental rehabilitation plan at the end of operation. Amounts are paid into this account according to a scale established by the relevant administrative structures and are recorded as expenses in the context of the determination of the tax base on industrial and commercial profits. The holder of an exploitation permit or the beneficiary of an industrial or semi-industrial exploitation permit is obliged to supply this account. The methods of supplying and operating the escrow accounts are defined by decree.

At this stage of the Séguéla Mine operations, Roxgold Sango has assumed the preferred final post-closure land use will be a natural landscape commensurate with the surrounding land uses where possible, which are currently mainly small-scale agriculture, fallow land and forest. Specific closure objectives may be tied to the final land use for the Séguéla Mine area, which should be determined in collaboration with local authorities and other project stakeholders.

It is expected that mine closure works are likely to span a period of approximately 12–24 months after closure. This will be followed by a period of post-closure monitoring and maintenance, which is envisaged as the statutory duration of a total of five years after the cessation of operations but may extend longer depending on monitoring results against closure criteria.

As at the effective date of this Report and in compliance with national regulations, the projected total cost required to close present and future infrastructure at the Séguéla Gold Mine is $11.9 million (Table 103) as developed from the conceptual mine closure plan prepared by Roxgold Sango with the assistance of specialized consultants CECAF International and Trajectory, and assuming the exploitation of the Sunbird deposit, based on the prevailing geophysical and social context as well as benchmarking against existing mining projects in Côte d'Ivoire.

Table 103: Summary of closure and post-closure costs

Area	Cost (US$)
Open pits - 6 pit complexes including 10 individual pits with total surface area of 134 ha	387,000
Waste rock dumps - 6 dumps with total surface area of 300 ha	2,913,000
Process plant and infrastructures - total surface area of 35 ha	464,000
Water Storage Dam - total surface area of 39 ha	60,000
Internal and external roads - total surface area of 71 ha	180,000
Mobilization and demobilization	80,000
Closure management	400,000
Tailings storage facility - total surface area of 84 ha	6,727,000
Maintenance and repairs	469,000
Monitoring and control - applied over the statutorily required 5 years	250,000
Total mine rehabilitation and closure costs	**11,900,000**

20.6 Comments on Section 20

It is the opinion of the QP that the appropriate environmental, social and community impact studies have been conducted to date for the Séguéla Gold Mine, and that Roxgold Sango has maintained all necessary environmental permits that are required for open pit mining operations at the Ancien, Antenna, Agouti, Boulder, Koula and Sunbird deposits and the maintenance of mining activities.

21 Capital and Operating Costs

The Séguéla Mine is a producing operation managed by Roxgold Sango, having mined an open pit operation since April 2023. Capital and operating cost estimates are based on the established cost experience gained from the operation, projected budgets, and quotes from manufacturers and suppliers. Overall, the cost estimation is of sufficient detail that, with the current experience of operating at the Séguéla Mine, Mineral Reserves can be declared.

21.1 Sustaining Capital Costs

Sustaining capital costs were estimated as part of the life of mine plan completed annually by Roxgold Sango.

The capital costs include all investments in ongoing mine development access for various open pits, brownfield exploration, waste capitalization (stripping) minor mine equipment, plant equipment, permits and others to maintain the mine and plant facilities to sustain the continuity of the operation. These capital costs are divided into four main areas: mine development, capitalized stripping, brownfields exploration, and equipment and infrastructure. Brownfield exploration involves the investigation of areas to increase the confidence in currently defined Mineral Resources with infill delineation drilling included in these costs.

Waste capitalization (stripping) refers to the cost of removing the overburden or waste rock that overlays a mineral deposit in order to access and extract the mineralized material.

Equipment and infrastructure costs are attributed to all departments of the operation including mine, plant, permits, information technology, security, environmental, tailings, management fees to support the capital projects management and closure costs.

Table 104 provides a summary of the sustaining capital cost estimate for the project.

Table 104: Estimated annual sustaining capital costs

Year	Units	2024	2025	2026	2027	2028	2029	2030	2031	Total
Mine development	$M	1.1	1.3	1.5	0.6	0.4	0.8	0	0	**5.7**
Capitalized stripping	$M	17.1	27	23.4	18.8	22.1	10.2	0.6	0	**119.2**
Brownfields Exploration	$M	7.3	0	0	0	0	0	0	0	**7.3**
Equipment and Infrastructure	$M	13.4	2.5	5.8	5.9	5.9	5.9	4.8	11.8	**56.3**
Mine		*1.7*	*0.6*	*0.8*	*0.6*	*0.6*	*0.6*	*0.2*	*0*	
Plant		*1.2*	*1.5*	*0.4*	*0.7*	*0.7*	*0.7*	*0*	*0*	
Permits, IT, sec., env.		*5.7*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0*	*0*	
TSF		*4.8*	*0*	*4.2*	*4.2*	*4.2*	*4.2*	*4.2*	*0*	
Manag. Fees - capex		*0*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0*	
Closure Cost								*0.1*	*11.8*	
Total	**$M**	**38.9**	**30.8**	**30.7**	**25.3**	**28.4**	**16.9**	**5.4**	**11.8**	**188.5**

TSF sustaining capital was estimated by Knight Piésold as part of the annual embankment lift schedule. Reclamation costs for the mine are estimated based on the areas of impacted zones and unit rates for activities to reclaim these areas to their natural state.

21.2 Operating Cost Estimate

Total estimated cash costs averaging US$80/t processed are estimated for the life of mine and are presented in Table 105 and Table 106 in US dollars.

Table 105: Life of mine operating cash costs

Cash Costs	Value (US$/t milled)
Mining	46.6
Processing	20.8
General and Administrative	12.4
Total	**80.0**

Note: Costs are based on average estimated costs from the fourth quarter 2023 to the end of mine life. Totals may not add due to rounding

Table 106: Life of mine operating cost estimate - cash cost

	Units	2024	2025	2026	2027	2028	2029	2030	2031
Mining	US$/t ore mined	31.3	48.0	48.4	47.4	50.2	49.1	46.0	13.4
Operating lease	US$/t ore mined	5.1	4.8	4.4	4.4	4.7	4.7	5.8	14.5
Plant	US$/t processed ore	20.9	17.5	17.8	19	20.3	21.7	23.2	33.0
Indirect	US$/t processed ore	10.5	7.3	4.9	4.9	4.9	4.9	4.9	7.8
SG&A cash cost	US$/t processed ore	3.0	3.0	2.8	2.8	2.8	2.8	2.8	4.4
Distribution	US$/t processed ore	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.6
Community relations	US$/t processed ore	1.9	1.9	1.7	1.7	1.7	1.7	1.7	2.7
Management Fee	US$/t processed ore	1.0	0.7	0.6	0.6	0.6	0.6	0.6	1.0
Total OPEX	**US$/t**	**74.2**	**83.7**	**81.1**	**81.2**	**85.6**	**86.1**	**85.6**	**77.3**
	US$/oz	**678.9**	**622.2**	**700.4**	**778.8**	**835.0**	**774.7**	**842.9**	**669.3**

Note: Totals may not add due to rounding

Long-term projected operating costs are based on the LOM mining and processing requirements, as well as the executed contract between Roxgold Sango and Mota-Engil Cote d'Ivoire. Operating costs include site costs and operating expenses to maintain the operation and are analyzed based on a cost structure that may not correspond to the operating costs reported by financial statements of Fortuna. Site costs relate to activities performed on the property including mine, plant and indirect costs (related to general services and administrative on site). Other operating expenses include costs associated with gold transportation (distribution), community support activities and management fee from Fortuna corporate.

21.3 Comments on Section 21

The capital and operating cost provisions for the LOMP that supports the declaration of Mineral Reserves have been reviewed and are considered as reasonable by the QP based on industry practices and actual costs observed in 2023.

22 Economic Analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 of Form 43-101 – *Technical Report*, for technical reports on properties currently in production and where no material production expansion is planned.

22.1 Comments on Section 22

The Mineral Reserve estimate is supported by a positive cashflow for the period set out in the LOMP using the assumptions detailed in this Report.

23 Adjacent Properties

This section is not relevant to this Report.

24 Other Relevant Data and Information

This section is not relevant to this Report.

25 Interpretation and Conclusions

25.1 Introduction

This Report provides a summary of the results and findings from each major area of investigation including exploration, geological modelling, geotechnical and hydrology, Mineral Resource and Mineral Reserve estimation, mine design, metallurgical and process design, infrastructure design, environmental management, capital and operating costs. The level of investigation for each of these areas is consistent with that normally expected for an operating mine.

The QPs present an interpretation of that body of work along with the opportunities and risks associated with each area of investigation in the following sub-sections.

25.2 Mineral Tenure, Surface Rights, Royalties and Agreements

Fortuna was provided with a legal opinion that supports that the mining tenure held by Roxgold Sango for the Séguéla Mine is valid and that Fortuna has a legal right to mine the deposit.

Roxgold Sango holds an exploration permit and an exploitation permit.

The exploration permit, which surrounds the exploitation permit, is a three-year permit that Roxgold Sango has exercised for a second renewal, having submitted the application on July 20, 2023, and awaiting Ministerial signature. The permit covers an area of 270.1 km^2.

Provided minimum expenditure requirements are met, exploration permits in Côte d'Ivoire are subject to automatic grants of renewal applications for two terms of three years each, and a special third term of no more than two years.

In addition to the Environmental Permit obtained on September 22, 2020, the exploitation permit was granted by the Council of Ministers on December 9, 2020, and signed as a decree by the President of Côte d'Ivoire. This permit covers an area of 353.6 km^2 and is valid for 10 years. The permit is thereafter renewable for successive 10-year periods. All the deposits are located on this permit.

Franco-Nevada Corporation holds a 1.2 % net smelter return (NSR) royalty for gold produced from the Séguéla Mine. Roxgold Sango has the right to repurchase up to 50 % of the Franco-Nevada Corporation royalty on a pro rata basis based on the sale price of A$10 million for a period of up to three years from March 30, 2021.

The State of Côte d'Ivoire is entitled to production royalties based on the gross revenue from gold produced, after deduction of transportation and refining costs.

25.3 Geology and Mineralization

The Séguéla Project is situated within the Paleoproterozoic (Birimian) Baoule-Mossi Domain of the West African Craton. Two cycles of volcanism/sedimentation are recognized within the Birimian rocks of the Baoule-Mossi Domain; each followed by a period of orogenesis, and together described as the Eburnian Orogeny which is dated c. 2.19–2.08 Ga. Rocks of the Baoule-Mossi Domain are primarily polyphase granitoids, and volcano-sedimentary sequences forming granite-greenstone terranes. The first cycle of sedimentation and orogenesis (Eburnian 1) is described by the accumulation of volcanic and volcaniclastic rocks; then subsequently intruded by early stage granitoids. Following a period of uplift and erosion, the Eburnian 2 cycle is described by the filling of intra-montaine basins with predominantly arenaceous sediments of the Tarkwaian Series.

The Antenna deposit is considered to be an example of an orogenic lode-style gold system, hosted by a brittle-ductile quartz-albite vein stockwork predominantly contained within flow banded rhyolite units. The stockwork lode varies in width roughly in proportion with the widths of the rhyolitic units that host it (approximately 3–40 m) and extends over a strike length of approximately 1,350 m. Stockwork veins that host mineralization show two principal orientations: steep east-dipping and steep west-dipping. Veins in the steep west-dipping orientation range from ptygmatically folded to undeformed, while veins in the east-dipping direction may be variably boudinaged to undeformed. This evidence suggests syn-deformational emplacement of the vein sets during west and east movement along the main fault structures within the region. Mineralization occurs as free gold, associated with pyrite and pyrrhotite. Alteration assemblages associated with this mineralization assemblage vary from proximal intense silica–albite ± biotite ± chlorite alteration, through medial silica–albite-sericite ± chlorite assemblages, to more distal sericite-carbonate (ankerite/calcite) and carbonate-magnetite assemblages. Pyrite is the dominant sulfide associated with higher-grade mineralization within proximal alteration zones, while sulfide mineralogy is pyrrhotite-dominated in medial and distal assemblages and is associated with lower-grade gold mineralization.

The Ancien deposit is associated with an interpreted D2 sinistral shear zone, informally referred to as the Ancien shear, within the east domain. The host lithologies comprise (from west to east) a chloritic pillow basalt footwall overlain by a foliated/sheared tholeiitic basalt unit, which is in turn overlain by a second chloritic pillow basalt hanging wall unit that is gradational into a coarser grained porphyritic basalt unit. Generally narrow quartz-feldspar–biotite porphyries crosscut and intrude all other lithologies and are interpreted as late-stage intrusions.

Both the Koula and Sunbird deposits are situated within the same package of mafic rocks as the Ancien deposit, which is informally referred to as the Ancien–Koula corridor. Similar to Ancien, both Koula and Sunbird are hosted within a strongly foliated/sheared thoeliitic basalt unit within a broader sequence of pillow basalt.

At the Ancien, Koula, and Sunbird deposits, significant mineralization is restricted to the more reactive and competent tholeiitic basalt unit and is best developed in zones of strong brittle–ductile brecciation and shearing, with selective sericite ± silica alteration and intense quartz and quartz–carbonate veining. Mineralization occurs as free gold, predominantly as small grains within microfractured milky-white quartz veins and associated with pyrite and lesser pyrrhotite at Ancien, that trends to being more pyrrhotite dominant at Koula. Generally lower-grade mineralization is also developed at the margins of felsic porphyries that intrude the tholeiitic basalt, and in zones of increased brecciation and veining within these porphyries.

Gold mineralization at the Boulder and Agouti prospects is associated with strongly foliated or mylonitized, quartz/quartz–carbonate veined basalt and the margins of the felsic intrusions. Generally lower-grade mineralization occurs internal to the felsic intrusions where they are brecciated or extensively veined. The highest gold grades generally correlate with the intersection of north–northeast- and northwest-trending structures. Mineralization occurs as free gold within a network of milky white quartz veins and associated with foliation or quartz/quartz–carbonate vein-controlled pyrite and minor pyrrhotite.

25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

Drill holes drilled under Newcrest and Roxgold Sango management in the period 2016 to 2023 have data collected using industry-standard practices. Drill orientations are appropriate to the orientation of the mineralization and core logging meets industry standards for exploration of an orogenic lode-style gold deposit.

Geotechnical logging is sufficient to support Mineral Resource estimation with the data used to support the definition of pit slope angles and designs for each of the six open pits.

Collar and downhole surveys have been performed using industry-standard instrumentation. Any uncertainties in survey information have been incorporated into subsequent resource confidence category classification.

All collection, splitting, and bagging of channel and core samples were carried out by Newcrest or Roxgold Sango personnel since 2016 representing 100 % of all information used in the estimation of Mineral Resources and Mineral Reserves. No material factors were identified with the drilling programs that could affect Mineral Resource or Mineral Reserve estimation.

Sample preparation and assaying for samples that support Mineral Resource estimation has followed approximately similar procedures for most drill programs since 2016. The preparation and assay procedures are adequate for the type of deposit, and follow industry standard practices.

Sample security procedures met industry standards at the time the samples were collected. Current core and pulp sample storage procedures and storage areas are consistent with industry standards.

Assay data are electronically reported from the laboratory in Microsoft Excel and pdf format and imported into the database after validation, along with the corresponding assay certificates.

The quality assurance/quality control (QAQC) program involves establishing appropriate procedures and the routine insertion of certified reference material (CRMs), blanks, and duplicates to monitor the sampling, sample preparation and analytical process. Evaluation of the QAQC data indicates that the analytical data are sufficiently accurate and precise to support the Mineral Resource and Mineral Reserve estimation.

25.5 Data Verification

Paul Weedon

Mr. Weedon visited the Séguéla Project on multiple occasions and during these visits reviewed the geological interpretations and drill core. He is of the opinion that the data verification programs performed on the data collected from exploration are adequate to support the geological interpretations, the analytical and database quality, and Mineral Resource estimation at the Séguéla.

Eric Chapman

Mr. Chapman has personally verified data used in the Mineral Resource estimates, including the supporting database, collars and downhole surveys, geological logs and assays, estimation parameters, and mine reconciliation.

Mr. Chapman is of the opinion that the geological and assay data stored in the database is representative of that reported from the laboratories and is suitable for usage in Mineral Resource estimation.

Monthly and quarterly QC reports detailing results for exploration drilling, infill drilling and channel sampling is received and reviewed by Mr. Chapman on an ongoing basis. Any discrepancies identified are immediately followed up with site staff for further investigation.

To further verify the assay data, Mr. Chapman has randomly selected assay data from the database and compared the assay results stored to that of the original assay certificates. Mr. Chapman is of the opinion that the geological and assay data stored in the database is representative of that reported from the laboratories and is suitable for usage in Mineral Resource estimation.

Raul Espinoza

Mr. Espinoza has reviewed on site the current mining methods, road access, and verified the Mineral Reserve estimation methodology including documents and discussions with relevant Roxgold personnel regarding permitting, metallurgical testwork and processing, environmental monitoring, operating and capital expenditure requirements with Roxgold Sango personnel.

Mr. Espinoza is of the opinion that the parameters used for the estimation of Mineral Reserves based on the proposed mining method, geotechnical studies, operational, processing and cost estimates are reasonable and representative for the Project.

Mathieu Veillette

Mr. Veillette has been providing technical support to Séguéla since October 2022. Mr. Veillette helps coordinate and manage the Engineer of Record for the TSF and water management and provides support with respect to geotechnical and hydrogeological aspects for the open pits and waste dumps. Mr. Veillette has reviewed all technical documents related to geotechnical, tailings and water for the operation. During Mr. Veillette's most recent site visit from Sep 30 to Oct 4, 2023, he performed an internal audit on the TSF, water management, waste dump and open pit geotechnical/hydrological aspects. Most of the recommendations for further work are based on water management related tasks and the mine has created a plan to follow through on all of these recommendations. Mr. Veillette had numerous discussions with the Mine Manager, Responsible Tailings Facility Engineer, Environmental Superintendent for water management, project personnel and geotechnical engineers.

Paul Criddle

Mr. Criddle has reviewed the extensive body of metallurgical investigation comprising several phases of testwork and, in addition, has been personally involved in the development and construction of the Séguéla Project. In the opinion of Mr. Criddle, the Séguéla metallurgical samples tested, and the ore that is presently treated in the plant is representative of the orebody as a whole in respect to grade and metallurgical response. Differences between deposits are minimal with regard to recovery.

25.6 Metallurgical Testwork

Previous owner, Newcrest, conducted a round of Leachwell assay test work on 61 samples from drill hole SGDD001 in 2018. Comparison of the Leachwell tests to fire assays for the samples set (four-hour bottle roll used for leach testing of a nominal 1 kg sample) demonstrated a near 1:1 correlation of results. This was used to conclude that the material is non-refractory, and therefore amenable to standard carbon-in-leach (CIL) treatment for extraction.

Roxgold supervised the metallurgical testing work completed by the ALS Metallurgy assay lab in Perth, Australia on representative samples from the Antenna, Agouti, Boulder, Ancien, Koula and Sunbird deposits between 2019 to 2023. Seven test work programs were performed.

As the Antenna deposit hosts the majority of the estimated Mineral Reserves and this ore will be the majority of mill feed ore projected for the life-of-mine plan (LOMP). As a result, this mineralization was examined more comprehensively and represents the basis for the mineral processing design criteria. Satellite deposits in the form of the Agouti, Boulder, Ancien, Koula and Sunbird were also tested throughout the seven programs for confirmation purposes and in support of Mineral Resource and Mineral Reserve estimation. Test work included comminution test work, head assays, mineralogical analysis, grind establishment test work, gravity gold recovery and cyanide leach test work, flotation test work, carbon adsorption test work, oxygen uptake test work, preg-robbing test work, cyanide detox test work, sedimentation and rheology test work, and acid mine drainage test work.

Samples tested were reasonably competent with average Bond rod and ball mill work indices of 21.8kWh/t and 19.7 kWh/t respectively. The results showed the mineralization was amenable to a simple comminution circuit design.

The test work showed that leaching is substantially complete within 24 hours and there is no apparent preg-robbing or refractory characteristics in the ores tested. Furthermore, it showed a fast-initial leaching rate with more than 80% of the stage extraction completed within the first two hours of cyanidation. The highest gold recovery was achieved for tests incorporating gravity recovery and elevated dissolved oxygen levels for the duration of the leach.

The ore tested across all deposits exhibited a degree of grind sensitivity with an optimal grind size of 75 µm selected for all extraction test work. The results of that program were very encouraging, indicating free milling of the ore with good leach kinetics and overall recoveries averaging 94.5 %.

25.7 Mineral Resource Estimation

The Séguéla Project is located in a geological setting that is known to host significant gold deposits.

The Mineral Resource estimate incorporates data RC and DD drilling as of June 30, 2023, that targeted the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits. Based on the analysis of quality control results available for the relevant drilling, the received data is considered acceptable for use in the Mineral Resource estimates.

Geological modelling was based on radial basis function interpretation of lithological logging data. Mineralization modelling was based on sectional interpretations, which were "snapped" to drill holes during digitization, based on fire assays and lithological logging; as well as use of the 'vein' modelling tool in Leapfrog to delineate discreet stationary mineralized domains. Wireframes were generated for the mineralization, host lithologies, weathering profile, and transported overburden.

A 3D block model was built to cover the entire deposit area, and coded to define a mineralized volume, using Studio RM software. Assay results were used to interpolate gold grades into the relevant mineralization block using a combination of OK and ID techniques. The estimated block model was validated both visually and statistically.

Mineral Resources potentially amenable to open pit mining methods were constrained within pit shells and Mineral Resources potentially amenable to underground methods were constrained within MSO shapes.

The QP considers the data collection techniques to be consistent with industry good practice, and suitable for use in the preparation of the combined Séguéla Mineral Resource estimate and reported using the 2014 CIM Definition Standards.

25.7.1 Risks

Environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues could potentially materially affect access, title, or the right or ability to perform the work recommended in this Report on the Séguéla Project. However, as at the effective date of this Report, the QP is unaware of any such potential issues affecting the Séguéla Project and work programs recommended in this Report.

The Mineral Resource estimates could be affected by:

- Metal price and exchange rate assumptions.
- Changes to the technical inputs used to estimate gold content (e.g. bulk density estimation, grade interpolation methodology).
- Changes to the geological interpretation (e.g. post-mineralization dykes and structural offsets such as faults and shear zones).
- Additional depletion due to artisanal mining activities beyond those already identified and excluded from the estimate.
- Changes to geotechnical and mining assumptions, including the minimum mining thickness; or the application of alternative mining methods.

- Changes to process plant recovery estimates if the metallurgical recovery in certain domains is lesser or greater than currently assumed.
- Final negotiated terms of the Mining Convention.
- Changes to governmental regulations.
- Changes to environmental, permitting and social license assumptions.

25.7.2 Opportunities

The Séguéla Project covers the entire greenstone belt exposure which hosts the Antenna, Ancien, Agouti, Boulder, Koula and Sunbird deposits, which is considered to be a strike continuation of the Senoufo greenstone belt which also hosts the Sissingue, Syama and Tongon gold deposits (held by third parties). Exploration over the Séguéla Project has the potential to expand known mineralization, advance known prospects to drill stage, and discover new prospects.

25.8 Mineral Reserves

A process has been followed to convert the Mineral Resources to Mineral Reserves which is underpinned by a design, schedule, and economic evaluation. Mineral Reserves are only estimated for open pit material. Inferred Mineral Resources were set to waste.

Factors that may affect the Mineral Reserve estimates include: changes to long-term gold price assumptions; fluctuations in commodity price and exchange rate; changes to the current regulatory regime; fluctuations in operating cost assumptions; changes to environmental, permitting and social license assumptions; changes in local interpretations of mineralization geometry and continuity of mineralized zones; changes to geological shape and continuity assumptions; changes to metallurgical recovery assumptions; geotechnical and design parameter changes impacting dilution and mining recovery factors.

25.9 Mining

The mining strategy for the Séguéla Mine is for a mining contractor to execute an agreed mining schedule for the first 5.5 years, after which mining will transition to Owner-operations. The mining schedule sequence pit stages such that material within the Mineral Reserve areas is prioritized by sequencing the mining by the highest grade, lowest waste stripping ore, and meets the throughput and material characteristic type for the plant. A common pool of equipment will be used and scheduled across all of the active pits, so that movement of equipment between the pits is minimized and consumable and spare parts are shared within the fleet.

Two 200 t excavators are scheduled for most material movement over the LOMP, the first unit is already in operation with mobilization of the second unit planned in late 2024. The 200 t excavators are complemented by 120 t, and 80 t excavators for supplementary mining and wall scaling. The combined excavator fleet has sufficient capacity to meet the production requirements of the mine plan at 1.46 Mtpa initially and then ramping up to 1.57 Mtpa from 2025 onwards. It is expected that the fleet of excavators and trucks will be adjusted over the mine life to meet production requirements. A fleet of eight CAT 777E trucks (90 t) is currently being used for production activities at the Séguéla Mine, with mobilization of further eight CAT 777E trucks planned during 2024 with additional units in 2025. Up to 18 trucks are planned for in-pit mining activities, to accommodate hauling from the operating bench to the ROM and waste rock dumps.

25.9.1 Risks

Life of Mine Planning

Change to the projects revenue and cost assumptions could result in smaller final pit designs, a shorter mine life, less ROM tonnes fed into the crusher, and less ounces produced. The operation is most sensitive to gold price, and a significant drop in gold price will likely result in a revised LOMP.

The LOMP assumes that all requisite approvals and permits for the relocation of the communications antenna adjacent to the Sunbird deposit and those required for the plant expansion in 2026 will be obtained. While it is believed that such approvals and permits can be obtained on a timely basis and on acceptable terms, there is no certainty that this will be the case. A delay in permitting would require adjustments to the LOMP.

Wet Season Mining

The contractor's rates take into consideration standard wet seasons as a component of the mining services contract. Extended periods of wet season are a risk for the contractor's ability to deliver the mine plan. An adequate stockpile of mineralized material will be maintained on the ROM pad and in low grade stockpiles to enable plant operations to continue during wet periods.

The risk of pit flooding is de-risked by the muti-pit nature of the Séguéla Mine. In the event of a flooded pit, mining will commence in next priority pit stage with a similar waste stripping ratio.

Geotechnical

The geotechnical parameters applied to pit wall designs are being confirmed in practice. All deposits have at least one starter pit, prior to a cutback to the final pit wall. Earlier pit stages will be used to complete the recommended additional work set out in Section 26.2, as well as assess the geotechnical performance of pit walls prior to committing to the final pit wall design. It is possible that during mining of initial pit stages that a decision is made to adjust the final pit wall designs. This could result in an increased waste stripping ratio, a shallower truck floor, a reduction in ROM tonnes and ounces.

Hydrogeology

Comprehensive hydrogeological data are not available for all pits within the LOMP. Additional pit dewatering design and costs may be incurred once better data is available.

Mining Costs

Cost inflations of labor, diesel, explosives, and mining equipment are possible over the LOMP.

25.9.2 Opportunities

Geotechnical

Further optimization of the geotechnical assumptions as set out in Section 16.4.2 for mine design could result in updated pit designs that contemplates mining less waste by reducing the strip ratio. Further geotechnical work will be completed to assess where there are opportunities to increase batter angles to 90˚and increase berm widths to 10 m to achieve a steeper inter-ramp angle in fresh rock pit walls.

Mining Strategy

Further optimizations of the mining strategy may result in operating cost savings applied across a larger scope as well as optimized mine designs and scheduling.

Open Pit/Underground Optimization

The selection of the most appropriate transition point from open pit to underground mining for the Koula, Ancien and Sunbird deposits may lead to a decrease in waste movement, strip ratio and mining cost.

25.10 Processing and Infrastructure

The comminution circuit consists of a single stage primary crush/SAG milling comminution circuit where ore is drawn from the ROM bin via an apron feeder, scalped via a vibrating grizzly with the undersize reporting directly to the discharge conveyor and the oversize reporting to a primary jaw crusher for further size reduction. All crushed and scalped material is conveyed to a surge bin. Crushed ore and water is fed to the mill.

The mill is operated in closed circuit with hydrocyclones, with cyclone underflow reporting to the mill feed. A portion of the cyclone underflow slurry is fed to the gravity circuit for recovery of gravity gold. The gravity concentrator tailings flow to the cyclone feed hopper, while the gravity concentrate reports to an intensive leach circuit. Gold in solution is recovered in a dedicated electrowinning system.

Screened cyclone overflow is thickened prior to the CIL circuit. Loaded carbon drawn from the CIL circuit is stripped by the split AARL method. The resultant gold in solution is be recovered by electrowinning. Recovered gold from the cathodes is be decanted, dried and smelted in a furnace to doré bars.

The forecast gold recovery rate is 94.5% for the LOMP.

The tailings system consists of a tailings pipeline and associated tailings pumps. The TSF comprises of a side-valley storage formed by two multi-zoned earth-fill embankments, designed to accommodate 13.0 Mt of tailings, and built using the downstream construction methodology, in accordance with industry best practices and standards on tailings management. A 1.5 mm HDPE geomembrane liner is installed over the entire TSF basin area (overlying the compacted soil liner) and on the upstream embankment face. The TSF has an under-drainage system, designed to assist the consolidation of tailings and leakage removal system, comprised of drains underneath the HDPE liner.

A water storage dam is the main collection and storage pond for clean raw and process water.

The power supply is through a connection to the Côte d'Ivoire electricity grid by a 2,400 m tee into the 90 kV powerline from the Laboa to Séguéla substation. The Séguéla substation is fed via an existing 90 kV transmission line from the 225/90 kV Laboa substation. The Laboa substation is part of a 225 kV ring main system around the country where various sources of generation are connected and, being a large ring main, offers a great deal of redundancy at 225 kV. The grid supply from Côte d'Ivoire is, by world standards, economically priced and much more financially favorable than other options including self-generation as the tariff is based on a mix of hydro and thermal generation with a large portion of hydro.

25.10.1 Risks

TSF Design

Future Stages of embankment raises in conjunction with changes in plant production profiles need to be forecast well ahead of schedule. This is necessary due to the method of constructing the downstream embankment and buttress using waste rock. Volumes required need to be sourced via the mining schedule. Future raises also need to take into account geotechnical and environment changes that may occur.

For future embankment raises embankment slopes can be revised as the design progresses. It is envisaged that a potentially steeper downstream slope could be adopted for earlier stages of the facility. The current upstream slope of 3H:1V is common for safe and practical HDPE liner installation can also be considered for minor steepening.

Any changes to the LOMP or throughput may impact upon the tailings management requirements for the site. Any significant increases in total throughput may require an expansion review of the current TSF LOMP design and reconsideration of the closure plan.

Beach Slope

The as-built TSF is based on an average tailings beach slope of 0.8 % (125H:1V). However, the beach slope is heavily dependent on the grind size and the ore blend. Thus, small changes in plant performance or design, ore type, or the ore blend have the potential to change the tailings beach slope and have a positive or negative effect on TSF capacity. Regular monitoring is required.

There are a number of approaches which can be used in response to measured beach slopes that are consistently different to the beach slope used for design. One advantage of staging construction on an annual basis is the ability to modify the design each year based on measured data obtained from the TSF. In these cases, the timing and height of the subsequent embankment raises can be modified to bring the schedule back into line with the design.

Should the measured beach slope be steeper than the design slope, the tailings rate of rise against the TSF embankments is to be faster than expected, and the Stage 1 TSF would reach capacity earlier than the design. It should be noted Stage 1 capacity is 16 months to August 2024. The construction of Stage 2 commenced in July 2023 and is due for completion in June 2024. The extension of the HDPE liner is expected to occur at the end of the dry season.

Tailings Solid and Supernatant Geochemistry

Geochemical testing of the tailings should be continued at points throughout the life of the facility to ensure that initial testing remains valid. Measurements need to continue as part of ongoing operations to ensure information is available on the geochemical behavior of the tailings.

Achieved Densities

The staged TSF embankment crest elevations are based on assumed tailings characteristics and throughput. Changes in these characteristics and/or throughput is result in changes in the achieved densities in the TSF. Similar to the variations in tailings beach slope, this may result in an adjusted construction schedule for the first raise, either earlier or later than the design timing. It is recommended that monitoring of throughput, ore blend, rate of rise and achieved densities be undertaken so that suitable planning and staging of the future embankment construction can occur.

Wet Season Construction

The current wet season has proved to be disruptive causing some delays to deliveries and personnel to site. The road to the Séguéla Project requires upgrading to an all-weather road including culverts, crowing and erosion protection.

Water Management

The diversion ditch crossing the main public road is currently undersized. Two additional 2 x 2m culverts are required to be installed to reduce the risk of breaching the public road.

Rip rap armoring was not completed during original Capex since no waste rock was available. Rip rap armoring as per design is required for the TSF spillway, water storage dam spillway, and diversion ditch to prevent downstream sedimentation and improve dam safety (limit erosion of water retaining structures).

Groundwater Contamination from TSF

There is a low risk that water seepage from the tailings storage facility may contaminate ground water. This risk is mitigated with the use of the HDPE liner underlain by a compacted low permeability subgrade "soil" layer.

Power Supply

The availability and reliability of grid power supply presents a risk; however since the Roxgold Sango commissioned the process plant there has been few power outages of significant duration.

25.10.2 Opportunities

Solar Farm

Investigations into installing a solar farm are ongoing. Should it pass the economic study a solar facility could result in lower electricity prices. It may also provide some level of security around continuous supply to essential services should the main grid fail for extended periods of time.

Decant Barge

The implementation of the TSF Stage 1 design is based on a series of decant towers progressively constructed up the south slope following the path of the supernatant pond as it increases in elevation. Typical design involves a submersible pump located at the base of precast concrete towers surrounded by select porous rockfill and accessed by causeways constructed of general fill. This method is also to be used in Stage 2.

There is potential to implement a system whereby the supernatant pond is decanted via a barge equipped with submersible pump, which moves with the pond as it rises up the south slope during operation of the facility. This system is reliant on numerous factors, including the resultant beach slope (discussed above), and the level of control required over the supernatant pond location.

The viability of a decant barge in lieu of towers is a cost-effective solution which can be investigated further in a later phase of the TSF development, when the operating data is available.

Water Management

It is recommended that a lower design criterion be used than the current plan of 1:100 year, 24-hour storm where the diversion ditch crosses haul roads. This is currently being investigated where operations will take a risk-based approach to minimizing large culvert crossings.

Plant Throughput

The feasibility study identified opportunities to cost effectively increase plant throughput or allow for future expansion to increase nominal throughput to 1.75 Mtpa (i.e. 40 % increase). As a result, allowance in the design is made for inclusion of a secondary ball mill, additional cyclone space in the initial cyclone cluster, and space for additional CIL tanks and a pebble crushing circuit. to allow for expansion via inclusion of additional cyclones.

Currently the plant is running at 180 dtph which is 15 % above design with plans to increase this further with additional de-bottleneck programs and minor capital expenditure.

25.11 Health, Safety, Environmental and Social

The primary environmental approval required to develop the Séguéla Project was obtained on 22nd September 2020 (Decree No.00261 dated 22 September 2020 on ESIA approval for the exploitation of a gold mine in Séguéla department).

Currently, there is no permanent ASM settlement on the identified deposits or nearby, with the presence of only a few hundred of ASM miners from time to time in the project area. The implementation of a stakeholder management plan has ensured a good relationship between Roxgold Sango and the local authorities, village leaders and landowners.

The conceptual closure plan assumes the mine areas will be reclaimed to a safe and environmentally sound condition consistent with closure commitments developed during the life of the project in compliance with the national regulations and IFC standards and other best practices.

25.11.1 Risks

Road Travel

Serious road accidents are a risk throughout most of West Africa. This is contributed to poorly maintained roads, poor lighting after sunset, poorly maintained and operated vehicles, and poor separation between vehicles and pedestrians. Strictly enforced procedures have been put in place to reduce this risk, including mandating the use of professional drivers and restrictions to driving at night. The risk of road accidents will always be present.

Dangerous Goods Transport

Dangerous goods transport, and particularly the transport of cyanide, is managed carefully. Cyanide is transported in accordance with International Cyanide Management Code guidelines with vehicles escorted between the port and site.

Disease/Epidemics

Endemic diseases will be monitored, with a malaria management plan in place to control standing water and mosquito populations.

Unmet Community Expectations

The nearby communities have expectations relating to job creation, community development and improvement in services and infrastructure. Meeting these expectations and minimizing impacts to regional infrastructure and community livelihood is a challenge resulting in possible dissatisfaction with Roxgold Sango and the associated risks of community action against the mining operation and loss of social license to operate. Roxgold Sango is attempting to minimize this risk with its well-established social management plans relating to community development and stakeholder engagement. Roxgold Sango's local training and recruitment plans will optimize the benefits associated with the operation. Furthermore, the government's mining community development fund ensures a direct investment in the development of the communities.

25.11.2 Opportunities

Community Benefits

There is the opportunity to maximize the benefit of the Séguéla Project for local communities as an opportunity for social and economic development including social infrastructures, professional skills and all the other aspects of the Sustainability Development Goals.

Stakeholder Engagement

A good working relationship with local government, state services, traditional authorities, communities and other stakeholders such as the artisanal miners, is in place due to the quality of the early stakeholder's engagement at the project. The opportunity to strengthen these existing relationships will help mitigate the risks to the mining operation due to unmet expectations amongst the community and other stakeholders.

Closure Costs

Although a standard conceptual closure plan has been developed, there is an opportunity to revise it by undertaking additional studies to examine reclamation assumptions and techniques, including progressive reclamation, with the goal of reducing the cost and duration of reclamation at the end of the mine's life.

25.12 Capital and Operating Costs

Capital and operating cost estimates are based on established cost experience gained from current operations, projected budget data and quotes from contractors, manufacturers and suppliers.

The capital costs include all investments in ongoing mine development access for various open pits, brownfield exploration, waste capitalization (stripping) minor mine equipment, plant equipment, permits and others to maintain the mine and plant facilities to sustain the continuity of the operation.

The operating cost provisions for the LOMP that supports Mineral Reserves have been reviewed and includes site costs and operating expenses to maintain the operation and are related to activities performed on the property including mine, plant and indirect costs (related to general services and administrative on site). Other operating expenses include costs associated with gold transportation (distribution), community support activities, management fee from Fortuna corporate and Closure costs.

The QP considers the capital and operating costs estimated for the Séguéla Mine as reasonable based on industry-standard practices and actual costs observed for 2023.

The capital cost estimate consists of sustaining capital, which, for the remaining LOMP totals US$ 188.5 million.

Operating costs for the LOMP are forecasted at US$80/t.

25.13 Economic Analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned. The Mineral Reserves declaration is supported by positive cashflow.

26 Recommendations

Recommendations for the next phases of work have been broken down into those related to ongoing exploration activities at the Séguéla Mine; surface mining activities and studies related to operational improvements and underground potential; processing improvements; hydrogeology studies and environmental, permitting and social activities.

Each recommendation is not contingent on the results of other recommendations and can be completed concurrently. Where appropriate a cost for the recommended work is included, otherwise the cost is included in the capital and/or operating cost for the mine. The budget estimates for the work programs are presented in US$.

26.1 Exploration

It is recommended that the following actions be completed in order to support the ongoing exploration and development:

- Additional definition drilling (infill and extension) where applicable, in order to support potential upgrade of some or all of the Inferred Mineral Resources and extend the known mineralization at an estimated drill cost of $2,000,000 for a total of 11,000 meters of RC and diamond drilling. Drill cost includes all assays, site clearing, work- and standby times as well as drilling costs.
- Routine collection of density measurements should be maintained for core and included for in pit sampling to better establish densities in the block model. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Target down-dip underground potential at each deposit, in particular Ancien, Koula and Sunbird at an estimated drilling cost of $2,000,000 for a total of 8,250 meters of diamond drilling. Drill cost includes all assays, site clearing, work- and standby times as well as drilling cost.
- Review and re-rank existing regional exploration results and prospects followed by selective drill testing of those proximal to the defined Mineral Resource estimates with a drill program estimated at $2,000,000 for a total of 22,500 meters of aircore, RC and diamond drilling. Drill cost includes all assays, site clearing, work- and standby times as well as drilling cost.
- Detailed structural analysis of all deposits, based on high-quality oriented drill core, with a view to developing exploration models for analogue or related systems elsewhere within the Séguéla Project. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.

26.2 Mining

Recommendations for the mining components of the Séguéla Mine should include:

- Revising pit optimization parameters, cost estimates, scheduling, and cashflow forecasts with actual operational data as it is collected. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular company operating costs.
- Conducting a geotechnical investigation into steeper batter angles of 90˚ and wider berm widths of 10 m in fresh rock. This recommendation will cost approximately $30,000.
- Ongoing collection of geotechnical data is required to further refine the geotechnical model, to confirm assumptions made as inputs in this assessment, and to review performance of slopes, batters, and spill berm widths during operations. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular mine operating costs.

- Ongoing assessment of slope, batter and spill berm width performance. This recommendation will be completed in-house annually with existing personnel and will not incur an additional cost above regular mine operating costs.
- Conducting detailed waste rock dump sequencing to increase discounted cashflow. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Reviewing drill and blast parameters in consultation with the mining contractor to identify potential areas of improvement. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Preparing drill and blast designs and procedures to achieve acceptable blasting impacts when blasting close to the TSF. This recommendation will cost approximately $30,000.
- Further optimizations of the mining strategy as well as optimized mine designs and scheduling resulting in a reduction in stripping ratio and overall project waste movement requirements to improve mine economics. This recommendation will be completed in-house with existing personnel and will not incur an additional cost above regular mine operating costs.
- Optimization on the open pit and potential underground mining transition of the Koula, Ancien and Sunbird deposits. Review the optimal transition point from open pit to underground. This recommendation will be completed in-house with existing personnel with the assistance of outside consultants to complete the study. This recommendation will cost approximately $150,000.
- Study the modifying factors applicable to underground mining at the Ancien, Koula, and Sunbird deposits to investigate the potential for converting underground Mineral Resources to Mineral Reserves, including metallurgical test work, geotechnical drilling and study and hydrogeology study. Activities will be completed in-house with existing personnel with assistance from outside consultants to complete the study. This recommendation will cost approximately $700,000.
- Operations should improve pit slope monitoring systems (2 x TM50, prisms and monitoring platform), by providing one system for Antenna and another portable system for the other pits as required at an estimated cost of $150,000.
- Perform a cost analysis and obtain the necessary permits for relocating the telecommunication antenna currently situated at the edge of the Sunbird pit design. It is recommended the relocation study is performed in 2024 to ensure appropriate capital expenditure and time is assigned to the activity to prevent potential delays in mining the Sunbird deposit, planned to commence in the fourth quarter of 2025. This study will be completed using the internal resources and will be part of normal operating costs.

26.3 Processing

Additional recommendations to enhance the confidence in the selected process design and mitigate risks to the operational costs and/or improve mine economics are highlighted below:

- Installation of a substantial filter system to improve the raw water quality. This recommendation will cost approximately $100,000.
- Installation of a reverse osmosis plant to improve elution performance by utilizing potable water rather than filtered raw water, at an estimated budget of approximately $200,000.
- Install a rock breaker at the jaw crusher to improve throughput at an approximate cost of $1.0 M.
- A TSF conceptual study should be completed to investigate the maximum capacity of the current TSF location and any other new potential locations such as open pit co-disposal if no additional area is available for some pits to accommodate future growth This will require a budget of about $50,000.

- Determine the required TSF buttress size for the West and East dams to decrease the consequence classification as per Global Industry Standard of Tailings Management guidelines. This will require moving the tailings delivery and return pipeline trench, powerline and fence alignments along the western area of the TSF. An estimated cost of $1 M will be required during LOMP to execute these activities.
- Further Global Industry Standard of Tailings Management work is recommended, such as revising the dam break analysis once the TSF design is updated as per above and updating of the Operation, Monitoring and Surveillance manual, Trigger Action Response Plan and Emergency Preparedness Response Plan documents is required at an estimated cost of $100,000.
- As per Global Industry Standard of Tailings Management requirements, ongoing visits by the Independent Tailings Review Board and Dam Safety Review are recommended at an estimated cost of $80,000.

26.4 Water Management

The numerical model currently being updated should be finalized from the initial steady-state calibrated model to a more refined transient-state model. This will provide a refined estimate of pit dewatering requirements as mining advances at each resource. This information may also be used to inform the operations water balance, anticipate dewatering volumes and provide information for potential additional resources if required, as well as forecasting dewatering drawdown impacts. The estimated cost of updating this model is approximately $50,000.

In addition, it is recommended that a site-wide water balance model be created and updated at an estimated cost of approximately $75,000.

The diversion ditch crossing the main public road is currently undersized, with two additional 2 x 2m culverts required to be installed to reduce the risk of breaching. This work has an estimated cost of $100,000.

Rip rap armoring was not completed during initial construction since no waste rock was available. Rip rap armoring as per design is required for the TSF spillway, water storage dam spillway, and diversion ditch to prevent downstream sedimentation and improve dam safety (limit erosion of water retaining structures). The work has an estimated cost of $600,000.

26.5 Environmental and Social

26.5.1 Data Collection

Continue the environmental and social monitoring focusing on biodiversity, water management and air quality.

26.5.2 Stakeholder Engagement

Continue to engage effectively with all the stakeholders as the mine matures. Pay particular attention to local authorities and communities, persons directly affected by the mine (landowners and farmers) and the ASM.

26.5.3 Land Access

Ensure that the land access and Resettlement Action Plan are executed according to the agreements signed with all the concerned stakeholders.

26.5.4 Acid Rock Drainage

Continue to perform periodic geochemical testing of the plant tailings and mine waste rock to assess their acid rock drainage and metals leaching potential to confirm initial Project assessments.

26.5.5 Closure Plan

Commission a study to evaluate the environmental, social and financial benefits of doing progressive rehabilitation during the life of mine, including the usage of the pits as waste rock dumps. This can reduce the footprint of the infrastructures and their impacts especially on the biodiversity and community land usage, while saving capital and closure costs.

Ensure the closure plan is regularly updated using field data.

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27.2 Abbreviations and Units of Measurement

$	US dollars
%	percent
°	degrees
°C	degrees Celsius
AAS	atomic absorption spectroscopy
AC	air-core
Apollo	Apollo Consolidated Ltd
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
cm	centimeter(s)
CRM	certified reference material
CSA Global	CSA Global Pty Ltd
DD	diamond drill core
FS	feasibility study
g	gram(s)
g/cm^3	grams per cubic centimeter
g/t	grams per tonne
kg	kilogram(s)
km	kilometer(s)
m	meter(s)
mm	millimeter(s)
Mt	million tonnes
Mtpa	million tonnes per annum
Newcrest	Newcrest Mining Ltd
NI 43-101	National Instrument 43 101 – Standards for Disclosure for Mineral Projects
OK	ordinary kriging
oz	troy ounces
PEA	preliminary economic assessment
QA	quality assurance
QC	quality control
Randgold	Randgold Resources
RC	reverse circulation
RCD	reverse circulation with diamond core tail
RPEEE	reasonable prospects for eventual economic extraction

ROM	run of mine
t	tonne(s)
t/m^3	tonnes per cubic meter
TSF	tailings storage facility
UTM	Universal Transverse Mercator

Certificates

Certificate of Qualified Person – Paul Weedon

I, Paul Weedon, Senior Vice President, Exploration of Fortuna Silver Mines Inc. (Fortuna), 200 Burrard Street, Suite 650, Vancouver, BC V6C 3L6, Canada, do hereby certify that:

1. I am a co-author of the technical report entitled "Technical Report for the Séguéla Gold Mine, Côte d'Ivoire" which has an effective date of December 31, 2023 (the "Technical Report").
2. I graduated from Curtin University, Western Australia, in December 1991 with a Bachelor of Science degree in Geology, and a Post Graduate Diploma of Economic Geology (Distinction). I have practiced my profession continuously since 1991. I have worked across all roles of exploration and mining geology, covering open-pit and underground gold mining in production roles up to Technical Services Manager for large-scale, complex operations. My exploration experience extends from project generation through to project development and corporate roles, in addition to roles in corporate development. These roles have been conducted across Australasia, Africa and Latin America. From 2018 to 2021 I was involved with Roxgold Inc. (Roxgold) as Vice President Exploration, closely involved with the Séguéla Project. I have held my current position of Senior Vice President – Exploration for Fortuna since October 2021.
3. I am a professional Geologist and a Member of the Australian Institute of Geoscientists (MAIG #6001).
4. I have read the definition of Qualified Person set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Séguéla Project on multiple occasions since October 2018, with my most recent personal inspection taking place from April 21 to 24, 2023, a duration of four days.
6. I am responsible for Sections 1.1 to 1.5, 1.18 and 1.19.1; Sections 2 to 10; Sections 12.3, 12.4.1, 12.4.2 and 12.9; Sections 25.1 to 25.5; Section 26.1, and Section 27 of the Technical Report.
7. I am not independent of Fortuna as independence is defined in Section 1.5 of NI 43-101.
8. I have been involved with the Séguéla Project since 2018.
9. I have read NI 43-101, and the sections of the technical report for which I am responsible for have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth, Australia, February 16, 2024.

[*"Signed"*]

Mr. Paul Weedon, MAIG

Senior Vice President – Exploration

Fortuna Silver Mines Inc.

Certificate of Qualified Person – Eric Chapman

I, Eric Chapman, Senior Vice President, Technical Services of Fortuna Silver Mines Inc. (Fortuna), 200 Burrard Street, Suite 650, Vancouver, BC V6C 3L6, Canada, do hereby certify that:

1. I am a co-author of the technical report entitled "Technical Report for the Séguéla Gold Mine, Côte d'Ivoire" which has an effective date of December 31, 2023 (the "Technical Report").
2. I graduated with a Bachelor of Science (Honors) degree in Geology from the University of Southampton (UK) in 1996 and a Master of Science (Distinction) degree in Mining Geology from the Camborne School of Mines (UK) in 2003. I have been practicing as a geoscientist and preparing resource estimates for approximately 20 yearsm and have completed more than 30 resource estimates for a variety of deposit types such as epithermal gold/silver veins, porphyry gold deposits, and volcanogenic massive sulfide deposits. I have completed at least 15 Mineral Resource estimates for precious metal projects over the past five years.
3. I am a Professional Geologist of the Engineers and Geoscientists of British Columbia (Registration No. 36328) and a Chartered Geologist of the Geological Society of London (Membership No. 1007330).
4. I have read the definition of Qualified Person set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Séguéla Project on multiple occasions with my most recent personal inspection taking place from October 10 to 15, 2023, a duration of six days.
6. I am responsible for Sections 1.6, 1.8, 1.18; Section 2.4; Section 11; Sections 12.1, 12.2, 12.7, 12.9; Section 14; Sections 25.5 and 25.7; the introductory paragraph to Section 26; and Section 27 of the Technical Report.
7. I am not independent of Fortuna as independence is described by Section 1.5 of NI 43–101.
8. I have been involved with the Séguéla Project since August 2021.
9. I have read NI 43-101, and the sections of the technical report for which I am responsible for have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, Canada, February 16, 2024.

[*"Signed"*]

Mr. Eric Chapman, P.Geo.

Senior Vice President – Technical Services

Fortuna Silver Mines Inc.

Certificate of Qualified Person – Raul Espinoza

I, Raul Espinoza, Director of Technical Services for Fortuna Silver Mines Inc. (Fortuna), 200 Burrard Street, Suite 650, Vancouver, BC V6C 3L6, Canada, do hereby certify that:

1. I am a co-author of the technical report entitled "Technical Report for the Séguéla Gold Mine, Côte d'Ivoire" which has an effective date of December 31, 2023 (the "Technical Report").
2. I graduated with a Bachelor of Science degree in Mining Engineering from Pontificia Universidad Catolica del Peru in 2001 and a Master of Engineering Science in Mining from Curtin University, Australia, in 2014. I have practiced my profession for 22 years and been preparing Mineral Reserve estimates for approximately 11 years. My experience has covered operational, technical, managerial and consultancy functions for open pit mines, from early-stage projects through to producing mines in Argentina, Peru, Chile, Australia, and Canada.
3. I am a Fellow of the Australasian Institute of Mining and Metallurgy and registered as a Chartered Professional in Mining – FAusIMM (CP) with Membership No. 309581.
4. I have read the definition of Qualified Person set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Séguéla Project on multiple occasions with my most recent personal inspection taking place from June 17 to 23, 2023, a duration of seven days.
6. I am responsible Sections 1.9, 1.10, 1.12 to 1.18, 1.19.2 and 1.19.5 and the introductory paragraph to Section 1.19; Section 2.4; Sections 12.8 and 12.9; Section 15; Sections 16.1, 16.4 to 16.9; Sections 18.1, 18.2, 18.8 to 18.16, and the introductory paragraph to Section 18; Section 19; Section 20; Section 21; Section 22; Section 23; Section 24; Sections 25.5, 25.8 to 25.13; Sections 26.2, and 26.5 and Section 27 of the Technical Report
7. I am not independent of Fortuna as independence is described by Section 1.5 of NI 43–101.
8. I have been involved with the Séguéla Project since June 2022.
9. I have read NI 43-101, and the sections of the technical report for which I am responsible for have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, Canada, February 16, 2024.

[*"Signed"*]

Mr. Raul Espinoza, FAusIMM (CP)

Director of Technical Services

Fortuna Silver Mines Inc.

Certificate of Qualified Person – Mathieu Veillette

I, Mathieu F. Veillette, Director, Geotechnical, Tailings and Water for Fortuna Silver Mines Inc. (Fortuna), 200 Burrard Street, Suite 650, Vancouver, BC V6C 3L6, Canada, do hereby certify that:

1. I am a co-author of the technical report entitled "Technical Report for the Séguéla Gold Mine, Côte d'Ivoire" which has an effective date of December 31, 2023 (the "Technical Report").
2. I graduated with a Bachelor of Science degree in Civil Engineering in 1997 from Queen's University and a Graduate Diploma Business Administration from Simon Fraser University in 2018. I have practiced my profession continuously for 25 years in geotechnical and water management related fields. The majority of my experience has been in the mining industry including international projects on all stages of the mining process from advanced exploration through decommissioning and reclamation. My relevant work experience includes analysis, site investigations, design, construction, dewatering and operation of open pits, waste dumps, heap leach pads, tailings storage facilities, process ponds, water dams, diversion structures and other mining facilities in Canada (BC, QC), USA (CO, UT, NM, AZ, MT, AK, SC), México, Panamá, Venezuela, Guyana, Peru, Chile, Argentina, Bolivia, Australia, New Zealand and New Caledonia.
3. I am a Professional Engineer of the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Registration No. 28397), also a Professional Engineer in Colorado (Registration No. 36639) and Alaska (Registration No. 10914).
4. I have read the definition of Qualified Person set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Séguéla Project on multiple occasions with my most recent personal inspection taking place from September 30 to October 4, 2023, a duration of five days.
6. I am responsible for Sections 1.18, 1.19; Section 2.4; Sections 12.5, 12.8 and 12.9; Sections 16.2, 16.3 and 16.9; Sections 18.3 to 18.7 and 18.16; Sections 25.5, 25.9 and 25.10; Sections 26.2 to 26.4; and Section 27 of the Technical Report.
7. I am not independent of Fortuna as independence is described by Section 1.5 of NI 43–101. I am a Fortuna employee.
8. I have been involved with the Séguéla Project since August 2022.
9. I have read NI 43-101, and the sections of the technical report for which I am responsible for have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, Canada, February 16, 2024.

[*"Signed"*]

Mr. Mathieu F. Veillette, P.Eng.

Director, Geotechnical, Tailings and Water

Fortuna Silver Mines Inc.

Certificate of Qualified Person – Paul Criddle

I, Paul Criddle, Technical Consultant for Fortuna Silver Mines Inc. (Fortuna), 33/2 Doepel Street, North Fremantle, Western Australia do hereby certify that:

1. I am a co-author of the technical report entitled "Technical Report for the Séguéla Gold Mine, Côte d'Ivoire" which has an effective date of December 31, 2023 (the "Technical Report").
2. I graduated from Murdoch University, Western Australia in January 2001 with a Bachelor of Science (Extractive Metallurgy). I have practiced my profession continuously since 1998, working full time as an undergraduate, prior to graduating in 2001. In the first stage of my career, I worked in gold projects for Placer Dome in Australia, Papua New Guinea and Tanzania. Initially my experience was focussed on operating and optimizing processing plants and mines in these jurisdictions. In the last 20 years of my career, I have been focused on development projects in Senegal, Ghana, Burkina Faso and Cote dÍvoire. From 2013 to October 2022, I was the Chief Operating Officer of Roxgold Inc. (Roxgold) and was responsible for the development of the Séguéla Project through the Preliminary Economic Assessment and Feasibility Studies, and subsequent permitting and construction. I was based in Roxgold's Toronto and Perth headquarters where I was part of the corporate executive team. From October 2022, I have been consulting to Fortuna on a technical basis.
3. I am a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM #309804).
4. I have read the definition of Qualified Person set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Séguéla Project on multiple occasions with my most recent personal inspection taking place from July 27 to 29, 2022, a duration of three days.
6. I am responsible for Sections 1.7, 1.11, 1.18 and 1.19.3; Section 2.4; Sections 12.6 and 12.9; Section 13; Section 17; and Sections 25.5, 25.6 and 25.10; Section 26.3; and Section 27 of the Technical Report.
7. I am not independent of Fortuna as defined in Section 1.5 of NI 43-101.
8. I have been involved with the Séguéla Project since April 2019.
9. I have read NI 43-101, and the sections of the technical report for which I am responsible for have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth, Australia, February 16, 2024.

[*"Signed"*]

Mr. Paul Criddle, FAusIMM

Technical Consultant