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SERABI GOLD PLC.

PALITO MINING COMPLEX

NI 43-101 TECHNICAL REPORT

PARA STATE, BRAZIL

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Report Prepared by

NCL Ingeniería y Construcción SpA

Signed by Qualified Persons:

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1 Summary

1.1 Introduction

This report was prepared as a Canadian National Instrument 43-101 (NI 43-101) Technical Report (Technical Report) for Serabi Gold plc (Serabi or Company) by NCL Ingenieria y Construccion SpA, Santiago, Chile, on the Palito Mining Complex, which consists of the Palito and São Chico gold deposits in Pará State in central north Brazil. The Palito Mining Complex is part of the Jardim do Ouro property (JDO). The JDO property could be considered a Tier 1 property, according to the definition of Corporate Finance Manual, of the TSX. JDO is a group of claims in the Tapajós valley, in the Brazilian Amazon, famous for its gold endowment. The property is formed by twenty-six claims of different types, totalling 64,707 hectares.

Serabi is a United Kingdom registered and domiciled gold mining and development company based in London, England. The Company's principal assets are its gold operations in the Tapajós region in the State of Para in Brazil, comprising the Palito Complex, which it holds through its wholly owned subsidiaries Serabi Mineração S.A. and Gold Aura do Brasil Mineração Ltda (GOAB) and the Coringa Gold project which it holds through its wholly owned subsidiary Chapleau Mineral Exploração Ltda. The Coringa gold project is not considered in this Technical Report.

NCL Ingeniería y Construcción SpA ("NCL") was responsible for the compilation of information and preparation of the overall study.

1.2 Property Description and Ownership

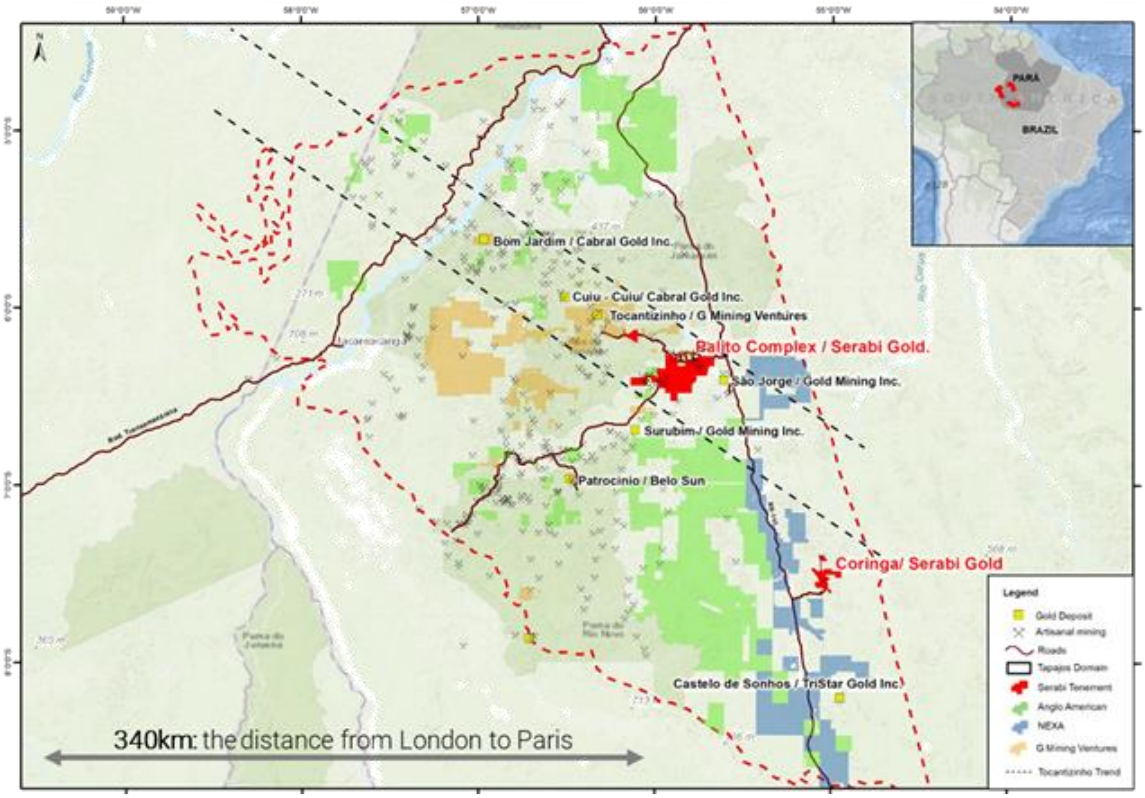
The Jardim do Ouro property is in the Tapajós Mineral Province in the southeast part of the Itaituba Municipality in the west of Pará State in central north Brazil, near the eastern municipal boundary with the Novo Progresso Municipality (Figure 1-1).

The most important feature of the property is Palito Mine, which lays some 4.5km south-west of the village of Jardim do Ouro and approximately 15km via road. This village lies on the Transgarimpeira Road some 30km WSW of the town of Moraes de Almeida, located on the junction of the Transgarimpeira and the BR 163 or Cuiabá – Santarém Federal Highway. Moraes de Almeida is approximately 300km south south-east by road of the municipal capital and similarly named city of Itaituba.

Serabi initially acquired the surface rights to the immediate Palito Mine area through a purchase agreement with the existing "garimpeiros" (artisanal miners) entered in 2002 and since that time has acquired from other garimpeiros and/or farmers additional parcels of land with the intention of securing the surface rights. It has also entered into agreement with other parties for access rights in return for making monthly rental payments.

The Palito Mining Complex is formed by 64,707 ha of tenements, including 1,150 ha of mining concession. In addition, there are 2,877 ha in mineral exploitation application, 41,588 ha in mineral exploration licenses, 15,896 ha in three extension requests for exploration licences and 2 applications for exploration comprising 3,196 ha. The mining concession and exploration licenses are issued to Serabi Mineração S.A., which is the wholly owned Brazilian subsidiary of Serabi Gold plc.

Figure 1-1: Location and Access Map



Source: Serabi, 2023

1.3 Geology and Mineralization

The Palito and São Chico gold deposits are located within the northern portion of the Tapajós-Parima Orogenic Belt (TPOB), a constituent of the Ventauri-Tapajós province of the Guaporé Shield. Formed between 2.5 and 1.8 Ga, the TPOB is a northwest oriented magmatic arc bound to the north by the Amazonian Basin and to the south by the Cachimbo Graben. Within the TPOB, the Tapajós Gold Province hosts numerous primary gold deposits over an area of approximately 300 kilometers (km) by 350 km.

Mineralization at the Palito and São Chico deposits is hosted in granite and granodiorite of the Paráuari suite. Mineralization at the Palito Mine is hosted within three granitoids and is intimately associated with northwest-southeast vertical to sub-vertical mesothermal quartz-chalcopyrite-pyrite veins and pyrite disseminations filling the brittle-ductile fault sets. At Palito, the nature of sulphide mineralization varies along the strike and plunge extents of the deposit. Pyrite and chalcopyrite dominate in the granites, whereas pyrrhotite and pyrite with lesser chalcopyrite are found in the granodiorite. Within the granodiorites, the pyrrhotite-pyrite sulphides tend to be lower grade due to lower chalcopyrite content.

The Main Vein at São Chico strikes in a broadly west-northwest direction, dips steeply to the south, and ranges from approximately 1.0 to 3.9 meters (m) in apparent width. Mineralization extends approximately 140 m down dip and approximately 100 m along strike and is open down dip and plunging to the west; to the east, mineralization is open for a minimum of 80 m along strike. The fault

zone is variably mineralized, with both sinuous and regular quartz veining, pyrite, sphalerite, galena, chalcopyrite, and electrum.

Existing bonanza gold grades are associated with massive chalcopyrite-pyrite blowouts within the quartz veins. The principal vein system at Palito has a strike length more than 900m along broadly N306°, however this varies from N300° to N325° locally. Individual veins average widths of approximately one metre, varying between 20 cm and up to 4 m.

Secondary gold deposits are also encountered immediately above the mineralised veins, within the regolith profile. These deposits generally manifest themselves within the residual saprolite and laterite portions of the profile and are developed through the weathering process and often upgrade the primary gold grades within the narrow-weathered vein through a supergene enrichment process, which also enlarges the footprint of the sulphide vein mineralisation.

The secondary deposits contain free primary gold within the oxidised sulphides in the vein material and free gold associated with the secondary iron oxides (goethite, hematite) along fractures and joint planes within the saprolite adjacent to the veins and in pisolites and lateritic cements at the paleo-surface above the vein.

The secondary deposits are generally not high tonnage deposits, as the residual saprolite profile is only around 5-8m depth, underlying up to 5m of barren transported cover. However, they can be up to 10 times broader than the source mineralised vein, due to weathering dispersion of the gold.

The mineralogy and textures of the deposits at the Palito Mining Complex is consistent with a model for an intrusion related mesothermal gold-copper mineralization. This relatively new classification of gold deposits is associated with granitic rocks and are best developed above and surrounding small, granitic intrusions. Mineralization styles can manifest as stockworks, breccia, skarns and lode style veins, and have a clear metal association zonation.

1.4 Exploration

Exploration in the Jardim do Ouro Project area commenced with RTDM from 1994 to 1997. Early work focused on testing the depth potential of the near surface garimpeiros (artisanal miners) in the primary sulphide zones.

Exploration work by Serabi on the Palito properties has been ongoing since 2003, with surface exploration, geological mapping, rock chip sampling, shallow auger drilling and diamond drilling programs completed. Since initial exploration, airborne, ground, and downhole geophysical surveys have been executed to better constrain the known mineralization on the property and define new potential targets.

1.5 Mineral Processing and Metallurgical Testing

Extensive metallurgical studies have been conducted on Palito and São Chico ores to evaluate process options that included gravity concentration, flotation, and cyanidation. The following general observations can be made regarding the metallurgical programs that have been conducted:

- Both the Palito and São Chico ores are highly amenable to conventional processing techniques to recover the contained metal values mainly gold and copper.
- Palito ore is processed using a flowsheet that includes crushing, grinding, copper flotation and CIP cyanidation of the copper flotation tailings.

- São Chico ore is processed using a flowsheet that includes crushing, grinding, gravity concentration and cyanidation of both the gravity concentrate and the gravity tailing.
- Plant performance as presented in Section 17.4 is very similar to the results predicted from the metallurgical test program, even though the metallurgical test samples cannot be considered fully representative of the ore actually fed to Serabi's process plant.
- A relatively new detoxication circuit based on the SO_2/O_2 technology is working as design. This technology is well known in the industry and should be working with no problems despite the change in the regulations on cyanide discharge.
- Serabi uses ore sorting technology (X-ray and colour) on the Palito ore to reduce the levels of waste ore that can enter the processing plant to maximise plant utilisation.

1.6 Mineral Resource Estimate

The Mineral Resource Statement presented herein represents the third and second mineral resource evaluation prepared for Serabi for the Palito and São Chico mines, respectively, in accordance with NI 43-101. The mineral resource estimate prepared by NCL for the Palito Mine considers core drilling and underground chip sampling by Serabi generated during the period mid-2002 to July 2023. For the São Chico Mine, the mineral resource estimate, also prepared by NCL, considers core drilling and chip sampling by Serabi and previous operators during the period September 2011 to July 2023.

The databases used to estimate mineral resources at Palito and São Chico were audited by NCL. NCL believes the current drilling information is sufficiently reliable to interpret with confidence the boundaries for gold mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

NCL used solids designed by Serabi and validated by NCL for the estimation method in 3D using block modelling to evaluate the mineral resources of both mines. Micromine software was used to define the block model and estimate Au grades.

The quantities and grade estimates were estimated by NCL for Palito and São Chico mines having "reasonable prospects for eventual economic extraction" from an underground mine, based on a cut-off grade (COG) of 3.32 g/t gold at the Palito Mine and at the São Chico Mine, assuming a gold price of US$1,950 per ounce (oz), and metallurgical gold recovery of 95% for both mines. The reporting parameters were selected based on production experience on the project.

Condensed Mineral Resource Statements for the Palito and São Chico mines are tabulated in Table 1-1 and Table 1-2 respectively.

Table 1-1: Mineral Resource Statement, Palito Mine as July 31, 2023 (Source: NCL 2023)

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Measured	772.3	11.03	273.8
Indicated	243.0	8.39	65.6
Measured and indicated	1,015.3	10.40	339.3
Inferred	674.2	7.02	152.2

Notes

1) Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2) Mineral Resources are reported inclusive of Mineral Reserves.
3) Figures are rounded to reflect the relative accuracy of the estimates.
4) Mineral Resources are reported within classification domains with no dilution applied at a COG of 3.32 g/t gold assuming an underground extraction scenario, a gold price of US$1,950/oz, metallurgical recovery of 95% and exchange rate of R$ 5.5/US$
5) 3D block model used for Resources estimates

Table 1-2: Mineral Resource Statement, São Chico Mine as July 31, 2023 (Source: NCL 2023)

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Measured	122.5	8.10	31.9
Indicated	28.5	7.07	6.5
Measured and indicated	150.9	7.91	38.4
Inferred	8.2	6.53	1.7

Notes

1) Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2) Mineral Resources are reported inclusive of Mineral Reserves.
3) Figures are rounded to reflect the relative accuracy of the estimates.
4) Mineral Resources are reported within classification domains with no dilution applied at a COG of 3.32 g/t gold assuming an underground extraction scenario, a gold price of US$1,950/oz, metallurgical recovery of 95% and exchange rate of R$ 5.5/US$
5) 3D block model used for Resources estimates

1.7 Mineral Reserve Estimate

The Mineral Reserve Statement presented herein represents the second mineral reserve evaluation prepared for the Palito and São Chico mines, in accordance with NI 43-101. The mineral reserve estimates were prepared by NCL based on the Measured and Indicated mineral resource estimates presented in Section 1.6.

Mineral resources are converted to mineral reserves using the assumptions, parameters and methods discussed in this report. Proven mineral reserves are reported within the Measured classification domain, and Probable mineral reserves are reported within the Indicated classification domain.

Mineral reserves are reported for a total of 32 veins at the Palito Mine and 3 veins at the São Chico Mine. Some Palito veins that contain Measured and Indicated mineral resources do not host areas that could be converted to mineral reserves. This is primarily because of the application of mining dilution and the use of a COG for mineral reserves that is higher than the COG used for mineral resources.

At the Palito and São Chico mines, underground Mineral Reserves are inclusive of mining dilution and mining recovery and are reported at a COG of 4.0 g/t Au assuming a gold price of US$1,800/oz, a 5.0:1 Brazilian Real to U.S. Dollar exchange rate, and metallurgical recovery of 93.2% for Palito and 93.8% for São Chico.

Condensed Mineral Reserve Statements for the Palito Mining Complex are tabulated in Table 1-3.

Table 1-3: Mineral Reserve Statement, Palito Mining Complex as July 31, 2023

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Palito			
Proven	567.8	8.08	147.5
Probable	196.8	6.83	43.2
Total Palito	764.6	7.76	190.8
São Chico			
Proven	46.1	8.20	12.2
Probable	14.1	7.68	3.5
Total São Chico	60.2	8.08	15.6
Palito Mining Complex			
Proven	614.0	8.09	159.7
Probable	210.8	6.89	46.7
Total Palito Mining Complex	824.8	7.78	206.4

Notes

1) Mineral Reserves have been rounded to reflect the relative accuracy of the estimates. Proven Mineral Reserves are reported within the Measured classification domain, and Probable Mineral Reserves are reported within the Indicated classification domain.

2) Proven and Probable Mineral Reserves are inclusive of external mining dilution and mining loss and are reported at a COG of 4.0 g/t gold assuming an underground shrinkage mining scenario, a gold price of US$1,800/oz, a 5.0:1 Brazilian Real to U.S. Dollar exchange rate, and metallurgical recoveries of 93.2% for Palito and 93.8% for São Chico.

3) Serabi is the operator and owns 100% of the Palito Mine such that gross and net attributable mineral reserves are the same.

4) The mineral reserve estimate was prepared by the NCL in accordance with the standard of CIM and NI 43-101, with an effective date of July 31, 2023, and audited and approved by Mr. Carlos Guzmán of NCL, who is a Qualified Person under NI 43-101.

1.8 Mining Methods

Mining of the narrow, near-vertical gold veins at the Palito Complex is undertaken using the shrinkage stoping method. Since the re-opening of the mine in 2014 through July 2023, Serabi mined a total of 1.5 Mt at 7.03 g/t Au (~450 t/d) from Palito and Sao Chico mines.

Shrinkage stoping blocks are defined on the lower level by horizontal development mining along the vein, and a vertical raise is then driven to the top of the stoping block and ladders are installed so that men and materials can access the stope on each subsequent lift as mining advances upward.

Shrinkage stope mining progresses vertically beginning with the drilling of sub-vertical holes using hand-held pneumatic drills (stopers). The drill holes are loaded with explosives and the blasted ore is left in the stope except to the extent it is necessary to draw down the rock to leave an adequate distance between the working floor and the back. The ore left in the stope supports the walls and no installed ground support is typically required. Serabi extracts the broken ore via a series of crosscuts that are driven in waste from a footwall access. After a stope is mined to its full height, load-haul-dump (LHD) units are used to muck the remaining ore from the stope. The LHD units load haul trucks, which then transport the broken ore to the surface.

The life of mine (LOM) production schedule based on Mineral Reserves produces an average annual processing rate that ranges between 271 t/d and 493 t/d (LOM average is 456 t/d). LOM primary development in waste (ramps, footwall accesses and raises) is 34.7 km for the Palito Mine and 2.6 km for the São Chico Mine. Ore mining in the Palito Mine continues until 2028 whereas mining in the São Chico Mine ends in 2027.

The underground equipment fleet, which is owned and operated by Serabi, comprises a mix of older and newer units that are appropriately sized for operation in the relatively narrow stope widths in Palito and São Chico. Haulage from São Chico to Palito has been performed by a haulage contractor using equipment owned, operated and maintained by the contractor.

Mine dewatering is approximately 10 L/sec at the Palito Mine and approximately 17 L/sec at the São Chico Mine. At both mines, water is pumped through a system of staged centrifugal pumps to the portals at the top of the main ramp systems.

Total mine airflow is approximately 5,950 m^3 per minute (210,000 cfm) at the Palito Mine and approximately 1,060 m^3 per minute (63,400 cfm) at the São Chico Mine. At both mines, fresh air is drawn into the mine through the main ramp system and intake raises, distributed throughout the mine, and then exhausted through a series of ventilation raises and adits that connect to the surface.

1.9 Recovery Methods

Serabi operates a 500 t/d plant to process ore from both the Palito and São Chico mines. Palito ore is processed through a flowsheet that includes crushing, ball mill grinding, copper flotation and carbon-in-pulp (CIP) cyanidation of gold and silver values from the copper flotation tailing. Low grade development ore from the Palito mine is upgraded by the ore sorter after crushing and prior to grinding. The São Chico ore is processed in a separate grinding circuit that includes gravity concentration and intensive cyanide leaching of the gravity concentrate. The São Chico gravity tailing is combined and processed with the Palito copper flotation tailing in the CIP cyanidation circuit. Gold and silver values extracted in the CIP circuit are adsorbed onto activated carbon. The “loaded” carbon is then eluted to remove the adsorbed gold and silver values into an upgraded solution that flows through electrowinning cells to recover gold and silver as a cathodic precipitate, which is then fluxed and smelted to produce a final doré product.

Serabi process plant production results for the period 2017 to 2022 are presented in Table 1-4. The following general observations can be made regarding plant production over this period:

- Milled ore tons and recovery have remained relatively consistent for the years 2017 to 2022.
- The milled ore feed grade declined for a period in 2020 for reasons relating to the COVID-19 pandemic.
- In addition to Palito and São Chico ore, old flotation tailing stockpiles were processed by directly feeding into the CIP circuit. Average gold recovery of these tailings was 77.0%

- In July 2022, the company started to process small volumes of ore through the Palito process plant that had been mined from the Coringa gold project.

Table 1-4: Serabi Process Plant Production – 2014-2022

Year	Milled Ore				Flotation Tailings				Total
	Tonnes	Grade Au g/t	Recov. Au %	Au Prod. oz Au	Tonnes	Grade Au g/t	Recov. Au %	Au Prod. oz Au	Au Prod. oz Au
2014	85,987	8.76	77.40%	18,750	0	0.00	0.0	0	18,750
2015	130,298	8.31	90.20%	31,384	18,355	2.60	70.9	1,086	32,470
2016	158,966	8.11	91.90%	38,071	16,716	3.23	75.9	1,320	39,390
2017	172,566	7.11	92.50%	36,520	4,568	3.97	82.9	483	37,003
2018	168,253	7.07	92.90%	35,528	16,466	3.72	84.7	1,647	37,175
2019	177,335	7.02	91.70%	36,710	29,976	4.52	77.8	3,391	40,101
2020	174,276	5.50	91.90%	28,315	39,207	3.13	73.4	2,897	31,212
2021	170,800	6.56	92.80%	33,419	11,530	1.80	64.1	429	33,848
2022	172,404	6.14	93.20%	30,481	2,436	2.01	63.0	1,338	31,819

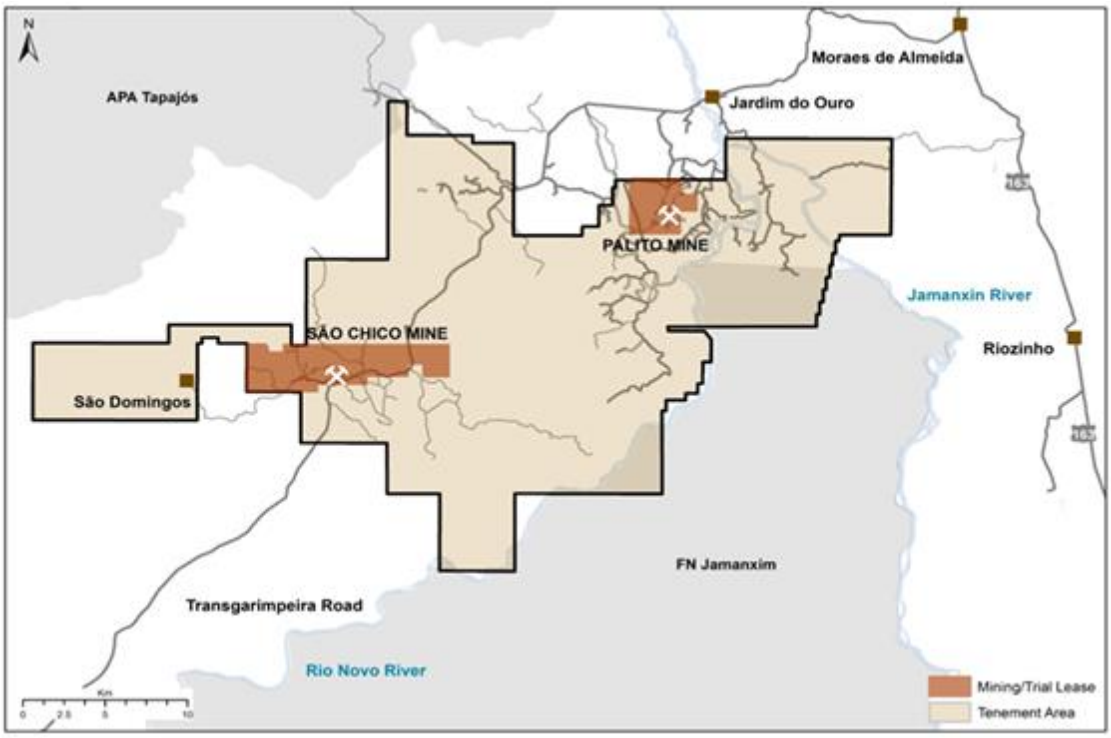
1.10 Project Infrastructure

1.10.1 General Infrastructure

The general onsite infrastructure includes:

- The Palito underground mine
- The São Chico underground mine
- Ore processing facilities
- Tailings disposal areas
- Power supply
- Water supply
- Mine camp (accommodation, offices, workshops and warehouses)
- Access roads and airstrip.

Figure 1-2: Palito and Sao Chico Mines Locations



1.10.1.1 Palito Underground Mine Access

A 4.5 m high x 4.5 m wide ramp system provides access to the underground of the Palito Mine.

1.10.1.2 São Chico Underground Mine Access

A 4.5 m high x 4.5 m wide ramp system provides access to the underground of the São Chico Mine.

1.10.1.3 Process Support Facilities

Serabi operates a 500 t/d plant to process ore from both the Palito and São Chico mines. Palito ore is processed through a process that includes crushing, grinding, copper flotation and carbon-in-pulp (CIP) cyanidation of gold and silver values from the copper flotation tailing. Low grade development ore from the Palito mine is upgraded by the ore sorter after crushing and prior to grinding. The São Chico ore is processed in a separate grinding circuit that includes gravity concentration and intensive cyanide leaching of the gravity concentrate.

1.10.1.4 Palito Mine Camp

The Palito Mine site camp consists of accommodation for 480 personnel, kitchen and dining facilities, offices, warehouses, maintenance facilities, and a guard house at the entrance to the site. Serabi provides a daily bus service for employees and contractors living in Jardim do Ouro and Moraes de Almeida located close by the mine site.

Fuel is stored on site in tanks with a capacity of 80 m^3 of diesel. Fuel storage tanks are located in a contained fuel storage area. There is an explosives storage facility located away from the main offices. The mine has access to telephones, high speed satellite internet, and radio communications. Serabi has built and operates a clinic and hospital at the Palito Mine.

1.10.1.5 São Chico Mine Camp

There is full mining camp at the São Chico Mine that consists of accommodation for 100 personnel, kitchen and dining facilities, offices, warehouses, maintenance facilities, and a guard house at the entrance to the site. Serabi provides a daily bus service for employees and contractors living in Jardim do Ouro and Moraes de Almeida.

Fuel is stored on site in storage tanks with a capacity of 35 m^3 of diesel. Fuel storage tanks are located in a contained fuel storage area. There is an explosives storage facility located away from the main offices.

The mine has access to telephones, high speed satellite internet, and radio communications.

1.10.2 Power Supply and Distribution

1.10.2.1 Palito Mine

Electrical power is provided from the local power grid though a 34.5 kV overland power line and by diesel generators to deliver approximately 1 million kWh/month for installed electric load of 2.5 MW. During the daily peak periods Serabi operates its own diesel generators to generate 380 V electrical. Serabi's power generator station includes the following:

- Two Scania generators: 500 KVA each
- Four Scania generators: 700 KVA each
- Two Aggreko generators: 500 KVA each
- One Aggreko generator: 320 KVA.

The general diesel storage capacity at Palito Mine is 80 m^3 being a 10 m^3 dedicated diesel tank for diesel generation, which provides enough diesel for two days of continuous operation. Approximately 40% of Serabi's power needs are provided by on-site generators and 60% is provided from the grid.

1.10.2.2 São Chico Mine

The power requirement at São Chico is approximately 594 Kw (about 700 kVA), including the underground mine (437 kW), camp and village (94 kW) and surface support facilities (63 kW). The power is supplied by a diesel powerhouse that includes three diesel gensets of 550 kVA (Maquigeral-SDMO/Scania 47N) that operate in parallel with one as standby.

1.10.3 Water Supply

Water is an abundant resource in the area, and the current water supply system is not a limiting factor for operations at the Palito Mine or the São Chico Mine.

The operation has a water supply system consisting of dams that contain water from the following sources:

- Mine water pumped from the underground workings
- Recycled process water after neutralization and decantation
- Rainwater.

The total process water requirement is 40 m^3/h, of which 80% is recycled from the tailing disposal areas (32 m^3/h) and 20% is from the freshwater dam (8 m^3/h).

Fresh drinkable water for use in the camp is supplied by conventional water wells. The total freshwater consumption is approximately 60 m^3/day.

1.10.4 Tailings Disposal Area

Mineral Reserves for both the Palito and São Chico mines are being processed at the Palito processing plant and tailings are disposed into existing clay lined tailings disposal areas (areas 16 and 17) located adjacent to the processing plant. Tailings deposition is being alternated between tailings disposal areas 16 and 17 with one of these areas active and receiving fresh tailings and recycling water to the process while the second area that has become full, is in a drying process. Thereafter, dry tailings are removed from areas 16 and 17 and dry-stacked in the final dry tailing disposal area, the Pilha de Rejeito (PDR). Tailings disposal areas 16 and 17 then are re-used for tailings deposition until the remaining Mineral Reserves are processed.

The Tailings Area 16 has a volume of 114,588 m^3 and area 17 a volume of 145,000 m^3 of capacity. The PDR has a capacity of 3.918,330 m^3, equivalent to 8.6 Mt of dry tailings.

1.11 Environmental Studies and Permitting

In 2006, an environmental impact assessment (Estudo de Impacto Ambiental or EIA) and its respective report of environmental impact (Relatório de Impacto ao Meio Ambiente or RIMA) were completed for the Serabi operations. These documents addressed environmental impacts and proposed compensation, mitigation, and control measures and through adequate monitoring.

The Annual Environmental Information Reports (Relatorio de informação Ambiental annual or RIAA) for the Palito and São Chico mines are presented each year to the Secretary of State for Environment and Sustainability (Sectretaria de Estado de Meio Ambiente e Sustentabilidade or SEMAS) with respect to the socio-environmental actions carried out during the previous year, and cover any specific commitments made to the environmental agency by the operator, as well as those agreements and obligations between the operator and other stakeholders in the project.

Given the results of the two monitoring campaigns in 2022, according to RIAA 2023 (base year 2022), it appears that the internal management such as effluent are within legal standards. Some metals which have levels above normal background levels need further investigation and it appears manganese especially is in a naturally occurring elevated state. No occurrence of lead or cyanide levels above the standard. It is important to highlight that despite the visible situation of illegal mining in the region, mercury levels were never found to be above legal standards.

Palito operates under an Environmental Control Plan (Plano de Controle Ambiental or PCA) approved in 2008 by SEMAS. The PCA formalizes the environmental obligations of the operator that must be carried out in order to minimize impacts during operations. São Chico operates under a separate PCA.

The Serabi operations have been authorized under a series of licenses, as presented in Table 20-1. For each license, related conditions and/or obligations are also listed, along with the respective status. Generally, Serabi has acquired all of the necessary permits to continue with operations; however, at Palito, Serabi continues to wait for SEMAS to act on the installation and operational licenses/permits for Dam 17. No cease and desist orders or notices of violation have been issued by SEMAS for this situation, and Serabi indicates that the agency routinely visits the operation and is aware of the conditions and operations at the site. The last inspection visit occurred during November 2023.

Social and environmental programs have been developed in coordination with the communities deemed to be in the Directly Affected Area (ADA): Jardim do Ouro and São Chico; the Area of Direct Influence (AID), including the district of Moraes de Almeida; and the Area of Indirect Influence (AII), which includes the municipalities of Itaituba and Novo Progresso, from which Serabi obtains much of its labor, material supplies, and services. The programs have included: a dental clinic, improvements to local schools, provision of electricity and treated water, as well as planning for a new health clinic.

The most recent conceptual mine closure plans for Palito and São Chico were updated in 2022. Because Palito is currently operated as an underground mine, only a small amount of surface disturbance exists which requires concurrent reclamation during operations. The former open pit area, Alvo Senna, is no longer in operation. Reclamation of those pits is now complete. São Chico is strictly an underground mine, with ore being sent to Palito for processing. No concurrent reclamation is planned for this location, with the exception of some early artisanal mining areas within the concession.

Based on the current mine plans, Serabi estimates the reclamation and closure costs for the Palito Mine to be on the order of US$ 2.3M, and for the São Chico Mine to be on the order of US$ 620,000. Given the size and extent of the facilities, the known environmental issues surrounding potential surface water and groundwater contamination, and the potential need for more robust engineered closure covers on the tailings impoundments and waste rock piles, it is NCL's opinion that the estimated closure costs are generally appropriate. However, the costs may be higher if there is a need for surface and groundwater remediation and compulsory post-closure monitoring ordered by SEMAS.

1.12 Capital and Operating Costs

Estimated LOM sustaining capital costs are presented in Table 1-5.

Serabi management team provided the budget for 2024 and it was used as the basis for the cut-off calculation that supports the Mineral Reserves and "reasonable prospects for eventual economic extraction" for the Mineral Resources, as per Table 1-6.

Table 1-5: Capital Cost

Capital Costs	Unit	LOM Cost
Mine Fleet	R$ '000	27,794
Accommodation	R$ '000	1,100
Stopers	R$ '000	1,225
Fans and Pumps	R$ '000	2,763
Compressors	R$ '000	2,111
Light Vehicles	R$ '000	2,662
Ventilation	R$ '000	4,072
Plant	R$ '000	6,916
Tailings	R$ '000	1,086
Electrical Installations	R$ '000	6,627
Mine Safety	R$ '000	3,036
Maintenance	R$ '000	2,500
Other & Contingency	R$ '000	12,457
Total	**R$ '000**	**74,349**
Total	**US$ '000**	**14,870**

Table 1-6: Operating Cost

Costs 2024	Unit	Value
Opex	R$ '000	169,429
By product credits	R$ '000	-14,472
Concentrate freight	R$ '000	8,557
Concentrate TC/RC	R$ '000	3,502
CFEM	R$ '000	4,159
Bullion refining	R$ '000	1,800
Total	**R$ '000**	**172,975**
Ore tonnes	t	158,907
Unit Cost	R$/t	1,089
Unit Cost	**US$/t**	**218**

1.13 Economic Analysis

Under NI 43-101 rules, producing issuers may exclude the information required in Section 22 Economic Analysis on properties currently in production, unless the Technical Report includes a material expansion of current production. Serabi is a producing issuer, the Palito Mining Complex is currently in production, and a material expansion is not being planned. Serabi completed economic analysis for the Palito Mining Complex based on the Mineral Reserves stated herein. NCL reviewed Serabi's analysis, and we have verified that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

1.14 Other Relevant Information

There is no other relevant data or information pertaining to the estimation of the mineral resources and reserves at the Palito Mining Complex.

2 Introduction

2.1 Terms of Reference

This report was prepared as an NI 43-101 Technical Report for Serabi by NCL on the Palito Mining Complex, which consists of the Palito and São Chico gold deposits in Pará State in central north Brazil.

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in NCL's services, based on:

i) Information available at the time of preparation.

ii) Data supplied by outside sources.

iii) the assumptions, conditions, and qualifications set forth in this report.

This report is intended for use by Serabi subject to the terms and conditions of its contract with NCL and relevant securities legislation. The contract permits Serabi to file this report as a Technical Report with Canadian securities regulatory authority pursuant to NI 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party are at that party's sole risk. The responsibility for this disclosure remains with Serabi. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

This report provides Mineral Resource and Mineral Reserve estimates, and a classification of resources and reserves prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014 (CIM, 2014).

2.2 Qualified Persons

The consultants preparing this Technical Report (Report) are specialists in the fields of geology, mining, mineral resource and reserve estimation and classification, geotechnical, metallurgical testing and process plant design, capital and operating cost estimation and mineral economics.

None of the consultants or any NCL personnel employed in the preparation of this Report have any beneficial interest in Serabi. The consultants are being paid a fee for their work in accordance with normal professional consulting practice.

The following serve as the QPs for this Report as defined in National Instrument 43 - 101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43 – 101 F1:

- Mr. Carlos Guzmán, RM CMC, FAusIMM, Principal/Project Director, NCL
- Mr. Gustavo Tapia, RM CMC, Metallurgical and Process Consultant, GT Metallurgy
- Mr. Nicolás Fuster, RM CMC, MAusIMM, Geologist

2.3 Site Visits and Scope of Personal Inspection

Mr. Carlos Guzmán visited the site on several occasions since 2008. The most recent site visit was on October 16, 2023, for three days. During the visit he inspected the area of the mine and process

infrastructure to assess topography and reviewed the layout and general site with respect to mine planning and execution. He also viewed drill core.

Mr. Gustavo Tapia visited the site on August 8, 2022, for three days. During the visit he inspected the area of the process infrastructure and tailings facilities to assess topography and general ground conditions.

Mr. Nicolás Fuster visited the on August 8, 2022, for three days. During the visit Mr. Fuster inspected the current mining operations, discussed geology and mineralization and reviewed geological interpretations with staff. Also, he inspected core, sample cutting and logging areas, drilling, geological sampling and logging procedures and the current conditions of the sample storage. Mr. Fuster also checked that data collection was being conducted in accordance with Serabi procedures and industry standards.

2.4 Effective Dates

The Report has an effective date of July 31, 2023, corresponding to the closing date of the database and underground topography used for Mineral Resource and Mineral Reserve estimates.

2.5 Units of Measurement

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated. Serabi's operations incur most capital and operating costs in Brazilian Reals (R$) and, accordingly, R$ values are referenced throughout this report.

2.6 Information Sources and References

This report is based in part on internal Company Technical Reports, previous studies, maps, published government reports, company letters and memoranda, and public information as cited throughout this report and listed in the References Section 27.

3 Reliance on Other Experts

The results and opinions expressed in this report are based on NCL's field observations and the geological and technical data listed in the References (Section 27). While NCL has carefully reviewed all the information provided by Serabi and believes the information to be reliable, NCL has not conducted an in-depth independent investigation to verify its accuracy and completeness.

The authors have not reviewed any legal issues regarding the land tenure, or Serabi corporate structure nor independently verified the legal status or ownership of the Property. NCL has relied upon opinion supplied by Serabi. The authors have not reviewed issues regarding Surface Rights, Road Access, Permits and the environmental status of the Property and have relied upon opinions supplied by Serabi representatives.

The results and opinions expressed in this report are conditional upon the aforementioned geological, costing and legal information being current, accurate, and complete as of the date of this report, and the understanding that no information has been withheld that would affect the conclusions made herein. NCL reserves the right, but will not be obliged, to revise this report and conclusions if additional information becomes known to NCL subsequent to the date of this report. NCL does not assume responsibility for Serabi's actions in distributing this report.

4 Property Description and Location

4.1 Property Location

The Palito Mining Complex is comprised of the Palito and São Chico underground mines which are located in the Tapajós Mineral Province in the southeast part of the Itaituba Municipality in the west of Pará State in central north Brazil, near the eastern municipal boundary with the Novo Progresso Municipality (Figure 4-1).

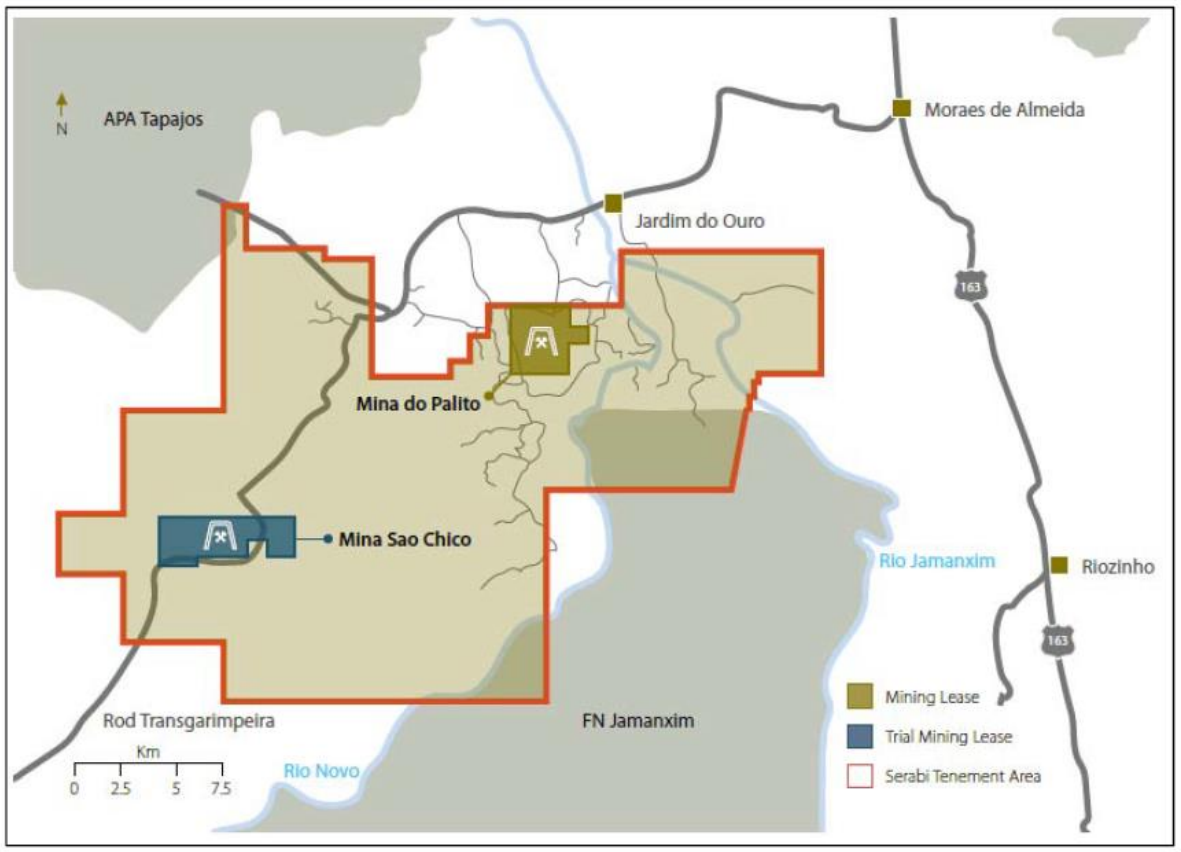
Figure 4-1: Location and Access Map

Source: Serabi, 2023

The most important feature of the property is Palito Mine centered on latitude 6.31˚S and longitude 55.79˚W and includes the adjacent Palito Mineral processing plant. The Palito mine lays some 4.5 km southwest of the village of Jardim do Ouro and approximately 15 km via road. This village lies on the Transgarimpeira Road some 30 km west-southwest of the town of Moraes de Almeida, located on the junction of the Transgarimpeira and the BR 163 or Cuiabá – Santarém Federal Highway. Moraes de Almeida is approximately 300 km south-southeast by road of the municipal capital and similarly named city of Itaituba.

The São Chico underground mine is centered on latitude 6.41˚S and longitude 55.94˚W and lays some 30 km southwest of the Palito Mine. It is accessed by road from the Palito Mine along the Transgarimpeira Highway. The location of the mines can be seen in Figure 4-2.

Figure 4-2: Palito and São Chico Underground Mines



Source: Serabi, 2023

4.2 Mineral Titles

The Palito Mining Complex is formed by 64,707 ha of tenements, including 1,150 ha of mining concession, 2,877 ha in mineral exploitation application, 41,588 ha in mineral exploration licenses, 15,896 ha in three extension requests for exploration licences and 2 applications for exploration comprising 3,196 ha. (Table 4-1).

The mining concession and exploration licenses are issued to Serabi Mineração S.A., which is the wholly owned Brazilian subsidiary of Serabi Gold plc.

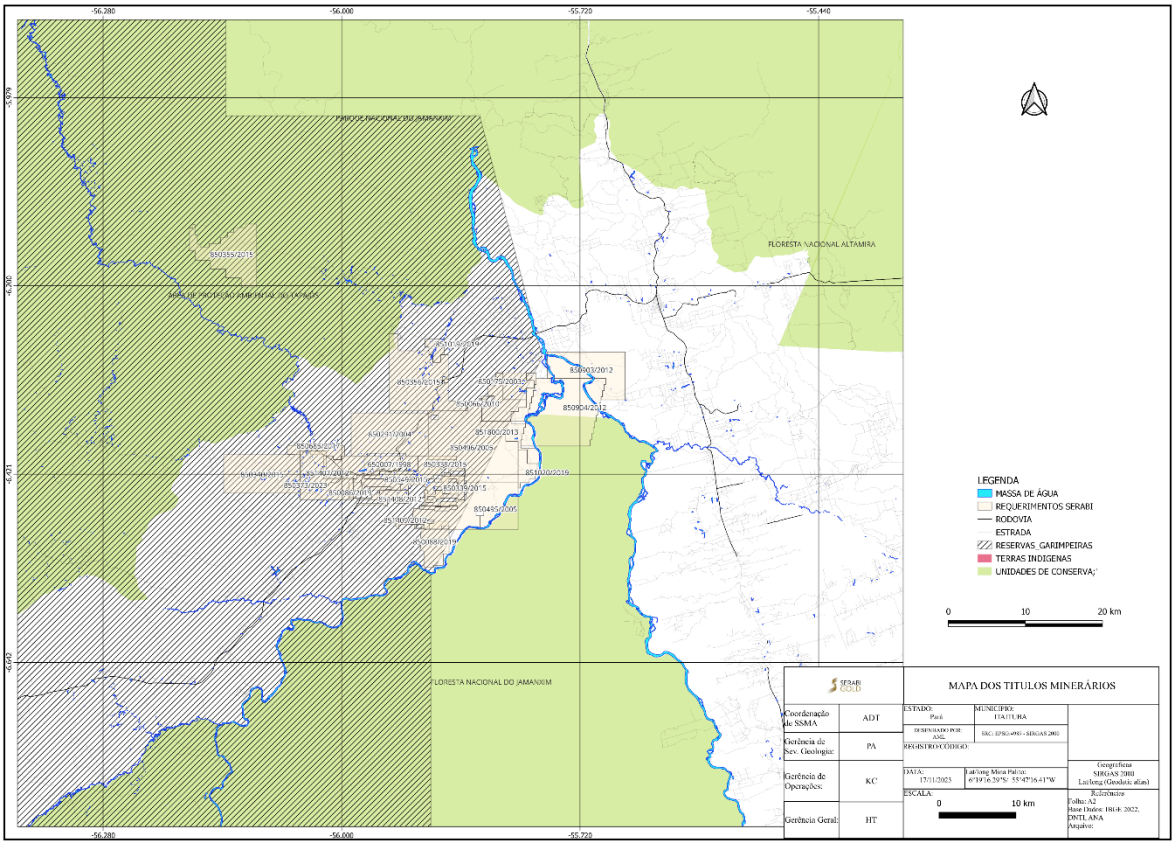
National Mining Agency (*Agência Nacional de Mineração* or "ANM") legislation allows for the extension of up to three years for exploration licenses beyond the initial period of validity, through a process of report presentation and application for an extension.

Exploration extension licenses cannot be renewed and must either be relinquished or can be upgraded to a mining concession through submission of an application including a mineral resource statement, economic assessment and mining plan and schedule. Mining concessions are valid until exhaustion of the resources or cessation of mining.

Table 4-1: Mining Concessions and Exploration Licenses for the Palito Mining Complex

Number	Type	Hectares	Current Annual Commitment	Potential Annual Commitment	Expiration Date
			R$	R$	
850.175/2003	Mining Concession	1,150			None
650.007/1998	Exploitation Application	1,416			12-01-2024
851.407/2012	Exploitation Application	1,461			17-03-2024
850.066/2010	Exploration License	1,811			15-11-2023
850.087/2019	Exploration License	229			13-01-2024
850.291/2004	Exploration License	5,405			26-01-2024
850.572/2014	Exploration License	670			26-01-2024
850.904/2012	Exploration License	7,920			26-01-2024
851.800/2013	Exploration License	1,380			26-01-2024
850.338/2015	Exploration License	1,898			26-01-2024
850.339/2015	Exploration License	1,540			26-01-2024
851.407/2012	Exploration License				26-01-2024
851.408/2012	Exploration License	1,051			26-01-2024
851.409/2012	Exploration License	491			26-01-2024
850.355/2015	Exploration License	4,186			26-01-2024
850.356/2015	Exploration License	6,263			26-01-2024
850.088/2019	Exploration License	1,573			08-03-2024
851.020/2019	Exploration License	789			27-09-2024
851.019/2019	Exploration License	550	2,382.71		15-11-2024
850.549/2015	Exploration License	833	5,399.59		01-12-2024
850.340/2015	Exploration License	4,999	32,393.71		01-09-2025
850.495/2005	Exploration License – extension requested	6,369			
850.685/2017	Exploration License – extension requested	947			
850.496/2005	Exploration License – extension requested	8,580			
850.086/2019	Application for exploration	49		200	
850.373/2023	Application for exploration	3,147		12,871	
Total		**64,707**	**40,176**	**13,072**	

Figure 4-3: Map of Mining Concession and Exploration Licenses



Source: Serabi, 2023

4.2.1 Surface Rights

4.2.1.1 Palito

Serabi initially acquired the surface rights to the immediate Palito Mine area through a purchase agreement with the existing “garimpeiros” (artisanal miners) entered into in 2002 and since that time has acquired from other garimpeiros and/or farmers additional parcels of land with the intention of securing the surface rights. It has also entered into agreements with other parties for access rights in return for making monthly rental payments in the amount of R$11,863.

In total, these surface rights cover a total area of approximately 626 ha out of the total tenement holding of 164,790 ha. Of these surface rights, 367 ha lie within the mining concession. Serabi holds the land possession rights over the remaining 783 ha of the mining concession.

4.2.1.2 São Chico

Waldimiro Martins (WM) originally owned 100% of the São Chico property and in 2006 he entered into an agreement with Ademir and Jandira (A&J), whereby A&J would acquire 100% of the São Chico project. The terms of the agreement are not known.

On November 13, 2006, Gold Anomaly Ltd (GOA) entered into an agreement with A&J whereby GOA could earn up to 60% of the São Chico property. GOA subsequently exercised this option.

In 2008, WM initiated court action against A&J to rescind his agreement with A&J on certain grounds.

On May 12, 2009, the Itaituba Court granted an injunction to suspend the agreement between WM and A&J. This injunction provisionally transferred total control of the São Chico property to WM.

Following the injunction granted May 12, 2009, GOA subsequently entered into an agreement with WM to protect GOA's 60% interest in the São Chico property. Under the terms of this agreement Gold Aura do Brasil Mineração Ltda (GOAB), a wholly owned subsidiary of GOA, would own 100% of the mining rights associated with the São Chico property.

In September 2010 Kenai Resources Ltd (Kenai) entered into an option agreement with GOA whereby Kenai had the option to purchase up to 75% of issued and outstanding shares of GOAB. In December 2011, Kenai entered into a letter agreement with GOA to acquire GOAB and provide Kenai with full ownership of the São Chico project. That transaction was completed, with GOAB becoming a wholly owned subsidiary of Kenai.

In July 2013 Serabi completed the acquisition of the entire share capital of Kenai, with GOAB becoming a wholly owned subsidiary of Serabi.

4.2.2 Royalties, Agreements and Encumbrances

4.2.2.1 CFEM Tax and Royalties

Financial Compensation for Exploration of Mineral Resources (CFEM) is a federal tax levied on production from mining operations and is applicable to the Palito Mining Complex. CFEM taxable basis is the gross revenue less, indirect tax costs associated with the sale of mineral resources. The CFEM rates for gold, silver and copper, the primary products of the Palito Mining Complex, are 1.5%, 2.0% and 2.0% respectively.

The São Chico property is subject to two royalty arrangements:

- A&J have a 3% Net Smelter Royalty (NSR) to a maximum of US$10 million; and
- WM has a royalty of US$3.75/oz of gold production.

4.2.2.2 Obligations Related to Exploration Licenses

To retain the exploration licenses for the Palito Mining Complex, Serabi will need to make annual payments to the ANM, which 2024 are presently calculated as R$40,176 as shown in Table 4-1. Additionally, there are two pending applications for an exploration license (No. 850.086/2019 and 850.373/2023) which, if approved, will require an annual payment of R$13,072.

4.2.2.3 Obligations Related to Mining Licenses

To maintain a mining license, Serabi must comply with the conditions set out by the ANM in respect to annual reporting and environmental compliances, but no taxes are owed, except those incurred on production.

4.3 Environmental Liabilities and Permitting

4.3.1 Environmental Liabilities

Environmental liabilities to which the property is subject include, but are not necessarily limited to:

- Closure and reclamation liabilities associated with the cessation of mining and decommissioning and dismantling of all surface and underground facilities.
- Serabi has not yet received the final approval/licensing from the regulatory agency for one of the two current tailings pond facilities, although the application documentation has been submitted.
- Potential groundwater impacts and possible remediation requirements associated with the detection of cyanide in monitoring well PZ-01; and
- Potential surface water contamination from mining facilities as indicated by elevated constituent concentrations (exact sources currently unknown).

Additional discussion on these issues is provided in Section 20.

4.3.2 Required Permitting

This section discusses the general permits that must be acquired to conduct mining and processing at the Palito and São Chico mines. Additional information on the permits and licenses already obtained and their status is provided in Section 20.

4.3.2.1 Mining Titles

After the mining concession is granted by the National Mining Agency (*Agência Nacional de Mineração* or ANM), the holder must:

- Submit a report on all mining and processing activities (RAL or “Relatorio Anual de Lavra”) for the previous year, including, but not limited to quantities of materials mined and processed; and
- Pay a monthly “royalty” on mining activities (Compensação Financeira pela Exploração de Recursos Minerais or CFEM) which is shared by federal, state, and municipal jurisdictions, depending on the mineral resource in the respective territory.

Any necessary modifications to the approved mine plan need to be submitted to the ANM for approval.

4.3.2.2 Environmental Permitting

The Brazilian National Environmental Policy, established on the August 31, 1981, by Federal Law # 6.938, requires all potentially or effectively polluting activities to have an environmental license.

Applicable rules regarding the licensing procedure were established by resolution #237 of the National Council of the Environment (*Conselho Nacional do Meio Ambiente* or CONAMA) on 19th December 1997. The licensing procedure allows the issuing agency to determine the conditions, limits and measures for the control and use of natural resources and permits the installation and implementation of a project.

The license can be issued by either a federal, state or municipal agency. Authority to issue a license is based on the extent of likely impacts and generally follows the rules established by CONAMA's Resolution # 237/97 listed below:

- Federal entities are responsible for licensing activities that may cause national or regional environment impact (more than two federal States).
- State entities and the Federal District Entity (the area covered by the capital of Brazil, Brasilia) are responsible for activities that may cause State environment impact; and
- Municipal entities are responsible for licensing activities that may cause low local environment impact (within city limits).

During exploration, the Project proponent generally initiates the environmental licensing process, for which they must have the following:

- Vegetation Suppression (supressão vegetal); and
- Environmental Authorization (autorização ambiental de funcionamento).

These preliminary authorizations are issued by the Secretariat of the Environment and Sustainability in the State of Pará (*Secretaria de Estado de Meio Ambiente e Sustentabilidade* or SEMAS). The regulatory framework sets out a three-step environmental licensing process that is conceptually equivalent between SEMAS and the federal Institute of the Environment (*Instituto do Meio Ambiente* or IMA) (although having different names):

- **Preliminary License or *Licença Prévia* (LP)** – establishes the environmental feasibility and viability of the project and approves the concept and location. In order to obtain this license, the regulatory authority must approve the baseline studies, environmental impact assessment (Estudo de Impacto Ambiental or EIA), and environmental impact report (Relatório de Impacto Ambiental or RIMA) and hold formal public hearing(s). The LP established the conditions and agreements for environmental management, mitigation, reclamation and compensation(s) for the project. Negative impacts identified in the EIA/RIMA, may require some form of compensation according to Brazilian Law #9.985/2000, which introduced the System of Conservation Units and determined environmental compensation standards.
- **Installation License or *Licença de Instalação* (LI)** – approves the basic engineering and authorizes the project proponent to implement the project (subject to compliance with specified conditions). In order to obtain this license, the regulatory authority must approve the Environmental Control Plan (*Plano de Controle Ambiental* or PCA). Requirements for reclamation and closure are also defined through the approval of the Reclamation Plan (*Plano de Recuperação de Áreas Degradadas* or PRAD). This license must be obtained prior to the commencement of construction activities. Also at this stage, the project proponent must identify required Legal Reserves. The size of the Legal Reserve depends on state regulation. Each Legal Reserve shall be validated by the Rural Environmental Cadastre (*Cadastro Ambiental Rural* or CAR) or at the Real Estate Notary Office as property of the entrepreneur, according to Federal Law #12.651/2012; and

- **Operations License or *Licença de Operação* (LO)** – confirms that the conditions stipulated in the LI have been met (including evidence that all the environmental programs and control systems were duly installed) and authorizes the commencement of operations. The project proponent will be required to apply for the LO every four to eight years (COPAM 17 edit from 1996), although in practice the licensing body has discretion to invoke a more regular renewal regime. At each renewal time, the operator must provide a detailed report on environmental performance, with particular attention to concurrent reclamation and implementation of the PRAD.

As noted above, for activities where the environmental impact may be considered significant, an environmental impact assessment (the EIA or RIMA in Brazil) must be undertaken and presented to the appropriate licensing agency (federal, state, or municipal). In addition, the applicable government agency and the project owner are required to publish all related information and provide for public hearings, if required, according to the regulation of each location. The content of EIA-RIMAs is similar to that required under the Equator Principles and the IFC Performance Standards and is agreed by the relevant regulatory authorities prior to undertaking the work. Modification to the mine plan may require re-issuance of the LI and/or LO, depending on the magnitude of the proposed changes.

One of the remaining important authorizations issued to a mining operation by the Brazilian Institute of the Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* or IBAMA), which is the Brazilian Ministry of the Environment's administrative arm, is the Authorization for Vegetation Suppression (*Autorização para Supressão Vegetal* or ASV), which enables the operator to remove vegetation and forest resources and alter the designated land uses in the area of the mine.

The responsibility to protect the environment is shared between the federal, state, and municipal authorities (Brazilian Federal Constitution - CF/1988, Article #24; Complementary Law #140/2011). Competence for environmental licensing could be delegated to municipalities through an agreement to impact local environmental activities.

The prescription for recovery of the impacted areas from mineral resource exploitation can be found in the Brazilian Constitution, 1988, Article #225, § 2, where recovery should be compatible with the technical solution required by the environmental agency.

The ANM regulates the mine closure requirements by the Mining Regulation Standards (*Normas Reguladoras de Mineração* or NRM), including the environmental ones. Specifically, NRM #20 deals with mine closure.

4.3.3 Required Permits and Status

In Brazil, mineral resources are federal property, regulated by the ANM. The ANM grants both Utilization Guidelines and Mining Concessions. The first is temporary and only valid when coupled with an environmental license and also limits the amount of material that can be mined. ANM issues Exploitation Permits based on technical criteria, which conditionally authorizes the extraction of minerals in a titled concession area. Serabi has been granted a Mining Concession for the exploitation of the Palito Mine (ANM #850175/2003) and "*guia"* for the exploration and limited exploitation of the São Chico Mine (ANM #650007/1998). Serabi has also been granted a "*guia"* for the exploration and limited exploitation of licence area (ANM #851407/2012) which is located to the west and joins ANM #650007/1998. Serabi has not undertaken any exploitation activities in this area at this time.

Environmental considerations, however, may also be administered by state and local agencies in accordance with the prevailing interest, for example relating to specific environmental characteristics.

At the operational stage, the exploration license holders may require the following environmental permits:

- Vegetation Suppression.
- Surface Water Uptake Authorization.
- Groundwater Uptake Authorization.
- Environmental Authorization; and/or
- Operation License (granted after Preliminary and Installation Licenses).

The authorizing acts are detailed in Section 20.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility and Infrastructure

Access to the area from Itaituba can be achieved by a paved road, crossing the Tapajós River at Itaituba via ferry and disembarking at the village of Mirituba, located on the southern bank of the river, opposite Itaituba. The road continues 30km south of Mirituba along the BR 230 or Transamazonica Road, where the BR 230 terminates at the BR 163. The road continues a further 270km and 43 bridges south along the BR 163 to Moraes de Almeida. From there, using an unpaved road, it continues for a further 30km WSW along the Transgarimpeira via Jardim do Ouro, located on the Jamanxim River. In Jardim do Ouro, a second ferry is required to traverse the river to the western bank. A further 2km west of the village the Palito Mine access road turns south for a further 12km before arriving at the Palito Mine site, located in the Jardim do Ouro Project Area.

Alternatively, road access can be gained from Santarém to the NE or from Cuiabá to the south in Mato Grosso state via the BR 163, taking the Transgarimpeira Road at Moraes de Almeida to Jardim do Ouro and on to Palito. It should be noted the BR 163 is paved from the southern Pará State border with Mato Grosso up to Itaituba and is a major transportation route for soya produced in the state of Mato Grosso and in the south of Para, that is sent to grain terminals located at Mirituba.

Year-round road access exists to the Palito Mine site, though passage along the last 30km of unpaved road can be occasionally restricted during the tropical wet season from December to May each year.

Access can also be gained by air from Itaituba or alternate airstrips (Santarem or Novo Progresso) using light aircraft. Palito and Jardim do Ouro have 800m airstrips of compacted earth which are approximately 1 hour flying time from Itaituba or 1.5 hours flying time from Santarem.

Itaituba is a well-established centre with port facilities capable of handling barge transport of heavy equipment and airport facilities for large freight aircraft. Mirituba has also become an important hub for soya produced for export. The Palito Mine receives much of its supplies and dispatches its copper-gold concentrate product via barges accessed from Itaituba and trucked to site and vice versa.

Electric grid power has been brought to the Palito mine site via a spur line from Novo Progresso to the south whilst a connection from the north .is also expected to be completed in the coming months. Backup power is supplied by a fleet of onsite diesel fired generators. The Sao Chico satellite mine is served by diesel gensets.

5.2 Physiography, Climate and Vegetation

The Palito Mining Complex lies in a region termed the Tapajós, specifically in the region termed the Rio Novo Basin, located in the central eastern portion of the Brazilian IBGE SB.21.ZA map sheet, on the left margin of the Rio Novo, proximal to the confluence of the Rio Novo and Jamanxim rivers. These rivers in turn drain north into the Tapajós River near Itaituba and then northeast into the Amazon River downstream at Santarém.

The Palito Mine lies at an elevation of 260m RL at the approximate coordinates:

Geographic: 55°47’ 31.3” W, 6°18’ 54.1” S

UTM: SAD 69, Zone 21S; 633617mE, 9301813 mN

Local physiography consists of a rugged topography forming hills and steep sided valleys in the immediate Palito area, and more subdued undulating hills and valleys in the surrounding project area. There are numerous creeks (“Igarapés”) draining the incised topography of the Palito area, all of which drain into the Rio Novo and Jamanxim Rivers located within a few kilometres of the site.

The majority of the immediate Palito Mining Complex environment is covered by tropical forest typical of the Amazon region, however north and west of the Palito mine; the forest has been felled to create pastures for the grazing of livestock along the Transgarimpeira Road.

Many of the drainages radiating away from the Palito mine site have been worked intensely in the 1980’s by the garimpeiros resulting in manmade swamps, permanent wetlands and old forest destruction.

The local climate has two well defined seasons, the rainy season from December to May and the dry season for the remainder of the year. Regional rainfall averages around 1400mm per year although this now fluctuates greatly due to the deforestation effect of local farming.

The temperature does not vary significantly ranging between 24°C and 33°C, with an average of around 26°C. Relative humidity ranges from 70% to 80% depending on the season.

5.3 Local Resources

Within the boundaries of the Palito and Sao Chico Mines there are no permanent inhabitants however within the greater contiguous tenement holdings in the Complex there are a number of cleared grazing properties with permanent dwellings and inhabitants.

The nearest significant communities with social services are Novo Progresso and Itaituba. Itaituba has a population of 123,312 (IBGE census of 2022), banking, postal service, health services, communications, education centres, and regular air service to other major cities, principally Belém, Manaus and Santarem. Novo Progresso is nearer, with a population of approximately 33,600 inhabitants.

Labour employed by the project is preferentially sourced from the local towns and villages, within the State of Pará. Other more job specific professionals unavailable in Pará are sourced preferentially from within Brazil.

Grid electricity is sourced from the neighbouring municipality of Novo Progresso 135km away and brought to site via a spur line.

Water is in abundance locally and is sourced from small reservoirs and dams constructed on site for industrial purposes and from water wells for potable water requirements.

Fuel and other major supplies are currently brought in via road from Itaituba to the north and/or Cuiabá/Sinop to the south via the BR 163.

6 History

The Palito deposit is located in the eastern portion of the Tapajós Mineral Province where the presence of gold has been reported as early as 1747 from the Colonial Portuguese era. Gold production in the Tapajós commenced in the mid-20th century via artisanal miners (garimpeiros) reaching a peak in the 1970's and 1980's with estimated production of between 15 to 30 t/y, from over 500,000 garimpeiros.

Total historical production from the Tapajós is estimated at some 15 to 30 Moz as reported by the Serviço Geológico do Brasil (CPRM). However, accurate reports do not exist. Gold mining in the Palito Mining Complex area was initiated by garimpeiros during the 1970's, who typically worked alluvial and colluvial gold sources up stream until they came upon the residual source. Generally, the garimpeiros worked the residual mineralized saprolite profile containing free primary and secondary gold. In circumstances where extremely high grade was encountered in fresh rock, the garimpeiros sunk shafts and mined the vein underground by gallery development. The mining method employed traditionally was by hand and hydraulic mining in the saprolite, using basic gravity separation and occasionally mercury amalgamation. In the high grade, vein material extracted from fresh rock or deeper opencasts, the material was crushed and then gravity separated and/or mercury amalgamated.

6.1 Prior Ownership and Ownership Changes

6.1.1 Palito Mine

Modern exploration was initiated in 1994 by Rio Tinto Desenvolvimentos Minerais Ltda (RTDM), a Brazilian subsidiary of Rio Tinto Plc, which conducted surface geochemical sampling, auger drilling, ground and airborne geophysics, and diamond drilling in the Palito Mine area.

The founders of Serabi commenced operating in Brazil in 1999, with the objective of acquiring, evaluating and mining hard rock gold deposits previously unknown or technically too difficult for the garimpeiros to exploit.

Having evaluated several opportunities, the group acquired the Palito Mine in 2001, forming the basis for Serabi. In 2002, Serabi purchased RTDM's historical Tapajós exploration database and negotiated access to RTDM's exploration drill core library, following RTDM's decision to withdraw from the Tapajós Province.

Serabi initially acquired the surface rights to the immediate Palito Mine area through a purchase agreement with the existing garimpeiros entered into in 2002 and since that time has acquired from other garimpeiros and/or farmers additional parcels of land with the intention of securing the surface rights. It has also entered into agreements with other parties for access rights in return for making monthly rental payments.

6.1.2 São Chico Mine

Waldimiro Martins (WM) originally owned 100% of the São Chico property and in 2006 he entered into an agreement with A&J, whereby A&J would acquire 100% of the São Chico project. The terms of the agreement are not known.

On November 13, 2006, GOA entered into an agreement with A&J whereby GOA could earn up to 60% of the São Chico property. GOA subsequently exercised this option.

In 2008, WM initiated court action against A&J to rescind his agreement with A&J on certain grounds.

On May 12, 2009, the Itaituba Court granted an injunction to suspend the agreement between WM and A&J. This injunction provisionally transferred total control of the São Chico property to WM.

Following the injunction granted May 12, 2009, GOA subsequently entered into an agreement with WM to protect GOA's 60% interest in the São Chico property. Under the terms of this agreement GOAB, a wholly owned subsidiary of GOA, would own 100% of the mining rights associated with the São Chico property.

In September 2010 Kenai entered into an option agreement with GOA whereby Kenai had the option to purchase up to 75% of issued and outstanding shares of GOAB. In December 2011, Kenai entered into a letter agreement with GOA to acquire GOAB and provide Kenai with full ownership of the São Chico project. That transaction was completed, with GOAB becoming a wholly owned subsidiary of Kenai.

In July 2013 Serabi completed the acquisition of the entire share capital of Kenai, with GOAB becoming a wholly owned subsidiary of Serabi.

6.2 Exploration and Development Results of Previous Owners

Exploration results, including the results of previous owners are described in Section 9 herein. Small scale artisanal miners have intermittently attempted to work the Palito and São Chico areas but are no longer active and no historical production figures are available. There was some re-working of tailings by villagers at São Chico but no records are known to exist.

6.3 Historic Mineral Resource and Reserve Estimates

NCL has not done sufficient work to classify the historical estimates for the Palito and São Chico mines as current Mineral Resource or Mineral Reserve estimates and Serabi is not treating historical estimates as current Mineral Resource or Mineral Reserve estimates.

6.4 Historic Production

Historic production for the Palito Mining Complex under Serabi's ownership is summarized in Table 6-1. There was no production during the 2011 – 2013 period because the operation was placed on care and maintenance.

Table 6-1: Historic Production for the Palito Mining Complex under Serabi's Ownership

Year	Processed (t)	Head Grade Au (g/t)	Production Au (oz)
2005	57,958	9.2	15,345
2006	117,618	9.4	32,498
2007	173,485	5.8	28,942
2008	130,792	4.6	17,003
2009	69,557	2.8	6,173
2010	18,094	1.8	1,020
2011	-	-	-
2012	-	-	-
2013	-	-	-
2014	85,987	8.8	18,452
2015	130,299	8.4	32,629
2016	158,966	8.1	39,390
2017	177,565	7.1	37,004
2018	168,253	7.1	37,108
2019	177,535	7.0	40,101
2020	174,276	5.6	31,212
2021	170,799	6.6	33,848
2022	165,502	6.1	30,807
2023 (Jan 1 - July 31)	75,151	6.5	14,549
Total	**2,051,837**	**6.8**	**416,081**

7 Geological Setting and Mineralization

7.1 Regional Geology

Northern Brazil is dominated by the Precambrian Amazonian Craton, which is divided into the Guiana and Guaporé shields. The Amazon Basin separates the Guiana and Guaporé shields, while Neoproterozoic orogenic belts bound them. Orogenic movements that took place during the Trans Amazonian Orogeny between 2.2 and 1.9 billion years (Ga) are thought to have initiated the development of major northwest-southeast structures and crustal lineaments that acted as controls on mineralization until the Late Mesozoic. Following the break-up of Pangaea, Amazonia entered a prolonged period of quiescence and weathering, characterized by widespread laterite and saprolite development across much of the craton.

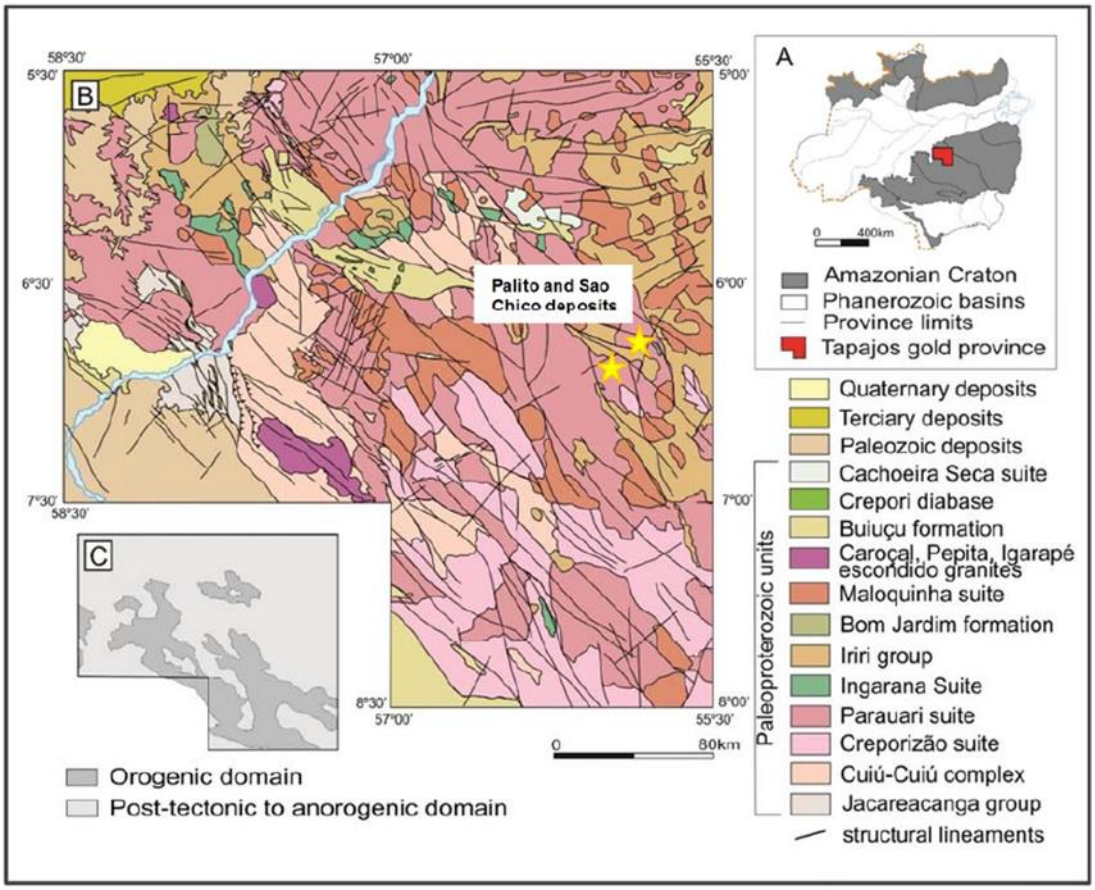
The Palito and São Chico gold deposits are located within the northern portion of the Tapajós-Parima Orogenic Belt (TPOB), a constituent of the Ventauri-Tapajós province of the Guaporé Shield. Formed between 2.5 and 1.8 Ga, the TPOB is a northwest oriented magmatic arc bound to the north by the Amazonian Basin and to the south by the Cachimbo Graben. Within the TPOB, the Tapajós Gold Province hosts numerous primary gold deposits over an area of approximately 300 km by 350 km.

The Tapajós Province represents a tectonically controlled geological evolution over 140 million years (Ma) during the Orosirian Period of the Paleoproterozoic Era, comprising four plutonic events (Coutinho et al., 2000). Two main units form the basement: the 2.4 to 2.0 Ga Paleoproterozoic Cuiú-Cuiú metamorphic suite and the >2.1 Ga Jacareacanga metamorphic suite. The Jacareacanga suite is a sedimentary-volcanic sequence, metamorphosed to a regional greenschist facies, with units of sericite and chlorite schists and rare banded iron formations. The Cuiú-Cuiú suite forms the basement for the Palito area and is comprised of orthogneisses of dioritic to granodioritic composition, locally mylonitized, deformed tonalitic granitoids, and enclaves or rafts of amphibolites. Both suites are intruded by monzogranites of the 2000 ‑ 1900 Ma Paráuari suite, tonalites, diorites and granodiorites of the 1907 ‑ 1898 Ma Tropas suite, and granites and granodiorites of the 1893 ‑ 1853 Ma Creporizão suite. These three intrusive suites are considered to have calc-alkaline affiliations and may be considered remnants of a magmatic back arc system interpreted for the region.

Coeval ryolites, dacites and andesites of the 1900 ‑ 1853 Ma Bom Jardim and Salustiano Formations and volcaniclastics of the 1893 ‑ 1853 Ma Aruri Formation cut through all of the older units. The postcollisional 1882 ‑ 1870 Ma Maloquinha Granite suite intrudes throughout the Tapajós Province and is associated with the strong extensional episode, pre-dating deposition of the Uatumã Volcanics (Iriri Group, Aruri Formation and Salustiano Formation). The Maloquinha Granites are considered to be the deeper intrusive phase of the Uatumã Volcanics and the source of gold mineralization in the Tapajós Province.

Younger sedimentary rocks cover the Maloquinha and Uatumã suites along a northwest-southeast trending feature in the central and western portions of the Tapajós Province. Mineralization at the Palito and São Chico deposits is hosted in granite and granodiorite of the Paráuari suite (Figure 7-1).

Figure 7-1: Regional Geology Setting with Palito and São Chico Deposits Hosted Within the Paleoproterozoic Paráuari Suite



Source: Borgo, 2017

7.2 Property Geology

7.2.1 Palito Mine

In the vicinity of the Palito Mine, three types of alkaline granitoids dominate: the Rio Novo Granite, the Palito Granite, and the Fofoquinha Granodiorite. The Rio Novo Granite is found to the east of the main Palito Mine area and forms a sharp contact against the Palito Granite on its western margin. To the west of the immediate Palito Mine area, the Palito Granite has a chilled contact with the Fofoquinha Granodiorite. Feldspar porphyritic dykes and sills of dacite composition intrude the granitoids, while gabbroic bodies termed the Rio Novo Gabbro are restricted to within the Fofoquinha unit.

The Rio Novo Granite is a medium grained, porphyritic quartz-plagioclase granite, varying in color from pink-orange to red-green depending on the degree of hydrothermal alteration. Granophyric textures are common along with lesser developed miarolitic cavities, silicified broken and brecciated zones which are more intensely hydrothermally and propilitically altered, giving the rock a grey to green coloration. Zones intensely broken by brittle faulting are also common, typically associated with breccia and chlorite and fluorite veins. Xenoliths of Fofoquinha Granite are found within the Rio Novo

Granite, indicating it is a later phase. The unit cuts the older Paráuari suite and is overlain by volcanics of the Iriri Group.

The Palito Granite is medium grained, inequigranular, with local finer grained variations at contact zones with the surrounding granites. Potassic alteration is pervasive and the granite has an intense red coloration. Miarolitic cavities, crystalline quartz and poorly developed granophyric textures are occasionally present. In near surface exposures, the granite is strongly hydrothermalized and shows characteristics of differential weathering, reflecting features relating to phased emplacement or magmatic flow. The Palito Granite hosts the majority of mineralized structures within the Palito Mine.

The Fofoquinha Granodiorite is medium to coarse grained, inequigranular to porphyritic in texture, with 15% to 35% mafic mineral content of primarily amphibole and iron oxides. The granodiorite has been observed to be enriched in magnetite, which disappears when the rock shows evidence of potassic metasomatism and is likely related to the intrusion of the Rio Novo or Palito granites. The color of the granodiorite varies from grey to green-grey, and coarse plagioclase crystals show intense zonation.

The Rio Novo Gabbro occurs as rounded intrusions varying from 100 to 500 m in diameter. Local brecciation and xenoliths of the Fofoquinha Granodiorite within the unit indicates post emplacement of the gabbro. Brittle faulting and hydrothermal alteration are also observed to have affected the Rio Novo Gabbro.

Sub-volcanic dykes are granitic in composition, with porphyritic texture and a very fine to aphanitic matrix. Miarolitic cavities are common, with small concentrations of mafic minerals and sulfides. The dykes are grey-pink to light brown in color, and have been hydrothermally altered by potassic metasomatism, propylitization, sericitization and sulfidation. They are recognized as cutting all lithologies on the property and rarely exceed 1 m in width, but locally have been recorded up to 30 m wide.

The mineralized structures at the Palito deposit are generally dark grey-green intensely sericite-silicapyrite- chalcopyrite +/- chlorite, carbonate, pyrrhotite, sphalerite altered granite that are often unrecognizable as granitoid protoliths. The hydrothermal alteration forms the lower-grade mineralization selvedges and the host to the higher-grade quartz-sulfide and massive sulfide zones.

Distal from the structures and intensely hydrothermally altered zones, the granite hosts display strong potassic alteration, grading into the regional scale background potassic alteration within 1 to 5 m of the mineralized structure. Alteration zones are found to range from decimeters to meters in width.

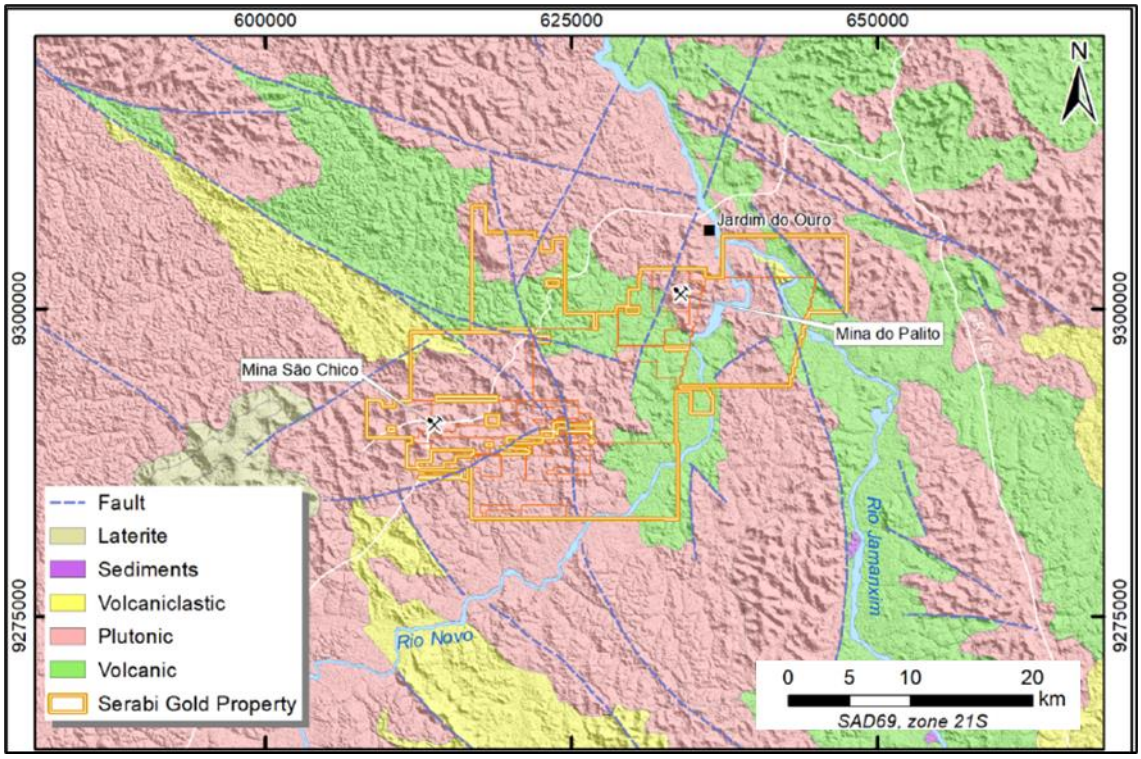
7.2.2 São Chico Mine

Outcrop at the São Chico deposit is poor due to widespread laterite development and alluvium, with the average depth to fresh bedrock approximately 10 to 20 m below the surface. The cover comprises a 1 to 3 m red, lateritic topsoil, with a lower boundary marked by a pisolith of quartz fragments and ferruginous pebbles. Saprolitic bedrock underlies the laterite and gradually transitions to the fresh host rock.

Host rocks of gold mineralization at São Chico are composed of medium-grained, leucocratic, feldspar phyric granodiorite and diorite of the Paráuari suite. Mineralization is hosted in west-northwest trending, steeply south dipping fault zones with a shear component. The mineralized faults have been offset by north-northeast trending normal faults with a dextral lateral displacement.

The location of both the Palito and São Chico properties in relation to a simplified local geological plan is provided in Figure 7-2.

Figure 7-2: Local Geology Setting of the Palito and São Chico Properties



Source: DNPM; CPRM

7.3 Structural Setting

Regional structural analysis of the Tapajós Province has identified two compressive deformation regimes. The first compressive event, with peak deformation at approximately 1.96 Ga, resulted in the development of ductile and brittle-ductile regimes, while the second event at 1.88 Ga resulted in brittle deformation. Together, these events resulted in major north-south, northwest-southeast and east-west lineament sets. The geometry of the lineaments and structures are compatible with a combination of Riedel fracturing and strike-slip fault systems, where the principal vector of compression is oriented in an east-west and east northeast – west southwest direction. The Palito Mining Complex lies on the northwest-southeast trending Tocantinzinho Trend, which is the major controlling structural feature in the Tapajos region.

In October 2011, Serabi commissioned the services of Dr. Brett Davis of Olinda Gold to perform a structural review of the Palito Mining Complex. The following observations were made from his investigation:

- The project area is strongly dissected by several fault sets; prevalent faults strike subparallel to pervasively developed deformation fabrics. The pervasively developed fabrics are interpreted as forming coeval with similarly oriented faults, with northeast-southwest faults broadly parallel to northeast-southwest fabrics and northwest-southeast faults broadly parallel to northwest-southeast fabrics

- The northeast-southwest fault set is interpreted as forming synchronous with east-west striking fault sets. The east-west faults generally have a shorter strike length and terminate against the northeast-southwest fault and are interpreted as strain accommodation features that link the northeast-southwest faults.
- The northeast-southwest and east-west fault sets are interpreted as forming synchronous with granite emplacement; the event that produced the northeast-southwest structures is considered to be the main episode of deformation and pluton emplacement, and likely responsible for gold-bearing hydrothermal systems. The faults display curved geometries around the margins of the plutons and cut the intrusions.
- Zones of contact metamorphism are spatially associated with all intrusions. The ovoid shape of the plutons is interpreted to be a product of emplacement at levels suitable for ductile fabric formation, with the long axes of the pluton conforming to northwest-southeast faults which represent long-lived basement structures. All fault and fabric populations cross-cut the plutons.
- An area of potential exploration interest was found at the southern extent of one of the ovoid plutons. The area hosts a number of fault intersections and is interpreted as a zone of low mean stress that may have developed during deformation synchronous with gold deposition.

7.4 Significant Mineralized Zones

7.4.1 Palito Mine

The mineralization control found on the Palito property is related to the schematic mega-system of strike-slip faulting and Riedel fracture systems of the Tapajós Province as described by the CPRM (2008). The mineralized veins appear related to the intersection of “Y” and “P” and/or “R” (sinistral strike-slip) faulting on 305° and 315° and/or 295° orientations respectively within “R” 070° trending structural corridors.

Mineralization at the Palito Mine is hosted within all three granitoids encountered in the immediate vicinity and is intimately associated with northwest-southeast vertical to sub-vertical mesothermal quartz-chalcopyrite-pyrite veins and pyrite disseminations filling the brittle-ductile fault sets. The principal vein system has a strike length over 900 m, with mineralized veins typically averaging approximately 1 m in width with grades between 15 and 30 g/t. Grades in excess of this are associated with semi-massive chalcopyrite-pyrite blowouts within the quartz veins, typically on the intersections of “Y” or “P” and “R” veins.

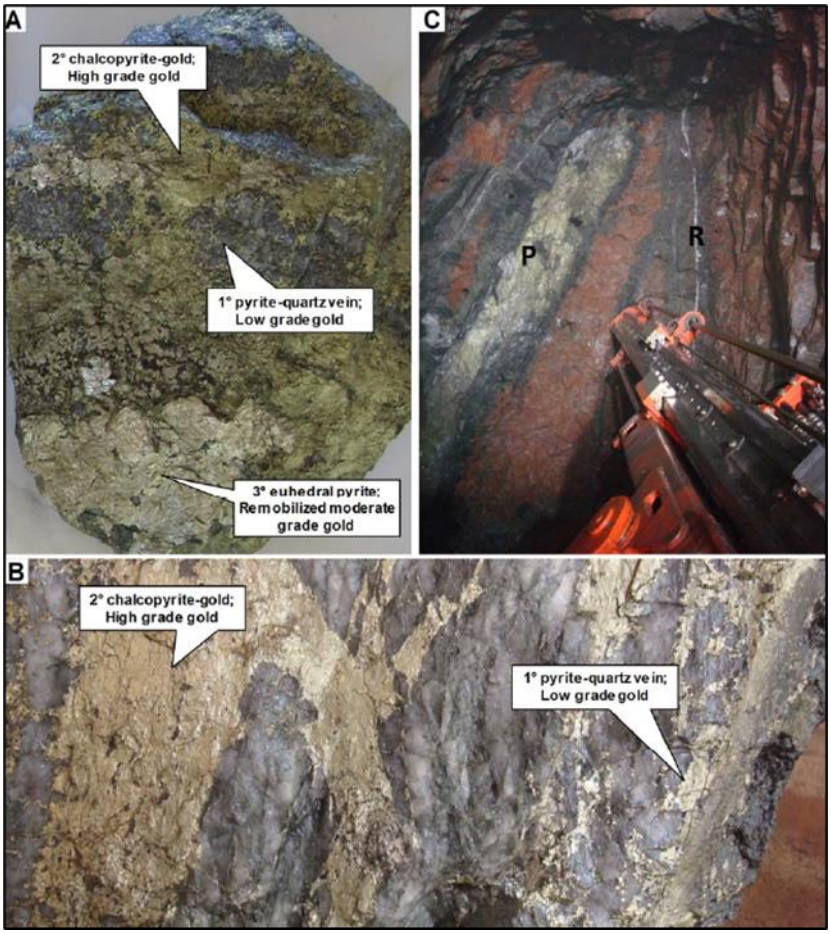
Gold mineralization associated with quartz and hydrothermal alteration assemblages is reported in all fracture orientations of the Riedel system and are dominated by fractures oblique to the principal strike-slip shear orientation.

Gold mineralization occurs within pyrite and chalcopyrite (Figure 7-3) associated with sphalerite, argentite and tellurobismuthite/tetradymite. Gold occurs as fine grains of 10 to 15 microns in size, with the highest gold grade typically found in zones of hydraulic brecciation, where the alteration zones, sulfides and vein quartz show multiple stages of reactivation. In the granodiorite, the dominant sulfide is pyrrhotite with lesser pyrite and chalcopyrite compared to the granites, typically resulting in pyrrhotite-pyrite sulfides with lower gold grade. Sulfides occur as segregates in the quartz veins, as disseminations within the grey hydrothermal alteration selvedges, or as decimeter to meter wide massive sulfide veins.

The nature of sulfide mineralization varies along the strike and plunge extends of the deposit. Pyrite and chalcopyrite dominate in the granites, whereas pyrrhotite and pyrite with lesser chalcopyrite are found in the granodiorite. Within the granodiorites, the pyrrhotite-pyrite sulfides tend to be lower grade

due to lower chalcopyrite content and is likely a result of greater mafic mineral content in the granodiorite affecting the paragenesis of sulfide deposition.

Figure 7-3: Examples of Common Mineralization Encountered at the Palito Mine (A and B) and veins Oriented in the Riedel Scheme (C)



Source: Serabi Gold, 2012

The hydrothermal alteration of the host rocks is strongly alkaline and has resulted in potassification and ferruginization, accentuating the original alkaline character of the host rocks and resulting in intense silicification. Hydrothermal alteration associated with mineralization is intense sericitization and chloritization, where intense potassic alteration has resulted in the original lithotype no longer being compositionally or texturally identifiable. The alteration zone appears as a dark grey rock formed of relict quartz crystals of 0.5 to 1 mm in a groundmass of feldspar pseudomorphs of sericite, clay minerals and rare epidote and carbonate. Chlorite occurs as infill of shears and veinlets, as rare, aggregated crystal masses, and occasionally intercalated with biotite with inclusions of zircon, apatite and prenhite.

Grey hydrothermal alteration is confined to the selvedge of the brittle fractures and rarely extends more than half a meter into the host granite. The alteration is generally present to some degree along the mineralized structures; however, the quartz-sulfide and sulfide veins are not always present. On

occasion, the structure may appear as a sericite, chlorite, and ankerite vein only several centimeters wide before opening into a traditional hydrothermal selvedge.

Secondary gold deposits are encountered directly above the mineralized veins within the residual saprolite and laterite portions of the regolith profile. Free gold is contained within the oxidized sulfides in the vein material, and with secondary iron oxides along fractures and joint planes within the saprolite adjacent to the veins, and in pisolites and lateritic cements at the paleo-surface above the vein. The secondary deposits are generally not high tonnage, as the residual saprolite profile is only approximately 5 to 8 m depth underlying up to 5 m of barren transport cover. They can however be nearly 10 times broader than the source mineralized vein due to weathering dispersion of the gold.

7.4.2 São Chico Mine

Mineralization is hosted in west-northwest striking, steeply south dipping quartz-sulfide veins at the São Chico Mine. Individual veins can range from under 0.2 to over 3 m in width, averaging roughly 0.8 m, and are observed over an area of approximately 1 km by 300 m in size. The shear zones hosting mineralization correspond to the “P” shear orientation in a pure east-west lateral Riedel system.

The Main Vein at São Chico strikes in a broadly west-northwest direction, dips steeply to the south, and ranges from approximately 1.0 to 3.9 m in apparent width. Mineralization extends approximately 140 m down dip and approximately 100 m along strike and is open down dip and plunging to the west; to the east, mineralization is open for a minimum of 80 m along strike. The fault zone is variably mineralized, with both sinuous and regular quartz veining, pyrite, sphalerite, galena, chalcopyrite, and electrum. Along the vein, high grade lodes are developed where a high degree of brecciation is observed and are manifested as moderately east plunging shoots within the plane of the Main Vein.

These lodes exhibit a higher chalcopyrite content than what is observed along the strike of the fault zone. The dip extent of mineralization remains open along the fault and within numerous higher-grade ore shoots.

The Western Zone is a sub-parallel fault zone developed in the footwall of the Main fault zone. The quartz veins display a similar alteration assemblage to the Main Vein, though a narrower width, less brecciation and less sulfide content is observed. The fault zone extends along strike for over 100 m to the northwest of the Main Vein.

The Highway Vein strikes roughly west-northwest, dips steeply to the south, and varies from 1.6 to 2.9 m in apparent width. The mineralized zone extends 75 m below the surface and remains open along strike and down dip. High gold grades are associated with brecciated granite supported by chlorite-sericite-quartz cement with blebby pyrite and galena.

The Parallel Vein is found 60 m south of the Main Vein fault, within the hanging wall. The vein averages 90 cm in width, and has been defined over a strike length of approximately 80 m to a depth of 75 m.

Mineralization comprises quartz-sulfide veins and breccias, with narrow chlorite-sericite-pyrite selvedges within a wider potassium-feldspar alteration halo. Although the mineralized interval may be 1 to 2 m in width, individual veins are often less than 30 cm wide with cross-cutting veins within the mineralized zone. Veins are composed of white to grey, fine-grained, massive to banded quartz with chlorite stylolites.

Sulfide mineralization is spatially related to chlorite-sericite alteration in the quartz vein selvedges, and the assemblage is dominated by pyrite with locally abundant sphalerite, chalcopyrite and galena phases.

8 Deposit Types

8.1 Mineral Deposit

Gold deposits in the Tapajós Gold Province can be broadly classified into three main types:

- Mesozonal deposits.
- Epizonal intrusion centered or intrusion related deposits; and
- Alluvial, colluvial and supergene enriched saprolitic deposits.

Tapajós deposits are structurally controlled, but host rock control is vital to understanding the metal precipitation process locally. Primary gold deposits occur as the first two categories of deposit types and are generally located in fractured and sheared host environments such as:

- Quartz and quartz sulfide stock work and associated alteration hosted disseminated sulfide.
- Quartz vein.
- Quartz sulfide veins +/- selvedge alteration hosted disseminated sulfide.
- Massive sulfide veins +/- selvedge alteration hosted disseminated sulfide; and
- Disseminated sulfide within alteration.

Historically in the Tapajós, the third category of deposit types has produced most of the gold in the region, with a significant contribution from supergene enriched laterite and saprolite deposits. A sizable percentage of the gold contained within this category is residual in nature, but physically concentrated along stone lines or weathering fronts, liberated from nearby auriferous quartz, quartz-sulfide or sulfide veins, and secondarily enriched by redox chemical processes.

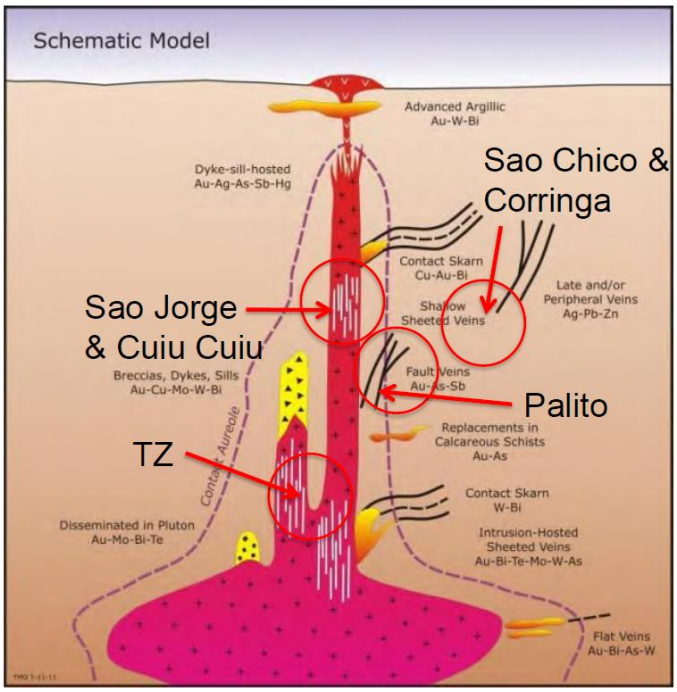
Most of the primary gold sources known in the Tapajós are related to the quartz vein and quartz-sulfide vein deposits, as the extensive felsic to intermediate volcanics intruded by coeval granitic intrusives provide the conditions for formation of mesothermal and epizonal and/or epithermal deposits. The mesothermal granite-hosted systems are associated with a range of deposit types including porphyry, orogenic lode gold and intrusion related gold systems. These granite hosted systems share many characteristics, with distinction among the genetic models becoming difficult to strictly apply in the region.

Within the regional context of the Palito Mining Complex, significant granite hosted deposits have recently been discovered that share geological features with the Palito deposit. Examples including the Tocantinzinho and São Jorge gold deposits located approximately 70 km northwest and 45 km southeast of the Palito deposit, respectively, as well as a number of artisanal operations. Evidence suggests that the Palito deposit is not isolated but is rather part of a series of deposits in a gold endowed district, and it is therefore considered that the potential for further discovery of primary gold deposits within the Palito Mining Complex is favorable.

The mineralogy and textures of the deposits at the Palito Mining Complex is consistent with a model for an intrusion related mesothermal gold-copper mineralization (Figure 8-1). This relatively new classification of gold deposits is associated with granitic rocks and are best developed above and surrounding small, granitic intrusions. Mineralization styles can manifest as stockworks, breccia, skarns and lode style veins, and have a clear metal association zonation.

A number of exploration methods have been useful in the identification and discovery of additional gold targets on the Palito Mining Complex. Surficial geochemistry has proven to be successful in areas of shallow saprolite weathering or where laterite horizons are developed at shallow depths, whereas chemical depletion in deeply developed profiles can mask mineralization. Magnetics is limited at the Palito Mine due to poor contrast between local host rocks, however it can be used to define additional regional scale features. Electromagnetics are limited to detecting only massive sulfide mineralization but is useful in regional screening for initial exploration and targeting mineralized structures. Induced polarization methods are effective and have demonstrated the ability to map Palito style mineralization with a high degree of definition, ideal for drill targeting.

Figure 8-1: Schematic Model of an Intrusion Related Gold System and Interpreted Environs.



Source: Modified from Lang and Backer (2001)

9 Exploration

9.1 Relevant Exploration Work

Portuguese era. Gold production began in the mid-twentieth century by garimpeiros who followed alluvial and colluvial sources up stream until discovering the primary source, mining the free gold from the saprolite material by hand and hydraulic methods using basic gravity separation.

Modern exploration on the Palito Mining Complex was initiated in 1994 by Rio Tinto Desenvolvimentos Minerais Ltda (RTDM) and continued until 1997. Early work focused on testing the depth potential of near surface garimpeiros workings in the primary sulfide zones. Soil, rock grab and rock chip samples were collected for surface geochemistry, preliminary geological mapping was executed, a broadly spaced (300 m line spacing) regional aeromagnetic survey was flow, and six diamond drill holes were completed in the area surrounding the Palito Mine.

Exploration work by Serabi has been ongoing since 2003, with surface exploration, geological mapping, soil sampling, rock chip sampling, shallow auger drilling, RAB drilling and diamond drilling programs completed. Since initial exploration, airborne, ground and downhole geophysical surveys have been executed to better constrain the known mineralization on the property and define new potential targets.

The Serabi regional exploration tenement portfolio lies within a Proterozoic aged rock package with a trend of approximately 50 kilometers by 20 kilometers covering a high potential underexplored ground. A series of gold artisanal works and the historical gold production in Tapajós region, demonstrate the gold potential within the Serabi permits package. In the last years, the discovery of copper occurrences in the Proterozoic rocks of Tapajós, shows the potential and the lack of exploration investments and knowledge of the region. While there is not always a direct correlation, between exploration and discovery, recent exploration activities carried out by Serabi over the last years, lead the Company to believe in the belt potential once high-quality exploration methods are implemented.

Serabi has high quality, regional aero-geophysical data that covers most of its ground with approximately 576 square kilometers of electromagnetic survey. The detailed interpretation and analysis of the structural and lithologic information based in the regional aero-geophysical datasets has been done associated with the integration of the regional multielement soil sampling program executed in 2022/2023.

A structural interpretation was also done in 2023 to improve the target ranking and prioritize investments. The aero geophysics data was treated and then the main structures highlighted. The structures relationships are analyzed and crossed against the gold/copper geochemistry data. The targets are so defined and prioritized. Below is the interpretation product presented.

Figure 9-1: Structural interpretation based on Geophysics.

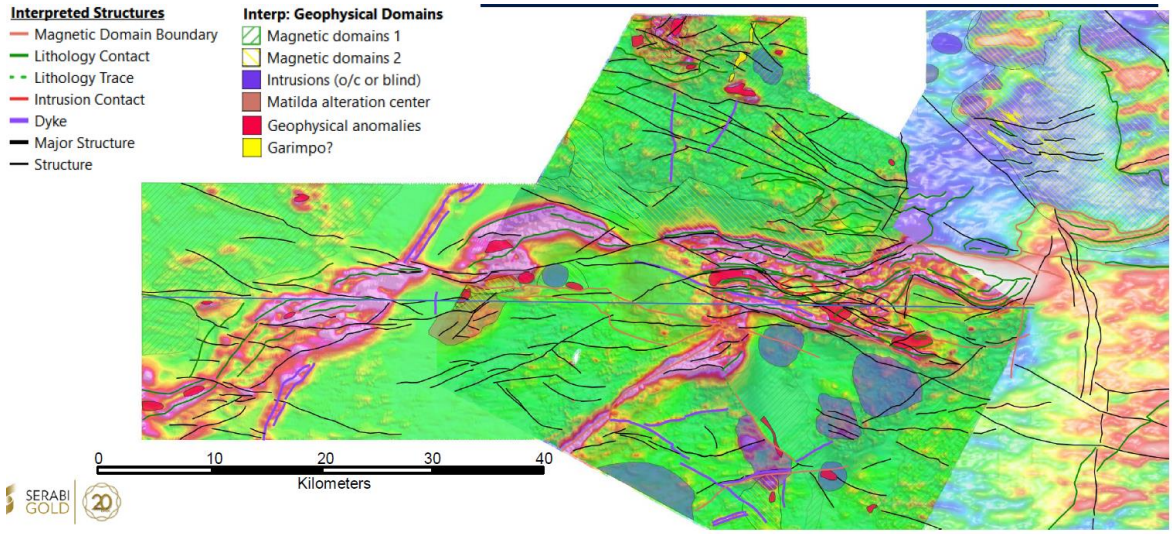


Table 9-1 summarizes the exploration work completed by Serabi on the property to date. The salient exploration work performed in the Palito and São Chico areas is described in greater detail in the subsections below.

Table 9-1: Exploration Work Performed by Serabi on the Palito Mining Complex

Year	Activity	Details	
2003	Post	hole auger drilling	147 m
2003	Ground geophysical surveys	Magnetic and dipole	dipole IP
2004	Shallow auger drilling	11,116.78 m	
2004	Ground geophysical surveys	Fixed	loop EM and IP
2005	Underground face and gallery channel sampling	1,368.47 m	
2005	Rock chip sampling	18 samples collected	
2006	Underground channel sampling	1,713 m	
2006	Post	hole auger drilling	3,009.83 m
2006	Auger drilling and rock chip sampling	35 m with 69 samples collected: 43 rock chip samples	
2007	Surface trenching	590.75 m	
2007	Auger and rock chip sampling	756 m with 1,513 soil samples collected: 7 rock chip samples	
2007	Ground geophysical survey	Magnetic	
2007	Ground geophysical surveys	Fixed	loop EM and down hole EM
2008	Underground channel and gallery sampling	4,325.79 m	
2008	Soil sampling	836 samples collected	
2008	Deep auger drilling	1,244.6 m with 1,206 samples collected	
2008	Heliborne geophysical survey	6,650 lines	kilometers of VTEM, and magnetic and laser topography

Year	Activity	Details	
2009	Surface trenching	413 m	
2009	Channel sampling	977.18 m	
2009	Auger sampling	835.3 m with 729 samples collected	
2010	Ground geophysical surveys	45 lines	kilometers of dipole-dipole IP
2010	Surface trenching	405 m	
2010	Channel sampling	168 m	
2011	Heliborne geophysical survey	1,221.28 line	kilometers of VTEM, and magnetic and laser topography; covering 8,000 hectares
2011	Ground geophysical survey	53.25 line	kilometers of IP on 200 m spaced traverses
2011	Trenching	771.5 m, sampling every 1 m	
2011	Auger drilling	515 m on traverses at 5 m spacing	
2011	Sampling	Prospective garimpo tailings areas in the Palito valley	
2016	Ground geophysical surveys	Down hole EM across 21 holes in the Currutela, Piaui, Palito South and Copper Hill prospect areas	
2018	Soil samples	1995 samples	
2019	Soil samples	6510 samples	
2019	Stream sediments	8 samples	
2019	Drilling Auger and RAB	28 drilll holes	124.3 meters
2020	Geotechnical drill holes	2 drilll holes	136.35 meters
2020	Soil samples	3707 samples	
2020	Stream sediments	34 samples	
2020	Drilling Auger and RAB	1 drilll holes	18 meters
2021	Soil samples	803 samples	
2021	Drilling Auger and RAB	180 drilll holes	3947.6 meters
2021	Ground Geophysics	7 sq km	
2022	Soil samples	339 samples	
2023	Soil samples	3124 samples in progress	
2023	Ground Geophysics	18 sq km in progress	
2023	Drilling Auger and RAB	398 drilll holes in progress	867 meters in progress

Source: Serabi (2023)

The low detection limit soil geochemistry campaign initiated in the last couple years is placing Serabi on a new level in terms of litho-geological knowledge of the region. The geochemistry initial phase chooses to define targets within the most prospective corridors based in geophysics interpretation, due to costs and the possibility to evaluate large areas in relative short time.

Between 2018 to 2023 a total of around 16,500 soil samples were collected and analyzed aim to delineate targets for drilling. Different spaced grids were defined varying from detail 100x25 meter to

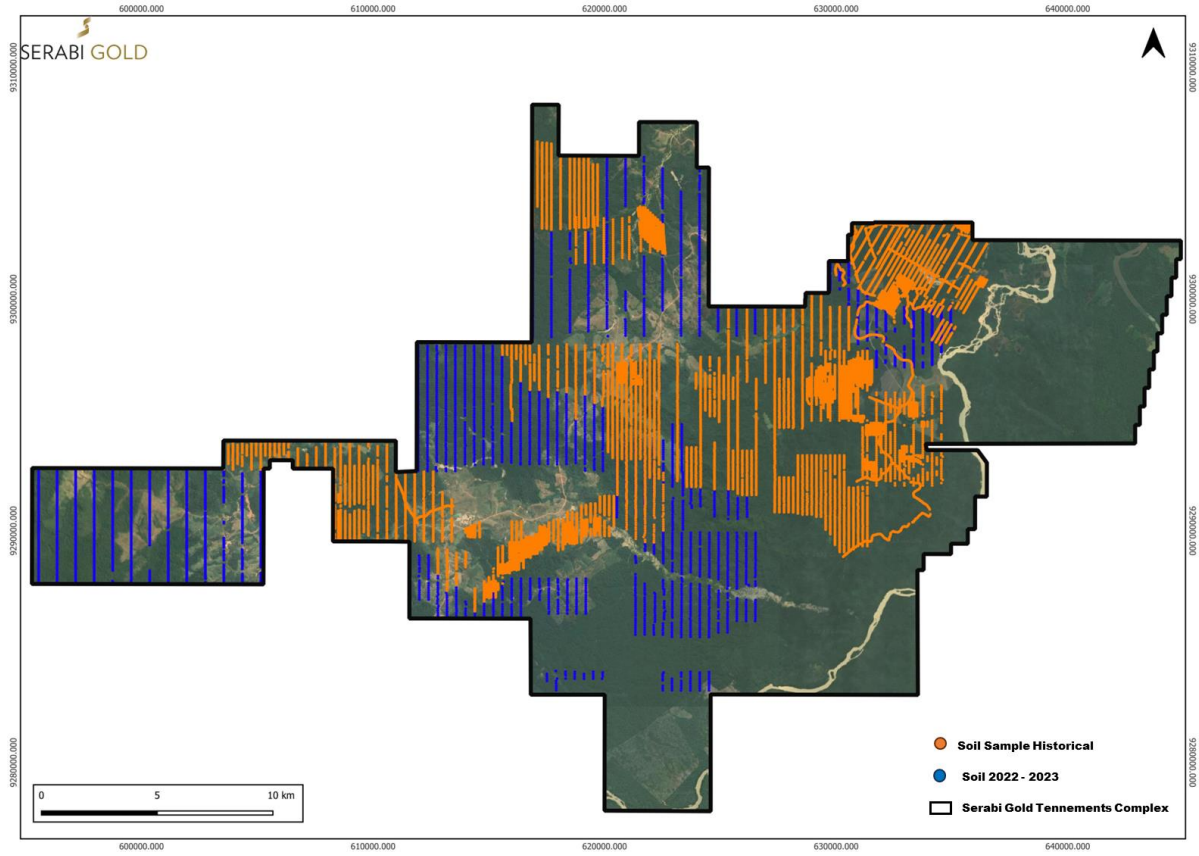
regional 800x100 meter (lines x sample station) depending on the strategy and objectives of each area.

The main results obtained are below:

- Definition of geology and alteration zones allowing; o immediate field follow-up on the regional soil grid and/or infill-lines, ground geophysics and drilling.
- Preliminary definition of weathering regimes, regional lithologic variations and alteration zones as well as directly delineating high priority Cu and Au targets.
- Anomalous and continuous gold trends, just 1.5 kilometre from the Palito ore bodies, along the NE-SW structures where Palito orebodies are hosted.
- Definition of a copper anomalous trend with 6.3 kilometre from Sao Chico Mine

In 2023 Serabi intensifies the geochemistry program and a robust exploration programme that includes approximately 15,000 meters of DD, 5,500 soil samples to be analysed by ICP ME and FAA, IP geophysics survey, and the contracting of services for the reinterpretation of geophysical and geochemical data took place. For this purpose, a team of more than 70 people was assembled and housed in the São Chico mine area.

Figure 9-2: Summary of Geophysical Programs Executed over the Palito Mining Complex

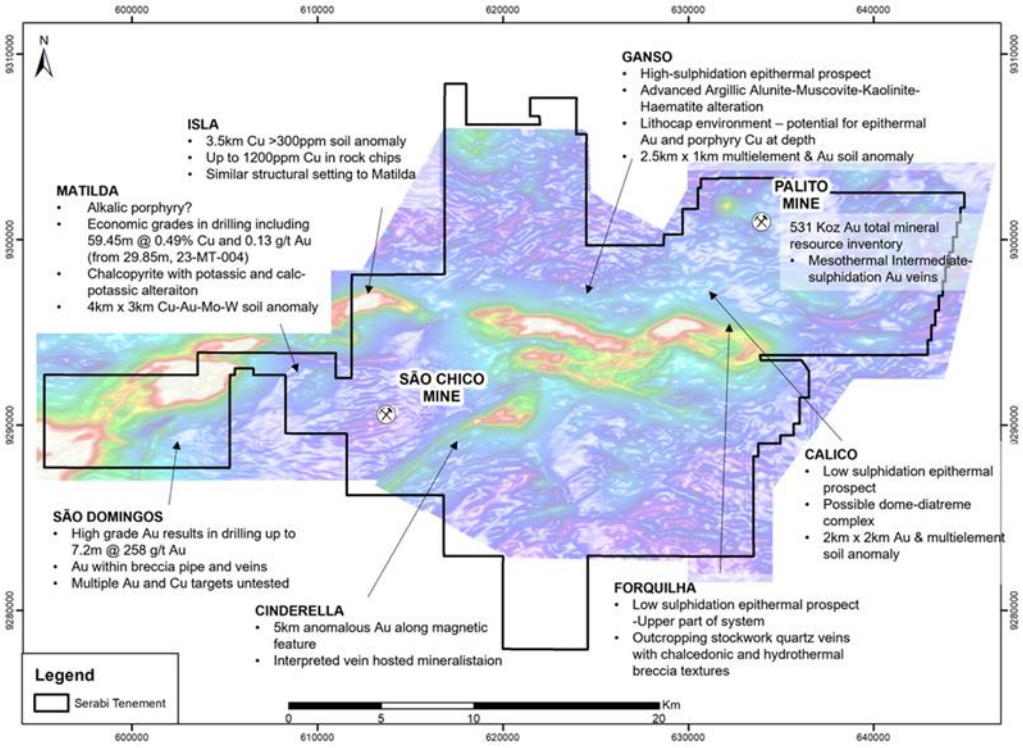


The interpretation of regional airborne geophysics and soil geochemistry have identified a large scale (crustal) dilational feature which hosts at least six new gold and copper prospects. It includes, Matilda,

Ganso, Isla, Forquilha, Cinderela, and Calico which were identified and are being evaluated; If warranted, they will be tested by RC and DD for first pass exploration potential definition.

Serabi expects that the acquired knowledge will significantly enhance Serabi's understanding of its tenement package, assist in future exploration for new prospects and place the Company on a higher level for the search for new prospects in addition to the development of the generated targets. Serabi also believes that this approach will not only allow reserve replacement to be efficiently carried out but give the necessary tools to allow the regional exploration to develop long term resources.

Figure 9-3: Location of the main targets and discoveries made to date by the exploration programme



Source: Serabi (2023)

9.2 Geochemistry

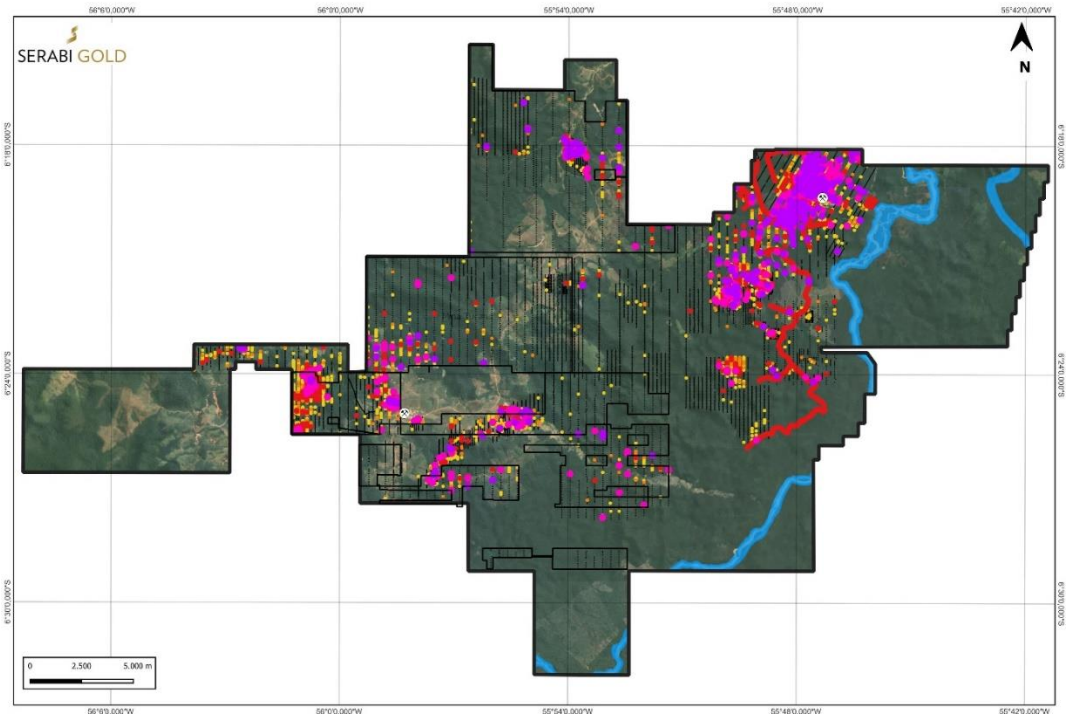
The main objective of the soil sampling campaigns was to investigate geophysical anomalies or quickly and practically cover the greatest extent of research permits. It is one of the main tools for defining new targets and potential regions. The integration of soil data is showed below.

A total of 16,478 soil samples were carried out from 2018 to 2023, based on geophysics target generated. Different grid sizes were used depending on the area knowledge status, anomaly size and target ranking. Grids as 800x100 meter and 400x100 meter were used for regional understanding and target definition, while more closed intervals as 100x25 meter or 50x25 meter were used for detailing anomalies.

Exploration team defined NS direction as the main direction to build the sample grids which covers the main structural EW and NW-SE trends. The multielement analysis is performed in certified laboratories being ALS Chemical Analysis Laboratory selected as the focal point of the analyses. Due

to the importance of multi-element analysis for generating targets and geological potential (ICP-MS for 51 elements) for such data, only a small number of samples had their analyzes carried out at the Mina do Palito Chemical Analysis Laboratory (results only for Au and Copper).

Figure 9-4: Gold Anomalous values for the soils in Serabi Permits



All the samples have been prepared in the Serabi internal lab located in Novo Progresso village. The lab has a good infrastructure with two crushers a primary one and a secondary. The first reduces the samples to up to 8mm while the second reduces them to 2mm. Samples are split in riffle splitters and 200g pulverized in ring pulverisers for 95% passing at 150 mesh. One sample is generated with 150 grams and send to ALS in Belo Horizonte to be analysed in Peru or Canada. The type of analysis chosen encompasses 51 elements with trace level of detection.

Due to the project location, the distance from major cities, and necessary logistics the samples can take 30-50 days to have the results available.

Stream sediments samples reached 42 along the 2018-2023 period. They were used initially to map and help to define targets in areas with limited knowledge.

9.3 Aerial geophysics

Aerial geophysics work has been carried out over the years, but the most relevant surveys that will be mentioned in this report were divided into two campaigns. The first being carried out in 2018 and the second in 2021, both completing a mosaic that covered the entire Serabi permits and adjacencies and financed by, Serabi Gold. Such surveys were of great importance for prospecting, since anomalies were defined, areas were prioritized, and lithological domains defined.

The company CGG: Global Technology and HPC leader was hired for the 2018 campaign while Aerocientífica – Serviços Aéreos Especializado was the one responsible to carry out the 2021 aerial geophysics work. Both surveys include electromagnetic, magnetic and the radio metrics was limited to the 2021 survey. These methods provided good information for geological mapping and mineral prospecting by taking advantage of the natural physical properties of different lithologies found in Tapajós region.

The first campaign carried out by CGG involved a HELITEM30C aerial electromagnetic and magnetic geophysical survey throughout the vicinity of Mina do Palito and the surroundings of the Jardim do Ouro community, Pará. Data were acquired using a HELITEM30C electromagnetic system complemented by a high-sensitivity cesium magnetometer. Information from these sensors was processed to produce maps and images showing the magnetic and conductive properties of the survey area. A GPS electronic navigation system ensured accurate positioning of geophysical data relative to base map coordinates.

The block near Jardim do Ouro was flown over between July 4 and 19, 2018, with Palito Mine as the base of operations. Survey coverage consisted of 4,002 km of traverse lines flown at 100 m spacing and 401 km of tie lines at 1,000 m spacing, totaling 4,403 km. The HELITEM30C system consists of a 40m cable to which the transmitter loop is attached (Figure 10-8). The upper part of the cable is attached to a helicopter and during flight it trails at an angle of 25 degrees with the vertical, placing the transmitter coil approximately 34 m below the helicopter.

The second campaign was carried out between October and December 2021 located over the municipal territory of Itaituba cover an area of 175 sq km.

To carry out the survey, the field team was based in the city of Novo Progresso / PA in the period between 08/15/2021 and 11/02/2021, and Novo Progresso Airport (SJNP) was the operating airport. Between 12/11/2021 and 12/21/2021 the team was based in the city of Itaituba / PA and Itaituba Airport (SBIH) was the operating airport.

The survey consisted of 219 flight lines, with a direction of 30° azimuth and a spacing of 100m. The control lines with azimuth direction of 120° and 1,000m spacing totaled 19 lines. The linear mileage flown within the requested area was 1,929.8 km. This second survey was made by an airplane Embraer EMB-820C.

Several products were generated. A map of the Digital Terrain Model, Map of the Magnetic Anomaly, Map of the 1st Vertical Derivative of the Magnetic Anomaly, Map of the 2nd Vertical Derivative of the Magnetic Anomaly, Map of the Horizontal Gradient of the Magnetic Anomaly, Map of the Analytical Signal of the Magnetic Anomaly and Map of the Reduction to the Magnetic Anomaly Pole was some of them. Aero magnetometry images were used to delineate the main lithological contacts, together with the different lithotypes of the area in question.

9.4 Ground geophysics

Just like the aero geophysical surveys, which have been carried out over the years, varying in grid size and targets, ground geophysics occur in a similar way. This report will highlight the methods and products generated in the 2021-2023 campaigns, which are the most relevant for the areas mentioned in this report. Such surveys were of great importance for prospecting the permits and allowed the company to define targets and prioritize investments. The whole campaigns were financed by Sarabi and JVs.

The company specialized in geophysical surveys, GEOMAG S/A - Prospecções Geológicas, was then hired to carry out terrestrial geophysics work, in particular, Induced Polarization (IP) surveys in 2021 and 2023 campaigns.

Terrestrial geophysics services were carried out on profiles previously selected by the contractor for mineral exploration purposes. The IP survey in 2021 was carried out in the Time Domain through the pole-dipole arrangement, with a spacing of 50 meters and with advances of 50 meters, in addition to 10 investigation levels totalizing 47.7 kilometre, while the 2023 survey had an array of 200m spacing and 12 investigations levels totalizing 29.15 linear kilometres.

To survey the grids, it was necessary to open and stake out lines following national environmental regulations, within the concept of sustainable development, minimizing possible environmental impacts, aiming to comply with the legal conditions required by Brazilian legislation and the environmental code.

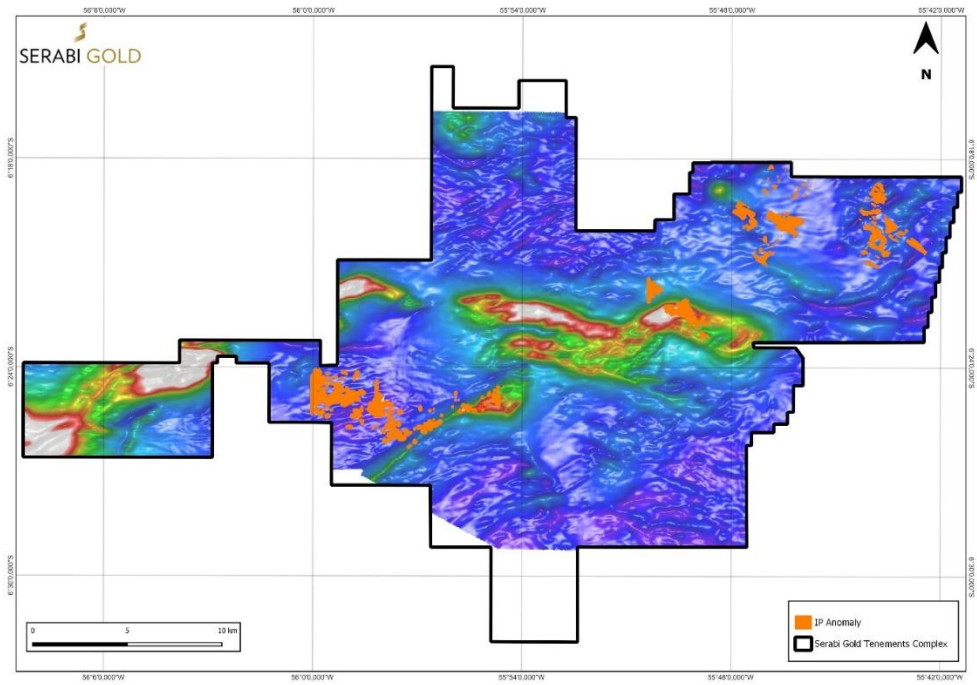
Data processing was carried out daily by the Geophysicist based at the company's headquarters, through the GEOSOFT – Oasis Montaj and AGI – Earth Imager programs. These tools allowed the manipulation and visualization of data in the most diverse forms, within the Oásis Montaj environment, in addition to optimizing and making data quality control more effective. The raw files (*.DMP) from the IP receiver are stored within a specific Database (Oasis Montaj) that maintains original information on different channels, for each elevated line.

For the IP surveys, 01 IRIS Time Domain IP system was used, consisting of 01 ELRECPro receiver, 01 4 KVA VIP4000 transmitters and 01 6.5KVA power generator; in addition to non-polarizable type potential electrodes (ceramic) and stainless steel current electrodes; handle GPS Garmin and other accessory materials necessary for data acquisition, as well as a laptop for processing and daily quality control of field data and sending it to headquarters via the Internet. Data processing will be carried out daily by the Geophysicist based at the company's headquarters, through the GEOSOFT – Oasis Montaj and AGI – Earth Imager programs as cited above.

With such products, Serabi was able to identify several anomalous areas, with excellent potential for prospecting for gold and copper, due to the excellent positive response to the mineralized veins of Mina do Palito and its extension to the southeast entering the area of permit ANM 850.572/2014, crossing the Rio Novo in the same trend and entering the area of permit ANM 850.904/2012.

Other new areas with good prospects are highlighted as bodies highlighted in orange also in Figure below, the first being in the northeast portion of permit package, and the second in the southwest limit of permits. A potential porphyry ore body was surveyed close to São Chico mine during 2023.

Figure 9-5: Areas with IP survey grids.



9.5 Exploration in the Palito Area

9.5.1 Surface Geochemical Sampling

Since commencing exploration work in 2002, Serabi's exploration department has conducted several regional and local soil geochemistry programs using manual and small motorized auger drills in addition to geophysics and diamond drilling and its main target Palito Complex. Systematic sample intervals were established every 2.5 m on a 100 m x 50 m grid, with auger holes penetrating to either 2.5 m or 5 m depth. Geochemical analyses using a 100-ppb detection limit showed that the mineralized zones in the Palito Mine area were defined by a greater than 400 ppb gold result. Subsequent assessment and evaluation of the soil sample results in 2007 suggested that re-analyses using a 10-ppb detection limit could define more subtle footprints of undiscovered mineralization, and the available historic soil sample pulps were sent for analyses at SGS Geosol laboratories for reanalysis. The results return better target definition, and an improvement of the mineralization definition was achieved guiding the drilling programs. In 2008, Serabi contracted Explorer Services to execute a program of deeper reconnaissance auger drilling. A total of 1,206 samples were collected from 1,244.6 m of material with the objective of confining the saprolite mineralization at the Bill's Pipe prospect northwest of the Palito Mine. Explorer Services also completed a regional stream sediment geochemistry program in 2008. Under the direction of Serabi, Explorer Services collected a 200 g sample under 200 mesh and a 3 kg sample under 2 mm from sample sites across the entirety of the Palito Mining Complex area. Several anomalous zones outside the immediate Palito Mine area were identified.

From January to February 2011, 771.5 meters of surface trenches were excavated over the Piaui prospect area, with samples collected at 1 m intervals. This work program was followed up with diamond drilling in March 2011.

Auger drilling was planned over numerous target areas in 2011. Geochemical anomalies, IP anomalies, and trenches with anomalous results or those that did not reach the pisolith horizon were tested. Sampling was conducted using a Big Beaver motorized auger rig over 14 planned lines, with samples collected every 5 m.

A series of other works were executed in the permits between 2019 and 2023 with a total of 14,326.64 meters of DD holes executed in addition to auger and soil samples.

The results were a definition of a series of parallel orebodies with potential of extension of the Palito mine that are still open in depth and along the strike. Particularly to the south, where the Espeto/Currutela and Rio Novo orebodies in brownfield area could well be the south extension of the G3, Mogno, Ipê and Jatoba currently in the mine area.

Highlights:

Espeto

- 9 holes drilled along 300m strike cutting G3, Jatobá and Mogno extension to South.
- 3 Veins cut: PDD0597 0.84m @ 3.44 g/t Au from 165.98m, 0.30m @ 3.01 g/t Au from 170.68m; PDD0470 0.88m @ 5.25 g/t Au from 90.98m, 3.53m @ 2.97 g/t Au from 97.78m, incl. 0.61m @ 10.90 g/t Au from 100.70m

Currutela

- 1,300m long IP anomaly + EM anomalies.
- 13 holes drilled along 800m strike.
- 5 veins cut with best intercepts: PDD471 1.03m @ 5.30 g/t Au, PDD064 0.76m @ 5.30 g/t Au, PDD065 2.14m @ 12.92 g/t Au, PDD069 1.20m @ 6.39 g/t Au.

Rio Novo

- 1,000m long IP chargeability anomaly.
- 6 holes drilled along 1,800m strike.
- 2 veins cut: FRN002 0.6m @ 2.32 g/t Au, FRN006 0.5m 1.01 g/t Au.

Figure 9-6: Palito trend and the gold occurrences with the drilling done.

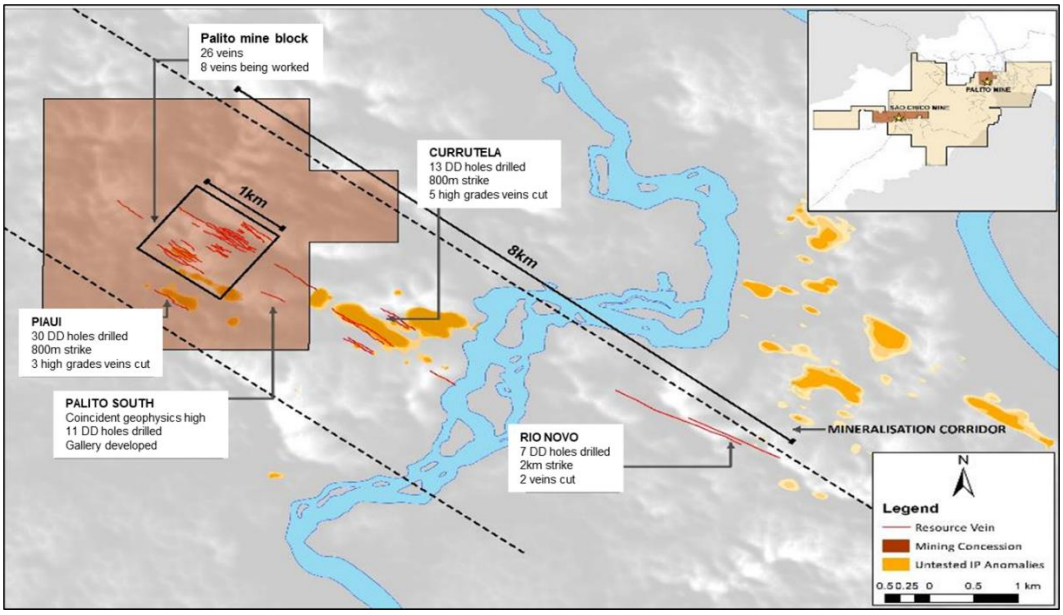
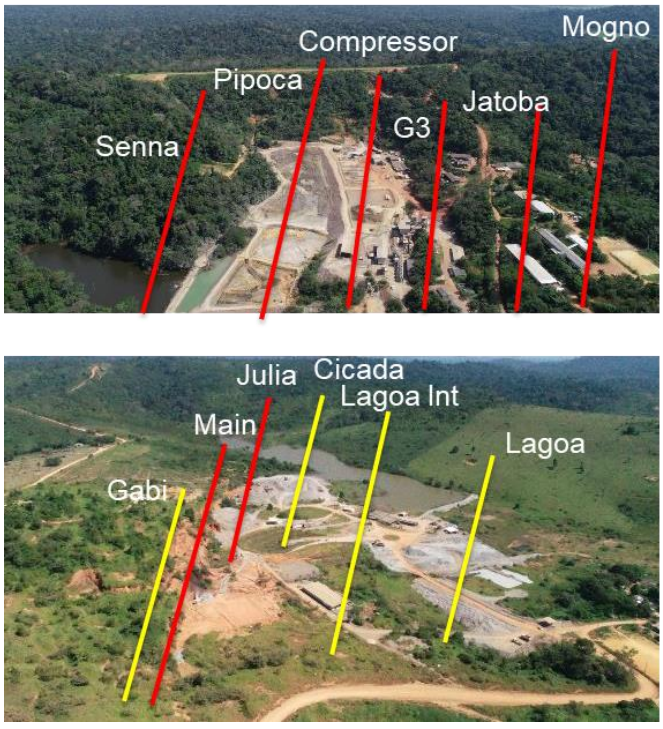
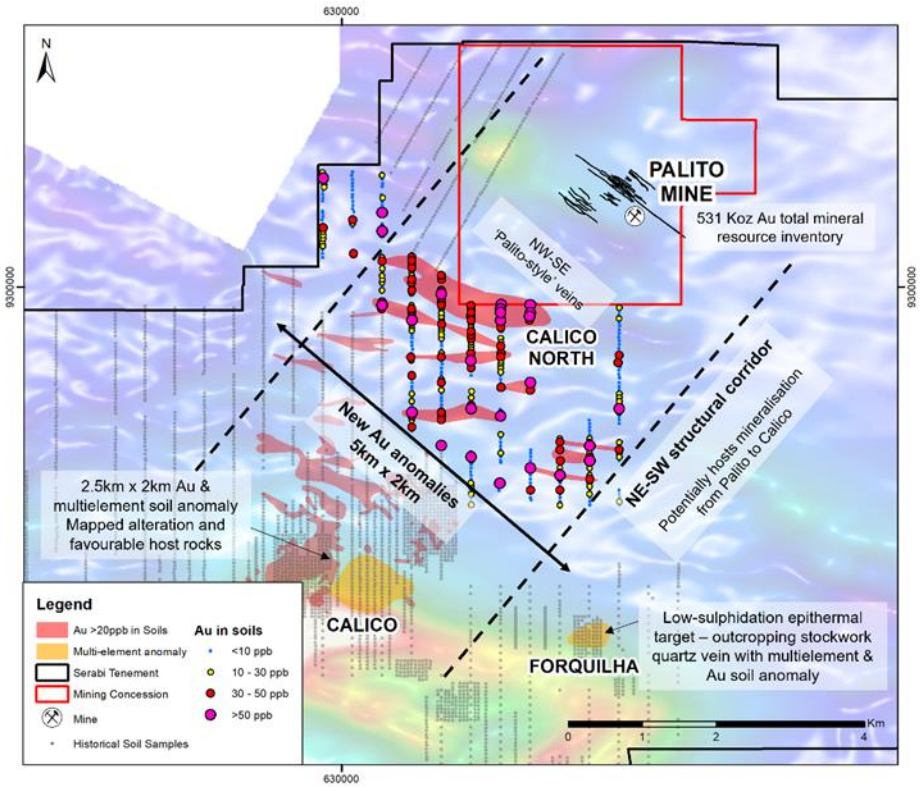


Figure 9-7: Representation of the main Veins of Palito Mine



Soil geochemistry also defined a potential extension of the Palito mine along the SW trend. Several gold anomalous orebodies in Calico, Calico North and Forquilha were defined and need a follow up program.

Figure 9-8: SW geochemical anomalous trend in Palito complex.



10 Drilling

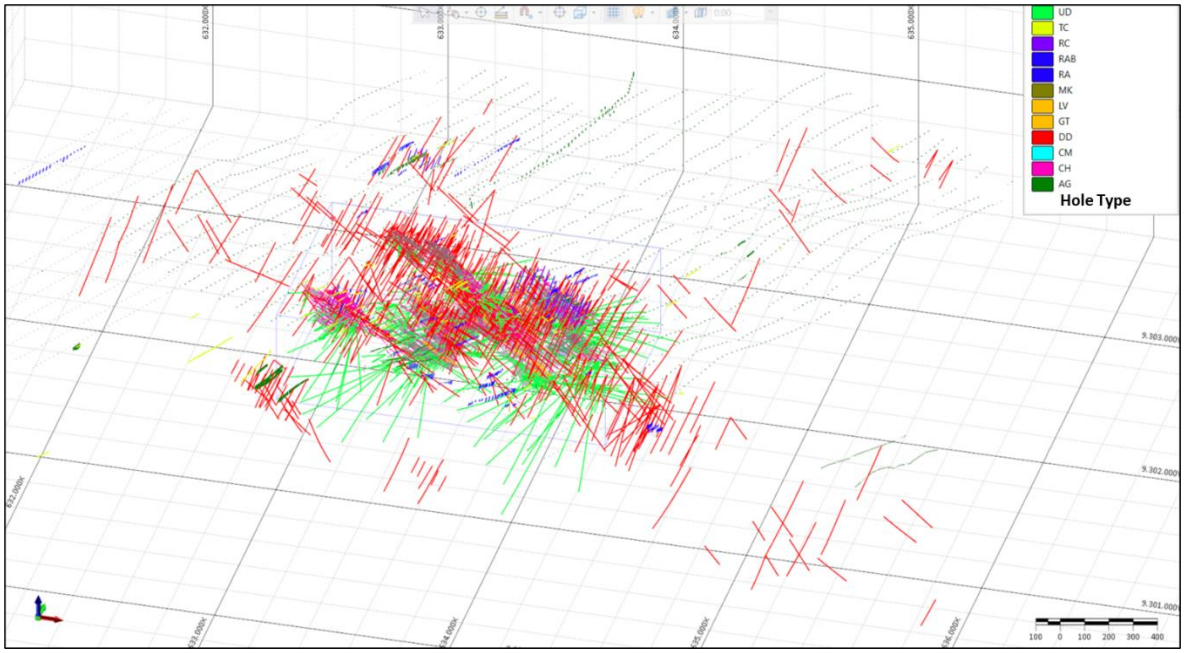
10.1 Palito Mine

10.1.1 Introduction

Prior to Serabi's acquisition of the Palito Mining Complex, RTDM completed six boreholes in late 1996. The drilling totaled 1,610.06 m and successfully intersected gold mineralization within the Palito Main Zone. However, due to the narrow nature of the mineralized veins and lack of large tonnage, the low-grade potential did not allow for RTDM to move forward with development of the project. Serabi has since re-logged and re-sampled the core for confirmatory analysis and have incorporated this drilling into their database.

All the drilling available at the Palito Mine is illustrated in Figure 10-1.

Figure 10-1: 3D View of Drilling at the Palito Mine, in Relation to Underground Infrastructure. Looking South



Source: NCL (2023) - CH=channel samples, DD=Surface Diamond Drilling, RAB= Rotary Air Blast Drilling, RC=Reverse Circulation Surface Drilling, UD=Underground Drilling

The total meters drilled on the Palito Mining Complex including both drilling for exploration and mineral resource analyses are summarized in Table 10-1.

Table 10-1: Drilling Summary

Sample Type		N Holes	Total Meters	Meters Sampled	Number of Assays
AG	Auger	4,636	18,406.82	17,841.06	8,332
CH	Channels	18,609	41,065.34	18,806.45	32,252
CM	Pipes	702	828.67	353.83	815
DD	Surface Drilling	675	122,210.21	31,499.73	36,295
GT	Galleries	2	136.35	8.45	11
LV	Stopes	5,208	5,644.21	2,585.93	6,053
MK		13	133.30	133.30	52
RA		6	626.00	593.00	593
RAB		322	3,701.10	3,694.00	1,252
RC	Reverse Circulation	74	4,409.60	4,260.20	4,036
TC	Trench	96	3,425.49	2,570.90	2,429
UD	underground drilling	923	94,713.13	12,821.09	17,806
Total		31,266	295,300.22	95,167.94	109,926

Source: NCL (2023)

10.1.2 Core Drilling

A total of 18,235 m of core drilling from surface was completed by Serabi during 2005. The bulk of the work was undertaken on and around the Palito Main Zone, where step-out drilling resulted in the discovery of a series of high-grade gold veins (collectively termed the Compressor Lode) and illustrated the potential of additional satellite orebodies parallel to the Palito Main Zone. Evaluation of soil geochemistry results, geophysical surveys and geology lead to diamond drilling at the Palito West and Bill's Pipe targets in late 2005, where high-grade gold mineralization was intersected. Further drilling at Palito, totaling 7,705 m of surface drilling and 6,406 m of underground drilling, was completed during 2006. Additional drilling was undertaken at nearby satellite prospects, resulting in a total of 15,253 m drilled on the property in 2006.

The early months of 2007 focused on preliminary evaluation of properties adjacent to the Palito Main Zone. The presence of mineralization at Chico da Santa and Palito West had already been established, and limited drilling of both prospects indicated potential to become small satellite mining operations.

There were also indications that a series of mineralized structures parallel to the Palito Main Zone might exist over a much wider area. Pursuing this and following up on a strong gold-in-soil geochemical anomaly in the Ruari's Ridge area, an area of mineralized weathered outcrop (gossan) was discovered. A trenching program followed, which identified the presence of a high-grade mineralized structure extending over 600 m strike at surface. Follow-up drilling confirmed additional sub-parallel zones of gold-copper mineralization. Simultaneous drilling in the Chico da Santa area successfully identified two additional vein structures. A total of 27,494 m of drilling were completed over the Palito Mine area in 2007.

Throughout the course of 2008, Serabi undertook an extensive drill program that was initiated in November 2007. Over 19,000 m of a planned 25,000 m was drilled prior to the program being suspended in the fourth quarter of 2008. During the first half of 2008, over 7,300 m of drilling were completed across the Palito Main Zone and Palito West deposits, targeting EM geophysical anomalies. Variable gold grades were encountered in massive sulfide and quartz vein-sulfide zones intersected during drilling. By the end of the program, five addition vein structures were identified at

Palito West. At the Senna Zone (formerly known as Rauri's Ridge), drilling confirmed the presence of a significant and minable oxidized gold zone located immediately above the main Senna gold vein.

A discovery and follow-up diamond drill program were conducted by Serabi from December 2010 to November 2011. The drilling was designed to be completed in two phases; the first phase was directed at IP chargeability models with coincident resistivity or conductivity anomalies and additional geochemical, EM or structural interpretation support, and the second phase was aimed at infilling successful phase 1 targets and to further define existing intersections at Palito South. The Phase 1 program saw 36 exploration boreholes totaling 8,214 m drilled over nine targets in the vicinity of the Palito operation, of which gold mineralization was intersected in seven. The two most prospective targets, Piaui and Currutela, were followed up with an additional 43 boreholes totaling 4,392 m during the phase 2 program, targeting shallow near surface potential. Of the 43 boreholes, 20 were drilled between Currutela and Palito (referred to as Palito South) and encouraging results were recorded, with bonanza gold and high-grade copper results returned. Positive results were also returned from the Piaui prospect where the remaining 23 holes were drilled. The drilling was undertaken over two areas of 600 m and 350 m strike length and intersected broad zones of intense chlorite-silica-sulfide alteration zones more than 40 m.

In addition, an exploratory borehole intended to test the northwest continuity of the Palito Main zone inadvertently intersected gold mineralization at what is now known as the Espeto prospect. The bulk mineralized zone returned 17.06 m at 1.17 g/t gold from 84.25 m depth, including 0.88 m at 5.25 g/t gold and 0.61 m at 10.90 g/t gold. Multiple zones of hydrothermally altered granite, comparable to Palito and Currutela, were encountered and indicated potential strike extension of approximately 2 km between the Palito Mine and the southerly limit of the Currutela target.

In late 2011, 20 shallow boreholes totaling 1,632 m were drilled at the Palito South prospect, in the area between the Espeto prospect and Palito Mine. High-grade intersections were encountered in several boreholes including 0.72 m at 8.91 g/t gold, 0.90 m at 21.60 g/t gold, 1.40 m at 43.20 g/t gold, 0.81 m at 8.79 g/t gold and 0.93 m at 34.75 g/t gold.

From the last updated technical report issued by SRK on 2018 until September 2023 a total of 93 Core Drillholes has been done totalizing 23,860.21 meters.

10.1.3 Reverse Circulation Drilling

In 2006 and 2007, Serabi executed two RC drill programs with the intention of expediting the drill programs to provide a rapid turn-around for planning, and to assess the potential of the shallower saprolite and oxide mineralization in the near mine environment. Drilling services were provided by Wilemita Ltda in 2006 and by GeoLogica Sondagens 2007. The focus of the 2006 program was on the Bill's Pipe, Chico da Santa and Ruari's Ridge prospects, while the 2007 program was executed on the Chico da Santa prospect only. The use of the RC drilling method proved less effective than anticipated due to the depth of the regolith profile encountered and the abrasive nature of the granites.

From May to early June 2009, a program of 393.6 m of RC drilling was conducted using Serabi's crawler underground drill rig to explore for shallow oxide mineralization in the vicinity of the existing Palito West and G3 south lodes.

From the last updated technical report issued by SRK on 2018 until September 2023 no Reverse Circulation Drilling has been done.

10.1.4 Rotary Air Blast Drilling

Rotary air blast drilling (RAB) was contracted to Geologica Sondagens in 2009 to test several soil geochemistry anomalies in the Palito Mine area. The use of RAB drilling was again undertaken to expedite the assessment of soil geochemistry anomalies; however, it was limited by ground conditions and logistical issues and was a less effective and slower method than anticipated.

RAB drilling was used as an exploration tool only, and the results are not included in the resource estimation.

From the last updated technical report issued by SRK on 2018 until September 2023 no RAB Drilling has been done.

10.1.5 Underground Drilling

The utilization of a small underground drill rig for exploration drilling began in 2016 to assist in identifying additional resources at depth. This work is performed in addition to underground drilling that is performed on a month-to-month basis for mine planning purposes. A total of 3,740 m was drilled in 2016 for short term mine planning and an additional 1,868 m for longer term resource modeling and resource growth purposes. This drilling was performed primarily within the Senna sector of the Palito Mine.

From the last updated technical report issued by SRK on 2018 until September 2023 a total of 587 UD Drillholes has been done totalizing 78,226 meters.

10.1.6 Channel/Raises/Galeries/Stopes Sampling

Face and back samples are routinely collected along development drives and mining fronts as grade control for the mining operation. These samples are marked by a geologist or mining technician and sampled in a continuous line using a hammer and chisel. Chips are transferred into a plastic bag and marked with the appropriate sample number and sealed.

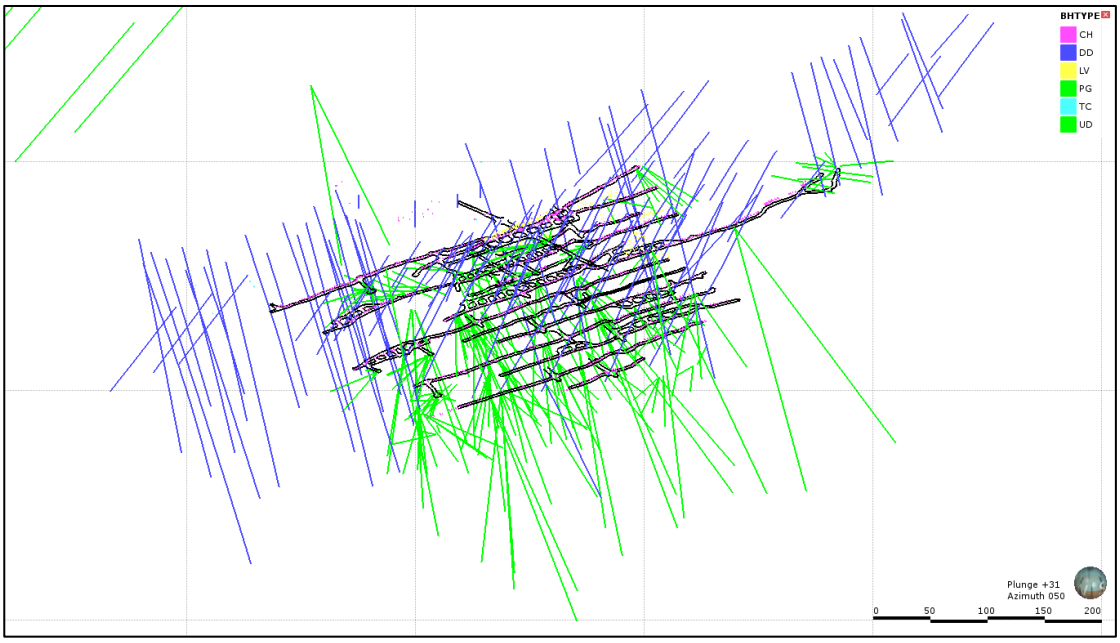
Only Channel samples which intercepts modeled ore bodies has been used for estimation of measured resources.

10.2 São Chico Mine

10.2.1 Introduction

All the drilling available at the São Chico Mine is illustrated in Figure 10-2.

Figure 10-2: 3D View of Drilling at the São Chico Mine, in Relation to Underground Infrastructure. Looking Northeast



Source: SRK, 2017 - CH=channel samples, DD=Surface Diamond Drilling, RAB= Rotary Air Blast Drilling, RC=Reverse Circulation Surface Drilling, UD=Underground Drilling.

10.2.2 Drilling

Prior to acquisition of the property by Serabi, Kenai completed 22 boreholes totaling 3,235 m at the São Chico deposit in 2011. Drilling was planned to target the known mineralization of the Main Vein and Highway Vein, and to explore the along strike and down dip extensions of these zones and the potential for buried, sub-parallel vein structures. The results of the drilling indicated that the mineralization at São Chico strikes west-northwest over 540 m and remains open along strike and at depth.

From May to October 2013, Serabi completed a diamond drilling campaign totaling 6,070 m over 38 boreholes. The program initially targeted the Main Vein, where 21 infill and step out drill holes totaling 4,950 m were completed. The program was supplemented by a ground geophysics IP survey, and the resulting anomalies were tested with 1,120 m of diamond drilling. A further five shallow boreholes totaling approximately 500 m was completed at the Highway Vein. Results from the 21 boreholes drilled into the Main Vein returned a series of high-grade gold intersections including ten intercepts more than 100 g/t gold. The drilling intercepted a continuous zone of alteration and quartz sulfide veins beneath and along strike from the previous Kenai drilling campaign. Drilling at the Highway Vein resulted in four out of the five holes producing near surface mineralized intersections (less than 85 m down hole) more than 25 g/t gold.

In 2015, following development on the São Chico main lode, Serabi conducted a surface drilling program of 42 boreholes totaling 7,204 m. The drill holes were planned to better refine the geological understanding of the major mineralized zones and attempt to extend the mineralized lodes defined by previous drilling.

In late 2015, a small underground drilling rig was utilized for exploration drilling to better understand and evaluate the down dip continuation of the Main Vein. A total of 1,459 m was drilled in 2015 from 30 holes, and a further 5,560 m was drilled in 2016 from 53 holes.

10.2.3 Channel Sampling

Historically EAL collected 17 underground channel samples from the back of the São Chico drive at a spacing of 2 to 5 m. Channels were cut 5 cm wide and 2 cm deep using a handheld electric circular saw. Two to six samples were collected per channel based on lithological contacts and included both wall rock and vein material where possible. Results indicated that elevated gold grades between 10.79 and 254.50 g/t gold were consistently repeated over a strike length of 50 m over intervals of up to 1.5 m wide. High grade gold was spatially associated with the shallow angle intersection of two vein sets; at this intersection mineralization comprised of brecciated quartz veins and strong chlorite-sericite alteration with semi-massive pyrite-galena-sphalerite in the breccia matrix. Sheeted quartz veinlets and quartz lenses exploiting en-echelon tension gashes crosscut the breccia.

Following commencement of mine development on the São Chico main lode in 2015, channel samples were taken from both mine development drives and grade control within the stopes. As of March 2016, over 680 channel samples had been collected across five mine levels.

10.3 Drilling Procedures and Sampling Methodology

10.3.1 Palito Mine

At the Palito Mine, Serabi's survey department surveys surface and underground drill collar positions using total station and theodolite optical equipment. Down-hole surveys are performed using a Reflex E-Z shot tool that records azimuth and dip measurements at 30 m intervals down the hole. The surveys are recorded by the geology department and maintained in the Serabi database.

Exploration drill core is half core sampled; one half is retained for future reference, while the other half of the core is placed in a plastic sample bag, identified with the appropriate sample number and sealed. Samples are placed into a larger 50 L bag, which is marked and sealed prior to dispatch to the laboratory. All underground core is whole core sampled and undergoes the same evolution as the exploration drill core.

Drill core sampling is executed at the geological core logging facility at the Palito Mine site. All drill core is cut and sampled based on geological intervals that are no less than 0.5 m and no greater than 1.2 m. If the interval exceeds 1.2 m, it is divided equally into sample intervals covering the zone of interest to no less than 0.5 m. If the interval is less than 0.5 m, the sample is extended to incorporate country rock and/or gangue material.

Channel samples are collected using a similar protocol to diamond drill sampling, where a sample length between 0.5 and 1.2 m is achieved. Rock chips typically weighing 2 to 5 g are collected prior to being sent to the Palito Mine laboratory for preparation and analysis.

Reverse circulation drill sampling is typically conducted at 1 m intervals for the entire hole, except for the 2009 reverse circulation program in which samples were collected using a 1.2 m interval.

10.3.2 São Chico Mine

At the São Chico project, drill collars are typically located using a handheld GPS device with 4 m accuracy, and down-hole surveys are performed using a Reflex E-Z shot tool.

Drill core is reconstructed and washed by the driller and stored in wooden core boxes marked with the drillhole number, meterage, and box number. Drill core is stored at the drill rig until mine staff transport it to the core logging facility at camp. Drill core undergoes geotechnical logging, meter marking, geological logging, and photographing prior to sampling.

The entire drill hole is sampled, with sample intervals of 2 m unless the sample crossed a lithological boundary or change in alteration or mineralization. In such cases, the sample interval is determined based on lithology or alteration and maintained a minimum length of 0.5 m to ensure a sufficient sample weight. Each sample interval was recorded on the core box. Core was cut in half using a circular rock saw and jig, with one half left in the core box for future reference and the other used for sampling purposes.

Since the acquisition of São Chico by Serabi, comparable drilling and sampling procedures to that at Palito are being undertaken at São Chico.

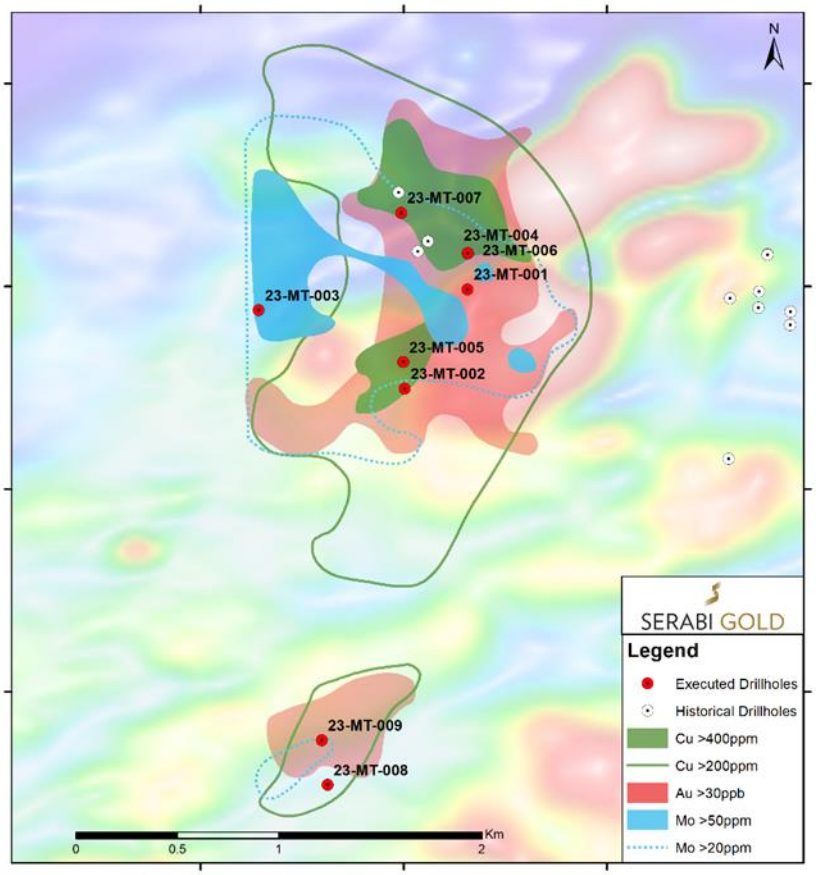
10.3.3 Regional

A series of regional targets were tested since 2020. In this period a total of 22.823,06 meters were drilled to test different targets and mineralisation types. Highlight for the epithermal vein of Forquilha 2km far NE from Palito mine, and the São Chico complex region with porphyry style mineralisation complex that includes the targets Matilda, Isla, and Ganso.

Matilda was the main drilling target in 2023 with 7.598,37m meters in 21 drill holes. Matilda is a Proterozoic aged copper system has many of the geological, mineralogical, and genetic features found in modern alkalic porphyry systems such as those found in Australia and Canada. The geochemical footprint from soil sampling suggests a target area measuring 4,000 metres by 2,500 metres which remains open to the west and southwest.

Other targets drilled have partial results available and a deeper analysis is necessary. Some of the targets presented anomalous copper values and epithermal structures in additional to local argillic alteration indicating the potential for other porphyry copper discoveries. These features were observed in Isla and Ganso targets within the Sao Chico complex six kilometres around Sao Chico mine.

Figure 10-3: Location of drill holes executed in the 2022 and 2023 drill programs at Matilda.



The Phase 1 drilling programme has focussed on the strongest part of the Matilda coincident copper / gold / silver soil anomaly with six drill holes along two drill sections spaced 400 metres apart. (see Figure 1). This initial focus area is also a semi-coincident magnetic susceptibility high, (see Figures 2), potentially associated with potassic (magnetite) alteration.

Highlights include:

23-MT-001

- 6.06m @ 0.36% Cu and 0.07 ppm Au from 30.00m
- 3.25m @ 0.44% Cu and 0.12 ppm Au from 102.00m
- 9.14m @ 0.36% Cu and 0.11 ppm Au from 122.60m
- 4.11m @ 0.27% Cu and 0.09 ppm Au from 187.40m

23-MT-004

- 72.88m @ 0.44% Cu and 0.12 ppm Au from 29.85m
- 5.37m @ 0.39% Cu and 0.09 ppm Au from 138.80m

- 48.49m @ 0.42% Cu and 0.11 ppm Au from 220.00m **

23-MT-006

- 12.99m @ 0.22% Cu and 0.05 ppm Au from 28.00m
- 23.77m @ 0.24% Cu and 0.06 ppm Au from 50.00m
- 12.12m @ 0.20% Cu and 0.04 ppm Au from 106.00m
- 6.97m @ 0.24% Cu and 0.02 ppm Au from 161.20m
- 29.19m @ 0.32% Cu and 0.07 ppm Au from 183.20m
- Including 13.81m @ 0.47% Cu and 0.10 ppm from 200.95m
- 12.12m @ 0.20% Cu and 0.05 ppm Au from 305.00m

23-MT-015

- 37m @ 0.22% Cu from 32.00m
- 38m @ 0.28% Cu from 97.00m
- Including 7m @ 0.6% Cu from 113m

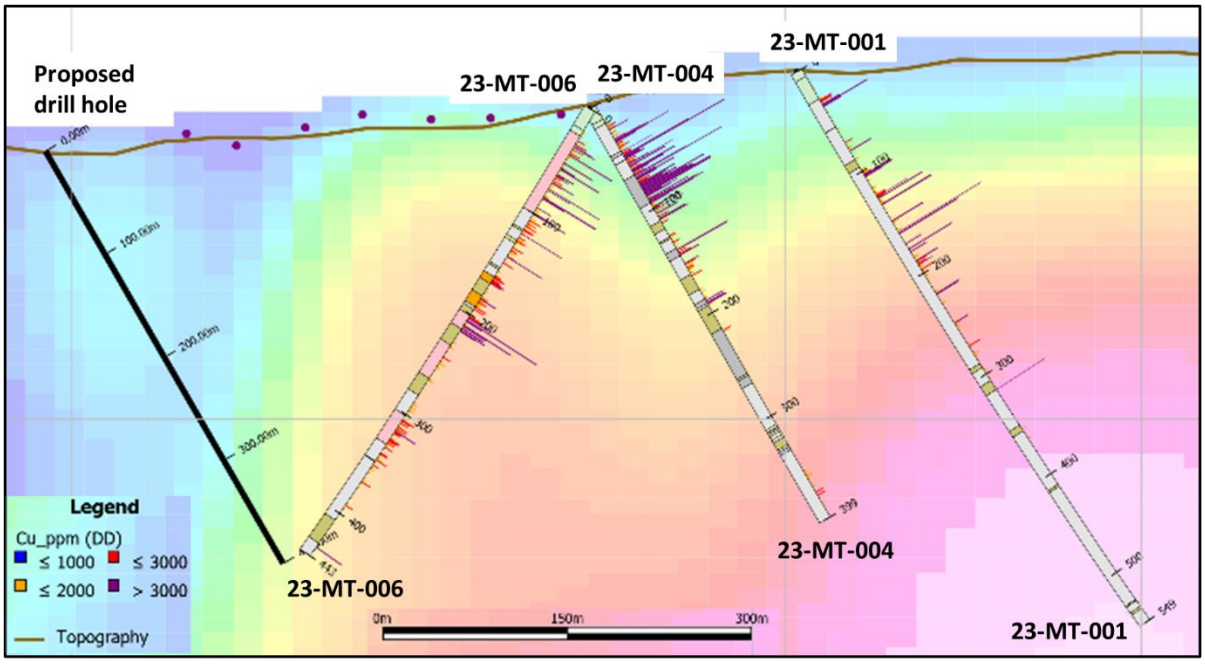
23-MT-016

- 12m @ 0.40% Cu from 78.00m
- 45m @ 0.28% Cu from 116.00m
- Including 15m @ 0.38% Cu from 118m
- Including 6m @ 0.46% Cu from 118m

23-MT-017

- 14m @ 0.35% Cu from 102.00m

Figure 10-4: Drill section with 23-MT-001, 004 & 006 and copper results plotted over the magnetic susceptibility model.



10.4 NCL Comments

The high quantity and quality of the data collected from boreholes and the sampling procedures currently used in production tunnels, plus reconciliation factors between the mine and the plant, adequately reflect the deposit dimensions, true widths of mineralization distribution and the style of the ore deposit. These procedures used by Serabi are generally consistent with industry best practices. The resultant drilling pattern is sufficiently dense to interpret the geometry and the boundaries of mineralized domains with confidence.

Drilling, analytical data, sampling methods, data management and QA/QC procedures are acceptable, well implemented and under international good practices standards for Mineral Resources Estimation.

11 Sample Preparation, Analysis and Assurance

11.1 Sample Preparation and Analyses

11.1.1 Surface Geochemical Samples

Soil geochemistry from the 2003 exploration program was initially analyzed at Serabi's internal Palito laboratory using an aqua regia method and atomic absorption spectrometry finish to a detection limit of 100 ppb. Subsequent assessment and evaluation of the soil results in 2007 suggested that reanalyses using a 10-ppb detection limit could define more subtle footprints of undiscovered mineralization and the available historic soil sample pulps were sent for analyses at the SGS Geosol laboratory in Belo Horizonte. After 2007, all soil sampling conducted away from the immediate Palito Mine area was analyzed at external laboratories using a 10 ppb lower detection limit.

Samples collected during the 2008 stream sediment geochemistry program were also submitted to SGS Geosol of Belo Horizonte for analyses using a 10-ppb detection limit.

11.1.2 Core Samples

11.1.2.1 Palito Mine

Historically, underground core which had a shorter turn-over period than regular surface core holes, were prepared primarily at the Palito Mine laboratory. The remainder were sent to either ALS Chemex, with preparation at Goiás and assaying at Brisbane, Australia, or to the SGS Geosol laboratory with preparation at Itaituba and assaying at Belo Horizonte, Brazil. Both external laboratories used standard 30 g fire assay and aqua regia analysis for gold and copper and are certified commercial laboratories. Once an onsite analytical laboratory was established at the Palito Mine in 2005, samples of primarily quarter core were analysed via MIBK or DIBK for gold and aqua regia for copper.

In 2007, the process of quarter and half core preparation at the onsite laboratory was abandoned, as a core preparation facility was established in Itaituba by SGS Geosol. Due to the limited capacity of the Palito laboratory to process exploration drill samples as a result of the increase in mine production and mill samples assuming a higher priority, improved turnaround time on analyses could be achieved with the addition of the preparation facility at SGS Geosol. In October 2007, under advice received from NCL, Serabi began sample preparation of half core samples at the onsite laboratory, and dispatched prepared samples to SGS Geosol for analyses. This process continued until February 2008, when increased production of drill samples exceeded the preparation facilities of the Palito laboratory and all samples were again sent to SGS Geosol.

Serabi utilized the services of SGS Geosol until the end of 2010 for all drill core samples comprising the mineral resource at that time. Sample preparation was performed at SGS's facility in Itaituba, while analysis was performed at their Belo Horizonte laboratory. With regards to the 2010 to 2011 drilling campaign, sample preparation was performed by Serabi at the Palito Mine laboratory, while analyses took place at Eco Tech Laboratory and ALS Minerals located in British Columbia, Canada.

Sample preparation at the Palito Mine laboratory and SGS Geosol facility in Itaituba includes the following steps:

- Samples dried at 110° Celsius.
- Crushed to pass 2 mm screen.

- Riffle split; 1 kg split ground to a -150 mesh pulp; and
- Collect 125 g of homogenized fraction: 50 g for sample analyses, remaining stored in a marked envelope for future reference.

Samples which have been marked as having visible gold during the core logging stage follow slightly different sample preparation steps:

- Entire sample crushed and ground to -150 mesh.
- Sample passed through a 150-mesh screen.
- Undersized material weighed and treated in the same way as a normal sample.
- Oversized material weighed, pulverized, and treated as a separate sample; and
- Both sample analyses reported separately; laboratory calculates weighted average, and the single value is ascribed to the sample interval.

At SGS, gold was assayed in 30 g aliquots by fire assay with atomic absorption spectroscopy (AAS) finish. The gold value was calculated by comparison with a set of known gold standards. At the Palito Mine laboratory, samples are analyzed by aqua regia with AAS finish.

11.1.2.2 São Chico Mine

Under the ownership of Kenai, drill core samples were prepared at ACME in Itaituba, Brazil, and analyzed by ACME in Santiago, Chile, using 50 g gold fire assay. Samples were prepared using ACME's preparation code R200-1000, which includes the following steps:

- Entire samples crushed to 80% passing 10 mesh.
- Riffle split: 250 g sub-sample produced; and
- Pulverized to 85% passing 200 mesh.

Samples were then transported from Santiago to ACME in Vancouver, Canada for analysis by aqua regia with inductively coupled plasma mass spectrometry (ICP-MS) finish.

11.1.3 Reverse Circulation Samples

At the Palito Mine site, reverse circulation drill samples were passed through a Jones Riffle Splitter, quartering the sample until a 2 kg sample was achieved. In cases where the sample was too moist to pass through the riffle splitter, it was sun or oven dried until it could be passed through the splitter. Samples were placed in plastic sample bags, identified with the appropriate sample number and sealed. They were then placed into larger 50 L bags, which were marked and sealed prior to dispatch to the laboratory.

Samples were prepared and assayed by SGS Laboratories by 30 g fire assay for gold and aqua regia for copper. Alternatively, samples underwent a combination of preparation and analysis at the Palito laboratory by aqua regia for gold and copper, with pulps submitted to SGS for analysis by 30 g fire assay and aqua regia.

11.1.4 Channel Samples

11.1.4.1 Palito Mine

At the Palito Mine, approximately two to 5 kg of chips from face and back channels is collected for sampling. The samples are delivered to the Palito laboratory where they are prepared and analyzed for gold and copper by aqua regia method.

11.1.4.2 São Chico Mine

Under the ownership of Kenai, rock chip and underground channel samples were prepared and assayed at SGS Geosol's laboratory in Vespasiano, Brazil using the following steps:

- Entire sample dried and crushed to 75% passing 2 mm screen; and
- 250 g sub-sample pulverized to 85% passing 200 mesh.

Samples were then submitted for 50 g fire assay with AAS finish (SGS Geosol code FAA505) and 34 element ICP-OES analysis following aqua regia digest (SGS Geosol code ICP12B).

11.2 Quality Assurance and Quality Control Programs

Quality assurance and quality control programs are typically set in place to ensure the reliability and trustworthiness of exploration data. They include written field procedures and independent verifications of aspects such as drilling, surveying, sampling, and assaying, data management, and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data are important as a safeguard for project data and form the basis for the quality assurance program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. They are also important to prevent sample mix-up and monitor the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate and replicate assays and insertion of quality control samples to monitor the reliability of assaying results throughout the sampling and assaying process. Check assaying is typically performed as an additional reliability test of assaying results. This typically involves re-assaying a set number of rejects and pulps at a second umpire laboratory.

11.2.1 Palito Mine

The analytical quality control program implemented at Palito includes the insertion of control samples within sample batches that are being submitted for assaying. Blanks and certified reference material are inserted alternately every 10 samples, and their results are monitored. The Palito and SGS Geosol laboratories report on their own internal standards and blanks by conducting duplicate pulp analyses.

Serabi's current quality control program uses reference materials produced by Rocklabs of Auckland, New Zealand. A number of standards covering a wide range of grades are incorporated into all sample batches.

Samples of pure quartz are used as blank samples in assay batches to monitor potential contamination during the sample preparation process. If the assay result of a blank sample returns a grade over the detection limit of 0.03 g/t gold, the entire batch is considered for re-analyses.

Approximately 10% of the samples submitted are for quality control purposes.

11.2.2 São Chico Mine

The analytical quality control program implemented at São Chico is similar to that at Palito. Control samples are inserted into all sample batches submitted for assaying from the São Chico Mine. Drill core samples are submitted in batches of 20 and each batch contained 16 drill core samples, one blank, one certified reference material, one crush duplicate and one pulp duplicate.

Blanks and certified reference material results, however, were not reported on and therefore cannot be verified by NCL.

11.3 NCL Comments

Between August 9 and August 12, 2022, NCL visit the mine to carry out a review of the QAQC protocols and to learn about the methodology used to update the database and Resources and Reserves assessment. For this, an on-site review of the sampling protocols was carried out, both for drilling and inside the mine, an inspection of the laboratory and its procedures, located in the mine facilities, a general inspection of the plant and a technical visit only to the Palito mine.

NCL certified that the QA/QC procedures are acceptable, well implemented and under international good practices standards. There are some procedures, which although it is true that they work in the mine and that due to the geological characteristics are well founded, need minor adjustments such as checks validations that better support the procedures carried out by company professionals. Among others, comparisons in specific gravity calculation procedures and heterogeneity tests.

12 Data Verification

12.1 Verifications by Serabi

Exploration and production work completed by Serabi is conducted using documented procedures and involves detailed verification and validation of data prior to being considered for geological modeling and mineral resource estimation. During drilling, experienced mine geologists implement best practices designed to ensure the reliability and trustworthiness of the exploration data.

As previously outlined, Serabi relies partly on the internal analytical quality control measures implemented by SGS and the Palito Mine laboratory, but also implement external analytical quality control measures comprising of inserting control samples in all sample batches submitted for assaying and requesting pulp and coarse reject duplicate samples. Quality control failures are investigated, and appropriate actions are taken when necessary, including requesting re-assaying of certain batches of samples.

12.2 Verifications by NCL

In accordance with NI 43-101 guidelines, NCL visited the Palito Mining Complex operations from August 9 to 12, 2022, accompanied by representatives of Serabi. The NCL team of qualified persons comprised of Nicolás Fuster, RM CMC, Gustavo Tapia, RM CMC and Carlos Guzmán, FAusIMM / RM CMC.

The site visit took place during active drilling and production activities. All aspects that could materially impact the integrity of the data informing the Mineral Resources (core logging, sampling, analytical results, and database management) were reviewed along with Serabi staff. NCL interviewed mine staff to ascertain exploration and production procedures and protocols. NCL examined selected core and confirmed that the logging information accurately reflects actual core. The lithology contacts checked by NCL match that of the information reported in the core logs. NCL toured the underground operations and assessed the attributes of the vein mineralization.

NCL analyzed the available analytical quality control data of the Palito and São Chico operations to confirm that the analytical results are reliable for informing mineral resource estimates. Serabi provided analytical data as an Access database. Certified reference materials and blanks were summarized on time series plots to highlight the performance of the control samples, and duplicate assays were examined using bias charts, quantile-quantile, and relative precision plots.

Concerns of possible contamination during the sample preparation process or mislabeling of blank samples is noted in the dataset, however, only approximately 1% of blank samples are observed to be above the warning limit (defined as ten times the lower detection limit). Improvements have been made, as no blank samples in the latest data are observed to be above the warning limit. Serabi should continue to incorporate blank samples and monitor their performance on a regular basis.

Duplicate assays of internal blanks and standards used by the analytical laboratories to which Serabi sent samples to in the pre-2016 dataset was also assessed. Rank half absolute difference (HARD) plots suggest that approximately 98% of the duplicate samples assayed for gold have HARD below 10% and approximately 92% of the duplicate samples assayed for copper have HARD below 10%, indicating extremely good repeatability of the sample results.

NCL certified that the QA/QC procedures are acceptable, well implemented and under international good practices standards.

Serabi should continue to closely monitor the performance of the Palito Mine quality control samples and identify and investigate the cause of any significant outliers.

13 Mineral Processing and Metallurgical Testing

13.1 Palito Ore Testing and Procedures

Metallurgical tests were carried out by AMMTEC Australia on behalf of Serabi Mining during the period from April 2004 through August 2005. The testwork conducted in 2004 was performed on three samples of Palito Mine ore that were identified as AmVeio 1, AmVeio 2, and AmVeio Oziel. Head analyses for these test samples are presented in Table 1-1 with gold grades ranging from 34.9 to 76.0 g/t Au and copper grades ranging from 0.30% to 1.11% Cu. It is noted that the gold head grades of the test composites were all significantly higher than the grades of actual mined ore which ranged from about 5 to 12 g/t during the period 2005 to 2007.

Table 13-1: Head Analyses for Palito Ore Test Samples

Sample Identity	Au (g/t)	Cu (%)	Ag (g/t)	Fe (%)	S (%)
Am Veio 1	34.9	0.3	8.0	12.7	12.6
Am Veio 2	76.0	0.9	17.0	13.0	14.3
Am Veio Oziel	74.5	1.1	27.0	11.7	11.3

Source: Ammtec Report A9134, April 2004

13.1.1 Flotation and Cyanidation Testwork

Testwork on these samples included three preliminaries flotation tests, including bulk sulfide flotation, selective copper flotation followed by bulk sulfide flotation, and straight selective copper flotation. The results of these tests are summarized in Table 13-2. The selective copper flotation test conducted on test sample Am Veio 1 (which represented a copper grade closer to the copper grades likely to be produced from the Palito Mine) resulted in the recovery of 93.3% of the copper and 67.5% of the gold into a copper flotation concentrate that contained 14.2% Cu and 1,119 g/t Au.

Table 13-2: Summary of Flotation Tests Conducted on Palito Ore Samples

Test No	Ore Type	Float Type	Grind P_{80} (µm)	Concentrate Grade		Concentrate Recovery		Float Tail	
				Cu (%)	Au (g/t)	Cu (%)	Au (%)	Cu (ppm)	Au (g/t)
GS0108	Am – 01	Bulk Sulfide	75	1.2	106	97.0	83.2	137	7.9
GS0109	Am – 02	Bulk Sulfide	75	2.6	208	98.5	92.4	172	7.7
GS0110	Am-Oziel	Bulk Sulfide	75	4.4	233	96.3	87.8	570	10.9
GS0111	Am – 01	Select Cu + Bulk	53	1.3	103	96.4	85.1	163	6.1
GS0112	Am – 02	Select Cu + Bulk	53	3.0	208	98.5	92.6	182	6.7
GS0113	Am-Oziel	Select Cu + Bulk	53	4.7	266	95.4	93.3	707	6.0
GS0114	Am – 01	Selective Cu	75	14.2	1119	93.3	67.5	211	32.5
GS0115	Am – 02	Selective Cu	75	17.1	1202	96.4	70.9	299	23.2
GS0116	Am-Oziel	Selective Cu	75	19.4	1168	87.6	78.0	1390	16.7

Source: Ammtec Report A9134, April 2004

Cyanide leach testwork was conducted on the flotation tailings from the selective copper flotation tests (tests GS0114 to GS0116) and the results of these tests are summarized in Table 13-3. Cyanide leaching of the flotation tailing from the Am Veio 1 test sample resulted in the extraction of 61.6% of the gold contained in the flotation tailing. This represents an overall gold recovery from flotation followed by cyanide leaching of about 87.5%.

Table 13-3: Summary of Cyanidation Tests Conducted on Copper Flotation Tailings

Ore Type	Calculated Head Grade (Float Tail)		Test No	Lime (60% CaO) (kg/t)	NaCN Added (kg/t)	NaCN Consumption (kg/t)	Leach Residue (24hr) Au (g/t)	Copper Extracted (%) @ 48hrs	Gold Extracted (%) @ 48hrs
	Cu (%)	Au (g/t)							
Am – 01	11.5	257	GS0117	1.00	1.50	0.39	4.42	45.23	61.56
Am – 02	22.6	360	GS0118	1.00	1.50	0.46	5.93	37.52	73.80
Am-Oziel	14.7	1740	GS0119	1.00	2.86	2.51	4.51	72.93	69.23

Source: Ammtec Report A9134, April 2004

13.1.2 Gravity Concentration Testwork

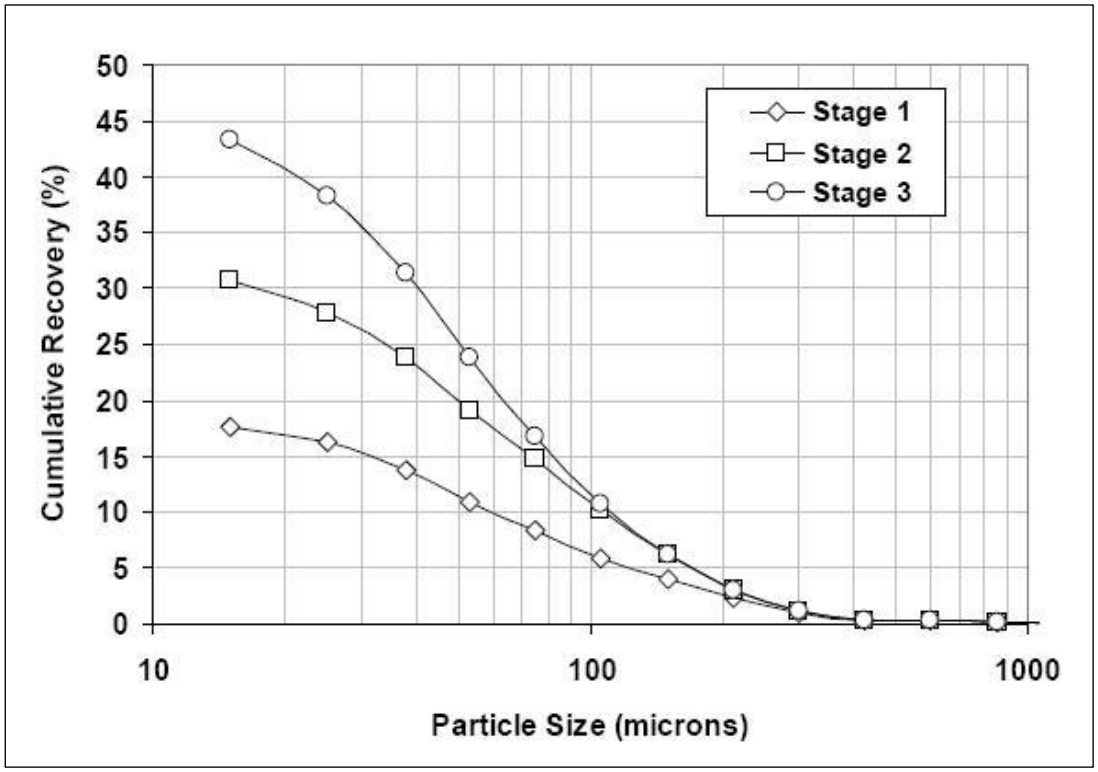
Knelson Research and Technology Centre, Canada, conducted a gravity recoverable gold (GRG) test on a sample of Palito mill feed ore. The results of the GRG test are shown in Table 13-4 The overall gold recovery after three stages of grinding was 43.3%, produced in a concentrate mass of 1.4%. The calculated head grade of the sample was 5.0 g/t Au with a final gravity tail grade of 2.9 g/t Au. A plot of cumulative gold recovery for each stage versus particle size is shown in Figure 13-1. Although very encouraging results were achieved by this testwork, gravity recovery was not included in the process plant flowsheet, due to concerns regarding the effect on flotation concentrate gold grades and concentrate sales.

Table 13-4: Gravity Recoverable Gold Test

Grind Size P_{80} (µm)	Product	Mass		Au (g/t)	Au Distribution (%)
		(g)	(%)		
78	Stage 1 Conc.	91.2	0.5	197.00	17.60
	Sampled Tails	308.0	1.5	4.20	1.30
232	Stage 2 Conc.	94.3	0.5	140.00	13.00
	Sampled Tails	309.0	1.5	3.50	1.10
97	Stage 3 Conc.	88.2	0.4	146.00	12.60
	Sampled Tails	19,307.0	95.6	2.90	54.40
Totals (Head) Knelson Conc		**20,198.0** **274.0**	**100.0** **1.4**	**5.00** **161.00**	**100.00** **43.30**

Source: Knelson Metallurgical Test Report KRTS 20314, January 2008

Figure 13-1: Cumulative Au Recovery vs. Particle Size



Source: Knelson Metallurgical Test Report KRTS 20314, January 2008

13.1.3 Comminution Testing

In 2005 a Bond Mill Work Index (BWi) test was conducted on a sample of Palito ore. Results from this test are summarized in Table 13-5 and show that the Palito ore is moderately hard with a BWi of 17.0 kWh/t.

Table 13-5: Bond Ball Mill Work Index on Palito Ore Sample

Product	Micrometers		Grp (g/rev)	Test Aperture (µm)	BWi (kWh/t)
	F_{K80}	P_{K80}			
Serabi Ore	2,406.0	79.6	1.095	106	17.0

Source: Ammtec Report A9738, August 2005

13.2 São Chico Ore Testing

Metallurgical studies were conducted by SGS Mineral Services- Lakefield (SGS) on samples of São Chico ore during 2012 and 2013. The results of these studies are fully documented in the following reports:

- "The Recovery of Gold from the São Chico Gold Project", SGS, April 4, 2012

13.2.1 2012 Metallurgical Program

The 2012 metallurgical program on São Chico ore was conducted to evaluate the processing characteristics of the São Chico ore and to develop a preliminary processing flowsheet. The program included ore characterization, as well as the evaluation of several processing options, including gravity separation, flotation, and cyanidation.

13.2.1.1 Sample Characterization

The metallurgical program was conducted on three metallurgical composites identified as N-1, N-2 and N-3, which were blended in equal proportions to formulate a Master composite. Gold head analyses for these test composites are shown in Table 13-6 and the results of multi-element analyses on each composite are shown in Table 13-7. The master composite contained 57.5 g/t Au, which are significantly higher than ore grades of 6 to 10 g/t Au that are typical from the São Chico Mine. As result of this, the master composite cannot be considered fully representative. It is also noted that in contrast to the Palito ore, São Chico ore contains very little copper.

Table 13-6: Gold Head Analyses on São Chico Test Composites

Composite	Calc Head Au (g/t)	+150 Mesh		-150 Meash			% Au distribution	
		% Mass	Au (g/t)	% Mass	Au (g/t) a	Au (g/t) b	+150 Mesh	-150 Mesh
Master	57.5	2.6	862	97.4	37.3	34.0	39.6	60.4
Comp N-1	114.0	3.2	1,424	96.8	70.5	72.6	39.3	60.7
Comp N-2	11.8	3.4	108	96.6	9.0	7.9	31.0	69.0
Comp N-3	40.9	3.1	640	96.9	21.0	22.8	48.0	52.0

Source: SGS, 2012

Table 13-7: Multi-Element Analyses on São Chico Test Composites

Element	Master	Comp N-1	Comp N-2	Comp N-3
Quantitative Analyses				
S(T) (%)	4.92	6.54	2.73	4.92
S= (%)	4.47	6.39	2.62	4.62
SO4 (%)	0.10	0.10	0.10	0.10
C(T) (%)	0.21	0.01	0.45	0.17
TOC	< 0.05	< 0.05	0.10	< 0.05
CO2	0.35	< 0.05	1.21	0.33
Semi-Quantitative ICP Scan				
Ag (g/t)	25	49	3	12
Al (g/t)	46,100	42,400	49,600	42,800
As (g/t)	< 40	< 40	< 40	56.0
Ba (g/t)	358	177	461	449
Be (g/t)	1.84	1.76	2.12	1.70
Bi (g/t)	< 20	< 20	< 20	< 20
Cd (g/t)	7,010	1,150	13,900	5,410
Co (g/t)	70	126	23	64
Cr (g/t)	9	10	9	12
Cu (g/t)	91	77	88	98

Element	Master	Comp N-1	Comp N-2	Comp N-3
Fe (g/t)	386	498	133	528
K (g/t)	48,000	59,700	31,200	48,600
Li (g/t)	25,100	21,900	27,400	21,200
Mg (g/t)	22	17	29	21
Mn (g/t)	4,150	3,270	5,790	3,830
Mo (g/t)	362	157	707	258
Na (g/t)	< 10	< 10	< 10	< 10
Ni (g/t)	1,550	432	2,200	2,150
P (g/t)	< 20	< 20	< 20	< 20
Pb (g/t)	232	230	273	228
Sb (g/t)	13,700	17,900	3,940	17,300
Se (g/t)	< 20	< 20	< 20	< 20
Sn (g/t)	< 30	< 30	< 30	< 30
Sr (g/t)	< 20	< 20	< 20	< 20
Ti (g/t)	17	7	27	13
Tl (g/t)	1,470	1,440	1,590	1,340
U (g/t)	< 30	< 30	< 30	< 30
V (g/t)	< 20	< 20	< 20	< 20
Y (g/t)	26	24	31	24
Zn (g/t)	8.9	7.6	13	7.9

Source: SGS, 2012

13.2.1.2 Comminution Study

A Bond ball mill work index (BWi) test was conducted on the master composite and the results are summarized in Table 13-8, where it is shown that a BWi of 15.5 KWh/t was determined. On this basis the São Chico ore is considered to be of moderate hardness.

Table 13-8: Bond Ball Mill Work Index on São Chico Master Composite

Feed F_{80} (µm)	Product P_{80} (µm)	Closing Screen (µm)	BWi (kWh/t)	
			Imperial	Metric
2,459	120	150	14.1	15.5

Source: SGS, 2012

13.2.1.3 Gravity Separation Testwork

The potential for gold recovery from the master composite by gravity concentration was evaluated at grind sizes of approximately 80% passing (P80) 100 and 75 µm with a Knelson MD-3 centrifugal concentrator as the primary gravity gold unit. The gravity concentrate produced from the Knelson concentrator was further upgraded on a Mozley mineral separator targeting an overall mass pull of 0.1%. The results of the gravity concentration tests are presented in Table 13-9 where overall gravity gold recoveries of 21.6% to 28.4% into gravity concentrates containing 23,010 to 27,515 g/t Au are reported. The Knelson and Mozley tailings were combined for subsequent cyanidation testwork.

Table 13-9: Summary of Gravity Concentration Testwork on São Chico Master Composite

Test No	Test Completed on Gravity Tailing	Feed Size P_{80} (µm)	Product	Mass (%)	Assays (g/t)		% Distribution	
					Au	Ag	Au	Ag
G-1	CN-4 & F-1	150	Mozley Concentrate Knelson	0.069	23,622	13,555	24.8	20.5
			+ Mozley Tailing	99.931	49.6	36.3	75.2	79.5
			Head (calculated)	100.00	65.9	45.6	100.0	100.0
G-2	CN-5 & F-2	106	Mozley Concentrate Knelson	0.062	23,010	13,258	21.6	19.1
			+ Mozley Tailing	99.938	51.6	34.6	78.4	80.9
			Head (calculated)	100.00	65.8	42.8	100.0	100.0
G-3	CN-6 & F-3	75.0	Mozley Concentrate Knelson	0.065	27,515	15,911	28.4	26.3
			+ Mozley Tailing	99.935	45.3	29.1	71.6	73.7
			Head (calculated)	100.00	63.3	39.5	100.0	100.0
			Head (Direct)		57.5	25.0		

Source: SGS, 2012

13.2.1.4 Cyanidation Testwork

Cyanidation tests were conducted on master composite gravity tailing and whole-ore samples at grind sizes ranging from about P80 75 to 150 µm. Standard bottle roll test conditions included:

- Slurry density: 40% solids (w/w)
- pH: 10.5 to 11.0 (controlled with lime)
- Cyanide Concentration: 0.5 g/L NaCN (maintained)
- Retention Time: 48 hours (with subsamples at 6 and 24 hours).

The results of whole-ore cyanidation tests are summarized in Table 13-10 and the results of cyanidation tests on the gravity tailing are summarized in Table 13-11. Overall gold recoveries for both whole-ore cyanidation and gravity + cyanidation of the gravity tailing were similar at about 99%. Grind size, over the range tested, did not have an effect on overall recovery. Sodium cyanide consumption ranged from about 0.71 to 1.85 kg/t with a trend for increasing consumption as the grind size became finer.

Table 13-10: Summary of Whole-Ore Cyanidation Test Result on the São Chico Master Composite

Test No	Feed Size P_{80} (µm)	Reagent Consumption kg/t of CN Feed		Au % Extraction			Residue Au (g/t)	Head Au (g/t)	
		NACN	CaO	6 hr	24 hr	48 hr		Calc	Direct
CN-1	137	0.94	0.29	60	87	99	0.68	55.7	57.5
CN-2	105	0.98	0.24	76	96	99	0.50	52.3	
CN-3	88	1.36	0.37	82	95	99	0.38	55.3	

Source: SGS, 2012

Table 13-11: Cyanidation Results on the Gravity Tailing from the São Chico Master Composite

Feed From Test	Test No	Feed Size P_{80} (µm)	Reagent Consumption kg/t of CN Feed		Au % Extraction CN (unit)			Overall Recovery		Residue Au (g/t)	Head Au (g/t)		
								Gravity	Gravity + CN		Calculated		Direct
			NACN	CaO	6 hr	24 hr	48 hr				CN Leach	Grav + CN	
G-1	CN-4	150	0.71	0.43	73	90	98	24.8	98.7	0.89	49.6	65.9	57.5
G-2	CN-5	106	1.02	0.65	63	96	99	21.6	99.0	0.69	51.6	65.8	
G-3	CN-6	75	1.85	0.70	44	93	99	28.4	99.2	0.51	45.3	63.3	

Source: SGS, 2012

13.2.1.5 Flotation Testwork

Flotation testwork conducted on the São Chico master composite is not relevant since the São Chico ore is not being processed by flotation.

13.2.2 2013 Metallurgical Program

The metallurgical test program conducted by SGS in 2013. The SGS report were not available for this review and this section is based on the NI 43-101 Report, June 2017 by SRK Consulting and consisted of the following:

- Extended gravity recoverable gold (E-GRG) testing to generate parameters necessary for gravity circuit design.
- Gravity recovery testing using a Knelson centrifugal concentrator followed by upgrading on a Mozley table
- Flotation optimization testwork.

After this test program, it was determined that the São Chico ore would be processed by a combination of gravity concentration and CIP cyanidation of the gravity tailings. As such, the extensive flotation testwork that was conducted is not considered relevant and is not presented.

The SGS original report was not available for this report.

13.2.2.1 Sample Characterization

The metallurgical test program was conducted on a single master composite that was formulated by blending 265 kg of sub-composite A with 65 kg of sub-composite B. Sub-composite A was created from three separate samples labeled N-4, N-5 and N-6, and sub-composite B was created from three separate samples labeled N-11.1, N-13.2 and N-14.2. Table 13-12 shows the gold head analyses for sub-composites A (8.59 g/t Au) and B (79.4 g/t Au), which were combined to formulate the master composite that contained 23.2 g/t Au and 30.8 g/t Ag. Table 13-13 shows the multi-element analyses for the master composite. This composite is distinctly different from the São Chico composite that was tested by SGS in 2012 in that it contains significantly higher lead (3.52% Pb) and zinc (0.86% Zn). The reason for this difference is not known.

Table 13-12: São Chico Test Composite Head Analyses

Unit	Au (g/t)	Composite Weght (%)	Ag (g/t)		Average Ag (g/t)
			a	b	
Comp A	8.6	79.3	16.6	14.7	15.7
Comp B	79.4	20.7	105.0	73.4	89.2
Master Comp (calc.)	23.2	100.0			30.8

Source: SRK, 2017

Table 13-13: São Chico Master Composite Multi-Element Analyses

Element	Master Composite
Quantitative Analyses	
As (%)	0.036
Cd (%)	0.012
Cu (%)	0.091
Cu (CN sol) (%)	0.034
Fe (%)	5.69
Pb (%)	3.52
S(T) (%)	6.46
S (%)	6.22
Zn (%)	0.86
Semi-Quantitative ICP Scan	
Ag (g/t)	36
Al (g/t)	43,700
Ba (g/t)	654
Be (g/t)	2
Bi (g/t)	<20
Ca (g/t)	4,080
Co (g/t)	12
Cr (g/t)	140
K (g/t)	18,500
Li (g/t)	26
Mg (g/t)	4180
Mn (g/t)	334
Mo (g/t)	5
Na (g/t)	7,580
Ni (g/t)	<20
P (g/t)	218
Sb (g/t)	10
Se (g/t)	<30
Sn (g/t)	<20
Sr (g/t)	44
Ti (g/t)	1,260
Tl (g/t)	<30
U (g/t)	<20
V (g/t)	28
Y (g/t)	8

Source: SRK, 2017

13.2.2.2 Gravity Recoverable Gold Testwork

An extended gravity recoverable gold (E-GRG) test was conducted on the master composite to assess the amount of gravity recoverable gold in the sample and to generate data required for circuit modeling and design. The results of this test are summarized in Table 13-14 and show that the sample was highly amenable gold recovery by gravity concentration with a GRG value of 65.8.

Table 13-14: Summary of E-GRG Test on São Chico Master Composite

Grind Size P_{80} (µm)	Product	Mass (%)	Au (g/t)	Au Units	Distribution (%)
464	Stage 1 Conc Sampled Tails	0.50 0.81	732.0 25.7	70,643 4,046	8.3 0.5
147	Stage 2 Conc Sampled Tails	0.56 0.95	2,618.0 28.0	285,856 5,187	33.4 0.6
72	Stage 3 Conc Sampled Tails	0.70 96.50	1,519.0 15.1	206,643 282,839	24.2 33.1
Totals (Head) **Knelson Conc**		**100.00** **1.76**	**43.9** **1,648.0**	**855,214** **563,142**	**100.0** **65.8**

GRG Number = 65.8

Source: SRK, 2017

13.2.2.3 Gravity Concentration Testwork

A series of four 10 kg gravity concentration tests were run on the master composite. Each gravity concentration test was conducted at a grind size of P80 243 µm with a Knelson MD-3 centrifugal concentrator followed by upgrading of the Knelson gravity concentrate on a Mozley table. The results of these tests are presented in Table 13-15 and show that 23.4% to 27.5% of the gold was recovered into gravity concentrates ranging from 7,505 to 14,121 g/t Au. This is very similar to the gravity concentration test results that were performed during SGS's 2012 test program where 24.8% to 28.4% of the gold was recovered into the gravity concentrate.

Table 13-15: Summary of Gravity Concentration Tests on São Chico Master Composite

Test No	Test Completed on Gravity Tailing	Feed Size P_{80} (µm)	Product	Mass (%)	Assays (g/t) Au	% Distribution Au
G-4	F-4 to F-8	243	Mozley Concentrate Knelson + Mozley Tailing	0.121 99.879	8,357 30.2	25.1 74.9
			Head (calculated)	100.00	40.2	100.0
G-5	F-9 to F-13	243	Mozley Concentrate Knelson + Mozley Tailing	0.068 99.932	14,121 29.7	24.3 75.7
			Head (calculated)	100.00	39.3	100.0
G-6	LCT-1	243	Mozley Concentrate Knelson + Mozley Tailing	0.143 99.857	7,505 28.2	27.5 72.5
			Head (calculated)	100.00	38.9	100.0
G-7	LCT-1 & LCT-2	243.0	Mozley Concentrate Knelson + Mozley Tailing	0.099 99.901	8,754 25.2	23.4 76.6
			Head (calculated)	100.00	36.8	100.0

Source: SRk, 2017

13.3 Cyanide Detoxification

Cyanide detoxification studies using the industry standard SO_2/Air detoxification process were conducted on leach residues from Serabi's process plant by Testwork *Desenevolvimento de Processo Ltda* (Testwork), and the results are fully documented in their report, "*Testes de Laboratorio de Neutralização de Cianeto Utilzando Processo SO_2/O_2*", October 12, 2015.

Four tests were carried out in a mini pilot plant and indicated that the cyanide could be reduced from 90ppm CN_{WAD} to <5 ppm CN_{WAD} in 2.5 hours.

The results of this test program were provided to Gekko Systems (Gekko) for review and are summarized in Table 13-16 and fully documented in their report, "Palito Gold Mine Cyanide Destruction Circuit Design Review and Process Design Criteria", February 17, 2016.

Based on their review of Testwork's test results, Gekko concluded that tests T3 and T4 consistently achieved about 3 to 4 ppm CNWAD, in the detoxified leach residue indicating that the correct SO2 addition is above 4.0 g SO2/g CN and that a design allowing additions of up to 4.5 g SO2/g CN is recommended to cope with natural variations.

The laboratory tests failed to identify an optimal residence time since all tests were performed at 150 minutes retention time. Gekko concluded that based on the relatively high levels of copper and relatively low levels of cyanide in solution this retention time is excessive and recommended a 90-minute residence time for effective neutralization.

Based on their review, Gekko developed the process design criteria installation of an effective cyanide detoxification circuit at Serabi's process plant.

Table 13-16: Summary of Cyanide Detoxification test results on Leach Residue from Serabi Plant

LAB TEST		Unit	T1		T2	T3	T4
FEED	Start CNwad	mg/l	114		90	90	90
	Slurry Flowrate	mL/min	36.7	target	36.7	36.7	36.7
	Solids	%	42.5		42.5	42.5	42.5
	Slurry SG	g/min	1330		1330	1330	1330
	Solids Flows	mL/min	20.7		20.7	20.7	20.7
	Solutions Flow	mg/min	28.1		28.1	28.1	28.1
	CN wad	mg/min	3.2		3.2	3.2	3.2
PRODUCT	CN wad	mg/l	3-10 erratic		1-5 rising	4 steady	3 steady
		pH	7.0-7.8		7.6-7.9	7.7-7.9	7.8 steady
SMBS		g/l stock	5		5	5	5
mw		mL/min	3.6		2.87	3	3.07
190.1		mg SMBS/ min	18		14.35	15	15.35
		mg SO_2/ min	12.13		9.67	10.11	10.34
		kg SBMS/t ore	0.87		0.69	0.72	0.74
		g SO_2/g CNwad	3.79	high	3.83	4	4.1
Copper							
$CuSO_4.5H_2O$ mw 249.69		g/L Stock	1		1	1	1
		mL/min	5.67		4.67	0	0.255
Cu mw 63.55		g/L Stock	0.25		0.255	0.255	0.255
		mg Cu/min	1.44		1.19	0	0
		mg Cu/L solution	51		42	0	0
$Ca(OH)_2$		g/L Stock	1		1	1	1
mw		mL/min	4.2		1.73	2.7	3.28
74.1		mg $Ca(OH)_2$/min	4.2		1.73	2.7	3.28
		kg $Ca(OH)_2$ /t solid	0.2		0.08	0.13	0.16

LAB TEST		Unit	T1		T2	T3	T4
		g $Ca(OH)_2$ / g SO_2	0.35	low	0.18	0.27	0.32
		g $Ca(OH)_2$ / L Solution	0.15		0.06	0.1	0.12
H_2SO_4		g/L Stock	100		50	50	50
		mL/min	0.63		0.77	0.7	0.7
		mg H_2SO_4/min	63		38.5	35	35
		kg H_2SO_4 /t solid	3		1.9	1.7	1.7
		g H_2SO_4 / L Solution	2.25		1.37	1.25	1.25
NET ACID REQUIREMENT AFTER SUBTRACTING ACID USED TO NEUTRALISE LIME ADDITION							
H_2SO_4 + $Ca(OH)_2$ === $CaSO_4$ + 2 H_2O		mg H_2SO_4/min	57.4		36.2	31.4	30.7
Net addition (H_2SO_4-98.1/74.1 x $Ca(OH)_2$		kg H_2SO_4 /t solid	2.77		1.75	1.52	1.48
EQUIVALENT SMBS REQUIRED TO PROVIDE ACID FOR pH CONTROL			Na_2S_2O5 +O_2 + H_2O === Na_2SO_4 + H_2SO_4				
			2 CN + $Na_2S_2O_5$ + 2 0_2 + H_20 === 2 CNO + Na_2SO_4 + H_2SO_4				
	Theoretical Acid produced from SMBS	g H_2SO_4 /g SMBS	0.52		0.52	0.52	0.52
	Equivalent extra addition of SMBS	mg SMBS / min	111.31		70.17	60.9	59.41
	Equivalent extra addition of SMBS	Kg SMBS / t ore	5.37		3.38	2.94	2.86
	Total SMBS addition for pH control	Kg SMBS / t ore	6.23		4.08	3.6	3.6
	Total SMBS addition for pH control	g SO_2/ g CN wad	27.24		22.55	20.25	19.95

Source: Gekko Systems, 2016

13.4 Sample Representativeness

The samples of Palito and São Chico ore used for metallurgical testing and process development appear to have represented the mineral character of the ores, but the test samples tended to be much higher grade than the ore grades that would be mined. Additionally, the specific locations from where the samples used for metallurgical studies were taken have not been identified. Despite this issue, actual plant performance has been consistent with the results obtained from the metallurgical studies on the samples that were tested.

13.5 Significant Factors

The following significant factors have been identified:

- Both the Palito and São Chico ores are highly amenable to conventional processing techniques to recover the contained metal values.
- Palito ore is processed using a flowsheet that includes crushing, grinding, copper flotation and CIP cyanidation of the copper flotation tailings.
- São Chico ore is processed using a flowsheet that includes crushing, grinding, gravity concentration and cyanidation of both the gravity concentrate and the gravity tailing.
- Plant performance as presented in Section 17.4 is similar to the results predicted from the metallurgical test program, even though the metallurgical test samples cannot be considered fully representative of the ore actually fed to Serabi's process plant.

13.6 Ore Sorting Technology

In 2017 metallurgical tests were made to determine the amenability of pre-concentrating Palito and Sao Chico ores using ore sorting technology.

The basis for this investigation is that the mineralization of the Serabi ore bodies, in particular the Palito ore body, consists of narrow high-grade gold, sulfide-rich veins contained within a granite host rock. Due to the narrow-vein nature of the mineralization, the mining method inherently includes a significant amount of waste rock included with the mined ore.

The concept of ore-sorting is to remove a large amount of this waste rock dilution during the crushing stage, before the ore passes through the milling, flotation and gold leaching stages, so that significant amounts of energy, wear materials and reagents are not wasted on material that contains little to no valuable metal.

13.6.1 Ore Sorting Scoping Tests

In 2017, laboratory scale separation tests of the Palito and São Chico crushed ore samples (size fractions +30-60mm and +15-30mm) were carried out at the LAPROM laboratory on the UFRGS campus in Brazil.

The target for the test work was to evaluate the affinity for sorting of the material. The separation tests were carried out on the COMEX Lab-Sorter MSX-400-VL-XR-3D system. The material was separated using pneumatic flap. Tests were carried out at the Universidade Federal Rio Grande do Sul (UFRGS) using XRT (X-Ray Transmission) as the scanning principle.

The Palito ore showed a high affinity for separation by ore sorting whilst Sao Chico showed low potential. These results are presented in Table 13-17.

Table 13-17: Summary of Laboratory Scale Ore Sorting Tests on Palito and Sao Chico Crushed Ore Samples

Ore Type	Ore Size Fraction	Test No	Mass Reject kg	Mass Reject %	Au g/t	Cu %	Au Rec %	Cu Rec %
Palito	60+30mm	1	0.00	0.00	2.978	0.183	100.00	100.00
			1.86	20.24	3.694	0.220	98.93	95.99
			5.22	56.80	6.451	0.381	93.57	90.21
			7.25	78.89	12.959	0.691	91.85	79.82
			7.93	86.29	18.661	0.960	85.90	72.04
Palito	60+30mm	2	0.00	0.00	0.907	0.045	100.00	100.00
			1.31	8.65	0.973	0.048	98.06	98.90
			5.76	38.02	1.331	0.065	90.99	90.46
			11.84	78.15	3.055	0.147	73.62	72.23
			13.25	87.46	4.884	0.212	67.55	59.66
Palito	30+15mm	3	0.00	0.00	4.864	0.352	100.00	100.00
			1.49	20.24	5.408	0.416	88.66	94.37
			5.09	69.16	2.215	0.205	62.25	79.74
			6.47	87.91	20.935	2.053	52.04	70.55
			7.11	96.60	39.475	3.862	27.57	37.28
Palito	30+15mm	4	0.00	0.00	1.590	0.086	100.00	100.00
			0.31	6.64	1.680	0.091	98.60	98.91
			1.95	41.76	1.238	0.065	90.16	87.99
			3.57	76.45	4.784	0.157	70.85	43.23
			4.42	94.65	18.189	0.379	61.22	23.64
São Chico	60+30mm	5	0.00	0.00	3.692	0.012	100.00	100.00
			3.32	9.98	3.420	0.012	83.41	88.68
			15.55	46.76	4.617	0.012	66.60	55.90
			28.67	86.17	1.833	0.013	6.86	14.85
			30.40	91.37	1.028	0.012	2.40	8.91
São Chico	30+15mm	6	0.00	0.00	3.455	0.045	100.00	100.00
			0.17	4.27	3.405	0.046	94.34	97.37
			1.00	25.13	3.057	0.052	66.24	86.72
			1.97	49.50	3.250	0.069	47.50	77.42
			3.38	84.92	2.826	0.195	12.33	64.95

Source: Laprom Testwork Report, April 17

For the Palito high grade large size fraction, rejecting 20% of the mass amounted to a loss of 1.07% of Au. Additionally, for the same material, rejecting 79% of the mass equated to a loss of only 8.15% in Au recovery and increased the head grade from 2.978 g/t to 12.959 g/t Au.

Considering all ROM Palito ore together, a reduction of 13.67% of mass would result in a loss of 5.6% Au after the first separation, the clear majority (86%) of this Au loss would occur from high grade small size fragments. Interestingly, the mid-grade small size fragments showed an affinity to sorting similar to the large-sized Palito ore.

The São Chico large fraction showed an upward trend for mass removed vs. Au g/t before falling off. This could be due to any number of reasons involving the nature of the material and the X-ray calibration. It may still be possible to achieve a result with the São Chico ore, however the small size fraction of the São Chico ore showed very low affinity to sorting.

13.6.2 Ore Sorting Pilot Tests

In 2017, bulk separation tests for two size fractions of Palito ore were carried out at the Comex laboratory in Poland, using the industrial-sized XRT-1000 ore sorting machine.

Batches of Palito were passed through the ore sorting machine at a rate of 20t/h using different selection criteria. The product and waste were separated using the air jets and the different streams collected for analysis.

The test assay results, presented in Table 1 18, indicate that a significant upgrade is achievable, although there were still some concerns with recovery.

Table 13-18: Summary of Pilot Plant Ore Sorting Palito Ore

Ore Type	Ore Size Fraction	Test No	Stream ID	Selection Setting	Mass %	Au g/t	Cu %
Palito	75+35mm	1	Feed		100.00	2.05	0.09
			Product 1	100	8.53	9.06	0.54
			Product 2	40	11.70	1.05	0.08
			Product 3	15	32.81	1.46	0.07
			Waste		49.67	1.44	0.03
Palito	75+35mm	2	Feed		100.00	5.00	0.22
			Product 1	100	5.84	66.34	2.53
			Product 2	70	3.26	19.62	0.56
			Product 3	40	7.69	2.51	0.18
			Waste		83.22	0.36	0.05
Palito	75+35mm	3	Feed		100.00	2.87	0.10
			Product	60	15.66	7.69	0.41
			Waste		84.34	1.98	0.04
Palito	35+15mm	4	Feed		100.00	4.89	0.39
			Product 1	170	3.37	63.30	6.04
			Product 2	140	2.00	55.10	2.50
			Waste		94.64	1.75	0.15
Palito	35+15mm	5	Feed		100.00	2.16	0.10
			Product	140	2.51	13.36	0.94
			Waste		97.49	1.87	0.07

Source: Comex Test Results, 2017

For many of the tests the gold grade of the waste was higher than anticipated. Some possible reasons are:

- During both the scoping level and bulk separation tests using x-ray transmission as the scanning principle it was observed that rock particles containing sulphide hosted in quartz were classified as waste. This is due to an insufficient difference between the density of these particles and that of the waste granite. The gold assays of the waste of Tests 1 and 3 had a standard deviation of 1.36 and 0.99 respectively, indicating that gold reporting to the waste was not consistent but rather occurred as occasional peaks. Likewise, the copper assays of these same samples remained consistently low indicating that gold reporting to the waste was not associated with the copper sulfides.
- Tests 4 and 5 were very aggressive with their setting of the selection criteria. Only 3-5% of the mass reported to product. It is expected that with a less aggressive selection criteria, more mass would report to product and that the Au recovery would improve.

Based on these results an ore sorter machine that combined both x-ray transmission, for the selection of sulphide rocks based on density, and optical line scanning, for the selection of quartz rocks based on color, was selected.

A sample of Sao Chico ore was also planned for testing during this campaign but was found to be not amenable for separation using x-ray transmission detection.

13.7 Comments

Significantly amount of work has been done to characterize the behavior of Palito and São Chico ores to cyanidation and flotation process. The actual plant performance shows very good correlation with the metallurgical testwork. Future reserves are geologically similar to the previous ore processed, and there is no reason to expect that this will change in the future in terms of metallurgical behavior and plant results.

Based on the long history and experience of the Serabi team, it is not expected different results than those achieved historically at Palito plant. Given the increasingly strict regulations and growing environmental legislation around the world, effort should be done to improve the cyanide destruction plant to levels below the current levels and in line with the current regulations.

14 Mineral Resource Estimate

14.1 Introduction

The Mineral Resources for the Palito Mining Complex comprise the Palito Mine and the São Chico Mine, both mined by underground mining methods. The Mineral Resource Statement presented herein represents the resource evaluation prepared by Serabi for the Palito and São Chico mines, respectively, in accordance with NI 43-101. A previous NI 43-101 Technical Report that documented the mineral resources for the Palito Mine was prepared in 2018 by SRK.

The mineral resource estimates prepared by NCL for the Palito Mine considers core drilling and underground chip sampling by Serabi generated during the period mid-2002 to September 2023. For the São Chico Mine, the mineral resource estimates, also prepared by NCL, considers core drilling and chip sampling by Serabi and previous operators during the period September 2011 to September 2023. The effective date of the Mineral Resource Statements is Jully 30, 2023.

This section describes the resource estimation methodology and summarizes the key assumptions considered by NCL. The mineral resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines and are reported in accordance with NI 43-101. Mineral resources are not mineral reserves and have not demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The databases used to estimate the Palito and São Chico mines mineral resources were audited by NCL. NCL believes the current drilling information is sufficiently reliable to interpret with confidence the boundaries for gold mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

NCL used 3D Geological Modeling made by Serabi to evaluate the mineral resources of both mines. Four majority veins were done by NCL using implicit modeling.

NCL generated three-dimensional mineral resource models in Micromine, using an ordinary kriging estimator for the main mineralized structures of Palito and inverse distance power for São Chico Mine for mineral resource validation purposes and Mineral Reserve Estimates.

14.2 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification.
- Verification of Design of 3D solids for each vein.
- Data analysis and capping of grades.
- Identification of samples adjacent or within each vein.
- Resource classification.
- Assessment of “reasonable prospects for eventual economic extraction” and selection of appropriate CoGs; and
- Preparation of the Mineral Resource Statement.

14.3 Resource Database

14.3.1 Palito Mine

The Palito database received on September 15, 2023, contains 675 surface drill holes (122,210.2 m, 36,295 samples), 923 underground drill holes (94,713 m, 17,806 samples), 74 reverse circulation holes (4,406 m, 4,050 samples), 328 rotary air blast holes (4,327 m, 1,943 samples), 18,609 channel samples taken from underground developments. Other types of samples were not considered for resources estimation purposes.

The database includes codes of 54 different sampled mineralized structures; however, the mineral resources estimation was completed only for 43 of them. The veins that were not considered in the current mineral resource estimates present low gold grades and are small, and poorly recognized.

Table 14-1 contains the summary gold grade statistics per sample types for all veins combined. Table 14-2 contains comparable statistics to Table 14-1 but combining all different data types for each of the 43 vein structures that are reported in the mineral resources statement. Only the data that were considered in the mineral resource estimation were included for the statistics in these two tables. Samples with no vein code taken in barren rock and samples within non-estimated mineralized structures are not considered in either table.

Table 14-1: Summary Raw Statistics of the Palito Resource Database per Sampling Type and for All Veins

Sample Type	No of samples	Min	Maximum	Average	Std Dev	Variance
CH	23,587	0.01	1,713.76	11.02	37.98	1,442.49
DD	1,892	0.003	327.92	2.26	10.77	115.97
RC	87	0.01	24.59	1.01	3.67	13.48
UD	1,762	0.01	191.61	3.26	11.21	125.60
Total	27,328	0.003	1,713.76	9.88	35.63	1,269.31

Table 14-2: Summary Raw Statistics of the Palito Resource database per Vein and for all Sampling Types

Vein	No of samples	Min	Maximum	Average	Std Dev	Variance
ANGELIM	221	0.01	91.56	10.49	14.98	224.35
ANGELIM_RAMO	63	0.010	24.45	3.22	5.45	29.69
BAMBU	78	0.01	122.84	4.63	15.69	246.14
BARRICHELLO	43	0.01	16.22	1.09	2.97	8.79
BARRIGUDA	57	0.005	21.20	1.29	3.69	13.60
BEBETO	65	0.01	14.29	1.67	3.07	9.44
CAPIVARA	134	0.00	104.85	6.42	15.94	254.03
CASTANHEIRA	55	0.01	20.83	1.61	3.69	13.58
CAXIAS	764	0.01	364.99	6.22	22.13	489.86
CEDRO	447	0.01	361.68	5.92	22.84	521.50
COMPRESSOR	1,009	0.01	487.16	10.23	36.97	1,366.75
COMPRESSOR_RAMO	207	0.01	793.14	13.66	65.27	4,260.43
CORUJA	52	0.05	57.63	4.16	9.05	81.98
FARIAS	320	0.01	90.01	4.60	11.07	122.59
FITTIPALDI	82	0.01	191.61	6.57	23.39	547.21
G1	1,509	0.01	324.82	7.54	24.12	581.58
G2	2,912	0.01	718.00	12.39	41.90	1,755.68

Vein	No of samples	Min	Maximum	Average	Std Dev	Variance
G3	7,584	0.00	1,713.76	9.10	42.91	1,841.55
GARRINCHA	36	0.01	3.87	0.60	1.04	1.09
GUARUBA	35	0.01	73.02	4.64	13.01	169.17
IPE	1,600	0.00	569.46	21.57	53.44	2,856.04
JATOBA	843	0.01	307.47	7.15	19.69	387.69
JATOBA_RAMO	193	0.03	99.70	7.34	18.09	327.18
MASSA	73	0.01	7.85	0.63	1.33	1.77
MEIRELES	271	0.02	105.19	5.70	13.61	185.11
MEIRELES_RAMO	132	0.01	97.89	4.64	12.16	147.88
MOGNO	1,736	0.01	474.28	18.01	38.80	1,505.26
MUNGUBA	588	0.01	113.26	8.46	15.39	236.98
PELE	35	0.01	27.70	2.83	5.93	35.15
PGT	319	0.01	125.58	6.28	14.10	198.88
PIAUI	182	0.00	33.74	1.87	4.52	20.45
PINHO	80	0.01	72.09	3.50	10.04	100.75
PIPOCA	2,160	0.01	421.11	9.59	27.80	772.89
PIQUET	67	0.01	56.80	2.19	7.84	61.45
PIZZONIA	45	0.01	18.80	0.71	2.79	7.81
QUINA	47	0.05	120.01	15.31	27.13	735.89
ROMARIO	30	0.01	7.99	1.25	1.93	3.73
SENNA	1,902	0.01	249.30	5.08	16.56	274.11
SENNA_RAMO	149	0.01	267.05	6.28	25.03	626.58
VERDE	541	0.01	638.32	13.64	39.77	1,581.47
VILLA	41	0.02	10.03	1.69	2.75	7.54
ZONTA	503	0.01	100.89	6.32	13.23	175.05
ZOS	59	0.02	81.80	5.98	14.44	208.42
TOTAL	27,269	0.00	1,713.76	9.89	35.66	1,271.86

14.3.1 São Chico Mine

The São Chico database received on September 15, 2023, contains 593 surface drill holes (16,823 m, 19,343 samples), 1430 underground drill holes (8,435 m, 11,445 samples), 10,746 channel samples taken from underground developments, and 840 face samples taken from stopes. Table 14-3 shows the data used for mineral resource estimation of the São Chico Mine. The data comprises the samples within the principal shear zone as well within other two minor mineralized structures called Highway and Julia.

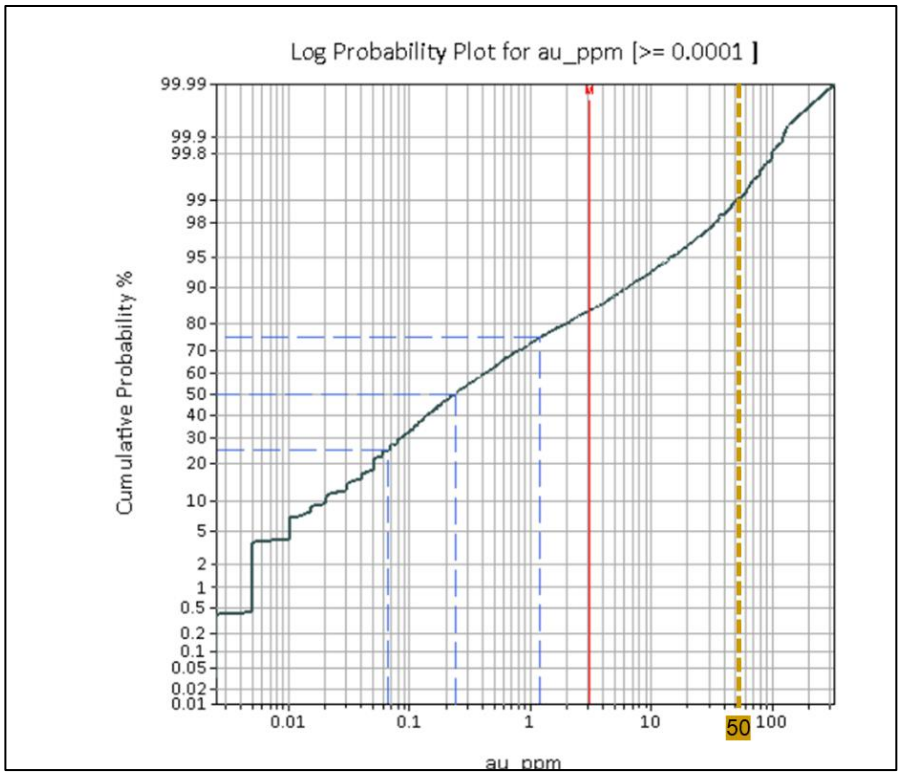
Table 14-3: Summary Raw Statistics of the São Chico Resource Database per Vein and Sampling Type

Vein		Au (g/t)					
		No of samples	Min	Max	Average	Stand Dev	Variance
Highway	Total	62	0.005	112.49	3.44	14.65	214.66
	CH	2	0.200	0.21	0.21	0.01	0.00
	DD	29	0.005	0.66	0.10	0.15	0.02
	UD	31	0.060	112.49	6.78	20.33	413.48
Principal	Total	8,635	0.003	2,993.33	8.41	46.57	2,169.04
	CH	6,480	0.010	1,295.16	8.95	36.31	1,318.22
	CM	28	0.080	95.19	8.87	19.70	387.93
	DD	338	0.003	76.30	1.31	6.80	46.23
	LV	593	0.010	2,993.33	16.70	127.76	16,321.68
	MK	116	0.110	194.32	4.74	19.35	374.24
	UD	1,080	0.010	255.94	3.27	18.40	338.69
Julia	Total	2,156	0.003	934.76	8.06	40.84	1,668.02
	CH	1,573	0.010	934.76	8.06	34.93	1,220.29
	CM	56	0.100	261.11	19.88	52.00	2,703.51
	DD	176	0.003	28.10	0.54	2.65	7.02
	MK	32	0.040	786.73	78.66	191.88	36,817.51
	UD	319	0.010	396.88	3.03	25.06	627.88
Total	Total	10,853	0.003	2,993.33	8.32	45.37	2,058.32

14.4 Data Analysis and Evaluation of Outliers

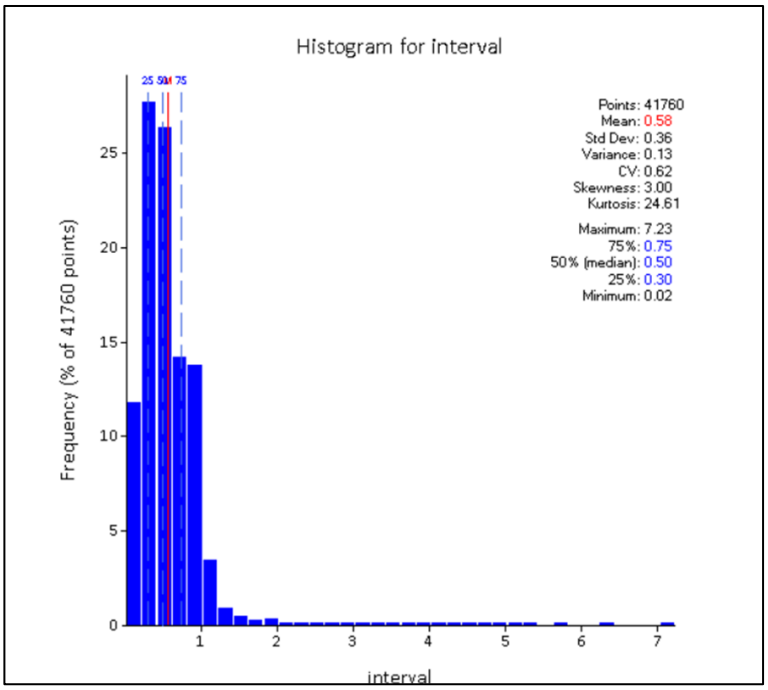
NCL performed the capping analysis of raw gold assays within mineralized structures of all targets using statistics for drillholes samples (DD, UD and RC). For Palito, all veins were analyzed together, to simplify the capping parameters. For São Chico, the same capping used for Palito was applied as most of its resources has been depleted. Figure 14-1 presents the summary analysis for capping decision based on log prob, 1% of samples were capped and the capping impact on the global gold mean is a reduction of around 37% which represents a capping value of 50 g/t of gold.

Figure 14-1: Log Probability plot showing capping applied of 50 (g/t)



Compositing was applied based on average sample size to regularize database. The average sample size calculated based on the database was 0.58. It was decided to use 0.5 meters for compositing and sizes less than 0.05 m were excluded from the estimation.

Figure 14-2: Histogram and statistics for composite definition Palito Mine.



For São Chico, a compositing size of 1 meter was applied based on the average size of the samples.

Statistics after sample capping and compositing are presented on tables below for Palito and São Chico.

Table 14-4: Summary Statistics of the Palito Mine after compositing and capping

Sample Type	No of samples	Min	Maximum	Average	Std Dev	Variance
CH	32,547	0.01	50.00	6.92	13.33	177.58
DD	3,260	0.003	50.00	2.09	6.67	44.52
RC	192	0.01	24.59	1.32	4.45	19.83
UD	2,760	0.01	50.00	3.18	8.35	69.80
Total	38,759	0.003	50.00	6.22	12.67	160.55

Table 14-5: Summary Statistics of the Palito Mine after compositing and capping per vein

Vein	No of samples	Min	Maximum	Average	Std Dev	Variance
ANGELIM	238	0.01	50.00	9.71	13.17	173.46
ANGELIM_RAMO	78	0.01	24.45	2.71	5.04	25.36
BAMBU	107	0.01	50.00	3.71	10.01	100.20
BARRICHELLO	60	0.01	16.22	0.96	2.61	6.82
BARRIGUDA	75	0.01	21.20	1.12	3.32	11.00
BEBETO	90	0.01	14.29	1.69	3.18	10.10
CAPIVARA	186	0.00	50.00	5.48	11.75	138.01

Vein	No of samples	Min	Maximum	Average	Std Dev	Variance
CASTANHEIRA	82	0.01	20.83	1.37	3.29	10.85
CAXIAS	1,041	0.01	50.00	4.97	10.63	112.95
CEDRO	661	0.01	50.00	4.55	10.63	113.04
COMPRESSOR	1,344	0.01	50.00	5.74	12.27	150.44
COMPRESSOR_RAMO	321	0.01	50.00	5.10	11.26	126.72
CORUJA	71	0.05	50.00	3.90	7.79	60.63
FARIAS	397	0.01	50.00	4.16	9.29	86.39
FITTIPALDI	113	0.01	50.00	6.09	12.76	162.84
G1	2,363	0.01	50.00	5.14	12.00	143.95
G2	4,463	0.01	50.00	6.45	13.20	174.34
G3	11,176	0.01	50.00	5.20	11.63	135.30
GARRINCHA	51	0.01	3.87	0.75	1.14	1.31
GUARUBA	46	0.01	50.00	3.14	8.46	71.59
IPE	2,147	0.00	50.00	12.63	18.17	330.27
JATOBA	1,041	0.01	50.00	5.62	10.63	113.00
JATOBA_RAMO	275	0.03	50.00	6.55	13.65	186.44
MASSA	110	0.01	7.85	0.59	1.22	1.48
MEIRELES	385	0.02	50.00	5.23	10.60	112.32
MEIRELES_RAMO	211	0.01	50.00	4.55	9.62	92.56
MOGNO	2,303	0.01	50.00	12.18	17.37	301.69
MUNGUBA	708	0.01	50.00	7.07	11.43	130.65
PELE	50	0.01	27.70	2.77	5.24	27.46
PGT	406	0.01	50.00	5.88	10.78	116.11
PIAUI	351	0.00	33.74	1.93	4.46	19.89
PINHO	112	0.01	50.00	2.70	7.30	53.36
PIPOCA	2,744	0.01	50.00	6.75	12.74	162.20
PIQUET	93	0.01	50.00	2.16	6.57	43.13
PIZZONIA	63	0.01	18.80	0.99	3.32	11.01
QUINA	56	0.05	50.00	11.90	17.70	313.45
ROMARIO	48	0.01	7.99	1.15	1.96	3.84
SENNA	2,901	0.01	50.00	4.15	9.79	95.77
SENNA_RAMO	211	0.01	50.00	3.84	7.97	63.53
VERDE	682	0.01	50.00	8.71	14.38	206.92
VILLA	54	0.02	10.03	1.60	2.58	6.64
ZONTA	684	0.01	50.00	5.97	10.22	104.47
ZOS	71	0.02	50.00	5.38	11.01	121.14
TOTAL	38,669	0.00	50.00	6.23	12.68	160.83

Table 14-6: Summary Statistics of the São Chico Mine after compositing and capping

Vein		Au (g/t)					
		No of samples	Min	Max	Average	Stand Dev	Variance
Highway	Total	53	0.005	50.00	2.86	7.91	62.50
	CH	2	0.200	0.21	0.21	0.01	0.00
	DD	22	0.005	0.43	0.09	0.11	0.01
	UD	29	0.060	50.00	5.14	10.20	104.12
Principal	Total	8,528	0.003	50.00	5.01	11.35	128.78
	CH	6,069	0.010	50.00	5.62	12.04	144.97
	CM	28	0.080	50.00	7.22	13.00	169.02
	DD	327	0.003	49.78	1.08	4.60	21.15
	LV	768	0.010	50.00	6.29	12.09	146.25
	MK	359	0.110	50.00	3.54	8.84	78.18
	UD	977	0.010	50.00	2.00	7.04	49.61
Julia	Total	2,054	0.003	50.00	5.34	12.18	148.44
	CH	1,447	0.010	50.00	5.11	11.28	127.27
	CM	56	0.100	50.00	10.02	16.85	284.05
	DD	139	0.003	12.20	0.50	1.75	3.06
	MK	110	0.040	50.00	22.37	21.27	452.33
	UD	302	0.010	50.00	1.59	6.98	48.71
Total	Total	10,635	0.003	50.00	5.06	11.50	132.27

14.5 Geological Model

3D Geological Modelling prepared by Serabi, were imported on Micromine and a visual check of each vein was verified. The principal Veins G3, IPE, MOGNO and ZONTA were modeled by NCL using implicit modeling. All other veins were modeled by Serabi.

These modeled veins were used to define block model extends and parameters.

Figure 14-3: Plan View of Modelled veins in Palito Mine (43 veins total)

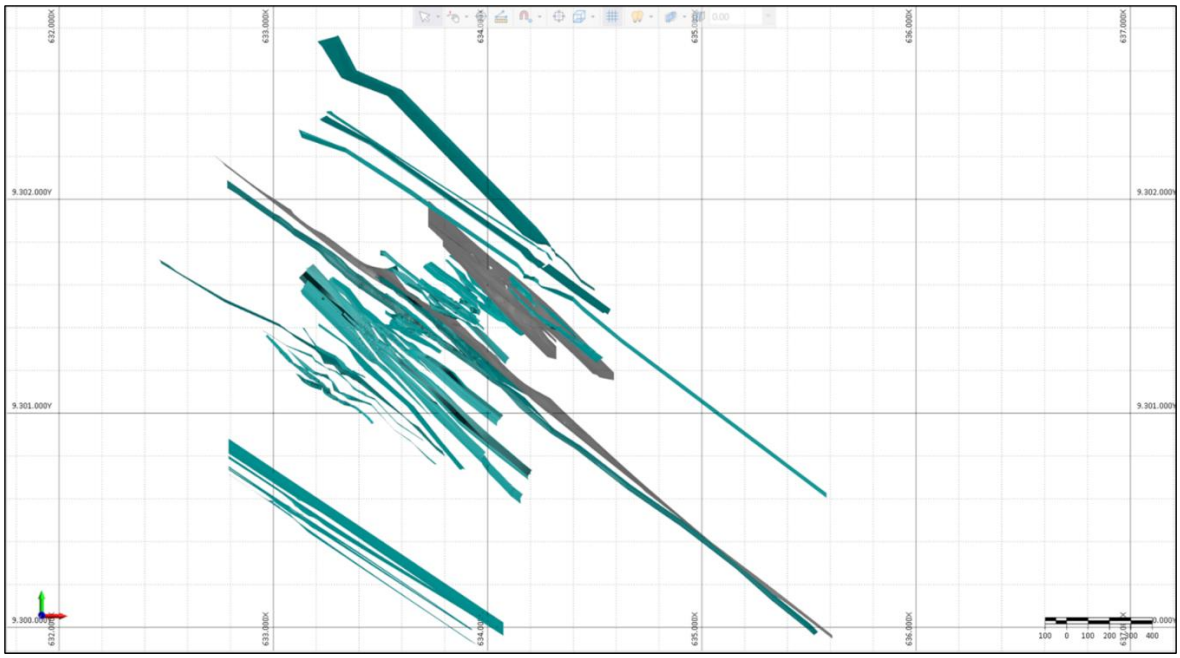
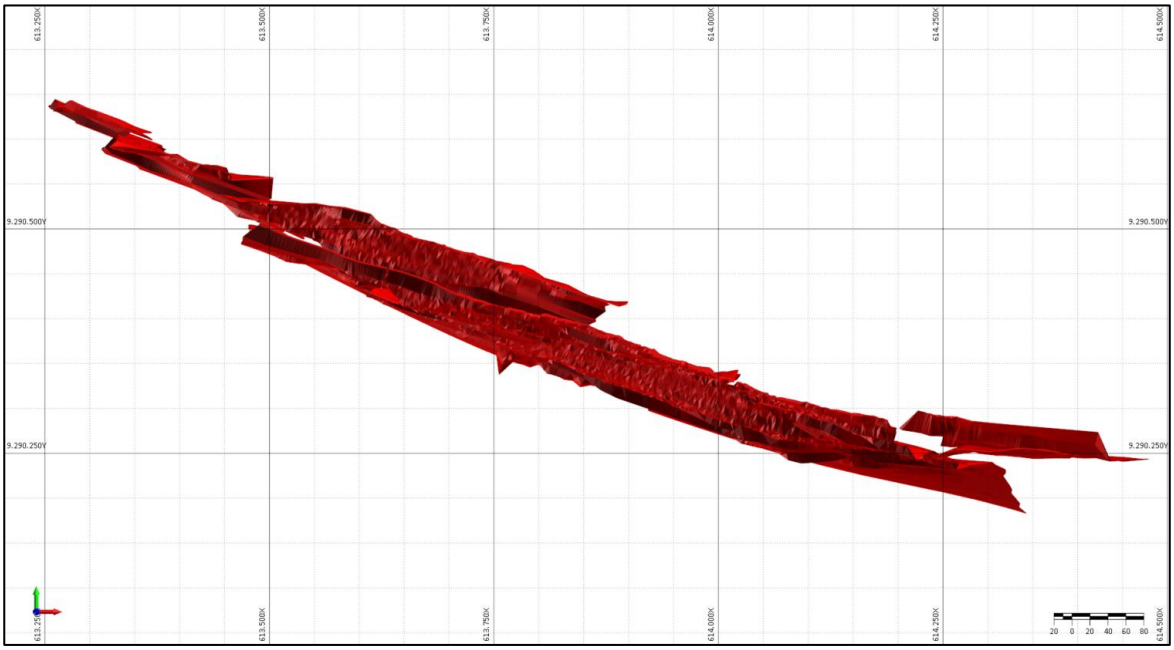


Figure 14-4: Plan View of Modelled veins in São Chico Mine (3 veins total)



14.6 Block Model

The block model was created based on solids described on previous section. The following parameters were used to block model definition. Some variables were created and are described below.

Table 14-7: Block Model parameters definition – Palito Mine.

	East	North	RL	Rotation
Coordinates	634,818.4	9,299,001.1	-457	310
Extent	768	728	157	
Block Size	2.5	5.0	5.0	
Sub-cell	0.1	1.0	0.5	

Table 14-8: Block Model parameters definition – São Chico Mine.

	East	North	RL	Rotation
Coordinates	614,429.6	9,290,091.7	-257.5	290
Extent	68	259	99	
Block Size	2.5	5.0	5.0	
Sub-cell	0.1	1.0	0.5	

Table 14-9: Variables of Block Model – Palito and São Chico Mines.

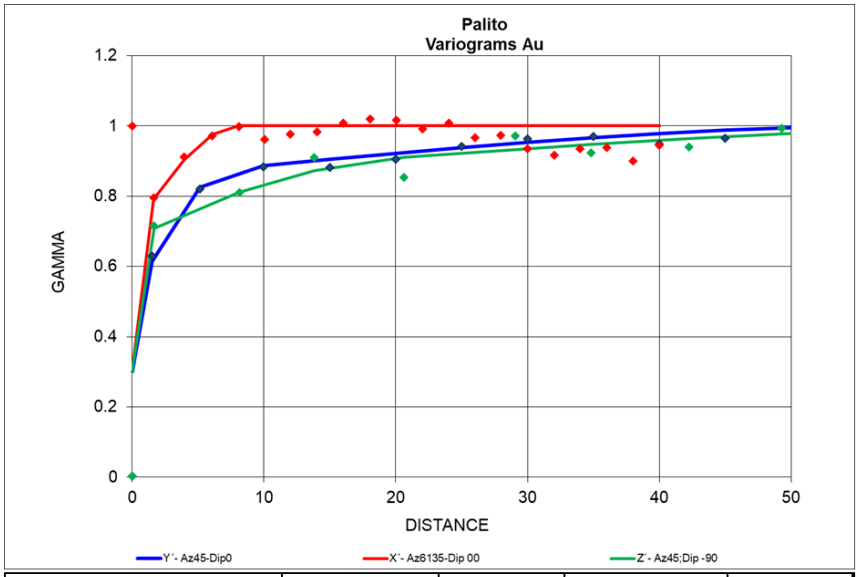
Variables	Description
Vein	name of vein modeled
au_ppm	Estimated Au grade
deplet	name of area depleted (if deplet = empty the block is available for extraction)
class	resource classification - 1=measured 2=indicated 3=inferred
COG 3.32	blocks flagged were cut off grade is economic for 3.32 g/t of gold
n Holes	Number of drillholes used on estimation
nn_au	nearest neighbour estimated au

14.7 Tonnage and Grade Estimation

Tonnages are estimated using a uniform value of 2.85 t/m^3 for both, Palito and São Chico mines. This value is supported by the average of 410 density tests carried out by Serabi.

To determine the spatial correlation between the samples, variograms of the variable Au(g/t) were performed for the entire population of samples. Analysing separately populations for each vein did not show variograms. NCL decided to use all samples selected inside ore bodies to determine the variografic directions for Palito target.

Figure 14-5: Variograms and structures definition for Palito Mine



	C0	C1	C2	C3
	0.3	0.4	0.15	0.15
X´- Az6135-Dip 00		3	10	10
Y´- Az45-Dip0		1	8	8
Z´- Az45;Dip -90		2	20	75

For São Chico deposit, NCL decide to apply inverse distance method, using same parameters search used for Palito mine.

It was observed that some drillholes intercepts mineralized ore bodies but with no samples analysed. In these cases, it was created a sample using a background grade calculated by samples of drillholes outside the mineralized veins and below 0.2 g/t of gold. The result was 0.05 g/t of gold. These samples were aggregated on the database using a flag of (LD – detection limit). The reason to use this background grade is to smooth grades on these areas, assuming some low grades in areas not sampled. These was done to calibrate better the block model estimation.

Search parameters used for Palito mine are described below:

Table 14-10: Estimation parameters – Palito Mine

		X	Y	Z	METHOD	Horizontal	Vertical	Minor	Min Samples	Max Samples	No of holes	Max per octant	Classification
Au (OK)	1 pass*	Main vein directions			OK	25	25	-	4	24	2	3	Measured
	2 passes	Main vein directions			OK	50	50	-	4	24	2	3	Indicated
	3 passes	Main vein directions			OK	100	100	-	4	24	2	3	Inferred

* Only channel samples

Horizontal: Az = 130°

Vertical = Az 40° and Plunge 85°

The channel samples were used in the first pass of estimation, but it was not considered for estimation of second and third passes. The same was applied for São Chico mine.

Table 14-11: Estimation Parameters – São Chico Mine

		X	Y	Z	METHOD	Horizontal	Vertical	Minor	Min Samples	Max Samples	No of holes	Max per octant	Classification
Au (IQD)	1 pass*	Main vein directions			IQD	25	25	-	4	24	2	3	Measured
	2 passes	Main vein directions			IQD	50	50	-	4	24	2	3	Indicated
	3 passes	Main vein directions			IQD	100	100	-	4	24	2	3	Inferred

* Only channel samples

Horizontal: Az = 130°

Vertical = Az 40° and Plunge 85°

14.8 Block Model Validations

NCL run some validation tools to verify and test the estimation parameters for Palito and São Chico mines. Below it's presented some statistical comparing results of block model and composites.

Table 14-12: Statistics comparison Au estimation Block x composites

Sample Type	Min	Maximum	Average	Std Dev	Variance
Composites	0.003	50	6.22	12.67	160.55
Block Model	0.005	50	4.16	6.47	41.9

Drift analyses were also evaluated in order to check estimation parameters.

Figure 14-6: Drift Analysis for Palito Mine (strike direction)

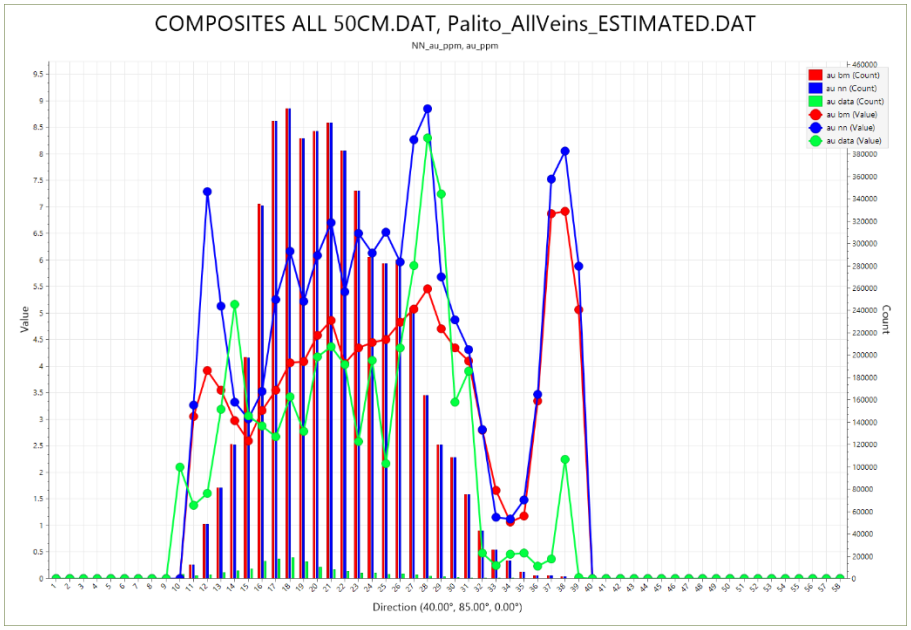
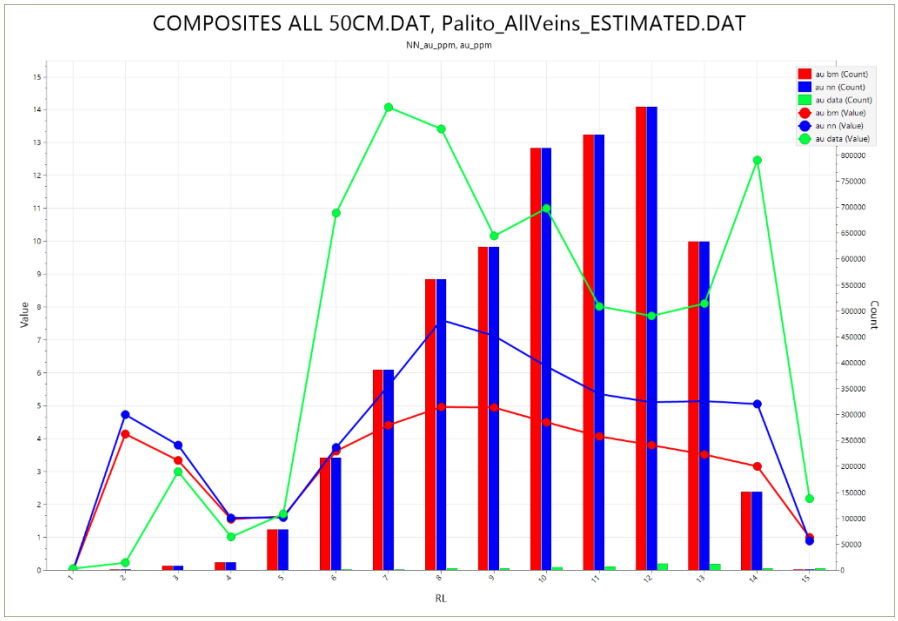


Figure 14-7: Drift Analysis for Palito Mine (vertical)



14.9 Mineral Resource Classification

To define the classification of resources, the following criteria were used:

Table 14-13: Classification criteria – Palito Mine

		X	Y	Z	METHOD	Horizontal	Vertical	Minor	Min Samples	Max Samples	No of holes	Max per octant	Classification
Au (OK)	1 pass*	Main vein directions			OK	25	25	-	4	24	2	3	Measured
	2 passes	Main vein directions			OK	50	50	-	4	24	2	3	Indicated
	3 passes	Main vein directions			OK	100	100	-	4	24	2	3	Inferred

* Only channel samples

Horizontal: Az = 130°

Vertical = Az 40° and Plunge 85°

Table 14-14: Classification criteria – São Chico Mine

		X	Y	Z	METHOD	Horizontal	Vertical	Minor	Min Samples	Max Samples	No of holes	Max per octant	Classification
Au (IQD)	1 pass*	Main vein directions			IQD	25	25	-	4	24	2	3	Measured
	2 passes	Main vein directions			IQD	50	50	-	4	24	2	3	Indicated
	3 passes	Main vein directions			IQD	100	100	-	4	24	2	3	Inferred

* Only channel samples

Horizontal: Az = 130°

Vertical = Az 40° and Plunge 85°

Figure 14-8: Longitudinal Section of IPE vein showing Classification

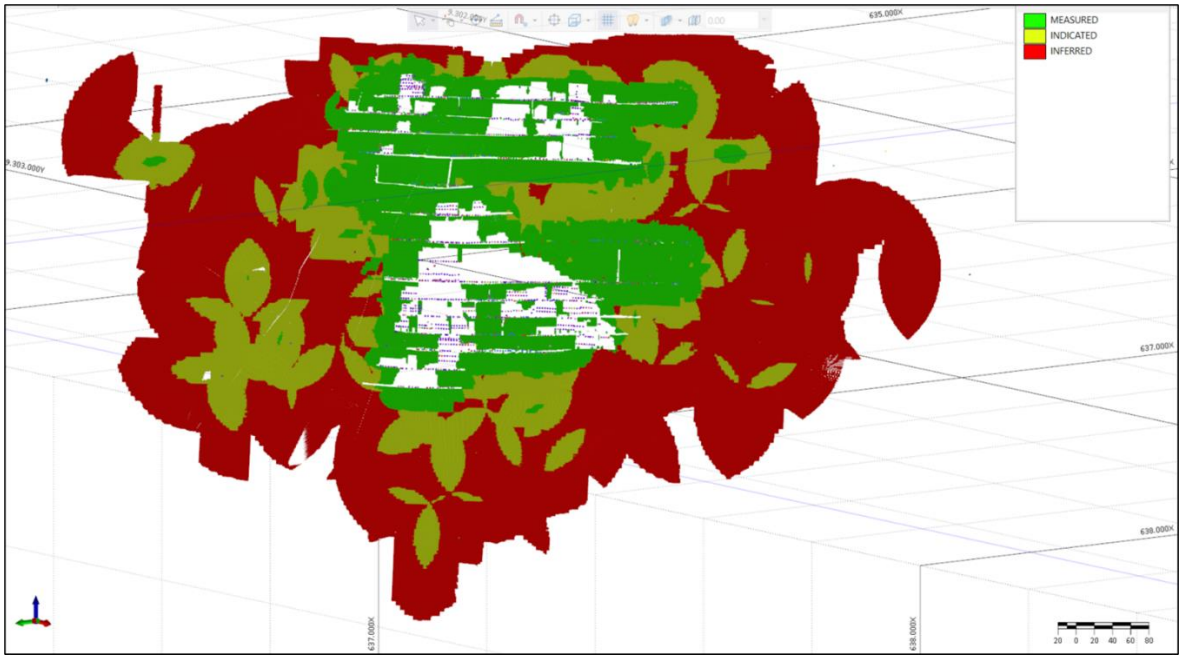
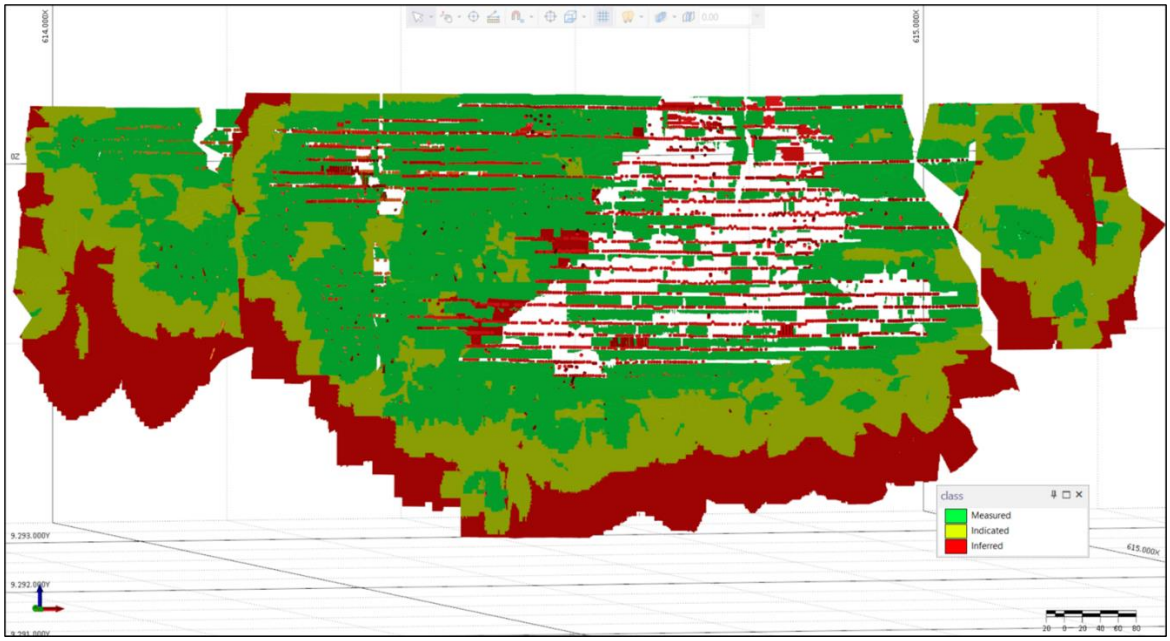


Figure 14-9: Longitudinal Section of São Chico Mine showing Classification



14.10 Mineral Resource Statement

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a mineral resource as:

"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

The "reasonable prospects for eventual economic extraction" requirement generally imply that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade (COG) that considers extraction scenarios and processing recoveries. To meet this requirement, Serabi considers that major portions of the Palito and São Chico deposits are amenable for underground mining extraction.

The block model was reviewed by NCL to determine the portions of the Palito and São Chico mines having "reasonable prospects for eventual economic extraction" from an underground mine, based on a COG of 3.32 g/t gold for a selective mining unit (SMU) at the Palito Mine and São Chico Mine, assuming a gold price of US$1,950/oz, and metallurgical gold recovery of 95% for both mines. The reporting parameters were selected based on production experience on the project.

Mineral Resources block models has been depleted considering underground topography as of July 31, 2023. An underground optimization run using Shape Optimizer (Deswik-SO) was performed at both mines considering a SMU of 5.0 m long, 5.0 m high and minimum width of 0.8 m, plus 0.1 m at

each side as operational dilution at 3.32 g/t Au. Mineral Resources are reported within the obtained SMUs.

Serabi considers that the estimated block model show “reasonable prospects for eventual economic extraction” and can be reported as a Mineral Resource. Serabi is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that may materially affect the Mineral Resource. However, the Mineral Resource may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent Mineral Resource estimates. The Mineral Resource Statement may also be affected by subsequent assessments of mining, environmental, processing, permitting, legal, title, taxation, socio-economic, and other factors. Condensed Mineral Resource Statements for the Palito and São Chico mines are tabulated in Table 14-15 and Table 14-16 respectively. A detailed Mineral Resource Statement for the underground mining components of the Palito and São Chico mines are tabulated in Table 14-17 through

Table 14-20. The effective date of these Mineral Resource Statements is July 31, 2023.

Table 14-15: Mineral Resource Statement, Palito Mine as July 31, 2023 (Source: NCL 2023)

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Measured	772.3	11.03	273.8
Indicated	243.0	8.39	65.6
Measured and indicated	1,015.3	10.40	339.3
Inferred	674.2	7.02	152.2

Notes

1) Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2) Mineral Resources are reported inclusive of Mineral Reserves.
3) Figures are rounded to reflect the relative accuracy of the estimates.
4) Mineral Resources are reported within classification domains with no dilution applied at a COG of 3.32 g/t gold assuming an underground extraction scenario, a gold price of US$1,950/oz, metallurgical recovery of 95% and exchange rate of R$ 5.5/US$
5) 3D block model used for Resources estimates

Table 14-16: Mineral Resource Statement, São Chico Mine as July 31, 2023 (Source: NCL 2023)

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Measured	122.5	8.10	31.9
Indicated	28.5	7.07	6.5
Measured and indicated	150.9	7.91	38.4
Inferred	8.2	6.53	1.7

Notes

1) Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2) Mineral Resources are reported inclusive of Mineral Reserves.
3) Figures are rounded to reflect the relative accuracy of the estimates.
4) Mineral Resources are reported within classification domains with no dilution applied at a COG of 3.32 g/t gold assuming an underground extraction scenario, a gold price of US$1,950/oz, metallurgical recovery of 95% and exchange rate of R$ 5.5/US$
5) 3D block model used for Resources estimates

Table 14-17: Mineral Resource Statements per vein (Measured + Indicated) – Palito Mine

VEIN	Tonnage (t)	Au (g/t)	Au (oz)
ANGELIMRAMO	66	15.73	33
ANGELLIM	4,841	15.88	2,472
BAMBU	5,973	11.16	2,144
BARRICHELLO	9,135	5.93	1,742
BEBETO	7,180	5.22	1,204
CAPIVARA	14,050	13.26	5,990
CASTANHEIRA	1,208	5.01	195
CAXIAS	22,220	12.11	8,652
CEDRO	15,284	9.66	4,745
COMPRESSOR	21,713	13.92	9,719
COMPRESSORRAMO	1,541	10.70	530
CORUJA	12,955	7.77	3,236
FARIAS	14,158	11.14	5,073
FITIPALDI	7,531	19.40	4,697
G1	38,180	7.71	9,468
G2	21,038	12.59	8,518
G3	194,314	10.35	64,688
GARRINCHA	96	4.45	14
IPE	119,521	10.55	40,555
JATOBA	2,410	13.02	1,009
JATOBA2	24,702	9.07	7,207
MEIRELES	19,835	10.54	6,724
MEIRELES_RAMO	25,077	6.02	4,853
MOGNO	138,850	12.86	57,398
MUNGUBA	26,289	8.06	6,810
PELE	9,755	8.46	2,654
PGT	36,753	8.55	10,106
PINHO	2,792	9.63	864
PIPOCA	48,104	10.53	16,278
PIQUET	8,269	15.22	4,046
PIZZONIA	4,283	5.25	722
ROMARIO	350	4.11	46
SENA	47,907	7.97	12,273
SENARAMO	2,677	8.96	771
VERDE	45,838	11.31	16,671
VILLA	943	4.57	138
ZONTA	55,952	8.62	15,507
ZOS	3,543	13.94	1,588
TOTAL	1,015,333	10.40	339,342

Table 14-18: Mineral Resource Statements per vein (Inferred) – Palito Mine

VEIN	Tonnage (t)	Au (g/t)	Au (oz)
ANGELIMRAMO	3	0.34	0
ANGELLIM	129	5.73	24
BAMBU	262	3.90	33
BARRICHELLO	38,694	4.19	5,218
BEBETO	1,259	3.70	150
CAPIVARA	39,383	8.31	10,516
CASTANHEIRA	705	4.88	111
CAXIAS	11,520	6.73	2,494
CEDRO	1,544	3.45	171
COMPRESSOR	3,416	9.52	1,046
COMPRESSORRAMO	38	5.92	7
CORUJA	775	5.72	143
FARIAS	50	9.28	15
FITIPALDI	954	13.40	411
G1	16,595	3.67	1,960
G2	3	3.30	0
G3	343,936	8.03	88,812
IPE	107,371	5.36	18,504
JATOBA2	173	3.39	19
MEIRELES	2,907	4.41	412
MEIRELES_RAMO	624	3.21	65
MOGNO	340	0.39	4
MUNGUBA	5,538	4.09	728
PELE	30,840	8.06	7,992
PGT	227	3.35	24
PINHO	237	2.15	16
PIPOCA	330	8.96	95
PIQUET	3,689	8.78	1,042
PIZZONIA	1,107	3.57	127
SENA	4.6	0.57	0.08
SENARAMO	628	3.28	66
VERDE	1,705	8.35	457
VILLA	0.1	0.10	0.0005
ZONTA	59,141	6.06	11,529
ZOS	56	9.10	16
TOTAL	674,185	7.02	152,209

Table 14-19: Mineral Resource Statements per vein (measured + indicated) – São Chico Mine

VEIN	Tonnage (t)	Au (g/t)	Au (oz)
SCHIGH	9,051	9.91	2,882
SCJULIA	24,579	8.48	6,704
SCPPAL	117,287	7.63	28,774
TOTAL	150,917	7.91	38,360

Table 14-20: Mineral Resource Statements per vein (inferred) – São Chico Mine

VEIN	Tonnage (t)	Au (g/t)	Au (oz)
SCHIGH	317	6.41	65
SCJULIA	1,754	4.45	251
SCPPAL	6,138	7.13	1,407
Total Geral	8,209	6.53	1,724

14.11 Grade Sensitivity Analysis

The mineral resources of the Palito and São Chico mines are sensitive to the selection of the reporting COG. To illustrate this sensitivity, the measured plus indicated mineral resources quantities and grade estimates are presented at different COGs in Figure 14-10 and Figure 14-11 for the Palito and São Chico mines, respectively. The reader is cautioned that the figures presented in Figure 14-10 and Figure 14-11 should not be misconstrued with a Mineral Resource Statement. The figures are only presented to show the sensitivity of the estimates to the selection of COG.

Figure 14-10: Tonnage / grade curve – Palito Mine

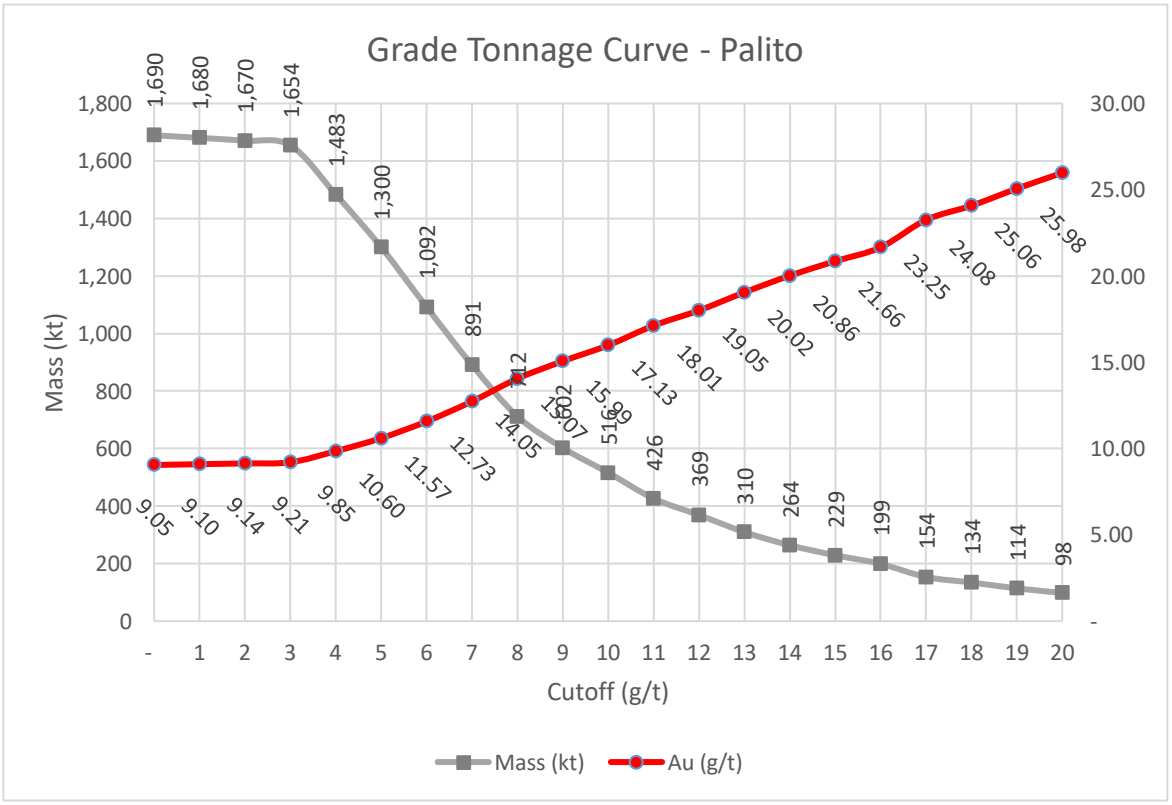
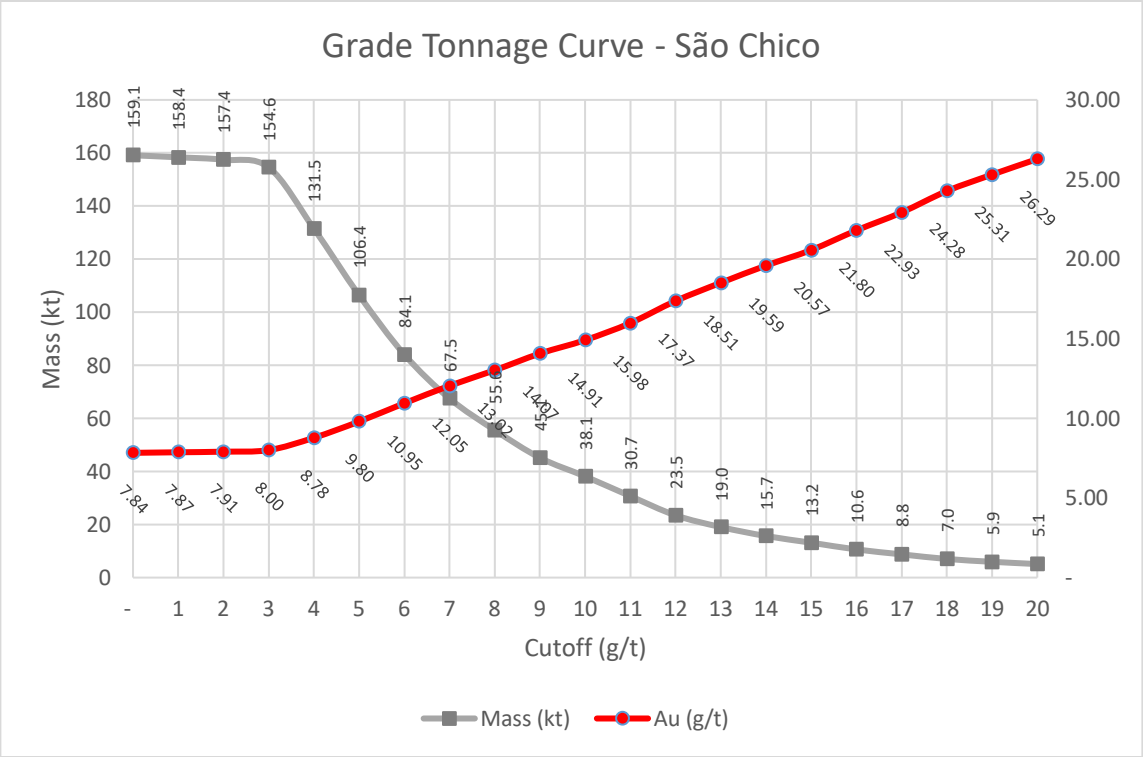


Figure 14-11: Tonnage / grade curve – São Chico Mine



14.12 Relevant Factors

Other than the factors discussed herein, there are no additional environmental, permitting, legal, title, taxation marketing or other factors that could affect resources.

15 Mineral Reserve Estimates

15.1 Introduction

The sources of the ore correspond to the development of the underground operation at Palito and São Chico to be mined by shrinkage at a maximum rate of 15,000 tonnes per month.

Using the resource estimate, NCL performed underground optimization and mine planning introducing factors to account for dilution and ore loses. Because of the importance of the head grades to the processing plant, significant grade control efforts must be made during mining to minimize sub-grade material being fed to the plant.

Mineral Reserves are defined within an underground mine plan generated considering diluted Measured and Indicated Mineral Resources.

Mineral Resources were converted to Mineral Reserves recognizing the level of confidence in the Mineral Resource estimate and reflecting the modifying factors. Measured Mineral Resources were converted to Proven Mineral Reserves and Indicated Mineral Resources were converted to Probable Mineral Reserves after consideration of all mining, metallurgical, social, environmental, statutory and financial aspects of the Palito Mining Complex.

The Mineral Reserve is that part of the Mineral Resource which can be economically mined by shrinkage mining method. As stated above, dilution of the Mineral Resource model and an allowance for ore loss was included in the Mineral Reserve estimate.

15.2 Conversion Assumptions, Parameters and Methods

Mineral resources are converted to mineral reserves using the assumptions, parameters and methods discussed in the following subsections. Mineral Reserves are reported for a total of 32 veins at the Palito Mine, the locations of which are shown in Figure 15-1. At the São Chico Mine, Mineral Reserves are reported from three veins.

Figure 15-1: Palito Mine Veins and Current Topography

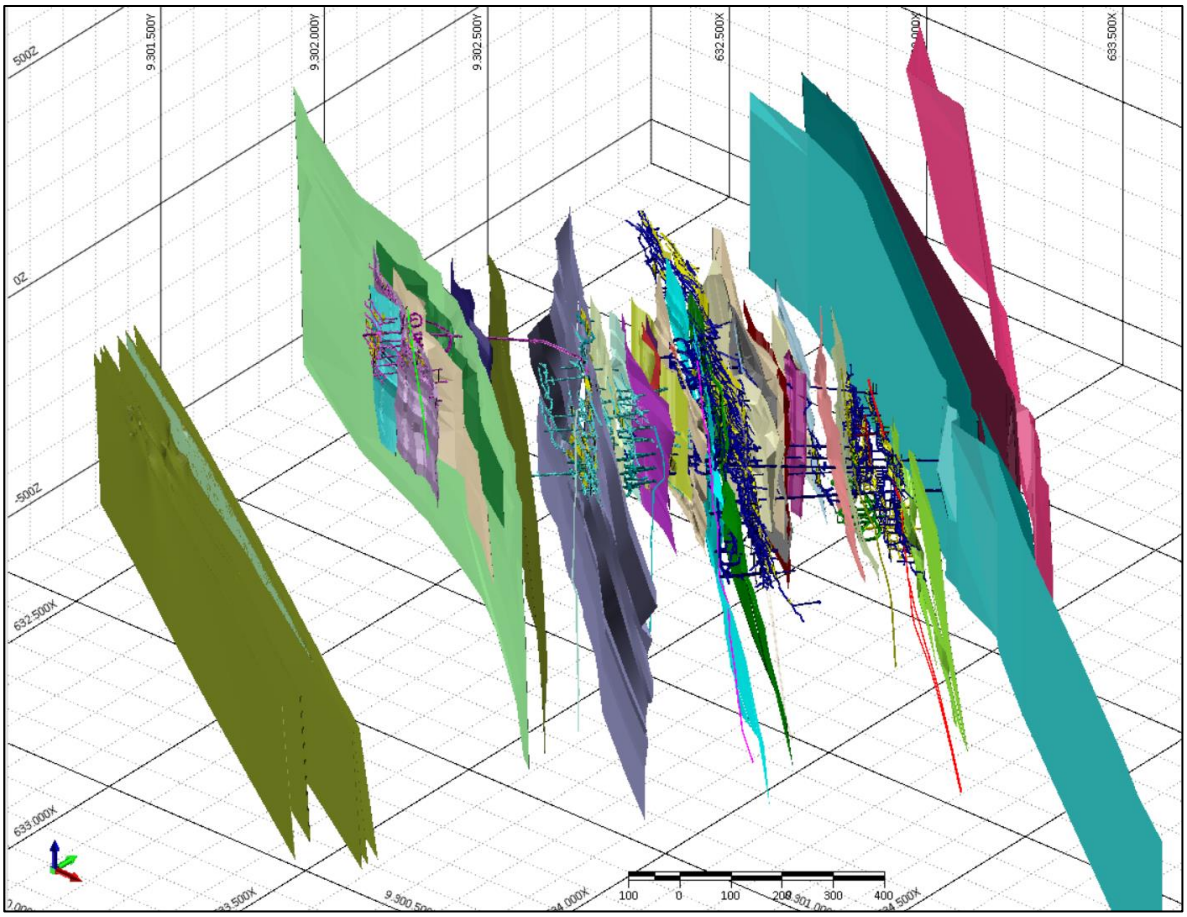
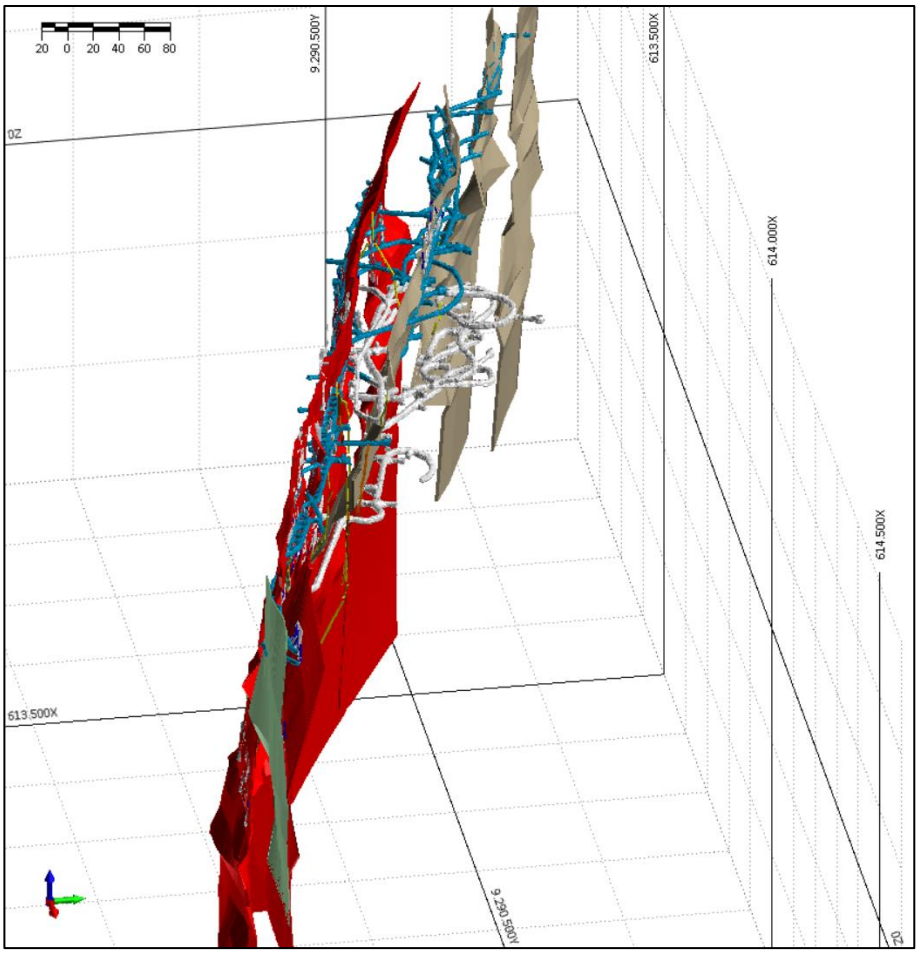


Figure 15-2: São Chico Mine Veins and Current Topography



Some veins that contain Measured and Indicated mineral resources (refer to Table 14-17) do not host mineral resource that could be converted to mineral reserves. This is primarily because of the application of mining dilution and the use of a COG for mineral reserves that is higher than the COG used for mineral resources. The COG determination is discussed in Section 15.2.2.

15.2.1 Gold Price, Currency Exchange and Metallurgical Recovery Assumptions

The gold price, currency exchange and metallurgical recovery assumptions for mineral reserves are shown in Table 15-1. Gold price was guided by a conservative value for the past 3 years. Currency exchange (Brazilian Reals to U.S. Dollars) is based on conservative value for the past two years. Metallurgical recovery is based on the average performance of the plant since 2017.

Table 15-1: Gold Price, Currency Exchange and Metallurgical Recovery Assumptions

Input	Unit	Palito	São Chico
Gold Price	US$/oz	1,800	1,800
R$/US$ Exchange Rate	R$/US$	5.0	5.0
Metallurgical Recovery	%	93.2%	93.8%

15.2.2 Cut-Off Grades (COG)

The COG calculation for mineral reserves takes into consideration the gold price, currency exchange rate, and metallurgical recovery inputs detailed in Table 15-1, along with the operating costs that are presented in Table 15-2.

Table 15-2: Operating Cost Basis for the COG Calculation

Costs 2024	Unit	Value
Opex	R$ '000	169,429
By product credits	R$ '000	-14,472
Concentrate freight	R$ '000	8,557
Concentrate TC/RC	R$ '000	3,502
CFEM	R$ '000	4,159
Bullion refining	R$ '000	1,800
Total	R$ '000	172,975
Ore tonnes	t	158,907
Unit Cost	R$/t	1,089
Unit Cost	US$/t	218

The operating costs presented in Table 15-2 are based on Serabi's estimates for its 2024 forecasting purposes.

The COGs for mineral reserves are therefore:

- Palito Mine mineral reserves COG: 4.0 g/t Au; and
- São Chico Mine mineral reserves COG: 4.0 g/t Au.

Palito low grade ore have shown a good performance when is upgraded through the ore sorter. Historical data and laboratory scale tests (Table 13-17) indicate that 20% of the mass contains 80% of the gold (or 20% of the mass at 4 times the grade). The mined material at the developments through the veins with 3.0x3.0 cross section have been considered that will be send to the ore sorter and therefore 1.0 g/t Au cut-off have been considered and 20% of the mass will continue to the mill.

São Chico have not shown a good performance in the ore sorter, therefore low-grade material below 4.0 g/t Au have been considered as waste.

For the mineral resources COGs, the gold price was increased to US$1,950/oz, exchange rate to R$ 5.5/US$ and metallurgical recovery for 95%. No other changes were made for the mineral resources COG calculation, resulting in the following COGs for mineral resources:

- Palito Mine mineral resources COG: 3.32 g/t Au; and
- São Chico Mine mineral resources COG: 3.32 g/t Au.

15.3 Dilution and Ore Losses

The Stope Optimizer process for the underground reserves estimate considered a minimum SMU of 6.0 m long, by 1.8 m high, minimum width of 0.8 m, maximum width of 5.0, rib pillar of 5.0 (if required) and an allowance of 0.1 m per side to account for over excavation as a consequence of the mining method. The overall process for the underground reserves estimate considered a 45% of metal loss

when compared with the total Measured and Indicated Mineral Resources and 33% of dilution due to additional waste that needs to be mined to comply with the selected SMU.

NCL notes that careful grade control will need to be practiced during mining operations to avoid sending sub-grade material to the plant, because of the important effect of head grade on copper production. These efforts should include the following standard procedures:

- Implement an intense and systematic program of sampling, mapping, laboratory analyses and reporting.
- Maintain high quality laboratory staff, equipment and procedures to provide accurate and timely assay reporting.
- Utilize trained geologists and technicians to work with shovel operators in identifying, marking and selectively mining and dispatching ore and waste.

15.4 Mineral Reserve Statement

It is the opinion of NCL that the mine production schedule defines the mineral reserve for a mining project. Table 15-3 reports the underground mineral reserve of the Palito Mining Complex based on the updated production schedule used for this study.

Mineral Reserves are summarized have an effective date of July 31, 2023. The Qualified Person for the estimate is Mr. Carlos Guzman, Registered Member of the Chilean Mining Commission and FAusIMM, an NCL Principal and Project Director.

Table 15-3: Mineral Reserve Statement, Palito Mining Complex as July 31, 2023 (Source: NCL 2023)

Classification	Tonnes kt	Grade Au (g/t)	Contained Metal koz
Palito			
Proven	567.8	8.08	147.5
Probable	196.8	6.83	43.2
Total Palito	764.6	7.76	190.8
São Chico			
Proven	46.1	8.20	12.2
Probable	14.1	7.68	3.5
Total São Chico	60.2	8.08	15.6
Palito Mining Complex			
Proven	614.0	8.09	159.7
Probable	210.8	6.89	46.7
Total Palito Mining Complex	824.8	7.78	206.4

Notes
1) Mineral Reserves have been rounded to reflect the relative accuracy of the estimates. Proven Mineral Reserves are reported within the Measured classification domain, and Probable Mineral Reserves are reported within the Indicated classification domain.
2) Proven and Probable Mineral Reserves are inclusive of external mining dilution and mining loss and are reported at a COG of 4.0 g/t gold assuming an underground shrinkage mining scenario, a gold price of US$1,800/oz, a 5.0:1 Brazilian Real to U.S. Dollar exchange rate, and metallurgical recoveries of 93.2% for Palito and 93.8% for São Chico.
3) Serabi is the operator and owns 100% of the Palito Mine such that gross and net attributable mineral reserves are the same.
4) The mineral reserve estimate was prepared by the NCL in accordance with the standard of CIM and NI 43-101, with an effective date of July 31, 2023, and audited and approved by Mr. Carlos Guzmán of NCL, who is a Qualified Person under NI 43-101.

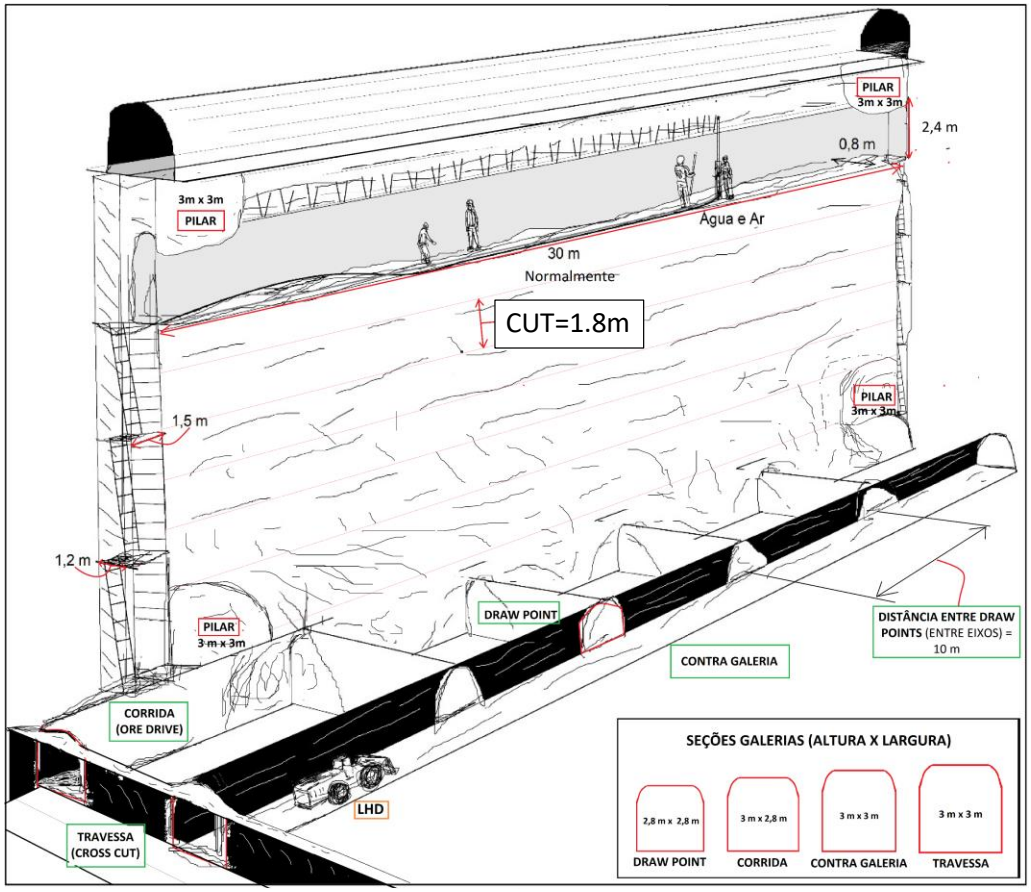
16 Mining Methods

16.1 Current Methods

Mining of the narrow, near-vertical gold veins at the Palito Mine is undertaken using the shrinkage stoping method. Shrinkage stoping blocks (usually 30 m high) are defined on the bottom by horizontal development mining along the vein at a cross-sectional dimension of 3.0 m high by 3.0 m wide. A vertical raise is then driven to the top of the stoping block and ladders are installed so that men and materials can access the stope on each subsequent lift as mining advances upward.

Stope mining progresses vertically beginning with the drilling of 1.8 m sub-vertical holes using handheld pneumatic drills (stopers). The drill holes are loaded with explosives and the blasted ore is left in the stope except to the extent it is necessary to draw down the rock to leave an adequate distance between the working floor and the back. The ore left in the stope supports the walls and no installed ground support is typically required. Serabi extracts the broken ore via a series of crosscuts that are driven in waste from a footwall access. After a stope is mined to its full height, LHD units are used to muck the remaining ore from the stope. The LHD units load 20 t haul trucks, which then transport the broken ore to the surface. Figure 16-1 shows a scheme of the shrinkage stoping method as it is used at the Palito Mine.

Figure 16-1: Isometric View of Shrinkage Stoping



Mining of the steeply dipping vein at the São Chico Mine from April 2015 to April 2023 was by longitudinal longhole stoping methods using sublevels that are spaced at a nominal 15 m. Because structural backfill is not available and because mining takes place on multiple adjacent levels, rib and sill pillars were used to separate the ore blocks and maintain geotechnical stability.

This current Mineral Reserve estimate and LOM production schedule considers the application of shrinkage in São Chico, applying the same concept than for Palito, to reduce operational dilution by overbreak and because the remaining mineable resources are at narrower widths than the already mined sectors.

Stope widths at the are typically narrow (0.9 m to 1.5 m wide) and the shrinkage method provides support for the stope walls until the last lift of the stope is completed and the ore is drawn down. Ground conditions are generally very good and ground support typically is not required in the stopes. However, because Serabi concurrently mines on vertically adjacent levels, 3.0 m thick horizontal sill pillars are left at the crown of the shrink stoping blocks in some instances. Similarly, 3.0 m thick rib pillars are used to separate horizontally adjacent stopes.

16.2 Mine Production Schedule

The LOM production schedule based on Mineral Reserves is presented in Table 16-1. The average annual processing rate ranges between 271 t/d and 493 t/d (LOM average is 456 t/d). LOM primary development in waste (e.g., ramps, footwall accesses and raises) is 34.7 km for the Palito Mine and 2.6 km for the São Chico Mine. Ore mining in the Palito Mine continues until June 2028 whereas mining in the São Chico Mine ends in December 2027.

Table 16-1: Life of Mine Production Schedule Based on Mineral Reserves

Source	Units	2023 (1)	2024	2025	2026	2027	2028 (2)	TOTAL
Palito Mine								
Mined – Shrinkage	t	60,966	161,855	154,403	171,057	121,441	24,697	694,419
Head Grade	g/t Au	10.09	8.61	8.75	7.01	7.25	12.65	8.28
Mined - Development (high grade)	t	3,930	0	5,111	1,814	567		11,421
Head Grade	g/t Au	5.87	0.00	5.24	4.50	4.14		5.28
Mined - Development (low grade)	t	10,644	2,309	32,581	9,692	3,534		58,760
Head Grade	g/t Au	2.18	2.20	2.09	1.84	2.31		2.08
Mined – Total	t	75,541	164,164	192,094	182,562	125,541	24,697	764,600
Head Grade	g/t Au	8.76	8.52	7.53	6.71	7.10	12.65	7.76
Recovery	%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%
Production	oz Au	19,688	41,859	42,917	36,578	26,660	9,359	177,061
Mine Development	m	2,754	11,780	11,841	6,320	2,019		34,715
São Chico Mine								
Mined – Shrinkage	t	5,020	18,124	13,977	4,772	15,042		56,935
Head Grade	g/t Au	9.62	8.79	8.43	7.25	7.08		8.19
Mined - Development (high grade)	t	2,833			427			3,260
Head Grade	g/t Au	6.17			5.85			6.13
Mined - Development (low grade)	t							0
Head Grade	g/t Au							0.00
Mined – Total	t	7,853	18,124	13,977	5,199	15,042	0	60,195
Head Grade	g/t Au	8.37	8.79	8.43	7.13	7.08	0.00	8.08
Recovery	%	93.8%	93.8%	93.8%	93.8%	93.8%	93.8%	93.8%
Production	oz Au	1,983	4,803	3,554	1,118	3,211		14,669
Mine Development	m	2,223	155		205			2,583

Source	Units	2023 (1)	2024	2025	2026	2027	2028 (2)	TOTAL
Total Mined								
Mined – Shrinkage	t	65,986	179,979	168,380	175,829	136,483	24,697	751,354
Head Grade	g/t Au	10.06	8.62	8.72	7.01	7.23	12.65	8.27
Mined - Development (high grade)	t	6,763	0	5,111	2,241	567	0	14,681
Head Grade	g/t Au	5.99	0.00	5.24	4.76	4.14	0.00	5.47
Mined - Development (low grade)	t	10,644	2,309	32,581	9,692	3,534	0	58,760
Head Grade	g/t Au	2.18	2.20	2.09	1.84	2.31	0.00	2.08
Mined – Total	t	83,394	182,288	206,071	187,761	140,583	24,697	824,795
Head Grade	g/t Au	8.72	8.54	7.59	6.72	7.10	12.65	7.78
Average Recovery	%	93.3%	93.3%	93.2%	93.2%	93.3%	93.2%	93.2%
Production	oz Au	21,671	46,662	46,470	37,696	29,871	9,359	191,730
Mine Development	m	4,978	11,935	11,841	6,525	2,019	0	37,298
Total Milled (3)								
Tonnage	t	74,878	180,441	180,006	180,008	137,756	24,697	777,787
Head Grade	g/t Au	9.65	8.62	8.61	6.99	7.23	12.65	8.22
Average Recovery	%	93.3%	93.3%	93.2%	93.2%	93.3%	93.2%	93.2%
Production	oz Au	21,671	46,662	46,470	37,696	29,871	9,359	191,730
Average Processing Rate	**t/d**	**489**	**493**	**493**	**493**	**377**	**271**	**456**

(1) Only considers Aug 1 - Dec 31, 2023

(2) Only considers Q1 - 2028

(3) Palito low grade development to Ore Sorter, considering 20% of the mass with 80% of the gold to the mill

Source: NCL 2023

16.3 Mining Fleet

The major drilling and loading equipment owned and operated by Serabi and used in the Palito and São Chico mines is listed in Table 16-2. The equipment is a mix of older and newer units that are appropriately sized for operation in the relatively narrow stope widths in Palito and São Chico. Haulage of ore from São Chico to Palito is performed by a haulage contractor using equipment that is owned, operated and maintained by the contractor.

Table 16-2: Major Mining Equipment

Equipment No	Type	Make	Model	Comments
Palito Mine				
CA 04	Articulated dump truck	Aramine	T160	
CB 18	Dump truck	Volvo	FMX 460	stand by
CB 19	Dump truck	Volvo	FMX 460	
CB 20	Dump truck	Volvo	FMX 460	
CB 21	Dump truck	Volvo	FMX 460	
CD 13	FEL-Front Load Dump	Volvo	L90F	stand by
CD 14	FEL-Front Load Dump	Volvo	L90F	
JU 1	Drifting boomer	Atlas Copco	T1D	stand by
JU 10	Drifting boomer	Atlas Copco	T1D	
JU 11	Drifting boomer	Atlas Copco	T1D	
LHD 17	Scoop	Atlas Copco	ST2G	with remote control, stand by
LHD 18	Scoop	Atlas Copco	ST2G	with remote control
LHD 19	Scoop	Atlas Copco	ST2G	with remote control
SB 03	Long hole Drill	Resemin	Muki	
TL 07	Telehandler	Dieci	Apollo 25.6	

Equipment No	Type	Make	Model	Comments
TL 10	Telehandler	Manitou	MT-X 635 H	
São Chico Mine				
CB 14	Dump truck	Volvo	FMX 460	
CB 16	Dump truck	Volvo	FMX 460	
CD 12	FEL-Front Load Dump	Volvo	L90F	
JU 02	Drifting boomer	Atlas Copco	T1D	
JU 05	Drifting boomer	Atlas Copco	T1D	
SB 02	Long hole Drill	Resemin	Muki	
LHD 06	Scoop	Atlas Copco	ST2G	with remote control
LHD 08	Scoop	Atlas Copco	ST2G	with remote control
TL 09	Telehandler	Dieci	Apollo 25.6	

Source: Serabi, 2023

16.4 Manpower

The Palito Mining Complex manpower for 2023 is shown in Table 16-3. Approximately 70% of the total site manpower is dedicated to underground mining and the maintenance of mining equipment.

Table 16-3: Palito Mining Complex Manpower

Equipment No	Number
Palito Mine	
Mine - Management	6
Mine - Serabi	135
Mine - Contractors	99
Mine - Maintenance	87
Plant	70
Admin - Office	43
HSE / Labor	15
Total Palito Mine	**455**
São Chico Mine	
Mine - Serabi	61
Mine - Contractors	18
Site Services	15
Tech Services	15
HSE / Labor	3
Total São Chico Mine	**112**
Administration Labor	18
Total Palito Mining Complex	**585**

Source: Serabi, 2023

16.5 Mine Dewatering

Mine dewatering is approximately 10 L/sec at the Palito Mine and approximately 17 L/sec at the São Chico Mine. At both mines, water is pumped through a system of staged centrifugal pumps to the portals at the top of the main ramp systems.

16.6 Mine Ventilation

Total mine airflow is approximately 5,950 m^3/min (210,000 cfm) at the Palito Mine and approximately 1,060 m^3 per minute (63,400 cfm) at the São Chico Mine. At both mines, fresh air is drawn into the main ramp system and intake raises, distributed throughout the mine, and then exhausted through a series of ventilation raises and adits that connect to the surface.

17 Recovery Methods

17.1 Processing Methods

Serabi operates a 500 t/d plant to process ore from both the Palito and São Chico mines. Palito ore is processed through a flowsheet that includes crushing, grinding, copper flotation and carbon-in-pulp (CIP) cyanidation of gold and silver values from the copper flotation tailing. Low grade development ore from the Palito mine is upgraded by the ore sorter after crushing and prior to grinding. The São Chico ore is processed in a separate grinding circuit that includes gravity concentration and intensive cyanide leaching of the gravity concentrate. The São Chico gravity tailing is combined and processed with the Palito copper flotation tailing in the CIP cyanidation circuit. Gold and silver values extracted in the CIP circuit are adsorbed onto activated carbon. The “loaded” carbon is then eluted to remove the adsorbed gold and silver values into an upgraded solution that flows through electrowinning cells to recover gold and silver as a cathodic precipitate, which is then fluxed and smelted to produce a final doré product. The overall process flowsheet is shown in Figure 17-1 and a list of major equipment is shown in Table 17-1.

Table 17-1: Summary of Pilot Plant Ore Sorting Palito Ore

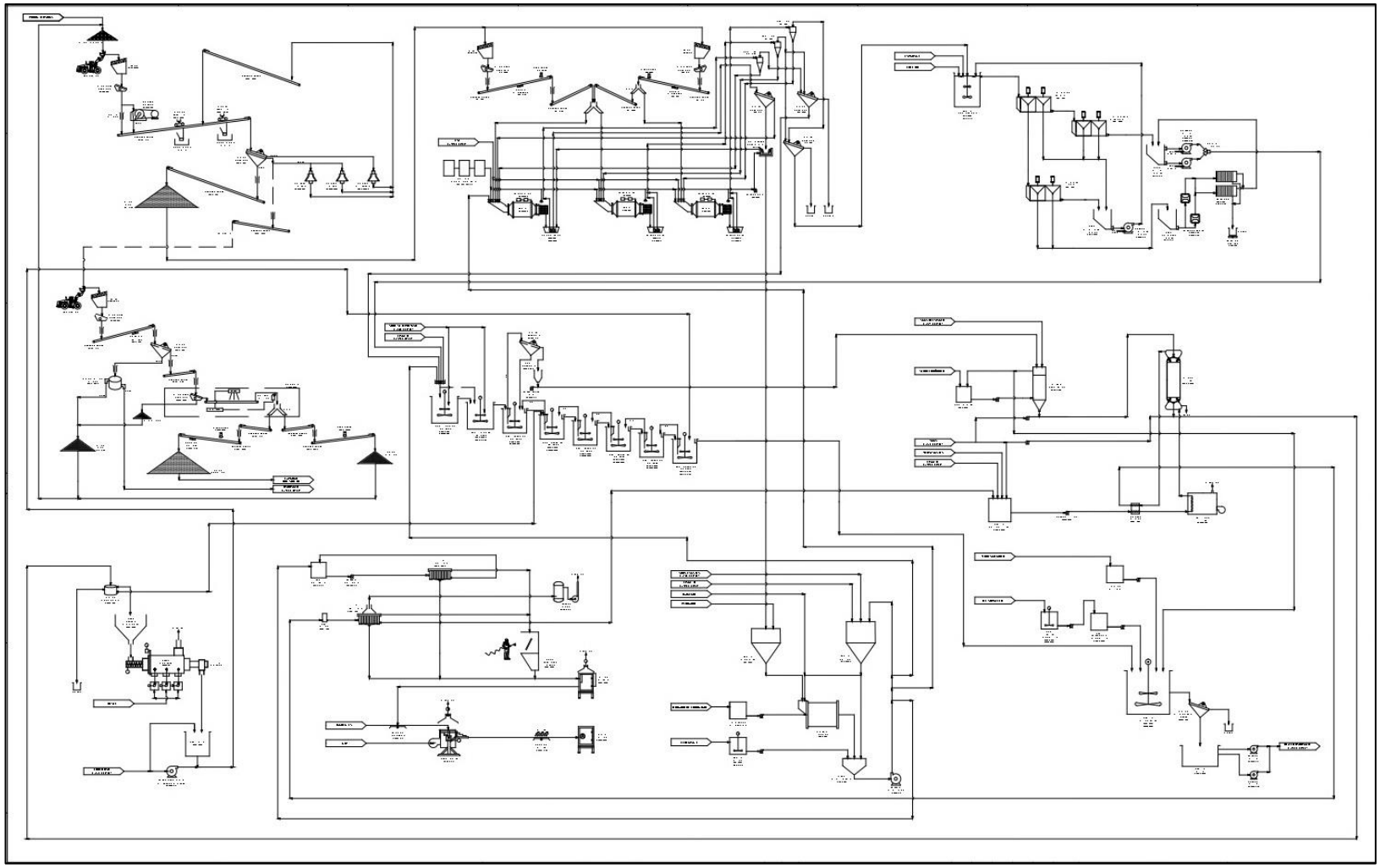
Process Area	Equipment	Qty	Details	kW (Unit)
CRUSHING	Crusher Feed Silo	1	-	-
	Primary Crusher Vibrating Feeder	1	Faço 23H70B; 1780rpm	9.3
	Jaw crusher	1	Metso 6240E; 620mm x 400mm; 280rpm	56
	Product Screen	1	Simplex SXP 4015/2D; 870rpm; 4.0m x 1.5m; Upper Deck = 38mm; Lower Deck = 15mm	14.9
	Product Screen Feed Conveyor	1	TC-001: 24" Width; 21.3m Length; 2.0m/s	9.3
	Crusher Return Conveyor	1	TC-002: 20" Width; 14.4m Length; 1.75m/s	7.5
	Crushed Product Conveyor	1	TC-003: 20" Width; 15.3m Length; 2.95m/s	5.6
	Coarse Product Diversion Conveyor	1	TC-004: 20" Width; 14.5m Length; 1.75m/s	5.6
	Secondary Crusher	1	Faço 60S Cone Crusher; 380rpm; P80 19mm	22.4
	Tertiary Crusher 1	1	Faço 60TF Cone Crusher; 380rpm; P80 12mm	22.4
	Tertiary Crusher 2	1	Sandvik H2800 Cone Crusher; 395rpm; P80 12mm	89.5
	Compressor (Sandvik)	1	Compressor FF25VI; Capacity = 273L; 13.27bar;	5.6
	Weighbridge	1	Lider 8500-C; Capacity 60,000 KG; 18m x 3.2m	-
ORE SORTING	Ore Sorter Feed Silo	1	-	-
	Sorting Circuit Vibrating Feeder	1	Simplex SXCV-50; 1m x 0.5m;	0.8
	Ore Sorter Feed Washing Screen	1	Simplex SXPD 4015/1D; 4.0m x 1.5m; Deck 8x8mm	18.7
	Ore Sorter Dewatering Screen	1	Mineralmaq PVS-120FF-1; Aperture 1.2mm	2.2
	Ore Sorter Vibrating Feeder	1	Marat GM-PW 0,9m x 1.75m	2.2
	Washing Screen Feed Conveyor	1	TC-001: 24" Width; 37.3m Length; 1.0m/s	11.2
	Ore Sorter Feed Conveyor	1	TC-002: 24" Width; 4.1m Length; 0.5m/s	2.2
	Ore Sorter Waste Conveyor	1	TC-003: 20" Width; 8.0m Length; 0.5m/s	2.2
	Or Sorter Product Conveyor	1	TC-004: 20" Width; 8.0m Length; 0.5m/s	2.2
	Waste Stacker Conveyor	1	TC-005: 24" Width; 14.0m Length; 0.5m/s	3.7
	Product Stacker Conveyor	1	TC-006: 24" Width; 14.0m Length; 0.5m/s	3.7
	Ore Sorter XRAY/Optical	1	Comex CXR-1000; 5.5m x 1m; 2.5m/s - 3m/s	40.3
	Ore Sorter Compressor	1	Air Compressor Kaeser CSD-60 with Drier TF-280	37.3

Process Area	Equipment	Qty	Details	kW (Unit)
GRINDING / GRAVITY	Mill Feed Silos	2	Capacity Silo 1: 105t Capacity Silo 2: 80t	-
	Mill Feed Vibrating Feeder	2	Simplex SXCV-50 (TC-001/TC-003); 1m x 0.5m	3.7
	Silo 1 Conveyor (Palito)	1	Palito TC-001; 20" Width; 26m Length; 0.73m/s	9.3
	Mill Feed Conveyor 1 (Palito)	1	Palito TC-002; 20" Width; 32m Length; 0.74m/s	9.3
	Silo 2 Conveyor (Sao Chico)	1	São Chico TC-003; 20" Width; 38m Length; 1.1m/s	9.3
	Mill Feed Conveyor 2 (Sao Chico)	1	São Chico TC-004; 20" Width; 30m Length; 1.1m/s	9.3
	Ball Mill 01	1	Humboldt Wedag 2.3m Diameter x 3.2m Length; Rubber Lined Overflow; 20rpm	253.6
	Ball Mill 02	1	Zanini 2.2m Diameter x 3.5m Length. Rubber Lined Overflow; 22rpm	205.2
	Ball Mill 03	1	Zanini 2.2m Diameter x 3.5m Length; Rubber Lined Overflow; 22rpm	205.2
	Cyclone Feed Pumps	6	Reval 3/2 C-SHD	22.4
	Gravity Sizing Screen	1	Simplex SXPH-3010/1D; 3m x 1.0m; 2mm	7.5
	Sao Chico Trash Screen	1	Simplex SXPH-3013; 3m x 1.3m; 0.8mm	7.5
	Palito Trash Screen	1	Simplex SXPH-4015; 4m x 1.5m; 0.8mm	14.9
	Hydrocyclones	3	Weir Cavex 250CVX; Vortex 80mm; Apex 54mm	-
	Centrifugal Gravity Concentrator	1	Falcon SB-750B; 1345kg; 100m3/h	7.5
	Concentrator Booster Pump	1	Thebe - Single Stage	5.6
	Mill Area Sump Pumps	3	Reval 3/2 C-SHD Vertical	22.4
FLOTATION	Conditioning Tank	1	1.8m Diameter x 2.3m Height; Live Vol: 4.58m3	-
	Flotation Rougher cell	1	Emprotec Dual Cell; 2m x 1.6m	22.8
	Flotation Scavenger Cell	1	Emprotec Dual Cell; 2m x 1.6m	22.8
	Flotation Cleaner cell	1	Emprotec Dual Cell; 2m x 1.6m	22.4
	Flotation Air Blower	1	Omel trilobular SRTEV/II-1027	22.4
	Flotation Tails Pumps	2	Warman 4/3 AH	22.4
	Flotation Recirculation Pump	1	Warman 2/1,5 AH	9.3
	Filter Press Compressor	1	Chicago Pneumatic PCE150;	111.9
	Filter Press Feed Pump	2	Netzsch NP10M Air Diaphragm Pump; 530L/m	-
	Concentrate Filter Press	1	Netzch/Andritz SE500CD8; 500x500x20 plates	2.2
	Flotation Area Sump Pump	1	Reval 2/1,5 VC-SHD	9.3
CIP	Leach Tanks	2	6.5m Dia. x 6.5m Height; Live Vol: 185m3;	11.2
	Adsorption Tanks	6	4.6m Dia. x 5.0m Altura: Live Vol: 74 m3	7.5
	Loaded Carbon Screen	1	Mineralmaq PVS-120FF-1; Aperture 0.8mm	2.2
	Loaded Carbon Hopper	1	1,8m Diameter x 2m Height + 1.4m Cone; 6m3	-
	CIP Carbon Transfer Pump	1	Thebe Multistage P-15/4-NFF-TRI; 18m3/h; Edutor Jacoby-Tarbox	7.5
	CIP Air Blower	2	Omel trilobular SRTEV/II-1027; 660 Nm3/hr	22.4
	CIP Area Sump Pump	1	Reval 3/2 C-SHD	14.9
TAILINGS	Detox Tank	1	4.6m Diameter x 6.6m Height: Live Vol = 93m3;	37.3
	Detox Tank Air Blower	1	Omel trilobular SRTEV/II-1027; 340 Nm3/h	22.4
	Carbon Safety Screen	1	Simplex SXPD-4015/1D; 4.0m x 1.5m; 0.8mm	14.9
	Tailings Pumps	2	Reval 4/3 C-SHD	37.3
	Tailings Area Sump Pump	1	Reval 3/2 DV-SHD; 1600rpm; Flow = 30m3/h	9.3

Process Area	Equipment	Qty	Details	kW (Unit)
	SMBS Mixing Tank	1	2.5m Diameter x 2.5m Height; Live Vol = 11.5m3	0.7
	SMBS Storage Tank	1	2.0m Diameter x 2.0m Height; Live Vol = 6.0m3	-
	SMBS Dosing Pump	1	MAXPNEUMATIC SJP-MK50PP-PP/ST/ST/PP	0.7
	Sulphuric Acid Dosing Pump	1	Bomax Dosamax P1 S PP Red=1:15	0.2
ACID WASH/ ELUTION	Acid Solution Tank	1	1.5m Dia. x 1.48m Height; Vol 2.07m3	-
	Acid Wash Column	1	1.3m Dia. x 2.5m Height + 0.65m Cone; Vol 3.1m^3	-
	Acid Dosing Pump	1	Teflon Centrifugal Pump	2.2
	Elution Column	1	0.88m Dia. (int) x 6.3m Height; Vol 3.8m^3	-
	Eluate Tank	1	2.4 Dia. x 2.5m Height; Vol = 9m^3	-
	Eluate Pump	1	Scheneider ME-HI 5530	2.2
	Elution Carbon Transfer Pumps	2	Thebe Multistage P-15/4-NFF-TRI; 18m^3/h; Edutor Jacoby-Tarbox	7.5
	Primary Heat Exchanger	1	Arauterm TCP-SST 07 / 30 TL N; 185,000kcal/h	-
	Elution Boiler	1	Arauterm CAD-HP-300; DIESEL; 300,000Kcal/h	-
	Elution Area Sump Pump	1	Reval 3/2 DV-SHD; 1600rpm; Flow = 30m^3/h	9.3
CARBON REGEN	Kiln Dewatering Screen	1	Mineralmaq PVS-120 FF-1; 1.2mm & 0.8mm	1.5
	Kiln Feed Hopper	1	1.85m Dia x 1.35m Height + 1.1m cone; Vol 4.0m^3	-
	Regeneration Kiln	1	Kemix 75 kg/h; Diesel	11.9
	Quench Tank	1	2.0m Diameter x 1.55m Height; Vol = 4m3	-
	Regeneration Carbon Transfer Pump	1	Thebe Multistage P-15/4-NFF-TRI; 18m3/h; Edutor Jacoby-Tarbox	7.5
GOLDROOM	Intensive Leach Solution Tank	1	Live Capacity 9m3	-
	Intensive Leach Circulation Pump	1	Scheneider ME-HI 5530	1.5
	Elution Electrowinning Cell	1	Como Eng 600 x 600 x 9; 1000A Rectifier	25.4
	Intensive Leach Electrowinning Cell	1	Como Eng 600 x 600 x 9; 1000A Rectifier	25.4
	Gas Scrubber	1	LGU 600m3/hr; 0.75m Diameter x 2.1m Height	1.1
	Cathode Washing Pump	1	Hidromar BH 6284; Pressure 400psi; Flow 52L/min	3.7
	Drying Oven	1	Quimis Q314M293-NR12 Forced Ventilation	4.5
	Smelting Furnace	1	Grion 11 Litres; 1200oC; LGP + Hydraulic Pump	1.5
	Goldroom Sump Pump	1	Reval 3/2 DV-SHD; 1600rpm; Flow = 30m3/h	9.3
	Safe	1	Bullion Safe	-
REAGENT PREP	Lime Mixing Tank	1	2.4m Dia. x 2,5m Height; Vol 8.4m3;	1.5
	Cyanide Mixing Tank	1	2.1m Dia. x 2,2m Height; Vol 5.4m3;	0.7
	Caustic Soda Mixing Tank	1	1.8m Dia.r x 1,0m Height; Vol 2.0m3;	0.7

Source: Serabi, 2022

Figure 17-1: Serabi Process Plant Flowsheet



17.2 Process Description

17.2.1 Crushing

Run-of Mine (ROM) ore from the mines is transported by trucks and stockpiled separately in an area close to the crushing plant.

Stockpiled run-of-mine (ROM) ore is fed to the crushing circuit at an average rate of 35 t/h using a front-end wheel loader. The ore is fed to a jaw crusher using a vibratory grizzly where it is crushed to a nominal size of 60 mm. A conveyor transports the primary crushed ore to a double-deck vibrating screen with a top deck screen size of 38 mm and a bottom deck screen size of 15 mm. The +38 mm material reports to the secondary crusher and the -38 mm+15 mm material reports to either the two tertiary crushers operating in parallel or, if grade is low, it is removed from the circuit and stockpiled for ore sorting. The secondary and tertiary crushers are operated in closed circuit with the double-deck screen and are set to produce a product of less than 15 mm. The final minus 15 mm product is transported via a stacker conveyor to crushed ore stockpiles.

Due to the high variability of the Palito and São Chico ROM ore, material from each front and stope in both the mines is crushed separately on a batch basis and stockpiled individually. The crushed ore product from each batch is sampled as it falls onto the product conveyor. After analysis of each sample, the separate stockpiles are blended using a front-end wheel loader to produce a consistent mill feed blend. The ore is blended as it is loaded into trucks, which are then weighed and transported to mill feed stockpiles.

17.2.2 Ore Sorting

Low grade medium fraction ore (-38mm + 15mm) that is separated from the crushing circuit is transported to the ore sorting circuit for upgrading. The material is loaded into a 20 tonne silo and withdrawn with a variable speed vibrating feeder onto the washing screen feed conveyor which reports to a vibrating washing screen fitted with 8mm aperture panels. The ore is washed with water jets as it passes over the screen to remove any fine material from the surface of the particles. The washed screen oversize falls onto the ore sorter feed conveyor whilst the screen undersize reports to a dewatering screen fitted with a 1mm aperture screen-cloth that recovers any coarse -15mm + 1mm particles into a bunker for reclaim with the front-end loader. The dewatering screen undersize flows to a decantation pond where the fine material (-1mm) is allowed to settle and periodically removed for mill feed.

Washed ore is fed with a vibrating feeder on to a high-speed moving conveyor in a single layer, that passes under the ore sorting sensors. Two scanning principles are then applied to assess each particle, photometric color, which measures the surface color of each particle, and x-ray transmission (XRT) which measures the atomic density of each particle.

As the particles are scanned and measured, a computer algorithm assesses each particle and classifies it as either ore or waste, depending on the selection criteria. The position of each particle on the conveyor belt is also mapped as it passes through the sensor(s).

As the particle reaches the end of the conveyor, they are separated as either ore or waste by using air jets to “shoot” the desired particle out of the falling stream and into a separate chute from which it can be transported in a different direction, thus separating the upgraded ore product from the barren waste.

Conveyors transport the ore and waste to separate stockpiles. The ore product is collected by the front-end wheel loader and returned to the crushing circuit where it is crushed to -15mm for mill feed

and the barren waste is loaded into trucks by the front-end wheel loader and transported to a waste stockpile.

17.2.3 Grinding

Palito and São Chico ores are transported and loaded into separate 100 t fine ore bins at the process plant. Variable speed vibrating feeders withdraw the ore from each bin onto the mill feed conveyors that feed both the Palito and Sao Chico grinding circuits. The mill feed ore is weighed as it is conveyed to the grinding circuits and sampled every 30 minutes with automatic cross-cut samplers. There are three parallel grinding circuits which process either Palito or Sao Chico ore independently depending on the mill feed available.

Grinding circuit 1 is used exclusively for Palito ore and consists of a ball mill (2.1m dia. x 3.4m long) operating in closed circuit with a 250mm diameter hydrocyclone to produce a final ground product size of 80% passing 120 µm which reports to the copper flotation circuit.

Grinding circuit 2 is used exclusively for Sao Chico ore and consists of a ball mill (2.1 dia. x 3.4m long) operating in closed circuit with a Falcon SB-750B centrifugal concentrator and a 250 mm diameter cyclone. The concentrate collected by the centrifugal concentrator reports to the intensive leach circuit whilst the cyclone overflow, with a final ground product size of 80% passing 120 µm, reports directly to the CIP cyanidation circuit where it combines with the Palito flotation tail.

Grinding circuit 3 can be used for either Palito or Sao Chico ore, depending on the mill feed available. It consists of a ball mill (2.3m dia. x 3.4m long) operating in closed circuit with a hydrocyclone and the final ground product, 80% passing 120 µm is directed to report to either the copper flotation circuit when processing Palito ore, or to the CIP cyanidation circuit when processing Sao Chico ore.

17.2.4 Intensive Leaching

The gravity concentrate produced from the São Chico ore with the Falcon centrifugal concentrator is discharged to a 4 tons hopper and then leached in 800 kg batches in a Gekko In-line Leach Reactor (ILR150) for 24 hours. Leaching is accomplished in a cyanide solution that is maintained at a concentration 1.5% NaCN along with the addition 200 L of hydrogen peroxide per batch. The leach solution from the ILR is circulated through a separate electrowinning cell (600mm x 600mm x 9 cathodes) located in the gold room to recover the contained gold as a cathodic precipitate. The recovered gold is smelted as doré which is shipped offsite for final refining.

17.2.5 Flotation

The flotation circuit consists of a conditioning tank followed by rougher, scavenger, and cleaner cells. A thiocarbamate collector (A3894) for selective copper flotation is added to the conditioner tank feed. Lime is added in the grinding circuit to maintain pH at 10 -11. Methyl isobutyl carbinol (MIBC) is added as a frother.

The rougher-scavenger flotation circuit consists of two duplex cells, each with a capacity of 3.2 m3, which provide a flotation retention time of 10 to 12 minutes. The product from the first rougher cell is regarded as the rougher flotation concentrate and is advanced to one stage of cleaner flotation. The product from the remaining rougher-scavenger cells is regarded as scavenger concentrate, which is recycled back to the conditioning tanks at the head of the circuit. Rougher flotation concentrate is upgraded in one stage of cleaner flotation to produce a copper concentrate containing higher than 20% copper and into which about 50% to 70% of the gold contained in the Palito ore is recovered. Scavenger tails are pumped to the CIP cyanidation circuit to recover the remaining gold values. The cleaner flotation concentrate is filtered in two Andritz filter presses, each with a capacity of 300 kg/hr.

The filtered concentrate discharges directly from the filters into 1 t (wet) big bags. Typical moisture content of the concentrate is 9%. The bagged concentrate is shipped offsite in 20 t lots for refining.

17.2.6 CIP Cyanidation

The CIP cyanidation circuit consists of two 185 m3 mechanically agitated leach tanks and six 74 m3 mechanically agitated adsorption tanks, which provide a total retention time of about 18 hours at a slurry density of 35% solids. Cyanide concentration is maintained at 250 ppm NaCN in the leach tanks, which is allowed to attenuate to about 100 ppm NaCN at the discharge of the adsorption tanks. The pH of the leach slurry is maintained at 10.5 to 11.0 with lime. Carbon in the adsorption tanks is maintained at a concentration of 20 g/L except for the first tank, which is maintained at a carbon concentration of 40 g/L to ensure that the tank continues to have carbon in it after loaded carbon is removed.

Carbon is retained in adsorption tanks 1 to 6 using inter-tank screens. Loaded carbon from adsorption tank 1 is removed every 24 hours and transferred to elution for removal of gold. After elution the barren carbon is regenerated and returned to adsorption tank 6 and the carbon is advanced counter-currently to the pulp with the use of airlifts.

New leaching tanks were installed by Serabi during 2022 and commissioned at the end of 2022 and during the first quarter of 2023.

17.2.7 Elution and Gold Refining

Loaded carbon is passed over a screen and washed free of pulp with the pulp being returned to adsorption tank 1. The washed carbon is transferred to an acid wash column and washed with 2% hydrochloric acid solution. After acid washing the carbon is rinsed with water several times and then transferred to an elution column, with a nominal capacity of 1.5 tons. Elution is carried out by the Zadra process. Strip solution containing 2% caustic and 1% cyanide is heated to 1300 C and pumped through the elution column, stripping the gold from the carbon. The pregnant solution then passes through an electrowinning cell where the gold precipitates onto steel wool cathodes. The cathodes are periodically removed from the cells and washed to recover the gold/silver sludge. The precious metal sludge is dried, mixed with flux reagents and then smelted to produce a doré product. The doré bar is sampled and shipped offsite for final refining. The barren solution from the electrowinning cell returns to a holding tank where it is recirculated back through the process until elution is complete. Each elution cycle is typically 15 hours. After elution the carbon is rinsed with water several times and then reports to the carbon regeneration kiln.

17.2.8 Carbon Regeneration

The barren carbon from the elution column is washed with water and transferred to the regeneration kiln. The carbon is screened for particle size control and then heated to 7500 C within the kiln to ensure the complete removal of organic contaminants and regenerate the carbon surface to near its new adsorption capability.

After regeneration the carbon is returned to the last adsorption tank in the CIP.

17.2.9 Cyanide Detoxification

The slurry from last CIP tank flows to a mechanically agitated cyanide destruction tank with a nominal residence time of 1.5 hours. The slurry is detoxified using the INCO air/SO_2 process within the tank to reduce cyanide levels to <5 ppm CN_{WAD}, and then the detoxified slurry is pumped to the tailings dam after passing through a carbon safety screen.

17.3 Consumable Requirement

Process plant consumables for the period 2018 to 2022 are summarized in Table 17 2. The two major consumable items are sodium cyanide, representing 50% of the consumables cost, and grinding media, which represents almost 25% of the consumable cost.

Table 17-2: Serabi Process Plant Consumables

Item	2018		2019		2020		2021		2022	
	Kg/t	US$/t	Kg/t	US$/t	Kg/t	US$/t	Kg/t	US$/t	Kg/t	US$/t
Cyanide	0.906	2.65	0.888	2.95	0.899	2.55	0.998	2.79	1.041	3.34
Steel Balls	1.239	1.42	1.166	1.51	1.291	1.37	1.282	1.77	1.154	2.24
Lime	3.129	0.35	3.169	0.47	1.881	0.23	2.303	0.31	2.986	0.44
Big Bag	0.111	1.66	0.055	0.75	0.053	0.34	0.118	1.90	0.077	1.96
Activat. Carbon	0.015	0.05	0.042	0.20	0.074	0.21	0.070	0.19	0.098	0.39
Collector	0.194	1.40	0.087	0.68	0.066	0.48	0.243	2.27	0.181	2.16
Frother	0.107	0.39	0.048	0.17	0.062	0.18	0.167	0.64	0.113	0.45
Sodium Hydroxide	0.235	0.35	0.168	0.20	0.155	0.12	0.157	0.17	0.095	0.17
Hydrogen Peroxide	0.060	0.04	0.059	0.05	0.039	0.02	0.022	0.02	0.026	0.02
Sodium Metabisulfite	0.241	0.22	0.143	0.11	0.222	0.17	0.369	0.35	1.252	1.63

Source: Serabi, 2023

17.4 Operating Performance

Serabi process plant production results for the period 2017 to 2022 are presented in Table 17-3. The following general observations can be made regarding plant production over this period:

- Milled ore tons and recovery have remained relatively consistent for the years 2017 to 2021.
- The milled ore feed grade declined for a period in 2020 for reasons relating to the COVID-19 pandemic.
- In addition to Palito and São Chico ore, old flotation tailing stockpiles were processed by directly feeding into the CIP circuit. Average gold recovery of these tailings was 77.0%

Table 17-3: Serabi Process Plant Production – 2014-2022

Year	Milled Ore				Flotation Tailings				Total
	Tonnes	Grade Au g/t	Recov. Au %	Au Prod. oz Au	Tonnes	Grade Au g/t	Recov. Au %	Au Prod. oz Au	Au Prod. oz Au
2014	85,987	8.76	77.40%	18,750	0	0.00	0.0	0	18,750
2015	130,298	8.31	90.20%	31,384	18,355	2.60	70.9	1,086	32,470
2016	158,966	8.11	91.90%	38,071	16,716	3.23	75.9	1,320	39,390
2017	172,566	7.11	92.50%	36,520	4,568	3.97	82.9	483	37,003
2018	168,253	7.07	92.90%	35,528	16,466	3.72	84.7	1,647	37,175
2019	177,335	7.02	91.70%	36,710	29,976	4.52	77.8	3,391	40,101
2020	174,276	5.50	91.90%	28,315	39,207	3.13	73.4	2,897	31,212
2021	170,800	6.56	92.80%	33,419	11,530	1.80	64.1	429	33,848
2022	172,404	6.14	93.20%	30,481	2,436	2.01	63.0	1,338	31,819

Source: Serabi, 2023

The ore sorter was commissioned in January 2020 and the operating results for 2020 and 2021 are presented in Table 17-4. Only low grade Palito ore was passed through the ore sorter.

Table 17-4: Serabi Ore Sorter Results – 2020-2021

Year	Palito Ore					
	Feed t	Feed Au g/t	Product t	Product Au g/t	Reject Tons	Reject Au g/t
2020	23,412	1.95	2,818	12.00	20,594	0.58
2021	31,905	2.19	4,951	10.71	26,954	0.63

Source: Serabi, 2023

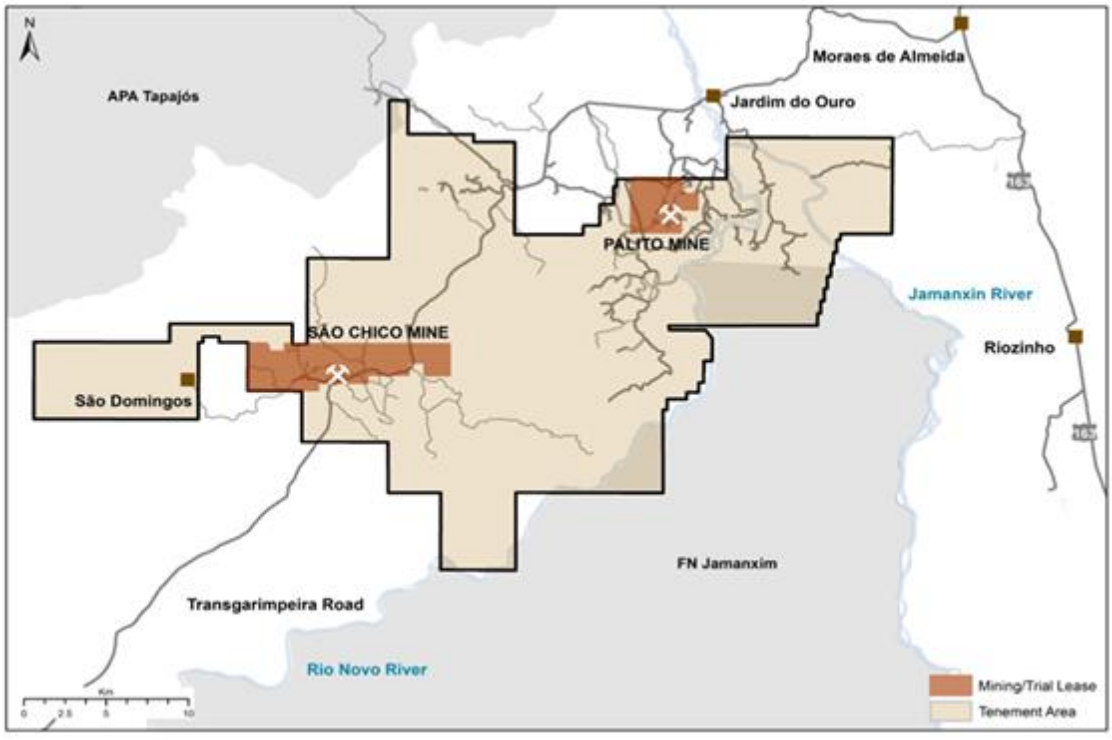
18 Project Infrastructure

18.1 General Infrastructure

The general onsite infrastructure includes:

- The Palito underground mine
- The São Chico underground mine
- Ore processing facilities
- Tailings disposal areas
- Power supply
- Water supply
- Mine camp (accommodation, offices, workshops and warehouses)
- Access roads and airstrip.

Figure 18-1: Palito and Sao Chico Mines Locations



18.1.1 Palito Underground Mine Access

A 4.5 m high x 4.5 m wide ramp system provides access to the underground of the Palito Mine.

18.1.2 São Chico Underground Mine Access

A 4.5 m high x 4.5 m wide ramp system provides access to the underground of the São Chico Mine

18.1.3 Process Support Facilities

Serabi operates a 500 t/d plant to process ore from both the Palito and São Chico mines. Palito ore is processed through a process that includes crushing, grinding, copper flotation and carbon-in-pulp (CIP) cyanidation of gold and silver values from the copper flotation tailing. The São Chico ore is processed in a separate grinding circuit that includes gravity concentration and intensive cyanide leaching of the gravity concentrate.

18.1.4 Camp

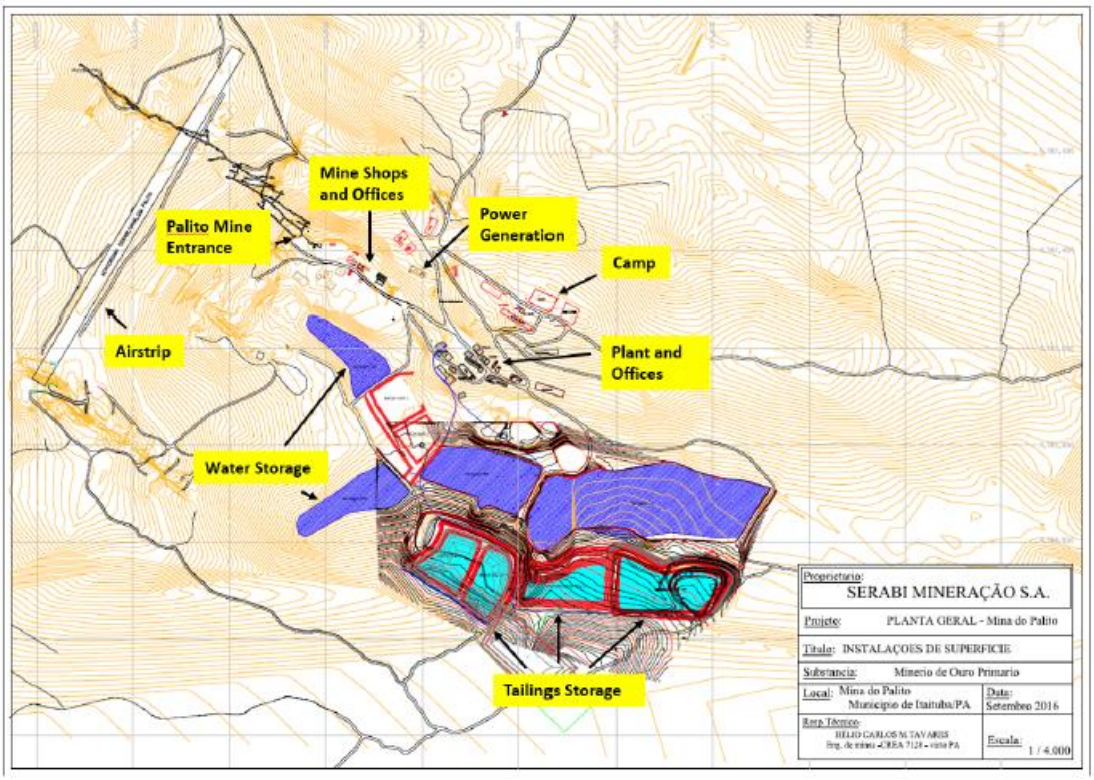
18.1.4.1 Palito Mine

The Palito Mine site camp consists of accommodation for 480 personnel, kitchen and dining facilities, offices, warehouses, maintenance facilities, and a guard house at the entrance to the site. Serabi provides a daily bus service for employees and contractors living in Jardim do Ouro and Moraes de Almeida located close by the mine site.

Fuel is stored on site in tanks with a capacity of 80 m^3 of diesel. Fuel storage tanks are located in a contained fuel storage area. There is an explosives storage facility located away from the main offices.

The mine has access to telephones, high speed satellite internet, and radio communications. Serabi has built and operates a clinic and hospital at the Palito Mine.

Figure 18-2: Palito Mine Facilities



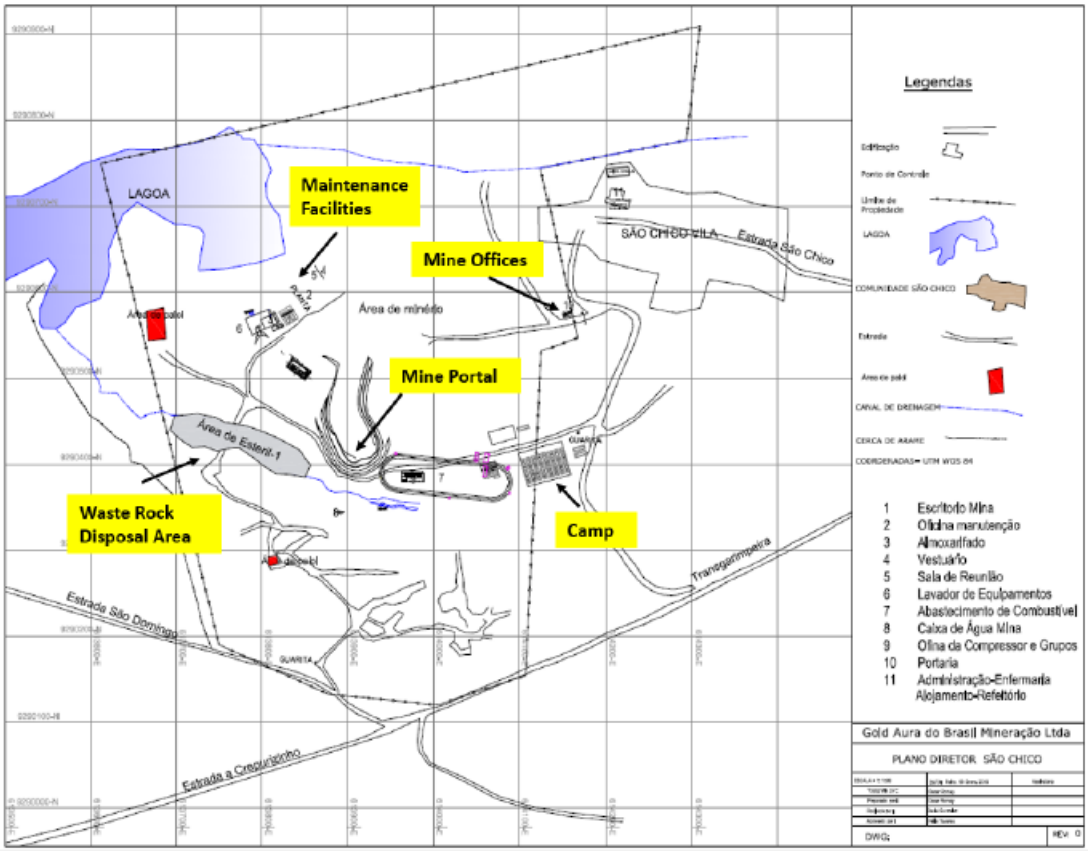
18.1.4.2 São Chico Mine

There is full mining camp at the São Chico Mine that consists of accommodation for 100 personnel, kitchen and dining facilities, offices, warehouses, maintenance facilities, and a guard house at the entrance to the site. Serabi provides a daily bus service for employees and contractors living in Jardim do Ouro and Moraes de Almeida.

Fuel is stored on site in storage tanks with a capacity of 35 m3 of diesel. Fuel storage tanks are located in a contained fuel storage area. There is an explosives storage facility located away from the main offices.

The mine has access to telephones, high speed satellite internet, and radio communications.

Figure 18-3: São Chico Mine Facilities



18.1.5 Power Supply and Distribution

18.1.5.1 Palito Mine

Electrical power is provided from the local power grid though a 34.5 kV overland power line and by diesel generators to deliver approximately 1 million kWh/month for installed electric load of 2.5 MW. During the daily peak periods Serabi operates its own diesel generators to generate 380 V electrical. Serabi's power generator station includes the following:

- Two Scania generators: 500 KVA each
- Four Scania generators: 700 KVA each
- Two Aggreko generators: 500 KVA each
- One Aggreko generator: 320 KVA.

The general diesel storage capacity at Palito Mine is 80 m^3 being a 10 m^3 dedicated diesel tank for diesel generation, which provides enough diesel for two days of continuous operation. Approximately 40% of Serabi's power needs are provided by on-site generators and 60% is provided from the grid.

18.1.5.2 São Chico Mine

The power requirement at São Chico is approximately 594 Kw (about 700 kVA), including the underground mine (437 kW), camp and village (94 kW) and surface support facilities (63 kW). The power is supplied by a diesel powerhouse that includes three diesel gensets of 550 kVA (Maquigeral-SDMO/Scania 47N) that operate in parallel with one as standby.

18.1.6 Water Supply

Water is an abundant resource in the area, and the current water supply system is not a limiting factor for operations at the Palito Mine or the São Chico Mine.

The operation has a water supply system consisting of dams that contain water from the following sources:

- Mine water pumped from the underground workings
- Recycled process water after neutralization and decantation
- Rainwater.

The total process water requirement is 40 m^3/h, of which 80% is recycled from the tailings disposal areas (32 m3/h) and 20% is from the freshwater dam (8 m^3/h).

Fresh drinkable water for use in the camp is supplied by conventional water wells. The total freshwater consumption is approximately 60 m^3/day.

18.1.7 Tailings Disposal Area

Mineral Reserves for both the Palito and São Chico mines are being processed at the Palito processing plant and tailings are disposed into existing clay lined tailings disposal areas (areas 16 and 17) located adjacent to the processing plant. Tailings deposition is being alternate between tailings disposal areas 16 and 17 being one of these areas active and receiving fresh tailings and recycling water to the process while the second area that was full, is in drying process. Thereafter, dry tailings are removed from areas 16 and 17 and dry-stacked on top of completed tailings disposal areas 14 and 15 which now are final dry tailing disposal area (PDR, Pilha de Rejeito). Tailings disposal areas 16 and 17 then are re-used for tailings deposition until the remaining Mineral Reserves are processed.

The Tailings Area 16 has a volume of 114,588 m^3 and area 17 a volume of 145,000 m^3 of capacity. The PDR has a capacity of 3.918,330 m^3, equivalent to 8.6 Mt of dry tailings.

Figure 18-4: Active Tailings Dams 16-17

Figure 18-5: General View of Tailings Dam Area

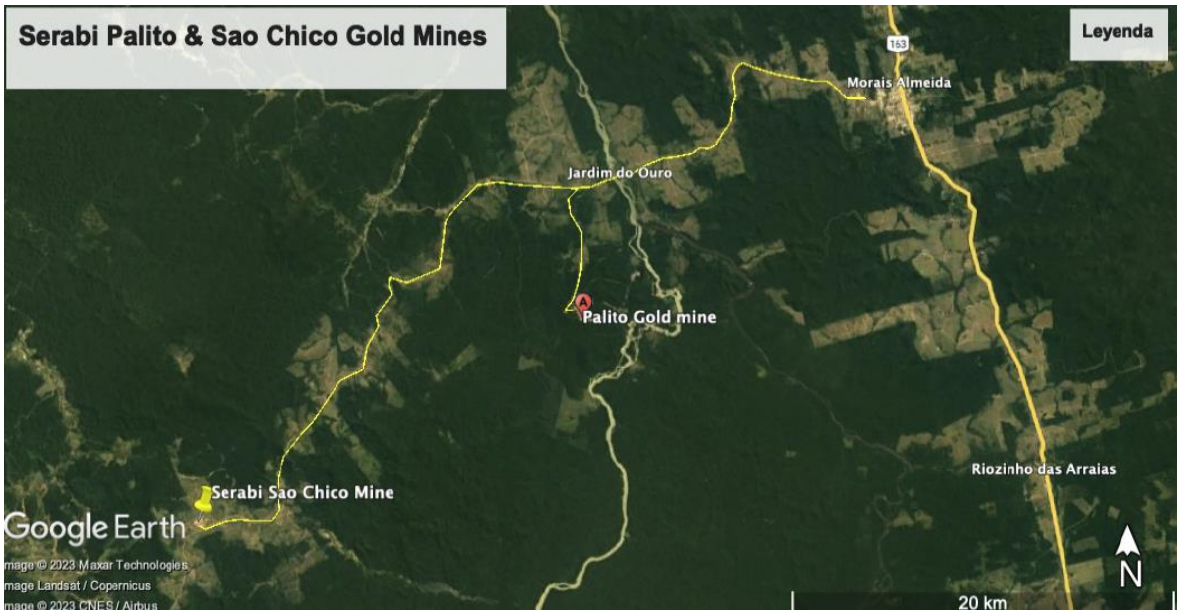
18.1.8 Access Roads and Airstrip

The Palito Mine is 4.5 km southwest of the village of Jardim do Ouro and approximately 15 km via road. Jardim do Ouro lies on the unsealed Transgarimpeira Highway some 30 km west-southwest of the town of Moraes de Almeida, which is located on the junction of the Transgarimpeira Highway and the BR 163 or Cuiabá – Santarém Federal Highway. Moraes de Almeida is approximately 300 km south south-east by road of the municipal capital and similarly named city of Itaituba.

The São Chico Mine is 30 km southwest of the Palito Mine. It is accessed by road from the Palito Mine along the Transgarimpeira Highway.

An airstrip, suitable for light planes, is currently fully operative and located at Palito Mine Site.

Figure 18-6: Palito and Sao Chico Access Road



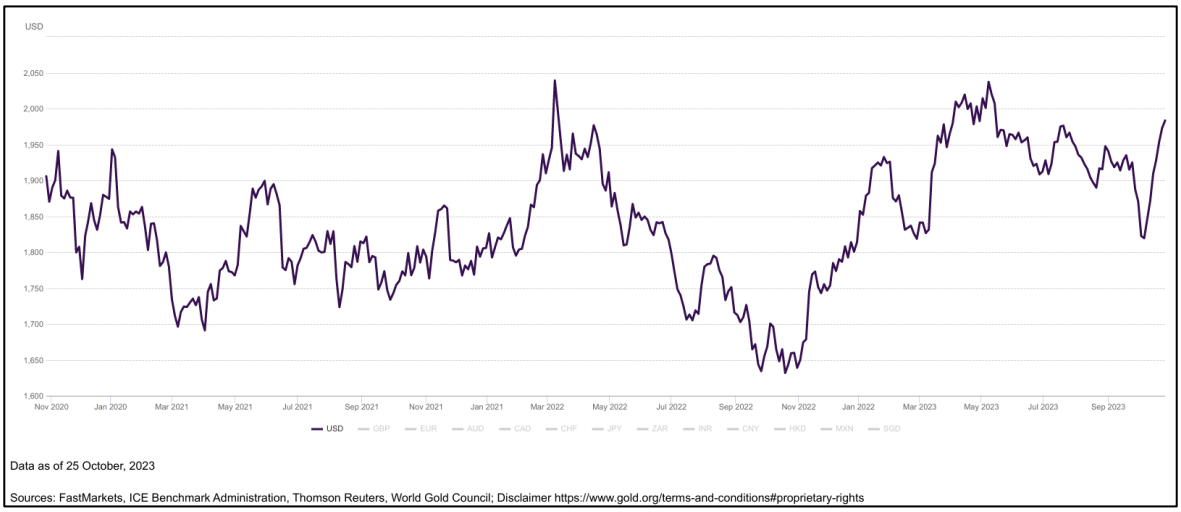
19 Market Studies and Contracts

19.1 Gold Price

Over the past three years, gold prices have varied from lows of around US$1,630/oz. to over US$2,000/oz. as indicated in Figure 19-1. During 2023 gold has been traded between US$ 1,818/oz and US$ 2,037/oz.

It is accepted that it is not possible to accurately forecast the future price of gold. For the purpose of this study, a gold price of US$1,950/oz has been assumed for the Mineral Resource estimate and US$1,800/oz for the Mineral Reserve estimate, both forecasts consistent with NCL's price recommendations for carrying out scoping, prefeasibility and feasibility studies. It is also in-line with the views expressed by and the forecasts used by a number of market observers and investment professionals.

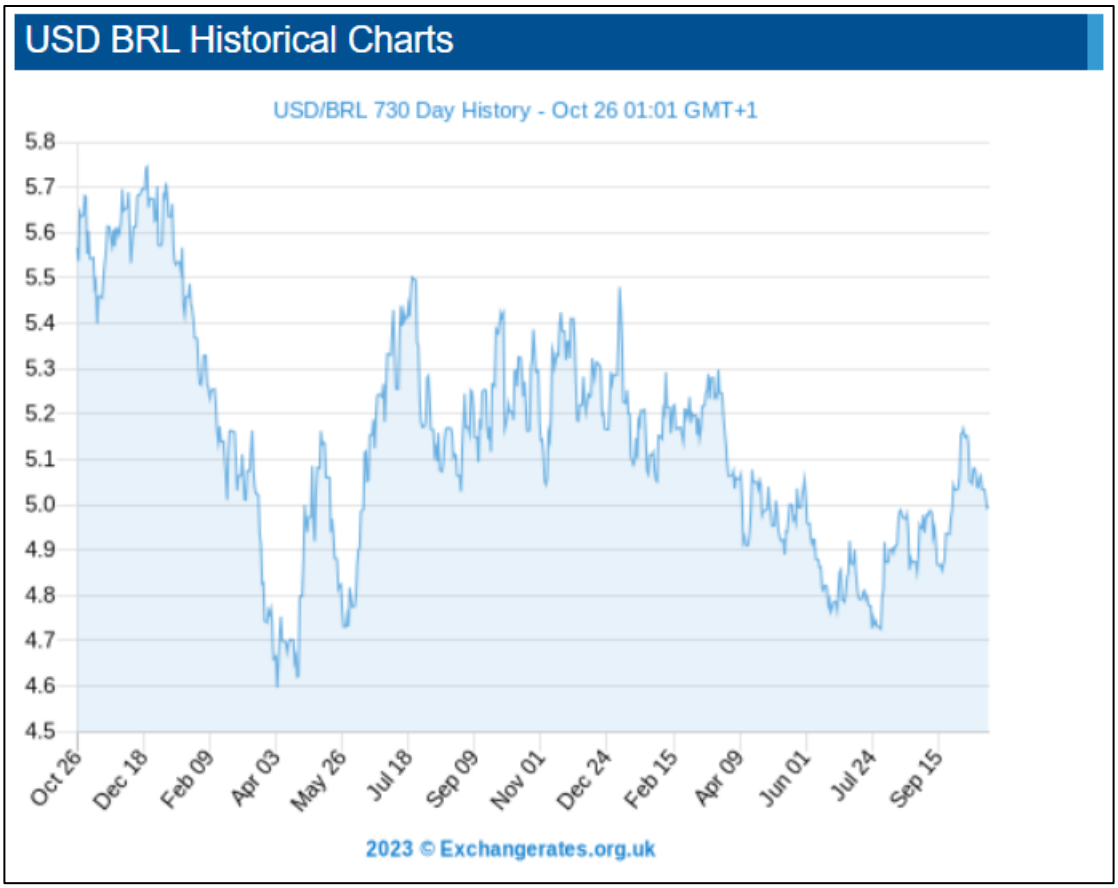
Figure 19-1: Three Year Gold Prices



19.2 Exchange Rate

In a similar manner than for the gold price, the exchange rate of US Dollars (US$) to Brazilian Reais (R$) have varied from R$ 4.6/US$ to R$ 5.7/US$ (Figure 19-2). For the purpose of this study, an exchange rate of R$ 5.5/US$ has been assumed for the Mineral Resource estimate and R$ 5.0/US$ for the Mineral Reserve estimate.

Figure 19-2: Two Year Exchange Rate (US Dollar to Brazilian Real)



19.3 Contracts and Status

Serabi has in place arrangements with several suppliers and customers to support its production operations and the sale of its gold. Of these most may be terminated at relatively short notice, the only exception being arrangements for the sale of copper /gold concentrate produced which is currently sold under a contract for a two-year period which commenced at the start of January 2021.

Serabi generally sells its gold doré to Brazilian refineries as an export product with no long-term contract or obligation. Under the arrangements the gold is sold as an exported product and pricing is negotiated for each delivery of bullion based on prevailing spot prices. The refinery handles the logistics of collection from the mine site, delivery to the refinery and final exportation, but the Company also has arrangements in place with Brinks for secure collection from the mine site and delivery to other customers when and if required.

Serabi has sold gold doré to parties outside of Brazil and has several other customers keen to enter into arrangements to acquire the bullion produced by Serabi. The Company is therefore able to negotiate competitive terms with potential purchasers.

During the first of quarter of 2023 Serabi entered into hedging contracts with HSBC Bank plc whereby it acquired sell options over monthly quantities of gold over the period March 2023 to February 2024 totalling 10,215 ounces of gold at a price of US$1,800. At the same time, it sold to the bank options in favour of the bank to buy the equivalent monthly quantities of gold at prices ranging between US$2,000 and US$2,065 per ounce. It also acquired options to sell monthly receipts of US Dollars ranging between US$2.3 million and US$1.15 million for Brazilian Real at an exchange rate of BRL5.10 to USD1.00. At the same time, it sold to the bank options in favour of the bank to buy from the Group the equivalent Brazilian Real receipts at exchange rates ranging from 5.325 to 5.800 over the same 12-month period. In this way the Group has secured a minimum equivalent gold price in Brazilian Real of BRL9,180 per ounce in respect of 10,215 ounces and sold options in favour of the bank of future prices ranging between BRL10,650 per ounce and BRL11,997 per ounce depending on the option expiry date.

Some of the mining operations undertaken by Serabi are specialized, particularly the highly selective open stoping method used at the Palito Mine. This is not a mining style that is widely deployed in Brazil and as a result there is a limited pool of skilled and experienced personnel in the country able to undertake this work. The Company initially hired mining expertise from GAC Mining of Peru to assist with the management and operating of selective stoping at Palito. GAC initially sourced qualified and experienced personnel, to supplement the Brazilian workforce that undertake the same work. In 2019, these GAC personnel were registered with the Brazilian labour office and tax authorities and receive their salary from Serabi subject to normal payroll deductions as they became Serabi employees in Brazil.

Serabi sources goods and services from several parties but in the region that it operates there can be limited suppliers available. The electricity transmission is provided by Equatorial Para a privately-owned company that is essentially a monopoly supplier in the region. Serabi purchases its electricity from CEMIG, an electricity provider based in Minas Gerais as Brazil operates an open market for the supply of electricity. The current contract with CEMIG commenced on 1 March 2020 and expires on 31 December 2025.

Security services for both the Palito and São Chico sites are provided by Ofensiva Vigilancia e Seguranca Ltda, a private contractor supplying both static and patrolling security staff.

While many other supplies such as those for fuel, explosives, chemicals and other key materials may be sourced from a single supplier, Serabi has no other material long term contracts and regularly reviews its arrangements, product quality and pricing with suppliers.

20 Environmental Studies, Permitting and Social or Community Impact

20.1 Environmental Study Results

In 2006, an environmental impact assessment (Estudo de Impacto Ambiental or EIA) and its respective report of environmental impact (Relatório de Impacto ao Meio Ambiente or RIMA) were completed for the Serabi operations. These documents addressed environmental impacts and proposed compensation, mitigation and control measures for the expansion of production at Mina Palito.

The EIA included the following elements:

- General project information (project description).
- Characterization of the project (technical studies and project information).
- Environmental diagnosis (baseline conditions and characterization).
- Assessment of environmental impacts.
- Environmental control plans (mitigation, monitoring and environmental controls)
- Conclusions.

Environmental studies presented in the EIA included:

- Biological studies, including fauna (mammalian, ichthyofauna (fish), avifauna (birds), herpetofauna (reptiles and amphibians), and chelonians and flora (rainforest and riparian forest).
- Abiotic, physical and socioeconomics studies during construction, operation and closure periods of the project.
- Management plans for: Water Resources, Recovery of Degraded Areas (PRAD), Promotion of Local Development, Solid Waste, Environmental Emergency; and
- Conceptual Mine Closure Plan.

The EIA concluded that negative environmental impacts would occur on several resources during construction and operations, but that these impacts could be effectively mitigated through the implementation of environmental protection measures and through adequate monitoring.

The Annual Environmental Information Reports (RIAA) of the Palito and São Chico mines are presented annually to the State Secretariat for the Environment and Sustainability (SEMAS) regarding the socio-environmental situation with evidence of compliance with all plan and program commitments assumed in the PCA or in agreements with the community.

RIAAS cover the monitoring results of the physical environment (water, soil, air, effluent, and waste), biotic environment (fauna and flora) and socio-environmental environment. Presents the previous year's performance, critical analysis of results and improvement or correction actions.

The São Chico Mine operates under two trial mining licences (Guia de Utilização or GUIA No. 79/2020 and No. 006/2019). This allows the exploitation of ore by underground mining, for exploration purposes totalling up to 150,000 tonnes per year. The GUIAs do not require a standard EIA, however Serabi prepared an EIA and this was filed with SEMAS in 2019 for review. The Covid 19 pandemic of 2020-2021 delayed the analysis of the study and the São Chico operation went into care and

maintenance at the end of 2022. SEMAS suspended the analysis until the company's position regarding the resumption of São Chico operations. In parallel to this, Serabi requested ANM to renew the two GUIAs in September 2022 (Protocols No. 27226.650007/1998-11 and No. 48405.851407/2012-13).

20.2 Environmental Issues

Documentation provided by Serabi and discussions during the site visit with site personnel suggest groundwater and surface water quality has in places, been contaminated by previous Garimpos operations. Palito Mine site monitoring results include concentrations above Brazilian regulatory limits for copper, lead, nickel and manganese in Igarapé Palito creek, which is the monitoring point downstream of the mine site. São Chico Mine site surface water monitoring indicates similar levels of concentration exceedances in Igarapé São Chico creek for zinc, lead and manganese.

Results involving metals such as copper, manganese and zinc may well come from local geology or drainage from artisanal mining activities. Results from research in the area indicate that the region is strongly rich in manganese and copper with multiple samples high in these elements identified in locations that have not been impacted by Serabi operations. The elevated results of phosphorus and phenols are most likely to be a result of the neighbouring agroforestry activities, as the operations are located in areas with farms in the surroundings.

Surface water characterization analyses has been carried out in accordance with NBR 10.004 for surface water collection points in the BMC Lagoon, Igarapé Palito, Igarapé Puxa-Saco and Lagoa Chico da Santa, where all points were certified as non-hazardous (QUALITEX, 2023).

Groundwater characterization analyses was carried out in accordance with NBR 10.004 at the collection points at PM-09, PM-01, PM-05, P-06 and PM-03, where all points were certified as non-hazardous (QUALITEX, 2023).

The effluent results (input and output from the Lower Dam lagoon) were in compliance with all parameters analysed in the biannual monitoring and certified as non-hazardous in the NBR 10.004 reports (QUALITEX, 2023).

Given the results of the two monitoring campaigns in 2022, according to RIAA 2023 (base year 2022), it appears that the internal management such as effluent are within legal standards. Some metals which have levels above normal background levels need further investigation and it appears manganese especially is in a naturally occurring elevated state. No occurrence of lead or cyanide levels above the standard. It is important to highlight that despite the visible situation of illegal mining in the region, mercury levels were never found to be above legal standards.

In 2023, the ecotoxicity report (QUALITEX, 2023) attested that the entry and exit points of the Lower Dam lagoon, where all rainwater drainage from the tailings stack and embankment system is received, comply with legal standards.

The project intends to complete the entire interconnection and ETE system in 2023 to improve the treatment of domestic effluent.

Regarding cyanide concentrations, a cyanide neutralization process was installed in 2021 The slurry from last CIP tank flows to a mechanically agitated cyanide destruction tank with a nominal residence time of 1.5 hours. The slurry is detoxified using the INCO air/SO_2 process within the tank to reduce cyanide levels to <5 ppm CN_{WAD}, and then the detoxified slurry is pumped to the tailings dam after passing through a carbon safety screen.

The process includes daily concentration measurements for operational control, in addition to gas measurement equipment with an audible alarm in the event of a possible increase in concentration. The DETOX system characterization analyses also demonstrated that both at the input and output, the material collected did not meet the classification of dangerous product, according to NBR 10.004 and QUALITEX - 2023 reports.

Currently, Serabi has an operational environmental management system focused on all items relevant to the conservation, preservation and improvement of the physical environment under its management.

20.3 Operating and Post-Closure Requirements and Plans

Palito operates under an Environmental Control Plan (Plano de Controle Ambiental or PCA) approved in 2008 by SEMAS. The PCA formalizes the operator's environmental obligations that must be fulfilled in order to minimize impacts during operations. The environmental control activities described in the Palito PCA include plans and programs as follows:

- Solid waste management plan.
- Water resources management plan.
- Air quality monitoring program.
- Program for monitoring air quality levels.
- Sound pressure level monitoring program.
- Vibration level monitoring program.
- Climatological monitoring program.
- Recovery Plan for degraded areas
- Fauna and flora monitoring plan.
- Local development promotion plan.
- Social communication program.
- Plan for developing local investment opportunities and promoting productive sectors.
- Medical and health care plan.
- Educational service plan.
- Labor training plan.
- Environmental education plan.
- Environmental emergency plan.
- Mine closure plan.

As mentioned above, the results of the prescribed monitoring programs are communicated to the licensing body through the Annual Environmental Information Report - RIAA.

São Chico operates under a separate PCA, which includes:

- Erosive processes control program.

- Water resources control program.
- Solid waste management program.
- Sound and atmospheric level monitoring program.
- Program for the recovery of degraded areas.
- Environmental education program.
- Limnological monitoring program.

20.4 Project Permitting Requirements

The general framework for mine permitting and licensing in Brazil is presented and discussed in Section 4.3, and it not reiterated herein.

Serabi's operations were authorized under a series of licenses, as shown in Table 20-1. For each license, the related conditions and/or obligations are also listed, along with the respective status.

In September 2016, Serabi submitted an application to SEMAS for an Operating License for Dams 16 and 17. SEMAS subsequently advised Serabi to submit separate applications for these facilities. For Dam 16 (which was an elevation modification of Dams 12 and 13), the agency agreed that a modification to the existing LO should be sufficient. However, for Dam 17 (which is an entirely new structure), the agency requested that Serabi initiate an Installation License (LI) instead of an LO, thus requiring a more extensive and time-consuming review.

Serabi proceeded with construction of dam 17 in 2017 ahead of the LI being awarded, due to delay at SEMAS. The Company began disposing of tailings at this impoundment in 2018. According to Serabi, SEMAS has already inspected operations several times since 2018 to date and is aware of the status of waste disposal. To date, no formal notice of violation or cease and desist order has been issued by the agency for Dam 16 or Dam 17.

Table 20-1: Summary of Main Licenses and Authorizations

License/ Authorization	Activities Subject to Licensing	Validity	Conditions Status	Observations
LO #12625/2021	Palito Processing Plant for metallic and gold ore. 450 t/day ROM.	03-03-2024	Accomplished	Renew request submitted. Protocol #2023/49163
LO #12626/2021	Palito Mine. Exploration of metallic and gold ore. 250 t/day	03-03-2024	Accomplished	Renew request submitted. Protocol #2023/49052
LO #9533/2015	São Chico Mine Exploration. 50,000 t/year.	22-12-2017	Accomplished	Renew request submitted. Protocol #2017/25160
GU #079/2020	Utilization Guidelines for São Chico Mine. Gold ore. 100,000 t/year	09-10-2022	N/A	Renew request submitted. Protocol SEI 27226.650007/1998-11

License/ Authorization	Activities Subject to Licensing	Validity	Conditions Status	Observations
GU #006/2019	Utilization Guidelines for São Chico Mine. Gold ore. 50,000 t/year	13-12-2022	N/A	Renew request submitted. Protocol SEI 48405.851407/2012-13
Water Grant #4308/2020	Groundwater uptake from 10 m deep well for human supply. Rate: 7,9 m³/h and 4h/day	26-04-2025	Accomplished	None
Water Grant #5192/2021	Surface water uptake from Igarapé Palito creek for mine operations use. Rate: 192.58 m³/h	07-01-2026	Accomplished	None
Water Grant #5427/2021	Palito Mine site water dam for plant process water supply. Rate 720 m³/dia.	03-03-2026	Accomplished	
Water Grant #2668/2016	Surface water uptake from Rio Novo River for mine operations. 300 m³/day.	02-11-2026	Accomplished	None

20.5 Post-Performance or Reclamations Bonds

Brazil currently has legal requirements for closure and recovery of mining projects but does not have any requirements for the operator to provide a financial guarantee (e.g., trust fund, bond, letter of credit, insurance, etc.) for such recovery. Unlike a bond and/or financial guarantee for mine recovery, potentially polluting activities are required to register with the National Registry of Polluting Activities and, consequently, must pay an environmental fee (IBAMA Inspection Fee), which may vary according to the pollution potential. Ultimately, the company and those responsible can be held criminally liable for failure to adequately recover and remediate a mine site.

As closure plans for the Palito and São Chico mines are only at a conceptual level, limited information on post-closure performance and reclamation activities is available.

After Palito's operation, the closure will include the delivery of periodic monitoring reports containing information on the progress of revegetation and erosion control, water quality and slope stability, which will be presented to the supervisory body according to the required periodicity.

According to the conceptual closure plan, there are two possible scenarios to define:

Scenario I, with the forecast of dismantling and removal of all existing structure and infrastructure and the rehabilitation of all areas used by the operations. Scenario I is based on the complete dismantling of the structures and the subsequent environmental rehabilitation of the occupied areas. For this scenario, there is no prediction of future anthropic uses and it is based on the premise that potential future uses will be disconnected from any obligation and/or liability related to the current owner. Therefore, the future scenario is characterized by a process of recovery of vegetation cover, where possible, from natural vegetation, considering Ibama Normative Instruction 04/2011.

Scenario II considers the continued use of the structures for other activities, other than the current ones and not necessarily by the current owner. Scenario II represents the intention to use the area

for other uses after closure, which reduces the requirements and costs related to the rehabilitation of natural vegetation in a large part of the areas degraded by mining activities.

In Scenario II, the possibility of implementing sustainable economic activities after the end of mining activities is adopted. In this scenario, existing structures, at the time of closure, may or may not be dismantled, depending on the activities specified for the future situation.

20.6 Social and Community

Since 2014, Serabi has developed and supported projects aimed at social promotion, economic development, recovery of citizenship, protection of the environment and expansion of access to various cultural and artistic manifestations, as well as occupational health and safety programs for workers.

Socio-environmental programs have been developed in coordination with communities considered to belong to the Directly Affected Area (ADA): Jardim do Ouro and São Chico; the Area of Direct Influence (AID), including the district of Moraes Almeida; and the Area of Indirect Influence (AII), which includes the two municipalities of Itaituba, within which the operations are located and Novo Progresso. Serabi obtains a large part of its workforce, supply of materials and services from these two municipalities

Social programs are separated into activities aimed at the community and employees.

The scope of programs aimed at the community is based on the unit's PCA and on an annual analysis carried out to check how to act in response to situations not included in the PCA that arise according to local social dynamics.

Within the internal programs, Serabi has:

- Employee Health and Safety, with constant training and training for employees and continuous investment in safety with the aim of improving all activities.
- Medical Control and Occupational Health Program – PCMSO.
- Risk Management Program – PGR.
- Health Promotion.
- Sociocultural Initiatives.
- Environmental education.

Among the external programs Serabi has

- Plan for the development of local investment opportunities and promotion of productive sectors.
- Medical and health care plan.
- Educational service plan.
- Labor training plan.
- Social communication program.
- Local supplier promotion program.

20.7 Mine Closure

The Palito Complex closure plans were updated in 2022. They are conceptual closure plans that assume that all facilities will be closed and all areas impacted by the project's activities will be recovered.

The main structures considered in the closing are:

- Processing plant
- Underground mines

The work breakdown for site closure includes three phases: (i) pre-closure, (ii) closure, and (iii) post-closure. Planned closure activities of each phase at both sites are presented in the Table 20-2 and Table 20-3.

Table 20-2: Closure Phases Activities for Palito Mine Site

Pre-Closure (2033)	Closure (2034-2035)	Post-Closure (2036-2038)
1. Environmental Studies: Hydrogeological model for pit infill Soils contamination assessment Waste rock piles drainage system and cover designs Underground Pit spillway design Revegetation study for reclaimed areas Sampling for tailings and waste rock characterization **2. Closure Communication** Social communication program activities Start of work force demission **3. Pits of Senna target infill with waste rock**	**1. Demobilization and Decommissioning** Pit Plant Dams **2. Demolition of Administrative Buildings** Sheds Manufactory Administrative Accommodation Refectory **3. Waste Rock Pile Cover** **4. Palito creek channel reclamation** **5. Pit and dams final spillways construction** **6. Waste rock piles and dams' revegetation** **7. Landing strip and landfill reclamation**	**1. Monitoring of water quality, slope stability and vegetation** Year 1: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (half-yearly basis) Year 2: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (half-yearly basis) Year 3: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (yearly basis)

Table 20-3: Closure Phases Activities for São Chico Mine Site

Pre-Closure (2023)	Closure (2024-2025)	Post-Closure (2026-2028)
1. Environmental Studies: Hydrogeological model for pit infill Soils contamination assessment Waste rock piles drainage system and cover designs Underground Pit spillway design Revegetation study for reclaimed areas Sampling for tailings and waste rock **2. Closure Communication Social communication** Social communication program activities Start of work force demission	**1. Demobilization and Decommissioning** Pit **2. Demolition of Administrative Buildings** Sheds Manufactory Administrative Accommodation Refectory **3. Waste Rock Pile Cover** **4. Underground Pit Final Spillways Construction** **5. Waste Rock Piles and Dams Revegetation** **6. Impacted Areas Reclamation (campos sujos)**	**1. Monitoring of water quality, slope stability and vegetation** Year 1: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (half-yearly basis) Year 2: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (half-yearly basis) Year 3: Revegetation monitoring; surface and ground water sampling; slope stability and erosion events assessment (yearly basis)

As a condition for the issuance of the LO, SEMAS required the reclamation of the Alvo Senna pit area. The area is currently in a satisfactory stage of recovery with growth of shrub and grass species, as shown in the photographic record below (Figure 20-1). The planning for planting in 2024 includes an enrichment of this area (return to planting) of some pioneer species for the continuity of forest succession.

20.7.1 Reclamation Measures during Operations and Project Closure

As Palito is currently operated as an underground mine, there is only a small amount of surface disturbance that requires simultaneous recovery during operations. The former open-air area, Alvo Senna, is no longer in operation. The rehabilitation of these mines is currently being carried out by Serabi and is partially completed. Target Senna has been backfilled with inert rock from ramp development from the underground mining operation, covered with soil and revegetated.

São Chico is a strictly underground mine, with ore sent to Palito for processing. No simultaneous recovery is planned for this site, except for some initial artisanal mining areas within the concession.

Figure 20-1: Reclamation Status at Alvo Senna Area

20.7.2 Closure Monitoring

For both Palito and São Chico, the conceptual closure plans do not specifically address monitoring during closure activities (which Serabi intends to continue from operations); instead, only post-closure monitoring is explicitly discussed. However, at this stage Serabi has a communication program with the community and a plan for employee allocation.

20.7.3 Reclamation and Closure Cost Estimate

Based on the conceptual closure plans from 2022, Serabi estimates the reclamation and closure costs for the Palito Complex to be on the order of US$ 2.9M (Table 20-4 and Table 20-5).

Table 20-4: Cost Estimate for Closure of Palito Mine Site

Facility/Activity	Estimated Cost
Pre-Closure Environmental Studies	R$ 886,740
Underground Mine	R$ 629,620
Waste Rock Pile	R$ 238,560
Tailings Dam	R$ 664,600
BMC Dam	R$ 28,080
Lower Dam	R$ 111,480
Plant	R$ 3,359,061
Administrative Buildings	R$ 1,197,301
Impacted Areas	R$ 24,271
Alvo Senna	R$ 207,508
Management and Administrative Staff	R$ 3,818,556
Post-Closure Monitoring	R$ 456,700
Total (R$)	**R$ 11,622,477**
Total (US$)	**US$2,324,495**
Exchange Rate	5.0

Table 20-5: Estimate Costs for Closure of São Chico Mine Site

Facility/Activity	Estimated Cost
Pre-Closure Environmental Studies	R$ 262,900
Underground Mine	R$ 496,200
Waste Rock Pile	R$ 201,688
Administrative Buildings	R$ 238,750
Impacted Areas	R$ 131,055
Management and Administrative Staff	R$ 1,380,288
Post-Closure Monitoring	R$ 380,450
Total (R$)	**R$ 3,091,331**
Total (US$)	**US$618,266**
Exchange Rate	5.0

Given the size and extent of the facilities, the known environmental issues surrounding potential surface water and groundwater contamination, and the potential need for more robust engineered closure covers on the tailings impoundments and waste rock piles, it is NCL's opinion that the estimated closure costs are generally appropriate. However, the costs may be higher if there is a need for surface and groundwater remediation and compulsory post-closure monitoring ordered by SEMAS.

21 Capital and Operating Costs

21.1 Capital Cost Estimate

Estimated LOM sustaining capital costs are presented in Table 21-1.

Table 21-1: Capital Cost

Capital Costs	Unit	LOM Cost
Mine Fleet	R$ '000	27,794
Accommodation	R$ '000	1,100
Stopers	R$ '000	1,225
Fans and Pumps	R$ '000	2,763
Compressors	R$ '000	2,111
Light Vehicles	R$ '000	2,662
Ventilation	R$ '000	4,072
Plant	R$ '000	6,916
Tailings	R$ '000	1,086
Electrical Installations	R$ '000	6,627
Mine Safety	R$ '000	3,036
Maintenance	R$ '000	2,500
Other & Contingency	R$ '000	12,457
Total	**R$ '000**	**74,349**
Total	**US$ '000**	**14,870**

21.2 Operating Costs

Serabi management team provided the budget for 2024 and it was used as the basis for the cut-off calculation that supports the Mineral Reserves and “reasonable prospects for eventual economic extraction” for the Mineral Resources, as per Table 21-2.

Table 21-2: Operating Cost

Costs 2024	Unit	Value
Labour	R$ '000	72,848
Minng consumables	R$ '000	31,154
Plant operating costs	R$ '000	17,099
Site costs	R$ '000	46,253
Equipment rental	R$ '000	2,075
Sub-total Opex	**R$ '000**	**169,429**
By product credits	R$ '000	-14,472
Concentrate freight	R$ '000	8,557
Concentrate TC/RC	R$ '000	3,502
CFEM	R$ '000	4,159
Bullion refining	R$ '000	1,800
Total	**R$ '000**	**172,975**
Ore tonnes	t	158,907
Unit Cost	R$/t	1,089
Unit Cost	**US$/t**	**218**

22 Economic Analysis

Under NI 43-101 rules, producing issuers may exclude the information required in Section 22 Economic Analysis on properties currently in production, unless the Technical Report includes a material expansion of current production. Serabi is a producing issuer, the Palito Mining Complex is currently in production, and a material expansion is not being planned. Serabi completed economic analysis for the Palito Mining Complex based on the Mineral Reserves stated herein. SRK reviewed Serabi's analysis and we have verified that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

23 Adjacent Properties

There are no operating mines immediately adjacent to the Palito Mining Complex other than small scale artisanal mining operations.

24 Other Relevant Data and Information

There is no other relevant data or information pertaining to the estimation of the mineral resources and reserves at the Palito Mining Complex.

25 Interpretation and Conclusions

25.1 Geology and Mineralization

Gold deposits in the Tapajós Gold Province can be broadly classified into three main types:

- Mesozonal deposits.
- Epizonal intrusion centered or intrusion related deposits; and
- Alluvial, colluvial and supergene enriched saprolitic deposits.

Tapajós deposits are structurally controlled, but host rock control is vital to understanding the metal precipitation process locally. Primary gold deposits occur as the first two categories of deposit types and are generally located in fractured and sheared host environments such as:

- Quartz and quartz sulfide stock work and associated alteration hosted disseminated sulfide.
- Quartz vein.
- Quartz sulfide veins +/- selvedge alteration hosted disseminated sulfide.
- Massive sulfide veins +/- selvedge alteration hosted disseminated sulfide; and
- Disseminated sulfide within alteration.

The mineralogy and textures of the deposits at the Palito Mining Complex are consistent with a model for an intrusion related mesothermal gold-copper mineralization. This classification of gold deposits is associated with granitic rocks and are best developed above and surrounding small, granitic intrusions. Mineralization styles can manifest as stockworks, breccia, skarns, and lode style veins, and have a clear metal association zonation.

The geological model and the characterization of the veins is robust, so the different sampling methods in the mine are considered adequate to have a reasonable estimate of gold grades for production purposes and, adding the existing drilling, the information obtained is suitable for generating a reliable database for estimating the mineral resources of the veins.

25.2 Mineral Processing and Metallurgical Testing

The metallurgical studies conducted on Palito and São Chico ores are very good support for the current operations and has been validated by the actual plant results to forecast future production.

Both the Palito and São Chico ores are highly amenable to conventional processing techniques to recover the contained metal values mainly gold and copper.

The detoxication circuit based on the SO_2/O_2 technology is working as design. This technology is well known in the industry and should be working with no problems despite any change in the regulations on cyanide discharge.

25.3 Mineral Resource Estimate

- The Mineral Resource estimates prepared by NCL for the Palito and São Chico mines considers core drilling and underground chip sampling by Serabi generated during the period mid-2002 to July 2023.

- The databases used to estimate mineral resources at Palito and São Chico were audited by NCL.
- NCL believes the current drilling information is sufficiently reliable to interpret with confidence the boundaries for gold mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.
- The 2023 Mineral Resource estimate corresponds to the first model using 3D sub-cell block modeling and geostatistics techniques.
- Modern techniques to determine the portions of the Palito and São Chico mines having "reasonable prospects for eventual economic extraction" were used by NCL, applying Shape Optimizer (Deswik-SO) for a selected SMU complying with cut-off grade criteria.

25.4 Mineral Reserve and Mining Methods

- The Mineral Reserves have been estimated by NCL applying modern 3D underground optimization techniques in a manner that is reasonable and appropriate for the narrow vein orebodies at the Palito and São Chico mines.
- The selected shrinkage mining method is appropriate.
- The Mineral Reserves conform to CIM definitions and comply with all disclosure requirements for Mineral Reserves set out in NI 43-101.
- Based on the current Mineral Reserves at the Palito Mining Complex, a total of 825 kt grading 7.78 g/t Au will be mined over a mine life of approximately 5 years (August 2023 to March 2028).
- It is remarkable Serabi's capacity to continuously extend the life of mine of the Palito Mining Complex. In 2018 Technical Report the life of mine was through 2021 and with current Mineral Reserves estimate can be extended to 2028. This is typical of narrow vein mining where Inferred Mineral Resources are upgraded to Measured or Indicated Mineral Resources on a yearly basis, and therefore can be converted into Mineral Reserves.

25.5 Recovery Methods

The plant has achieved consistently gold recoveries in the range of 91-92% in the leaching circuit. Flotation recoveries has been decreases from 70-80% in the past to 63-64% in 2021-2022 mainly due to the decreases in the head grade from 3-4 g/t to 2 g/t currently.

Ore sorting and detoxication technologies are working as design.

25.6 Project Infrastructure

The Palito Mining Complex has well-developed site infrastructure that is adequate for the continuation of mining and processing operations in accordance with the LOM plan.

25.7 Environmental Studies and Permitting

- In 2006, an environmental impact assessment and its respective report of environmental impact were completed for the Serabi operations. These documents addressed environmental impacts and proposed compensation, mitigation, and control measures and through adequate monitoring.

- Given the results of the two monitoring campaigns in 2022, according to 2023 Annual Environmental Information Reports, it appears that the internal management such as effluent are within legal standards. Some metals which have levels above normal background levels need further investigation and it appears manganese especially is in a naturally occurring elevated state. No occurrence of lead or cyanide levels above the standard. It is important to highlight that despite the visible situation of illegal mining in the region, mercury levels were never found to be above legal standards.
- Palito operates under an Environmental Control Plan (Plano de Controle Ambiental or PCA) approved in 2008 by SEMAS. The PCA formalizes the environmental obligations of the operator that must be carried out in order to minimize impacts during operations. São Chico operates under a separate PCA.
- The Serabi operations have been authorized under a series of licenses. For each license, related conditions and/or obligations are also listed, along with the respective status. Generally, Serabi has acquired all of the necessary permits to continue with operations; however, at Palito, Serabi continues to wait for SEMAS to act on the installation and operational licenses/permits for Dam 17. No cease and desist orders or notices of violation have been issued by SEMAS for this situation, though Serabi indicates that the agency routinely visits the operation and is aware of the conditions and operations at the site.
- Social and environmental programs have been developed in coordination with the communities from which Serabi obtains much of its labor, material supplies, and services. The programs have included: a dental clinic, improvements to local schools, provision of electricity and treated water, as well as planning for a new health clinic.
- The most recent conceptual mine closure plans for Palito and São Chico were updated in 2022. Because Palito is currently operated as an underground mine, only a small amount of surface disturbance exists which requires concurrent reclamation during operations. The former open pit area, Alvo Senna, is no longer in operation. Reclamation of those pits is currently being carried out by Serabi and is partially completed. São Chico is strictly an underground mine, with ore being sent to Palito for processing. No concurrent reclamation is planned for this location, with the exception of some early artisanal mining areas within the concession.

25.8 Capital and Operating Costs

The COG calculation is based on projected 2024 budget operating costs and the calculated COGs are reasonable and appropriate for both the Palito and São Chico mines. The sustaining capital costs as used in Serabi's economic analysis for the Mineral Reserves are appropriate for the remaining life of each mine.

25.9 Economic Analysis

NCL reviewed Serabi's economic analysis, and we have verified that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

26 Recommendations

26.1 Mineral Resources Estimate

- The mineral resource estimates prepared by Serabi for the Palito Mine considers core drilling and underground chip sampling by Serabi, generated during the period mid-2002 to July 2023.
- The São Chico Mine mineral resource estimates, prepared by Serabi, considers core drilling and underground chip sampling by Serabi and previous operators during the period of September 2011 to Jully 2023. The databases used to estimate mineral resources at Palito and São Chico were audited by NCL.
- NCL believes the current drilling information is sufficiently reliable to interpret with confidence the boundaries for gold mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.
- NCL used a conventional 3D block model generations to evaluate the mineral resources of both mines. Micromine software was used to define the 3D block models and the grades estimation.
- The quantities and grade estimates of the Palito and São Chico mines shows “reasonable prospects for eventual economic extraction” from an underground mine, based on a COG of 3.32 g/t gold for a selective mining unit (SMU) at the Palito Mine and at the São Chico Mine, assuming a gold price of US$ 1,950/oz, and metallurgical gold recovery of 95% for both mines.
- Continuous improvement of Geological modeling (most of solids were outdated)
- Serabi team could work and manually insert the code for selection of samples inside each ore body to easily select samples for estimation purposes.
- There are several highly prospective exploration targets on the Palito property which require further drill testing. This could potentially add to the mineral resource inventory.

26.2 QAQC

There are some procedures, which although it is true that they perform well in the mine and that due to the geological characteristics are well founded, need minor adjustments such as checks validations that better support the procedures carried out by company technical staff. Among others, comparisons in specific gravity calculation procedures and heterogeneity tests.

26.3 Mineral Processing and Metallurgical Testing

It is recommended to continue optimizing the detoxification process to reduce the level of CN discharged to lower values. Current values are below the permit limits, but it is envisaged that in the near future, new regulations will be stricter in this regard for the mining industry.

26.4 Mineral Reserves and Mining Methods

NCL recommends that Serabi should continue the generation of future updated mine schedules by using modern computing techniques for reserves estimates and mine planning.

27 References and Units of Measure

27.1 References

NCL, 2008: Mineral Resource and Mineral Reserve Estimate for the Palito Mine, Pará State, Brazil; Technical Report prepared for Serabi Mining PLC, dated March 31, 2008.

NCL, 2010: NI 43.101 Technical Report for the Jardim Do Ouro Project, Pará State, Brazil; Technical Report prepared for Serabi Mining PLC, dated December 9, 2010.

NCL, 2012: Preliminary Economic Assessment for the Jardim Do Ouro Project, Para State, Brazil, NI 43-101 Technical Report, dated June 28, 2012.

SRK, 2018: NI 43-101 Technical Report, Palito Mining Complex, Brazil, dated January 25, 2018.

27.2 Units of Measure

Table 27-1: Units of Measure

Abbreviation	Meaning
AAS	atomic absorption spectrometry
Ag	Silver
Au	Gold
Cu	Copper
g/t	grams per metric tonne
ha	Hectare
Hg	Mercury
ICMC	International Cyanide Management Code
km	Kilometers
l	liters
m	meters
masl	meters above sea level
oz, koz, Moz	ounces, thousands of ounces, million of ounces
Pb	Lead
ppm	parts per million
QA/QC	quality assurance and quality control
RC	reverse-circulation drilling method
RQD	rock-quality designation
R$	Brazilian Reais
Sb	antimony
ºT	degrees relative to true north
t, kt, Mt	tonnes, kilotonnes, million tonnes
t/y	tonnes per year
tpd, t/d	tonnes per day
US$	US Dollars
Zn	Zinc
£	United Kingdom pounds
µm	micrometer
µS/cm	micro Siemens per centimeter

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CERTIFICATE OF QUALIFIED PERSON

I, Carlos Guzman, Qualified Person for the mineral reserve estimate certify that

I am Principal and Project director at NCL Ingeniería y Construcción SpA, General del Canto 230, office 401, Providencia, Santiago, Chile.

This certificate applies to the Technical Report titled “Serabi Gold Plc, Palito Mining Complex, NI 43-101 Technical Report, Para State, Brazil”, with an effective date of July 31, 2023.

My qualifications and relevant experiences are that:

1. I am a Graduate of the Universidad de Chile and hold a Mining Engineer title (1995).
2. I am a practicing Mining Engineer and a Fellow Member of the Australasian Institute of Mining and Metallurgy (FAusIMM, N° 229036); and a Registered Member of the Chilean Mining Commission (RM CMC 0119).
3. Have worked as a mining engineer for a total of 30 years. My relevant experience for the purpose of the Technical Report is:
    - Review and report as a consultant on numerous explorations, mining operation and projects around the world for due diligence and regulatory requirements.
    - I have extensive experience in mining engineering. I have worked on mining engineering assignments.
4. I have read the definition of Qualified Person set out in Nation Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Palito Mining Complex on several ocassions and the most recet was in October 16, 2023. I am responsible for the preparation of sections 1.1, 1.2, 1.7, 1.8, 1.11 through 1.14, 2 through 6, 15, 16, 19 through 24 and partially responsible for sections 25 and 26 of the Technical Report.
6. I am independent of Serabi gold Plc.
7. I have had prior involvement with the property that is the subject of the Technical Report, as Qualified Person for 2012 Technical Report.
8. I have read National Instrument 43-101 and the Technical Report has been prepared in compliance with that instrument.
9. As of the date of the certificate, to the best of my knowledge, information and belief, the Technical Report Summary contains all material scientific and technical information that is required to be disclosed to make the Technical Report Summary not misleading.

Dated:	**November 20, 2023**
Signature:	SIGNATURE ON FILE
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CERTIFICATE OF QUALIFIED PERSON

I, Nicolás Fuster, Qualified Person for the mineral resource estimate certify that

I am a geologist, Consultant and Senior Advisor at NCL Ingeniería y Construcción SpA, General del Canto 230, office 401, Providencia, Santiago, Chile.

This certificate applies to the Technical Report titled “Serabi Gold Plc, Palito Mining Complex, NI 43-101 Technical Report, Para State, Brazil”, with an effective date of July 31, 2023.

My qualifications and relevant experiences are that:

1. I am a Graduate of the Universidad de Chile and hold a Geologist title (1983).
2. I am a practicing Geologist and a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM, N° 229718); and a Registered Member of the Chilean Mining Commission (RM CMC 0414).
3. Have worked as a geologist for a total of 43 years. My relevant experience for the purpose of the Technical Report is:
   - Review and report as a consultant on numerous explorations, mining operation and projects around the world for due diligence and regulatory requirements.
   - I have extensive experience in geology. I have worked on mining geology and exploration assignments.
4. I have read the definition of Qualified Person set out in Nation Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Palito Mining Complex . The most recent visit was in August 8-12 , 2022. I am responsible for the preparation of sections 1.3, 1.4, 1.6, 7 through 12 and 14, and partially responsible for sections 25 and 26 of the Technical Report.
6. I am independent of Serabi gold Plc.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I have read National Instrument 43-101 and the Technical Report has been prepared in compliance with that instrument.
9. As of the date of the certificate, to the best of my knowledge, information and belief, the Technical Report Summary contains all material scientific and technical information that is required to be disclosed to make the Technical Report Summary not misleading.

Dated:	**November 20, 2023**
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CERTIFICATE OF QUALIFIED PERSON

I, Gustavo Tapia, Qualified Person for the mineral processing and metallurgical recovery, recovery methods and project infrastructure certify that:

I am Independent Process and Metallurgical Consultant at GT Metallurgy, Carmencita 130, apartment 92, Las Condes, Santiago, Chile.

This certificate applies to the Technical Report titled “Serabi Gold Plc, Palito Mining Complex, NI 43-101 Technical Report, Para State, Brazil”, with an effective date of July 31, 2023.

My qualifications and relevant experiences are that:

1. I am a Graduate of the Universidad de Chile and hold a Civil Mining Engineer title (1981).
2. I am practicing my profession for 42 years. During this time, I have been directly involved in, and supervised operations, design of metallurgical testwork programs, pilot plant testing, designing process flowsheets, selection of mineral processing equipment and Due Diligence for new projects. I have been directly involved in operations, process engineering design and construction for copper projects in Chile; and a Registered Member of the Chilean Mining Commission (RM CMC 0436).
3. Have worked as a mining engineer for a total of 42 years. My relevant experience for the purpose of the Technical Report is:
   - Review and report as an executive of mining companies and independent consultant on numerous mining new business, mining operation and projects around the world for due diligence and regulatory requirements.
   - I have extensive experience in metallurgy and ore processing. I have worked on several metallurgical and ore processing assignments.
4. I have read the definition of Qualified Person set out in Nation Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a Qualified Person for the purposes of NI 43-101.
5. I have visited the Palito Mining Complex August 8, 2022. I am responsible for the preparation of sections 1.5, 1.9, 1.10, 13, 17, 18, and partially responsible for sections 25 and 26 of the Technical Report.
6. I am independent of Serabi gold Plc.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I have read National Instrument 43-101 and the Technical Report has been prepared in compliance with that instrument.
9. As of the date of the certificate, to the best of my knowledge, information and belief, the Technical Report contains all material scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated:	**November 20, 2023**
Signature:	SIGNATURE ON FILE
Name:	**Gustavo Tapia** Mining Engineer, RM CMC (0436)