KINIERO GOLD PROJECT, GUINEA - PRE-FEASIBILITY STUDY (NI 43-101 TECHNICAL REPORT)

EFFECTIVE DATE: 26 August 2022

REPORT DATE: 16th September 2022

RESSOURCES ROBEX INC

Prepared by :
Mining Plus UK Limited
2 Redcliffe Way, Bristol, United Kingdom

Authored by :

Mr Dan Tucker, CEng, FAusIMM (CP Geo), Mining Plus UK Limited
Mr Adriano Carneiro, FAusIMM (CP Eng), Mining Plus UK Limited
Mr Guy Wiid, PrEng, CEng, Epoch Resources Pty
Dr Antoine Berton, PEng, Soutex Inc
Mr Jody Thompson, MSAIMM, MSANIRE, MISRM, TREM Engineering
Mr Faan Coetzee, Pr Sci Nat SACNASP, ABS Africa Pty

Qualified Persons

Mr Dan Tucker	Mining Plus UK Ltd	Signature	DocuSigned by: C349D6A793FD49B...
		Date	16th September 2022
Mr Adriano Carneiro	Mining Plus UK Ltd	Signature	DocuSigned by: DF011B0E126C427...
		Date	16th September 2022
Mr Guy Wiid	Epoch Resource Pty	Signature	DocuSigned by: Guy Wiid C712C6A7A2D848A...
		Date	16th September 2022
Dr Antoine Berton	Soutex Inc	Signature	DocuSigned by: Antoine Berton A96CB8B67F7A484...
		Date	16th September 2022
Mr Jody Thompson	TREM Engineering	Signature	DocuSigned by: 0269F3AC622946A...
		Date	16th September 2022
Mr Faan Coetzee	ABS Africa Pty	Signature	DocuSigned by: 8FBCF966CB76425...
		Date	16th September 2022

IMPORTANT NOTICE: This technical report was prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) for Ressources Robex Inc. (Robex) by Mining Plus UK Ltd. (Mining Plus), Epoch Resource Pty. (Epoch), Soutex Inc. (Soutex), TREM Engineering. (TREM), and ABS Africa Pty (ABS), collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, based on i) information available at the time of preparation of this report, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Robex subject to the terms and conditions of their contracts with the Report Authors. Those contracts permit Robex to file this report as a Technical Report with Canadian Securities Regulatory Authorities pursuant to NI 43-101. Except for the purposes legislated under applicable Canadian provincial, territorial, and federal securities laws, any other use of this report by any third party is at that party's sole risk.

CERTIFICATE OF AUTHOR

I, Dan Tucker, BSc CEng FAusIMM (CP Geo) do hereby certify that:

1. I am currently employed as Director – EMEA with Mining Plus UK Ltd, located at Desklodge House, 2 Redcliffe Way, Redcliffe, Bristol, BS1 6NL.

2. This certificate applies to the Technical Report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Ressources Robex Inc ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I am a graduate of the University of Wales, Cardiff (BSc Exploration Geology, 1998). I am a Chartered Professional in the discipline of Geology and a registered Fellow of the Australasian Institute of Mining and Metallurgy (#311862). I am also a Chartered Engineer (CEng) with the Engineering Council (#661093).

I have gained over 24 years of practical and technical experience as both a geologist and mine planning engineer. This has included carrying out Mineral Resource and Mineral Reserve estimations, geological modelling, mine design, optimisation and scheduling on base metal, industrial minerals and gold deposits in Latin America, Europe, Africa, and Australia.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.

4. I completed a personal inspection of the Property from the 22 February 2022 to 23 February 2022.

5. I am responsible for Items 2 to 12, Items 14 and 23, and sections pertaining thereto in Item 1 and Items 24 to 27.

6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as Director – EMEA.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 26 August 2022
Signing Date: 16th September 2022

DocuSigned by:
C349D6A793FD49B...

(Signed) Dan Tucker BSc CEng FAusIMM (CP Geo)
Chartered Engineer with the Engineering Council (#661093)
Fellow of the Australasian Institute of Mining and Metallurgy (#311862)

CONSENT OF QUALIFIED PERSON

I, Dan Tucker, BSc CEng FAusIMM (CP Geo), state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Bristol, United Kingdom this 16th September 2022.

DocuSigned by:

C349D6A793FD49B...

Dan Tucker, BSc CEng FAusIMM (CP Geo)

CERTIFICATE OF AUTHOR

I, Adriano Carneiro, BSc Min, FAusIMM do hereby certify that:

1. I am currently employed as Principal Mining Engineer with Mining Plus UK Ltd, located at Desklodge House, 2 Redcliffe Way, Redcliffe, Bristol, BS1 6NL.

2. This certificate applies to the Technical Report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Ressources Robex Inc ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I am a graduate of the Federal University of Ouro Preto, Ouro Preto – MG - Brazil (BSc Mining Engineer, 1996).
I am registered as Fellow of the Australasian Institute of Mining and Metallurgy (#319595).
I have gained over 25 years of practical, technical, managerial and consulting experience as a mining engineer. This has included carrying out Mineral Reserve estimations, , mine design, optimisation and scheduling on base metal, industrial minerals and gold deposits in Latin America, Africa, and Australia.
I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.

4. I did not completed a personal inspection of the Property as Dan tucker has already completed due to limitations imposed by the pandemic (COVID-19).

5. I am responsible for Items 15 and 16, Item 22, and sections pertaining thereto in Item 1, Item 18, 21 and Items 25 to 26.

6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as Principal Mining Consultant.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 26 August 2022
Signing Date: 16th September 2022

DocuSigned by:
DF011B0E126C427...

(Signed) Adriano Carneiro BSc Min, FAusIMM
Fellow of the Australasian Institute of Mining and Metallurgy (#319595)

CONSENT OF QUALIFIED PERSON

I, Adriano Carmensi Carneiro, BSc Min, FAusIMM, state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Bristol, United Kingdom this 16th September 2022.

DocuSigned by:

DF011B0E126C427...

Adriano Carmensi Carneiro, BSc Min, FAusIMM

CERTIFICATE OF AUTHOR

I, Guy John Wiid, PrEng, C.Eng do hereby certify that:

1. I am a Professional Tailings Engineer employed by Epoch Resources (Pty) Ltd of Viscount Rd Office Park, 8 Viscount Rd, Bedfordview, Johannesburg, South Africa.

2. This certificate applies to the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Resources Robex Inc ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I graduated with a BSc Eng (Civil) from The University of the Witwatersrand in 1988. I also obtained an MSc Eng (Civil) from the University of the Witwatersrand in 1995. I have worked as a Tailings Engineer for a total of 32 years since 1990.

I am a member of the Engineering Council of South Africa (No. 940269), and a Chartered Engineer with the American Society of Civil Engineers (No. 9945778).

I have read the definition of "Qualified Person" set out in National instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be, a "Qualified Person" for the purposes of NI 43-101.

4. I have not visited the property but have reviewed all technical documentation available for the project to date.

5. I am co-author of the Technical Report, and co-author responsible specifically for Section 18 sub-section 10.10, and sections pertaining thereto in Item 1, Item 18, 21 and Items 25 to 26.

6. I am independent of Resources Robex Inc applying all of the tests set out in Section 1.5 of NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report.

8. I have read NI 43-101 and Form 43-101F1; the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.

9. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 26 August 2022
Signing Date: 16th September 2022

DocuSigned by:
Guy Wiid
C712C6A7A2D848A...

(Signed) GJ Wiid PrEng, C.Eng (ECSA 940269)

CONSENT OF QUALIFIED PERSON

I, Guy John Wiid PrEng, C.Eng, state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Johannesburg, Gauteng, South Africa this 16th September 2022.

DocuSigned by:
Guy Wiid
C712C6A7A2D848A...

GJ Wiid, PrEng, C.Eng
Professional Tailings Engineer
Epoch Resources (Pty) Ltd

CERTIFICATE OF AUTHOR

I, Antoine Berton, Ph.D., P. Eng., member of the Ordre des Ingénieurs du Québec (OIQ) do hereby certify that:

1. I am currently employed as a senior metallurgist, with Soutex Inc., located at 1990 rue Cyrille-Duquet, Local 204, Québec, Qc, G1N 4K8, Canada.

2. This certificate applies to the Technical Report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Robex Resources ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I am a graduate of the Université Laval (B.S Physics 1998, M.Sc. & Ph.D. Metallurgical Engineering, 2004). I am a Chartered Professional in the discipline of Physics Engineering and a registered member of the Ordre des Ingénieurs du Québec (OIQ).
I have practiced my profession continuously since 2004. My relevant experience includes 16 years as a mineral processing consultant. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.

4. I did not visit the Kiniero gold property.

5. I am responsible for Items (sections) 13 and 17, and sections pertaining thereto in Item 1, Item 18, 21 and Items 25 to 26.

6. I am independent of the Issuer and related companies applying all of the tests in Section 13 of the NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as metallurgist.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 26 August 2022
Signing Date: 16th September 2022

DocuSigned by:
Antoine Berton
A96CB8B67F7A484...

(Signed) Antoine Berton, P.Eng, Ph.D, OIQ 128618

CONSENT OF QUALIFIED PERSON

I, Antoine Berton, Ph.D., P. Eng, state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Quebec, Canada this 16th September 2022.

DocuSigned by:
Antoine Berton
A96CB8B67F7A484...

Antoine Berton, Ph.D., P. Eng

CERTIFICATE OF AUTHOR

I, Mr. Jody Thompson, B.Eng (mining), COMREC, MSAIMM, MSANIRE, MISRM, do hereby certify that:

1. I am currently employed as a Principal Mining Geotechnical Engineer with TREM Engineering, located at 5 Mountford Street, Newcastle, Kwa-Zulu Natal, South Africa.

2. This certificate applies to the Technical Report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Ressources Robex Inc ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I am a graduate of the University of Pretoria South Africa (B.Eng (mining), 2001). I am a Chartered Professional in the discipline of Mining Rock Mechanics Engineering and a registered member of the South African Institute of Mining and Metallurgy / South African Institute of Rock Engineering, and the International Society of Rock Mechanics.
I have practiced my profession continuously since January 2001. My relevant experience includes mine site appointments and comprehensive project study work through consulting.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.

4. I will complete a personal inspection of the Property from the 07 September 2022 to 14 September 2022.

5. I am responsible for Section 16, sub-section 16.1, and sections pertaining thereto in Item 1, Item 18, 21 and Items 25 to 26.

6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101.

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as Principal Mining Geotechnical Engineer.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: 26 August 2022
Signing Date: 16th September 2022

DocuSigned by:
0269F3AC622946A...

(Signed) Mr. Jody Thompson, B.Eng (mining), COMREC, MSAIMM, MSANIRE, MISRM

CONSENT OF QUALIFIED PERSON

I, Jody John Thompson, holding a Batchelor of Engineering honours degree in mining engineering and being the holder of the Chamber of Mines of South Africa Certificate in Rock Engineering (COMREC), and belonging to the following professional bodies The South African Institute of Mining and Metallurgy (SAIMM), The South African National Institute of Rock Engineering SANIRE and the International Society of Rock Mechanics (ISRM), state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Newcastle, Kwa-Zulu Natal, South Africa this this 16th September 2022.

DocuSigned by:

0269F3AC622946A...

Mr. Jody Thompson, B.Eng (mining), COMREC, MSAIMM, MSANIRE, MISRM

CERTIFICATE OF AUTHOR

I, Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons., a registered scientist with the South African Council for Natural Scientific Professions do hereby certify that:

1. I am currently employed as a Director with ABS Africa (Pty) Ltd, located at Suite 2 Block C, Carlswald Close Office Park, corner of New & Seventh Roads, Carlswald, Midrand, South Africa, 1685;

2. This certificate applies to the Technical Report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" (the "Technical Report") prepared for Ressources Robex Inc ("the Issuer"), which has an effective date of 26 August 2022 – the date of the most recent technical information.

3. I am a graduate of the Potchefstroom University of Christian Higher Education (now North West University) with a B.Sc. Hons in Environmental Management in 1996. I am an Environmental Scientist and a registered member of the South African Council for Natural Scientific Professions.

I have practiced my profession continuously since 1997. . I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101;

4. I completed a personal inspection of the Property from the 9/02/2020 to 14/02/2020;

5. I am responsible for Item 1.15 as well as Section 20;

6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101;

7. I have not had prior involvement with the property that is the subject of the Technical Report in my role as Environmental Scientist;

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1;

9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;

Effective Date: 26th August 2022
Signing Date: 16th September 2022

DocuSigned by:
8FBCF966CB76425...

(Signed) Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons., a registered scientist with the South African Council for Natural Scientific Professions

CONSENT OF QUALIFIED PERSON

I, Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons., a registered scientist with the South African Council for Natural Scientific Professions, state that I am responsible for preparing and supervising the preparation of part of the technical report titled "Kiniero Gold Project, Guinea - Pre-Feasibility Study (NI 43-101 Technical Report)" with an effective date of 26 August 2022, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report by Ressources Robex Inc.

(b) The Technical Report supports a Press Release by Ressources Robex Inc dated 29th August 2022.

(c) I consent to the use of extracts from, or a summary of, the Technical Report in the Press Release of Ressources Robex Inc dated 29th August 2022.

(d) I confirm that I have read the Press Release being filed by Ressources Robex Inc and that it fairly and accurately represents the information in the part of the Technical Report for which I am responsible.

Dated at Johannesburg, Gauteng, South Africa this 16th September 2022.

DocuSigned by:

8FBCF966CB76425...

Faan Coetzee (Pr.Sci.Nat.), B.Sc. Hons., a registered scientist with the South African Council for Natural Scientific Professions

1 EXECUTIVE SUMMARY

1.1 Introduction and Terms of Reference

Mining Plus has independently reviewed and prepared a Technical Report on behalf of Ressources Robex Inc (Robex) for the 100%-owned Kiniero Gold Project located in Guinea, completed by Sycamore and its expert advisors. The findings and results of this study have been compiled into this Pre-Feasibility Study (PFS) Technical Report to support the expansion and restart of the Kiniero Gold Project, Guinea.

The Kiniero Gold Project is a 470km² legal exploitation and exploration land package that is in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, and consists of the adjoining Kiniero License Area (exploitation) and the Mansounia License Area (exploration), a cumulative area that hosts numerous deposits that variously form the basis of this PFS report.

Initial mining and processing will be focused on the estimated Mineral Resources and Mineral Reserves presented in this PFS report using data acquired by the previous licence owners and previous operators (SEMAFO and Burey Gold), as well as recently derived geological data generated and acquired by Sycamore Mine Guinee SAU (SMG). Geological studies completed by SMG includes the discovery of the Sabali South deposit that extends into the Mansounia License, as well as expanding the known extents of the Sector Gobelé A (SGA) deposit both along strike and at depth. Ore extraction for initial operations will be from greenfield pits at Sabali South, Sabali Central and Sabali North, that have previously been identified, but not yet developed or exploited, in combination with high-grade ores derived from the previously exploited Sector Gobele A (SGA) and Jean deposits.

The run-of-mine material will predominantly consist of saprolite/oxides and saprock/transitional ores that will be mixed with a high-grade component of sulphide/fresh ore extracted from SGA and Jean. A new processing plant is being designed with a nameplate capacity of 3Mtpa capable of processing mixed ore types (oxide, transition, and sulphide). The existing Tailing Storage Facility (TSF) will remain decommissioned, and unused. SMG will install a new TSF facility designed for the capacity of the Life of Mine (LoM), located between the village of Balan and the Kiniero Gold Project. Ongoing geological drilling is being conducted at the identified greenfield sites to increase the Mineral Resource base, and further extend the life of mine.

During this initial operating period, geological drilling will continue at known target areas, new target areas as well as areas being currently mined (brownfields sites) to extend the proven Mineral Resource base, as well as develop mine pit shell designs.

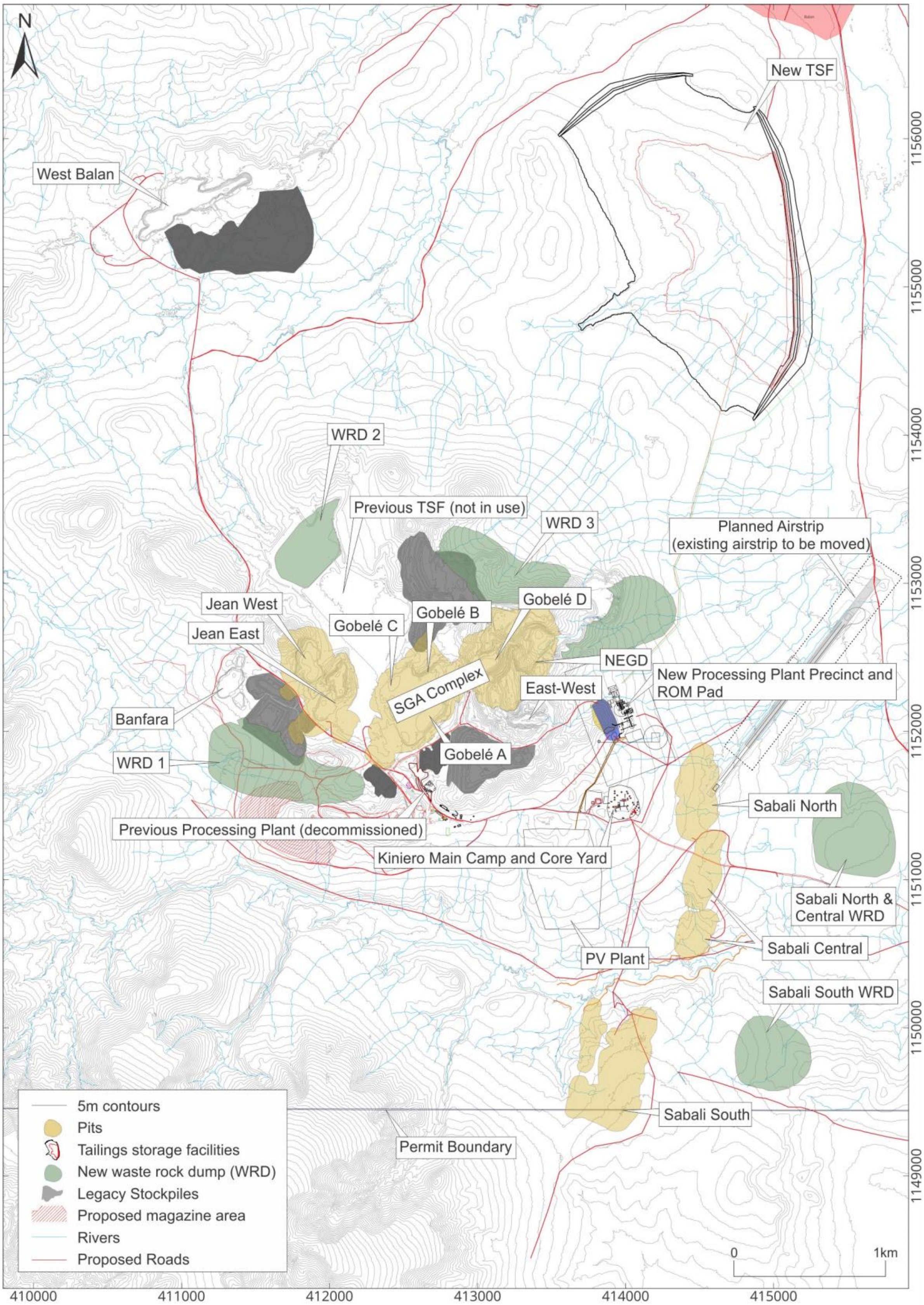
As the historical mine pits have been flooded since operations ceased in early 2014, these pits require dewatering prior to any Mineral Resource drilling or mining being initiated. The current start up philosophy is to dewater the pits during start up and operations with the Jean and SGA pit complex being the primary focus. Three options will be used for removal of the water from the Jean & SGA pits, namely:

- a portion of the water will be used for processing water requirements in the new 3Mtpa plant
- a portion of water to be transferred to other neighbouring pits not immediately targeted for mining
- most of the water will be discharged into the environment during the first years of construction and operation

Existing mining infrastructure will be refurbished with minimal additional infrastructure required, except for new haul roads which would be dependent on mine layouts selected. In terms of bulk electrical supply, the Project was historically supplied by a battery of diesel generators. The power generation is to be fully upgraded to cater for the anticipated increased electrical requirements and in addition a Photovoltaic (PV) solar plant supported by lithium storage batteries is being evaluated on an Independent Power Producer (IPP) basis to further supplement the diesel generating capacity, and to reduce electrical generation costs. Current estimates indicate a 25MW PV plant would be required, for which the feasibility study is currently in progress.

All estimates within this report have been estimated to a PFS level of ±25%. The PFS, which commenced in the second quarter of 2022, was defined to include the following:

- mining of predominantly oxide ore from new and existing open pits at a rate of approximately 3,000,000 tonnes per annum (tpa)
- engineering, procurement, construction and management (EPCM) design and costing for the commissioning of the processing plant
- metallurgical testwork to be carried out in support of oxide processing plant design
- a downstream lined tailing storage facility (TSF) design and costing in support of the processing design
- environmental and social studies in support of mining, processing, and rehabilitation
- contributing studies to be carried out to -15% + 15% accuracy levels on design and costing


N
New TSF
West Balan
WRD 2
Previous TSF (not in use)
WRD 3
Planned Airstrip
(existing airstrip to be moved)
Jean West
Gobelé D
Gobelé B
Gobelé C
Jean East
NEGD
New Processing Plant Precinct and
ROM Pad
SGA Complex
East-West
Banfara
Gobelé A
WRD 1
Sabali North
Previous Processing Plant (decommissioned)
Kiniero Main Camp and Core Yard
Sabali North &
Central WRD
PV Plant
Sabali Central
Sabali South WRD
Sabali South
Permit Boundary
5m contours
Pits
Tailings storage facilities
New waste rock dump (WRD)
Legacy Stockpiles
Proposed magazine area
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1.2 Property Description and Location

The Kiniero Gold Project is in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, approximately 440 km due east-northeast of the capital of Conakry. More locally the Kiniero Gold Project is situated within the Kiniéro sub-prefecture of the Kouroussa Prefecture, approximately 5km due northwest of the town of Kiniéro (the seat of the Kiniéro sub-prefecture) and 55km due west of Kankan, the capital of the Kankan Region and second largest city of Guinea.

The topography within the Kiniero Gold Project is dominated by two ranges of hills, the Wombon mountains in the southwest extending between the Mansounia and Kiniero Licenses, and the Kakon Mountains in the central northern area. The hills are separated by a low-lying area which acts as a watershed between the Niger River catchment to the northwest and the Niandan River catchment to the southeast. The elevation ranges from approximately 348m above mean sea level (mamsl) in the north, adjacent to the Niger River, to 706mamsl in the south-eastern hills, the high point of which is colloquially referred to as Sabali Hill, an extension of the Wombon Mountains.

The Kiniero Gold Project is characterized by a sub-Sudanese climate with two distinct seasons, a rainy season, which lasts approximately six months, followed by a dry season. During the rainy season, the highest values are recorded between May and October, and the months with the highest rainfall are July, August, and September. Rainfall in the dry season, which occurs from November to April, is very low. The driest months are usually December, January, and February, with very little or no rainfall.

The nearest population centres include the villages of Kiniéro, Balan and Farabalan, located adjacent to or within close proximity to the Kiniero Gold Project. The town of Kouroussa, located 55km by road to the north of Kiniero, is the capital of the Kouroussa Prefecture. Resources available in Kouroussa include formal markets where most goods can be sourced, schools, hospitals and pharmacies, hotels and 4G cellular signal. Kankan, the second largest city in Guinea after Conakry, is the capital of the Kankan prefecture, located 90km by road to the east of Kiniéro. Kankan has an airport (IATA: KNN) and access to significant resources including a university, shopping centres, schools, hospitals, hotels, 4G cellular phone signal and grid power.

1.3 History

Kiniero License Area: The former Kiniero Gold Mine was mined by Canadian based and Toronto Securities Exchange (TSX) listed Mining Exploration Society in West Africa Incorporated (SEMAFO) between 2002 and 2014. The Jean and Gobelé deposits were discovered after a long geological and exploration history, initially by the French colonial government, which resulted in limited underground production in the 1950s. Operations closed in 1958 upon independence by Guinea.

Extensive exploration by SEMAFO, since acquisition in 1995, culminated in production commencing in April 2002. Since this time the Kiniero Gold Mine produced approximately 418,000 ounces (oz) of gold from various open pits and a carbon in pulp (CIP) processing plant. The former Kiniero Gold Mine was placed on care-and-maintenance in March 2014 and SEMAFO's Kiniero permits were revoked by the Government of Guinea (GoG) in 2014. The Kiniero Gold Project was subsequently offered for purchase by the GoG through international tender during 2019.

SMG signed an agreement with the GoG, as the preferred bidder, on 19 November 2019 to redevelop the former Kiniero Gold Project. To support this redevelopment process, SMG applied for the four adjoining Kiniero Exploration Permits (Permis de Recherche Minière) on 30 December 2019, which were successfully awarded to SMG on 14 January 2020.

An application was lodged with the Ministry of Mines and Geology on 21 May 2020 to support the conversion of the Exploration Permits into Exploitation Permits. On 4 August 2020, SMG's application for the four Exploitation Permits (Permis d'Exploitation Minière Industrielle), covering a total area of 326km², was accepted and approved by the mining regulator of Guinea, the CPDM (Centre de Promotion et de Développement Minières) and registered with the Geological and Mining Information Division of the Ministry of Mines and Geology, the DIGM (Division Informations Géologiques et Minières). The applications were variously ratified by parliament on 4 November 2020, and again on 17 December 2020, and are each valid for a period of 15 years, renewable on expiry.

Mansounia License Area: The early exploration history of the Mansounia License area is the same as that of the Kiniero License Area as the land package at this time was considered a single geological target area. From 2003 to 2005, Gold Fields limited completed the first ever drilling campaign which was followed up with extensive exploration and drilling by Burey Gold Limited over an eight-year period (2006 to 2013). No further drilling was completed on the property until undertaken by SMG in late-2021.

On 18 June 2021, Sycamore Mine Guinee SAU (SMG) and Penta Goldfields Company SA (Penta) entered into a purchase agreement for the adjoining Mansounia License Area. The Mansounia License Area consists of two adjoining Exploration Permits (Permis de Recherche Minière) which are located immediately south of the Kiniero License Area.

1.4 Geological Setting and Mineralisation

The Kiniero Gold Project is located within the Siguiri Basin in the West Africa Birimian Greenstone belt which includes intrusives, volcanics and sediments deposited through the period 2.13Ga to 2.07Ga. Most of the gold mineralisation in the West African Craton is shear-zone-hosted, with the principal control being structural with lithology having a minor, local influence. The mineralisation in the Kiniero Project conforms to this general style of mineralisation.

The Kiniero-Kouroussa thrust zone is such an environment which is host to several economic deposits along a 60km long corridor. The gold mineralisation is typically late-orogenic, medium grade lodes which are strongly structurally controlled and located within quartz veins or in quartz-veined fracture zones with inter-mineralisation intrusives.

The former Kiniero Gold Project mineralisation vein-lode model considered the deposits to be volcanogenic in origin and to have formed at a sub-marine effusive centre associated with basaltic lava extrusion, with high temperature hydrothermal activity responsible for the mineralisation. Geological work completed by SMG has indicated that the primary controls on mineralised fluid emplacements are deep seated fracture sets with local structural interplays creating dilational environments. There is evidence of episodic over pressuring within the system, which combined with seismic events trigged rapid ascent and mineral deposition over a significant vertical interval. The original sub-horizontal volcanic/volcanoclastic assemblage was tilted to the north, resulting in an average east-west strike direction of the lithological units with a steep dip to the north thus masking the original vein emplacement strike direction and dip.

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

Mafic volcanic rocks include pillowed basalts, flow breccias and basaltic to andesitic tuffs of Upper Birimian age that are well exposed in several of the historic SEMAFO pits. These volcanic lithologies have been intensely foliated and metamorphosed to greenschist facies. Upper Birimian also includes some ultramafic lavas (komatiites with spinifex textures), cherts and banded iron formations. Recent drilling by SMG has intersected variably altered and mineralised porphyries situated to the south of the historic SGA pit as well as at the central-southern area of Sabali South. These intrusives appear to be a key driver with the widespread argillic alteration at Sabali South and the high temperature intense albitisation at SGA.

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

In northeastern Guinea, as in most of the Birimian occurrences of West Africa, outcrop of fresh rock is rare, and the bedrock is usually covered by a thick laterite capping. Mineralisation is found within three material types which, for the purposes of this PFS, are broadly termed oxide, transitional and fresh.

1.5 Drilling and Exploration

The Kiniero Gold Project is a data rich project. Historical exploration undertaken by SEMAFO (Kiniero License Area) and Burey Gold (Mansounia License Area) concluded in 2012. A total of 47 gold anomalies or deposits at on the Kiniero License were identified from permit wide exploration, and three at the Mansounia License. Each of these deposits were variously followed up with pitting, trenching and drilling to define the limits of the deposits.

License-wide exploration has been extensive, and has included campaigns of mapping, stream sediment sampling, rock chip sampling, soil sampling (soil, termite and BLEG), airborne geophysics (acquired and stitched by SMG), remote sensing and LiDAR. Drilling has been equally as extensive, as completed by the various previous owners and/or operators. All this data has been acquired by SMG, which includes, but is not limited to:

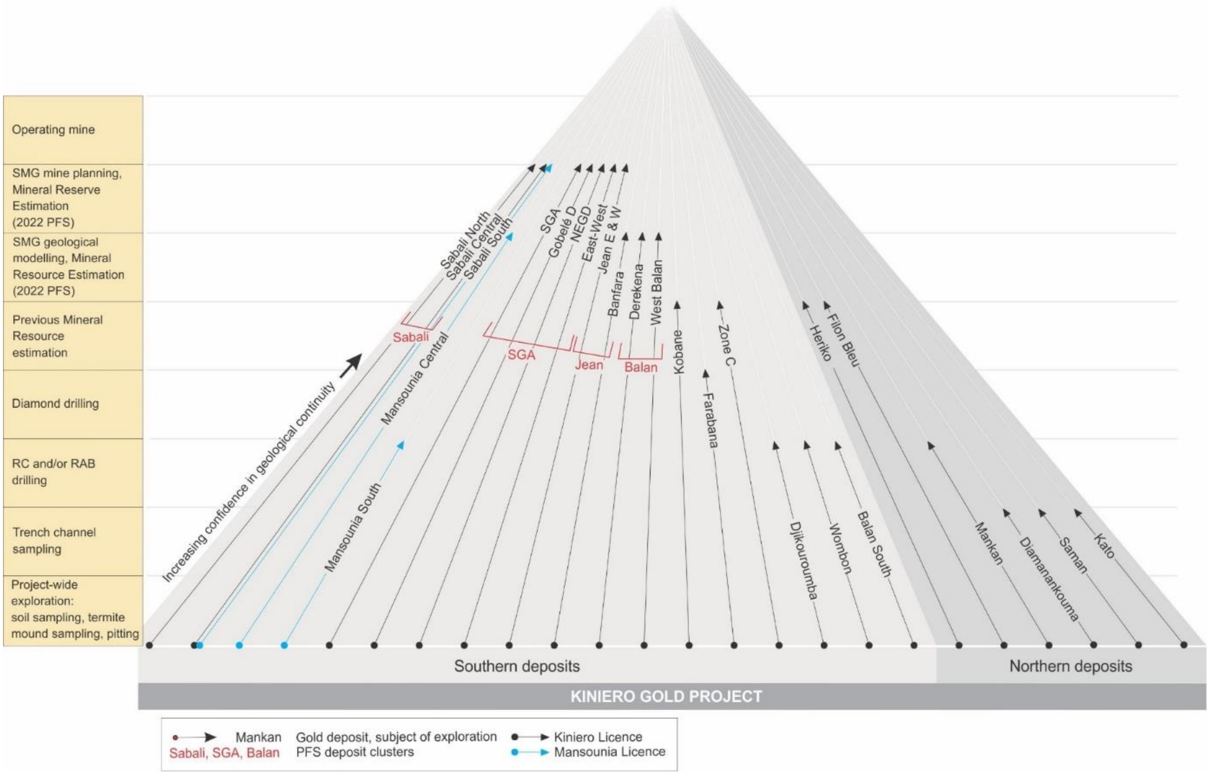
- Drilling on the Kiniero License Area was completed by SEMAFO between 1996 and 2012, totalling 446,833m from 6,414 drillholes. Most of the drilling (89%) was undertaken prior to the issue of the 2008 Mineral Resource estimate, with the remaining 11% being undertaken from 2009 until mine closure in March 2014. Trenching included 30,774m from 808 trenches
- Drilling on the Mansounia License Area was completed by Gold Fields and Burey Gold between 2003 and 2012, totalling 35,369m from 430 drillholes

Since obtaining the Kiniero Gold Project, SMG has completed extensive drilling campaigns. Combined drilling across the Kiniero Gold Project completed by SMG as of the date of this PFS totals 1,113 drillholes for 65,454m. Drilling has been completed across multiple deposits and targets. Drilling purposes have included exploration, verification, sterilisation, resource, and reserve delineation (infill, strike, and depth extension), mining geotechnical, stockpiles and water. Drilling types have included RAB, auger, RC and diamond (NQ, HQ and HQ3), as well as trenching. Drilling and trenching completed on the respective Kiniero and Mansounia License areas by SMG can be summarised, as of 25 May 2022, as:

- 5 trenches for 601m on the Kiniero License Area

- 1,056 drillholes for 58,756m on the Kiniero License Area. Of the total drilling completed 49,351m has been RC (476 drillholes) and 2,175m has been DD (13 drillholes)
- 55 drillholes for 6,307m of RC drilling and 2 drillholes for 392m of diamond drilling on the Mansounia License Area

Drilling remains ongoing at the time of this PFS with one RC drill rig, one multipurpose RC/DD drill rig and one DD rig. These drilling and sampling programmes have confirmed the historical SEMAFO exploration results and has expanded two of previously identified mineral deposits along strike. SMG's geological modelling of both the recent and historical exploration results have resulted in the declaration 33.66Mt of Indicated Resources at an average grade of 1.18g/t Au and 37.20Mt Inferred Mineral Resources at an average grade of 1.24g/t Au in accordance with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014).



1.6 Sample Preparation, Analysis and Security

Historical sample preparation, analysis, and security by the former owners and/or operations of the Kiniero Gold Project has been well documented and adhered to best practice procedures and protocols of the time. Historical appointed laboratories were largely independent, including SGS Limited (Siguiri and Bamako), ALS Limited (Kankan and Bamako) and ITS Mandiana. The former onsite Kiniero Gold Mine laboratory was also used on an apparent ad hoc basis when production capacity waned, and exploration samples could be analysed. All external laboratories were internationally accredited at that time and undertook systematic inhouse QA/QC measures on a batch-by-batch basis.

Independent QA/QC measures were also implemented, with SEMAFO adhering to a QA/QC sampling procedure in 2008 of submitting one purchased Certified Reference Material (CRM) and one blank sample per 18 field samples, i.e. a batch of 20 samples. Field duplicate complimented the CRMs and blanks with >1,400 collected, returning coefficient of determination R^2 value of 0.94. QA/QC performance was monitored by SEMAFO and appointed independents at that time, with the data and various laboratory performances regarded as sufficiently reliable to support the declaration of Mineral Resources.

A similar robust QA/QC programme was implemented by Burey Gold at the Mansounia License Area which included the regular submission of CRMs and blanks every 20 samples, and a duplicate every 10m. The appointed independent laboratory was Transworld Laboratories in Ghana, which was acquired by Intertek Minerals Division in October 2008. Standards and blanks were generated inhouse from reject sample materials. Runge stated that while these inhouse CRMs were unsuitable for elements with low concentrations, the QA/QC was sufficiently reliable to support the declaration of Mineral Resources at the time.

Since 2020, SMG has dispatched samples to one of four laboratories, all of which are accredited and internationally recognised, depending on the available laboratory capacity, analytical offerings, and prevailing logistical constraints:

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

QA/QC procedures were implemented both internally by each laboratory, as well as externally by SMG to monitor the precision and accuracy of results. Laboratory quality assurance protocols were all ISO 17025 compliant with systems at SGS ensuring that at least 15% of all determinations were analysed, while at Intertek and ALS it was at least 10%. Overall insertion rate of 16% was achieved at SGS Bamako, 13% at SGS Ouagadougou, 16% at ALS Bamako and 13% at Intertek Tarkwa.

SMG inserted one CRM and/or blank after every 20 samples. Field duplicates were also collected and submitted for analysis. Duplicates were collected after every 20th metre drilled and submitted within the sample stream at the end of hole, i.e. after the last sampled metre. In addition, once the laboratory pulp rejects had been received by SMG, two were inserted into the sample streams as an additional QA/QC measure at the end of every drillhole to complete the QA/QC sample stream on per drillhole basis. These pulp duplicates served not only as pulp duplicate precision tests, but also as umpire checks.

As such, in total, for a typical 80m drillhole, there are ten supporting QA/QC samples submitted within the sample stream – four CRM's/blanks, four field duplicates and two pulp duplicates, totalling 90 samples for a dispatch. QA/QC performance by SMG has included a total of 6,975 QA/QC samples being submitted at an overall insertion rate of 11%:

- 3% CRM insertion rate of a total of 1,965 submitted, with 7% failing outside of 3SD
- 2% blank insertion rate of a total of 1,075 submitted, with 0.6% failing >0.05g/t
- 7% duplicate insertion rate of a total of 3,935 submitted:
    - field duplicate R^2 = 0.91
    - pulp duplicate R^2 = 0.95
    - umpire pulp duplicate average R^2 = 0.93

The QP is satisfied that the sample preparation, security and analytical procedures followed historically and currently in place at the Kiniero Gold Project are adequate, and that data used in the estimation of Mineral Resources are representative of the mineralisation

and fit for use.

1.7 Data Verification

Following acquisition of the Kiniero Gold Project, SMG has continued to undertake reviews and interrogation of the historical data that had been largely acquired by SEMAFO (Kiniero License Area) and Burey Gold (Mansounia License Area). Findings have been consistently comparable allowing reliance to be placed thereon for the use of this data in Mineral Resource estimations. The data verification approach has been identical to both the Kiniero and Mansounia License areas, and has included, but not been limited to:

- wide-ranging interviews with key-stakeholders from both the GoG, previous Kiniero Mine employees as well as Kiniéro and Balan village locals and relevant industry role players
- field verification of trenches, drill collars and previous mining
- logging, photographing and sampling of previous diamond drill cores, to verify geology and fire assay grade data
- metallurgical analysis of previous diamond drill core to verify previous recovery data
- logging and photography of previous RC drillhole chip boards
- cross-checking the database against hard copy drill logs and assay reports
- drillhole twin drilling. Due to the Kiniero Gold Project being data rich, it was neither feasible nor practical to apply the twinning 'rule of thumb' of 10% of all historical drillholes. Based on the results of the various data verification processes described above, it was considered reasonable to complete a total of 22 twin drillholes for 2,509m from three deposit areas. Results from the twin drilling were generally as

expected and acceptable, further verifying the reliability of the historical downhole data:

- four at the Mansounia License Area (Burey Gold)
- three at the Sabali North deposit (SEMAFO)
- three at the Sabali Central deposit (SEMAFO)
- 12 at the SGA Complex (SEMAFO)

In addition to the above verification of previous exploration data, SMG has completed five self-checking twin drillholes on previously completed SMG RC drillholes to verify the assay results that have returned significant continuous grade intercepts downhole. All the DD and RC results broadly replicate those of the previous SMG RC drillhole.

Verification of both previous and current exploration data will remain an ongoing and integral work stream for the Kiniero Gold Project.

1.8 Metallurgical Testwork

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

- validating historical metallurgical processing plant performance data
- determining PFS-level design parameters for the process plant

Canadian registered independent mineral process engineering consultancy, Soutex Inc (Soutex), was appointed in 2022 in support of the PFS, that reviewed and relied on the previously completed SMG metallurgical testwork and managed the design of the confirmatory test programme completed in 2022.

Metallurgical testwork has been variously completed on samples across all of the deposits featured in support of this PFS at SGS Randfontein (South Africa), Intertek Perth (Australia), and Intertek Tarkwa (Ghana). Processing gold recovery values recommended for the economic evaluation of the Kiniero Gold Project PFS are presented in the table below. Test work included petrological and mineralogical studies at APSAR (New Zealand), bottle roll leach, diagnostic leach, and carbon-in-leach (CIL) test work.

ORE TYPE	Au RECOVERY %					
	SABALI NORTH AND CENTRAL	SABALI SOUTH	SGA	JEAN	WEST BALAN / DEREKENA	MANSOUNIA CENTRAL
Laterite	95%	95%	92%	92%	92%	95%
Oxide	95%	95%	92%	92%	92%	95%
Transition	50%	55%	90%	90%	90%	92%
Fresh	65%	55%	87%	87%	87%	90%

Source: Soutex (2022)

The fresh ores of the Kiniero Gold Project can be qualified as hard to very hard. A large portion of the oxide ores does not require any grinding, as it already meets the grind target, and where the remaining portion of the oxide ore is more competent, the resulting specific energy remains very low, well within the energy requirements to grind the fresh ores.

The recovery and leach kinetics values should be refined with further testing at the DFS stage. Additional testwork and studies will provide further confidence to the recoveries across the deposits.

1.9 Mineral Resource Estimate

The Mineral Resources have been prepared in accordance with NI 43-101 for Sabali North and Central, Sabali South, SGA, Jean, Banfara, West Balan, Mansounia Central and various legacy stockpiles. The geological models used to prepare this Mineral Resource estimate have been prepared by Mr J Glanvill of SMG.

The geological models and Mineral Resource estimates have been independently reviewed and compiled by Mining Plus's Qualified Person, Mr D Tucker. Mr Tucker has independently reviewed the geological modelling methodology and results and is comfortable that they are an accurate reflection of the information currently available on the Kiniero Gold Project. Mr Tucker is a Qualified Person who is a longstanding Member of the Institute of Materials, Minerals and Mining, a Fellow of the Geological Society of London, a Chartered Professional Fellow of the Australasian Institute of Mining & Metallurgy and is a Chartered Engineer.

Mr Tucker is a full-time employee of Mining Plus and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Qualified Person as defined in NI 43-101. Mr Tucker, as co-author of this PFS Report and Lead Qualified Person, consents to the inclusion in the report of the matters based on his information in the form and context in which they appear.

The Kiniero Gold Project Mineral Resource Estimate (Inclusive of Mineral Reserves) for 26 August 2022 in accordance with NI 43-101 is tabulated as follows:

DEPOSIT / GEOLOGY MODEL	RESOURCE CATEGORY	TONNAGE (Mt)	GRADE (g/t)	CONTAINED GOLD (oz)
SGA	Indicated	13.40	1.37	590,000
	Inferred	13.38	1.39	600,000
Total SGA		**26.78**	**1.38**	**1,190,000**
Sabali North & Central	Indicated	4.66	1.07	160,000
	Inferred	1.55	0.87	30,000
Total Sabali North & Central		**6.21**	**1.02**	**190,000**
Sabali South	Indicated	7.73	0.59	150,000
	Inferred	0.52	0.73	20,000
Total Sabali South		**8.25**	**0.60**	**170,000**
Jean	Indicated	4.17	1.83	250,000
	Inferred	4.12	1.88	250,000
Total Jean		**8.29**	**1.85**	**500,000**
West Balan	Indicated	2.48	1.26	100,000
	Inferred	3.86	1.24	160,000
Total West Balan		**6.34**	**1.25**	**260,000**
Banfara	Indicated	1.22	0.74	30,000
	Inferred	2.48	0.71	50,000
Total Banfara		**3.7**	**0.72**	**80,000**
Mansounia Central	Indicated	-	-	-
	Inferred	11.29	1.01	290,000
Total Mansounia Central		**11.29**	**1.01**	**290,000**
Total Indicated In Situ Mineral Resources		**33.66**	**1.18**	**1,280,000**
Total Inferred In Situ Mineral Resources		**37.20**	**1.24**	**1,400,000**
Legacy Stockpiles	Indicated	6.67	0.34	71,800
	Inferred	-	-	-
Total Legacy Stockpiles		**6.67**	**0.34**	**71,800**

Source: SMG (2022); Apparent errors due to rounding. Resource declared at $1950 4/oz, Variable marginal cut-offs applied per material type and deposit. Resource constrained within Whittle shells.

Mineral Resources that that are not included in the Mineral Reserves have not demonstrated economic viability.

1.10 Mineral Reserve Estimate

The Mineral Resource models were provided as sub cell type models in Datamine format. These models were converted to a percentage type model using the parent block cell as the standard block size. The block models included gold grades, weathering type, 'resource' confidence categories (Indicated and Inferred) and bulk density values. Overall slopes were derived from the geotechnical parameters recommended by TREM Engineering.

Based on this it was decided to use a mining dilution of 5% and an ore loss of 5%. These parameters were not applied to the block model but in the Whittle software which was used for pit optimisations.

Mining costs and Cut-off grade estimation are summarised in the table below. All currency stated in this report are in United States Dollars ("$") unless stated otherwise.

MINING AND PROCESSING COST CATEGORY		UNIT	JEAN	SGA	SABALI NORTH & CENTRAL	SABALI SOUTH
Gold Price		$/oz	1650	1650	1650	1650
Conversion factor		oz -> g	31	31	31	31
Royalty		%	5.5	5.5	5.5	5.5
Treatment costs		$/oz	13	13	13	13
Net Price		$/g	50	50	50	50
Mill Recovery	Laterite	%	92%	92%	95%	95%
	Saprolite	%	92%	92%	95%	95%
	Transitional	%	90%	90%	50%	60%
	Fresh	%	87%	87%	65%	60%
Mining Dilution		%	5%	5%	5%	5%
Mining Recovery		%	95%	95%	95%	95%
Grade control	Laterite	$/t ore	0.90	0.90	0.75	0.74
	Saprolite	$/t ore	0.77	0.77	0.97	0.91
	Transitional	$/t ore	0.57	0.57	0.66	0.89
	Fresh	$/t ore	0.56	0.56	0.57	0.61
Ore Premium	Laterite	$/t ore	-0.62	-0.05	-0.09	0.07
	Saprolite	$/t ore	-0.51	-0.13	0.01	0.06
	Transitional	$/t ore	-0.54	-0.10	0.03	0.06
	Fresh	$/t ore	-0.54	0.47	-0.05	0.07
Rehandling Cost ($0.53/t/km)	Distance to Mill	km	2.21	2.40	0.85	0.85
	Total Pit to ROM	$/t	1.17	1.27	0.45	0.45
Overhead + Fixed	Overhead	$/t	3.79	3.79	3.79	3.79
Corporate G&A	Overhead	$/t	0.95	0.95	0.95	0.95
Sustaining CAPEX	Overhead	$/t	2.00	2.00	2.00	2.00
ROM Pad Management		$/t	0.53	0.53	0.53	0.53
Treatment Cost	Laterite	$/t	15.10	15.10	15.10	15.10
	Saprolite	$/t	8.50	8.50	8.50	8.50
	Transitional	$/t	15.10	15.10	15.10	15.10
	Fresh	$/t	18.80	18.80	18.80	18.80
Processing Cost	Laterite	$/t	23.63	23.79	23.67	24.33
	Saprolite	$/t	17.00	17.05	17.40	17.83
	Transitional	$/t	23.42	23.45	23.66	24.44
	Fresh	$/t	27.04	27.15	27.27	28.42
Cut-off	Laterite	g/t	0.50	0.50	0.50	0.50
	Saprolite	g/t	0.40	0.40	0.40	0.40
	Transitional	g/t	0.50	0.60	1.00	0.90
	Fresh	g/t	0.70	0.70	0.90	1.00

Source: Mine Planning Solutions (2022)

The Mineral Reserve contains only the stockpiles included in the Indicated Mineral Resource stockpile inventory that are above the marginal cut-of grade. The In-situ Stockpile Mineral Reserves are listed below.

STOCKPILE		VOLUME (m^3)	DENSITY (t/m^3)	TONNES (t)	Au (g/t)	Au (Oz)
NAME	ID					
ROM	1	167,224	1.5	250,836	0.89	7,177
BCM	2	227,889	1.5	341,834	0.54	5,935
West Balan	9 (3)	100,000	1.5	150,000	1.04	5,016
	9 (4)	47,075	1.5	70,613	0.59	1,339
Total Probable Mineral Reserves		**542,188**	**1.5**	**813,282**	**0.74**	**19,467**

Source: SMG (2022)

Mineral Reserves are quoted within specific open pit designs based on Measured and Indicated Mineral Resources only, and takes into consideration the mining, processing, metallurgical, economic and infrastructure modifying factors. Preparations to submit information for environmental approvals and mining lease applications have commenced.

This Mineral Reserve estimate has been determined and reported in accordance with Canadian National Instrument 43-101, 'Standards of Disclosure for Mineral Projects' of June 2011 (the Instrument) and adopted by Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014). At a gold price of $1,650 per ounce, the cut-off grade for the Mineral Reserves varies by open pit location based on the processing costs, the processing recoveries, and the ore related mining costs, which vary block by block.

The cut-off grades and Mineral Reserve Estimate per open pit are provided below.

OPEN PIT	CUT-OFF GRADE (g/t)			
	LATERITE	SAPROLITE	TRANSITIONAL	FRESH
Jean	0.5	0.4	0.6	0.7
SGA	0.5	0.4	0.5	0.7
Sabali North & Central	0.5	0.4	1.0	0.9
Sabali South	0.5	0.4	0.9	1.0

Source: Mine Planning Solutions (2022)

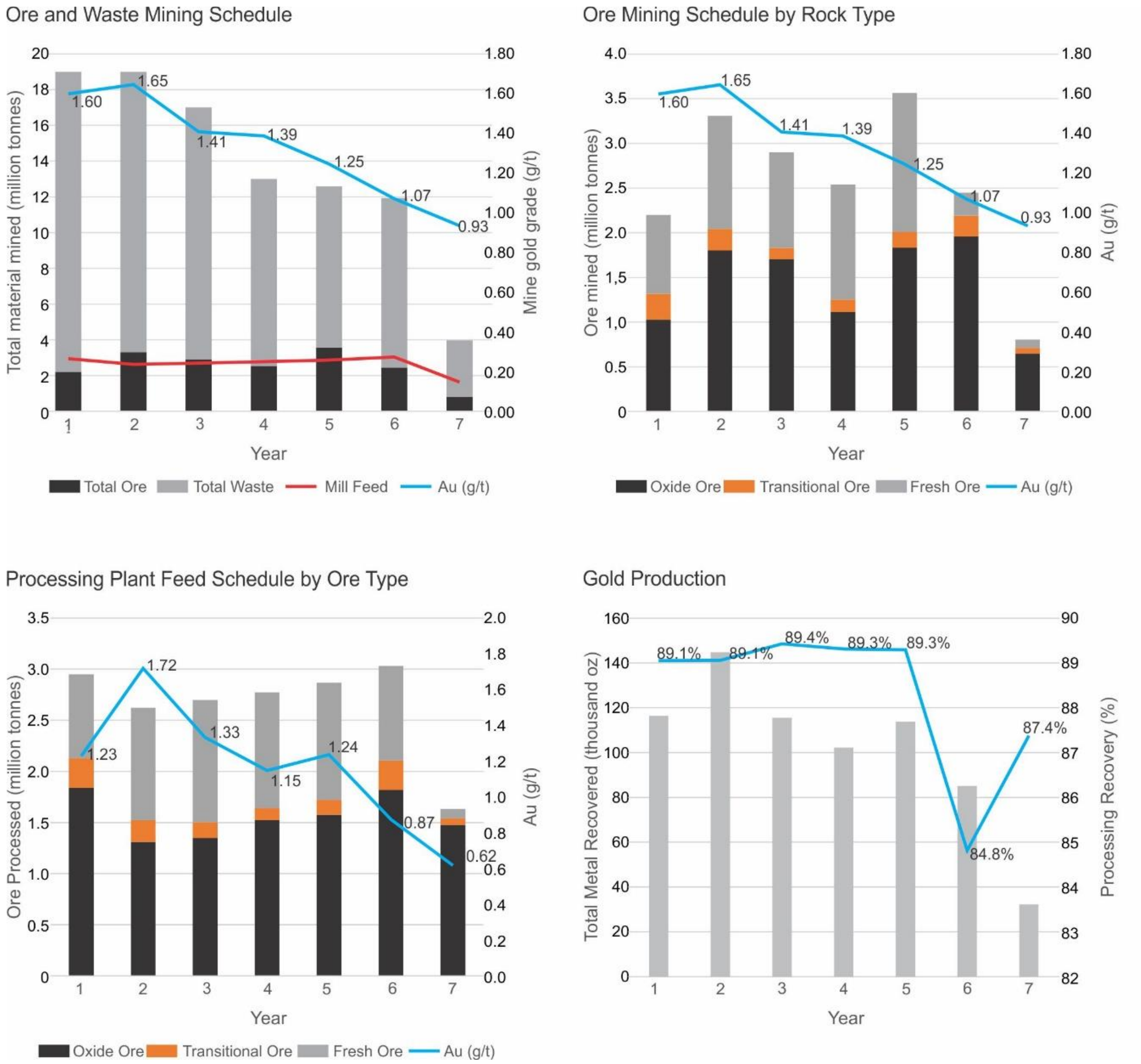
OPEN PIT	PROBABLE MINERAL RESERVES											
	OXIDE			TRANSITION			FRESH			TOTAL		
	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)
Jean	808	1.72	45	361	1.90	22	1,842	2.07	123	3,011	1.96	189
SGA	2,552	1.14	93	583	1.27	24	4,237	1.96	266	7,372	1.62	383
Sabali North & Central	5,053	0.77	124	187	1.39	8	0		0	5,240	0.79	133
Sabali South	1,675	0.95	51	140	1.70	8	331	1.85	20	2,146	1.13	78
SUB-TOTAL ALL PITS	**10,089**	**0.97**	**313**	**1,270**	**1.51**	**62**	**6,410**	**1.98**	**408**	**17,768**	**1.37**	**784**
STOCKPILES	813	0.74	19							813	0.74	19
TOTAL ORE RESERVES	**10,902**	**0.95**	**332**	**1,270**	**1.51**	**62**	**6,410**	**1.98**	**408**	**18,582**	**1.34**	**803**

Source: Mine Planning Solutions (2022)

1.11 Mining Schedule

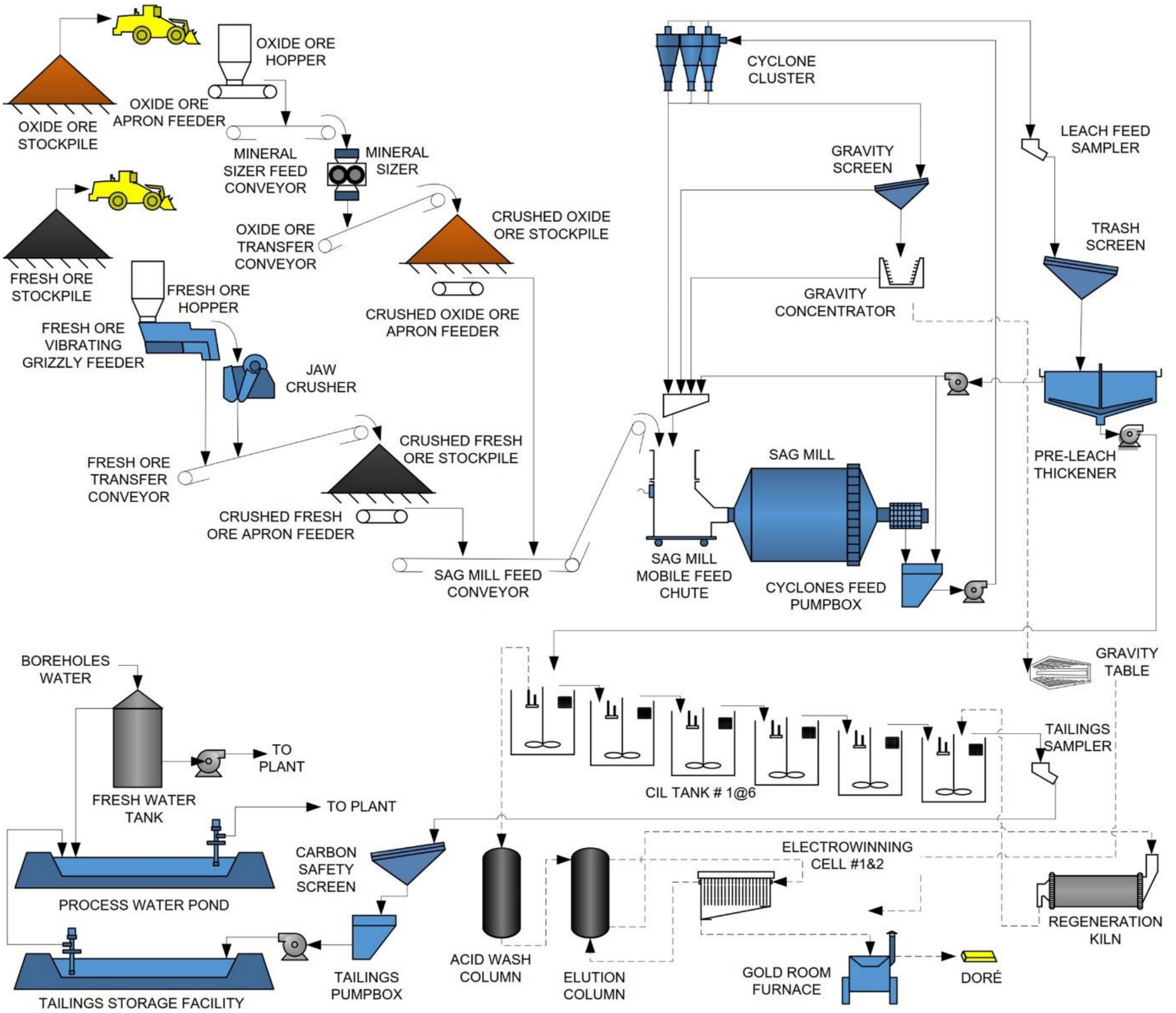
The production schedule was developed on an annual basis with the resulting open-pit development schedule. The mine schedule can be summarised as follows:

- oxide ores contribute 50.9%, transitional ores 8.4% and fresh ores 40.6% respectively
- total volumes mined capped at a maximum of 19Mt in Year 1 and thereafter reduced to <14Mt in Year 4 and 5 and to 8.1Mt in Year 6, on depletion of the Mineral Reserves
- total ore mined peaks at 3.3Mtpa in Year 3
- average grades decline over the operating life from 1.91 g/t Au to 0.95 g/t Au
- an average vertical advance of 50m per year, reaching up to 130m per year on some of the high walls in the brown fields pits where mining occurs above the main ramp exit in areas of reduced stripping ratios



1.12 Processing Method

Ore from the Kiniero Gold Project will be processed on-site. The gold will be recovered in a beneficiation 3Mtpa plant that has been designed to process a blend of oxide, laterite, transition, and fresh ores from various deposits. The process plant includes crushing, grinding, gravity concentration, thickening, carbon-in-leach and stripping circuits.



The crushing area of the Kiniero Gold Project processing plant contains two parallel crushing lines, each feeding a dedicated ore stockpile. Laterite, transition, and fresh ores from the ROM pad feed a crushing line, while oxide ores feed the other. The crushed oxide and fresh ores are reclaimed from the crushed fresh ore stockpile and the crushed oxide ore stockpile respectively by underground apron feeders and transported to the semi-autogenous grinding (SAG) mill by the SAG mill feed conveyor.

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

Lime is added in the pre-leach thickener feed box to achieve an alkaline pH, and to prevent HCN gas formation in the CIL circuit. Sodium cyanide is added to the CIL feed box to achieve the cyanide concentration target for gold leaching. The slurry then progresses to the CIL tanks. The slurry containing loaded carbon is pumped counter current from CIL Tank #6 to CIL Tank #1 and to the loaded carbon screen, where the loaded carbon is recovered. The leached slurry, containing only residual gold, flows through the tailings pump box from where it is transferred to the Tailings Storage Facility.

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

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

1.13 Surface infrastructure and facilities

1.13.1 Roads, Air and Ports access

An evaluation of the Conakry-Kiniero route was conducted between 7 and 14 September 2020 covering a total distance of 628km. A comprehensive matrix of hazards along the various road sectors (bridges, power lines, trees, potholes, roadworks, speed limits etc.) is included in the report which will inform road haul practices, with reference to sensitive loads. The site access is from the Balan-Kiniéro regional road with the Kiniero Gold Mine turn off approximately 1.5km from Kiniéro town. The existing 1.3 km access road will be refurbished and upgraded. New access road will be built to access mining area of Sabali/Mansounia.

1.13.2 Accommodation camps, Offices, and general administration

The existing SEMAFO airfield is situated approximately 0.5km east of the Main Camp and has been upgraded and currently waiting for permanent certification. Several flights landed under exceptional authorisation since 2019. Accommodation camps (management and junior camp) are in use currently and can accommodate 165 people. The camps will be expanded to during construction phase. Administration and offices are fully operation and will be expanded during construction.

1.13.3 Laboratory

The Kiniero laboratory will be sub-contracted to an independent laboratory operator. The lab will operate following Standard Operating Procedures (SOPs) using approved and controlled methods of analysis such as ASTM, ISO, or any combination of such methods. Internal quality management/monitoring will be done internally by the laboratory itself, using its own QA/QC programme, complimented by the external QA/QC measures put in place by the Kiniero Gold Mine, which will include regular submissions of duplicates, blanks and CRMs into the sample streams.

Typical analytical procedures and protocols will be used for Grade Control, Aqueous solutions from the plant and gold in carbon. The laboratory will be constructed in phases 1) acquisition, repair and commissioning of a mechanical preparation container, 2) refurbishment of the previous laboratory and 3) purchase of new equipment.

1.13.4 Mining infrastructure

- Existing open pits: All of the historical open pits are currently flooded to some extent with the NEGD and Gobelé D pits containing the least amount of water. The current mine plan targets the reopening of all these pits (with the exception of West Balan). Dewatering of these pits will be required prior to mining activities commencing
- Mobile equipment: Inherited mobile equipment are on site at a various stage of maintenance. The current fuel depot will be refurbished under the IPP contract with VIVO who will manage the fuel supply as well as the PV plant
- Historical ROMPAD: The historical ROM pad will not be used due to its distal location to the new plant location. Extension and sterilisation drilling has indicated prospective mineralisation across the old ROM pad and plant location. It is likely this area will be mined

1.13.5 Fuel Depot

As part of the IPP contract with Vivo Energy, it will manage the fuel depot and all the fuel supply. The current fuel storage and management system will refurbish the existing fuel storage facilities, to support the construction phase and the first two to three years of mining, and then construct a new fuel depot adjacent to the new plant location.

1.13.6 Explosives

All explosives and consumables will be stored, controlled, and monitored by AUXIN Guinee at a dedicated on-site explosive magazine. The new explosives magazine will be relocated away from the planned extended plant feed stockpile, existing infrastructure and active working areas to align with safe working practices and industry standards.

1.13.7 Old Processing plant

The old process plant is in the process of being dismantled and salvaged for spare parts. The surrounding support buildings will be repurposed to potentially accommodate offices, workshops, storage, etc.

1.13.8 Tailing Storage Facility

The design of the new TSF by Epoch has been aligned with the International Council on Mining and Metals (ICMM) Global Industry Standard on Tailings Management (August 2020), which incorporates elements of guidelines published by the Canadian Dam Association (CDA) and the Australian National Committee on Large Dams (ANCOLD). The TSF has been designed to be constructed as a full containment facility with the containment wall over the LoM.

1.13.9 Rehabilitation, decommissioning and closure

The estimated costs of rehabilitation, decommissioning and closure of the TSF are $5.61 million (‘m’). This estimate equates to approximately $0.42k/ha for the side slopes and $0.35k/ha for the crest of the TSF.

1.13.10 Power

The selected electrical supply is based on a hybrid system of diesel generators with a capacity of approximately 16,400kW, as well as a PV plant with total capacity of approximately 17,820kW. The hybrid power supply has been based on an Energy Supply Agreement (ESA) with Vivo Energy, an IPP.

The Vivo Energy ESA allows for them to be responsible for all power generation. The solar PV plant will be connected to the main switchboard via an overhead powerline. The diesel generator plant and the Battery Energy Storage System (BESS) will consist of a 10MW Power Conversion System (PCS) and a 30MWh battery and will be connected directly to the mine switchboard. The distribution of MV up to the MV transformers at camp, plant, mining workshops and TSF will be via the mine switchboard.

1.14 Markets

Gold price of $1650/oz has been used for the Mineral Reserves Estimation and $1950/oz has been used for Mineral Resources Estimation based on average gold price consensus and benchmark with other similar projects.

1.15 Environmental Studies, Permitting and Social

The baseline description was initially prepared and reported in the Environmental and Social Impact Assessment (ESIA) by ABS Africa (Pty) Limited (ABS Africa) and Insuco Guinée Limited (Insuco), which was submitted in May 2020 in support of the application to the Government of Guinea for the conversion of the Kiniero Exploration Permits to Exploitation Permits. The Environmental Conformity Certificate was issued by the Guinean Environmental Agency (AGEE) on 8 June 2020. In August 2020, SMG's application for four exploitation permits covering a total area of 326 km² was accepted and approved by the Centre de Promotion et de Développement Minières (CPDM - Mining Promotion and Development Centre).

The March 2020 ESIA Report and associated specialist studies was updated in support of this PFS to assess the latest changes pertaining to the Kiniero Gold Project, namely the:

- updated 2022 PFS pit designs and site layout
- 2022 mining schedule
- pit dewatering strategy
- inclusion of Sabali South (into the Mansounia License Area) and Waste Rock Dumps (WRD) to the south
- inclusion of a new TSF to the northeast of the existing TSF, which provides an increase in capacity to that TSF that was designed in 2020
- inclusion of a new processing plant to the east of SGA pits, with an increased processing capacity of 3Mtpa

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

1.16 Capital costs

The Kiniero Gold Project capital cost estimates have been estimated by Robex in conjunction with relevant specialist consultants for specific categories. In this regard Soutex has provided estimates for the processing plant, Epoch for the TSF, Vivo Energy for the power and PV plant and Robex for the infrastructure on site and the rehabilitation of the existing buildings. A summary of the Capital Cost Estimate (Q2 2022 ±25%) is presented below.

COST COMPONENT	INITIAL CAPITAL COST ($m)
Processing Plant – Direct	81
Processing Plant – Indirect	14
Infrastructure	2
TSF	17
Mining	2
Subtotal	**116**
Contingency (10%)	12
Working Capital	6
G&A (In country)	8
G&A (Corporate)	2
Project Total	**144**

1.17 Operating costs

Processing plant operating costs have been compiled by Soutex and Robex from multiple different sources:

- power costs were estimated by Vivo Energy combining solar and thermal solution
- labour costs have been based on a salary grid benchmarked against multiple operations in Guinea and against the internal cost structure of Robex at Nampala
- an average diesel prices
- consumable prices have been based on quotations from existing suppliers to the Robex operated Nampala Gold Mine in Mali who supply cross border into Guinea
- reagent consumptions are based on historical metallurgical testwork and current testwork, as realised in H1 2022
- process operating costs have been compiled for various plant feed mixes. These mixes are theoretical and provide a guidance for the mine scheduling

A summary of the Kiniero Gold Project Operating Costs Design Criteria and Economics is presented below.

	Oxides		Transition		Fresh		Design	
Proportion LoM	59%		6%		34%			
Plant Feed (Mpta)	5,037,000		2,417,760		1,813,320		3,000,000	
COST CATEGORY	**000' $/y**	**$/t**	**000' $/y**	**$/t**	**000' $/y**	**$/t**	**000' $/y**	**$/t**
Labour	2,482	0.49	2,482	1.03	2,482	1.37	**2,482**	**0.83**
Power	15,586	3.09	17,810	7.37	17,720	9.77	**17,898**	**5.97**
Consumables	18,951	3.76	13,168	5.45	11,603	6.40	**14,111**	**4.70**
Maintenance	5,641	1.12	2,707	1.12	2,030	1.12	**3,360**	**1.12**
Laboratory	150	0.03	150	0.06	150	0.08	**150**	**0.05**
TSF management	686	0.14	329	0.14	247	0.14	**409**	**0.14**
TOTAL	**43,498**	**8.64**	**36,648**	**15.16**	**34,234**	**18.88**	**38,411**	**12.80**

Source: SMG (2022)

1.18 Economic analysis

The economic model of this project was based upon:

- Capex and opex estimates from Soutex/Wacom
- Recoveries by Soutex
- The modified mining schedule
- General and Administration estimated by Robex based on budgets for corporates and all outside of Guinea costs
- TSF costs by EPOCH
- Environmental and Social costs by ABS Africa and Insuco
- Adjusted closure capital cost to match the LoM by ABS Africa Pty
- Gold price at $1650/oz

Financial	Units	Value
LoM tonnage processed	Tonnes	18,582
LoM tonnes mined	Tonnes	96,473
LoM strip ratio	W:O	4.4
Life of mine	years	6.5 years
LoM Average mix	%	59% Oxides 6% Transition 34% Fresh
Average grade feed	g/t	1.34 g/t
Average recovery	%	Oxides 93.3% Trans 81% Fresh 85.9%
LoM Gold recovered	kOz	712
Upfront capital (2years)	$m	144
LoM Capital	$m	161
Pre-tax Net Present Value (“NPV”) @ 5%	$m	199
Pre-tax IRR	%	49%
Post-tax Net Present Value (“NPV”) @ 5%	$m	115
Post-tax IRR	%	32%

1.19 Interpretations and conclusions

At a pre-feasibility level of confidence, the combination of historical and current exploration, investigations and studies to date has resulted in the opportunity for expansion and restart of the former Kiniero Gold Mine.

Exploration, drilling and sampling procedures, together with sufficient historical and current data verification, has resulted in an Indicated Mineral Resource of 1,280 koz (inclusive of Reserves and legacy stockpiles) and Inferred Mineral Resource of 1,400 koz. The various modifying factor studies has resulted in a Mineral Reserve of 803koz; to be extracted by open pit mining methods and processed in a 3Mtpa Gravity and CIL plant.

The total production is 712koz, resulting in 6.5 years LoM, with an average annual production of 110koz. It is estimated this will be achieved at an AISC of $1,035/oz. Based on a gold price of $1,650/oz, the Project has a pre-tax NPV of $199m ($NPV_{5\%}$) and IRR of 49%. The Project is economically strong with significant exploration upside.

The work conducted on the Kiniero Gold Project has been completed with strong consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements. Socially, the economic benefit of the Project is significant and viewed as a major development by the local community and the country.

The completion and outcomes of this pre-feasibility study warrants further detailed investigations and the development of a definitive feasibility study to refine the economic potential of the Kiniero Gold Project in order to start construction.

1.20 Recommendations

A number of key recommendations have been made by Robex, SMG and contributing Consultants. These are provided in detail below:

1. Resource Definition and Exploration

   Kiniero presents significant near-term opportunities to further delineate multiple established deposits along depth (historical 475,000m of drilling with an average depth of only 75m) and established strike extensions within 3km of the new central processing facility. These deposits and deposit extensions have the potential to significantly increase the reserve base and enhance the economics of the Kiniero project by increasing the average grade throughput in the new plant and increasing the reserves base/LoM.

2. Mineral Processing and Metallurgical Testing

   Continue the metallurgical testwork in support of the Kiniero Gold Project DFS.

3. Mining Methods – Geotech and Hydrogeology

   Continue the geotechnical drill programme in all planned pits to gather additional data and to confirm the results and analysis from the PFS study. TREM Engineering have recommended 33 inclined geotechnical holes targeting the pit walls. They have also recommended at least 10 vertical SPT holes to test the near surface, heavily oxidised material.

Three initial test boreholes be drilled to confirm elements of the existing hydrogeological model & revise the model layer types to be convertible between confined and unconfined. Refine the TSF contaminant transport modelling with refined details and undertake a sensitivity analysis on potential liner leakage rates.

4. Project Infrastructure – Tailing Storage Facility (TSF)

Finalisation of the design criteria for the TFS to incorporate information from the other Kiniero Gold Project disciplines that contributed to the PFS.

- Confirmation of the LoM tailings production plan based on the approved mining and processing plans
- characterisation of the geotechnical properties of the tailings
- confirmation of the pollution potential of the tailings, based on an assessment of their geochemistry
- further kinetic leach tests be conducted on the material classified as potentially acid forming to assess rates of acid generation and arsenic mobilisation
- Dam Break Assessment (DBA) and consequence classification of the TSF should be completed
- incorporation of the site seismicity assessment for the Kiniero Gold Project
- development of seepage and slope stability models based on laboratory testing of the preferred materials to be used in the construction of the TSF and associated infrastructure
- DFS design of the TSF and associated infrastructure

The associated budget per recommended workstream is presented below.

ITEM	000' $
Detailed Plant Design	$ 650
Metallurgical testing	$ 50
TSF management	$ 190
Geotech management	$ 70
Geotech drilling	$ 545
Geotech testing	$ 50
ESIA to IFC standards	$ 205
Mining	$ 30
DFS Report	$ 75
Contingency @ 10% *(excluding Geotech drilling)*	$ 130
Total	**$ 1,995**

Following the release of the DFS, the anticipated budget for future work during the construction period will be $5.9m, detailed below.

ITEM	000' $	
Drilling	$	5,000
Exploration	*$*	*1,000*
Resources definition	*$*	*4,000*
Geohydrology	$	150
Geotech	$	100
Metallurgy testing	$	100
Contingency @ 10%	$	535
Total	**$**	**5,885**

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2 INTRODUCTION

2.1 Terminology

For the purposes of this PFS document, and to avoid confusion for the reader, the following definitions of the wording and terminology relating to the naming conventions of the various Exploitation and Exploration assets at hand is applied as follows:

- **Kiniero Project** and/or **Kiniero Gold Project**: a 470.48 km² area that is inclusive of each of the Kiniero License Area (exploitation) and the Mansounia License Area (exploration), an area that hosts numerous deposits that variously form the basis of this PFS report
- **Kiniero Gold District**: geological terrane situated on the south-western edge of the Siguiri Basin in the West African Birimian Greenstone belt that encompasses the mineralised gold deposits of this area, inclusive of the Kiniero Gold Project and other mineralised deposits & occurrences of the district
- **Kiniero License / Area**: a legal exploitation permitted area of 326.33 km², consisting of four adjoining exploitation permits, held in the name of Sycamore Mine Guinee SAU. This area encompasses numerous gold deposits that have variously been historically explored and/or exploited
- **Mansounia License / Area**: a legal exploration permitted area of 144.15 km² immediately south of the Kiniero License Area, consisting of two adjoining exploration permits held in the name of Penta Goldfields Company SAU, which entered into a purchase agreement with Sycamore Mine Guinee SAU on 18 June 2021. This area hosts numerous gold deposits that have variously been historically explored
- **Kiniero Gold Mine**: that area (both geologically and geographically), as defined by the PFS battery limits, that will be impacted by, and planned to host, the mining related infrastructure of the Kiniero Project that is required in support of economic gold mining activities
- **Historical / Former Kiniero Gold Mine**: that area (both geologically and geographically) impacted by gold mining activities undertaken by SEMAFO from 2002 to 2014
- **Kiniéro**: the name of the town of Kiniéro, that is the seat of the Kiniéro sub-prefecture, situated approximately 5km southeast of the Kiniero Gold Mine, from which the Kiniero Gold Project and Kiniero Gold Mine takes its name

Terminology relating to the exploration and mining history of the Kiniero Gold Project is long and extensive. For the purposes of this PFS report the following terminology applies:

- **historical** refers to all exploration and mining activities undertaken by previous owners and/or operators (prior to January 2020)

- **current** refers to all activities undertaken by SMG since acquisition of the Kiniero License Area in January 2020, and the Mansounia License area in June 2021

Terminology relating to the open pit nomenclature of the Kiniero Gold Project applies as follows:

- the **SGA pit complex**, comprising SGA1 (west), SGA2 (central) and SGA3 (east)
- the **Jean pit complex**, comprising Jean1_B (west), Jean 1_A (central east) and Jean2 (east)
- the **Sabali North and Central pit complex**, comprising Sabali North (SBN), Sabali Central 1 (SBC1 - central) and Sabali Central 2 (SBC2 – south
- the **Sabali South pit complex**, comprising Sabali South 1 (SBS1 – north) and Sabali South 2 (SBS2 – south)

The reader is also referred to Appendix 1 for abbreviations.

2.2 Terms of Reference

Mining Plus is an international independent geological and mining consultancy with offices in Australia, UK, Canada, USA and Peru. This Preliminary Feasibility Study ("PFS") has been requested of Mining Plus by Ressources Robex. This report is as closing condition to the corporate transaction between Ressources Robex (RBX:TXV) and Sycamore Mining LTD. This report summarises the work done by the Sycamore Mining team prior to acquisition and the follow-up investments by Ressources Robex since the announcement of the transaction on the 20th of April 2022.

This technical report is prepared in accordance with the disclosure and reporting requirements set forth in NI 43-101, including Companion Policy 43-101CP and Form 43-101F1. The authors of this Technical Report do not disclaim any responsibility for the content contained herein and make appropriate caveats under Section 3 (Reliance on other Experts).

Mining Plus (including its directors and employees) does not have nor hold:

- Any vested interests in any concessions held by Ressources Robex or Sycamore Mining
- Any rights to subscribe to any interests in any of the concessions held by Ressources Robex or Sycamore Mining either now or in the future
- Any vested interests either in any concessions held by Ressources Robex or Sycamore Mining, or any adjacent concessions
- Any right to subscribe to any interests or concessions adjacent to those held by Ressources Robex or Sycamore Mining either now or in the future

Mining Plus's only financial interest is the right to charge professional fees at normal commercial rates, plus normal overhead costs, for work carried out in connection with the investigations reported here. Payment of professional fees is not dependent either on project success or project financing.

2.2.1 Project Description

Sycamore Mine Guinee SAU (SMG) is in the process of finalising mine feasibility studies to determine the viability of re-commissioning the Kiniero Gold Project (the Project) located in the Kouroussa Prefecture of the Kankan Region in Guinea, West Africa. This document outlines the current broad execution philosophy for the Project.

The Kiniero Gold Project is a 470km² legal exploitation and exploration land package that is in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, and consists of the adjoining Kiniero License Area (exploitation) and the Mansounia License Area (exploration), a cumulative area that hosts numerous deposits that variously form the basis of this PFS report.

Initial mining and processing will be focussed on the estimated Mineral Resources and Mineral Reserves presented in this PFS report using data acquired by the historical licence owners and operators (SEMAFO and Burey Gold), as well as recently derived geological data generated and acquired by SMG. Geological studies completed by SMG includes the discovery of the Sabali South deposit that extends into the Mansounia License, as well as expanding the known extents of the Sector Gobelé A (SGA) deposit both along strike and at depth. Ore extraction for initial operations will be from greenfield pits at Sabali South, Sabali Central and Sabali North, that have previously been identified, but not yet developed or exploited, in combination with high-grade ores derived from the previously exploited SGA and Jean deposits.

The run-of-mine material will predominantly consist of saprolite/oxides and saprock/transitional ores that will be mixed with a high-grade component of sulphide/fresh ore extracted from SGA and Jean. A new processing plant is being designed with a nameplate capacity of 3Mtpa capable of processing mixed ore types (oxide, transition and sulphide). This plant will be built to the east of the SGA pit complex. The existing previous Tailing Storage Facility (TSF) will remain decommissioned, and unused by SMG, with a LoM facility designed, located between the village of Balan and the Project. Ongoing geological drilling is being conducted at the identified greenfield sites to increase the Mineral Resource base, and further extend the life of mine.

During the initial operating period, geological drilling will continue at known target areas, new target areas as well as areas being currently mined (brownfields sites) in order to extend the proven Mineral Resource base.

As the historical mine pits have been flooded since operations ceased in early 2014, these pits require dewatering prior to any Mineral Resource drilling or mining being initiated. The current start up philosophy is to dewater the pits during start up and operations with the Jean and SGA pit complex being the primary focus. Three options will be used for removal of the water from the Jean & SGA pits, namely:

- a portion of the water will be used for processing water requirements in the new 3Mtpa plant
- a portion of water to be transferred to other neighbouring pits not immediately targeted for mining
- most of the water will be discharged into the environment during the first years of construction and operation

Existing mining infrastructure will be refurbished with minimal additional infrastructure required, except for new haul roads which would be dependent on mine layouts selected. In terms of bulk electrical supply, the Project was historically supplied by a battery of diesel generators. The current generator battery is to be upgraded to cater for the anticipated increased electrical requirements and in addition, a Photovoltaic (PV) solar plant supported by lithium storage batteries is being evaluated on an Independent Power Producer (IPP) basis to further supplement the diesel generating capacity, and to reduce electrical generation costs. Current estimates indicate a 25MW PV plant would be required, for which the feasibility study is currently in progress. The proposed mining infrastructure general layout is provided in Figure 1.

2.2.2 Scope of the PFS Report

All estimates within this report have been estimated to a PFS level of ±25%. The PFS, which commenced in the second quarter of 2022, was defined to include the following:

- mining of predominantly oxide ore from new and existing open pits at a rate of approximately 3,000,000 tonnes per annum (tpa)
- engineering, procurement, construction and management (EPCM) design and costing for the commissioning of the processing plant
- metallurgical testwork to be carried out in support of oxide processing plant design
- a downstream lined TSF design and costing in support of the processing design
- environmental and social studies in support of mining, processing, and rehabilitation
- contributing studies to be carried out to -25% + 25% accuracy levels on design and costing

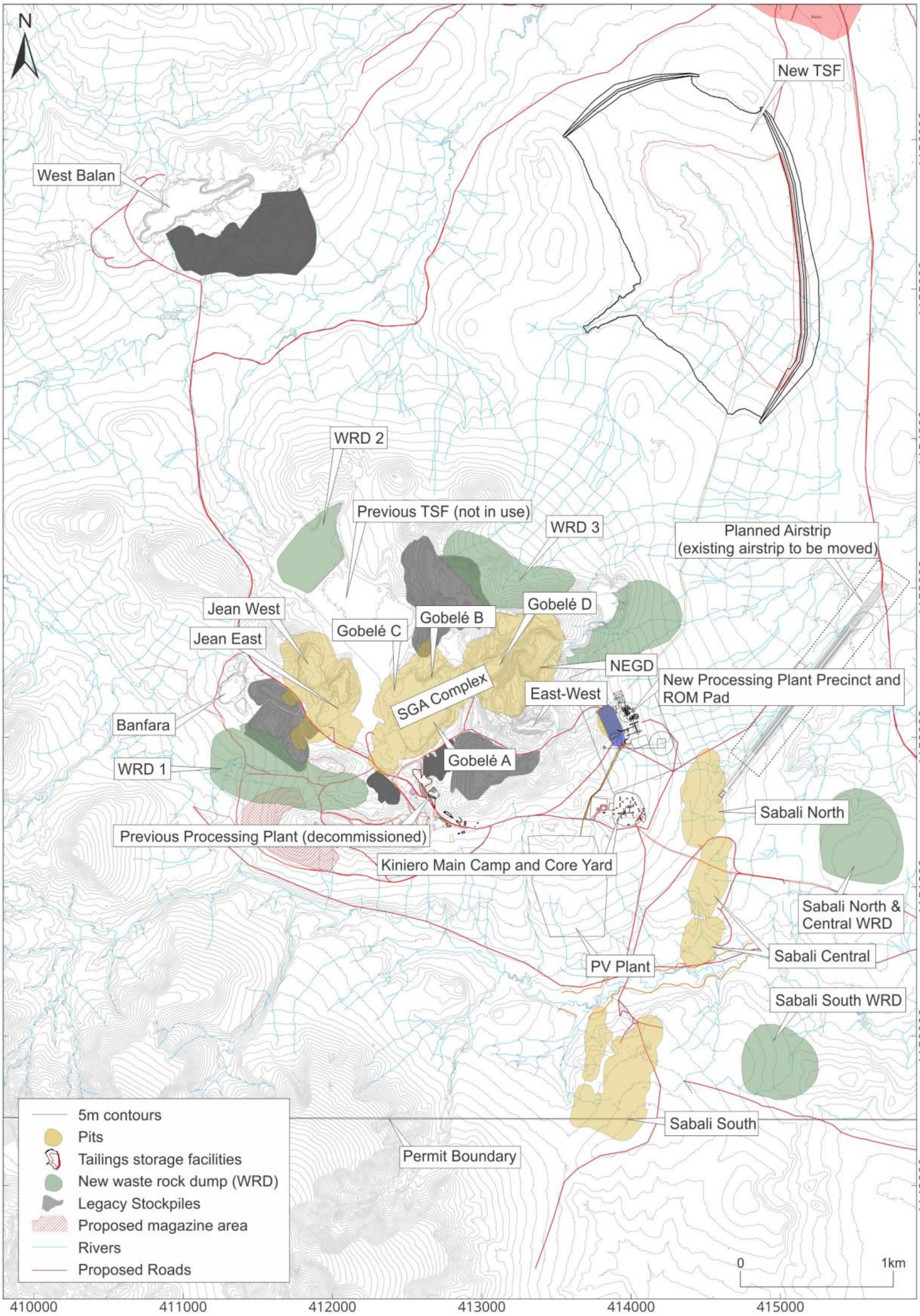


Figure 1: Proposed Infrastructure Layout of the Kiniero Gold Project

2.3 Qualified Persons Section Responsibility

The various sections of this report have been prepared by or under the supervision of the respective Qualified Persons, as summarised in Table 1.

Table 1: Qualified Person(s) Section Responsibility

SECTION	SECTION TITLE	QUALIFIED PERSON(S)
1	Summary	Dan Tucker, Adriano Carneiro, Antoine Berton, Guy Wiid, Faan Coetzee
2	Introduction	Dan Tucker
3	Reliance on Other Experts	Dan Tucker
4	Property Description and Location	Dan Tucker
5	Accessibility, Climate, Local Resources, Infrastructure and Physiography	Dan Tucker
6	History	Dan Tucker
7	Geological Setting and Mineralisation	Dan Tucker
8	Deposit Types	Dan Tucker
9	Exploration	Dan Tucker
10	Drilling	Dan Tucker
11	Sample Preparation, Analyses and Security	Dan Tucker
12	Data Verification	Dan Tucker
13	Mineral Processing and Metallurgical Testing	Antoine Berton
14	Mineral Resource Estimates	Dan Tucker
15	Mineral Reserve Estimates	Adriano Carneiro
16	Mining Methods	Adriano Carneiro, Jody Thompson
17	Recovery Methods	Antoine Berton
18	Project Infrastructure	Adriano Carneiro, Antoine Berton, Guy Wiid
19	Market Studies and Contracts	Adriano Carneiro
20	Environmental Studies, Permitting and Social or Community Impact	Faan Coetzee
21	Capital and Operating Costs	Adriano Carneiro, Antoine Berton, Guy Wiid, Faan Coetzee
22	Economic Analysis	Adriano Carneiro
23	Adjacent Properties	Dan Tucker
24	Other Relevant Data and Information	Dan Tucker
25	Interpretation and Conclusions	Dan Tucker, Adriano Carneiro, Antoine Berton
26	Recommendations	Dan Tucker, Adriano Carneiro, Antoine Berton, Guy Wiid, Faan Coetzee
27	References	Dan Tucker

2.4 Key Contributors and Site Visits

2.4.1 Technical Project Team Site Visits

The PFS was managed by SMG with contributions from internal expertise and specialist independent consultants. The key contributors, along with reference to their detailed reports which are reported upon in this PFS Report, are summarised in Table 2.

Table 2: Key Contributors to the Kiniero Gold Project PFS

COMPANY	LEAD AUTHOR / ENGINEER	SITE VISIT	AREA OF RESPONSIIBILITY
Mining Plus	Mr D Tucker	✓	Independent Mineral Resource and Mineral Reserve review and sign-off
ABS Africa (Pty) Limited	Mr F Coetzee	✓	Environmental, Water Balance
Epoch Resources (Pty) Limited	Mr G Wiid	×	TSF design, costing
GeoStratum Water Management Consultants (Pty) Limited	Mr K Troskie	✓	Geohydrology
Insuco Guinea Limited	Mr L Arnaldi Di Balme	✓	Social and labour
	Mr T Crépon	✓	
Soutex Inc.	Mr A Berton	×	Metallurgy analysis, Plant design and costing
Mine Planning Solutions (MPS) Ltd	Mr O Varaud	×	Mine Planning, Mineral Reserve estimation
TREM Engineering cc	Mr J Thompson	×	Mine Geotechnical
Sycamore Mine Guinea SAU	Mr B McDonald	✓	Regional and local geology, mineralisation and structure
	Mr A de Klerk	✓	Country review, history, geology, drilling, sampling, laboratory, database management
	Mr A Bezuidenhout	✓	QA/QC, exploration
	Mr J Glanvill	✓	Geological modelling, Mineral Resource estimation
	Mr M Sharples	✓	Financial evaluation
	Mr A Bonneviot	✓	Financial evaluation

Source: SMG (2022)

2.4.2 Independent Site Visit

Mining Plus completed a two-day site visit to the Kiniero Gold Project from 22 February to 23 February 2022. Qualified Person, Mr Dan Tucker completed the following during the site visit to independently ascertain and review all Project components related to Mineral Resources (geology) and Mineral Reserves (mining):

- Discussions with A Bezuidenhout (Group Project Geologist), S Magassouba (Kiniero Acting Geology Manager) and M Sharples (SMG Managing Director) regarding procedures, geology, interpretation, exploration, tenure and assumptions made for the MRE

- Field trip to drill sites at Sabali South on the Kiniero License and artisanal mine site workings on the Mansounia License
- Visits to existing pits and infrastructure including SGA, Jean East, Jean West, Banfara, West Balan, Derekena and Gobelé D open pits. The former TSF, workshop area, fuel depot, ROM, laboratory and admin buildings were also inspected
- Visual review of mineralised portions of two diamond drill-holes in the current core shed, one from SGA and one from Sabali South
- Visual review of RC chip trays against the geologist hardcopy logging sheet
- Visits to the sample preparation area and core shed facilities
- Spot checks of the database using hard copy data
- Spot checks of assay certificates against assays stored in the database
- Independent reporting and evaluation of quality assurance/quality control (QA/QC)

2.5 Cautionary Statements

The businesses of mining and mineral exploration, development and production by their natures contain significant operational risks. The businesses depend upon, amongst other things, successful prospecting programmes, and competent management. Profitability and asset values can be affected by unforeseen changes in operating circumstances and technical issues.

Factors such as political and industrial disruption, currency fluctuation, increased competition from other prospecting and mining rights holders and interest rates could have an impact on SMG's future operations, and potential revenue streams can also be affected by these factors. Most of these factors are, and will be, beyond the control of SMG or any other operating entity.

This PFS report contains forward-looking statements. These forward-looking statements are based on the estimates of the life of mine and its specialist consultants at the date the statements were made. The statements are subject to several known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those anticipated in the forward-looking statements. Factors that could cause such differences include changes in world gold markets, equity markets, costs, and supply of materials relevant to the Kiniero Gold Project, and changes to regulations affecting them. Although Mining Plus believes the expectations reflected in its forward-looking statements to be reasonable, Mining Plus does not guarantee future results, levels of activity, performance, or achievements.

3 RELIANCE ON OTHER EXPERTS

The authors of this PFS Report are not qualified to provide extensive commentary on legal issues associated with SMG nor its right to the mineral properties. SMG and its attorneys have provided certain information, reports, and data to Mining Plus in preparing this PFS Report which, to the best of SMG's knowledge and understanding, is complete, accurate and true and SMG acknowledges that Mining Plus has relied on such information, reports and data in preparing this PFS Report. No warranty or guarantee, be it express or implied, is made by the authors with respect to the completeness or accuracy of the legal aspects of this document.

Mining Plus and the QP authors have relied on the following reports and information from other experts, which have provided information in sections of this report as summarised below.

3.1 Ownership and Corporate Structure

For information relating to the status of ownership and agreements, Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is presented in Section 4.2 of the report.

3.2 Work Commitments

For information relating to the status of work commitments, Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 4.2.1 and Section 26 of the report.

3.3 Mineral Tenure

Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by CPDM (Centre de Promotion et de Développement Minières) on the validity of the permits (CPDM, 2021), the Due Diligence Report provided (CABINET D'AVOCATS BAO ET FILS, 2021), and the letter titled *Legal opinion on the validity and the good standing of the mining titles held by Sycamore Mine Guinée SAU and Penta Goldfields SAU in Republic of Guinea* (CABINET D'AVOCATS BAO ET FILS, 2021a). This information is used in Section 4.2.2 of the report.

3.4 Surface Rights

For information relating to the status of surface rights, Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 4.2.3 of the report.

3.5 Water Rights

Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 4.4 of the report.

3.6 ESIA Commitments

Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 4.5 and Section 20 of the report.

3.7 Taxes & Royalties

Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 4.7 of the report.

3.8 Economic Analysis

For information relating to the application of tax and depreciation in the financial model, Mining Plus and QP authors have fully relied upon, and disclaim responsibility for information provided by Sycamore Mine Guinee SAU and Ressources Robex Inc. This information is used in Section 22 of the report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Kiniero Gold Project is in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, approximately 440 km due east-northeast of the capital of Conakry (Figure 2). More locally the Kiniero Gold Project is situated within the Kiniéro sub-prefecture of the Kouroussa Prefecture, approximately 5km due northwest of the town of Kiniéro (the seat of the Kiniéro sub-prefecture) and 55km due west of Kankan, the capital of the Kankan Region and second largest city of Guinea. The central infrastructure and general mining location of the Kiniero Gold Project is located at 10°25’52” N and 09°47’48” W.

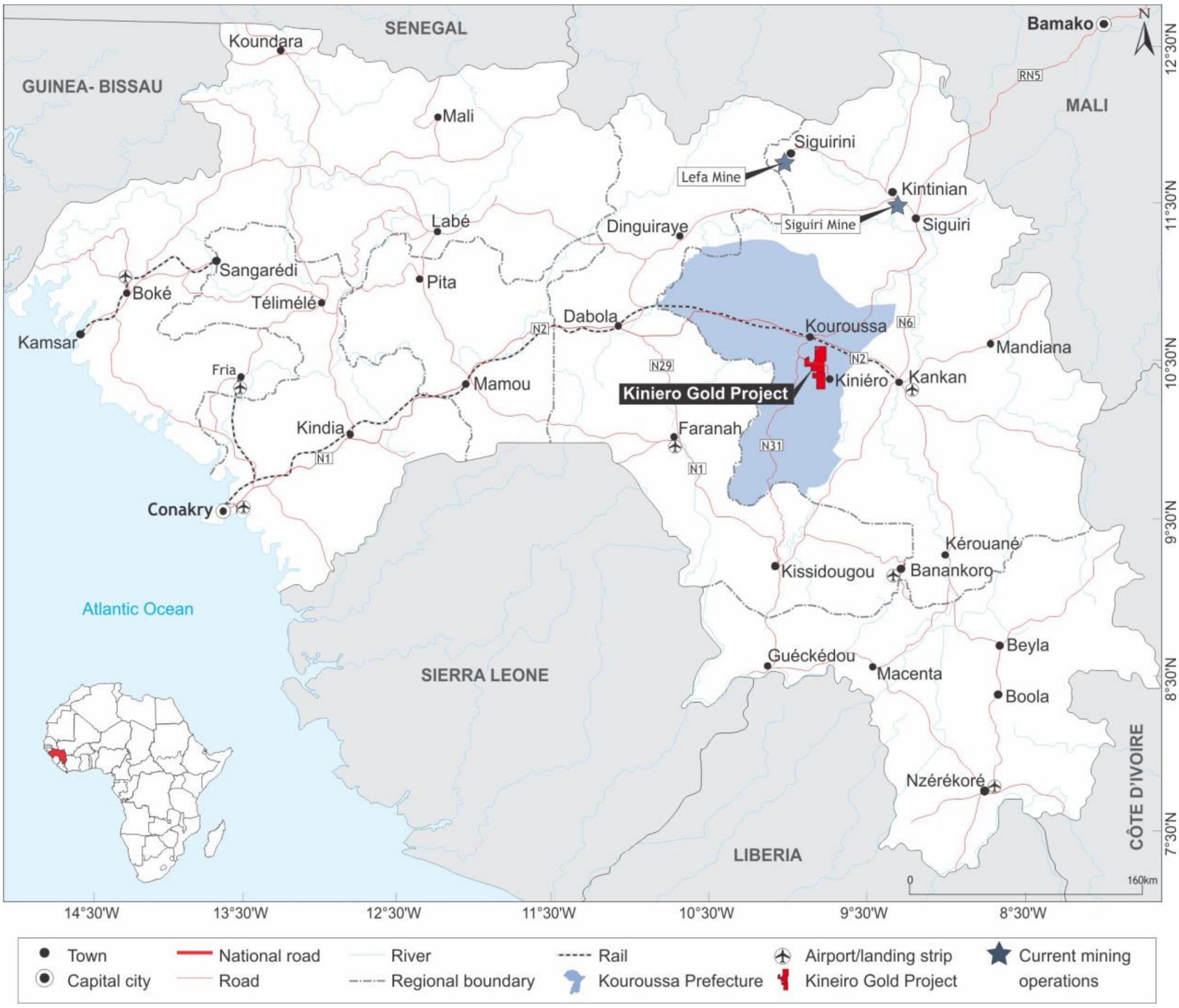


Figure 2: Regional Locality of the Kiniero Gold Project and Regional Infrastructure of Guinea

4.2 Legal Aspects

4.2.1 Corporate Structure

The corporate structure relating to the Kiniero Gold Project and the various Ressources Robex Inc and Sycamore Mining companies is presented in Figure 3. Upon the completion of this PFS, and satisfying all other closing conditions for the transaction, Ressources Robex Inc will become the sole shareholder of Sycamore Mining Limited in turns controlling Sycamore Mine Guinée SAU ("SMG").

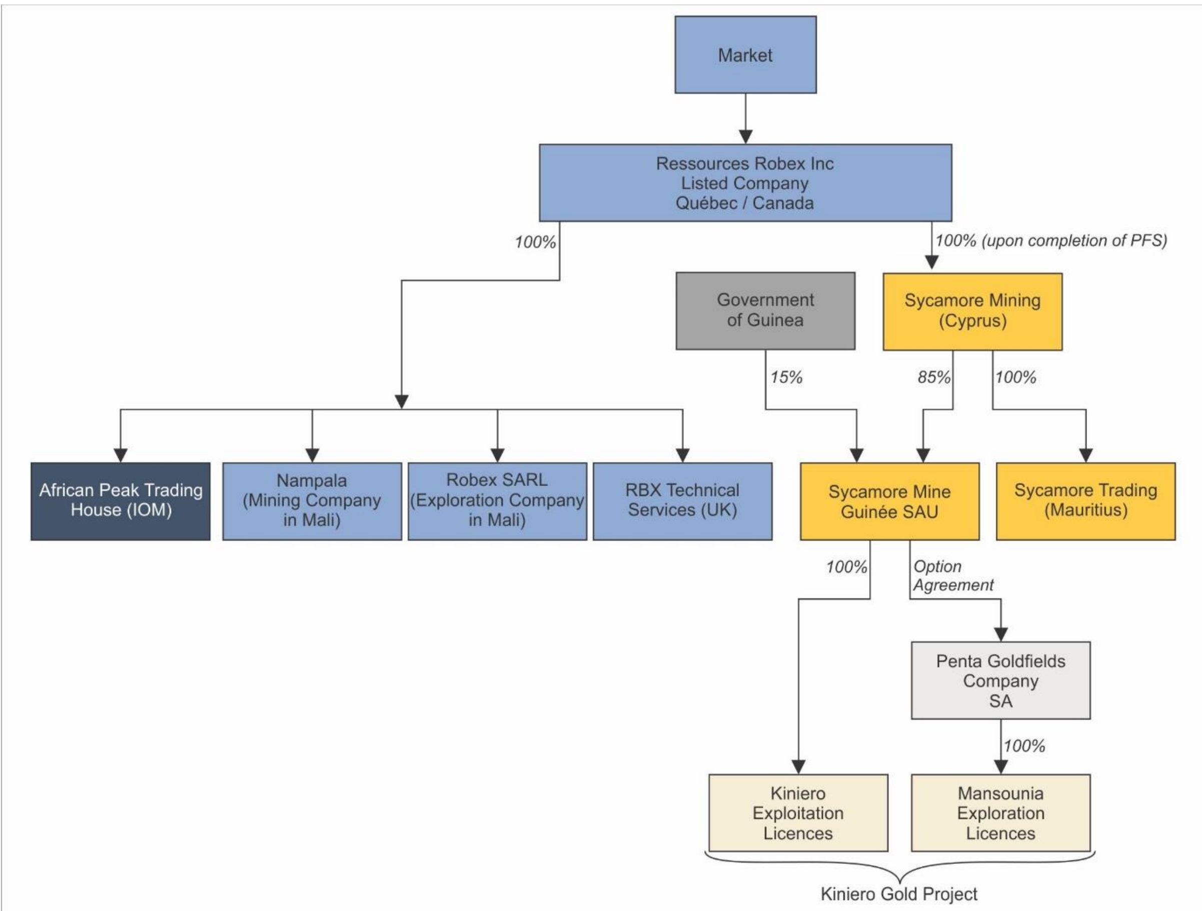


Figure 3: Corporate Structure Relating to the Kiniero Gold Project

4.2.2 Mineral Rights

A summary of the individual legal permit details that account for the Kiniero and Mansounia License Areas is summarised in Table 3 and Table 5 below, and presented in Figure 4. A detailed description of the Mining Law of Guinea, and the relevant governing institutions, is presented in Section 4.8.3.

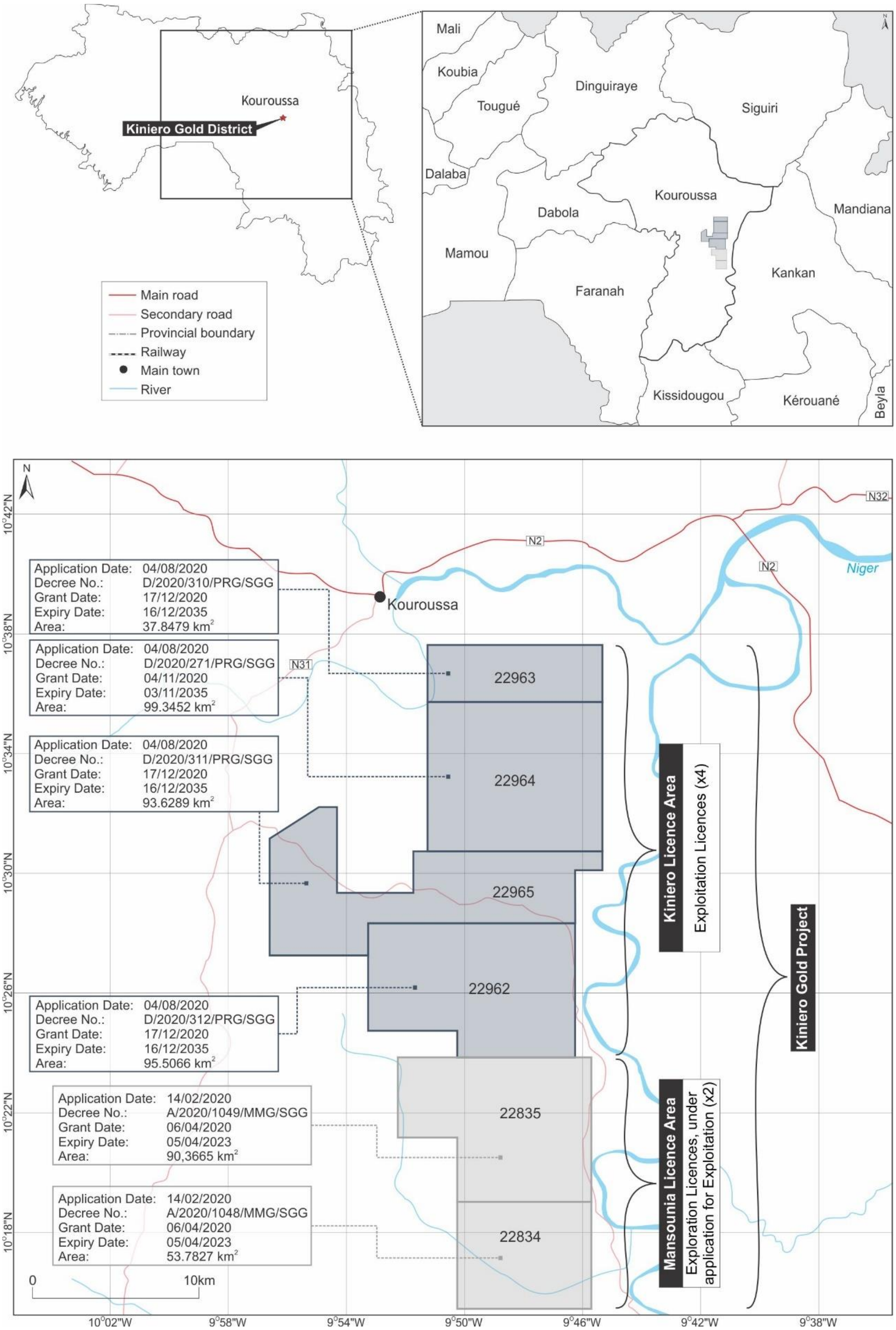


Figure 4: Legal Extent and Mineral Tenure of the Kiniero Gold Project

4.2.2.1 Kiniero License Area

Following an initial public tender process, SMG signed an agreement with the Government of Guinea, as the preferred bidder, on 19 November 2019 to redevelop the previous Kiniero Gold Mine. To support this redevelopment process, SMG applied for the four adjoining Kiniero Exploration Permits (Permis de Recherche Minière) on 30 December 2019, which were successfully awarded to SMG on 14 January 2020.

An application was lodged with the Ministry of Mines and Geology on 21 May 2020 to support the conversion of the Exploration Permits into Exploitation Permits. On 4 August 2020, SMG's application for the four Exploitation Permits (Permis d'Exploitation Minière Industrielle), covering a total area of 326km², was accepted and approved by the mining regulator of Guinea, the CPDM and registered with the Geological and Mining Information Division of the Ministry of Mines and Geology, the DIGM (Division Informations Géologiques et Minières). The applications were variously ratified by parliament on 4 November 2020, and again on 17 December 2020, and are each valid for a period of 15 years, renewable on expiry. The legal extent of the Kiniero Exploitation Permits is summarised in Table 3 and their location presented in Figure 4. The coordinates of the boundary pegs for each permit are presented in Table 4.

Table 3: Kiniero Exploitation License Details

PERMIT №	PERMIT TYPE	MINERAL	AREA (km²)	DECREE №	DATE AWARDED	VALIDITY / DURATION
22962	Permis d'Exploitation Minière Industrielle	Gold (Au)	95.51	D/2020/312/PRG/SGG	17 Dec 2020	15 years, renewable
22963			37.85	D/2020/310/PRG/SGG		
22964			99.35	D/2020/271/PRG/SGG	04 Nov 2020	
22965			93.63	D/2020/311/PRG/SGG	17 Dec 2020	
TOTAL KINIERO EXPLOITATION PERMIT AREA			326.33			

Source: SMG (2022)

Table 4: Corner Coordinates of the Kiniero Exploitation Licenses

PERMIT №	DECREE №	No.	CORNER COORDINATES (WGS84)			
			GEOGRAPHIC		UTM ZONE 29P	
			LONGITUDE	LATITUDE	X	Y
22962	D/2020/312/PRG/SGG	1	09°52'57.97" W	10°28'17.69" N	403,391.59	1,157,688.12
		2	09°46'00.52" W	10°28'18.46" N	416,082.65	1,157,678.56
		3	09°45'59.23" W	10°23'50.37" N	416,101.92	1,149,443.95
		4	09°49'58.83" W	10°23'50.32" N	408,816.09	1,149,460.77
		5	09°49'59.45" W	10°24'45.10" N	408,801.65	1,151,143.44
		6	09°52'58.94" W	10°24'45.10" N	403,343.86	1,151,158.21
22963	D/2020/310/PRG/SGG	1	09°50'59.12" W	10°35'39.49" N	407,041.61	1,171,248.64
		2	09°50'59.14" W	10°37'32.04" N	407,050.44	1,174,705.77
		3	09°45'02.29" W	10°37'32.84" N	417,893.73	1,174,702.42
		4	09°45'02.24" W	10°35'39.14" N	417,886.82	1,171,210.04
22964	D/2020/271/PRG/SGG	1	09°50'58.95" W	10°30'40.03" N	407,021.79	1,162,050.32

PERMIT №	DECREE №	No.	CORNER COORDINATES (WGS84)			
			GEOGRAPHIC		UTM ZONE 29P	
			LONGITUDE	LATITUDE	X	Y
		2	09°50'58.30" W	10°35'38.97" N	407,066.49	1,171,232.60
		3	09°45'02.22" W	10°35'38.12" N	417,887.36	1,171,178.70
		4	09°45'02.58" W	10°30'39.60" N	417,854.41	1,162,009.51
22965	D/2020/311/PRG/SGG	1	09°56'19.18" W	10°31'10.18" N	397,290.24	1,163,004.15
		2	09°54'36.33" W	10°32'10.99" N	400,422.03	1,164,862.82
		3	09°54'01.29" W	10°32'10.99" N	401,487.09	1,164,859.75
		4	09°54'02.27" W	10°29'20.34" N	401,442.26	1,159,618.04
		5	09°51'28.76" W	10°29'20.57" N	406,108.98	1,159,612.07
		6	09°51'29.20" W	10°30'39.94" N	406,102.26	1,162,050.05
		7	09°45'02.58" W	10°30'39.60" N	417,854.41	1,162,009.51
		8	09°45'02.32" W	10°30'00.44" N	417,859.44	1,160,806.67
		9	09°45'59.91" W	10°30'00.58" N	416,108.83	1,160,815.19
		10	09°46'00.25" W	10°28'19.35" N	416,090.92	1,157,705.88
		11	09°52'59.64" W	10°28'19.32" N	403,340.96	1,157,738.33
		12	09°52'59.38" W	10°27'10.20" N	403,342.92	1,155,615.19
		13	09°56'18.96" W	10°27'10.20" N	397,274.95	1,155,632.69

Source: SMG (2022)

4.2.2.2 Mansounia License Area

On 18 June 2021, SMG and Penta Goldfields Company SA (Penta) entered into a purchase agreement for the adjoining Mansounia License Area. The agreement was subject to a minimum amount of exploration expenditure and technical work being completed within a one (1) year period. The minimum exploration expenditure and work commitments has been met by SMG, the results of which are included in this PFS study and will additionally be used in support of the conversion of the Mansounia exploration licenses into exploitation licenses.

The Mansounia License Area consists of two adjoining Exploration Permits (Permis de Recherche Minière) which are located immediately south of the Kiniero License Area, adjoining Kiniero License № 22962. The legal extent of the Mansounia Exploration Permits is summarised in Table 5 and their location presented in Figure 4. The coordinates of the boundary pegs for each permit are presented in Table 6.

Table 5: Mansounia Exploration License Details

PERMIT №	PERMIT TYPE	MINERAL	AREA (km²)	DECREE №	DATE AWARDED	DURATION
22834	Permis de Recherche Miniere	Gold (Au)	53.78	A/2020/1048/MMG/SGG	06 Apr 2020	3 years, renewable
22835			90.37	A/2020/1049/MMG/SGG		
TOTAL MANSOUNIA EXPLORATION PERMIT AREAS			144.15			

Source: SMG (222)

Table 6: Corner Coordinates of the Mansounia License Area

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

Source: SMG (2022)

4.2.3 Surface Rights

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

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

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

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

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

4.3 Land Claims

Mining Plus is unaware of any on-going land claims pertaining to the Kiniero Gold Project.

4.4 Water Rights

Water for the SMG drilling campaigns was obtained from surface sources in the Kiniero License Area. SMG have the right to extract water for use at their exploration camp and during drilling. SMG is currently negotiating the mining convention which will cover the water rights for construction and operation. This will be covered also in the Environmental and Social Impact Assessment (ESIA) application lead by ABS Africa Pty to which this report needs to be part of.

Planned water usage for production is discussed in detail in Section 18.11.

4.5 Environmental Permits

SMG obtained an Environmental Permit from the GoG in respect of the ESIA submitted as part of the application for the Exploitation Permit for the Kiniero License Area in 2020.

An updated Environmental Permit for the Kiniero Gold Project (including Mansounia) has been lodged with the Government of Guinée in respect of the ESIA in June 2022 in support of the application for the Exploitation Permit for Mansounia License Area.

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

- exploration permit
- operation permit
- water and environment

- approval of treatment facilities for effluent discharge
- authorisation to install wastewater treatment devices
- authorisation for deforestation/ licence to cut or clear
- Environmental and Social Management Plan (ESMP)
- authorisation to use water resources
- permit for groundwater research

4.6 Other Licences

SMG is currently reapplying for the renewal of the airstrip license subsequent to inspection and approval by the Autorité Guinée de l'Aviation Civile (AGAC – Guinean Authority of Civil Aviation).

At the date of issue of this PFS Report, Mining Plus has not been made aware of any other licences which SMG requires for the development and operation of the Project.

4.7 Royalties, Taxation and Liabilities

The following outlines the main taxation considerations applied in the financial model as provided by SMG.

4.7.1 State Royalties

Royalties associated with exploitation of mineral deposits are defined by The Mining Code (2011) and subsequent amendments, and include the following:

- Guinean State royalty – 5.0%
- Guinean Mining Heritage Company, SOGUIPAMI (Societe Guineanne du Patrimoine Minier) – 0.5%
- Local development tax – 1.0%

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

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

4.7.2 Private Royalties

4.7.2.1 Kiniero License Royalties

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

4.7.2.2 Mansounia License Royalties

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

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

Within 30 months from the granting of the Mansounia exploitation permit, a minimum of 35,000 meters of infill drilling must be completed in support of the delineation of resources.

4.8 Country Profile

4.8.1 Political and Economic Climate

The Republic of Guinea (Guinea) is a coastal country of West Africa which was previously known as French Guinea during the French colonial era of 1891 to 1958. Today Guinea is a sovereign state with a president that is elected by the people, and whose position is both head of state and head of government. The political history of Guinea has been characterised by despotic and military regimes with autocratic rulers, coupled with frequent civil unrest, a long-running issue in a country that is characterised by 24 distinct ethnic groups. Guinea gained independence from France on 2 October 1958, since which date the fight for a stable and equal democratic state has led to a turbulent history.

In the 52 years since independence, Guinea has had seven presidents, the longest serving of which was Ahmed Sékou Touré, the first of Guinea’s presidents. Of Guinea’s seven presidents, four have come to power because of military involvement. Following the death of Lansana Conté in 2008, a military coup seized power.

A two-year period of civil unrest (2008-2010) culminated in a presidential election being held in 2010, the country’s first democratic election since its independence from France in 1958, with Alpha Condé (leader of the Rally of the Guinean People) winning the election on 7 November 2010. Alpha Condé stood for an unprecedented third time in office in 2020 after implementing a new constitution that allowed for the previous two-term limit to be made redundant. On 5 September 2021 Mamady Doumbouya led a coup d'état following Condé sitting for a third term, with Doumbouya sworn in as interim president on 1 October 2021.

In early 2014 the Ebola virus spread in the south of Guinea and by the middle of the year it had spread across most of West Africa. The World Health Organisation (WHO) declared it an international public health emergency. From 2014 to 2016 the effect of the Ebola virus on the economies of Guinea, Sierra Leone and Liberia was estimated to be approximately $2.8 billion according to the World Bank. The end of the Ebola outbreak in 2016 brought Guinea out of two years of economic downturn. Economic growth rebounded by approximately 4.9%, primarily due to political appeasement and a strong performance in the mining and agricultural sector. This was followed by an economic growth of 10% in 2017 and 5.8% in 2018.

Growth in Guinea is expected to remain robust, mostly driven by foreign direct investment (FDI) in the mining sector. The mining industry saw growth at an annual rate of roughly 50% in 2016 and 2017, while in comparison the non-mining sectors posted a 5.4% growth rate in 2018, with investment in infrastructure and the expansion of the primary and tertiary sectors remaining robust. Agricultural and natural resources, as well as the manufacturing and services sectors, are regarded as Guinea’s primary economic assets. Agriculture remains Guinea’s primary source of employment and is critical for poverty reduction and rural development, providing income for an estimated 57% of rural households and employment for 52% of the national labour force.

4.8.2 Mineral Industry

Evidence of mining in Guinea can be traced back to the Middle Ages in the Mali Empire. After this, and under the colonial control of France, mining developed to become an important source of national income to the point that in 2017 mining accounted for 50% of the Guinea’s exports. Guinea boasts significant bauxite resources and reserves, as well as deposits of iron ore, gold and diamonds, each of which are being variously exploited at both an informal small scale and as modern large scale mining operations.

Bauxite is strategic to Guinea as a natural resource, with the country estimated to host approximately 25% to 33% of the worlds known bauxite resources & reserves. Approximately 80% of Guinea's foreign exchange is related to the nation's aluminium production and bauxite mining industries. Deposits are located primarily in the coastal and central regions of Guinea.

In addition, Guinea hosts large unexploited iron ore deposits, with many of the deposits being reported to have iron contents exceeding 65%. Deposits are primarily located in the southern and central areas of Guinea, including Simandou South, a project being developed by Simfer S.A (a joint venture between Rio Tinto, the Guinean Government, and the International Finance Corporation (IFC). Simandou South is the largest integrated iron ore and infrastructure project ever undertaken in Africa and has the potential to double the GDP of Guinea and contribute to economic growth.

Guinea's gold deposits are predominantly located to the north and east of Guinea, most notably in the Upper Niger Basin in the Siguiri Region of Guinea. With companies such as; Managem, Guinean Gold Corporation (SAG, an AngloGold Ashanti subsidiary), Dinguiraye Mining Corporation (SMD), Nordgold, Hummingbird and Resolute Mining currently operating within that region. Guinea's potential gold resources and reserves are estimated to be approximately 700t. As such gold is becoming an increasingly important commodity for Guinea with international exploration funding into the country increasing.

Diamond deposits are primarily located in the east of Guinea in the Banankoro-Sefadou area. The estimated value of diamonds occurring in Guinea is 40 million carats, where in the year 2012, production amounted to 266,800 carats. Guinea is an active member of the Kimberley Process, an international initiative to regulate the trade in rough diamonds. In 2021 Guinea ranked 45th out of 86 countries on the Investment Attractiveness Index.

4.8.3 Minerals Policy and Legislative Framework

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

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

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

The legislative framework into which Kiniero fits includes national, local, and international laws and regulations, the most important of which are listed in the subsections to follow. These laws cover various mining, environmental, safety, and other aspects relevant to the project.

4.8.3.1 Guinean national laws and regulations

Guinea's national laws applicable to Kiniero include the following:

- The Constitution of the Republic of Guinea (2010, 2020). This is the supreme standard of the State which moves towards a normative framework and a more restrictive policy on the protection of the environment and the wellbeing of the populations as the obligation for the State to protect the environment while guaranteeing each citizen the right to a healthy and sustainable environment.
- The Mining Code (2011, 2013) which is the main law for the mining industry in Guinea, covering prospecting, exploration, processing, transportation, and marketing of mineral substances.
- The Code for the Protection and Development of the Environment (1987, 1989, 2019) establishes the basic legal principles for the management and development of the environment, the protection of the natural environment and the human environment against all forms of degradation.
- The Land and State Code (1992) constitutes the general legal framework applicable to land tenure in Guinea and deals mainly with the registration of land ownership through the use of titles, leases and deeds. Property rights in Guinea are recognized and protected by the Constitution.
- The Local Government Code (2006) defines the legal regime and the rights of local authorities. These decentralized communities are legal entities with their own resources and assets and the capacity to manage the environment and natural resources in their territories.
- The Planning Code (1998) states the national and regional development of Guinea through the master plan for regional planning and regional development.
- The Rural Land Policy (2001) provides for the recognition of traditional land rights.
- The Forest Code (1991) sets out principles and responsibilities for forest resources in Guinea and all aspects related to the commercial use, conservation and community of the forest.
- The Pastoral Code (1995) sets out the principles and responsibilities governing the traditional practice of breeding.
- The Labour Code (2014) is the main reference text on employment in Guinea. It enshrines fair treatment and equal opportunities with equal jurisdiction.
- The Code of Local Authorities (2017) specify in particular that Local Authorities have competence in matters of urban planning, development of the territory and administration of unknown owners and bare land.
- The Public Health Code (1997) provides for prior compulsory consultation of the Ministries of Industry, Public Health, the Environment and Public Works for technical advice and official authorisation before any development project which is likely to

cause damage to the environment and utility activities that can generate waste likely to affect public health

4.8.3.2 International standards, policies and guidelines

International standards to which Kiniero will subscribe include the following:

- IFC Performance Standards (2006, 2012) provides a sustainability framework and performance standards covering eight specific focus areas
- IFC Health and Safety guidelines
- World Health Organization (WHO) standards for water quality for human consumption
- Equator Principles. These apply to all new project financings globally across all sectors and are an attempt to 'encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions'
- International Cyanide Management Code for the Production, Transport and Use of Cyanide in Gold Mining, a voluntary industrial programme for gold mining companies which aims to improve the management of cyanide used in gold mining and to contribute to the protection of human health and the reduction of environmental impacts
- the Global Industry Standard on Tailings Management (ICMM, Aug 2020). This standard incorporates best practise guideline from both Canada and Australia and is the most recently published internationally accepted guidelines for the design, construction, operation and rehabilitation and closure of tailings facilities

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Location and Access

The Kiniero Gold Project is in the Kouroussa Prefecture, of the Kankan Region in the Republic of Guinea, approximately 440km due east-northeast of the capital of Conakry (Figure 2). More locally the Kiniero Gold Project is situated within the Kiniéro sub-prefecture of the Kouroussa Prefecture, approximately 5km due northwest of the town of Kiniéro (the seat of the Kiniéro sub-prefecture) and 55km due west of Kankan, the capital of the Kankan Region and second largest city of Guinea. The Kiniero Project is located 314km due southwest of Bamako, the capital of Mali (Figure 2).

In-country access to the Kiniero Gold Project for imported goods and machinery is from Conakry on the N1 via Mamou to Kouroussa (Figure 2). Access to site for expatriate personnel is typically by air from Conakry, followed by small plane to Kiniero or Kankan. The road route from Conakry to Kouroussa comprises an approximately 16hr to 20hr (550km) drive along the N1, N2, and N29 national roads. This road route is currently undergoing a major upgrade with the GoG initiating a project for the total repair and replacement of the N1 from Conakry to Kouroussa during 2019. Completion of the road refurbishment is scheduled for end-2022.

There is also the option of flying into Bamako, Mali and driving to the Kiniero Project. The road route from Bamako to Kouroussa comprises an approximately 7hr (430km) drive along the RN5 national road in Mali, through the Kouremale Border crossing into Guinea, via the N6 to Kankan and the N2 to Kouroussa (Figure 2). Although it includes a land border crossing, this routing is the preferred route when having to drive expatriate personnel to the Kiniero Project.

Two road access routes to site are available from Kouroussa (Figure 5). The west route is accessible year-round and includes a barge crossing over the Niger River. The east route is only accessible during the dry season due to a low-level ford across the Niandan River, which floods during rainfall events.

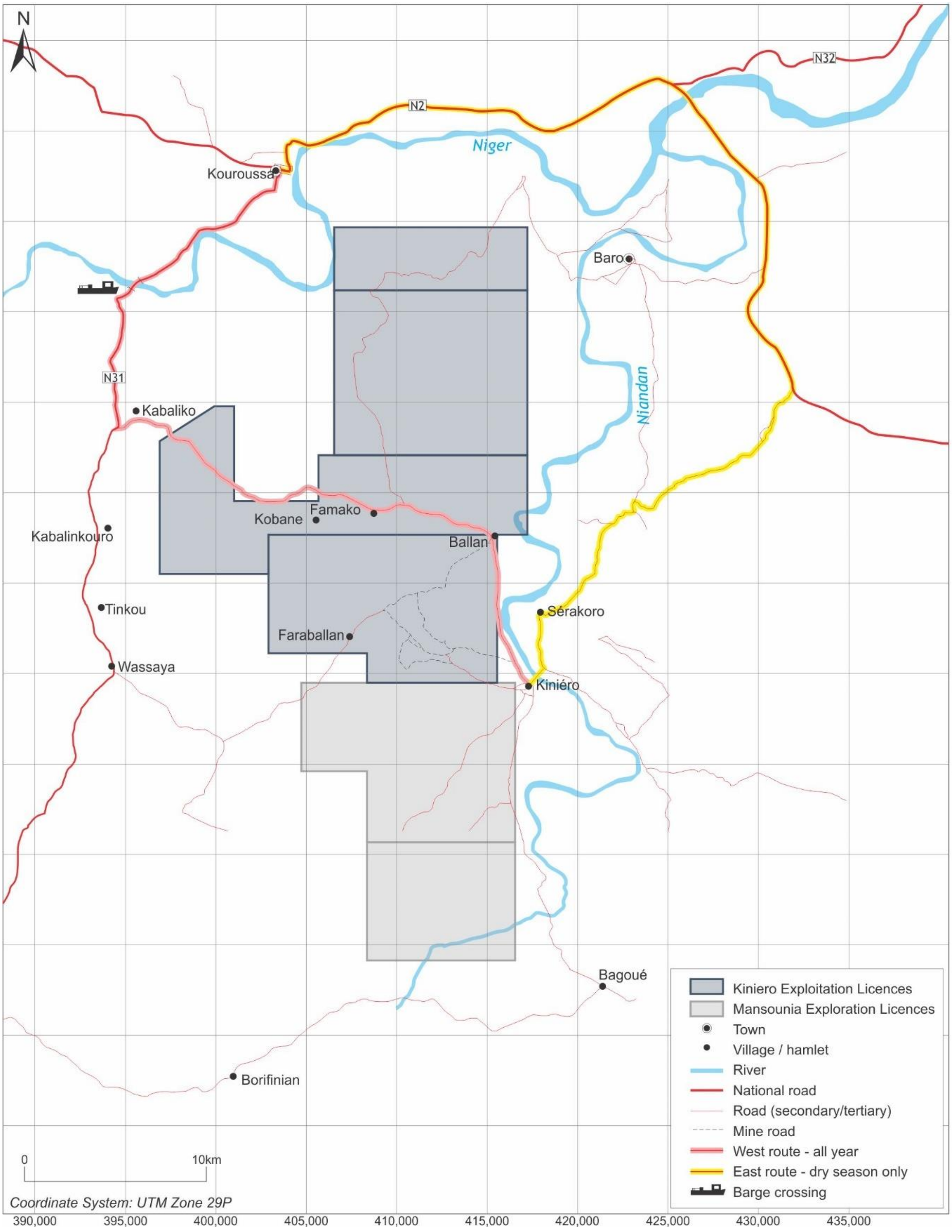


Figure 5: Kiniero Gold Project Access Routes

5.2 Physiography and Topography

Guinea is divided into four geographic regions (Figure 6) which include:

- Maritime Guinea (Basse-Guinea), a coastal plain running north to south along the coast
- Pastoral Fouta Djallon highlands (Moyenne-Guinea)
- northern savannah (Haute-Guinea), the Kiniero Gold Project is situated within the northern savannah geographic region
- a south-eastern rain-forest region (Guinea-Forestière)

The topography within the Kiniero Gold Project is presented in Figure 7 and is dominated by two ranges of hills, the Wombon mountains in the southwest extending between the Mansounia and Kiniero Licenses, and the Kakon Mountains in the central northern area. The hills are separated by a low-lying area which acts as a watershed between the Niger River catchment to the northwest and the Niandan River catchment to the southeast. The elevation ranges from approximately 348 metres above mean sea level (mamsl) in the north, adjacent to the Niger River, to 706mamsl in the south-eastern hills, the high point of which is colloquially referred to as Sabali Hill, an extension of the Wombon Mountains.

5.3 Drainage

The Niger River is the third largest river in Africa, flowing through nine countries and supporting the livelihoods of more than 100 million people (Figure 6). The source of the Niger River is in southern Guinea from where the river flows north into eastern Mali, across Sahelian Africa before flowing south to Nigeria and finally to the Niger Basin and the Atlantic Ocean. The upper Niger River is the most important watercourse in the region which in turn drains the watersheds of several major regional rivers, including the Niandan River. The flow levels of the upper Niger River are characterised by the Guinean transition climate.

The Kiniero Gold Project is situated within the Niandan catchment, which forms part of the Niger River catchment area (Figure 6). The catchment area and tributaries of the Niger River in Guinea covers an area of 98,350km², or about 40% of the country's surface area. The Kiniero Gold Project is bordered in the north by the Niger River, and to the east by the Niandan River, a tributary of the Niger River (Figure 4, Figure 5 and Figure 7).

The tributaries of the Niger River within the Kiniero Project flow southwest to northeast. The Balanköba watershed is a Niandan sub-basin and is located upstream from the site. The Balanköba watershed has an elongated shape from southwest to northeast. The Balanköba River has a total length of 39km. Before reaching the Niandan river, the Balanköba River receives flows from the Sénké, Sansarankö and Badikö basins, which are situated within the Kiniero Gold Project.

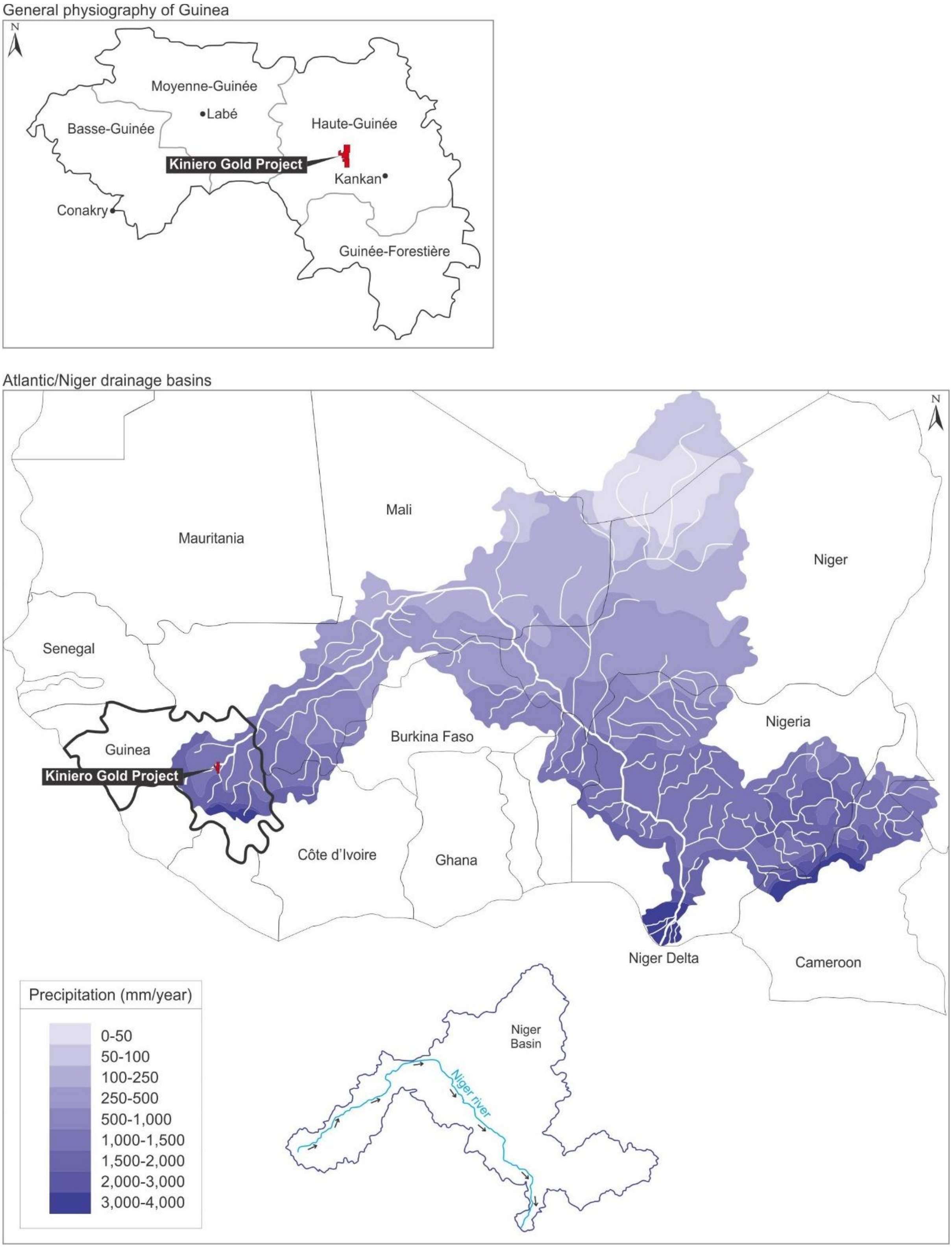


Figure 6: General Physiography of Guinea and the Niger Drainage Basin

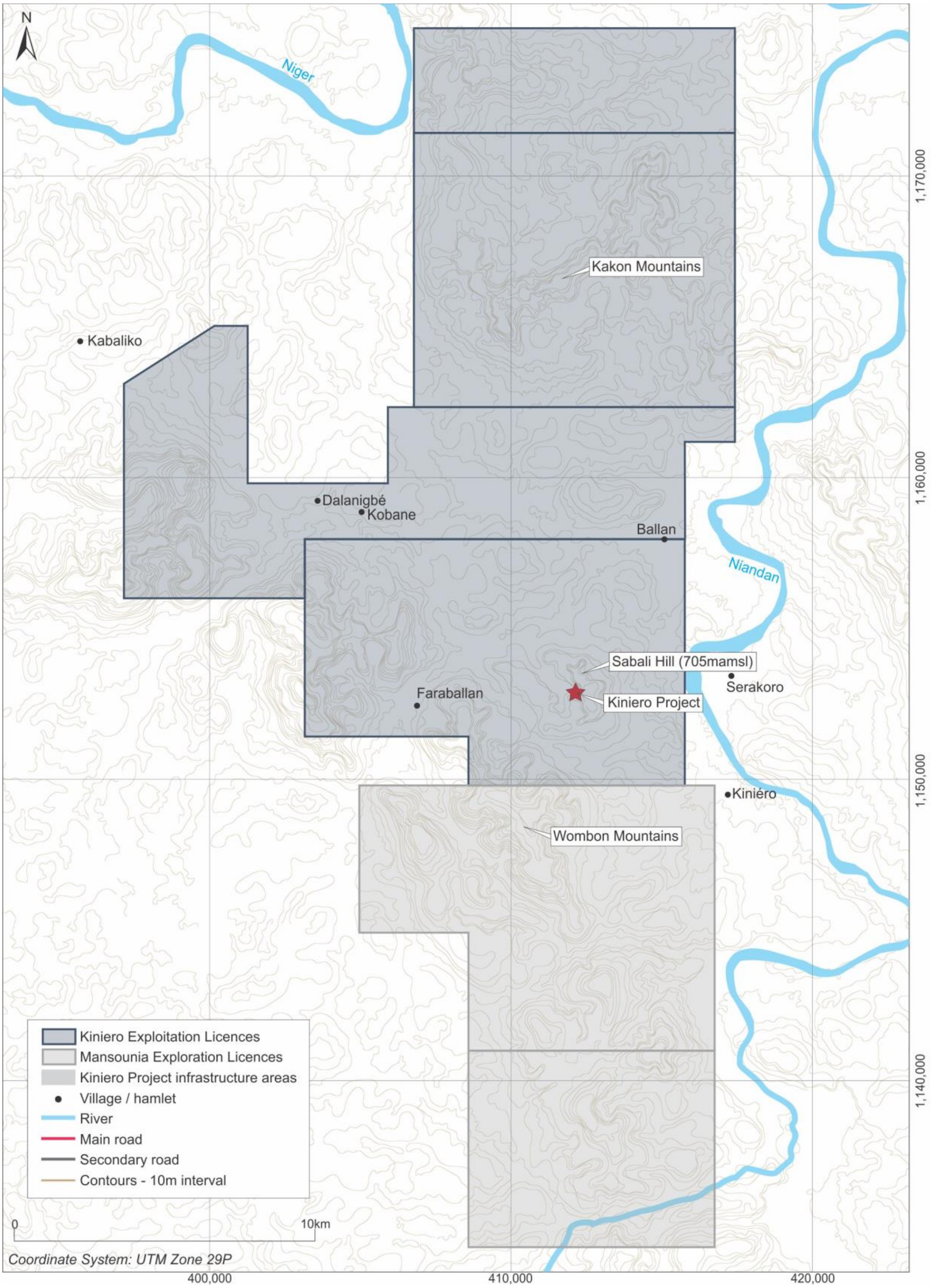


Figure 7: Kiniero Gold Project Topographic Map

Statistical flow averages for the Niandan River at Baro (Figure 5) were obtained from the Global Runoff Data Centre (GRDC) database. The flow record is for 32 years, starting in 1947 and ending in 1979. The Niandan River has a catchment area of 12,770km². The mean annual discharge is 251m³/s, equivalent to a mean annual runoff of 620mm or 19.66 l/s/km².

5.4 Climate

The Kiniero Gold Project is characterised by a sub-Sudanese climate with two distinct seasons, a rainy season, which lasts approximately six months, followed by a dry season.

5.4.1 Rainfall

Rainfall in West Africa is typically associated with latitudinal changes and therefore the Kankan weather station was selected to obtain rainfall data for the Project area. This weather station is situated on the same latitude as Kiniéro and has a 66-year record history.

The mean annual rainfall (MAR) over a 60-year period was 1,600mm with the highest annual rainfall year on record being in 1933 (2,344mm) and the lowest in 1988 (1,030mm). The mean monthly climate statistics are presented in Table 7. During the rainy season, the highest values are recorded between May and October, and the months with the highest rainfall are July, August and September. Rainfall in the dry season, which occurs from November to April, is very low. The driest months are usually December, January, and February, with very little or no rainfall.

Table 7: Kiniero Gold Project Mean Monthly Climate Statistics

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL / AVE
DEGREE OF RAINFALL	**RAINFALL (mm) - KANKAN WEATHER STATION**												
Normal	2	5	23	69	136	210	278	346	331	150	29	2	1,581
Dry	0	0	13	45	114	177	231	295	277	113	13	0	1,278
Wet	5	10	33	93	158	242	326	397	386	188	45	6	1,889
DEGREE OF RAINFALL	**ANNUAL RUNOFF (mm)**												
Normal	14	6	5	4	8	27	66	110	156	130	65	29	620
TYPE	**EVAPORATION (mm) (Kankan weather station)**												
Potential	249	276	303	269	234	188	160	153	165	199	204	223	2,623
Open-surface	179	199	218	194	168	135	115	110	119	143	147	161	1,888
TYPE	**MEAN DAILY TEMPERATURE (°C) (Kiniéro)**												
Maximum	34	36	37	37	34	31	28	27	28	31	33	34	32.5
Minimum	21	22	23	25	24	22	21	21	22	22	22	21	22.2

Source: Kankan weather station

5.4.2 Evaporation

The evaporation rates are highest in the dry season (November to April) and tend to peak in March (Table 7). The estimated open water evaporation for the Kiniero Gold Project is 1,888mm, with the highest values occurring during March, thus exceeding annual precipitation.

5.4.3 Temperature

Both the maximum and minimum temperature ranges between seasons are small (Table 7). At the Kiniero Gold Project, the hottest days occur during March and April with an average of 38°C, and the coldest nights occurring during December and January with an average of 18°C.

5.4.4 Humidity

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

5.4.5 Wind

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

5.5 Local Resources and Proximity to Population Centres

The nearest population centres include the villages of Kiniéro, Balan and Farabalan (Figure 5 and Figure 7), located adjacent to or within the Kiniero Gold Project. Most labour will be sourced from these villages. Primary schools are available in all three villages, whilst Kiniéro also has a middle school, high school, and college. Basic medical facilities are available in the villages.

The town of Kouroussa, located 55km by road to the north of Kiniero, is the capital of the Kouroussa Prefecture. It was an important centre of trade and transport post during the colonial era due to its location at the junction between the main road, the now defunct narrow gauge railway line (from Conakry to Kankan) and at the head of the navigation route on the Niger River. Resources available in Kouroussa include formal markets where most goods can be sourced, schools, hospitals and pharmacies, hotels, 4G cellular signal, and grid power.

Kankan, the second largest city in Guinea after Conakry, is the capital of the Kankan prefecture, located 90km by road to the east of Kiniéro. Kankan has an airport (IATA: KNN) and access to significant resources including a university, shopping centres, schools, hospitals, hotels, 4G cellular phone signal and grid power.

5.6 Local Infrastructure

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

- airstrip – 1,500m long, recently upgraded
- main mine camp (57 beds) with supporting services (canteen, security, laundry, recreation, etc.)
- staff mine camp (120 beds) located adjacent to Kiniéro village, with supporting services
- various mine and general access roads
- admin and office block
- core yard (currently under upgrade refurbishment)
- laboratory and sample preparation
- heavy machinery workshop and machinery bay
- old plant precinct – largely decommissioned and/or demolished. Various ancillary buildings remain as stores

6 HISTORY

West Africa has a long history of gold mining dating back to the 3rd century BC. The economic importance of this area, and more specifically the Siguiri Basin is briefly discussed in this section.

The exploration and mining history of the Kiniero Gold Project itself dates back to 1949. For the purposes of this PFS report the following terminology applies:

- "historical" refers to all exploration and mining activities undertaken by previous owners and/or operators (prior to January 2020)
- "current" refers to all activities undertaken by SMG since acquisition of the Kiniero License Area in January 2020 and the Mansounia License area in June 2021

6.1 History of Gold Mining in the Siguiri Basin

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

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

6.1.1 Pre-colonial history

In the third century the Siguiri area of Guinea fell within the Ghana (Wagadu) Kingdom, an important centre for trade in the region, specifically for gold and salt. By the 14th century the region was absorbed by the historical Mali Empire and gold continued to be the source of much of the Empire's significant wealth. Gold was traded into the Middle East along the Trans-Saharan trade routes (via Tombouctou), which led to the fabled locality of King Solomon's gold mines being purported to be in West Africa. What is known is that in 1324 Emperor Mansa Musa of the Malian Empire took with him eight tonnes of gold produced in his Kingdom on his pilgrimage to Mecca – one of the first instances of significant gold having been produced in the region. These gold fields fuelled the wealth of the Mali Empire of the time.

Alluvial and eluvial mining activities were extensive within what are now well-defined goldfields spanning Siguiri, Berela, Yanfolila and Manana (the Bure Goldfield) directly within Guinea; and the Bambuk Goldfield within Senegal. With growing knowledge of the goldfields, extensive European trade developed and by the 15th century West Africa was producing 10% of the world's gold.

6.1.2 Colonial History

The first records of European gold mining activity in Guinea dates to 1903. Between 1907 and 1908 twenty-one mining companies were reportedly registered in Guinea. In 1909 the first mechanised mining operations were started by "La Société Anonyme des Dragages du Tinkisso", dredging on a stretch of the Tinkisso River at the confluence with the Lélé Ko River, about 50km west of the Tinkisso Rivers confluence with the Niger River at Siguiri.

Intensified activities created significant legal, technical, and environmental problems before the onset of World War I (WWI) saw all operations suspended. Alluvial gold production records for the pre-WWI period were more than 3,000kg. Various mining activities resumed post-WWI, with French colonial reports suggesting that the Siguiri area yielded between 957kg and 3,752kg of gold annually between 1931 and 1951 (Guinea government).

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

The French colonial government conducted several studies on the artisanal mining activities between 1950 and 1954 of the area with the hope of improving their techniques and thereby the rate of gold production and recovery. Exploration and development programmes lead to small scale mining of primary ores at Banora (approximately 30km southwest of Lefa Mine) in 1959–60 from high grade quartz veins (40.4g/t Au and 82g/t Ag). Prior to that there is poorly documented surface and limited underground exploratory mining at Filon Bleu and X-Vein within the Kiniero Gold District at the southwestern end of the Siguiri Basin.

Overall, French companies produced approximately 70t Au (2.25Moz) between 1900 and 1958 from within the Siguiri Basin. From the study of several active mining zones in the Siguiri area, it was estimated that 4.7g/t Au was the average recovered grade by artisanal activities.

6.1.3 Recent large-scale developments

Recent developments associated with the Kiniero Gold Project commenced in the late 1980s and culminated in the production of 418,000 oz of gold between 2002 and 2014 from the historical Kiniero Gold Mine.

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

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

The company and its land holdings were taken over by Ashanti Goldfield Co. Limited and in 1998, the new SAG (Société Ashanti Guinea) operation started production from a heap leach operation near Kintinian, west of Siguiri. In 2003 the mining operation had increased production to 252,795oz of gold (8,388kg) from 9.6Mt with an average grade of 1.15g/t Au. With the identification of significant amounts of saprolitic ore, SAG commissioned a 9.0Mtpa Carbon in Pulp (CIP) facility at Koron. SAG holds four significant areas under exploitation licence with mining operations from a single concession since 1997.

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

Nordgold acquired the mine in 2010. The operation has continued to deliver several exploration successes which has expanded the resource base and maintains production above 250,000 oz Au/year. In 2019 the operation reported production of 263, 532 oz Au, an increase of 9% from 2018. The operation is the second largest producing gold mine in Guinea with estimated reserves of 7.78Moz Au. The project is secured under a single mining concession covering 1,105km^2 in which a cluster of seven deposits is located that have been developed and form a series of satellites ore bodies delivering ore to a single processing plant.

6.1.4 Artisanal mining

Artisanal mining activities continue to produce significant quantities of gold annually and was estimated to exceed 1Moz/year during the 1990s. Production mainly focuses on gravity recovery from secondary as well as primary gold mineralisation occurring in the extensive lateritic and near-surface weathering profile. These activities support a significant cash economy, but at the same time cause extensive environmental damage and the loss of arable lands and water resources. Much of the economy of the Siguiri Basin and adjacent west Mali is driven by artisanal mining activities.

6.2 History of the Kiniero License Area

6.2.1 Ownership Changes and Activities

The ownership changes and activities specific to the Kiniero License Area is summarised in Table 8. This table has been compiled primarily from SEMAFO reports issued by the company and stored on SEDAR, the mandatory document filing and retrieval system for Canadian public companies.

Table 8: Exploration History of the Kiniero License Area

DATE	COMPANY / PERSON	ACTIVITY
1324	Emperor Mansa Musa	Trades gold on his pilgrimage to Mecca - one of the first instances of significant gold having been produced in the region
1903	European records	First record of recent gold mining in Guinea
1912	Hubert	Publication of first interpretation of the geology of the Siguiri-Kankan-Kouroussa area.
1931-1937	French Colonial Government (Goloubinow)	Mapped the Siguiri-Kankan-Kouroussa area at a 1:500,000 scale producing first geological map of the region.
1949	French Colonial Government (Chermette)	Extensive mapping of the Niandan-Banié chain to the south of Kouroussa. Identified numerous gold bearing veins including the Gobelé vein.
1943-1950	Bureau Minier de la France d'Outre-mer (BUMIFOM)	First exploration undertaken on Kiniero License Area, including reconnaissance pitting, trenching, and drilling. Culminated in the discovery of the Jean & Gobelé and Filon Bleu deposits and ultimately to the establishment of the historical Kiniero Gold Mine.
1950-1958	Bureau de Recherches Géologiques et Minières (BRGM)	Detailed follow-up exploration undertaken on Jean & Gobelé deposits. A total of 2,385m of diamond core and 590m of RAB drilling was completed, in addition to 302m³ of trenching.
1985-1987	Mining Association of Niandan (JV between GoG, BRGM, Baraka and Precious Stones Guinea)	Extensive exploration, including mapping, pitting, trenching (1,917m³), DD (2,037m) and RC (3,947m) drilling, soil sampling and ground geophysics.
1988		Publication of feasibility study.
1989		Mining feasibility study updated. Publishes results of the exploration drift developed on the main Jean deposit lode system.
1992	International Mining (of Australia)	Acquired Kiniero License Area and completed an updated feasibility study.

DATE	COMPANY / PERSON	ACTIVITY
1995	Mining Exploration Society in West Africa Inc (SEMAFO)	Acquired the Kiniero License Area.
1996-1997	SEMAFO	Soil geochemistry programme, aeromagnetic geophysics survey, detailed RC and diamond drilling campaigns at grid spacings of 25m and 12.5m.
1999	Managem S.A.	Acquires 51% controlling interest in SEMAFO Inc.
Dec 2000	SEMAFO (49%) / Managem (51%)	SEMAFO awarded exploitation permit over the Jean and Gobelé deposits.
2000-2001		Extensive exploration aimed at discovering additional mineralisation around Gobelé and Jean deposits. Mapping (1:2,000), geophysics (magnetics and IP), stream sediment sampling, trenching, RC, RAB and DD drilling. Additional exploration completed to delineate the Gobelé D and Sabali East deposits.
2001-2002		Construction of mining infrastructure. Oxide processing plant constructed with nameplate capacity of 600,000t.
Apr 2002		Open pit mining operations commences at the Jean deposit.
2002-2003		Exploration conducted on Sabali East, West Balan, Wombon, Mankan, Heriko and Filon Bleu deposits. Follow-up reconnaissance exploration delineates Banfara, East-West, Farabana, Gobelé D and Jean West. Works included soil geochemistry (⅔ of the permits), ground magnetic and IP geophysics, trenching and RC drilling. Leads to the discovery of Banfara, West Balan and Sabali-East deposits.
2004		Two additional adjoining exploration permits issued.
		Delineation and exploration programs undertaken at North-East Gobelé D, Sabali East, West Balan, Mankan, Heriko and Filon Bleu. The soil geochemical survey was completed across the entire permit to a 200m x 200m grid. A diamond drilling programme was completed at Gobelé D and Banfara deposits for metallurgical purposes.
2005		Exploration carried out over East-West, NEGD, Farabana, Gobelé D, Sabali East, North Balan, Mankan, Heriko and Filon Bleu. Included 200m x 200m soil geochemistry, covering the new permit, trenching, and RC drilling.
	Managem	Sells shares in the Kiniero License Area back to SEMAFO Inc.
2006-2007	SEMAFO	Permit wide exploration continued - stream sediment, soil sampling and trenching, mapping and trenching. Trench sampling completed at Heriko, Mankan, Djikouroumba, Filon Boni and Kato. Infill drilling at West Balan on 50m x 25m and 40m x 20m vertical grid to define Mineral Resource and explore a southwest extension. Drilling, trenching, and soil geochemistry completed at Sabali East, Farabana, West Balan, Zone C, and south of Sabali East. Leads to discovery of the Derekena and Sabali Extension. Drilling at West Balan southwest extension. Sabali East infill RC drilling at 25m x 50m grid. RC drilling at Farabana. Infill RC drilling to 25m by 50m grid, diamond drilling and trenching at Zone C.
2007		Aeromagnetic survey over exploration permit by Fugro, part of Kiniero – Kouroussa corridor survey undertaken in conjunction with Cassidy Gold Corporation.
2008		Mining operations at West Balan commenced.

DATE	COMPANY / PERSON	ACTIVITY
		Exploration focusses on advancing targets close to existing deposits. RC drilling in Wombon area. Drilling at Gobelé A included RC and diamond drilling. RC drilling at Sabali North. Trenching on West Balan Block D and North Wombon. Trenching, termite mound sampling on 1.2km x 2km grid, and shallow RAB drilling (less than 20m depth) on Zone C. North Wombon discovered using termite mound survey and followed up with trenches.
		Exploitation permit granted to allow mining at West Balan.
2009		RC drilling outside mining permit areas. RC drilling inside mining permits to test for extensions and depth continuity on West Balan, Wombon North, Wombon South and south of Jean Gobelé hill.
2010		Limited trenching on Kobane and Farabana. Surface sampling at North Banfara.
2011 - 2012		Exploration programme (planned 17km of drilling at $4m budget) commenced in late 2011 and continued into Q1 2012. Aim to understand the bulk mineable potential of SGA through close drill spacing intercepts below the pit.
Mar 2014		SEMAFO ceases open pit mining operations.
Apr 2014		The historical Kiniero Gold Mine closes. SEMAFO exits Guinea. Mine produced 418,000oz of gold in 12-year history.
Apr 2014	Government of Guinea (GoG)	Revokes exploitation permit and places historical Kiniero Gold Mine on care and maintenance.
2014 - 2019	Government of Guinea (GoG)	No activities.
2019	Government of Guinea (GoG)	Puts the Kiniero License Area out to tender for new owner.
Nov 2019	Sycamore Mine Guinea SAU (SMG)	Guinea subsidiary of Sycamore Mining registered.
Jan 2020	Sycamore Mine Guinea SAU (SMG)	Awarded four exploration permits covering 326km².
Jan 2020	Sycamore Mine Guinea SAU (SMG)	Commences with various feasibility study work streams in support of recommencing mining operations.
Mar 2020 to Current (ongoing)	Sycamore Mine Guinea SAU (SMG)	Commences with exploration drilling campaign, leading to the discovery of the Sabali South deposit. Extensive drilling completed at Sabali South, Sabali East, SGA, Derekena, Farabana and Kobane. Drilling and additional exploration (BLEG, trenching, mapping, LiDAR surveys) has remained ongoing since this date.
Apr 2020	Sycamore Mine Guinea SAU (SMG)	Commissioned Micon International Co Limited to compile an Independent Technical Study on the Kiniero License Area. Prepared and submitted to the Government of Guinea in support of converting the exploration permits into exploitation permits.
Aug 2020	Sycamore Mine Guinea SAU (SMG)	Application for four exploitation permits covering 326km² accepted and submitted before Guinean parliament for ratification as a single mining convention.
Nov 2020	Sycamore Mine Guinea SAU (SMG)	Approval of Exploitation Permits, valid for a minimum period of 15 years.
Nov 2020	Sycamore Mine Guinea SAU (SMG)	Completion of internal Feasibility Study - findings of which recommend a larger 3Mtpa plant be commissioned in support of restarting mining operations. Study ongoing.

Source: SEMAFO 2008, SMG (2022)

6.2.2 Historical Mineral Resource and Mineral Reserve Estimates

All historical Mineral Resource and Mineral Reserve estimates mentioned in this section are not considered current and have been superseded by the current Mineral Resources stated in Section 14 and Mineral Reserve estimates detailed in Section 15 of this Technical Report.

SMG is not aware of any pre-2000 Mineral Resource and Mineral Reserve estimates relating to the Kiniero License Area.

A historical Mineral Resource estimate at the previous Kiniero Gold Mine was prepared and published on the TSX by SEMAFO in the report entitled "Technical Report on the Mineral Resources and Reserves, Kiniero Gold Mine, Guinea" by SEMAFO Inc (M Crevier), dated December 2008 and updated March 2009. The Mineral Resources and Mineral Reserves were prepared in compliance with the CIM Standards for Mineral Resources and Mineral Reserves and reported according to National Instrument Form 43-101F1 (NI 43-101).

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

6.2.3 Historical Production

Pre-2000 gold mining within the Kiniero License Area was first undertaken during the 1950s, with underground mining carried out by the French at Filon Bleu (in the north), and at Jean (in the south), where a single exploration drive along the strike of the deposit was developed. SMG has obtained underground stope sampling plans for two levels at Filon Bleu. No production results are available. The mine infrastructure was destroyed when the French left upon independence by Guinea in 1958.

The only other formal historical mining operation within the Kiniero License Area was established by SEMAFO in 2002 and consisted of a series of deposits exploited by opencast means at the former Kiniero Gold Mine. Most of the production was sourced from the Jean and Gobelé (SGA) deposits, as well as from the subsequently delineated West Balan deposit. The location of the previous SEMAFO open pit and infrastructure is indicated on Figure 1 and Figure 8.

Each of the Jean, Gobelé and West Balan deposits were sub-divided into several open pits concentrating on individual high-grade zones within the principal gold bearing structures. Additional important peripheral deposits to the Jean, Gobelé and West Balan deposits that were also mined include Banfara, East West and North-East Gobelé D (NEGD).

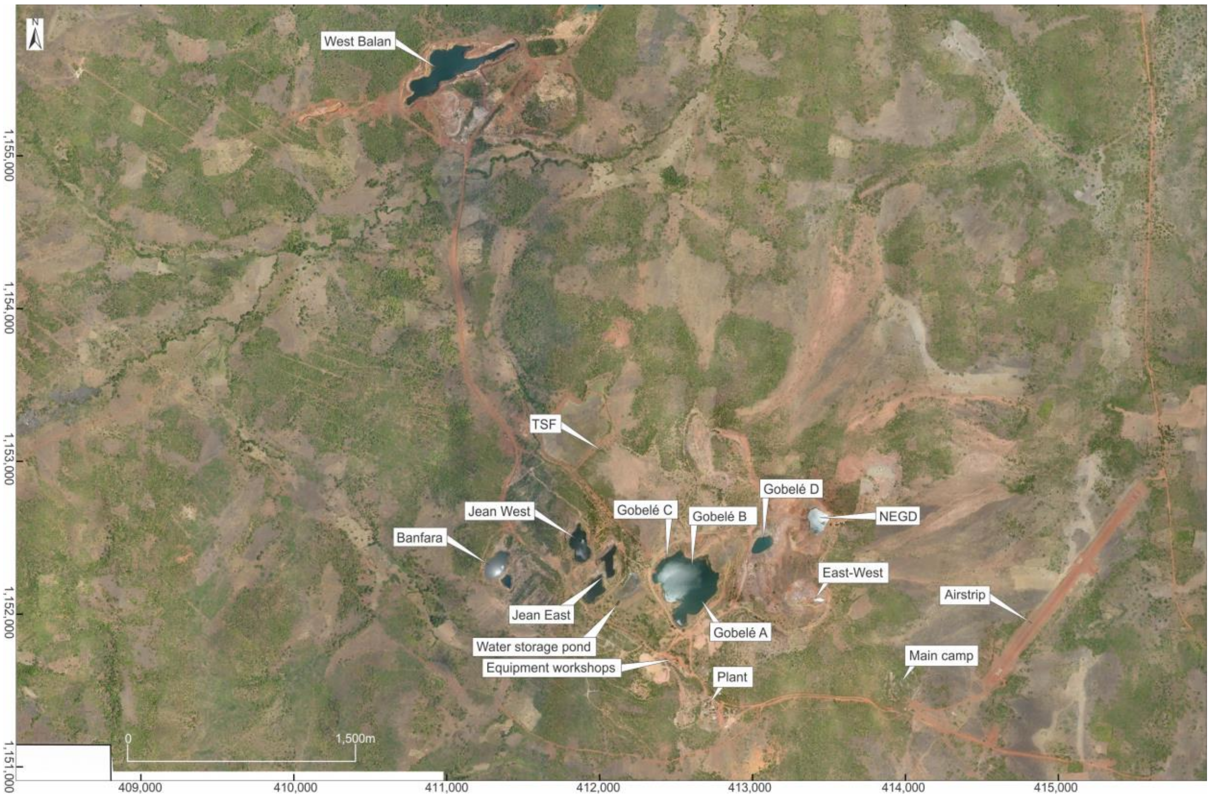
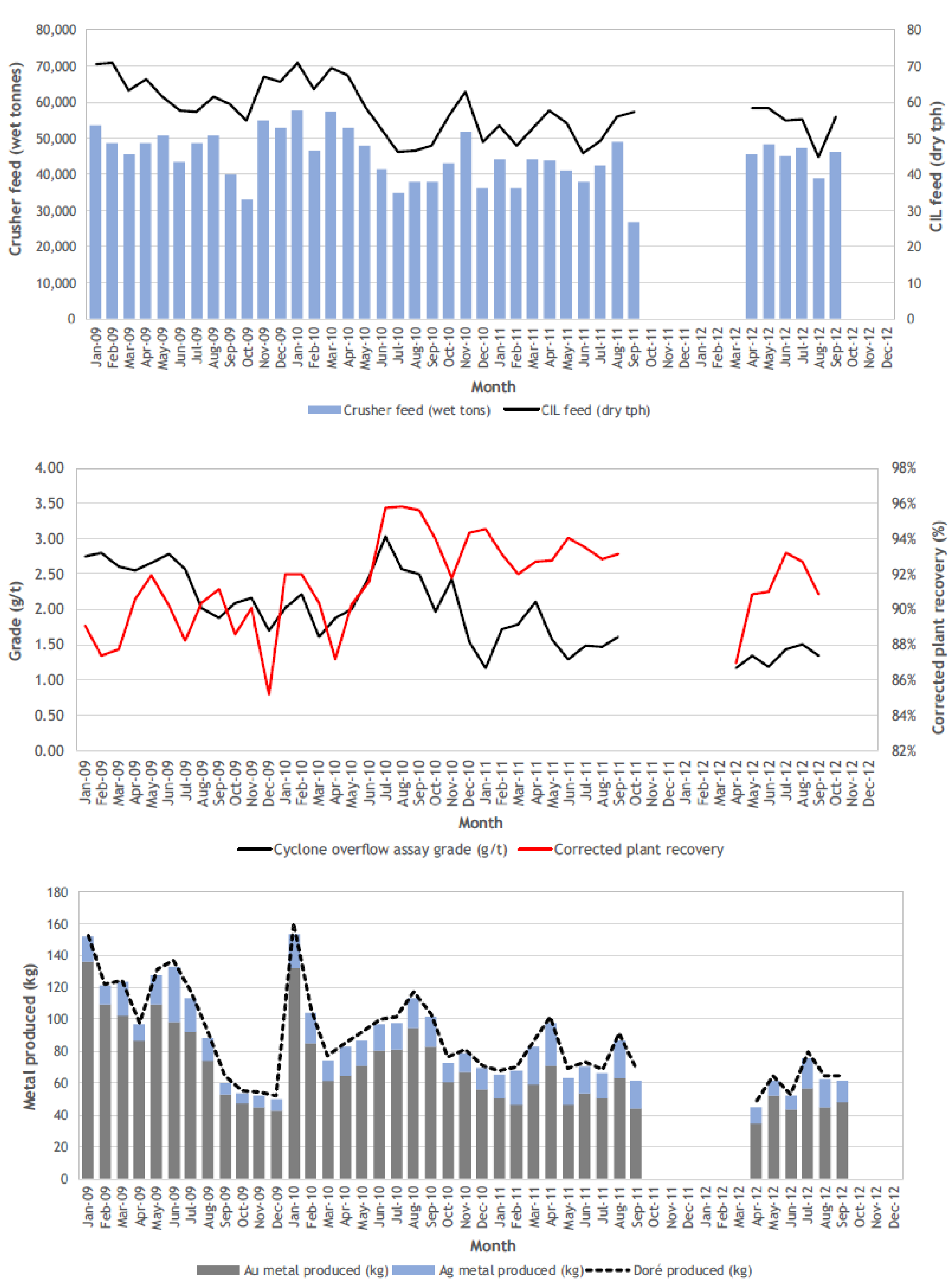


Figure 8: General Site Layout and Open Pit Nomenclature of the previous Kiniero Gold Mine
Source: SMG (2022)

As of August 2013, just prior to the closure of the previous Kiniero Gold Mine, two open pits were responsible for the remaining production. Approximately 70% of production was produced from NEGD, which targeted free digging saprolitic ores, whilst the remaining 30% was produced from blended saprolite / fresh sulphide ores from SGA. The primary crusher performance constrained the ability to mine and mill the primary quartz-sulphide ores.

Additional reasons cited for the closure of the previous Kiniero Gold Mine included an industrial strike and related and continued civil unrest, which commenced in late 2011. This ultimately led to SEMAFO exiting from Guinea and the removal of the company's exploitation permit by the GoG. Record keeping in the latter months of production were adversely affected by the operational issues. Monthly plant production records were not available between October 2011 and March 2012, and again from October 2012 as operations were wound down, finally being placed on care and maintenance during the first quarter of 2014. All available previous mining and plant production is presented in Figure 9 and Figure 10. Operational data for Q4 2011 and Q1 2012 has not yet been retrieved.

Figure 9: Historical annual mine and plant production by SEMAFO (2002 – 2013)



Source: SEMAFO, Tenement interpretation

Figure 10: Histroical monthly mine and plant production by SEMAFO (2009-2013).

Note: SMG was unable to obtain the data between September 2011 to March 2012, and from October 2012.

6.3 History of the Mansounia License Area

6.3.1 Ownership Changes and Activities

The ownership changes and activities specific to the Mansounia License are summarised in Table 9. This table has been compiled primarily from Burey Gold and other data derived that is pertinent to the Mansounia License.

Table 9: Exploration History of the Mansounia License Area

DATE	COMPANY / PERSON	ACTIVITY
1912 - 1945	Various	Limited historical exploration campaigns. Limited to variety of rock chip sampling and mapping campaigns.
1948 - 1958	BUMIFOM	Regional mapping, trenching and pitting.
1985 - 1987	Mining Association of Niandan (JV between GoG, BRGM, Baraka and Precious Stones Guinea)	As part of the exploration of the neighbouring Kiniero License Area, the Mining Association of Niandan complete a regional data review, inclusive of the Mansounia License Area.
1997 - 1998	Leo Shield / Afminex	Soil sampling and mapping
1999	Ashanti Exploration	Soil sampling and mapping
2003 - 2005	Gold Fields Limited	Based on soil sampling results, Gold Fields (as a JV partner) completed an aeromagnetic survey. Results warranted the first ever drilling campaign, completing an initial reconnaissance RAB drilling campaign (56 drillholes), followed by 50 RC drillholes.
2006	Burey Gold Limited	Burey Gold enters into a farm-in and JV agreement with Caspian Oil and Gas Ltd to earn a 70% interest in Mansounia. Burey Gold subsequently listed on the ASX in late-2006.
2007 - 2009		Additional drilling completed, including 17 HQ DD drillholes (for metallurgy purposes) and 214 RC drillholes.
Jan 2009		Runge Limited complete a maiden independent Mineral Resource estimate on the Mansounia License Area.
2011		RC drilling campaign completed (76 drillholes) as well as additional DD drillholes (2 drillholes). No further drilling completed at Mansounia License Area until Sycamore Mine Guinee.
May 2012		Independent Mineral Resource estimate by Runge Limited - JORC Code compliant, incorporating results from an additional 81 RC drillholes.
Apr 2013		Independent Scoping Study completed by SEMS Exploration. Two treatment options considered - CIP or heap leach, each at a throughput of 4mtpa and different gold prices of $1,600/oz and $1,900/oz. Findings recommended that the heap leach option should be developed.
Aug 2013		Exploration permit granted by the Ministère des Mines et de la Géologie.
Aug 2014	Blox, Inc.	Blox, Inc. Inc acquire 78% of the Mansounia License Area in a JV with Caspian Oil and Gas Ltd.

DATE	COMPANY / PERSON	ACTIVITY
Feb 2017		April 2013 Scoping Study independently updated by SEMS Technical Services Ltd - no changes in the data used, but which considered toll treating at a neighbouring property. Recommendations that the heap leach option should be developed.
Dec 2017		One year extension of the Mansounia Exploration Permits granted in support of completing the required mining feasibility studies.
Jul 2018		Sahara Natural Resources engaged to define drilling targets using existing data. Auger drilling campaign of 400 holes designed.
Oct 2018		2,500m of auger drilling (from 184 holes) completed on south-eastern target. Results extend the target area from 2.5km to 5km strike.
Dec 2018		Feasibility Study independently completed by Spiers Geological Consultants, on behalf of Blox, Inc. Lodged in support of a mining license application, submitted to Ministère des Mines
Apr 2019		Expiry of the Mansounia exploration permits
Jun 2019		Technical presentation made to the Ministère des Mines in support of the Mining Right application.
Apr 2020	Penta Goldfields Company S.A.	Mansounia License Area exclusively acquired by Penta Goldfield Company S.A.
		Mansounia exploration permits renewed for a period of three years.
Jun 2021	Sycamore Mine Guinee SAU	Enters into a Technical Partnership Agreement with Penta Goldfields to support, invest and execute exploration work within the Mansounia License Area.
		Commencement of exploration by SMG including mapping, BLEG soil geochem, LiDAR, data verification and reprocessing historic airborne geophysics & radiometric data
Dec 2021		Commencement of RC drilling at Mansounia by SMG (14 drillholes)
Apr 2022		Commencement of DD drilling at Mansounia and continued RC drilling in support of the Kiniero Gold Mine restart PFS study.

Source: Runge (2012), SMG

6.3.2 Historical Mineral Resource estimates

All historical Mineral Resource and Mineral Reserve estimates mentioned in this section are not considered current and have been superseded by the current Mineral Resources stated in Section 14 and Mineral Reserve estimates detailed in Section 15 of this Technical Report.

SMG is not aware of any pre-2000 Mineral Resource and Mineral Reserve estimates relating to the Mansounia License Area.

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

The estimate incorporated 17 HQ diamond drillholes, 176 RC drillholes and 51 rotary air blast (RAB) drillholes (total of 8,558m) within the resource wireframes. The wireframes were constructed using cross sectional interpretations based on mineralised envelopes constructed using a nominal 0.2g/t Au cut-off. Samples within the wireframes were composited to 1m. A high-grade cut-off of 5g/t was applied to the laterite data and 7g/t to all other domains. The block model parent block dimensions of 25m by 50m by 5m (X, Y, Z) were used with sub blocks to a minimum of 6.25m by 12.5m by 1.25m (X, Y, Z). The model was estimated using ordinary kriging (OK) in Surpac software. The 2009 historical Mineral Resource was classified mainly as Inferred Mineral Resources with a portion of the laterite classified as Indicated where the drill spacing was 100m by 45m. Table 10 below shows the historical Mineral Resource statement as reported by Runge over a range of different Au cut-off grades. The historical Mineral Resources were prepared and reported in compliance with the 2004 edition of the JORC Code.

Table 10: Historical Runge Limited Mansounia License Area Mineral Resource estimate (January 2009)

DEPOSIT	Au Cut-Off Grade (g/t)	INDICATED RESOURCE		INFERRED RESOURCE	
		TONNAGE (Mt)	GRADE (g/t)	TONNAGE (Mt)	GRADE (g/t)
Mansounia	0.20	7.9	0.60	53.6	0.50
	0.40	6.1	0.70	30.4	0.50
	0.70	2.2	0.90	10.9	0.80
	1.00	0.5	1.20	4.5	0.80

An update to this maiden Mineral Resource estimate was independently prepared and published by Runge Limited in May 2012 (Table 11) for Burey Gold in a report titled “Resource Estimate Update, Mansounia Gold Deposit, Guinea, West Africa” (K Lowe). Additional drillhole data and revised sectional interpretations supported the update, particularly for the southern portion of the Mansounia Gold Deposit (Mansounia Central) south of latitude 1,147,550. The original 2009 Mineral Resource estimate north of latitude 1,147,500m remained unchanged. The historical Mineral Resources were prepared and reported in compliance with the 2004 edition of the JORC Code.

Table 11: Historical Runge Limited Mansounia License Area Updated Mineral Resource estimate (May 2012)

MATERIAL TYPE	INDICATED RESOURCE		INFERRED RESOURCE	
	TONNAGE (Mt)	GRADE (g/t)	TONNAGE (Mt)	GRADE (g/t)
Haematitic Laterite	3.3	0.6	3.3	0.5
Limonitic Laterite	2.8	0.7	2.7	0.5
Oxide	-	-	20.0	0.8
Transitional	-	-	10.1	0.8
Fresh	-	-	9.9	1.0
TOTAL	**6.1**	**0.7**	**45.9**	**0.8**

Estimated applied at a Au cut-off grade of 0.40g/t

6.3.3 Previous Production

No historical production has ever occurred on the Mansounia License Area.

7 GEOLOGICAL SETTING AND MINERALISATION

7.1 Regional Geology

The Kiniero Gold Project is located within the Kiniero Gold District of the Siguiri Basin, which is situated in north-eastern Guinea, extending into central Mali. Geologically, the Siguiri Basin comprises a significant portion of the West Africa Birimian Greenstone belt which includes intrusive volcanics (ultramafic's to intermediate) and sediments that were largely deposited through the period 2.13Ga to 2.07Ga (Figure 11).

The understanding of the tectonic evolution of the Birimian has evolved over the past 50 years and recent research and accelerated mineral exploration over the last 10 years has further strengthened the tectonic frameworks that were active during this period of the Earth's crustal evolution.

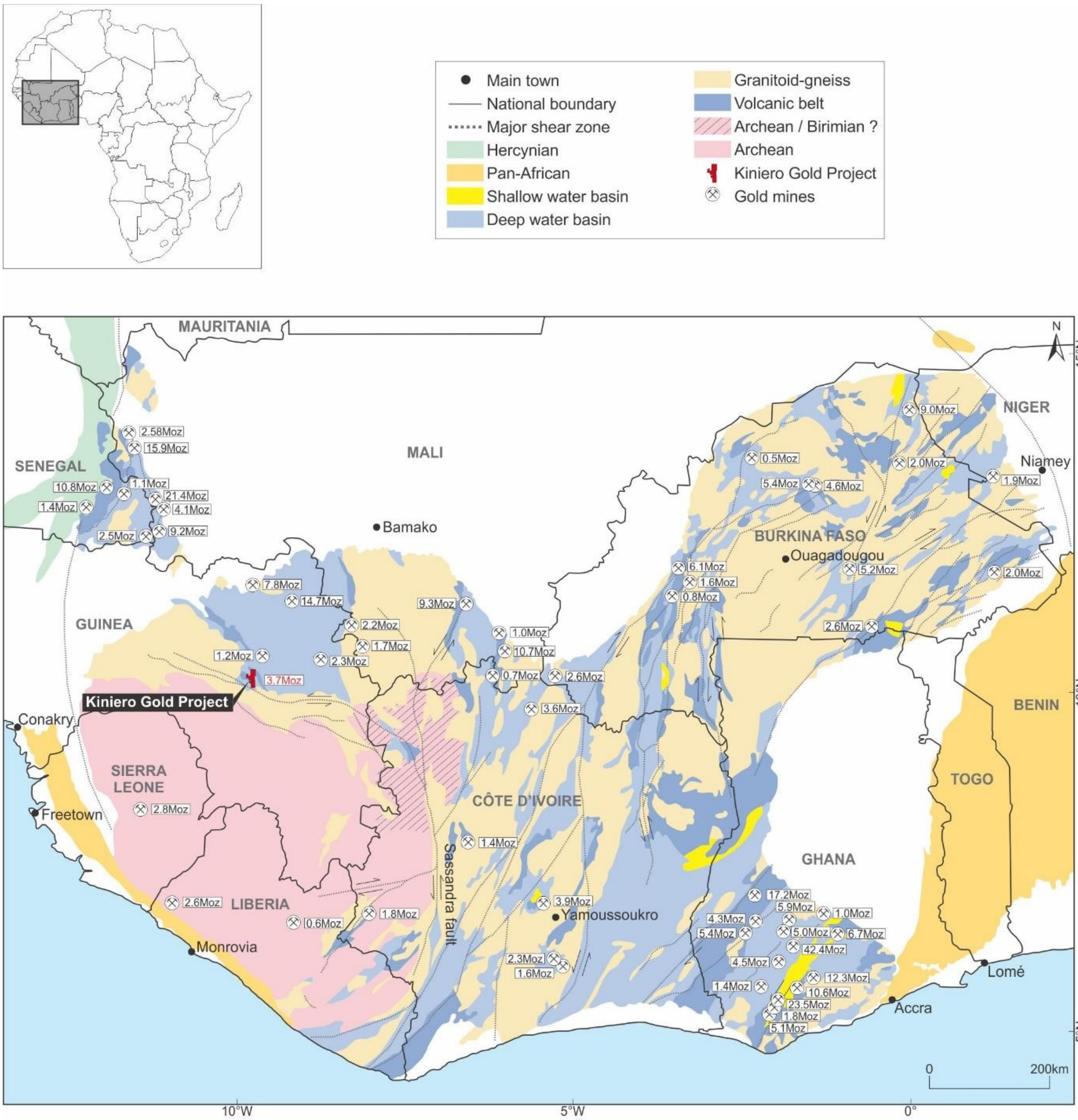
Many of the geological field observations in the Siguiri Basin have similarities to current plate tectonic features. However, the key elements of the Earth and its primitive crust in the Paleo-Proterozoic are different with modern plate tectonics still developing in this period of the Earth's history. Understanding these is fundamental to the development of exploration targets and the interpretation of results.

A time sequence of the current thinking regarding the development and evolution of the Birimian Greenstone belt is presented in Figure 12, with the relative position of the Kiniero District marked in the 2.10Ga to 2.07Ga time slice along with the key structural elements which have provided the structural preparation for subsequent mineralising events.

The approximated position of the Kiniero Gold District is shown in the 2.10Ga to 2.07Ga slice. Remnants of this fabrics are clearly discernible within regional scale high resolution satellite (Sentinal-2) DEM. These are clearly apparent at the sub-continent scale where displacements within the underlying basement rocks are reflected in the current landforms.

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

This crustal rollback in turn has drawn upper mantle-lower crust melts high into structurally controlled positions within the volcanogenic-metasedimentary pile. This secondary heat flow is interpreted as the driver for significant high temperature alteration events which have been observed in the Sycamore drilling at the SGA and Sabali South deposits. The Kiniero-Kouroussa thrust zone is an example of this environment where numerous economic deposits occur within a 60km long corridor (Figure 13).



Moz reported as 'Lifetime Production and Latest R&R' (S&P Global, 2021)

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

Figure 11: West African Craton and Birimian Regional Geology

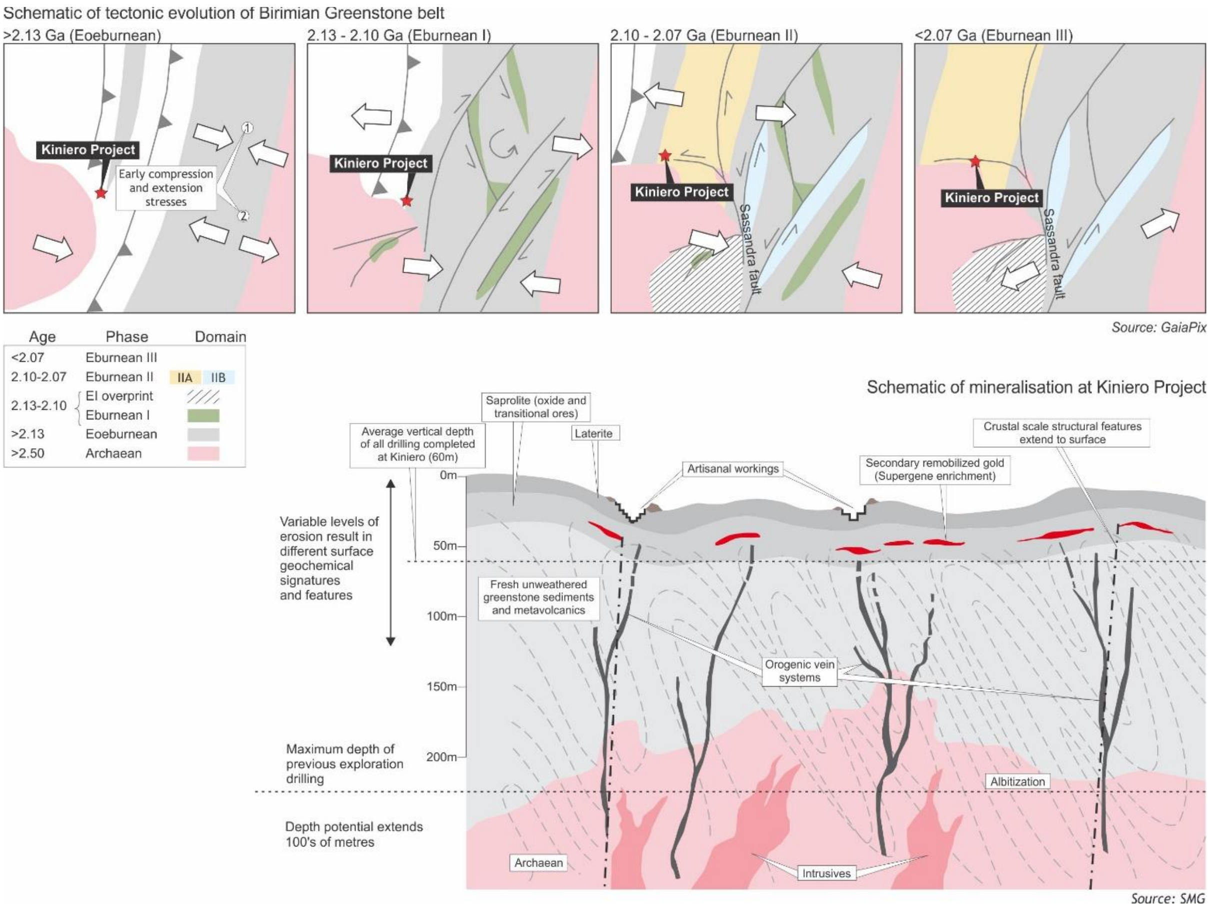


Figure 12: Schematic of Tectonic Evolution of Birimian Greenstone Belt and Mineralisation at Kiniero Project

The origin and evolution of the Birimian crust is reflected by unknowns concerning whether plate tectonics were active during the early Paleoproterozoic, or not, as the Earth during that period is estimated at being 50% to 75% of its current size. Early workers proposed that the Birimian rocks had formed on rifted Archaean continental crust although young inputs suggest an intra-oceanic setting, away from the influence of pre-existing continental crust. By inference the Birimian event constitutes a major period of Siderian-Rhyacian crustal growth in West Africa.

Two differing views have developed regarding the geodynamic setting of the Birimian event and the development of the Birimian in a modern plate tectonic environment:

- **Model 1:** the Birimian crust formed in an accretionary orogen which developed into a collisional orogen as it collided with Archaean continents
- **Model 2:** no involvement of plate tectonics during the Birimian event and instead a more “archaic” setting with plume-related mafic volcanism and vertical tectonics has been proposed
- **Hybrid Model:** the Birimian crust formed from plume-related oceanic plateaus around which subduction zones subsequently developed, i.e. a mid-position between the two concepts above which has growing support

The early Eburnean I phase likely began around 2.4Ga to 2.3Ga and is characterised by the accretion of juvenile crust that has been formed in island arcs. A rise in magmatic zircon ages after circa 2.25Ga may be related to an increase in felsic magmatism because of crustal thickening and maturation. This also increased the preservation of accreted island arcs, as a decrease in the number of active subduction zones may have reduced the rate of crustal recycling.

Intrusive rocks emplaced during this phase were dominantly sodic granitoids, but granites and monzogranites also occur and have been documented in the Project, and regionally tonalites, two-mica granites and lamprophyres. Three main stages responsible for crustal growth occurred during the Eburnean orogeny via:

- volcanic plume activities and abundant extractions of the mantle represented by pillowed basalts with similar geochemical characteristic to modern oceanic plateaus
- subduction of oceanic slab beneath the plateau, characterised by local productions of calc-alkaline magmas
- Archaean continent collision

The opening of the sedimentary basins may have taken place during regional northeast-southwest dextral shearing which led to block rotation and development of north-south trending sinistral shear zones. The remnants of these crustal scale features are evidenced in the central Siguiri Basin. This also coincided with the collision between the Archaean crust of the Man domain and the Birimian crust in the southwest Baoulé Mossi domain.

The Eburnean II phase from 2.10Ga to 2.09Ga is more complex. Westward-directed slab rollback in NW Baoulé Mossi led to extension within the overriding Birimian crust, emplacement of high-K intrusive rocks into the early crust, and explosive extrusive magmatism, in what may constitute a large siliceous igneous province. Extension also led to the opening of younger sedimentary basins in central Baoulé Mossi. Ongoing collision between the Man domain and the Baoulé Mossi domain led to crustal thickening and associated high-P granulite facies metamorphism in the SE Man domain.

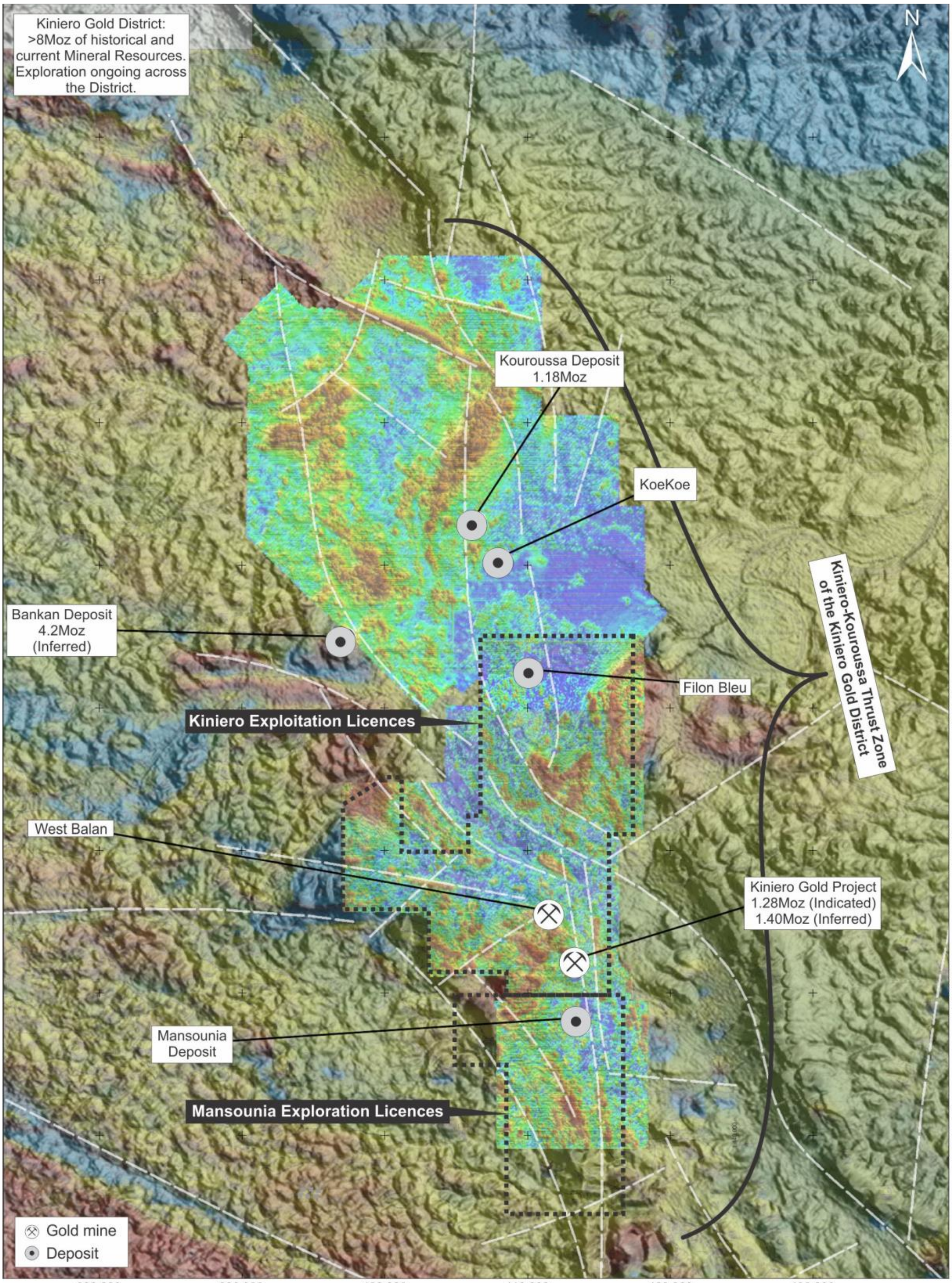


Figure 13: Integrated airborne magnetics merged with Sentinal-2 DEM across the Kiniero Gold District (Kiniero-Kouroussa Thrust Zone)

The Eburnean III phase was between 2.0Ga and 1.9Ga resulted in decompression melting in the Archean crust in the SE Man domain. Limited intrusive and extrusive alkalic post-collisional magmatism was present within the Birimian crust, which cooled and stabilised between 2.0Ga and 1.9Ga. Limited reactivation of the Birimian crust during this period may have taken place in response to far-field events. Key points include:

- the formation of the Birimian crust may have been accounted for by processes which take place in modern tectonic settings that have a high geotherm
- modern back arc environments were defined by a high heat flow and thin lithosphere
- that it is interpreted that the Birimian crust originated as amalgamated arc terranes and that the crust should have the characteristics of modern back arcs, reflecting long-lived subduction
- modern back arcs indicate that such areas are affected by widespread shearing, intra-plate deformation, lower crustal flow or detachment and vertical motions; all owing to the weak and hot nature of the lithosphere
- the presence of komatiites traditionally associated with hot mantle plumes, in the Baoulé Mossi domain indicates that the geotherm was indeed higher compared to modern back arcs

Dating across the Birimian belt suggests an Eburnean I (2.13Ga to 2.10Ga) timing for mineralisation within the Ashanti Belt, and slightly younger Eburnean II (2.10Ga to 2.07Ga) for the deposits of western Mali, Guinea (Siguiri Basin) and Senegal (Kédougou-Kénieba inlier).

7.2 Deposit Types and Mineralisation

In the West African Craton, most of the gold mineralisation is shear-zone-hosted with the principal control being structural and with lithology having a minor, local influence. The mineralisation developed in the Kiniero Gold District conforms to this general style of mineralisation, with known deposits being hosted in shear zones, with some regional dimensions.

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

The gold mineralisation is typically late-orogenic, medium grade lodes which are strongly structurally controlled and located within quartz veins or in quartz-veined fracture zones with inter-mineralisation intrusive. Structures can be classified from their textural development as to whether their origins are proximal or deep seated.

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

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

It is unclear if this tectonism is related to movement on the Kiniero-Kouroussa shear, or the emplacement of a series of large magmatic bodies through different areas of the district, or a combination of these events. Within the historic pits, mineralised veins that were originally striking north/south with a shallow dip to the west would, after the post volcanic tectonism, be sub-vertical striking at 40°N.

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

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

In the existing SGA mine pit, veins and veinlets are generally striking from 000° to 050° with moderate to strong dips to east or south-east (locally, some strongly dip to the west). In the East-West pit and some parts of Gobelé D pits, the strike is east / west with strong dips to south. East / west and north / south structures are generally interconnected rather than intersected.

On-strike extensions of individual veins vary from 50m to 300m with interconnections and step-offsets creating fairly long ore bodies of several hundred metres. Structures are also of variable thickness. Field observations in core at Gobelé D record thicknesses of up to 30m, but averages are typically in the range of 4m to 8m in most deposits. Vertically, most ore bodies extend vertically beneath the depth of exploration using diamond drillholes. Currently, all deposits of the Kiniero Gold Project remain open down dip and have demonstrated depth potential based on deeper drilling targets completed in 2021.

At Sabali South there is currently insufficient drill core exploring the strike length of the deposit, however internal mineralisation domain fabrics suggest potentially NW through NNE veining trends developed within a generally NNE-NE stress fabric.

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

- geometry of controlling regional shear systems and secondary structures
- permeability of fractures as related to dip and depth
- intensity of fracturing developed within brittle host rocks and their respective bounding lithologies

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

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

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

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

Intense weathering has affected West Africa since the early Mesozoic, well before development of the Atlantic seafloor spreading and the separation of South America from West Africa and the division of the western limb of the Birimian Greenstone Belt, as evidenced by ubiquitous relic lateritic paleo-terraces and similarities on both continents. The sustained tropical climate from the Mesozoic to recent day in western Africa has resulted in a deep weathering and leaching profile of the Kiniero lithologies, with the development of a surface laterite colluvium and a saprolitic zone near the surface.

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

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

7.3 Kiniero Gold District Geology

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

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

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

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

In February 2020, SMG appointed GaiaPix (Pty) Limited (GaiaPix) to undertake a remote sensing interpretation of the Kiniero Project as precursor to the commencement of the first SMG exploration. The scope was to gain a better understanding of the geological and structural setting of the Project. Ongoing interpretation of other subsequently acquired spatial datasets (magnetics, gravity, and high-resolution DEM) has improved and refined much of the structural framework suggested in the GaiaPix study. A simplified geological map of the Kiniero Gold Project is presented in Figure 14, with the results of GaiaPix's interpretation, for the Kiniero License area only, is presented in Figure 29.

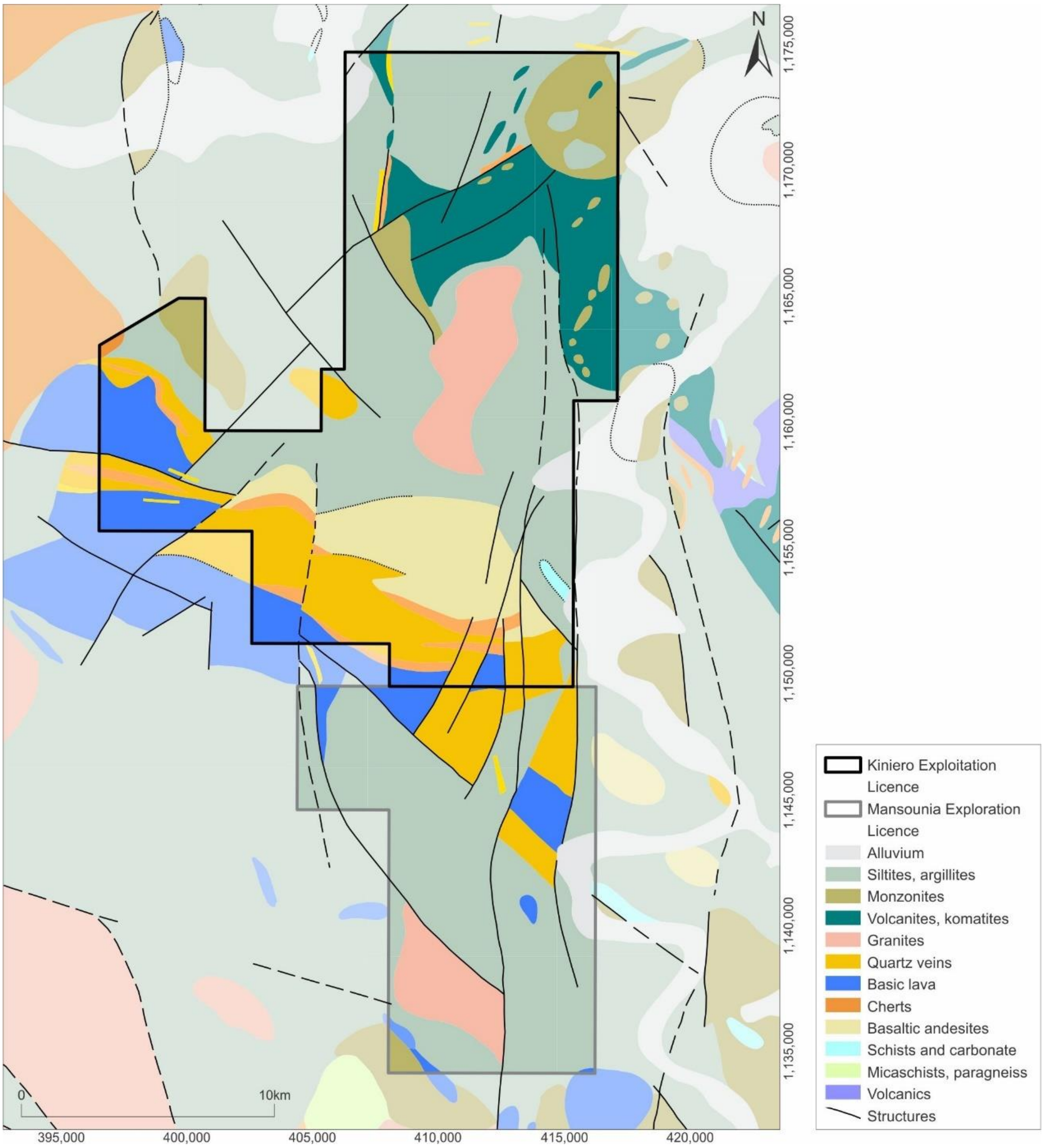


Figure 14: Simplified Geology of the Kiniero Gold Project
(Source: Modified from BRGM)

The lithologies present within the Kiniero Gold Project broadly comprise the following, from oldest to youngest:

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

The Kiniero Gold Project is dominated by the following structures:

- a contact zone to the southwest of the Kiniero-Kouroussa shear where Birimian geology abuts older (Archaean) Leonean Craton (Figure 13), striking in a WNW-ESE direction. An ultramafic belt trends NNW-SSE extending from south of Kiniero through Kouroussa and into Mali
- major faults striking northwest through northeast to east-northeast
- north/south faults in the north of the Kiniero Gold Project. These structures, where intersected by northwest-northeast and east-northeast trending structures often develop highly prospective structural settings for fluid focus

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

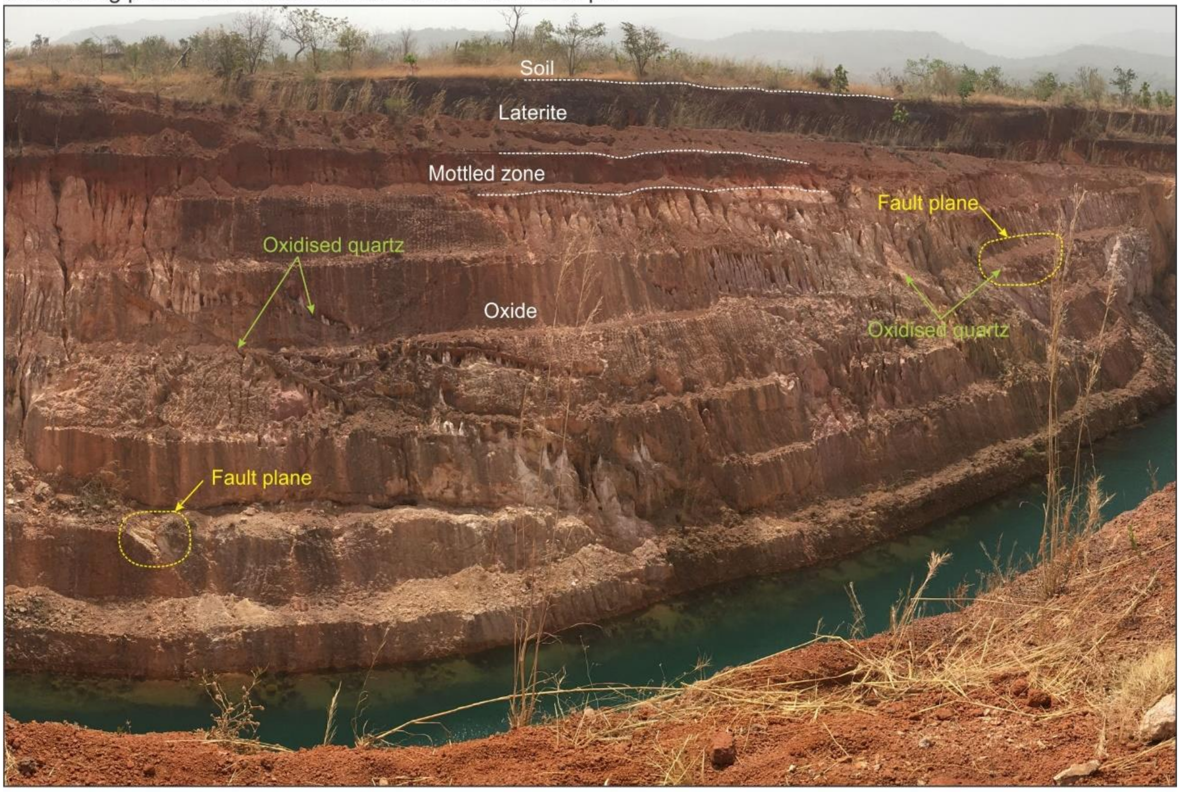
In north-eastern Guinea, as in most of the Birimian occurrences of West Africa, outcrop of fresh rock is rare, and the bedrock is usually covered by a thick laterite blanket. These residual soils were formed by the in situ chemical weathering of the underlying rocks during the lateritisation process, which extended from the Jurassic to the Eocene periods due to Guinea maintaining its general latitude since the Neoproterozoic through to post the Gondwana breakup. Understanding this attribute is important when interpreting soil geochemistry and the ancient character of the weathering profile.

The typical lateritic profile in north-eastern Guinea is composed of the three following units, from top to base (Figure 15):

- Cuirasse (hardpan or ferricrete) – this represents the upper portion of the lateritic profile and measures 1m to 5m in thickness. In this unit, there is a strong accumulation of iron oxide at the expense of kaolinite, and the iron- rich nodules become strongly cemented by hematite. Texturally, this unit appears conglomeratic, although it is not detrital in origin. At the top of the cuirasse, the development of micro fissures may lead to a decrease in the cohesion of this unit, and the consequent formation of a pebbly (pisolitic) horizon. In some cases, this ferricrete unit can be subdivided into an upper horizon, called "cuirasse", which is strongly cemented and very resistant, and a lower horizon, called "carapace”, which is loosely cemented and crumbly
- mottle clay - this unit typically measures a few metres in thickness. It is composed of reddish nodules (10mm to 30mm) of iron oxides and hydroxides set in a matrix of clay minerals where the original texture of the rock has been destroyed
- saprolite - this unit directly overlies the fresh bedrock and can reach a thickness of 30m to 50m, although in some places it is only a few metres thick. It represents an isovolumetric weathering of the parent rock whose texture is preserved, but whose primary mineralogy is almost entirely replaced by alteration products, except for quartz, white mica and some heavy minerals such as rutile, zircon and tourmaline. The alteration minerals are composed of smectite, vermiculite and kaolinite, with lesser amounts of goethite, gibbsite and anatase. SMG has introduced a sub-distinction of the saprolite where relevant to a deposit, splitting it into:
    - Upper Saprolite: typically, weathered oxide unit where both the rock and sulphide mineralisation has been completely weathered and oxidised
    - Lower Saprolite: is weak and behaves mechanically like the upper saprolite, but contains un-oxidised sulphides within it, and processes more like a transitional material

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

Weathering profile of the southern wall of the West Balan pit



Cross section

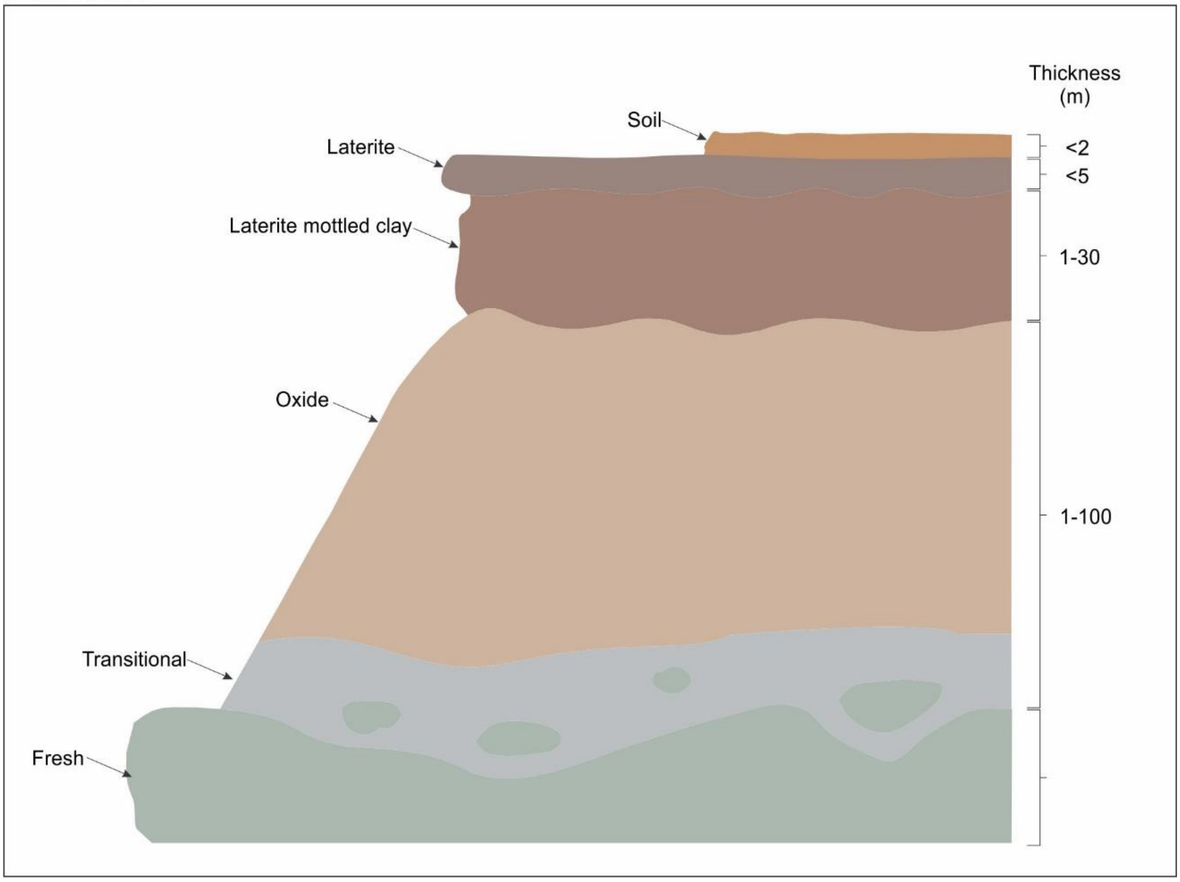


Figure 15: Weathering Profile of the Kiniero Gold District

8 DEPOSIT TYPES

A total of 47 gold anomalies were identified through Project-wide exploration using geochemical soil and termite mound sampling (Figure 16). These were followed up with anomaly focussed exploration using percussion drilling (reverse circulation (RC) and/or rotary air blast (RAB)), trench channel sampling and mapping and/or diamond drilling on 22 of these anomalies resulting in their confirmation as gold deposits. The exploration status of these 22 gold deposits is schematically presented in Figure 17 and tabulated in Table 12.

Of the 22 deposits that have been identified, the following deposit clusters form the focus of this PFS (Figure 18), from which Mineral Resources and Mineral Reserves have been variously declared:

- Sabali cluster, including:
    - Sabali North
    - Sabali Central
    - Sabali South (straddling the Kiniero / Mansounia boundary)
- Mansounia Central
- SGA cluster, including:
    - Sector Gobelé A (A, B, C) (SGA)
    - Gobelé D
    - Northeast Gobelé D (NEGD)
    - East-West
- Jean cluster, including:
    - Jean East and Jean West
    - Banfara
- Balan cluster, including:
    - Derekena
    - West Balan
- Legacy Stockpiles, including
    - legacy ROM pad stockpiles
    - legacy low- to medium-grade stockpiles

SMG has prepared eight separate geological models on the 13 deposits listed above (Table 12). Mineral Resources have been declared on all 13 and Mineral Reserve estimates on eight of these deposits, which are included in the current mine plan. The local geological characteristics, mineralisation, exploration, and mining developments of the 12 deposits (exclusive of the stockpiles) is discussed in the sections to follow, by cluster, with a summary presented in Table 13. The geology and mineralisation descriptions are all based upon historical and current exploration and mining results to date.

The remaining 11 deposit areas will form the focus of future exploration programmes (commencing Q2 2022) which would be aimed at continuously replacing the Mineral Resources and Mineral Reserves to be mined out in the current mine plan.

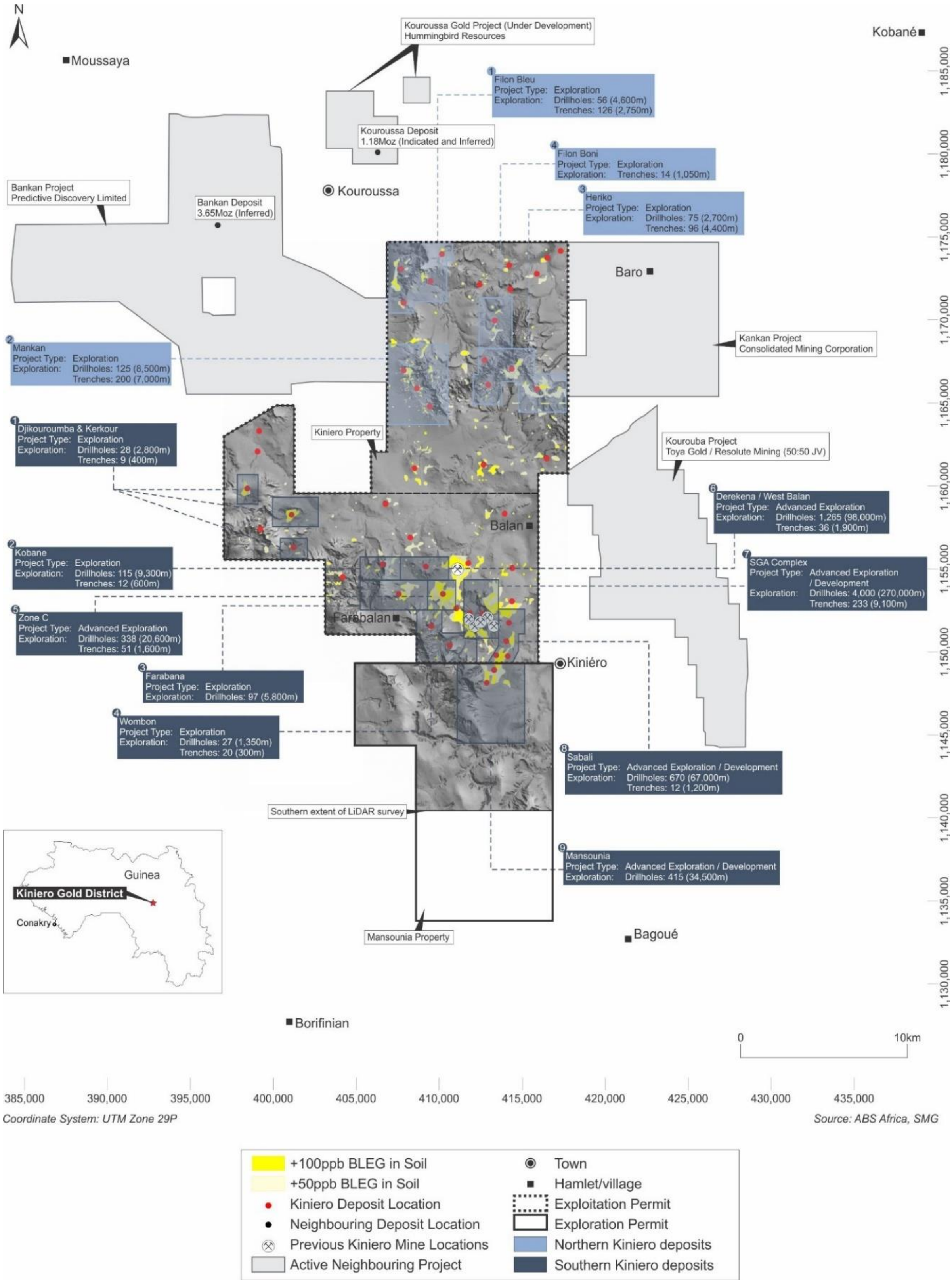


Figure 16: Location of Kiniero Project Gold Anomalies and Main Deposits

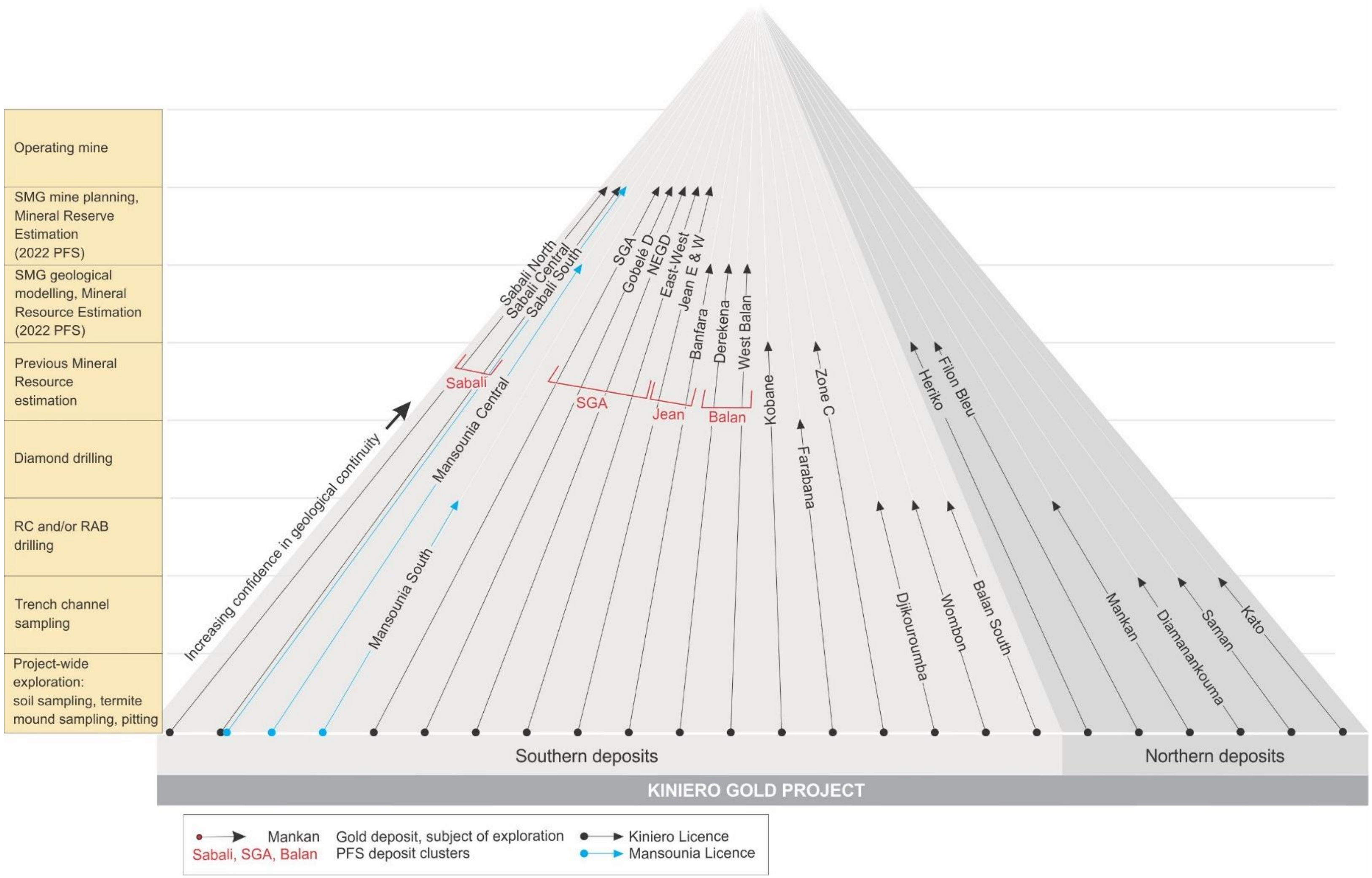


Figure 17: Schematic of the Exploration and Development status of Kiniero Gold Project deposits

Table 12: Summary of Exploration Work and Deposit Status per Kiniero Gold Deposit and/or Anomaly

PREVIOUS OWNER/OPERATOR

LICENSE / AREA	DEPOSIT CLUSTER	DEPOSIT NAME	LICENSE-WIDE EXPLORATION			DRILLING / TRENCH					ESTIMATIONS & MINING		
											ESTIMATIONS		OPEN PIT
			GEOPHYSICS	SOIL	TERMITE	TRENCH	RAB	AUG	RC	DD	RESOURCE	RESERVE	MINE
Mansounia		Mansounia South	✓	✓			✓	✓					
Mansounia		Mansounia Central	✓	✓			✓	✓		✓	✓		
Mansounia	Sabali	Mansounia (Sabali South)	✓	✓					✓		✓		
Kiniero South	Sabali	Kiniero (Sabali South)	✓	✓	✓	✓							
Kiniero South	Sabali	Sabali Central	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Kiniero South	Sabali	Sabali North	✓	✓	✓	✓			✓	✓	✓	✓	
Kiniero South	SGA	Sector Gobelé A (SGA)	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Kiniero South	SGA	Gobelé D	✓	✓	✓	✓			✓	✓	✓		✓
Kiniero South	SGA	North-East Gobelé D (NEGD)	✓	✓	✓		✓		✓		✓	✓	✓
Kiniero South	SGA	East-West	✓	✓	✓	✓	✓		✓		✓	✓	✓
Kiniero South	Jean	Jean East, Jean West	✓	✓		✓	✓		✓	✓	✓	✓	✓
Kiniero South	Jean	Banfara	✓	✓	✓	✓	✓		✓	✓	✓		✓
Kiniero South	Balan	Derekena	✓	✓	✓	✓			✓				
Kiniero South	Balan	West Balan	✓	✓	✓	✓	✓		✓	✓	✓		✓
Kiniero South		Stockpiles and Dumps										✓	
Kiniero South		Kobane	✓	✓	✓	✓			✓		✓		
Kiniero South		Farabana	✓	✓	✓				✓				
Kiniero South		Zone C	✓	✓	✓	✓	✓		✓	✓	✓		
Kiniero South		Djikouroumba	✓	✓	✓	✓			✓				
Kiniero South		Wombon, Wombon South	✓	✓		✓			✓				
Kiniero South		Balan South	✓	✓					✓				
Kiniero South		Grand Filon	✓	✓	✓								
Kiniero South		Dalouli	✓	✓	✓								
Kiniero South		Kerkour	✓	✓	✓								
Kiniero South		Anomalie de Koba	✓	✓	✓								
Kiniero South		Djikouroumba South	✓	✓									
Kiniero South		Bougouan	✓	✓									
Kiniero South		Bereba	✓	✓									
Kiniero North	Heriko	Heriko Main	✓	✓		✓			✓		✓		
Kiniero North	Heriko	Heriko East	✓	✓	✓	✓							
Kiniero North	Heriko	Heriko Extension North-East	✓	✓		✓							
Kiniero North	Mankan	Mankan North	✓	✓	✓	✓			✓				
Kiniero North	Mankan	Mankan Central	✓	✓	✓	✓			✓				
Kiniero North	Mankan	Mankan South	✓	✓	✓	✓			✓				
Kiniero North	Filon Bleu	Filon Bleu	✓	✓		✓			✓		✓		
Kiniero North	Filon Bleu	West Filon Bleu	✓	✓		✓			✓				
Kiniero North	Filon Bleu	Saman	✓	✓		✓							
Kiniero North		Diamanankouma	✓	✓	✓	✓							
Kiniero North		Kato	✓	✓	✓	✓							

SYCAMORE (2020 to CURRENT)

LICENSE / AREA	DEPOSIT CLUSTER	DEPOSIT NAME	LICENSE-WIDE EXPLORATION			DRILLING / TRENCH					ESTIMATIONS & MINING		
											MODEL ID	ESTIMATIONS (2022)	
			LiDAR	GEOPHYSICS	SOIL	TRENCH	RAB	AUG	RC	DD		RESOURCE	RESERVE
Mansounia		Mansounia South											
Mansounia		Mansounia Central	✓		✓				✓		ManC	✓	
Mansounia	Sabali	Mansounia (Sabali South)	✓	✓	✓	✓			✓	✓	Sab S	✓	✓
Kiniero South	Sabali	Kiniero (Sabali South)	✓	✓	✓				✓	✓	Sab S	✓	✓
Kiniero South	Sabali	Sabali Central	✓	✓	✓				✓		Sab N & C	✓	✓
Kiniero South	Sabali	Sabali North	✓	✓	✓				✓		Sab N & C	✓	✓
Kiniero South	SGA	Sector Gobelé A (SGA)	✓	✓	✓	✓			✓		SGA	✓	✓
Kiniero South	SGA	Gobelé D	✓		✓						SGA	✓	✓
Kiniero South	SGA	North-East Gobelé D (NEGD)	✓		✓						SGA	✓	✓
Kiniero South	SGA	East-West	✓		✓						SGA	✓	✓
Kiniero South	Jean	Jean East, Jean West	✓	✓	✓						Jean	✓	✓
Kiniero South	Jean	Banfara	✓	✓	✓						Banfara	✓	
Kiniero South	Balan	Derekena	✓	✓	✓				✓		WB	✓	
Kiniero South	Balan	West Balan	✓	✓	✓						WB	✓	
Kiniero South		Stockpiles and Dumps	✓			✓	✓	✓			Dumps	✓	
Kiniero South		Kobane	✓		✓				✓				
Kiniero South		Farabana	✓		✓				✓				
Kiniero South		Zone C	✓		✓								
Kiniero South		Djikouroumba	✓		✓								
Kiniero South		Wombon, Wombon South	✓		✓								
Kiniero South		Balan South	✓		✓								
Kiniero South		Grand Filon	✓		✓								
Kiniero South		Dalouli	✓		✓								
Kiniero South		Kerkour	✓		✓								
Kiniero South		Anomalie de Koba	✓		✓								
Kiniero South		Djikouroumba South	✓		✓								
Kiniero South		Bougouan	✓		✓								
Kiniero South		Bereba	✓		✓								
Kiniero North	Heriko	Heriko Main	✓										
Kiniero North	Heriko	Heriko East	✓										
Kiniero North	Heriko	Heriko Extension North-East	✓										
Kiniero North	Mankan	Mankan North	✓										
Kiniero North	Mankan	Mankan Central	✓										
Kiniero North	Mankan	Mankan South	✓										
Kiniero North	Filon Bleu	Filon Bleu	✓										
Kiniero North	Filon Bleu	West Filon Bleu	✓										
Kiniero North	Filon Bleu	Saman	✓										
Kiniero North		Diamanankouma	✓										
Kiniero North		Kato	✓										

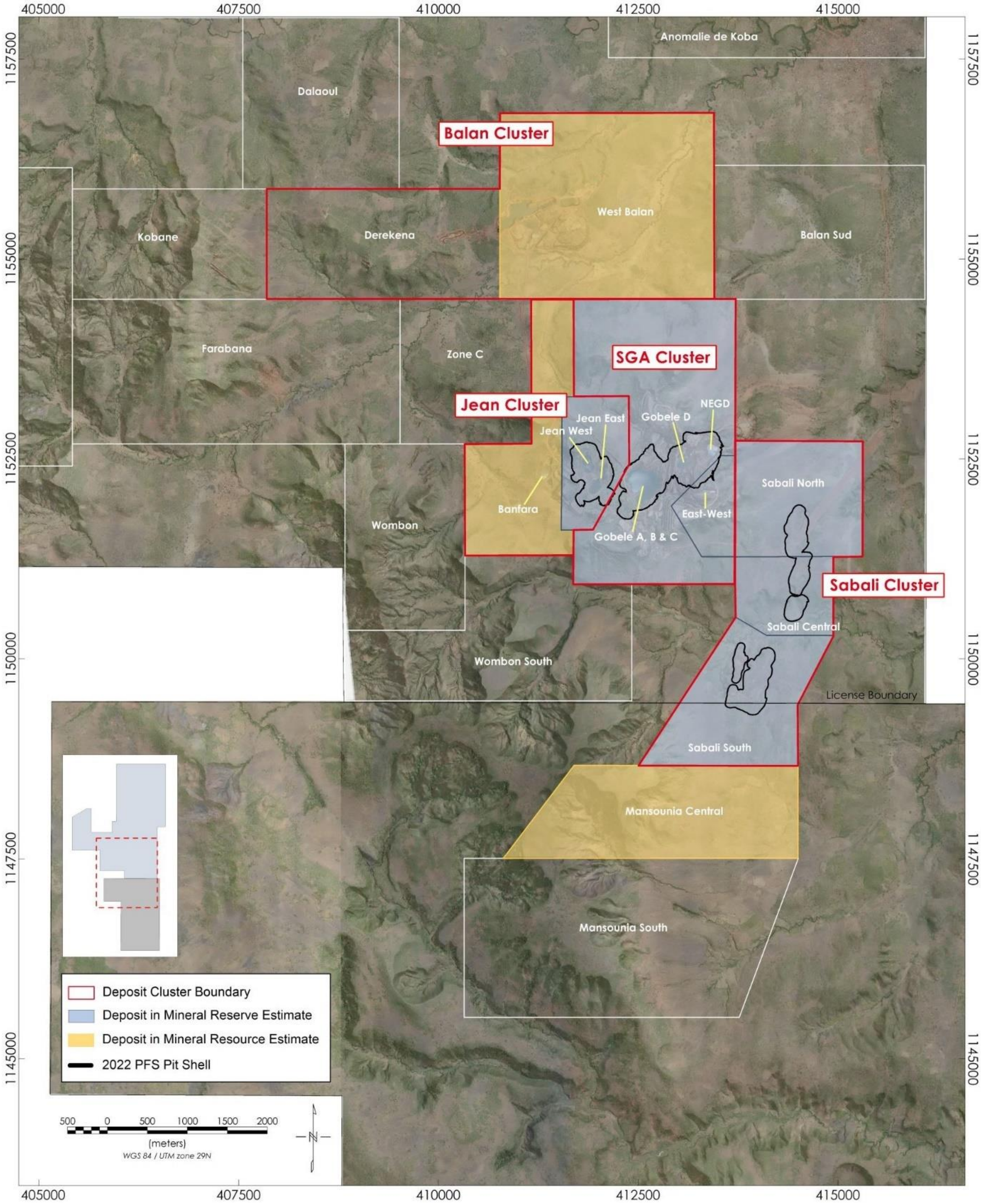


Figure 18: Kiniero Gold Project Deposit Locations and Nomenclature
Source: SMG (2022)

Table 13: Summary of the local geological characteristics of the PFS Kiniero Gold Project deposits

DFS DEPOSIT CLUSTER	GEOLOGY MODEL ID	DEPOSIT	DISTANCE FROM PLANT (km)	STRIKE		DIP (°)	MINERALISATION		PRIMARY ORE TYPE	DEPTH EXPLORED (mbs)	ADDITIONAL RESOURCE POTENTIAL
				LENGTH (m)	BEARING (°)		WIDTH (m)	STYLE			
Sabali	Sabali North & Central	Sabali North	1.6 (E)	~2,500	20	75-85	10-30 (700m corridor)	Ocean floor volcanogenic mineralisation (within pillow basalts) and a typical orogenic lode system, possible fault/thrust contacts between the two environments.	Oxide and fresh	~80	Sabali Extension is unconstrained along width and down-dip, and is only constrained on strike to the south by the permit boundary.
		Sabali Central									
	Sabali South	Sabali South	2.0 (SE)								
-	Mansounia Central	Mansounia Central	4.4 (NNE)	~1,300	010-030	75-85	5-30 (500m	Typical orogenic lode system with locally extensive areas of shallow and	Oxide and fresh	~75	Not previously mined. Open on strike and width, significnt depth potential.
SGA	SGA	SGA (Gobelé A, B, C)	1.0 (NNE clustered)	~1,300	020-040	80-90	10-50 (1,400m corridor)	Ocean floor volcanogenic mineralisation within pillow basalts (type for Kiniero) and deeply penetrative typical orogenic lode systems developed in structural dilation zones. Shallower dipping geometry at East-West.	Oxide and fresh	~100	Confirmed exploration potential at depth down-dip from some of the deepest drilling completed at Kiniero. In addition, NEGD open on strike and parallel structures are present at East-West.
		Gobelé D									
		NEGD									
		East-West			90	40					
Jean	Jean	Jean East and West			020-040	80-90				150-200 (max)	
	Banfara	Banfara	1.8	~400	350-020	80-85	30-50	Typical orogenic features, with steep lode orientations. Structures display both east and west dip orientations.	Oxide and fresh	~75	Confirmed down-dip depth potential into sulphide ores. May be open to the south along strike.
Balan	West Balan	Derekena	4.5 (NNW)	~1,700	63	60-75	5-30	Typical orogenic lode system with secondary mineralisation in the laterite.	Oxide	~80	Confirmed down-dip along the entire strike length.
		West Balan		~1,000			5-30				Not previously mined. Open at depth down-dip.
Stockpiles	Stockpiles	ROM	0.5 to 4 (NW)	N/A				Remaining mineralised ROM pad stockpile material at mine-closure in March 2014.	Oxide	Base of stockpiles (1m to 20m)	Additional legacy stockpile material remains undrilled / unquantified. To be completed in support of DFS.
		Low- to Medium Grade						Stockpiles of varying volumes and distances to the plant. All have been auger drilled to a 25m spacing to base of stockpiles.			

Source: SMG (2022)

8.1 Sabali Cluster

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

As such for descriptive purposes in support of this PFS, the Sabali North and Central deposits have been grouped, and described separately to the Sabali South deposit. Across the Sabali cluster a combination of historical and current drilling has outlined a structurally controlled corridor of mineralisation trending approximately 020° that is steeply dipping to the east. The Sabali cluster comprises three principal zones of mineralisation:

- two at the Sabali Central and Sabali North deposits, each of which strike for approximately 750m that have been offset from one another by a northeast/southwest trending fault, producing a lateral offset of the blocks in the order of approximately 200m. The lack of a marker bed/s constrains the ability to assess any vertical displacement component
- one at the Sabali South deposit, located directly to the southwest of Sabali Central, that is constrained by a possible east/northeast trending fault, or which is instead a general flexure of the mineralised corridor at the deposit scale. The width and depth of the mineralisation at the Sabali South deposit is not drill constrained at this time, and the extent of the mineralised geometry is likely to change, especially on the bounding eastern and western margins where drilling is sparser than in the Sabali Central and North. In addition, several of the deeper drill intersections have yielded true lode style mineralisation including multiphase dynamic breccia, providing confidence of testing for down dip and strike extensions as part of a Mineral Resource extension drilling programme during 2022

Across this structural corridor host lithologies include siltstones, shales, argillites, pillow lavas, porphyries and sills that have been emplaced along tuffaceous horizons, unconformities, and andesitic units (both flows and ash). Recent drilling has demonstrated four styles of mineralisation:

- supergene gold mineralisation, typically developed within the upper 30m, predominantly at the Sabali South deposit
- multi-phase veins through to ore shoot dynamic breccia supporting milled transported clasts suggesting sustained (deep seated & high temperature) fluid flows over time

- classic stockwork developed within brittle fractured, pervasively silicified metasediments
- typical orogenic quartz-sulphide veining, locally suggesting high CO_2 in the system

The weathering profiles through the respective Sabali deposits appear to be comparable to that of the Jean and Gobelé deposits. The oxide zone occurs in drillholes as a variable zone with a vertical thickness of 30m to 50m that changes into a transitional weathering horizon, a sulphatic horizon, which extends in certain areas to depths exceeding 100m vertically.

The location and results of the soil exploration within the Sabali system is presented and discussed in Section 9, whilst the location of all drillholes in this area is presented and discussed in Section 10.

8.1.1 Sabali North and Central

The Sabali North and Central deposits (previously named Sabali East by SEMAFO) was initially delineated by historical soil geochemical results, targets which were trenched and yielded positive results including 2m at 27.05g/t Au, 3m at 16.48g/t Au and 111m at 0.66g/t Au. Trenches were deepened and exposed a network of structures. These structures were generally oriented north/south fractures and filled with a quartz-carbonate ± sulphide mineral assemblage. The mineralised structures repeated at a frequency of 1m to 5m, over a length of approximately 60m.

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

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

Understanding the timing of these mineralisation events is important for targeting exploration which is an evolving interpretation. Mapped strike orientations are more northerly than the drilling interpreted strike fabric. There is growing evidence of an intrusive potentially centred to the south-southwest of the deposit, driving intense argillic, and then albitisation, overprinting events which might be related to the NE-ENE fabric observed in the airborne magnetics.

Mapping of the Sabali Central trenches suggests three distinct dip observations, i.e. steeply dipping to the northwest, near vertical and steeply dipping to the southeast, with the latter being the dominant observation from the historical drilling.

A plan map is provided in Figure 19 indicating the location of a cross section through the Sabali Central deposit, presented in Figure 20. The cross section demonstrates the down hole grade profile, regolith model, PFS pit shell and grade shell for the deposit.

8.1.2 Sabali South

The Sabali South deposit, which straddles the Kiniero and Mansounia License areas (at which it was previously locally referred to as Mansounia North), is situated directly south of the Sabali Central deposit. This deposit represents a previously undrilled and unidentified faulted block of a now demonstrated strike extensive corridor of near-continuous mineralisation extending from Mansounia South (in the south) through to Sabali North (in the north).

Following historical delineation of Sabali Central and Sabali North, a detailed infill soil and termite geochemical sampling campaign south thereof was historically completed on a 50m by 50m grid. Results indicated a strong positive anomaly for gold in soil, generally trending in a northeast/southwest orientation which was at the time termed the 'South' anomaly. Soil geochemical results justified the excavation of three trenches by SEMAFO perpendicular to strike. Highlighted intercepts included 8m at 1.13g/t Au, 20m at 1.61g/t Au, 4m at 3.14 g/t Au, 10m at 1.87 g/t Au and 97m at 0.56 g/t Au. No further exploration was undertaken at Sabali South by SEMAFO.

Upon acquisition of the Kiniero License Area, the SMG exploration team delineated the >0.5km² gold in soil geochemical anomaly as a priority target. Drilling commenced in March 2020. The drilling completed by SMG to date has not yet constrained the full geographic extent of the deposit with the SMG bulk leach extractable gold (BLEG) in soil geochemistry suggesting a significantly larger footprint which remains undrilled.

At least three principal zones of mineralisation have been identified at Sabali South, in part created by the drilling pattern which was anomaly driven during the early stages of exploration. These zones are developed along steeply dipping primary structures which are loosely defined due to drilling geometries, illustrative cross section is presented in Figure 21. In the southwestern sector of the Sabali South deposit, current drilling suggests there is a thinning of the oxide horizon within the weathering profile resulting in sulphide dominated ores reporting at a shallow depth, compared to elsewhere in the deposit.

Recent diamond drilling suggests there may be more deformation in the host rock pile than interpreted from earlier RC only drilling. The variations in lithostratigraphic positions, sharp changes in alteration and weathering may reflect internal block displacements within the Sabali-Mansounia structural corridor. Metallurgical studies are currently advancing to better understand the interplay between host lithologies, degree of weathering and changes in dominant sulphide types, and depth in the system.

Drilling has delineated a 030° to 040° trending stratigraphic sequence comprised of volcanic sediments and andesitic units to the west, and a shale dominated sequence to the east. Basalts have been identified towards the northern end of Sabali South which appear texturally similar to those basalts exposed in the Jean and SGA pits.

The layered geological sequence reflects a potential over thrusting of the sedimentary pile from a probable westward compression, which aligns with the western portion of the Siguiri Basin as the sedimentary pile abuts the older Archaean crust of the Man Shield. On the current eastern drilling margin of the deposit, drilling has outlined a >300m open on strike and dip focused zone of higher-grade mineralisation. A similar feature has been intersected on the western side of the deposit. Both structures remain priority resource drilling targets.

8.2 Mansounia Central

The Mansounia Central deposit is located to the south/southwest of the Sabali South deposit, and had been previously segmented into three separate targets, namely the Mansounia North deposit, which now forms a part of the Sabali South deposit (Section 8.1.2), the Mansounia Central deposit and the Mansounia South deposit.

Mansounia Central represents a direct on strike extension of the Sabali South deposit. However, for the purposes of this PFS, the Mansounia Central deposit has been treated as a distinctly separate deposit, primarily due to current drillhole spacing.

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

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

8.3 SGA Cluster

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

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

Weathering profiles through the SGA are extensive with the oxide to transition boundary typically beyond 60m and all free digging up to this point. A cross section through SGA indicating the typical geology and grade results is presented in Figure 22. Observations of the mineralised host rocks at SGA which had been previously mined include:

- mafic lavas mostly in pillow form which constitute the bulk of the mineralised host lithologies at the SGA area that were previously mined
- bands of fine grained and bedded volcanic tuffs with thicknesses of a few metres to tens of metres, intercalated between lava sequences. These are evident in each of the pits as well as from the exploration drilling through deposit
- local sills of up to 10m in thickness occur which are always emplaced within the tuffaceous horizons which may relate to their potentially more brittle properties under high pressure/temperate conditions. These lithologies generally strike east-west and typically dip to the north

The mixed stratigraphy suggests a possible paleo collision-thrust environment, similar to a modern-day imbricate wedge, but at a period in the Earth's history before the crust had developed model plate boundary tectonics. Textures within the pillow basalts suggest deposition within shallow facies. Interbedded sand-grit beds within the sedimentary pile suggest a shallow, on, or near-shelf facies.

The mafic pillow lavas are of greenschist metamorphic facies and as such are typically greenish in colour. Exposed in outcrop from pit exposures and drill core logging, it is apparent that the pillows range from 0.5m to 1.0m in diameter. The pillow lava piles indicate a strong homogeneity and there are no documented observations of connectivity with any dykes. Pillow borders are generally marked by a darker colour (probably due to the presence of ferric chlorite) and are typically 5cm thick with no hyaloclastic material between pillows, typically the boundaries being well preserved, suggesting minimal post-deposition deformation. The morphology of the lavas, constant thickness of pillow borders, absence of hyaloclastic material between pillows and the absence of concentric and radial cooling fractures, suggests a sub-marine origin of deposition, probably in the <1km to 2km ocean depth range, given their vesicularity.

The vesicularity of the lavas is high (10% to 20% of the volume was initially gaseous voids) with 1mm to 2mm amygdales filled by dark green to black coloured chlorite, with carbonate replacement common. Weak epidote alteration locally affects the lavas. The base of the Gobelé D pit exposed a more heterogeneous volcanic sequence with large volcanic tubes, multiform bands of dark hyaloclastic material and a sub-vertical breccia with centimetre fragments in hyaloclastic cement.

The volcanic breccia may correspond to the rapidly cooled and crumbling portion of the poorly consolidated lava at the front of active flows, i.e. a volcanic flow breccia. These local features suggest the proximity of a sub-marine effusive centre and the probability that this sequence is part of larger rafted block. Deep drilling (+250m) indicates that the package of pillow basalts gives way to basaltic-andesites, quart-diorite and/or diorite porphyry to quartz andesite.

8.3.1 Sector Gobelé A (A, B, C) (SGA)

To fully understand the Gobelé deposit, it is important to understand the evolution of the naming conventions applied to the various deposits and pit locations that form a part of SGA.

Previously the Gobelé deposits had been split into separate deposits, the first of which were the Gobelé A and B deposits which, together with the Jean deposit, represented the first deposits to be exploited at Kiniero. As exploration continued, so additional peripheral deposits were identified and named accordingly (Gobelé A, B, C, D, NEGD and East-West) (Figure 8).

As production continued at the previous Kiniero Gold Mine, so it became apparent that the Gobelé A, B and C deposits, which were in immediate proximity to one another, should be considered as a single exploitable deposit, instead of individual high-grade deposits. As such the three adjoining Gobelé A, B and C deposits were subsequently grouped together and named the Sector Gobelé A (SGA) deposit, with the area between Gobelé A and Gobelé B (previously referred to as the 'Pillar Zone') mined up until mine closure in 2014.

Gobelé D, NEGD and East-West were sufficiently distinct, to retain their original naming terminology. For the purposes of this PFS all the Gobelé deposits, inclusive of East-West, have been considered in a single geological model, namely the SGA model.

The original Gobelé A and B deposits are characterised by sub-vertical structures forming a corridor of sub-parallel structures, extending for over a kilometre in strike trending at 030°, a strike direction which dictated north on the previous local mine survey grid. The central portion of the Gobelé A deposit is wide, reflecting a vertically extensive dilatational zone which has been drilled up to >200m in depth, identifying mineralised structures well below the previous pit limit, hosting significant mineralised widths and grades.

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

8.3.2 Gobelé D

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

As mining continued at Jean and Gobelé, so the search for peripheral near-plant economic resources continued. The discovery of NEGD and East-West was driven by the regional and mine area soil geochemical surveys (Section 9), and subsequent ground and airborne geophysics (Section 9) and extensive drilling programmes (Section 10). The geometry of each of these deposits, and their position within the Jean and Gobelé mineralised structural corridor, warranted additional on-strike and down-dip exploration, which is ongoing at the time of this PFS.

8.3.3 North-East Gobelé D (NEGD)

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

8.3.4 East-West

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

The deposit comprises two zones of mineralisation, each 10m to 15m in width, with a 15m to 20m separation zone between them, and are comparatively high grade. The deposit remains open down dip and presents some strike potential primarily to the west. Drilling directly to the north has outlined additional footwall structures and further exploration is required given the higher-grade nature of the lode system. The lode structures contain some definitive textures and an alteration assemblage very similar to that recently identified by SMG drilling, which suggests that significant depth potential exists.

8.4 Jean Cluster

8.4.1 Jean East and Jean West

The Jean East and West deposits are situated immediately west of the various Gobelé deposits of SGA and was discovered at the same time as the Gobelé deposits. Jean East was mined from the outset in the early-2000s and is characterised by thick mineralised sub-vertical structures elongated for about 500m, trending 010°. This 010°trending structure at Jean East was mined, as well as the 350° striking mineralised structure at Jean West. The two mineralised structures at Jean are distinctly separated by a 030° trending fault.

The Jean West deposit is characterised by thinner and shallower sub-vertical structures with a 350° strike which remain open to the north on strike. Historical extension drilling of the Jean East and West deposits had been completed up until the TSF boundary with only a limited programme of sterilisation drilling having been completed prior to construction of the TSF. Intersections from RC drillhole collars immediately north of Jean West, i.e. beneath the TSF, have yielded results of 1.13g/t Au over 9m and 1.72g/t Au over 7m.

Exploration and exploitation of this extension beneath the TSF can now be considered with the revised Kiniero Gold Project development model through the use of a new TSF. This will allow for resource step out drilling to advance over the existing historic TFS structure and presents a significant upside potential to the Mineral Resources of the Kiniero Gold Project.

Lithological and structurally, the Jean deposits are virtually identical to that described in detail for the SGA Cluster (Section 8.3) with particular reference to the similar Gobelé A and B deposits, as illustrated in in the Jean deposit cross section (Figure 23). Historical drilling data suggests further depth potential and the potential for higher grades as seen at SGA.

8.4.2 Banfara

The Banfara deposit was delineated from regional gold in soil geochemistry values, coupled with a combination of airborne and ground-based geophysics. The Banfara deposit represents a steep sided worked out open pit that targeted two mineralised structures, one trending north-south (a principal regional control) and the other northwest/southeast, in effect a bonanza style deposit.

Mining of the Banfara deposit occurred during 2006 with the high-grade structures being exploited. Extension structures extend over a 0.25km^2 area. The primary mineralised structure strikes approximately true north, dipping steeply to the west, whilst the secondary mineralised structures (striking northwest-southeast) have been mapped dipping steeply to the east, indicating the complexity of the structure of the Banfara deposit.

Lithological assemblages at Banfara are virtually identical to those of the other deposits in the SGA clusters, described in detail in Section 8.2, with particular reference to the similar Gobelé A and B deposits. The weathering profile through the deposit is extensive with oxide material largely extending through to the historic base of the Banfara pit.

The extension of each of these mineralised structures has been variously explored, with a north-westerly extension, 300m west of the existing Banfara pit, having been previously drilled. The northern extension has been comparatively less explored due to the TSF abutting against the extension, effectively sterilising exploration potential. Rock chip sampling and trenching results have however yielded positive results from grey and oxidised quartz structures of north Banfara, striking in a northeast-southwest direction with peaks of 20.62 g/t Au, 17.83g/t Au, 15.68g/t Au and 12.89g/t Au respectively.

The recent BLEG soil geochemistry programme completed by SMG has demonstrated a >200ppb Au anomaly extending +300m on strike of the historic pit into a mineralised corridor not previously drilled.

8.5 Balan Cluster

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

Historical exploration, testing the extent of the mineralised structures of the Balan cluster, particularly to the southwest and west, resulted in the Balan cluster being subdivided into blocks (A, B C, C2, D and E) with blocks C2, D and E being referred to as the West Balan Extension (i.e. now Derekena, Kobane and Farabana).

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

8.5.1 Derekena

Previously, the Derekena deposit was regarded as a sub-division of the West Balan deposit and had been assigned the block number of West Balan C2, colloquially referred to at the time as 'West Balan Extension'. Infill drilling by SMG in 2020 of the previous strike extensions drilling confirmed that West Balan Block C2 is a direct strike extension of West Balan, and was assigned the deposit name of Derekena, a local place name.

Historical soil geochemical exploration at the Derekena deposit had a wider spaced grid than the neighbouring West Balan deposit. As such the geochemical expression was comparably subdued due to mineralisation existing between lines of soil sampling, resulting in an exploration emphasis being placed on West Balan. Soil geochemistry results were trenched with a single trench yielding results of 30m at 0.60g/t Au. Additional trenching and rock chip sampling justified an RC drilling campaign at Derekena and Kobane to test structures mapped in the trenches. Results of the drilling were positive and confirmed the presence of a strike extension, parallel to the main body of the West Balan deposit.

Mineralisation within the Derekena deposit consists of a series of sub-vertical quartz lode structures presenting typical orogenic vein features. Recent infill drilling by SMG of previous drillholes has been relatively shallow in nature, exploring depths of mineralisation typically <100m surface. The deepest previous drillhole extends to a vertical depth of ~130m below surface. The strike orientation and other aspects of the geometry are comparable to that of Gobelé D. Drilling intersections indicate mineralised structures average 6m to 7m in thickness, in some areas exceeding 10m, and are stacked across the width of the mineralised corridor.

Mineralisation is currently open down dip across the strike length of the deposit. The deposit forms part of a mid-term exploration-resource drilling strategy which targets delivering longer term satellite mineralisation to the new Kiniero processing plant. Some of the drillholes in the Derekena (and Balan cluster as a whole) have intersected altered granodiorite, which are known elsewhere in the Kiniero-Kouroussa corridor to have a close association with late phase high grade ore shoots.

The Derekena deposit is disrupted by a series of inferred small WNW to NW trending faults which displace the lateral position of the mineralisation, typically in the 5m to 10m range. There is no apparent indication of any significant vertical movement along these faults. Mineralisation trends are slightly rotated to the north-northeast from the typical West Balan trend, probably due to the proximity of the northwest to north-northwest trending Kiniero-Kouroussa shear zone (Figure 13).

The weathering profile through Derekena (and West Balan) typically parallels the topography with the oxide zone extending 30m to 50m vertically from surface, and then gradationally over a few metres into the transitional weathering horizon. Transitioning into fresh rock is generally sharp, over approximately 2m to 3m. The laterites of the Derekena deposit contain extensive areas of supergene enrichment in gold and have been mined by artisanal miners during recent years. Lateritic supergene gold in some areas may present resource potential, for which detailed evaluation is required.

8.5.2 West Balan

The West Balan deposit represents the most northerly of all the deposits to have been previously mined at the Kiniero Gold Mine. West Balan had a strong in gold in soil geochemical anomaly which reflected the geometry of the underlying mineralised structures. Soil sampling results justified a small trenching campaign, with the original discovery of the West Balan deposit being from a single trench targeting a soil geochemical anomaly which yielded a wide low-grade zone of 35m at 0.33g/t Au. Subsequent additional trenching and RC drilling delineated the northeast of the West Balan deposit before extension drilling southwest of the original discovery zone indicated the extent of the mineralised strike length of the deposit.

Mineralisation within the West Balan deposit is identical to that at Derekena, consisting of a series of sub-vertical quartz lode structures presenting typical orogenic vein features. Previous drillholes were relatively shallow in nature, exploring depths of mineralisation typically <100m or less from surface to target oxide ores. The deepest previous drillhole extended to a vertical depth of ~130m below surface.

The strike orientation and other aspects of the geometry are comparable to that of Gobelé D with drilling intersections and historical pit observations indicating mineralised structures having averaged 6m to 7m in thickness, in some areas exceeding 10m, stacked across the width of the mineralised corridor. Mineralisation is currently open on strike to the southwest at Derekena and down dip across the strike length of the deposit, confirmation of which formed a key strategy of the 2021 exploration programme.

The mined out, and back-filled, most north-eastern sector of the West Balan deposit is characterised by exposed coarse volcanic breccias with clasts in the 10cm to 15cm range, interstratified with coarse hyaloclastic tuffs, lithologies which represent the primary mineralised host rocks. These units have a strike direction of ~085° and dip to the south. Previous reports indicate that a fine and non-penetrative sub-vertical schistosity, oriented 050°, pervades throughout the host rock, proximal to the mineralised structures. The weathering profile through West Balan is identical to Derekena.

During 2021 the deposit footprint was covered with a BLEG soil geochemistry sampling campaign. As of the date of this PFS, approximately 60% of the grid samples have been analysed. The west-southwest portion of the BLEG grid has outlined targets of anomalous Au in soils. To the southwest and northeast of Derekena, with isolated anomalies back to West Balan, presents an area of continuous anomalism reflecting the geometry of the mineralised structures at depth. The southern anomaly, directly south of the historic West Balan pit is a false anomaly relating to the previous West Balan stockpiles.

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

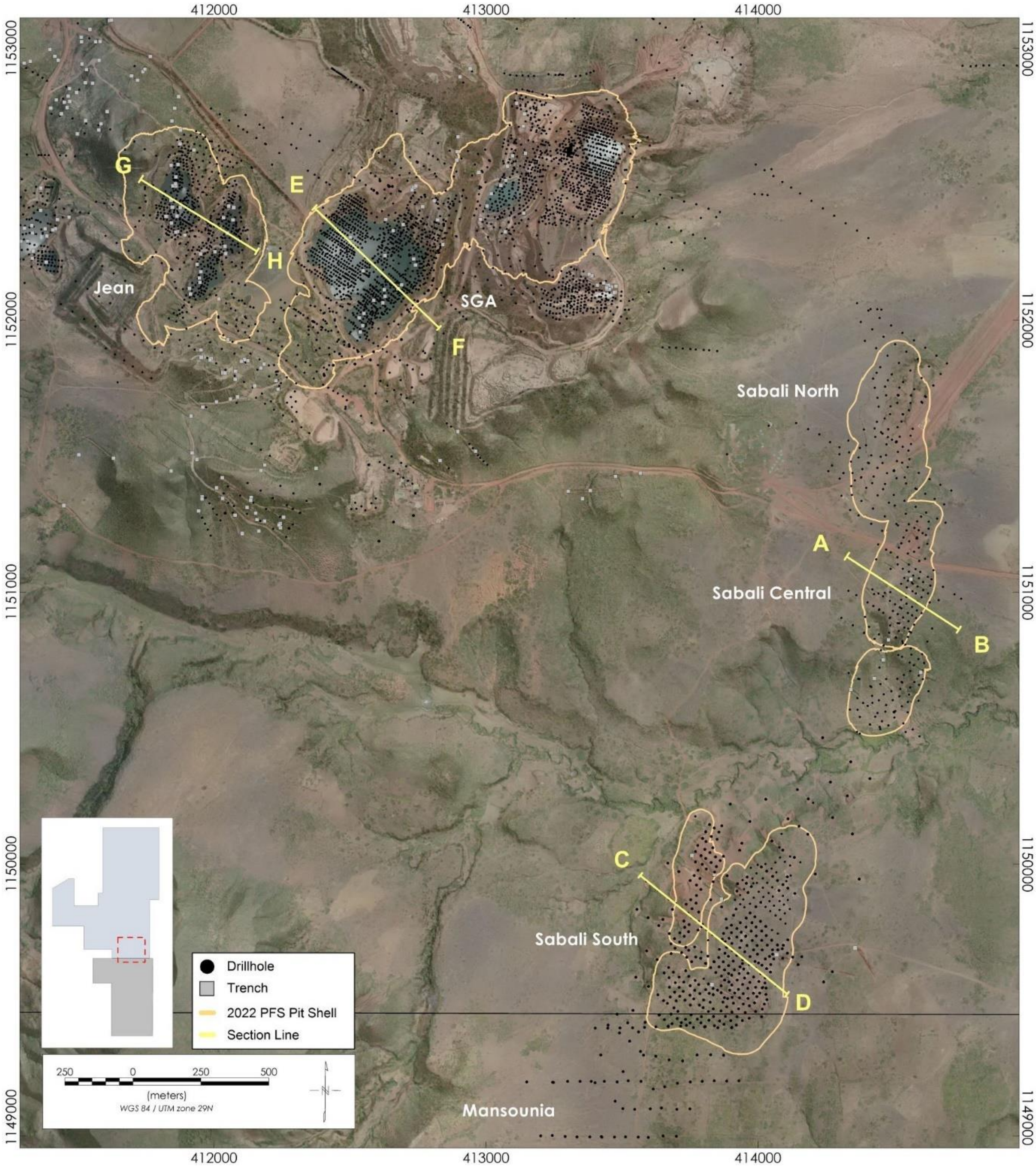


Figure 19: Plan Map Indicating Location of Cross Sections through the Southern Block Deposits
Source: SMG (2022)

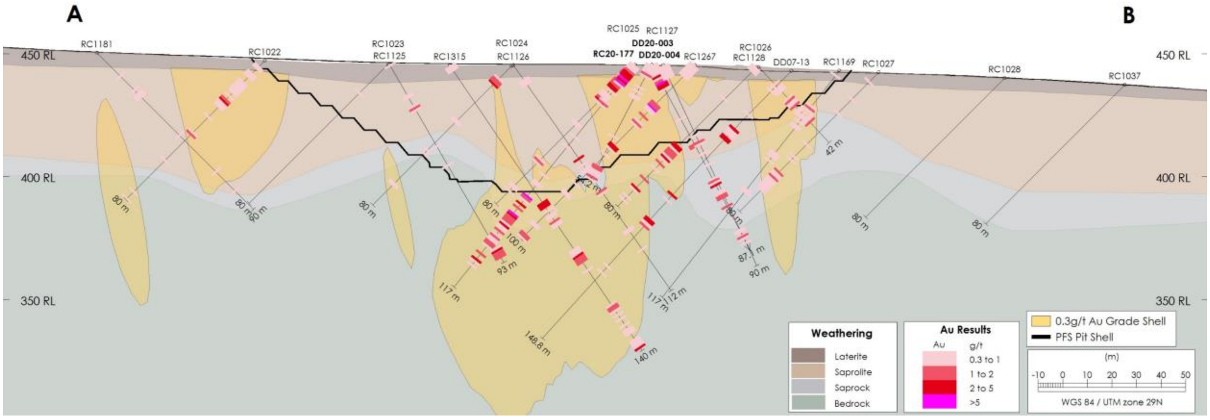


Figure 20: Cross Section A-B through the Sabali Central Deposit

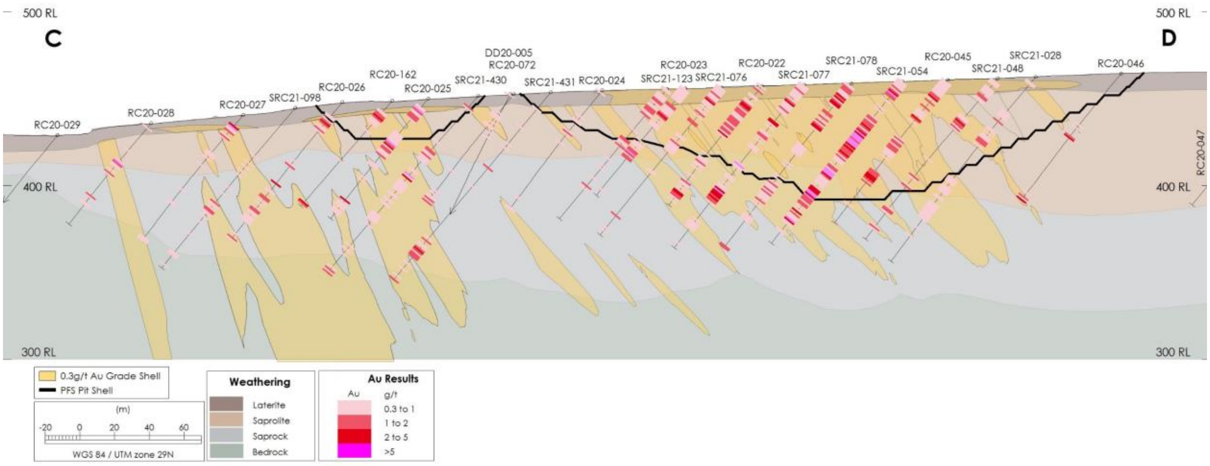


Figure 21: Cross Section C-D through the Sabali South Deposit

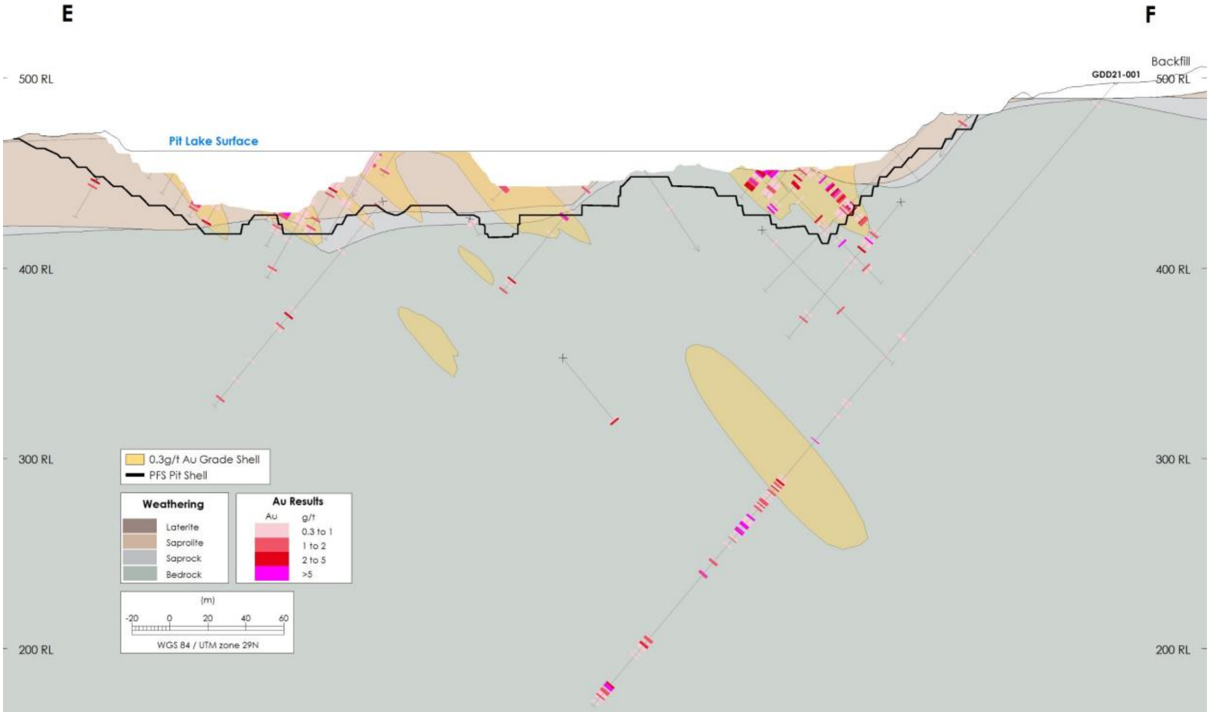


Figure 22: Cross Section E-F through the SGA (Gob A, B and C) Deposit

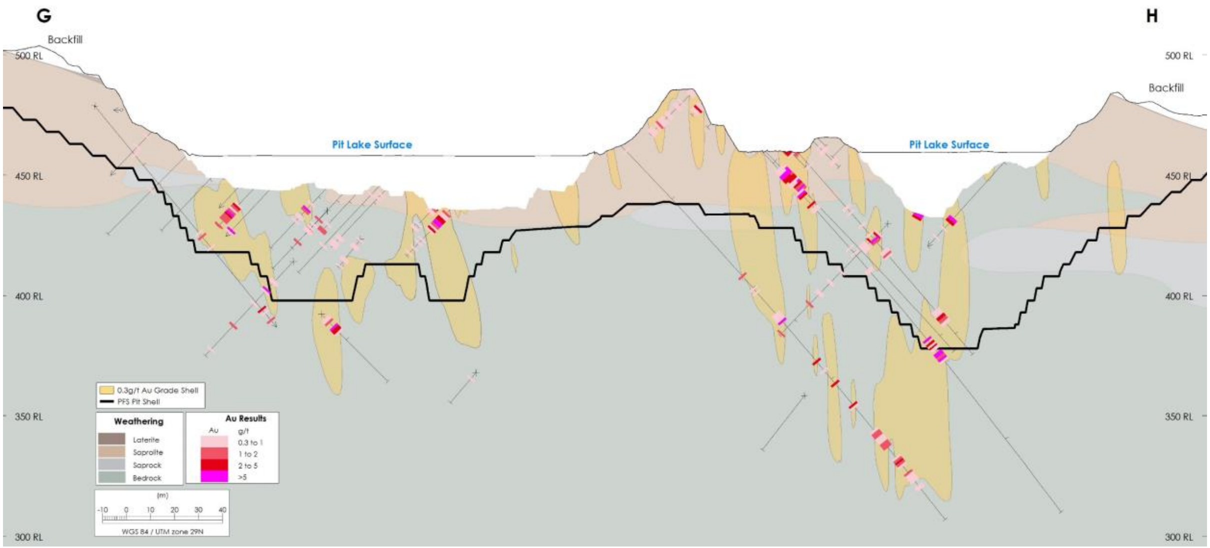


Figure 23: Cross Section G-H through the Jean (East and West) Deposit

8.6 Local Geology of Other Deposits

There are currently 11 deposits which represent future development targets that will be drilled to replace the Mineral Reserves in the current mine plan. SMG have completed a significant compilation of all historic data to better understand their respective position within the region structural setting. Each of these deposit areas have been or are scheduled to be soil sampled (BLEG gold in soil) in 2022/23. The exploration status of these deposits is schematically presented in Figure 17 and their location is indicated on Figure 16. The exploration and local geology are summarised in Table 12 and Table 14, respectively.

8.6.1 Mansounia South

At Mansounia South there has been a slight tilting, which is either related to the regional tectonics or possible underlying intrusive geology on the western and southern area of the deposit. This has caused erosion of the saprolite and brought the primary mineralisation structures closer to the surface. The gold mineralisation located within the saprolite is thought to have been (eluvial) remobilised from the primary mineralisation structures.

Structurally, the Mansounia Central deposit is transected by a first order north-south fault, and secondary northwest-southeast and east-northeast to west-southwest trending probable strike slip structural faults, which may in turn have been intruded by local felsic volcanics exploiting deep seated structural weaknesses. Previous drill cores suggest these may have been intruded as fingers through structural weaknesses and stratigraphic contacts.

The overall understanding of the geometry of these structures has improved with the recent reprocessed airborne magnetic data having delineated strong north-south and second northwest to north-northwest structures. These structures in turn appear dissected by east-northeast trending fractures which have been further resolved with advanced processing of the magnetic data. There is no conclusive evidence for large underlying magmatic inputs, but rather features which might represent signatures of dykes or small stocks.

There are three main types of mineralisation observed at Mansounia South:

- oxide supergene enriched and secondary accumulations of gold in the near-surface (2m to 5m thickness), with minor elevated silver and arsenic mineralisation. This is assumed to be proximal to primary source structures
- completely oxidised supergene mineralisation through the saprolite profile
- transitional in situ, steep dipping sheeted to stockwork quartz-carbonate-sulphide orogenic vein systems, representing a primary mineralisation target, and the original source for the supergene gold mineralisation. These are well-developed near inferred shear zones, and present depth and strike continuity

Table 14: Summary of the Local Geological Characteristics of the other Kiniero Gold Project Deposits

DEPOSIT	DISTANCE FROM PLANT (km)	STRIKE		DIP (°)	MINERALISATION		PRIMARY ORE TYPE	DEPTH EXPLORED (mbs)	ADDITIONAL RESOURCE POTENTIAL
		LENGTH (m)	BEARING (°)		WIDTH (m)	STYLE			
Kobane	6.8 (NW)	~1,700	000-005	85-90	5-20 (800m corridor)	Drilling results suggest a primary mineralisation on north-south controls with secondary gold dispersion developed along paleo-slopes.	Oxide (potential for fresh)	~50-75	Not previously mined. Open along both strike extents and down-dip.
Farabana	5.2 (NW)	~1,300	020-045	80-85	30-50	Typical orogenic features, with secondary mineralisation in the laterite. Evidence of higher-grade structures.	Oxide and fresh	~50-75	Not previously mined. Open along both strike extents and down-dip.
Wombon, Wombon South	2.3 (SW)	~2,000 each	350-005, 045-080	Sub-vertical (assumed)	>100 corridor	Stacked linear zones of veining. Strong structural control confirmed by limited drilling, probable dilation zones on mine centred structures.	Oxide and fresh	<55	Significant greenfields target. Open on strike and possibly connected to SGA cluster structural controls. Zones of intervening mineralisation into the SGA cluster enhance prospectivity.
Balan South	4.0 (NE)	~2,000	60	Assumed 75	unknown	Assumed orogenic with steep lode orientations.	Oxide and fresh	~70	High. Potentially a misinterpreted greenfields exploration target.
Zone C	3.0 (NW)	~500	350-020	80-90	30-50	Typical orogenic features, with steep lode orientations.	Oxide and fresh	~80	Never previously mined with confirmed down dip depth potential.
Djikouroumba, Kerkour & surrounds	13.0 (NW)	700, 1,700 satellite	315 & 065	80-90	30-50	Strong structurally controlled zone of mineralisation with principal fabric similar to other resource blocks in the Kiniero field.	Oxide and fresh	~75	Two deposits, the main prospect developed on a dilation zone and the second area developed on a linear control.
Heriko	14.0 (N)	3,500	Avg ~040	85	5-30 (300m corridor)	>100m of stacked linear zones of veining within an outlined central dilation zone. Assumed typical orogenic lode system.	Oxide and fresh	~75	Significant. Limited drilling suggests depth and strike potential with significant opportunity for additional maiden discoveries.
Mankan	15.3 (NNW)	>3500	330-030	80-90	5-15 (500m corridor)	Typical orogenic north-south orientated linear lode system with points of dilation. On strike from Filon Bleu with key regional geological control.	Oxide and fresh	~75	Significant. Mineralisation potential remains open on strike and dip with opportunity for near term maiden mineral resource discoveries.
Filon Bleu (and surrounds)	21.5km north	2,000 to 3,000	355-005	60-80 ENE	5-20 (200m corridor)	Typical multi phased deep-seated orogenic lode system with stacked lodes from sub vertical to dipping ~50 to the east. Gold hosted in laminated blue-grey sulphide bearing lodes quartz veins.	Oxide and fresh	<100	Significant. Well-developed vein system with demonstrated depth potential. Open on strike and plunge, RC drilling has delineated a detailed understanding of the full economic potential.
North- eastern Prospects	21.0 (N)	~6,000 (cumulative)	345-005, 045-080	sub-vertical (assumed)	30-50 within corridors	All prospects are closely associated with regional scale features. Appears typically orogenic with steep lode orientations.	Oxide and fresh	Not yet drilled	Significant greenfield target. Untested strike length and depth extent remains unknown.
Mansounia South	5.3 (NNE)	~2,000	010-030	75-85	5-30 (500m corridor)	Typical orogenic lode system with locally extensive areas of shallow and continuous supergene gold mineralisation	Oxide and fresh	~75	Not previously mined. Open on strike and width, significnt depth potential.

Source: SMG (2022)

The lateritic profile present across the Mansounia Licence Area has been well developed over an extended period, commencing in the Lower Triassic. Mineralisation of the volcaniclastics occurred around 2Ga at a depth of >6km to 10km. Subsequent tectonism and weathering, the ultimate unroofing has evolved over a significant period of geological time. The lateritic profile in West Africa unlike many other global occurrences is ancient, and the weathering profile has had a very significant time to develop.

There is a widespread high temperature albitisation overprint of the lower temperature alteration assemblages that are dominated by early quartz-sericite, which in turn is overprinted by K-feldspar-albitisation and then a carbonate-illite event that is closely related to major sulphides (pyrite, chalcopyrite, molybdenite, gold, telluride, arsentiferous pyrite and pyrrhotite). The Carbonate-illite phase has masked most of the original host rock textures. Understanding of the interplay of the alteration and subsequent mineralisation events will be improved with additional tighter spaced drilling, diamond drill core, and supporting petrological studies.

8.6.2 Kobane

The Kobane deposit (previously known as Sansaferakou) was previously identified through a large anomalous gold in soil geochemical anomaly, the full anomaly of which covers an extent of approximately 2.2km x 1.0km, with a pronounced north-south orientation. Soil geochemical results warranted trenching as well as RC drilling which resulted in the Kobane deposit being designated as Block E of the West Balan deposit by the previous operators.

Using the previous drilling results, SMG reinterpreted the structural fabric of the deposit during 2020 and explored the strike extensions of the previous drilling results. Based on a remodelled north/south structural fabric which the previous drilling had as an oblique alignment, mineralisation has better continuity. Mineralisation has likely developed from an inter-play with the north-south Filon Bleu conjugate fault system and the east-northeast structures of the West Balan corridor. This reinterpretation suggested the deposit could not be considered as a true strike extension of the West Balan deposit, and as such, SMG assigned the deposit the local name of Kobane.

SMG drilling intersected low grade multi-metre intersections over 5m to 6m, but the grades and positions suggested possible structural closure to the northeast. To the southwest drilling returned encouraging results with various holes returning multi-metre wide intersections including 19m at 1.32g/t Au (including 9m at 2.24g/t Au), 12m at 1.47g/t Au and 3m at 2.6g/t Au.

To better understand the structural framework of the mineralisation, all the historic soil geochemistry was filtered by survey type and the data then hand contoured using the same workflow used on the recently acquired BLEG geochemistry. The SMG drill intersections suggest primary vertically connected structures were intersected, with this southern extension presenting significant prospectivity which was independently confirmed with BLEG sampling in 2021. That area will form the focus of extension and infill drilling for 2023, with the intention of declaring additional near-plant oxide Mineral Resources. The potential for identifying sulphide mineralisation down-dip remains high as drilling of this deposit has been shallow in nature, with inclined drillholes seldom exceeding 60m.

8.6.3 Farabana

The Farabana deposit (previously Zone D or Berela) was identified by regional soil geochemistry and was subsequently explored by a series of trenches, with trench GST3 returning 111m at 0.66g/t Au, the entire length of mineralisation being within the laterite, representing the original discovery of the deposit. Documented observations suggested that no veining was observed in the trench (or other trenches), but that a network of structures filled with quartz and carbonates bearing north-south to north-northeast were present, oblique to the lode system geometry. These structures repeat themselves at a frequency of every 1m to 5m over a length of approximately 60m. The historic descriptions suggest this area may be supergene gold mineralisation that has developed over deeply connected lode style structures.

Wide spaced RC drilling traverses was previously undertaken which identified mineralisation at Farabana occurring in two separate linear bodies, approximately 220m apart from one another. Historical observations suggest that the wall rocks and ores display the same characteristics as at Gobelé D. Petrological studies of the cuttings from the SMG drilling programme will be completed in 2022 to better characterise the mineralising environment and its potential.

Apart for surface trenches and artisanal workings there is no exposure of the underlying geology, which has been interpreted from the RC chip logs. The near surface lithology sequences comprise siltstones and shales that pass into andesites and basalt at depth. Reprocessed airborne magnetic data has identified at least two bodies with high magnetic susceptibilities which might be volcanics or high level intrusives. The volcanics appear as the host rocks for much of the higher-grade intersections. The weathering profile through Farabana is variable with the depth of oxidation on the satellite zone shallow, in the range of 20m to 30m. Drilling in the main southerly deposit suggests the depth of oxidation is deeper at approximately 40m to 50m.

SMG infilled the previous drill traverses and delineated a sequence of intercalated felsic to intermediate tuffs with intermediate to mafic volcanics. Juxtaposed positions suggest possible subvertical faulting or depositional unconformities.

The extension drilling completed by SMG increased the known mineralised strike from the last historical fence lines by 200m in each instance, with the mineralised strike remaining open along these newly confirmed extended strike lengths, as well as down dip. These infill and extension drilling results compliment the original historical drilling.

Further, several prospective anomalies have not yet been tested with drilling at Farabana, where the structural setting is considered highly prospective. Understanding the structural controls and lithological formations will drive elements of the exploration programme going forward, particularly in the northern sector of the deposit where the laterite is well developed, and previous licence scale soil geochemistry has outlined several significant anomalies. The soil grid over the area is wide spaced and mineralised fabrics are difficult to identify.

Recent BLEG geochemistry completed by SMG has highlighted the structural framework preserved in the soil chemistry. The Farabana deposit is a high priority for near mine exploration in 2023. Coupled with the reprocessed airborne magnetics and the ability to inversion model selective anomalies, refined drill targets are being developed.

8.6.4 Wombon and Wombon South

The Wombon and Wombon South anomalies are situated close to the Kiniero plant precinct (Figure 16), with the primary Wombon target having elevated 500ppb to 1,000ppb Au in soil geochemistry values. Initial positive results were refined and further delineated by additional soil geochemical sampling covering ~90% of the Wombon anomaly and ~60% of the Wombon South anomaly. Historical follow up exploration included trenching and wide spaced and single traverse scout RC drilling over the Wombon anomaly only. No follow up exploration has been carried out at Wombon South.

Drilling results were reflective of the mis-understood structure of the area, with a selection of drillholes intersecting mineralised structures with narrow high-grade intercepts (e.g. 1m at 12g/t Au). The geometry and potential of these intersections is unclear as all drilling was shallow, and none of the drill traverses included complimentary step back undercutting drillholes.

Trenches were shallow and exposed only the tops of scattered quartz veining remnants within the saprolitic and lateritic profiles. Results were weakly anomalous, reflecting the level of leaching and the paleo-position within the system, as compared to the trenches cut in other deposits at Kiniero, which are typically deeper and have yielded significant structural and geological information.

Subsequent reprocessing of the 2007 airborne magnetics has indicated the potential connectivity of the Wombon anomalies with the central SGA cluster of deposits with outlined lineaments trending 050° to 055° and 075° to 080° at which no exploration has been completed. High magnetic gradients through the areas suggest a more complex geology than to the north, with basic to intermediate volcanics and intrusives likely present. In addition, recent LiDAR imagery has been used to map artisanal activities and attempt to characterise the excavated material types. At Wombon six target zones have been identified, each >400m in strike and 200m to 300m in width, each of which are aligned with structural fabrics.

A detailed BLEG soil sampling survey covering the Wombon, and Wombon South area commenced in the fourth quarter of 2020 and was completed in early-2021. The results of this programme identified a series of anomalies near, but not over, areas of historic drilling, suggesting the targets have not been fully tested.

8.6.5 Balan South

The Balan South anomaly was identified from a regional soil geochemistry sampling campaign. The area appears structurally complex with the Balan South anomaly located at the interpreted junction of two primary faults, each of which originate/trend from the Gobelé and West Balan deposits, respectively. In order to test this soil geochemical anomaly, a single RC drilling traverse was previously drilled. No significant gold intercepts were reported, and no further exploration was subsequently completed at the Balan South anomaly.

It is likely that the structural understanding of the Balan South anomaly was misunderstood and remains an exploration target for the Kiniero Gold Project with an untested anomalous strike length of >2km. The area was covered with BLEG in soil geochemistry in Q1, 2022 with results outlining one of the most extensive gold in soil gold anomalies. The area is dissected by two north-northwest trending shears which trend south into the Sabali North deposit, while extending north into the Kiniero-Kouroussa shear.

8.6.6 Zone C

The Zone C deposit (Figure 16) was delineated from regional gold in soil geochemistry values and a combination of airborne and ground-based geophysics. Extensive drilling and trenching outlined a cluster of thin and shallow sub-vertical structures of limited strike dimensions trending from 350° to 020°. SMG has completed a structural assessment of the areas using previous trench mapping and reinterpretation of previous drilling data. The area was covered by a BLEG soil grid during Q1-Q2 2021. Results indicate that that a significantly larger area of mineralisation may exist well beyond the current limits of exploration drilling.

The distribution of these mineralised vein sets suggests a possible central area of broader dilation which presents depth potential, while the BLEG results suggest a northeast control. Given the spread and density of drilling there appears to be a stronger depth potential than along strike.

Weathering profiles through the deposit are extensive with oxide material largely extending through to the historic base of mining at in the Banfara pits. Exposure of the weathering profile at Zone C is limited to the exploration trenches. Directly to the SW of the Zone C target a trench of a satellite soil anomaly reported 2 anomalous zones of veining including 4m at 6.17g/t Au and 13m at 6.77g/t Au with mineral associations suggesting a proximal intrusive.

Airborne magnetics at Zone C present a compound series of high magnetic susceptibilities, reflecting either basic volcanics or shallow intrusives. There is a positive correlation between the zones of higher magnetic susceptibility and the BLEG gold in soil footprint. A detailed mapping and geological re-evaluation programme are recommended for the Zone C area prior to new round of exploration RC and diamond drilling.

8.6.7 Djikouroumba and Kerkour

The Djikouroumba, Kerkour and surrounding satellite anomalies (Figure 16) were identified from a regional soil geochemistry and the airborne geophysics campaign. The Djikouroumba deposit was deemed the most prospective, based on gold in soil anomalies, and subject to follow-up exploration including trenches and RC drilling.

Several of the trenches returned encouraging results including 21m at 4.17g/t Au, 31m at 1.81g/t Au, 21m at 1.83g/t Au, 5m at 26.93g/t Au and 4m at 55.46g/t Au. Such results warranted the RC drilling campaign with encouraging results including 7m at 2.13g/t Au and 8m at 1.76g/t Au. Most of the intersected mineralised horizons were within the shallow oxide weathering zone. One trench exposed weathered porphyry in proximity to one of the areas of more intensive artisanal workings with recently reprocessed airborne magnetics highlighting a large circular magmatic body with a series of satellite bodies, and which are disrupted by various trending structures.

No subsequent follow-up exploration has ever been completed at Djikouroumba, which now hosts one of the larger artisanal mines of the region (>2,000 miners). The extensive footprint of the artisanal workings suggests a probable north-northeast to northeast control on the mineralisation, although the area is transected by a major ENE structure that has yet to be fully tested by drilling.

Trench mapping suggests a near surface dominance of flat lying structures that have been imprinted over by steeper orientated structures, with the drillhole intersections supporting this. These horizontal tensional structures have been observed to develop in this area of the Siguiri Basin within pull-apart blocks developed between parallel strike slip faults.

Recent satellite imagery over the area provides a significant improvement with the resolution of structural features and displays new artisanal workings on a similar interpreted mineralised alignment trending west-northwest. The area was covered by the SMG BLEG soil programme in Q3-Q4 of 2021. Only partial results for this grid are currently available and highlight a potential anomaly significantly larger than the artisanal mining footprint, which correlates strongly with magnetic bodies.

No follow-up exploration was completed at Kerkour, or any of the other satellite anomalies, including Grand Filon; target anomalies which will also be included in the BLEG soil sampling programme planned for 2021.

8.6.8 Heriko

The Heriko deposit (Figure 16) is located within one of the main regional structural corridors at Kiniero, which is reflected in the geometry of the deposit and by the key mineralisation trends of 005° to 020°, 045° to 080° and 320° to 330°, within a regional stress fabric dominated by north-south and northeast-southwest structures.

The Heriko deposit consists of a primary target zone located on the western side of a north/south lineation (the Heriko Hill), with three adjacent anomalies located to the north and east thereof named Heriko Northeast, Extreme Northeast and East (Figure 16).

The Heriko anomalies were delineated from gold in soil geochemistry values, with the targets subsequently refined from airborne magnetics. These anomalies from airborne magnetics have long since been recognised as having demonstrative potential to deliver a significant gold resource. Previously, however, the Heriko deposit was only explored to a limited extent and remains under explored. Recent reprocessing of historic airborne magnetic data has identified a secondary structural fabric which requires further review.

The area will be covered by the north extension BLEG soil sampling programme planned for Q3 and Q4 2022. The four primary target areas of Heriko are summarised as follows:

- Heriko Main: the furthest western anomaly of the Heriko deposit that has previously been explored the most intensively (trenching and RC drilling), but which remains limited. Results indicate the presence of a 350m long mineralised corridor. Significant additional infill and outlier exploration is required to further understand the structural geology of the deposit and the genesis of the gold
- Heriko Northeast: an anomalous soil and termite geochemical target due north of Heriko Main at which no additional exploration has been completed
- Heriko Extreme Northeast: this area has been extensively trenched which has yielded encouraging high-grade intersections (e.g. 14m at 1.6 g/t Au and 17m at 2.56 g/t Au) targeting north/south trending structures. The trenched mineralised zone strikes approximately north/south along the western side of the Heriko Hill and supports active artisanal mining which has colloquially been extremely productive. The diggings trend 020°, targeting discrete steep structures, and are in excess of 30m deep and mechanised

- Heriko East: a large area defined by soil geochemical results. Very limited follow-up exploration has been completed at the anomaly with just three trenches excavated. Detailed geological and structural mapping and rock chip sampling has been planned before additional trenching or drilling is considered

Historical follow up exploration included three phases of additional infill soil geochemical sampling grids on east-west, northwest/southeast and east northeast/west southwest orientations, wide-spaced trenching and a localised RC drilling campaign over the primary target Heriko anomaly. Drillhole intersections from the limited drilling previously completed suggest steep dips to the east and northeast with significant grades and widths through the explored vertical section being returned, including 38m at 3.46g/t Au, 26m at 1.51g/t Au, 5m at 6.81g/t Au and 26m at 3.33g/t Au.

The Heriko Extreme Northeast anomaly was previously sampled across an extensive infill soil geochemical sampling. Results from the soil sampling campaign corresponded to mapped structures trending northeast/southwest and delineated two broad anomalies, a northeast/southwest orientated anomaly trending the entire length of the grid, as well as a northwest/southeast linear target, representing the adjoining Heriko East anomaly. Both structural trends are evident in the reprocessed airborne magnetic data.

The geological context of the Heriko deposit is considered highly favourable for hosting gold. Felsic dykes have been mapped interspersed within a saprock of mafic schists of volcanic origin. The host rock of the region appears to variably be volcanic sediments, tuffs, andesites and komatiites, the latter being important as it highlights the probable deep crustal setting of some fractures in the areas. In areas, host rocks are extensively altered and sheared with intense quartz and carbonate veining throughout. Heriko is one of the few deposits at Kiniero where bedrock geology has been exposed by trenching, indicating that the laterite is thinner and poorly developed, with the underlying oxide weathering profile typically <20m thick.

A granitic intrusion has been tentatively interpreted based on the mapping of granitic and quartz stockwork veining and the presence of granitic scree on surface and hornfels contact metamorphism developed in several areas. It is possible that the presence of these veins was post creation of the main schistosity with the felsic dykes intruding at a later stage, post metamorphic events. Petrology of the granite and hornfels rocks is required to better understand the geological setting and timing of events.

The whole region may subsequently have been folded, as evidenced by the variation in dips of the main schistosity. Detailed mapping is required as at a regional scale the area is positioned on the western margin of a primitive subduction roll-back zone. Identified mineralised structures in the trenches and RC drillholes appear to extend over a strike length of 200m, trending 030°, a width of approximately 100m and a maximum inferred depth of about 125m. Structures are sub-vertical with a variable strike ranging between 30° and 120°.

The historical trenching and RC drill campaigns delivered some early and promising results with both primary and secondary styles of mineralisation identified. No drilling has been undertaken on the adjacent Heriko anomalies. The Heriko deposit has been delineated as a high priority exploration target requiring some early diamond drilling to correctly establish structural and geological frameworks, to direct a resource delineation drilling campaign in 2022.

8.6.9 Filon Bleu and Surrounds

The Filon Bleu deposit (Figure 16) takes its name from the mineralised 'blue' quartz veins that occur in the region. Historical mapping, soil and rock chip sampling as well as reported diamond drilling (no surviving records) being completed which led to underground exploration and development being completed at Filon Bleu and at a second on strike structure, X-Vein, north of the Niger River.

The underground mining activities at Filon Bleu remain the only account of significant organised underground mining, although adits and a 250m strike development of the Jean deposit was undertaken around the same time. The extension of this structure, X-Vein, 11km to the north-northwest was explored on a single level by the same organisation. Filon Bleu was explored on two levels with over 300m of strike development and exploration crosscuts representing the most historic underground exploration undertaken in the Siguiri Basin in Guinea. Detailed records of the extent of the exploration and underground mining have not been located.

Mining and all other exploration activities being undertaken by BUMIFOM at Filon Bleu ceased abruptly in 1958, with the underground development being permanently sealed. The level plan drives and rise survey information have subsequently been sourced by SMG, modelled, and interpreted.

The regional soil geochemical programme by SEMAFO and results of airborne geophysics (magnetics) resulted in the area being broadly subdivided into four main prospects which have strong parallels with the Kouroussa X-Vein lode system to the north (11km), namely Filon Bleu, West Filon Bleu, North Filon Bleu and an area to the south termed Saman. Only Filon Bleu and West Filon Bleu had any significant follow-up trenching and RC drilling completed, while Saman had a single trench excavated thereon. Each of these deposits have developed on or near to the north-south trending Filon Bleu conjugate fault system, which in the area of Filon Bleu is an 800m to 1,200m wide structural corridor. Recent reprocessing of airborne magnetics has highlighted a complex structural framework and supporting evidence for shallow intrusives.

Historical trenching yielded results including 21m at 4.17g/t Au, 31m at 1.81g/t Au, 11m at 38.06g/t Au, 21m at 1.83g/t Au and 11m at 2.34g/t Au. These results justified a limited historical RC drilling campaign being undertaken. Positive results included 23m at 2.13g/t Au, 10m at 4.03g/t Au, 9m at 3.42g/t Au, 27m at 1.53g/t Au, 26m at 1.87g/t Au and 9m at 5.73g/t Au. This area is currently the focus of large-scale artisanal mining targeting the main mineralised lode structures and secondary northeast trending cross structures.

The Filon Bleu system show a rather complex mixture of sub-vertical and low dipping structures of various orientations with a typical multi phased orogenic lode system of stacked lodes dipping from sub-vertical to ~50° to the east. Based on the geological mapping by the BRGM, Filon Bleu has developed between a contact of mapped cherts and ultrabasic rocks, with a regional scale north/south orientated strike-slip fault visible in the airborne magnetics, satellite DEM and LiDAR DEM data.

To the north, this fault brings in contact granodiorites with metasediments in the east, with a subvertical contact and focused mineralisation. Late phase diorites to monzogranites are known to have been intruded in this corridor and have driven mixed magmatic - metamorphic metasomatic fluid followed by late structurally controlled metamorphic and heated meteoric hydrothermal fluids through deep seats structures. This intermixing and remobilisation of metal rich fluids has resulted in the development of bonanza grade ore shoots presenting significant plunge potential. This has been demonstrated by deep diamond drilling at the neighbouring X-Vein deposit.

Mineralisation is generally linked to structures that are filled with quartz and iron oxides striking at 20° (within a regional north/south fabric) and dipping >70° to the southeast. Additional trenching in the south of Filon Bleu is required to test for mineralised strike extensions, as many of the southern trenches terminated in mineralisation.

Extensive drilling is planned for 2022 and 2023 following the completion of a detailed soil grid, mapping, and petrological study of the lode ore types, this will establish two to three drill sections targeted to explore the vertical potential of the system, initially to a depth of 250m vertically and parallel footwall structures. The initial drilling programme should be diamond, changing to RC infill, as a revised geological model is developed.

8.6.10 Mankan

The Mankan prospect (Figure 16) has been demarcated by a significant gold in soil geochemical anomaly covering an area of 4.2km x 3.1km. Mankan is approximately 2.2km south and along strike of the Filon Bleu prospect. It may represent an extension of the mineralisation developed at Filon Bleu or an interplay with the north-northwest trending Kiniero-Kouroussa shear. The Filon Bleu conjugate fault system appears to control the development of mineralisation through the eastern portion of the Mankan deposit. The Mankan prospect has been previously split into three target areas as defined by soil geochemistry, namely Mankan North, Central and South, at which extensive active artisanal mining occurs across the area.

The Mankan prospect has long been recognised as having a high level of prospectivity. The recent discovery of the adjacent Saman deposit by Predictive Discovery has further confirmed the prospectivity of Mankan, and the north-south controls. Historical exploration campaigns over several years at Mankan included trenching and RC drilling. As such Mankan represents the most extensively explored of the northern deposits at Kiniero. Trenching results included 33m at 6.50g/t Au, 18m at 35.61g/t Au, 46m at 1.56g/t Au and 36m at 3.63g/t Au, while drilling results included 11m at 1.37g/t Au, 6m at 5.64g/t Au, 13m at 1.96g/t Au and 6m at 2.72g/t Au.

Trenching and drilling exploration was generally focused along the tops of the Mankan hills, with exploration on the surrounding planes and valleys limited to soil geochemical sampling. Intersected mineralised quartz veins are open and sigmoidal. Despite significant results being returned, it is apparent from the drilling and trenching pattern that a clear ore genesis and structural model was never fully developed prior to initiation of the drilling programme.

The primary artisanal diggings across Mankan focus on exploiting high-grade quartz stockworks, with mapping by SMG indicating mineralised structures to be trending approximately 330° that dip sub-vertically, largely in line with the main geomorphological features of Mankan that trend northwest-southeast. A review of the trench mapping by SMG suggests beresite alteration in some areas of the development, supporting the possibility of intrusive related mineralisation at shallow depth, an observation that fits with the new structural framework developed for the airborne magnetic data. Predominant lithologies are characterised by volcanic, sedimentary, and intrusive units.

Recent satellite imagery over the area suggests a potentially larger footprint than outlined by the original soil geochemistry based on new areas of scattered artisanal workings over a wider 5.5km x 2.2km corridor trending north northwest. Remote sensing and structural interpretation by SMG have further delineated a 030° trending exploration target with the Mankan deposit having been delineated as a high priority exploration target for resource delineation drilling in 2022 and 2023. Early exploration diamond drilling is required to better understand the geology, alteration, and structural frameworks at depth.

8.6.11 Northeastern Prospects

The northeastern prospects comprise eight anomalous areas previously identified from the regional gold in soil geochemical sampling at which minimal or no subsequent exploration has previously been undertaken. Some of these anomalies appear to be geologically and structurally related to other adjacent anomalies, and as such have been grouped as a collective target area for descriptive purposes. This area encompasses seven targets, namely:

- Diamanankouma
- Filon Boni
- Kato
- Filon PC216
- Boni Découverte
- Kalanba
- Piro

This north-eastern prospect area covers an area of 42km², representing one of the largest sectors of the Kiniero Project at which no exploration drilling has yet been completed, and no significant follow-up soil geochemistry. The airborne magnetics indicate that the north-eastern prospects are located in an area of lower magnetic gradient, more typical of the Siguiri basin sedimentary sequences, which is bounded to the west by the Filon Bleu shear. Within this zone there are subtle magnetic textures reflecting extensions of the more regional structural fabric. It is possible that this area is likely connected to the Heriko mineralisation controls. Recent reprocessing has highlighted a subtle east-northeast structural fabric which is a key structural control elsewhere in the district.

The soil geochemistry results from this north-eastern prospect are low in tenor, as compared with other target areas of the Kiniero Project, however the target mineralisation should respond well to BLEG soil geochemistry. The structural fabric is dominated by north-northwest and east-northeast trends which are clearly visible from the airborne geophysical data and the acquired 2021 LiDAR DEM data.

The limited extent of the historical follow up exploration included an infill soil geochemical sampling grid over ~25% of the Diamanankouma anomaly and trenching at Diamanankouma and Kato. The trenching exposed shallow levels of quartz and ankerite veining with the quartz veining and envelopes reporting anomalous gold values, particularly at Kato. The presence of ankerite veining matches trenching observations at Sabali East and may reflect high CO_2 levels in the system and shallow depth intrusives, while disseminated pyrite was also mapped through some trench profiles suggesting a mixed mineral deposition environment. Systematic exploration is required to develop a clear understanding of the geological framework and mineralisation controls through the area.

Recent satellite imagery spanning 2017 and 2018 has allowed mapping in detail of artisanal activities with 20 zones having been identified, the largest >1,500m in strike and 300m in width, all aligned with the regional structural fabrics. Recent LiDAR coverage has provided significant detail to now advance geological & structural mapping.

Remote sensing and structural interpretation by SMG have delineated priority target zones for mineralisation trending primarily through Filon Boni, Diamanankouma and Filon PC2016. Due to the greenfield nature of the north-eastern prospects, exploration for 2022 and 2023 will be reconnaissance in nature including a detailed BLEG soil geochemical survey that will provide the early framework coupled with a mapping campaign. Interpretation of those results will dictate any subsequent exploration including possible deep machine auger drilling as a precursor to DD and/or RC drilling which is planned for 2023.

9 EXPLORATION

All historical Mineral Resource / Mineral Reserve development and production, including that undertaken by SEMAFO is summarised in Section 6. All the work discussed in this section pertains to the license-wide exploration performed since the discovery of the various gold deposits that occur across the Kiniero and Mansounia License areas.

9.1 Historical Kiniero License Exploration

9.1.1 Semafo (1996 to 2013)

9.1.1.1 Surveys

All historical survey work carried out at the historical Kiniero Gold Mine was undertaken by the appointed Chief Mine Surveyor. Surveying was undertaken according to both the local mine grid, with local grid north orientated at 030° true north, as well as to the Universal Transverse Mercator (UTM) Zone 29P. A false constant of 4,534.48 was applied to the local mine grid elevations, with conversions between the X and Y local mine coordinates and the UTM Zone 29P coordinates undertaken using the following formulae:

From UTM Zone 29P to Local Grid: $X = xA + yB + C$ and $Y = xD + yE + F$

From Local Grid to UTM Zone 29P: $X = \frac{xE - yB + BF - CE}{AE - BD}$ and $Y = \frac{yA - AF + CD - Dx}{AE - BD}$
where:

X = new Easting, Y = new Northing, x = previous Easting, y = previous Northing, A = 0.83685945212,

B = -0.546867744688, C = 289,959.682027339, D = 0.547156929519, E = 0.837044084704, F = -1,184,848.90552973

The survey equipment used for historical survey purposes included a Leica TCR 405 series theodolite, two Leica NA730 dumpy levels, two Leica Rugby Laser levels (320SG and 300SG), an Ashtech GNNS system and various other supporting Leica series of equipment (measuring wheel, tripod, levelling staff, carbon fibre rods etc). This historic survey equipment is onsite and has been inspected. The equipment is not in an operational state as batteries have corroded, electronics have degraded, and the firmware is out of date.

9.1.1.2 Stream Sediment Sampling

Stream sediment sampling was undertaken by SEMAFO between 2000 and 2001. The samples were collected on a density of one sample per square kilometre. Stream sediment sampling was again carried out over the Jean and Gobelé area in 2006. Although SMG has been made aware of these sampling programmes, the company has no knowledge of the sampling protocols employed nor assay method and laboratories used. In addition, SMG has not been able to obtain the results of these sampling campaigns.

9.1.1.3 Soil Geochemical Sampling

A license wide gold-in-soil geochemical sampling campaign was undertaken by SEMAFO in 2004, and again in 2006 to include an additional permit area. The aim was to identify gold anomalies with a gold grade >100 ppb. Initially sampling was undertaken on a widely spaced grid and later infilled with closer spaced sampling at selected target areas. A total of 39,977 geochemical samples were collected by SEMAFO. This survey was referred to by SEMAFO as the -80# soil geochemical sampling which refers to the -80 mesh (#) which was used to sieve the samples in field.

The gridded results of this -80# soil geochemical sampling survey is presented in Figure 24. The soil surveys led to the discovery and delineation of the 49 anomalies across the entire Kiniero License area (Figure 16 and Figure 24).

9.1.1.3.1 Sampling

Soil sampling was undertaken on an initial 200m x 200m grid with 150g to 300g samples collected and bagged at each sample point. Soil samples were typically collected at a depth of 35cm to avoid any surficial contamination of the sample. Where a laterite crust was present, the sample was taken at a shallower depth. Samples were sieved in the field using the -80# mesh size described above.

9.1.1.3.2 Sample Position Surveys

The regional geochemical surveys were planned in UTM coordinates system and the WGS84 projection. The sample points were surveyed in the field using a handheld GPS which had an error range of between 3m to 5m at that time.

9.1.1.4 Termite Mound Geochemical Sampling

A termite mound sampling programme was undertaken by SEMAFO between 2007 and 2008 across various areas within the Kiniero License area. A total of 12,558 termite mound samples were collected during this period.

The purpose of this sampling method was to obtain gold in soil grades from beneath the surface. Termites are widespread across Africa and offer a unique geochemical sampling opportunity of below surface material. Termites generally excavate to the water table to access water to maintain constant humidity and temperature levels within the atrium of the mound. As such termite mound sampling is a useful reconnaissance exploration technique to sample material from below thick and complex weathering horizons, as exists in Guinea.

The SEMAFO discovery of the West-Balan Block D Zone, as well as North Wombon were a direct result of termite mound sampling. The gridded results thereof are presented in Figure 25. The termite results (in conjunction with the soil geochemical survey results) aided with the discovery and delineation of the 47 anomalies across the Kiniero License area (Figure 16).

9.1.1.4.1 Sampling

SEMAFO used a sampling grid of 200m x 50m over the majority of the Kiniero License area, except for Zone C, where it was undertaken at a 1.2km x 2.0km grid spacing. Samples positions were identified as the nearest termite mound to a grid intercept point. Sample were collected by breaking the termite mound with a rock pick and collecting a sample from the centre of the mound toward the base, avoiding the outer mound material. A sample of approximately 2kg was placed in a bag, sealed and labelled.

9.1.1.4.2 Sample Position Surveys

The regional termite surveys were planned in UTM coordinates system and the WGS84 projection. The sampled termite mound, closest to the planned coordinate was resurveyed in the field using a handheld GPS which had an error range of between 3m to 5m.

9.1.1.5 Pitting

Pitting was used by SEMAFO in the early years as a form of reconnaissance exploration. Although the results are included in the current SMG database, they have never been used in any geological modelling and are therefore not discussed further in this report.

9.1.1.6 Geophysical Surveys

Although SMG is aware of ground magnetic and induced polarisation (IP) surveys having been undertaken by SEMAFO between 2000 and 2001, the company has been unable to obtain any of these results.

A license-wide helicopter borne magnetic survey was undertaken by Fugro Airborne Surveys (Fugro) in 2007 with the purpose of identifying deep seated magnetic anomalies and structures which may be associated with gold mineralisation. The survey was flown using east-west flight lines and north-south orientated tie lines, totalling 4,250 line kilometres being flown to cover a total area of 375km². A MIDAS II System was used with survey lines orientated east – west at 100m line spacings. A nominal ground clearance between 15m and 25m was achieved.

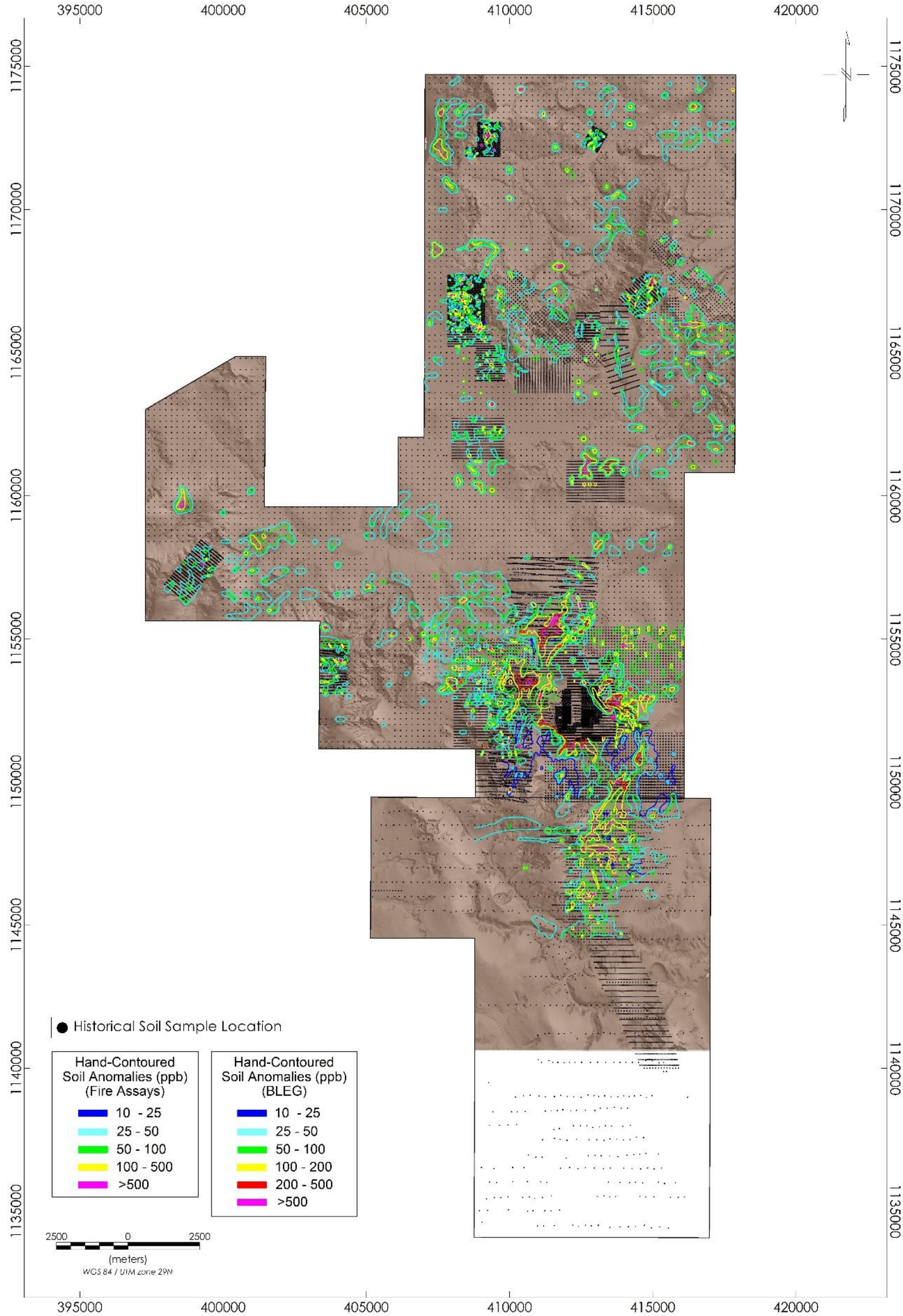


Figure 24: Previous Gold in Soil Geochemistry Results, reinterpreted by SMG over the Kiniero Gold Project

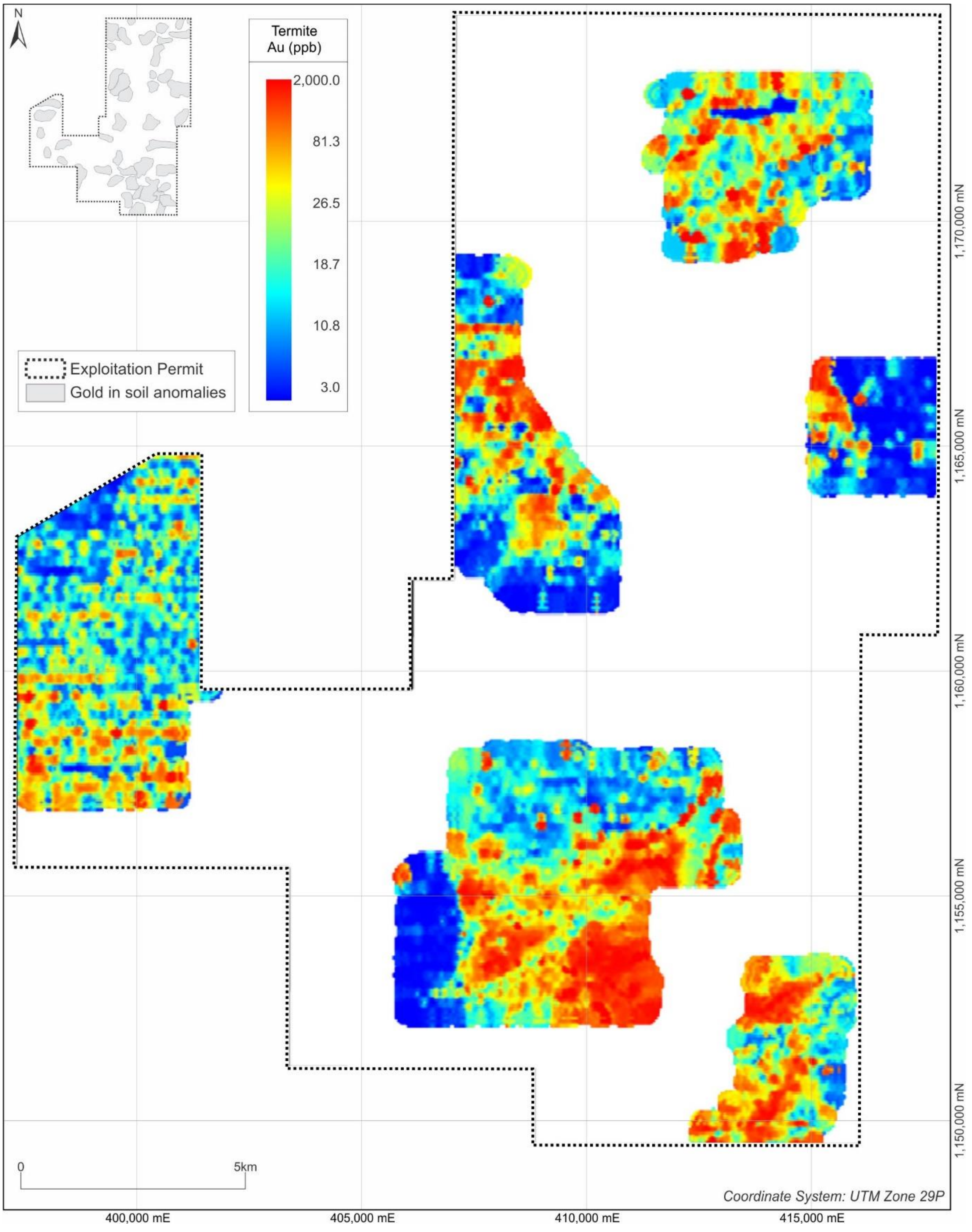


Figure 25: Gold in Termite Mound results over Kiniero License Area

The raw ACSII file data for this survey is not available. Steps have been taken to attempt to retrieve this dataset, but with a change in Project ownership, the time elapsed and the various changes in the warehousing and archiving of the data by the original acquirers (which has changed hands multiple times through various acquisitions) it is proving challenging. However, the original gridded data has been sourced, and is available to SMG, which has been reprocessed, and used in the target generation process (Section 9.2.1.7).

SEMAFO contracted Sagax Afrique to process and interpret the final data. The data obtained from this survey consisted of radar altimeter grid and georeferenced processed magnetic grid images covering Total Field (TF), First Vertical Derivative (FVD or 1VD), Second Vertical Derivative (SVD or 2VD) and Analytic Signal (AS). SMG obtained static *.jpgs and *.bmp files, no raw and processed Geosoft grid files were available. The filtered data results are presented in Figure 26. The following filtering techniques were applied by Sagax Afrique to obtain the results presented in Figure 26:

- Total Field - the magnetic total field is the magnitude, or absolute value, of the magnetic field vector, usually measured at the surface or at some measurable distance (elevation) above the Earth's surface. The magnetic TF describes the strength, or intensity, of the magnetic field, which is measured in units of nanoTesla (nT)
- First Vertical Derivative (Vertical Gradient) - the 1VD filter is physically equivalent to measuring the magnetic field simultaneously at two points vertically above each other, subtracting the data and dividing the result by the vertical spatial separation of the measurement points. The 1VD is used to emphasize shallow geological magnetic units and its output represents the vertical change in the magnetic field over distance
- Second Vertical Derivative - the 2VD processing of magnetic data uses the Fourier (FFT) series for its computation. The 2VD is the vertical gradient of the 1VD. This filter enhances high frequencies in the magnetic data relative to low frequencies, and due to this, it is the basis whereby long wavelength regional effects, and the resolution of adjacent anomalies can be resolved
- Analytic Signal - the AS is derived from two computed horizontal gradients plus the vertical gradient of the magnetic field. This filter provides a compact representation of each magnetic zone as it is especially responsive to variable wavelengths within the data

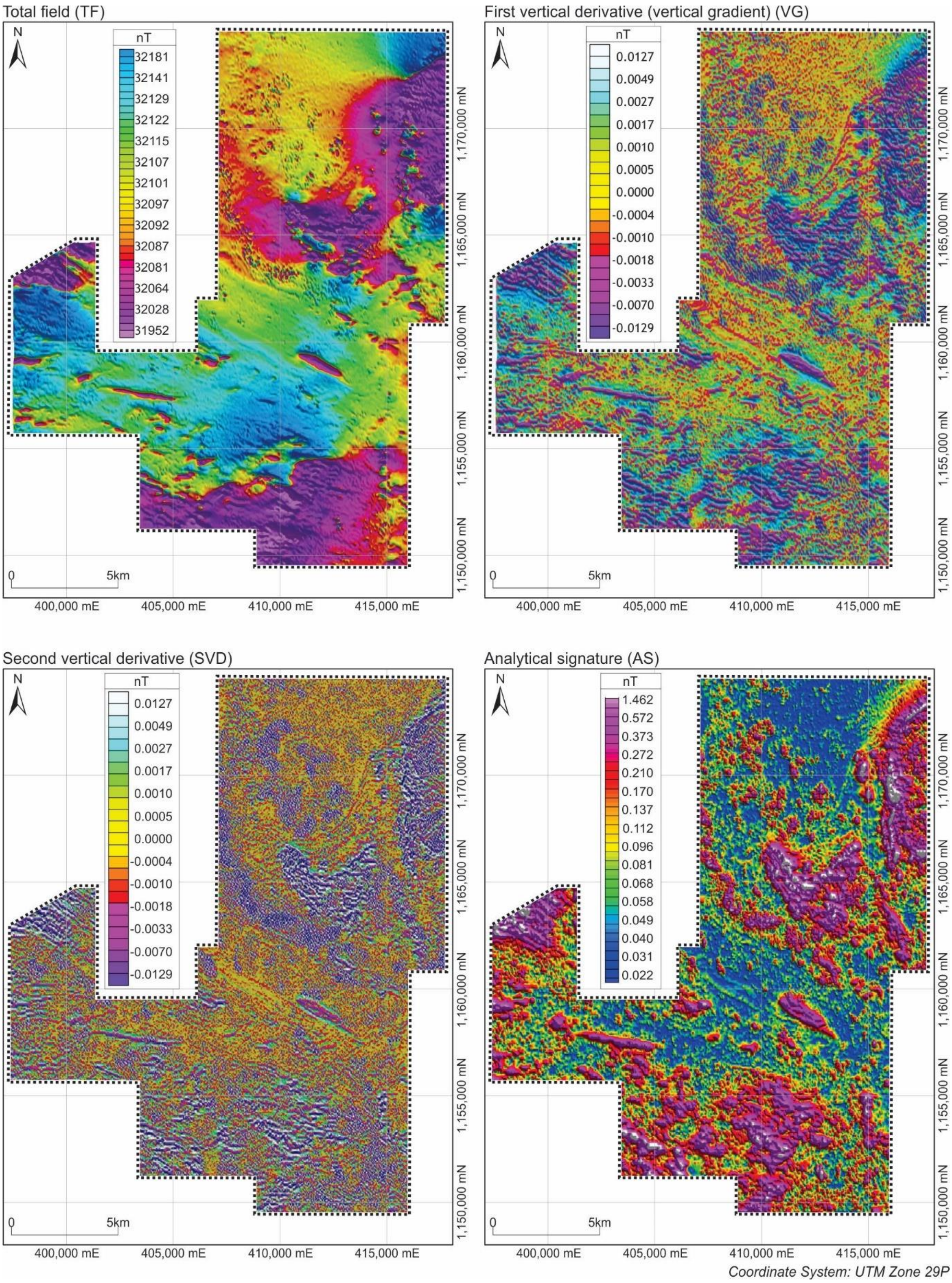


Figure 26: Results of Previous Geophysical Surveys over the Kiniero Project License

9.2 Current Kiniero License Exploration

9.2.1 Sycamore Mine Guinee (2020 to Current)

9.2.1.1 Survey and Investigations

All survey work undertaken at the Kiniero Gold Project by SMG is surveyed according to the UTM coordinate system, with the Kiniero Project plotting within the 6° longitudinal Zone 29P thereof. The World Geodetic System 1984 (WGS 84) ellipsoid is the adopted datum for the Project, the datum surface of which is an oblate spheroid. The adopted Project coordinate system conforms to the nationally adopted survey coordinate system of Guinea:

- projection method: UTM Zone 29P
- datum: WGS 84
- local datum transform: (WGS84) World
- geodetic coordinate reference system: WGS84
- geoid reference: Earth Gravitational Model 1996 (EGM96)
- ellipsoid: WGS84
- prime meridian: Greenwich
- unit: metre

SMG has purchased new survey equipment from Leica Geosystems (Pty) Limited (Leica) in 2021, utilising a GNSS system of the LEICA CS20 LTE Field Controller and LEICA TS07 theodolite.

9.2.1.1.1 Historic Survey Validation and Base Station Installation

Survey records were retrieved from the old mine survey office to relocate and field-verify the historic local mine survey base stations. Coordinates for six base stations were retrieved, but only the X and Y local mine grid coordinates, and no Z values. The UTM Zone 29P coordinates were back calculated. Four base stations were field verified, with the remaining two having been destroyed by artisanal mining activities during mine closure or buried beneath the TSF. Only two of the relocated base stations were of reliable condition with the condition of the other two having been compromised by local mining activities. The two reliable base stations were located at the Kiniero Main Camp, namely ST4 and ST3.

For the purposes of base station installation and field verification a Trimble GNSS base station was set up at survey base station ST4 to create an initial survey base station, from which a secondary base station was installed in the vicinity of the Sabali South drilling, numbered SAB_1, from which collar surveys from the SMG drilling could be captured. Base station ST4 was subsequently damaged and compromised, and as such the Trimble GNSS base station was set at survey base station ST3 from which 2,643 observations were collected over a one-hour period, of which 264 were usable. An averaged final set of UTM Zone 29P coordinates were generated and signed off by Trimble CenterPoint RTX Post-Processing.

Based on the position of base station ST3 and SAB_1, as well as the subsequently accepted known historical drillhole collar survey points, an additional new base station was installed and surveyed at the camp, named CAMP_BASE. From CAMP_BASE, two additional base stations were installed, one atop the southerly end of Sabali Hill in the vicinity of the East-West open pit (Temp_1), another at the plant (Plant_1) and a final centrally located base station in the vicinity of the drilling undertaken by SMG at Derekena, Kobane and Farabana (Ballan_W_1). The details of the Kiniero Project survey base stations installed by SMG during 2020 are summarised in Table 15.

Field verification of historical drillhole collars was initially undertaken with a handheld GPS to relocate the old collar standpipes. Where located, survey verification of the collars was undertaken from SAB_1, the results of which are considered as comparable with the historical survey data. Based on the field verification survey work of historical drill collars by Mr N Swart, as well as the field verification using handheld GPSs across the various deposit locations of the Kiniero Project by the SMG exploration geologists, the historical drillhole collar survey data has been accepted.

Verification survey remains an ongoing check work procedure to ensure survey is accurate and that any potential undocumented historical drillhole collar survey errors are identified before reliance is placed thereon. An excerpt of the results of the field verification check surveys completed to date is presented in Table 16.

9.2.1.1.2 Exploration and Sample Site Survey

Following the verification of the historical base stations at the Kiniero Main Camp, and the subsequent installation of the SMG survey base stations at Kiniero, collar surveys were routinely undertaken by SMG as drilling progressed, initially using the services of independent in-country surveyors in 2020 and 2021. Independent surveys used included the Survey Head of Department of the neighbouring Kouroussa Gold Project (then Cassidy Gold Corporation) and CITAG (a local Guinean surveying business). With the use of two independent surveyors on the Project, and as good practice, further verification checks were undertaken to confirm the accuracy of both surveyors, as well as historic survey works (Table 17).

All survey work at the Kiniero Gold Project switched to in-house in June 2021 with the appointment of a Chief Surveyor. A GNSS system of the LEICA CS20 LTE Field Controller and LEICA TS07 theodolite are used. Exploration survey work is conducted weekly. The accuracy of all survey work completed is to within centimetre accuracy.

Table 15: Summary of Kiniero Gold Project Survey Base Stations

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

Source: SMG

Table 16: Example of Survey Verification Results of Historical SEMAFO drillhole collars at Sabali East by SMG appointed Independent Surveyors

DRILLHOLE NO.	DEPOSIT	SURVEYED BY	HISTORICAL COORDINATES (2006) UTM ZONE29P WGS 84			SMG VERIFICATION SURVEY (2020) UTM ZONE29P WGS 84			SURVEY DIFFERENCE		
			EAST (X)	NORTH (Y)	ELEV. (Z)	EAST (X)	NORTH (Y)	ELEV. (Z)	EAST (X)	NORTH (Y)	ELEV. (Z)
RC1025	Sabali Est	CITAG	414,542.398	1,150,989.742	445.623	414,542.518	1,150,989.973	445.631	**0.120**	**0.231**	**0.008**
RC1762		Cassidy	414,422.784	1,151,306.837	453.232	414,422.541	1,151,307.018	453.233	**-0.243**	**0.181**	**0.001**
		CITAG				414,422.784	1,151,306.755	453.239	**0.000**	**-0.082**	**0.007**
RC1963			414,505.191	1,150,562.276	421.108	414,504.489	1,150,562.652	421.273	**-0.702**	**0.376**	**0.165**

Source: SMG

Table 17: Survey verification results of SMG drillhole collars and base stations between Independent Surveyors

DRILLHOLE / BASE STATION NO.	DEPOSIT / AREA	CASSIDY GOLD SURVEY UTM ZONE29P WGS 84			CITAG SURVEY UTM ZONE29P WGS 84			SURVEY DIFFERENCE		
		EAST (X)	NORTH (Y)	ELEV. (Z)	EAST (X)	NORTH (Y)	ELEV. (Z)	EAST (X)	NORTH (Y)	ELEV. (Z)
RC20-037	Sabali Est	414010.380	1149859.192	454.946	414010.445	1149859.158	454.967	**0.065**	**-0.034**	**0.021**
RC20-017		413674.132	1149744.158	447.543	413674.105	1149744.205	447.595	**-0.027**	**0.047**	**0.052**
RC20-003		413864.023	1149460.138	459.130	413864.001	1149460.14	459.125	**-0.022**	**0.002**	**-0.005**
SAB_1 / STN_1	N/A	414018.636	1149897.710	455.118	414018.645	1149897.088	455.117	**0.009**	**-0.622**	**-0.001**
Plant_1		412703.747	1151369.903	488.742	412703.748	1151369.89	488.748	**0.001**	**-0.013**	**0.006**
Balan_W_1		407357.800	1155424.000	506.090	407357.721	1155424.087	506.078	**-0.079**	**0.087**	**-0.012**

Source: SMG

9.2.1.2 Digital Terrain Model

Based on historically derived datasets, various low resolution topographic digital elevation models were available to SMG upon acquisition of the Kiniero Licenses, including:

- License-wide Sentinel-2 satellite DEM, dated February 2020
- 5m resolution license wide topography flown by Fugro in 2007
- reprocessed 2m resolution license wide topography derived from the 5m resolution 2007 Fugro data
- December 2010 mine survey of the West Balan pit area (dtmwbcdec10dxf_utm_tr/pt)
- December 2010 mine survey of NEGD pit area (dtmnegddec10dxf_utm_tr/pt)
- November 2010 mine survey of the SGA pit area including West Balan, Jean, Gobelé D, NEGD and East-West pits (desectgadxf_utm_tr/pt)
- December 2010 mine survey of the SGA pit area including West Balan, Jean, Gobelé D, NEGD and East-West pits (topo_global_enddec2010dxf_utm_tr/pt)
- March 2012 mine survey of the SGA pit area including West Balan, Jean, Gobelé D, NEGD and East-West pits (jean_wb_sga_dtm312dxf_utm_tr/pt)
- 2006 mine survey of just the East-West pit (surfewaout06dxf_utm_tr/pt)

However, none of these historical datasets were wholly applicable up to the date of mine closure in March 2014, accounting for the final pit shell topographies beneath the flooded water levels from which depletions could be accounted for.

A decision to purchase an orthoimage and digital surface model (DSM) dataset from CGG Services (UK) Limited (CGG) was made as an interim solution until a LiDAR survey could be flown (restricted at the time due to Covid travel related restrictions). The DSM was referenced to UTM Zone 29P / WGS 84 and contained all surface features including vegetation and buildings, while the most recent cloud free ortho-imagery was available from 24 December 2018.

A 1m spatial resolution was applicable to the digital elevation model (DEM) with a relative vertical accuracy of 0.5m to 1.0m applicable in open undulating areas (i.e. slopes <20°) and the ortho-imagery was provided at a 0.50m/pixel resolution. The DSM topographic dataset was referenced to a series of field control points, chosen to be man-made structures that were clearly identifiable from satellite imagery, and which would not have changed since the orthophoto imagery date of 24 December 2018. These included airstrip markings and concrete laydown areas at the Kiniero plant.

Whilst not of comparable accuracy or resolution to that of a LIDAR survey, the CGG DSM topographic dataset was of sufficient accuracy to act as an interim Project topographic dataset that supported the geological modelling and Mineral Resource estimations, as well as supporting engineering studies for the internal Kiniero Project 2020 DFS. The DSM was post processed in Global Mapper™ by a GIS expert to remove most of the tree cover elevation data.

9.2.1.3 LiDAR Survey

The requirement for flying a fixed wing/drone lidar survey was budgeted for in 2020 and executed in March 2021, the data from which immediately superseded the CGG DSM topographic dataset. The survey was flown by Westair Aviation with the survey data and orthoimagery captured and managed by African Consulting Surveyors. The entire 326km² Kiniero License area was surveyed, as well as 94km² of the northern sector of the Mansounia License area, a total surveyed area of 420km² (Figure 27).

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

Tiled geo-referenced orthophotos were supplied in *.ecw format, each covering an area of approximately 31ha, with LiDAR DTM point cloud data decimated and classified as ground points, supplied in *.las, *.xyz and *.csv formats (Figure 27). The LiDAR DTM was selected as the primary Kiniero Gold Project DTM, with all other survey data points (e.g. drillhole collar files) snapped to the DTM to ensure consistency, where relevant.

9.2.1.4 Outcrop Sampling

Rock chip, grab and/or outcrop sampling has been undertaken by SMG geologists on an ad hoc basis since acquisition of the Kiniero Licenses. Samples have been collected at the discretion of a geologist when a mapped geological observation of interest is logged, either during day-to-day field activities, on dedicated fieldtrips or on artisanal mine site visits. A total of 32 such samples have been collected to date, 28 of which have undergone preparation and fire assay as per RC and DD samples.

9.2.1.5 Soil Geochemical Sampling (BLEG)

On 26 October 2020 a license-wide soil geochemical sampling campaign was commenced using the BLEG analytical technique, a proven technique for accurately measuring fine grained gold content and dealing with problems related to sample heterogeneity.

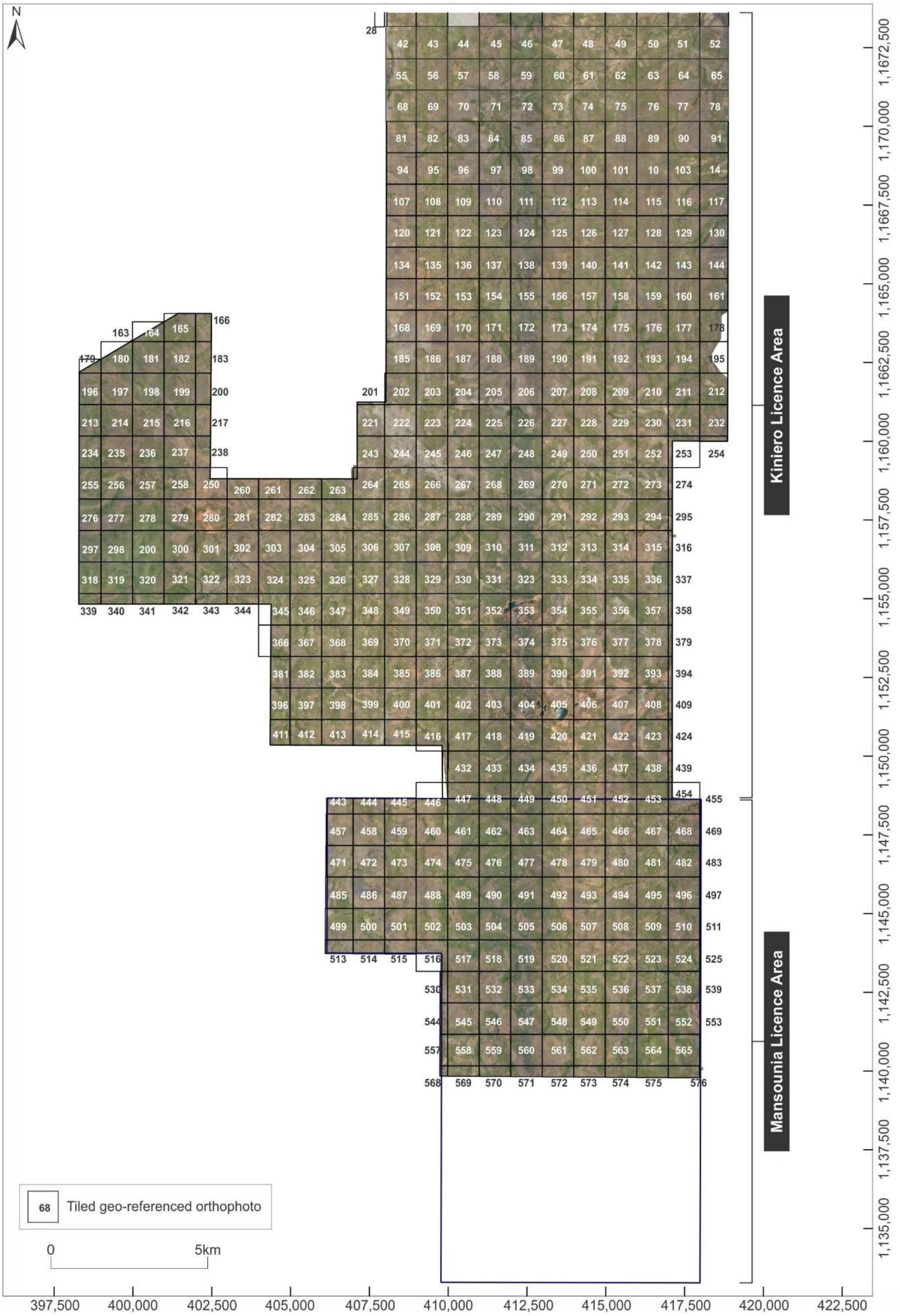


Figure 27: Extent of LiDAR survey flown by SMG over the Kiniero and Mansounia License Areas

Contoured BLEG soil geochem results produce detailed surface representations of structural fabrics of underlying mineralised structures, a proven technique and exploration tool in generating drilling target(s) for orogenic gold deposits within the Siguiri Basin. The results of the campaign completed to date are presented in Figure 28. The contours displayed have been done by hand to avoid any noise generated when automating the contouring process.

As of 25 May 2022, a total of 5,174 BLEG samples had been collected across the Kiniero License, 3,266 of which have been analysed. The programme remains ongoing as at the date of this PFS.

9.2.1.5.1 Sampling

The sampling technique involves the compositing of two succeeding/neighbouring soil sampling points at 50m sample centres into a single sample to produce a 100m composited sample. Sampling positions were pre-generated on a sampling grid of 250m x 100m (lines spaced 250m apart with samples collected every 50m, but composited across 100m), with proposed sampling positions field-checked before collecting. Where not suitable (e.g. standing water, bare rock, infrastructure etc), the sample position was offset at the discretion of the responsible geologist to the nearest point with the new GPS coordinates captured. The sampling procedure followed is:

- vegetation was cleared with any surficial organic-rich material (or the top 5cm) removed to avoid any surface contaminated material being included in the sample
- once the desired soil profile is reached (typically the clay/iron rich B-horizon at ≤0.50cm), the hole is cleaned out using a shovel and brush
- a 5kg sub-sample is collected and placed on a clean tarpaulin, removing any contaminates (e.g. plant material). The 5kg sample is then carefully transferred into a pre-numbered sample bag, representing sub-sample “A”, and carried to the next position
- positional flagging is placed tape on the nearest tree, and the sample ticket book filled
- the “B” sampling position is then located, with a sample collected in a similar manner described above, representing sub-sample “B”
- both samples are then placed on the tarpaulin adjacent to each other, visually checked that they have the same volume (i.e. same weight) and then homogenised either by hand, or alternatively by shaking/rolling the tarpaulin for at least 1min. The homogenised sample is then divided into four segments, with two opposite quarters selected to obtain approximately 5kg of sample mass and placed in the pre-numbered bag and sealed with a cable-tie, with remaining unsampled quarters disposed of
- all equipment and hands cleaned before collection of the next sample

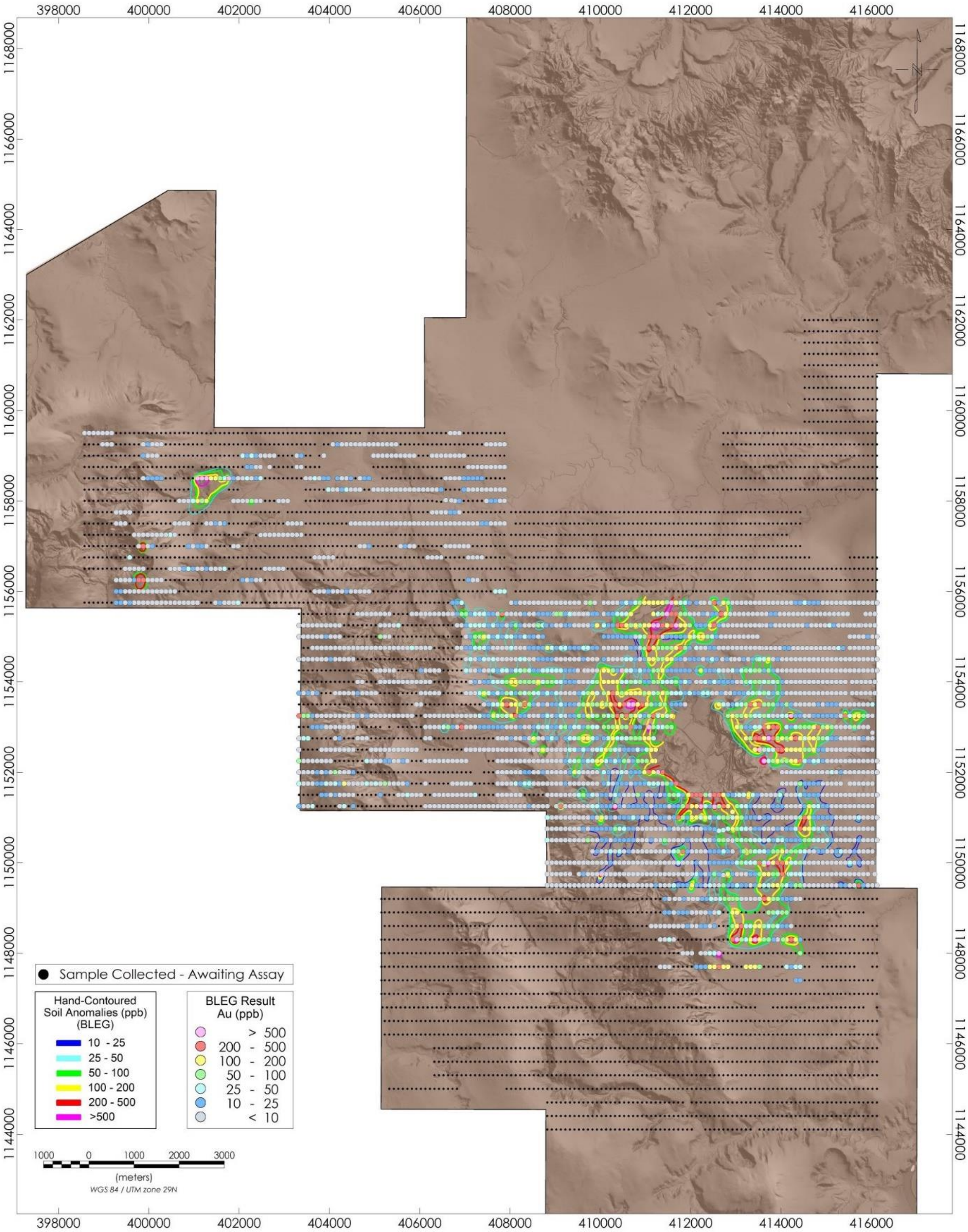


Figure 28: Progress and Results of the SMG gold-in-soil BLEG Campaign (2020 to Current)

9.2.1.6 Remote Sensing and Structural Interpretation

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

- Landsat 8 satellite imagery, at 15m resolution, used for a regional geological interpretation at 1:125,000 scale, covering an area of approximately 5,900km^2
- PlanetScope satellite imagery, at 3m resolution, for interpretation at 1:40,000 scale, covering an area of approximately 550km^2. This was used to assess the controls of the gold mineralisation
- shuttle radar topography mission (SRTM) at 30m elevation used to produce three-dimensional (3D) anaglyph and sun shaded images
- aeromagnetic geophysical survey data from 2007, flown by Fugro over the Kiniero License
- historical mapping published by the BRGM
- geochemical sampling data collected across the Kiniero Project by SEMAFO

The geological and structural interpretation was based on the 3D anaglyph images produced from the merging of Landsat and PlanetScope, and SRTM elevation data. Various processing methods of the Landsat data were applied, and the resulting images were integrated with the regional geological and geophysical interpretations. The geological mapping and structural interpretation are presented in Figure 29.

GaiaPix was also mandated to identify areas of potential mineralisation based upon interpretations. Known gold deposits of the Kiniero Project appear to have a direct association with interpreted aeromagnetic anomalies, which may indicate the presence of intrusives at depth. In the southern sector of the Kiniero Licenses, the Sabali North & Central, Sabali South, West Balan and Farabana deposits were considered as being most prospective for mineralisation as they represented extensions of the known mineralised zones of the Jean, Gobelé and Banfara deposits. Further, the Sabali North & Central and Sabali South deposits collectively represent geological extensions of the adjoining southerly Mansounia gold mineralisation.

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

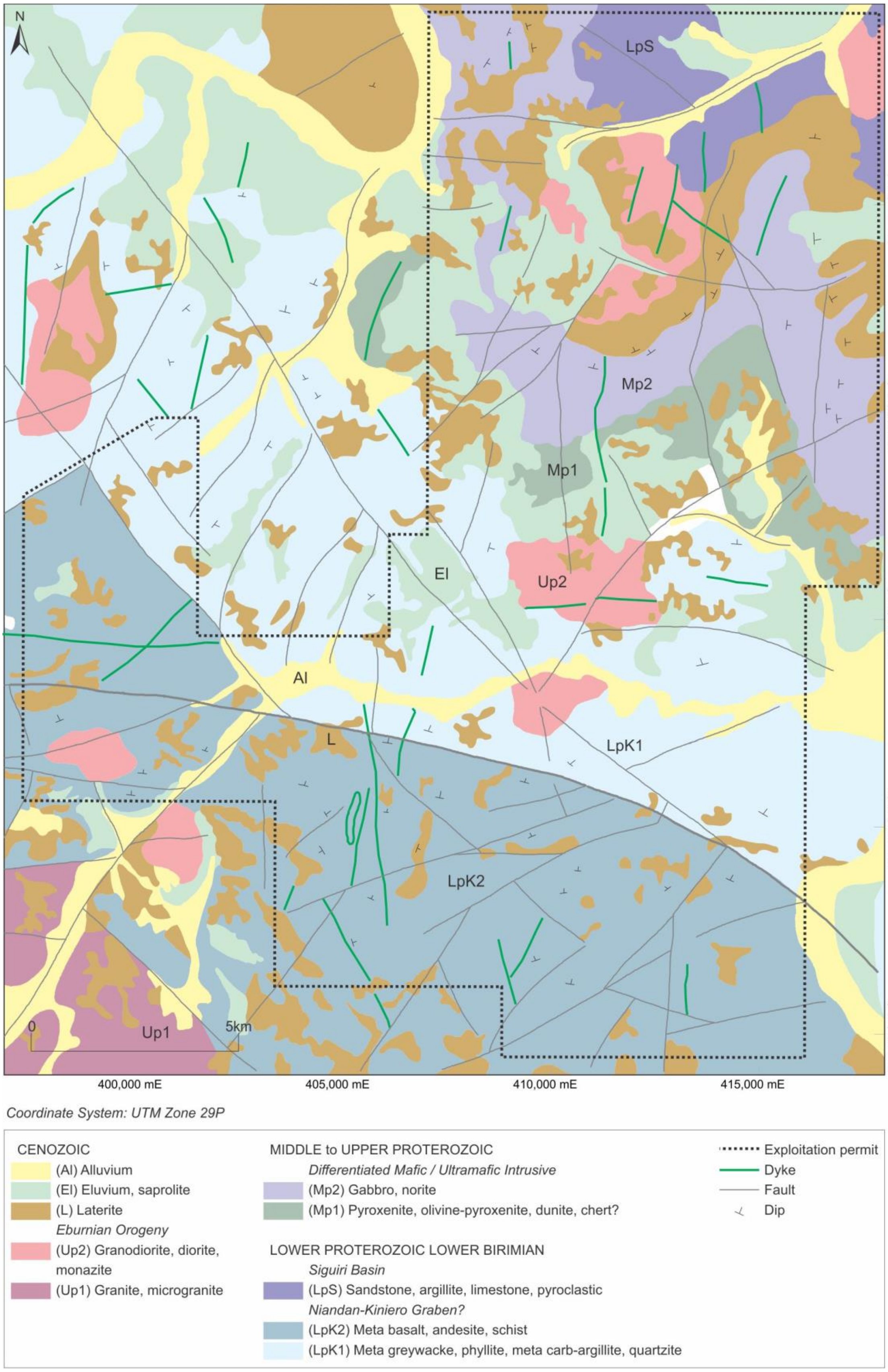


Figure 29: Kiniero License Geological Map (GaiaPix 2020)

9.2.1.7 Geophysical Surveys

Following acquisition of the original geophysical gridded data for the Kiniero License area, as well as the Mansounia License area (Section 9.3.2.1), SMG engaged Eureka Consulting (Pty) Ltd (Eureka) of Australia, to merge the two geophysical separate datasets. While the two surveys lie adjacent, there was a data deficient 'gap' of about 200 metres between the two surveys, with no nearby data lines to provide a smooth, accurate transition of data, from one survey to the next. To complete this merge, the data deficient gap was filled with synthetically created data from the nearest surrounding data points.

This stitch, although visible, has no obvious impact on the interpretation work, due in part to the narrowness of the survey gap in relation to the flight line widths, but primarily due to the east-west orientation of the gap – structural fabrics in this region trend roughly perpendicular to this. A unified series of reprocessed airborne magnetic grids was provided as the delivery in the form of a seamless survey (Figure 30).

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

9.2.1.7.1 Magnetic Modelling

With the acquisition of the original gridded magnetic data, and merging thereof, magnetic modelling of three selected magnetic anomalies was undertaken by Eureka using the UBC magnetics susceptibility inversion tool:

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

These anomalies were processed and enhanced, the result of an analytical signal filter processed on Reduction to the Pole (RTP) of the Total Magnetic Intensity (TMI), allowing for precession interpretation and location accuracy.

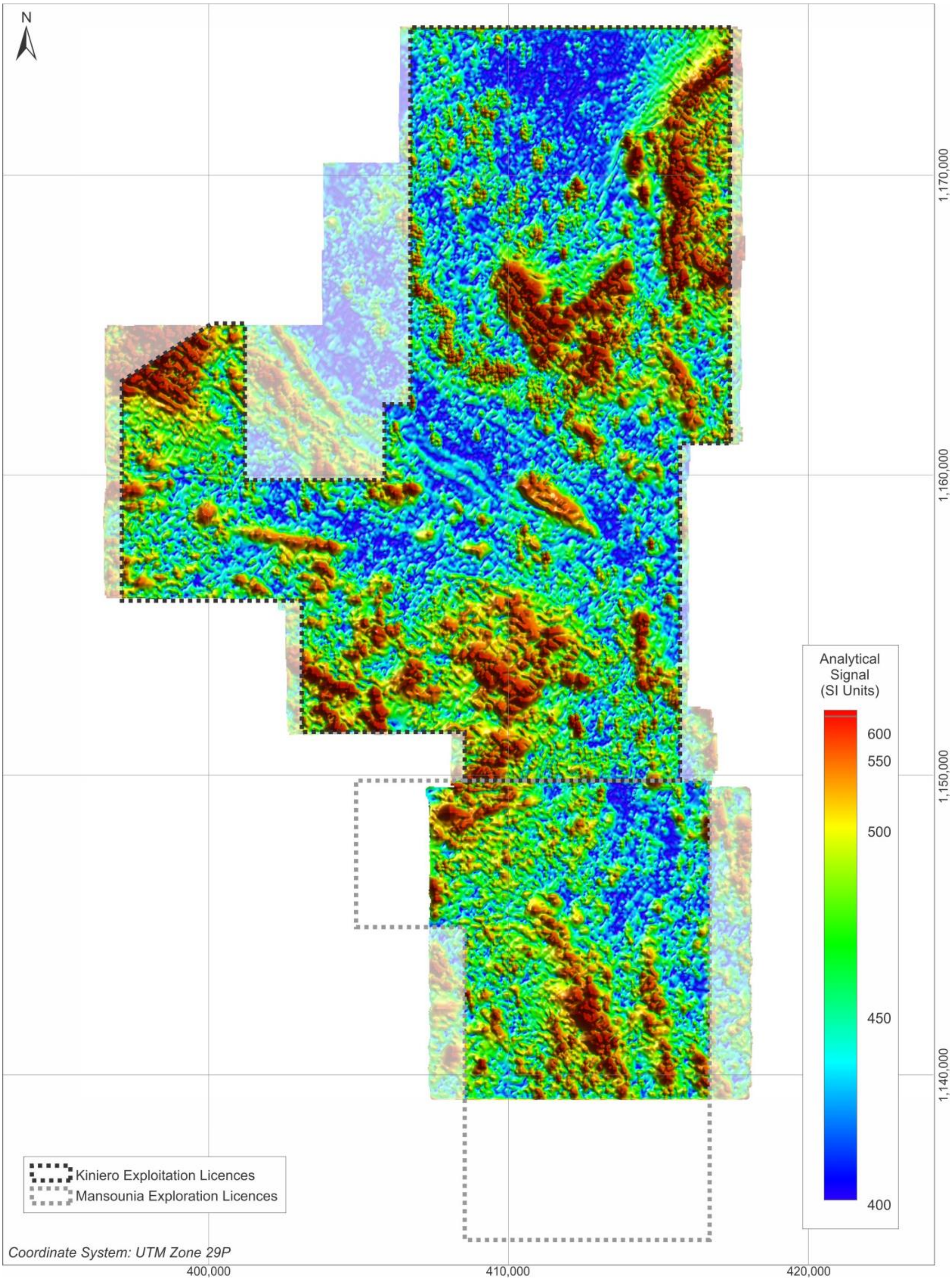


Figure 30: Merged Kiniero License and Mansounia License Geophysical Datasets (Analytic Signal)

Results have provided precise targets for drilling, with the K2 modelling guiding the sterilisation drilling campaign completed in March 2022 at the vicinity of the old ROM pad and processing plant precinct, with all drillholes orientated to intercept this magnetic anomaly. Sterilisation drilling appears to have intersected some broad zones of pervasive silicification, with albitisation and associated pyrite-arsenopyrite-chalcopyrite, and Au mineralisation. These drillholes were targeted to explore the central and hanging wall contact zone of the K2 anomaly.

9.2.1.7.2 Resistivity Profiles - Schlumberger Array

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

A total of 20 survey lines were completed covering a lateral distance of 22km (Figure 31). The field data analysis was undertaken by subjecting the data to a data quality processing procedure using a despiking technique to remove known errored readings, and predictive error analysis processes. The data was corrected for the following quality issues:

- data dropouts (i.e. zero readings)
- noisy data (e.g., negative values and large single data point anomalies)
- both dropouts and noisy data was replaced by linear interpolations undertaken by rearranging the data into n-levels that were plotted on 1D graphs, wherein the y-axis is the apparent resistivity value whilst the centre (AB/2/AB/2) is the x-axis

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

Based on the electrical resistivity data, and Geostratum's understanding of the Kiniero Gold Project geological and hydrological environment, the following generalised correlation of the resistivity values was applied:

- high resistive / low conductive zones at near surface in the geophysical profiles, likely associated with dry laterite and infilled with dry saprolite (resistive values of 1500 ohm to 5000 ohm per meter)

- low resistive, high conductive zones associated with argillic alteration, weathered and saturated saprolite and increased areas of weathering within the saprolite (resistivity <300 ohm per meter)
- high resistive and low conductive zones at depth were interpreted as volcanic rock, i.e. basaltic rocks at depth. The variation in conductivity is associated with the difference in degree of weathering of the volcanic rocks
- high resistive and low conductive zones that were intruded into the upper layers are interpreted as volcanic dykes and sills (resistive values of between 2000 ohm and 5000 ohm per meter)
- Low resistive, high conductive zones at depth are associated with faulting where the argillic alteration, weathered and saturated saprolite and increased areas of weathering within the saprolite are mapped at depth

A select number of geophysical electrical anomalies are currently being reviewed for target drilling and final calibration of models.

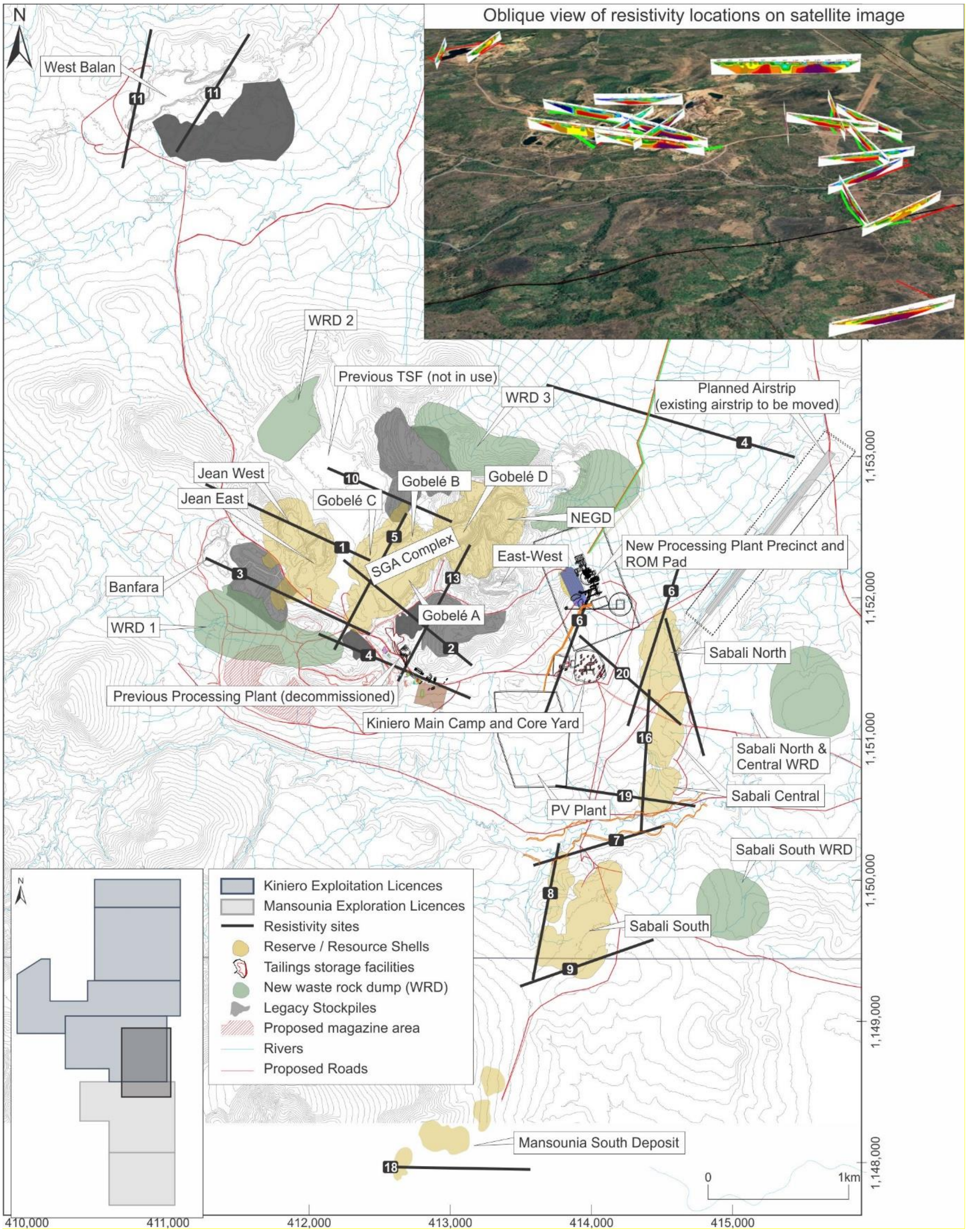


Figure 31: Location and Results of the Schlumberger Array Resistivity Profiles at the Kiniero Gold Project

9.3 Historical Mansounia License Exploration

9.3.1 Leo Shield and Ashanti Exploration (1997 to 2003)

Between 2000 and 2001, the Ashanti Goldfields Company (AGC) carried out two phases of geochemical soil sampling and some limited rock chip sampling. A total of 406 samples were collected in 2000 and 324 in 2001. The first programme was carried out on a 400m by 50m grid and covered the entire Mansounia concession whilst the second infill phase was completed on a 200m by 50m grid and was concentrated on anomalous areas identified during the first programme.

In 2001, an additional 75 sites were sampled by AGC within the artisanal mining zone of Sinkalimba creek on a regular 200 x 200m grid. Samples were analysed for gold only by Aqua Regia digest with a detection limit of 20ppb. A total of 805 samples collected and analysed at Transworld's Guinea Laboratory, 184 were considered anomalous with values greater than 50ppb Au. Eighty-five samples exceeded 100ppb gold.

In April 2003 Leo Shield (Afminex) carried out a field campaign on the Mansounia permit that included a soil sampling programme comprising 12 traverses totalling 25.5km, for a total of 483 soil samples. Their objective was to verify and infill gold in soil anomalies identified by Ashanti in the central to northern portion of the permit area.

A planned pitting programme (50 pits) over the anomalous zone was abandoned due to the thick hard ferricrete cover existing in this area. All soil samples were analysed at Transworld's Lero (Guinea) facility by Aqua Regia digest (due to the lack of bottle roll facilities) with a 1ppb detection limit. Additionally, 11 rock chip samples from outcropping quartz reefs and highly silicified tuffs were collected and analysed by Transworld at their Tarkwa, Ghana Laboratory by 50g Fire Assay with a detection limit of 0.01ppm. Two quartz samples (RK10 and RK11) returned anomalous values of 0.1 and 0.4ppm respectively.

Field observations during Leo Shield's soil sampling campaign such as the presence of old workings, artisanal mining activities suggested that the prospectivity potential of the Mansounia prospect remained strong. An exploration programme of trench and or RAB drilling was proposed since to a large extent the gold in soil results obtained by AGC was verified by Leo Shield's soil programme.

9.3.1.1 Soil Geochemical Sampling

An early mapping campaign of historical artisanal gold working in the regional supported the completion of the first soil geochemical sampling campaign at the Mansounia License in 1997 and 1998 by Leo Shield. Samples were collected across a widely spaced reconnaissance style grid of 600m x 50m, from which a total of 483 samples was collected (Table 18). Results generated sparse point anomalies over the Mansounia License.

Follow-up infill soil sampling was completed in anomalous areas by Ashanti Exploration in 1999, along a 200m x 50m infill and extension sampling grid (Table 18), totalling 1,103 samples. In addition, 616 rock grab samples were collected during this same field campaign. No database split was made between the collected soil and rock grab samples, with all samples categorised as soil samples. Results from these sampling campaigns are presented in Figure 32. Procedures and protocols pertaining to these early soil sampling campaigns have been generically reported across both these campaigns, as well as the subsequent Burey Gold soil sampling campaign, as discussed below.

Table 18: Summary of Soil and Field Samples collected from the Mansounia Licenses

COMPANY	PERIOD	SAMPLE TYPE	GRID SIZE	№ SAMPLES
Leo Shield	1997 to 1998	Soil	600x x 50m	483
Anglo Ashanti	1999	Soil	200m x 50m	1,103
		Rock & Chip	Grab	616
Gold Fields (Gyata Expl)	2003	Soil	200m x 50m	1,267
Blox, Inc.	December 2016	Rock & Chip	Grab	19
	2017 to 2018	Soil – Eastern Area	Unspecified	Unknown
Sycamore Mine Guinee	2021 to Ongoing	Soil (BLEG)	250m x 100m	1,881
TOTAL FIELD SAMPLES				**5,369**

Source: Blox, Inc. (2018), SMG (2022)

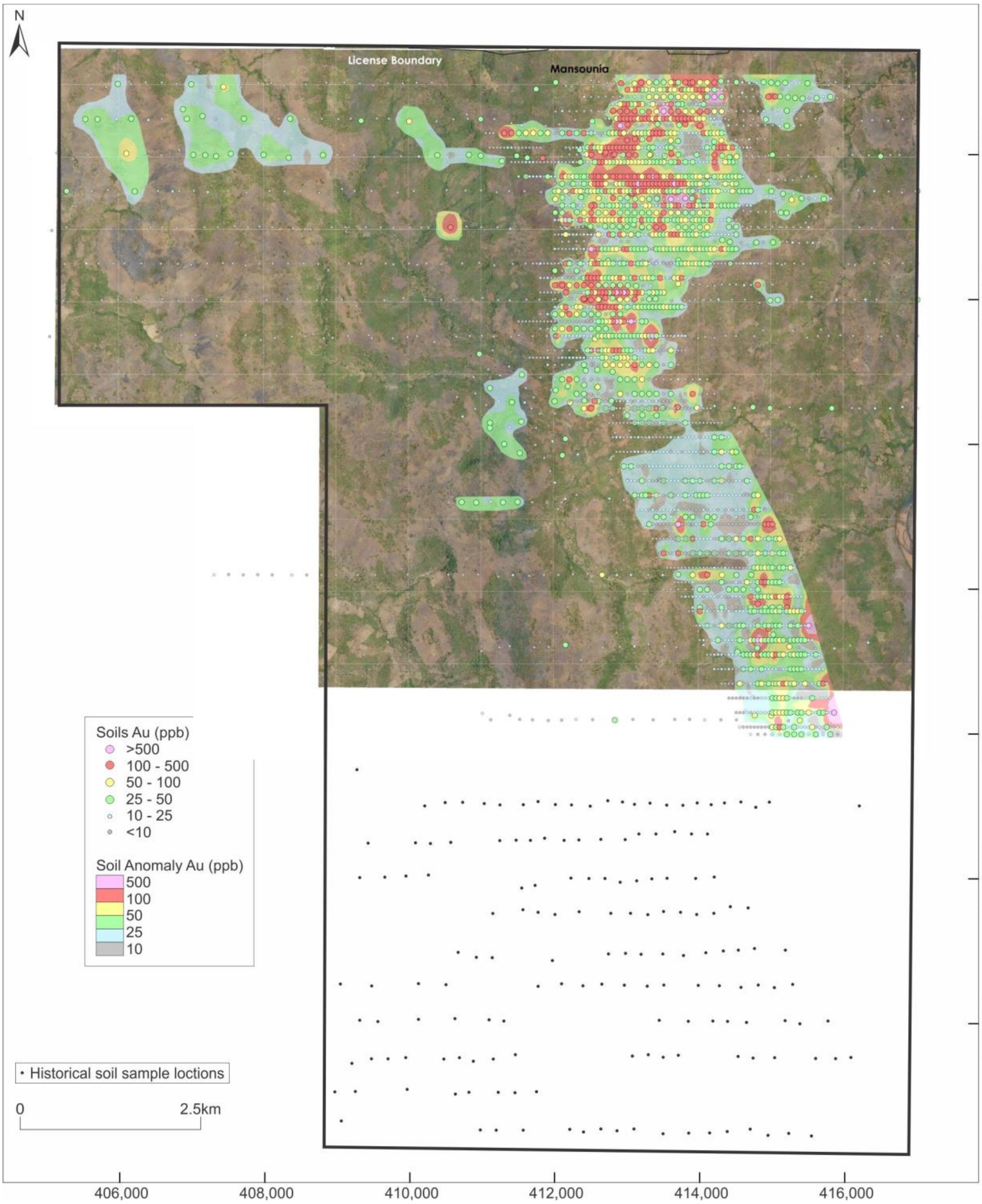


Figure 32: Previous Mansounia Soil Sampling Campaigns and Results

9.3.1.1.1 Sampling

Samples were collected from the B-horizon of the soil profile, in most cases at a depth of 30cm to 50cm. The sampling tool used was a palm-axe (a heavy steel blade tool of about 50cm long and 0.5cm wide). Approximately 1kg to 2kg of soil sample material was collected, put in a plastic sample bag, numbered with a unique sample ID and dispatched to the laboratory for analysis.

9.3.1.1.2 Sample Position Surveys

Coordinates of the sample points were picked using handheld GPS devices, with sample lines cut by orientating a measuring tape with a compass.

9.3.2 Gold Fields (2003 to 2005)

9.3.2.1 Soil Geochemical Sampling

Following acquisition of the Mansounia Licenses, Gold Fields undertook an infill soil sampling campaign on a 200m x 50m grid in all previously identified anomalous areas, complimenting the previous sampling campaigns completed by Leo Shield and Ashanti Exploration. A total of 1,267 samples collected (Table 18 and Figure 32).

Procedures and protocols reported from the Gold Fields campaign, as well as the laboratory used and sample preparation and analysis, are as per Section 9.3.1.1.

9.3.2.2 Geophysical Surveys

A detailed airborne geophysics survey was conducted by Gold Fields in 2004. The survey was collected as a MIDAS helicopter magnetic and radiometric survey by Fugro Airborne Services. Survey lines were oriented east-west with a line separation of 100 metres and tie lines-oriented north-south, separated by 1,000 metres.

The raw ACSII data files for this survey were sourced through the historic data processing group, Southern Geoscience Consultants (SGC) in Perth, Australia. SMG were able to fully reprocess the Mansounia survey data, producing a series of industry standard grid files, which has been used in the target generation process. Several additional geophysical images are available which include magnetics (with horizontal gradient), total count radiometric, potassium, uranium, thorium signature and terrain model, and recent advancing gridding enhancement tools.

- Magnetics: the magnetic signature over the main Mansounia mineralised corridor showed a gradational character with crosscutting features, suggesting the underlying structural fabric of the region. There is also a strong association of the magnetics with the regional scale interpreted structures. The dominant structural fabric is north-

northeast-south-southwest, and dissected by east-northeast – west-southwest structures

- Total count radiometrics: a transitional slope / depleted signature is apparent over the Mansounia main mineralised zones, most likely due to hydrothermal alteration
- Radiometrics: potassium (K), uranium (U) and thorium (Th) are the three most abundant, naturally occurring radioactive elements. Potassium signatures being particularly useful for mapping areas of high temperature alteration which in this environment are closely aligned with primary gold mineralisation. Uranium and thorium can provide an indication of original underlying geology, the interpretation of this data is ongoing, coupled with recent SMG drilling
- Terrain model: terrain data from the geophysical survey was replaced with the recent and more accurate 2021 LiDAR data and used for modelling and interpretation

9.3.3 Blox, Inc. (2014 to 2019)

From historic maps it appears Blox, Inc. (Blox) completed some additional soil sampling towards the eastern margin of the licence, there is no details covering the programme or raw data. The historic data SMG has compiled of the previous soil sampling doesn't cover the area shown on the Blox maps.

In December 2016 Blox commissioned Scott Taylor Limited (STL) to complete a reconnaissance field trip to these target areas, during which 19 selective rock, chip and grab samples were collected in the eastern central portion of the Mansounia License. Samples were dispatched to SGS Burkina Faso for analysis by cyanide leach, solvent extraction with an atomic absorption spectroscopy (AAS) finish to determine gold content (Prep Code BLE61M). Four samples of significance returned 0.49, 1.03, 1.04, and 3.08g/t Au.

9.4 Current Mansounia License Exploration

9.4.1 Sycamore Mine Guinee (2021 to Current)

9.4.1.1 Survey and Investigations

All survey work undertaken at the Mansounia Project by SMG is detailed as per Section 9.2.1.1. In December 2021 SMG undertook a collar field verification survey campaign and attempted to relocate and resurvey all previous drill collars. Of the 401 previous drill collars a total of 146 were relocated and surveyed. The remaining were either buried or destroyed. In addition, the historical drill fence lines that were dozed remain clearly visible in some areas, even where collars are no longer present.

9.4.1.2 LiDAR Survey

In March 2021, a 94km² portion of the Mansounia License was flown as part of a broader 420km² LiDAR survey, detailed in Section 9.2.1.3.

9.4.1.3 Soil Geochemical Sampling (BLEG)

During October 2021, SMG commenced a license-wide soil geochemical sampling campaign using the BLEG analytical technique. As of 25 May 2022, a total of 1,881 BLEG samples had been collected across the Mansounia License (Table 18 and Figure 28), of which 196 have been analysed. The programme remains ongoing as at the date of this PFS.

BLEG results to date have delivered some highly encouraging results and anomalies show a strong correlation with structures identified from the airborne magnetics, that includes the inferred alteration footprint that aligns with observations in recent drillholes.

9.4.1.4 Geophysical Surveys

Refer to Section 9.2.1.7 for details on the acquisition of the Mansounia License and geophysical data, and the merging thereof with the Kiniero License geophysical data.

10 DRILLING

This chapter discusses the type and extent of the various drilling campaigns completed by all historical license owners and operators, as well as by Sycamore Mine Guinee. Trenching has been included in this chapter as it represents an invasive surface sampling technique that is often included in, and can be material to, geological modelling and Mineral Resource estimations.

10.1 Historical Kiniero Project Drilling (pre-1996)

Although historical exploration and drilling may have been carried out, no reliable data has been obtained by SMG in this regard and as such no drillholes drilled prior to 1996 have been considered. Colloquial references of drilling completed pre-1996 are included in Table 8.

10.2 Historical Kiniero License Drilling

10.2.1 SEMAFO (1996-2013)

Historical exploration by SEMAFO included pitting, trenching, and drilling between 1996 and 2012, as well as various license-wide exploration campaigns (Section 9.1.1). The majority (89%) of the drilling was undertaken prior to the issue of the 2008 Mineral Resource estimate, with the remaining 11% being undertaken from 2009 until mine closure in March 2014. The volume of trenching and drilling was extensive and totalled 30,774m of trenches and 446,832m of drilling across the 326km² Kiniero License (Table 19). The focus of trenching and drilling was predominantly in the south of the Kiniero License where previous production was centred, with approximately 96% of all drilling completed thereat.

The previous exploration and drilling were undertaken as a series of programmes and covered various deposits. Exploration was initially widely spaced and focussed on identifying, and then delineating deposits. This was followed by closer spaced, relatively shallow RC drilling to define orebody limits and then diamond drilling to obtain drill cores and information at greater depths as SEMAFO reported an underground exploration potential study spanning several years. Later exploration focused on identifying extensions to known orebodies and/or on replacing the mined out Mineral Resources.

SEMAFO based its exploration, drilling and sampling protocols on industry standard techniques used by companies exploring in West Africa at that time. It is reasonable to assume that these would have been consistently applied to all successive exploration campaigns. These procedures and protocols were confirmed to have been executed on site through various interviews with the previously employed SEMAFO geologists at the previous Kiniero Gold Mine.

The trenching and drilling, by type, as completed by SEMAFO is summarised in Table 19. The location of the drillholes and trenches in the southern and northern blocks of the Kiniero License, also by type, is presented in Figure 33 and Figure 34 respectively. The drilling and sampling methods used by SEMAFO were gleaned from the independently prepared NI43-101 report by Canadian company, Geostat Systems International Inc. (GSI) entitled "Technical Report on the Resources and Reserves of the Kiniero gold deposits, Guinea (31 December 2007)" and the SEMAFO (2008) NI43-101 report and other reports stored on SEDAR, as well as from extensive interviews with previous employees.

10.2.1.1 RAB Drilling

RAB drilling was undertaken by SEMAFO in 2000 and then again in 2008. A total of 13,707m (458 drillholes) of RAB drilling was completed, covering eight deposits (Table 19). RAB drilling is one of the less desirable drilling techniques for exploration purposes and is more commonly used for drilling water boreholes and mining blastholes.

Through interviews with previous SEMAFO geologists, it became apparent that RAB drilling was undertaken for exploration purposes during years of low exploration budget. The majority of RAB drilling was undertaken between 2000 and 2008, primarily at the SGA complex and at Zone C, but occasionally in between these periods on an ad-hoc basis. Drillholes seldom exceeded 50m (averaging <30m) and are generally of no use in geological modelling purposes, other than providing indications of geology and gold mineralisation.

SMG has not relied on any of the previous RAB drillhole data for geological modelling or Mineral Resource estimation purposes.

10.2.1.1.1 Drilling Method

RAB drilling was undertaken in-house using the SEMAFO owned Atlas Copco ROC L6H track-mounted drill rig which was used primarily as a grade control drill rig during the operation of the previous Kiniero Gold Mine. The drillhole diameter was 130mm. This rig remains on site in a state of disrepair.

Drillholes were targeted and spaced in the same manner that RC drillholes were, e.g. at Zone C, RAB drillholes were drilled along fence lines spaced 100m apart, with drillholes anywhere between 10m and 50m apart along each fence line. Drill angles varied between -45° and -60°. The drilled sampled recovery was not monitored and is expected to have been poor due to the drilling technique. The RAB drillholes were initially sited using a handheld GPS and then surveyed post-drilling by the Kiniero Mine surveyor.

10.2.1.1.2 Logging and Photography

The reader is referred Section 10.2.1.3.2 for a detailed account of the logging protocols. RAB chipboards were prepared for some, but not all, of the RAB drillholes. All available RAB drillhole chipboards were photographed by SMG in 2021.

10.2.1.1.3 Sampling

Due to the sample cuttings being ejected to surface along the outside of the rods and in contact with the drillhole sidewall, the use of a cyclone to slow the trajectory of the sample to surface was not possible. Instead, the drilled sample collided with the undercarriage of the drill rig and settled on the surface immediately adjacent to the drillhole collar.

A collecting spade was held at the drillhole collar by a geotechnician to catch a random selection of approximately 2kg to 3kg of drilled material on a per metre basis which was then logged and bagged for sampling. As the reject drilled sample material accumulated at the collar, so it was moved aside for later discard back down the drillhole. The remainder of the sampling protocols applicable to RAB drilling are the same as RC drilling and is described in Section 10.2.1.3.3.

10.2.1.1.4 Downhole Surveys

No downhole surveys were carried out by SEMAFO on the RAB drillholes due to the short nature of the RAB drillholes.

10.2.1.2 Trench Sampling

Trenching allowed for surface horizontal sampling that was combined with channel sampling. Trenching commenced in 2000 and continued until 2010. A total of 808 trenches were excavated amounting to 30,774m across 24 deposits.

10.2.1.2.1 Trenching Method

Exploration trenching was targeted from the soil geochemistry, with the lengths and azimuths aligned with the dimensions of the anomalies being targeted, typically at right angles to the interpreted strike. Two types of trenches were excavated:

- manual trenches: these were excavated by local artisanal mine labourers who used traditional artisanal mining equipment. Manual trenches were reconnaissance in nature for exploring more remote areas, and where access for an excavator was a challenge. Manual trenches were excavated to depths of between 0.5m to 1.5m and generally 0.5m in width, as overseen by the responsible geologist

Table 19: Compilation of Previous Exploration and Drilling Completed by (SEMAFO) on the Kiniero License Area (1996-2012)

			TRENCH			RC			RAB			DDH		
AREA	**PFS CLUSTER**	**DEPOSIT / ANOMALY**	**NO.**	**TOTAL LENGTH (m)**	**AVE LENGTH (m)**	**NO.**	**TOTAL LENGTH (m)**	**AVE LENGTH (m)**	**NO.**	**TOTAL LENGTH (m)**	**AVE LENGTH (m)**	**NO.**	**TOTAL LENGTH (m)**	**AVE LENGTH (m)**
Southern	Sabali	Sabali North and Central	6	337	56.17	331	30,503	92.15	12	686	57.17	3	469	156.43
		Sabali South	3	368	122.67									
	SGA	Sector Gobelé A (A, B, C)	59	3,507	59.43	2,148	132,011	61.46	190	4,399	23.15	256	37,099	144.92
		Gobelé D												
		North-East Gobelé D (NEGD)				12	841	70.08	8	164	20.50			
		East-West	22	708	32.18	283	19,673	69.52	30	1,402	46.73			
	Jean	Jean East, Jean West	90	4,804	53.38	603	36,326	60.24	26	820	31.54	121	12,495	103.26
		Banfara	63	986	15.65	355	19,523	54.99	12	335	27.92	1	100	100.00
	West Balan	Derekena	15	1,010	67.33	185	16,073	86.88						
		West Balan	21	867	41.29	1,009	77,384	76.69	44	2,316	52.64	7	679	97.03
	-	Kobane	12	596	49.70	92	7,662	83.28						
		Farabana				71	4,259	59.99						
		Zone C	45	1,283	28.51	192	16,293	84.86	136	3,585	26.36	4	454	113.45
		Djikouroumba	9	421	46.78	28	2,809	100.32						
		Wombon, Wombon South	27	649	24.02	33	1,682	50.97						
		Balan South				12	1,037	86.42						
TOTAL / AVE SOUTHERN DEPOSITS			**372**	**15,535**	**41.76**	**5,354**	**366,076**	**68.37**	**458**	**13,707**	**29.93**	**392**	**51,296**	**130.86**
Northern	-	Heriko Main	43	1,566	36.42	29	2,714	93.59						
		Filon Bleu	102	1,939	19.01	47	3,792	80.68						
		West Filon Bleu	21	747	35.57	9	800	88.89						
		Mankan Central	84	3,743	44.56	61	4,147	67.98						
		Mankan South	48	1,791	37.31	14	1,305	93.21						
		Mankan North	68	1,457	21.43	50	2,996	59.92						
		Heriko East	3	199	66.33									
		Heriko Extension North-East	50	2,672	53.44									
		Diamanankouma	13	914	70.31									
		Kato	3	190	63.33									
		Saman	1	20	20.00									
TOTAL / AVE NORTHERN DEPOSITS			**436**	**15,238**	**34.95**	**210**	**15,754**	**75.02**	**0**	**0**		**0**	**0**	
GRAND TOTAL / AVE DEPOSITS			**808**	**30,774**	**38.09**	**5,564**	**381,830**	**68.63**	**458**	**13,707**	**29.93**	**392**	**51,296**	**130.86**

Source: SMG, SEMAFO

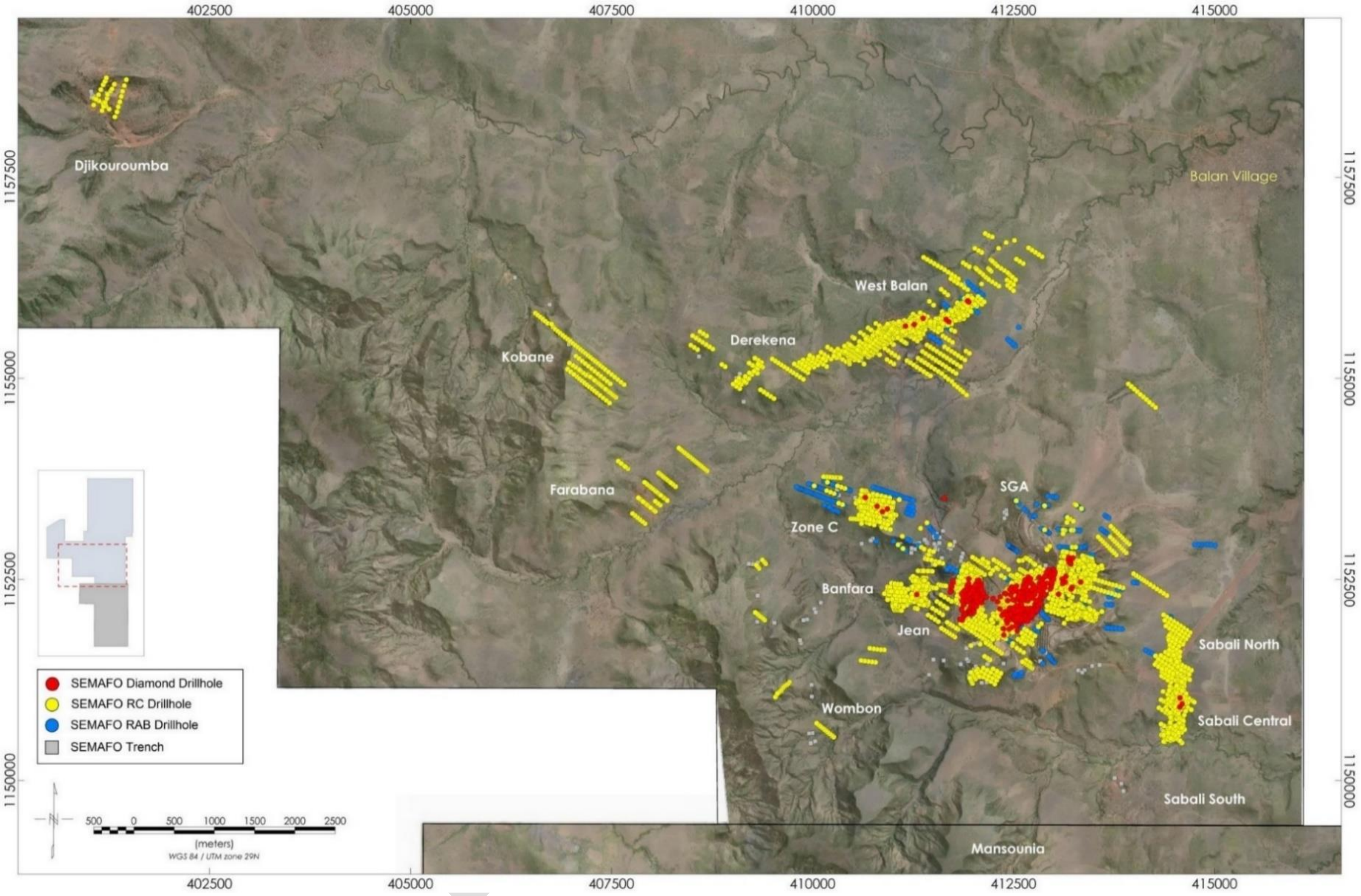


Figure 33: Plan Map of Historical SEMAFO Drilling on the Southern Deposit of the Kiniero License
Source: SMG (2022)

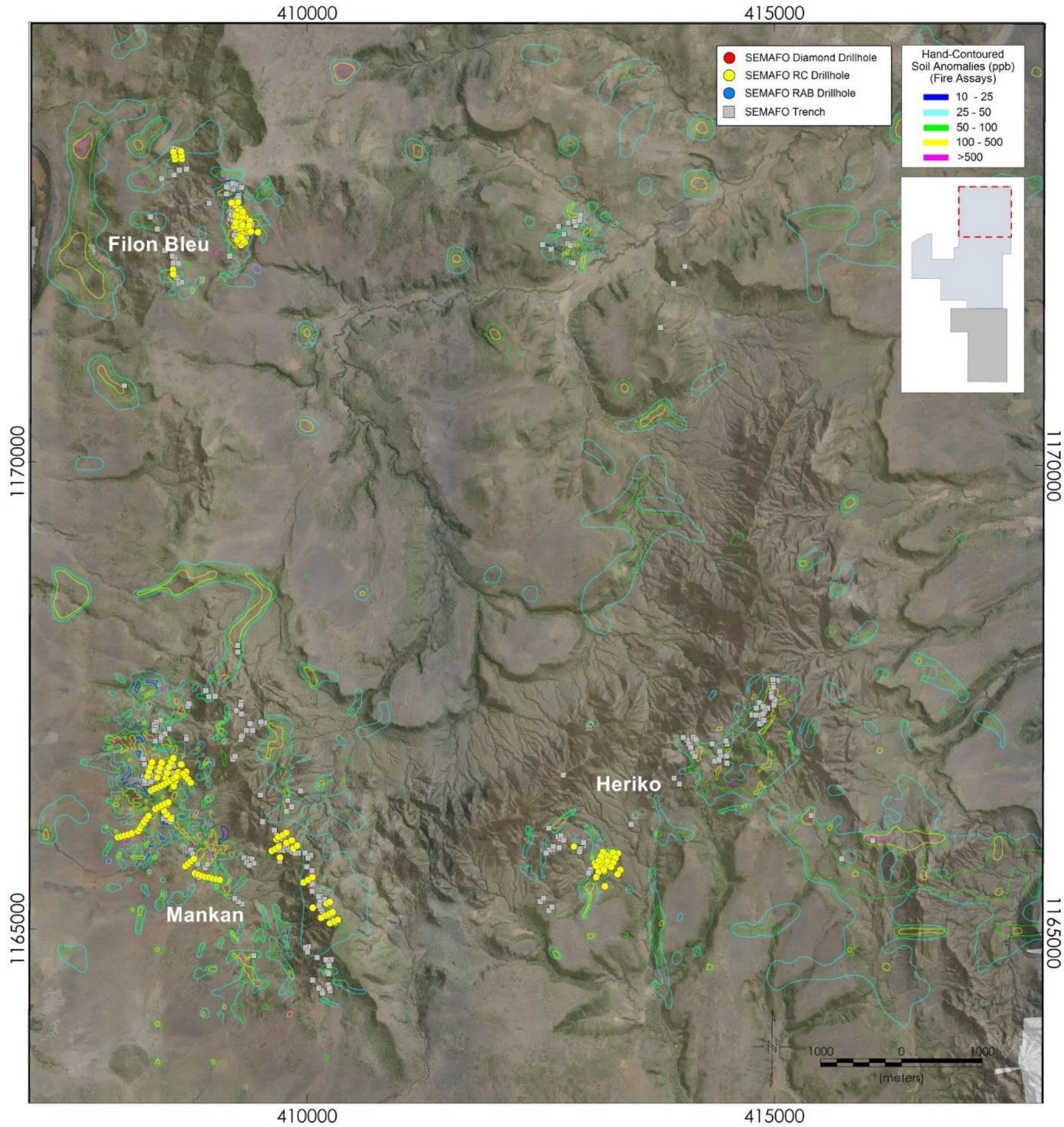


Figure 34: Plan Map of Previous SEMAFO Drilling on the Kiniero License Northern Block
Source: SMG (2022)

- mechanical trenches: these were excavated with the use of an excavator to depths of generally between 2m and 4m. Mechanical trenches were only excavated where results from the reconnaissance manual trenches justified it, or where access for the excavator was possible

10.2.1.2.2 Logging and Photography

The excavated surfaces were continuously mapped and sampled, with excavation actively preceding logging and sampling, allowing the geologist to inspect the excavated material. The entire length of each trench was mapped to produce a scaled sidewall geological profile of the trench, against which the mapped geology was plotted, and the assays overlain once received. A single trench sidewall was mapped at the discretion of the geologist, always being the cleanest and freshest sidewall of the two.

A 50m measuring tape was fixed at the trench collar and pulled taut along the length of the trench along which mapping, and sampling measurements, were referenced. The mapping data was not converted or entered into a conventional lithological downhole database format with corresponding 'from' and 'to' and values. The geological and feature mapping is detailed and considered accurate.

The majority of the previous trench side wall profile maps have been sourced digitally by SMG, as well as having been stored in hard copy at the geological offices of the previous Kiniero Mine. The trench data is managed in the Project database as near horizontal drillholes with trench survey data managed in a survey table identical to a drillhole, allowing full integration within 3D space.

There is no record of trench photography having been undertaken, nor have any photographs been retrieved.

10.2.1.2.3 Trench Sampling

Samples were collected from collar to end of trench in 1m intervals. Based on the exposure and clean state of the trench, the designated mapped sidewall was sampled, always toward the base of the wall near the trench floor, being sure to avoid the contaminated trench floor material. The mapped sidewall was cleaned, to ensure only in-situ material was sampled.

Channel sampling was performed horizontally, wherever possible maintaining a constant depth below surface. The process was carried out by trained samplers equipped with a geological pick and a flat-headed chisel. Samples were measured at 1m long intervals along the mapped trench wall with each sample chiselled out of the sidewall and collected into a catch tray before being bagged. Chiselling resulted in various size fractions of sample being liberated, with all large and small sample chip fragments collected, bagged, and tagged with a unique sample identity tag.

Trenches which revealed significant veining were often resampled with 1m samples centred over the target structure. Channel sample recovery was high in this exploration method as it was carried out manually.

10.2.1.2.4 Trench Surveys

Trenches were collared in the field using a GPS. Post excavation, mapping and sampling trenches were surveyed in by the mine surveyor. Each trench was surveyed with an origin, bearing and appropriate deflection points, i.e. treated as horizontal drillholes. Not all trenches were surveyed, or at least are missing survey data in the Project database. Generally, there is good spatial agreement with plotted trench positions and their identified position in high resolution (<0.5m) satellite imagery.

10.2.1.3 Reverse Circulation (RC) drilling

RC drilling commenced in 1997 and continued until 2012. A total of 381,830m (5,564 drillholes) of RC drilling was undertaken by SEMAFO, covering 22 deposits (Table 19). The purpose of the drilling was initially to delineate the deposits identified using widely spaced reconnaissance style exploration targeting techniques.

As exploration progressed, the grid spacings were sequentially decreased to define the limits of each deposit more accurately, and thereafter the results used to estimate the tonnages and grades, through geological modelling, and ultimately to estimate the Mineral Resources of the various deposits.

10.2.1.3.1 Drilling Method

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

Exact details applicable to the RC drilling completed by Forages and WADS, and the equipment utilised, is not known. RC drilling completed by OreSearch made use of a heavy duty track mounted RC rig with a 1,150cfm x 500 psi Sullair compressor onboard using standard 4½ inch hammer and drill rods. A track carrier fitted with a Sullair 1,150cfm x 500psi auxiliary compressor and Air Research booster (maximum 1,200psi) was available as required (generally for deeper drillholes).

It was assumed that similar such equipment specifications (confirmed to be truck-mounted) and standard RC drilling procedures and protocols were adopted by Forages and WADS as gleaned from interviews with the previous exploration geologists.

RC drillholes were spaced at distances of between 100m and 12.5m intervals (in later RC drilling campaigns) along the drill lines, which were generally orientated perpendicular to the mineralisation. RC drilling was the preferred method of previous drilling as it was affordable, fast, and provided an uncontaminated voluminous sample. Drill cuttings remained uncontaminated as they were returned to surface inside the drill rods, thus ensuring no contact with the side wall of the drillhole.

Drillholes were initially sited using a handheld GPS and then surveyed post-drilling by the Kiniero Mine surveyor. Drillhole azimuths were parallel to each other on the drill line and orientated to intersect the mineralisation at right angles. Drill rigs were aligned to drill at dips of between 45° and 60° with minor variations therefrom, with the aim of intersecting the mineralisation at near-surface depths to a general maximum of approximately 100m vertically below surface.

Due to the fast speed of RC drilling, accurate depth measurements and specific sample intervals could not be obtained. Sample measurements and intervals were therefore determined by drillhole depths at metre intervals. Metre depths were typically marked onto the drill rod as a visual guide for the geologists or geo-technicians which indicated when a new sample bag must be inserted.

Based on interviews with previous SEMAFO geologists, the drilled sample material was not weighed on a per metre basis to monitor sample recovery.

10.2.1.3.2 Logging and Photography

No detailed SEMAFO procedures and protocols pertaining to the logging and sample of RC drillholes have been sourced. However, based on interviews with previous company geologists, reviews of the hard copy drill logs filed at the Kiniero Mine offices and information that is available from previous SEMAFO public reports, the procedures reported below are apparent.

The exploration geologists were responsible for carrying out the lithological logging of all drilled material at the drill rig. All geologists were familiar with the required logging and sampling protocols to be implemented.

Photographs of the material of chip boards were not undertaken. SMG completed photography on all available chip boards in 2021 for inclusion in the Project database, a total of 636 previous RC drillhole chip boards.

10.2.1.3.3 Sampling

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

Samples were routinely collected at 1m intervals. A sample bag was held in place beneath the cyclone to collect the drilled material at 1m intervals. Due to the volume of material yielded from an RC drillhole per metre, the collected sample needed to be randomly reduced (or split) to a manageable size which could be submitted for analysis.

A standard three-tiered riffle splitter was used to randomly reduce the sample to a manageable size with two sub-samples of 2kg to 3kg each. The split samples were collected in durable polythene plastic bags, labelled with the unique duplicate sample ticket, and sealed for dispatch to the laboratory. One sample was submitted to the laboratory for analysis while the other was retained at the geological core yard for reference purposes. The riffle splitter was air cleaned with an air compressor hose between each sample split. Sampling details were recorded onto a separate dedicated sampling logging sheet.

10.2.1.3.4 Downhole Surveys

No downhole surveys were undertaken on any of the historical RC drillholes, due to the short nature of the RC drilling (average drillhole depth <68m).

10.2.1.4 Diamond drilling (DD)

Diamond drilling commenced in 1997 and continued until 2012. A total of 52,296m (392 drillholes) of diamond drilling was undertaken by SEMAFO, covering seven deposits (Table 19). The purpose of the diamond drilling was to obtain metallurgical sample material, detailed geotechnical information, as well as detailed primary structural and geological data on the respective deposits. Later, limited diamond drilling was undertaken to explore the mineralised depth extensions for potential underground development at the Kiniero Mine.

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

10.2.1.4.1 Drilling Method

Early diamond core drilling (i.e. pre-2008) was outsourced to Forages. In 2008 diamond drilling was contracted to WADS and in 2011 the final diamond core drilling campaign was outsourced to OreSearch (approximately 12,000m).

Exact details applicable to the diamond core drilling completed by Forages and WADS, and the equipment utilised, is not known. Diamond drilling undertaken by OreSearch made use of a crawler mounted diamond core rig and a crawler mounted support carrier using conventional wireline diamond drilling techniques. It is assumed that similar such equipment and standard procedures and protocols would have been adopted by Forages and WADS.

Diamond drillholes were initially sited using a handheld GPS and then surveyed post-drilling by the Kiniero Mine surveyor. Drillhole dips and azimuths were planned by the exploration manager such that the drillhole was orientated to intersect the mineralisation at right angles. Drill rigs were aligned to drill at dips of between -45° and -60°, with the aim of intersecting the mineralisation at depths where mineralised fresh rock intervals were intersected.

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

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

No minimum recovery clauses were stipulated in the OreSearch drilling contract, nor has any recovery (e.g. RQD) data been retrieved from the previous diamond drillhole data.

10.2.1.4.2 Logging and Photography

No detailed SEMAFO procedures and protocols pertaining to the logging and sampling of diamond drillholes has been sourced. However, based on interviews with previous geologists, review of the hard copy data filed at the Kiniero Mine offices and the review of the downhole database, re-visiting the previous drill cores and reviewing from what is available from previous SEMAFO public reports, suggests that procedures adhered to standard industry protocols.

The exploration geologists were responsible for carrying out the lithological logging of all diamond drill cores. All geologists were familiar with the required logging and sampling protocols to be implemented.

No reference was made to photography of the diamond drill cores being undertaken, nor have any photographs been sourced in this regard. In 2021 SMG subsequently completed wet and dry photography on all available SEMAFO diamond drill cores for inclusion in the Project database, a total of 28 diamond drillholes.

10.2.1.4.3 Sampling

Based on the 'from' and 'to' intervals of the assay data in the hard copy drill logs, as captured into the Project downhole database, it is apparent that sample intervals were generally collected on a consistent 1m basis down the drillhole.

Deviations from this sampling strategy are apparent where sampling intervals were selected at the discretion of the geologist – i.e., honouring geological contacts and features, with sample widths ranging from 20cm to 100cm.

Samples were split using a chisel blade, in soft weathered horizons, or a conventional diamond saw, in fresh rock horizons. Splitting of the core was done following the dominant orientated foliation. Cores were returned to the core tray with the 'top' piece of the halved core bagged and tagged for dispatch to the laboratory, thus ensuring any preferential bias was removed. The other half remained in the core box and was archived for future reference.

At all stages, sampling was conducted by the exploration geologists under the supervision of the exploration manager, with sample identification and numbering only being carried out by the sampling geologist. A series of duplicate sample ticket books were used during the sampling process which provided a unique sample number for each sample collected.

10.2.1.4.4 Downhole Surveys

Downhole surveys were conducted on all diamond drillholes with survey readings collected every 50m down the drillhole, as a minimum. For the OreSearch diamond drilling, a 'ReflexCamera' was detailed as the specified downhole survey equipment used.

10.2.1.5 Conclusions

The historical exploration undertaken by SEMAFO commenced in 1996 and concluded in 2012. The 47 deposits identified from permit wide exploration were followed up with pitting, trenching, and drilling to define the limits of mineralisation. The majority (89%) of the drilling was undertaken prior to the issue of the 2008 Mineral Resource estimate, with the remaining 11% being undertaken from 2009 until the mine closed.

The volume of trenching and drilling was extensive and totalled 30,774m of trenches and 446,832m of drilling over the Kiniero License area of 326km², an average of 20 drillholes/km² or 1.3km of drilling/km² (Table 19). The focus of trenching and drilling was in the south of the Kiniero License area where previous production was centred, with approximately 96% of all drilling completed thereat.

10.3 Historical Mansounia License Drilling (2003 to 2018)

10.3.1 Gold Fields (2003 – 2005) and Burey Gold (2005 – 2012)

RAB and RC drilling was completed by Gold Fields between 2003 and 2005, and RC and diamond drilling by Burey Gold from 2007 up until the updated Mineral Resource estimate by Runge in 2012 (Table 20). At the time of the 2012 Runge MRE, 430 drillholes for a total of

35,368m had been completed. The location of all drillholes per ownership are presented in Figure 35.

In 2018, Blox completed a shallow auger drilling campaign to delineate additional targets, primarily in the south of the Mansounia License area. These results were not included in any MRE update. Of the total drilling, 420 drillholes were drilled as shallow oxide holes (including geotechnical drillholes), whilst the remaining 10 holes were drilled to test the deeper mineralised system.

Where mineralisation was targeted at significant depth, drilling was carried out with a combination of RC and DD drilling. The drillhole commenced with a pre-collared RC stem until water could no longer be circulated by boosters, whereupon the drillhole was continued until end-of-hole with a diamond drilled tail.

Table 20: Historical Mansounia Drilling Summary by Ownership

COMPANY	PERIOD	PREVIOUSLY REPORTED DRILLHOLES					
		RAB		RC		DD	
		No.	Metres	No.	Metres	No.	Metres
Gold Fields	2003 - 2005	56	2,976.5	95	7,963.0	-	-
Burey Gold	2005 - 2012	-	-	260	22,347.0	19	2,081.8
Total		**56**	**2,976.5**	**355**	**30,310.0**	**19**	**2,081.8**

Source: Runge (2012)

10.3.1.1 Rotary Air Blast (RAB) Drilling and Reverse Circulation (RC) Drilling

10.3.1.1.1 Drilling Method

RAB and RC drilling by Gold Fields and Burey Gold was conducted using standard configured rotary air blast and reverse circulation drilling equipment from West African Drilling Services (WADS). The drilled holes were numbered to inform the type of drilling and the total holes drilled by each type.

Both the RAB and RC drillholes were drilled at -50° dip, 270° strike and at various depths. RAB drillholes were drilled to a maximum of 88m and an average EOH of 51m. RC drillholes were drilled to a maximum depth of 135m with an average depth of 86m. Total RAB drilling was 56 holes for 2,977m; whilst RC was 355 holes for 30,310m (Table 20).

10.3.1.1.2 Recovery

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

10.3.1.1.3 Logging and Photography

Geological Logging of all RC drillholes (Gold Fields and Burey Gold) were logged at the drill rig by the responsible geologist who studied the RC chips, which were validated later using chip boards to confirm all major lithological alteration, mineralisation, and structural features. Once completed, chip boards were photographed.

All Mansounia License RC chip board photographs have been acquired by SMG. The RC chip trays, which are securely stored in Kankan, will be photographed by SMG in 2022.

10.3.1.1.4 Sampling

All Gold Fields and Burey Gold RC drillholes were collected and sampled at 1m intervals down-hole via a cyclone into PVC bags and split through a three-tiered riffle splitter. The final field sample weighed approximately 5kg which was submitted for fire assay.

All sampling was carried out using industry standard practices. Contamination was minimised wherever possible. Drillholes that encountered wet samples within the saprolite were stopped early, however where wet samples were identified in mineralised horizons, drilling was continued with the wet samples being dried, homogenised and subsequently split. RC chip trays were systematically logged, and all chip trays were stored at a well secured camp.

RAB samples were collected in a similar manner to that as described in Section 10.2.1.1.3.

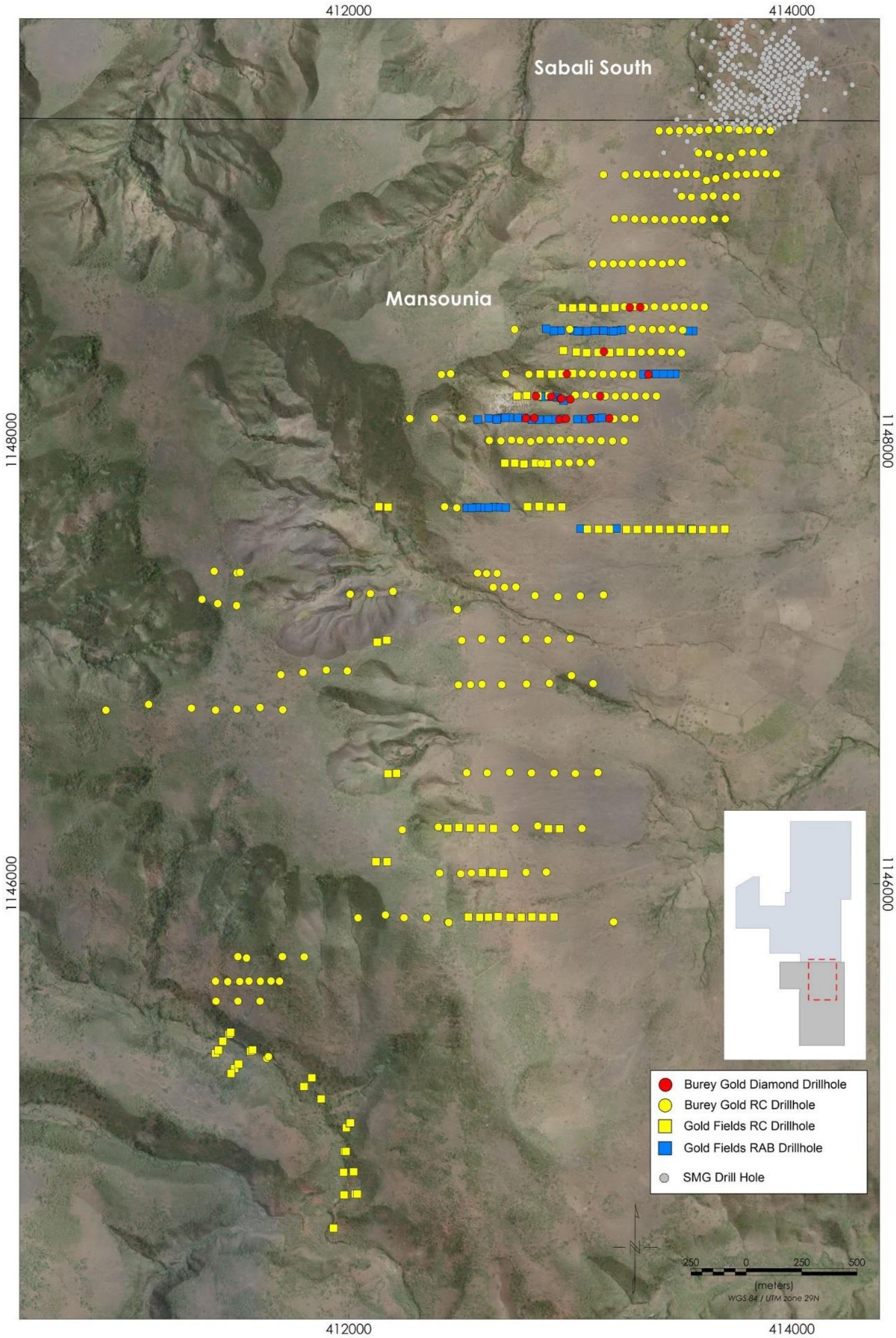


Figure 35: Historical Mansounia Drillhole Location per Ownership and Period

Source: SMG (2022) adapted from Runge (2012)

10.3.1.2 Diamond Drilling

10.3.1.2.1 Drilling Method

Diamond drilling was conducted by Burey Gold on the Mansounia License area with WADS diamond drill rigs. All drillholes were drilled at -60 degrees dip and an azimuth of 270 degrees at various depths. The oxide zones were drilled using an HQ core diameter rod (63.5mm) and continued to the end of the hole with an NQ core diameter rod (47.6mm).

A total of 2,082m was drilled for the diamond programme representing 19 completed drillholes (Table 20). The maximum EOH was 210m and an average depth of 110m.

10.3.1.2.2 Recovery

Sample recoveries in the diamond drillholes for the transition and fresh rock horizons was very good, but the moderate through the highly weathered saprolitic zone, as well as through the highly fractured and brecciated zones which returned poor recoveries. Runge considered the RC and diamond drilling data to be of an acceptable quality and consistent with international industry standards.

10.3.1.2.3 Logging and Photography

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

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

Core photography was completed as part of the core processing procedure. The photographs of the Mansounia License drill cores have not yet been recovered. SMG has recently acquired the available halved drill cores that are securely stored in Kankan, which will be photographed during 2022.

10.3.1.2.4 Sampling

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

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

10.3.1.3 Downhole Surveys

Downhole surveys were undertaken using an Eastman down hole camera (Gold Fields) and a Flexit smart-tool digital down hole instrument (Burey Gold Limited) with readings collected approximately every 40m down hole. A total of 102 drillholes were not downhole surveyed.

10.3.1.4 Collar Surveys

All Gold Field drillholes, and all but 29 of the Burey Gold drillholes (MRC251 to MRC279), were surveyed using a Sokkia Straus DGPS (to two decimal places). The other 29 Burey Gold drillhole collars were surveyed using a Nomad TDS handheld GPS.

SMG has subsequently undertaken a complete field check of all 430 Mansounia License drill collars, surveying in the collar in every instance where the collar was relocated. Where the collar was not relocated, SMG has relied on the previous collar survey data, snapping these to the Kiniero Gold Project LiDAR topography.

10.3.2 Blox, Inc. (2018)

10.3.2.1 Auger Drilling

On 26 October 2018, Blox announced that a shallow auger drilling campaign had been completed to delineate new targets. Blox had obtained 184 samples from the planned 400-hole auger programme. Due to the laterite cap being 10m on average, and not the anticipated 5m, together with the onset of the wet season, the planned programme was not completed.

The results identified five new gold targets, including doubling the previous gold-in-soil strike from 2.5km to 5km on the eastern margin of the licence. This area wasn’t covered by the earlier soil focused exploration programmes.

No additional details are available pertaining to the drilling methodology, nor the procedures and protocols applied to the logging and sampling. This data has not yet been acquired by SMG.

10.4 Current Kiniero Project Drilling and Trenching

10.4.1 Sycamore Mine Guinee (2020 - 2022)

Current exploration includes all new RC, DD, RAB, auger drilling and trenching undertaken by SMG on both the Kiniero License and the Mansounia License areas. A summary of the completed trenching and drilling is presented in Table 21 and Table 22 respectively, by deposit, and the location of the drillholes and trenches indicated on Figure 36. Drilling and trenching completed on the respective Kiniero, and Mansounia License areas can be summarised, as of 25 May 2022 for drilling and 22 July 2022 for assays, as:

- a total of 601m of trenching on the Kiniero License (Table 21). All 585 trenching assays have been received
- a total of 58,756m has been drilled on the Kiniero License by SMG, and 55,523 assays received. Of the total drilling completed by SMG 49,351m has been RC and 2,175m has been DD (Table 22)
- a total 6,307m of RC drilling and 392m of diamond drilling had been completed on the Mansounia License by SMG (Table 22). A total of 6,252 RC and 353 DD drilling assays has been received

Combined drilling across the Kiniero Gold Project completed by SMG totals 65,454m with 62,128 assays received at the cut-off dates. Drilling has been completed across multiple deposits and targets. Drilling purposes have included exploration, verification, resource, and reserve delineation (infill, strike, and depth extension), geotech, sterilisation, stockpiles and water. The sections that follow describe the drilling methodologies, recoveries, logging and photography, and sampling procedures and protocols per drilling type.

The SMG drilling has been overall success and interpretation of the drill results have been used in estimation of Mineral Resource and Mineral Reserves as detailed in Section 14, Table 71 and Section 15, Table 91, respectively.

Table 21: Summary of Trenching Completed by SMG on Kiniero Gold Project.

LICENSE	DEPOSIT	No.	TOTAL LENGTH	AVE. LENGTH	TOTAL ASSAYS
Kiniero	Jean	2	90	45	90
	Sabali South	3	511	170	495
TOTAL / AVE. KINIERO LICENSE		**5**	**601**	**215**	**585**

Source: SMG (2022)

10.4.1.1 Rotary Air Blast (RAB) Drilling

10.4.1.1.1 Drilling Method

RAB drilling is similar to RC drilling, however, with RAB drilling the rock cuttings pass along the outside of the drill rods and are in contact with the wall rock. As a result, the samples are prone to higher levels of contamination and therefore no SMG RAB drillholes are used in the Mineral Resource estimate.

RAB drilling was contracted to and completed by Ricardo Drilling in 2020 and Guinee Forage in 2021. The RAB drilling campaigns were undertaken to complete water supply and monitoring boreholes on the Kiniero License. A selection of experimental RAB drillholes were drilled on the previous ROM stockpile to test the effectiveness of drilling RAB on stockpile material. A total of six RAB drillholes were completed (Table 22) in this regard, however, the drilling technique was ineffective in drilling this unconsolidated material and the test drilling programme was abandoned and replaced with an auger drilling programme.

Production water borehole locations were selected to target the documented water-bearing chert horizon that had previously yielded production water at the Kiniero Gold Mine. A selection of water monitoring boreholes completed the RAB drilling programme.

10.4.1.1.2 Logging and Photography

The logging and photography of RAB chips were the same as the procedures followed for RC drilling in Section 10.4.1.4.3.

10.4.1.1.3 Sampling

Sampling of all RAB drilling was completed by SMG, thus ensuring that RAB boreholes served a dual purpose as also being sterilisation drillholes – i.e. to ensure the absence of gold. Due to the sample cuttings being ejected to surface along the outside of the rods and in contact with the drillhole sidewall, the use of a cyclone to slow the trajectory of the sample to surface is not possible with RAB drilling. Instead, the drilled sample collided with the undercarriage of the drill rig and settled on the surface immediately adjacent to the drillhole collar.

A collecting spade was held at the drillhole collar by a geotechnician to catch a random selection of approximately 2kg to 3kg of drilled material on a per metre basis which was then logged and bagged for sampling. As the reject drilled sample material accumulated at the collar, so it was moved aside for later discard back down the drillhole.

10.4.1.2 Auger Drilling

10.4.1.2.1 Drilling Method

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

Table 22: Compilation of Current Drilling by Deposit by SMG

		RC DRILLING				DD - RESOURCE				DD - GEOTECH				AUGER DRILLING				RAB DRILLING			
LICENSE	DEPOSIT / STOCKPILE	No.	TOTAL METRES	AVE. EOH	TOTAL ASSAYS	No.	TOTAL METRES	AVE. EOH	TOTAL ASSAYS	No.	TOTAL METRES	AVE. EOH	TOTAL ASSAYS	No.	TOTAL METRES	AVE. EOH	TOTAL ASSAYS	No.	TOTAL METRES	AVE. EOH	TOTAL ASSAYS
Kiniero	Derekena	19	1,635	86	1,618																
	Kobane	23	1,648	72	1,634																
	Farabana	26	1,574	61	1,564																
	SGA	29	3,871	133	3,855	1	428	428	466	3	501	167	506	34	840	25	840				
	SGA - Sterilisation	8	1,154	144	1,152																
	Sabali North	3	272	91	267					2	231	115	227								
	Sabali Central	4	310	78	297					2	226	113	228								
	Sabali South	364	38,887	107	38,594	3	560	187	564	2	230	115	233								
	ROM Stockpile													31	246	8	246	6	87	15	87
	BCM Stockpile													27	258	10	258				
	West Balan Stockpile													415	4,410	11	2,204				
	Jean & Banfara Stockpiles													41	528	13	264				
	Water Supply																	*5*	*414*	*83*	*299*
	Water Monitoring																	*8*	*446*	*56*	*120*
TOTAL / AVE. KINIERO LICENSE		**476**	**49,351**	**96**	**48,981**	**4**	**988**	**307**	**1,030**	**9**	**1,187**	**128**	**1,194**	**548**	**6,282**	**13**	**3,812**	**19**	**947**	**51**	**506**
Mansounia	Mansounia North	42	4,845	115	4,792	2	392	196	353												
	Mansounia Central	13	1,462	112	1,460																
TOTAL / AVE. MANSOUNIA LICENSE		**55**	**6,307**	**114**	**6,252**	**2**	**392**	**196**	**353**												
TOTAL / AVE. KINIERO GOLD PROJECT		**531**	**55,658**	**100**	**55,233**	**6**	**1,380**	**270**	**1,383**	**9**	**1,187**	**128**	**1,194**	**548**	**6,282**	**13**	**3,812**	**19**	**947**	**51**	**506**

Note: Kiniero Project drilling cut-off date: 25/05/2022

Source: SMG (2022)

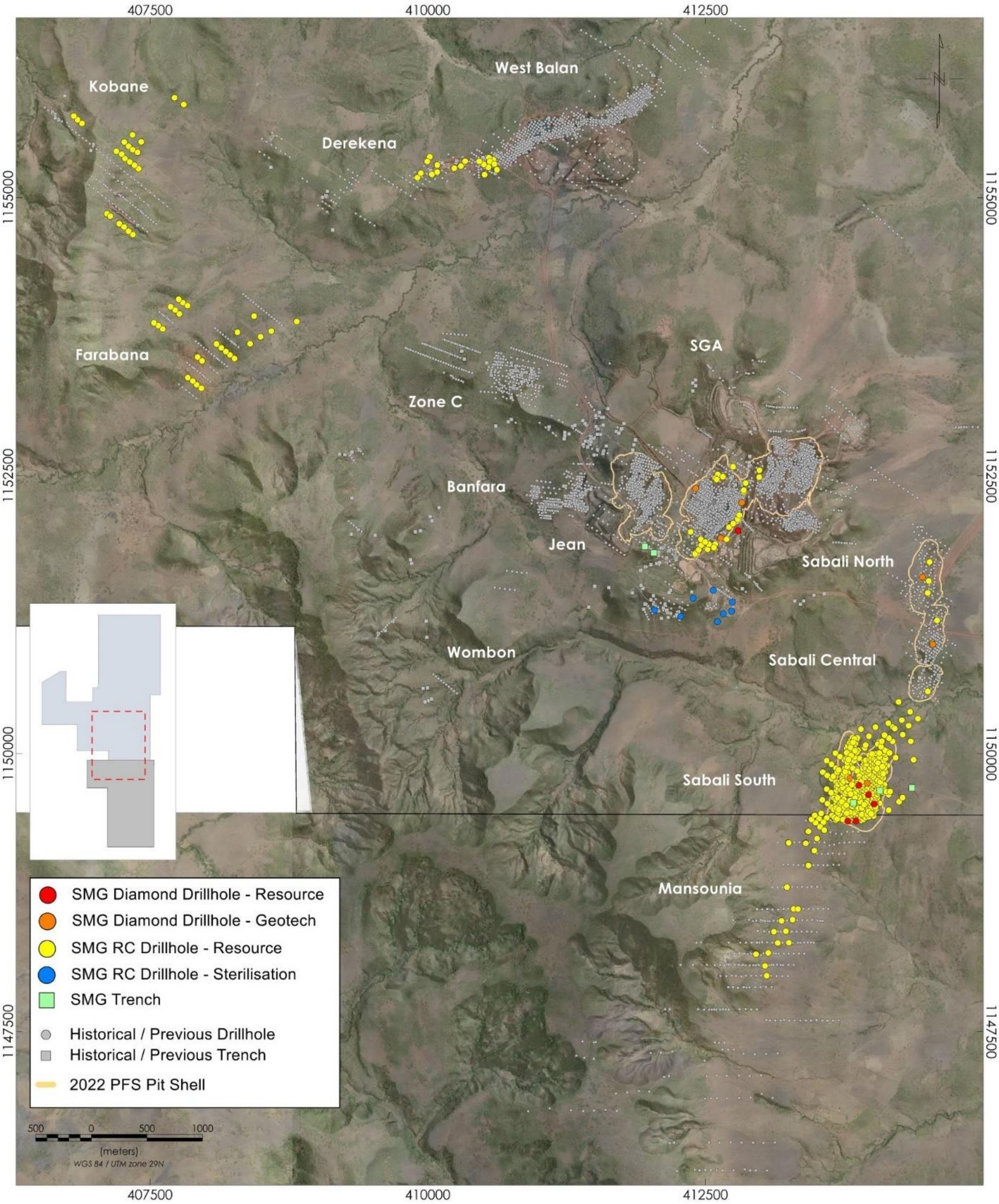


Figure 36: Kiniero Gold Project Drilling and Trenching completed by SMG (2020 to 2022)
Source: SMG (2022)

As a result, auger drilling has limited use in hard rock in situ Mineral Resource estimations, but it plays a significant role in the drilling, sampling and evaluation of semi- to unconsolidated materials such as tailings and mine stockpiles. To evaluate the previous stockpile and waste inventories, inherited with the acquisition of the Kiniero License, SMG contracted BMA Multi Service Sarl (BMA) in 2021 to complete an extensive auger drilling campaign on near-mine

ROM stockpiles, low-grade stockpiles and waste rock dumps (detailed in Section 14.3). BMA used a custom-built, small truck mounted power auger rig capable of drilling to a depth of approximately 30m.

The results of the stockpile auger drilling have been used to quantify the volumes, tonnages, and grades of each of the near-mine stockpiles that were drilled by SMG.

10.4.1.2.2 Logging and Photography

Logging of the stockpile auger drillholes followed the same procedure as for RC drilling described in Section 10.4.1.4.3. No photographs were taken of the stockpile samples collected, nor were any representative chip trays collected or stored.

10.4.1.2.3 Sampling

Each 1m drill sample brought to surface by the spiral screw thread was collected at the top of the drillhole using an auger sample collection tray. Sample material was scraped to the collection tray edges, allowing room for the additional material from a metre drilling to be brought to surface. Upon a full metre having been drilled, the collected material was coned and quartered until a representative and manageable sample size was recovered. Beyond the point of sample splitting, the bagging and tagging procedure followed the same as RC drilling described in Section 10.4.1.4.4.

Samples were collected on a per metre basis for the ROM and BCM stockpile auger drilling and composited on a 2m basis across the West Balan, Jean and Banfara stockpiles.

10.4.1.3 Trench Channel Sampling

10.4.1.3.1 Trenching method

SMG trenching was undertaken to expose steeply dipping mineralised structures. Trenching is complimentary to the RC and DD programmes as it exposes outcrop from which lithological and structural data can be captured from trench mapping, as well as assay data from channel (or chipping) samples. Similar to the logging of a diamond drillhole, a differentiator with trench logging is that it allows a geologist the opportunity to examine the structure and changes in stratigraphic horizons on a significantly larger scale than DD core can.

Trench locations were delineated based on structural interpretations from mapping and soil geochemistry, with the aim of cross cutting mineralised structures. Once the location was confirmed, a wooden peg was banged in at either end of the desired trench position to indicate its location for the excavators (mechanical excavation was used for all SMG trenches).

A length of chevron tape was secured between the two trench pegs with a field compass used to ensure the desired azimuth was met prior to excavating. The purpose of this chevron tape is to act as a marker to the excavator foreman the exact locality of the desired trench which he will excavate immediately parallel to, depositing the excavated material on the side wall opposite the chevron marker.

10.4.1.3.2 Logging and mapping

Logging and mapping commenced at collar (i.e. 0m), and continuously measured, marking geological data in the "from" "to" methodology to the end of the trench. Additionally, the in-situ dip and strike of the intersected lithologies and structures were measured or estimated from the sidewall of the trenches.

10.4.1.3.3 Sampling

In preparation of sampling, handheld spades, scrapers, and wire bristled brushes were used to 'clean' the selected trench side wall. This ensured no contamination of the sampling surface from caving washing in or winds.

A measuring tape was fixed at a starting position and pulled taut along the length of the trench portion which has been excavated and cleaned. Sample positions were measured and marked along the trench sidewall by the on-site geologist who interpreted the lithological boundaries. These markings were used to indicate the width of the channel sampled as well as the length.

A channel sample was collected by chiselling out a channel from the sidewall over the designated sampling length. Chiselling results in various size fractions of sample being liberated, thus all large and small sample chips were bagged and tagged.

All samples were weighed and documented on the trench log upon completion of the channel sample length. A series of duplicate sample ticket books were used during the sampling process to generate a series of unique sample numbers for the collected samples. All samples were recorded on the trench sampling sheet and captured into the database.

10.4.1.4 Reverse Circulation (RC) drilling

With dual-tube RC drilling, compressed air passes down to the drill bit along the annular space between an inner tube and outer drill rods to return to surface, carrying the rock cuttings up the centre of the inside rod. This prevents the upcoming sample from being contaminated with broken side-wall material from the sides of the hole, and as such provides a sample whose down hole position is broadly known to 0.5m to 1.0m accuracy.

As such, samples generated from RC drilling can be used in the Mineral Resource estimates. SMG used RC drilling to test delineated targets, as well as for infill drilling purposes and strike extension drilling on known deposits.

All RC drilling and logging protocols are outlined in SMG's "Exploration Procedure and Protocols for Reverse Circulation (RC) Drilling and Sampling, V.3" dated August 2020, and are summarised in the section to follow.

10.4.1.4.1 Drilling method

Three RC drilling contractors have been used on the Kiniero Gold Project to date:

- from March 2020 to June 2021, Target Drilling (AUS) Pty Limited (Target Drilling) was appointed as the RC drilling contractor. Target Drilling used a Hydco-3 AC/RC and a KL900 multipurpose truck mounted drill rig.
- from November 2021 to April 2022, Phoenix Precious Metals SARL (PPM) was the appointed RC drilling contractor. PPM used a Schramm 450 RC truck mounted drill rig.
- in April 2022 Ivry Drilling & Resources (Ivry) was appointed. Ivry make use of an EDM-67K multipurpose truck mounted drill rig with supporting Air Research 100000psi 2000cfm trailer mounted booster and are currently drilling as of the date of this PFS.

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

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

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

10.4.1.4.2 Recovery

Once the 1m bulk sample was retrieved from the cyclone, it was measured to obtain the bulk sample mass. The mass was compared to the estimated mass expected from a 1m interval of that lithology/regolith (using bulk density data). This provided an estimate of the total sample recovery for that metre interval. Recovery data was recorded in the drillhole log sheet.

10.4.1.4.3 Logging and Photography

The Geology Manager and exploration geologists were responsible for carrying out the lithological logging of all drilled material at the drill rig. All geologists were familiar with the logging and sampling protocols adopted by SMG. Information logged included lithology, weathering, alteration, and mineralisation data.

Chip trays were photographed using a DSLR digital camera and a whiteboard to indicate the drillhole and depths of each chip tray. Three photographs were taken per 20m chip tray, including the whole 20m chip tray and a photo for the first and second set of 10m intervals.

10.4.1.4.4 Sampling

Sampling was carried out onsite by the sampling geologist and supporting geo-technicians, with sample identification and numbering being completed by the sampling geologist and verified by the responsible geologist prior to bagging. The bagging and labelling were undertaken by the exploration geologists with support from the geological technicians, under direct supervision. A series of duplicate sample ticket books were used during the sampling process which provided a unique sample number for each sample collected. Samples were routinely collected at 1m intervals.

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

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

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

10.4.1.5 Diamond Drilling (DD)

During diamond drilling, an annular, diamond impregnated cutting bit is mounted on the end of a rotating string of hollow steel rods that cuts a solid cylinder of rock (core) which passes up inside the drill rods as the bit advances. The core is retrieved without any contamination and with good drilling practices, the resultant core represents the in-situ rock characteristics at that depth.

As a result, diamond drillholes can be used in the Mineral Resource estimate. The use of diamond drilling by SMG was two-fold; first, to develop a sound geological understanding of the deposit, and second, for geotechnical purposes to establish rock engineering parameters. All diamond drillholes were completed using an orientation tool to produce oriented core, as well as downhole surveyed. All geotechnical logging, sampling and testwork is described in Section 16.1.

10.4.1.5.1 Drilling method

Two diamond drilling contractors have been used on the Kiniero Gold Project. Target Drilling completed diamond drilling from August 2020 to April 2021 using a track mounted CT05-CSD1300L., while PPM was the appointed diamond drilling contractor from January 2022 to April 2022 using a track mounted LF90D Boart Longyear diamond drill rig.

As with the RC drilling, all drillholes were planned by the Exploration Manager and collared on site by the Geology Manager using a handheld GPS. Collars were pegged and chevron tape used to help prepare the rig for alignment. Final alignment was done by the drilling team together with the on-site geologist who performed the final checks.

All diamond drillholes were completed using the traditional wire-line method that withdraws the core and inner tube assembly from the drillhole without the need to pull out the hollow drill rods by a separate hoisting unit (overshot) fixed on a different pulley. The inner tube assembly was lowered down the inside of the barrel after removing the core and drilling continued. Therefore, lowering and hoisting of drill string, barrel, and drilling head is not required after every run drilled.

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

A core orientation tool was used on every run to allow for the greatest chance of continuous downhole orientation. Various tools were used throughout the programmes, including an orientation spear, a Reflex EZ-Mark tool and a Reflex ACT3 tool.

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

10.4.1.5.2 Recovery

Core recovery is critical to the success of a diamond drillhole. As a result, SMG stipulated a minimum recovery of 85% in the weathered saprolite horizon, 90% in transitional material and a minimum of 95% in fresh rock with all diamond drilling contractors.

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

10.4.1.5.3 Logging and photography

The SMG geologists followed the step-by-step process (stipulated in the SMG Diamond Drilling SOP) to prepare and log the core. First, core was fitted, and the orientation line drawn. The core was metre marked using the recovery measurements. The lithological log was completed recording the lithology, weathering, alteration, mineralisation, and structural data. Finally, sample intervals were marked and recorded, and the cut line drawn below the orientation line to prepare for splitting using a core saw.

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

10.4.1.5.4 Sampling

For DD drillholes completed, the length of the entire drillhole was sampled. Sample intervals were at the discretion of the on-site geologist, based on observations within the core. Generally, sample intervals were 1m in length, honouring geological boundaries where relevant.

After the core was split in half, the bottom half was sampled to ensure the orientation line was preserved on the remaining unsampled half of core. Once the sample interval was collected, it was placed into a plastic bag and tagged with the unique sample ID from a duplicate ticket book.

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

10.4.1.6 Collar Surveys

All RC, diamond, auger and RAB drillholes were collared on site by the Geology Manager using a handheld GPS. Final drillhole collar positions were surveyed by a qualified surveyor post drilling, using the process and equipment described in Section 9.2.1.1. Survey sheets were emailed by the qualified surveyor to the Geology Manager and a copy sent to the Exploration Manager for backup.

Coordinates of each drillhole were cross-checked against the planned coordinates versus the field GPS coordinates versus the final professionally surveyed collar coordinates in order that any survey errors or discrepancies were noted, and necessary checks made.

10.4.1.7 Downhole surveys

Each RC and DD drillhole was downhole surveyed to measure the azimuth and dip using single shot surveys at 30m intervals. Downhole directional surveys were used to obtain the exact orientation of each drillhole in three-dimensional space.

Target Drilling was equipped with a Reflex Ez-Trac and a Devico RG30 Gyro downhole survey probe. PPM and Ivry used a Reflex Ez-Trac survey tool. Upon completion of the downhole survey, the contractor provided a downhole survey certificate to the Geology Manager for each drillhole which was filed at the exploration camp and captured into the drillhole log and emailed offsite to the Exploration Manager daily. This certificate represents the most accurate measurement of a drillhole’s deviation path which is critical for modelling and mineral resource estimation exercises.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The following sections summarise the sample chain of custody post-sample-collection from drilling or exploration activity; preparation and analysis by the laboratories; QA/QC methods and results by the laboratories (internal) and project owner (external); and bulk density procedures and outcomes.

11.1 BUMIFOM (1943-1958) – Kiniero License

Minimal information is available on the laboratories used, sample preparation and analysis or QA/QC work conducted by BUMIFOM during its historical exploration campaign. Details have not been sourced on the external (BUMIFOM) and internal (laboratory) QA/QC that may or may not have been completed during BUMIFOM's exploration across the Kiniero License.

The only comment of any QA/QC work was post-BUMIFOM, during BRGM's 1986 programme, where, as part of BRGM's campaign, it undertook a programme of 'historical data verification' which included check sampling of a selection of the original BUMIFOM trenches. Details on this check sampling on the trenches have not been sourced.

11.2 BRGM (1985-1986) – Kiniero License

11.2.1 Sample Preparation and Analysis

In 1988 Watts, Griffis and McOuat Limited (WGM) undertook a detailed review of the exploration work conducted, and the resultant feasibility report that was produced by BRGM on the Kiniero License area of this time. WGM indicated that the BRGM reports provided no detailed description of their sample handling and sample preparation procedures, i.e. calculations of proper size samples at various particle size, etc.

Its report stated that BRGM used two different laboratories in 1985 and 1986 – a Dakar based laboratory and the BRGM Orleans lab in France, each using differing analytical procedures. No explanation is provided as to why, nor were correlation correcting factors, between the sets of results applied. The analytical methods used were:

- fire assay with gravimetric finish
- fire assay with AA finish
- only AA

The detection limit varied from <1g/t Au to <0.1g/t Au to <100ppb Au, with the latter two being the same, but reflecting different techniques. The original BRGM work used atomic absorption with fire assay to check higher Au values.

11.2.2 Quality Assurance (QA) / Quality Control (QC)

BRGM undertook some internal check assays which were provided to WGM. A total of 31 pairs of internal checks were performed, mostly on medium to high grade samples. The check assay results were concluded by WGM as being very good for a gold deposit of this type.

In addition to the internal BRGM check assays, WGM collected 21 independent check samples, primarily from the Gobelé deposit, to undertake independent check assays of its own to compare against the original BRGM results. The WGM sample fire assays were conducted at Lakefield Canada.

The WGM average grade was 28% higher, and in 14 of the 21 pairs checked, the WGM assay was higher. Unexpectedly, the checks showed high assays to be more reproducible. WGM concluded the discrepancy as significantly high, and no satisfactory explanation could be offered at the time of their 1988 report. As a result, WGM recommended that in future exploration campaigns all BRGM assay procedures be recorded in detail, and that there should be a significant campaign of check assays.

During BRGM's 1989 exploration campaign, it resampled diamond core material from 30 undamaged and identifiable core boxes from the 1986 BRGM drilling. They also collected 545 RC samples from the 2kg stored reference suite of 1986 percussion/RC chips. A total of 1,360 samples were sent to the BRGM Orleans Lab for assay by AAS, with samples over 10g/t re-assayed by fire assay. In addition, a total of 220 check samples, that included all samples over 10g/t plus random samples from all analyses, were sent to an umpire laboratory, OMAC in Ireland. This also included a check of 97 samples from the 1986 programme.

These were assayed by fire assay, with results reported as having a good overall correlation for both diamond core and percussion/RC samples. A higher but symmetrical dispersion was noted between the comparative 1986 percussion results and the rejects assayed in 1988 which suggested the existence of variance within these samples.

11.3 SEMAFO (1996-2013) – Kiniero License

11.3.1 Sample Security and Chain of Custody

Details of sample chain of custody was published in SEMAFO's public reports. SMG has also conducted interviews with the previous exploration project geologists who undertook the exploration and drilling sampling campaigns. The results of both sources of information are presented here.

All exploration and drilling samples were returned from the field daily and securely stored at the geological core yard on a sequential basis. No samples were ever left on site overnight.

Samples were stored in the gated sample preparation yard (with security guards) until dispatch.

Dispatches to independent laboratories were routinely made as dictated by the exploration sample volumes requiring dispatch. All dispatchments to independent laboratories were collected at the Kiniero Mine by the laboratory for dispatch to the respective laboratory.

In 2008, following changes by the Guinean mining authorities, delays arose when sending samples across the international border into Mali where the laboratory was located. Due to these delays, SEMAFO sent their samples to the SGS Siguiri laboratory located in Siguiri instead. SEMAFO used a private courier trucking company for dispatching samples from Kiniero to SGS Siguiri. SGS and SAG allowed the submission of external samples until early 2014 following which it operated exclusively for the SAG operation. All dispatches were made against a signed off sample dispatch form.

ALS Limited (ALS) subsequently commissioned a preparation laboratory in Kankan, Guinea (ALS Kankan) (80km east of the Kiniero Mine), with sample dispatches made to ALS Kankan by Kiniero Mine drivers. Samples were prepared (dried, crushed, and pulverised) at ALS Kankan and then dispatched internally by ALS Kankan to ALS Bamako, Mali for assaying.

Some samples were also analysed at the Kiniero Mine laboratory, in which case the samples would have been handled and submitted internally.

11.3.2 Sample Preparation and Analysis

As published in various public SEMAFO reports, and confirmed with interviews with previous geologists, samples were variously submitted to five separate laboratories – ITS Mandiana, SGS Siguiri, ALS Kankan, ALS Bamako and the Kiniero Mine laboratory.

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

ALS Minerals operations are ISO 9001:2015 certificated for the "provision of assay and geochemical analytical services" by QMI Quality Registrars, as well as ISO 17025 accredited in various jurisdictions. A management system compliant with ISO9001:2008 and ISO 17025 standards are used in all ALS laboratories regardless of location. However, no accreditation details have been sourced for the ALS Kankan preparation laboratory, which has since been decommissioned.

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

The same preparation and analyses procedures and protocols for gold is largely applicable to all trench, RC, RAB and diamond core samples. The samples were crushed and pulverised to 75µm, and a 50g split was fire-assayed with AA finish.

It is understood from interviews with SEMAFO geologists that all soil samples were analysed by SGS Siguiri. In instances where SGS Siguiri was over-subscribed, samples were dispatched to SGS Bamako. Based on the termite mound database, and with interviews with the SEMAFO geologists, the termite mound samples were analysed by both SGS Siguiri and ALS Kankan. The samples were prepared to 75µm and analysed for gold by acid digestion (aqua regia), with AAS finish.

The laboratory results and certificates were emailed to SEMAFO and printed in hard-copy for filing on site.

11.3.3 Quality Assurance (QA) / Quality Control (QC)

11.3.3.1 Laboratory Internal QA/QC

During the 1997 and 1998 drilling campaign, ITS Mandiana carried out routine duplicate sampling on prepared duplicates as internal checks with results submitted with each assay batch. ITS Mandiana also partook in a round robin series of check assays with five other African labs as part of its external checks. SMG has no record of any of the internal QA/QC tests and results produced by ITS Laboratory.

For each batch of 50 samples for FAA505 analysis at SGS Siguiri there were two internal laboratory CRM's, one preparation blank, one reagent blank, one duplicate and one replicate.

SEMAFO reported that ALS Bamako inserted internal QA/QC control samples (including blanks, duplicates, and international standards) into each sample batch. The laboratory used formal quality control procedures which are comparable to industry standards.

11.3.3.2 Summary of External Independent QA/QC

No systematic quality control and sample checking protocol was established by SEMAFO for the 1997 and 1998 drilling programmes.

No information pertaining to the QA/QC programmes carried out during the exploration campaigns from the year 2000 to 2006 and the year 2009 to 2011 has yet been sourced.

Analysis and reporting of the QA/QC by SEMAFO was not reported on a per exploration method, nor consistently on a per laboratory basis, but instead results were cumulatively analysed on a batch basis and formally compiled and / or reported on an annual basis, initially from 2007 and 2008, and subsequently again in 2012.

By end-December 2008, SEMAFO adhered to a QA/QC sampling procedure of submitting one CRM and one blank sample per 18 field samples, i.e. a batch of 20 samples. This minimum QA/QC control procedure was generally adhered to until mine-closure in 2014, results of which are variously available for between 2007 and 2012.

11.3.3.3 Certified Reference Materials

During 2008, exploration samples were sent to commercial laboratories at SGS Siguiri and ALS Bamako (with preparation at ALS Kankan), as well as SGS Ouagadougou (the appointed umpire laboratory). CRMs and blanks were inserted into the exploration sample stream to independently monitor laboratory performance. CRMs were sourced from Rocklabs, as summarised in Table 23.

In 2008, CRMs were submitted in 50g sachets which at times contained insufficient material for the laboratory to perform an analysis. To avoid this occurring regularly SEMAFO submitted two 50g CRM sachets (in a single sample bag) from 2008 onwards. Results of the QA/QC samples submitted in 2008 are presented in Table 24.

The CRM's submitted in 2012 are presented in Table 25. During analysis of the CRM results by SMG it was apparent that there had been data capture errors in the CRM types submitted, which resulted in the mis-assignment of reported laboratory grades to the incorrect CRM type. Instead of removing/ignoring these outliers, or flagging them as extreme batch failures, apparent data capture errors of the CRM types were re-assigned by SMG to make the analysis of the QA/QC data meaningful.

11.3.3.4 Blanks

Blank insertions by SEMAFO were introduced in October 2008 and were only sent to ALS Bamako. The blank material consisted "of 'barren' white quartz material picked up by the geologist". This is an undesirable source blank material, considering that gold mineralisation at the Kiniero Project is hosted in quartz rich veins. The material was subsequently assayed at the Kiniero mine laboratory and found not to be perfectly barren.

Details of the 'blank' material analyses is summarised in Table 24 where the lower detection limit by ALS Bamako was 0.005g/t Au, with 15.7% of the 'blank' material reported as being lower than the detection limit. Cross contamination during the preparation process from a gold bearing sample, that was immediately followed by a 'blank' material, was shown to be negligible with an average 'blank' grade of 0.012g/t Au being reported in this regard.

Details of the 'blank' material submitted is summarised in Table 25 where the lower detection limit by SGS Siguiri was 0.005 g/t Au, with 94.3% of the 'blank' material reported as being lower than the detection limit.

Database checks by SMG of the failures indicate that they do not represent cross contamination during the preparation process at the laboratory from preceding gold bearing samples that were immediately followed by a 'blank' material. In each instance of a failed 'blank' the preceding sample was of a very low grade, average <0.07g/t Au (ranging from 0.02g/t to 0.15g/t Au).

11.3.3.5 Duplicates

Field duplicates from both the diamond core and RC drilling in 2008 were routinely collected and independently submitted during the exploration sampling campaigns with a total of 1,847 collected during 2008 (Table 23). Of the duplicates collected a total of 1,413 were of low grade (i.e. <0.20g/t Au). When analysing the duplicate results >0.20g/t Au the correlation factor (co-efficient of determination) was acceptable at $R^2 = 0.935$, with a strong reproducibility.

A total of 425 field duplicates from both the diamond core and RC drilling were collected and independently submitted during the 2012 exploration sampling campaigns. An acceptable correlation factor (co-efficient of determination) of $R^2 = 0.915$ was reported overall, an indication of the broad reproducibility of the field results which vary due to the expected nugget affect affiliated with the Kiniero Gold Project ore bodies.

11.3.3.6 Failure Procedures

No information has been sourced on the QA/QC failure procedures implemented by SEMAFO throughout its exploration and drilling programmes.

11.3.4 Bulk Density Analysis

The previous estimation and measurement of the densities of the different material types (i.e. oxide, transitional and fresh) yielded differing results by the different project owners from various laboratories and across different exploration campaigns. The available results are summarised in Table 26.

Based on the summary of density values in Table 26, SEMAFO implemented a reduction in the density of mineralised oxide material from 2.3t/m³ to between 1.9t/m³ and 2.0t/m³; and to use a density of midway between that of oxide and fresh rock for transitional material, i.e. 2.4t/m³ and a density of 2.8t/m³ for fresh material.

Table 23: Summary of the Volume and Details of the QA/QC Samples Submitted by SEMAFO (2008)

LABORATORY	STANDARD TYPE	CERTIFIED VALUES				TOTALS				
		GRADE (g/t)	1SD	95% CONFIDENCE LIMITS		SUBMITTED	INSUFF. SAMPLE	SAMPLE NUMBER ERRORS	LAB ERROR	USABLE RESULTS
				LOW	HIGH					
ALS	OxE56	0.611	0.015	0.605	0.617	311	5	-	3	303
	OxK48	3.557	0.042	3.538	3.576	347	6	5	1	335
	OxN49	7.635	0.189	7.555	7.715	337	5	1	1	330
	TOTAL CRMs					**995**	**16**	**6**	**5**	**968**
	Field Duplicate (split from remaining drill sample)					944	-	-	-	944
	Blank (barren white quartz material)					299	-	-	-	299
TOTAL QA/QC SAMPLES SUBMITTED TO ALS CHEMEX BAMAKO						**2,238**	**16**	**6**	**5**	**2,211**
SGS Siguiri and Ouagadougou	OxE56	0.611	0.015	0.605	0.617	292	-	-	-	292
	OxK48	3.557	0.042	3.538	3.576	309	2	1		306
	OxN49	7.635	0.189	7.555	7.715	307	2	8	1	296
	TOTAL CRMs					**908**	**4**	**9**	**1**	**894**
	Field Duplicate (split from remaining drill sample)					903	-	-	-	903
	Blank (barren white quartz material)					-	-	-	-	-
TOTAL QA/QC SAMPLES SUBMITTED TO SGS SIGUIRI & SGS OUAGADOUGOU						**1,811**	**4**	**9**	**1**	**1,797**
TOTAL CRMs SUBMITTED (2002)						**4,049**	**20**	**15**	**6**	**4,008**

Source: SEMAFO (2008)

Table 24: Results of the QA/QC Samples Submitted by SEMAFO (2008)

LABORATORY	STANDARD TYPE	CERTIFIED VALUES					Au RESULTS (g/t)							QA/QC RESULTS / ANALYSIS (2008)
		GRADE (g/t)	1SD		95% CONFIDENCE LIMITS		AVG.	MIN.	MAX.	% BELOW CERT. VALUE	% ABOVE CERT. VALUE	% PLOTTING WITHIN 3SD		
			CERT.	RECALC.	LOW	HIGH						CERT.	RECALC.	
ALS	OxE56	0.611	0.015	0.021	0.605	0.617	0.627	0.419	0.694	29.50	70.50	83.20	92.80	Generally overstated
	OxK48	3.557	0.042	0.065	3.538	3.576	3.591	3.200	3.950	42.70	57.30	76.10	85.40	Within certified range
	OxN49	7.635	0.189	0.247	7.555	7.715	7.570	5.750	8.580	60.90	39.10	94.50	98.10	Understated
	Blank*	<0.01	-	-	-	-	0.012	0.003	0.115	15.70	84.30	-	-	Overstated
	OxE56	0.611	0.015	0.021	0.605	0.617	0.626	0.440	0.770	36.60	63.40	84.20	91.80	Generally overstated
	OxK48	3.557	0.042	0.065	3.538	3.576	3.458	3.100	3.840	84.60	15.40	84.60	83.70	Understated

LABORATORY	STANDARD TYPE	CERTIFIED VALUES					Au RESULTS (g/t)							QA/QC RESULTS / ANALYSIS (2008)
		GRADE (g/t)	1SD		95% CONFIDENCE LIMITS		AVG.	MIN.	MAX.	% BELOW CERT. VALUE	% ABOVE CERT. VALUE	% PLOTTING WITHIN 3SD		
			CERT.	RECALC.	LOW	HIGH						CERT.	RECALC.	
SGS Siguiri and Ouagadougou	OxN49	7.635	0.189	0.247	7.555	7.715	7.267	6.120	7.740	98.00	2.00	86.10	100	Generally understated

* Blank material uncertified (locally sourced quartz grab material), Source: SEMAFO (2008)

Table 25: Details of the CRM's, Blanks and Duplicates submitted by SEMAFO during 2012

LABORATORY	STANDARD TYPE	SOURCE / DETAILS	CERTIFIED VALUES					TOTAL SUBMITTED
			GRADE (g/t)	1SD	2SD	95% CONFIDENCE LIMITS		
						LOW	HIGH	
SGS Siguiri)	OxE74	Scott Technology Limited - Rocklabs	0.614	0.017	-	0.608	0.620	63
	OxK69		3.583	0.086	-	3.550	3.616	44
	OxK79		3.532	0.078	-	3.506	3.558	79
	OxN62		7.706	0.117	-	7.660	7.752	91
	OxP50		14.890	0.493	-	14.560	15.220	104
	SK52		4.107	0.088	-	4.078	4.136	77
							TOTAL CRMs	**458**
	Blank	Quartz (uncertified, grab sourced)	<0.01	0.010	0.020	-	-	456
							TOTAL BLANKS	**456**
	Duplicate	Field duplicate split from remaining original reject drill sample on site						425
							TOTAL DUPLICATES	**425**
							TOTAL CRMs, BLANKS AND DUPLICATES USED BY SEMAFO	**1,339**

Source: SEMAFO (2012)

Table 26: Summary of Historical Density Measurements

DATE	COMPANY / LABORATORY	SAMPLING DETAILS	MATERIAL TYPE					
			OXIDE		TRANSITIONAL		FRESH	
			MINERALISED	UNMINERALISED	MINERALISED	UNMINERALISED	MINERALISED	UNMINERALISED
1984 - 1989	BRGM	Proposed	2.20	2.50	-	-	2.70	2.70
1988	Lakefield Laboratory	Measured	2.31	2.31	-	-	2.88	2.88
2004	SEMAFO / SGS Siguiri	Measured on core from two drillholes on Jean East.	1.67 - 1.70	1.92 - 1.98	2.23 - 2.33	2.29 - 2.35	2.74 - 2.78	2.75 - 2.82
2007	SEMAFO / ALS Ouagadougou	Measured on grab samples from Banfara and East-West.	1.63		2.17 to 2.33		-	-
2008	N/A	Measured on core from four drillholes on West Balan (67) samples.	1.49 - 3.25 (Mean = 2.08	1.94 - 2.47 (Mean = 2.16)	2.36 - 2.69 (Mineralisation not specified)		2.76 - 2.84 (Mean = 2.80) (Mineralisation not specified)	
		SEMAFO adopted ranges.	-	1.90 - 2.00	2.40 (Halfway between saprolite and fresh)		2.80	
		HISTORICAL AVERAGES	**1.98**	**2.08**	**2.37**		**2.79**	**2.79**

Source: SEMAFO

11.4 Leo Shield and Ashanti Exploration (1997 to 2003) – Mansounia License

11.4.1 Sample Security and Chain of Custody

No reported details pertaining to the sample chain of custody and sample security procedures and protocols have been sourced.

11.4.2 Sample and Preparation and Analysis

All soil geochemistry samples were submitted for analysis for gold by fire assay (ppb) at Transworld Laboratories GH Ltd (Transworld) in Tarkwa, Ghana (as of 2008 acquired by Intertek). The preparation and analytical approach were drying and fine pulverising, followed by fusion of a 50g sample by fire assay, dissolving in aqua regia digestion, and measuring the quantity of gold using AA finish.

11.4.3 Quality Assurance (QA) / Quality Control (QC)

No reported details pertaining to the affiliated QA/QC procedures and protocols have been sourced.

11.5 Gold Fields (2003-2005) – Mansounia License

SMG has not sourced any information particular to the sample preparation, analysis, QA/QC procedures and bulk density methods implemented during the Gold Fields programme.

However, the Runge and Blox reports both stipulate that the laboratory (Transworld Laboratories) sample preparation and analysis procedures, as well as external QA/QC methods for the Gold Fields drilling were the same as Burey Gold (see Section 11.6.2 and 11.6.3.2 below for details).

11.6 Burey Gold (2006-2013) – Mansounia License

All information presented in this section is sourced from the Runge 2012 report, as well as the Blox feasibility assessment summary completed in 2018. In addition, SMG has completed interviews with the exploration geologists during the Burey Gold drilling campaigns.

11.6.1 Sample Security and Chain of Custody

Sample submission for analysis was closely monitored and validated by onsite technical staff. Sample bags were stapled closed once retrieved from the drill rig. They were then transported to the Mansounia camp for storage, and then collected and transported directly to the laboratory using a Burey Gold vehicle.

11.6.2 Sample Preparation and Analysis

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

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

11.6.3 Quality Assurance (QA) / Quality Control (QC)

11.6.3.1 Laboratory Internal QA/QC

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

11.6.3.2 Summary of External Independent QA/QC

The Burey Gold drilling programmes at Mansounia implemented external QA/QC procedures throughout. These included the use of standards and blanks, repeat analyses and duplicate sample analyses. Prior to the 2009 Mineral Resource estimate, Burey Gold alternated between inserting a blank or a standard every 20 samples, and a duplicate every 10 samples.

After 2009, a duplicate sample was collected at a rate of 1 for every 10 samples. One standard and one blank sample was inserted every 40 samples (5% each). Standards were inserted at a depth of 35m and blanks at a depth of 71m.

Runge considered the number of standards and blanks inserted to be sufficient while the number of duplicate samples was recommended to be halved (i.e. 1 for every 20m).

11.6.3.2.1 Standards

Burey Gold used standards and blanks that were generated inhouse from selected intervals of RC reject drilling chips. The process followed to create a standard was to select several intervals from different holes where the assayed grade of the samples was similar. The reject samples were then weighed and combined with a lengthy residence in a mechanical cement mixer to thoroughly homogenise the sample. The average grade of the standard was then calculated as a weighted average of the sample assays that were composited. Samples were then mat rolled and then bagged as standards for use in the sampling process. Validation checks were completed by Transworld Laboratories and continuously audited by senior field technicians.

Runge stated that although cost effective, this was not an appropriate standard material for elements with low concentrations measured in parts per million, such as Au. It was recommended that Burey Gold used at least three commercially certified gold standards that tests for low, medium, and high-grade areas of the Mansounia gold grade distribution.

The in-house prepared standards were sourced from four individual reject samples. The average value and trend of the standard assay values was approximately 20% below the expected values for all three standards. This could imply that the assay values assigned to the sample intervals are 20% lower than actual. Runge did not recommend altering the assay grades to compensate for this apparent error but reiterated the suggestion that certified standards be used and their performance monitored in future drilling campaigns.

11.6.3.2.2 Blanks

Barren material was sourced by Burey Gold in the same manner as the standards from RC sample intersections where the assays had returned a value that was below the detection limit of 0.01 g/t Au. All except three samples returned values that were below the detection limit.

11.6.3.2.3 Duplicates

Runge analysed the duplicate data for Au to provide an understanding of the level of sampling and assaying precision. There was a reasonable similarity in the data, but the duplicate data was slightly higher in grade. Samples were also routinely submitted for analysis to external umpire laboratories, and the submissions of standards was common practice.

11.6.3.2.4 Failure Procedures

No information has been sourced regarding the QA/QC failure procedures implement by Burey Gold.

11.6.4 Bulk Density Analysis

A total of 160 samples of 2m drill core samples were selected by Ammtec Ltd for bulk density (BD) test work. Five regolith domains were identified from the logged geology and guided the sampling process. This included haematitic laterite, limonitic (mottled zone) laterite, oxide, transitional and fresh. Bulk densities were collected within each of these domains and then averaged. The methodology followed by Ammtec is summarised as follows:

- each drill core sample was weighed

- the surface of each sample was subsequently covered in a layer of molten wax which was allowed to cool and set
- the wax coated sample was weighed whilst being fully submerged in water
- the in-situ bulk density of each drill core sample was finally measured using the following formula:

$$In - Situ\ BD = \frac{A}{(\mathrm{A} - \mathrm{B})}$$

Where:

A = Weight of specimen prior to wax coating

B = Weight of wax coated specimen whilst fully submerged in water

The BD/weight of wax, coating the surface of each specimen, was accounted for in the calculation of the in-situ BD of each specimen. The wax coating was removed from the surface of each core specimen. Each core specimen was subsequently dried. The moisture content of each specimen and the in-situ BD of each dried specimen were finally calculated. Results of the bulk density test work are presented in Table 27.

Table 27: Burey Gold Mansounia Bulk Density Results per Domain / Ore Type

DOMAIN / ORE TYPE	No. OF SAMPLES	BULK DENSITY (t/m³)	DESCRIPTION
Haematitic Laterite	19	2.32	All material between the topography and the haematite surfaces.
Limonitic Laterite	13	2.00	All material between the haematite and limonite surfaces (mottled zone).
Oxide	114	1.60	All material between the limonite and oxide surfaces.
Transitional	1	2.18	All material between the oxide and transitional surfaces.
Fresh	1	2.50	All material below the transitional surface.

Source: Modified from Runge (2012) and Blox, Inc. (2018)

11.7 Sycamore Mine Guinee (2020-current) – Kiniero Gold Project

11.7.1 Sample Security and Chain of Custody

At the end of each drilling shift, it was the responsibility of the SMG exploration geology team to transport all exploration and drilled material/samples from the drill site to the storage facility at the core yard until sufficient samples were collected to warrant dispatching to the laboratory. No samples were left onsite overnight, and any samples left at a recently completed drillhole during the day were guarded until collection at the end of the drill shift.

The dispatchment of samples from the core yard of the Kiniero Gold Project to the laboratory was managed by the SMG Geology Manager. Samples were transported to the laboratory in clearly labelled 50kg hessian rice bags or large plastic bags, sealed with a cable tie. All samples were dispatched to the relevant laboratory from site by a retained and reputable cross-border trucking courier.

Chain of custody protocols were strongly implemented since the initial dispatch, and the same regular courier companies, drivers and clearing agents have been used for all dispatchments. Each shipment included the necessary chain of custody documentations with clear instructions to avoid delays. The following documentation was provided when submitting samples:

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

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

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

11.7.2 Sample Preparation and Analysis

Since 2020, SMG has dispatched samples to one of four laboratories, depending on the available laboratory capacity, analytical offerings, and prevailing logistical constraints:

- Bamako SGS Mineral Laboratory in Mali (SGS Bamako)

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

11.7.2.1 SGS Bamako

SGS Bamako is a Member of the Société Générale de Surveillance (SGS) Group. This laboratory is accredited for chemical analysis with the recognised International Standard ISO/IEC 17025:2005 which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. The laboratory was accredited with the South African National Accreditation System (SANAS), accreditation number No. T0652 which expired in September 2020 and is in the process of being renewed.

The SGS Bamako laboratory has been independently inspected by SMG to independently review the laboratory procedures in person. The procedures were found to be satisfactory.

The production of a homogeneous sub-sample, representative of the material submitted to the laboratory is the primary purpose of sample preparation. Correct preparation was critical to obtaining meaningful analytical results. The selection of the sample preparation procedure was dependant on the type and size of the sample and its mineralogy. The sample preparation methodology requested from all laboratories for the samples were the same for each sample. Samples were pulverised to 75µm and a ±200g sub-sample was collected for assay.

The sample fire assay method used by SGS (SGS Scheme Code FAA505) was a lead collection fire assay technique with an AAS finish; allowing for a lower detection limit of 0.01ppm and an upper detection limit of 1,000ppm.

11.7.2.2 SGS Ouagadougou

As with SGS Bamako, the SGS Ouagadougou laboratory is a Member of the Société Générale de Surveillance Group. It is accredited in accordance with the recognised International Standard ISO/IEC 17025:2017 and is accredited with SANAS, Facility Accreditation Number T0653 that is valid until September 2025.

The preparation and analysis of samples followed the same procedures as stated for SGS Bamako in Section 11.7.2.1.

11.7.2.3 ALS Bamako

ALS Bamako is a part of the ALS Group that is a wholly owned subsidiary of ALS Limited, operating since 1863. ALS Minerals operations are ISO 9001:2015 certificated for the "provision of assay and geochemical analytical services" by QMI Quality Registrars, as well as ISO 17025 accredited in various jurisdictions.

Sample preparation included fine crushing of entire sample to 70% -2mm, split off 1000g and pulverise split to better than 85% passing 75 microns (ALS Item Code PREP-31B). The lead collection fire assay analytical procedures (ALS Item Code Au-AA26) were broadly the same as SGS, referred to in Section 11.7.2.1, using a 50g nominal sample weight.

11.7.2.4 Intertek Tarkwa

The laboratory is part of the multinational laboratory and testing company Intertek Laboratory Testing Services. This laboratory is accredited for chemical analysis with the recognised International Standard ISO/IEC 17025:2017 which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. The laboratory is accredited with SANAS, accreditation number No. T0796 which is valid until December 2022.

The sample preparation methods used by Intertek (Intertek Item Code SP12) entailed crushing and pulverising to a nominal 85% passing 75µm, and a 250g sub-sample collected by matt rolling for assaying purpose. The lead collection fire assay analytical procedures (Intertek Item Code FA51) were broadly the same as SGS, referred to in Section 11.7.2.1.

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

- drying and pulverising of the entire sample to -2mm
- homogenisation of the sample, then half split, pulverising one half to -200 mesh from which a 2kg sample was then split for analysis
- 2kg split placed in a BLEG roll bottle with 2ℓ of water, 30g Ca(OH)2 and 10g NaCn for 24 hours (standard BLEG leach/cyanide leach)
- leachate solution sent to AAS for finish analysis (detection limit 0.01ppb)

11.7.3 Quality Assurance (QA) / Quality Control (QC)

Classifying resources requires attention to data collection, data representativity and database integrity. The data collection is the foundation of all subsequent decisions. The QA/QC programme is designed to provide confidence about the precision and accuracy of the drillhole data used for estimation. The goal is to collect and analyse data (samples) in a precise and accurate manner that is void of sample bias.

Precision describes the ability to be specific about a grade and is a measure of the reproducibility of the sample value, which can be estimated by re-assaying the same sample several times. Accuracy describes how well the average of the repeat samples targets the true (but unknown) grade. An indication of accuracy can only be obtained through re-assaying samples of known values such as standards or certified reference materials.

Testing the accuracy and precision of the process is done using separate QA/QC sample types, including CRMs, blanks, duplicates (field and pulp), as well as an umpire or check laboratory. CRMs are samples with known grades that are used to help check reported assay laboratory results for accuracy and bias. Blanks are samples with no grade of interest (largely Si based) whose purpose is to check laboratory contamination and to verify correct handling of the samples.

The purpose of the coarse duplicates is to quantify the variances introduced into the assayed grade by errors at different sample preparation stages. They provide a measure of the sample precision. There will commonly be more than one size reduction and splitting steps in the preparation stage. The coarse duplicate provides an estimate of the sum of the assay variance plus the sample preparation variance, up to the first crushing stage.

An alternative is to obtain a field duplicate. The advantage is that the variance observed in field duplicates includes the actual sampling and the first size reduction step. Field duplicates can be used to check the first stage crushing and sampling process.

Pulp duplicates are taken at the final stage of sample preparation and provide a measure of precision of the analytical procedures used. Pulp duplicates sent to the same primary (initial) laboratory provide an estimate of the analytical variance of that laboratory. When sent to the second, check laboratory, the pulp duplicates quantify the precision (analytical variance) between the two laboratories.

QA/QC procedures were implemented both internally by each laboratory, as well as externally by SMG to test the precision and accuracy of results.

11.7.3.1 Laboratory Internal QA/QC

Laboratory quality control is an essential aspect of ensuring that data released meets the required precision and accuracy level.

SGS's quality assurance protocols were in accordance with ISO 17025. SGS's quality control systems were such that analysis of blanks, standard reference material, repeats, and re-splits account for up to 15% of all determinations conducted. The results of the internal laboratory quality control were reported to SMG on a per batch basis. The different QA/QC samples and total submissions by SGS Bamako and SGS Ouagadougou are presented in Table 28.

ALS includes control samples (reference materials, blanks, and duplicates) in each analytical run, based on the rack sizes associated with the method. The rack size is the number of samples including QC samples within a batch. The blank is inserted at the beginning, standards are inserted at random intervals, and duplicates are analysed at the end of the batch. For regular AAS methods, the rack size is 40 and resultant quality control sample allocation is 2 standards, 1 duplicate and 1 blank (a total 10% control samples). The different QA/QC samples and total submissions by ALS Bamako presented in Table 30.

Intertek Tarkwa's quality assurance protocols were in accordance with ISO 17025 where at least 10% of each batch was comprised of CRMs and/or in-house controls, blanks, and replicates. These quality control results were reported along with the sample values in the final reports. The QA/QC types and total submissions are presented in Table 28.

The internal CRMs included by the laboratories covered a suitable range of grades and returned results within 2 standard deviations (2SD) of the actual results. Internal blanks returned 98 – 100% of the results within 2SD of the actual value. This implied that contamination was not occurring within the laboratory processes.

Duplicates inserted by SGS Bamako returned results within 2SD of the original value and the regression line was measured at 0.994 for the Field Duplicates (S) and 0.997 for the Pulp Duplicates. SGS Ouagadougou and ALS Bamako also a good correlation coefficient of 0.992 (S) and 0.960 (R), and 0.999 (S) and 0.998 (R), as well as Intertek Tarkwa with 0.996 (S) and 0.995 (R). These results provided a high confidence in the laboratory protocols.

Table 28: Internal Laboratory QA/QC Performance and Insertion Rates for all Sample Types

Laboratory	No. Regular Samples Analysed	No. Internal QAQC Samples	Insertion Rate (%)	No. Passed at 2SD	2SD Pass Rate (%)	Correlation Coefficient
SGS Bamako						
Standards		1,266	4%	1,144	90%	
Blanks		865	3%	865	100%	
Duplicate – Coarse (S)		491	2%			0.994
Duplicate – Pulp (R)		1,851	7%			0.977
Total	*28,149*	4,473	16%			
SGS Ouagadougou						
Standards		188	5%	178	95%	
Blanks		114	3%	114	100%	
Duplicate – Coarse (S)		42	1%			0.992
Duplicate – Pulp (R)		144	4%			0.960
Total	*3,778*	488	13%			
ALS Bamako						
Standards		643	5%	576	90%	
Blanks		326	3%	325	99%	
Duplicate – Coarse (S)		526	4%			0.999
Duplicate – Pulp (R)		531	4%			0.998
Total	*12,735*	2,026	16%			
Intertek Tarkwa						
Standards		734	3%	704	96%	
Blanks		359	2%	356	99%	
Duplicate – Coarse (S)		662	3%			0.999
Duplicate – Pulp (R)		1,022	5%			0.976
Total	*21,182*	2,777	13%			

Source: SMG (2022)

11.7.3.2 Summary of External Independent QA/QC

Since 2020, SMG has implemented a rigorous external QA/QC programme across all sample types that are submitted to the laboratories. A combination of CRMs, blanks, field, and pulp duplicates were submitted into the sample streams where appropriate. SGS Ouagadougou and Intertek Tarkwa served as umpire laboratories for pulp samples that had been returned from SGS Bamako. A summary of all QA/QC sample types and total number submitted to each laboratory, as well as the insertion rates are provided in Table 29.

During 2020 SMG submitted Rocklabs CRMs and locally manufactured cement as the blank material. Additional stock of OREAS CRMs was purchased in 2021. The OREAS CRMs were selected based on the material's geological deposit type (orogenic gold) as well as a distribution across low, medium and high-grade samples.

SMG inserted one CRM and/or blank after every 20 samples (including soil geochemistry samples), such that a typical 80m drillhole had a minimum of four CRM's and/or blanks submitted within the sample stream (usually two of each). Field duplicates were also collected and submitted for analysis. Duplicates were collected after every 20th metre drilled and submitted within the sample stream at the end of hole, i.e. after the last sampled metre, such than a typical 80m drillhole would have four field duplicate samples collected.

In addition, once the pulp rejects from SGS Bamako had been received by SMG, they were inserted into the sample streams as an additional QA/QC measure. Two pulp duplicates were inserted at the end of every drillhole to complete the samples stream on per drillhole basis. The pulp duplicates that were sent to SGS Ouagadougou and Intertek Tarkwa not only served as pulp duplicate precision tests, but also as umpire checks on SGS Bamako.

As such, in total, for a typical 80m drillhole, there are ten supporting QA/QC samples submitted within the sample stream four CRM's/blanks, four field duplicates and two pulp duplicates, totalling 90 samples for dispatch.

Table 29: Summary of External CRMs, Blanks and Duplicates submitted by SMG (2020 to 25 May 2022)

LABORATORY	QA/QC TYPE	SOURCE / DETAILS	CERTIFIED VALUES					TOTAL SUBMITTED
			GRADE (g/t)	1SD	2SD	95% CONFIDENCE LIMITS		
						LOW	HIGH	
SGS Mali SARLU (SGS Bamako)	OREAS 216b	Ore Research & Exploration	6.660	0.158	-	6.610	6.710	78
	OREAS 231		0.542	0.015	-	0.538	0.547	22
	OREAS 235		1.590	0.038	-	1.570	1.600	45
	OxE56	Scott Technology Limited - Rocklabs	0.611	0.015	-	0.605	0.617	87
	OxG84		0.922	0.033	-	0.912	0.932	100
	OxK48		3.557	0.042	-	3.538	3.576	69
	OxK79		3.532	0.078	-	3.506	3.558	65
	OxP50		14.890	0.493	-	14.560	15.220	72
	SK52		4.107	0.088	-	4.078	4.136	15
	SL51		5.909	0.136	-	5.862	5.956	237
	Total Certified Reference Material							**790**
	Blank	Cement (uncertified)	<0.01	0.010	0.020	-	-	498
	Total Blanks							**498**
	Duplicate	Field duplicate split from remaining original bulk reject drill sample on						1,282
	Pulp	Pulp duplicate split from remaining original pulp reject drill sample at lab.						206
	Umpire Pulp	Original pulp sample reject sent to independent laboratory - SGS						25
		Original pulp sample reject sent to independent laboratory - ALS Bamako						222
		Original pulp sample reject sent to independent laboratory - Intertek						224
	Total Duplicates							**1,959**
SGS Burkina SA (SGS Ouagadougou)	OREAS 216b	Ore Research & Exploration	6.660	0.158	-	6.610	6.710	24
	OREAS 235		1.590	0.038	-	1.570	1.600	21
	OxE56	Scott Technology Limited - Rocklabs	0.611	0.015	-	0.605	0.617	36
	OxK79		3.532	0.078	-	3.506	3.558	10
	OxP50		14.890	0.493	-	14.560	15.220	15
	SL51		5.909	0.136	-	5.862	5.956	4
	Total Certified Reference Material							**110**
	Blank	Cement (uncertified)	<0.01	0.010	0.020	-	-	70
	Total Blanks							**70**
	Duplicate	Field duplicate split from remaining original bulk reject drill sample on						49
	Pulp	Pulp duplicate split from remaining original pulp reject drill sample at lab.						25
	Total Duplicates							**74**
ALS Minerals Mali (ALS Bamako)	OREAS 216b	Ore Research & Exploration	6.660	0.158	-	6.610	6.710	159
	OREAS 231		0.542	0.015	-	0.538	0.547	135
	OREAS 235		1.590	0.038	-	1.570	1.600	142
	Total Certified Reference Material							**436**
	Blank	Cement (uncertified)	<0.01	0.010	0.020	-	-	154
	Total Blanks							**154**
	Duplicate	Field duplicate split from remaining original bulk reject drill sample on						552
	Pulp	Pulp duplicate split from remaining original pulp reject drill sample at lab.						222
	Total Duplicates							**774**
Intertek Minerals Limited (Intertek Tarkwa)	OREAS 216b	Ore Research & Exploration	6.660	0.158	-	6.610	6.710	204
	OREAS 231		0.542	0.015	-	0.538	0.547	170
	OREAS 235		1.590	0.038	-	1.570	1.600	159
	OxE56	Scott Technology Limited - Rocklabs	0.611	0.015	-	0.605	0.617	32
	OxG84		0.922	0.033	-	0.912	0.932	5
	OxK48		3.557	0.042	-	3.538	3.576	19
	SK52		4.107	0.088	-	4.078	4.136	10
	SL51		5.909	0.136	-	5.862	5.956	30
	Total Certified Reference Material							**629**
	Blank	Cement (uncertified)	<0.01	0.010	0.020	-	-	353
	Total Blanks							**353**
	Duplicate	Field duplicate split from remaining original bulk reject drill sample on						904
	Pulp	Pulp duplicate split from remaining original pulp reject drill sample at lab.						224
	Total Duplicates							**1,128**
Total CRM's								**1,965**
Total CRM's Insertion Rate								**3%**
Total Blanks								**1,075**
Total Blanks Insertion Rate								**2%**
Total Duplicates								**3,935**
Total Duplicates Insertion Rate								**7%**
Total CRM's, Blanks and Duplicates								**6,975**
Total CRM's, Blanks and Duplicates Insertion Rate								**11%**

Source: SMG (2022)

11.7.3.3 CRM Performance

During 2020, a small selection of assay results plotting outside of 3SD were returned for OxP50 (sent to SGS) and SL51 (sent to Intertek Tarkwa). These CRMs may have been incorrectly captured in the sampling process as CRM labels had faded, rather than being an indication of a calibration error at the laboratory. Three batches from Intertek Tarkwa in 2022 were queried following CRM failures outside of 3SD. As per SMG's failure response procedure, three samples up and down from each failed standard were requested for re-assay, with a correlation coefficient (R^2) of 0.94 being returned. In response to the QA/QC queries, Intertek provided a Corrective Action Report.

Overall, of the 1,965 CRMs inserted in the drilling and soil geochemistry programmes by SMG, 7% failed outside of 3SD as summarised in Table 30 and Figure 37.

Table 30: Performance Summary of CRMs Submitted by SMG

CRM	No. CRM	MIN of Au (g/t)	MAX of Au (g/t)	AVE of Au (g/t)	CERT. VALUE	CERT. STD DEV	CRV -3SD	CRV +3SD	FAIL AT 3SD	% FAIL AT 3SD
OREAS 216b	465	4.92	8.42	6.69	6.66	0.16	6.19	7.13	16	3%
OREAS 231	327	0.32	0.83	0.55	0.54	0.02	0.50	0.59	38	12%
OREAS 235	367	1.17	2.41	1.59	1.59	0.04	1.48	1.70	20	5%
OxE56	155	0.59	0.69	0.64	0.61	0.02	0.57	0.66	27	17%
OxG84	105	0.84	1.04	0.92	0.92	0.03	0.82	1.02	1	1%
OxK48	88	3.36	3.78	3.58	3.56	0.04	3.43	3.68	21	24%
OxK79	75	3.35	3.83	3.55	3.53	0.08	3.30	3.77	1	1%
OxP50	87	12.30	16.00	14.9	14.89	0.49	13.41	16.37	10	11%
SK52	25	3.84	4.31	4.06	4.11	0.09	3.84	4.37	1	4%
SL51	271	4.94	6.13	5.85	5.91	0.14	5.50	6.32	4	1%
Total	1,965								139	7%

Source: SMG (2022)

11.7.3.4 Blank Performance

Of the external blanks, 7% were above 2SD of the warning limit (0.005g/t), and 0.6% above 0.05g/t. The results are presented in Table 31 and illustrated in Figure 37. SMG used locally sourced cement as blank material, i.e. not a certified blank material, and as such trace amounts of contained gold is a possibility. The highest outlier blank grade returned was 0.14g/t, followed by 0.08g/t. These results are not considered as implying that laboratory contamination had occurred.

Table 31: Performance Summary of Blanks Submitted by SMG

	FIRE ASSAY	BLEG	TOTAL
Number of Blanks	1013	62	1075
Blanks > Warning Limit (0.005 g/t)	375	1	376
Max Blank Grade (g/t)	0.18	0.01	0.18
Blank Failures (>0.02 g/t)	71	0	71
Blank Failure (>0.02 g/t) Percentage	7%	0%	7%
Blank Failures (>0.05 g/t)	6	0	6
Blank Failure (>0.05 g/t) Percentage	0.6%	0.0%	0.6%

Source: SMG (2022)

11.7.3.5 Duplicate Performance

The field, pulp and umpire laboratory sample results are presented in Figure 37. The correlation coefficient (R^2) of 0.91 for the field duplicates is attributed to the coarse gold (nugget effect) in the system. At the time of writing, two poor field duplicate results from the most recent batch are under investigation. The correlation between pulp duplicate pairs is significantly better, as expected, with a correlation coefficient (R^2) of 0.95.

The umpire pulp duplicates for SGS Bamako returned a correlation coefficient (R^2) of 0.93 at SGS Ouagadougou, 0.97 at Intertek Tarkwa and 0.89 at ALS Bamako (Figure 38). One of the poor results from the ALS Bamako umpire results, from the most recent batch, is under investigation at the time of this report.

11.7.3.6 Failure Procedures

CRM certificates for each of the Rocklabs and OREAS CRMs were sourced, each with a reported ± confidence interval or a 95% confidence interval. Where results fell outside three standard deviations of these intervals then SMG investigated the potential for geological sampling procedural error and/or data entry error, before engaging the laboratory to re-assay.

Where check re-assay was requested, the three samples both above and beyond the failed CRM, were selected for check assays. If these reported greater than 3SD from the original values, then the entire batch was to be re-assayed at cost by the lab. This eventuality has not occurred.

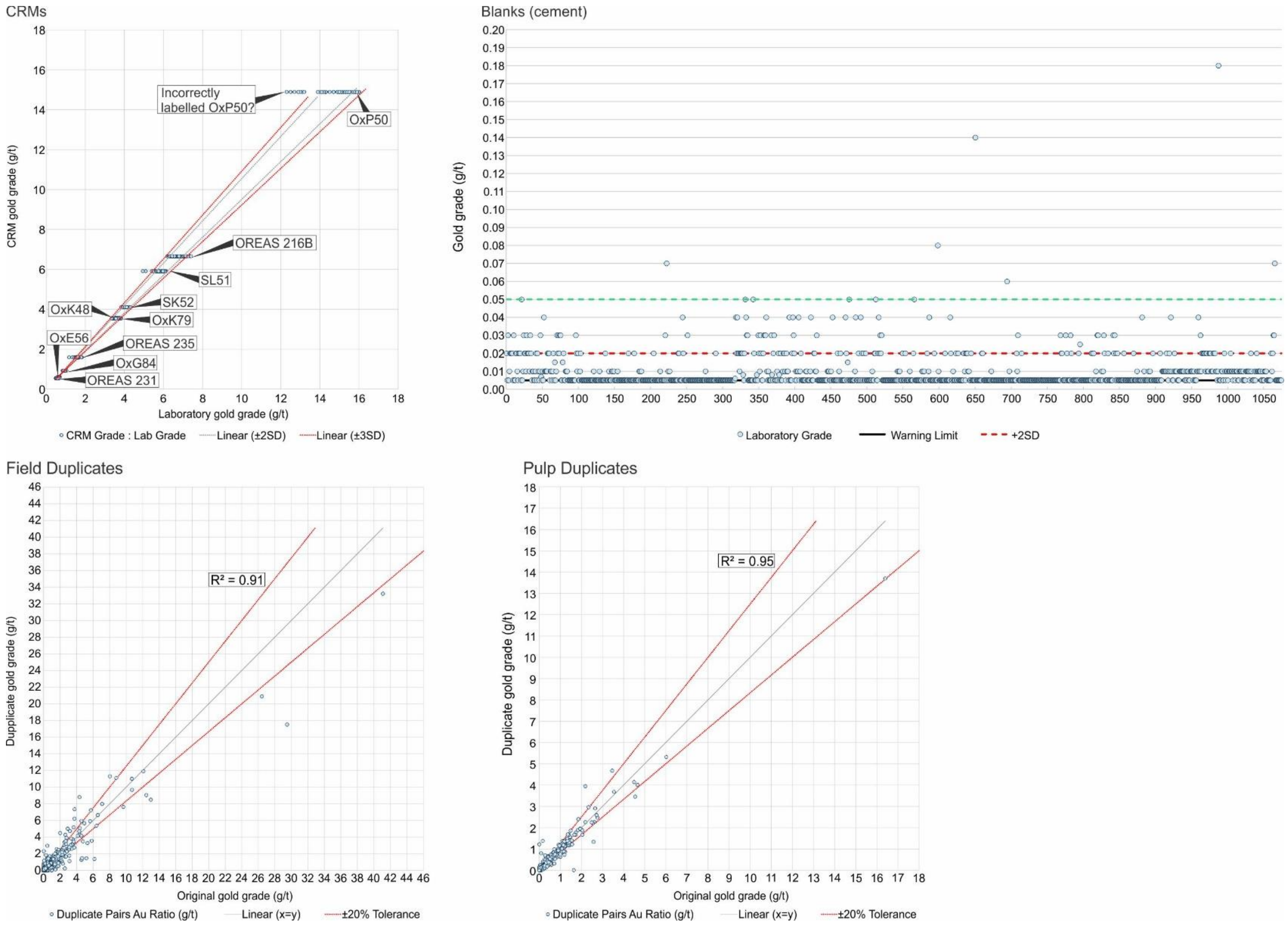


Figure 37: QA/QC Plots for External (SMG) CRMs, Blanks and Duplicates

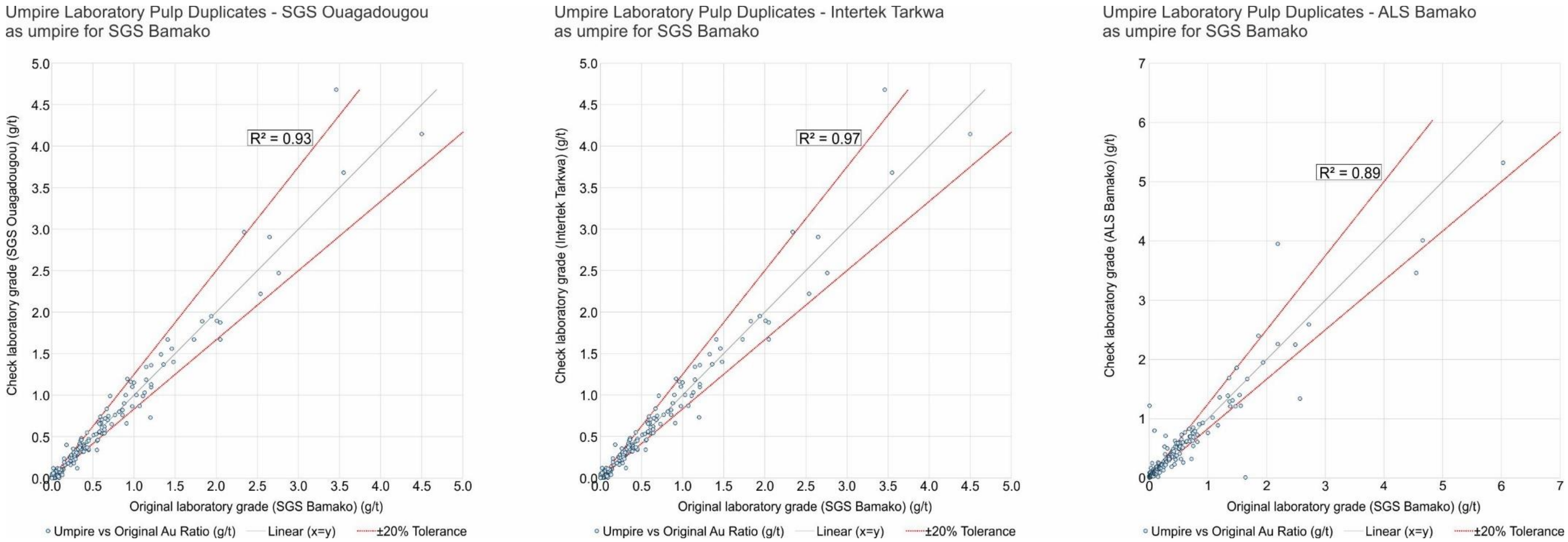


Figure 38: QA/QC Plots for Umpire Laboratory Pulp Duplicates

11.7.4 Bulk Density Analysis

To verify the previous bulk density values used at the Kiniero Gold Mine, and to build its own verified density database, SMG initially undertook a series of density determination studies. A combination of relative density and bulk density determinations were undertaken in 2020 on RC and DD material. RC chip samples were initially determined by volumetric flask at SGS Bamako (SGS Scheme Code PHY05V) on 65 samples. An additional 90 RC drillhole chip samples were also determined for relative density by volumetric flask at Intertek Ghana (Intertek Item Code SG0003).

Complimenting the relative density determinations completed, the same 90 samples submitted to Intertek in Ghana for volumetric flask determination of the relative density were then sent to Intertek in Perth, Australia for bulk density volumetric determination using the gas pycnometer method (Intertek Item Code SGP/PYC) with a Quantachrome Penta Pycnometer PPY-15. Samples were analysed as received, i.e. no sample preparation was undertaken.

In addition to the gas pycnometer bulk density determination, 30 intact diamond drill core samples were selected from the geotechnical diamond drillholes from Sabali North & Central covering a range of lithological and weathered profiles to be determined for bulk density at Intertek Ghana. The immersion method / Archimedes principle was used (Intertek Item Code SG002).

Relative density, sometimes referred to as specific gravity, is the ratio of the density (mass of a unit of volume) of a substance to the density of a given reference material. Bulk density is defined as the mass of many particles of a material divided by the total volume they occupy. The total volume includes partial volume, inter-particle void volume and internal pore volume. Relative density is a dimensionless quantity while bulk density is reported as t/m^3. Accurate bulk density measurements across the different ore types are required in support of the Mineral Resource estimation.

The initial sets of testing for relative density at SGS Bamako and Intertek Ghana, and the small number of samples sent to Intertek Perth and Intertek Ghana for bulk density tests was deemed insufficient by SMG to accurately determine the bulk density values required across the various deposits. In March 2021, SMG undertook an extensive bulk density analysis programme on both historical and current diamond core. The programme is ongoing, as tests are done on any new diamond drillholes that are completed to continuously update the bulk density data on the Kiniero Gold Project.

The current bulk density testing programme is designed to test both lithology and regolith (ore type) across the various deposits of the Kiniero Gold Project. Bulk density measurements are done using the Archimedes Principle, a water immersion method, that states that the upwards force on a body immersed in fluid is equal to the weight of the fluid that the body displaces. This requires that a samples mass must be acquired in air, and then in water. This can be defined as BD = Mass of Sample divided by (Mass of Sample in Air minus Mass of Sample in Water). The equation is:

$$Bulk\ Density\ (\frac{g}{cm^3}) = \frac{W(air)}{W(\mathrm{air}) - \mathrm{W(water)}}$$

where:

W(air) = dry weight of the sample

W(water) = weight of the submerged sample

The procedure followed for in-field bulk density measurements by SMG was:

- selection of intact samples between 10-20cm in length
- wet and/or moist samples dried in a drying oven
- dry samples weighed to obtain the *W(air)* value
- any potential water absorbing (laterite, saprolite and saprock), or vuggy fresh bed rock samples tightly wrapped in cling film to prevent water absorption
- sample submerged in water (density 1.0 g/cm^3), and its *W(water)* weight recorded
- equation applied to determine the bulk density of the lithology and regolith type (domain) from the specific deposit

To date, a total 1,366 bulk density samples have been measured. An average of all the density determination measurements collected as described has been used for estimating tonnages. The details on number of samples and in-situ bulk density values per deposit are summarised in Table 32. These values are comparable to Siguiri Basin benchmarks, as well as the bulk density values reported at neighbouring active mines.

Bulk density measurements will be ongoing as additional data is collected in support of the DFS. Any refinements to the BD are expected to be minimal and will not have a material impact on the overall tonnage and ounce profile of the Kiniero Gold Project. Overall, the bulk density figures used for tonnage estimates in this PFS occur within the error range accepted in support of a PFS and will be refined in the DFS where appropriate. The values used in the PFS for the MRE and relevant description is provided in Section 14.2.2.5 and Table 73.

Table 32: In-field, in-situ Bulk Density Measurements and Mean Values

DOMAIN	REGOLITH	SGA		Sabali South		Sabali North & Central	
		No. SAMPLES	MEAN BD	No. SAMPLES	MEAN BD	No. SAMPLES	MEAN BD
Laterite	Laterite & Mottled Zone	3	1.76	16	2.17	16	2.16
Oxide	Upper Saprolite	12	1.63	62	1.51	52	1.48
Transition	Lower Saprolite	6	1.91	75	1.69	6	1.54
	Saprock	60	2.54	51	2.02	14	2.15
Fresh	Bed Rock	864	2.82	52	2.62	77	2.75
Total BD Samples Measured		**945**		**256**		**165**	

Source: SMG (2022)

11.8 Conclusions on Sample Preparation Analyses and Security

The QP is satisfied that the sample preparation, security and analytical procedures followed historically and currently in place at the Kiniero Gold Project are adequate, and that data used in the estimation of Mineral Resources are representative of the mineralisation

12 DATA VERIFICATION

The Kiniero Gold Project is a data rich project. The widespread historical exploration completed across the Kiniero Gold District and on the various deposits has been significant. Following signature of the Kiniero License framework agreement on 19 November 2019, SMG acquired the available historical exploration data from the previous Kiniero License owners, the Ministry of Mines and Geology of the GoG.

Upon acquisition of the historical exploration data, SMG undertook a high-level review and interrogation of the data, bench-marking its validity against publicly available reports, interpretations and reported production profile data. Findings were broadly in line with these benchmarks, which set the foundations for implementing the ongoing fieldwork and data verification campaign of the historical and previous exploration data to place verified and reasonable reliance thereon for its use in Mineral Resource estimation.

12.1 Historical Data Verification – Kiniero License Area

The reader should note that SMG obtained the Kiniero License Area from the GoG, and not directly from SEMAFO. As a result, there was no organised handover of geological, operational, and financial data from one operator to the next, as if through a conventional project purchase. Instead, SMG has had to source data from a variety of sources, primarily from the GoG and from the old site admin offices.

In addition, data was sourced from what is publicly available. Sourced data remains partial, and it is apparent that during the years of care and maintenance much of the data has been lost, misplaced, or destroyed. All mining operational data, individual pit records including ore and waste output, strip ratios, oxide/transitional/sulphide ore ratios have not been sourced by SMG, as well as the previous geological wireframe and block models pertaining to some (but not all) the deposits.

12.1.1 Interviews

To understand the Kiniero License history, the previous exploration and operating strategy as well as the environmental and social operating environment both pre-, during- and post-closure of the previous Kiniero Gold Mine, SMG embarked on a wide-ranging interview process. Interviews with key-stakeholders from both the GoG, previous Kiniero Mine employees as well as Kiniéro and Balan village locals and relevant industry role players were completed. Interviews were undertaken in person both in Conakry and at the Kiniero Project itself, whilst telephone and video conferences were global and exhaustive.

Stakeholders interviewed ranged from the head of Human Resources and Kiniero Mine Manager at the time of closure, through to the previous mine planners, mineral resource and exploration geologists, neighbouring project operators and the Minister of Mines and

Geology. Invaluable first-hand insight was gleaned from this range of interviews allowing for a clearer understanding and unravelling of the exploration and operational history of the previous Kiniero Gold Mine, rather than having to rely only what had been publicly reported.

12.1.2 Field Verification

During the first quarter of 2020, prior to commencing drilling, SMG undertook a license wide reconnaissance mapping and field verification campaign to familiarise itself with the license ground conditions, as well as to ascertain, first-hand, the extent of the completed historical and previous exploration and production. Mapping was undertaken by the SMG exploration geologists, with all open pits, key deposits, primary targets and active artisanal mine sites visited across the Kiniero License area.

Evidence of historical production was clear, with all open pits and affiliated waste disposal sites inspected. SMG was able to verify the evidence of historical exploration in the field using a handheld GPS. Trench localities and drillhole collars, dated between 2002 and 2012, were consistently located and field verified through a combination of reliance on historical survey data, guidance from previously employed Kiniero Gold Mine geologists as well local artisanal miners. Minor exceptions occurred where artisanal mining activities had destroyed the presence of trenches or drillholes collars (colloquially confirmed), local farming activities had buried exploration evidence or pre-stripping for mining by previous operators had destroyed evidence of exploration (e.g. Banfara and Sabali North & Central).

In addition, drilled RAB blasthole grids through the surface laterite were observed in unmined areas (e.g. west of Banfara) on a 6.25m gridded basis through the surface laterite, confirming the near-term mining intention by the previous operators immediately prior to mine closure.

12.1.3 Hard Copy Source Data Checks

12.1.3.1 Diamond Drillhole Cores

To further verify the authenticity of historical and previous exploration, various hard copy source data checks were undertaken by SMG. A library of diamond drillhole cores remained stored at the Kiniero Mine core yard. During the years of mine closure from 2014 to 2019, a combination of bush fires and general infrastructure and equipment neglect resulted in the degradation of much of the previous drill cores, thus affecting their usability as a source of verification. However, some cores mainly from the Gobelé deposits of SGA, remained largely intact and marked up. All cores that remained in a useable condition were catalogued, cleaned, photographed, relogged and variously sampled by SMG.

Geological logging and sampling were undertaken on a selection of mineralised cores for verification of metallurgical and head-grade determination purposes. A ~20kg composite oxide/transition sample was collected at an average grade of 2.30g/t Au, which was assayed by SGS Johannesburg as 1.46g/t Au (Table 33). Although these two results were not truly comparable, they do verify the presence of gold mineralisation in these intervals. The difference in the grade has been attributed to the following:

- disturbed condition of the remaining halved core allowing for potential inclusion of surrounding unmineralised cores
- the size of the composite sample
- the nature of the coarse gold

Table 33: Results of Metallurgical Sampling of Historical Drillholes by SMG

	SEMAFO COMPOSITE SAMPLING RESULTS						SMG VERIFICATION
DRILLHOLE NO.	FROM (m)	TO (m)	WIDTH (m)	GRADE (g/t Au)	SAMPLE MASS (kg)	ORE TYPE	GRADE (g/t Au)
KFC11-010	6.00	7.00	1.00	0.59	6.07	Oxide	Composite sample of the adjacent historical mineralised oxide and transitional drill cores.
	7.00	8.00	1.00	4.04		Oxide	
KFC11-034	41.00	42.00	1.00	4.72		Oxide	
RCD515	17.00	18.00	1.00	7.70		Oxide	
	18.00	19.00	1.00	0.99		Oxide	
DD319	60.40	61.40	1.00	1.51	13.32	Transitional	
	61.40	62.40	1.00	1.06		Transitional	
KFC11-032*	61.00	62.00	1.00	0.01		Transitional	
	62.00	63.00	1.00	0.05		Transitional	
			TOTAL / AVE	2.30	19.39		1.46

Source: SMG (2022)

12.1.3.2 RC Drillhole Chips

The original RC drillhole chip boards for much of the previous RC drillholes remain stored at the previous Kiniero Gold Mine geology offices. Although their conditions vary, most are usable and reliable.

Each chip board displays the washed (and occasionally the unwashed) RC drill chips on a per metre downhole basis, resulting in a graphic reference of the geology and weathering state of each metre interval in each drillhole. The 'from' and 'to' interval and associated grade assay result is also documented adjacent to each drilled metre.

Due to the volume of drillholes and associated chip boards, SMG implemented an audit type approach to the verification process. This entailed checking an initial random sample. Should errors be identified, then checking would continue to determine the extent of erroneous data in the Kiniero Project database. Should no errors be identified, then the audit would be considered complete.

A total of 66 chip boards were checked against the Kiniero Project downhole database and were 100% comparable. A detailed RC chip board photography and re-cataloguing of all 637 salvageable historical RC drillholes featured on chip boards has been completed and is included in the current Kiniero Gold Project downhole database.

12.1.3.3 Hard copy logs

Complimenting the RC drillhole chip boards were the original handwritten drillhole geological logs that have remained largely undamaged since mine closure. These remain well catalogued and safely stored in the geology offices. Most of the geology logs were legible and reliable for use in cross-verification against the RC drillhole chip boards (where both have been sourced) as well as against the data content of the Kiniero Project downhole database. Again, an audit approach was undertaken, and a random selection of original handwritten geological logs checked against the Kiniero Project downhole database. A total of 19 drillholes were audited and the result was 100% comparable.

12.1.3.4 Assay Certificates

Various laboratories were used by the previous Kiniero Gold Mine for the analytical testwork on exploration samples. These laboratories included the onsite laboratory and independent laboratories located in Guinea and Mali (Section 11). The majority of the original assay sheets and certificates pertaining to the SGS Siguiri assay work remain in good condition, well catalogued and safely stored in the geology offices. Assay certificates were meticulously printed and filed and can be easily cross-referenced. Due to the voluminous quantities of the filed assays an audit approach was undertaken. A total of 37 original assay certificates, one per file, were cross-checked against the Kiniero Gold Project downhole database. The results were 100% comparable.

The assay sheets have also allowed SMG to gauge the QA/QC strategy implemented by SEMAFO, and the thoroughness thereof at a high level. Details of the internal and external QA/QC during the SEMAFO exploration and drilling campaigns can be seen in Section 11.3.3.

Cross checks between the assays occasionally scribed onto the RC drillhole chip boards and those that have been printed from the database to complement the original handwritten hard copy drillhole geological logs have been made and have been 100% comparable except for minor human error in scribing (e.g. 0.01g/t to 0.10g/t).

12.1.4 Database Management

Previously, the Kiniero Gold Mine exploration database was the sole responsibility of a dedicated database manager. All hard copy drill logs were captured by the responsible exploration geologist under the supervision of the geology manager. Physical sign-off of each drill log was done by the database manager once successfully uploaded and validated.

Assay results were sent electronically by all laboratories (independent as well as the Kiniero Mine laboratory) to SEMAFO with the responsible geologist incorporating the assays, along with the QA/QC data, into the exploration database under the supervision of the database manager. The data was checked thoroughly to ensure the integrity of the samples. Re-assaying of samples was requested by the laboratory when QA/QC control samples failed.

The database resided on a computer network under controlled access, with daily backups. All assays were printed and filed as hard-copy backups, with digital backups of the Project database kept on hard drives at site, as well as being sent off-site to the SEMAFO head office in Montreal. Back-up hard drives have been verified by SMG at the Kiniero Mine offices.

Pre-2007 the downhole dataset was stored and captured in a variety of *.xls files on the Kiniero Mine network server. However, in 2008 it was decided to transfer the various *.xls files into a single all-encompassing Microsoft Access database.

12.1.5 Drillhole Twinning

Due to the Kiniero Gold Project being data rich, it was neither feasible nor practical to apply the twinning 'rule of thumb' of 10% of all historical drillholes. Based on the comparable results of the various data verification processes described above, it was considered reasonable to complete a total of 18 'true' twin drillholes for 2,104m from three deposit areas.

- three at the Sabali North deposit
- three at the Sabali Central deposit
- 12 at the SGA Complex

Drillholes to be twinned were selected where grade profiles, lithologies and weathering profiles could be easily compared, as well as being accessible. Details of the twin drilling completed by SMG is summarised in Table 34.

Occasionally the original collar of the drillhole being twinned was field verified, however, this was not always the case due to mining activities having occurred in the vicinity of the twinned drillholes, resulting in the destruction and/or burial of the previous collars. Practical limitations in replicating the collar parameters of the drillhole being twinned were also observed in some instances – e.g. a dip of -45° could not be achieved by the truck mounted Hydco-3 AC/RC drill rig, and at times ground conditions (e.g. localised ponding) prevented collaring as close as possible to the original collar position.

In each of these instances, the closest parameters were applied to the twinning drillholes. However, these minor deviations from the original collar coordinates, dip and azimuth did not have a material impact on the final comparative analysis. Estimations of the deviations downhole from collar of the twinning drillhole varied between 5m and 10m, ensuring the same target mineralised structures were targeted by the twinning drillhole. Results from the twin drilling were generally as expected and acceptable, further verifying the reliability of the historical downhole data.

A single twin drillhole did not return an acceptably comparable mineralisation profile. Structural and geological interpretations, as well as additional drilling, are being investigated in support of the DFS. Additional twin drilling will remain ongoing during 2022.

Illustrative twinning sections are provided in Figure 39 and Figure 40 which graphically illustrates examples of the comparable downhole grade datasets of the SMG twins on previous SEMAFO drillholes. Figure 39 represents an SMG diamond drillhole, GDG21-007, twinning an SMG RC drillhole (GRC21-016) as well as a previous SEMAFO diamond drillhole (DDH41). The RC drillhole is replicated by both the SMG and SEMAFO DD drillholes, illustrating that downhole grade smearing is not apparent in RC drilling.

The second section is across Sabali North and demonstrates the comparison between SMG RC drillhole RC20-178 and historical SEMAFO drillhole RC1274 (Figure 40). Note, the sections only display the downhole Au grades for the drillholes being compared.

Table 34: Twin Drilling Completed by SMG on Previous SEMAFO Drillholes

ORIGINAL SEMAFO DRILLING									SMG TWIN DRILLING							RESULTS COMPARABLE
DEPOSIT	DRILLHOLE ID	DATE DRILLED	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)	DRILLHOLE ID	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)	
			EAST (X)	NORTH (Y)						EAST (X)	NORTH (Y)					
Sabali Central	RC1963	2007	414,505	1,150,562	421	-45	304	90	RC20-176	414500	1150559	421	-50	311	100	Yes
	RC1025	2004	414,542	1,150,990	446	-45	304	80	RC20-177	414543	1150990	446	-50	310	117	Yes
	RC1274	2004	414,585	1,151,201	444	-45	303	80	RC20-178	414584	1151198	444	-50	311	81	Yes
Sabali North	RC2127	2007	414,500	1,151,448	449	-45	304	90	RC20-179	414500	1151446	449	-51	311	80	Yes
	RC1766	2006	414,508	1,151,550	451	-45	304	80	RC20-180	414509	1151552	451	-51	311	87	Yes
	RC1850	2007	414,515	1,151,725	451	-45	304	90	RC20-181	414516	1151723	451	-52	311	105	Yes
SGA	RC111	2002	412,579	1,152,482	478	-60	303	45	RC20-202	412588	1152477	479	-59	299	90	Yes
	RC112	2002	412,599	1,152,469	479	-60	303	56	RC20-204	412600	1152466	480	-59	302	90	Yes
	RC179	2000	412,361	1,151,996	470	-50	303	40	RC20-205	412366	1151994	471	-50	305	70	Yes
	RC642	2002	412,496	1,151,911	475	-50	303	120	RC20-207	412498	1151903	476	-49	302	95	Yes
	RC643	2002	412,404	1,151,802	473	-48	303	120	GRC21-001	412406	1151796	474	-47	307	141	No
	RC650	2002	412,470	1,151,866	474	-46	303	110	GRC21-003	412462	1151876	474	-47	306	123	Yes
	RC694	2002	412,527	1,151,889	477	-50	303	60	GRC21-005	412530	1151884	477	-50	307	150	Yes
	KFC11-024	2011	412,712	1,152,037	480	-55	304	257.6	GRC21-011	412711	1152037	480	-47	306	129	Yes
	KFC12-053	2012	412,787	1,152,107	481	-49	305	225.1	GRC21-013	412789	1152109	482	-49	305	159	Yes
	KFC11-003	2011	412,808	1,152,154	484	-55	304	180.25	GRC21-014	412804	1152145	483	-46	302	153	Yes
	DDH41	N/A	412,829	1,152,247	499	-45	290	119.5	GRC21-016	412822	1152254	484	-49	305	153	Yes
	DDH41	N/A	412,829	1,152,247	499	-45	290	119.5	GDG21-007	412828	1152258	484	-60	285	181	Yes
									Total Twinning Completed on Kiniero Previous Drillholes						2,104	

Source: SMG (2022)

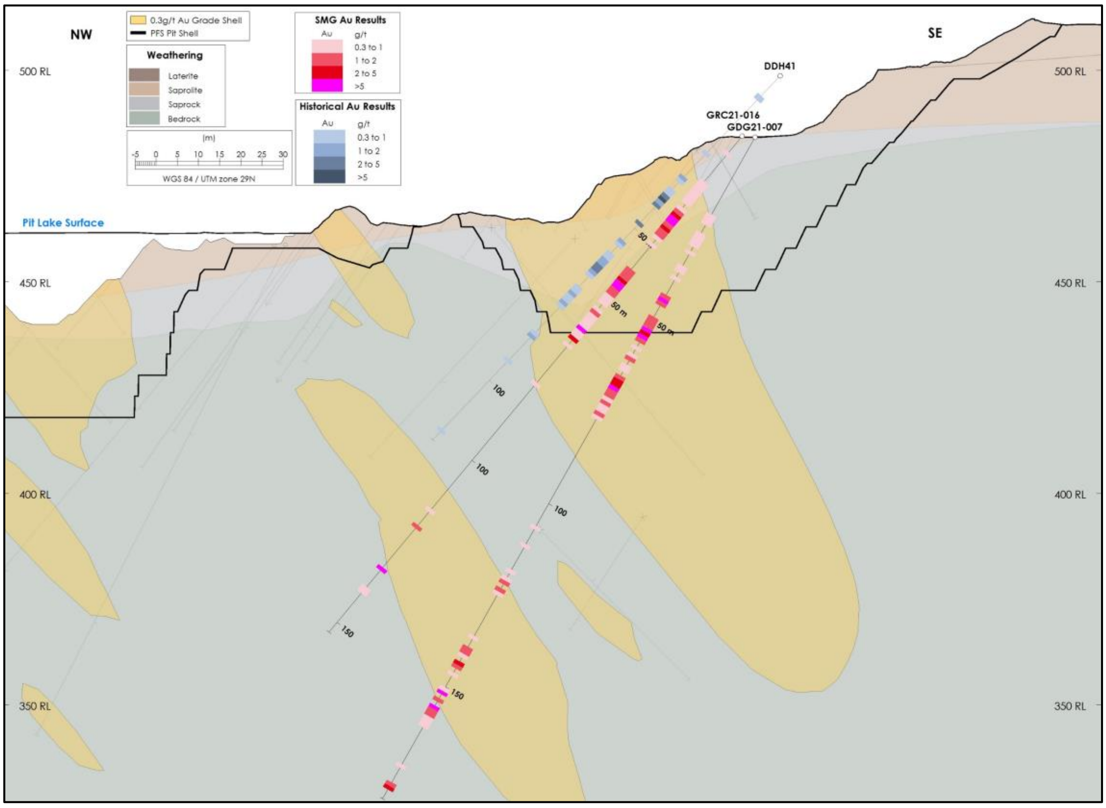


Figure 39: Selected Comparative Results of SMG Twin Drillhole of Historical SEMAFO Drillhole at SGA

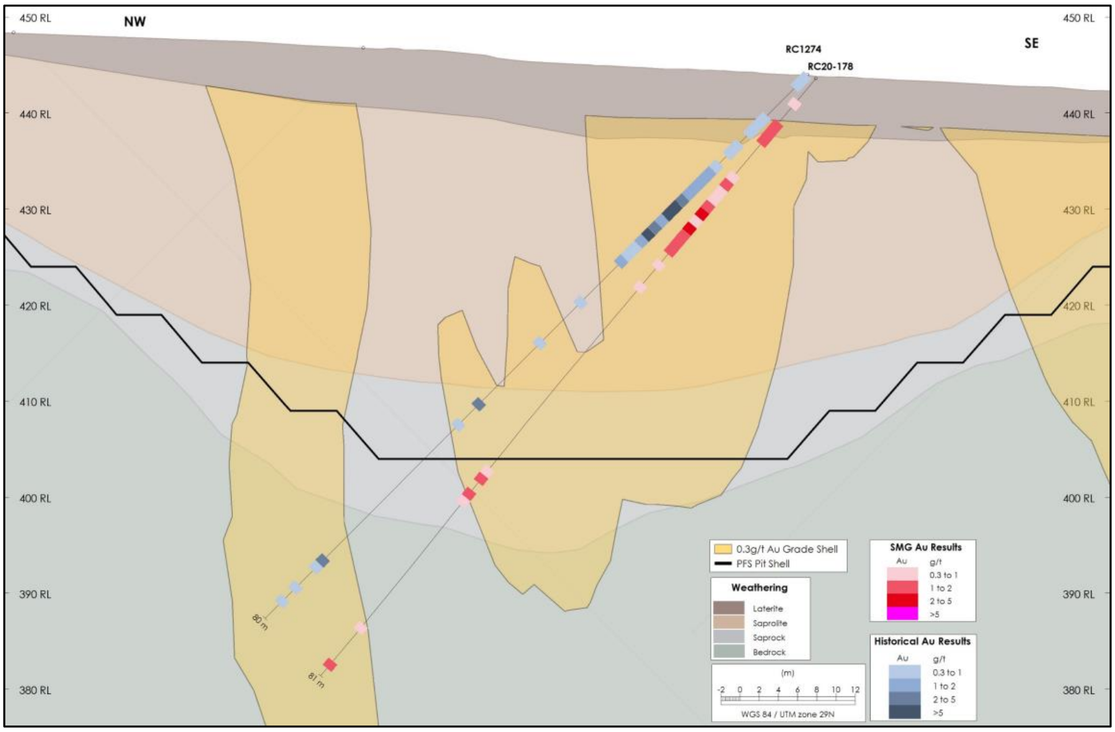


Figure 40: Selected Comparative Results of SMG Twin Drillhole of Historical SEMAFO Drillhole at Sabali North

12.2 Historical Data Verification – Mansounia License Area

12.2.1 Interviews

As detailed in Section 12.1.1, SMG undertook a similar interviewing strategy for the Mansounia License to understand the previous exploration strategy and work completed. Interviews with both the current and previous Licenses owners have been completed, along with the Chief Exploration Geologist at the Mansounia License during the Burey Gold exploration and drilling campaigns.

12.2.2 Field Verification

In 2022, SMG completed a detailed collar survey campaign to locate, identify and re-survey all the previous Gold Fields and Burey Gold drillhole collars. The re-survey campaign was done using SMG's Leica GNSS survey equipment. A total 142 of 430 historical drillholes were relocated and surveyed. The remaining collars have been destroyed by artisanal mining or agricultural activity. In addition to the re-survey campaign, SMG has identified clear historical drill fence lines in the vegetation and landscape, where previous areas were cleared for roads and drill pad construction.

12.2.3 Hard Copy Source Data Checks

12.2.3.1 Diamond Drillhole Cores

Several inspections of the historical Burey Gold diamond drill cores stored at Kankan have been completed in 2021 and 2022. Cores are stored both within locked containers, as well as outside adjacent to the containers. As part of the 2022 exploration campaign, these cores will be safely removed from the current storage facility in Kankan and transported to the Kiniero Gold Project core yard where they will be catalogued, safely stored and geologically re-processed. Core photography will be done prior to loading and transport.

12.2.3.2 RC Drillhole Chips

During the inspections of the Mansounia License storage containers in Kankan, chip tray boxes were accounted for. As with the diamond core, it is planned to transport these chip trays to the Kiniero Gold Project for safe storage and geological processing. SMG has acquired 132 of the 355 RC drillhole chip boards, displaying both washed and unwashed RC cuttings from start to EOH. All acquired Mansounia chip boards have been photographed and geologically reprocessed with the new data included in the Kiniero Gold Project database.

12.2.4 Database Management

All drillhole and exploration data generated during the Gold Fields and Burey Gold campaigns were captured and stored in Excel spread sheets. The geological database was developed for a variety of geological settings and contains 28 different lithological codes. For the regolith there are 14 different codes used. In 2012, the spreadsheets were uploaded into an Access database as the central database management system.

12.2.5 Drillhole Twinning

SMG has twinned four of the previous Burey Gold RC drillholes (Table 35), totalling 405m. All twinned drillholes returned comparable results of both regolith logging and assays. The assay results for twin drillhole MRC21-007 compared to historical drillhole MRC235 are illustrated in Figure 41. Additional drillhole twinning is planned on the Mansounia License during the 2022 programme.

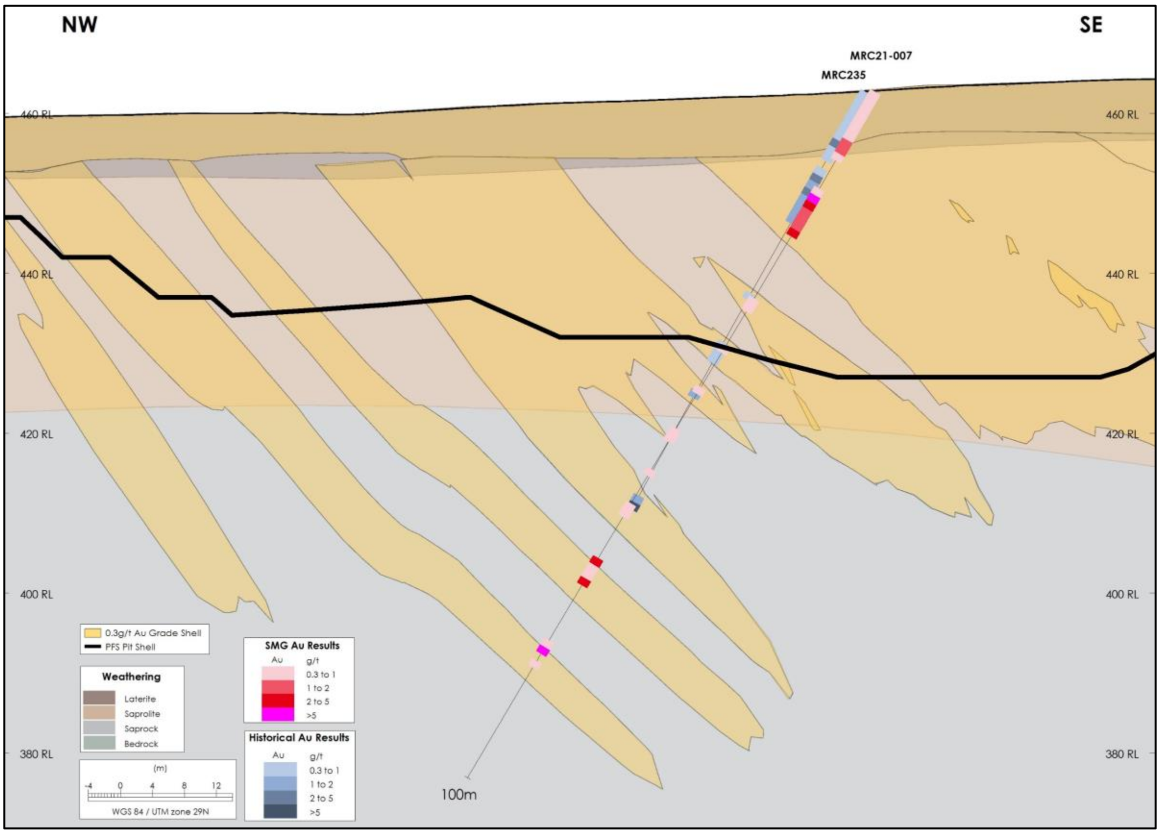


Figure 41: Selected Twin Hole Comparison of an SMG Drillhole twinning a Burey Gold drillhole at Mansounia

Table 35: Twin Drilling Completed by SMG on Previous Burey Gold Drillholes on the Mansounia License

ORIGINAL BUREY DRILLING									SMG TWIN DRILLING							RESULTS COMPARABLE
DEPOSIT	DRILLHOLE ID	DATE DRILLED	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)	DRILLHOLE ID	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)	
			EAST (X)	NORTH (Y)						EAST (X)	NORTH (Y)					
Mansounia	MRC235	N/A	413,903	1,149,398	463	-60	270	60	MRC21-007	413,904	1,149,399	463	-60	270	100	Yes
	MRC186	N/A	413,670	1,149,404	455	-60	270	93	MRC22-001	413,673	1,149,401	455	-60	270	120	Yes
	MRC227	N/A	413,248	1,149,197	471	-60	270	90	MRC22-002	413,248	1,149,197	472	-60	270	90	Yes
	MRC156	N/A	413,426	1,148,996	465	-60	270	99	MRC22-003	413,427	1,148,993	465	-60	270	95	Yes
									Total Twinning Completed on Mansounia Previous Drillholes						**405**	

Source: SMG (2022)

12.3 Current Data Verification – Kiniero Gold Project

12.3.1 Database Management

Upon acquisition of the Kiniero License, SMG embarked on a comprehensive data search campaign, using the data received from the GoG as well as the hard copy data sourced from site as the data foundation. All data sourced was systemically filed and stored on a secure online SharePoint collaborative company platform, with multiple running backups kept by SMG technical management.

The Kiniero Gold Project drillhole database is maintained in a Microsoft Access based Data Vault version of ExplorDB. The database environment presents formatted logging forms covering all aspects of the Kiniero Gold Project exploration to effectively capture, edit and save geological field data and assay information, enabling the easy management, retrieval, and reporting of exploration datasets.

The system provides significant benefit to the geologist or field assistant capturing and loading data in the field and enables all users to view and report data from the system, whether from in the field or in the office. The main benefits include the software's speed, simplicity, and security even when managing large data rich projects. Data Vault manages the two most critical data types that are acquired in a typical exploration project:

- logging and sampling data as collected in the field, including rock, soil, auger, and stream sediment samples as well as detailed logging data pertaining to trenches and drillholes
- submission of field samples to a laboratory that allows for the management and tracking of assay batches, QA/QC performance and the secure storage of returned assay results

Within the Kiniero Gold Project data, two principal downhole data types have been captured and stored namely, drillhole, pitting and trench data. All termite mound, rock chip and soil geochemical data is maintained in a point data module. The Project database is managed by SMG's dedicated Database Manager who is designated as the only administrator with uploading and editing permissions, while viewing and downloading permissions to the database is accessible to approved SMG technical personnel only.

12.3.2 Data Capture and Validation

Daily database collation and management is the joint responsibility of the Kiniero Geology Manager (permanently based at the Kiniero Gold Project), the SMG Exploration Manager and the Database Manager.

All exploration data emanating from site is communicated exclusively between the Kiniero Geology Manager and the SMG Exploration Manager to minimise opportunity for errors in data reporting from site to the Project database. All data is quality control checked by the SMG Exploration Manager before being approved for upload onto the Project database by the Database Manager. Any validation errors emanating from the data upload are documented and remedied between the Geology Manager and the SMG Exploration Manager immediately.

The assay, specific gravity and bulk density results are reported by the relevant laboratory directly to the SMG Exploration Manager, as the single line of communication to SMG. Assay sheets were reviewed for QA/QC before being sent for upload onto the database, reporting of batch QA/QC results and for backup on the SMG SharePoint platform. As an additional quality control mechanism, regular data exports were made to plot the data on plan, section or 3D views using the various geological software used by SMG. Any errors picked up were communicated to the Database Manager for necessary amendments.

12.3.2.1 Previous Data Integration – Kiniero License

Most of the previous Kiniero License data was primarily sourced from the GoG and from the old admin offices at the Kiniero Gold Mine. In addition, data was sourced from what is publicly available. The previous exploration source data was sourced in hard copy (from site) and digitally, primarily in the form of *.xls, *.gdb, *.tab and *.dxf files (or similar variations thereof) which were supported by various *.doc and *.pdf technical files and reports. These results have been incorporated into SMG's Kiniero Gold Project database of exploration results and all verification exercises performed.

12.3.2.2 Previous Data Integration – Mansounia License

The SMG Project team have been able to compile and integrate most of the documented and formally reported data. This was sourced from historic Burey Gold files provided by Penta Goldfields, the current licence holders, and Sedar open file reports. This data has been aligned with current workflows of BLEG soil sampling, trenching & mapping, RC and DD drilling.

12.3.3 Drillhole Twinning

SMG has completed a total of five self-checking twin drillholes on previously completed RC drillholes. The aim is to verify the assay results that have returned significant continuous grade intercepts downhole. Twinning in this regard includes:

- a single twin drillhole at SGA – diamond drillhole GDG21-007 serving as a geotech drillhole as well as a twin of the previously completed RC drillhole GRC21-016 (Table 36). The DD results accurately compare to the previous SMG RC drillhole (Figure 39)

- four twin drillholes at Sabali South – three being previous RC drillholes that have been twinned by DD drillholes (Table 36), the fourth an RC drillhole that is twinned by another RC drillhole. All results are comparable.

12.4 Audits and Independent Site Visits

Since the relaxation of COVID-19 travel restrictions in late 2020, the Kiniero Gold Project has hosted several independent geological, mining and processing qualified person site visits for various technical audits, due diligences, and assessments, including:

- ENC Consulting Pty Ltd (2020 and 2021) – independent assessment of metallurgy and processing
- Tenement Mining (Pty) Limited (2020) – independent assessment of exploration, geology and mining
- Robex Resources Independent Consulting (2021) – due diligence of exploration, geology, and mining
- Mining Plus (2022) – independent review of the Mineral Resource and Mineral Reserves as Qualified Person in support of this PFS

12.5 Conclusions on Data Validation

Following completion of an independent site visit to the Kiniero Gold Project, where a detailed review of the data capture techniques, QA/QC procedures, data storage procedures and methodologies used for the verification of historical data, subject to the limitations discussed above; the Qualified Person considers the drillhole database for the Kiniero Gold Project to be sufficiently reliable for the use in support of Mineral Resource estimations and associated downstream works.

Table 36: Twin Drilling Completed by SMG on Previous SMG Drillholes

ORIGINAL SMG DRILLING									SMG TWIN DRILLING								RESULTS COMPARABLE
DEPOSIT	DRILLHOLE ID	DATE DRILLED	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)	DRILLHOLE ID	UTM ZONE 29N		ELEV (Z)	DIP (°)	AZ (°)	EOH (m)		
			EAST (X)	NORTH (Y)						EAST (X)	NORTH (Y)						
SGA	GRC21-016	2021	412,822	1,152,254	484	-50	305	153	GDG21-007	412,828	1,152,258	484	-60	285	181		Yes
Sabali South	SRC21-121	2021	414,015	1,149,545	463	-50	310	171	SDD22-001	414,019	1,149,547	463	-50	310	141		Yes
	SRC21-054	2021	413,968	1,149,631	460	-50	310	120	SDD22-001	413,968	1,149,631	460	-50	310	210		Yes
	RC20-023	2020	413,874	1,149,713	456	-50	310	80	SDD22-002	413,881	1,149,715	456	-50	310	210		Yes
	SRC21-052	2021	413,928	1,149,539	460	-50	310	141	SRC22-091	413,928	1,149,541	460	-50	310	150		Yes
									Total Twin Drilling Completed on SMG Previous Drillholes						**891**		

Source: SMG (2022)

13 MINERAL PROCESSING AND METALLURGICAL TESTING

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

- validating historical metallurgical processing plant performance data
- determining PFS-level design parameters for the process plant

Canadian registered independent mineral process engineering consultancy, Soutex Inc (Soutex), was appointed in 2022 in support of the PFS. Soutex were not involved in any previous or prior metallurgical testwork campaigns at the Kiniero Gold Project and have had to place reliance on the previous metallurgical studies, previous plant performance and prior SMG completed studies, without having been able to verify the various sources directly. The extensive amount of data, from independent and reputable sources and laboratories, has provided a sufficient level of confidence for Soutex for reliance and use herein. Soutex was only responsible for the design of the confirmatory test programme completed in 2022 based on a limited sample range.

Of the various deposits at the Kiniero Gold Project, those that are pertinent to metallurgical studies and results, as presented in this PFS, are:

- Derekena/West Balan
- Jean East and Jean West
- SGA (Sector Gobelé A, B, C, Gobelé D and NEGD)
- Sabali North and Central (undeveloped)
- Sabali South (new discovery, undeveloped)
- Mansounia Central (undeveloped)
- Mansounia South (undeveloped)

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

- SGS South Africa (Pty) Limited Randfontein Laboratory (SGS Randfontein), a Member of the Société Générale de Surveillance Group. This laboratory is accredited for chemical analysis with the recognised International Standard ISO/IEC 17025:2017 which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. The laboratory is accredited with SANAS, accreditation number No. T0265 which expires in February 2025
- Intertek Perth and Intertek Tarkwa, both part of the multinational laboratory and testing company Intertek Laboratory Testing Services. This laboratory is accredited for chemical analysis with the recognised International Standard ISO/IEC 17025:2017

which demonstrates technical competency for the defined scope and the operation of a laboratory quality management system. Intertek Tarkwa is accredited with SANAS, accreditation number No. T0796, while Intertek Perth is accredited with National Association of Testing Authorities, Australia (NATA), accreditation number No. ABN59004379748.

13.1 Previous Production Data (2009 to 2012)

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

Historical data indicates that the previous operation routinely exceeded the target of 80% passing 80µm, and usually operated at grinds exceeding 90% passing 80µm. A comparison of historical grinds achieved versus recovery is shown in

Figure 42. A poor correlation between grind size and recovery is apparent, likely due to the previous operation having exceeded the target grinds to such an extent that the effect of grind could not be clearly determined.

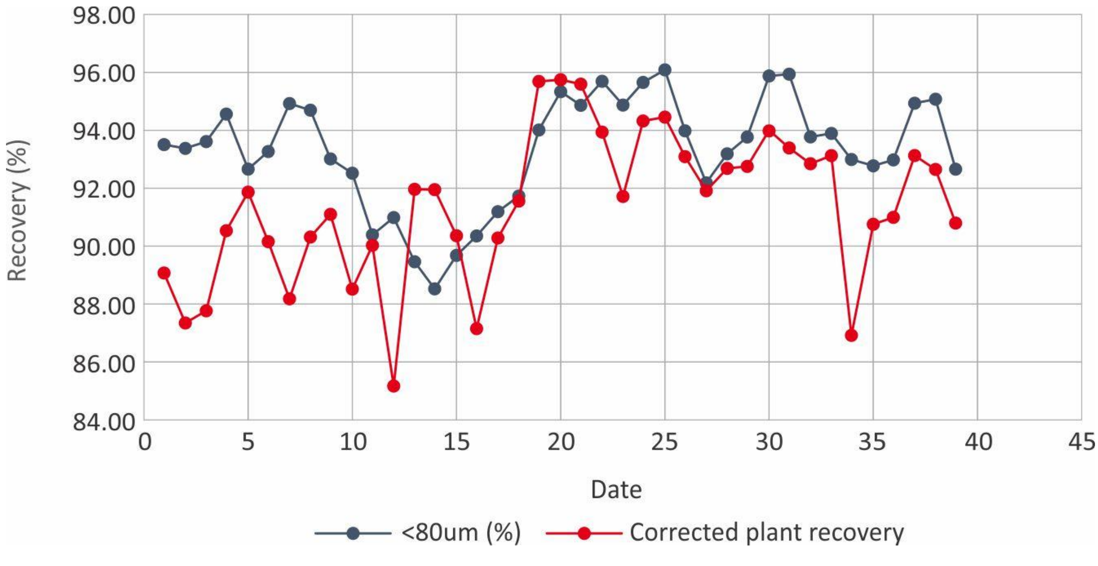


Figure 42: Previous Production Data (monthly, 2009 to 2012): Effect of Grind on Recovery

13.2 Historical Metallurgical Testwork

This section summarises metallurgical data that is available from historical metallurgical studies that have been completed on the different Kiniero Gold Project ores both prior to, and during, production from the Kiniero Gold Mine.

13.2.1 Lakefield Research – SGA

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

- evaluation of grindability
- carbon-in-leach (CIL) cyanidation
- pressure oxidation (POX) cyanidation
- thickening testwork
- mineralogical examination

A total of 188 drill core samples from across the Jean and Gobelé deposits were submitted for gold and metallurgical analysis. Figure 43 indicates the metallurgy sample interval locations within the mined pit envelope. Some of these samples represent already mined ores, however the deeper samples represent ores that are still available, therefore confirming the relevance of these early metallurgy testwork results to the current PFS.

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

The samples were weighed, crushed to -6 mesh and split in half. One half of each core sample was further crushed to -10 mesh, and a head sample of 50g was riffled out for gold analysis by fire assay. From the remaining -6 mesh reject material, samples were combined to create three composites by ore types: Oxide, Transition and Fresh. The weight, specific gravity and the gold content of each individual core sample was used to make up the composites (Table 37).

For grindability tests, a standard Bond Ball Mill Test was completed at a closing screen size of 150 µm. Results returned a Bond Ball Mill Work Index (BWi) value of 18.7, 16.6 and 13.8 for the Fresh, Transition and Oxide composites respectively (Table 38).

Figure 43: Drillhole Locations and Sample Intervals of the Lakefield Bulk Composite Metallurgical Samples
Source: SMG (2022)

Table 37: Lakefield Metallurgical Ore Type Composites Head Grade and Specific Gravity.

COMPOSITE	SPECIFIC GRAVITY g/cm³	HEAD (CALC.) Au, g/t
Fresh	2.86	7.97
Transition	2.76	6.43
Oxide	2.76	7.99

Source: Lakefield (1997)

Table 38: Lakefield Composites Bond Ball Mill Work Index.

COMPOSITE	FEED, F80 µm	PRODUCT, P80 µm	BOND BALL MILL WORK INDEX (kWh/t)	
			Metric	Imperial
Fresh	1,417	110	18.70	16.90
Transition	1,187	105	16.60	15.00
Oxide	1,096	103	13.80	12.50

Source: Lakefield (1997)

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

Table 39: Lakefield Metallurgical Results from Carbon-in-Leach Cyanidation Testwork

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

Source: Lakefield (1997)

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

In addition, pressure oxidation/CIL testwork was done on the fresh composite. Pressure oxidation was conducted at 225°C over 90 minutes. Gold recovery from the fresh composite increased from 83.5% to 97.0% in eight hours of leaching (Table 40).

Table 40: Lakefield Metallurgical Results for Pressure Oxidation/CIL Cyanidation Testwork on the Fresh Composite

TEST No.	COMPOSITE	GRIND % -75 µm	REAGENT CONSUMPTION kg/t of CN Feed		CUMULATIVE % EXTRACTION Au (hours)			RESIDUE g/t Au	HEAD (calc) g/t Au	HEAD (direct) g/t Au
			NaCN	CaO	8 h	24 h	48 h			
CN8*	Fresh	77	2.63	0.13	83.50	83.70	83.90	1.22	7.33	8.14
CN15	Fresh	77	1.64	3.56	97.10	97.30		0.20	5.96	8.14

Source: Lakefield (1997) *CN8 is original (pre-oxidation) results for comparison.

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

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

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

13.2.2 SGA Metallurgical Testwork

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

13.2.3 West Balan Metallurgical Testwork

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

13.2.4 Mansounia Central Metallurgical Testwork

The Mansounia Central deposit consists principally of oxide ores which are not expected to yield any processing challenges, both in terms of grinding energy and in terms of leaching results. Previous licenses owners, Burey Gold, appointed Perth-based Ammtec Ltd under the direction of Independent Metallurgical Operations Pty Ltd (IMO), in 2009, to complete metallurgical tests on laterite, oxide (saprolite) and transition (saprock) samples from diamond drill cores (Ammtec test work report A11517). Seven bulk sample composites were created from the selected intervals in diamond drillholes MDD-001 to MDD-017 (Figure 35).

The test work study included:

- head assays on individual drill core intervals
- head assays on composites of core samples
- bond ball mill work index determinations
- SG and in-situ SG determinations on individual drill core intervals
- gravity recovery and cyanidation gold recovery
- rheology testing

Results from this campaign are presented in Table 41 and summarised as:

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

Table 41: Mansounia Metallurgy Testwork Results for 2009 Ammtec Programme

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

Source: Adapted from Blox (2018)

13.2.5 Mansounia Central Heap Leach Testwork

In 2013 an additional heap leach amenability testwork on composites from the Mansounia Central deposit was done by IMO (in report *Independent Metallurgical Operations Pty Ltd, January 2013: Burey Gold, Mansounia Heap Leach Amenability Test Work Report (Project 5214)*) for Burey Gold. The data generated was to be used in the process design in a potential heap leach scoping study.

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

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

A summary of the 2013 CBR test results is presented in Table 42 which indicated gold higher than 85%. Recoveries declined by approximately 10% as depth increased from the top composite (0-10m) to the lowest composite (32-40m).

Recovery for all composites was rapid to in-excess of 40% within the first 2 hours, after that the recovery curves were relatively slow indicating that the leaching was probably not completed after 96 hours (Figure 44).

Table 42: 2013 Mansounia Heap Leach Testwork Results

COMPOSITE	DESCRIPTION	DEPTH RANGE	CALCULATED HEAD GRADE (g/t)		LEACH RECOVERY (%) 96hrs		REAGENT CONSUMPTION (kg/t)	
			Au	Ag	Au	Ag	NaCN	Lime
1	Laterite / Clay Blend	0 - 10m	0.71	0.70	96.70	14.50	0.46	2.63
2	Clay Blend	12 - 20m	1.18	0.85	97.30	18.10	0.40	1.72
3	Clay Blend	24 - 32m	0.93	1.74	92.80	7.80	0.25	1.40
4	Clay Blend	32 - 40m	1.51	2.25	87.90	37.70	0.40	1.83

Source: Adapted from Blox, Inc. (2018)

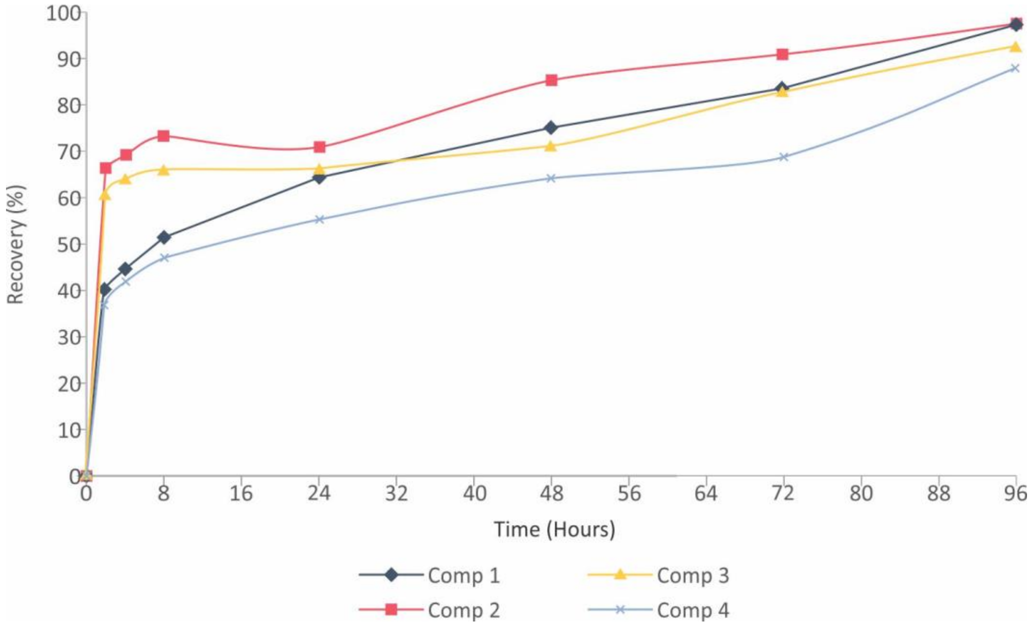


Figure 44: Mansounia Gold Recovery vs. Leach Time for Coarse Bottle Roll Leach Tests
Source: Adapted from Blox, Inc. (2018)

13.3 Sycamore Metallurgical Testwork (2020 to 2022)

Between 2020 and 2022, SMG completed a series of metallurgical testwork campaigns across the different ore profiles of primarily the SGA and Sabali South deposits. Table 43 summarises the extent of the testing completed, with details of the sampling summarised in Table 44.

Table 43: Summary of Metallurgical Sampling and Testwork completed by SMG

DEPOSIT	ORE TYPE	№ DRILLHOLES USED IN COMPOSITE	SAMPLE TYPE	METALLURGICAL TESTS COMPLETED							
				BBWi	MINERA-LOGY	BOTTLE ROLL (24 hours)	RATE KINETICS (24 hours)	GRIND VARIABILITY LEACH	PRE-OX	TAILS CHARACTERI-SATION	GEOCHEM
SGA	Saprolite	4	DD	x	x		x			x	x
	Transitional	3	DD	x	x		x			x	x
	Saprolite + Transitional	7	DD			x			x		
Sabali North	Saprolite/Oxide	3	RC					x			
	Saprolite/Oxide	3	RC				x				
	Saprolite/Oxide	4	RC			x					
	Saprolite/Oxide	4	RC				x	x			
	Saprolite/Oxide	3	RC			x					
	Saprolite/Oxide	4	RC					x			
	Transitional	2	RC				x				
	Transitional	4	RC					x			
	Fresh/Sulphide	3	RC			x					
West Balan	Saprolite	1	RC			x			x	x	x
	Transitional	1	RC			x			x	x	x
	Saprolite	2	RC				x				
Sabali South	Saprolite	20	RC				x	x	x		x
	Transitional	18	RC				x	x	x		x
	Saprolite	3	RC			x					
	Saprolite	2	RC			x					
	Saprolite	3	RC			x					
	Saprolite	5	RC			x					
	Transitional	2	RC			x					
	Saprolite	4	RC			x					
	Saprolite	3	RC			x					
	Transitional	3	RC			x					
	Saprolite	3	RC			x					
	Transitional	2	RC			x					

Table 44: Metallurgy Sample Details

DEPOSIT	SAMPLE NUMBER	DEPTH	ORE TYPE
SGA	SGA-Ox	6-8m	Oxide
		16.9-19.2m	Oxide
		41-42m	Oxide
	SGA-Trans	61-63m	Transitional
		61-63m	Transitional
West Balan	West Balan 1	85-86m	Transitional
	West Balan 2	40-41m	Oxide
Kobane	KOB_MET_01	22-24m	Oxide
Sabali North	SABALI-OX1	15-18m	Oxide
	SABALI-SUL1	75-78m	Fresh
	SABALI-OX2	10-13m	Oxide
	SABALI-OX3	18-22m	Oxide
	SABALI-OX4	10-14m	Oxide
	Sabali-Trans1	42-44m	Transitional
	SABALI-SUL2	70-74m	Fresh
	SABALI-OX5	35-38m	Oxide
	SABALI-SUL3	68-72m	Fresh
Sabali South	SAB_EXT_3/4	31-32m	Oxide
		39-40m	Oxide
		62-63m	Oxide
		39-40m	Oxide
		53-54m	Transitional
		49-50m	Transitional
		29-30m	Oxide
		37-38m	Transitional
		38-40m	Oxide
		61-64m	Transitional
		46-48m	Oxide
		52-53m	Transitional
		13-15m	Oxide
		36-38m	Oxide
	SAB_EXT_4/4	66-72m	Transitional
		54-55m	Fresh
		66-68m	Transitional
		79-80m	Fresh
		66-70m	Fresh
		75-79m	Fresh
		68-73m	Transitional
	Block 7 (25-35)	46-47m	Oxide
		47-48m	Oxide
		46-47m	Oxide
Sabali South	Block 11 (10-20)	22-24m	Oxide
		29-30m	Oxide
	Block 1 (25-35)	41-42m	Transitional
		33-34m	Oxide
	Block 2 (25-35)	36-37m	Oxide
		37-45m	Oxide/Tran
	Block 4 (25-35)	44-45m	Oxide
		39-40m	Oxide
		50-51m	Transitional
		44-45m	Oxide
		36-37m	Transitional
	Block 8 (25-35)	36-37m	Oxide
		48-49m	Transitional
	Block 11 (25-35)	36-39m	Oxide
	Block 6(25-35)	35-36m	Oxide
		34-35m	Oxide
		42-43m	Oxide
		36-37m	Oxide
	Block 5 (25-35)	51-52m	Transitional
	Block 12 (25-35)	37-42m	Oxide
	Block 11 (50-60)	72-73m	Transitional
		67-68m	Transitional

Source: SMG (2022)

13.3.1 SGS Randfontein (2020)

13.3.1.1 Mineralogy

Mineralogical analyses were completed on samples selected from the Sabali South oxide and transitional ore zones by SGS Randfontein in 2020. The mineralogical composition of the samples is presented in Table 45 that were determined using both X-ray diffraction (XRD) and Quantitative Evaluation of Minerals by Scanning Electron Microscopy (QEMSCAN) Bulk Mineral Analysis (BMA) (Figure 45). Results indicated that both the oxide and transition ore zone samples were comprised predominately of silicate minerals, making up >85% for each sample.

Table 45: Mineralogical Composition of Sabali South samples (as determined by QEMSCAN)

MINERAL	APPROXIMATE FORMULA	APPROXIMATE ABUNDANCE (%)	
		OXIDE	TRANSITION
Quartz	SiO_2	56.0	49.8
Mica	K-Al-(OH)-silicate	28.2	28.2
Siderite	$FeCO_3$	9.4	9.5
Chlorite	Mg-Fe-Al-silicate	2.7	5.7
Pyrite	FeS_2	1.9	3.2
Plagioclase	Ca-Na-Al-silicate	0.6	2.4
Magnetite	Fe_3O_4	0.6	0.5
K-feldspar	K-Al-silicate	0.3	0.5
Arsenopyrite	FeAsS	0.3	0.2
TOTAL		**100**	**100**

Source: SGS Randfontein (2020)

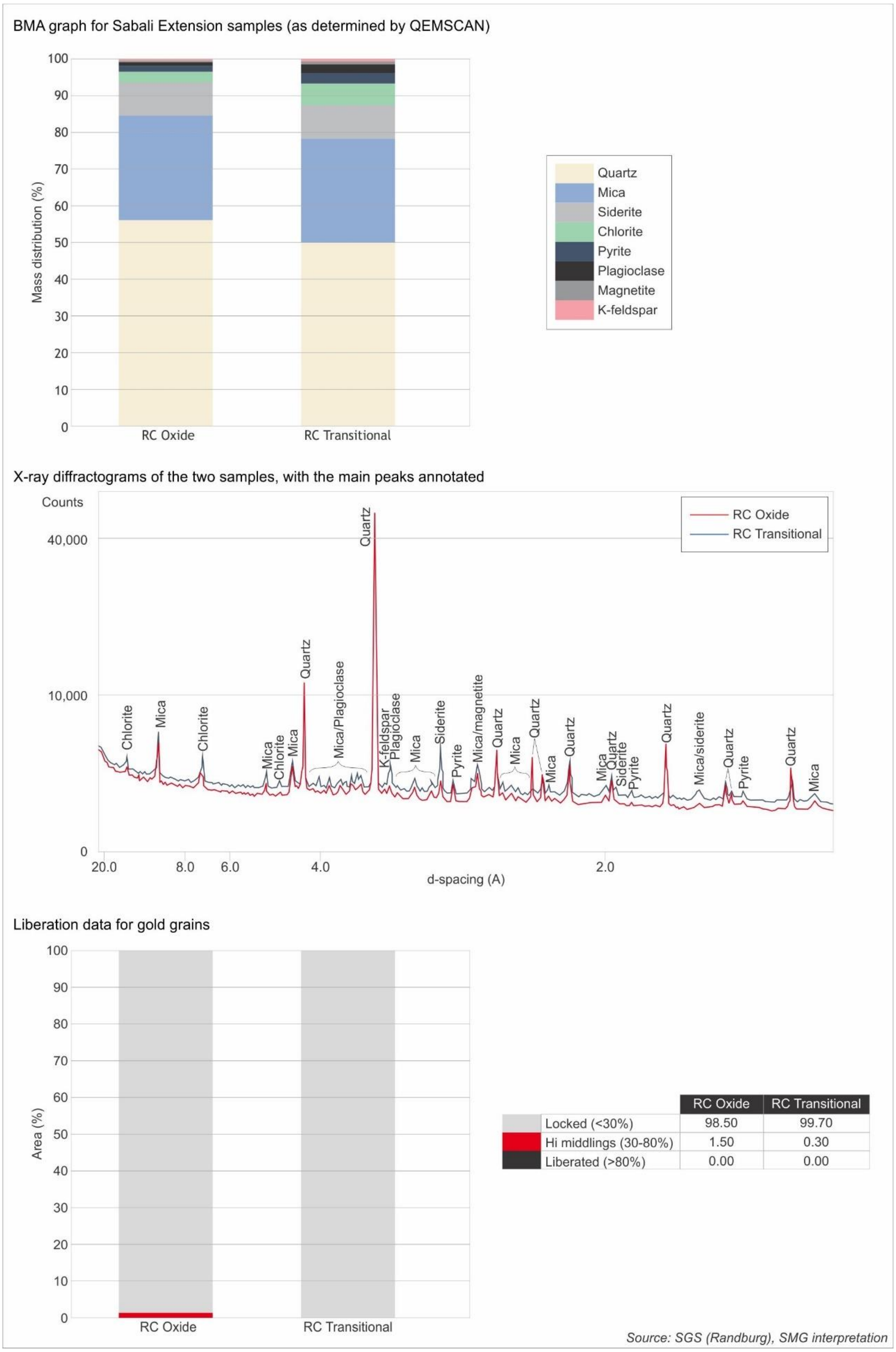


Figure 45: BMA Graph for Sabali Extension Samples (as determined by QEMSCAN)

13.3.1.2 SGA Leaching Testwork

A series of five (5) tests were performed on samples from the SGA deposit, each at different leach times. The results are presented in Table 46. Leach results indicated an increasing recovery with time, but which dropped between 16 hours and 24 hours. Since the 16 hour and 24 hour tests were made on two different sub-sample, it could be expected that there was a difference between them. The 24 hours test results provide a calculated grade significantly different from the others. Differences between the results indicates that the estimated recovery has a high range of uncertainty.

Table 46: SGA Bottle Roll Leach Test Results

LEACH TIME (hours)	NaCN (kg/t)	pH	Au (g/t)			REAGENT CONSUMPTION		Au DISSOLUTION ASSAYED
			AVG. ASSAY	Au CALC'D	RESIDUE	NaCN (kg/t)	CaO (kg/t)	Solid (%)
2	2.0	10.7	2.21	2.16	0.54	0.40	0.5	75.6
4	2.0	10.8	2.21	2.20	0.46	0.55	0.5	79.1
8	2.0	10.8	2.21	2.13	0.40	0.53	0.5	82.1
16	2.0	10.9	2.21	2.20	0.37	0.59	0.5	83.4
24	2.0	10.4	2.21	1.97	0.54	0.69	0.5	75.6

Source: SGS Randfontein (2020)

13.3.1.3 Derekena/West Balan Metallurgical Testwork

Bottle roll testwork was completed on a single sample from the Derekena deposit, as well as on a single sample from the Kobane deposit. Both samples yielded recoveries within the historical range (Table 47). Leaching was performed for 24 hours at a grind of 106 µm. The NaCN consumption observed is high but is most probably not representative of the industrial process since initial NaCN concentration was high at 3,000 ppm, exceeding the expected typical concentration of 500 ppm or less.

Table 47: Derekena and Kobane Bottle Roll Leach Test Results

DEPOSIT	Au HEAD GRADE (g/t)	Au RESIDUE HEAD GRADE (g/t)	NaCN CONSUMPTION (kg/t)	CaO CONSUMPTION (kg/t)	Au RECOVERY (%)
Derekena	0.37	0.02	2.44	0.26	90.90
Kobane	2.85	0.31	1.91	3.00	89.13

Source: SGS Randfontein (2020)

13.3.2 Applied Petrologic Services and Research (APSAR) (2021 & 2022)

Following the completion of the first deep exploration drillhole targeting the mineralisation controls at SGA and ongoing mineralised results at Sabali South, a maiden petrological study was commissioned to investigate in detail the host lithologies, mineralisation and alteration assemblages of these deposits of the Kiniero Gold Project.

In April 2021, a total 20 RC and nine DD samples, collected from the 2020 and early 2021 drilling programmes were selected (Table 48). The samples were dispatched to APSAR in New Zealand to undertake a petrological study focussed on ore fluid composition, paragenesis, wall rock alteration and lithologies.

Table 48: April 2021 APSAR Petrology Samples

DEPOSITE	DRILLHOLE	CORE SAMPLE DEPTH (m)	SAMPLE INTERVAL		Au (g/t)
			FROM (m)	TO (m)	
SGA	GDD21-001	248.2	248.0	249.0	0.02
	GDD21-001	298.6	298.0	299.2	19.78
	GDD21-001	303.4	303.0	304.0	7.63
	GDD21-001	337.0	336.8	337.4	35.34
	GDD21-001	403.6	402.8	403.7	0.01
	GDD21-001	415.0	414.0	415.0	25.10
	GDD21-001	427.8	427.0	427.8	0.24
	GDG21-007	3.7	3.0	4.0	0.02
	GDG21-007	55.0	54.0	55.0	6.83
	RC20-199		38.0	39.0	33.00
	RC20-203		45.0	46.0	15.40
	RC20-206		57.0	58.0	30.10
Sabali South	RC20-007		84.0	85.0	11.50
	RC20-052		13.0	14.0	15.00
	RC20-067		82.0	82.0	8.55
	RC20-154		48.0	49.0	49.70
	RC20-156		93.0	94.0	83.30
	RC20-184		90.0	91.0	9.81
	SRC21-035		82.0	83.0	13.65
	SRC21-042		53.0	54.0	11.95
	SRC21-044		75.0	76.0	20.80
	SRC21-051		114.0	115.0	24.90
	SRC21-054		83.0	84.0	24.70
Derekena	RC20-137		51.0	52.0	6.35
	RC20-143		75.0	76.0	13.40
	RC20-150		44.0	45.0	16.40
Kobane	RC20-107		23.0	24.0	5.16
	RC20-119		56.0	57.0	2.83
Farabana	RC20-130		40.0	41.0	7.62

Source: SMG (2022)

The APSAR June 2021 report, concluded the following:

- petrologic studies of subsurface rock from Derekena, Sabali South and SGA were locally supergene modified with multiple hypogene gold parageneses in relation to tectonic and hydrothermal overprints. Gold mineralisation was not identified in relation to hydrothermal/propylitic alteration of post-metamorphic/orogenic basaltic/basaltic andesite and related clastic rocks
- identified rock types, oldest to youngest, included:

- hydrothermal and tectonic overprinted, low-pressure/moderate temperature metamorphosed and metasomatised, carbonaceous, silty and muddy mudstones
- these were intruded by hydrothermal overprinted, plastically deformed, prograde metasomatised granitoids emplaced prior to and during peak metamorphism/metasomatism
- in turn these were intruded by hydrothermal altered, prograde metasomatised quartz diorite/quartz diorite porphyry to quartz andesites that were not subjected to any regional style metamorphism and related metasomatism
- these were post-dated by hydrothermally altered, variably vitric, vesicular and olivine, pyroxene and plagioclase porphyritic/micro-porphyritic basalts to basaltic andesite rocks and clastic derivatives

- Stages of mineralisation identified included:
    - native gold along with chalcopyrite interstitial to muscovite/sericite and other silicate mineralogy of peak metamorphic replacement/recrystallisation, and more abundantly interstitial to and included within variably voluminous peak metamorphic/metasomatic mosaic-drusy-granoblastic quartz and enclosed pyrite
    - native gold with chalcopyrite, sphalerite, galena, tennantite/tetrahedrite and precious metal sulphosalt/telluride mineralogy in relation to pervasive mosaic quartz, sericite/illite, Fe/Mg/Ca-carbonate, pyrite and arsentiferous pyrite replacement and fracture/cavity fill of retrograde hydrothermal overprinting of metasedimentary rocks and granitoid
    - native gold together with chalcopyrite, sphalerite, galena, tennantite/tetrahedrite and precious metal sulphosalt/telluride mineralogy in relation to pervasive sericite/illite, mosaic quartz, chlorite and Fe/Mg/Ca-carbonate alteration of quartz diorite/quartz diorite porphyry to quartz andesite rock
- multiple secondary fluid inclusions contained within prograde metamorphic-related metasomatic quartz include locally hypersaline, CO_2-rich/bearing, CH_4 bearing and opaque/carbon daughter mineral-bearing aqueous types. These are indicative of mixing of metamorphic and magmatic derived hydrothermal/metasomatic fluids responsible for peak metamorphic/metasomatic protore
- native gold enclosed by crustiform to massive goethite and less abundant hematite deposition assemblages indicate some supergene remobilisation of hypogene gold

In December 2021, SMG selected additional RC petrology samples, in support of the Soutex metallurgy campaign. The samples were selected from a range of 5m composites across Sabali South that were sent to Intertek Tarkwa for Bottle Roll tests. A total of 13 RC samples were selected (Table 49). In addition, in March 2022, SMG selected nine further samples from the recently completed diamond drilling in 2022 (Table 50) to undergo petrological studies. At the time of this PFS, both sets of samples were in transit to APSAR. Results will be used in support of the DFS.

Table 49: December 2021 APSAR Petrology Samples in Support of Soutex Metallurgy Campaign

Deposit	Hole-ID	From (m)	To (m)	g/t Au
Sabali South	SRC21-020	76	81	0.96
	SRC21-096	50	55	0.98
	SRC21-096	60	65	0.79
	SRC21-100	75	80	2.35
	SRC21-012	48	53	0.62
	SRC21-012	58	63	0.99
	SRC21-012	63	68	5.15
	SRC21-054	62	67	1.80
	SRC21-054	67	72	7.48
	SRC21-054	78	83	3.14
	SRC21-054	83	88	7.70
	SRC21-054	88	93	1.07
	SRC21-054	98	103	2.37

Source: SMG (2022)

Table 50: March 2022 APSAR Petrology Samples

Deposit	Drillhole	Core Sample Depth (m)	Sample Interval		g/t Au
			From (m)	To (m)	
Sabali South	SDD22-001	167.8	167.7	168.0	*0.30*
	SDD22-001	178.2	178.0	179.0	*0.04*
	SDD22-001	189.1	189.0	190.0	*0.02*
	SDD22-001	204.5	204.0	205.0	*0.01*
	SDD22-001	208.0	207.0	208.0	*0.02*
	SDD22-002	147.0	146.0	147.0	*0.18*
	SDD22-002	177.7	177.0	178.0	*0.02*
	SDD22-002	182.9	182.6	183.0	*0.27*
	SDD22-002	206.0	205.0	206.0	*0.30*

Source: SMG (2022)

13.3.3 Sabali North and Central Leaching Testwork (Intertek)

Bottle roll testwork was completed on a series of composite samples selected across the oxide, transition and fresh ore zones of the deposit over a 24 hour leach test period, with a second series submitted for a kinetic test. Table 51 presents the results from the 24 hour leach tests and Table 52 presents the 24 hour kinetic tests on other samples of Sabali North and Central (Figure 46). Those samples that yielded recoveries of 100% (which is not possible) likely had gold-in-tails under the detection limit.

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

Table 51: Sabali North and Central Bottle Roll Leach Test Results

SAMPLE ID	ORE TYPE	P80 (µm)	Au HEAD ASSAY (g/t)	NaCN (ppm)	CONSUMED NaCN (kg/t)	FINAL pH	Au TAILINGS FIRE ASSAY (g/t)	RECOVERY (%)
SABEST_OX_02	Oxide	75	0.21	3000	1.59	10.76	0.00	100.00
SABEST_OX_04	Oxide	75	0.50	3000	1.59	10.23	0.02	96.00
SABEST_TR_01	Trans	106	2.22	3000	1.77	10.28	0.76	65.73
SABEST_OX_05	Oxide	106	0.15	3000	1.55	10.84	0.00	100.00
SABEST_SUL_03	Fresh	106	1.79	3000	1.71	10.48	0.54	69.83

Source: Intertek (2020)

Table 52: Sabali North and Central 24 hour Bottle Roll Leach Kinetic Test Results

SAMPLE ID	P80 (µm)	Au HEAD ASSAY (g/t)	RECOVERY (%)					
			1 hour	2 hours	4 hours	8 hours	16 hours	24 hours
SABEST_SUL_01 KL	106	6.24	43.35	26.76	37.02	38.62	41.83	43.11
SABEST_OX_03 KL	75	1.71	50.58	64.86	71.89	73.65	77.75	83.02
SABEST_OX_03 KL	150	1.61	34.68	53.27	68.22	73.21	75.08	75.70
SABEST_SUL_02 KL	106	0.76	34.68	8.61	12.58	15.23	17.88	24.50

Source: Intertek (2020)

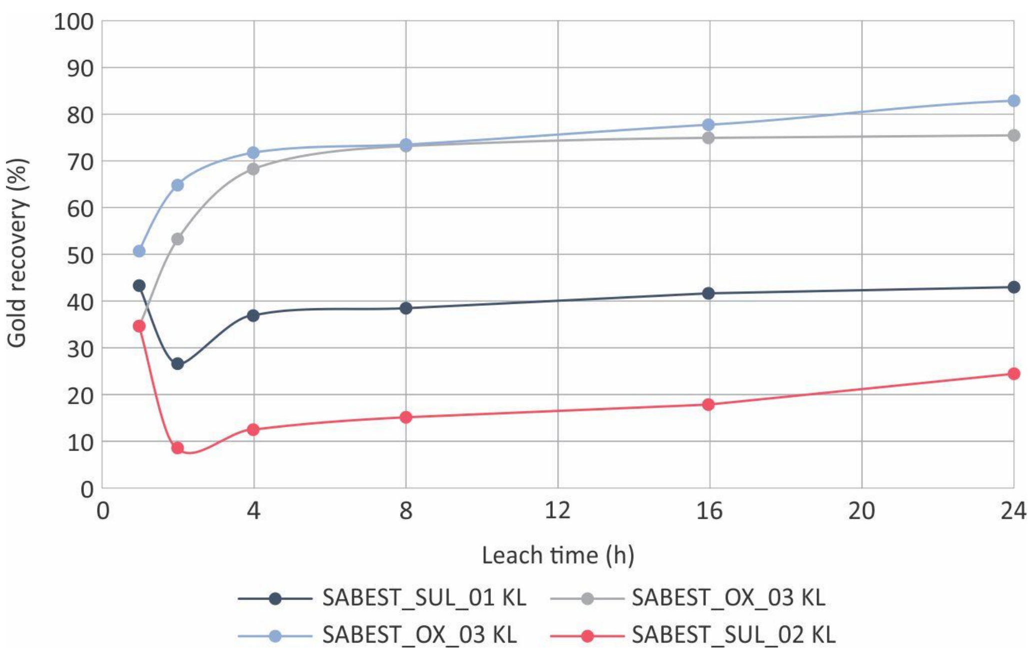


Figure 46: Leaching Kinetics for Sabali North and Central Metallurgical Samples

13.3.4 Sabali South Leaching Testwork (Intertek)

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

13.3.4.1 Bottle Roll Scanning Tests

A series of samples from Sabali South were submitted for 24-hour leach tests. The deposit was split into 12 blocks from which composited samples were selected. Some of the samples contained only oxide material, while others were a mix of oxide and transitional, or transitional material only. The type of weathering generally influences the cyanidation process for which the results from this maiden campaign are presented in Table 53.

Table 53: Sabali South Maiden Bottle Roll Leach Scanning Tests

SAMPLE ID	Ore Type	P_{80} (µm)	HEAD ASSAY (Au g/t)	NaCN (ppm)	CONSUMED NaCN (kg/t)	FINAL pH	TAILS GRADE (Au ppm)	RECOVERY (%)
BLOCK 11 (10-20)	Oxide	75	1.15	3000	1.60	10.32	0.10	91.32
BLOCK 01 (25-35)	Oxide/Trans.	75	2.45	3000	1.68	10.29	0.67	72.60
BLOCK 02 (25-35)	Oxide/Trans.	75	1.33	3000	1.58	10.42	0.82	38.23
BLOCK 04 (25-35)	Oxide/Trans.	75	1.44	3000	1.62	10.66	0.17	88.15
BLOCK 05 (25-35)	Trans.	75	1.16	3000	1.61	10.58	0.88	23.81
BLOCK 06 (25-35)	Oxide	75	2.91	3000	1.56	10.39	0.21	92.78
BLOCK 07 (25-35)	Oxide	75	0.81	3000	1.56	10.46	0.00	100.00
BLOCK 08 (25-35)	Oxide/trans	75	1.65	3000	1.62	10.42	0.73	55.69
BLOCK 11 (25-35)	Oxide	75	4.85	3000	1.56	10.96	0.30	93.81
BLOCK 12 (25-35)	Oxide	75	4.03	3000	1.62	10.29	0.58	85.62
BLOCK 11 (50-60)	Trans.	75	2.99	3000	1.60	10.93	0.81	72.93

Source: SGS (2020)

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

13.3.4.2 Diagnostic Leach Test

Following the results for the Lower Saprolite and Transitional ores of the Sabali South deposit, a diagnostic leach test was conducted on a low-recovery transitional sample from the western sector of the Sabali South Section. This was undertaken to determine whether preg-robbing material, or refractory material was present. The results of the diagnostic leach are presented in Table 54. The diagnostic leach test confirmed that the main cause of lower recoveries was due to the presence of refractory sulphide minerals that are related to the HCl and HNO_3 digestible association, and not due to preg-robbing material being present.

Table 54: Diagnostic Leach Test Results

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

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

13.3.4.3 Bottle Roll Leach Characterisation with Grind Size and Depth

To better understand the relation between recovery and weathering, a series of cyanidation tests with P_{80} grind sizes of 106µm, 75µm, and 45µm were performed on 24 samples from two drillholes. Each sample represented a 5m composite length with Au grades ranging from 0.48g/t to 3.2 g/t. The recovery results for the 24 hours leaching are shown in Figure 47 with the recovery at three grind sizes indicated for each grind size.

Results indicate that after 24 hours of leach the recovery is between 80% and 90% for near surface oxides and begins to reduce once a certain depth is reached. There is no significant effect of grind size for a P_{80} of between 45µm and 106µm. For lower recovery samples, leach kinetics required to be observed to ascertain if the leaching was completed. Six lower recovery samples were selected for the leach at 106µm and the results are shown in Figure 48.

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

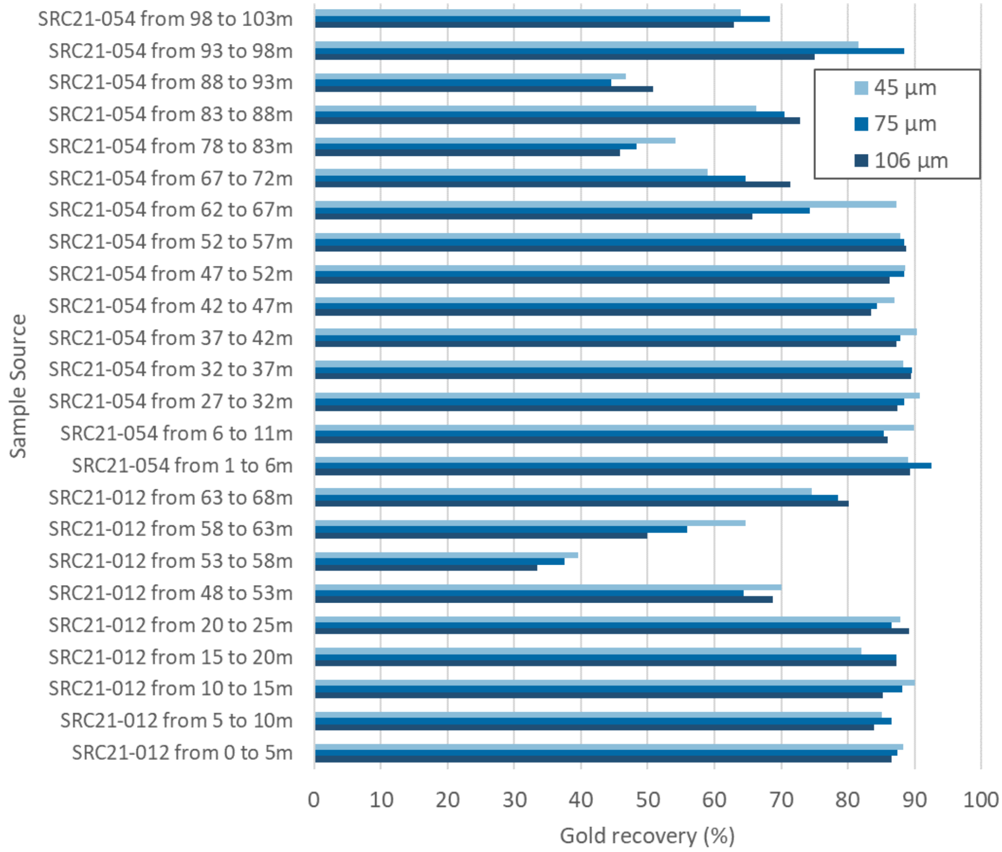


Figure 47: Bottle Roll Leach Recovery for three Grind Sizes at Various Depths

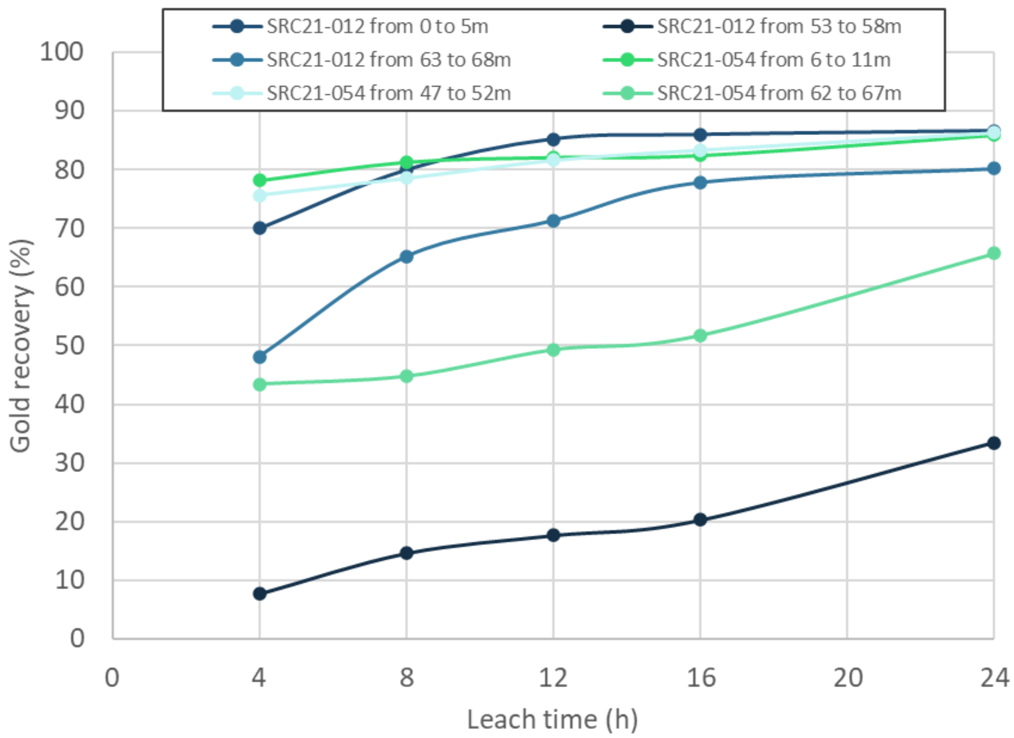


Figure 48: 24-hour Leach Kinetics on Selected Samples

13.4 Recent Metallurgical Testwork (Soutex 2022)

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

- grinding energy
- semi-autogenous grind (SAG) milling energy
- leaching conditions
- grind target
- reagent consumption
- relevance of an oxygen plant

Testing was performed on the most appropriate drill cores and RC chips available from each of the various deposits. There was a predominant focus on testwork on the metallurgy of the Sabali South due to its discovery status, and also due to the higher confidence in the other deposits which had previously been subjected to extensive metallurgy testwork and subsequent processing during operations (Sections 13.1 and 13.2). The testing provided valuable information to refine the process design criteria to the required PFS accuracy level, but sample representativeness will need to be improved to support the DFS level.

13.4.1 Bottle Roll Leach Method Assessment

During the bottle roll leach kinetic tests performed in 2020 and 2021, periodic sampling was performed by the relevant laboratory by picking out a pulp sample at each step of 4, 8, 12, 16 and 24 hours and then filtering the sample to retrieve the assay solution. With such a method, the solids removed from the leach bottle will have a different size distribution, and possibly different gold content than what is left in the bottle, exposing the results to a possible bias. The 2022 metallurgy testing programme made use of state-of-the-art methods for periodic sampling during the kinetic test so as to avoid this bias.

13.4.2 Grinding Energy

Composite samples for laterite, oxide and transition were assembled for comminution testing. Additionally, four fresh rock samples (not composited) were directly tested for comminution, including SAG milling testing. Details of the selected samples are presented in Table 55.

Table 55: Comminution Sample List

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

13.4.2.1 Comminution Test Programme

The comminution tests undertaken to ascertain the grinding energy includes:

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

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

The comminution testwork was undertaken by Independent Metallurgical Operations (Pty) Ltd (IMO) in Perth, Australia on behalf of Intertek. SMC test® report was produced by JKTech (Pty) Ltd of the University of Queensland.

13.4.2.2 Comminution Test Results

Table 56 summarises the various comminution results. The fresh ore can be qualified as hard to very hard. A large portion of the oxide ores does not require any grinding, as it already meets the grind target, and where the remaining portion of the oxide ore is more competent, the resulting specific energy remains very low, well within the energy requirements to grind the fresh ores. As a benchmark, oxide-specific energy at the Nampala Mine owned by Robex Resources is in the range of 3 kWh/t to 5 kWh/t.

Table 56: Comminutions Results

COMMINUTION RESULTS / TESTS		UNITS	SAMPLED ID (Table 55)				
			Fr_CC1	Fr_CC2	Fr_CC3	Fr_CC4	Lat_CC
Sample Description/Type		-	Fresh	Fresh	Fresh	Fresh	Lateritic
Bond Abrasion Index	BAi	g	0.3203	0.3306	0.0915	0.0514	-
Bond Ball Work Index	BBWi	kWh/t	25.7	26.6	20.7	23.2	17.2
Feed F_{80}	BBWi	µm	2,414	2,475	2,446	2,574	1,467
Product P_{80}	BBWi	µm	78.4	81.4	77.8	76.3	76.6
Bond Rod Work Index	BRWi	kWh/t	30.17	30.51	25.26	29.02	-
Grindability	BRWi	g/rev	2.2276	2.4077	3.3548	2.6472	-
Drop Work Index	SMC	kWh/m³	12.7	12.4	9.6	12.2	-
Mia	SMC	kWh/t	30.8	30.1	24.8	29.7	-
Mih	SMC	kWh/t	25.9	25.2	19.7	24.7	-
Mic	SMC	kWh/t	13.4	13.0	10.2	12.8	-
Specific Gravity	SMC	t/m³	2.85	2.86	2.81	2.86	-
JKTech rock breakage parameters (A*b)	SMC	#	22.0	23.0	29.2	23.4	-
	SMC	%	97.9	97.1	86.8	96.8	-
SAG Circuit Specific Energy (SCSE)	SMC	kWh/t	13.88	13.59	11.82	13.47	-
	SMC	%	98.2	97.6	87.9	97.3	-

Source: Intertek SMC Test® (2022)

13.4.3 Leaching Tests

A leach and CIL testing campaign was initiated as part of the Soutex metallurgical testwork campaign, the supporting sample selection of which is presented in Table 57 and illustrated in Figure 54.

Table 57: Leaching and CIL Sample List

SAMPLE ID	DEPOSIT	ORIGIN	SAMPLE TYPE	Au (g/t)
Ox_Comp	Sabali South	Composite (11 intervals)	RC	1.40
Fr_Comp	SGA / Sabali South	Composite (6 intervals)	DD and RC	1.40
Lat_V1	Sabali South	SRC21-064 (0m to 10m)	RC	0.74
Lat_V2	Sabali South	SRC21-058 (0m to 10m)	RC	0.40
Ox _V3	Sabali South*	MRC21-006 (15m to 19m)	RC	2.75
Ox _V4	Sabali South	SRC21-235 (4 x 1m intervals)	RC	1.60
Ox _V5	Sabali South	SRC21-058 (41m to 45m)	RC	1.64

* Previously Mansounia North (Mansounia License)
Source: SMG (2022)

13.4.3.1 Kinetic Leach of Main Composites

Cyanide leach tests were performed on various samples to assess the kinetics over a longer leach period, as well as to evaluate the effect of using pure oxygen instead of air in the leach. Figure 49 shows the extraction results for oxide ore and Figure 50 for fresh ore. All tests were performed at a pH of 10.5 and NaCN concentration of 1,000 ppm. Key observations from the leach kinetic tests include:

- the overall recovery reaches the previous expectations

- leaching is slow which must be assessed in more detail for the DFS
- the addition of pure oxygen has an important impact on the leaching kinetics and final recovery achievable for a finite residence time

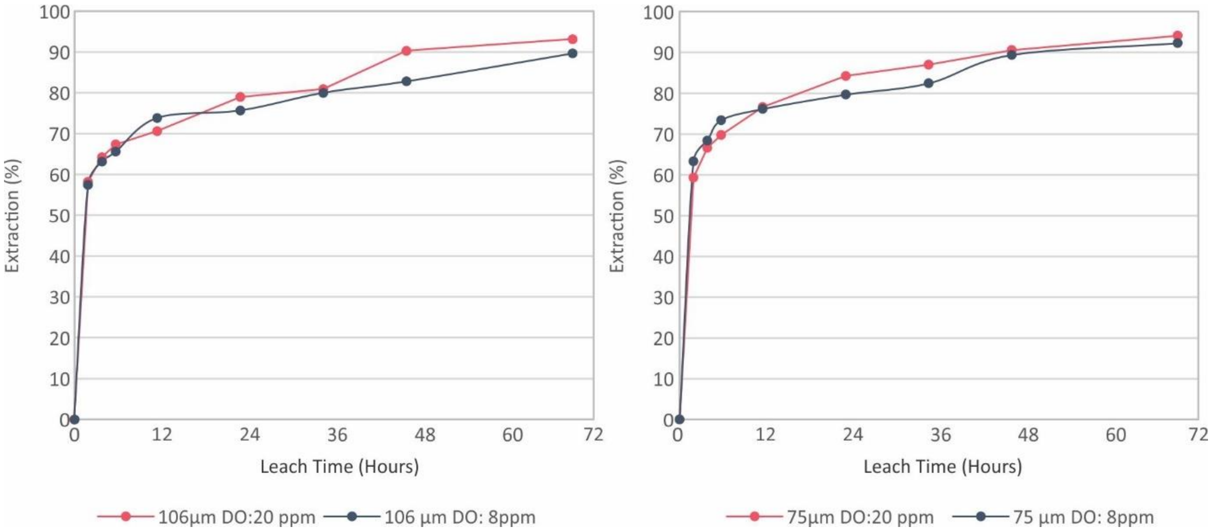


Figure 49: 72-hour Kinetic Bottle Roll Leach Tests for Oxide Composite

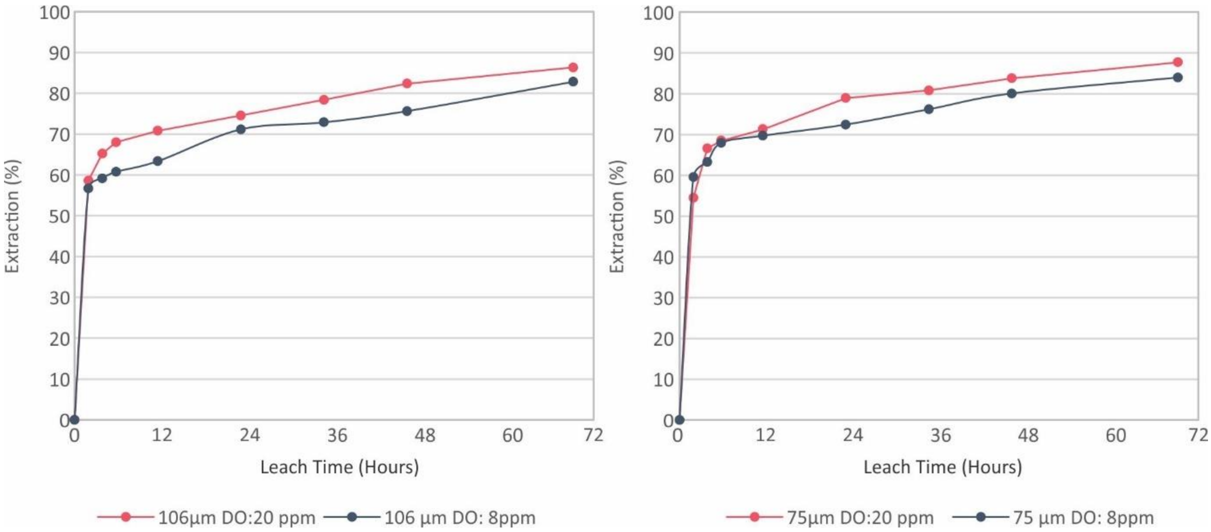


Figure 50: 72-hour Kinetic Bottle Roll Leach Tests for Fresh Composite

13.4.3.2 Effect of NaCN Concentration

Cyanide leach tests on the main oxide composite were performed with various levels of NaCN. The results for two NaCN concentrations, with and without pure oxygen, are presented in Figure 51 with the computed total NaCN consumption for the four tests in Table 58.

It is apparent that the NaCN consumption is directly related to the concentration used, i.e. there is an excess of cyanide for all the tests. The high recovery for the last test ("Oxide E") at lower NaCN indicates that optimisation can be done to improve cyanide consumption. It is therefore reasonable to assume that the required NaCN consumption will be comparable with what the previous operation achieved. The use of pure oxygen negates the effect of high NaCN while at higher oxygen levels, the kinetics is more accelerated at lower NaCN concentrations. This result could stem from different experimental conditions, as the two tests were not run on the same day.

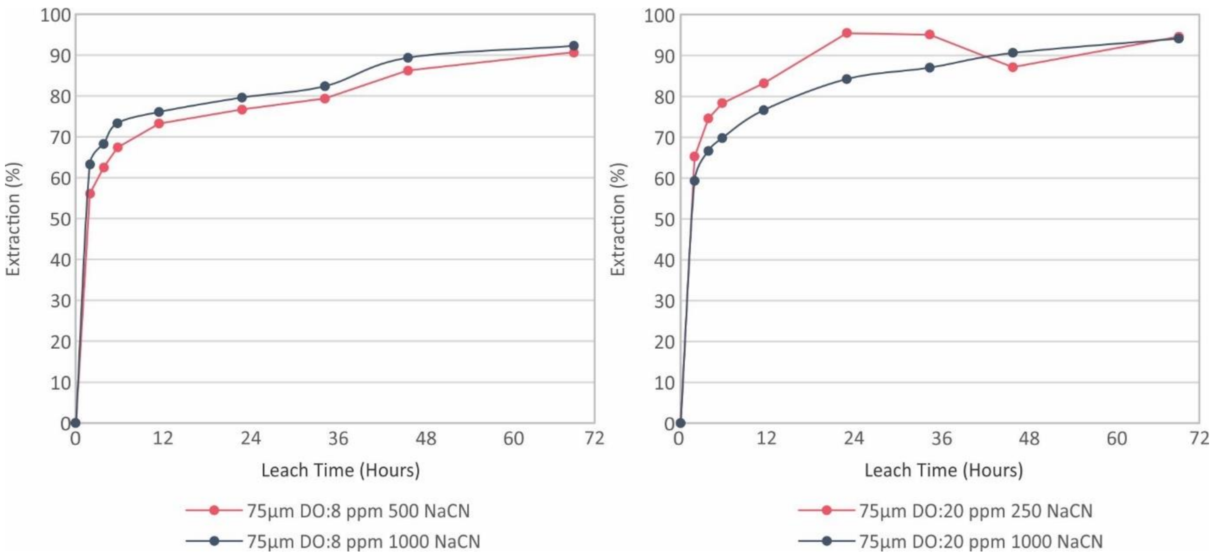


Figure 51: Leach Kinetics with Various Levels of NaCN

Table 58: Leaching Results at Differing NaCN Levels

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

13.4.3.3 Kinetic Leach of Variability Composites

Five variability samples were tested for leach kinetics, including two laterite samples (Table 57) with Figure 52 presenting the extraction results. Excellent recoveries were achieved for all samples, and relatively quickly as compared to previous results. The overshoot is regarded as insignificant and relies on liquid gold analysis uncertainties. Detailed leaching results are presented in Table 59.

Table 59: Detailed Results for Variability Samples

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

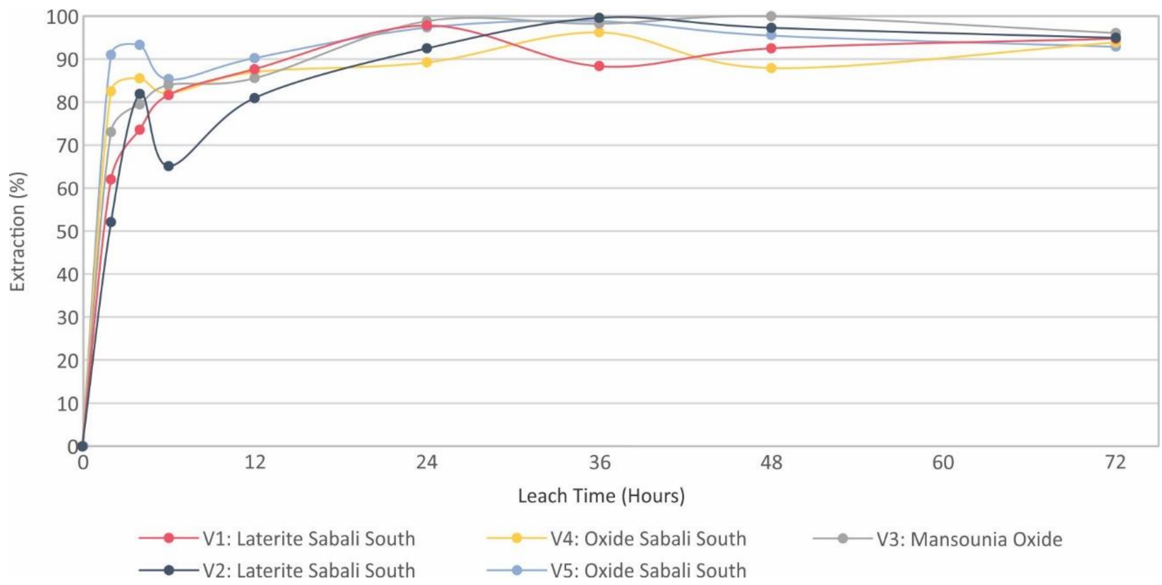


Figure 52: 72 hour Kinetic Tests for Variability Samples

13.4.4 Carbon-in-Leach (CIL) Tests

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

13.4.4.1 Kinetic Carbon in Leach of Main Composites

The two main composites for oxide (Ox_Comp) and fresh (Fr_Comp) ore were used (Table 57) for this testwork with 1,000 ppm of NaCN, D.O. of 20 ppm and 10 g/L of activated carbon. To produce the kinetic curves, four bottles were run with the same parameters, but each stopped at different times one bottle was stopped at 12 hours, one at 24 hours, one at 48 hours and one at 72 hours. Figure 53 shows the comparative results for oxide and fresh ore with and without carbon. In addition to the main composite, a CIL test was also completed on the oxide V3 sample originating from the Sabali South deposit on the Mansounia License.

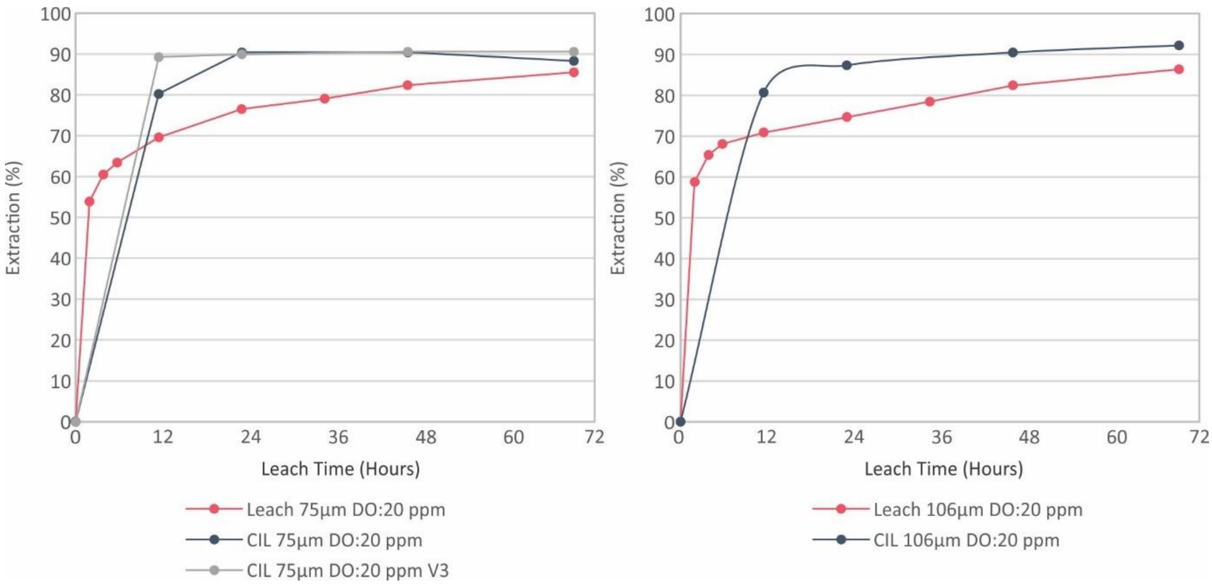


Figure 53: 72-hour Kinetic Tests with and without Addition of Activated Carbon (left: oxide, right: fresh)

In Figure 53, the beginning of the curve for the CIL would most probably be steeper if additional time intervals were sampled. Recovery results with the use of activated carbon are much improved than only leach, both in terms of kinetics and in final recovery (Table 60).

Table 60: Comparative Leaching and CIL Results

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

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

A definitive conclusion cannot yet be stated regards final recoveries due to the limited representativity of the tested samples. However, it is evident that the design residence time stemming from the leach-only tests can be reduced when considering CIL.

13.4.4.2 Additional Carbon-in-Leach Variability Testwork (May 2022)

Following the improved recovery results from the composite CIL tests, it was decided to perform additional batch CIL test work on selected variability samples primarily from Sabali South, but as well as selected samples from Sabali North, Sabali Central and SGA.

A total of 30 1m samples were selected for additional CIL variability testwork from across SGA, Sabali North, Sabali Central and Sabali South (Table 61). Samples were selected across zones of different lithologies and regoliths where uncertainty remained regarding gold recoveries. The location and spatial distribution of the variability samples are presented in Figure 54. The 48-hour gold recoveries of the variability samples testworks are presented in Table 61.

Table 61: Sample Selection and Results for the Additional CIL Variability Testwork

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

Source: Intertek and SMG (2022)

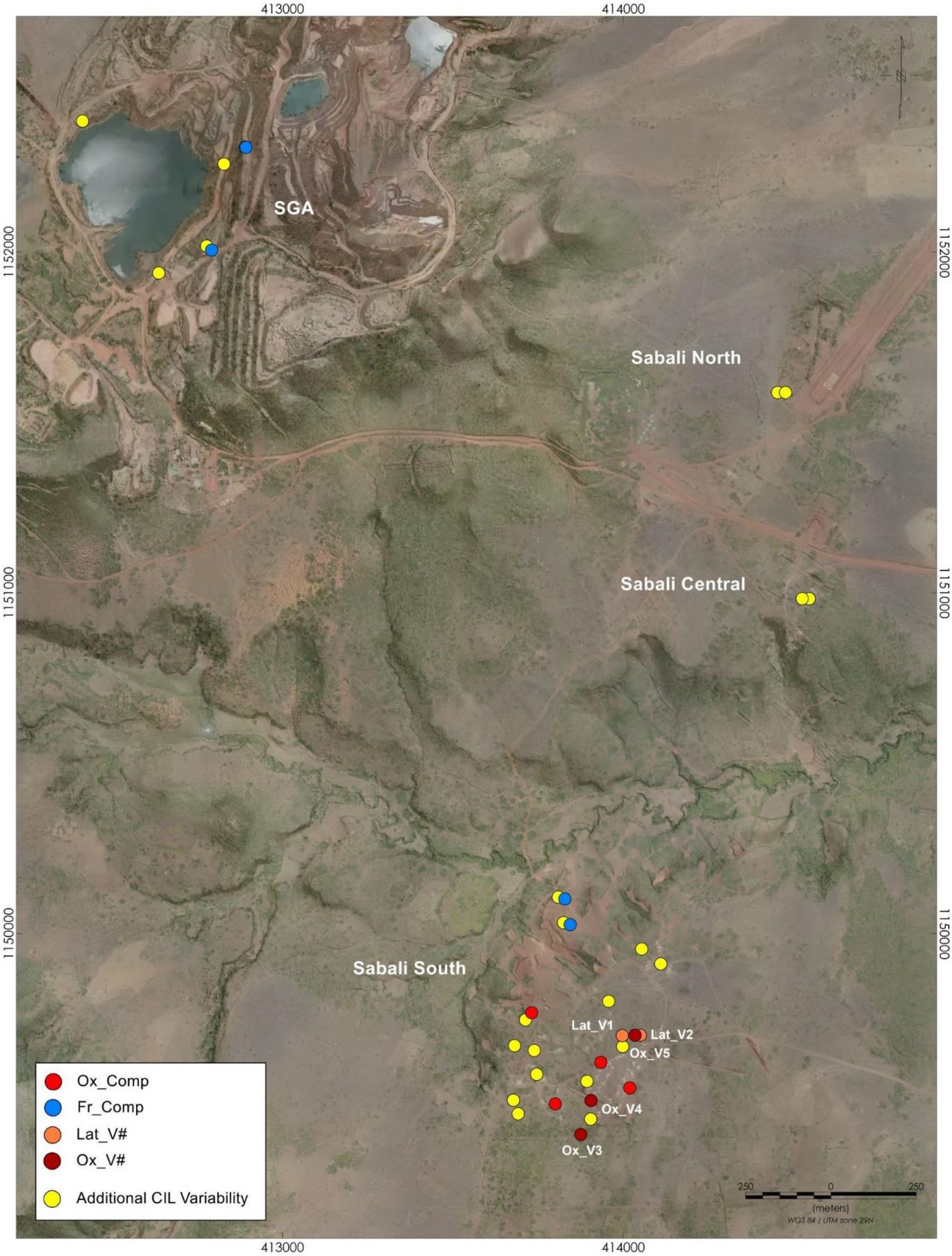


Figure 54: Location of the Sabali South CIL Variability Samples
Source (SMG)

The variability results confirm the recovery profiles at Sabali North, Central and South, which is dictated by the weathering profiles, with higher recovery near surface and lower recoveries deeper. It also provides and indication of the difference with SGA which is shows an average Au tails grade of 0.25 g/t in five fresh rock samples, even within relatively deep horizons.

13.5 Conclusion and Recommended Gold Recovery Values

Processing gold recovery values recommended for the economic evaluation of the Kiniero Gold Project PFS are presented in Table 62 for the various deposits. These values should be refined with further testing at the DFS stage. Additional testwork and studies will provide further confidence to the recoveries, with the recent CIL variability testwork indicating the possibility of improving recovery values.

Table 62: Recommended Gold Recovery Values for the Kiniero Gold Project PFS

ORE TYPE	Au RECOVERY %					
	SABALI NORTH AND CENTRAL	SABALI SOUTH	SGA	JEAN	WEST BALAN / DEREKENA	MANSOUNIA CENTRAL
Laterite	95%	95%	92%	92%	92%	95%
Oxide	95%	95%	92%	92%	92%	95%
Transition	50%	55%	90%	90%	90%	92%
Fresh	65%	55%	87%	87%	87%	90%

Source: Soutex (2022)

14 MINERAL RESOURCE ESTIMATES

14.1 Geological Modelling

Geological modelling was undertaken by Mr J Glanvill of SMG using the previous SEMAFO exploration results (for the Kiniero License area), Burey Gold exploration results (for the Mansounia License area) and SMG's recent drilling and sampling programme completed across both the Mansounia and Kiniero License areas. A total of seven geological models were prepared, encompassing the following mineral deposits:

- Sabali North and Central (previously Sabali East)
- Sabali South (previously Sabali Extension, inclusive of Mansounia North of the Mansounia License area)
- SGA – incorporating SGA (Gobelé A, B, C), Gobelé D, NEGD and East-West
- Jean – incorporating Jean West and Jean East
- Banfara
- Derekena – incorporating West Balan, Balan and Derekena, an extension of the first two and
- Mansounia Central

14.1.1 Drilling Data

The resource updates for SGA, Jean, Derekena, Banfara and Sabali North and Central were based on the 2020 data exports as there were no material additions to the database since this time. The Sabali South model had an effective data cut-off of 25th May 2022 and incorporated the latest assays and oxidation modelling completed. Table 63 summarises the drilling data subsets per deposit used for modelling and estimation.

Table 63: Summary of Drilling Data used for Modelling Purposes

MODEL	TOTAL DRILLHOLES	PREVIOUS (SEMAFO and/or BUREY GOLD)	SMG	SAMPLES		
				VALID	HALF DETECTION	ABSENT
SGA	2,620	2,620	-	142,511	24,708	2,474
Sabai North & Central	284	284	-	23,165	2,292	91
Jean	562	563	-	30,449	3,557	558
Banfara	304	304	-	15,142	605	37
Sabali South	511	63	448	30,630	2,045	6,731
Derekena	941	922	19	59,921	11,034	413
Mansounia Central	156	156	-	10,909	1,349	479
TOTAL	5,378	4,912	467	312,727	45,590	10,783

Source: SMG (2022)
Totals and Counts may not match other tables due to filtering or domaining

14.1.2 Validation and Changes

Data were extracted from the SMG drilling database on a cluster or deposit basis as an EXCEL™ snapshot. This was then programmatically converted to comma-delimited files and imported into Datamine Studio RM (Studio) via a standardised Datamine script (script) routine. This routine resolved and reported any overlaps and other structural errors as well as resolving absent and below detection samples.

Selected RAB, pit, trench and/or auger data were used for geological modelling, however all RAB, pit, trench, and auger samples were excluded in the grade and resource estimation process. Such data is not considered suitably reliable to produce robust, representative samples that can be used for resource estimation in orogenic gold deposits.

14.1.2.1 Collars

No changes were made to the collar files. The data verification process had been rigorous and had eliminated anomalous duplicates and drillholes that plotted above or below topography.

All historical collars were transformed from the mine local grid to UTM29P ellipsoid using the transform detailed in the survey section. There is no apparent systematic bias in the collar data that requires rectification.

14.1.2.2 Downhole Surveys

Of the previous SEMAFO drilling, RC accounts for 77% of the drilling, however only 4% of these drillholes have more than one (1) downhole survey record. This contrasts with the drilling completed by SMG where all drillholes have detailed downhole survey.

Of the previous SEMAFO diamond drillholes, 92% of the drillholes have more than a single collar orientation survey, while 100% of the SMG diamond drillholes have been surveyed down the hole.

14.1.2.3 Assays

No changes, other than to deal with absent assays and below detection values, were made. Absent assays were deleted from the data set before compositing to prevent smearing or biasing low the data by setting them to half-detection. Below detection samples were set to 0.005g/t, i.e. half the detection limit of 0.01g/t, for Au fire assays. Adjustments to the databases in this regard is summarised in Table 63.

14.1.2.4 Lithology/Oxidation Modelling

Lithology was not modelled, instead the oxidation state was. The heavy saprolitisation of the host rock appears to be the dominant control on mining, geotechnical stability and processing. For all the deposits, other than Sabali South, a simplified oxidation state model was generated using the available information within the Leapfrog Geo environment. All modelling was completed to the native pre-mining surface with laterite, saprolite, transition and fresh solids generated.

Sabali South was an exception in that the dominance of the detailed SMG logging data allowed for a more refined model to be generated, i.e. a model that included laterite, mottled zone, upper saprolite, lower saprolite, transition and fresh (Figure 55).

The distinction here is that due to strong hydrothermal alteration overprinting of the proto-lithologies, the lower saprolite is weak and behaves more like the upper saprolite (i.e. like a soil), but the distinguishing feature is that it has significant un-oxidised sulphides within it, and processes more like a transitional material. The resulting, model allows for distinctions to be made between the geotechnical and geometallurgical of these distinct oxidation horizons.

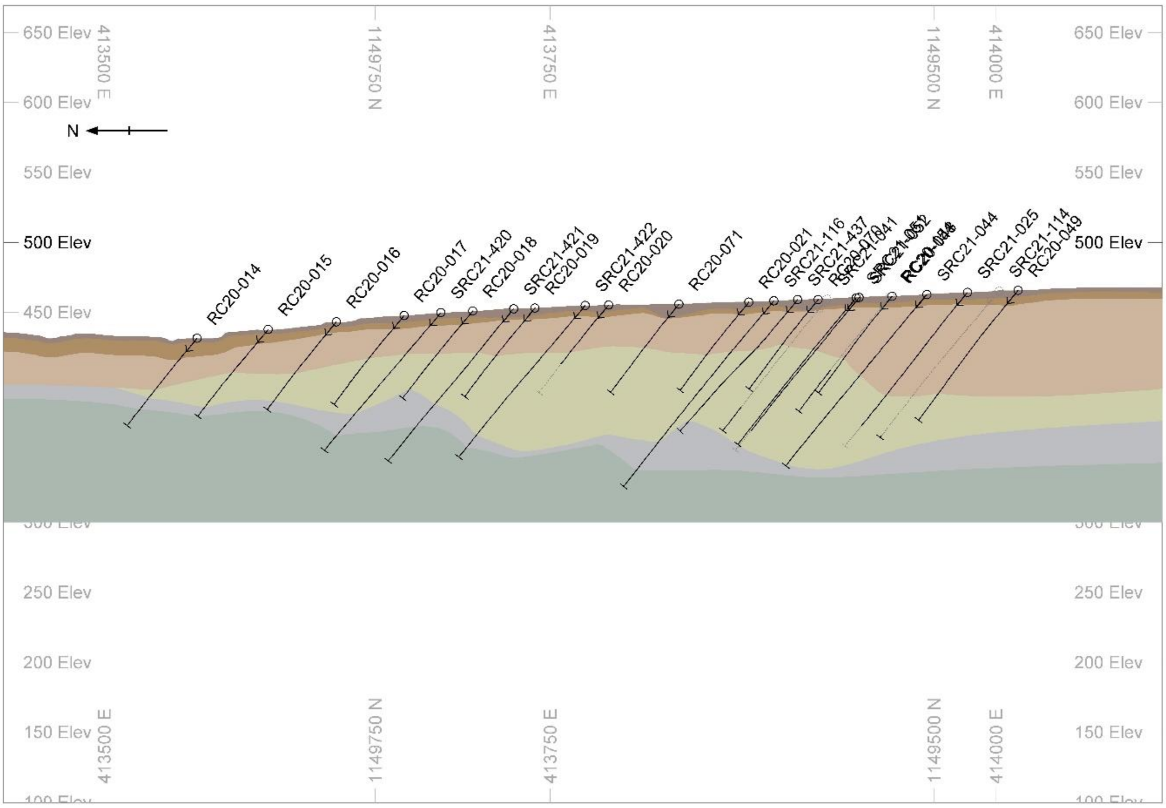


Figure 55: Section Through Sabali South Looking NNE, Showing the 6 Oxidation/Alteration Units

14.1.3 Topography

Determining the surface topography beneath the flooded open pits has been a challenge due to some inconsistencies in the historic end-of-operation pit surveys. For each of the pre-mined deposits, i.e. all deposits exclusive of Sabali (North, Central and South) and Mansounia Central, a pre-mining surface was constructed using either the Fugro 2007 low-resolution regional DEM, or the stereographic DEM derived from 2018 archived high-resolution imagery. The FUGRO data was combined with collar data (where reasonable) to generate the pre-mining surface for mined areas.

Historical pit surveys coupled with the 2018 DEM were then used to deplete the mined areas. It is important to note that there are some indications that not all mining was captured by the historical pit surveys and this risk has been incorporated as a downgrade in the resource classification where appropriate.

For the Sabali North, Central and South deposits and Mansounia Central, data from the 2021 LiDAR survey (Section 9.2.1.3) was used to generate the topography.

14.1.4 Geological Modelling Software and Techniques

Drilling data was imported and manipulated within Datamine Studio RM v1.7.39.0 (Studio). The geological modelling and mineralisation shells have been modelled in Seequent's Leapfrog Geo (Leapfrog; various but latest version 2021.2) using data exported from Studio. The resulting wireframe solids and flagged intervals from Leapfrog were imported into Studio using custom scripts. The Mineral Resource estimation, validation and depletions were completed using Studio.

14.1.5 Grade Shell Modelling

Historically the grade shell modelling was done on a sectional explicit interpretative basis to define 'mineralised' veins. Anecdotally this interpretation method did not provide a robust measure of the mineralisation once the data spacing exceeded 12m to 15m. The interpretation methodology, while seemingly reasonable in section, did not always link logically in the plan view. A review of the limited number of historical interpretations and the data available further indicated that significant mineralised intervals were excluded. In some models' holes, drilled down the throat of the mineralisation, were used to guide interpretations.

The approach of using hard bounded 'vein' interpretations on primarily RC drilling, often with limited downhole survey data, has been considered to be non-ideal due to the inherently lower resolution of the 1m sample intervals.

Using previous surface mapping data, as well as revised interpretations by SMG from the 2007 aeromagnetic data (Section 9.2.1.7), it was possible to extract additional structural trend data which was used to guide the development of structural blocks and the orientation and anisotropy of the grade shell interpretations. Where a structural model was constructed, the fault boundaries were used as hard grade boundaries for the development of the indicator grade shells.

As the various Kiniero Gold Project deposits are all structurally controlled, a structural trend model was developed for each of the deposits within structural blocks or mineralised corridors. The general approach was iterative, using manual digitisation of grade trend points in Leapfrog and then either using the points as is, or modelling structural iso-forms and then generating structural trends. The structural control points were iteratively adjusted to refine the resultant grade shells and the structural iso-forms were exported to Studio for use as dynamic anisotropy control planes.

Indicator probability shells were used based on an anticipated higher tonnage lower grade operation. The indicator values were broadly selected based on natural shoulders, or breaks, in the sample grade distributions on a per deposit and structural block basis. Cost modelling shows that the marginal cut-offs will be low (0.3g/t to 0.7g/t Au) giving further credence to the use of the low Indicator grade threshold values. The main departure from this process was with the Jean deposit which used a grade shell approach which gave equivalent results, but which simplified the structural block domaining requirements.

Modelling most of the deposits at higher-grade indicators resulted in a breakdown of the continuity and generated numerous isolated or discontinuous pods that did not lend themselves to reasonable estimation or mining.

Structural trends with high anisotropy values of ten or more times along general strike, and five times down dip have been used to control the spherical interpolant. The maximum search range varied between 50m and 100m and was selected iteratively based on the reasonableness of the resultant volumes.

The list of indicators used for the various deposit indicator grade shells is presented in Table 64. The probability threshold (ISO value) selected was 0.3. This threshold has been proven experimentally to be a good threshold for continuity at the selected grade value on many other similar projects.

Table 64: Indicator Shell Cut-off Grades

GEOLOGICAL MODEL ID	METHOD	STRUCTURAL DOMAINS	CUT-OFF GRADE (g/t Au)
Sabali Main and Central	Indicator probability Pik 0.3	All	0.3
Sabali South	Indicator probability Pik 0.3	All	0.3
SGA	Indicator probability Pik 0.3	All	0.3
Jean	Grade shells cut at 0.4g/t	All	0.4
Banfara	Indicator probability Pik 0.3	Main Block	0.3
		West Block 1	0.2
		West Block 2	0.2
		Laterite	0.3
Derekena	Indicator probability Pik 0.3	All	0.25
Mansounia	Indicator probability Pik 0.3	All	0.3

Source: SMG (2022)

The resulting indicator probability shells were exported to Studio and used to flag both the drilling data and the volume models. A unique code for each distinct wireframe volume in the weathering and mineralisation wireframes was applied. This PODS model code was used as a key field during the block model construction, as well as a secondary filter per mineralised domain to estimate each vein model uniquely with no bridging or smearing of grade between isolated pods of mineralisation.

14.1.6 Data Selection and Exploratory Data Analysis

14.1.6.1 Data Selection

Drilling data were selected and flagged using the evaluated weathering interval files from Leapfrog and the exported Leapfrog grade shells. An example of data selection or flagging of Sabali South data is presented in Figure 56 and Figure 57.

Recent results and interpretations from the Sabali South and Mansounia Central deposits has indicated the presence of supergene mineralisation. However, due to the variable logging and recovery within the overlying laterite, there remains some uncertainty associated with the accuracy of the modelled contacts, specifically in the previous drilling data. Further work is merited. The result is that for Sabali South the laterite and mottled zones have been modelled as a single supergene domain. For Mansounia central, it was possible to define a supergene zone using historical interpretations. This zone straddles the Laterite, Mottled and upper portion of the Saprolite domains.

14.1.6.2 Sample and Composite Length

The dominant sample length is 1m from the valid samples within the deposit areas of interest. Based on this sample length, the expected true dimension of mineralisation and the expected mining resolution of 5-10m benches - a composite of 2m is considered appropriate. It is also in keeping with historical composite lengths. Ongoing review of this 2m composite using actual mapping, mining performance and reconciliation is recommended.

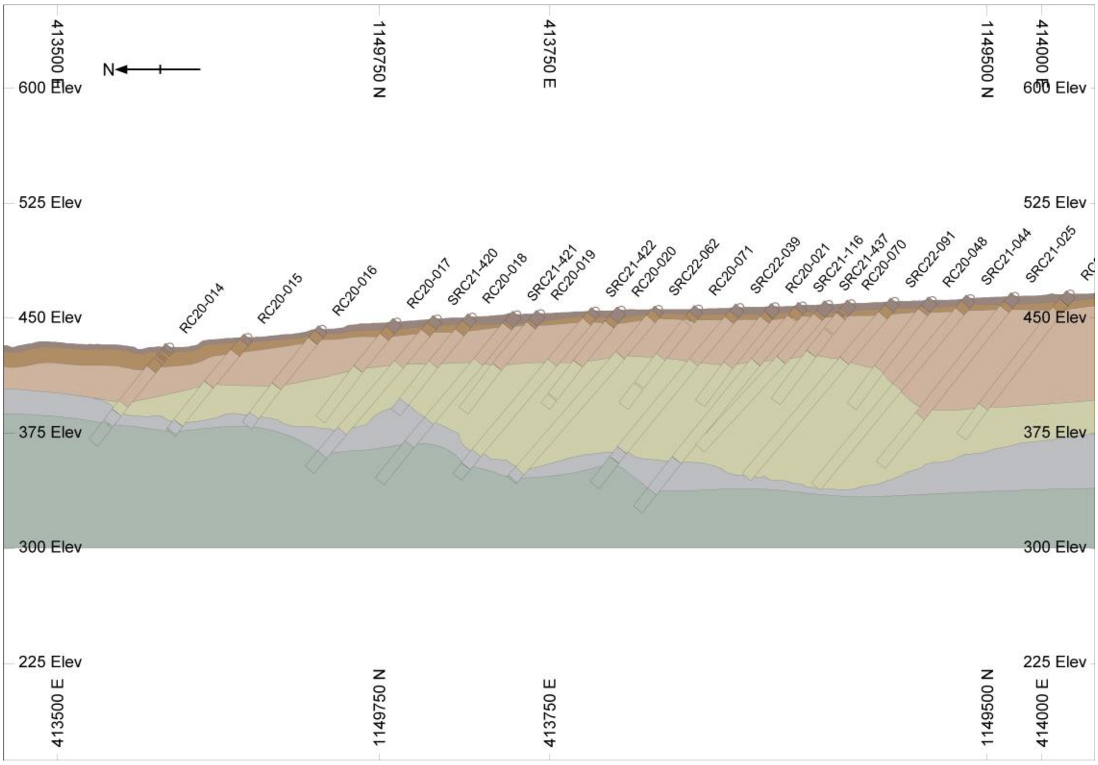


Figure 56: Sabali South Section Indicating Flagged Drilling Using Oxidation Solids

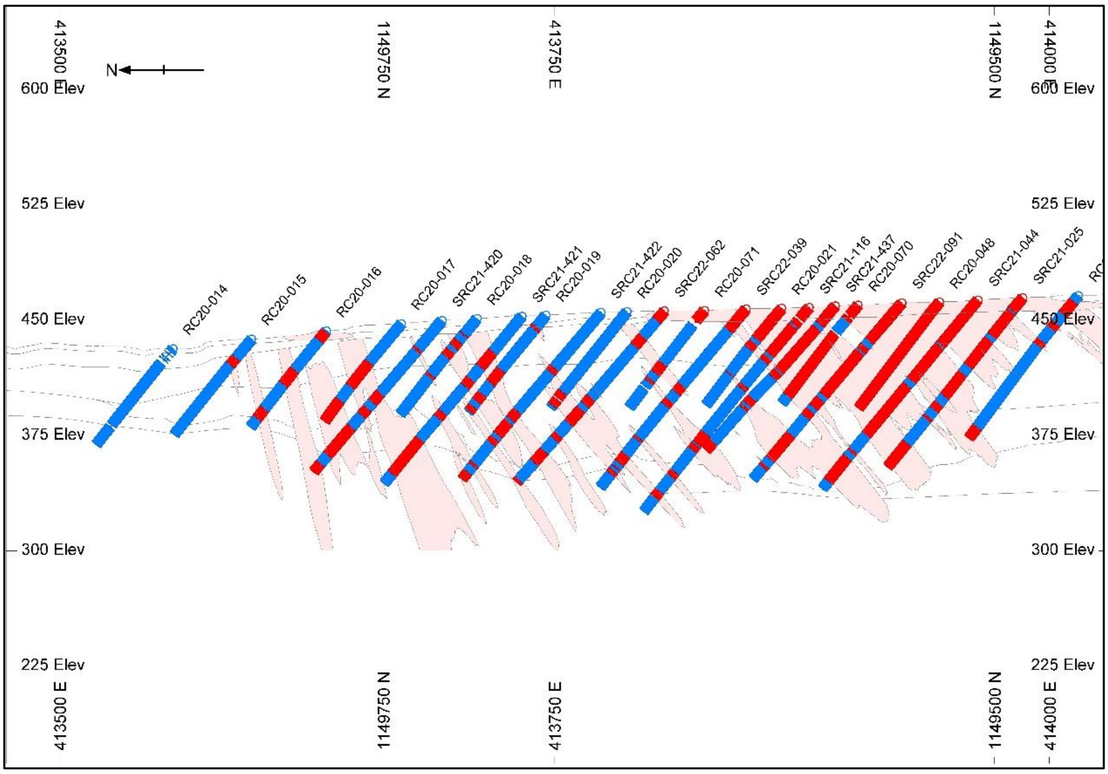


Figure 57: Sabali South Section Looking North-Northeast Showing the Holes Flagged with the Mineralisation

Table 65: Summary Sample Length of all Drilling at the Kiniero Gold Project.

DRILLING ERA		DRILLING TECHNIQUE	TOTAL SAMPLES	SAMPLE LENGTH (m)		
				MINIMUM	MAXIMUM	AVERAGE
Previous Data (SEMAFO and Burey Gold)		DDH	1,037	0.01	2.00	0.92
		RAB	2,809	0.50	1.00	1.00
		RC	17,169	0.50	1.00	1.00
		TRENCH	81	1.00	1.00	1.00
	1990	RAB	747	1.00	1.00	1.00
		RC	6,370	1.00	1.00	1.00
		TRENCH	597	1.00	1.00	1.00
	2004	RC	3,161	0.50	1.00	1.00
	2005	RC	79	1.00	1.00	1.00
	2007	RC	14,282	1.00	1.00	1.00
	2008	DDH	244	0.02	1.80	0.68
	2009	DDH	285	0.05	1.90	0.69
	2011	DDH	201	0.05	1.50	0.84
		RC	7,304	1.00	1.00	1.00
SMG Drilling (as at 28 April 2022)	2020	DDH	1,339	0.01	1.50	0.51
		RC	10,910	1.00	1.00	.00
		TRENCH	409	1.00	1.00	1.00
	2021	DDH	282	0.01	1.00	0.49
		RC	22,306	1.00	1.00	1.00
		TRENCH	86	1.00	1.00	1.00
	2022	RC	2,528	1.00	1.00	1.00

Source: SMG (2022
Absent Intervals Excluded. Data relevant to 28 April 2022.

14.1.6.3 Capping

Capping of high-grade samples was completed to reduce the impact of high-value outlier grades that form the tail of positively skewed data, as is typical for metallogenic deposits. This is illustrated in the histogram plot in Figure 58, a point scale histogram from a domain in the Sabali South deposit. Note the strong tail in this near log-normal distribution and how the domaining has resulted in a near parametric distribution. Capping was applied prior to compositing and typically impacted <1% of the data, but more than 10% of the metal per structural or estimation domain. The capping level was determined using a metal-at-risk approach coupled with inspection of the cumulative frequency distribution and probability function curves of each domain's data.

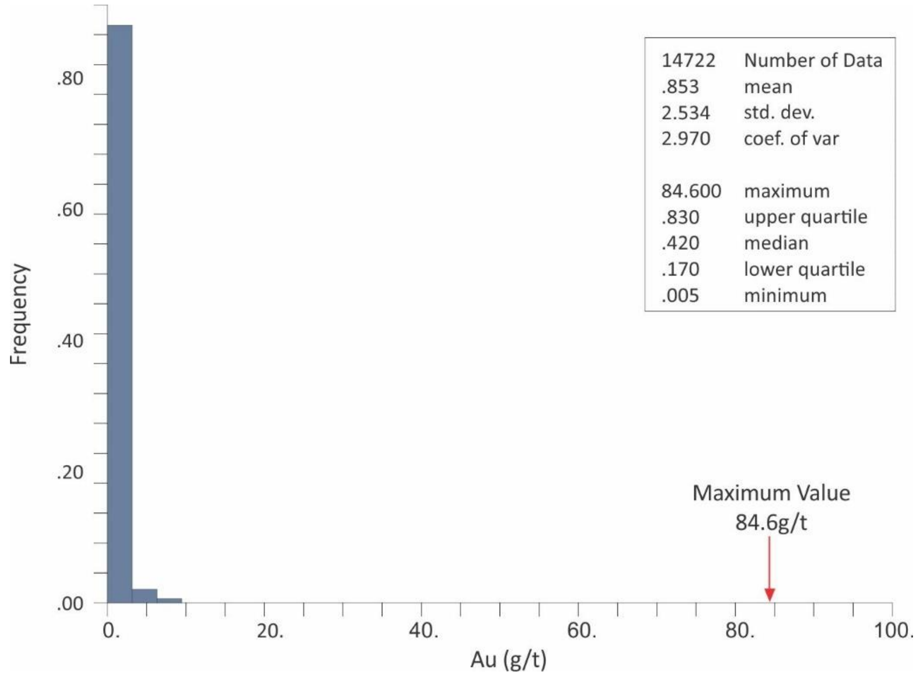


Figure 58: Histogram from Sabali South Illustrating the Long Tail in a Skewed Distribution

When capping a grade value beyond which the tail becomes discontinuous is selected, and where the metal represented by the samples above this value have a significant impact on the total metal content, there is a natural tension between stabilizing the distribution and the resultant estimate with honouring the metal represented by the valid samples. The metal-at-risk approach attempts to manage this tension and when coupled with good domaining, can significantly minimise the impact of these outliers. Additional outlier management through non-linear techniques or distance-limited estimates can further improve the quality of the resultant estimates. An example of this capping selection methodology is illustrated for Sabali South Domain 2 (East Domain) in Figure 59, with the full list of capping values tabulated in Table 66.

Cut-off	Count	Num%	Metal%
29	19	0.16	8.69

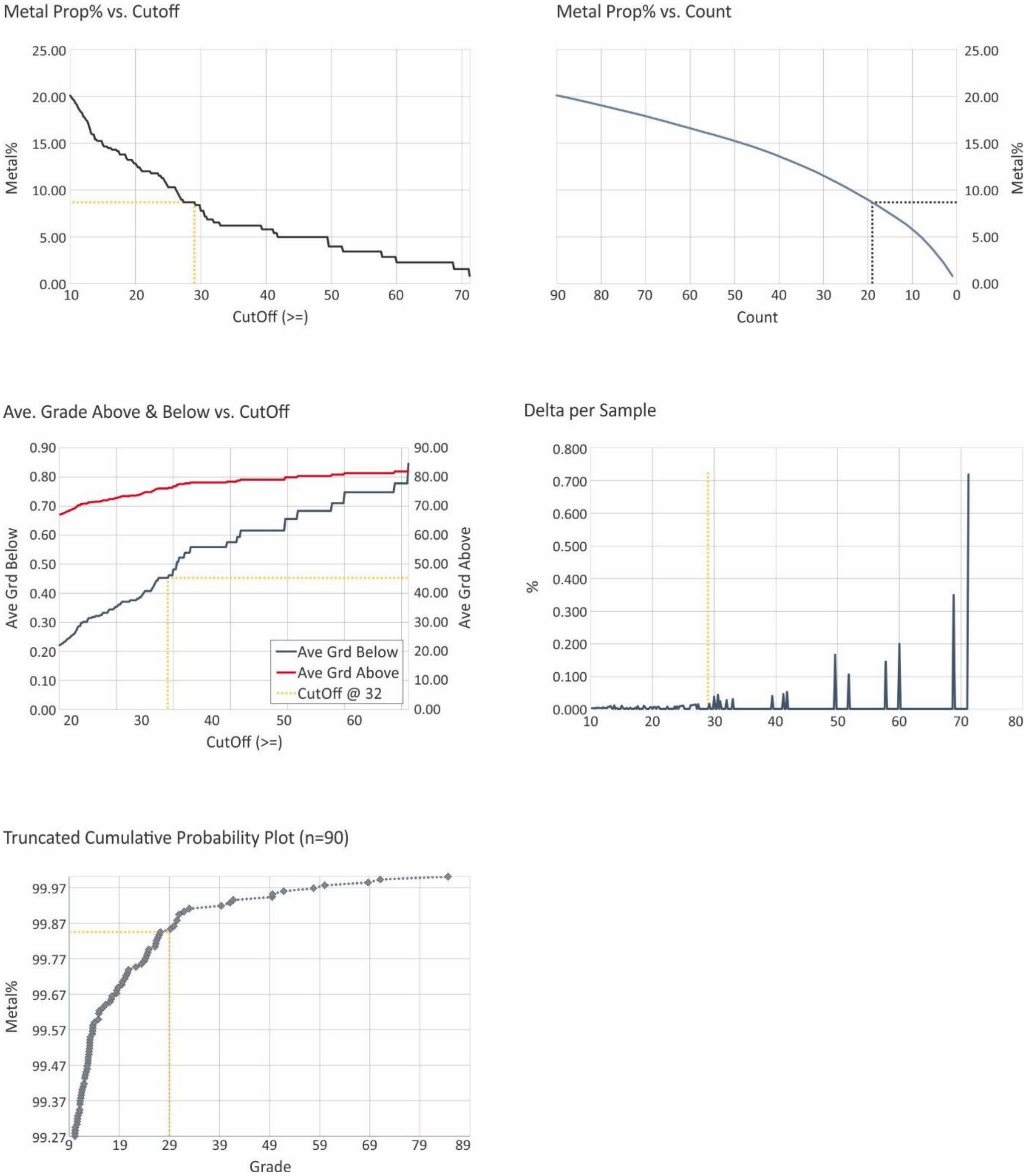


Figure 59: Metal at Risk Analysis for Sabali South (eastern domain)

Table 66: Summary of Capping Values, Number of Samples and Proportion of Metal Affected

DEPOSIT	DOMAIN	DECRIPTION	CAP (Au g/t)	NO. SAMPLES	SAMPLES AFFECTED (%)	METAL AFFECTED (%)
Sabali North and Central	1	South block	21.00	10	0.16	15.67
	4	North block	27.00	5	0.29	26.30
	9	Laterite	12.00	8	0.24	25.06
Sabali South	1	West	15.00	9	0.15	10.67
	2	East	29.00	19	0.16	8.69
	3	Supergene	10.00	6	0.27	10.93
Derekena	10	Derekena B1	18.00	5	1.14	32.18
	14	Derekena B2	6.24	4	3.31	22.68
	17	Derekena B3	10.00	8	0.77	19.51
	19	West Balan	9.55	9	0.86	20.56
	20	Laterite	3.50	4	1.23	39.33
Jean	3	Block 1	58.25	14	0.28	17.99
	4	Main domain	60.25	10	0.42	15.02
	8	Block 2	51.00	13	0.30	13.05
	9	Laterite	17.25	5	1.36	33.58
SGA	1	NEGD	32.00	10	0.20	9.69
	3	GOBD	40.00	12	0.15	6.47
	4	SGA	82.00	9	0.07	5.82
Banfara	1	Main	26.00	9	0.51	31.00
	2	Main	5.75	2	0.36	7.64
	3	North West	N/A	-	-	-
	9	South Central	N/A	-	-	-
Mansounia Central	1	Supergene	N/A	-	-	-
	2	Primary	N/A	-	-	-

Source: SMG (2022)

After capping, the data were composited to 2m samples, ignoring absent samples, discarding the last sample where it was <1m. For the Sabali South and Mansounia Central deposits, composites were adjusted to minimise metal loss. This exclusionary approach is being reviewed for the other deposits to determine the impact on metal loss, findings of which will be appropriately applied to future work.

14.1.6.4 Flag Data and Composite Statistics

In total, 26 mineralised domains (MINZONE) were defined using the Indicator Probability shell process detailed earlier.

All the domains have skewed near log-normal distributions with variably developed high-grade tails that are managed through capping. Most of the domains exhibit high values for their coefficient of variation (CoV), with an average of 4.17. These high values are in keeping with this style of gold mineralisation (Table 67). The arithmetic average grade of the various deposits varies from 0.23g/t in the Sabali North and Central (laterite) to a high of 2.46 in Jean's main zone (MINZONE 4). Mansounia Central has the lowest average grade while Jean has the highest average grade, with Derekena the next highest (Figure 60).

It must be noted that for the purposes of this Mineral Resource estimate, RC and diamond drilling were treated as though they had equivalent sample support. Diamond drilling forms a minor component of the total resource data set, and this assumption is not expected to have an undue influence on the robustness of the Mineral Resource estimate.

By capping and then compositing the data to 2m samples there is a minimal reduction in the mean grade of the deposits (Table 67 and Figure 60), but a significant improvement in the CoV values, with the average CoV decreasing to 2.31.

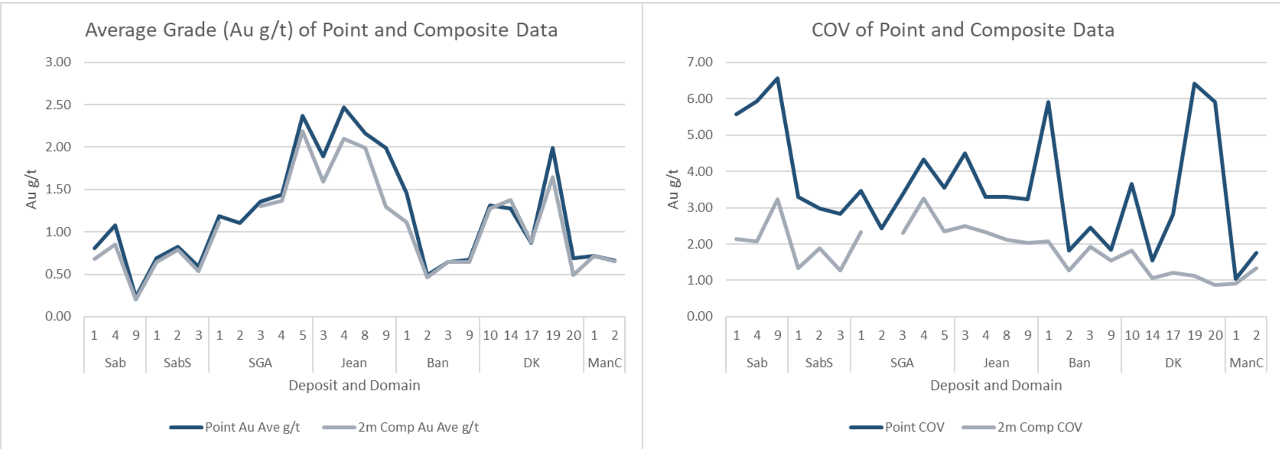


Figure 60: Average Grade (Au g/t) of Point and Composite Data and CoV of Point and Composite Data

Table 67: Extract of Mean and COV Statistics for Raw Point and 2m Composite Data

DEPOSIT	MINZONE	RAW POINT STATS		2m COMPOSITE STATS	
		Ave. Au (g/t)	COV	Ave. Au (g/t)	COV
Sabali North & Central	1	0.8	5.58	0.68	2.15
	4	1.08	5.92	0.86	2.07
	9	0.23	6.56	0.2	3.24
Sabali South	1	0.69	3.30	0.64	1.34
	2	0.83	2.98	0.79	1.88
	3	0.59	2.83	0.54	1.27
SGA	1	1.18	3.46	1.12	2.33
	2	1.1	2.44	Merged with Minzone 4	
	3	1.36	3.38	1.3	2.31
	4	1.44	4.33	1.37	3.25
	5	2.37	3.55	2.19	2.35
Jean	3	1.89	4.5	1.6	2.48
	4	2.46	3.29	2.1	2.32
	8	2.16	3.3	1.99	2.12
	9	1.99	3.23	1.3	2.02
Banfara	1	1.46	5.92	1.11	2.07
	2	0.49	1.83	0.46	1.27
	3	0.65	2.45	0.64	1.92
	9	0.67	1.84	0.64	1.54
Derekena	10	1.31	3.65	1.28	1.83
	14	1.28	1.54	1.37	1.05

DEPOSIT	MINZONE	RAW POINT STATS		2m COMPOSITE STATS	
		Ave. Au (g/t)	COV	Ave. Au (g/t)	COV
	17	0.87	2.81	0.88	1.22
	19	1.99	6.42	1.65	1.13
	20	0.69	5.9	0.49	0.86
Mansounia Central	1	0.72	1.05	0.72	0.92
	2	0.66	1.76	0.65	1.34

Source: SMG (2022)

14.1.6.5 Variography

Part of the Exploratory Data Analysis (EDA) is the analysis of the drilling data for spatial continuity by means of calculating experimental semi-variograms (variograms) for each of the domains.

This analysis was conducted on a domain-by-domain basis for each of the deposits with both omnidirectional and directional variograms tested using Studio's VGRAM functionality through a custom script interface and using ISATIS Neo. Some of the deposits (specifically Jean) were further sub-domained to partition the structural domains into grade/orientation domains.

Broadly, the directional variograms (within the plane of mineralisation) were strongly controlled by data orientation. Some reasonable variograms could be calculated along section lines. However, it was generally not possible to fit all the primary directions. Figure 61 illustrates a good example in this regard, but the shorter, key ranges have not been well defined. This domain was selected as it is one of the best-informed domains with spacing at, or below, the key 12m spacing that was determined historically to be reasonable for Mineral Resource definition.

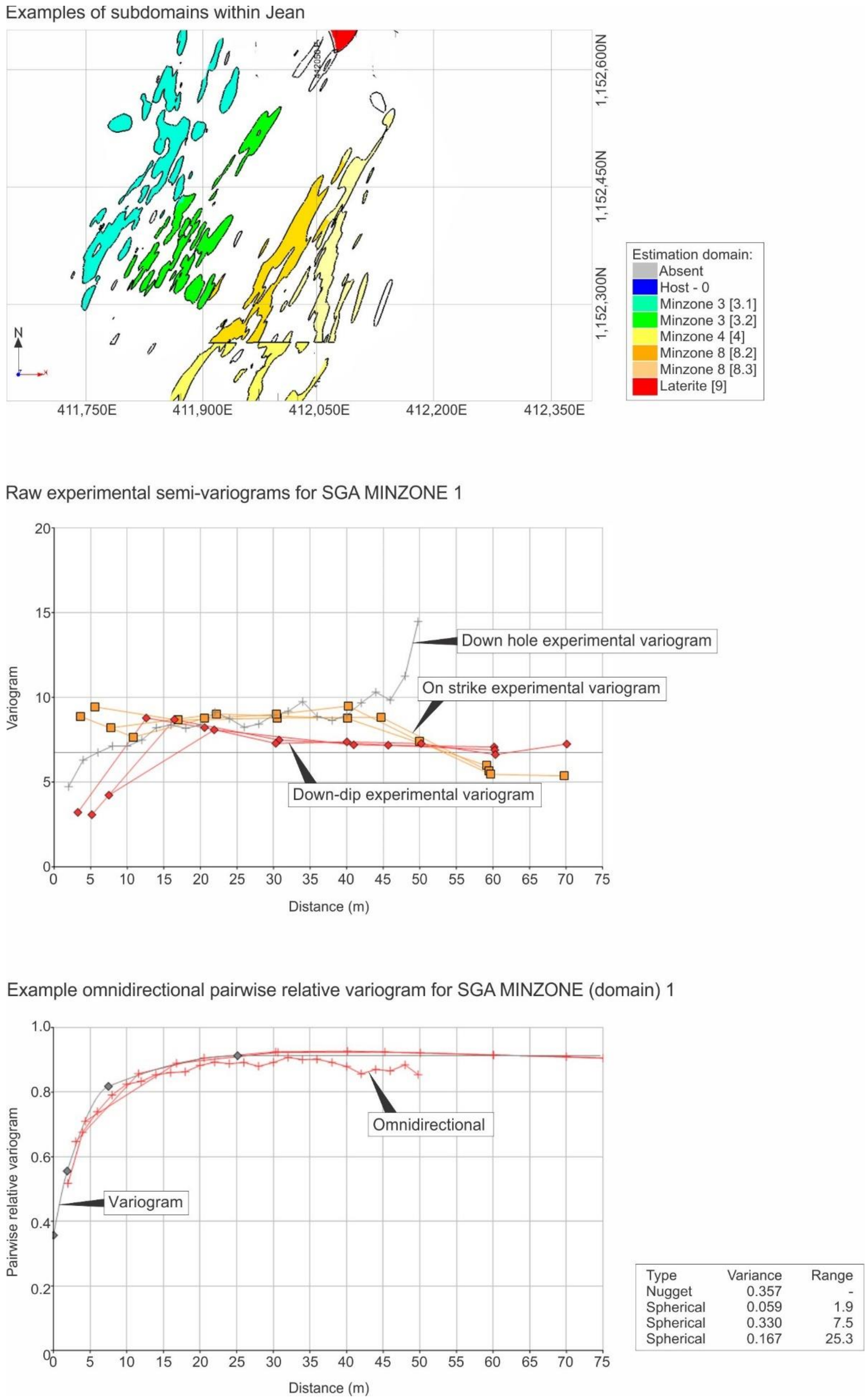


Figure 61: Example of Domaining and Variography

Due to the difficulty in calculating directional semi-variograms, omnidirectional pairwise relative experimental variograms at differing lags were calculated and used to inform the fitted variogram models. This approach resulted in generally good short-range structures with almost all the variogram models silling out at around 20m to 40m (averaging 25m). The variograms tend to be dominated by the down-hole variograms. This is not considered a problem as the structures seen down the drillholes likely represent the structures between the drillholes. For all modelled domains, spherical models with one to three structures were fitted. All the domains exhibit high nuggets which may be a function of domaining, and the variability of the data. The fitted models are summarised in Table 68.

14.1.7 Block Models

Block models were constructed using a single rotation about the Z axis to align the Y-Axis of the model along strike, and the X-Axis on the dip azimuth line. Models were created using either a 5m x 25m x 10m (X-Y-Z), a 5m x 15m x 10m (X-Y-Z), or a 5m x 12.5m x 10m (X-Y-Z) parent block. These sizes were based on the average data space (planned and actual) of the well-informed domains within each deposit. It was also guided by the expected Smallest Mining Unit (SMU) of 2.5m x 2.5m x 2.5m. Each model was constrained within the volume as defined by the pre-mining topography and the oxidation volumes as well as the mineralisation shells. The models were sub-celled to 2.5m x 2.5m x 2.5m at domain and mineralisation boundaries.

Models were assigned a weathering code and a numeric MINZONE code (mineralised domains), and in some cases where the MINZONE code was insufficient, there is a ESTDOM (estimation domain) code. The MINZONE and ESTDOM codes are mapped on to the drilling and coupled with the unique PODS coding were used to ensure that each mineralised domain was estimated in isolation. The weathering codes include codes for depletion, flooding, and waste rock dumps.

14.1.8 Grade Estimation

The gold grade estimation into the block models used dynamic anisotropy to control the orientation of the search ellipse to minimise bridging and follow the structural trends. The orientation data for the dynamic anisotropy was derived from iso-surfaces generated in Leapfrog from the manually generated grade trend data.

A Datamine script was used to extract the dip and dip direction data from the iso-surface wireframes as data points and interpolate that orientation data into the block model on a MINZONE domain basis. Studio RM used that orientation data to align the search ellipse to the local plane of the mineralisation and estimate the grades with spatially related data.

Table 68: Summary of Variograms used for Estimation

GEOLOGICAL MODEL ID	MIN- ZONE	V REF. NUM.	ROTATION			C0	STRUCTURE 1				STRUCTURE 2				STRUCTURE 3				SILL
			X	Y	Z		1°	2°	M	C1	1°	2°	M	C2	1°	2°	M	C3	
Sabali North and Central	1	100	Omni Directional			0.48	4	4	4	0.42	28	28	28	0.1					1
	4	400				0.65	4	4	4	0.25	29	29	29	0.1					1
	9	900				0.34	5	5	5	0.07	14	14	14	0.4	50	50	50	0.2	1.01
Sabali South	1	Not used																	
	2	Not used																	
	3	Not used																	
SGA	1	100				0.44	2	2	2	0.06	8	8	8	0.33	25	25	25	0.17	1
	3	300				0.43	4	4	4	0.32	15	15	15	0.08	33	33	33	0.17	1
	4	400				0.53	4	4	4	0.17	10	10	10	0.24	25	25	25	0.06	1
	5	500				0.64	4	4	4	0.26	25	25	25	0.1					1
Jean	3.1	310				0.49	2	2	2	0.28	5	5	5	0.18	20	20	20	0.05	1
	3.2	320				0.48	3	3	3	0.36	20	20	20	0.16					1
	4	400				0.53	4	4	4	0.34	20	20	20	0.12					1
	8.1	810				0.69	4	4	4	0.22	31	31	31	0.09					1
	8.2	820				0.58	6	6	6	0.31	25	25	25	0.1					1
	9	900				0.73	20	20	20	0.27	0	0	0	0					1
Banfara	1	101				0.61	2	2	2	0.12	10	10	10	0.14	20	20	20	0.12	1
	2	201				0.67	7	7	7	0.23	20	20	20	0.1					1
	3	301				0.69	6	6	6	0.23	20	20	20	0.09					1
Derekena	10	10				0.55	6	6	6	0.18	30	30	30	0.28					1
	14	14				0.15	12	12	12	0.85	0	0	0	0					1
	17	17				0.60	3	3	3	0.27	16	16	16	0.13					1
	19	19				0.50	4	4	4	0.32	50	50	50	0.17					1
	20	20				0.44	3	3	3	0.36	18	18	18	0.21					1
	21	21				0.38	5	5	5	0.37	28	28	28	0.24					1
	30	30				0.50	5	5	5	0.50	0	0	0	0					1
Mansounia Central	Not modelled																		

Note: M = MINOR, Source: SMG

Ordinary Kriging (OK) with a multi-pass search was used for most of the deposits and their structural/mineralisation domains. However, some domains were estimated using inverse-distance to a power of 2 (IDW2). Where OK was used, the Lagrange multiplier and Block Variance values were estimated into the model. For Sabali South and Mansounia Central, IDW2 was used as this produced the better estimate as determined during validation. The minimum, maximum and average distance of the samples used to estimate a block were determined for all estimates and used for primary classification purposes.

Some of the deposits, e.g. Derekena and SGA, were estimated using a distance-limited approach to restrict the influence of high-grade samples on the local estimates. The data distribution per domain was reviewed and a high-grade 'shoulder' in the distribution was selected and iteratively adjusted up or down based on estimation results. Samples above this shoulder were flagged with a 1 and this value was estimated into the block model using the Nearest-Neighbour estimator and a 12.5m x 12.5m x 6m search ellipse oriented using dynamic anisotropy. This search ellipse was selected based on the densest data spacing and therefore limits the range of influence of the high-grade samples to one full section line spacing i.e 25m x 25m x 12m.

The primary grade search ellipses used was based on the average variogram range and an imposed anisotropy of 4:1 and was set to either 25m x 25m x 12.5 (or 6.25m) or in the case of Sabali South, a 50m x 50m x 5m search neighbourhood and Mansounia Central, a 75m x 75m x 10m range. No qualitative Kriging neighbourhood analysis (QKNA) was run due to poor quality variograms.

The high-grade domain (NN estimate) was then estimated using OK and all the available data, while the 'low' grade domains (outside of the high-grade domain blocks) were estimated while excluding the high-grade flagged samples. In this manner a directional soft-boundary-in, hard-boundary-out of the high-grade domains was affected. This approach limited the influence of the valid higher-grade samples to a restricted volume where standard linear estimation would have required heavy capping.

No Octants were used, and negative Kriging weights were retained. The laterite or supergene estimates were set to simply estimate the domain in a reasonable manner as the laterite is considered unclassifiable or Inferred at best. The main grade search parameters are summarised in Table 70 and the high-grade value used to define the distance limits are presented in Table 69.

Table 69: Summary of High-Grade Values used for Distance Limited Estimates

GEOLOGICAL MODEL ID	MINZONE	ESTDOM	HIGH GRADE LIMIT (g/t Au)
SGA	1	-	19
	3	-	24
	4	-	49
	5	-	18
Derekena	10	10	6
	14	14	N/A
	17	17	6
	19	19	7
		21	8
		21	8
	30 (Laterite)	30	N/A

Source: SMG (2022)

Table 70: Summary of Basic Grade Estimation Search Parameters

DOMAIN		RANGE			ROTATION			NO. SAMPLES		SEARCH VOLUME FACTOR		COMPOSITES PER HOLE
		X AXIS	Y AXIS	Z AXIS	X AXIS	Y AXIS	Z AXIS	MIN	MAX	SECOND	THIRD	
All domains	Main Zones	25	25	6.25	Strike	Dip	Normal	6	12	2	10	3
	Laterite	50	50	10	Planar			6	12	2	10	3
Sabali South	Ore	50	50	5	Strike	Dip	Normal	6	12	2	10	3
	Laterite	50	50	50	Planar			6	12	2	10	3
Mansounia Central	Ore	75	75	10	Strike	Dip	Normal	6	12	2	10	3
	Laterite	75	75	10	Planar			6	12	2	10	3

Source: SMG (2022)

14.1.9 Depletions

The geological models were depleted in a two-stage process using:

- the available historic pit surveys. For pits such as the SGA complex, multiple DTM's were used due to the variable way the DTMS were constructed by the previous owners
- the final stage of the depletion used the 2018 DEM model, or 2021 LiDAR, that provided detail on the approximate water level, rock dumps and any late-stage mining that was not captured in the 2010 surveys

The final models provided to the mining engineers for mine design and used for the Mineral Resource estimation were flagged with a MINED code; namely Un-mined (0), Mined (1), Dumps (2), Flooding (3) or Backfill (4).

14.1.10 Validations

All the models were validated on a domain-by-domain basis visually (Figure 62) and by means of a variation on a swath plot. The modified swath plot created a moving window that aligned with the block model rotation and calculated the weighted average of the model and the drilling data within that moving window. The results were presented as a set of weighted statistics (drilling by length and model by volume) as well as a set of line graphs as shown in the example Figure 62.

The models have all validated well with no discernible over or underestimation. There also does not appear to be any significant regression effect or conditional bias in the model estimates. There is a degree of geological dilution that remains to be quantified with further work.

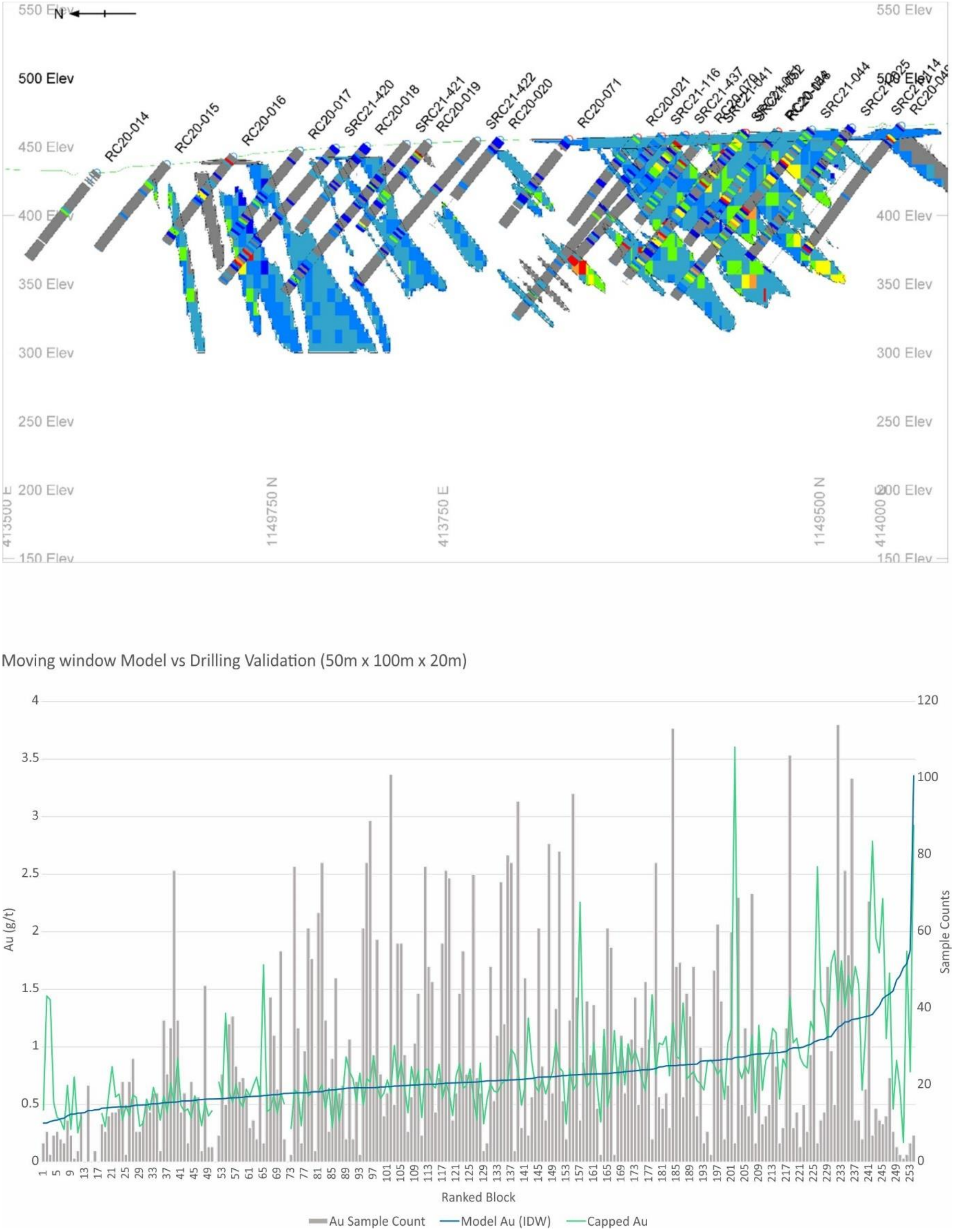


Figure 62: Sabali South – Correlation Section of the Model Grade to the Drilling Grade and moving Window Validation of the Model versus Drilling

14.2 Mineral Resource Estimate

14.2.1 Historical SMG Mineral Resource Estimate

Historical Mineral Resource estimates by previous owners/operators are presented in Section 6.2.2 (Kiniero License) and Section 6.3.2 (Mansounia License).

14.2.2 Current SMG Mineral Resource Estimate

As discussed under the relevant preceding sections, SMG has completed detailed verification of the SEMAFO and Burey Gold exploration results, including twin drilling, as well as completing its own drilling, mineralisation modelling and Mineral Resource estimations. The following section presents the NI 43-101 and associated guidelines compliant SMG Mineral Resource estimates for the deposits associated with this PFS, namely Sabali North and Central, Sabali South, SGA, Jean, Banfara, West Balan and Mansounia Central.

The Mineral Resource estimate for the Kiniero Gold Project has been carried out according to the guidelines of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014). Mineral Resources are reported with an effective date of 26 August 2022.

The geological models used to prepare this Mineral Resource estimate have been prepared by Mr J Glanvill of SMG. The Mineral Resource estimates have been independently reviewed and compiled by Mining's Plus's Qualified Person, Mr D Tucker. Mr Tucker has independently reviewed the geological modelling methodology and results and is comfortable that they are an accurate reflection of the information currently available on the Kiniero Gold Project.

The information in this report that relates to Mineral Resources is based on information compiled by Mr Tucker, a Qualified Person who is Fellow of the Australasian Institute of Mining and Metallurgy (#311862), FAusIMM (CP Geo) and a Chartered Engineer (CEng) with the Engineering Council (#661093). Mr Tucker is a full-time employee of Mining Plus and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Qualified Person as defined by NI 43-101. Mr Tucker, as Lead Qualified Person of this PFS, consents to the inclusion in the report of the matters based on his information in the form and context in which they appear. The Mineral Resource estimate is tabulated in Table 71.

Table 71: Kiniero Gold Project Mineral Resource Estimate (NI 43-101 compliant) (26th August 2022) (Inclusive of Mineral Reserves)

DEPOSIT / GEOLOGY MODEL	RESOURCE CATEGORY	TONNAGE (Mt)	GRADE (g/t)	CONTAINED GOLD (oz)
SGA	Indicated	13.40	1.37	590,000
	Inferred	13.38	1.39	600,000
Total SGA		**26.78**	**1.38**	**1,190,000**
Sabali North & Central	Indicated	4.66	1.07	160,000
	Inferred	1.55	0.87	30,000
Total Sabali North & Central		**6.21**	**1.02**	**190,000**
Sabali South	Indicated	7.73	0.59	150,000
	Inferred	0.52	0.73	20,000
Total Sabali South		**8.25**	**0.60**	**170,000**
Jean	Indicated	4.17	1.83	250,000
	Inferred	4.12	1.88	250,000
Total Jean		**8.29**	**1.85**	**500,000**
West Balan	Indicated	2.48	1.26	100,000
	Inferred	3.86	1.24	160,000
Total West Balan		**6.34**	**1.25**	**260,000**
Banfara	Indicated	1.22	0.74	30,000
	Inferred	2.48	0.71	50,000
Total Banfara		**3.7**	**0.72**	**80,000**
Mansounia Central	Indicated	-	-	-
	Inferred	11.29	1.01	290,000
Total Mansounia Central		**11.29**	**1.01**	**290,000**
Total Indicated In Situ Mineral Resources		**33.66**	**1.18**	**1,280,000**
Total Inferred In Situ Mineral Resources		**37.20**	**1.24**	**1,400,000**
Legacy Stockpiles	Indicated	6.67	0.34	71,800
	Inferred	-	-	-
Total Legacy Stockpiles		**6.67**	**0.34**	**71,800**

Source: SMG (2022); Apparent errors due to rounding. Resource declared at $1950 4/oz, Variable marginal cut-offs applied per material type and deposit. Resource constrained within Whittle shells.

Mineral Resources that that are not included in the Mineral Reserves have not demonstrated economic viability.

14.2.2.1 Grade Estimation

The grade estimation methods are discussed in Section 14.1.8.

14.2.2.2 Cut-off Grades

Cut-off grades used are detailed in Section 15.2. The parameters used to determine the cut-off grade remains qualitative.

To meet the requirements for Reasonable and Realistic Prospects for Eventual Economic Extraction (RRPEEE), SMG applied an economic cut-off grade to the Mineral Resource estimate which has been constrained within a whittle optimised shell. The Whittle optimisation was run on Measured, Indicated and Inferred material at a gold price of

$1,950/oz and higher recoveries. A marginal grade cut-off was applied to the Mineral Resource models within the shells which took cognisance of the marginal operating costs for each deposit, by material type. The marginal cut-off grades and derivation are presented in Table 72.

Grade tonnage curves provide a useful indication of the sensitivity of each Mineral Resource to changes in the cut-off grades. These curves are provided for each deposit in Figure 63.

The grade tonnage profiles for the Kiniero deposits share similar grade tonnage profiles albeit at diffident magnitudes. The dominant deposit is SGA with Sabali South the next dominant tonnage wise. Jean and SGA have the highest average grade (at zero cut-off) with Banfara and Mansounia Central having the lowest average grades.

All seven of the deposits show a slow build-up in grade and relatively small changes in tonnage from zero to approximately 0.3-0.4g/t Au cut-off at which the tonnage drops, and the grade begins to rise. This is a function of the 0.25 to 0.30g/t Au cut-off used when generating the indicator probability shells for the grade estimates and the low marginal cut-offs. The low tonnage of Inferred material at Sabali South is due to the low expected recovery in the transition and fresh material which is predominantly Inferred due to limited data.

There is limited difference between the grade in the Indicated and Inferred Resource material at the various cut-offs which is due to the short variogram range (smoother estimates) and relatively unform distribution of drilling data.

The deposits show a degree of sensitivity between the marginal and operational cut-off grades but skewed towards the operational cut-off range. This implies that minor variations in operational cut-offs, driven by changes in strip ratio, haulage and recovery could have marked changes in the Reserve tonnages.

Table 72: RPEEE Cut-off grade calculation

			Unit	Sabali North & Central	Sabali South	SGA	Jean	Banfara	West Balan	Mansounia
1	Processing cost (inc. ore differential)	Lat	$/t	16.17	16.85	16.00	16.15	18.41	18.41	18.77
		Sap	$/t	9.69	10.18	9.49	9.54	11.93	11.93	12.14
		Trans	$/t	16.26	16.81	16.11	16.14	18.58	18.58	18.72
		Fresh	$/t	19.96	21.07	19.73	19.85	22.26	22.26	22.42
	Gold Price		$/oz	1950.00	1950.00	1950.00	1950.00	1950.00	1950.00	1950.00
2	Gold Price		$/g	62.69	62.69	62.69	62.69	62.69	62.69	62.69
3	Royalty		%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
4	Treatment costs		$/g	0	0	0	0	0	0	0
5	Selling cost (2-3-4)		$/g	3.45	3.45	3.45	3.45	3.45	3.45	3.45
6	Margin per gram sold (2-5)		$/g	59.25	59.25	59.25	59.25	59.25	59.25	59.25
7	Processing Recovery	Lat	%	95%	95%	92%	92%	92%	92%	95%
		Sap	%	95%	95%	92%	92%	92%	92%	95%
		Trans	%	50%	60%	90%	90%	90%	90%	92%
		Fresh	%	65%	60%	87%	87%	87%	87%	90%
8	Mining Dilution		%	5%	5%	5%	5%	5%	5%	5%
	Cut-off grade (1/(6*7*(1-8))	Lat	g/t	0.30	0.32	0.31	0.31	0.36	0.36	0.35
		Sap	g/t	0.18	0.19	0.18	0.18	0.23	0.23	0.23
		Trans	g/t	0.58	0.50	0.32	0.32	0.37	0.37	0.36
		Fresh	g/t	0.55	0.62	0.40	0.41	0.45	0.45	0.44

Source: SMG (2022)

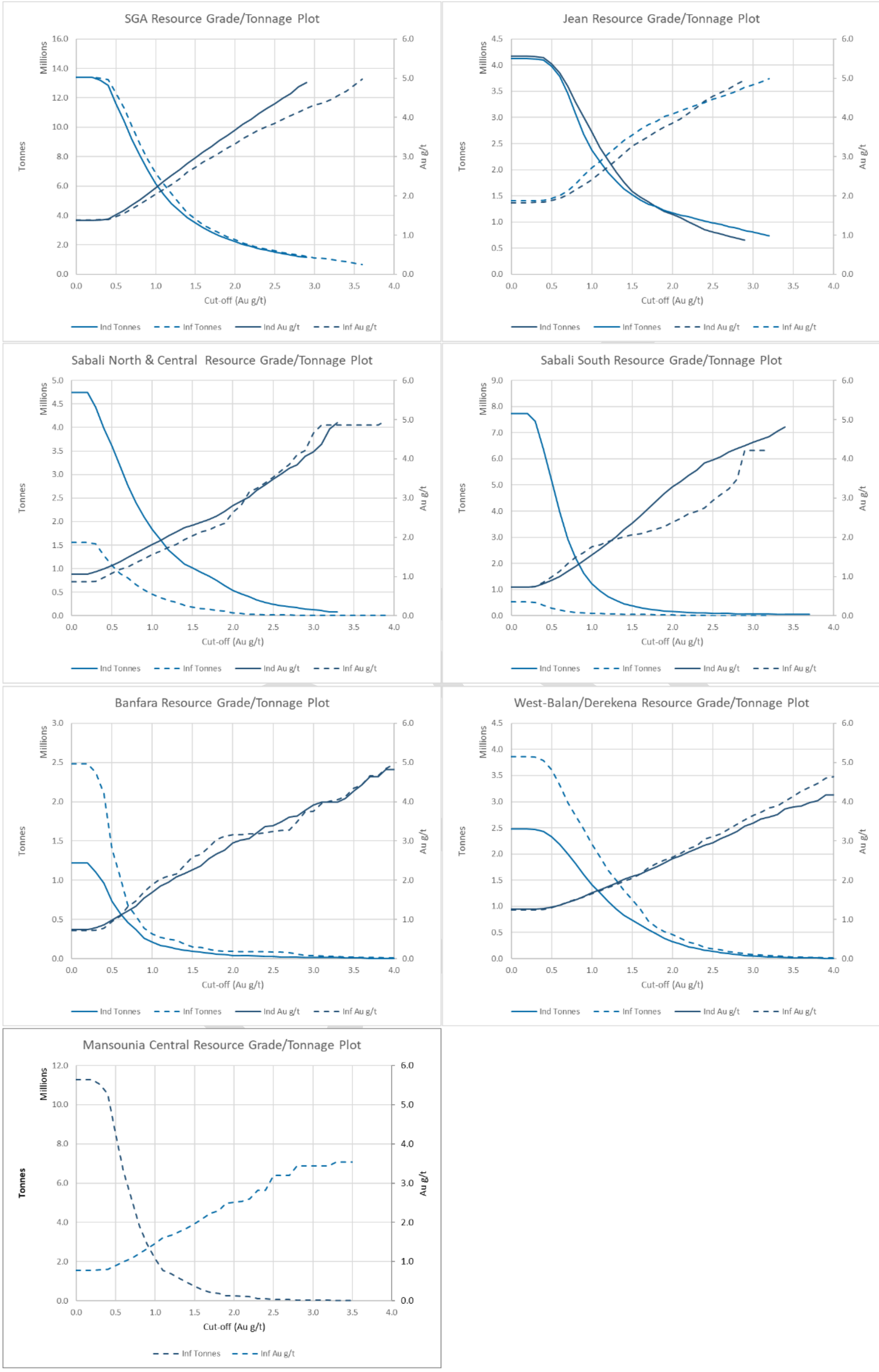


Figure 63: Mineral Resource Grade Tonnage Curves for each Deposit. Source: SMG (2022)

14.2.2.3 Extrapolation

Extrapolation of the mineralised volumes was controlled by the settings in Leapfrog, manual intervention and hard boundaries to the data and the models. Limits to the downdip extrapolation were applied without compromising the strike continuity of the models. Extrapolation of grade beyond the last data point was constrained by the classification criteria. The grade estimate extrapolation was limited by requiring an average spacing of less than 75m between the samples used to estimate the Inferred blocks. This average spacing approach resulted in an approximate extrapolation of classified grade and volume of 50m beyond the last data point.

14.2.2.4 Volume

The volume was estimated using the block model and the summation of the mineralised blocks, above the marginal cut-off, within the Whittle optimised pit shells. Although the optimised pits included blocks below the cut-off, to allow for practical mining, these blocks will be identified in pit using grade control procedures and mined to waste. Therefore, the blocks below cut-off were not included in the Mineral Resource estimate.

14.2.2.5 Bulk Density

SMG has conducted a series of bulk density determinations through Archimedean displacement (Section 11.7.4). This has allowed for the application of average bulk density values per oxidation level within the different deposits (Table 73). Improved logging detail at Sabali South has allowed for further partitioning of the oxidation state into a mottled (MOT) zone and an upper (SAP) and lower saprolite (SPL).

Differences in the density data from the current data (Table 34) are due to the cut-off dates for the models occurring prior to the return of new density information. Density test work is an ongoing programme, and the data set will grow and add to the data used below.

Table 73: Bulk Density (t/m^3) Values used in the Kiniero Gold Project Mineral Resource Estimation

Deposit	LAT	MOT	SAP	SPL	SPK	BDK
Sabali North & Central	2.10		1.50		2.20	2.75
Sabali South *	2.14		1.60		1.75	2.61
	2.14	2.14	1.60	1.62	1.92	2.61
SGA	1.76		1.90		2.57	2.80
Jean	2.75		1.90		2.55	2.80
Derekena	1.76		1.90		2.57	2.80
Mansounia Central	2.20		1.60		1.90	2.00
*Note: Improved logging allowed for more refined oxidation model development at Sabali South Difference in values relate to data cut-offs						

Source: SMG (2022)

14.2.2.6 Tonnage

The Mineral Resource tonnages have been estimated for each deposit by multiplying the volume of each oxidation material type by its associated global bulk density (Table 73). The tonnages have been estimated on an in-situ basis, including natural moisture, and excluding any mining dilution. As a result of bulk density being used as the parameter to convert to tonnage, no moisture content has been estimated.

14.2.2.7 Classification

The Mineral Resources have been classified according to the Qualified Person's confidence in the various parameters comprising the Mineral Resource estimate in accordance with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014).

The classification within the geological models followed a strict algorithmic approach based average distance to the informing samples. The classification criteria used are presented in Table 74. Laterite is typically classified as Inferred due to lack of definition in full extent of supergene mineralisation, low recovery during drilling and limited pierce points.

Table 74: Classification Criteria for the Kiniero Gold Project Mineral Resource Estimate

MINERAL RESOURCE CATEGORY	CRITERIA
Measured	Average distance to informing data points 12.5m
Indicated	Average distance to informing data points 25-40m
Inferred	Average distance to informing data points <75m

Source: SMG (2022)

14.2.3 Reconciliation with Previous Estimates

As no previous SMG Mineral Resource estimates have been declared, no reconciliation with previous estimates has been completed. Previous estimates by SEMAFO and Burey Gold are detailed in Section 6.2.2 and 6.3.2

14.3 Stockpile Mineral Resources and Inventory

SMG commenced a stockpile inventory estimation campaign in December 2020, collecting 69 pit samples on a 25m grid spacing across the BCM and ROM Pad stockpiles (Figure 64). Each pit was excavated to depths of between 2m to 3m deep, and a single representative sample collected from each that underwent fire assay. Sample streams included SMG QAQC protocol. Results justified drilling the stockpiles. Initially test RAB drillholes were attempted at the ROM Pad stockpile. However, due to the unconsolidated nature of the material the RAB drilling proved unsuccessful. Six RAB drillholes were completed for 87m before the RAB drilling campaign was abandoned. A total of 87 RAB drilling samples were submitted for fire assay.

In addition, a total 102 surface samples have been collected from the various waste rock dumps, including 76 gridded samples collected from the SGA waste rock dump (8) (Figure 64). All samples underwent Fire assay as per RC and DD samples.

Auger drilling is a more suitable drilling technique for unconsolidated stockpiles. As a result, in March 2021, SMG commenced an auger drilling campaign on previous near-mine stockpiles at the Kiniero Gold Mine. The intention was to generate representative samples across each stockpile, and use the results to quantify the volumes, tonnages and grades of each.

A total of 5,442m of auger stockpile drilling was completed on the West Balan stockpiles and waste rock dumps, the ROM stockpile, the BCM stockpile, and a portion of the Jean and Banfara waste rock dumps. On each stockpile, drilling was completed at a 25m grid spacing to the base of the dump (where possible), and all collars surveyed by an independent surveyor. For the ROM and BCM stockpiles, samples were collected on a per metre basis, whilst all other drillholes were sampled on a 2m composite basis, subject to SMG's QAQC protocol. Samples were fire assayed at independent laboratories (SGS Bamako and Ouagadougou). A summary of the auger drilling is presented in Table 22 in Section 10.4; and a plan map illustrating the location of auger drillholes on each stockpile is presented in Figure 64.

This data allowed for a grade estimation of the drilled stockpiles. The models were estimated using IDW2 into large blocks which resulted in a smooth, near log estimate of the auger sampling mean estimate. This is considered acceptable for the purposes of the models.

The stockpiles have been classified as Indicated due to the following:

- stockpiles were drilled to a unform 25m x 25m grid spacing, to the base of the stockpile;
- reliability of auger sampling being representative for the mixed stockpile material. Despite auger samples being subjected to contamination as the sample comes into contact with the holes outer wall as it is cork-screwed upward to surface it remains the most cost-effective drilling technique for the assessment of such stockpiles
- limited bulk density data. Attempts were made to determine the bulk density with wide ranging results that supported the use of bulk density of 1.5t/m^3
- low resolution of the pre-mining, stockpile floor surface due to the auger drillholes all being drilled until stockpile base

The marginal cut-off grade of 0.26g/t Au was used. Only stockpiles above this cut-off were classified as Mineral Resources with no selectivity applied. Several stockpiles remain undrilled at the Kiniero Gold Project for which volumes have been estimated from the LiDAR topographic surfaces. The stockpile Mineral Resources, waste inventories and unclassified inventories are presented in Table 75.

Table 75: Kiniero Gold Project Legacy Stockpile Inventory and Mineral Resource Estimate

STOCKPILE NAME	STOCKPILE ID	CATEGORY	VOLUME (m³)	DENSITY (t/m³)	TONNES (t)	Au (g/t)	Au (Oz)
ROM	1	Indicated (drilled)	167,224	1.5	250,000	0.89	7,177
BCM	2		227,889	1.5	341,000	0.54	5,935
West Balan	9 (3)		100,000	1.5	150,000	1.04	5,016
	9 (4)		47075	1.5	70,000	0.59	1,339
	9 (5)		3221600	1.5	4,832,000	0.28	43,502
Jean	3		680644	1.5	1,020,000	0.27	8,863
Total Indicated Mineral Resources			**4,444,432**	**1.5**	**6,666,000**	**0.34**	**71,832**
West Balan	9 (1)	Waste (drilled)	194,325	1.5	291,000	0.11	1,029
	9 (2)		116,900	1.5	175,000	0.10	563
Total Waste Inventory			**311,225**	**1.5**	**466,000**	**0.11**	**1,648**
Jean	4	Unclassified (undrilled)	2,537,456	1.5	3,806,000	-	-
	5		31,360	1.5	47,000	-	-
SGA	6		4,011,680	1.5	6,017,000	-	-
	7		1,416,247	1.5	2,124,000	-	-
	8*		3,048,177	1.5	4,572,000	-	-
Total Unclassified Stockpile Inventory			**11,044,920**	**1.5**	**16,567,000**	**-**	**-**

Source: SMG (2022); Apparent errors due to rounding.
*surface grid sampled but not drilled

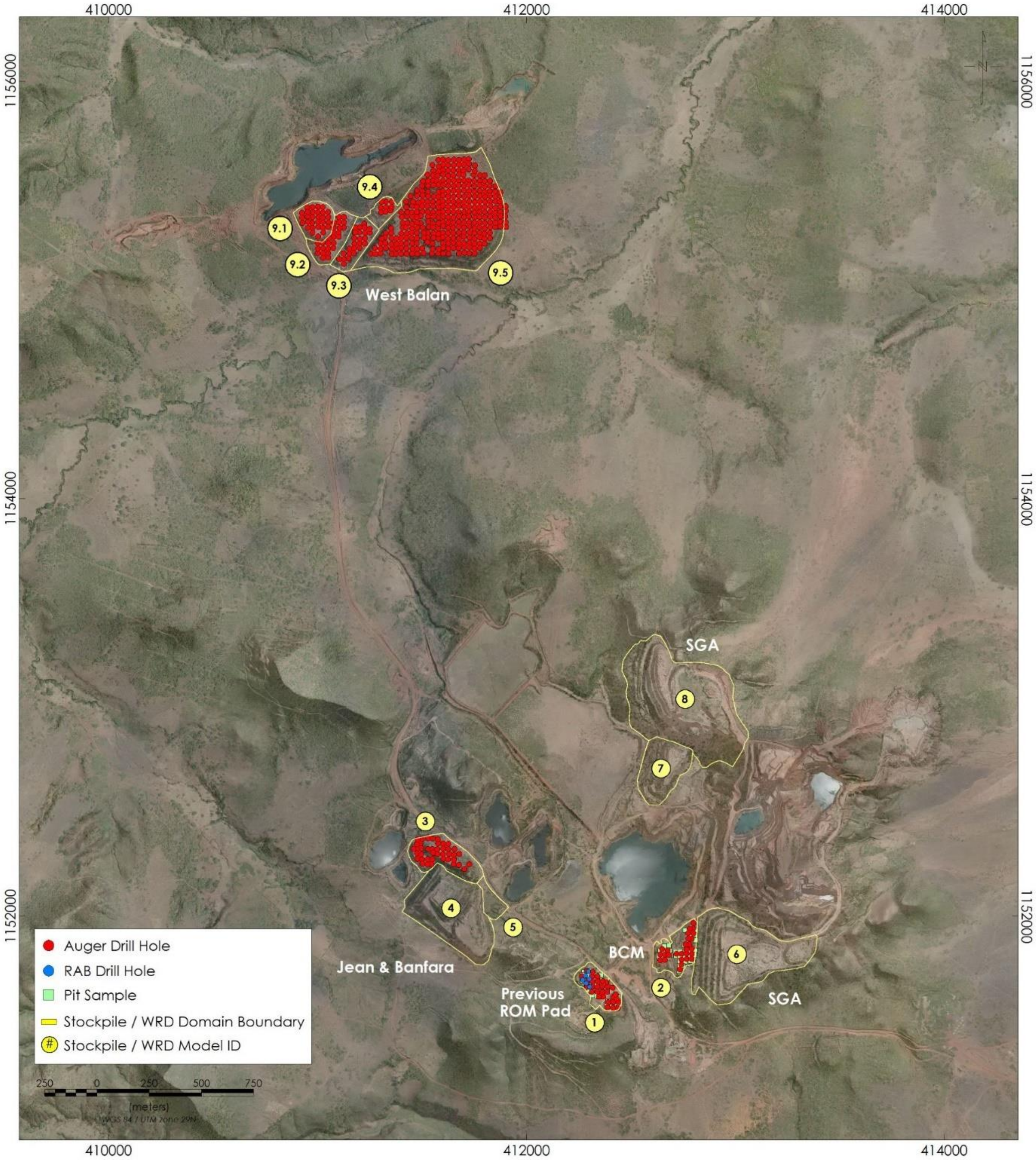


Figure 64: Pitting, RAB and Auger Stockpile / WRD Drilling at the Kiniero Gold Project

15 MINERAL RESERVE ESTIMATES

15.1 Estimation Approach

The Kiniero Gold Project development is proposed with:

- construction of a new nominal 3.0 Mtpa process plant
- conventional mining methods utilising drilling, blasting, trucks and shovels
- supported by a general site layout as presented in Figure 1

This section of the PFS report includes discussion on the open pit optimisation and practical pit design with the Mineral Reserves and the results of the mine design process presented. The mine scheduling process and equipment considerations are presented in Section 16 (Mining Methods) and the mining cost estimates are included in Section 21 (Capital and Operating Costs).

The Life of Mine mining schedule incorporates Mineral Reserves reported for the following open pits (Figure 1):

- Jean and SGA pits, which are near to the Kiniero Gold Project processing plant. Each of these pits have been previously mined
- satellite greenfield pits of Sabali North, Sabali Central and Sabali South which are at 2.2 km and 2.4 km respectively from the processing plant

The strategic Life of Mine (LoM) plan includes the following key data inputs and activities:

- Mineral Resource block models
- a topographic surface reflecting the last as-built surfaces for the previously mined brown field pits, or pre-mining natural topographic surface for the greenfield pits
- open pit optimisation analyses to include:
    - derivation of pit optimisation parameters such as dilution grades and losses, metallurgical recovery and refining factors, commodity price and operating expenditure assumptions
    - operating expenditure mining costs for unit mining were derived from detailed first principal equipment productivity calculations and detailed haulage analysis of each bench elevation. Results were used to estimate both waste and ore mining costs by elevations and coded into the block models as a specific attribute
    - the calculation of cut-off grades
- Engineering pit design assumptions, inclusive of:
    - open pit access, including haul road designs

  - geotechnical design considerations for pit slopes (inter ramp angles, overall slope angles, batter angles, stacked berm configurations and berm widths), which vary as appropriate with azimuth and depth to reflect the geotechnical domains as established for each deposit
- Mine planning and production scheduling (Section 16) inclusive of production rates, stockpiling strategies, production capacities for mining and processing activities, exploration models and grade control models
- Mineral Reserve reporting based on the aggregation of all Measured and Indicated Mineral Resource blocks incorporated within the LoM plan and reported inclusive of all relevant dilution grade and losses to enable reporting of Mineral Reserves.

Mineral Reserves have been modified from Mineral Resources by taking into account geological, geotechnical, mining, processing, economic parameters and permitting requirements and therefore are classified in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves.

15.2 Pit Optimisation Key Assumptions / Basis of Estimate

Mineral Reserves are supported by a LoM plan, which was developed using the following information and key parameters in the pit optimisation process.

15.2.1 Mineral Resource Models

The Mineral Resource models were provided as sub cell type models in Datamine format. These models were converted to a percentage type model using the parent block cell as the standard block size. The block models included gold grades, weathering type, 'resource' confidence categories (Indicated and Inferred) and bulk density values.

In accordance with the CIM Definition Standards, all ultimate pit designs are based on historical and current pit optimisation analysis which effectively treated all Inferred Mineral Resources as waste. For the subsequent production scheduling, Inferred Mineral Resources continue to be treated as waste and are not assumed to be separately stockpiled for future processing.

15.2.2 Geotechnical Considerations

Overall slopes were derived from the geotechnical parameters recommended by TREM Engineering (Section 16.1) These inter-ramp angles, and the associated wall design criteria, are detailed in Table 76 and Table 77. These parameters were used to develop the overall slopes for the optimisation.

Table 76: Geotechnical Parameters of Jean, SGA, Sabali North and Sabali Central

REGOLITH TYPE	SLOPE HEIGHT (m)	BENCH FACE ANGLE (°)	BENCH HEIGHT (m)	BENCH WIDTH SBW (m)	SLOPE ANGLE IRA (°)	SLOPE ANGLE IBSA (°)
Laterite	5	50	5	0.0	50.0	50
	10	50	5	3.0	34.6	41
	15	50	5	3.0	34.9	39
Saprolite	20	50	5	1.0	42.7	44
	30	50	5	3.5	32.9	35
	40	50	5	4.0	31.4	33
	50	50	5	4.6	29.7	31
	60	50	5	5.2	27.9	29
	70	50	5	6.1	26.0	27
	80	50	5	6.5	25.1	26
	90	50	5	7.0	24.2	25
	100	50	5	7.4	23.3	24
Transitional	5	65	5	0.0	65.0	65
	10	65	5	2.4	46.8	55
	20	65	5	2.5	46.0	50
	30	65	5	2.7	47.1	50
Fresh	10	80	5	1.5	64.6	72
	20	80	5	1.9	60.7	65
	30	80	5	2.0	60.0	63
	40	80	5	2.2	57.7	60
	50	80	5	2.5	56.0	58
	60	80	5	2.7	54.3	56
	70	80	5	2.9	53.4	55

Source: TREM Engineering (2022)

Table 77: Geotechnical Parameters of Sabali South

REGOLITH TYPE	SLOPE HEIGHT (m)	BENCH FACE ANGLE (°)	BENCH HEIGHT (m)	BENCH WIDTH SBW (m)	SLOPE ANGLE IRA (°)	SLOPE ANGLE IBSA (°)
Laterite	5	50	5	0.0	50.0	50
	10	50	10	1.0	44.1	47
	15	50	20	1.0	44.1	45.5
Saprolite	20	50	20	1.0	42.7	44
	30	50	30	1.2	42.9	44
	40	50	40	2.0	38.8	40
	50	50	50	3.0	34.8	36
	60	50	60	3.7	32.5	33.5
	70	50	70	4.3	30.6	31.5
	80	50	80	4.7	29.2	30
	90	50	90	5.1	28.3	29
	100	50	100	5.5	27.3	28
Transitional	5	65	5	0.0	65.0	65
	10	65	10	2.4	46.8	55
	20	65	20	2.5	46.0	50
	30	65	30	2.7	44.4	47

Source: TREM Engineering (2022)

The geotechnical parameters vary per depth of weathering. Slope sectors were produced to account for the varying depths in the different areas of each of the pits. To produce these sectors, images of each pit with the exposed weathering surfaces were produced. This is illustrated in Figure 65 for the Jean pit design as an example.

These sectors were used to vary the slopes through the different weathering types during the pit optimisation and design processes.

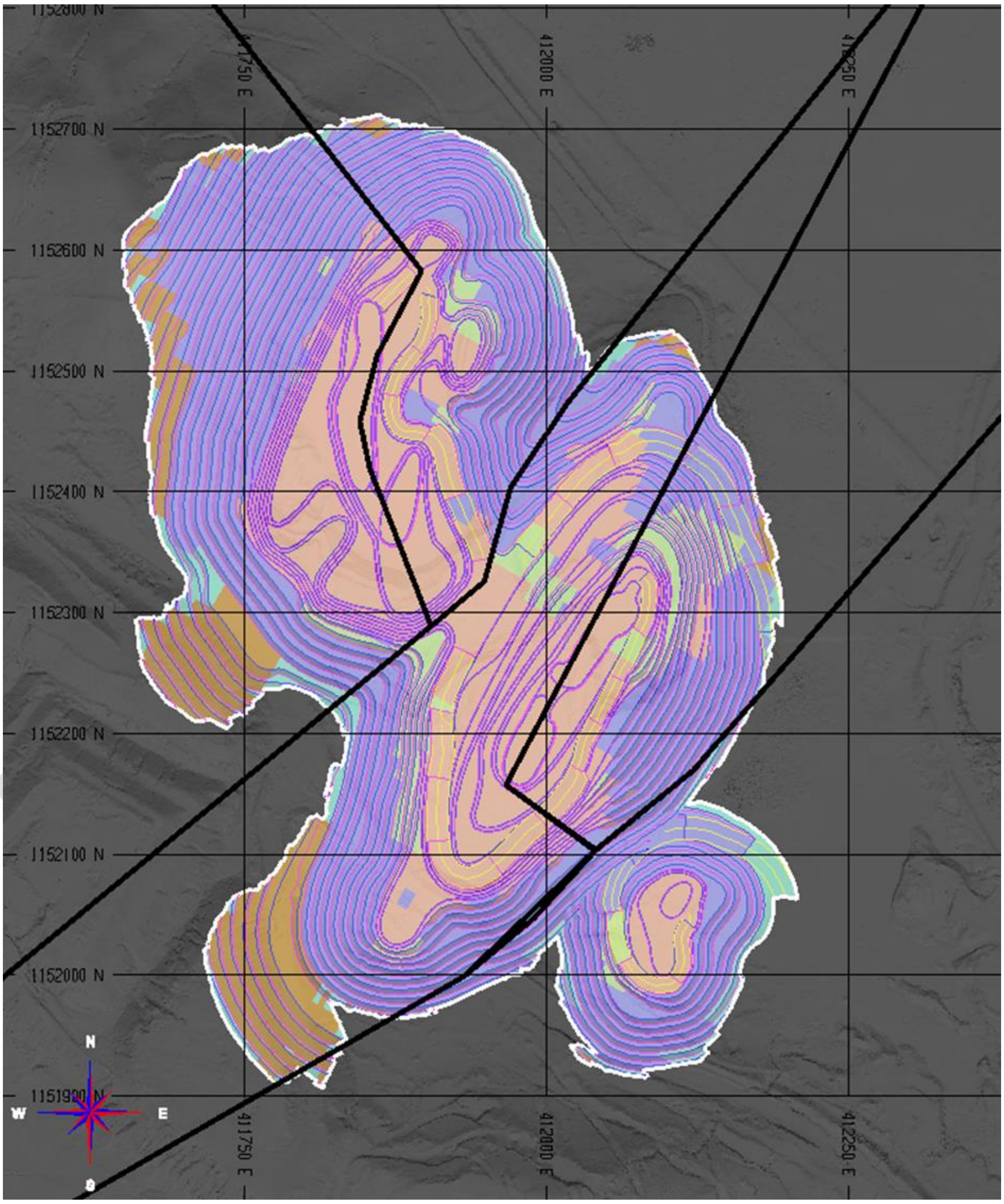


Figure 65: Example of the Jean Pit Plan indicating the Applied Different Slope Parameters for the different Weathered Horizons.

15.2.3 Gold Price and Revenue Related Assumptions

A gold price of $1,650/oz was assumed for cut-off grades calculations for supporting the economic viability of the Mineral Reserves. The only other factors considered to derive the net sales revenue are the individual government and private royalties which total 5.5% and an assumed refining and transport cost of $13 /oz payable. This results in a net gold price of $1,546/oz payable (i.e. $49.72/g).

15.2.4 Ore Loss and Dilution

The Leapfrog derived mineralisation wireframes include a reasonable amount of internal dilution, i.e drillhole samples that are below the cut-off grade. These samples have been used to estimate the grades in the block model and therefore lower the grade of the block cells that are influenced by the samples. This internal dilution that has already been accounted for in the modelling should be taken into consideration when applying mine planning dilution.

Based on this it was decided to use a mining dilution of 5% and an ore loss of 5%. These parameters were not applied to the block model but in the Whittle software which was used for pit optimisations. These parameters were applied for generating the pit Mineral Reserve files that were used for scheduling using the Minesight software.

15.2.5 Optimisation Mining Costs

Drill and blast costs were developed from first principles, with the key underlying assumptions being:

- two 2.5-metre-high flitch heights to provide a total bench height of 5 metres for drill and blast purposes
- powder factors and drill penetration rates for the different material types being consistent with similar existing operations.

Bench height and powder factors drive the drilling and blasting design parameters such as burden and spacing. The drill penetration rate together with the burden, spacing and bench height yielded the drilling productivity, as summarised in Table 78.

Table 78: Drill and Blast Cost Assumptions

MATERIAL	UNIT	LATERITE	SAPROLITE	TRANSITIONAL	FRESH
Hole Diameter	mm	127	102	127	140
Burden	m	3.0	2.0	3.5	3.5
Spacing	m	3.5	2.0	4.0	4.0
Bench Height	m	5.0	2.5	5.0	5.0
Effective Subdrill	m	0.0	0.0	0.5	0.5
% Blasted	%	40%	1%	60%	100%
Stem Length	m	2.0	2.0	2.5	2.2
Density	kg/tonne	1.2	1.2	1.2	1.2

MATERIAL	UNIT	LATERITE	SAPROLITE	TRANSITIONAL	FRESH
kg/hole	kg	43.7	4.7	43.7	58.4
col length	m	3.0	0.5	3.0	3.3
BCM/Hole	bcm	52.5	10.0	70.0	70.0
bcm/drilled m	bcm	10.5	4.0	14.0	14.0
Theoretical No. Holes		285.7	20.0	214.3	214.3
PF	kg/bcm	0.8	0.5	0.6	0.8
	kg/tonne	0.4	0.3	0.3	0.3
Ave BCM/Shot		15,000	200	15,000	15,000
Drilling Cost ($/m)	$/m	16.9	16.9	16.9	18.9
Re-drills		10%	10%	10%	10%
COSTS PER DRILLHOLE					
Explosive	$/hole	48.1	5.2	48.1	64.3
Accessories	$/hole	15.8	15.8	15.8	15.8
Drilling	$/hole	92.7	46.3	102.4	114.2
Fixed Monthly Cost		0.0	0.0	0.0	0.0
Total $/Hole	$/hole	156.6	67.3	166.3	194.3
PRE-SPLIT COSTS					
Pre-Split Drilling ratio to drill meters	m/m	0%	0%	0%	0%
Pre-Split Blasting	kg/m³	0.0	0.0	0.0	0.0
COST/BCM					
Bulk Explosive	$/BCM	0.4	0.0	0.4	0.9
Accessories	$/BCM	0.1	0.0	0.1	0.2
Drilling	$/BCM	0.7	0.0	0.9	1.6
Fixed Monthly Cost	$/BCM	0.0	0.0	0.0	0.0
Pre-Split Drilling	$/BCM	0.0	0.0	0.0	0.0
TOTAL COST	**$/BCM**	**$1.19**	**$0.07**	**$1.43**	**$2.78**
	$/t	**$0.54**	**$0.04**	**$0.59**	**$1.11**

Source: Mine Planning Solutions (2022)

For the optimisation of the cost estimate, it was assumed that grade control would be carried out using reverse-circulation (RC) drilling in advance of mining. The grade control drilling would be based on a drilling grid of 6m x 6m with the waste drilled at a ratio of 0.5 tonne of waste per tonne of ore drilled. Hole inclination will be 50° over 6 x 5m benches, i.e. 30m vertically, resulting in a 35m grade control drillhole length. An inclusive contract drilling rate of $22/m drilled for oxide and transition material and $24.5/m for fresh material was assumed. Sampling will be carried out every one metre. A $/bcm cost was then generated (Table 79).

Table 79: Grade Control Cost Assumptions

PARAMETER	UNIT	OXIDE	TRANSITION	FRESH
Drill Pattern Spacing	X (m)	6	6	6
	Y (m)	6	6	6
Area	m²	36	36	36
Assay Interval	m	1	1	1
Drill Cost per metre	$/m	22	22	24.5
Assay Cost	$/Assay	8	8	8
Bench Height	m	30	30	30
Hole Angle	deg	50	50	50

PARAMETER	UNIT	OXIDE	TRANSITION	FRESH
Hole Length	m	35	35	35
Drill Cost per bcm Tested	$/bcm	0.71	0.71	0.79
Assay Cost per bcm Tested	$/bcm	0.26	0.26	0.26
Total Cost per bcm Tested	$/bcm	0.97	0.97	1.05
Overdrill Factor	%	50%	50%	50%
Effective Drill Cost per bcm Ore	$/bcm	1.07	1.07	1.19
Effective Assay Cost per bcm Ore	$/bcm	0.39	0.39	0.39
Effective Cost per bcm Ore	$/bcm	1.46	1.46	1.58

Source: Mine Planning Solutions (2022)

It has been assumed that 100% of the ore mined will be stockpiled adjacent to the pits to be transported to the RoM pad by a fleet of 35t tipper trucks, using a CAT 988 front-end loader. There will be one stockpile for each of the four mining areas. The cost in $/t/km was estimated at $0.5/t. The total haulage cost per tonne for each pit has been calculated based on the distance from the nearest stockpile to the ROM pad. These costs are summarised in Table 80.

Table 80: Ore Haulage Costs and Rehandling Cost Estimates

DEPOSIT	DISTANCE (km)	$/t
Jean	0.85	1.07
SGA Complex	0.85	0.97
Sabali North and Sabali Central	2.21	1.20
Sabali South	2.40	1.31

Source: Mine Planning Solutions (2022)

At the primary crusher a CAT 988 front-end loader will be required. Average productivity and estimated costs are detailed in Table 81 based on a Caterpillar 992 FEL tramming an average of 100m one way.

Table 81: ROM Ore Rehandling Cost Estimates

CATEGORY	UNIT	VALUE
FEL productivity	wmt/hr	579
Total per tonne rehandled	$/wmt	0.53

Source: Mine Planning Solutions (2022)

Annual fixed costs and overheads for the Project are detailed in Table 85.

Table 82: Annual Fixed Costs and Overheads

CATEGORY	COST ($)
Mine Production Personnel	1,282,266
Owners sub-contractor Management cost	43,286
Mineral Resources Management	493,515
Mine Planning Software	62,560
Sub-contractors Fixed Cost	2,520,754
In Production Dewatering cost	851,153
TOTAL	**5,253,534**

Source: Mine Planning Solutions 2022

This total fixed cost and overheads (Table 85), divided by the estimated average annual total movements results in a $0.32/t unit cost. The Ancillary equipment cost was estimated at $0.45/t. It is assumed that mining, drill and blast and grade control drilling will be undertaken by contractors.

15.2.6 Load and Haul Costs

Benchmarked hourly costs per mining equipment were used to estimate the load and haul costs. The cycle times and operating hours were calculated using the Talpac software.

Mining costs were derived assuming contract mining determinations which was subsequently incorporated into the block model as a cost vs depth relationship to derive unit mining costs for both ore and waste. The aggregation of these costs is summarised in Table 83 and Table 84 for each material type reporting within each open pit. The resulting mining costs include all key mining related activities, including drilling and blasting, load and haul, ancillary support, dewatering, fixed costs with grade control drilling and stockpile rehandling costs included in the process plant related operating expenditure.

The establishment, mobilisation and demobilisation and rehabilitation costs were included in the mining capital expenditure. The cost difference between the ore and waste mining costs (Ore Premium) was also applied to the process plant related operating expenditure and cut-off grade calculation.

Table 83: Waste Mining Cost Estimates

PIT	LATERITE ($/t)	SAPROLITE ($/t)	TRANSITION ($/t)	FRESH ($/t)	TOTAL ($/t)
Jean	2.81	2.19	2.72	3.18	2.90
SGA	2.74	2.08	2.65	3.14	2.49
Sabali North and Central	3.23	2.59	3.55	3.71	2.89
Sabali South	3.58	2.80	3.62		3.02

Source: Mine Planning Solutions (2022)

Table 84: Ore Mining Cost Estimates

PIT	LATERITE ($/t)	SAPROLITE ($/t)	TRANSITION ($/t)	FRESH ($/t)	TOTAL ($/t)
Jean	2.88	2.33	2.77	3.22	2.96
SGA	2.63	2.11	2.64	3.12	2.50
Sabali North and Central	2.61	2.06	2.95	3.08	2.33
Sabali South	3.24	2.50	3.30		2.71

Source: Mine Planning Solutions (2022)

15.2.7 Processing Costs and Recoveries

Processing costs were as provided by Soutex Inc, as summarised in Table 85. The processing recoveries for the three main regolith ore types from the six deposits was also provided by Soutex. These recovery values are detailed in Section 13.5 and summarised in Table 62. These values were used in Whittle for pit optimisation to calculate the recovered grade in the mining block model for the mining schedule.

Table 85: Processing Costs

ORE TYPE	Rate (Mtpa)	Processing costs ($/t)
Saprolite	3.0	8.5
Transitional	3.0	15.1
Fresh	3.0	18.8

Source: Mine Planning Solutions (2022)

15.2.8 General and Administration and Other Fixed Costs

The on-site site general and administration cost is estimated at $3.33/t ore and includes the following expenditures:

- overhead and management personnel
- commissioning crew
- tailing storage facility
- human resources
- finance and supply chain
- camp management
- health, safety, and environment
- Information Technology (IT)
- Laboratory
- ESIA requirements
- energy supply
- site infrastructure and overheads costs
- insurances

The off-site general and administration cost is $0.46/t and includes the following expenditures:

- country manager
- transport, import and logistics of consumables (Conakry to the Kiniero Gold Project)
- legal mineral tenure, licenses, legal and regulatory compliance
- legal services
- financial services
- tax services

Approximately 30% of the SMG technical services and 15% of corporate office overhead costs will be supported by the Kiniero Gold Project, estimated at $ 0.95/t.

A summary of the costs assigned to the processing operating cost expenditure and the resulting cut-off grade is shown in Table 86.

Table 86: Processing Costs and Cut-off Grade Estimation

MINING AND PROCESSING COST CATEGORY		UNIT	JEAN	SGA	SABALI NORTH & CENTRAL	SABALI SOUTH
Gold Price		$/oz	1650	1650	1650	1650
Conversion factor		oz -> g	31	31	31	31
Royalty		%	5.5	5.5	5.5	5.5
Treatment costs		$/oz	13	13	13	13
Net Price		$/g	50	50	50	50
Mill Recovery	Laterite	%	92%	92%	95%	95%
	Saprolite	%	92%	92%	95%	95%
	Transitional	%	90%	90%	50%	60%
	Fresh	%	87%	87%	65%	60%
Mining Dilution		%	5%	5%	5%	5%
Mining Recovery		%	95%	95%	95%	95%
Grade control	Laterite	$/t ore	0.90	0.90	0.75	0.74
	Saprolite	$/t ore	0.77	0.77	0.97	0.91
	Transitional	$/t ore	0.57	0.57	0.66	0.89
	Fresh	$/t ore	0.56	0.56	0.57	0.61
Ore Premium	Laterite	$/t ore	-0.62	-0.05	-0.09	0.07
	Saprolite	$/t ore	-0.51	-0.13	0.01	0.06
	Transitional	$/t ore	-0.54	-0.10	0.03	0.06
	Fresh	$/t ore	-0.54	0.47	-0.05	0.07
Rehandling Cost ($0.53/t/km)	Distance to Mill	km	2.21	2.40	0.85	0.85
	Total Pit to ROM	$/t	1.17	1.27	0.45	0.45
Overhead + Fixed	Overhead	$/t	3.79	3.79	3.79	3.79
Corporate G&A	Overhead	$/t	0.95	0.95	0.95	0.95
Sustaining CAPEX	Overhead	$/t	2.00	2.00	2.00	2.00
ROM Pad Management		$/t	0.53	0.53	0.53	0.53
Treatment Cost	Laterite	$/t	15.10	15.10	15.10	15.10
	Saprolite	$/t	8.50	8.50	8.50	8.50
	Transitional	$/t	15.10	15.10	15.10	15.10
	Fresh	$/t	18.80	18.80	18.80	18.80
Processing Cost	Laterite	$/t	23.63	23.79	23.67	24.33
	Saprolite	$/t	17.00	17.05	17.40	17.83
	Transitional	$/t	23.42	23.45	23.66	24.44
	Fresh	$/t	27.04	27.15	27.27	28.42
Cut-off	Laterite	g/t	0.50	0.50	0.50	0.50
	Saprolite	g/t	0.40	0.40	0.40	0.40
	Transitional	g/t	0.50	0.60	1.00	0.90
	Fresh	g/t	0.70	0.70	0.90	1.00

Source: Mine Planning Solutions (2022)

15.3 Pit Optimisation Results

15.3.1 Whittle Results and Shell Selection

The strategy for shell selection was to use the Revenue Factor (RF) = 1 shell wherever possible to ensure the full potential of each of the deposits could still be realised with additional drilling. A summary of the Whittle Pit Optimisations is bulleted below and presented in detail in Figure 66:

- for the Jean Pit, the optimisation results indicate a stable value profile that is maximised at Shell 23 which has a revenue factor of 0.75. Approximately 453 Kt of ore at a lower profit are added in Shell 36 without a significant drop in value
- for the SGA Pit, the optimisation results indicate a constant period where the value remains stable, with increasing pit sizes for the Best-Case scenario. The Worst-Case scenario however indicates a steeper drop after Shell 15 (RF = 0.58) which corresponds to a lower profit margin pushback. This needs to be accounted for since the potential for pit staging is limited at SGA and the mining schedule will be closer to the Worst-Case scenario
- for Sabali North and Central Pit area, the optimisation results indicate that the value curves are maximized at Shell 31 (RF of 0.9) and are stable until Shell 39 (RF of 1.06), after which the decrease in value is sharp, especially for the Worst-Case scenario. Waste mining increases significantly in return for a small increase in ore tonnage, indicating a low profit margin cutback
- for the Sabali South Pit, optimisation results show a similar pattern as for Sabali North and Central but with a longer constant period (RF=0.76 to RF=1.08) where the pit size increases, but the value remains at similar levels

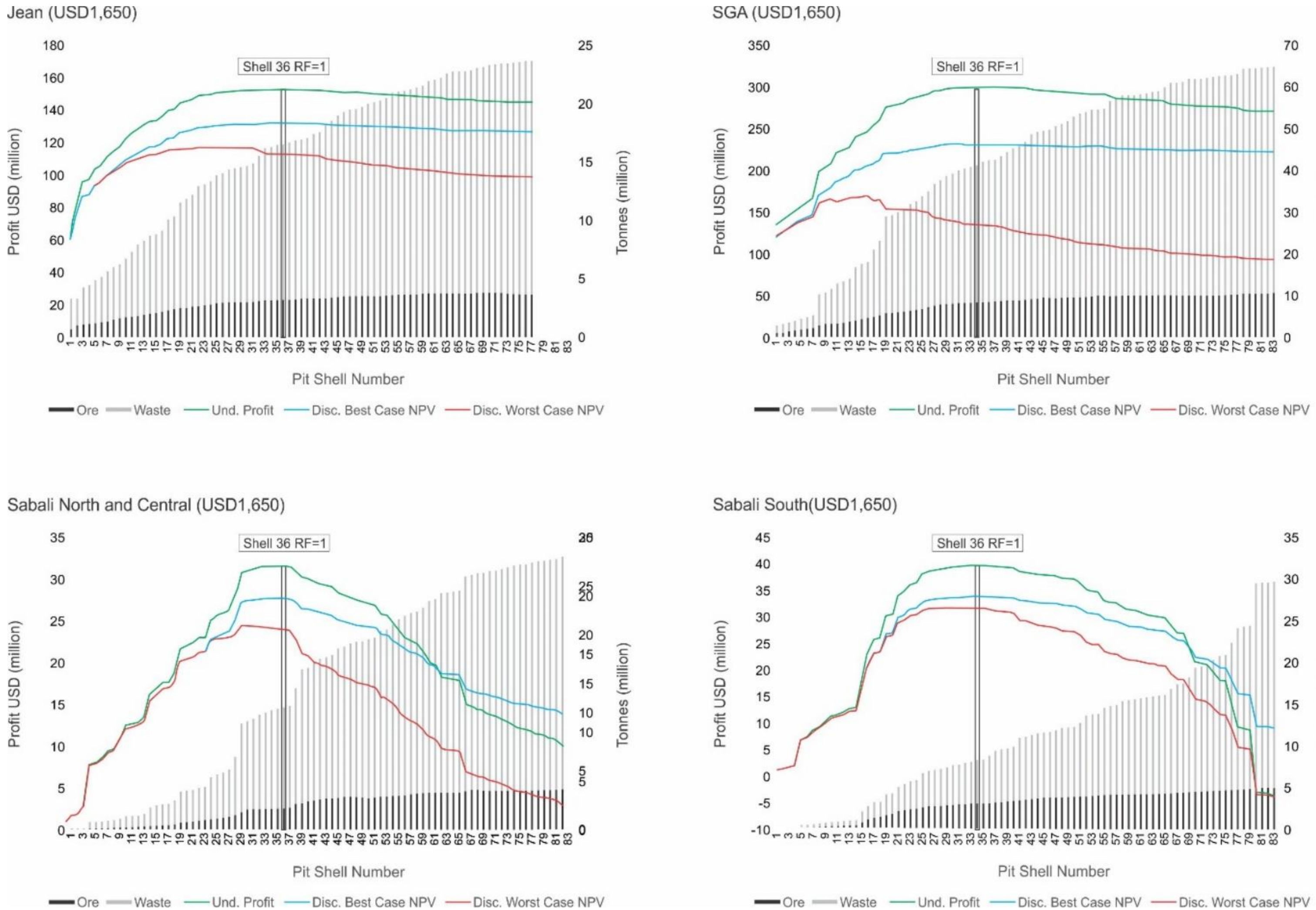


Figure 66: Pit Optimisation Results for the Kiniero Gold Project Open Pits. Source: Mine Planning Solutions (2022)

15.3.2 Optimisation Sensitivity Analyses

Sensitivity analyses were produced by varying a set of parameters by increments of 10% which are presented in Figure 67. Findings include:

- the Jean Pit analyses indicate that the pit optimisation is primarily sensitive to the price of gold and the metallurgical recoveries in the fresh ores, followed by recoveries in the oxide ores
- the SGA Pit optimisation analyses indicate that it is most sensitive to the price of gold and the metallurgical recoveries in the fresh ores
- the Sabali North and Central Pit optimisation analyses indicate that it is most sensitive to the price of gold and the metallurgical recoveries in the oxide ores, followed by the recoveries in the fresh ores
- the Sabali South pit optimisation is equally sensitive to the metallurgical recoveries in the oxide ore as well as to the price of gold

15.3.3 Risk Management

As with most gold projects, the Kiniero Gold Project is most sensitive to the parameters that directly affect revenue, particularly the gold price and processing plant recovery rates. Due to the relatively low stripping ratio, the mining costs have a lower impact on pit sizes.

The metallurgical processing plant recovery rates should be reviewed, and where possible improved, to assist in reducing the sensitivity that the Kiniero Gold Project is exposed to on the recovery rates.

15.4 Mine Design Process

The open pits were designed using MineSight mine planning software, utilised the Mining Model. The pit optimisation results, and application of the pit design criteria outlined in Sections 15.5.1. The results of the open pit design process were exported to the MineSight MSSP mine scheduling software, for scheduling and reporting of the Mineral Reserves.

15.5 Open Pit Design

15.5.1 Design Criteria

Slope design criteria, as summarised in Table 76 and Table 77, were supplied by TREM Engineering as the final optimised overall slope angles. The ramp design criteria have been designed based on the 40t payload of a Komatsu HM 400 ADT dump truck.

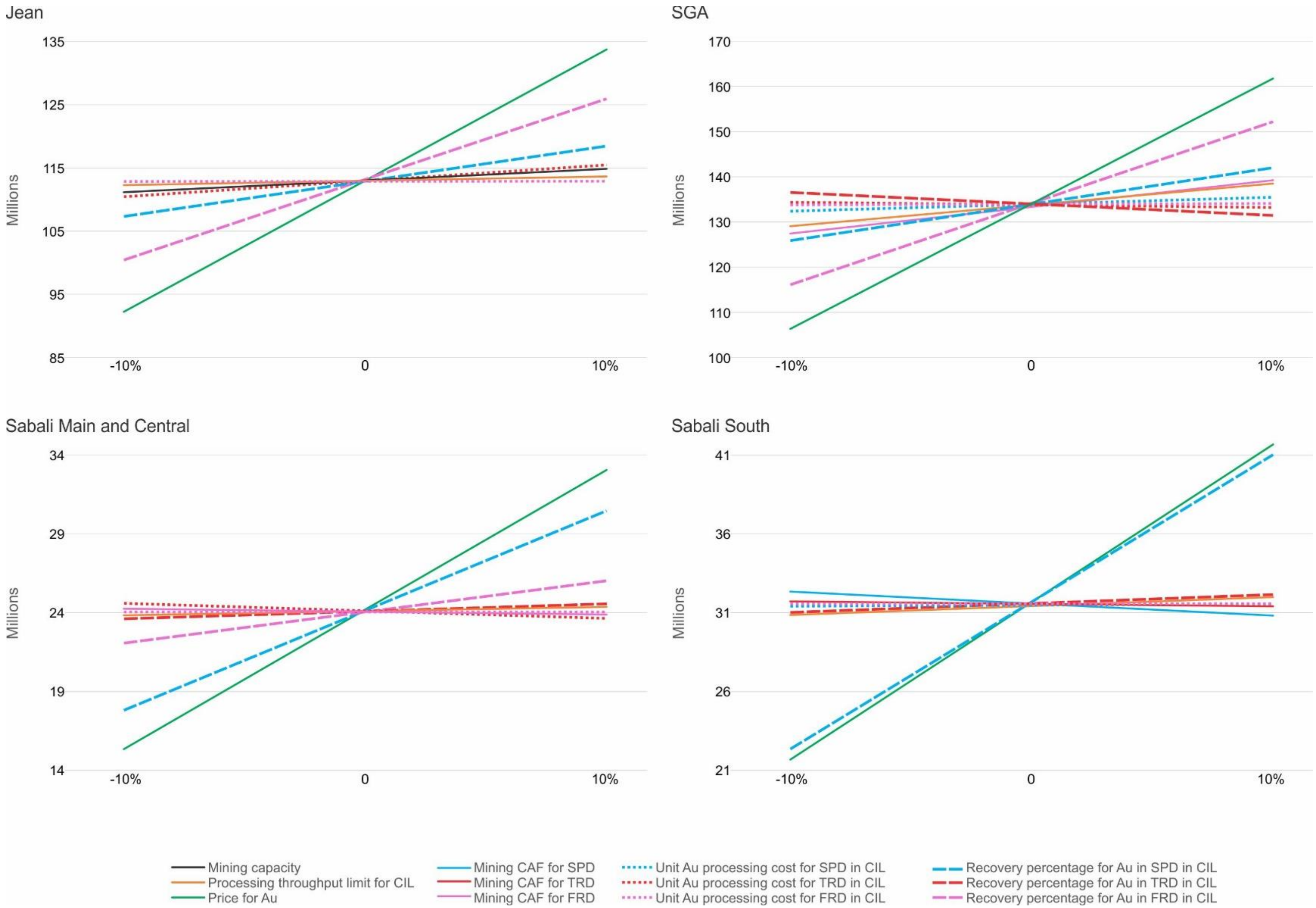


Figure 67: Sensitivity Analyses of the Kiniero Gold Project Open Pit Optimisations. Source: Mine Planning Solutions (2022)

Accepted industry practice is to design the width of the main ramps at 3.5 x truck width and adopting a 10% gradient. This allows for the safe passing of trucks inclusive of wall side drainage and pit side bunding. The two-way ramp width used for the designs was 18m, equating to >3.5 x the HM 400 operating width. For the benches at the open pit base (i.e. the vertical bottom 30m to 40m), a single lane ramp width of 12m with a maximum gradient of 12.5% was allowed. This reflects the lower traffic intensity on this section of the ramp and allows waste development to be minimised.

Pit designs, whether they are final or interim stage designs, need to provide sufficient space to undertake mining activities in an efficient and safe manner. This applies to the bottom of each stage / ultimate pit design and to pushbacks. Providing sufficient space is achieved by adopting a minimum mining width in the design criteria. A minimum mining width of 20m has been adopted. The designs for each of the open pits in support of the Kiniero Gold Project PFS are presented in Figure 68.

Total inventory comparisons from pit shell to pit design have resulted in a conversion factor that is relatively close, but which does not reflect the pit-by-pit differences (Table 87). For SGA, the optimisation was not constrained to exclude areas where mining would not be practical. In addition, the presence of multiple pit bottoms does not allow for accounting accurately for ramps in the optimisation slope angles. There is a steep decline in value for the worst-case scenarios from the optimisation graphs. This requires that the design be cautious so as not to increase the pit size beyond a level that incurs a significant loss of value.

At Sabali South, the mineralisation is steep and narrow with low continuity. This resulted in the pit design, aiming for an ore content equal to the RF=1 pit shell, being challenging. The approach of using sectors to account for the different slope angles, varying as per depth requirements, had to be an iterative process, with the depth of weathering varying for each iteration.

Table 87: Kiniero Gold Project Open Pit Shells (RF=1) and Design Inventory Comparisons

OPEN PIT	CATEGORY	ORE TONNAGE (Kt)	Au GRADE (g/t)	KOz (Au)	WASTE TONNAGE (Kt)	TOTAL TONNAGE (Kt)	STRIPPING RATIO
Jean	Pit shell	3,192	1.96	201	13,327	16,519	4.17
	Pit Design	3,011	1.96	189	16,303	19,314	5.41
	DIFFERENCE	**-181**	**2.03**	**-12**	**2,977**	**2,796**	**12.74**
		-6%	**0%**	**-6%**	**22%**	**17%**	**30%**
SGA	Pit shell	8,595	1.60	443	42,339	50,934	4.93
	Pit Design	7,335	1.62	382	38,417	45,752	5.24
	DIFFERENCE	**-1,260**	**1.50**	**-61**	**-3,922**	**-5,182**	**2.18**
		-15%	**-1%**	**-14%**	**-9%**	**-10%**	**6%**
Sabali North & Central	Pit shell	2,308	1.20	89	10,105	12,413	4.38
	Pit Design	2,146	1.13	78	12,761	14,908	5.95
	DIFFERENCE	**-162**	**2.03**	**-11**	**2,657**	**2,495**	**13.75**
		-7%	**5%**	**-12%**	**26%**	**20%**	**36%**

OPEN PIT	CATEGORY	ORE TONNAGE (Kt)	Au GRADE (g/t)	KOz (Au)	WASTE TONNAGE (Kt)	TOTAL TONNAGE (Kt)	STRIPPING RATIO
Sabali South	Pit shell	4,836	0.81	127	7,531	12,367	2.56
	Pit Design	5,240	0.79	133	11,181	16,421	3.13
	DIFFERENCE	403	-0.03	6	3,650	4,053	0.58
		8%	-3%	5%	48%	33%	23%
TOTAL	**Pit shell**	**18,932**	**1.41**	**860**	**73,301**	**92,233**	**4.87**
	Pit Design	**17,768**	**1.37**	**784**	**78,705**	**96,473**	**5.43**
	DIFFERENCE	**-1,163**	**-0.04**	**-76**	**5,403**	**4,240**	**0.56**
		-6%	-3%	-9%	7%	5%	11%

Source: Mine Planning Solutions (2022)

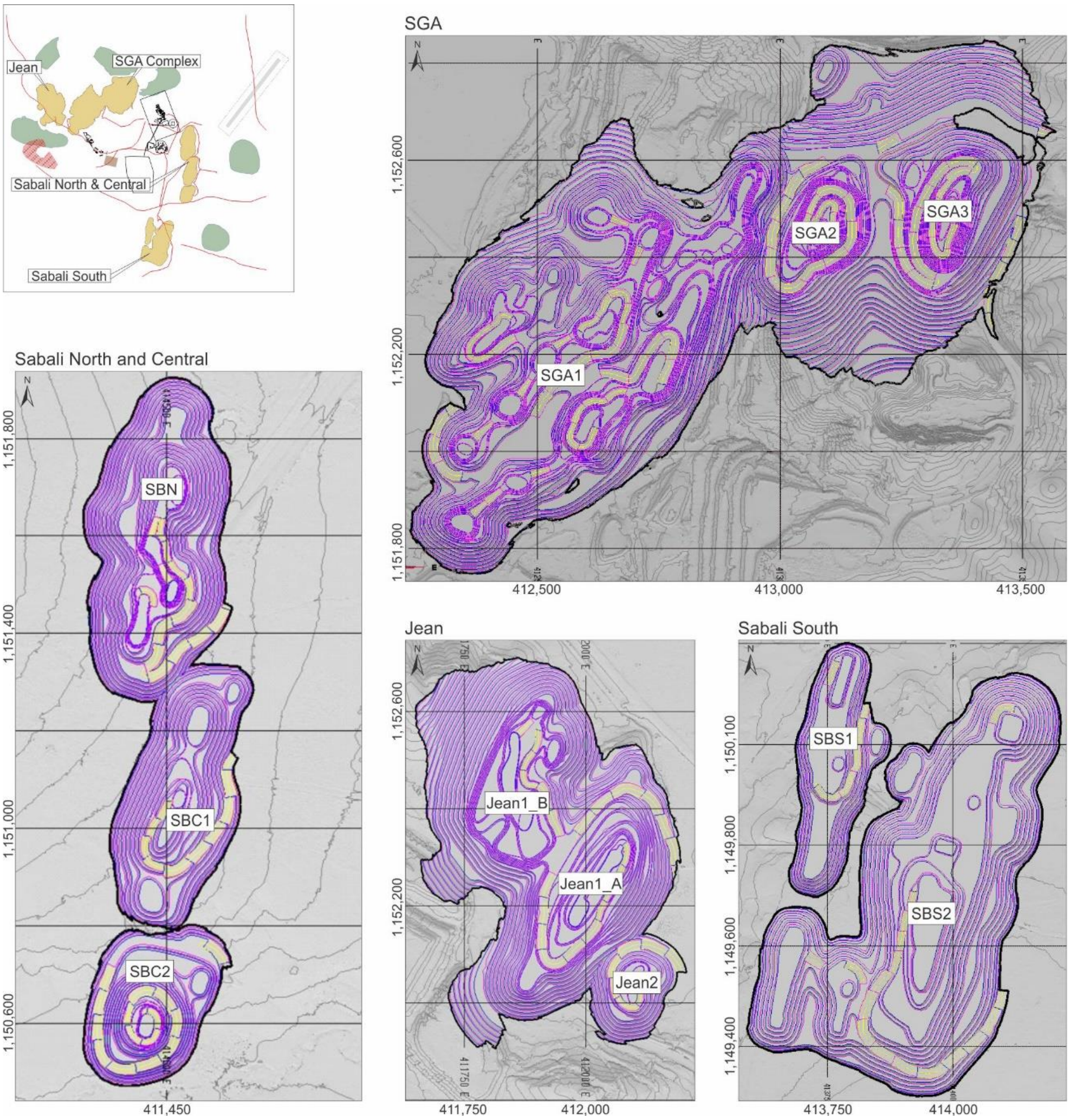


Figure 68: Open Pit Designs for the Kiniero Gold Project Source: Mine Planning Solutions (2022)

15.6 Stockpile Mining Approach

The Mineral Reserve contains only the stockpiles included in the Indicated Mineral Resource stockpile inventory that are above the marginal cut-of grade. Stockpiles that are included in the Mineral Resources that are not in the Mineral Reserves have not demonstrated economic viability. The In-situ Stockpile Mineral Reserves are listed in Table 88 below. See Figure 64 for the locations of these stockpiles.

Table 88: Stockpile Mineral Reserve

STOCKPILE		VOLUME (m^3)	DENSITY (t/m^3)	TONNES (t)	Au (g/t)	Au (Oz)
NAME	ID					
ROM	1	167,224	1.5	250,836	0.89	7,177
BCM	2	227,889	1.5	341,834	0.54	5,935
West Balan	9 (3)	100,000	1.5	150,000	1.04	5,016
	9 (4)	47075	1.5	70,613	0.59	1,339
Total Probable Mineral Reserves		**542,188**	**1.5**	**813,282**	**0.74**	**19,467**

Source: SMG (2022)

15.7 Kiniero Gold Project Mineral Reserve Estimate

Mineral Reserves are quoted within specific open pit designs based on Measured and Indicated Mineral Resources only, and takes into consideration the mining, processing, metallurgical, economic and infrastructure modifying factors. Preparations to submit information for environmental approvals and mining lease applications have commenced.

This Mineral Reserve estimate has been determined and reported in accordance with Canadian National Instrument 43-101, 'Standards of Disclosure for Mineral Projects' of June 2011 (the Instrument) and the Definition Standards adopted by CIM Council in May 2014. At a gold price of $1,650 per ounce (Table 86), the cut-off grade for the Mineral Reserves varies by open pit location based on the processing costs (Table 85), the processing recoveries (Table 62), and the ore related mining costs, which vary block by block.

The cut-off grades by open pit are presented in Table 89, as used for reporting with the Kiniero Gold Project Mineral Reserve estimated presented in Table 90.

Table 89: Kiniero Gold Project Cut-Off Grades

OPEN PIT	CUT-OFF GRADE (g/t)			
	LATERITE	SAPROLITE	TRANSITIONAL	FRESH
Jean	0.5	0.4	0.6	0.7
SGA	0.5	0.4	0.5	0.7
Sabali North & Central	0.5	0.4	1.0	0.9
Sabali South	0.5	0.4	0.9	1.0

Source: Mine Planning Solutions (2022)

Table 90: Kiniero Gold Project Mineral Reserve Estimate (July 2022)

OPEN PIT	PROBABLE MINERAL RESERVES											
	OXIDE			TRANSITION			FRESH			TOTAL		
	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)	TONNES (Kt)	Au GRADE (g/t)	Au (KOz)
Jean	808	1.72	45	361	1.90	22	1,842	2.07	123	3,011	1.96	189
SGA	2,552	1.14	93	583	1.27	24	4,237	1.96	266	7,372	1.62	383
Sabali North & Central	5,053	0.77	124	187	1.39	8	0		0	5,240	0.79	133
Sabali South	1,675	0.95	51	140	1.70	8	331	1.85	20	2,146	1.13	78
SUB-TOTAL ALL PITS	**10,089**	**0.97**	**313**	**1,270**	**1.51**	**62**	**6,410**	**1.98**	**408**	**17,768**	**1.37**	**784**
STOCKPILES	813	0.74	19							813	0.74	19
TOTAL ORE RESERVES	**10,902**	**0.95**	**332**	**1,270**	**1.51**	**62**	**6,410**	**1.98**	**408**	**18,582**	**1.34**	**803**

Source: Mine Planning Solutions (2022)

Mineral Resources that that are not included in the Mineral Reserves have not demonstrated economic viability.

16 MINING METHODS

16.1 Geotechnical Investigations

16.1.1 Mining Geotechnical Data Sources

Geotechnical data in support of the Kiniero Gold Project PFS was sourced from the following:

- updated lithological model
- diamond drilling and onsite geotechnical logging programmes completed by SMG during 2020 and 2021
- detailed study of the soil and rock strengths during the onsite logging, making use of a 4.5kg/cm² hand penetrometer and a portable hydraulic point load (PLT) index test rig
- a comprehensive benchmarking study of saprolite slope stabilities completed by SMG during 2020
- a selection of diamond drill core samples submitted for laboratory test work to determine intact rock and soil engineering characteristics

16.1.1.1 Updated Lithological Model

Locally, the host rocks of the various Kiniero deposits consist of a series of inter-banded mafic volcanic lavas, volcaniclastic sediments, and fine-grained tuffs (with a thickness of a few tens of metres) that have been variously intruded by scattered sills and dykes. Gold in the region typically occurs as Au-quartz-vein lode-type deposits which are associated with pyrite in steeply dipping structures within major slip faults/shears striking NE-SW.

The lithologies of these deposits have undergone deep weathering and intense meteoritic alteration, commonly showing a 30m to 80m thick highly oxidised saprolitic horizon (SAP) developed over the fresh bedrock (FR). The saprolite (SAP) is a multicoloured, soft friable material, which results from the kaolinisation of the original feldspars in the volcanics. At depth the volcanics are strong and fresh, displaying compressive strengths ranging from 100MPa to 200MPa, which allows for steeper mining slope angles.

The change from the weak oxidised volcanics into stronger fresh volcanics is transitional over a few to tens of metres as defined by a modelled transitional "TR" zone. At surface, the saprolite is typically capped by a hard 4m to 10m thick lateritic profile "LAT".

An updated 3D model of these zones (LAT, SAP, TR and FR) was provided and was used to inform the geotechnical investigations. Typical cross sections through the main modelled lithologies are compared for the SGA and the Sabali South deposits in Figure 69 and Figure 70 respectively. The saprolitic regolith horizon at Jean and SGA is <50m thick, thinner that developed at Sabali cluster deposits, especially that of Sabali South. At the Sabali deposits the thickness of the saprolite unit poses a limitation on the overall mining slope angles that can be achieved.

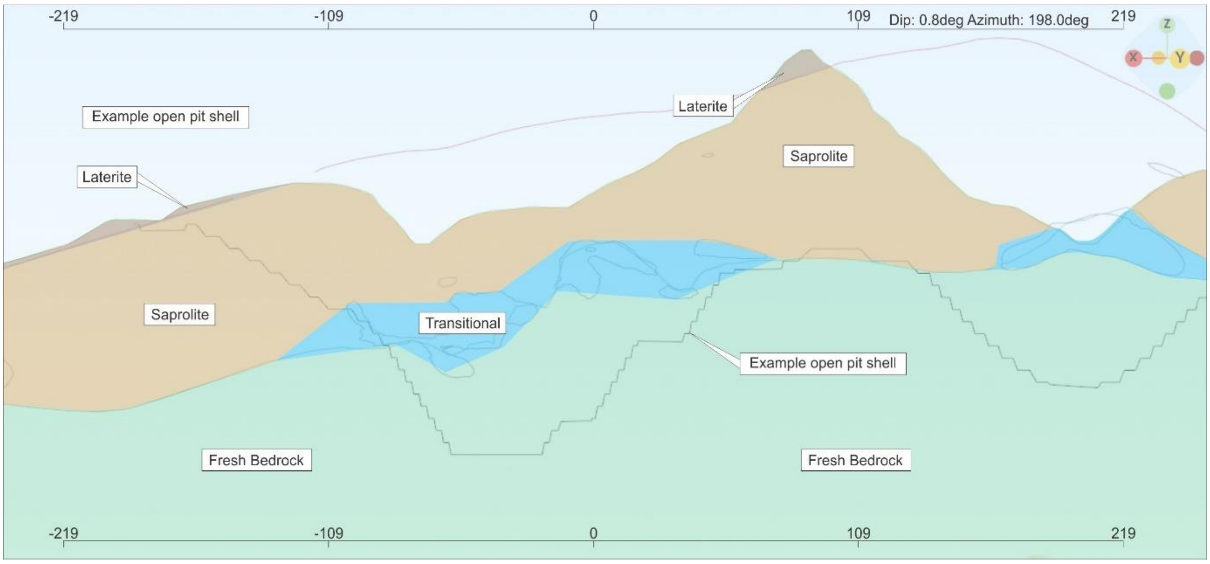


Figure 69: Schematic Cross Section through the Main Regolith Horizons of the SGA Deposit (Source: TREM 2022)

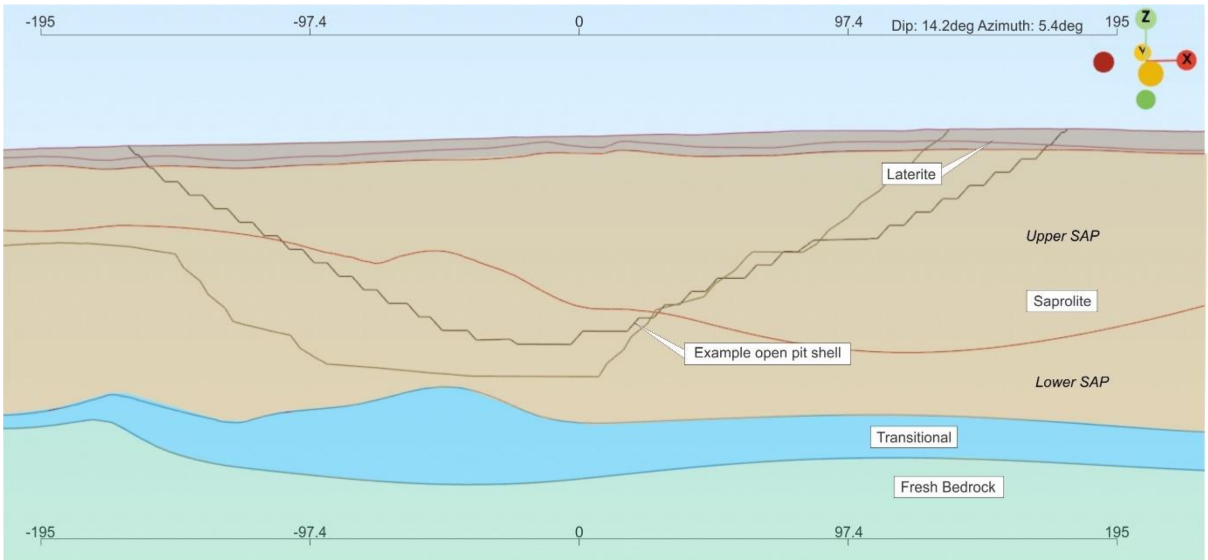


Figure 70: Schematic Cross Section through the Main Regolith Horizons of the Sabali South Deposit (Source: TREM 2022).

16.1.1.2 Diamond Drilling and Geotechnical Logging

During 2020 and 2021 SMG completed nine (9) dedicated geotechnical diamond drillholes of HQ3 diameter (~61mm) from which soils and rock core were extracted. The drillholes were variously inclined and orientated making structural orientation measurements possible (in areas where orientation lines could be successfully gauged during drilling). The pit nomenclature, drillhole collar locations and survey properties are presented in Figure 71 and Table 91.

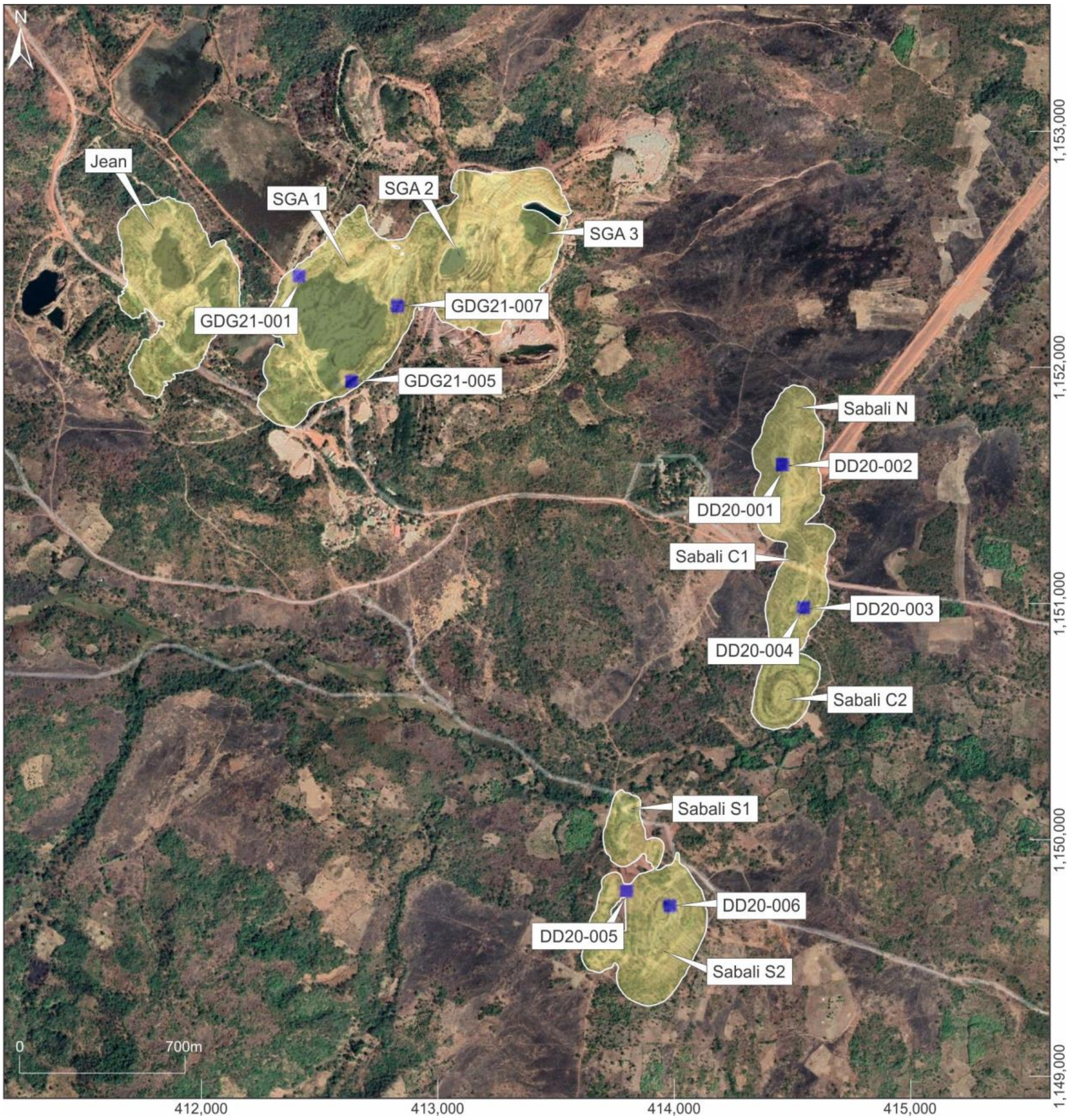


Figure 71: Kiniero Gold Project Pit Nomenclature and Geotechnical Diamond Drillhole Locations

Table 91: Geotechnical Diamond Drillhole Specifications

DRILLHOLE ID	PIT	UTM ZONE 29P		Z	EOH (m)	DIP (°)	TRUE AZI (°)
		X	Y				
DD20-001	Sabali North	414,455	1,151,588	455	115.5	-61.1	284.6
DD20-002	Sabali North	414,455	1,151,588	455	115.0	-62.4	100.4
DD20-003	Sabali Central	414,546	1,150,983	446	110.5	-60.1	104.7
DD20-004	Sabali Central	414,545	1,150,983	446	115.0	-60.3	285.3
DD20-005	Sabali South	413,796	1,149,784	452	115.0	-62.0	289.5
DD20-006	Sabali South	413,980	1,149,722	456	115.0	-62.2	105.8
GDG21-001	SGA (Pit 1)	412,411	1,152,387	470	120.0	-49.7	266.5
GDG21-005	SGA (Pit 1)	412,634	1,151,941	480	200.5	-48.3	316.0
GDG21-007	SGA (Pit 1 & 2)	412,827	1,152,260	483	180.5	-59.9	298.5

Source: SMG (2020 & 2021)

Drillholes DD20-001 to DD20-006 were drilled across the Sabali North, Sabali Central and Sabali South deposits during 2020, while drillholes GDG21-001, GDG21-005 and GDG21-007 were drilled at the SGA (Pit 1) deposit. Recent geotechnical data collected by SMG was not available for the Jean, SGA (Pits 2 and 3), Sabali Central (Pit 2) and Sabali South (Pit 1) deposits. Collecting of geotechnical data specific to these deposit locations is ongoing at the date of this PFS which will be included in support of the DFS.

16.1.1.3 Site Based Rock and Soil Strength Measurements

Extracted core from all nine geotechnical diamond drillholes (Figure 71 and Table 91) underwent detailed onsite geotechnical logging which including the collection of compressive strength measurements of the weaker (soil-like) units using a handheld penetrometer rated at 4.5 kg/cm² (or 441kPa) and hydraulic point load index testing (PLT) on the harder rock samples.

A total of 954 individual tests were completed on cores from the SGA and Sabali deposits. Average values and test counts per main lithology are listed in Table 92. Sample counts from the main SAP and FR lithologies indicate the strength differences between these. The compressive strength of the dominant SAP is on average 320kPa whereas the rock-like TR and FR lithologies are stronger with averages of 18.7 and 99.9 Mpa respectively (Table 92).

Table 92: Average Compressive Strength (field measurements) and Test Counts per Main Regolith Horizon

DEPOSIT	TEST COUNT					AVERAGE COMPRESSIVE STRENGTH (MPa)				
	LAT	SAP	TR	FR	TOTAL	LAT	SAP	TR	FR	AVG
SGA	17	54	12	212	**295**	0.3	0.4	43.1	153	**111.8**
Sabali North		71	8	177	**256**		0.4	10.8	77.43	**53.97**
Sabali Central	1	155	4	72	**232**	0.1	0.3	0.44	69.39	**21.72**
Sabali South		101	12	58	**171**		0.3	5.66	11.81	**4.59**
TOTALS / AVG	**18**	**381**	**36**	**519**	**954**	**0.3**	**0.3**	**18.7**	**99.86**	**55.16**

Source: SMG (2020 & 2021)

16.1.1.4 Benchmarking of Stable Saprolitic Slopes

A comparative bench-marking study of published stable saprolite pit slopes in similar geological settings was conducted during 2020 by SMG. The study involved review of several published papers as well as an in-depth visual assessment of various existing historic failures that had occurred at the West Balan, Jean, SGA and East-West pits during the year of mine closure.

An adaptation of the findings of this study is presented in Figure 72. An empirical design chart can be used to predict stability of saprolitic slopes given a specified combination of overall slope heights and angles. Considering the data plotted, the empirical stability line proposed by Golder (2013) is a reasonable baseline against which to test the stability of weak saprolitic slopes. This stability fit is indicated Figure 72 using the dashed black line where slope geometries plotting above this line are more likely to fail than those plotting below it.

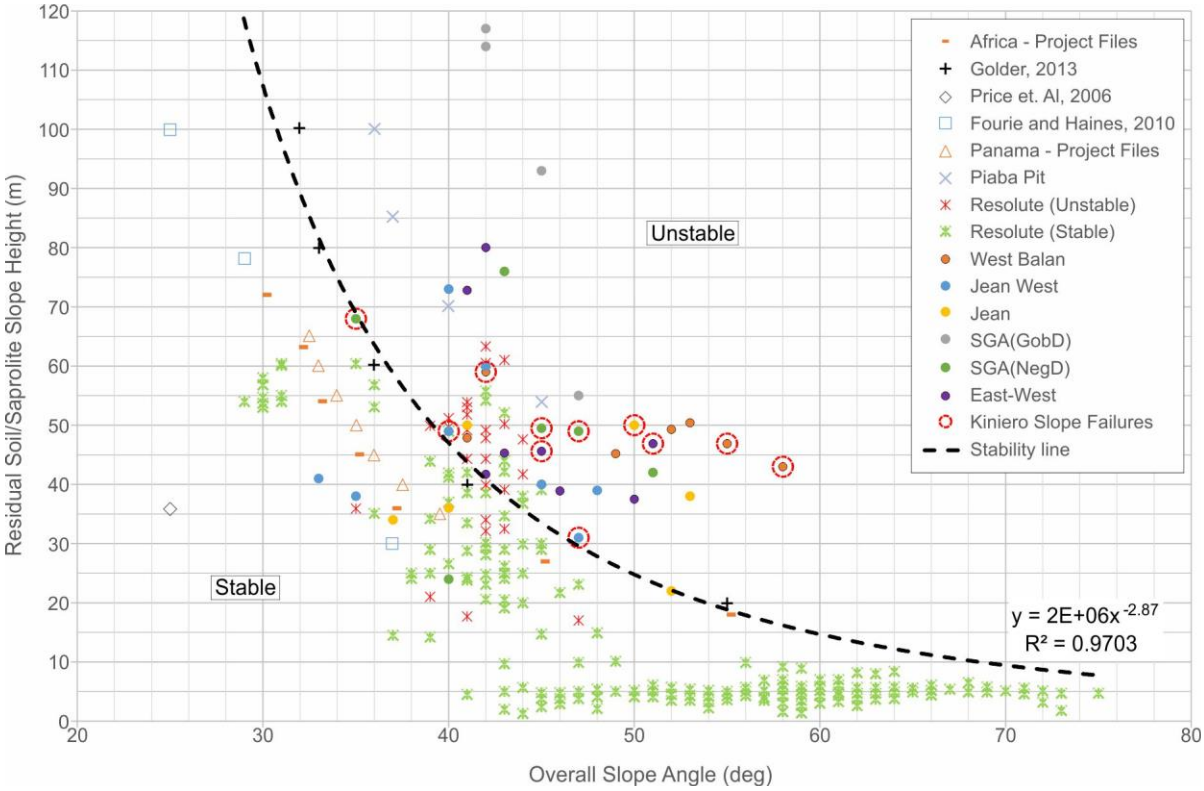


Figure 72: Empirical Design Chart Predicting Stability of Saprolitic Slopes (adapted from SMG 2021)

16.1.1.5 Laboratory Rock and Soil Test Work

Where representative, diamond drill core samples were prepared and submitted for controlled laboratory strength test work. Separate testing programs were undertaken for soil and rock samples respectively. Soil and rock testing conducted is summarised in Table 93. In support of this PFS, all laboratory test results have been considered, including those recently received from the hard rock laboratory.

Table 93: Summary of Soil and Rock Laboratory Strength Test Work Completed

SOIL TESTING		
TEST	№ SAMPLES	REGOLITH
Particle Size Distribution (PSD)	35	LAT, SAP
Plasticity Index (PI)	47	LAT, SAP
Total Stress (Co and ϕ)	26	LAT, SAP
Compressive Strength (UCS)	25	LAT, SAP
Indirect Tensile Strength (BTS)	25	LAT, SAP
Elastic constants (E and v)	25	LAT, SAP

ROCK TESTING		
TEST	№ SAMPLES	REGOLITH
Compressive Strength (UCS)	14	TR, FR
Indirect Tensile Strength (BTS)	12	TR, FR
Triaxial Compressive Strength (TCS)	15	TR, FR
Density (SG)	29	LAT, TR, FR
Elastic Constants (E and v)	0	

Source: SMG (2021)

16.1.2 Soil/Rock Strength and Rock Mass Quality

Soil and rock strength and rock mass quality has been assessed from the geotechnical logging completed on the nine geotechnical diamond drillholes drilled at SGA (Pit 1) and the Sabali North, Central and South deposits (Figure 71). Results from the completed laboratory rock and soil strength testing programs have also been included.

16.1.2.1 Soil-like Units (LAT and SAP)

The strength of the soil units, LAT and SAP, are defined through their physical properties (particle size distributions and water content). These units are assigned Mohr-Coulomb shear strength parameters for slope design purposes, namely Cohesion (C_o) and friction angle (ϕ).

Particle size distribution (PSD) analysis has been conducted and indicates a clear distinction between the laterite capping and the saprolite unit below (Figure 73). Both have a similar low clay content (<10%), but at the silt particle size level the units diverge. The laterite incorporates less fines with a higher percentage reporting of coarse sand and gravels. Test pitting confirms the laterite as being notoriously hard, regularly resulting in early excavator refusal. The laterite (LAT) is low to intermediate on the plasticity scale while the saprolite (SAP) is medium to high. Despite being weak (when compared to the fresh rock slopes), little-to-no concern of SAP slope movements or clay swelling is evident.

Soil compressive strengths were determined at regular intervals using a 4.5kg/cm² hand penetrometer. All measurements of SAP at the Sabali deposits indicate the bulk of the compressive strength readings are scattered between 75kPa and 275kPa (Figure 74).

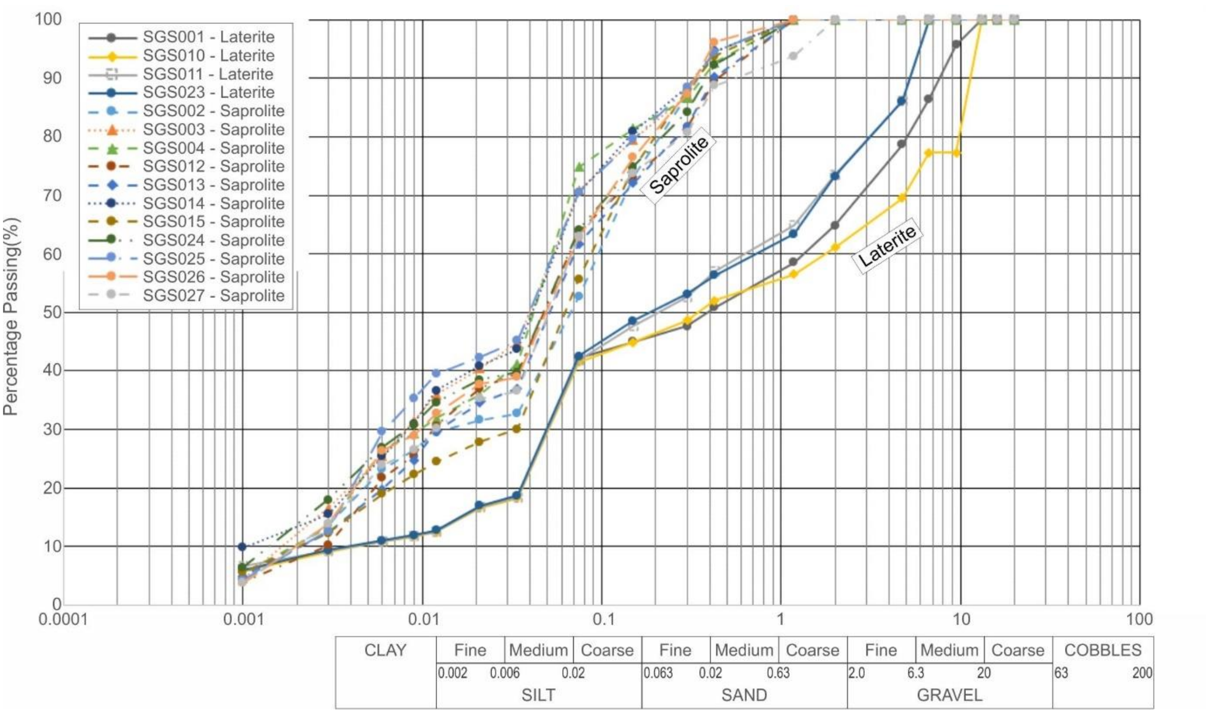


Figure 73: Compressive Strength Measurements on SAP Core samples using a Hand Penetrometer

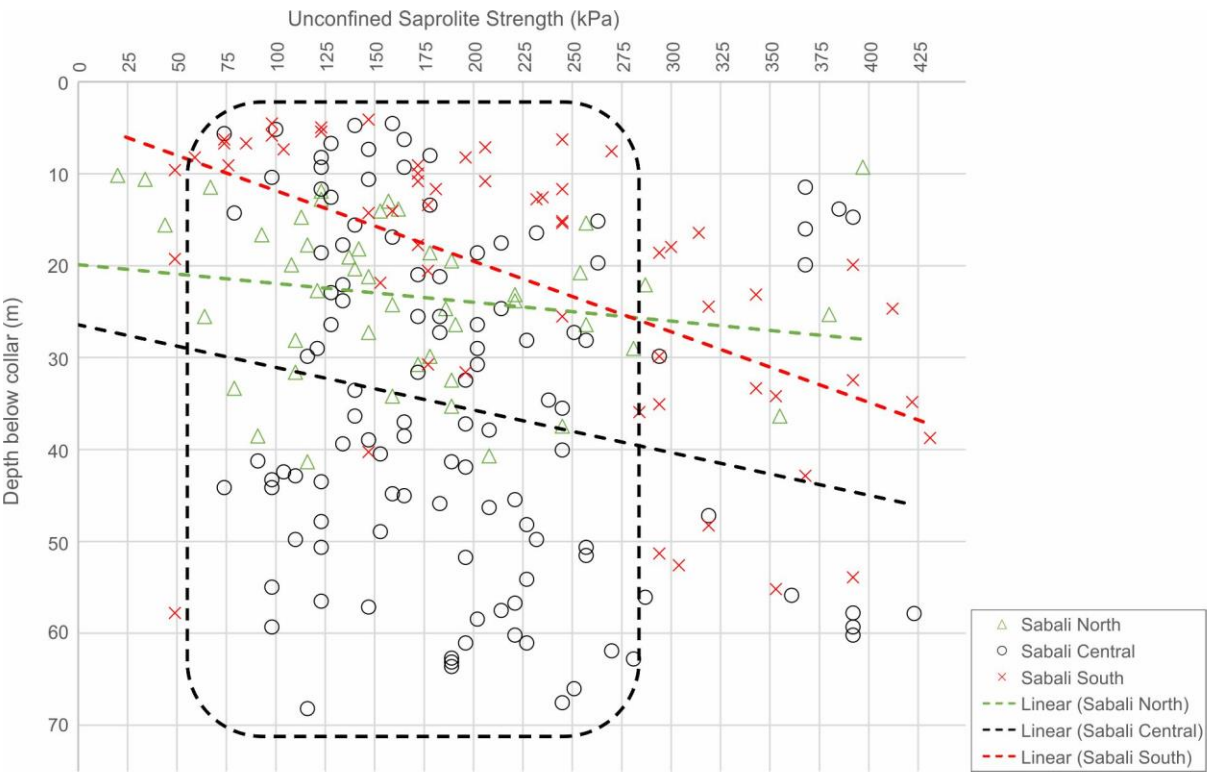


Figure 74: Compressive Strength Measurements on SAP core samples using a Hand Penetrometer

The following is noted from the hand penetrometer results:

- test results are predominantly from the Sabali North, Central and South deposits. Limited hand penetrometer readings were obtained at SGA (Pit 1) due to the more rapid transition of the saprolite material into harder fresh rock
- SAP compressive strengths are highly variable. At Sabali North and Sabali Central the variability persists across all tested mining depths. Variability is lower at Sabali South with an apparent downward-strengthening trend existing
- 175kPa appears to be a reasonable grouped average estimate of the compressive strength of SAP across all the Sabali deposits. Assuming a friction angle of 27° (determined through laboratory testing) this equates to a cohesion value of approximately C_o = 54KPa

The SAP is the most important soil unit in terms of slope design. It is expected that exposed thicknesses in sloped saprolitic walls will range from 10m to 30m at SGA to a maximum of approximately 90m at Sabali South. Soil strength estimates for slope design purposes evolve over time as more data for the Kiniero Gold Project is acquired (Table 94).

The 2020 values were based on a thorough benchmarking and back analysis study that have now been compared against actual laboratory testing. The 2022 revision considers laboratory test work received for the SGA and Sabali deposits and considers a detailed reassessment of the site hand penetrometer measurements collected during geotechnical logging. The 2022 revision of SAP strength is lower that from the 2020 benchmarking back analysis, resulting in an overall reduction in the slope angles that is achievable in this SAP material.

Table 94: Evolving Soil Strength Parameters for the Kiniero Gold Project

SOIL UNIT	PHYSICAL CATEGORY	INITIAL ESTIMATE	2020 BENCH MARKING	2022 PFS
Laterite (LAT)	Density (kg/cm^3)	20	n/a	**21.1**
	Cohesion Co (kPa)	65kPa	n/a	**108kPa**
	Friction angle f (°)	40°	n/a	**36°**
Saprolite (SAP)	Density (kg/cm^3)	19.5	19.5	**18.2**
	Cohesion Co (kPa)	36kPa	37kPa	**54kPa**
	Friction angle f (°)	27°	36°	**27°**

Source (TREM, 2022)

16.1.2.2 Hard Rock Units (TR and FR)

Slope design in the hard rock units relies on both rock strength classification (typically through laboratory test work) and rock mass classification using one of several published classification systems, e.g. RMR after Bieniawski (1989), MRMR after Laubscher (1990), Q after the NGI (2015) and/or GSI after Hoek (2000).

Rock strength has been obtained for the Kiniero Gold Project rock units through laboratory test work (14 tests conducted) and through onsite measurements using a portable hydraulic point load index test (PLT) rig, with over 540 hard rock samples tested. Strength estimates from the conducted PLT testing are presented in Table 95.

The TR and FR rock masses appear to weaken from north to south. At SGA, the average rock UCS is in the order of 40MPa for transitional sap-rock (TR) and 140MPa for fresh bedrock (FR). At Sabali North this reduces to 10MPa and 70MPa respectively while at Sabali South the hard rock units are weaker, with average UCS values of 5MPa (TR) and 11MPa (FR), as averaged across the 70 readings collected (Table 95).

The primary difference between the bedrock at the SGA and the Sabali South deposits is the SGA bedrocks being dominated by undifferentiated volcanics ("VOL" with lesser basalt and metasediment). The Sabali South bedrock is dominated by volcano sediments ("VSED") which are largely not present at the other deposits.

Table 95: UCS Strength for Hard Rock Units

DEPOSIT	POINT LOAD INDEX UCS (MPa)	LAT	SAP	TR	FR	TOTALS
SGA	Sample Count	0	0	12	198	210
	Average	-	-	39.2	138.9	133.2
	Minimum			0.9	11.8	0.9
	Maximum			100.0	302.7	302.7
	Std dev.			41.3	59.8	63.2
Sabali North	Sample Count	0	4	8	177	189
	Average	-	1.9	9.8	70.4	66.4
	Minimum		0.4	0.2	4.5	0.2
	Maximum		3.6	30.0	163.6	163.6
	Std dev.		1.5	11.2	26.0	29.6
Sabali Central	Sample Count	0	0	0	72	72
	Average	-	-	-	63.1	63.1
	Minimum				3.6	3.6
	Maximum				170.9	170.9
	Std dev.				37.9	37.9
Sabali South	Sample Count	0	0	12	58	70
	Average	-	-	5.1	10.7	9.8
	Minimum			0.8	0.4	0.4
	Maximum			12.7	80.0	80.0
	Std dev.			4.2	16.8	15.5
TOTAL TEST COUNT		**0**	**4**	**32**	**505**	**541**

Source (SMG, 2021)

Rock mass classification can only be conducted where recovered core displays clear geological structure (jointing). At the Kiniero Gold Project the rock mass classification is particularly relevant to the TR and FR units, but has also been determined for limited sections of SAP where geological structure has been adequately preserved.

The rock mass quality for the hard rock units recorded from the geotechnical logging is presented in Table 96. Three common classification systems are compared (RQD, GSI and RMR89). At SGA and Sabali North good rock mass quality are apparent, while rock mass quality is noted to decrease from the north to the south with the hard rock materials at Sabali South being classified as poor-to-fair quality.

Table 96: Rock Mass Quality per site Determined for Hard Rock material

DEPOSIT	RQD %		GSI (Hoek)		RMR(89)		Rock mass Quality	
	MEDIAN	50th perc.	MEDIAN	50th perc.	MEDIAN	50th perc.	~MRMR	Class
All data	88	96	55	63	60	68	55	Fair to Good
SGA (Pit1)	97	99	62	66	67	71	62	Good
Sabali North	90	89	63	63	68	68	63	Good
Sabali Centre	63	60	50	51	55	56	50	Fair
Sabali South	80	71	47	45	52	50	45	Fair to Poor

** Median and 50th percentile values are only equivalent for normal distributions*

Exposed fresh bedrock will be thickest in the mining slopes at the Jean and the SGA deposits. SAP cover thickens considerably south of the SGA deposit with the coverage at the Sabali Central and the Sabali South deposits being sufficiently well developed and thick such that mining is unlikely to reach the depths of the fresh bedrock at these pits.

The calculated rock mass quality ratings at SGA using the Rock Mass Rating system described by Bieniawski (1989) is presented in Figure 75. Low RMR89 ratings indicate poor rock mass quality and more challenging/risky mining conditions. The converse is true of high RMR89 ratings.

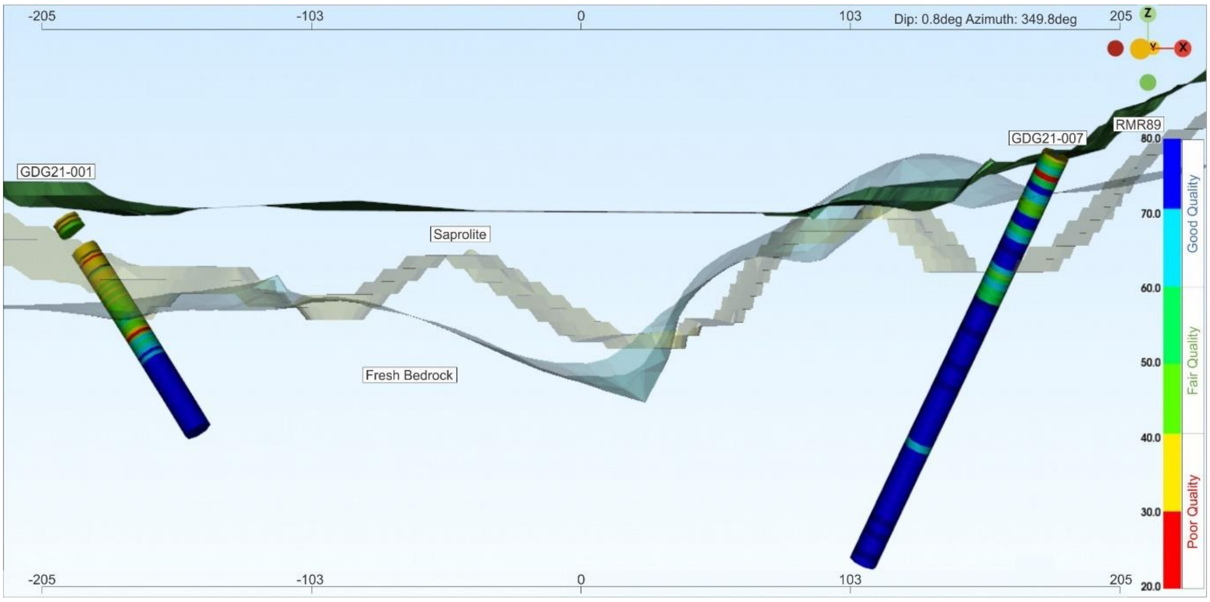


Figure 75: Rock Mass Quality (RMR89) at SGA Illustrating the Contrast between Saprolite and Fresh Bedrock

The RMR89 readings are displayed along the traces of drillholes GDG21-001 and GDG21-007 (Figure 75). It is noted for SGA that the deeper fresh bedrock provides good to very good rockmass quality (RMR89>70). Closer to the oxidised/fresh boundary (i.e. the SAP-FR boundary since the TR horizon is poorly-developed in this area) the rock mass quality drops to a poor-to-fair status. Areas planned for mining below the oxidised/fresh boundary at SGA are expected to encounter fair-to-predominantly good rock mass conditions and steeper mining slopes should be possible here.

This is not the case for Sabali deposits where significant weakening of the fresh bedrock is apparent, especially for Sabali South where weak volcano sediments (VSED) dominate. Should mining reach these depths at Sabali South then detailed stability assessments will be required.

16.1.2.3 Discussion

The oxidised saprolite (SAP) and the fresh bedrock (FR) units dominate the pit slope designs. From a material strength point of view these two units are distinctly different. Figure 76 displays compressive strength UCS along five of the geotechnical diamond drillholes. Likely mining open pit shells have been included with the latest interpretation of the oxidised/fresh boundary.

The geotechnical environments are notably different and clearly apparent in Figure 76 when comparing SGA to Sabali Central and/or Sabali South. Bedrock composition changes are noted with the SGA bedrock dominated by undifferentiated volcanics whereas the Sabali South bedrock is dominated by weaker volcano sediments. These lithological changes manifest geotechnically a shift in soil and rock strength from SGA in the north to Sabali South, in the south (Figure 77). Saprolite strength, as measured using a hand penetrometer and presented in units of kilopascal (kPa), is noted to increase from the south to the north. Conversely, fresh bedrock strength, as measured using a point load test rig and presented in units of megapascal or MPa, is noted to increase from the north to the south.

In conclusion, the SGA and the Sabali North, Central and South deposits have been grouped into three categories with the following noted of the likely geotechnical mining conditions at each category.

- SGA (Pit 1) and Sabali North share similar geometries. Until site specific data is available for the Jean, SGA (Pit 2) and SGA (Pit 3) deposits, these are assumed to belong to this grouping. The SAP cover here is shallow enough such that mined slopes are likely to expose fresh bedrock walls. Shallower slope angles will be required in the saprolite (because of a revised weakening of the saprolite material strength properties) which will be offset by steeper slopes in the good quality FR bedrock units
- the Sabali Central hosts a deeper saprolite profile. Mined slopes are therefore less likely to expose large areas of fresh bedrock. With the larger saprolite slopes, a

shallower slope angle is required in the saprolite. An opportunity for slope optimisation exists, where the hand penetrometer readings indicate a small (but notable) increase in saprolite shear strength from the north (SGA) to the south (Sabali South)

- Sabali South hosts a very deep saprolite profile (up to 90 vertical metres). Mined slopes are therefore unlikely to progress deep enough to expose fresh bedrock. The entire mined slope will comprise weak saprolite at Sabali South and the shallower slope angles required in the saprolite SAP will limit the overall extraction that is possible. An opportunity for slope optimisation does exists in that hand penetrometer readings indicate a small (but notable) increase in saprolite shear strength from the north (at SGA) to the south (Sabali South)

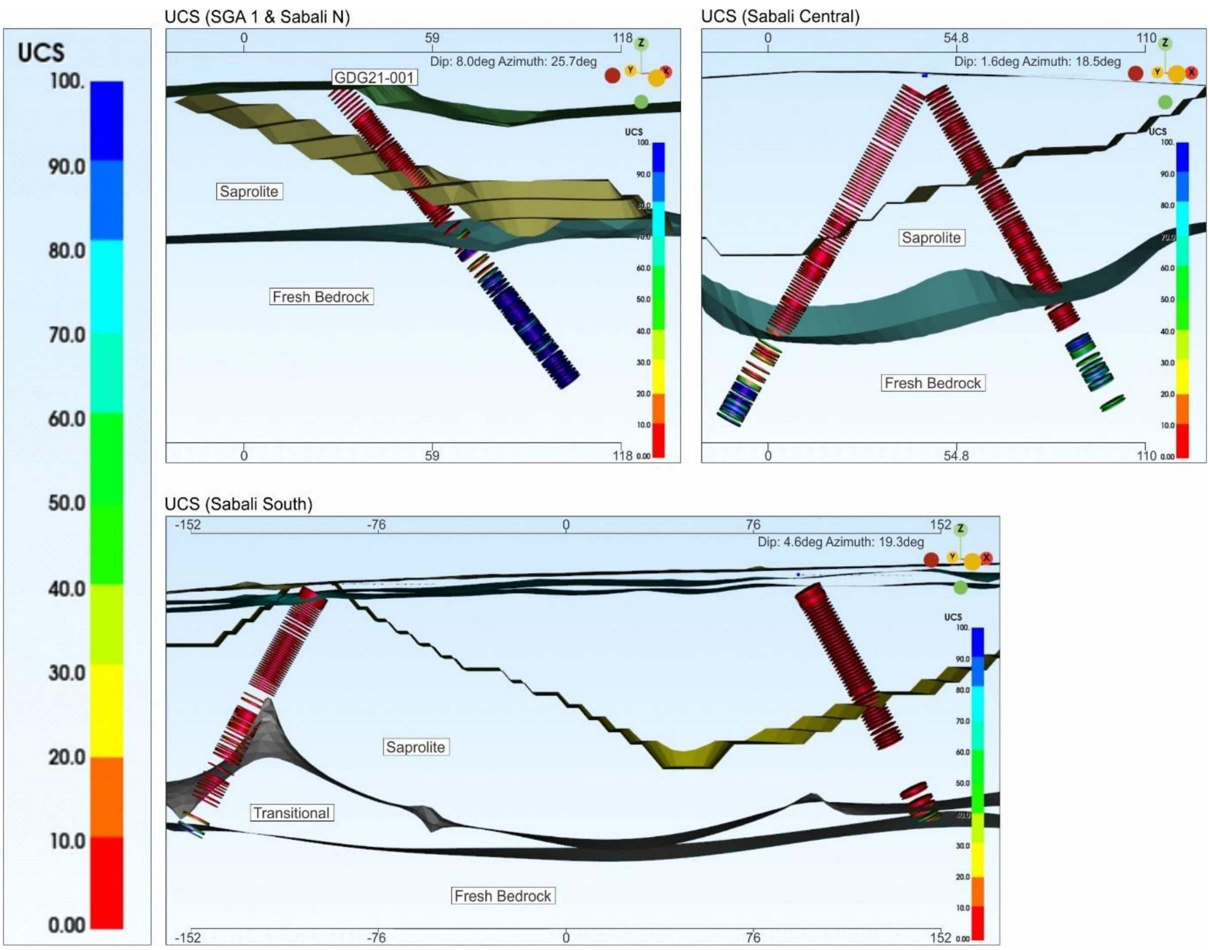


Figure 76: Measured Rock Strength from Hand Penetrometer and PLT Testing Illustrating the Contrast Between the Weak Saprolites and the Stronger Fresh Bedrock.

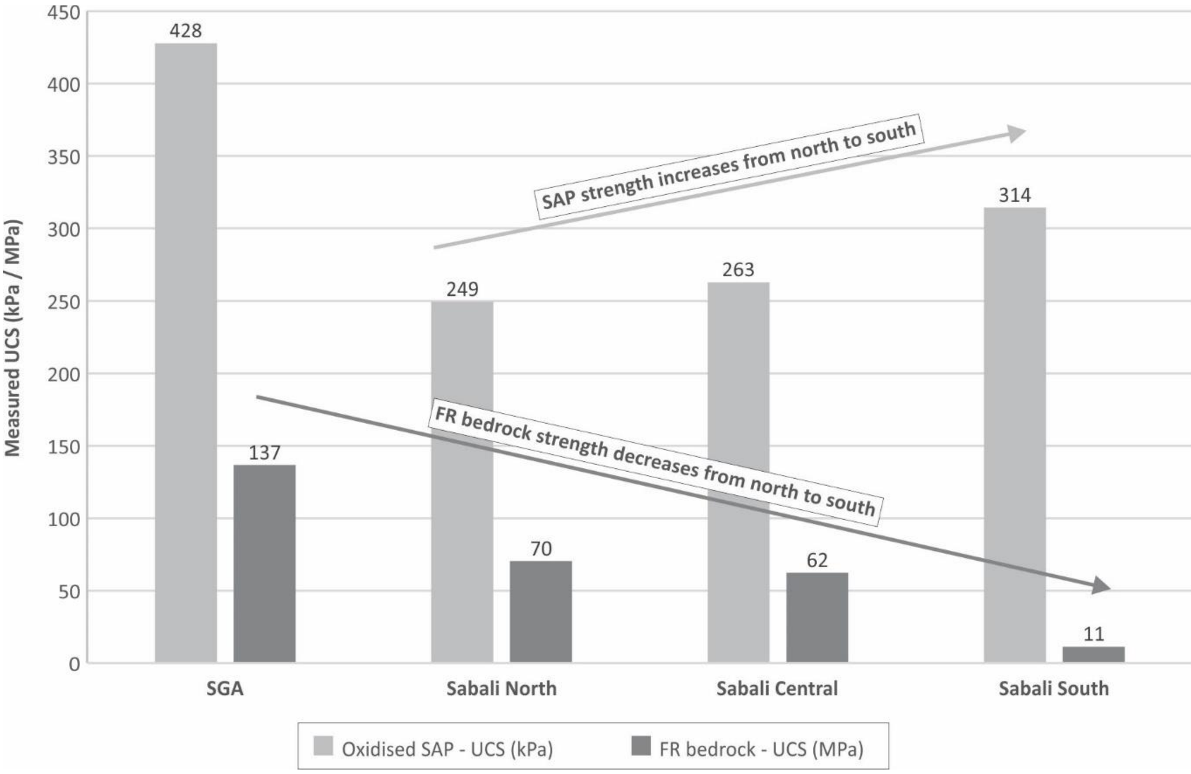


Figure 77: Changes in Soil and Rock Strength from North to South at the Kiniero Gold Project

16.1.2.4 Summary of Material Properties

Material strength properties have been derived and updated in support of this PFS. These are presented in Table 98 and have been used in the determination of the mining slope angle guidelines presented below.

16.1.3 Slope Stability Assessment

16.1.3.1 Methodology and Acceptance Criteria

Acceptance criteria have been utilised to establish the required performance of pit slopes with respect to safety, ore recovery, and financial return. Both the deterministic slope stability Factor of Safety (FOS) and Probability of Failure (POF) are compared against the acceptance criteria defined in Table 97 for each stability assessment conducted.

Table 97: Typical FOS and POF Acceptance Criteria Values (modified from Read and Stacey, 2009)

SLOPE SCALE	CONSEQUENCE OF FAILURE	FOS (min)	POF (min)
Single Bench	Low	1.1	25%
Multi-benched stack / Inter-ramp	Moderate	1.2	20%
Overall Slope	High	1.3	5%

Table 98: Soil and Rock Material Strength Properties for the Kiniero Gold Project

MAIN LITHOLOGY		DEPOSIT / AREA	MATERIAL STRENGTH MODEL	INTACT MATERIAL PROPERTIES					ROCK MASS (HOEK-BROWN PROPERTIES)				MOHR-COULOMB PROPERTIES	
				DENSITY (kg/cm²)	FRICTION ϕ (°)	Co (kPa)	UCS (Mpa)	mi	GSI	mb	s	a	FRICTION ϕ (°)	Co (kPa)
LAT	Laterite capping	Predominantly the Previous Plant Area	Mohr-Coulomb	21.1	36	108	< 1	-	-	-	-	-	36.00	108
SAP	Weak Saprolite	Sabali North, Central and South	Mohr-Coulomb	18.5	27	54	< 500kPa	-	-	-	-	-	27.00	54
TR	Transitional Sap Rock	Sabali South	Hoek-Brown	25.0			5	8	45	1.12	0.002	0.51	24.03	278
FR (1)	Fresh bedrock (SGA filtered)	SGA (Pit 1)	Hoek-Brown	28.0	55 to 60	18,000 to 19,000	140	15	65	4.3	0.021	0.50	56.70	2,876
FR (2)	Fresh bedrock (Sabali North)	Sabali North	Hoek-Brown	28.0	35	12,000	70	15	60	3.6	0.012	0.50	51.61	1,556
FR (3)	Fresh bedrock (Sabali Central)	Sabali Central	Hoek-Brown	28.0			50	8	50	1.34	0.004	0.51	41.42	919
FR (4)	Fresh bedrock (Sabali South)	Sabali South	Hoek-Brown	28.0			10	8	45	1.12	0.002	0.51	28.07	399

Source: TREM (2022)

For the Kiniero Gold Project PFS, design assumptions require a FOS of 1.3 or more, a well-drained pit wall, and static conditions (a reasonable assumption in a region with low seismic risk). In the development of Section 16.1.4, a slightly higher FOS of 1.35 has been targeted to allow for some saturation of the slopes during the rainy season.

16.1.3.2 Slope Stability Assessments of the Oxidised Saprolitic Slopes

Limit-equilibrium analysis was undertaken to assess the stability of expected slope geometries and to provide a set of slope design guidelines (Section 16.1.4). A Microsoft Excel based slope stability modelling program was used as a first pass to develop suitable slope geometry design guidelines that were provided to the mining engineer for detailed mine design purposes.

The model is an adaptation of the 1983 Hoek and Bray soil slope design charts that tests a given slope geometry for stability based on assumed material shear strength properties and the Mohr-Coulomb failure criteria. This Microsoft Excel version allows for a quick assessment of slope stability safety factors making it perfect for iterative parametric studies as it produces the same results achievable through more complex numerical modelling codes. Its only limitation is that only a single material can be assessed per slope. An output from this model for a 50m slope in saprolite at an overall angle of 40° is presented in Figure 78. The model predicts a slope FOS of 1.22 (below 1.35) highlighting the requirement to flatten these slopes.

Iterative testing of probable LAT and SAP slope heights against different slope angles has led to the development of a slope design chart (Figure 79). The maximum allowable slope angle of a multiple benched stack can be read off for different stacked slope height requirements. For comparison, the findings for SAP slopes from the 2020 SMG benchmarking exercise (as discussed in Section 16.1.1.4) have been included on the design chart as a dashed black curve.

16.1.3.3 Slope Stability Assessments of Slopes in Fresh Bedrock

Limit-equilibrium analysis can (in theory) also be used to assess the stability of the hard rock slopes, but this relies on careful consideration of the assumed rock mass strength parameters. For jointed fresh rock, use of the Hoek-Brown failure criteria is preferred above the Mohr-Coulomb method, which is more applicable to soils. The Hoek-Brown method is specifically adapted to take a jointed and broken rock mass into account through the Geological Strength Index (GSI) rock mass quality rating. Applicable Hoek-Brown failure parameters have been determined for the Kiniero Gold Project rock masses TR and FR, as presented in Table 98 above.

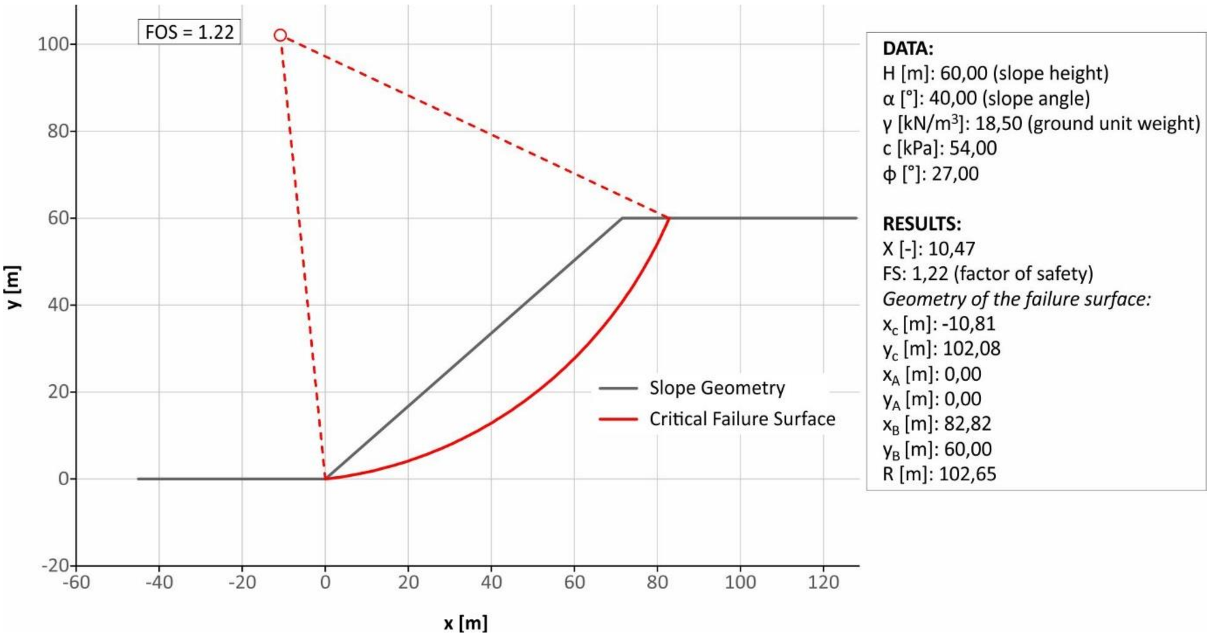


Figure 78: Modelled Slope Stability for a 60m high Saprolite Slope at 40° (FOS = 1.22). Source: TREM, 2022

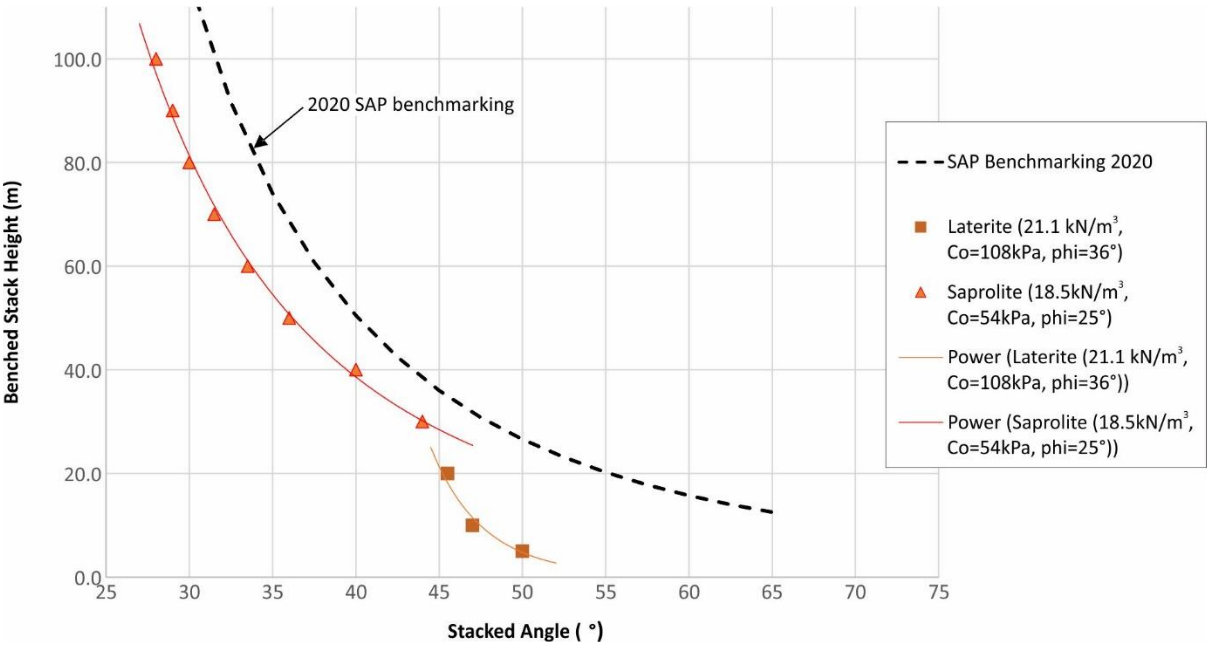


Figure 79: Laterite and Saprolite Slope Design Chart from Limit Equilibrium Analyses. Source: TREM, 2022

The problem with the limit equilibrium approach with stronger rock masses is that often the modelled safety factors are very high and fail to adequately account for all likely slope stability risk agencies. Hard rock slope failures are driven predominantly by geological structure interactions which, under the right conditions, can lead to a combination of well published slope failure mechanisms (including planar, wedge and toppling failures). Substantial and accurate joint orientation data is required to assess these interactions through kinematic analysis.

A proven alternate method of slope design is using empirical design charts. These are typically created based on the collation of historical slope failures together with pertinent data on slope geometry and rock mass properties at the time of failure. The Haines-Terbrugge design chart is a well-known tool in geotechnical designs. The Haines-Terbrugge chart is presented in Figure 80 with the likely hard rock slope conditions for the SGA and Sabali deposits plotted and compared.

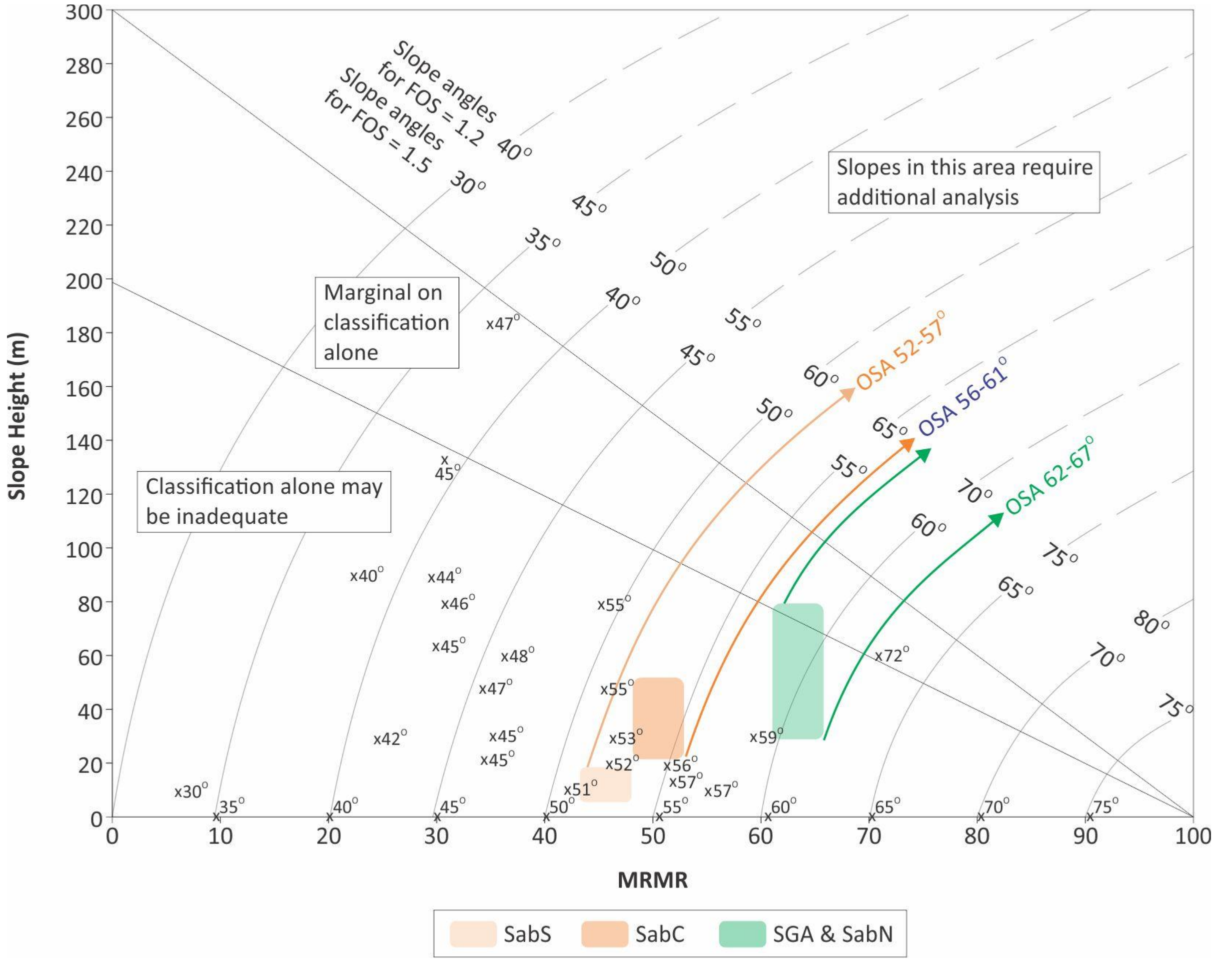


Figure 80: Haines-Terbrugge Slope Design Chart for Estimating Slope Geometries

The Haines-Terbrugge chart relies on the Mining Rock Mass Rating (MRMR) parameter after Laubscher (1990). This is similar to the GSI and the RMR89 systems but is downrated for mining specific risk factors including blast induced damage, mining stress influencers, joint orientation and rock weatherability. MRMR estimates for the various deposits is presented in Table 96 and can be summarised as follows:

- the SGA and Sabali North deposits present good fresh rock mass conditions (MRMR of 62). Recommended safe slope angles range between 60° and 65° depending on the height of the slope to be created (the expected range is 30m to 80m). Saprolite coverage is thinner here allowing for the planned open pits to be excavated deeper below the oxidised/fresh boundary and well into the fresh bedrock lithological units
- the Sabali Central deposit presents fair-to-good rock mass conditions (MRMR of 50). Recommended safe slope angles range between 56° and 60° depending on the height of the slope to be created (the expected range is 20m to 50m). Saprolite coverage is thicker here preventing planned open pits from being excavated as deep below the oxidised/fresh boundary and into the fresh bedrock unit below
- the Sabali South deposit presents poor-to-fair rock mass conditions (MRMR of 40-45). Recommended safe slope angles range between 52° and 55° for a smaller slope height of 20m. SAP coverage is thick preventing the planned open pits from being excavated to the level of the fresh bedrock unit

16.1.4 Summary of Slope Design Criteria

Geotechnical analysis has been completed based on the site logging of nine geotechnical diamond drillholes and related laboratory test work. The outcomes have been used to derive a set of slope geometry guidelines per main lithological unit as presented in Table 99.

Figure 81 presents the Table 99 recommendations graphically in the form of a slope geometry design chart that has been used to determine the final open pit design shells.

Table 99: Geotechnical Guidelines for Slope Geometries for the Kiniero Gold Project

GEOTECHNICAL LITHOLOGY	SLOPE HEIGHT (m)	BENCH FACE ANGLE (°)	BENCH WIDTH (m)	SLOPE IRA (°) *c-t-c*	SLOPE BSA (°) *c-t-t*	STACKED BENCHES
Laterite (LAT) (21.1 kN/m³, Co=108kPa, ϕ =36°)	5	50	0	50	50	1 bench
	10		1	44.1	47	2 benches
	20		1	44.1	45.5	4 benches
Saprolite (SAP) (18.5 kN/m³, Co=54kPa, ϕ =27°)	20	50	1	42.7	44	4 benches
	30		1.2	42.9	44	6 benches
	40		2	38.8	40	8 benches
	50		3	34.8	36	10 benches
	60		3.7	32.5	33.5	12 benches
	70		4.3	30.6	31.5	14 benches
	80		4.7	29.2	30	16 benches
	90		5.1	28.3	29	18 benches
	100		5.5	27.3	28	20 benches
Saprock (TR) (25 kN/m³, Hoek-Brown material)	10	65	2.4	46.8	55	2 benches
	20		2.5	47.8	52	4 benches
	30		2.7	47.1	50	6 benches
	50		2.7	45.4	47	10 benches
	10	80	1.5	62.8	70	2 benches

GEOTECHNICAL LITHOLOGY	SLOPE HEIGHT (m)	BENCH FACE ANGLE (°)	BENCH WIDTH (m)	SLOPE IRA (°) c-t-c	SLOPE BSA (°) c-t-t	STACKED BENCHES
Bedrock (FR) (28 kN/m³, Hoek-Brown material)	20		1.9	60.7	65	4 benches
	30		2	59.1	62	6 benches
	40		2.2	57.7	60	8 benches
	50		2.5	56	58	10 benches
	60		2.7	55.2	57	12 benches
	70		2.9	54.4	56	14 benches

Notes: All bench heights are recommended at 5m; IRA = inter ramp angle measured from crest to crest (c-t-c); BSA = bench stack angle measured from crest to toe (c-t-t). Source: TREM, 2022.

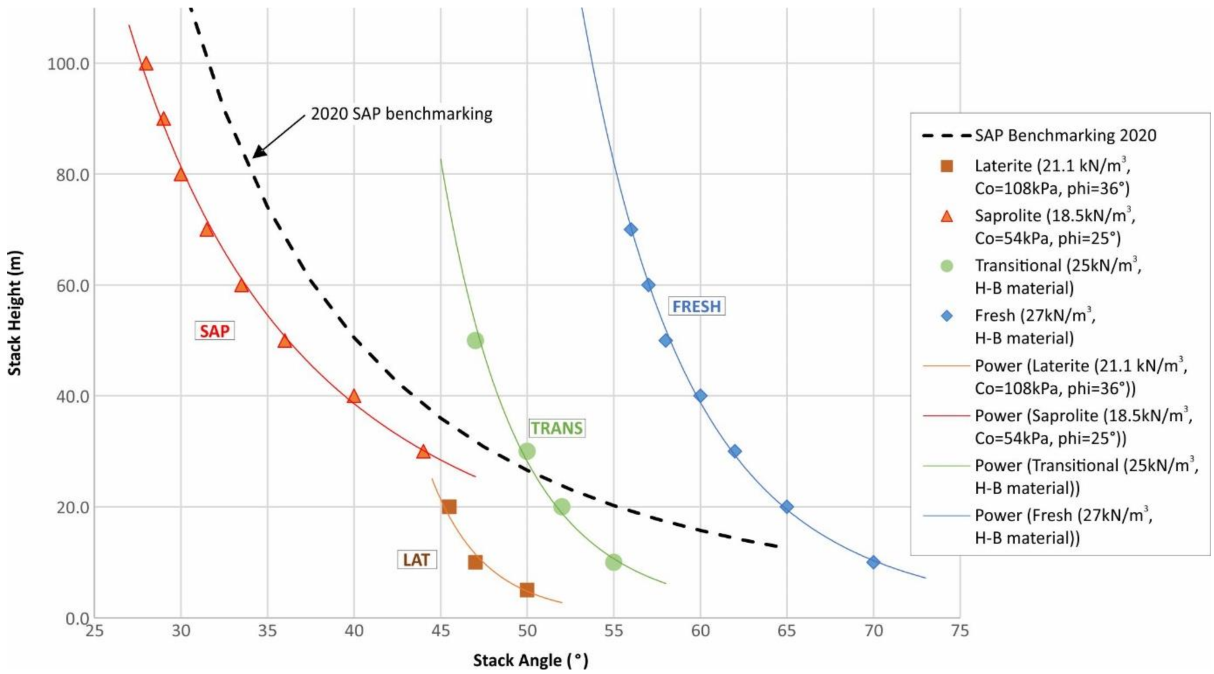


Figure 81: Kiniero Gold Project PFS Slope Design Chart from Limit Equilibrium and Empirical Analyses.

16.1.5 Summary and Conclusions

- Geotechnical analysis has been completed based on the site logging of nine geotechnical diamond drillholes and related laboratory test work. The SGA (Pit 1) and the Sabali North, Central and South deposits benefit from this drilling. However, data is lacking for the Jean, SGA (Pit 2) and SGA (Pit 3) deposits

- results from laboratory test work conducted during 2020 and 2021 have been included in this PFS level geotechnical investigation

- saprolite strength is lower than previously estimated through benchmarking and back analysis in 2020 by SMG. This has resulted in a flattening of the recommended mining slopes:
    - the saprolite gets thicker from the north to the south. At Jean and SGA, the saprolite unit is 10m to 40m thick whereas at Sabali South the thickness increases to >90m
    - at SGA and Sabali North, the saprolite cover is shallow, such that mined slopes will be mined beneath the saprolite exposing fresh bedrock walls. Shallower slope angles in the saprolite will therefore be offset by steeper slopes in the good quality fresh bedrock units
    - for the Sabali Central and Sabali South deposits the saprolite is much thicker, with mined slopes unlikely to expose fresh bedrock. A flattening of the saprolite slope is recommended
- soil and rock strengths differ between the north (Jean and SGA) and the south (Sabali South). Both the saprolite (SAP)and the fresh rock (FR) strengths are lower at the Sabali deposits than they are at SGA. This is driven by differences in the dominant rock types that define each of the main lithological units. Weak volcanogenic-sediments account for the fresh bedrock at Sabali South and have a significantly lower intact rock strength
- a slight strengthening of the SAP is noted from the north to the south when comparing the three Sabali deposits. This characteristic (if proven reliable) may offer upside to the extractions achievable at the Sabali Central and especially the Sabali South deposits. Further investigation is required
- the outcomes of this study have been used to derive slope geometry design guidelines per main lithological unit. These are presented in Table 102 and Figure 80. The recommended guidelines are conditional on the following assumptions:
    - a design safety factor of 1.35 that has been targeted assuming well drained slopes. This highlights the need for good surface water management and a hydrogeological control programme around the pit slopes
    - static conditions (a reasonable assumption in a region with low seismic risk)

16.2 Hydrogeology

Groundwater assessments of the Kiniero Gold Project commenced in 2020 and have been ongoing since this date, through the collection of field (water quality and water levels), drilling of monitoring boreholes, pit late water sampling, ground geophysics and engagement of hydrogeology consultants:

- initial hydrological specialist study undertaken in early-2020 by Peens and Associates Civil Engineering and Training Consultant (Pty) Limited (Peens) and reported upon in the ESIA submitted by ABS-Africa to the GoG. A preliminary field investigation was undertaken with groundwater numerical modelling compiled to assess open pit groundwater inflow and potential groundwater impacts. This study covered the regional and Project hydrology and use of water resources
- second stage hydrology study, in support of the 2020 DFS, undertaken by Peens. The second stage report assessed the surface water quantities and their management;
- Future Flow (2021) appointed to undertake an updated baseline characterisation (including hydrocensus, drilling, aquifer testing and chemical analysis) and associated impact assessment (construction, calibration and application of 3D numerical ground flow and contaminant transport models)
- appointment of Geostratum Water Management Consulting (Pty) Ltd (Geostratum) in February 2022 to update the groundwater model in support of the PFS mine schedule, which is reported herein. The Geostratum scope involved:
    - incorporating the latest open pit shells (annual intervals) into the existing Future Flow model to re-evaluate mine dewatering in terms of groundwater pit inflow volumes and potential out-of-pit dewatering
    - incorporating the tailings and waste rock seepage into the existing numerical groundwater model, based on the new designs, and update the potential contaminant transport plumes for arsenic concentration (conservative or no-chemical reaction plumes). Both operational and long-term post-mining groundwater plumes were modelled
    - update the existing Kiniero Gold Project groundwater assessment report (by Future Flow in 2021), including results from the field investigation and undertake a revised Impact Assessment

16.2.1 Data Collection and Methodology

16.2.1.1 Groundwater Modelling

Numerical flow modelling was compiled in Processing Modflow 8 by Simcore Software, utilizing the MODFLOW and MT3DMS model codes. The models were used to calculate:

- drawdown in groundwater levels around the mining areas due to mine dewatering and the associated impacts on surrounding groundwater users
- impacts on surface water bodies due to reduced baseflow contribution due to mine dewatering
- groundwater recharge from the surface stockpile areas to the underlying aquifers and the associated impacts on the groundwater flow patterns
- contaminant migration through the area and impacts on the surrounding aquifer quality away from the operational area during operations and after closure
- impacts on the surface water bodies due to contaminant migration away from contaminant sources within the mining area
- decant potential and volumes

16.2.1.2 Hydrocensus

A hydrocensus of the existing groundwater abstraction points of the region was completed by SMG in August 2020. A total of 19 groundwater abstraction points (boreholes and hand dug wells) were identified and visited. During the hydrocensus the borehole and well positions, depth to groundwater level and other information were gathered.

16.2.1.3 Drilling and Monitoring Boreholes

A total of thirteen groundwater monitoring boreholes have been drilled at the Kiniero Gold Project at pre-determined positions (Figure 82). Positioning of the boreholes took into consideration:

- the 2020/2021 mine surface layout (pits, waste rock dump, etc.), however the mine infrastructure layout has changed since the boreholes were positioned/ drilled
- the regional airborne magnetics - geophysical survey information that is available
- site access, including roads, land ownership and land use (e.g. boreholes were moved to avoid current farmland)

Pumping tests were performed on each of the six groundwater monitoring boreholes drilled in 2020 (KMBH1 to KMBH6). The pumping tests entailed:

- constant rate test pumping for 24 hours
- recovery phase monitoring after completion of the pumping phase.

The pumping phase testing was mostly done at the maximum rate of the pump equipment (1.2 ℓ/s) for all six boreholes. Water level recovery was measured until the pre-pumping borehole water level was achieved. The results from the aquifer testing were used to calculate the aquifer transmissivity.

Figure 82: Location of Kiniero Monitoring Boreholes, Pit Lake and Surface Water Sampling Points

16.2.1.4 Sampling and Chemical Analysis

Groundwater samples have been collected from 11 hydrocensus points (during August and September 2020) and from the six groundwater monitoring boreholes in November 2020 (KMBH1 to KMBH6) by SMG. Samples were analysed at the SANAS accredited Waterlab (Pty) Ltd in South Africa (accreditation number T0391). The water quality results are presented in Section 16.2.2.4. Groundwater quality was compared to the IFC Mine Effluent Discharge Guidelines (IFC, 2007) and WHO Guidelines for Drinking-water (2017).

The ESIA Project team also collected surface water samples and samples from the existing pit lakes in the proposed mining areas (Figure 82).

16.2.1.5 Groundwater Modelling

The numerical groundwater model was constructed based on the Future Flow (2021) understanding of the conceptual groundwater flow model of the Kiniero Gold Project. The model takes into consideration aspects such as:

- the different aquifers present and their interrelations
- recharge from rainfall
- aquifer transmissivities, effective porosity, vertical hydraulic conductance etc.;
- Groundwater flow patterns and velocities
- Topographical elevations of surface, the contact between weathered material and competent rock

16.2.2 Prevailing Groundwater Conditions

16.2.2.1 Aquifer Descriptions

The aquifers present in the Kiniero Project have been classified as minor aquifers by Future Flow (2021), based on the expected relatively low yields. The aquifers are of high importance to the surrounding communities and farmers as it is used for domestic, agricultural (stock watering) and artisanal mining purposes. The aquifers occurring at the Kiniero Gold Project are detailed in Table 100.

Table 100: Kiniero Gold Project Aquifer Descriptions

AQUIFER TYPE	DESCRIPTION
Upper Laterite Aquifer (Weathered and Transported Lateritic Material)	Widespread. Comprises alluvium, eluvian, and laterite (gravelly, sandy, or silty). Forms due to the vertical infiltration of recharging rainfall through the lateritic material, being retarded by the lower permeability of the underlying saprolitic material. Groundwater collecting above the contact migrates down gradient along the contact. In places where the contact is near surface the groundwater can daylight as surface as seepage into the surface streams. The laterite and mottled zone below the laterite, has a thickness varying between 3m and 13m. The borehole yield in this aquifer is seasonally variable due to the strong dependence on rainfall recharge.
Saprolite Aquifer	The saprolite hydrogeological unit has a lower hydraulic conductivity compared to the Upper Laterite Aquifer largely due to higher clay composition.
Deep Aquifer (Weathered Fractured Rock)	Groundwater flows are along individual, or discrete, preferential pathways associated with fractured and faulted fresh rock. Most known structures have a north-south and northeast-southwest trace. The overlying saprock unit (weathered fresh rock with fractured units), statistically, has a larger hydraulic conductivity compared to the saprolitic material.

Source: GeoStratum (2022)

16.2.2.2 Aquifer Transmissivity

Aquifer testing was done on the six groundwater monitoring boreholes (KMBBH1 to KMBH6) with the recorded data used to calculate the aquifer transmissivities, presented in Table 101.

Transmissivities were calculated using the AquiferWin32 software package with different analysis equations used:

- constant rate pumping phase data:
  - Theis;
  - Cooper-Jacob;
- recovery phase data:
  - Theis (Recovery).

Transmissivity calculations were complicated by the low groundwater level drawdown that was achieved by the relatively low pumping test abstraction rate during the 24-hour pumping phase in most of the boreholes. Boreholes KMBH2, KMBH3 and KMBH5 had drawdowns of <1.15m and the groundwater levels recovered to rest levels within a maximum of 12 minutes from when the pump was shut down. Transmissivities calculated for KMBH4, KMBH5 and KMBH6 are relatively consistent between the different equations and methods used. The average transmissivity range for most boreholes is between 0.58m²/day and 25m²/day, with KMBH2 and KMBH3 high in comparison, at approximately 330m²/day and 84m²/day respectively.

Table 101: Kiniero Gold Project Aquifer Transmissivities and Static Water Levels

BOREHOLE №	AQUIFER UNIT / DESCRIPTION	STATIC WATER LEVEL (mbgl)	MAX DRAW DOWN (m)	TRANSMISSIVITIES (m²/day)			
				THEIS	COOPER -JACOB	RECOVERY	LIKELY
KMBH1	Weathered Fracture rock	24.85	21.08	2.21	10.92	2.86	3.00
KMBH2	Upper Laterite Aquifer	1.55	1.15	72	822.00	332.00	330
KMBH3	Upper Laterite Aquifer	0.60	0.75	95	72.00	84.00	84.00
KMBH4	Weathered Fracture rock	9.20	5.30	8.25	4.25	5.10	5.00
KMBH5	Weathered Fracture rock	27.20	0.84	5.11	29.10	24.84	25.00
KMBH6	Weathered material	8.00	9.67	0.58	0.83	1.30	0.85

Source: GeoStratum (2022)

16.2.2.3 Groundwater Levels

Depth to groundwater level could only be measured from five of the 19 hydrocensus boreholes. The measured depth to groundwater level from the five hydrocensus boreholes (where measurements could be collected) and the six monitoring boreholes (Table 101) ranges between 0.6m and 27.20m below surface. Two groupings of depth to groundwater level are apparent – eight of the eleven boreholes have a depth to groundwater level of <10m (shallow) with the remaining three having a depth to groundwater level between 24.5m and 27.20m (deep) (Figure 83). The shallow groundwater levels are representative of the upper transported/weathered material (or even saprock aquifer units), while the deeper groundwater levels could represent a deeper system associated with topographically higher areas or impacted on by remnant mine dewatering. Groundwater levels, especially the shallow aquifer system, appear to mimic the Kiniero Gold Project topography (Figure 83).

Ongoing monitoring of groundwater levels is taking place in the KMBH monitoring boreholes. There was a rise in groundwater level from July to October 2021, correlating with the wet season that occurs during this period.

An estimated regional groundwater flow contour map for the weathered material aquifer is presented in Figure 83. Groundwater flows are from the higher lying northwest–southeast striking ridges that characterise the Kiniero Gold Mine, toward the various streams that drain the area into the Niandan River catchment.

The pit water level at the higher lying historical Gobelé D pit (Figure 8) lies at 5m to 90m below the topographical elevations which vary significantly due to the presence of the south- north trending ridge directly east of the pit. Water levels in the Gobelé D pit are at approximately 5m below the lowest point along the pit perimeter, which indicates that the water level in this pit has likely reached near pre-mining levels.

The pit water level at the historical West Balan pit (Figure 8) appears to be anomalous, being at least 18m below the lowest point around the perimeter of the pit, an indication that the water level may not have yet recovered and reached its equilibrium.

Based on the water levels within the historical Jean East and Jean West pits (Figure 8), as well as the elevation of the barrier wall between the two pit areas, there appears to be overflows of water between these two pits.

In areas where there is no large-scale dewatering, and the geological as well as hydrogeological conditions are relatively homogenous (the case for the Kiniero Gold Project), groundwater flow contours will mimic topography. The Kiniero Gold Project groundwater flow contour map is shown in Figure 61. This indicates that the groundwater flows are from the higher lying northwest – southeast striking ridges that characterise the study area, towards the various streams that drain the area.

Groundwater flow gradients are expected to range between 1:3 and 1:5 along the ridges and 1:30 to 1:40 in the lower lying areas near the streams. At the Sabali deposit cluster, the groundwater flow gradient is expected to be in the order of 1:30, while at the Derekena/West Balan deposit the groundwater flow gradient is expected to be approximately 1:15.

16.2.2.4 Groundwater Quality

16.2.2.4.1 Element Concentrations

Groundwater samples were collected during the Kiniero Gold Project hydrocensus, as well as from the six groundwater monitoring boreholes drilled by SMG, the quality data of which is summarised in Table 102. Groundwater quality results were compared to the IFC Mine Effluent Discharge Guidelines (IFC, 2007) and WHO Guidelines for Drinking-water (2017), and those parameters that exceeds these guidelines are highlighted in Table 102.

Previous information from the 1999 EIA (SGS) and 2006 environmental studies (Geo-Environment Campaign) indicate the groundwater was of good quality with only nitrate, chromium and cadmium exceeding the WHO Drinking Water Quality Guideline values in individual samples in the 1999 study, while chromium, nickel and cadmium exceeded the WHO Drinking Water Quality Guidelines in almost all samples during the 2006 and 2007 study. The change in groundwater chemistry between 2006 and 2007 is not known.

Groundwater chemical analysis results as obtained during the 2020 ESIA study (Table 102) indicate that all parameters analysed for comply with both the IFC Mining Effluent Guidelines as well as the WHO Drinking Water Quality Guidelines. At individual boreholes selected results of pH, nitrate, arsenic and lead exceeded the guideline values:

- pH: borehole PP, returned a pH value of 5.7 which falls outside the acceptable range of 6 to 9 as specified in the IFC guidelines;
- nitrate: elevated in boreholes FB (23mg/l), FK (12mg/l) and FGM (12mg/l), exceeding the WHO drinking water quality guideline value of 11.3mg/l NO3-N (50 mg/l NO_3);
- arsenic: elevated in borehole KMBH3 at 0.022 mg/l, which exceeds the WHO drinking water quality guideline of 0.01 mg/l. However all boreholes comply with the IFC Effluent Standard of 0.1 mg/l.l
- lead: concentrations in boreholes KMBH2 (0.065 mg/l), KMBH5 (0.092 mg/l) and KMBH6 (0.012 mg/l) exceed the WHO drinking water quality guideline 0.01 mg/l. However, all boreholes comply with the IFC Effluent Standard of 0.2 mg/l.

16.2.2.4.2 Groundwater Character

Groundwater character is presented as a Piper diagram in Figure 84. Analysis of the groundwater character indicates:

- cations: the samples are mostly calcium dominant (12 out of 17 samples)
- anions: bicarbonate is the dominant anion (16 out of 17 samples) while chloride is the dominant anion in the remaining sample
- magnesium is dominant in three samples while sodium is dominant in 2 samples

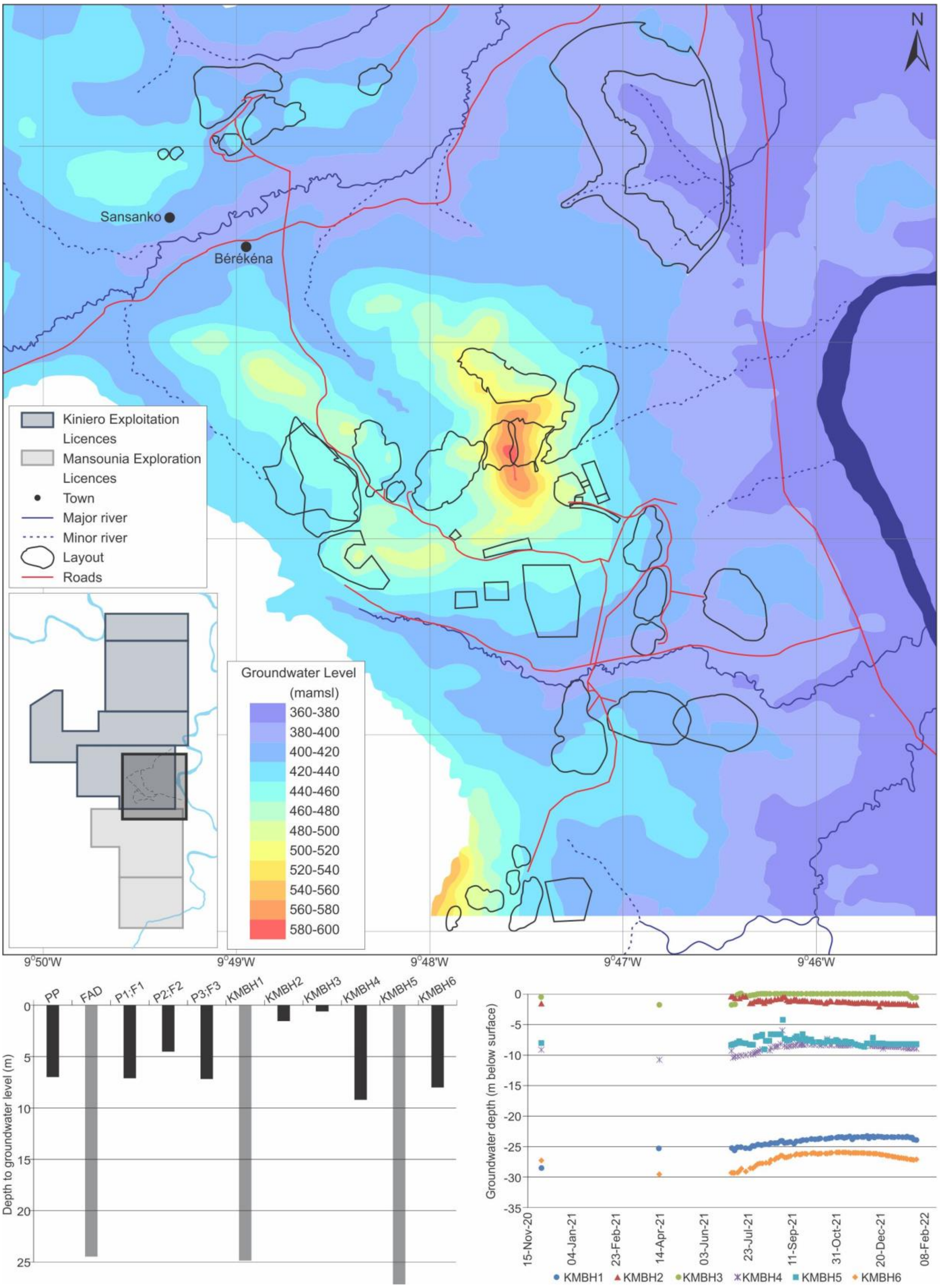


Figure 83: Groundwater Elevation Contours and Depth to Groundwater Level (time series and average).

Samples collected during the 2020 hydrocensus presented a calcium-bicarbonate dominance indicating relatively recently recharged groundwater. The water quality character from boreholes FB and PP could potentially indicate processes such as ion exchange or mixing of different water types – PP is located close to a stream (down gradient of the old TSF) while borehole FB is located in Balan village. Borehole FB also presented high levels of nitrate, indicating potential contamination, or mixing with high nitrate leachate, potential sources animal or human waste product.

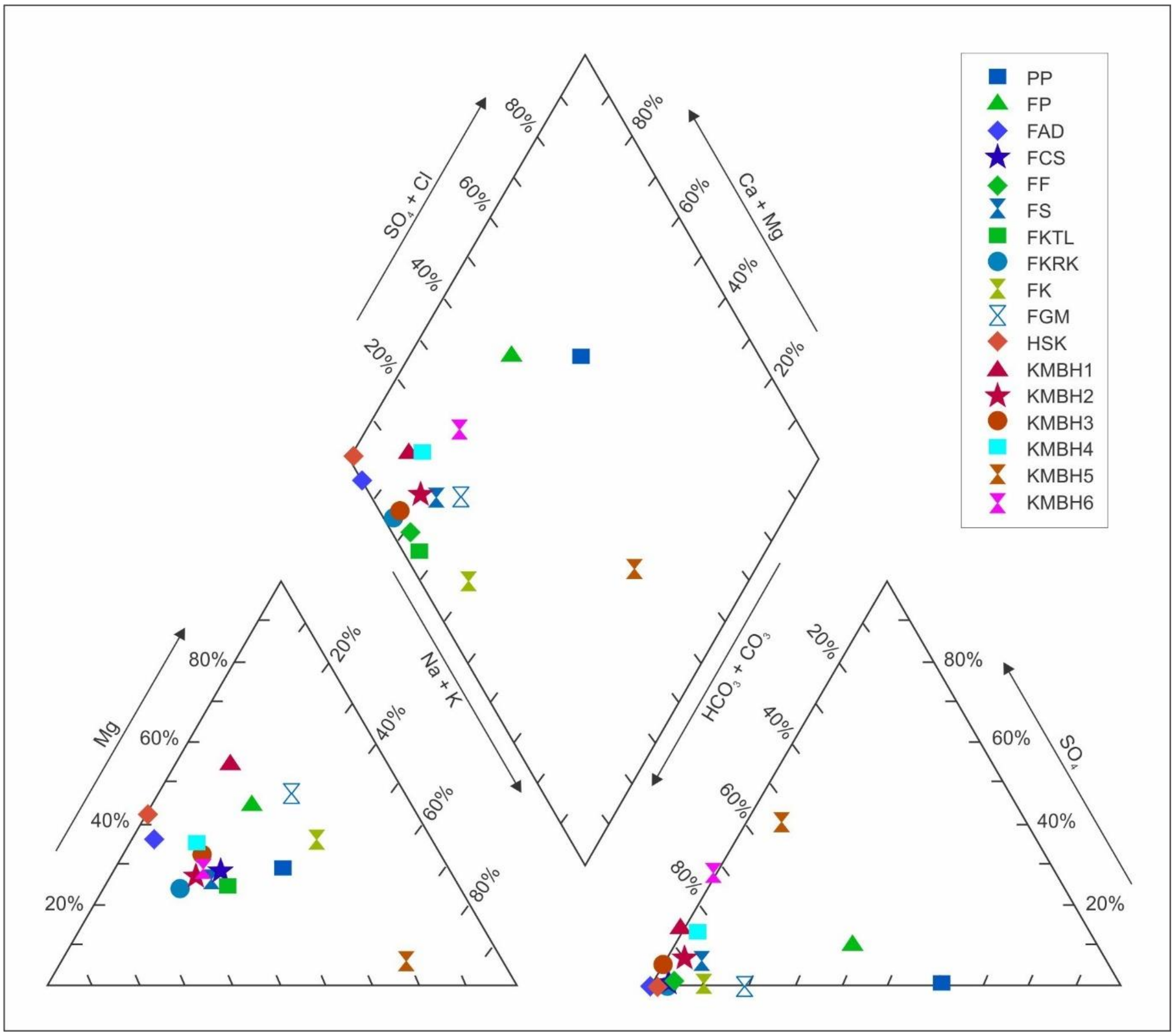


Figure 84: Piper Diagram of the Kiniero Project Groundwater Quality

Table 102: Kiniero Gold Project Groundwater Chemical Analysis Results

CHEMICAL CONSTITUENT	UNIT	IFC (2007)	WHO (2017)	PP	FB	FAD	FCS	FF	FS	FKTL	FKRK	FK	FGM	HSK	KMBH1	KMBH2	KMBH3	KMBH4	KMBH5	KMBH6
pH - Value @ 25 °C		6-9	*6.5 to 8.5* $_s$	5.7	6.5	7.2	6.8	7.6	7.7	7.3	7	6.5	6.6	7.2	6.7	7.1	7.3	6.9	6.5	6.5
Electrical Conductivity @ 25°C	mS/m	NGV	NGV	3.1	46.4	46.2	25.9	44.3	45.7	31.9	32	22.3	27	45.2	5.4	18	39.3	22.6	16.2	3.1
Turbidity	N.T.U	NGV	NGV	14	0.2	12	0.2	0.1	0.2	0.1	0.1	0.1	0.2	1.7	93	121	27	231	110	23
Free Residual Chlorine as Cl_2	mg/L	NGV	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Alkalinity as $CaCO_3$	mg/L	NGV	NGV	12	104	264	120	228	212	172	144	72	88	260	24	88	216	104	56	12
Chloride as Cl	mg/L	NGV	*250* $_a$	2	26	<2	2	4	11	2	2	3	8	2	<2	2	<2	2	3	<2
Sulphate as SO_4	mg/L	NGV	*250* $_a$	<2	8	<2	<2	2	10	2	<2	<2	<2	<2	2	4	8	10	19	2
Fluoride as F	mg/L	NGV	1.5	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2
Nitrate as N	mg/L	NGV	11.3 (NO_3 -50)	0.5	23	0.1	4.7	3.8	4.1	0.3	7.6	12	12	0.1	0.2	<0.1	0.1	<0.1	0.5	<0.1
Nitrite as N	mg/L	NGV	0.91	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.3	<0.05	<0.05	<0.05	<0.05
Ortho Phosphate as P	mg/L	NGV	NGV	<0.1	0.4	<0.1	0.4	<0.1	<0.1	0.1	0.3	0.5	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Cyanide as CN	mg/L	1	NGV	<0.07	<0.07	<0.07	<0.07	<0.07	0.53	<0.07	<0.07	<0.07	<0.07	<0.07	0.2	<0.07	<0.07	<0.07	<0.07	<0.07
WAD Cyanide as CN	mg/L	0.5	NGV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Free Cyanide as CN	mg/L	0.1	NGV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chemical Oxygen Demand as O_2 (Total)	mg/L	150	NGV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	57	<10	10
Biochemical Oxygen Demand as O_2	mg/L	50	NGV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Oil & Grease	mg/L	10	NGV	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenols	mg/L	0.5	NGV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium as Na	mg/L	NGV	*200* $_a$	1	22	6	14	23	25	20	12	19	18	1	1	8	18	8	26	1
Potassium as K	mg/L	NGV	NGV	2.5	1.3	1	1.1	1.8	1.4	1.3	1	1.2	1.2	1	0.6	0.9	0.7	0.5	0.5	0.6
Calcium as Ca	mg/L	NGV	*300* $_a$	2	30	59	26	49	49	33	37	10	13	58	3	20	45	24	6	3
Magnesium as Mg	mg/L	NGV	NGV	1	24	22	9	15	15	10	9	9	16	26	3	6	17	10	1	1
Aluminium as Al	mg/L	NGV	*0.9* $_h$	0.537	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.1	<0.100	<0.100	<0.1	<0.100	0.31	<0.100	<0.100	0.454	<0.100
Arsenic as As	mg/L	0.1	0.01	<0.001	0.001	0.006	0.001	0.004	0.007	0.002	0.001	0.001	0.001	<0.001	<0.001	0.002	0.022	0.001	0.001	0.001
Total Chromium as Cr	mg/L	NGV	0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Hexavalent Chromium as Cr	mg/L	0.1	NGV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper as Cu	mg/L	0.3	2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.01	<0.010	<0.010	<0.010	<0.010	0.038	<0.010	<0.010	0.034	<0.010
Lead as Pb	mg/L	0.2	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.065	0.003	0.006	0.092	0.012
Mercury as Hg	mg/L	0.002	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel as Ni	mg/L	0.5	0.07	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.059	0.051	0.046	0.048	0.054	0.049
Selenium as Se	mg/L	NGV	0.04	0.001	<0.001	0.001	0.001	0.001	0.002	0.002	<0.001	0.001	0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Zinc as Zn	mg/L	0.5	0.5	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.035	<0.025
Cadmium as Cd	mg/L	0.05	0.003	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron as Fe	mg/L	2	NGV	-	-	-	-	-	-	-	-	-	-	-	0.52	0.735	0.457	0.046	0.484	0.107

Source: ABS (2020); GeoStratum (2022)

Note: IFC = IFC Mining Effluent Guidelines 2007, WHO = WHO Guidelines for drinking-water quality, 4th edition.

Exceeds WHO	Exceeds IFC	Exceeds both WHO & IFC

16.2.3 Groundwater Potential Contaminates

The mine areas and mine stockpiles are potential sources of contamination to the aquifers. Geochemical analysis of the material that will be mined, processed, and stockpiled was undertaken, and interpreted by The Moss Group. Findings include:

- Sulphur grades: Oxide pit material has sulphur grades of around 0.02%; transitional material has sulphur grades of approximately 1.4%, and tailings material has sulphur grades of between <0.01 and 0.15%
- Maximum acid potential: oxide material has a low potential acidity (0.6kg H_2SO_4/t), transitional material has a higher potential acidity (42kg to 43kg H_2SO_4/t) and tailings material has a medium potential acidity (0.3kg to 4.6kg H_2SO_4/t)
- Neutralising potential: all material analysed had a relatively low neutralising potential (<5.3kg H_2SO_4/t)
- Net acid producing potential: oxide material has a low net acid producing potential (-0.3kg to -1.1kg H_2SO_4/t), transitional material has a high net acid producing potential (approximately 41kg H_2SO_4/t) and tailings material has a mixture between positive and negative net acid predicting potential (-3.8kg to +1.8kg H_2SO_4/t), i.e. it is either net acid forming or neutralising in limited rates

Regent water leach tests indicate that arsenic values are slightly elevated for the Sabali deposit. This is consistent with the trace element data measured during the whole rock analysis, which indicated elevated arsenic concentrations. These arsenic values are above the WHO drinking water standard (10 µg/l), but below the IFC guideline (100 µg/l).

From the above it can be concluded that:

- exposed transitional material in the open pits as well as surface stockpiles can be acid forming and a source of contamination to the groundwater during operations
- based on the low sulphur percentages, any risk associated with acidic conditions from exposed oxide material will not endure in the long-term
- it is not certain if the tailings material could become acidic. More test work is required

Arsenic leaching from the mine waste material is regarded as one of the main chemicals of concern. Concentrations obtained from leach testing exceed the WHO drinking water guidelines in leachate from the tested tailings material. Results of geochemical analysis of the existing tailings material indicate that

- leachate can have arsenic concentrations of between 4µg/l and 17µg/l with an average of 8.25µg/l
- tests on tailings material from the Derekena/West Balan and SGA deposits yielded arsenic concentrations of 8µg/l to 10µg/l. Based on these results, it is concluded that

arsenic concentrations from tailings generated from this material will be approximately 9µg/l

- arsenic concentrations from the oxide and transition material sampled from the SGA and Derekena/West Balan deposits range between <1 µg/l and 5µg/l, with an average of 2.7µg/l. Based on this, it could be said that the arsenic concentration within the oxide and transition zone will be approximately 2µg/l

16.2.4 Groundwater Modelling

16.2.4.1 Software Selection

The numerical groundwater model was constructed using Processing Modflow 8 by Simcore Software using the MODFLOW and MT3DMS codes. The model includes all parameters discussed and takes into consideration aspects such as the:

- different aquifers present and their interrelation to each other
- recharge from rainfall
- aquifer transmissivities, effective porosity and vertical hydraulic conductance;
- groundwater flow patterns and velocities
- geological lithological units and features
- topographical elevations of surface, the contact between weathered material and competent rock

16.2.4.2 Model Setup and Boundaries

The model domain is irregularly shaped and defined by natural groundwater flow boundaries. These boundaries include aspects such as rivers (river cells) and topographical highs (no-flow cells at divide). The Niandan River forms the eastern and northern boundaries. The southern and western boundaries consist of smaller streams and catchment divides.

16.2.4.3 Groundwater Elevation and Gradient

Groundwater elevations and gradients used in the numerical models were derived from the groundwater levels and flow gradients recorded during the hydrocensus. The data was incorporated as "initial heads" and further consolidated during the calibration process where the groundwater levels and flow contours obtained from the model calculations replicated those measured in the field.

16.2.4.4 Geometric Structure of the Model

The model grid was designed within the delineated model boundary and the proposed developments. The high-resolution grid areas (25m x 25m) overlay the open pits and surface infrastructure with a coarser grid (100m x 100m) at the edge of the model. Nine layers were assigned to the model:

- Layer 1: laterite material
- Layer 2: oxide material
- Layer 3: transitional zone between the oxide and the fresh rock
- Layers 4 to 8: fresh rock aquifers. A total of five layers were used to model the pit shell shape with increasing depth to the required level of detail
- Layer 9: a 20m thick portion of the underlying fractured rock aquifer to enable the upwelling from the aquifer into the pit floor to be included

16.2.4.5 Groundwater Sources and Sinks

Groundwater sources include:

- rainfall recharge (represented by the "recharge" package)
- recharge from surface streams (represented by the "river" package)

Groundwater sinks include:

- springs (represented by the "drain" package)
- baseflow contribution to streams (represented by the "river" package)
- evapotranspiration (incorporated in the "recharge" package)
- mine dewatering (represented by the "drain" package). Annual pit shells were incorporated to simulate mine progression. All groundwater entering the pit shell elevations is removed from the model by the drain cells
- the well package, which was used to simulate mine dewatering boreholes. The wells were allocated across the different model layers, proportionally to the transmissivity value of each layer with a maximum total abstraction rate of 2l/s, approximately 173m^3/d

16.2.4.6 Contaminant Transport

Contaminant plumes are expected to migrate away from the surface pollution source footprint areas in a down gradient direction towards the low-lying rivers. Contamination will also migrate towards the pit areas where the surface infrastructure overlies the groundwater level drawdown cone.

Contamination will be contained within the pits during the operational phase due to groundwater flow directions being directed towards the pit areas. Contaminated water will also be pumped to surface where it will be consumed in the system.

Modelled arsenic groundwater plumes from the WRDs, TSF and post closure pit lakes were modelled using 2µg/l for the WRDs and post closure pit lakes and 9µg/l for the TSF. The WRDs and TSF were modelled as a recharge source and the post closure pit lakes as a constant concentration cell source. No chemical reactions or retardation was simulated with source concentrations kept unchanged.

Potential worst-case scenario leakages though the TSF liner during operations could be up to 9.678 x 10^{-9} m/s. The size of the TSF footprint area (and leakage area) increases over the life of the mine. The potential leakage rate is likely to decrease by an order of magnitude post closure when the discharge of wet tailings stops.

16.2.5 Open Pit Dewatering Volumes

Groundwater inflow volumes into the individual open pits over the proposed 6-year LoM were calculated using the numerical groundwater flow model. The mine schedule for the individual open pits is summarised in Table 103. During the proposed operational phase at the Kiniero Gold Mine, it is planned that the four mining areas/deposits (SGA/Jean, Sabali North & Central and Sabali South). Two scenarios were modelled:

- in-pit dewatering from a sump only
- in-pit dewatering and pro-active dewatering from several out-of-pit vertical boreholes

The following assumptions/data inputs were taken into consideration regarding the conceptual dewatering boreholes:

- **depths of dewatering boreholes:** reference is made to the pit shells with average pit depths are calculated from the shells and assumed to be the depth of the dewatering boreholes for each specific pit area. Pit depths are summarised in Table 103. Relevant hydrogeological aspects to consider are also noted in Table 103
- **dewatering borehole yields:** reference is made to the results from the aquifer testing that was done on the six SMG boreholes. The average yield of the boreholes as calculated by Future Flow (2021) is 1.75l/s (151.2m³/d). Based on the assumption that future dewatering boreholes could be sited to intersect faults, a conservative average yield of 2 l/s was assigned to dewatering boreholes
- **dewatering borehole positions:** the borehole positions take into consideration:
    - interpreted structures (faults) as supplied by SMG
    - airborne geophysical survey data
    - surface layouts
- **dewatering borehole start-up:** It is assumed that the dewatering boreholes around a pit area will start dewatering 6 months to 1 year before mining of that pit starts

Out-of-pit dewatering boreholes were assigned to Jean, SGA, Sabali North, Sabali South and West Balan. Out-of-pit dewatering boreholes were considered as a management option based on the following criteria:

- where relatively high groundwater inflows higher are expected, i.e. those pits with thicker saturated aquifer zones
- where proposed mining would take place for two years or longer

Calculated open pit groundwater inflow volumes are indicated in Figure 85 with the in-pit only and in-pit plus borehole dewatering scenarios presented. Proposed dewatering borehole abstraction volumes are shown in Table 104 and Table 105.

Open pits with relatively high inflow volumes include SGA West and Sabali South, with expected inflow volumes peaking at 2500m³/d for the in-pit only dewatering scenario. These in-pit flow volumes reduce to peak flow rates of about 1500m³/d for the borehole dewatering scenario.

SGA Central and SGA East are expected to have lesser groundwater inflows, as these pits are situated along a hill edge, above the regional groundwater table. Some perched or shallow seeps are expected which need to be confirmed with additional hydrogeological drilling. A similar situation is expected at the Sabali Central pit, which is relatively shallow with mining mainly above the regional groundwater table.

Table 103: Kiniero Gold Project Open Pits to Mined and Active Years

PIT NAME	PIT No.	SCHEDULE (MINING YEAR)						PIT DEPTH (m)	COMMENT / DESCRIPTION
		1	2	3	4	5	6		
Jean West (1B)	Jean1_B							67	Requires upfront dewatering of historical pit lake.
Jean East (1A & 2)	Jean1_A & Jean 2							31.3	
SGA West (1)	SGA1							105	Requires upfront dewatering of historical pit lake.
SGA Central (2)	SGA2							69	Elevation mainly above the regional groundwater table.
SGA East (3)	SGA3							123.8	
Sabali Central 1	SBC1							80	
Sabali South	SBS1 & SBS2							70	Situated close to Kéléro River, potential river leakage expected.
Sabali North	SBN							70	
Sabali Central 2	SBC2							65.7	Situated close to Kéléro River, potential river leakage expected.

Source: Geostratum (2022)

Table 104: Dewatering Borehole Abstraction Volumes

PIT	№ OF DEWATERING BOREHOLES	OUT OF PIT BOREHOLE DEWATERING (m³/d) MINING YEAR						
		-0.5	1	2	3	4	5	6
Jean	10	1,728	1,728	1,728	1,728			
Sabali South	11	1,901	1,901	1,901	1,901			
Sabali North	5					864	864	864
SGA West	11		1,901	1,901	1,901	1,901		
W Balan C	6					1,037	1,037	1,037
TOTAL	**43**	**3,629**	**5,530**	**5,530**	**5,530**	**3,802**	**1,901**	**1,901**

Source: GeoStratum (2022)

16.2.6 Mine Dewatering and Groundwater Impacts

The environmental impact assessment was conducted based on the available information, preliminary site work data and the numerical groundwater flow and contaminant transport modelling results. Expected impacts from proposed mining activities have been assessed only. Impacts from the historic open pits and historic TSF, and current artisanal mining have not been considered. During the risk assessment the risk to the groundwater levels and quality were evaluated with each risk then rated.

16.2.6.1 Construction Phase

From the mining schedule, mining will commence at Jean and Sabali South, with additional tonnages to be mined at SGA West towards the latter part of year 1 (Table 103). For mining to commence dewatering of the existing pit lakes at Jean will be required. The pit-lake volume at Jean (three flooded pits) is estimated at 680,994m³. Groundwater seepage inflow could be expected as the pit-lake dewatering takes place. At Sabali South, it is likely that the initial construction (or box-cut) would encounter groundwater seepage. The groundwater table at Sabali South, especially near the Kéléro River (as measured in KMBH2), is shallow (<2m below surface).

For the borehole dewatering scenario, abstraction should commence prior to mining, preferably six months ahead of mining. The anticipated borehole dewatering rates are 1,728m³/day at Jean and 1,901m³/d at Sabali South (Table 104).

Other potential impacts during construction of surface infrastructure (i.e. the new TSF and waste rock dump sites) are not expected to breach the groundwater table. As such no notable impact on the groundwater levels in these areas are expected.

16.2.6.1.1 Groundwater Level Drawdown at the Boxcut and Existing Pits

The predicted groundwater drawdown cone at the end of the Jean pit dewatering for both the in-pit only and borehole dewatering scenarios are presented in Figure 86.

- **In-pit dewatering only:** results indicate that the zone of influence (ZoI) around the existing Jean and Sabali South pits will be <150m, mostly in the order of 50m. No community groundwater supply points are expected to be impacted. No material impacts are expected on the nearby Bariko or Kéléro Rivers in terms of loss in the groundwater baseflow component. Groundwater inflow into the existing void/starter pit could be reach 700m³/d at Jean and 500m³/d at Sabali South
- **In-pit and borehole dewatering:** the extent of the dewatering cones is, larger compared to in-pit dewatering only. This is due to the upfront borehole dewatering on the perimeter of the Jean and Sabali South pits – the groundwater cone extent is likely to be 100m to 300m. The total loss in groundwater related stream baseflow (e.g. at the Kéléro River) is calculated at 13m³/d. Delineating a sub-catchment of the Kéléro River from the Niandan indicates that the Kéléro River catchment is approximately 16.4km². As such the stream mean runoff volume will be approximately 322 l/s (i.e. 27,857m³/d) and as such the potential impact on the Kéléro River streamflow is regarded as negligible. Additionally, some borehole water could be discharged into the environment, resulting in higher stream flow compared to baseline conditions. Groundwater quality results (Table 102) indicate that the groundwater quality will comply with the IFC Mine Effluent Discharge Guidelines (IFC, 2007)

16.2.6.1.2 Contaminant Migration Away from Pollution Sources

It is assumed that with proper maintenance of construction vehicles and other construction related best practices there will be a limited impact on the groundwater quality from the construction of the surface infrastructure. Drawdown of the groundwater level within the aquifers due to box cut and pit dewatering will cause the surrounding groundwater flow patterns to be changed such that groundwater in the aquifers will flow towards the excavation. This will effectively limit or prevent contamination migrating away from the excavation to the surrounding environment.

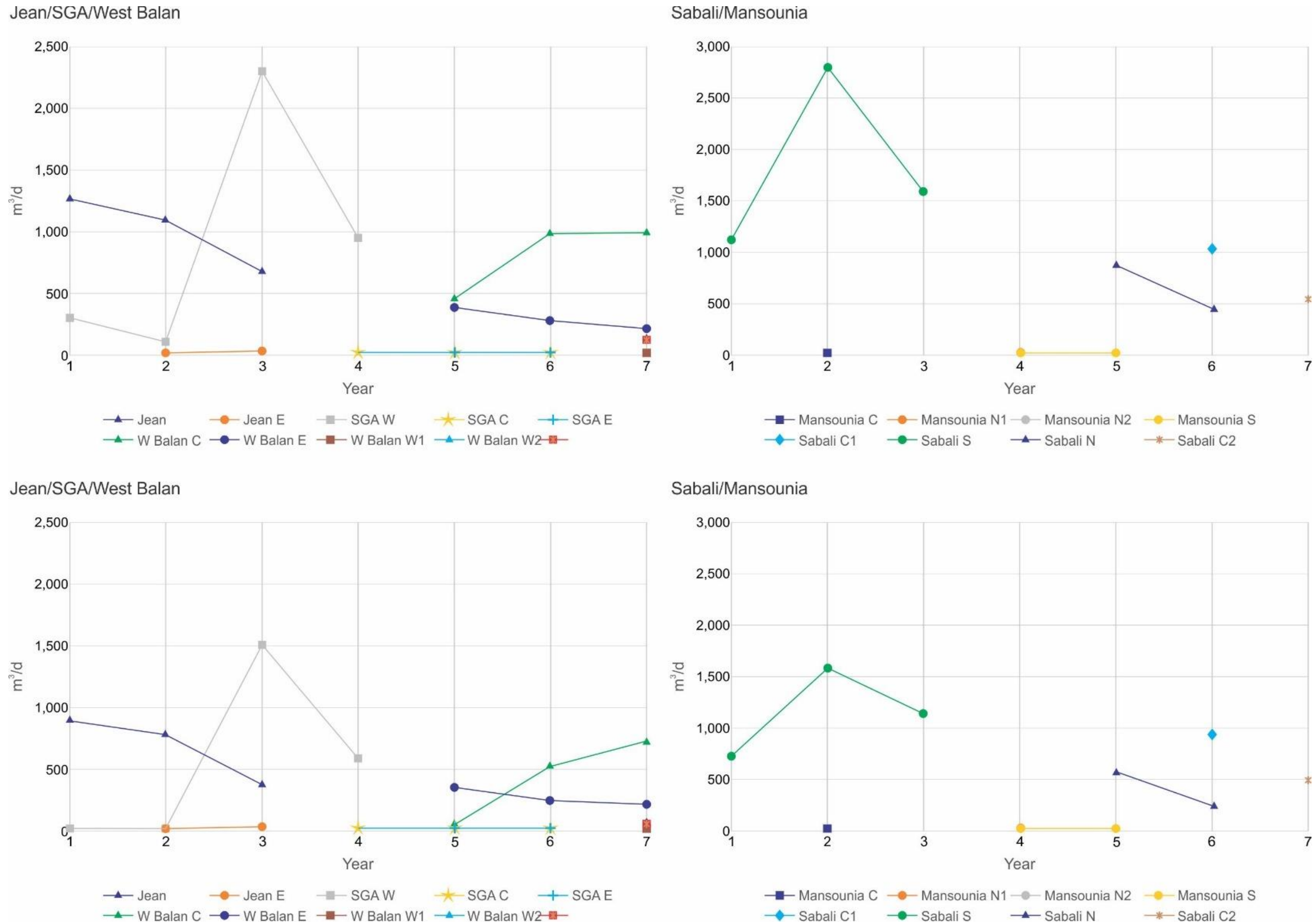


Figure 85: Calculated Open Pit Groundwater Inflow Scenarios – In Pit Only and In Pit with Borehole Dewatering

Table 105: In-Pit Dewatering Only and In-Pit and Out-of-Pit Dewatering Pumping Scenarios

PIT	IN-PIT DEWATERING ONLY (m^3/month)							IN-PIT AND OUT-OF-PIT BOREHOLE DEWATERING (m^3/month)						
	MINING YEAR							MINING YEAR						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Jean	38,922	33,545	21,086					27,350	24,055	11,822				
Jean East		659	901						659	659				
Sabali Central 1						31,512							28,807	
Sabali South	34,191	85,049	48,412					22,247	48,608	34,795				
Sabali N North					27,278	14,153						17,934	8,033	
Sabali Central 2							16,525							15,083
SGA West	9,150	3,253	69,995	29,077				659	659	46,211	18,087			
SGA Central			659	659	659	659				659	659	659	659	
SGA East				659	659	659					659	659	659	
TOTAL	**82,263**	**122,506**	**141,053**	**30,395**	**28,596**	**46,983**	**16,525**	**50,256**	**73,981**	**94,146**	**19,405**	**19,252**	**38,158**	**15,083**

Source: FutureFlow excluding Mansounia and West Balan (2021)

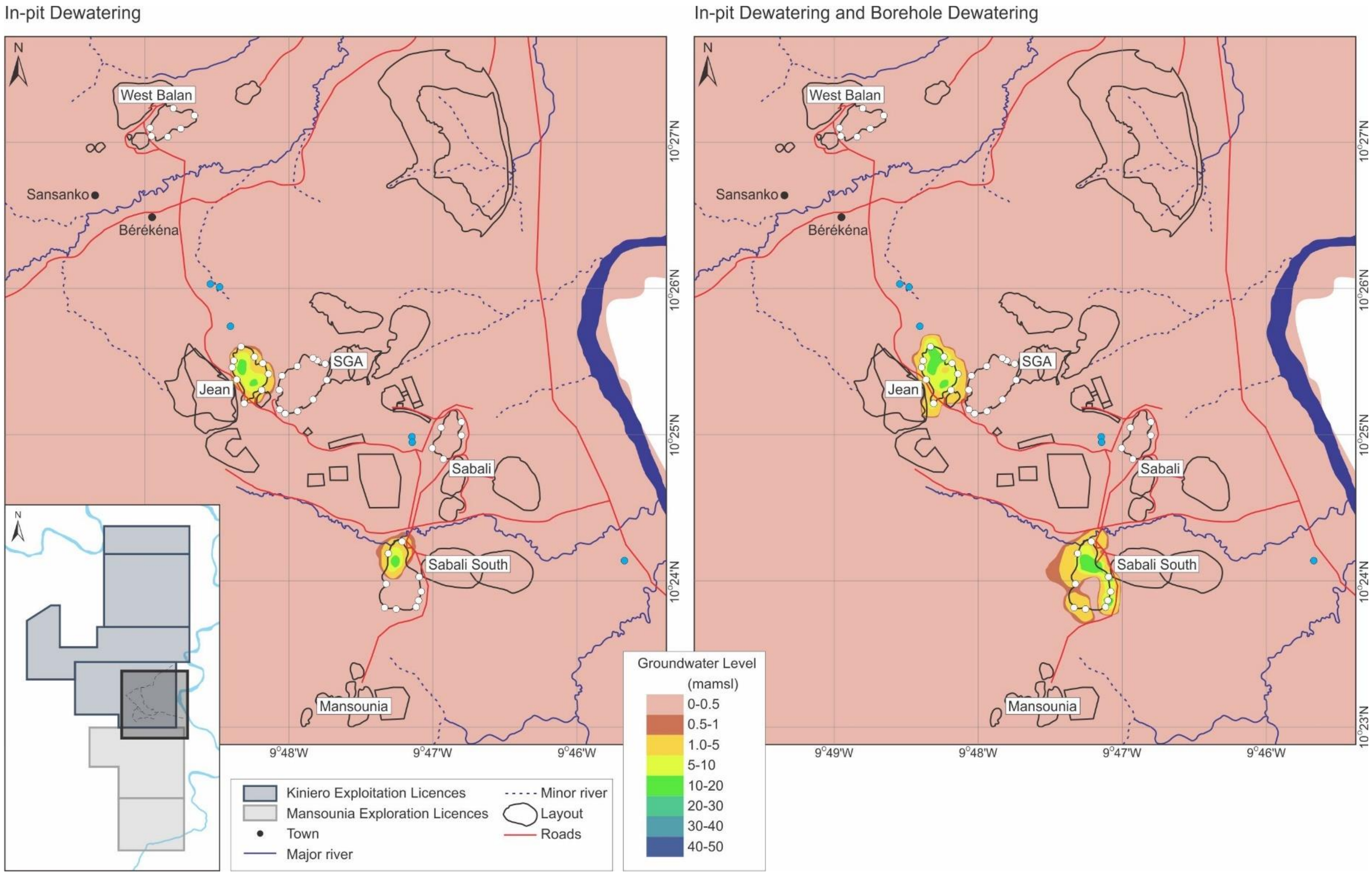


Figure 86: Groundwater Level Drawdown Scenario's for Jean and Sabali South Open Pit

The weathered laterite-saprolite aquifer is vulnerable to contamination from surface sources, including the TSF, the WRDs, and other surface stockpiles. Material excavated from the Sabali South box cut will be deposited on the surface stockpile, TSF and WRD areas during the construction phase. It is expected that the construction phase will have a relatively short time span which will not be sufficient for significant chemical reaction and leaching, followed by contamination of the underlying aquifers. Based on this, it is expected that there will not be a measurable impact on the underlying groundwater qualities and surrounding general environment during the construction phase.

16.2.6.2 Operational Phase

16.2.6.2.1 Groundwater Level Drawdown and Impacts on Aquifers, Wetlands, and Streams

The numerical groundwater flow model was used to calculate the ZoI of the groundwater level drawdown cones around each of the individual pit areas. During the proposed operational phase, the mining areas will be mined from a series of pits (Figure 68) at various stages of the 6-year life of mine (Table 103). Deeper pits are likely to encounter more groundwater compared to shallower pits.

A dewatering assessment was undertaken using the numerical groundwater flow model (Section 16.2.5). Two different open pit dewatering scenarios were simulated, including:

- in-pit dewatering only, where the only dewatering will be from a sump in the bottom of the pit
- a combination of in-pit and out-of-pit dewatering with boreholes collared outside the pit to dewater the aquifers. Localities considered known geological structures such as faults and fractures that could act as preferential groundwater flow paths. By targeting these structures, the number of boreholes required can be reduced

Current planning is that a combination of in-pit and out-of-pit dewatering will be required.

16.2.6.2.1.1 In-Pit Dewatering Only

For in-pit dewatering only, the zones of influence of the groundwater level drawdown cone around the different pit areas are presented in Figure 87 for the end of Year 4 (when the SGA West pit mining is complete) and end of Year 6, when active open pit mining will stop. From the dewatering assessments it can be seen that:

- the ZoI of the groundwater level drawdown ranges from 200m to 350m at Jean and SGA (West) when mining stops
- dewatering at Sabali South could create a dewatering cone that extends 200m to 400m away from the open pit. The ZoI could impact on the Kéléro River

- the groundwater drawdown ZoI influence at Sabali North, Central and South are likely to be 150m to 250m
- groundwater drawdown at SGA (Central and East) will be small. The different mining elevations are mostly above the regional groundwater table
- there are no known community groundwater users within the ZoI around the mining areas. As such no community groundwater supply points are expected to be impacted

16.2.6.2.1.2 In-Pit and Borehole Dewatering

Out-of-pit borehole dewatering was simulated at all the different pit areas. The ZoI of the groundwater level drawdown cones around the different pit areas is presented in Figure 88 for the end of Year 4 and end of Year 6, when active open pit mining will stop. From the simulated drawdown cones, it be seen that:

- the ZoI of the groundwater level drawdown ranges up to 400m at the Jean and SGA area when mining stops
- dewatering at Sabali South could create a dewatering cone that extends up to 500m away from the open pit. The ZoI could impact the Kéléro River
- the groundwater drawdown ZoI at Sabali North, Central and South could be up to 300m from the pits. The ZoI at Sabali Central 2 could impact on the Kéléro River
- no community groundwater supply points are expected to be impacted on

The Kéléro River lies within 75m of the Sabali Central and Sabali South pits where groundwater level drawdown cones are expected to reach the river during the life-of-mine. This will reduce the groundwater contribution to stream baseflow. It is expected that groundwater baseflow contribution to the stream will reduce by about 15%, or 70m^3/d. Stream runoff will be 322l/s (27,857m^3/d), thus a potential flow reduction of 0.25%. However, streamflow could increase due to borehole water abstraction and discharge, with groundwater quality results (Table 102) indicating the water quality will comply with the IFC Mine Effluent Discharge Guidelines (IFC, 2007). The overall impact is likely to be small.

Dewatering at the Jean and SGA pit complexes could have a minor impact on the groundwater baseflow component of the Bariko River. The groundwater baseflow reduction to the stream over the potential impacted length of the stream is approximately 6.5m^3/d. The mean annual runoff of the Bariko River (using a measured sub-catchment area of approximately 4.871km^2 and an annual mean runoff factor of 19.66l/s/km^2) is estimated at 95l/s (8,274m^3/d). The cumulative impact of dewatering of the Jean and SGA pit complex will cause a reduction in the average total stream volume of approximately 0.08%, which is negligible. The overall impact on the Niandan River flow volume from the proposed mine dewatering will be negligible.

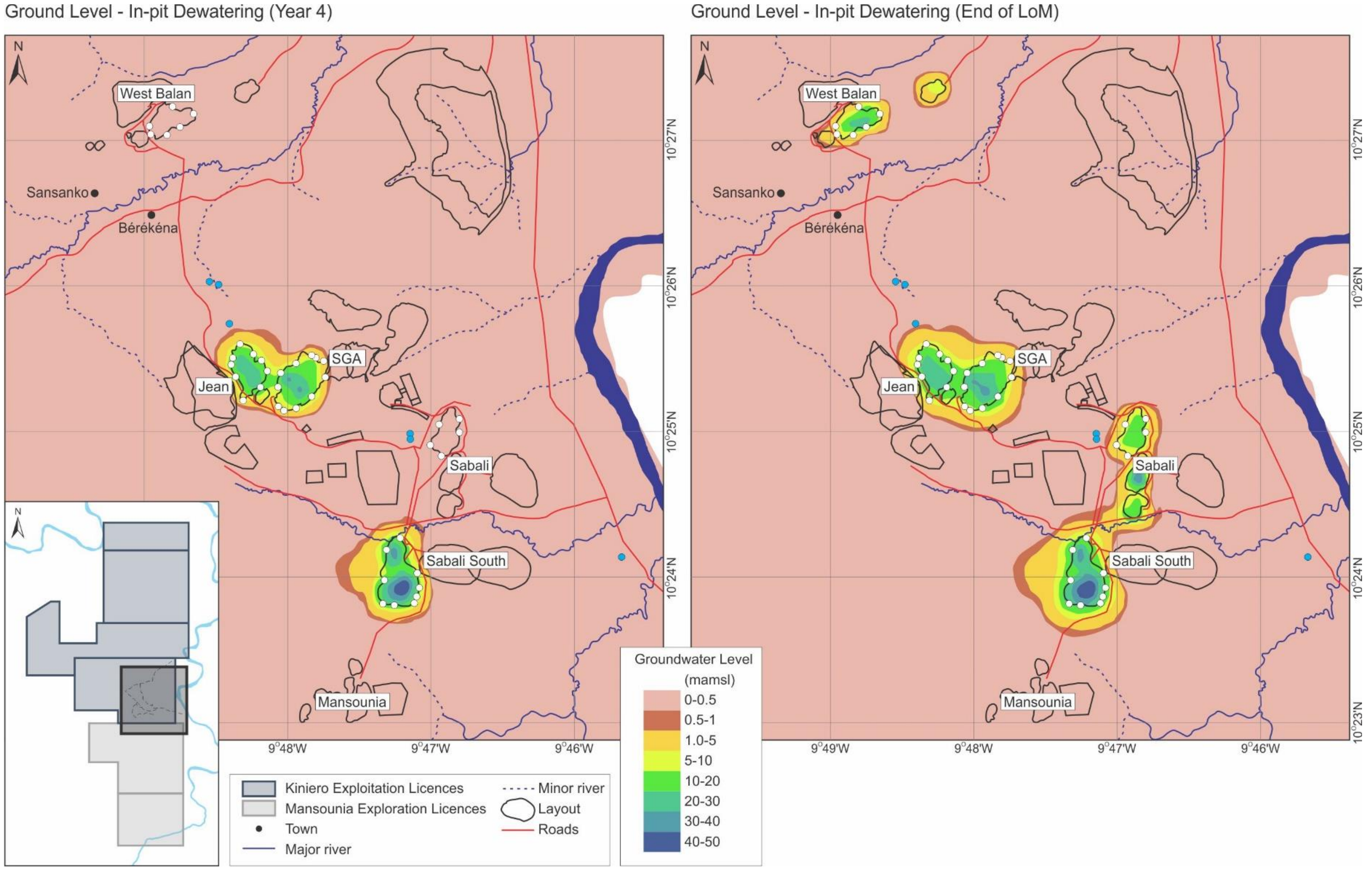


Figure 87: In-pit Groundwater Level Drawdown Scenario's

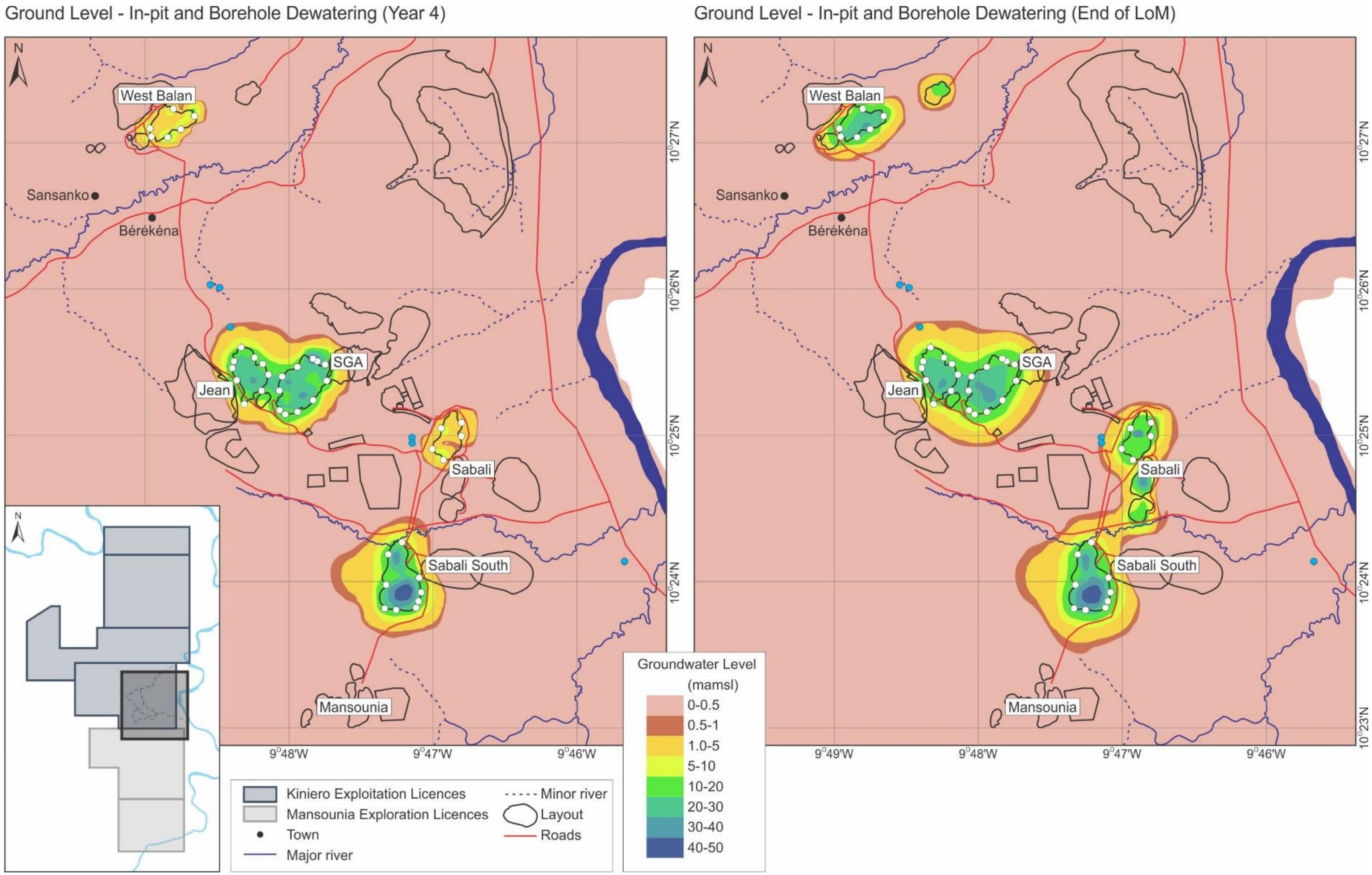


Figure 88: In-pit and Borehole Groundwater Level Drawdown Scenario's

16.2.6.2.2 Contaminant Migration Away from Pollution Sources

It is assumed that with proper maintenance of mining vehicles and other operations related best practices there will be a limited impact on the groundwater quality from general surface activities.

The upper aquifer will be vulnerable to contamination from the TSF, the WRDs, the ROM pad, the marginal stockpile, and other dumps on surface. In addition to this, both the weathered material aquifer and the fractured rock aquifer are directly exposed to the open pit mine excavations where contamination can impact the groundwater qualities. Groundwater flow patterns within the aquifers will be directed towards the open pit mine areas due to the mine dewatering and therefore it is not expected that any significant contaminant plumes will develop away from the open pit mine areas during the life of operations.

There are existing WRDs around the SGA, Jean and Derekena complexes from previous mining. Numerical flow modelling results indicate that the existing WRDs southwest of the Jean complex, south of SGA Pit 3 and north of SGA complex occur partially within the groundwater level drawdown cones. Similarly, the existing WRD at the Derekena/West Balan deposit occurs partially within the groundwater level drawdown zone. The groundwater flow directions underlying this existing surface infrastructure will at least partially be towards the adjacent open pits, resulting in potentially contaminated groundwater being captured in the open pits. Other existing WRDs occur outside the groundwater level drawdown zone. Existing groundwater quality data (Section 16.2.2.4) suggests that no widespread historical groundwater contamination took place.

The quality of leachate emanating from the WRDs, the marginal stockpile, the ROM and the TSF is expected to reflect the chemical character of the rock material that will be handled and stored on site. Acid-base-accounting (ABA) testing indicates that the formations are not likely to produce acid mine drainage (AMD) conditions. Leach qualities are expected to be good in general and mostly comply with IFC Mining Effluent Quality Guidelines (December 2007).

Based on the geochemical study results, it is concluded that arsenic concentrations from the TSF is approximately 9µg/l, as recorded from static leach testing and could be considered as conservative. Arsenic concentrations from the oxide and transition horizons of the SGA and Derekena/West Balan deposit average 2.7µg/l.

The Kiniero Gold Project is committed to the Cyanide Code and it is not expected that the Weak Acid Dissociable (WAD) cyanide concentrations will exceed 50mg/l. Test work is underway to confirm these concentrations. Results from the contaminant migration modelling of arsenic (Figure 89) indicate that the groundwater plume movement is relatively small, due to the relatively low permeabilities of the aquifer. This will lead to slow contaminant migration velocities and open pit drawdown cones, which further alters contaminant migration. It is not expected that the contaminant plumes will reach the streams, other environmental receptors, or community water supply points during the operational phase.

16.2.6.3 Long-term Post-Operational Phase

16.2.6.3.1 Recovery of Groundwater Levels and Decant Potential

In the post closure environment, pit-lakes will develop within the mined-out pit as the groundwater levels within the aquifers surrounding the pits will recover. The recovering water levels will allow the groundwater flow patterns in the area to normalise which will enable contaminant migration away from the pit areas in a down-gradient direction.

Surface decant or pit overflow could take place when the pit-lake level exceeds the pit decant level. The open pit surface decant/overflow point localities for the different pit areas are shown in Figure 90. The decant point elevations are listed in Table 106.

The calculated rise of the pit-lake water levels in each of the individual pits have been calculated against a 100-year timeline, post operations. None of the pit lakes will stabilise below the decant level and therefore all pits are expected to decant. The potential mean decant volumes and time for decant to occur are summarised in Table 106. The largest long-term mean decant volumes are expected at SGA West and Sabali South, 140m³/day and 180m³/day respectively. The total mean decant rate per river will be:

- Bariko River: 247m³/day
- Sinké River (direct only): 20m³/day
- Kéléro River: 271m³/day
- Mansounia River: 53m³/day
- Sansarankö River: 122m³/day
- Other smaller streams: 30m³/day

The decant from each of the pits will flow on surface in a down gradient direction, toward the streams that drain the area. It is possible that a percentage of the decant will enter the streams, where the element concentrations will be diluted. With the element concentrations in the decant already low (e.g., arsenic at 2µg/l), and the relatively high runoff volumes, the impact on the river water qualities due to decant entering the streams will be negligible.

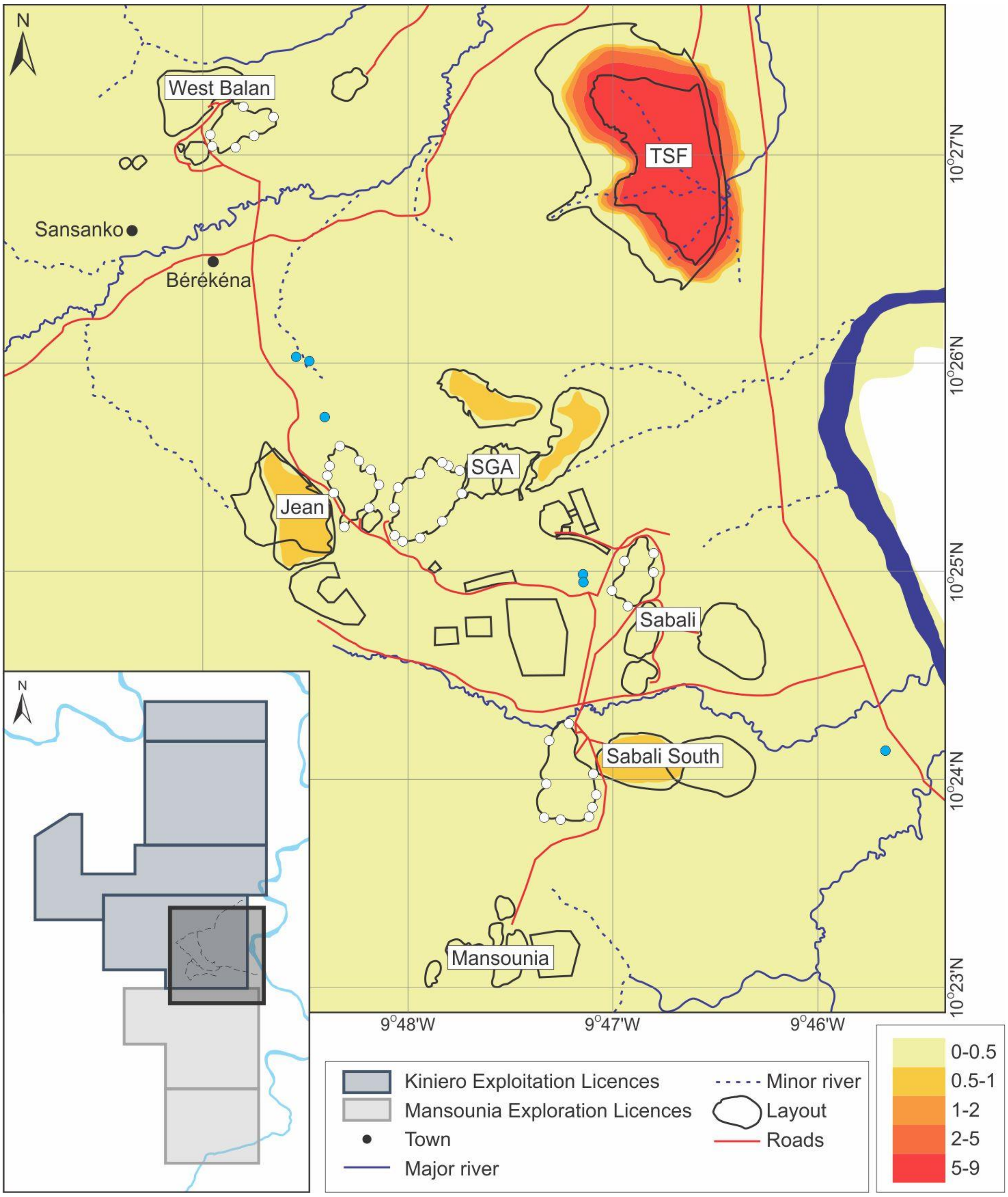


Figure 89: Contamination Plumes – End of Life of Mine

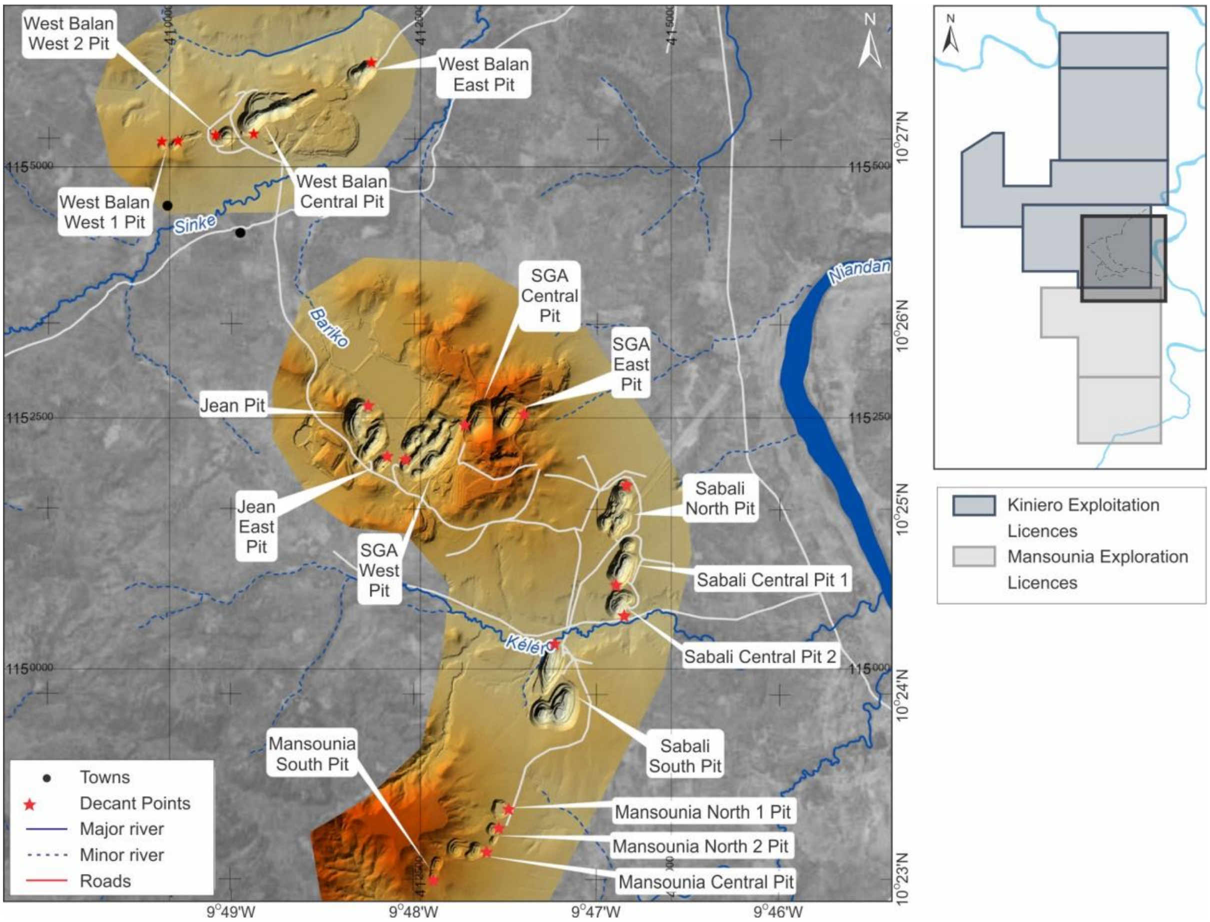


Figure 90: Localities of the Potential Decant Points for each of the Kiniero Gold Mine pits

The time required for the groundwater levels to recover, allowing for pit-lake development and potential decant from the different open pits, was calculated with GoldSim software using the following data:

- pit shells stage curves in terms of elevation, area and volume
- water inflows into the pits, as influenced by:
  - groundwater inflows from the surrounding aquifer. Initially only groundwater inflow would occur, decreasing as the pit floods. Groundwater outflow from the pits could also occur as the pit-lake levels increase
  - monthly precipitation and evaporation data were used and was statistically varied by 20 % over the pit-lake development period. Both direct rainfall and runoff were calculated
  - evaporation from the pit lake, as evaporation will change over time as the pit lakes rise.

Table 106: Potential Surface Water Decant Points for the Different Open Pits

PIT	DECANT POINT COORDS (UTM 29P/WGS84)			DECANT VOLUME (m³/d)	DURATION TO FILL (years)	RIVER CATCHMENT	COMMENTS
	X	Y	Z				
Jean (1B)	411,982	1,152,627	464.3	75	55	Bariko River (Sinké River)	-
Jean East (1A & 2)	412,171	1,152,121	461.4	8	25		-
SGA West (1)	412,350	1,152,089	462.0	140	45		-
SGA Central (2)	412,946	1,152,429	523.5	24	60		Will first decant into SGA West
SGA East (3)	413,530	1,152,539	527.8	40	50	Unnamed tributary of Niandan River	-
Sabali Central (1)	414,450	1,150,838	429.7	43	44	Kéléro River	Will first decant into Sabali Central 2
Sabali South (1 & 2)	413,837	1,150,251	423.3	75, 180(after 65 years)	32		Two compartments separated at 440 mamsl elevation
Sabali North	414,557	1,151,827	443.8	70	42	Unnamed tributary of Niandan River	-
Sabali Central (2)	414,531	1,150,535	420.1	48	40	Kéléro River	-

Source: GeoStratum (2022)

16.2.6.3.2 Contaminant Migration Away from Pollution Sources

The TSF, WRDs, ROM and marginal stockpiles will be rehabilitated during the decommissioning phase. The TSF and WRDs will be sloped, capped and vegetated while the marginal and ROM stockpile footprints will be cleared and rehabilitated. Rehabilitation will reduce seepage from the TSF and the WRDs. The active pool from the TSF will exclude slurry water, reducing the long-term seepage rate further. Removal of the marginal and ROM stockpiles will result in no additional contamination entering the underlying aquifers from those footprint areas after closure. There will be natural attenuation of the migrating plumes in the form of mixing with uncontaminated groundwater contained within the aquifer, or recharge from rainfall.

The Kiniero Gold Project is committed to the Cyanide code. It is not expected that the WAD Cyanide concentrations will exceed 50mg/l.

The quality of leachate emanating from the surface infrastructure is expected to reflect the chemical character of the rock material that will be handled and stored on site (Section 16.2.3). Arsenic concentrations from the oxide and transition material sampled from the SGA and Derekena deposits range between <1 and 5µg/l, with an average of 2.7µg/l. As such the arsenic concentration within the oxide and transition zone is approximately 2µg/l. This will be representative of leachate from the surface stockpiles as well as the pit area. The long-term (100 years) simulated arsenic groundwater plumes are shown in Figure 91. The river systems that could potentially be impacted on are the:

- Bariko River, in the vicinity of the Jean and SGA pit complex, which will be contaminated by the pit-lake water and infiltration from WRDs
- Sinké River, located downgradient of the TSF site, which may be contaminated due to potential leakages though the TSF liner system

Contaminated baseflow contribution to the streams could potentially impact on the stream water quality. Groundwater concentrations entering the streams will be diluted by the surface water qualities. The calculated arsenic concentration contributions to the different rivers are summarised in Table 107. The arsenic salt load contribution from the different areas ranges between 10,000 and 80,000µg/day (0.01 to 0.08g/day). The increase in arsenic concentrations, due to groundwater seepage into the various rivers, will be a maximum of 0.0023µg/l. This impact is negligible and below the IFC Mine Effluent Discharge Guidelines.

Table 107: Arsenic Concentration Contributions to the Affected Rivers

RIVER	CONTAMINANT SOURCE AREA	SUB-CATCHMENT AREA (km^2)	MEAN RIVER RUNOFF VOLUME (m^3/day)	STREAM SECTION IMPACTED (m)	As CONC. ENTERING THE RIVER (avg. µg/l)	As SALT LOAD ADDED TO THE RIVER (µg/day)	CHANGE IN RIVER As LEVELS (µg/l)
Bariko	Jean & SGA pit lakes, WRD	4.973	8447	1570	0.5	10000	0.0012
Sinké	TSF	20352	34570	1400	2	80000	0.0023

Source: GeoStratum (2022)

16.2.7 Groundwater Monitoring System

A ground water monitoring program, designed to focus on the possible sources of impact, will be implemented. These sources of impacts include the individual open pits as well as proposed surface areas including the TSF, process plant, WRDs and the ROM stockpile.

Monitoring will commence monthly for the first year of operation and commence at least one year before mining commences to establish a baseline database that has not been impacted by mining activities. Once the monthly database is established the monitoring frequency can change to quarterly.

Parameters and elements to be monitored must comply with the Guinea authority requirements and correspond to the parameters suitable to monitor gold mining activities. Recommended parameters and elements include:

- general chemistry such as pH, total dissolved solids (TDS), electrical conductivity (RC), alkalinity, hardness, etc
- major inorganic elements such as calcium, magnesium, sodium, potassium, sulphate, nitrate, nitrite, fluoride, chloride, ortho-phosphate
- trace inorganic elements including aluminium, ammonium, antimony, arsenic, barium, beryllium, boron, bismuth, cadmium, copper, chromium (total), cyanide, gold, iron, lead, manganese, mercury, molybdenum, nickel, lead, selenium, silver, uranium, vanadium and zinc

Six dedicated groundwater monitoring boreholes were installed by SMG in 2020 in support of the Kiniero Gold Project (KMBH1 to KMBH6). An additional seven monitoring boreholes (WBK21-001 to WBK21-007) were installed in 2021, some of which are dual-purpose production boreholes (Figure 82). These monitoring boreholes should be supplemented should it be required based on the final mine layout plans.

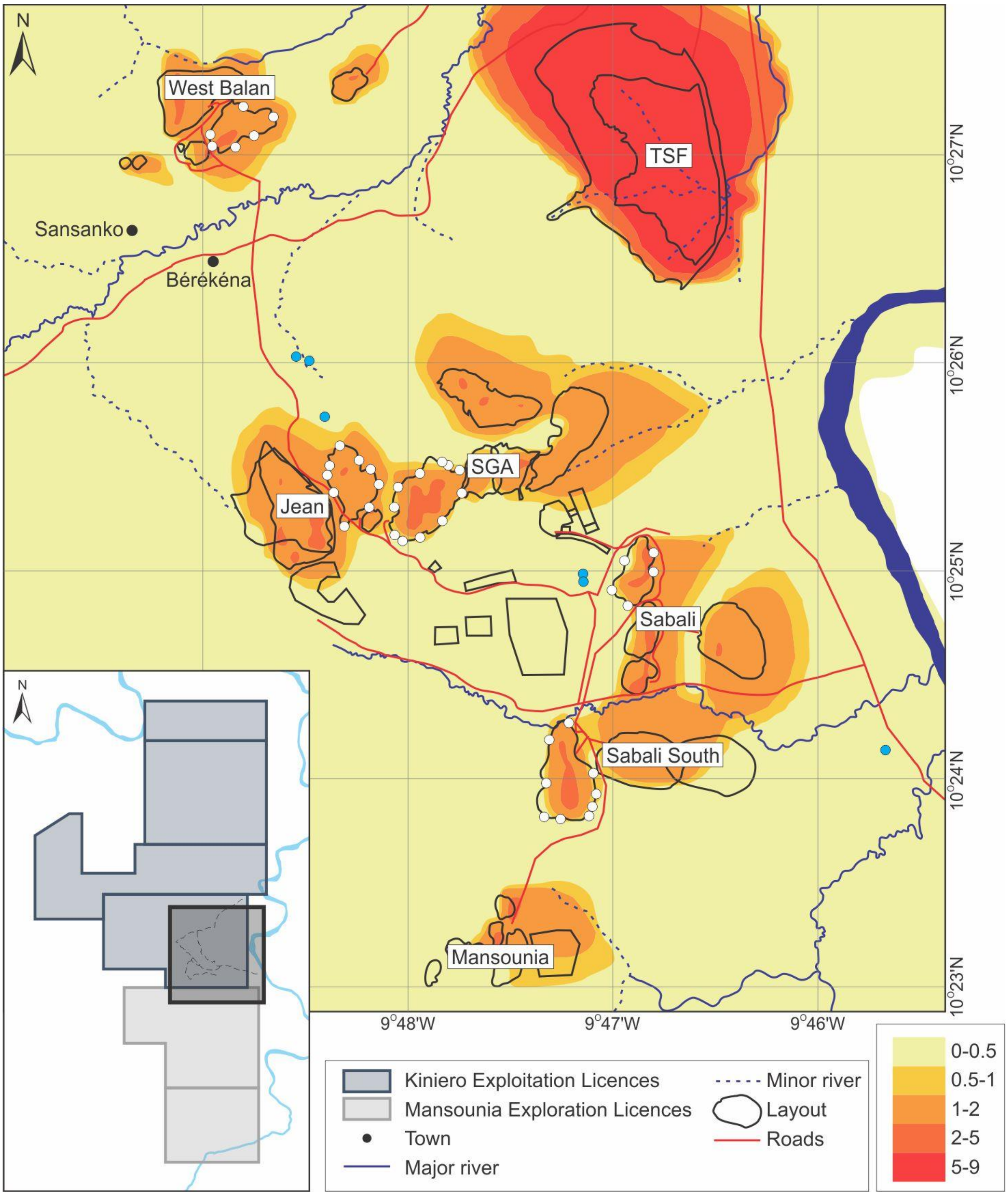


Figure 91: Kiniero Gold Project Groundwater Contamination Plums – 100 years Post Closure.

16.2.8 Groundwater Environmental Management Program

Current groundwater conditions are presented in Section 16.2.2, with the modelled impacts predicted impacts presented in Section 16.2.6. Appropriate mitigation measures, as part of a Groundwater Environmental Management Program is presented in Table 108.

Table 108: Groundwater Environmental Management Programme – Mitigation Measures

LOCATION / FACILITY	MITIGATION MEASURE	PROJECT PHASE
General	• Ensure appropriate rehabilitation of all mining areas	Operation / Decommissioning
	• Implementation of good housekeeping practices to prevent spillage of substances which may contaminate groundwater. These practices to include the storage of hazardous substances on paved or lined surfaces and the containment of hydrocarbons in oil traps.	Operational
Storage of Hazardous Substances	• Hydrocarbon or chemical spills should be contained and remediated as soon as possible in order to prevent any seepage into groundwater. • All on site storage areas of hydrocarbons and chemicals must be bunded.	Construction / Operation / Decommissioning
Tailings Storage Facility	• The TSF will be lined a 1.5mm HDPE geomembrane. • Minimise water ponding on the TSF to reduce water entering the TSF material. Possibly installing cyclones as part of tailings material deposition system. • Monitoring of groundwater and stream water qualities down gradient of the TSF.	Operational
	• The appropriate rehabilitation of the tailings area, ensuring that all sources of contamination are removed where possible. • Sloping, capping and vegetation of the tailings material to reduce ponding of rainfall and the subsequent recharge into the tailing's material. This will reduce leachate into the underlying aquifers.	Decommissioning
ROM Pad	• Rehabilitation of the footprint area, including removal of all potential sources of contamination.	Decommissioning
Open Pits	• Monitoring of groundwater levels and quality around the opencast pit areas. • Potential installation of out-of-pit dewatering boreholes to minimize the volume of "dirty" water to be treated in the system.	Operational
	• Rehabilitation of the open pit areas to remove excess material that will cause the formation of poor-quality leachate. • Potential diversion of surface runoff into the pit areas to increase the rate of rise of the pit lake. This will reduce oxidation of the pit walls and the potential formation of poor-quality leachate. • Supply water of similar (pre-mining) quality and quantity to affected communities and farmers in the case where water supply wells and boreholes are impacted by dewatering and/or contaminant migration.	Decommissioning
	• Monitoring of the recovery of water levels as well as chemical evolution in the pit lakes and surrounding aquifers. • Control, management and possibly treatment of decant from the open pit areas. Measured against volume and quality guidelines it could be possible to implement passive treatment through constructed wetlands. • Supply water of similar (pre-mining) quality and quantity to affected communities and farmers in the case where water supply wells and boreholes are impacted by dewatering and/or contaminant migration.	Long term post-operational
Waste Rock Dumps	• Monitoring of groundwater qualities down gradient of the waste dumps. • Potential installation of cut-off trenches or interceptor wells should the results from the monitoring program indicate the need.	Operational

LOCATION / FACILITY	MITIGATION MEASURE	PROJECT PHASE
	• Rehabilitation of the waste dumps, including sloping, capping and vegetation to reduce rainfall ponding and recharge into the material.	Decommissioning / long term post-operational
Stockpiles	• Monitoring of groundwater qualities down gradient of the surface stockpiles. • Potential installation of cut-off trenches or interceptor wells should the results from the monitoring program indicate the need.	Operational
	• Rehabilitation of the footprint area, including removal of all potential sources of contamination. Sloping, capping and vegetation of all remaining material to reduce rainfall ponding and recharge into the material.	Decommissioning / long term post-operational

Source: GeoStratum (2022)

16.2.9 Conclusions

- transmissivities for tested boreholes range between 0.58m²/day and25 m²/day to 300m²/day and 84m²/day
- there is a linear correlation between groundwater level elevation and the topographical elevation, suggesting that the groundwater level is mimicking the topographic elevation. Shallow groundwater levels are representative of the upper aquifer, while the deeper groundwater levels are from boreholes located on topographically higher areas
- groundwater flows are from higher lying northwest – southeast striking ridges toward the various streams that drain the area. Groundwater flow gradients range between 1:3 and 1:5 along the ridges and 1:30 to 1:40 in the lower lying areas near the streams
- in general, all the parameters analysed for ground water quality comply with both the IFC Mine Effluent Discharge Guidelines (IFC, 2007) and the HO Guidelines for Drinking-water (2017)
- dewatering boreholes are proposed at Jean, SGA West, Sabali North and Sabali South based on expected groundwater inflow volumes. SGA West and Sabali South are likely to have highest peak groundwater inflow rates
- dewatering activities will include dewatering of existing pit-lakes, starter pit/boxcut dewatering and upfront borehole dewatering. There are no known community groundwater users within this zone of influence and the potential impact of construction dewatering on surrounding streams is negligible
- the extent of the dewatering cone for the borehole dewatering scenario is slightly larger than the in-pit dewatering only scenarios. There are no known private groundwater users within the zone of influence around the individual mining areas
- the groundwater level drawdown cone at Sabali South is expected to reach the Kéléro River during the time that the pits are active, which could reduce the groundwater baseflow contribution to the stream. This potential impact could reduce streamflow by about 0.25% which is negligible

- the Bariko River will be impacted by the dewatering of the Jean and the SGA pit complexes which could cause a reduction in the average total stream volume of approximately 0.08%, which is negligible
- groundwater flow patterns will be directed towards the open pit mine areas and therefore it is not expected that any significant contaminant plumes will develop away from the open pit mine areas during the operation life
- Arsenic is identified as one of the main constituents of concern. Operational groundwater contaminant plumes were modelled with the simulated arsenic groundwater plumes not likely to impact surrounding streams and community water supply points
- pit lakes will develop at the different open pits at cessation of mining and will decant when water levels exceed the spill or surface decant elevation. None of the pit lakes will stabilise below the decant level and therefore all the pits will decant. Most pits will take more than 30 years to decant
- the impact on stream qualities is acceptable, based on the assumption that arsenic concentration of the pit lakes would be 2µg/l
- contaminant transport modelling, for a period of 100 years, suggests that TSF leachate through the liner system, could impact the shallow aquifer up to the Sinké River. No community supply points were identified in the potential zone of impact
- contaminants decant groundwater is likely to seep into the Sinké River with an arsenic concentration of 2µg/l over a stream section of about 1.4km, downgradient of the TSF. This could result in an arsenic concentration increase of 0.001µg/l which is regarded as negligible
- subsurface seepage from pit-lakes at Jean, SGA and the WRDs could impact the Bariko River. Potential quality impacts would be negligible and acceptable in terms of IFC Mine Effluent Discharge Guidelines

16.3 General Description Mining Methods

The Kiniero Gold Project deposits are suitable to conventional open pit mining methods including drilling, blasting, trucks and shovels in order to supply ore to the 3 Mtpa processing plant. Benches of 5m will be blasted where required and excavated in 2.5m flitches in order to avoid, as much as practical, ore loss and dilution during the mining process. The open pit optimisation process described in Section 15 highlights the importance of adopting grade control methods that minimise the effect of ore loss and dilution during the mining process.

All mining services will be contracted out, including:

- RC drilling for grade control and drill and blast
- “down the hole” blasting services, which will include both the delivery of bulk explosives “down the hole” and the supply of blasting accessories

- load and haul services from the pits to the stockpiles
- rehandling from the stockpiles to the ROM

16.4 Mining Equipment

The mining equipment planned for use in support of the Kiniero Gold Project is presented in Table 109.

Table 109: Kiniero Gold Project Mining Fleet – Heavy Equipment

MINING FLEET EQUIPMENT ITEM	MAKE AND MODEL	OPERATING WEIGHT / CAPACITY
Truck	Komatsu HM 400	40t
Excavator	Komatsu PC 800	80t
Front end Loader	Caterpillar 992K	60t
Production Drill	Epirock SmartRockT45	140mm
Dozer	Caterpillar D8R	34t
Grader	Caterpillar 14M	26t
Water Truck	Komatsu HM 400	30,000 ℓ

Source: Mine Planning Solutions (2022)

The fleet has been based around a 40-tonne capacity Komatsu HM 400 ADT dump truck matched to a Komatsu PC8000 excavator (80 tonne). This equipment was selected on the basis that these machines are:

- fit for purpose – i.e. capable of mining both the 5 metre bench height and the 2.5 metre flitch height
- able to deliver the estimated dilution and ore loss without any significant loss of productivity

16.5 Blasting

Blasting will be undertaken using industry standard storage, transport and charging practices for a modern mining operation, subject to all local and national statutory and regulatory requirements. Production drilling and blasting operations will be carried out at 5m benches. Each 5m bench is then excavated in 2.5m flitches to ensure maximum selectivity.

The supply of explosives and blasting accessories will be contracted out directly to an approved explosives supplier. The explosives contractor will provide, in addition to the supply of primary explosives and blasting accessories, mixing equipment and technical blasting advice when required.

16.6 Dust Suppression

Dust suppression will be undertaken by water carts fitted with spray bars. Water for dust suppression will be available from sumps in the pits in first instance and from the Turkeys Nest on the surface if the pit sumps run dry.

16.7 Grade Control

The grade control will be undertaken using RC drilling. Samples will be collected every 1m over a 35m inclined (-50°) drillhole. The grade control pattern across the deposit is factored by 50% to account for the drilling of the surrounding waste (i.e. a ratio of 0.5 waste tonne for every 1 ore tonne drilled). A grade control grid of 6m along and 6m across strike is planned. It is intended to undertake grade control using contract drilling. The samples will be collected by geology personnel and delivered to the site laboratory. Assay results will be used for grade control modelling and reconciliation, reporting back into the resource model and mine plan.

16.8 Mining Schedule

The LOM production schedule for the Kiniero Gold Project was undertaken using the MSSP MineSight software. An integrated multi-pit mining schedule was developed, which established mined volumes, stockpile movements and processing plant feed requirements, incorporating the following schedule design bases and constraints:

- final pit designs and incremental pit designs (Figure 68) and the survey topography for the following pits:
  - the Jean open pits, comprising Jean1A, Jean 1B and Jean2
  - the Sabali North and Central pits, including SBN, SBC1 and SBC2
  - the Sabali South pits, including SBS1 and SBS2
- mining inventories for both ore and waste reported by pit and for weathering ore type in Table 87 and Table 90. It should also be noted that the final pit designs also capture Inferred Mineral Resources totalling 3.0 Mt grading 1.09g/t Au which is considered as waste material in the current LoM schedules
- legacy stockpile opening balances of 813kt of oxide ore grading 0.74g/t Au;
- an average vertical advance of < 100m per year (not considering rehandling of old waste stockpile material)
- the processing plant feed schedule aims to meet the plants available hours with a specific blend where fresh ores cannot be >40% of the feed. The annual plant processing hours are 8,059.2 at a 92% availability
- the assumption that all ore will be delivered to the RoM pad stockpile for the process plant, with rehandling set at 100% with no direct feed

Tonnage throughputs were calculated using the following processing tonnes per hour by different ore type being processed:

- saprolite ores: 625 tonnes per hour
- transitional ores: 300 tonnes per hour
- fresh ores: 225 tonnes per hour

The production schedule was developed on an annual basis with the resulting open-pit development schedule presented in Table 111 and Figure 92. The annual waste and ore production statistics, summarised according to each of the open pits is presented in Table 110 and Table 111, the processing plant feed schedule in Table 112 with key schedule metrics graphically displaced in Figure 92. The mine schedule can be summarised as follows:

- oxide ores contribute 50.9%, transitional ores 8.4% and fresh ores 40.6% respectively
- total volumes mined capped at a maximum of 19Mt in Year 1 and thereafter reduced to <14Mt in Year 4 and 5 and to 8.1Mt in Year 6, on depletion of the Mineral Reserves;
- total ore mined peaks at 3.3Mtpa in Year 3
- average grades decline over the operating life from 1.91 g/t Au to 0.95 g/t Au
- an average vertical advance of 50m per year, reaching up to 130m per year on some of the high walls in the brown fields pits where mining occurs above the main ramp exit in areas of reduced stripping ratios.

Table 110: Kiniero Gold Project Open Pit Inventories

DEPOSIT	OPEN PIT No.	CONTRIBU-TION (%)	TONNAGE (Kt)	Au GRADE (g/t)	Au CONTENT (KOz)	WASTE TONNAGE (Kt)	STRIPPING RATIO
Jean	JN1A	7.99	1,420	2.24	102	8,871	6.2
	JN1B	8.15	1,448	1.70	79	6,535	4.5
	JN2	0.81	143	1.74	8	898	6.3
SGA	SGA1	21.72	3,860	1.85	230	16,601	4.3
	SGA23T	4.97	883	0.97	28	15,272	17.3
	SGA2	7.99	1,420	1.51	69	2,763	1.9
	SGA3	6.80	1,209	1.47	57	3,823	3.2
Sabali South	SBS1	2.89	513	0.72	12	1,419	2.8
	SBS2	26.60	4,727	0.80	121	9,762	2.1
Sabali North & Central	SBN	5.84	1,037	1.31	44	6,971	6.7
	SBC1	3.67	651	0.87	18	3,334	5.1
	SBC2	2.57	458	1.11	16	2,457	5.4
TOTAL		**100**	**17,768**	**1.37**	**784**	**78,705**	**4.4**
WEATHERING							
Oxide		56.78	10,089	0.97	313		
Transitional		7.15	1,270	1.51	62		
Fresh		36.08	6,410	1.98	409		
TOTAL		**100.00**	**17,768**	**1.37**	**784**		

Source: Mine Planning Solutions (2022)

Table 111: Kiniero Gold Project Ore and Waste Mining Schedule By Pit

PIT NAME / No.		UNIT		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	TOTAL
SGA Complex	JN1A	Tonnage	Kt	1,157	264						**1,420**
		Grade	Au (g/t)	2.02	3.23						**2.24**
	JN1B	Tonnage	Kt			196	1,221	31			**1,448**
		Grade	Au (g/t)			1.36	1.74	2.32			**1.70**
	JN2	Tonnage	Kt		56	85	1	1			**143**
		Grade	Au (g/t)		1.93	1.62	1.41	1.41			**1.74**
	SGA1	Tonnage	Kt	707	1,872	1,280					**3,860**
		Grade	Au (g/t)	1.34	1.94	2.01					**1.85**
	SGA23T	Tonnage	Kt		82	341	460				**883**
		Grade	Au (g/t)		0.89	0.88	0.88				**0.88**
	SGA2	Tonnage	Kt				501	919			**1,420**
		Grade	Au (g/t)				1.38	1.58			**1.51**
	SGA3	Tonnage	Kt					1,186	22		**1,209**
		Grade	Au (g/t)					1.47	1.20		**1.47**
Sabali Deposits	SBS1	Tonnage	Kt						166	347	**513**
		Grade	Au (g/t)						0.95	0.92	**0.93**
	SBS2	Tonnage	Kt	336	1,035	999	356	783	1,217		**4,727**
		Grade	Au (g/t)	0.95	0.95	0.95	0.95	0.95	0.87		**0.93**
	SBN	Tonnage	Kt						1,037		**1,037**
		Grade	Au (g/t)						0.82		**0.82**
	SBC1	Tonnage	Kt					646	5		**651**
		Grade	Au (g/t)					0.85	2.37		**0.87**
	SBC2	Tonnage	Kt						458		**458**
		Grade	Au (g/t)						1.11		**1.11**
TOTAL ORE		**Tonnage**	**Kt**	**2,200**	**3,310**	**2,901**	**2,539**	**3,566**	**2,447**	**805**	**17,768**
		Grade	**Au (g/t)**	**1.60**	**1.65**	**1.41**	**1.39**	**1.25**	**1.07**	**0.93**	**1.37**
TOTAL WASTE		**Tonnage**	**Kt**	**16,800**	**15,690**	**14,099**	**10,461**	**9,016**	**9,473**	**3,165**	**78,705**
		Stripping Ratio (SR)		**7.6**	**4.7**	**4.9**	**4.1**	**2.5**	**3.9**	**3.9**	**4.4**

Source: Mine Planning Solutions (2022)

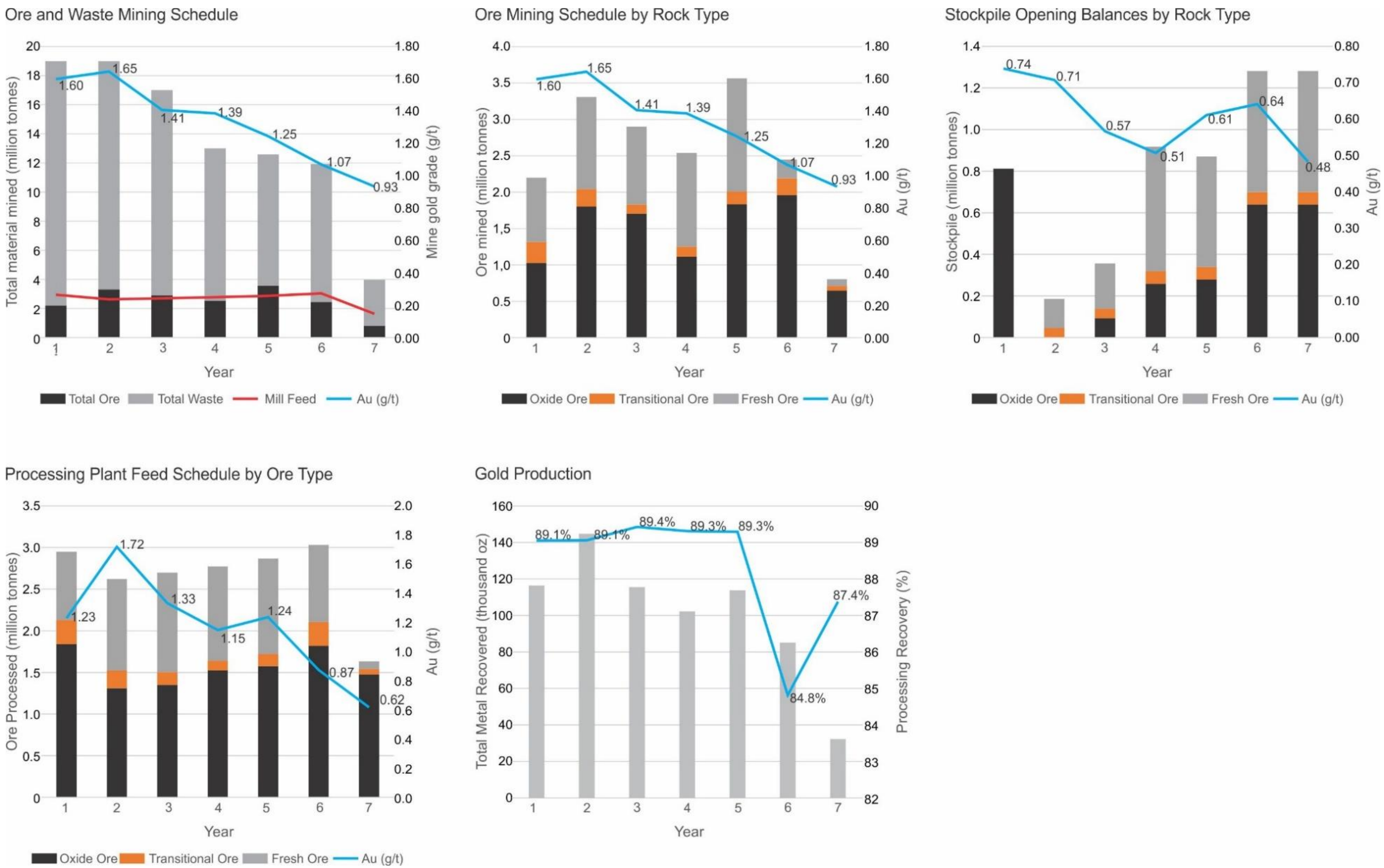


Figure 92: Kiniero Gold Project Mine Schedule. Source: Mine Planning Solutions (2022)

Table 112: Kiniero Gold Project Processing Plant Schedule by Rock Type

SPEC.	YEAR1	YEAR2	YEAR3	YEAR4	YEAR5	YEAR6	YEAR7	TOTAL
OXIDE ORE FEED								
ROM (Kt)	1,028	1,312	1,336	680	1,577	1,252	648	7,833
Au (g/t)	1.26	1.16	1.09	1.27	0.98	1.16	0.77	1.10
Stockpile Feed (Kt)	813		14	845		568	828	3,069
Au (g/t)	0.74		0.48	0.48		0.49	0.48	0.55
Total (Kt)	**1,841**	**1,312**	**1,350**	**1,526**	**1,577**	**1,820**	**1,477**	**10,902**
Au (g/t)	**1.03**	**1.16**	**1.09**	**0.84**	**0.98**	**0.95**	**0.61**	**0.95**
% Feed	**62%**	**50%**	**50%**	**55%**	**55%**	**60%**	**90%**	**59%**
TRANSITIONAL ORE FEED								
ROM (Kt)	290	212	125	116	146	233	64	1,186
Au (g/t)	1.76	1.76	1.41	1.43	1.39	1.51	1.44	1.58
Stockpile Feed (Kt)			29			55		84
Au (g/t)			0.58			0.57		0.57
Total (Kt)	**290**	**212**	**155**	**116**	**146**	**288**	**64**	**1,270**
Au (g/t)	**1.76**	**1.76**	**1.25**	**1.43**	**1.39**	**1.33**	**1.44**	**1.51**
% Feed	**10%**	**8%**	**6%**	**4%**	**5%**	**9%**	**4%**	**7%**
FRESH ORE FEED								
ROM (Kt)	820	1,100	967	1,028	1,145	256	92	5,407
Au (g/t)	2.03	2.88	2.27	2.00	1.94	1.84	1.71	2.21
Stockpile Feed (Kt)		0	228	105	0	670		1,003
Au (g/t)		0.71	0.75	0.72	0.91	0.81		0.78
Total (Kt)	**820**	**1,100**	**1,195**	**1,133**	**1,145**	**925**	**92**	**6,410**
Au (g/t)	**2.03**	**2.88**	**1.98**	**1.88**	**1.94**	**1.09**	**1.71**	**1.98**
% Feed	**28%**	**42%**	**44%**	**41%**	**40%**	**31%**	**6%**	**34%**
TOTAL ORE FEED								
Total (Kt)	**2,951**	**2,623**	**2,700**	**2,774**	**2,868**	**3,033**	**1,633**	**18,582**
Head grade Au (g/t)	**1.38**	**1.93**	**1.49**	**1.29**	**1.38**	**1.03**	**0.71**	**1.34**
Au rec. (g/t)	**1.23**	**1.72**	**1.33**	**1.15**	**1.24**	**0.87**	**0.62**	**1.19**
Gold Recovered Koz	**117**	**145**	**116**	**102**	**114**	**85**	**32**	**712**

Source: Mine Planning Solutions (2022)

16.9 Fleet Size

Fleet productivity for the Kiniero Gold Project was developed using the assumption that a Komatsu 80t tonne excavator would be paired with a Komatsu HM400 40t tonne articulated dump truck. The excavator productivity and truck payload were calculated as shown in Table 113, with a summary of the Kiniero Gold Mine production fleet requirements presented in Table 114.

Table 113: Kiniero Gold Project Loading Productivity and Truck Payload

CATEGORY	UNITS	OXIDE	TRAN.	FRESH
KOMATSU PC800 EXCAVATOR				
Bulk density	t/bcm	1.90	2.57	2.80
Swell factor	%	0.15	0.25	0.35
Loose density (dry)	t/bcm	1.65	2.06	2.07
Moisture content	%	10%	7.5%	5%
Loose density (wet in bucket)	t/m³	1.82	2.21	2.18

CATEGORY	UNITS	OXIDE	TRAN.	FRESH
Bucket size	m^3	4.5	4.5	4.5
Bucket fill factor	%	0.95	0.85	0.85
Bucket capacity	m^3	4.28	3.83	3.83
	bcm	3.72	3.06	2.83
Wet tonnes per pass	t	7.8	8.5	8.3
KOMATSU HM 400 TRUCK				
Truck Capacity	t	40.0	40.0	40.0
	m^3	24.0	24.0	24.0
SWING CYCLE				
Spot	min	0.5	0.5	0.5
No of passes per truck		5.0	5.0	5.0
Cycle time	sec	30.0	30.0	30.0
LOADING TIME				
((cycles per truck-0.9)*swing time)/60	min	2.1	2.1	2.1
TOTAL LOADING TIME		2.6	2.6	2.6
Effective minutes per hour	60	60.0	60.0	60.0
Moving & cleanup (mins/hr)	7	7.0	7.0	7.0
No of truck loads/60min hour		20.8	20.8	20.8
Truck presentation factor		1.0	1.0	1.0
Operator efficiency factor		0.9	0.9	0.9
Does weight exceed maximum by 10%		NO	NO	NO
Does volume exceed maximum by 10%		NO	NO	NO
Average truck fill factor (by weight)	%	97%	106%	104%
Average truck fill factor (by volume)	%	89%	80%	80%
Truck Payload	t	39	42	42
	m^3	21	19	19
Tonnes per hour (Wet)	t	727	791	779
Tonnes per hour (Dry)	t	661	736	742
Average availability	%	1	1	1
Effective Dig Rate	bcm/h	313	258	239
	t/h	595	662	668
Effective operating hours per day	h/day	15	15	15
Moving	h/day			
Total Work time	h/day	15	15	15
Tonnes per day	dry tonnes	9909	11033	11130
Average daily production	dry tonnes	8918	9930	10017
Working days per year	days	355.0	355.0	355.0
Annual Production	**dry tonnes**	**3,165,937**	**3,525,047**	**3,556,035**
	bcm	**1,666,282**	**1,371,614**	**1,270,013**

Source: Mine Planning Solutions (2022)

Table 114: Kiniero Gold Mine Production Fleet Size

EQUIPMENT	OPREATING WEIGHT / CAPACITY	MAX / TOTAL	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
Truck	40t	**28**	28	28	23	18	18	19	7
Excavator	80t	**6**	6	6	6	4	4	3	2
Front end Loader	60t	**1**	1	1	1	1	1	1	1
Production Drill	140mm	**2**	2	2	2	2	2	1	1
Dozer	34t	**5**	5	5	5	4	3	3	3
Grader	26t	**2**	2	2	2	2	2	1	1
Water Truck	30,000 l	**2**	2	2	2	2	2	1	1
TOTAL		**46**	**46**	**46**	**41**	**33**	**32**	**29**	**16**

Source: Mine Planning Solutions (2022)

17 RECOVERY METHODS

17.1 Design Criteria

The Kiniero Gold Project's plant's main design criteria are presented in Table 115, with the source description codes described in Table 17-2.

Table 115: Kiniero Gold Project Plant Main Design Criteria

PARAMETER	UNIT	VALUE	SOURCE
GENERAL			
Process Plant Operating Time	%	92.0	C
Operating Days per Year	d/y	365	G
Operating Hours per Day	h/d	24	G
Annual Throughput	t/y	3,000,000	A
Final Recovery	%	90.9	E
Gold Recovery (Fresh Ore)	%	84.5	I
Gold Recovery (Oxide Ore)	%	93.1	I
Gold Recovery (Transition Ore)	%	79.8	G
Gold Production	ozt/y	125,000	E
Process Plant Throughput	t/h	372.2	E
Ore Feed Proportion (LoM)			
Laterite Ore Feed Proportion	%	3.0	A
Oxide Ore Feed Proportion	%	50.0	E
Transition Ore Feed Proportion	%	8.0	A
Fresh Ore Feed Proportion	%	39.0	A
Head Grade – Au (LoM)			A
Ore Blend Au Grade - Average	g/t	1.43	E
Ore Blend Au Grade - Hard Ore	g/t	1.62	E
Laterite Ore Au Grade	g/t	1.25	A
Oxide Ore Au Grade	g/t	1.25	A
Transition Au Grade	g/t	1.60	A
Fresh Ore Au Grade	g/t	1.65	A
GRAVITY SEPERATAION			
Gravity Circuit Gold Recovery	%	15	G
CARBON-IN-LEACH (CIL)			
CIL Residence Time	h	30	I
Average Gold Recovery on Gravity Tails	%	89.3	E
CIL Overall Gold Recovery	%	90.9	E
CARBON PLANT			
Acid Wash Column Capacity	t	4.0	C
Elution Frequency	nb/d	1.0	C
TAILINGS			
Volumetric Feed Rate	m^3/h	457.8	E

Source: Soutex (2022)

Table 116: Source Code Descriptions

SOURCE DESCRIPTION	SOURCE CODE
Criteria Provided by Owner	A
Standard Industry Practice	B
Soutex Recommendation	C
Vendor-Originated Criteria	D
Criteria from Process Calculations	E
Engineering Handbook Data	F
Assumption from Similar Projects	G
Criteria Provided by "Technology Supplier"	H
Metallurgical Test Result	I
International, National, Local and Industry Design Codes and Regulations	J
Budget Quote from Supplier	K
Existing Equipment Specifications / Process Data	L

Source: Soutex (2022)

17.2 Recovery Process Description

Ore from the Kiniero Gold Project will be processed on-site. The gold will be recovered in a beneficiation plant that has been designed to process a blend of oxide, laterite, transition, and fresh ores from various ore deposits. The process plant includes crushing, grinding, gravity, thickening, carbon-in-leach and stripping circuits.

A high-level process flow diagram of the Kiniero Gold Project presented in Figure 93 and the general arrangement of the Kiniéro Gold Project process plant is presented in Figure 94.

17.2.1 Crushing and Stockpiling

The crushing area of the Kiniero Gold Project processing plant contains two parallel crushing lines, each feeding a dedicated ore stockpile.

Laterite, transition, and fresh ores from the ROM pad are reclaimed by front-end loaders and delivered to the fresh ore hopper, which is protected by a coarse fixed grizzly. The fresh ore vibrating grizzly feeder reclaims the ore from the hopper, with the grizzly coarse oversize sent for crushing in the jaw crusher. The crushed ore is then unloaded onto the fresh ore transfer conveyor. The finer sized ores pass directly through the grizzly onto the fresh ore transfer conveyor, which feeds the crushed fresh ore stockpile.

Oxide ores from the ROM pad are reclaimed by front-end loaders and delivered to the oxide ore hopper, which is protected by a coarse fixed grizzly. The oxide ore apron feeder reclaims ore from the hopper onto the mineral sizer feed conveyor. The ore is sent for crushing at the mineral sizer, which is then unloaded onto the oxide ore transfer conveyor which delivers the oxide ores to the crushed oxide ore stockpile.

The crushed oxide and fresh ores are reclaimed from the crushed fresh ore stockpile and the crushed oxide ore stockpile respectively by underground apron feeders and transported to the SAG mill by the SAG mill feed conveyor.

The use of separate crushed ore stockpiles allows for better management of the oxide/hard ore ratio. Optimal tonnages from the apron feeders for the crushed fresh and crushed oxide ores are adjusted to obtain the targeted ore type to feed ratio to the SAG mill.

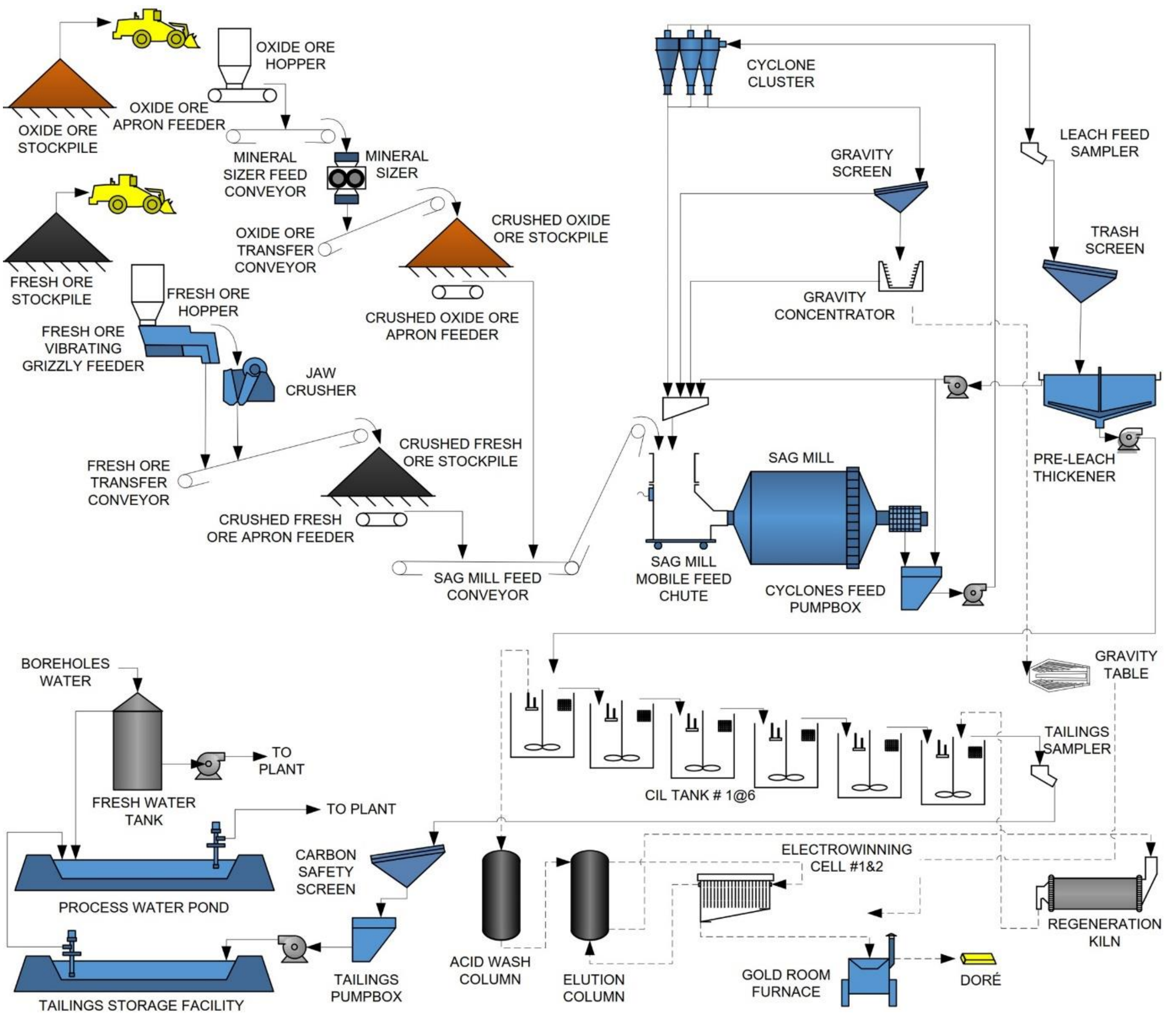


Figure 93: Simplified Process Flow Diagram of the Kiniero Gold Project Process Plant

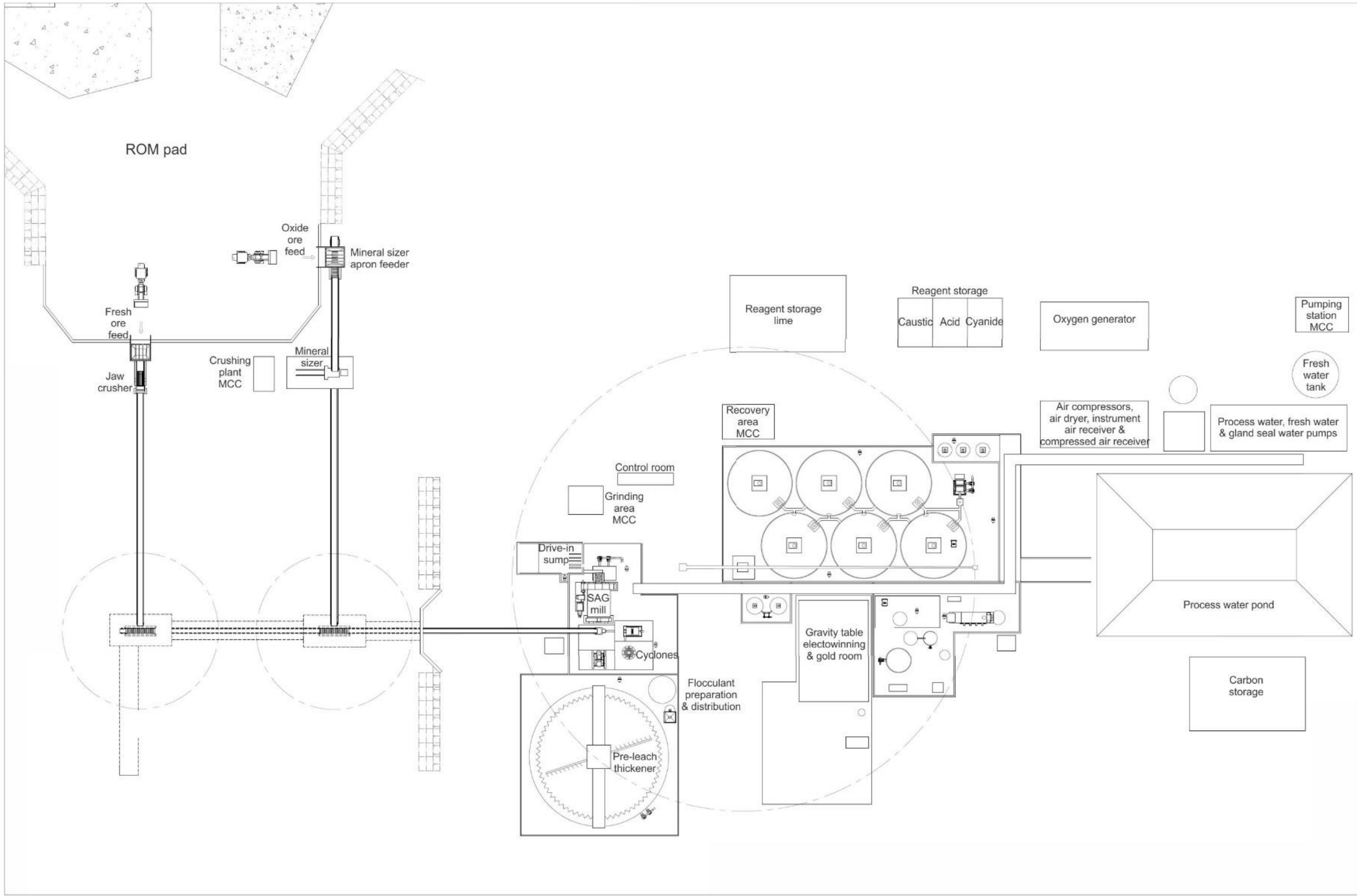


Figure 94: General Arrangement of the Kiniero Gold Project Process Plant

17.2.2 Milling and Gravity Concentration

The grinding of the crushed ore will be performed using a semi-autogenous grinding (SAG) mill in a closed circuit with hydrocyclones. The ground ore exiting the SAG passes through the SAG trommel and flows by gravity to the cyclone feed pumpbox. The trommel oversize should only collect scats in small quantities.

A portion of the hydrocyclones underflow feeds the gravity circuit. The slurry flows by gravity to the gravity screen. The gravity screen undersize flows by gravity to the gravity concentrator. The gravity concentrate is then sent to the gold room for further concentration with the use of the gravity table. The gravity concentrator tails, gravity screen oversize and the main portion of the hydrocyclones underflow are collected into the SAG mill circulating load collector and returned to the SAG mill.

The cyclone overflow is sampled in the CIL feed sampler before being fed to the trash screen which removes light tramp material such as plastic and wood. The slurry then flows by gravity to the pre-leach thickener feed box.

17.2.3 Pre-Leach Thickening

Lime is added in the pre-leach thickener feed box to achieve an alkaline pH, and to prevent HCN gas formation in the carbon-in-leach (CIL) circuit. In the thickener, flocculant is added, and the slurry thickened to achieve an appropriate leaching feed percent solids. The pre-leach thickener underflow is sent to the CIL feed box, with the pre-leach thickener overflow returned to the SAG mill as make-up water.

17.2.4 Carbon-in-Leach (CIL)

Sodium cyanide is added to the CIL feed cox to achieve the cyanide concentration target. From the CIL feed box, the slurry is fed to CIL Tank #1 (or #2 given the option of a bypass) where pure oxygen is sparged into the tanks. The slurry then progresses to the CIL tanks. Each carbon-in-leach (CIL) tank will be equipped with:

- oxygen spargers to maintain the dissolved oxygen level in the tanks
- an agitator to ensure the slurry suspension
- an interstage screen to retain the carbon while the slurry flows downstream to the next tank
- carbon transfer pumps to lift the loaded carbon counter current from the slurry.

Regenerated carbon adsorbing the leached gold is introduced into the last CIL tank and progresses counter current from the slurry (from the last CIL tank to the first one). The slurry containing loaded carbon is pumped from CIL Tank #1 to the loaded carbon screen, where the loaded carbon is recovered. The slurry at the output of the last CIL tank is sampled in the tailings sampler to account for gold losses. The slurry then goes through the carbon safety screen for harvesting fine carbon, and carbon, in case of an interstage screen leak. The screen undersize flows by gravity to the tailings pumpbox where the tailings are pumped to the TSF.

17.2.5 Carbon Plant

The loaded carbon recovered by the loaded carbon screen is discharged into the acid wash column. The loaded carbon is washed with hydrochloric acid to remove any carbonates that were trapped on the carbon surface during the CIL stage. At the end of the acid wash, the acid solution in the column is neutralized with caustic soda addition. The neutralized solution is then drained, and the loaded carbon rinsed with water and transferred to the elution column.

The carbon water circuit provides pressurized recirculated water allowing for the carbon transfer from the acid wash column discharge to the elution column inlet.

The elution process desorbs the gold adsorbed onto the activated carbon by circulating a preheated barren solution in the elution column, where the gold is transferred from the carbon into the solution. This process is performed under a pressurized column to accelerate the desorption kinetics. The pregnant solution emanating from the elution column is cooled before being transferred to the electrowinning cells, where gold is plated onto cathodes. The barren solution at the discharge of the electrowinning cells is returned to the elution solution tank, and the repetitive cycle continues. The barren solution, prior to the elution process, is prepared in the elution solution tank with the addition of freshwater, caustic soda, and cyanide.

At the end of the cycle, the eluted carbon is drained from the column and sent to the stripped carbon dewatering screen. The regeneration kiln screw feeder then feeds the regeneration kiln with the drained carbon. The regeneration kiln allows any organic material to be burned into the carbon pores. The method heats the eluted carbon to very high temperatures under an oxygen reduced atmosphere to avoid ignition.

17.2.6 Gold Room

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

17.3 Water Management

17.3.1 Process Water

Process water is water recirculated from the TSF that has been in contact with either plant chemicals, or with any other water that has been mixed with process water. It is continuously recirculated from the TSF, to the process water pond and to the processing plant, mainly in the milling area. Although it is operated in a closed circuit, there still are some process water losses, particularly by evaporation in the ponds (tailings pond and process water pond). Raw water is added to the process water pond through the freshwater tank overflow to compensate for the process water losses.

17.3.2 Raw Water

Raw water will be extracted from boreholes and/or mining pit lakes, and then stored in the freshwater tank. Raw water from the tank will then be distributed across the plant by the raw water pumps for various uses, including the reagent preparation. The gland seal water is distributed by the gland seal water pumps fed by the freshwater tank.

17.3.3 Fire Water

Firewater will be supplied from the freshwater tank and stored in the fire water tank. Firewater will be provided by a conventional fire water pump skid comprising an electric and a diesel fire water pump, equipped with a jockey pump to maintain system pressure.

17.4 Tailings Disposal

Slurry from the tailings pump box will be pumped to the TSF, where it will decant and accumulate. Residual cyanide will degrade naturally through hydrolysis and ultraviolet (UV) irradiation. Supernatant reclaimed water will contain traces of cyanide and will be pumped back to the process water pond near to the plant, representing a key contribution to the plant process water consumption.

17.5 Plant Air Service

Two air compressors, designed to operate in a lead-lag configuration, will provide the plant compressed air and instrumentation air. The compressed air will be stored in the compressed air receiver. Instrumentation air will circulate through the instrument air dryer to be dried and stored in the instrument air receiver. Instrumentation air will be distributed to the required plant areas for use in air-actuated valves, hose points for tools and other applications.

17.6 Oxygen Plant

Pure oxygen will be produced by an oxygen plant. Air from the atmosphere will be filtered and supplied by a reversible blower to a heat exchanger and an oxygen adsorber vessel. Pure oxygen produced is stored in a receiver and supplied to the mill by a compressor. Pure oxygen is added to the CIL tanks by spargers.

17.7 Reagents and Consumables

The major reagents to be utilized at the Kiniero Gold Project process plant will be:

- quicklime (CaO): will be delivered in super bags of 1,000kg each. The quicklime mixing and storage area will be bunded and serviced by a sump pump that will pump and spillages to the lime mixing tank
- sodium cyanide (NaCN): will be delivered in double-bagged briquettes, each weighing 1,000kg. The NaCN mixing and storage area will be bunded along with the caustic soda mixing and storage area. A sump pump will service the area, pumping any spillages to the leach feed box
- sodium hydroxide (NaOH): also known as caustic soda, will be delivered as pearls in 25kg bags. The sodium hydroxide mixing and storage area will be bunded along with the NaCN mixing and storage area. A sump pump will service the area and will pump any spillages to the leach feed box
- hydrochloric acid (HCl): will be delivered as a solution of 32% HCl in a 1 kl bulk tote. The hydrochloric acid storage and sump area will be protected with an acid-resistant liner. A dedicated sump pump will pump any spillages to the tailings pump box
- flocculant: flocculant powder will be delivered in bulk bags of 25kg. Any spillages in the flocculant area will be pumped by a dedicated sump pump to the pre-leach thickener

The expected annual consumption for reagents is presented in Table 117. In addition to that presented in Table 117, smelting charge preparation will make use of various fluxes (silica, nitrate, borax and soda ash). Antiscalant will also be required to reduce scaling in the piping and equipment, while sulfamic acid will be required to de-scale the elution heat exchangers periodically.

The other main consumables are the grinding media and the activated carbon.

Table 117: Expected Annual Reagent Consumption Rates

REAGENT	UNIT	ANNUAL CONSUMPTION (year)
Quicklime	kg	2,675,000
Sodium Cyanide	kg	2,290,500
Caustic Soda	kg	327,995
Hydrochloric Acid (32 % HCl)	m^3	137
Flocculant	kg	30,000
Carbon	t	90

Source: Soutex (2022)

17.8 Detoxification

As a benchmark, at the Robex Resources Nampala Gold Mine, cyanide destruction is established by benefitting from the hot climate and strong solar radiation. The already low cyanide concentration emanating from the CIL tailings is reduced to trace limits within days at the Nampala TSF through UV radiation (from the sun) destruction alone. In geographical areas that render this possible, as at the Kiniero Gold Project, cyanide destruction through UV radiation to ensure safe tailings disposal is the environmentally appropriate solution as there are no energy consumption requirements, and as such reduced greenhouse gas (GHG) emissions.

The planned Kiniero Gold Project TSF comprises a high level of security, i.e. the presence of an underlying secure geomembrane, allowing the usage of this process in an even safer manner. As such the same detoxification approach is assumed for at this PFS stage of the Kiniero Gold Project, however the requirement for a detoxification circuit will be investigated in support of the DFS to ensure all reasonable options are considered.

17.9 Energy Consumption

Electrical power for the Kiniero Gold Project is detailed in Section 18.12. The average power demand for the process plant is estimated to be 10MW, with an annual power consumption of 70.6GWh (an average of 23.5kWh/t).

17.10 Electricity and Instrumentation

A cost estimation was made considering a voltage system of 400VAC, 50Hz with cable distributions installed on a tray. All motor starters will be operated remotely through the Programmable Logic Controller (PLC) with all medium voltage circuit breakers operated remotely. Substations are planned to be prefabricated and located in a different unit. The electrical distribution will be radial, from the power plant to the loads, with Figure 17-3 illustrating the conceptual electrical architecture required at the Kiniero Gold Project plant.

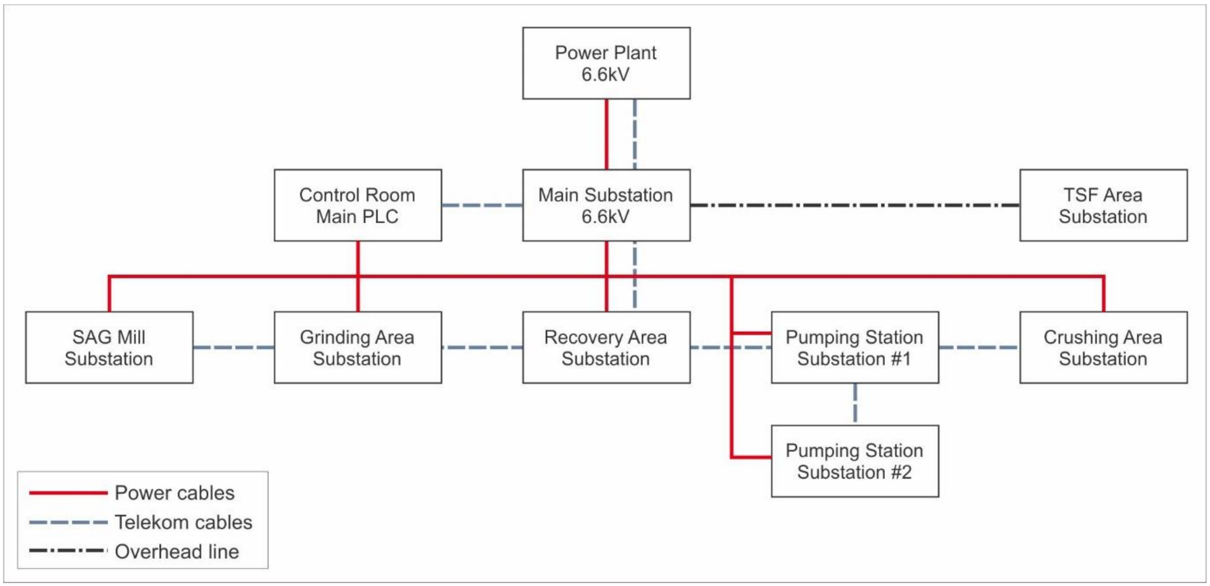


Figure 95: Conceptual Electrical Architecture required at the Kiniero Gold Project Plant

17.11 Plant Control System

The plant control system will be based on a Supervisory Control and Data Acquisition (SCADA) system, with the main displays in a central control room, with a PLC based control system.

The objective is to have the whole operation accessible from the control room, where most of the process control decisions and actions will take place. Instruments, actuators and control loops will be accessible through the SCADA system. The objective is to maximize remote control and minimize ground operator intervention.

The PLC system will control all the loops and interlocks in the plant, except for OEM packages that may be provided with integrated controls.

17.12 Sampling and Assays

Two automated accounting grade samplers will be installed:

- the first a feed sampler installed at the cyclone overflow prior to the trash screen
- the second a tailings sampler located at the output of the last CIL tank

A metallurgical laboratory and an assay laboratory will be commissioned as part of the Kiniero Gold Project (Section 18.5). The metallurgical laboratory will be equipped to perform sample preparation and various leaching tests. The assay laboratory will perform the assays by atomic absorption, fire assay, and cyanide-soluble analyses.

18 PROJECT INFRASTRUCTURE

This section briefly describes infrastructure remaining from the SEMAFO operation which are available to SMG, the infrastructural improvements made to date by SMG, and those required for the re-commissioning of the Kiniero Gold Project. Detailed sections are referred to as appropriate. A general site layout is presented in Figure 1, whilst a satellite image of the site is included in Figure 8.

18.1 Roads, Rail, Air and Ports

18.1.1 National road from Conakry to Kouroussa

An evaluation of the Conakry-Kiniero route was conducted between 7 and 14 September 2020 covering a total distance of 628km. The broad objective was to evaluate the current state of the road and the likely impact on heavy-load haulage along the route, and in particular which areas are likely to deteriorate during rain events and will require follow-up assessments prior to the transport of key equipment. The essential components of the assessment report are summarised here, however a comprehensive matrix of hazards along the various road sectors (bridges, power lines, trees, potholes, roadworks, speed limits etc.) is included in the report which will inform road haul practices, with reference to sensitive loads.

18.1.1.1 Maximum height, width and mass

Pedestrian bridges on the motorway in Conakry limit the maximum height of truck load heights to 5.15m. The Linsan Bridge after the town of Kindia limits truck widths to 3.95m. The maximum total truck mass (truck + trailer + load) cannot exceed 60t, which is the maximum carrying capacity of the recently re-built Linsan bridge. There are also the steel bridges built between 1930 and 1950 between Sanicia and Kouroussa where maintenance is not routine, and the load not guaranteed. Logistics consulting firm African Maritime Agencies Guinea (AMA) set the company a 50t maximum payload capacity along this route.

There are currently no official regulations relating to road traffic and axle load in Guinea. However, AMA's health, safety and environmental policy recommends that the weight of the loaded truck does not exceed 11t per axle in accordance with Economic Community of West African States (ECOWAS) requirements.

18.1.1.2 General road condition

The initial 50km between Conakry Port and the town of Coyah is in reasonably good condition, after which it starts to deteriorate with potholes, unsurfaced sections and maintenance / construction work being regular features. It is advised that one or two light escort vehicles accompany convoys of abnormal loads or hazardous materials. It is critical that selected road haul contractors are familiar with the entire route and familiar with the road condition at the time of planned transport.

18.1.2 Access road from Kouroussa to Kiniéro

Two access routes to the Kiniero Gold Project are available from Kouroussa (Figure 5) depending on the season:

- from Kouroussa south via the N31 to Saman then via Ballan to Kiniéro town. This route is passable all year with both a low water bridge (dry season only) as well as a barge crossing over the Niger river at Diareguela. From Kouroussa the road is gravel all the way to Kiniero; or
- from Kouroussa to Kankan via the N1 with a turn off at Soronkoni via Serakoro to Kiniero. At Kiniéro there is only a ford river crossing available. Thus this route is only available for vehicle access during the dry season (December to May). The first section of the road is paved up till the turnoff at Soronkoni from where it is a gravel road.

The latter route is preferable during the dry season as the road is in better condition than the former route. Currently the local authorities are in the process of refurbishing the road via Saman and Balan however due date for completion is not clear at present.

18.1.3 Internal Road Access

18.1.3.1 Site Access Road

Currently site access is from the Balan-Kiniéro regional road with the Kiniero Gold Mine turn off approximately 1.5km from Kiniéro town (Figure 5). With the development of the Sabali South pit the access road will be rerouted. The new mine access road will follow a route further south of the existing airstrip (Figure 1).

The new access road (Figure 1) will be a 6m wide laterite capped gravel road equipped with suitable drainage and slopes. The new route does not cross any rivulets or streams and thus culverts will only be required to ensure proper drainage and water management.

18.1.3.2 Main Camp to Site Access Road

The Kiniero Gold Mine access road described above ends at the Main Camp entrance gate. From the Main Camp there is currently a 1.3km gravel road to the previous mine site access control gate. This road is generally in a good state of repair and provides the primary access route to the SGA and Jean mining complexes, and other deposits beyond. A new access road, to the new plant precinct and ROM pad will require construction.

The existing 1.3km access road to the main access control gate is to be refurbished by grading, compaction and recapping of the road surface. In addition, drainage channels will be replaced, and culverts installed, where required to avoid damage.

18.1.3.3 Site Internal Roads

Site internal roads consist of maintenance service roads and haul roads (Figure 1), including:

- maintenance service roads
- main offices via diesel bay and mine offices to old TSF, providing general site access. Existing road approximately 1.0km long
- new TSF access and ring road for pipeline inspections and return water pump station access approximately 8km long
- SGA pit haul road. Existing road approximately 2.5km long servicing all the SGA pits
- Jean pit haul road. Existing road approximately 2.0km long servicing the Jean pit
- Sabali North and Central pit haul road. New haul road approximately 3.3km long servicing all the Sabali pits
- Sabali South haul road. New haul road approximately 3.5km long servicing the Sabali South pit

All of the existing roads (both service roads and haul roads) will require grading, resurfacing and repair of storm water drains and culverts. The new Sabali South haul road is to be constructed along the route as indicated and will require one crossing of a community road used by residents. This crossing will be equipped with stop signs and points men to regulate traffic flow and safety.

18.1.4 Airfield / Airstrip

The existing SEMAFO airfield is situated approximately 0.5km east of the Main Camp (Figure 1). The gravel airstrip is 20m wide and 1,500m long running in a southwest/northeast direction to align with the predominant wind direction. The main apron is located at the southwestern end of the airfield. Indications from previous SEMAFO employees are that the airstrip was seldom used for fixed wing aircraft, despite being rated for this use. Helicopters were previously used to transport doré bars.

The airstrip has been extensively renovated by SMG, fenced and equipped with a communications tower and radio. The airstrip is currently in operation and in regular use.

Current indications are that the mining activities at the Sabali North pit will encroach on the southwestern end (apron) of the current airstrip. As a result, the airstrip may need to either be shortened, or will require an extension of the landing strip to the north-eastern end.

18.2 Accommodation Camps

Existing accommodation facilities consists of two camps, namely:

- Main Camp situated at the Kiniero Gold Mine entrance utilised by management, expatriates, and head office personnel
- Staff Camp situated 1km from Kiniéro village on the main road between the mine and Balan town

Main camp is sized for a total of approximately 70 occupants and consists of:

- 35 bungalow type units with two accommodation areas each with en-suite bathroom and air-conditioning
- mess hall with fully equipped industrial kitchen facility
- dedicated diesel power generation
- borehole sourced water supply
- recreation facilities
- boardroom facilities
- administrative office block.

In January 2020, a crew of local builders were contracted to refurbish the Main and Staff Camps. Refurbishment of the Main Camp has been completed with the refurb of the Staff Camp nearing completion. The balance of the Staff Camp infrastructure refurbishment will be completed in 2022. The staff camp, situated adjacent to Kiniéro village, consists of dormitory type rooms as well as a mess hall and kitchen facility with capacity for approximately 200 people.

Based on the current employment structure, both the camps will be suitably sized for the operational phase. A large number of the mine employees will be sourced from the local communities in Balan and Kiniéro towns which will reduce reliance on mine supplied accommodation.

18.3 Offices and General Administration

The existing office infrastructure is in a reasonable condition structurally; however, they will require refurbishment (i.e. new doors, ceilings, painting, etc.) as well as new internal fittings and furniture. The office infrastructure includes the following: a main administration office block with reception area, ten offices; a boardroom, a drawing office ; a kitchen; ablution facilities; a plant office block with five offices; a mining office block with eight offices and ablutions; and geological core yard and stores with a single office block.

Based on current employment structures there is sufficient space available in the main office block, plant offices and mining offices during operations. For the construction phase of the project allowance has been made to temporarily convert the current conference and events building in the management camp into a projects' office space. This will allow sufficient additional space for the project management team during construction phase of project.

18.4 Workshops, Core Yard and Stores

Current workshop and stores facilities available on site includes: plant engineering workshop; plant stores: two engineering spares stores; concrete laydown yard; reagent shed; mining stores; and diesel refuelling and lubrication area.

One of the plant engineering spares stores was irreparably damaged by fire in in the period since operations shut down in 2014 and will subsequently require replacement. Allowance has been made in the plant design and costing for a 12x14m roofed storage area including 2x40 foot (ft) shipping containers for spares storage as well as office space for materials controller to replace damaged building. The balance of stores including mine stores, are still in good condition and will only require cosmetic refurbishment.

Both the mine and plant workshop areas have historically been equipped with all the pre-requisite tools and machinery required for maintenance including overhead crawls with hoists, lathes etc. Even though a large proportion of the existing machinery on site can be refurbished and repaired allowance has been made in the capital costing to re-equip all workshops with minimum hand tools and equipment required for this type of operation. This will include all hand tools, welders, oxy-acetylene equipment etc. that will potentially be required during the plant construction and refurbishment phase. A complete list of these required tools and equipment has been included in the plant design.

The current mine workshop and stores areas are considered sufficient for the construction phase of the Project as there will only be a minimal increase in fleet size.

With regards plant workshop and stores area during construction phase the large equipment laydown area is sufficiently sized. During construction the current reagent storage shed (under roof) will be converted for use as an additional workshop and storage area as an interim measure as reagent delivery is only expected towards the end of the construction phase. In addition, the construction of the replacement plant store will be prioritised during early phase of construction to ensure sufficient construction spares space will be available.

18.5 Laboratory

18.5.1 Certification and Procedures and Protocols

The Kiniero Gold Project laboratory will be sub-contracted to an independent laboratory operator which will be located downhill of the processing plant precinct, adjacent to the geological core shed facility. Two 12-hour work shifts will be completed per day (24-hour basis) to support both the plant/metallurgy, geological mining and geological exploration teams. Production and processing plant samples will be dispatched to the laboratory according to a predetermined planning, and results will be reported at the stipulated turn-around-time.

The lab will operate following Standard Operating Procedures (SOPs) using approved and controlled methods of analysis such as ASTM, ISO, or any combination of such methods. Internal quality management/monitoring will be done internally by the laboratory itself, using its own QA/QC program, complimented by the external QA/QC measures put in place by the Kiniero Gold Mine, which will include regular submissions of duplicates, blanks and CRMs into the sample streams.

The laboratory will make use of a Laboratory Information Management System to follow production. This will include barcode labelling samples and the electronic transfer of results from the instrumentation straight to the LIMS to avoid any transcript errors.

The laboratory will be divided into three sections: sample preparation, fire assay and analytical. Typical preparation procedures and protocols that will be followed will be:

- grade control (GC) and exploration samples: classifying, primary weighing, drying (105°C), crushing of whole sample to 70% passing <2mm, splitting (riffle splitters and/or rotary splitter), pulverizing 300g to 350g to 85% passing 75microns
- solid plant samples: will be fully pulverized and sub-sampled for next step

Typical analytical procedures and protocols that will be followed will be:

- GC and exploration samples: one-hour fire assay at 1,100°C on a 50g sample will extract gold from solids. Fusion will be made in 25 pot furnaces, using a flux adapted to melt the matrix, followed by a cupellation of the lead button to obtain a prill. Final analysis will be completed using solubilisation of the prill and reading with an atomic absorption spectrometer (AAS). For some higher grades, the lab may need to make use of a gravimetric finish
- aqueous solutions (liquids) from the plant: will be read by AAS, consecutive to a liquid-liquid extraction of gold into DIBK (diisobutyl ketone)-Aliquat®336 preparation to avoid interferences

- gold in carbon: will be determined by fusion followed by gravimetric measurements on a micro-balance

The laboratory will participate in regular international round robins to measure its performance in terms of accuracy and precision. Annual maintenance by an external and independent firm will be planned to ensure accurate readings (balance and AAS), certified with traceable elements.

18.5.2 Phased Construction

A phased approach to the construction and commissioning of the Kiniero Gold Project laboratory is envisaged, as initially the laboratory will not be required during the construction and start-up phase – i.e. there will be no need for metallurgy/plant and GC samples. To ensure quick start-up, and initially service the exploration fire assay requirements, the following phased approach is envisaged:

- acquisition, repair and commissioning of a mechanical preparation container by SMG. This preparation facility will have a nominal capacity of approximately 200 samples per day, operating 24 hours a day. Once pulps are obtained, these will be dispatched by SMG to an independent commercial laboratory for fire assay purposes
- refurbishment of the previous laboratory's existing mechanical preparation equipment, to be run in parallel with the operation of the preparation container. This will increase the on-site sample preparation processing capacity to approximately 300 to 450 samples per day
- purchase of new equipment, including 1 x crusher, 1 x sprayer, 1 x dust collector and pipes, 2 x workstations, 1 x sieve, 1 x diesel generator, 1 x compressor and a 40 ft containers, to be installed and commissioned at the new mine site laboratory location. This will increase the on-site sample preparation processing capacity to the target of approximately 1,000 samples per day

A conceptual design and layout of the required mine site laboratory, at full production, is present in Figure 96. As the construction and commissioning of the laboratory is phased, so the number of required employees will increase with each phase. The required laboratory crew upon final completion will likely be composed of a 1 x lab manager, 1 x deputy lab manager/chemist, 2 x laboratory technicians, 8 x fire assay agents and 12 x sample preparators.

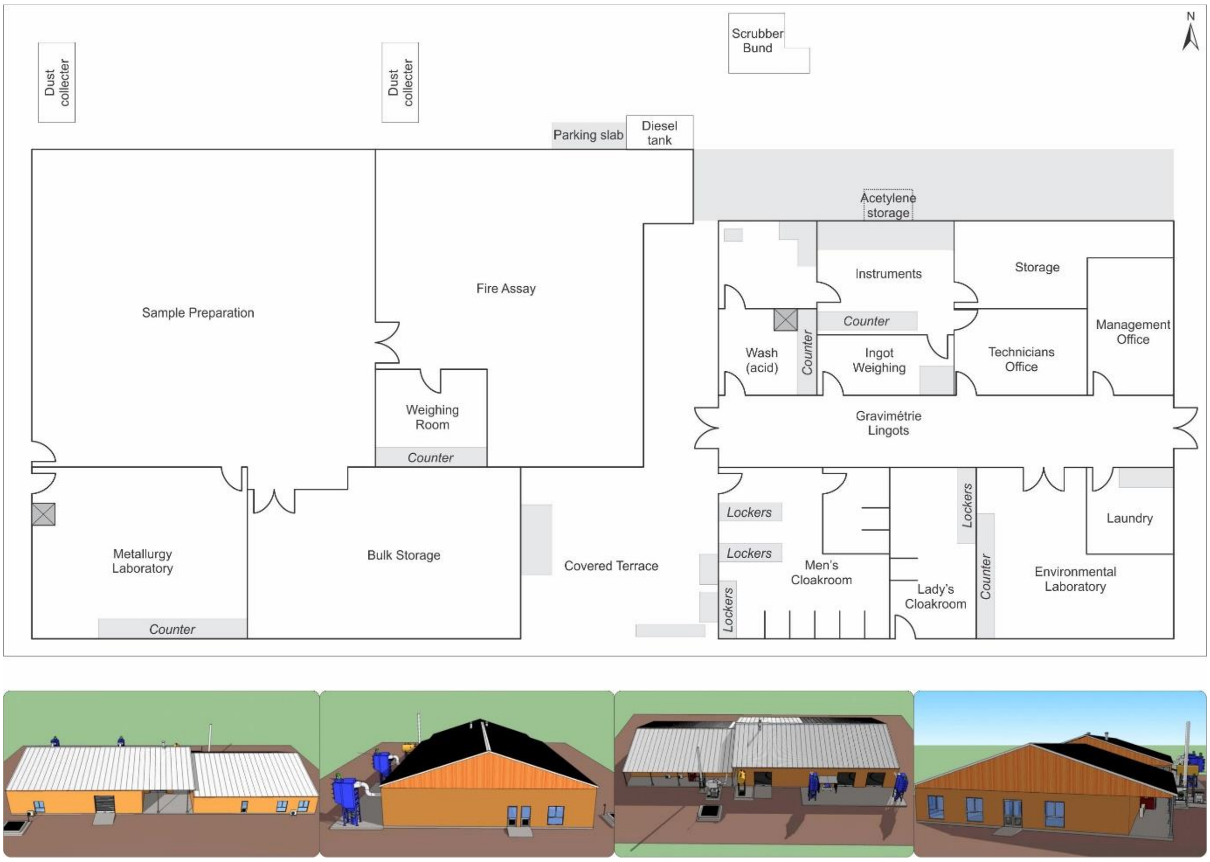


Figure 96: Conceptual Design and Layout of the Kiniero Gold Project Laboratory (at full production)

18.6 Mining infrastructure

18.6.1 Existing Pits

There are eight existing pits previously mined by SEMAFO. The pit dimensions are summarised in Table 118, whilst their locations are indicated on Figure 8. All of the historical open pits are currently flooded to some extent with the NEGD and Gobelé D pits containing the least amount of water. The current mine plan targets the reopening of the all these pits (with the exception of West Balan). Dewatering of these pits will be required prior to mining activities commencing (Section 16.2.6). This water will be utilised in the processing plant.

Table 118: Dimensions of Historical SEMAFO Open Pits

DEPOSIT CLUSTER	EXISTING PIT NAME	APPROXIMATE DIMENSIONS			
		LENGTH (m)	WIDTH (m)	DEPTH (m)	ANGLE (°)
SGA	Gobelé A (A, B, C)	625	430	42	42
	Gobelé D	375	230	95	44
	NEGD	400	230	52	43
	East-West	280	180	50	45
Jean	Jean-East	430	140	38	45
	Jean-West	320	180	46	41
	Banfara	300	85	30	45
Balan	Banfara	845	240	50	50

Source: SMG (2022)

18.6.2 Available mining equipment

The available mining and ancillary equipment currently on site is presented in Table 119. This equipment was largely inherited as part of the acquisition of the Kiniero Gold Project and has either already been refurbished and is in operational order or has been inspected and parts for refurbishment ordered.

Table 119: List of Inherited Currently Available Mining Equipment

No.	PRIMARY MOVERS	ORIGINAL MANUFACTURER	SPECIFICATION	STATUS / ACTION REQUIRED
PRIMARY EARTHMOVING FLEET				
EX01	Excavator PC-800	Komatsu	OW 78,600kg, 4,3m3 bucket, BOF 43,600kg 7m boom	Scrapped
EX02	Excavator PC-800	Komatsu	OW 78,600kg, 4,3m3 bucket, BOF 35,200kg 8m boom, ore production	Scrapped
WL01	Wheel Loader WA600-3	Komatsu	OW 46,320kg, 6,1-11m3 bucket, BOF 37,600kg, in-pit production	Rebuild
DT01	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT02	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT03	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT04	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT05	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT06	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT07	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT08	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT09	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Serviced
DT10	Dump truck HD465-7	Komatsu	PL 55 metric tonnes, 34.2m3 bowl	Rebuild
DZ01	Bulldozer D375A-5	Komatsu	OW 72,900kg, BC 18,5-22,0m3	Ongoing service
ANCILLIARY EQUIPMENT				
DZ02	Bulldozer D275A-5	Komatsu	OW 51,530kg, BC 13,7-16,6m3	Ongoing service
DZ03	Bulldozer D275A-5	Komatsu	OW 51,530kg, BC 13,7-16,6m4	Ongoing service
GR01	Grader GD705A-4	Komatsu	OW 19,300kg, 4,32m blade	Ongoing service
DR01	Production drill rig ROC L6H	ROC L6H	HD 89-130mm, depth 45m,	Major service
	Service truck	Humphries	Service truck	Major service
WL02	Wheel loader WA420-3	Komatsu	OW 25,005kg, 4,6m3 bucket, BOF 21,600kg, plant and stockpiles	Scrapped, use for spares
WL03	Wheel loader WA80-5L	Komatsu	OW 5,520kg, 0,8-1,25m3 bucket, forklift, multi-purpose	Major service
	Crane 80 tonner	Caterpillar		
	Crane 150 tonner	Caterpillar		

Source: SMG (2022)

18.6.3 Historic ROM pad

The historical ROM pad will not be used due to its distal location to the new plant location. Extension and sterilisation drilling has indicated prospective mineralisation across the old

ROM pad and plant location. It is likely this area will be mined. A new ROM will be constructed adjacent to the new plant location (Figure 1).

18.7 Fuel Depot

As part of the IPP contract with Vivo (Section 18.12), it will manage the fuel depot and all the fuel supply. The current fuel storage and management system will be to refurbish the existing fuel storage facilities, to support the construction phase and the first two to three years of mining, and then construct a new fuel depot adjacent to the new plant location (Figure 1). The existing historical fuelling bay diesel storage was supplied by Vivo as part of a long-term supply contract.

The existing historical main fuel facility and tank farm includes:

- four identical 50m³ tanks (maximum capacity of 200,000 l) and an independent fifth 50m³ (all five tanks will require internal assessment, cleaning and re-painting)
- a 1,100m³ tank (foundation appears to be unstable as one side of the tank has subsided)
- two 54m³ tanks on either side of the 1,100 m³ tank (both tanks will require internal assessment, cleaning and re-painting)
- an additional approximately 54m³ tank (requires assessment)
- pump room with re-fuel and receiving pumps (including centrifuge, counter, and electrical cabinet)
- 20ft container with machinery servicing light machinery. Contains petrol and another diesel dispenser all of 4m³/hr capacity. To be replaced as the fuel management system is obsolete
- 40ft container with machinery servicing heavy machinery which contains two 8m³/hr diesel dispensers. To be replaced as the fuel management system is obsolete
- piping and pneumatic pumps
- air compressor
- fire-fighting piping network
- concrete parking area and fuel pumps

In addition to the main fuel facility, the following tanks remain on site:

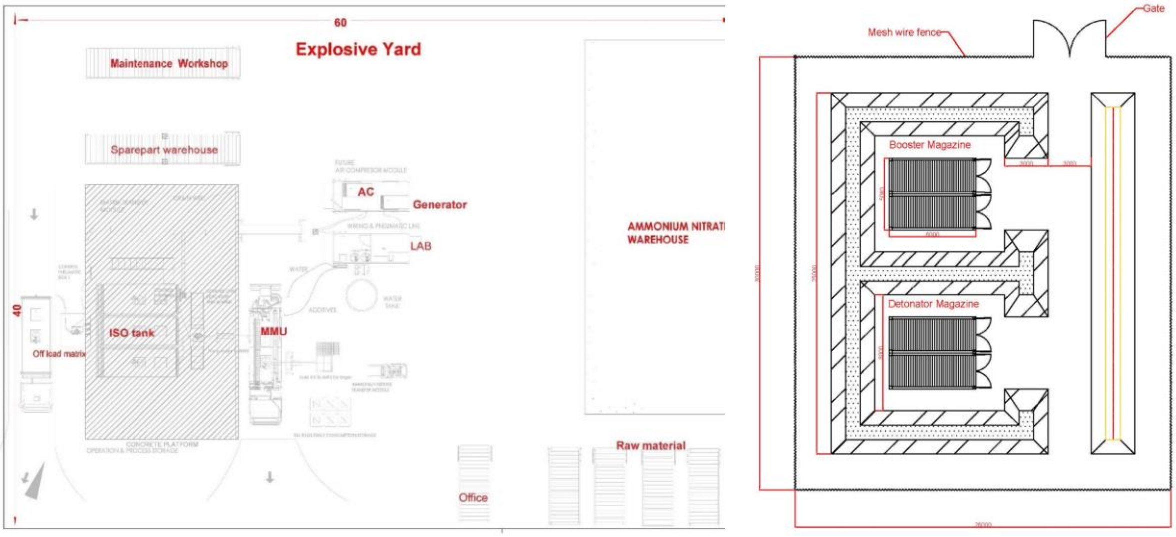
- a 54m³ and a smaller 5m³ tank at the power generator plant. Both tanks are operational but require external cleaning and re-paint
- a 54m³ diesel storage tank at the management camp

18.8 Explosive Storage Magazine

Emulsion explosive is proposed as the primary blasting agent for both wet and dry blast hole conditions at the Kiniero Gold Mine. Blasts will be initiated using nonel micro-connector millisecond surface and millisecond down-the-hole detonators. Explosives and associated consumables will be sourced from AUXIN, a licensed specialist explosives supplier and blasting contractor based in Guinea. All explosives and consumables will be stored, controlled, and monitored by AUXIN at a dedicated on-site explosive magazine.

The explosive magazine will be located approximately 500m south of its previous position, i.e. 400m west of the previous plant location. The new explosives magazine will be relocated away from the planned extended plant feed stockpile, existing infrastructure and active working areas to align with safe working practices and industry standards. During the construction phase, the new explosives magazine will be designed and constructed in line with AUXIN's specifications.

Figure 97: Explosive and Magazine Layouts



18.9 Processing Plant

The old process plant is in the process of being dismantled and salvaged for spare parts. The surrounding support buildings will be repurposed to potentially accommodate offices, workshops, storage etc. For details of the infrastructure relating to the new processing plant, refer to Section 0 and Figure 94.

18.10 Tailings Storage Facility (TSF)

Epoch Resources (Pty) Ltd (Epoch) were commissioned by SMG to undertake a PFS design of a new TSF to support the resumption and expansion of operations. This new TSF is distinctly separate from the previous TSF, which will not be used in support of mining operations. The design of the new TSF by Epoch has been aligned with the International Council on Mining and Metals (ICMM) Global Industry Standard on Tailings Management (August 2020), which incorporates elements of guidelines published by the Canadian Dam Association (CDA) and the Australian National Committee on Large Dams (ANCOLD). The TSF has been designed to be constructed as a full containment facility with the containment wall constructed in phases to limit initial capital expenditure.

18.10.1 Design Criteria and Battery Limits

The designed TSF is required to accommodate the LoM tailings at a rate of 250ktpm (3Mtpa). The required storage volume for the tailings has been calculated based on an estimated average in-situ dry density of the tailings product of 1.375t/m³, a particle specific gravity of 2.75 and an estimated average in-situ void ratio of 1.

The tailings will be pumped to the TSF in a slurry comprising 45% to 55% solids by mass. At an estimated particle SG of 2.75, the slurry density will be between 1.40t/m³ to 1.54t/m³. The battery limits for the design of the TSF have been defined as:

- the outer edge of the surface water containment / diversion works
- the access control fence line or perimeter access road to the TSF
- the first flange exiting the seepage sump / return water line from the TSF

18.10.2 Selection of Preferred Site for Development of the TSF

The proposed site has been selected as the preferred site for the development of the Kiniero Gold Mine TSF based on the following criteria:

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

18.10.3 Information Used in Support of the Design Process

18.10.3.1 Characterisation of the Tailings Strength, Settlement and Hydraulic Conductivity

To test the characterisation of the tailings material, samples were retrieved from both the previous TSF, as well as from the recent metallurgical testing process completed on fresh ore samples. Samples were submitted for geotechnical testing to determine their settlement, strength and hydraulic conductivity parameters.

18.10.3.2 Assessment of Tailings Geochemistry and Pollution Potential

The tailings geochemistry and pollution potential the tailings have been assessed based on static testing of both existing and fresh tailings samples analysed by the in two studies by The Moss Group in 2020, and again in 2021. Further geochemistry testing of the tailings product is recommenced to support the DFS design for the TSF, which is ongoing at the date of this PFS. Tests were carried out on the following sample material:

- simulated tailings samples generated from the following deposits:
    - transitional and oxide material from the Ouest Balan deposit
    - a blend of transition and oxide material from the SGA deposits (composite of five samples)
- four samples of tailings material collected the existing TSF
- a sample labelled ENC Tailings (The Moss Group, 2021) (the predicted percentage of the tailings extracted from the ENC Tailings samples to be represented in the total volume of the TSF is unknown)

All samples were subjected to whole rock analysis to determine their elemental composition and static tests, comprising:

- Acid base Accounting (ABA), to determine the maximum potential acidity and neutralizing capacity of each sample
- Net acid generation (NAG)
- deionised water leach tests

The results of the whole rock analyses and static tests were used to make a relative assessment of the risks associated with the material composition with regard to leachable concentrations in comparison against the Guinea Standard as well as World Health Organisation (WHO) and International Finance Corporation (IFC) Environmental, Health and Safety (EHS) guidelines.

Findings by The Moss Group from its 2020 assessment included:

- the reagent leach data indicated that the metalloid concentrations of arsenic (elevated in sample TSF 04) and aluminium (elevated in all simulated tailings samples and samples from the existing TSF except for sample TSF 03) were above WHO guidelines
- concentrations of other metals tested were shown, by reagent leach data, to be below WHO guidelines, an indication that while the material may contain elevated concentrations of certain elements, they are in stable forms and mobility is low
- the acid base accounting analysis indicated the sulphur grade to be very low for all simulated samples, as well as for the samples collected from the existing TSF
- the ANC values for the simulated tailings samples presented >10kg H_2SO_4/t, likely due to residual alkalinity from reagents being added to maintain pH during cyanide leaching, rather than due to the presence of alkaline minerals within the samples
- the ANC values for samples from the existing TSF presented no sign of residual alkalinity, potentially due to the leaching of the alkalinity from the existing TSF body over time
- the NAG values for the simulated tailings samples returned with small positive values, potentially due to the presence of residual reagents from leach testing. The NAG pH values returned values of approximately 6
- the NAG values for samples from the existing TSF presented a pH range between 6.3 and 7.0, with insignificant NAG potential. This can be considered low risk from an acid generation perspective
- the geochemical characterisation plot, which considers both ABA and NAG test data, indicated that both the simulated tailings samples and samples from the existing TSF could all be classified as non-acid forming or uncertain (in the case of a single sample, TSF04). Therefore these materials are considered low risk from an acid generating potential

Findings by The Moss Group from its 2021 assessment included:

- the reagent water leach test yielded an alkaline pH, consistent with calcite and other acid neutralising minerals and limited mobilisation of potentially hazardous elements. The exception was arsenic, which was measured at a concentration above the Guinean environmental standard. The results indicated that there had been little to no oxidation of the material and that the leaching of the acid neutralising minerals is likely to result in an elevated pH for some time
- whole rock analysis performed on the ENC tailings indicated the tailings material as having a very high arsenic concentration and elevated levels of several other elements. Based on the South African Norms and Standards the material would be classified as a Type 0 waste that would require additional treatment prior to disposal in an appropriately lined impoundment

- acid base accounting results indicated the ENC tailings to have a high sulphur grade (>14%) - the maximum potential acidity value is high. While the material had a high acid neutralising capacity, this was still significantly lower than the ANC and the material was classified as potentially acid forming
- NAG data showed a low pH value for the ENC tailings sample of 2.2pH and a high NAPP of 141.14 which suggests acid forming potential
- the geochemical characterisation plot, which uses both ABA and NAG test data, confirmed that the ENC tails sample is considered as potentially-acid forming
- the NAG test on the ENC tailings confirmed the acid generating potential and that the material contained insufficient alkaline minerals to neutralise the acidity. The rate at which the alkalinity would be depleted would need to be determined by kinetic testing
- the combination of oxidation and acid dissolution resulted in the liberation of high concentrations of metals from the ENC tailings during the NAG test. Concentrations exceeded the IFC EHS and WHO drinking water guidelines for a range of elements
- The Moss Group concluded that the ENC tailings material can be considered high risk in terms of both acid generation and metal liberation

Based on these findings and analysis, The Moss Group recommended that appropriate kinetic leach tests be conducted on the material classified as potentially acid forming to assess rates of acid generation and arsenic mobilisation. The ENC tailings material has substantial acid neutralising capacity which is likely to delay the onset of acid generation which should be evaluated by longer term kinetic testing.

18.10.3.3 Surface Water Hydrology and Design of Storm Events

An assessment of the surface water hydrology and design storm events was completed Peens and Associates in 2020, with the objective of defining monthly average rainfall and evaporation figures for use in the water balance calculations of the TSF. In addition storm events for a range of durations and recurrence intervals, as called for in the CDA guidelines, were also defined. The assessment has yielded estimates of design rainfall as a function of recurrence interval and event duration as summarised in Table 120.

Table 120: Design Rainfall as a Function of Recurrence Interval and Event Duration

EVENT DURATION (DAYS)	RECURRENCE INTERVAL (YEARS)								
	2	10	20	50	100	200	500	1,000	10,000
	P (OCCURRENCE) BASED ON PLANNED LIFE OF TSF (%)								
	100	72	46	22	11	6	2	1	0.1
	RAINFALL (mm)								
1 (24 hours)	86	128	145	168	187	207	233	255	331
3	125	182	205	234	257	281	311	335	410
5	154	215	239	270	296	321	353	379	459
7	179	251	280	317	347	376	415	446	540
30	398	542	591	652	698	741	797	839	976

Source: Epoch (2022)

18.10.3.4 Seismic Assessment

Probabilistic Seismic Hazard Assessment (PSHA) and a Deterministic Seismic Hazard Assessment (DSHA) have been carried out, as per the ICMM guidelines, to determine the seismic design parameters for the analysis of the TSF.

The ICMM guidelines require that the potential for seismicity, and the resulting peak ground accelerations at the TSF, be incorporated into stability assessments of the facility. The DSHA concluded that the site is infrequently seismic, and that the Peak Ground Acceleration (PGA) associated with the earthquake that took place in Guinea in 1983 (magnitude Ms 6.2) would be 0.014g. The PSHA has determined a range of PGA values to be applied to the analysis of the facility based on its consequence classification as shown in Table 121.

Table 121: Results of PSHA as a Function of Consequence Classifications

CONSEQUENCE CLASSIFICATION	SEISMIC CRITERIA - ANNUAL EXCEEDANCE PROBABILITY		PSHA PEAK GROUND ACCELERATION VALUES	
	OPERATIONS AND CLOSURE (ACTIVE CARE)	PASSIVE-CLOSURE (PASSIVE CARE)	OPERATIONS AND CLOSURE (ACTIVE CARE)	PASSIVE-CLOSURE (PASSIVE CARE)
LOW	1/200	1/10,000	0.005g	0.059g
SIGNIFICANT	1/1,000	1/10,000	0.015g	0.059g
HIGH	1/2,475	1/10,000	0.026g	0.059g
VERY HIGH	1/5,000	1/10,000	0.040g	0.059g
EXTREME	1/10,000	1/10,000	0.059g	0.059g

Source: Epoch (2022)

18.10.4 Stage Capacity Analysis and Site Development Strategy

A stage capacity analysis has been carried out on the TSF to confirm its capacity to store the life of mine tailings production and to serve as the basis for the formulation of a site development strategy. The results of the analyses are summarised in Table 122, based on a life of mine of 12 years, a tailings deposition rate of 250ktpm (3Mtpa) and an in-situ dry density of 1.375t/m³. The analyses indicate that to satisfy the tailings storage requirements:

- the TSF would be developed to a height of 27m
- the TSF would terminate with a final rate of rise of 0.84m/year

The height of the TSF, as well as the rates of rise within each phase are within accepted norms for the development of a TSF.

Table 122: Summary of Stage Capacity Calculations for the Kiniero TSF

PARAMETER	UNITS	PHASE 1A	PHASE 1B	TOTAL
Datum Level	m.a.m.s.l.	408	408	408
Max Crest Elevation	m.a.m.s.l.	425	425	425
Max Height above Datum	m	17	17	17
Phased TSF Capacity	Mt	7.5	10.5	18
Crest Area	ha	84.5	133	133
Footprint Area	ha	94.5	143	143
Terminal Rate of Rise	m/yr	2.58	1.64	1.64

18.10.5 Consequence Classification

The consequence classification of the TSF has been carried out in accordance with the criteria specified in the Global Industry Standard on Tailings Management (ICMM, 2020) which serves to provide a consistent means of differentiating between TSFs based on their potential to cause harm to human life, the environment, cultural landmarks, economic processes and infrastructure. The classification is based on the delineation of the maximum potential zone of influence (ZOI) for the TSF using the methodology specified in the South African Bureau of Standards (SANS) Code of Practice for Mine Residue Deposits (SANS 0286:1998, 1998), which defines the ZOI as a function of the TSFs height above datum. The ZOI of the Kiniero TSF is shown in Figure 98 which indicates that it potentially extends to the main road to the east of the TSF, as well as to the outskirts of the village of Balan to the north.

Based on the ZOI for the facility and the assessment criteria as summarised in Table 123, the Kiniero TSF is considered to be a very high consequence facility. Despite the TSF being constructed as a lined, full containment TSF with a downstream raised waste rock containment embankment, the methodologies for analysing dam breaks and flow slides assume that the containment systems have failed regardless and that a release of tailings has occurred. The design of the facility must therefore be based on it being considered a very high consequence facility.

Table 123: TSF Failure Consequence Classification for Kiniero TSF based on Global Industry Standard on Tailings Management (ICMM, 2020)

TSF FAILURE CONSEQUENCE CLASSIFICATION	POTENTIAL POPULATION AT RISK	POTENTIAL LOSS OF LIFE	ENVIRONMENT	HEALTH, SOCIAL AND CULTURAL	INFRASTRUCTURE AND ECONOMICS
Low	None	None expected	Minimal short-term loss or deterioration of habitat or rare and endangered species.	Minimal effects and disruption of business and livelihoods. No measurable effect on human health. No disruption of heritage, recreation, community or cultural assets.	Low economic losses: area contains limited infrastructure or services. <$1M.
Significant	1 – 10	Unspecified	No significant loss or deterioration of habitat. Potential contamination of livestock/fauna water supply with no health effects. Process water low potential toxicity. Tailings not potentially acid generating and have low neutral leaching potential. Restoration possible within 1 to 5 years.	Significant disruption of business, service or social dislocation. Low likelihood of loss of regional heritage, recreation, community, or cultural assets. Low likelihood of health effects.	Losses to recreational facilities, seasonal workplaces, and infrequently used transportation routes. <$10M.
High	10 – 100	Possible (1 – 10)	Significant loss or deterioration of critical habitat or rare and endangered species. Potential contamination of livestock/fauna water supply with no health effects. Process water moderately toxic. Low potential for acid rock drainage or metal leaching effects of released tailings. Potential area of impact 10 km2 – 20 km2. Restoration possible but difficult and could take > 5 years.	500-1,000 people affected by disruption of business, services or social dislocation. Disruption of regional heritage, recreation, community or cultural assets. Potential for short term human health effects.	High economic losses affecting infrastructure, public transportation, and commercial facilities, or employment. Moderate relocation/compensation to communities. <$100M.

TSF FAILURE CONSEQUENCE CLASSIFICATION	POTENTIAL POPULATION AT RISK	POTENTIAL LOSS OF LIFE	ENVIRONMENT	HEALTH, SOCIAL AND CULTURAL	INFRASTRUCTURE AND ECONOMICS
Very High	100 – 1000	Likely (11 - 1000)	Major loss or deterioration of critical habitat or rare and endangered species. Process water highly toxic. High potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact > 20 km2. Restoration or compensation possible but very difficult and requires a long time (5 years to 20 years).	1,000 people affected by disruption of business, services or social dislocation for more than one year. Significant loss of national heritage, community or cultural assets. Potential for significant long-term human health effects.	Very high economic losses affecting important infrastructure or services (e.g., highway, industrial facility, storage facilities, for dangerous substances), or employment. High relocation/compensation to communities (<$1B)
Extreme	> 1000	Many (> 1000)	Catastrophic loss of critical habitat or rare and endangered species. Process water highly toxic. Very high potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact > 20 km2. Restoration or compensation in kind impossible or requires a very long time (> 20 years).	5,000 people affected by disruption of business, services or social dislocation for years. Significant National heritage or community facilities or cultural assets destroyed. Potential for severe and/or long-term human health effects.	Extreme economic losses affecting critical infrastructure or services, (e.g., hospital, major industrial complex, major storage facilities for dangerous substances) or employment. Very high relocation/compensation to communities and very high social readjustment costs (> $1B)

Source: Epoch (2022)

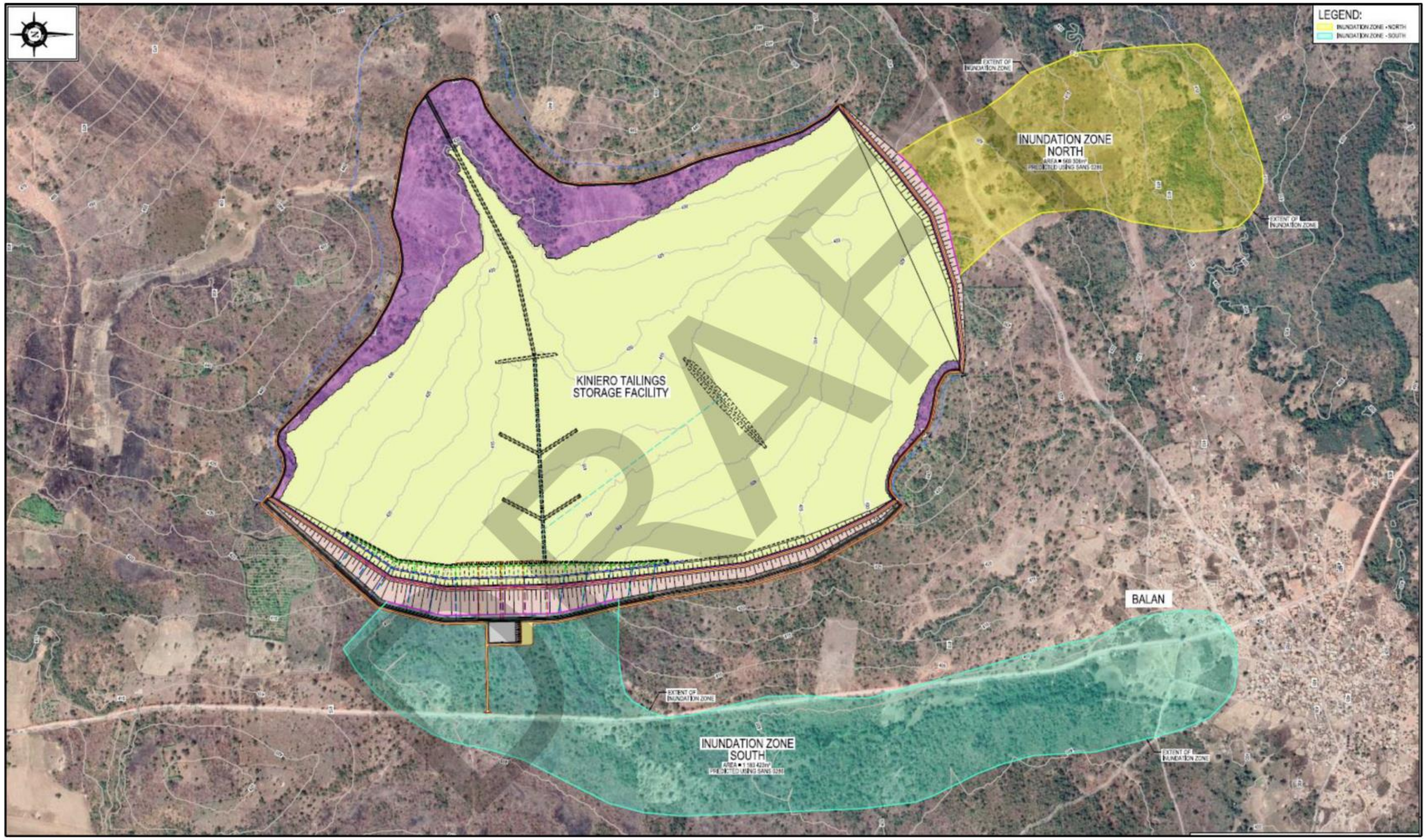


Figure 98: Kiniero TSF Maximum Zone of Influence

18.10.6 Design of the TSF

The design of the proposed TSF has been based on the stage capacity analysis, site development plan and consequence classification as described and has included designing:

- water balance calculations to estimate rates of excess slurry and stormwater runoff and associated capacity to supply the plant with process water. These calculations illustrate that:
  - in the dry season (November to April) between 35% and 50% of the slurry make-up water requirement could be returned to the plant, depending on the efficiency with which the water is returned
  - in the wet season (May to October) there will be periods when the plant make-up water requirements can be satisfied by water returned from the TSF
  - based on rainfall of between 347mm for a 7-day event with a return period of 100 years, and 331mm for a 1-day event with a return period of 10,000 years, the recurrence interval of the TSF has been assessed to contain the associated runoff of approximately 440,000m^3
- a system of elevated toe drains to the TSF to enable drainage and consolidation of tailings
- an elevated crest drain to the Phase 1 embankment anchor trench to optimise the use of the anchor trench with a second drain to the TSF
- of a curtain drain within the southern containment embankment as a measure to reduce the build-up of a phreatic surface within the wall should the containment barrier be compromised for whatever reason
- leakage detection drains to monitor the performance of the containment barrier to the TSF
- surface water diversions to the west of the TSF
- seepage sump to collect seepage water conveyed from the TSF
- a slurry delivery system
- return water system

18.10.7 Description of the TSF

The TSF will be constructed as a phased, fully lined, full containment facility commencing with deposition from the crest of the TSF containment embankment. The construction of the TSF will incorporate:

- site clearance and topsoil stripping
- construction of the TSF containment embankment
- construction of the Phase 1A division walls

- installation of an elevated toe drain to the inside toe of the southern TSF embankment to promote the consolidation and settlement of tailings and control the phreatic surface within the TSF
- installation of an elevated crest drain to the Phase 1 embankment anchor trench
- installation of a curtain drain within the southern containment embankment
- supply and installation of a slurry delivery system to the perimeter of the TSF
- construction of a pool access wall to the TSF to facilitate the return of excess slurry water and stormwater runoff by a pumping mechanism
- installation of a containment barrier to the TSF comprised of a high-density polyethylene (HDPE) geomembrane and compacted layer of low permeability clayey material
- construction of surface water diversion and containment systems to ensure the separation of clean and dirty water runoff
- construction of a perimeter access road to the TSF and associated dams

18.10.8 Estimated Capital, Rehabilitation, Closure and LoM Costs

The capital works required for the development and commissioning of the TSF are presented in a set of drawings and a schedule of quantities to which unit rates sourced from recently executed works in Guinea have been applied to determine the estimated cost of executing the works. The estimated cost of constructing the works is summarised in Table 124.

Table 124: Summary of Capex Estimates for the Kiniero TSF based on 12 years

MEASURED WORKS	PHASED CAPEX ESTIMATES (USD$)		
	PHASE 1A	PHASE 1B	TOTAL
Site Clearance and Topsoil Stripping	1,172,961	1,430,287	**2,603,249**
TSF Embankments	3,177,054	228,567	**3,405,622**
TSF Geomembrane	6,076,967	8,186,682	**14,263,649**
Drainage	2,115,585	-	**2,115,585**
Slurry Delivery Line	1,071,142	-	**1,071,142**
Floating Barge	420,000	-	**420,000**
Solution Trench	93,141	-	**93,141**
Seepage Sump	2,090,900	-	**2,090,900**
Access Road	48,740	34,039	**82,779**
Stormwater Diversion Works	121,629	276,683	**398,312**
Miscellaneous	235,320	-	**235,320**
SUB-TOTAL: MEASURED WORKS	**16,623,440**	**10,156,258**	**26,779,698**
Contingency for Unmeasured Items (10% of Measured Works)	1,662,344	1,015,626	**2,677,970**
Contractor P&G Costs (25% of Measured Works and Contingencies)	4,571,446	2,792,971	**7,364,417**
SUB-TOTAL: UNMEASURED WORKS	**6,233,790**	**3,808,597**	**10,042,387**
TOTAL	**22,857,230**	**13,964,855**	**36,822,085**

Source: Epoch (2022)

18.10.9 Rehabilitation, Closure and Aftercare

The design of the TSF has included the development of a generic and conceptual rehabilitation and closure plan. The rehabilitation plan is comprised of ongoing rehabilitation of the slopes of the TSF as it develops (to limit the generation of windblown dust), as well as rehabilitation and closure of the TSF at the cessation of operations. Rehabilitation and closure works are expected to take place concurrently with the construction and operating phases, and will include:

- stripping and stockpiling of topsoil during the construction phase, for use in the rehabilitation and closure process
- construction of the slopes of the TSF, with slopes of 1 in 3 (or flatter) to facilitate covering the slopes, and the re-establishment of vegetation
- progressive replacement of topsoil and vegetation to the outer slopes and crests of the starter embankments
- construction of surface water diversion and containment, as and where required, as permanent features, which should not require further work at closure

Decommissioning, rehabilitation, and closure of the TSF at the termination of operations is expected to comprise:

- removal of the slurry delivery pipelines and return water infrastructure and equipment from the TSF
- upgrading of the perimeter walls and bund walls to ensure containment of surface water runoff within the TSF basin
- construction of contoured surface water control berms to prevent the accumulation of runoff in the lower lying areas on top of the TSF
- placement of a soil cover / cap to the top surface of the TSF and the establishment of a variety of grass and tree species across the area to promote evapotranspiration and minimize infiltration into the TSF

Aftercare and maintenance of the TSF will be required and is expected to comprise periods of active and passive aftercare, including the repair of localised erosion gullies and the maintenance of vegetation, until the cover system is considered self-sustaining. The rehabilitation and closure of the TSF will be carried out in conjunction with a post closure monitoring program for the Kiniero Gold Mine, which is expected to include monitoring of surface and groundwater quality as well as air quality. The duration of the maintenance and monitoring activities are not legislated but would be a function of the achievement of the stated rehabilitation and closure objectives.

18.10.10 Rehabilitation, Closure and Aftercare Costs

The estimated costs of rehabilitation, decommissioning and closure of the TSF are $9.46m as summarised in Table 125. This estimate equates to approximately $0.42k/ha for the side slopes and $0.35k/ha for the crest of the TSF.

Table 125: Estimate of the Rehabilitation and Closure Costs for the Kiniero TSF

DESCRIPTION OF WORKS	TSF SLOPE REHABILITATION COSTS ($) (concurrent maintenance and rehabilitation at closure)	TSF CREST REHABILITATION COSTS ($) (rehabilitation at closure)	TOTAL ($)
Rehabilitation and Closure Works	495,000	7,730,000	8,225,000
Active Care and Maintenance of Rehabilitation Works	50,000	770,000	820,000
Passive Care and Maintenance of Rehabilitation Works	25,000	390,000	415,000
Total	570,000	8,890,000	9,460,000
Area (ha)	**13.8ha**	**259.58ha**	**273.38ha**
$ Rate / ha	**42,000**	**35,000**	**34,600**

Source: Epoch 2022

18.10.11 Engineering Design and Management

The engineering design and management of the TSF and associated infrastructure will be required to satisfy recognised international standards and guidelines such as the Global Industry Standard on Tailings Management (ICMM, August 2020). Provision has been made in the estimates of costs associated with the facility for the appointment of an appropriately experienced and qualified Professional Engineer of Record (EoR) for the management of the TSF, and who would be responsible for:

- definitive engineering design at $0.2m
- detailed engineering design and construction quality assurance at 3% of the estimated value of the capital and rehabilitation and closure costs
- ongoing inspections and monitoring of the TSF to ensure that it is operated in accordance with the design intent. This is expected to comprise:
  - quarterly reviews of the operation of the TSF at cost of $140,000 pa covering the inspection, review of monitoring data and compilation of reports
  - annual inspections of the facility at a cost of $65,230 pa covering the inspection, monitoring, review of monitoring data and compilation of an annual report for submission to the regulatory authorities

18.11 Water

18.11.1 Water supply

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

As part of the environmental studies completed and the hydrological surveys, all water sources were sampled, and water quality tested. The water quality results were compared to World Health Organisation (WHO) drinking water standards as well as the International Finance Corporation (IFC) effluent standards of 2007. According to these, the water quality of all the sources comply with the standards required for industrial water discharge and are thus suitable for use during operations.

Based on the water qualities of the Sector Gobelé A complex pits and the Jean complex pits, dewatering of these areas can be done directly into the raw water catchment dam from where it is to be pumped to a dedicated elevated raw water header tank system (existing 80m³ tank). If the raw water catchment dam is at full capacity, dewatering activates can continue by releasing into the adjacent storm water trench surrounding the TSF from where it will flow to the TSF storm water catchment system.

Water from the TSF storm water system will be returned to the processing plant as process water via a dedicated pumping system.

Borehole water will be prioritised for use as potable water supply, particularly at the accommodation camps. Only excess borehole water from pit dewatering activities will be released into the process water supply system.

18.11.2 Process Plant Water Balance and Dams

The water balance was developed based on the design inputs received from plant, mining and TSF design and have been based on the following assumptions:

- dry months have been classified as all months receiving <100mm of rainfall per month
- wet months are classified as all months receiving in >100mm rainfall per month
- excess storage capacity in unused pits and raw water dam have been capped at 300,000m³
- precipitation is based on average rainfall years and does not allow for flood events
- water quality data indicates that the water from the pits and raw water dam complies with WHO guidelines for environmental release
- water release to environment is to be minimised

Estimates were developed to determine time required to dewater the existing pits that form part of the current mining plan. The pit dewatering strategy is discussed in Section 16.2.5 and Section 16.2.6.

18.11.3 Fire water

Fire water will be sourced from a constant header raw water tank at an elevation above the new processing plant and above the office block and mine workshops. This elevation will ensure constant pressure available for fire water systems. From the raw water header tank fire water pipelines will be installed to all the required areas.

In addition, a firefighting bowser is available on site which can be refilled via the haul road dust suppression water system for any remote firefighting requirements. The dust suppression water supply is to be located adjacent to the raw water catchment dam and will source its water supply from the catchment dam.

18.11.4 Potable Water

Potable water will be required for the mine site and both accommodation camps during operations and construction. Currently the Main Camp has borehole water supply available and at the Staff Camp water will be obtained from the Niandan River.

Allowance has been made for the procurement and installation of three 4,000 gallon per day industrial Reverse Osmosis (RO) units, i.e. one for each camp and one for the mine site. The units are commercial off-the-shelf designs and will be connected to existing potable water storage and distribution infrastructure. The RO units for the camps will be supplied from existing boreholes at each camp while the site RO system will be fed from the raw water system.

18.12 Power

Historically only diesel generated electricity was used for electrical supply as the Guinea national grid was not developed to the Kiniero Gold Project and in addition does not have the capacity required. For the current Kiniero Gold Project the national grid remains unable to supply required electricity volumes and thus an alternative supply is required.

The selected electrical supply is based on a hybrid system of diesel generators with a capacity of approximately 16,400kW, as well as a Solar Photo-Voltaic (PV) plant with total capacity of approximately 17,820kW. The benefits of the hybrid system were identified as being:

- reduced carbon footprint
- lower energy costs
- reduced emissions for diesel

- reduced diesel consumption and thus less transport of diesel required (reduced traffic load)
- enhanced security of power supply

The hybrid power supply has been based on an Energy Supply Agreement (ESA) with Vivo Energy, an Independent Power Producer (IPP). The Vivo Energy ESA allows for them to be responsible for all power generation. The solar PV plant will be connected to the main switchboard via an overhead powerline. The diesel generator plant and the Battery Energy Storage System (BESS) will be connected directly to the mine switchboard. The distribution of MV up to the MV transformers at camp, plant, mining workshops and TSF will be via the mine switchboard. The general layout of the proposed Kiniero Gold Project power facility is presented in Figure 99.

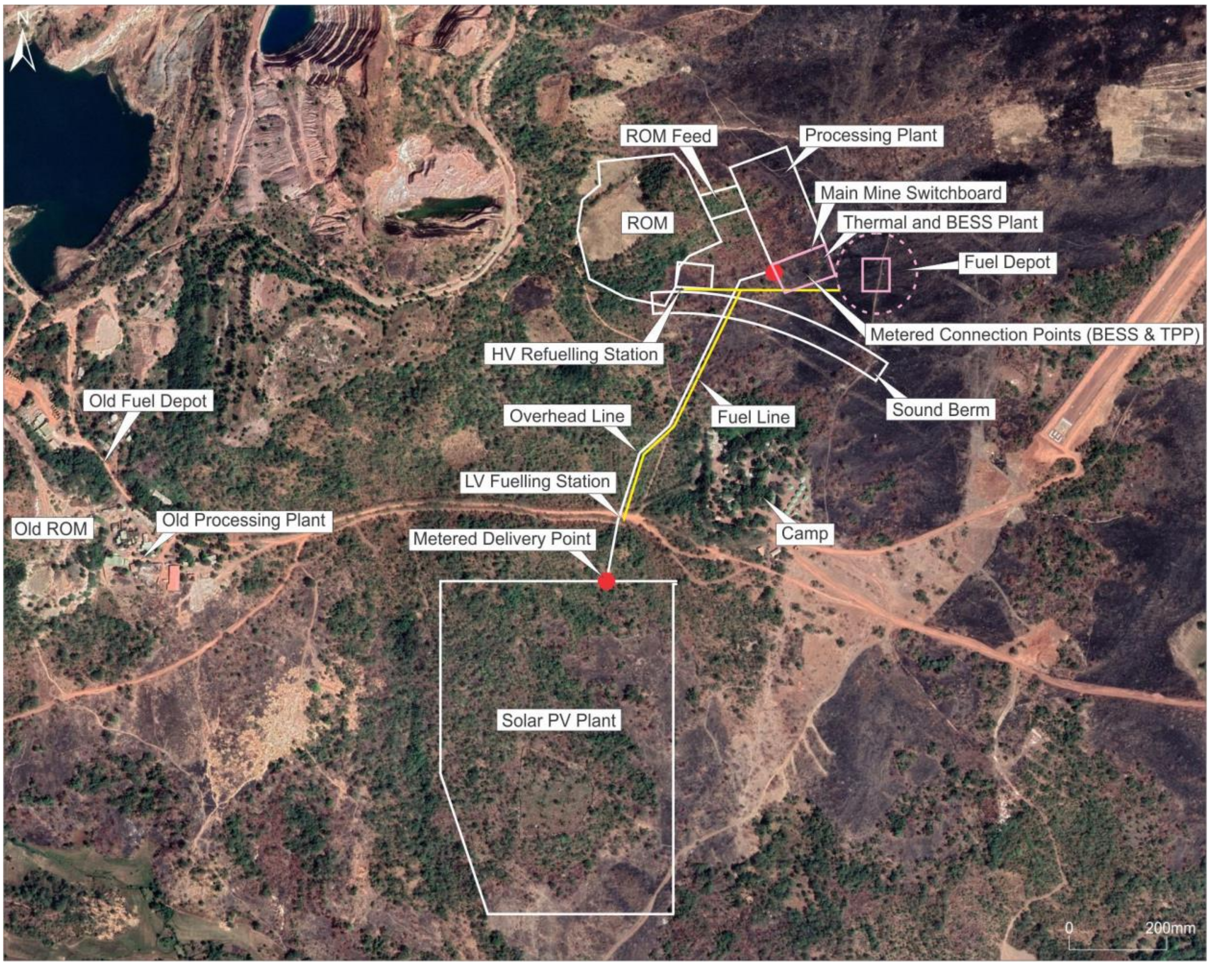


Figure 99: General Infrastructure Layout of the Proposed Kiniero Gold Mine Power Facility (18-1).

18.12.1 Basis of Design

The proposed power facility has been designed and simulated according to the following design criteria (Table 126) and weather criteria (Table 127), which has been applied to the requisite equipment selection:

Table 126: Power Supply Design Criteria

PARAMETER	UNITS	VALUE
Design Lifetime	years	≥ 15
Design Ambient Temperature	°C	≤ 40
Design Elevation above Sea Level	m	< 473
Design Wind Speed	m/sec	≤ 44
Design Maximum Rainfall	mm/month	386

Source: Vivo Energy (2022)

Table 127: Power Supply Weather Design Criteria

MONTH	Global Horizontal Irradiance (kWh/m²)	Diffused Horizontal Irradiance (kWh/m²)	TEMP (°C)	WIND SPEED (m/sec)	RELATIVE HUMIDITY (%)	RAINFALL (mm)
January	179.1	159.0	25.8	2.7	31	2
February	173.3	133.8	28.4	2.7	28	2
March	189.5	119.8	30.3	2.8	35	22
April	181.8	107.3	29.9	3.1	46	56
May	182.7	113.5	27.8	2.8	60	129
June	162.6	96.4	25.7	2.6	71	197
July	156.7	91.0	24.7	2.6	80	252
August	153.6	90.2	24.3	2.6	85	331
September	163.7	109.1	24.6	2.1	84	330
October	176.2	128.4	25.2	1.8	78	170
November	171.9	149.7	25.6	2.0	61	36
December	175.1	164.7	25.3	2.4	40	6
ANNUAL TOTAL/AVERAGE	**2066.3**	**1462.9**	**26.5**	**2.5**	**58**	**1533**

Source: Vivo Energy (2022)

18.12.1.1 Facility

18.12.1.1.1 Load Profile

Vivo Energy adopted a load profile comprising the following parameters:

- Average Power (Steady State): 7,990kWe
- Average Power: 7,990kW
- Peak Power: 12,047kW
- Outage Hours: 0 hours

A visual representation of the load profile over a year cycle is presented in Figure 100, with mine outages taken into consideration. A final load profile determination will be undertaken at a later stage where the Kiniero Gold Project's plant outage requirements will be integrated.

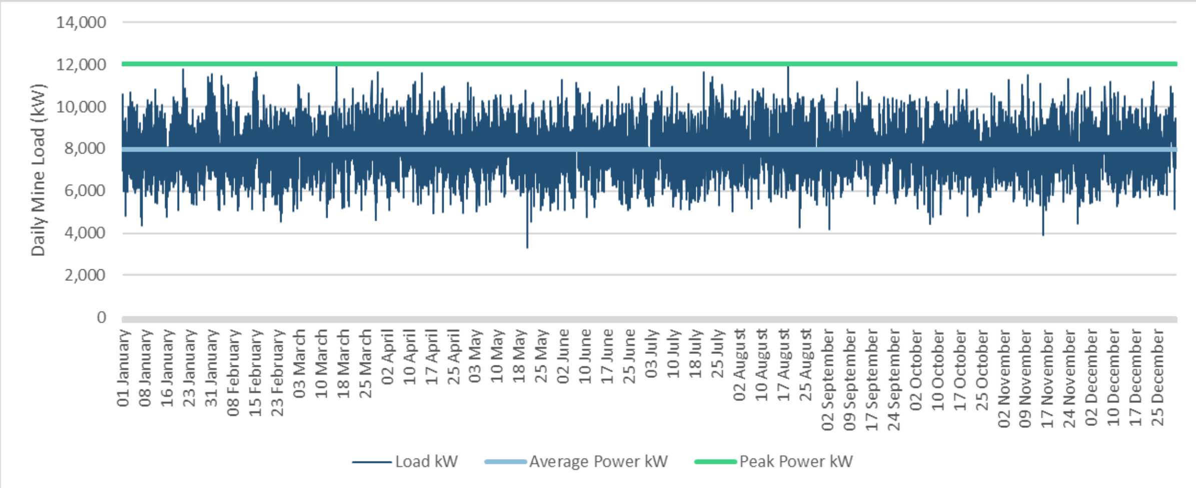


Figure 100: Kiniero Gold Project Load Profile – Annualised (kW) (Source: Vivo Energy, 2022)

18.12.1.1.2 Solar Resource

The Kiniero Gold Project solar resource was established by Vivo Energy using the SolarGIS database instead of the Meteonorm database. SolarGIS is an independently operated solar database with algorithms being regularly updated to reflect professional industry feedback at global, regional, and country level. As a result, this database provides more accurate outputs which are typically more conservative relative to other data in the market. For the Kiniero Gold Mine the resource differential between the SolarGIS and Meteonorm databases results in Meteonorm offering an energy yield of up to 3% higher than SolarGIS.

18.12.1.2 General Facility Overview

The proposed power generation plant for the Kiniero Gold Mine comprises the following main plant sub-sections:

- Solar PV Plant: 17.8 MWp/13.5MWac
- Battery Energy Storage System (BESS) Plant 10MW/30MWh
- Thermal Power Plant 20,000kVa
- Balance of Plant

The Kiniero Gold Project Solar PV plant will be located to the south of the main mine infrastructure footprint, secured be a perimeter fence with an inner electric fence. The energy produced from this PV plant will be transmitted via an overhead power line that will be connected to the thermal plant's switchboard. The thermal power plant, as well as the BESS plant, will be located adjacent to the Kiniero Gold Project's main switchboard. Revenue metering of the solar PV plant will be located at the outgoing switchgear board at the fence line of the solar PV plant. Additional revenue metering stations will be required at the thermal plant's switchboard for the metering of the energy produced by the BESS plant and the thermal power plant.

The complete power facility will produce sufficient energy to cater for the Kiniero Gold Project's power requirements without creating power quality imbalances, whilst maximising process plant up time. The balance of the PV plant infrastructure will convert all the subsections of this facility to a common 11kV connection voltage. A hybrid controller, or Energy Management System (EMS), has been proposed to coordinate the energy being exported by the solar PV, BESS and thermal power plant respectively. The EMS will be parameterised to always maximise the export of solar and BESS energy, whilst increasing the reduction of carbon emissions.

18.12.2 Solar PV Plant

The proposed facility will consist of a solar PV plant, with an installed capacity of 17.8MWp and a potential output capacity of 13.5MWac, that will be constructed on a level ground surface approximately 31ha in size. This area will be secured by means of a security fence constructed along the perimeter of the solar PV plant, with an approximate length of 2,232m. The solar PV plant will have a single access point or gate.

The solar PV plant area will be required to be cleared, grubbed, and graded to allow for suitable drainage in accordance with the final specifications created during the engineering phase of the Kiniero Gold Project. It is recommended that the solar PV plant be located as close to the point of interconnection as possible to minimise power losses. The solar PV plant will be comprised predominantly of solar modules, a tracker structure, inverters, and an electrical balance of the plant.

18.12.2.1 Solar Modules

The solar modules absorb the irradiation from the sun to convert the energy to direct current (DC) power. The solar modules selected have been selected for installation at other similar power projects in the same region in Africa. These modules are bi-facial, which allows them to absorb irradiation energy reflected from the ground. A lower reflectance probability was selected at this stage as the precise ground conditions at the selected PV plant are not currently known.

18.12.2.2 Tracker Structure

The solar modules will be installed onto a bolted steel structure, or table, designed for easy removal for redeployment if necessary. They will be arranged in groups of 28 solar modules, known as strings. Each tracker structure will be comprised of two solar module strings laid out in a north-south configuration. The tracker structures will follow the sun's position relative to the Earth's position at any one time in an east to west movement. This action will be performed by single axis tracking motors, or drives, driven by software and other sensors to ensure the optimal position of the structure table is permanently maintained in relation to the sun's position. The movement of the solar modules in this way, maximises the solar PV plant's ability to harvest the sun's radiation at any time of the day.

Dependent on the results of a comprehensive geotechnical and topographical study, the optimal structure mounting strategy will be determined. At this stage, the proposed structure mounting of the tracker will be anchored to the ground by means of ramming.

18.12.2.3 Inverters

The power produced by the solar modules is based on DC power. Inverters are required to convert the DC power produced by the solar modules into alternating current (AC) power to be used by the Kiniero Gold Project. String inverters have been proposed which provides the operator the flexibility of changing an inverter with a spare quickly and effectively.

18.12.2.4 Electrical Balance of Plant

All power exported from the string inverters at the solar PV plant will be combined onto LV Panels, or mini substations, to minimise the quantity of connection points to the step-up transformers, forming a power block of 5MVA. Each of the power blocks' transformers will convert, or step up, the AC power from a double pole 800Vac to 11kVac. The MV Station will integrate all power blocks to provide an output to the Kiniero Mine at the interconnection point. The revenue metering for the solar PV plant will be located with the output terminals of the feeder switchgear at the fence line of the solar PV plant.

18.12.3 Battery Energy Storage System (BESS)

The battery energy storage system (BESS) will consist of a 10MW Power Conversion System (PCS) and a 30MWh battery. Two 5MVA step-up transformer stations will be installed to convert the lower AC voltage from the PCS to the required 11kV. The proposed BESS technology is based on Lithium-Ion battery technology. The layout depicted in Figure 101 provides the approximate general arrangement of the proposed thermal and BESS plant.

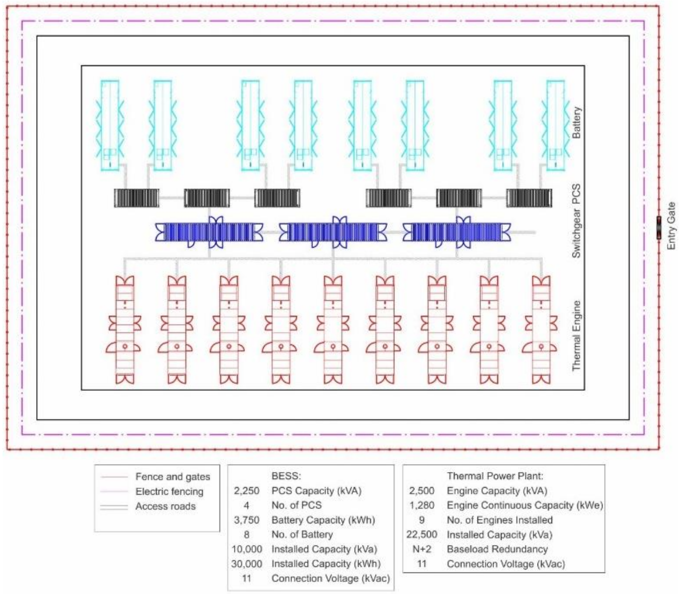


Figure 101: General Arrangement of the Thermal and BESS Plant (18-3)

The proposed BESS will provide a few services that include but are not limited to the following:

- Spinning Reserve
- Frequency regulation
- Voltage support
- Capacity smoothing
- Grid Forming

In addition, the BESS will be capable of supporting daily smooth transitions from solar to thermal power when the sun starts setting, and again for when the sun starts rising, from thermal power to solar power. In the event of a diesel engine stopping unexpectedly, the BESS will carry the deficit of the charge, and provide the necessary energy while the Energy Management System allows for the diesel engine to start-up. Once the diesel engine has restarted and achieved the load requirements, the BESS will ease off and allow to be charged with solar energy when/if available.

Power from the solar PV plant will be used solely to charge the battery. This power will enter the PCS on the AC side whereupon the PCS will convert this AC power to DC power through rectifiers in order to charge the battery. When power is required from the BESS, power from the battery will enter the PCS on the DC side and the PCS will convert this DC power to AC power through its inverters. The output from the PCS will be connected to a 2.5MVA step-up transformer. This step-up transformer will convert the 400V coming from the PCS to 11kV.

18.12.4 Thermal Power Plant

The thermal power plant will be located adjacent to the BESS plant, next to the Kiniero Gold Mine's main switchboard. The thermal power plant concept will be comprised of eight diesel engines, each with a capacity of 2,500kVA. As such a total installed thermal capacity of 20,000kVA has been designed with an engine baseload redundancy of N+2. This allows the thermal power plant the capacity to provide the peak power demand when major loads are being started, whilst still having an engine on standby, which can also be used when other engines are being serviced. Should more power be required during the event that an engine is being serviced/overhauled, then the EMS will engage the BESS to provide the required temporary additional power demand.

18.12.4.1 Interconnection and Metering

The interconnection point of the thermal power and BESS plants will be located at the thermal power plant switchboard, with revenue metering located at the same position. Four electrical bays are planned for at the Kiniero Gold Mine's main switchboard.

18.12.5 Energy Management System (EMS)

The Kiniero Gold Project will require an EMS that is able to engage a large amount of power generation nodes, whilst monitoring numerous load circuits. Such a suitable EMS will have to comply with the following minimum parameters:

- must provide maximum availability
- must be capable of performing hot standby between main and redundant control modules
- be easily configurable both on site, or through remote link
- provide dedicated algorithms suited to different types of power generation nodes
- Connect and disconnect from grid, ensuring real time response and fault protection
- top-tier Original Equipment Manufacturers (OEM) (with extensive track record)
- comprise highspeed real-time controllers
- must have extended warranties with suitable hardware exchange mechanisms for the life of the Project
- provide an innovative cloud-based EMS dashboard for monitoring and analysing energy usage
- integrated EMS software for all energy generators and consumers
- identify energy and operational performance outliers with comparative analytics and performance dashboards
- reporting tools to analyse and compare consumptions, identifying areas where energy saving efforts are required
- generate alerts and notify as soon as plant operations are not as per O&M guidelines

- access and visualize all electrical parameters for power quality analysis
- allow for historical electrical to be exported to various file types (e.g. *.pdf and *.csv)
- provide multilevel user administrator access to manage organisations, sites, meters, users, functionalities, etc
- comply to the ISO 50001 energy management standard

The EMS is a hybrid controller that provides additional functions, which includes:

- coordinating all generation nodes (9 x diesel engines, 1 x Solar PV Plant and 1 x BESS)
- establish the power requirement that the BESS should make in providing discharged energy (export power) or accepting charging energy (import power)
- balance the Kiniero Gold Project's internal grid (within frequency and voltage thresholds)
- maximise the use of solar PV produced power as the first priority in every instance;
- minimise the use of the diesel engines in order to maximise the fuel savings towards the Kiniero Gold Mine, and reduce carbon emissions
- allow the BESS to provide capacity smoothing to maximise the solar PV output
- provide a spinning reserve such that the diesel engines are not started unnecessarily or run for short periods of time, providing for the smooth transitions between the solar PV produced power and the diesel engines and vice versa, whilst accommodating the starting and stopping of the larger mine loads
- due to the installed capacity of the BESS, the EMS will allow the BESS to perform grid
- forming such that the diesel engines may be switched off completely and allow the power produced at the Kiniero Gold Mine to be provided by renewable energy only

The EMS and SCADA system will be located in a control room to be equipped with air-conditioning and the necessary fire protection. The EMS and the SCADA system will interface to:

- each of the diesel engines at a central cubicle located in the same control room using a communication cable
- the solar PV plant, weather monitoring station, MV Station and tracker system
- the BESS plant, including the PCS, battery and MV Station
- metering points at the interconnection point
- metering point/s at the Kiniero Gold Mine load

All the EMS equipment (Figure 102) will be located at the control room, and will be comprised of:

- main control cabinet. The EMS will adopt the different algorithms specific to the diesel engines, the solar PV or the BESS. The EMS parameters are to be stored in the control cabinet due to the plant optimisations during the performance testing phase of the Project

- redundant control cabinet – a replica of the main control cabinet that will resume control if the main control cabinet fails. This will ensure that the EMS is online permanently
- ethernet switch which allows for the interface of all the equipment (as described above) to one point
- workstation which functions as a scheduler and as the software interface to the EMS. The workstation allows the operator to set the priority of generation, adjust operating parameters and adjust thresholds
- web router, allowing for the interface to the cloud whereby data can be uploaded to a remote control room and adjustments made from a remote location
- logging and reporting, provided through an historian whereby custom-made reports and recorded data is stored indefinitely for analyses and further optimisation

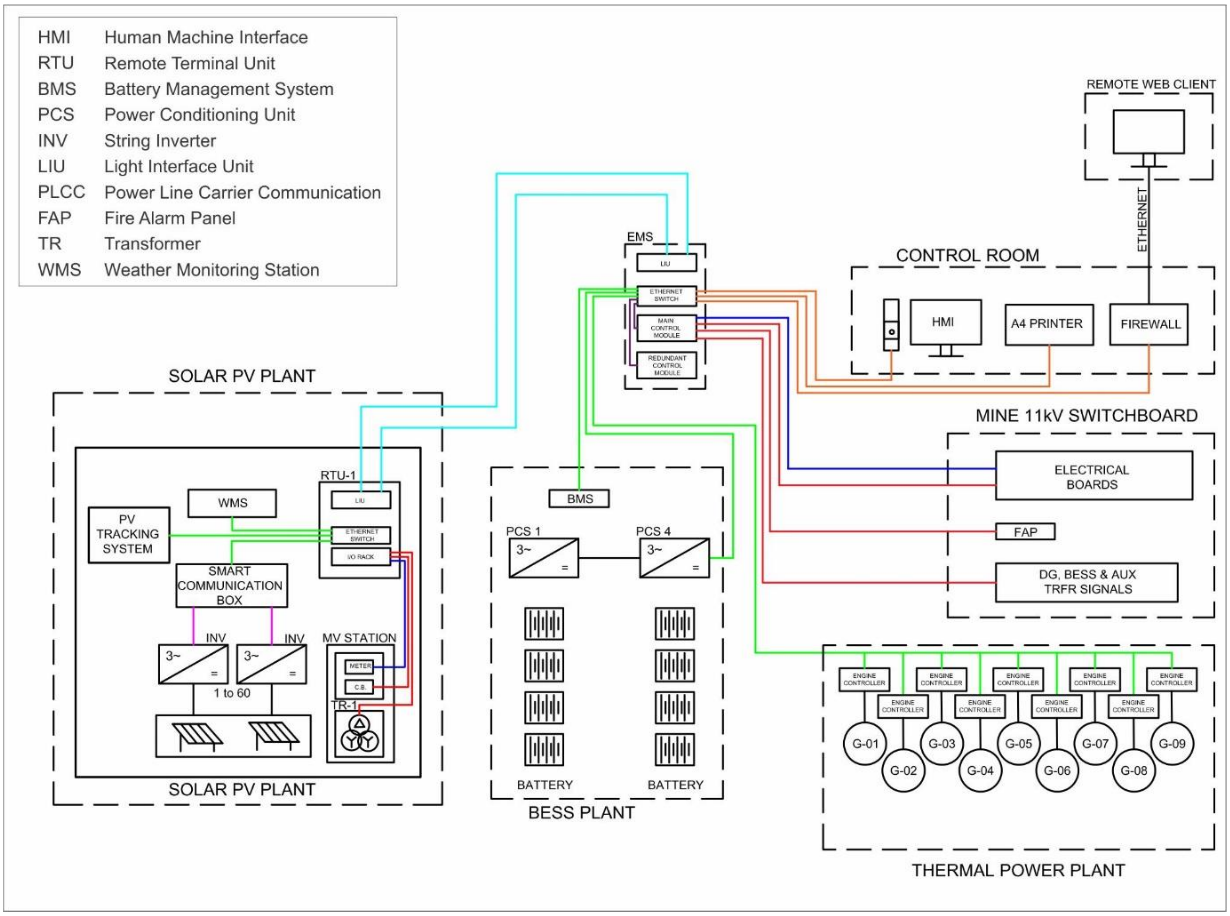


Figure 102: Schematic of the Typical Architecture for the EMS required for the Kiniero Gold Mine

18.12.5.1 Power Generation Priority

The EMS will allocate the highest priority of power generation to the solar PV plant based on availability. Should the required load be lower than the capable power produced by the solar plant, then the EMS will satisfy the required load with the energy produced by the solar plant along with the support from the BESS.

If the load required by the mine is higher than the capable power output of the solar PV plant, then the EMS will maximise the output from the Solar PV plant and add additional load from the BESS if sufficient. If insufficient, the EMS will allocate further base load of one diesel engine or more to satisfy the required load. The BESS will only participate in circumstances where the BESS's State of Charge (SOC) is at an acceptable level.

Any surplus power produced by the solar PV plant will be directed towards the BESS for charging, as long as the BESS's SOC hasn't reached its maximum level. Where the Kiniero Gold Project's load is satisfied, and the BESS is at its optimal SOC, then restriction of the solar PV plant will occur. The BESS will never be discharged beyond a SOC of 5% to protect the battery. Where the load will require additional support beyond the BESS capabilities, the EMS will allocate diesel engines to provide this support.

18.12.6 Equipment Warranties

All equipment quoted by Vivo Energy will be supplied by Tier 1 providers and operated and maintained as per the 'Operation and Maintenance' instructions furnished by the manufacturer to avail the warranties. Equipment warranty details are summarised in Table 128.

Table 128: Equipment Warranties for the Kiniero Gold Project Power Plant

EQUIPMENT	WARRANTY PERIOD
Solar PV Modules	12 years (product warranty)
	30 years (linear power output warranty)
Single Axis Tracker	10 years (structure)
	2 years (electro-mechanical components)
Solar Inverters	5 years
Balance of System	2 years
EMS	2 years
Thermal Power Plant	1 year

18.12.7 Operations and Maintenance (O&M)

Operations and maintenance will be required for the Kiniero Gold Project power facility for the full duration of the ESA Contract. The power facility will consist of following:

- solar PV plant
- thermal power plant

- BESS plant
- balance of plant

The O&M services will be fully compliant with market standards and best practices, including:

- real-time plant monitoring via SCADA
- maintenance services management (preventative, corrective and predictive)
- periodical reporting (monthly, quarterly and annually)

Spare parts shall be maintained as per OEM recommendations and availability requirement. The cost of equipment and spare parts for commissioning and testing during the construction phase have been accounted for.

18.13 Security and Fencing

Current security and fencing on site required upgrading. SMG will replace all security measures including access control and fencing. The main security areas have been identified and classified according to risk as follows:

- maximum security (gold room) - brick and mortar building fitted with gold safe and secure airlock access control for personnel and vehicles
- high security (plant area) – general plant area to be fenced with high security 2.4m fencing and barbed wire with access control and turnstiles
- medium security (core shed) – core shed area to be fenced with medium security wire mesh fencing with access control gate
- medium security (administration offices) – section of area to east and north of main office block to be fenced with medium security wire mesh fencing and general access control gate
- medium to low security (camps) – perimeters of both Main camp and Staff camp to be fenced off with wire mesh and equipped with access control.

The fencing design and costing has been obtained from Cochrane International, a global fencing engineering, design and manufacturing company, for their ClearVu fencing systems for which a partial order has already been delivered to site. The option of installing closed circuit television (CCTV) monitoring systems in key areas (for example gold room) will be investigated further based on requirements and retrofitted if required. General site security will be managed by mine security personnel including site access control, site patrols and guarding.

18.14 Waste management

Waste management has been classified into four main categories namely:

- domestic waste (paper, plastic, foodstuffs etc.)
- industrial waste – non-hazardous (scrap metal, plastic piping etc.)
- industrial waste – hazardous (empty reagent containers, oil rags, hydrocarbons etc.)
- effluents (contaminated water, sewerage etc.)

Domestic waste will be discarded into a dedicated waste landfill site, with an area of 50m x 30m. The landfill site will need to be positioned taking the following into consideration:

- a distance of at least 300m-500m from accommodation areas for hygiene reasons
- not on an environmentally sensitive area
- not on an existing aquifer or near water sources

The site will consist of sequential trenches not deeper than 4m to be excavated and filled with waste. Once 80% filling level has been reached on a specific trench the waste will be covered by excavated topsoil and compacted.

Non-hazardous industrial waste will be collected at dedicated waste storage areas in both the plant and mining areas. The waste will be classified into recyclable material (scrap steel) and non-recyclable materials. The non-recyclable material will be disposed of in the site landfill site as per the preceding description.

Hazardous industrial wastes will be collected and stored in dedicated bunded areas suitable to prevent any uncontrolled release. The wastes are to be collected by a certified company for disposal in a hazardous classified waste site.

All workshop areas have been fitted with oil traps to prevent uncontrolled release of hydrocarbon contaminated water. Drainage from the workshops and storage areas have been designed to flow into either the pollution control dam (plant) for disposal on TSF or directly onto TSF (mining workshop) to ensure containment and no release to environment. All runoff water from reagent storage areas are to be diverted by an existing channel drain system into the existing pollution control dam situated to south of the process plant inside the fenced plant area.

No sewerage plant has been allowed for at present. Sewerage systems consists of dedicated septic tanks with French drain systems located at the various areas (offices, workshops, camps etc).

18.15 Non-mining Mobile Equipment

Several personnel carriers and light duty vehicles (LDV's) remain on site from the previous operations. Of these vehicles, three single cab Land Cruisers, one Land Cruiser troop carrier and two Passenger sports utility vehicles (SUVs) (Toyota Cruiser or similar) were salvaged and repaired and are currently operational on the mine site. The balance of the vehicles were scrapped. New LDVs have been purchased, and additional will be purchased or leased for the operation.

19 MARKET STUDIES AND CONTRACTS

19.1 Markets

No market study is required to assess the gold demand as this commodity trades in an open market. The Kiniero Gold Project will produce gold doré which is readily marketable and sold "ex-works" or on a "delivered" basis to several international refineries. There are no indications of the presence of penalty elements that may impact the price or render the product unsaleable.

19.2 Gold Price

A price forecasts for gold and silver is presented in Table 129 below. The base case gold price assumption for the financial model is $1650/oz. The gold price for constraining the Mineral Resources is $1,950/oz and for Mineral Reserves $1,650/oz.

Table 129: Gold and Silver Price Forecasts

METAL PRICE	YEAR									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gold ($/troy oz)	1,801	1,801	1,801	1,801	1,801	1,801	1,801	1,801	1,801	1,801
Silver ($/troy oz)	25	24	24	23	22	22	23	24	24	19

Source: S&P Market Intelligence

19.3 Refinery Terms

Based on quotations received from refiners used by Ressources Robex for its Nampala Operation in Mali, it is anticipated that the terms will be 99.95% payable with a logistics fee of €2.41/oz.

19.4 Doré Transportation

The doré will be sold "ex-works" and transported by the refiner from the Kiniero Gold Project to Conakry by air, as controlled by the Bank of Guinea. The doré will then be exported outside of the country to a refinery.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Baseline Description (Receiving Environment)

The baseline description was initially prepared and reported in the Environmental and Social Impact Assessment (ESIA) by ABS Africa (Pty) Limited (ABS Africa) and Insuco Guinée Limited (Insuco), which was submitted in May 2020 in support of the application to the Government of Guinea for the conversion of the Kiniero Exploration Permits to Exploitation Permits. The Environmental Conformity Certificate was issued by the Guinean Environmental Agency (AGEE) on 8 June 2020. In August 2020, SMG's application for four exploitation permits covering a total area of 326 km² was accepted and approved by the Centre de Promotion et de Développement Minières (CPDM - Mining Promotion and Development Centre).

The March 2020 ESIA Report and associated specialist studies was updated in support of this PFS to assess the latest changes pertaining to the Kiniero Gold Project, namely the:

- updated 2022 PFS pit designs and site layout
- 2022 mining schedule
- pit dewatering strategy
- inclusion of Sabali South (into the Mansounia License Area) and Waste Rock Dumps (WRD) to the south
- inclusion of a new TSF to the northeast of the existing TSF, which provides an increase in capacity to that TSF that was designed in 2020
- inclusion of a new processing plant to the east of SGA pits, with an increased processing capacity of 3Mtpa

20.1.1 Physiography and Geology

The Kiniero Gold Project is situated in the Upper (Haute) Guinea geographical region consisting of northern savannah, with the physiography described in Section 5.2. Geologically the Project is situated within the southwestern sector of the Siguiri Basin, with a detailed description of the geology and mineralisation presented in Section 7 and Section 8.

20.1.2 Soils, Land Use and Land Capability

Based on historical information and the latest pedological site investigation conducted in September 2020 by SMG, the soils of the Kiniero Gold Project have been characterised and classified using the World Reference Base for Soil Naming, and include:

- alluvial plains which comprise a variety of moderately deep sandy profiles and areas of deeper soil profiles comprising wet based soils and wetland soils, a range of moist grassland and hydromorphic form soils that manifest as floodplain wetlands and zones of accumulation of transported materials

- a transition zone, or lower midslope landforms, just upslope of the streams and rivers. Associated with flat or gently sloping landforms. These sites are characterised by a mix of shallow and slightly deeper sandy loams and sandy clay loams that are underlain for the most part by soft plinthites and/or soft saprolite
- flat to slightly more undulating terrains that characterise the midslopes that are comprised of relic ferricrete pavements (lateritic pavements) and shallow rooted soils, recognisable by the absence of large trees and dense vegetation. The generally shallow soils (<400mm) and presence of water at or close to surface within the vadose zone typifies this zone. The soils associated with the hard pan ferricrete are separated out as a dominant group based on their shallow rooting depths and distinctive "inhibiting" layer that occurs at or close to surface
- "crest slope soils" that are associated with different pedological processes in areas of positive erosion and the depletion of materials. This group of soils is considered to be associated with a change in geology, with a change in the grading of the materials, the structure and colour of the soils

A large part of the area is affected by the previous mining infrastructure and associated facilities established as part of the previous mining activities associated with SEMAFO. The main land use for the Kiniero Gold Project area is agricultural, where annual crops are distributed throughout, and concentrated around existing drainage lines.

20.1.3 Climate

A detailed description of the climate of the Kiniero Gold Project is presented in Section 5.4.

20.1.4 Air Quality

Various existing sources contribute to pollutants in the region. A comprehensive emissions inventory for the region has not been prepared, but source types present in the area, and the pollutants associated with such sources, are described qualitatively with the aim of identifying pollutants that may be of importance in terms of potential cumulative air quality impacts. Local sources of fugitive dust and gaseous emissions include artisanal mining, vehicle activity on unpaved roads, subsistence farming, small-scale livestock farming, wildfires and wind erosion from exposed areas. Household fuel burning and refuse burning also constitutes a significant local source of low-level emissions. Baseline air quality is generally considered to be good due to the limited industries and traffic in the area, with elevated dust levels experienced during the dry season.

20.1.5 Noise Receptors

Noise receptors (NRs) within 5 km radius of the Project area include:

- villages: Sérakoro to the east, Kiniero to the southeast, Balan to the north, Mansounia, Konson and Missamana to the southwest
- hamlets: Farabalan to the west and Dalanigbè and Kobane to the northwest
- seasonal agricultural camps: Banfran to the west, Bréla to the northwest, and Bonbondön to the north

Since there are no major industries, roads or commercial activities present in most of the Kiniero Gold Project area, noise levels throughout (away from localised noise sources) are estimated to be between 40dBA and 45dBA during the day and 35dBA to 40dBA during the night. The most significant noise sources in these areas are expected to be natural sources such as birds, insects, and animals. Closer to the villages and hamlets, higher noise levels (45dBA to 50dBA during the day and 40dBA to 45dBA) during the night can be expected, with the major contributing sources in these areas being vehicle traffic, community noise, generators, music, workshops, domestic animals, livestock, as well as bird and insect noise. In the areas where artisanal mining is conducted, higher baseline noise levels can be expected, estimated at 50dBA to 60dBA during times that artisanal mining is conducted, with low noise levels (35dBA to 40dBA) during the night, if no artisanal mining is conducted. Noise sources in these areas can include mining, panning, and crushing activities, conversations, generators, and vehicle traffic.

20.1.6 Cultural Heritage

A total of 13 cultural heritage sites have been identified in the vicinity of the Kiniero Gold Mine. Most of the sites have links with the history and the establishment of the villages, which are believed to be key to the prosperity of the communities (fertility of women, abundant harvests, gold, etc.). These sites are therefore important to village communities.

Two sites are in proximity to the proposed development of the Kiniero Gold Project. Neither is directly affected by infrastructure placement. These are the sites of "Sinkedoumba", which depends on the customary authority of Ballan, and "Sabaly", which belongs to the territory of Kiniero. These two sites can be relocated, subject to conditions by the respective Elder Council in charge.

20.1.7 Surface Water

The Kiniero Gold Project is situated within the Niandan Catchment, located in the Niger River Catchment Area. The surface water environment and hydrology are discussed in detail in Section 5.3.

20.1.8 Hydrogeology

A detailed description of the hydrogeology of the Kiniero Gold Project is presented in Section 16.1.1.4 with a description of the aquifers in Table 100. A hydrocensus was completed by SMG in 2020 identifying 19 community boreholes and hand-dug wells, as well as boreholes established for the Kiniero Gold Mine. Selective groundwater quality samples were collected, and water levels measured where possible. Six monitoring boreholes (KMBH1 to KMBH6) were drilled for the 2020 groundwater investigation. These boreholes were pump tested and water quality samples collected for analysis. Aquifer transmissivities derived from the pumping tests range between 0.58m²/day and 25m²/day, with KMBH2 and KMBH3 being anomalously high at around 300m²/day and 84m²/day respectively.

The measured depth to groundwater level ranges between 0.6m and 27.2m from the various hydrocensus and monitoring boreholes. There are two groupings of the depth to groundwater level. Eight of the eleven boreholes measured show a depth to groundwater level of <10m, while the remaining three boreholes show a depth to groundwater level between 24.5m and 27.2m. The deeper groundwater levels could be related to the borehole being located on topographically higher areas (which often have a deeper groundwater table) or is due to the remnant mine dewatering impact at historical open pits.

There is a linear correlation between groundwater level elevation and the topographical elevation, suggesting that the groundwater level is mimicking the topographic elevation, especially for the shallow groundwater system. The groundwater flows are from the higher lying northwest – southeast striking ridges that characterise the Kiniero Gold Project towards the various streams that drain the area.

Seventeen groundwater quality samples were collected for analysis in 2020. The water quality results were compared to IFC Mine Effluent Discharge Guidelines (IFC, 2007) and the HO Guidelines for Drinking-water (2017). In general, all the parameters analysed complied with the water quality guidelines. At individual boreholes pH, nitrate, arsenic, and lead variously exceeded the guideline values.

20.1.9 Environmental Geochemistry

In 2020, samples for geochemical testing were selected to most effectively cover the range of lithologies present within ore zones to be exploited. A total of 23 samples were selected during July 2020:

- four samples representing oxide and transitional material from the SGA and Sabali South deposit. The SGA oxide sample was prepared as a composite of material from six individual cores. The Sabali South oxide and transitional samples were also composites of nine and seven cores, respectively

- drill cores from Sabali South (two), Sabali North (six), West Balan (three) and simulated tailings generated during metallurgical testing. The tailings were generated from transitional and oxide material from West Balan and a blend of transition and oxide material from SGA
- four samples were taken from the existing tailings impoundment
- a fresh rock sample collected from a location to the west of the deposit and included as a reference

The static tests performed on the samples indicate that there is very limited risk of acid generation from the oxide material. Samples from the transition zones (Sabali and SGA) did have a higher sulphur grade, which relates to a higher potential acidity value. The NAG tests confirmed acid generating potential, and needs to be managed accordingly. A Sabali North sample could also be classified as potentially acid forming, showing the mobilisation of arsenic during the reagent water leach tests, to a final concentration in excess of the Guinean standard. It is recommended that appropriate kinetic leach tests be conducted on the material classified as potentially acid forming to assess rates of acid generation and arsenic mobilisation.

In 2021, an additional 26 samples were collected and analysed. The first batch consisted of an ENC tailings sample (high moisture content) and two core samples (composite 1 and 2). The composite samples were made up of material from four locations at SGA. The second batch of material consisted of an additional 23 samples. The drill core samples covered the Sabali South and SGA areas, while the Jean samples were taken from within the pit. In addition, a waste rock sample was collected from three of the existing waste rock dumps at SGA, Gobelé D and Jean. The static tests performed on the 26 samples indicate that there is very limited risk of acid generation for the SGA material, as well as the material from the Jean deposit. The material from the existing waste rock dumps was also classified as low risk. Samples from the transition and fresh rock zones in the Sabali South deposit did have consistently lower acid neutralising potential than the SGA material. This material was classified as “uncertain” or potentially acid forming and was more prone to mobilisation of potentially hazardous elements. The ENC tailings material can be considered high risk in terms of both acid generation and metal liberation. The material does have substantial acid neutralising capacity which is likely to delay the onset of acid generation. This should be evaluated by longer term kinetic testing.

In 2022, an additional 12 samples were collected from Sabali North, Sabali Central and from Sabali South (on the Mansounia License Area). The testwork and analysis of these samples is underway and will be included in support of the DFS.

20.1.10 Water Quality

20.1.10.1 Surface Water

During the first hydrocensus in March 2020, and second hydrocensus in May/June 2020, a total of 22 surface water samples were taken. Analysis of the water character showed that in terms of cations the samples were mostly sodium dominant (13 out of 22 samples). Calcium was the dominant cation in six samples, while magnesium, potassium and aluminium were also dominant in one sample each. In terms of anions bicarbonate is by far the dominant anion (19 out of 22 samples) while sulphate, hydroxide and chloride are the dominant anions in one sample each. Elevated arsenic concentrations were detected at existing pit lakes at Gobelé, Jean West and Balan. The measured arsenic concentrations range between 0.014 and 0.033 mg/l. At arsenic concentrations less than 0.01 mg/l no health effects are expected. Concentrations between 0.01 and 0.2 mg/l are still considered to be tolerable and are below the IFC Mining Effluent Guidelines.

20.1.10.2 Ground Water

The ground water quality is discussed in detail in Section 18.11 and presented in Figure 84 and Table 102. Additional surface and groundwater samples were collected in May 2022, and the water quality analysis results will be included in the DFS.

20.1.11 Flora

The Kiniero Gold Project is situated in a belt of woodland, open savannah and grassland in north-eastern Guinea that falls within the West Sudanian Savannah Terrestrial Ecoregion, close to the boundary with the Guineo-Congolian Forest-Savannah Mosaic ecoregion. The Sudanian Region is a regional centre of plant endemism with approximately 2,750 species, of which 960 (35%) are endemic. Several vegetation types are characteristic of the Sudanian Region, two of which occur in the general vicinity of the Kiniero Gold Project, namely “Undifferentiated Sudanian Woodland” and “Sudanian Woodland with abundant Isoberlinia”. Dominant woody species in these Sudanian woodlands are Isoberlinia species, especially Isoberlinia doka, as well as Afzelia africana, Burkea africana, Combretum spp. and Terminalia spp.

Twenty-three Red-Listed species are known to occur in the general vicinity of the Kiniero Gold Project, particularly in the area between Kankan and Kouroussa. Eighteen of these are considered to be threatened, i.e. have a status of Vulnerable (VU), Endangered (EN) or Critically Endangered (CR). Four threatened and two Near Threatened (NT) species were confirmed to occur in the Kiniero Gold Project area during 2020 fieldwork, and six other species have a high or moderate likelihood of being present. The most important vegetation communities in the Project that support these species are grassland on lateritic hardpans, broad-leaved woodland / tree savannah and riparian forest.

Dry season fieldwork resulted in a list of 129 plant species being identified, which was supplemented by wet season fieldwork data and a combined list of 212 species produced. As part of the biodiversity assessment, surveys were conducted on site in April and August 2020. Each of the six vegetation communities surveyed during the April and August 2020 fieldwork is summarised in Table 130. An additional wet season survey is planned for July/August 2022, and the fauna and flora findings will be updated as part of the DFS.

Table 130: Vegetation communities associated with Kiniero Gold Project

VEGETATION COMMUNITY	DESCRIPTION
Grassland on laterite hardpans	This is an open to sparsely wooded habitat with very few trees and shrubs that is characteristic of the lateritic plains or plateaus (bowé). Grassland species composition is difficult to assess during the dry season, particularly since grasses, which are usually the dominant life forms in this habitat, have been burnt or lack diagnostic features for identification. However, this was corrected during wet season fieldwork. The dominant grasses encountered in these grasslands during fieldwork were Andropogon gayanus, Neodymium cf. ceresiiforme, Cternium cf. villosum and Hyparrhenia cf. diplandra. The herbaceous layer is moderately diverse in this community and included semi-woody pyrophytes such as Lepidagathis pobegunii, Eriosema glomeratum and Cochlospermum tinctorium, as well as herbaceous species such as Cleome gynandra, Indigofera macrophylla and Lippia chevalieri. Scattered trees and shrubs included Crossopteryx febrifuga, Entada abyssinica, Guiera senegalensis, Lannea acida and Parkia biglobosa. The only species of conservation concern recorded in these grasslands during fieldwork was Lepidagathis pobeguinii, which is classified as NT.
Tall thicket on laterite hardpans	This is a narrow, fragmented plant community that is located at the edges on laterite hardpans. Evergreen trees and shrubs are the dominant life forms and woody lianes are also prominent. Several tree and shrub species are either confined to this community, or are shared with the Riparian Forest community, including Albigia zygia, Cola cordifolia, Craterispermum laurinum, Gardenia sokotensis, Lecaniodiscus cupanioides, Leptactina senegambica, Manilkara obovata and Spondias mombin. Typical woody lianes are Landolphia dulcis and Saba senegalensis. No species of conservation concern were recorded during fieldwork, although two VU tree species potentially occur, namely Afzelia africana and Khaya senegalensis.
Broad-leaved woodland / tree savannah	This would have been the dominant vegetation community in the PAOI, but now occurs in scattered fragments in various stages of regeneration. Woodland in a more advanced state of regeneration is characterised by more trees and a more closed canopy, whereas woodland with a very broken canopy and a dominance of woody shrubs or young trees is considered to be more degraded. Typical tree species are Daniellia oliveri, Detarium microcarpum, Lannea acida, L. velutina, Lophira lanceolata, Parinari curatellifolia, Parkia biglobosa, Terminalia macroptera, Pericopsis laxiflora and Pterocarpus erinaceus, while common woody shrubs include Annona senegalensis, Entada abyssinica, Gardenia erubescens and Hymenocardia acida. The herbaceous understory stratum was dominated by tall grass species such as Hyparrhenia cf. diplandra, Panicum maximum and Pennisetum polystachyum. Small, semi-woody dwarf shrubs (pyrophytes) are a feature of the woodland understory, including Eriosema glomeratum, Cochlospermum species, Pavetta crassipes and Clerodendrum polycephalum. Herbaceous forbs that were added to the list during wet season fieldwork included Vernonia perrottetii, Vernoniastrum cf. camporum, Celosia argentea, Pandiaka involucrata, Uraria picta and Spermacoce verticillata. Threatened plant species recorded in Broad-leaved Woodland were one EN species (Pterocarpus erinaceus), and three VU species (Afzelia africana, Khaya senegalensis and Vitellaria paradoxa).
Riparian wetland	Riparian Wetlands are generally linear, fragmented habitats along seasonal drainage lines throughout the PAOI. Herbaceous plant species are dominant in this community and include tall grasses such as Pennisetum polystachyum and Hyparrhenia cf. diplandra, as well as Cyperaceae species such as Cyperus difformis and Fuirena umbellata. Typha species (aff. domingensis) is dominant along edges of modified wetlands, such as dams, and usually only occurs where standing water is present in Riparian Wetlands. No species of conservation concern were recorded during fieldwork.

VEGETATION COMMUNITY	DESCRIPTION
Riparian (gallery) forest	Riparian Forest occurs in narrow, fragmented strips of habitat along seasonal drainage lines throughout the PAOI. Trees and woody shrubs are the dominant life forms. Typical forest trees include Bridelia micrantha, Carapa procera, Diospyros mespiliformis, Khaya senegalensis, Manilkara obovata, Spondias mombin and Sterculia tragacantha, Alchornea cordifolia and Nauclea latifolia form a distinct shrub stratum at the forest edge, while Pterocarpus santalinoides, Myrianthus serratus, Uvaria chamae and Syzygium Guineanse are characteristic species of the river edge. Raphia sudanica forms dense riparian thickets along certain streams and is usually the dominant species in such thickets. Species of conservation concern reported from this vegetation community were Raphia sudanica (NT) and Khaya senegalensis (VU).
Degraded secondary shrubland / scrub	This is the dominant vegetation community in the PAOI and occurs throughout, representing areas that were historically covered in Broad-leaved Woodland / Tree Savannah. This community represents Modified Habitat as a result of a significantly different floristic composition and physical structure to the original vegetation community it represented (Broad-leaved Woodland). Woody shrubs are dominant, and trees are less prominent than in woodland. Alien plant species are prominent in this community, including woody species such as Acacia auriculiformis, A. mangium, Anacardium occidentale, Cassia siamea, Gmelina arborea, Chromolaena odorata, Leucena leucocephala and Psidium guajava. Indigenous shrubs and small trees in this community are usually pioneer species that are able to colonise disturbed ground, such as Annona senegalensis, Dichrostachys cinerea, Hymenocardia acida, Terminalia macroptera and Trema orientalis. Herbaceous species include tall grasses such as Hyparhenia cf. diplandra and Pennisetum polystachyum. No species of conservation concern were recorded during fieldwork.

Source: ABS (2022)

20.1.12 Fauna

20.1.12.1 Mammals

Approximately 170 mammal species are known to occur in the West Sudanian Savannah Terrestrial Ecoregion, with 94 species being recorded from the Parc National du Haut Niger, located to the west of Kiniero Gold Project (Figure 103). However, due to the degraded state of natural habitats in the immediate vicinity of the Kiniero Gold Mine and the fairly high human density, it is unlikely that many of these species will occur at the Project.

Dry and wet season fieldwork in 2020 resulted in confirmed sightings of three species (striped ground squirrel (Xerus erythropus), African savanna hare (Lepus victoriae), red river hog (Potamochoerus porcus)) and discussions with local villagers yielded confirmation of seven additional species that occur in the vicinity of the project area of influence (PAOI). Wet season fieldwork did not add further species to this list. Additionally Patas Monkey (Erythrocebus patas) and Gambian Sun Squirrel (Heliosciurus gambianus) have subsequently been observed by SMG.

Twelve mammal Species of Conservation Concern (SCC) are known to occur in the nearby Parc National du Haut Niger, although only four NT species have a moderate to high likelihood of occurring in the Project area, namely Guinea baboon (Papio papio), African clawless otter (Aonyx capensis), spotted-necked otter (Hydrictis maculicollis) and yellow-backed duiker (Cephalophus silvicultor).

Local villagers confirmed the presence of Guinea baboon in the general vicinity of the Project, but this could not be confirmed during fieldwork.

20.1.12.2 Avifauna (Birds)

Approximately 550 bird species are known to occur in the West Sudanian Savannah Terrestrial Ecoregion, with 300 species being recorded from the nearby Parc National du Haut Niger, west of the Kiniero Gold Project (Figure 103). However, the Project does not reflect the full range of habitats present in the PNHN and much of the area is in a degraded state, and avifaunal species richness is likely to be significantly lower.

Dry season fieldwork in 2020 produced 102 species, while wet season fieldwork increased this total to 114 species, although true species richness is likely to be in excess of 150 species. Birds are usually associated with particular habitats, and these species-habitat relationships are referred to as avifaunal assemblages.

20.1.12.3 Herpetofauna (Reptiles and Amphibians)

The West Sudanian Savannah Terrestrial Ecoregion supports at least 130 reptile species and 25 amphibian species, including nine reptiles and three amphibians that are strictly endemic to the ecoregion. Some of these endemics potentially occur within the Kiniero Gold Project, including Brown Running Frog (Kassina fusca), White-bellied Worm Snake (Myriopholis albiventer) and Mocquard's Cylindrical Skink (Chalcides pulchellus).

Fieldwork produced confirmation of the occurrence of two reptiles (West African Agama (Agama Africana) and the Fat-tailed Gecko (Hemitheconyx caudicinctus)) and three amphibian species (African Groove-crowned Frog (Hoplobatrachus occipitalis), Golden-backed Frog (Amnirara galamensis) and an unidentified reed frog (Hyperolius species)).

Three threatened reptile species are known to occur in the general vicinity of the Kiniero Gold Project, although all are aquatic species that have a low likelihood of occurring in the Project. No threatened amphibians are likely to occur. Several reptiles and amphibians that are endemic to the West Sudanian Savannah ecoregion potentially occur in the Project, although these are generally widespread species that are classified as Least Concern (LC).

20.1.13 Protected Areas

The Kiniero Gold Project is located approximately 15 km from the eastern boundary of the Parc National du Haut Niger (Figure 103), a recently proclaimed national park that has been established around the Mafou Forest, the last remnant of subtropical dry forest in Guinea.

The Project is situated within the Niger-Niandan-Milo Ramsar Site (No. 1164), one of 16 Ramsar sites in Guinea. Ramsar sites are wetlands of international importance, particularly for waterfowl. The Ramsar site includes parts of the catchments of three large rivers, namely the Niger, Niandan and Milo, and is representative of a network of wetlands that have an important hydrological role in West Africa.

Classified forests are located in the vicinity of the Kiniero Gold Project, of which the closest are forêt classée de L'Amana (18 km northwest), forêt classée de Baro (22 km northeast) and forêt classée de Léfarani (30 km northeast) (Figure 103).

The Kiniero Gold Project is situated 35 km east of the Mafou Important Bird Area (IBA), the only IBA in northeastern Guinea. The IBA supports populations of numerous biome-restricted bird species such as Violet Turaco (Musophaga violacea), Red-throated Bee-eater (Merops bulocki), Blue-bellied Roller (Coracias cyanogaster), Bearded Barbet (Pogonornis dubius) and Fox Kestrel (Falco alopex), some of which are likely to also occur in the Project area.

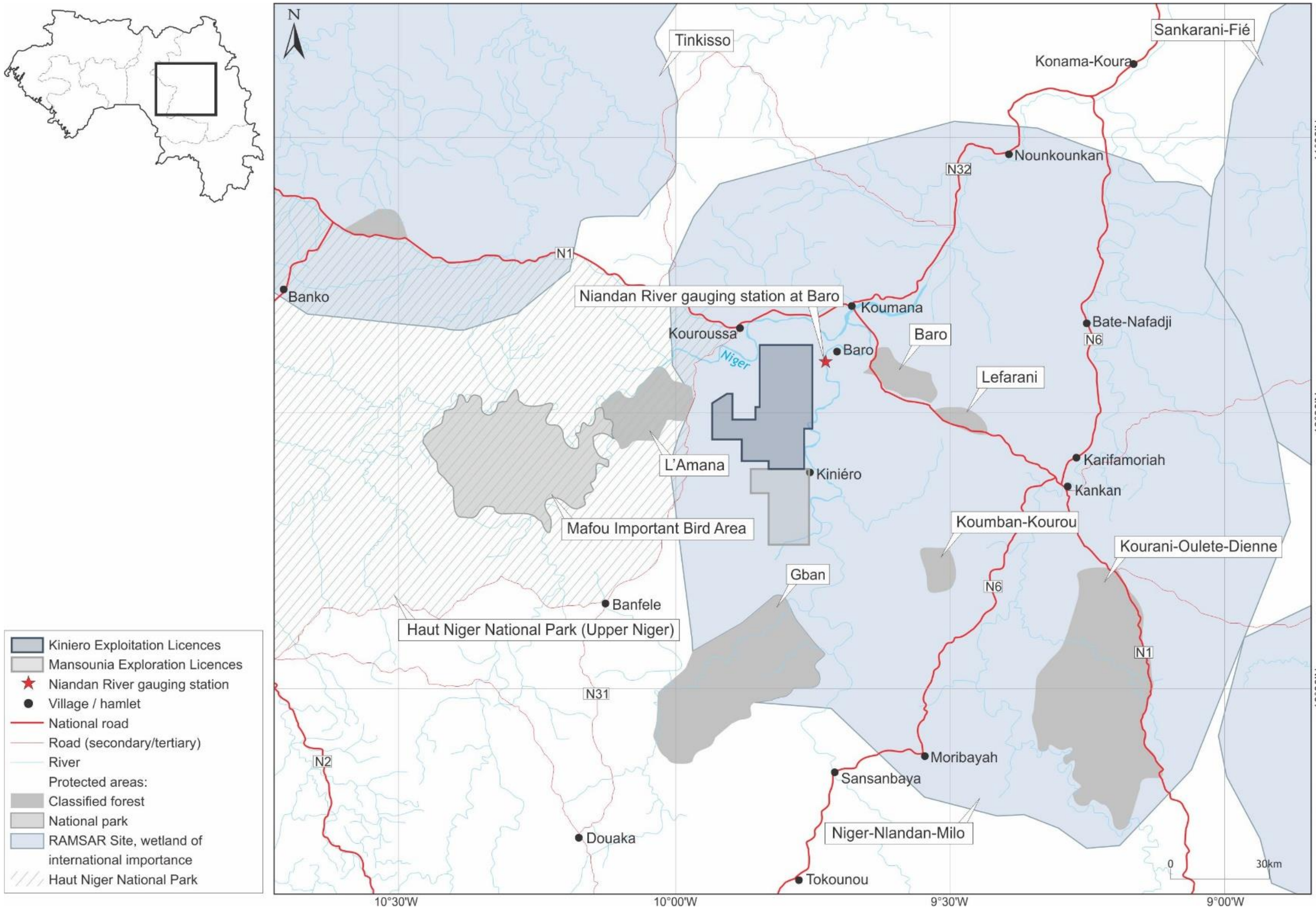


Figure 103: Location of Protected Areas in relation to the Kiniero Gold Project

20.1.14 Social

The socio-economic baseline study was completed by Insuco as part of the ESIA which was submitted to the GoG in May 2020. The baseline study was further updated with an additional survey done in October 2020.

In 2022, as part of the socio-economic impact assessment update, the social survey area was broadened to include the new TSF option to the north, as well as the Sabali South and Mansounia deposits to the south (in the Mansounia License Area) previously not covered in the 2020 surveys. The updated study is included in the 2022 ESIA update.

The key findings from the baseline study are presented below:

- Kiniero is one of the 12 sub-prefectures and eleven rural communes (RC) of the Prefecture of Kouroussa, in the Upper Guinea region. It is located 55 km west of the capital of the Prefecture. It was established in 1962 as a district and set up as a Rural Development Community (CRD) in 1992
- the Kiniero sub-prefecture is divided into 16 districts: Famoudouya, Karinkana, Katala, Sekoro, Faraniokoma (which are the five districts that constitute Kiniero Centre), Ballan one and Ballan two (which constitute the village of Ballan), Missamana, Konson, Mansogna, Bagbe, Djirlan, Mamoudouya, Sokouralakoro, Fada-ballan, Dalanigbe (also belonging to Ballan)
- the estimated number of households for the entire study area is 2,037, of which almost a third reside in Kiniéro. The second largest village is Ballan (centre), with 358 households. By adding the number of households in the hamlet of Dalanigbè to the population of Ballan, where a significant number of artisanal miners reside, provides a total of 571 households. The villages of Mansounia, Konson and Missamana are roughly equivalent in terms of households, as there are 233 households for Konson, 258 for Mansounia and 280 for Missamana. The Farabalan sector, is said to be home to only 36 households
- the ethnic distribution shows a large Malinke majority, an ethnic group indigenous to the area and, more broadly, to Upper Guinea. Approximately 98% of the heads of households surveyed belong to the Malinke ethnic group. The Peuhl ethnic group is the only other ethnic group represented, with four households, i.e. 1%, all of which arrived in the area recently due to economic opportunities. Lastly, only one household of the Kissi ethnic group and one household of the Lele ethnic group were recorded in the study population
- qualitative surveys have revealed a significant proportion of foreigners on gold panning sites, mainly from Burkina Faso, but also from Senegal and Sierra Leone

- the Upper Guinea area is dominated by the Muslim religion. The results of the household survey are in line with this trend, with 100% of the individuals over seven years old in the surveyed households being Muslim
- artisanal gold panning in the Kiniero sub-prefecture appears to have experienced strong growth in recent years. By extrapolation of the data from the household survey, 4,367 individuals are said to be engaged in an activity related to artisanal gold panning, whether primary or secondary, in the six localities of the study area, which represents 20.22% of the population over 6 years of age. Among 15–30-year-olds, almost half of individuals, all genders combined, practice gold panning (46.2%). In the villages of the Mansounia License Area, 15–30-year-olds practicing gold panning represent only 31% of the population. This economic activity is the 2nd most prominent activity after agriculture, both in terms of the number of practitioners and the income generated
- at household level, gold panning occupies an important place, with 27% of households declaring it as the main source of income. Agriculture is the most common economic activity, with 60% of households considering this activity as the main source of income. Trade is considered by only 5% of households as the main source of income
- artisanal gold panning accounts for 24% of income in the Project area. This activity occupies a central place in the local economy. Community revenues from gold panning in Tomboloma were partly used to finance community goods. Boreholes, places of worship and schools remain the primary beneficiaries of this income source
- despite the importance of gold panning in the area, agriculture retains a central place in the local economy and remains the activity mainly practiced by local households. Income from agricultural production alone accounts for almost half of the income (43%). Rice production remains the main agricultural product, with 96% self-consumed. Other food crops, mainly cassava and fonio (grain), occupy the second place in terms of income. Third is vegetable crops, which are highly profitable in relation to the area cultivated, and then perennial crops, mainly consisting of cashew and mango trees
- the primary school network included at least one primary school in each village or town. There are four primary schools identified in Kiniéro, as well as a middle school and a high school. In addition to the conventional schools, Kiniéro also has a Franco-Arab middle school with about sixty pupils. The high school building was built in 2007 by SEMAFO. Among the individuals over 6 years of age who make up the household survey, 31% of them went to school for at least one year, a non-enrolment rate of the population of 69%
- technical and vocational training remains relatively undeveloped with only 3% of those over 15 years of age having benefited from it. The main training themes are mechanical/plumbing/electrical, reported by 32% of individuals who have benefited from vocational and technical training, mainly men. In second place, with 20%, the textile craft trades, training mainly carried out by women

- more than 99% of the population of the study area speaks Malinké, which remains the preferred language in the study area. French is spoken by just over one in ten people, compared to only 0.5% that can speak English. Other languages spoken include Soussou and Arabic (each spoken by 2% of the population) and Poulard (1%). The level of illiteracy of the population concerned was estimated at 85%
- the survey of health infrastructure carried out in the area has identified nine health facilities available to communities. Of these facilities, eight concern conventional medicine. In Kiniéro, nearly half of these facilities, including a health centre, remains the main public health service in the area. This centre was built in 2009 by the State and co-financed by SEMAFO and the Commune. It now suffers due to a lack of funding and its maintenance is only linked to private initiatives. The village of Kiniéro is also home to three private clinics, two of which are the initiative of private doctors and the third of a nurse
- at Balan, there are two health facilities, one in Ballan centre and the second in the district of Dalanigbe, established in 2019 by the State at the request of the Mayor. As for the Mansounia area, only two facilities have been identified: a health centre in Mansounia and a health post in Missamana. Konson does not have a health facility in its territory
- during the global health crisis of the COVID-19 pandemic, there was a strong awareness of the risks associated with this viral disease. The entire population of the study area appeared to be complying with state health guidelines (wearing masks, prohibition of groupings of more than 20 people and social distancing). While the observation is valid in Kiniéro, Ballan, Farabalan, as well as on the traffic corridors connecting these localities with each other, the situation is different at artisanal gold panning sites. Within the various regions, no specific health measures seem to be applied at these sites. Workers do not wear masks or follow any recommended hygiene measures
- the survey team's interviews did not highlight any challenges in accessing water, even if this subject had been raised as a concern in the context of the recommissioning of the mining activities. The infrastructure surveyed was relatively evenly distributed throughout the study area. Of the 42 water access points identified, 25 are in Kiniéro, 6 in Balan, 4 in Missamana, 3 in Konson and 2 in Farabalan and Mansounia. This census takes into account only community infrastructure and not private wells in concessions. More than 95% of the infrastructure is operational. Four out of five households report taking no action for improving their drinking water quality. The only effective actions to purify drinking water included boiling or chlorination, practised by only one household in ten
- most household use traditional latrines, with 97% of households surveyed using this type of facility. Only four households reported using improved latrines. The remainder

relieves themselves in outdoors. Some 95% of households have latrines at their place of residence

- four waste disposal points were identified during the survey. These consist of uncontrolled dumps with no treatment or access control. Three facilities are located in Kiniéro and one facility in Ballan. No waste collection, sorting and treatment system was found in the survey area
- none of the villages are connected to the public electricity network. All the identified installations are privately owned and are only made available to the community against payment to owners by the users. The level of electrification is good when compared to other rural areas of Guinea, with 46% of households having access to electricity. Among households with access to electricity, the main source is the connection to a generator (54%), with solar installations accounting for approximately 33%. Approximately 8% mention the use of batteries. Among the ten mosques identified, nine of them are equipped with their own solar power supply system
- The level of banking of households is low, with only 4% of households owning a bank account. The use of conventional bank loan services, as well as microfinance, is limited

20.2 Environmental Water Balance

Refer to Section 18.11.1 for a discussion on the pre-development dewatering. Some water from SGA pit will be pumped to existing flooded pits with similar quality water with a view to using it during the plant commissioning phase, as well as using it for makeup water during the low and no rainfall months. The balance of the water will be released into the Sinké, Bariko and other catchment areas at a rate of approximately 250 000m^3/month. The rate of release will be adjusted according to the seasonal flow rates and patterns of the drainage lines. At this time, it is assumed that the release will be during the wet season. Water will only be released into the environment when the quality complies with the IFC effluent standards and host country requirements.

A monthly average water balance has been developed for the Kiniero Gold Project using monthly average rainfall data. The water balance relied on available climate data, CIL plant water requirements, TSF water balance as well the geohydrology study completed as part of the Project. Based on the water balance, the TSF, pit seeps, out of pit dewatering and flooded pits provide adequate water resources to meet the processing requirements of the plant during both the dry and wet seasons, and no additional storage or water sources is required.

20.3 Stakeholder Engagement

Stakeholder engagement was initially undertaken as part of the scoping phase and compilation of the ESIA submitted to the GoG in May 2020. Stakeholder meetings commenced in February 2020 and continued through April 2020, with a total of 34 individual meetings being held during this period, and prior to the submission of the ESIA in May 2020.

Additional meetings were conducted in October 2020. In 2022, stakeholder engagement was conducted as part of the update of the social impact assessment (SIA), as per the Guinean requirements.

Key aspect and comments raised by the community during these engagements include:

- need to prioritise local employment
- loss of income due to limited access to existing artisanal areas
- damage to existing cultural sites, or inability to access cultural sites
- sterilisation of land due to the placement of mining infrastructure and buffer zones
- community health and safety.

20.4 Environmental and Social Impacts and Risks

The environmental and social impacts and risks were assessed and are summarised in Table 131.

Table 131: Identified Environmental and Social Impacts of the Kiniero Gold Project

ASPECT	IMPACT
Topography and landscape	The historical mining activities affected the topography of the area and resulted in various residual pits, WRDs, ROM pad, stockpiles, TSF and associated facilities. The continued development of the mine will result in the extension of the existing WRDs around the SGA, Jean and Derekena resource areas. A new pit and associated WRD will be established at Sabali North, Central and South, and at Mansounia north. This will continue over the life of mine and will remain permanents features following the reclamation and closure of the mine. A new TSF will be established to the north of the existing TSF.
	The TSF, pits and WRD facilities have been designed to ensure a stable landform taking into consideration the geotechnical characteristics of the material as well as a risk assessment should the facilities fail.
Soils, land use and land capability	Limited soil resources are expected to be lost due to erosion (wind and water) of unprotected soils as well as exposure to contaminants, such as reagents, hydrocarbons etc. With proper mitigation measures these losses are expected to be limited.
	The loss of the utilisation of the soil resource will impact the land use practice of subsistence agriculture and grazing and the natural wilderness status of the areas that have not already been affected by artisanal mining while the limited traditional hunting and the gathering of medicinal plants will also stop within the mine lease area. These activities are perceived to be of social and to some extent economic benefit to the local people and receiving environments.
Land use	Land use will change in the resource areas as well as the areas earmarked for the placement of infrastructure. In these areas the land use will primarily change from agriculture to wilderness. Exclusion zones will also be established to ensure the safety of community members in the area.
	Some artisanal mining areas will be affected and is discussed in the social impact assessment section.
Terrestrial ecology	The following key impacts are associated with the proposed development:
	Habitat fragmentation and associated reduced/disrupted ecosystem functioning
	Loss of natural habitat resulting from pre-construction and construction activities such as the clearing of vegetation for site access, siting of infrastructure and mining of open pits.
	Loss of conservation-important plant species due to construction of access / haul roads and siting of facilities loss of medicinal plants and/or access to these plant species due to construction of access / haul roads and siting of facilities. Introduction/proliferation of alien invasive species. Increased utilisation of plant resources as a result of an influx of people into the study area. Ecosystem degradation and loss of ecosystem services
Aquatic ecology	Impact of elevated sediments on aquatic ecosystems.
	Impact of altered water quality on aquatic ecosystems.
	Impact of waste rock dump on aquatic ecosystems.
	Impact of decanting on aquatic ecosystems.
	Loss and / or degradation of natural ecosystems within the Ramsar site.
	Impact of influx of people on aquatic resources within the Ramsar site.

ASPECT	IMPACT
	Impact of pit dewatering on surrounding drainage lines, rivers, and catchments. Based on the current dewatering strategy, some water from SGA pit will be pumped to existing flooded pits with similar quality water with a view to using it during the plant commissioning phase as well as makeup water during the low and no rainfall months. The balance of the water will be released into the Sinké, Bariko as well as other catchment areas at a rate of approximately 250,000m^3/month. Based on the water quality results from the pit lakes, it is assumed that the water will be compliant with the IFC effluent guidelines and can therefore be released. The water released within the catchment is well within the natural range of flows in the river. To avoid sub-daily fluctuations that may be caused by power outages, a storage facility that spills by gravity into the receiving watercourse will be required. The storage facility would serve to dampen short-term fluctuations in discharge and also trap sediments. Also, a pipeline to convey water from the pits to the discharge point would be preferable to an open canal.
Surface water resources	Contamination of surface water due to hydrocarbon spills and product spills.
	Surface water contamination due to the storage and handling of hazardous materials and chemicals.
	Interference with natural drainage due to construction of access and haulage roads and pit diversion channel.
	Increased sediment load in water sources due to erosion from construction activities.
	Predevelopment pit lake dewatering.
Geohydrology/ground water	Potential groundwater impacts during the construction phase would be minor with the correct water management measures. These include small scale pit dewatering and potential hydrocarbon spillages from contraction machinery. Potential risks are small and no environmental receptors or community water points are foreseen to be impacted on.
	Groundwater drawdown cones would develop because of operational dewatering. The extent of the groundwater drawdown zone is in the order of 50 to 500 m, depending on the open pit area and dewatering scenario. Larger dewatering cones are expected for the borehole dewatering scenario.
	Mine dewatering at Sabali and Jean – SGA deposits could potentially reduce the groundwater baseflow contribution to the Kéléro and Bariko rivers respectively. The calculated reduction in potential stream flow is small, less than 0.25%. Discharge of pit dewatering boreholes will, however, counteract the risk of streamflow reduction.
	Arsenic was identified as a potential source of groundwater contamination, likely to emanate from the waste rock dumps (WRDs) and TSF. Contaminant transport modelling of potential contaminant water infiltration from the WRDs and TSF shows that plume movement are restricted by the relatively low permeable aquifer and the groundwater drawdown cones around the open pit areas. The TSF contaminant transport modelling assumes widespread imperfection in the liner system and presents the worst-case scenario. Predicted contaminant plumes at the end of the 6-year operational life are not likely to impact on environmental receptors such as streams or community water supply points.
	Post-closure groundwater contamination could potentially impact the Sinké River, downgradient of the TSF. A similar risk exists for the Bariko River, downstream of the Jean – SGA pit-lakes and WRDs. Salt balance type calculations (worst case scenario) associated with the simulated contaminant plumes, suggests, that the impact would be small to negligible. The increase in groundwater arsenic concentration next to the Sinké River, associated with the contaminant plume from the TSF, is likely to comply with IFC Mine Effluent Discharge Guidelines.

ASPECT	IMPACT
	Pit lakes would develop at the different open pits at cessation of mining. The pit-lakes would decant or overflow when the water level exceeds the spill or surface decant elevation. None of the pit lakes will stabilise below the decant level and therefore all the pits will decant. Most pits will take more than 30 years to reach decant levels.
	SGA West and Sabali Extension are likely to have the largest mean decant rates, 140 and 180 m^3/d respectively. Decant volumes into different stream are: Bariko River – 247 m^3/d, Sinké River (direct only) – 20 m^3/d, Kéléro River – 271 m^3/d, Mansounia River – 53 m^3/d, Sansarankö River – 122 m^3/d and other smaller streams – 30 m^3/d.
	The impact on stream qualities is likely to be acceptable, based on the assumption by Future Flow (2021) that arsenic concentration of the pit lakes would be 2µg/l.
Air quality	Key impacts identified in the Air Quality Impact Assessment (AQIA) completed as part of the 2020 DFS is provided below:
	The main activities during the operational phases which are likely to increase the PM and gaseous emissions include: various material handling steps (loading and unloading from trucks, loading, and unloading at stockpiles, crushing and screening), emissions from drilling and blasting activities, windblown dust emissions as well as entrainment and tailpipe emissions from vehicle sources.
	During the operational phase the mining of the earmarked resource areas will be done in sequence, and not at the same time, hence the significance of the potential impacts of the mining of the resource areas and associated activities during the operational phase, would likely be low. Blasting at the pits will not be a regular occurrence, hence the potential impacts associated with blasting are usually low due to the short duration of the blast, and the gaseous emissions deriving from the explosives are expected to be insignificant compared to gaseous emissions from vehicle tailpipe emissions.
	Dispersion modelling simulations were undertaken to determine highest hourly, highest daily and annual average ground level concentrations for each of the pollutants considered for the operational phase. Use was made of Guinean air quality standards as well as the WHO Air Quality Guidelines (AQG) and comparative international guidelines and standards. While simulated highest daily and annual average PM_{10} concentrations exceed the Guinean standard and WHO AQG in the immediate vicinity of the mining operations, no exceedances of either the Guinean standard or the WHO AQG were simulated at any sensitive receptors in the study area. While mining operations at the Sabali North and Central pits are active, exceedances of the WHO AQG and IT-1 could however be experienced at the Mine Camp. Similar to simulated PM10 concentrations, simulated highest monthly dust fallout is high in the immediate vicinity of the mining operation but negligibly low at any of the identified sensitive receptor locations. Simulated concentrations of other pollutants, including $PM_{2.5}$, CO, NO_2 and SO_2 are very low throughout the study area and negligible at sensitive receptor locations, with local sources of these pollutants, such as public vehicles and domestic fuel burning expected to contribute significantly more to ambient levels of the pollutants at these locations.
	A Photo Voltaic (PV) solar plant is considered to further supplement the diesel generating capacity and reduce electrical cost for the Project. According to the Kiniero Power Plant Restart Report (SENET, 2020) the hybrid plant has an expected renewable energy generation portion of 31%, which lowers the annual fuel consumption by 33% to 6,279,684 litres compared to, 329,696 litres for a conventional diesel-only power plant. The carbon dioxide emissions are reduced by 33% from 24,651- 16,592tpa.

ASPECT	IMPACT
	Greenhouse gas (GHG) emissions were quantified for the operations using the estimated design power requirements and fuel usage provided. In the quantification of emissions use was made of the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines for mobile and stationary diesel combustion. The estimated total greenhouse gas emissions of the project is 50,227.8 tonnes CO_2eq/annum. The GHG emissions from the Project is not likely to result in a noteworthy contribution to climate change on its own.
	For the 2022 PFS layout, based on dispersion modelling simulations, no sensitive receptors will be impacted by the operation of the Sabali South and Mansounia pits. Simulated highest daily and annual average PM_{10} concentrations exceed the Guinean standard and WHO AQG in the immediate vicinity of the mining operations, however no exceedances of either the Guinean standard or the WHO AQG were simulated at any surrounding sensitive receptors. Simulated concentrations of other pollutants, including $PM_{2.5}$, CO, NO_2 and SO_2 are very low throughout the study area and negligible at sensitive receptor locations. The dustfall zone of influence is expected up to 1,500m away, however does not impact any sensitive receptors.
	The preferred TSF site is situated 800m away from the Balan village. Dustfall could potentially impact the village, however based on the wind patterns, the village of Balan will be downwind from the TSF during the wet season only, and the dustfall impact will be low as rainfall will mitigate the dust impact. Mitigation measures will need to be implemented at the TSF to ensure dustfall impacts are mitigated, and effectiveness of the mitigation measures will need to be confirmed through monitoring.
Noise	Key impacts identified in the Noise Impact Assessment (NIA) completed as part of the 2020 DFS is provided below:
	No sensitive receptors are located within a distance of 500m from the mine complex and resource areas to be mined, and the receptors are thus not expected to experience an increase of 3dBA over the baseline noise levels.
	IFC guidelines for residential, institutional, and educational receptors of 55dBA (daytime) and 45dBA (night-time), as well as the IFC guideline for increase from baseline noise level (3dBA) and the SANS guideline for community response to increase in environmental noise levels, were adopted as assessment criteria for this assessment. Based on the propagation simulation results, the change from baseline noise levels at the identified sensitive receptors will be imperceptible, with less than 1dBA increase in noise levels simulated at all sensitive receptor locations, both during the day and during the night. An increase of 3 dBA from baseline levels can be expected up to 2km from the mining, hauling, and processing operations, but it is unlikely that the operations will be audible at distances further than this. It is therefore unlikely that any complaints would be received from the nearby communities regarding noise generated by the mining, processing, or hauling activities. When the mining activities at the Sabali North and Central pits are active, noise levels at the Mine Camp/Village could be 10 to 15 dBA higher than baseline levels due to nearby mining and hauling activities. It is recommended that noise levels at the Mine Camp be sampled prior to construction / refurbishment and again during the operational phase of the Sabali North and Central pits. If mining and hauling operations result in disturbances at the Mine Camp, receptor-based mitigation should be considered.
	The Main Camp is approximately 160m from the Sabali North pit and may be impacted. Monitoring will confirm the modelling predictions in terms of the compliance with the host country and IFC PS requirements and standards.

ASPECT	IMPACT
	Based on the 2022 PFS layout, an increase of 3 dBA from baseline levels can be expected up to 1,5km from the mining and hauling operations at the Sabali South and Mansounia resource areas, however the baseline noise levels at the nearest sensitive receptor to the east (Kiniero village) situated further than 2km away will not be impacted.
Blasting and vibration	The mine village/camp is the only habitable infrastructure in close proximity to the mine, with the nearest pit and WRD located approximately 160m away (Sabali North satellite pit). The Main Camp may need to be repositioned for the completion of this phase of the Project. Monitoring data will be used to confirm whether the impact is significant on the camp and whether it will need to be repositioned All villages and hamlets are located more than 1km away from active mining areas.
	To achieve a low negative impact significance, vibration at any privately-owned structure must be maintained below 7.5mm/s. From the distances, it is unlikely that any privately-owned buildings at the surrounding villages and towns will be negatively impacted by blasting vibration on site
	Poisonous fumes from blasting are caused by incomplete detonation. Blasting normally generates water, carbon dioxide, nitrogen, and some solids. However, incomplete detonation, which is caused by poorly formulated explosives or unfavourable ground conditions, can result in poisonous fumes, these mainly being nitrous oxides (red in colour) and carbon monoxide. Both disperse very quickly into the atmosphere. These gases are undesirable as there is risk to people accidentally breathing in these gases and mitigating measures will be needed to keep the negative impact significance to low. Monitoring will be implemented within a 1,000m radius of the blasting area.
	With mitigating measures in place, there will be no impact at distances further than 500m, and a low impact at distances between 100m and 500m from blasting.
Cultural heritage	A number of heritage sites have been identified in the Project zone of influence. The Project layout has been adjusted to ensure that these sites are not directly affected by project infrastructure and that the facilities can be accessed safely for community rituals etc. A safety protocol will be established to ensure the continued safe access and use of these facilities.
	The new plant and ROM is situated approximately 150m from the 'Sabaly' cultural heritage site, which will impact the access and use of the heritage site by the local community. The site is highly visited by both the village community and the neighbouring villages. The heritage site can be relocated under certain conditions.
Social impact assessment	The recommissioning of the mine will have an immediate positive impact in terms of local employment of community members. National, regional, and local businesses and contractors will benefit both directly and indirectly from Project-related construction and operational activities due to the purchase of goods and services. Increased incomes and profits of local businesses and major suppliers of goods and services manufactured and supplied in Guinea will be realised. This increased revenue to local businesses will in turn contribute positively to the local economy through expanded local employment, increased disposable incomes, and growth in the local consumer base.

ASPECT	IMPACT
	The development will also result in training and education of local community members, decrease in unemployment and increase in family income, influx of people due to employment opportunities, development of a local market for goods and services (direct and indirect services to the mine), loss of agricultural resources, possible loss of temporary infrastructure and shelters, closure of some artisanal mining areas, limitation of access to cultural heritage sites, disturbance of the natural environment and associated ecosystem services (water, air and land pollution), increased road traffic as well as a possible deterioration in access to reliable and good quality water for domestic use.
	The project will require an estimated workforce of around 300 workers during the peak period of the construction phase, and around 700 workers in the operational phase.
Protected Areas	The proposed development is located within the Niger-Niandan-Milo Ramsar Site (No. 1164). The post mitigation impact of the planned development on the RAMSAR site is not expected to be significant, due to the relatively small area affected compared to the larger site, as well as the fact that the majority of infrastructure will be placed on previously disturbed areas. The project will however result in the loss and / or degradation of natural ecosystems within the project zone of influence. Mitigation will be focused on supporting the GoG in the improved management and protection of the RAMSAR site.

Source: ABS Africa

20.5 Environmental and Social Management Plan

In response to issues and potential impacts identified in the impact assessment phase, SMG has designed, and will implement, a variety of mitigation measures to reduce, minimise, or eliminate adverse effects that could result from development of the Kiniero Gold Project. In general, the mitigation measures proposed in support of this PFS are designed to:

- reduce or eliminate the adverse effect through LOM planning and engineering design wherever possible
- minimise adverse effects by limiting the degree or magnitude of the action and its resulting effects
- remedy the adverse effect by rehabilitating the affected environment;
- develop and implement environmental and social management plans to manage, monitor and review adverse effects
- develop and implement social management plans to enhance positive social impacts (e.g. employment)
- compensate for the adverse effect by replacing or providing substitute resources or environments

Monitoring measures will be used to ensure that actions taken are effective in ameliorating both foreseen and unforeseen effects. In addition to describing specific actions to mitigate potential effects, the overall philosophy of SMG is described herein with respect to its obligations to minimise and mitigate adverse effects on the environment within the Project area. Various plans will be developed and implemented as per the requirements of the IFC Performance Standards, including the following:

- community health and safety management plan
- local employment management plan
- plan for managing relations with artisanal gold miners
- livelihood restoration plan for artisanal miners and agricultural assets lost

To ensure no net loss of natural habitat, the following will be implemented:

- an area needs to be identified within the development area as a set-aside to conserve a representative portion of the natural habitat that will be lost within the current infrastructure layout. This set-aside should incorporate the full spectrum of vegetation communities that are going to be impacted by the Project layout and should include natural habitat represented by the following vegetation communities:
    - grassland on laterite hardpans
    - tall thicket on laterite hardpans
    - broad-leaved woodland / tree savannah
    - riparian wetland

    - riparian (gallery) forest
- a management will be compiled for the set-aside that should focus on maintaining the ecological processes that support the represented habitats, such as fire, pollinators and dispersal agents, migratory corridors, etc.
- at least one monitoring plot of 20m x 20m will be established within each of the vegetation communities within the set-aside and these plots should be monitored on an annual basis; data to be collected should include full species lists, dominance (cover-abundance), proportion of flowering plants and presence of invasive alien species

The Kiniero Gold Project is situated within a RAMSAR site, and the layout directly affects high biodiversity value/natural habitat areas, as per IFC PS6 definitions. To date no critical habitat triggers have been identified in the Project, however this will need to be confirmed by another wet season survey planned for July 2022. Based on paragraph 15 of the IFC PS6 guidelines, in areas of natural habitat, mitigation measures will need to be designed to achieve no net loss of biodiversity where feasible. Appropriate actions include:

- avoiding impacts on biodiversity through the identification and protection of set-asides
- implementing measures to minimize habitat fragmentation, such as biological corridors
- restoring habitats during operations and/or after operations
- implementing biodiversity offsets

20.6 Reclamation and Mine Closure

Decommissioning, reclamation, and closure will be carried out in accordance with the provisions of the Mining Code of the Republic of Guinea (the 2011 Mining Code as amended by the 2013 Bill), the Code on The Protection and Development of The Environment (Environmental Code, Order No 045/PRG/87), as well as the International Mining Industry's Best Practice Guidelines, and will comply with the conclusions and recommendations of the ESIA and the related management plan.

The Mining Code of the Republic of Guinea (2011, partially amended in 2013) specifies the closure and rehabilitation needs, including opening a trust account and making the necessary financial provision to ensure that rehabilitation activities can be completed.

SMG's objective for the rehabilitation and closure of the Kiniero Gold Mine is to ensure that the site is left in a condition that is safe and stable where long-term environmental impacts are minimized and any future liability to the community and future land use restrictions are minimized. The final post-mining land use will be determined in consultation with the local communities, Ministry of Mines and Geology as well as other departments responsible for environmental and social aspects. The likely land uses to be identified during this process are likely to include:

- areas for agriculture
- areas for livestock grazing
- wildlife habitats

For health and safety reasons, as well as the protection of specific rehabilitations works, specific areas within the Kiniero Gold Project may be designated as exclusion zones. Natural soil covers and vegetation will be re-established, as far as possible, over these areas but access by humans and / or livestock to these zones will be strictly prohibited. The following closure objectives form part of the conceptual closure plan:

- all structures on site not desirable or usable post closure, will be demolished and building material removed/disposed of
- hazardous material, equipment and contaminated soils and steel structures will be disposed of safely and in an environmentally acceptable manner
- the process plant and other areas used for the handling and storage of hazardous materials will be decontaminated
- rehabilitation of disturbed areas to a final land use capability that is practical and best suited for the final landform, taking into consideration the socio-economic activities of the receiving communities
- at the end of the mine life, the residual facilities will include open pits, WRDs, a TSF, diversion structures and supporting infrastructure

The ultimate end use of the rehabilitated areas is considered to have three major objectives:

- re-establishment to the greatest feasible degree of vegetation on the disturbed areas;
- re-integration of the disturbed areas outside the mine footprint into the agricultural and other prevalent economies
- re-development of the disturbed land by working with and involving local people to assist them in working towards a more sustainable form of livelihood

A reclamation and closure cost estimate for the Kiniero Gold Project is provided in Table 132, which reflects the estimated closure liability associated with the Project. The projected annual spent on reclamation and closure activities in presented in Table 133.

Table 132: Kiniero Gold Project Reclamation and Closure Cost Estimates

INFRASTRUCTURE DESCRIPTION	AREA (ha)	PERIMETER / LENGTH (m)	TOTAL ($)
All Haul Roads	-	17,805	784,479
Magazine Area	2.5	2,348	63,741
Plant	3.06	873	496,359
ROM Pad	1.27	500	32,429
Runway	7.52	2,976	
Sound Berm	1.71	1,063	
Subcontractor Workshops	3.14	715	165,251
Truck Depot	0.36	241	18,883
Fuel Area	3.19	1,287	90,670
Solar PV	30.5	2,179	
TSF - Phase 1 & 2	273.38	7,965	8,225,000
Construction Stores	3.62	1,079	92,370
Pits	173.11	23,969	5,180,557
Waste Rock Dumps	209.04	17,882	6,745,438
SUB-TOTAL	**712.4**	**80,882**	**21,895,177**
Contingency @ 5%			**1,094,759**
SUB-TOTAL			**22,989,936**
Contractors Preliminary and General Costs @ 25%			**5,747,484**
SUB-TOTAL			**28,737,420**
Project Management, Engineering Design and Environmental Permitting @ 5%			**1,436,871**
GRAND TOTAL (excl. VAT and Withholding Taxes)			**30,174,291**

Source: ABS (2022)

Table 133: Projected Annual Expenditure on Reclamation and Closure Activities [ABS]

YEAR	ANNUAL EXPENDITURE ($)	YEAR	ANNUAL EXPENDITURE ($)
1	1,643,551	10	1,389,705
2	2,799,743	11	3,241,862
3	442,211	12	2,312,256
4	1,042,806	13	6,453,238
5	1,758,020	14	1,512,384
6	1,296,745	15	**834,293**
7	1,744,339	16	555,412
8	1,203,784	17	833,118
9	1,110,824	**TOTAL**	**30,174,291**

Source: ABS (2022)

20.7 Pit Dewatering Strategy

Options pertaining to the dewatering of the existing opens is discussed in detail in Section 16.2.5 and 16.2.6, and can be summarised as follows:

- in-pit dewatering only from a sump in the bottom of the pit
- out-of-pit dewatering utilising boreholes outside the pit to dewater the surrounding aquifers. Placing of these boreholes can be:

    - spaced around each pit area at a constant spacing which is calculated based on the expected groundwater level drawdown, the aquifer transmissivity and the calculated zone of influence; or
    - spaced to specifically target water-bearing geological. By targeting these structures, the number of boreholes required can be reduced while still intercepting the majority of groundwater inflows into the pit
- a combination of in-pit and out-of-pit dewatering. Here any groundwater that bypasses the out-of-pit dewatering boreholes will still be dewatered from an in-pit sump

Current planning is that a combination of in-pit and out-of-pit dewatering will be required.

20.8 Stormwater Management

A stormwater management strategy was developed during 2020, which will be updated in support of the 2022 DFS based on the revised layout of the Kiniero Gold Project. The following storm water management principles (SWMP) have been adopted for the Project:

- clean water must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system, while preventing or minimising the risk of spillage of clean water into dirty water systems
- dirty water must be collected and contained in a system separate from the clean water system. The risk of spillage or seepage into clean water systems must be minimised. The containment of dirty or polluted water will minimize the impact on the surrounding water environment
- the SWMP must be sustainable across the LoM, and different hydrological cycles must incorporate principles of risk management. Portions of the SWMP, such as those associated with waste management facilities, may have to remain after mine closure since management is required till such time that the impact is considered negligible, and the risk no longer exists

20.9 Economic Displacement and Livelihood Restoration

The Kiniero Gold Project will result in the economic displacement of some members of the community and requires the development of a Livelihood Restoration Plan (LRP). The LRP must allow for the identification of available resources, the affected parties and an assessment of the losses, so as to determine the preferred compensation method and compensation quantification. The LRP must include a plan for the restoration of income that allows affected people to not suffer a net economic loss due to the development.

It is mandatory that before the start of the development, all assets likely to be affected need to be identified and catalogued. A moratorium must be announced, once the survey is completed, to prohibit any further development in the areas affected by this moratorium. The major phases of the plan will include:

- the identification of impacts and the zone of influence
- the identification of right holders
- the evaluation of losses
- the definition of compensation
- the execution of the compensation component
- follow-up and closure

A provision of $2.2m, to be spent over a period of three to five years, is made for compensation associated with agricultural assets and production losses suffered.

20.10 Monitoring Plan

Environmental and social monitoring will be used to determine the impact and change of the environment due to site activities. A budget will be provided for monitoring and maintenance of vegetation establishment as well as for wastewater treatment and environmental monitoring after closure of the site.

Environmental monitoring data (surface and groundwater, air quality, noise, soils, etc.) will be collected and analysed, and monitoring reports will be compiled over a period of:

- 18 months after closure to coincide with the phase of dismantling and reclamation of the Project
- five additional years after the completion of the decommissioning and closure phase

The following registers will be maintained:

- Project permits and licenses
- EIA and Environmental and Social Monitoring Plan (ESMP)
- all matters related to compliance monitoring, environmental performance and ESMP implementation
- Health, Safety and Environment (HSE) attendance records and HSE training material
- a list of all persons receiving job-related training
- environmental monitoring and verification data / reports and results of inspections performed
- copies of all written ESMP instructions / approvals / exemptions issued to contractors;
- the approved method statements and codes of practice for specific activities and facilities
- waste management files
- maintenance records of vehicles and equipment

- maintenance and inspection of all safety equipment, e.g. fire extinguishers
- photographic documents of the development and restoration of the site
- a properly completed and signed environmental incident / non-compliance report for each incident or environmental non-compliance reported
- an up-to-date register of external communications
- completed and updated form and register of complaints and external grievances for each external complaint received
- a register of contacts in case of emergency
- a register of dangerous substances and the associated Material Safety Data Sheets

The annual environmental monitoring budget is $135,000 and allows for air quality, noise, surface and ground water quality monitoring, as well as social monitoring programmes.

20.11 Environmental and Social Management System, IFC Action Plans and Operational Readiness

A series of IFC Action Plans will be required once the DFS has been completed and a decision is made to implement the project. This is likely to be developed within a six-month period. An initial budget of $120,000 has been budgeted for the development of the various plans, with LOM provision of $150,000 for the implementation and monitoring of these plans.

20.12 Community Development Programme

SMG will promote the economic independence of local communities and focus on helping small businesses. Despite the business opportunities related to the project, Sycamore aim to help diversify local businesses beyond mining. In addition to spending, employment, royalties, etc., there are opportunities for SMG to contribute positively to the local community while not assuming the role of social service. SMG will ensure that its contributions paid to the local community will promote sustainable community development so that development can continue after the presence of the Kiniero Project.

A provision as a percentage of pre-tax profit will be allocated for the community development plan, which will focus on the following aspects:

- health and education
- infrastructure and water supply
- agriculture
- small businesses
- recruitment and training of local workers
- artisanal mining
- in-migration

20.13 Risks and Opportunities

The following risks and opportunities have been identified:

- kinetic test work is recommended on the TSF material as well as the higher risk transitional material identified that is currently classified as uncertain, or potentially acid forming. If the material is acid-forming, then a plan will be required to ensure that the higher risk material is encapsulated within the lower risk material to prevent the forming of AMD
- additional geochemical test work is required of the transitional and fresh rock material as well as tails material that is representative of the final blend of oxide and fresh ore to be processed from the various areas to be mined, post detox
- a site wide monthly water and salt balance is required once additional geochemical test work has been completed
- due to the Covid-19 pandemic and the restrictions on travel as well as group gathering with the Guinean Environmental Agency (AGEE) did not undertake a verification and disclosure visit to the Project area. A disclosure process is currently underway for the 2022 ESIA to ensure compliance with the IFC PS as well as host country requirements in terms of public consultation and disclosure
- aquifer testing was underway at the time of the compilation of the PFS report. It is recommended that the model be calibrated once the field test work is completed to update the water balance as well as the contaminant transport model in support of the DFS
- storm water management and a flood protection berm will be required by the Sabali South pit
- at the time of the finalisation and submission of the ESIA, the Banfara pit and associated WRDs were incorporated into the layout. A high-level qualitative assessment was conducted to include the new pit and WRDs into the ESIA. However, the ESIA and associated specialist studies, as well as the geohydrological and air quality/noise modelling will need to be updated as part of the DFS to address the layout changes

Table 134: Identified Risks and Opportunities of the Kiniero Gold Project

RISK	DESCRIPTION	MITIGATION
Environmental Incidents due to spills or accidents	Local or International Incident caused by accidental spill of Cyanide or other hazardous chemicals into the Niger River or the during crossing of River or event within the Niger-Niandan-Milo RAMSAR site	Hazardous Materials Management Plan. Cyanide Management Plan. Cyanide Supplier Risk Assessment and Compliance with Cyanide Code.
Withdrawal/Suspension of license due to poor environmental/social performance	Environmental incidents or conflict with community resulting in the withdrawal of the environmental license/permit	Environmental and Social Management System. Active community engagement

RISK	DESCRIPTION	MITIGATION
Vehicle accidents resulting in loss of life	Interaction between mine traffic and public/private vehicles resulting in accidents and loss of life	Traffic management plan. Separation of mine traffic and public traffic
Project delay due to delay in environmental permitting	The Project is permitted, but the ESIA, EMP and associated license needs to be aligned with the DFS Project Description, which requires an amendment to the ESIA/EMP	Start process timeously. Engage with the Guinean Environmental Agency (AGEE).
Water treatment required for poor quality leachate post closure	Geochemical test work undertaken found that some samples from the transitional zone may be acid forming or is uncertain. Treatment may be required of post closure pit lake water prior to release.	Additional testing, including kinetic test work on material classified as potentially acid forming or uncertain. Waste management plan for material with uncertain AMD potential.
Environmental Liability due to historical contamination from SEMAFO mining activities.	Sycamore is exempted from the liabilities associated with historical SEMAFO mining activities, but historical liabilities would need to be identified and quantified and agreed with the GoG.	Site contamination assessment. Environmental Monitoring. Audit of past incidents and spills.
Disruption of operations and damaged to property.	Community Unrest - Economic Displacement and loss of Income - Artisanal Miners and Agriculture	Income and Livelihood Restoration Plan
Disruption of operations and damaged to property.	Community Unrest - Community Expectations resulting in conflict and community action	Fair recruitment policy and the promotion of local employment
Disruption of operations and damaged to property.	Influx of People and competition for employment resulting in community action and conflict	Influx management plan. Fair recruitment policies advancing local employment. Community Development Plan.
Need for the relocation of Mine camp due to exceedances of AQ and Noise standards	Exceedance of dust and noise standards may result in the need for the relocation of the mine camp to an alternative location outside the direct zone if influence.	Monitoring. Dust Suppression. Relocation of camp to ensure compliance
Storm Water Management	Disruption of operations or damage to infrastructure due to lack of stormwater management and infrastructure.	Dewatering and water infrastructure
Delay in commissioning of mine due to a delay in dewatering of flooded pits.	Dewatering and storage requirements to ensure access to resources	Water Balance sensitivity analysis. Confirmation of volume of water to be removed from pits. Assess suitability of existing infrastructure and facilities.
Flooding risk of Sabali South pits due to proximity to the 1:100 yr. flood line	Loss of life, damage to property and disruption of production	Storm water management plan and construction of flood protection infrastructure.
Disruption of operations and possible loss of life	Flooding of pits and haul routes due to extreme rainfall event	Dewatering infrastructure and adequate stockpiling
Disruption of availability of work force impacting on productivity due to vector related diseased	Malaria resulting in high incidence of sick days and need for treatment	Malaria control and management protocol. Awareness. Treatment protocols.
Increase in reclamation and closure liability	An increase in reclamation and closure liability due to a change in the closure objectives (such as backfill)	Annual review of reclamation and closure liability and associated closure objectives. Annual engagement with GOG.
Proposed new TSF - proximity to the village of Balan (800m).	Potential dustfall impact to the village of Balan situated downwind from the preferred alternative site.	AQ dispersion modelling risks will need to be confirmed with onsite monitoring and effectiveness of mitigation confirmed.

RISK	DESCRIPTION	MITIGATION
Compliance with IFC PS6	185ha of natural habitat is directly affected by the current 2022 PFS layout. Biodiversity set-asides and offsets will be required in order to ensure no net loss.	Biodiversity offset strategy will be required if natural habitat cannot be avoided. Viable alternatives to be assessed.
Pre-development dewatering strategy	Treatment of pit-lake water required if water quality not compliant with IFC effluent standards, prior to release into environment.	Pit lake water quality compliance with IFC Effluent standards to be confirmed through additional sampling.
National government projects sterilising mineral resources.	Concept studies have been proposed for the damming of the Milo River. Two options were considered for the damming of the river, the Fomi Dam and the Moussako Dam. The area to be inundated by the Fomi dam will affect some of the resources of Kiniero and Mansounia, while the Moussako flooded area is further south and does not directly affect the resources identified. It is understood that no plans are currently in place for the development of either of these facilities and no permitting is in place.	Continued engagement with the Government of Guinea as a stakeholder and affected party.
Reclamation and Closure Cost	The current reclamation and closure cost estimate includes the Banfara, West Balan and Mansounia pits and associated WRDs. If these are not developed the reclamation cost can be reduced.	Reduction in reclamation and closure cost liability of approximately US $ 3,8 million.
Livelihood Restoration Plan	The livelihood restoration plan is currently being developed and the financial compensation can only be confirmed once the asset survey has been completed. It is possible that the current provision is not adequate to compensate the affected parties.	Complete Livelihood Restoration Plan

Source: ABS (2022)

20.14 Conclusions

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

21 CAPITAL AND OPERATING COSTS

21.1 Operating Costs

The operating cost estimates have been prepared by the following contributors, as reviewed by Mining Plus:

- mining operating costs: Mr O Varaud of Mine Planning Solutions (MPS) Ltd together with the operating team of Robex
- processing operating costs: Soutex Inc
- site based operating costs: Robex

Where possible and relevant, the cost structure has been benchmarked against the operating costs of the Nampala Gold Mine in Mali, which will be sharing many suppliers with the Kiniero Gold Project. For this PFS, the costs have an accuracy of ±25%, are presented in United States Dollars and are based on information as received in Q1 and Q2 2022 from various suppliers.

21.1.1 Mining Operating costs

The costs were compiled assuming that all the mining and civil work will be executed through a mining contract. The costs assumptions used for the optimisation and the financial model are detailed in the chapter 15.2.5.

21.1.2 Process Plant Operating Costs

Processing plant operating costs have been compiled by Soutex and Robex from multiple different sources and are presented in Table 135 and Figure 104:

- power costs were estimated by Vivo combining solar and thermal solution
- labour costs have been based on a salary grid benchmarked against multiple operations in Guinea and against the internal cost structure of Robex at Nampala
- an average diesel price
- consumable prices have been based on quotations from existing suppliers in Mali who supply cross border to Guinea
- reagent consumptions are based on historical metallurgical testwork and current testwork, as realised in H1 2022
- process operating costs have been compiled for various plant feed mixes. These mixes are theoretical and provide a guidance for the mine scheduling

Table 135: Kiniero Gold Project Operating Costs Design Criteria and Economics

	Oxides		Transition		Fresh		Design	
Proportion LOM	59%		6%		34%			
Plant Feed (Mpta)	5,037,000		2,417,760		1,813,320		3,000,000	
COST CATEGORY	**000' $/y**	**$/t**	**000' $/y**	**$/t**	**000' $/y**	**$/t**	**000' $/y**	**$/t**
Labour	2,482	0.49	2,482	1.03	2,482	1.37	**2,482**	**0.83**
Power	15,586	3.09	17,810	7.37	17,720	9.77	**17,898**	**5.97**
Consumables	18,951	3.76	13,168	5.45	11,603	6.40	**14,111**	**4.70**
Maintenance	5,641	1.12	2,707	1.12	2,030	1.12	**3,360**	**1.12**
Laboratory	150	0.03	150	0.06	150	0.08	**150**	**0.05**
TSF management	686	0.14	329	0.14	247	0.14	**409**	**0.14**
TOTAL	**43,498**	**8.64**	**36,648**	**15.16**	**34,234**	**18.88**	**38,411**	**12.80**

Source: SMG (2022)

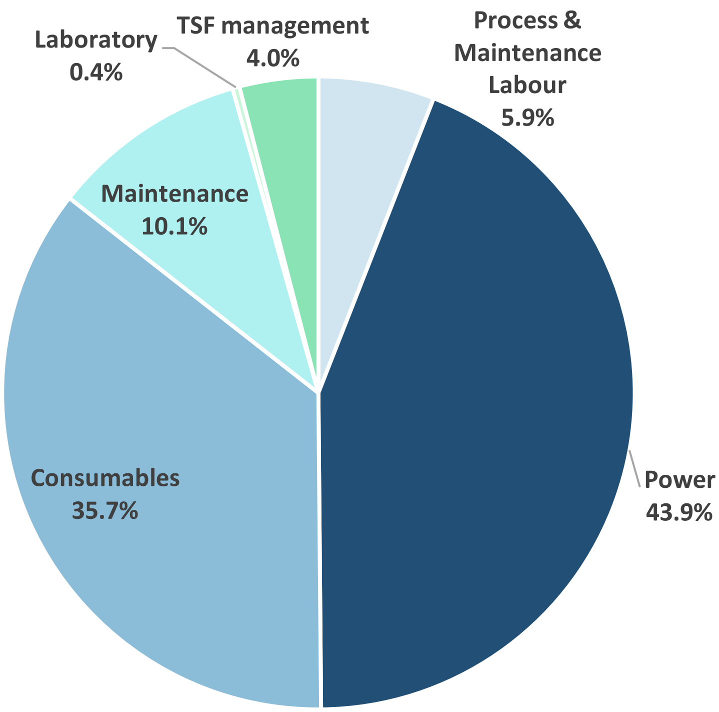


Figure 104: Kiniero Gold Project Operating Costs

Source: SMG (2022)

21.2 Capital Cost Estimate

21.2.1 Overview and Summary

The Kiniero Gold Project capital cost estimates have been estimated by Robex in conjunction with relevant specialist consultants for specific categories. In this regard Soutex has provided estimates for the processing plant, Epoch for the TSF, Vivo Energy for the power and PV plant and Robex for the infrastructure on site and the rehabilitation of the existing buildings.

All the costs are expressed in United States Dollars unless stated otherwise and are based on quotations sourced during H1 2022. The costs are estimated to be at a +25/-25% accuracy level. A summary of the Kiniero Gold Project capital cost is presented in Table 136 below.

Table 136: Summary of Capital Cost Estimate (Q2 2022 ±25%)

COST COMPONENT	INITIAL CAPITAL COST ($m)
Processing Plant – Direct	81
Processing Plant – Indirect	14
Infrastructure	2
TSF	17
Mining	2
Subtotal	**116**
Contingency (10%)	12
Working Capital	6
G&A (In country)	8
G&A (Corporate)	2
Project Total	**144**

Source: Robex (2022)

21.2.2 Exclusions

The following items have been excluded from the capital cost estimate calculation:

- Taxes/Fees payment
- Permits and licences fee
- Capital expenditure invested on the project to date by previous owners (Managem, SEMAFO and Sycamore Mining)
- Exchange and commodities fluctuations
- Cost inflations

21.2.3 Escalation and Foreign Exchange

An escalation cost has been included as per the first contract received by Vivo of 2 %. A similar escalation will apply for the mining contractors but has not yet been negotiated

The foreign exchange rate is flat for which no allowances for potential variations have been made. The Robex functioning currency is the Euro (€) which is pegged to the CFA and the Robex reporting currency is CAD. The foreign exchange risk will be managed at the group level with the Nampala operation.

21.2.4 Working and Sustaining Capital

The working capital allowance has been calculated to cover the first four weeks of plant operation and mining including pre-stripping costs. The sustaining costs for the Kiniero Gold Project have been provided and include stage development of the TSF and stripping for new pits during the life of the mine. The TSF will be raised in three phases using primarily mine waste material, as well as existing historical mine waste material.

An allocation of 2 of the initial capex has been estimated as the yearly sustaining capital expenditure based on benchmarks with Nampala. This represents 2$/t which has been used in the mine planning assumptions

Table 137 Summary of Sustaining Capital Costs

	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8
TSF phase 1B	8.3			5.2	5.2				
Contingency (10%)	0.8			1.0	0.4				
Sustaining capex (2.0$/t)	27.7			4.4	6.6	5.8	5.1	7.1	4.9
Total	**36.9**			10.6	12.2	5.8	5.1	7.1	4.9

21.3 Project Implementation

21.3.1 Strategy

The procurement will be done jointly between Robex and Soutex for the plant and all the other infrastructure spending will be done jointly with WACOM.

The mining will be subcontracted, and we are currently in discussions with 5 contractors in Guinea to provide pricing on a $/tonnes and or $/ hour basis. Those offers will be firmed up before FID.

21.3.2 HSE and community

The management of health, Safety environment and the community will be followed according to guidelines provided by ABS Africa as well as best practices in place in the group.

All aspects of the Project will comply with the local regulation and the international best practices. Furthermore, in line with the Nampala operation most of the workforce including managers will be coming from the region and the sub-region.

21.3.3 Schedule

Here is currently the high-level schedule for the entire project as described in section 16. This schedule is purely indicative and is changing rapidly. It should not be relied upon for any decisions.

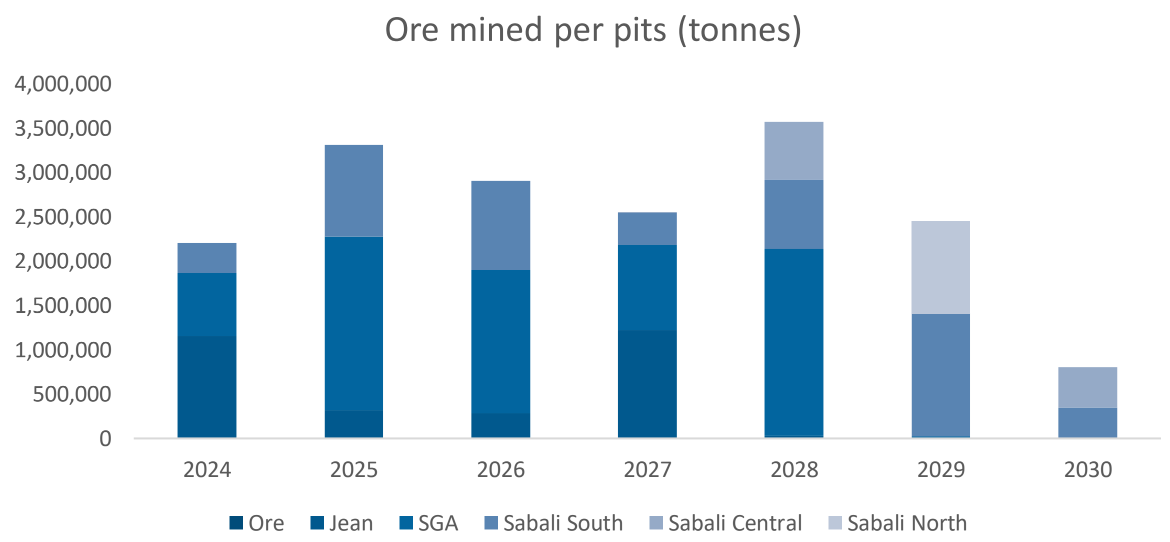


Figure 105: LOM ore mined per pits

Figure 106: Ore vs waste

22 ECONOMIC ANALYSIS

22.1 Introduction

The financial model has been built by Nick Mellor and updated by Aurelien Bonneviot and Stanislas Prunier to assess the economic viability of the project.

All the technical parameters are inputs from the consultants working on the project for their respective sections as described in the chapters of this PFS.

The project has been evaluated on a 100% basis (the government owns 15%) and no debt financing has been assumed at this stage. The net present value was calculated using a 5% discount rate.

22.2 Schedule for the Economic Evaluation

The physical inputs for the basis of the financial model are from the mining schedule provided in Section 16.8.

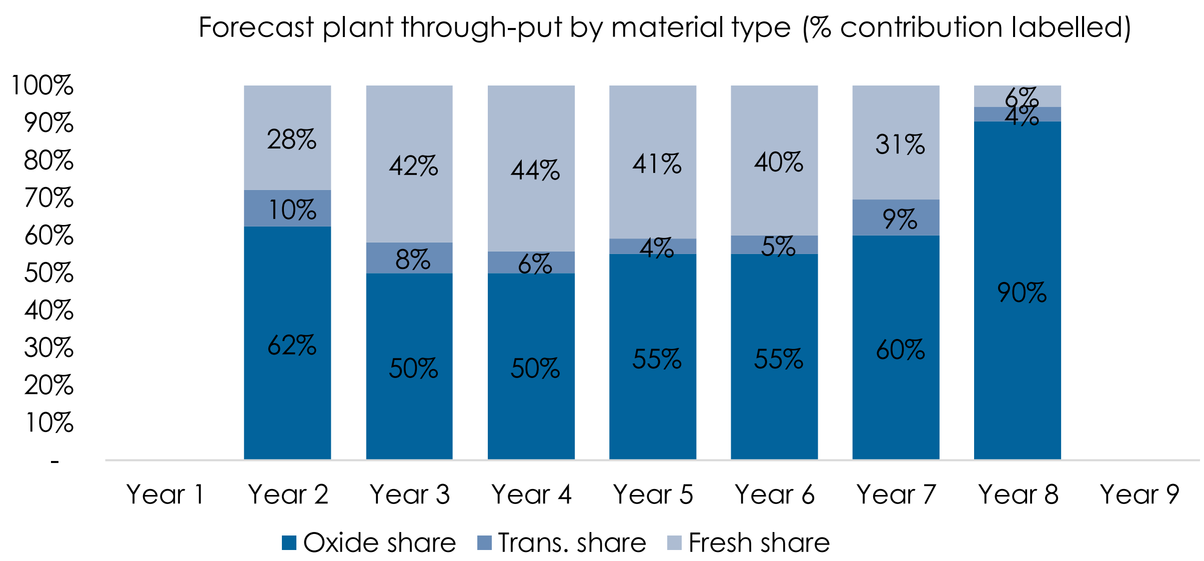


Figure 107: Material by Origin (18.6 mt)

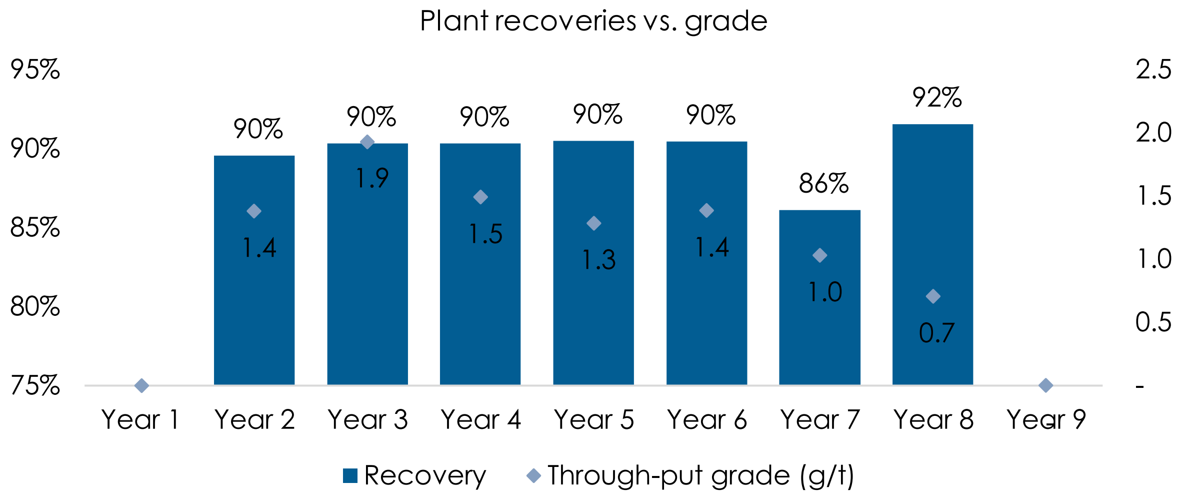


Figure 108: Theoretical production schedule and recovery

22.3 Summary analysis

The price deck for our financial analysis is 1650 $/ounce which is giving us a pre-tax NPV of $199m and an IRR of 49%.

Table 138: Summary Financial Analysis

Financial	Units	Value
LOM tonnage processed	Tonnes	18,582
LOM tonnes mined	Tonnes	96,473
LOM strip ratio	W:O	4.4
Life of mine	years	6.5 years
LOM Average mix	%	59% Oxides 6% Transition 34% Fresh
Average grade feed	g/t	1.34 g/t
Average recovery	%	Oxides 93.3% Trans 81% Fresh 85.9%
LOM Gold recovered	kOz	712
Upfront capital (2years)	$m	144
LOM Capital	$m	161
Pre-tax Net Present Value ("NPV") @ 5%	$m	199
Pre-tax IRR	%	49%
Post-tax Net Present Value ("NPV") @ 5%	$m	115
Post-tax IRR	%	32%

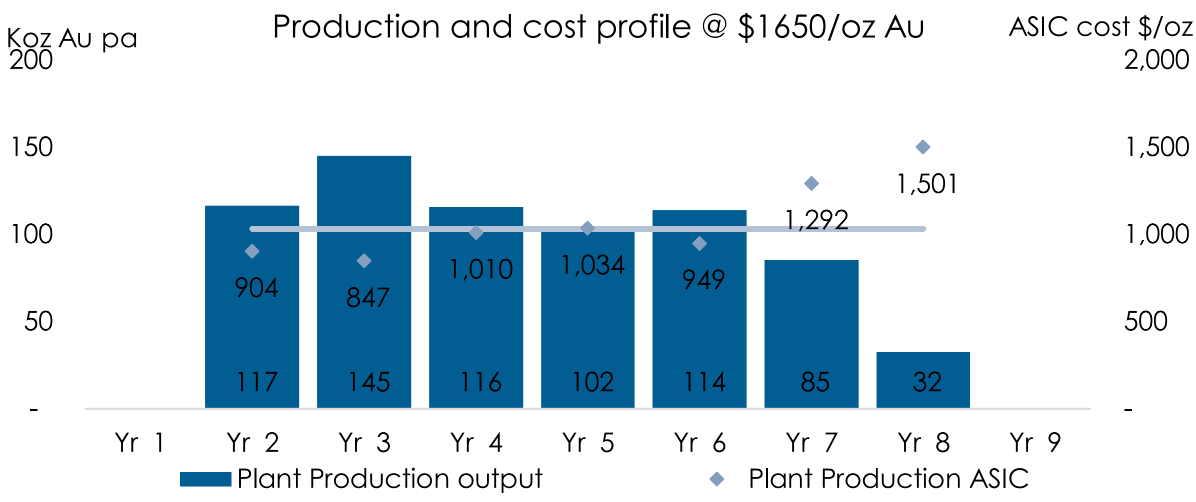


Figure 109: AISC and Gold Production

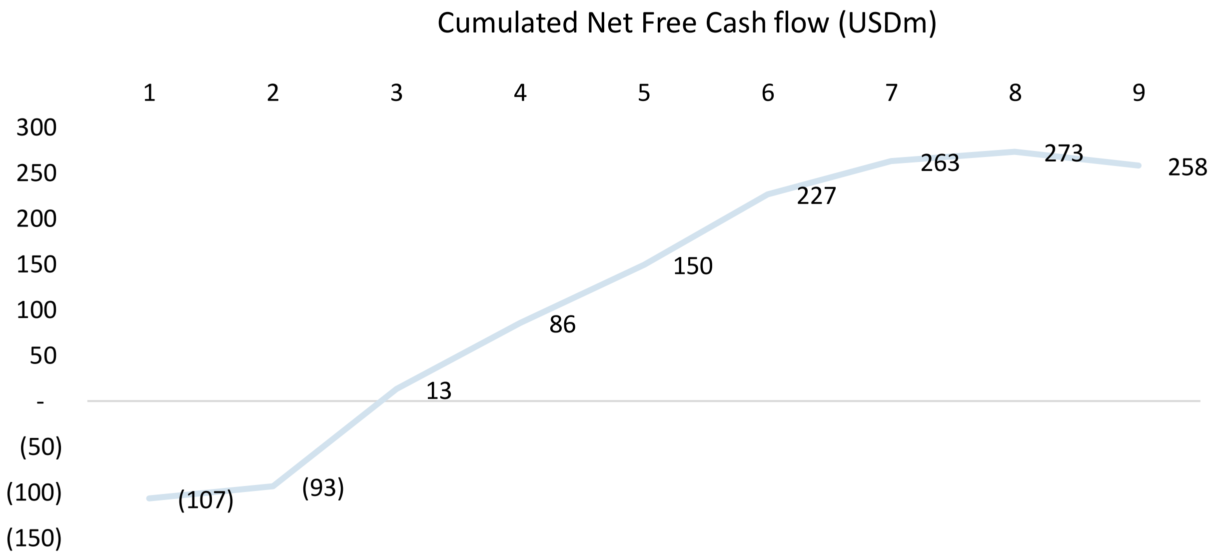


Figure 110: Accumulated Free Cash Flow Profile

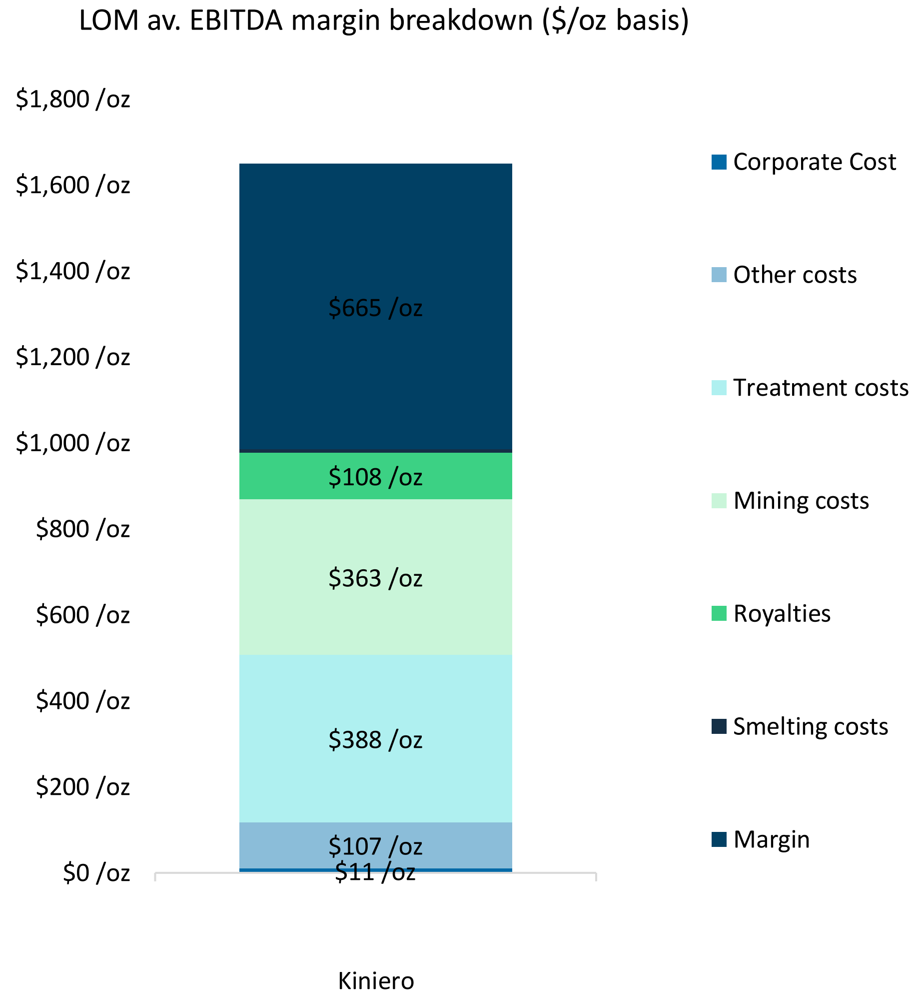


Figure 111: AISC Breakdown

22.4 Assumptions and inputs

The economic model of this project was based upon

- Capex and opex estimates from Soutex/Wacom as per Sections 17
- Recoveries by Soutex as per Section 13
- The mining schedule has been modified as described in the Section 16
- General and Administration estimated by Robex based on budgets for corporates and all outside of Guinea costs
- TSF costs by EPOCH
- Adjusted closure capital cost to match the LOM by ABS Africa Pty
- Gold price at 1650 $/oz
- Calculations are done in United States Dollars (USD)

22.4.1 Physical estimates

- The mine plan used is as per Section 16 excluding the inferred material inside the pits which are treated as waste
- Mining costs are presented in Section 15
- Processing and on-site/off-site administration costs are based on the estimated operating costs in Section 17 and 22
- The gold recoveries are based on the work described in Section 13

22.4.2 Mining contractor costs

The mining contractor costs was estimated with quotes from our current contractors and two local guinea companies. We also have received two quotes from international mining contractors.

22.4.3 Sustaining Capital

The sustaining capital was estimated based on Nampala operation since first production in 2015 which represents an average of $2 per tonne treated.

22.4.4 Depreciation

For tax and accounting calculation the assets are depreciated in straight line amortisation over the life of mine.

22.4.5 Company Tax

Robex is currently negotiating a "mining convention" which will modify the tax structure of the company in Guinea. The previous conventions signed to dates by other mining companies are public and available here: https://www.resourcecontracts.org/. The corporate tax exemptions for mineral projects ranges from 5 to 12 years which based on our current reserve, if we manage to secure exempt all the CIT paid during the 6 years LOM.

However, for transparency we have included a pre-tax NPV and a post-tax NPV with the basic rate in guinea of 30%.

22.4.6 Refining costs

The refining costs assumptions are based on our current contract with Argor-Heraeus for the doré from Nampala.

22.4.7 By products

The silver has been credited as a by-product based on historical payable from the gold sold during the SEMAFO ownership.

22.4.8 Royalties

Gold is subject to a government royalty which is based on a percentage of the spot gold price as described in the Table 139.

Table 139: Royalties

	%
Guinean State royalty	5.00%
SOGUIPAMI royalty	0.50%
Local development tax	1.00%
Private royalty	0.50%

22.4.9 Working capital

Pre-production costs for working capital have been included in the initial capex estimate. The pre-production and the current site maintenance is also included in the G&A initial capex. The working capital estimation is equivalent to 1 month of full operating expenses in the initial capex requirements.

Once first production is passed the working capital has been estimated with asset variation and payment terms for creditors and debtors.

22.4.10 Reclamation and closure cost

The closure costs have been estimated by ABS Africa at $16.9m.

22.5 Cash flow analysis

Table 140 Pre-tax cash flow

Cash Flow Summary	Unit	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Total ore mined	kt	17,768	-	2,200	3,310	2,901	2,539	3,566	2,447	805
Total ore processed (inc stockpiles)	kt	18,582	-	2,951	2,623	2,700	2,774	2,868	3,033	1,633
Processed grade	g/t	1.34	-	1.38	1.93	1.49	1.29	1.38	1.03	0.71
Gold recovered	koz	712	-	117	145	116	102	114	85	32
Net Revenues	US$m	1,087	-	178	222	177	156	174	130	50
Less: Cash Operating Costs	US$m	**(619)**	**-**	**(109)**	**(102)**	**(97)**	**(88)**	**(90)**	**(93)**	**(40)**
Mining	US$m	(258)	-	(52)	(49)	(43)	(34)	(34)	(35)	(12)
Processing	US$m	(276)	-	(44)	(41)	(42)	(42)	(43)	(44)	(21)
General & Administrative	US$m	(76)	-	(12)	(11)	(11)	(11)	(12)	(13)	(7)
Corporate Costs	US$m	(8)	-	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Operating EBITDA	**US$m**	**467**	**-**	**69**	**120**	**80**	**68**	**84**	**37**	**9**
EBITDA Margin	*%*	-	-	*39%*	*54%*	*45%*	*43%*	*48%*	*28%*	*19%*
Less: Sustaining Capital	US$m	(34)	-	-	(4)	(7)	(6)	(5)	(7)	(5)
All In Sustaining Costs	US$m	(653)	-	(109)	(106)	(104)	(94)	(95)	(100)	(45)
Sustaining Margin	**US$m**	**433**	**-**	**69**	**115**	**73**	**62**	**79**	**30**	**5**
Less: Abex Capital	US$m	(8)	-	-	-	-	-	-	-	-
Mine Direct Cash Flows	**US$m**	**425**	**-**	**69**	**115**	**73**	**62**	**79**	**30**	**5**
Less: Working Capital Movement	US$m	-	-	(10)	(7)	5	2	(2)	6	6
Mine Free Cash Flows Pre-Tax	**US$m**	**425**	**-**	**59**	**109**	**78**	**64**	**77**	**36**	**10**
Less: Growth Capital	US$m	(161)	(107)	(38)	(11)	(6)	-	-	-	-
Net Cash Flows Post-Tax Pre-Tax	**US$m**	**264**	**(107)**	**21**	**98**	**73**	**64**	**77**	**36**	**10**

Project NPV (Pre-Tax) @5% Discount Rate (in US$m)	**199**
Project IRR (Pre-Tax)	**49%**

Table 141 Post Tax cash flow

Cash Flow Summary	Unit	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8

Total ore mined	kt	17,768	-	2,200	3,310	2,901	2,539	3,566	2,447	805
Total ore processed (inc stockpiles)	kt	18,582	-	2,951	2,623	2,700	2,774	2,868	3,033	1,633
Processed grade	g/t	1.34	-	1.38	1.93	1.49	1.29	1.38	1.03	0.71
Gold recovered	koz	712	-	117	145	116	102	114	85	32
Net Revenues	US$m	1,087	-	178	222	177	156	174	130	50
Less: Cash Operating Costs	US$m	**(619)**	**-**	**(109)**	**(102)**	**(97)**	**(88)**	**(90)**	**(93)**	**(40)**
Mining	US$m	(258)	-	(52)	(49)	(43)	(34)	(34)	(35)	(12)
Processing	US$m	(276)	-	(44)	(41)	(42)	(42)	(43)	(44)	(21)
General & Administrative	US$m	(76)	-	(12)	(11)	(11)	(11)	(12)	(13)	(7)
Corporate Costs	US$m	(8)	-	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Operating EBITDA	**US$m**	**467**	**-**	**69**	**120**	**80**	**68**	**84**	**37**	**9**
EBITDA Margin	*%*	-	-	*39%*	*54%*	*45%*	*43%*	*48%*	*28%*	*19%*
Les: Sustaining Capital	US$m	(34)	-	-	(4)	(7)	(6)	(5)	(7)	(5)
All In Sustaining Costs	US$m	(653)	-	(109)	(106)	(104)	(94)	(95)	(100)	(45)
Sustaining Margin	**US$m**	**433**	**-**	**69**	**115**	**73**	**62**	**79**	**30**	**5**
Less: Abex Capital	US$m	(8)	-	-	-	-	-	-	-	-
Mine Direct Cash Flows	**US$m**	**425**	**-**	**69**	**115**	**73**	**62**	**79**	**30**	**5**
Less: Working Capital Movement	US$m	-	-	(10)	(7)	5	2	(2)	6	6
Mine Free Cash Flows Post-Tax	**US$m**	**425**	**-**	**59**	**109**	**78**	**64**	**77**	**36**	**10**
Less: Growth Capital	US$m	(161)	(107)	(38)	(11)	(6)	-	-	-	-
Net Cash Flows Post-Tax Post-Tax	**US$m**	**264**	**(107)**	**21**	**98**	**73**	**64**	**77**	**36**	**10**

Project NPV (Post-Tax) @5% Discount Rate (in US$m)	**115**
Project IRR (Post-Tax)	**32%**

22.6.1 Gold price

Table 142 Pre-tax NPV Gold price Sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Gold price used	**$1,950 /oz**	457	363	291
	$1,800 /oz	357	281	222
	$1,650 /oz	258	199	153
	$1,500 /oz	159	117	84
	$1,350 /oz	59	35	15

Table 143 Post-tax NPV Gold price Sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Gold price used	**$1,950 /oz**	300	232	180
	$1,800 /oz	229	173	130
	$1,650 /oz	158	115	81
	$1,500 /oz	87	56	32
	$1,350 /oz	12	(5)	(19)

22.6.2 Capital and operating costs

The sensitivities on the pre-tax NPV for capital expenditure and operational expenditures are shown in the tables below. The changes are applied to the LOM capital on the capex and opex.

Table 144: Pre-tax NPV Capital expenditure sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Capex flex	**15.0%**	234	176	131
	7.5%	246	187	142
	0.0%	258	199	153
	(7.5%)	270	210	164
	(15.0%)	282	222	175

Table 145 Post-tax NPV Capital expenditure sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Capex flex	**15.0%**	141	97	64
	7.5%	149	106	72
	0.0%	158	115	81
	(7.5%)	168	125	91
	(15.0%)	178	134	101

Table 146: Pre-tax NPV Operational cost sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Opex flex	**15.0%**	181	137	103
	7.5%	220	168	128
	0.0%	258	199	153
	(7.5%)	296	230	178
	(15.0%)	335	260	203

Table 147 Post-tax NPV Operational cost sensitivity

		Discount multiple $		
		0.0%	**5.0%**	**10.0%**
Opex flex	**15.0%**	82	53	31
	7.5%	120	84	56
	0.0%	158	115	81
	(7.5%)	197	146	106
	(15.0%)	235	176	131

23 ADJACENT PROPERTIES

23.1 Development and Exploration Properties

A geographical overview of the Kiniero Gold Project neighbouring development and exploration properties is presented in Figure 112. The ownership, activity and mineral resources and reserves of adjacent properties that have been publicly disclosed are listed below.

- ASX Listed Predictive Discovery (PDI) holds the Bankan Project (Kaninko & Saman Research Permits covering ~200km2) bordering the Kiniero Gold Project to the northwest. The SE Saman target lies approximately 15km NNW and the NE Bankan target approximately 36km NW of the Kiniero plant. On 1 August 2022 PDI issued an ASX announcement detailing an updated Inferred Mineral Resource in accordance with JORC 2012 containing 79.5 Mt at 1.63 g/t for 4.2 Moz at the NE Bankan and Bankan Creek projects.
- To the north of the Kiniero Gold Project is the Kouroussa Project covering ~16.5km2 held by AIM listed Hummingbird Resources (HUM). Located approximately 3km north-east of the town of Kouroussa, 30km north-north-west of the Kiniero plant. On 30 June 2022 HUM released an announcement and accompanying presentation titled "2022 Updated Company Reserves and Resources Statements" these report the Reserves at Kouroussa to be 647 koz at 4.15 g/t and Resources of 1.20 Moz at 3.02 g/t. These Mineral Resources and Ore Reserves were prepared in accordance to JORC 2012.

The qualified person of this Technical Report has not verified the information in the reports and the information is not necessarily indicative of the mineralisation within the Kiniero Gold Project.

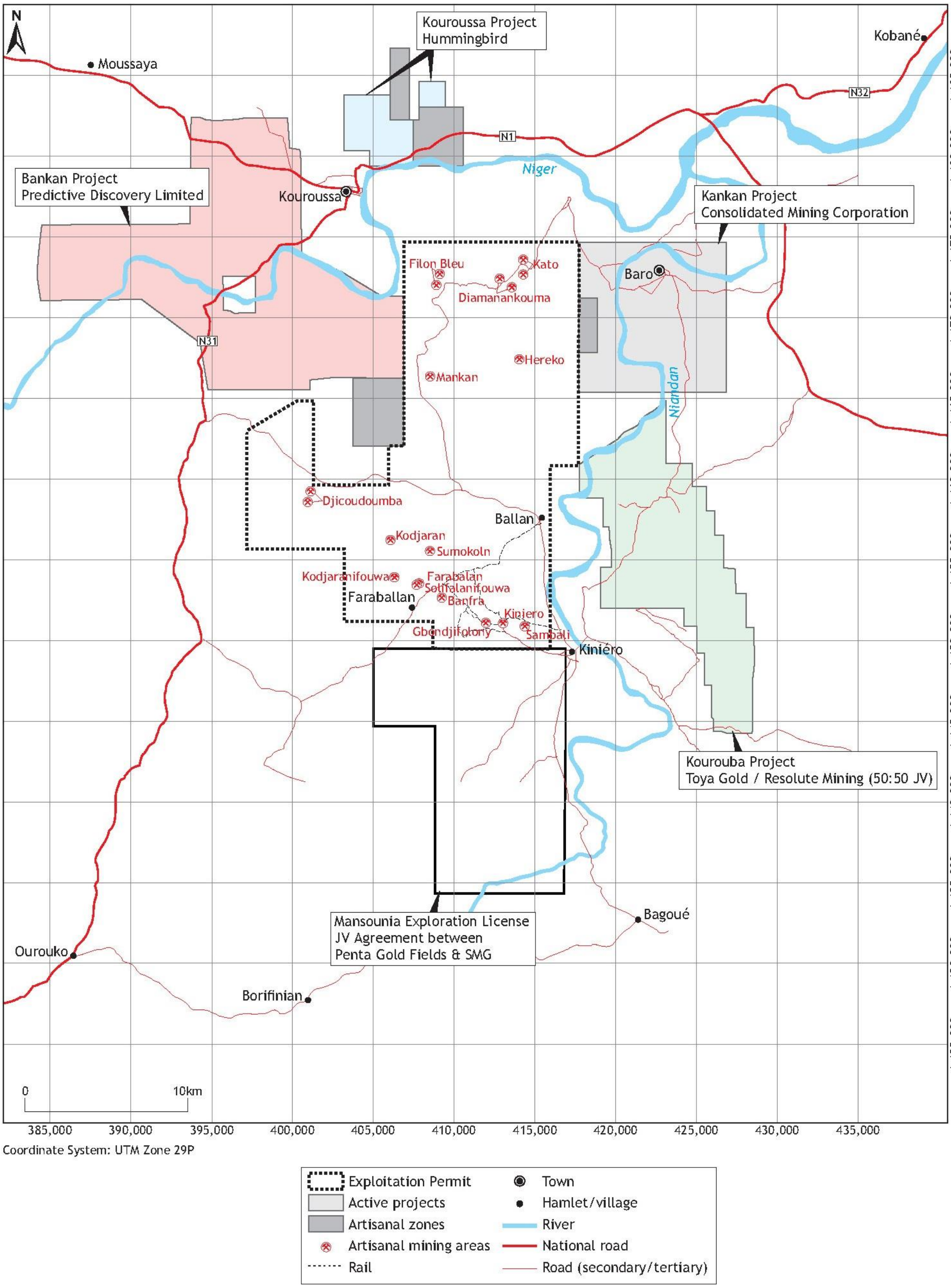


Figure 112: Location of Adjacent Properties
Source: ABS Africa, SMG

24 OTHER RELEVANT DATA AND INFORMATION

25 INTERPRETATION AND CONCLUSIONS

At a pre-feasibility level of confidence, the combination of historical and current exploration, investigations and studies to date has resulted in the opportunity for expansion and restart of the former Kiniero Gold Mine.

Exploration, drilling and sampling procedures, together with sufficient historical and current data verification, has resulted in a total Indicated Mineral Resource of 1,280 koz (inclusive of Reserves and legacy stockpiles) and Inferred Mineral Resource of 1,400 koz. The various modifying factor studies has resulted in a Mineral Reserve of 803koz; to be extracted by open pit mining methods and processed in a 3Mtpa Gravity and CIL plant.

The total production is 712koz, resulting in 6.5 years LOM, with an average annual production of 110koz. It is estimated this will be achieved at an AISC of $1,035/oz. Based on a gold price of $1,650/oz, the Project has a pre-tax NPV of $199m ($NPV_{5\%}$) and IRR of 49% and a post-tax NPV of $115m ($NPV_{5\%}$) and IRR of 32%. The Project is economically strong with significant exploration upside.

The work conducted on the Kiniero Gold Project has been completed with strong consideration of the biophysical, social, and economic factors, as well as the relevant Guinean legislative requirements. Socially, the economic benefit of the Project is significant and viewed as a major development by the local community and the country.

In total, key project risks have been identified and reviewed by the team. The team subsequently proposed how these risks can be effectively managed and mitigated. The key risks identified are as follows:

- The presence of illegal artisanal miners on site, and the difficulty and the time potentially required to remove.
- Water balance and potential supply options currently indicating that water requirements will need to be satisfied
- Community disturbance and social unrest due to construction activities.
- Changes in the government incentives to support the mining industry
- Reliable power to the Project

The key Project risks are mitigated by:

- The existing and ongoing issues with artisanal miners is currently being addressed within the boundaries of mining and other relevant laws, in consultation with relevant local community leaders and the Government authorities. Plans are being developed in collaboration with the community. Once removal is finalised, key infrastructure on the project will be fenced and a trained security and military presence will assist in maintaining control.

• Ongoing evaluation of water supply options and investigation of potential ground water supplies will continue through the FS phase.

• Continuing engagement of local communities and stakeholders is a priority of SMG. Since operating in Guinea SMG has been engaging, training and employing staff from the local villages surrounding the Project, this activity will be a core focus of SMG as the Project moves forward into construction and operations.

• SMG are currently finalising a tax and legal stabilisation framework agreement (Mining Convention Agreement) which will be ratified by the Guinean parliament.

• SMG have partnered with VIVO Energy to design and construction a combined thermal and PV power plant which will be structured around an Power Purchase Agreement (PPA). Solar power supported by batteries storage will account for over 50% of the power supplied to the Project.

The completion and outcomes of this pre-feasibility study warrants further detailed investigations and the development of a definitive feasibility study to refine the economic potential of the Kiniero Gold Project in order to start construction.

26 RECOMMENDATIONS

A number of recommendations have been made by Robex and contributing Consultants. These are provided in detail below. The associated budget per recommended workstream is presented in Table 148 and Table 149 in the previous Section 24.

26.1 Future Works Programme

26.1.1 Work Programme to DFS

The same consultants used for the PFS will potentially continue working towards the completion of the DFS. Most costs in the DFS budget below (Table 148) are based on quotes provided in 2022; these values are subject to change.

Table 148: Budget to DFS

ITEM	000' $	
Detailed Plant Design	$	650
Metallurgical testing	$	50
TSF management	$	190
Geotech drilling	$	545
Geotech management & testing	$	120
ESIA to IFC standards	$	205
Mining	$	30
DFS Report	$	75
Contingency @ 10% *(excluding Geotech drilling)*	$	130
Total	**$**	**1,995**

26.1.2 Post DFS Budget

Following the release of the DFS, once we have the greenlight for construction, the anticipated budget for future work during the construction period will be $5.9m Table 149 below provides a more detailed breakdown of the total budget.

Table 149: Post DFS budget

ITEM	000' $	
Drilling	$	5,000
Exploration	*$*	*1,000*
Resources definition	*$*	*4,000*
Geohydrology	$	150
Geotech	$	100
Metallurgy testing	$	100
Contingency @ 10%	$	535
Total	**$**	**5,885**

26.2 Resource Definition and Exploration

Kiniero presents significant near term opportunities to further delineate multiple established deposits along depth (historical 475,000m of drilling with an average depth of only 75m) and established strike extensions within 3km of the new central processing facility. These deposits and deposit extensions have the potential to significantly increase the reserve base and enhance the economics of the Kiniero project by increasing the average grade throughput in the new plant and increasing the reserves base/LoM;

- Significant near term potential to increase the Project's reserves base:
    - Sabali South, Jean and SGA deposits – resource infill drilling along strike and at depth
    - Central and South Mansounia - delineate historical inferred resources (6.3.2)
    - Kobane, Zone C – delineate inferred resources
- additional geotechnical drilling, testing and modelling to further optimise the realised pit slopes
- further optimise mine design and sequencing resulting in operating cost savings and a fully utilised fleet

26.3 Mineral Processing and Metallurgical Testing

To refine the recovery assumptions and the supporting process design criteria, it is recommended to further develop the metallurgical testwork in support of the Kiniero Gold Project DFS. The following key testwork areas need fulfilling:

- kinetics requires validating against other ores sources and studies must be aimed at being completed to understand the reason for the slow leaching times
- CIL tests should be run on all ore horizons for all deposits to confirm the faster kinetics and higher gold recoveries
- additional variability tests should be completed in those areas where minimal previous samples/testing had been completed. The proposed process conditions and kinetics should be validated with ores from West Balan/Derekena, SGA, Jean, Sabali North and Central and Mansounia Central
- undergo additional, in-depth petrological and metallurgical studies on the transition and fresh ore within the Sabali deposits to further increase the Kiniero Project's Mineral Resource and Reserve base

26.4 Mining Methods

26.4.1 Geotechnical Investigations

TREM engineering have recommended the following:

- an extensive geotechnical drill programme in all planned pits to gather additional data and to confirm the results and analysis from the PFS study
- in total, TREM have recommended 33 inclined geotechnical holes targeting the pit walls. They have also recommended at least 10 vertical SPT holes to test the near surface, heavily oxidised material
- it is also recommended that pit wall monitoring points be installed to monitor movement in the highwalls as the pits are dewatered.

26.4.2 Geohydrology

ABS and Geostratum have recommended the following additional testwork:

- Three initial test boreholes be drilled to confirm elements of the existing hydrogeological model
    - based on the results from this drilling and test work, the ex-pit dewatering strategy will be refined to optimise the number and placement of holes needed to depressurise the pit walls
- revise the model layer types to be convertible between confined and unconfined, where applicable
- incorporate geological modelling data to assign DEM data to the laterite, saprolite and saprock
- additional borehole tests data, such as pumping, packer and falling head tests are required to define hydraulic conductivities for the different units (laterite, saprolite and saprock) at depth
- include potential geological structures such as faults. Pilot dewatering boreholes is proposed to intersect these structures for characterisation
- update the model calibration, including recharge for transient water level data and a sensitivity analysis
- update the source term concentrations with the latest geochemical information; and
- refine the TSF contaminant transport modelling with refined details and undertake a sensitivity analysis on potential liner leakage rates.

26.5 Project Infrastructure

26.5.1 Tailing Storage Facility (TSF)

Based on the PFS design of the TSF, it is recommended that the DFS design phase of the Kiniero Gold Project focus on:

- the finalisation of the design criteria for the TFS to incorporate information from the other Kiniero Gold Project disciplines that contributed to the PFS
- confirmation of the LoM tailings production plan based on the approved mining and processing plans
- characterisation of the geotechnical properties of the tailings, based on laboratory testing of representative samples by a South African National Accreditation System (SANAS) accredited laboratory
- confirmation of the pollution potential of the tailings, based on an assessment of their geochemistry, to be carried out by the appointed environmental consultants:
    - The Moss Group recommended that appropriate kinetic leach tests be conducted on the material classified as potentially acid forming to assess rates of acid generation and arsenic mobilisation. The ENC tailings material has substantial acid neutralising capacity which is likely to delay the onset of acid generation which should be evaluated by longer term kinetic testing.
- a Dam Break Assessment (DBA) and consequence classification of the TSF should be completed, and the associated definition of seismicity and design storm criteria and updating of the hazard / risk classification of the TSF as necessary
- incorporation of the site seismicity assessment for the Kiniero Gold Project
- development of seepage and slope stability models based on laboratory testing of the preferred materials to be used in the construction of the TSF and associated infrastructure
- DFS design of the TSF and associated infrastructure
- compilation of a DFS design report and associated estimate of the Life of Mine Costs for the facility; and consideration of the requirements of the recently published Global Industry Standard on Tailings Management with specific reference to the formal appointment of an Engineer of Record with the brief to set up the monitoring and reporting systems to facilitate compliance with the relevant standards and guidelines.

27 REFERENCES

A, N. (2013). *Mansounia Gold Project, Guinea. Scoping Study.* Accra, Ghana: SEMS Technical Services Ltd.

A, N. (2017). *Mansounia Gold Project, Guinea. Scoping Study Update.* Accra, Ghana: SEMS Technical Services Ltd.

Allen, A. (2022). *Kiniero Gold Mine. Pre-Feasibility Design of TSF.* Johannesburg: EPOCH.

Barnett, J. (2009). *Mineral Resource Estimate, Mansounia Gold Deposit, Guinea, West Africa. Burey Gold Limited.* Perth: Runge.

Blox, Inc. (2018). *Press Release: Blox Inc. Announces Mansounia Auger Drilling Results.* Vancouver: Blox, Inc.

Blox, Inc. (2018). *Press Release: Blox, Inc. Announces New Drilling Target Defined at Mansounia Gold Project.* Vancouver: Blox, Inc.

Blox, Inc. (2019). *Form 10-K. United States Securities and Exchange Commission. Annual Report to Section 13 of 15(d) of the Securities Exchange Act of 1934.* Vancouver: Blox, Inc.

CABINET D'AVOCATS BAO ET FILS. (2021). *Legal Due Diligence Report on the mining titles held by Sycamore Mine Guinée – SAU and Penta Goldfields Company SAU.* Conakry.

CABINET D'AVOCATS BAO ET FILS. (2021a). *LEGAL OPINION ON THE VALIDITY AND THE GOOD STANDING OF THE MINING TITLES HELD BY SYCAMORE MINE GUINÉE SAU AND PENTA GOLDFIELDS SAU IN REPUBLIC OF GUINEA.* CONAKRY.

Caspian Oil and Gas Limited in collaboration with Blox, Inc. (2018). *Volume 1: Mansounia Gold Project. Feasibility Assessment Summary.* Vancouver: Blox, Inc.

CIM Mineral Resource & Mineral Reserve Committee. (2019). *CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines.* West Westmount, Quebec: Canadian Institute of Mining, Metallurgy and Petroleum.

CPDM. (2021, August 19). Centre De promotion et de Developpement Miniers - Validite et Conformite. Conakry, Guinea.

Crevier, A. M. (2008). *Technical Report on the Mineral Resources and Reserves, Kiniero Gold Project, Guinea.* Montreal: Semafo.

Future Flow. (2021). *Gold Project EIA / EMP Study. Draft Interim Report, Reference ABS.20.025.* Pretoria: Future Flow.

Geostat Systems International Inc. (2007). *Technical Report on the Resources and Reserves of the Kiniero gold deposits, Guinea (31 December 2007).* Montreal: GSI.

IFC. (2007). *Environmental, Health and Safety Guidelines for Mining.* Washington, D.C.: IFC.

Independent Metallurgical Operations Pty Ltd. (2013). *Burey Gold, Mansounia Heap Leach Amenability Test Work Report (Project 5214).* Perth: IMO.

Lowe, K. (2012). *Resource Estimate Update, Mansounia Gold Deposit, Guinea, West Africa. Burey Gold Limited.* Perth: Runge, Ltd.

Marais, A. (2022). *Kiniero Gold Project. Updated Groundwater Assessment (Report No. A220207v2).* Pretoria: GeoStratum Water Management Consulting.

Micon International Co Limited. (2020). *Feasibility Study on the Kiniero Project, Guinea (in support of the Kiniero Mining Right Application).* Norwich: Micon.

SEMAFO. (2007). *Impact study on the extension environment the Kiniero Gold Mine in the west Balan.* Montreal: SEMAFO.

Telfer, C., & Stacey, G. (2020). *Definitive Feasibility Study on the Kiniero Project, Republic of Guinea for Sycamore Mine Guinee SAU (unpublished internal study).* Johannesburg: Tenement Mining (Pty) Ltd.

van Hille, R. (2020). *Report on Static Test Data for Mineral Samples, Kiniero Project.* Cape Town: The Moss Group.

Vivo Energy. (2022). *Solar PV Hybrid Power Plant solution: Kiniero Gold Mine, Guinea.* Johannesburg: Vivo Energy.

World Health Organization. (2017). *Guidelines for Drinking Water Quality. First Addendum to the Fourth Edition.* Geneva: WHO.

APPENDIX 1 - ABBREVIATIONS

ABBREVIATION	FULL TERM
a	aesthetic concerns
A*b	JKTech rock breakage parameters
AA	Atomic Absorption
ABA	Acid Base Accounting
AC	Alternating Current
AGAC	Autorité Guinée de l'Aviation Civile
AGEE	Guinean Environmental Agency
AGL	Above Ground Level
Ai	Bond Abrasion Index
AMD	Acid Mine Drainage
ANCOLD	Australian National Committee on Large Dams
AS	Analytical Signal
ASTM	American Society for Testing and Materials
BBMWI / BWi	Bond Ball Mill Work Index
BD	Bulk Density
BESS	Battery Energy Storage System
BMA	Bulk Mineral Analysis
BRG	Bundesanstalt für Geowissenschaften und Rohstoffe (Federal Institute for Geosciences and Natural Resources)
BRGM	Bureau de Recherche Géologiques et Minières (Bureau of Geological and Mining Research)
BRL	Bottle Roll Leach Tests
BSA	Bench Stack Angle
BTS	Indirect Tensile Strength
BUMIFOM	Burea Minier de le France d'Outre-Mer (Mining Office of Overseas France)
CBR	Coarse Bottle Roll
CDA	Canadian Dam Association
CGG	CGG Services (UK) Limited
CIL	Carbon in Leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIP	Carbon in Pulp
Co and/or ϕ	Total Stress
CoV	Coefficient of Variation
CPDM	Centre de Promotion et de Développement Minières (Mining Promotion and Development Centre)
CR	Critically Endangered
CRM	Certified Reference Material
c-t-c	crest-to-crest
c-t-t	crest-to-toe
DBA	Dam Break Assessment
DC	Direct Current
DD	Diamond Drilling
DEM	Digital Elevation Model
DFS	Definitive Feasibility Study
DHI	Diffused Horizontal Irradiance
DIBK	(diisobutyl ketone)-Aliquat®336

ABBREVIATION	FULL TERM
DIGM	Division Informations Géologiques et Minières (Geological and Mining Information Division)
DNI	Direct Normal Irradiation
DO	Dissolved Oxygen
DSHA	Deterministic Seismic Hazard Assessment
DSM	Digital Surface Model
DWi	Drop Weight Index
E and v	Elastic Constants
EC	Electrical Conductivity
EDA	Exploratory Data Analysis
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMS	Energy Management System
EN	Endangered
EOH	End of Hole
EoR	Engineer of Record
ERT	Electrical Resistivity Tomography
ESA	Energy Supply Agreement
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Monitoring Plan
FOS	Factor of Safety
FR	Fresh (geological modelling code)
FVD / 1VD	First Vertical Derivative
GC	Grade Control
GHG	Greenhouse Gas Emmissions
GHI	Global Horizontal Irradiance
GIS	Geographical Information System
GNSS	Global Navigation Satellite System
GoG	Government of Guinea
GRDC	Global Runoff Data Centre
GSD	Ground Sample Distance
GSI	Geological Strength Index
h	health concerns or provisional maximum tolerable daily intake
HDPE	high-density polyethylene
HSE	Health Safety Environment
IBA	Important Bird Area
IBSA	Interbench Slope Angle
ICMM	International Council on Mining and Metals
IDW	Inverse Distant Weighting
IFC	International Finance Corporation
IP	Induced Polarisation
IPP	Independent Power Producer
IRA	Inter Ramp Angle
ISO	International Organization for Standardization
KPa	Kilopascal
LAT	Laterite (geological modelling code)
LC	Least Concern
LIMS	Laboratory Information Management System

ABBREVIATION	FULL TERM
LoM	Life of Mine
LRP	Livelihood Restoration Plan
mamsl	metres above mean sea level
MAR	Mean Annual Runoff
mbgl	metres below ground level
MPa	Megapascal
MRE	Mineral Resource Estimate
MRMR	Mining Rock Mass Rating
NAG	Net Acid Generation
NAPP	Net Acid Producing Potential
NGV	No Guideline Value
NR	Noise Receptor
NT	Near Threatened
O&P	Operations and Maintenance
OEM	Original Equipment Manufacturer
OK	Ordinary Kriging
PAOI	Project Area of Influence
PCS	Power Conversion System
PFS	Preliminary Feasibility Study
PGA	Peak Ground Acceleration
PI	Plasticity Index
PLC	Programmable Logic Controller
PLT	Point Load Index Test
PNHN	Parc National du Haut Niger
POF	Probability of Failure
PPA	Purchase Power Agreement
PSD	Particle Size Distribution
PSHA	Probabilistic Seismic Hazard Assessment
PVSYST	Photo Voltaic Software
QEMSCAN	Quantitative Evaluation of Minerals by Scanning Electron Microscopy
R	Pulp Duplicate
RC	Reverse Circulation
RC	Rural Commune
RF	Revenue Factor
RoM	Run of Mine
RRPEEE	Reasonable and Realistic Prospects for Eventual Economic Extraction
RTP	Reduced to Pole
RWi	Bond Rod Mill Work Index
s	best range for water supply system
S	Field Duplicate
SAG	Société Ashanti Guinea (the Siguiri Gold Mine)
SAG	Semi-Autogenous Grinding
SANAS	South African National Accreditation System
SAP	Saprolite (geological modelling code)
SCADA	Supervisory Control and Data Acquisition
SCC	Species of Conservation Concern
SCSE	SAG Circuit Specific Energy
SIA	Social Impact Assessment
SMD	Société Minière de Dinguiraye (Lefa Gold Mine)
SMG	Sycamore Mine Guinee

ABBREVIATION	FULL TERM
SMU	Smallest Mining Unit
SOUGUIPAMI	Societe Guineanne du Patrimoine Minier
SRTM	Shuttle Radar Topography Mission
SVD / 2VD	Second Vertical Derivative
SWL	Standing Water Level
SWMP	Storm Water Management Principles
TCS	Triaxial Compressive Strength
TDS	Total Dissolved Solids
TF	Total Field
TMI	Total Magnetic Intensity
ToR	Terms of Reference
TR	Transitional (geological modelling code)
TSX	Toronto Stock Exchange
UCS	Compressive Strength
UTM	Universal Transverse Mercator
UV	Ultra Violet
VAC	Volts Altnernating Current
VU	Vulnerable
WAD	Weak Acid Dissociable
WADS	West African Drilling Services
WGM	Watts, Griffis and McOuat
WHO	World Health Organisation
WRD	Waste Rock Dumps
XRD	X-ray Diffraction
ZOI	Zone of Influence