NATIONAL INSTRUMENT 43-101
Updated Independent Technical Mining Reserve Estimate and Economic Feasibility Study on the Buckreef Gold Mine Project, Tanzania, East Africa

Compiled by: MaSS RESOURCES LIMITED

Alistides Ndibalema BSc (Mining Engineering), MAusIMM

Benjamin C. Safi, MSc (Exploration Geology), SEG

Charles Sayi Mihayo, BSc (Geology)

Reference No: TR_FS01/2017
Effective Date: 27th April 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 SUMMARY

1.1 INTRODUCTION

MaSS Resources (Pvt.) Ltd was commissioned by Tanzam2000, a subsidiary to Tanzanian Royalty Exploration Corporation to produce an independent NI43-101 compliant mine design and costing Feasibility Study on the Buckreef Gold Mine Project located in the Lake Victoria Goldfields, Geita District, in North Central Tanzania. This report provides a technical updated reserve estimate, open pit mine design and financial model Feasibility Study on the gold mineralization at the Buckreef Project, incorporating historical recommendations from previous studies as well as current and future projected economic considerations. This study was completed during November 2016 to April 2017.

The Buckreef Project is comprised of four mineral deposits, namely the Buckreef, Eastern Porphyry, Tembo, and Bingwa which are located on a single special mining license. Buckreef deposit may be divided into three contiguous deposits South, Main and North stretching over a combined total strike length of 1,500m. Tanzanian Royalty Exploration Corporation (TRX) through its subsidiary company Tanzam2000 holds a 55% interest in the Buckreef Project the rest is held by the government of Tanzania through its State Mining Company (STAMICO).

The Buckreef Project is in north-western Tanzania, near the town of Geita, approximately 110 km south-west of Mwanza city, the second largest city of Tanzania. Mwanza, the city is serviced by domestic air flights.

The project site lies 40 km south west of Geita town and is accessible via a series of unpaved roads. Within the project area, access is via local tracks and paths which are suitable for two-wheel drive vehicles in the dry season and four-wheel drive vehicles in the wet season. National road (B163) is a paved highway connecting Geita to the Mwanza city which is 110 km away. A serviced aerodrome for light aircraft is operational at the Buckreef Mine site.

1.2 PROPERTY DESCRIPTION, OWNERSHIP AND SCOPE OF WORK

The Buckreef Project is defined as an advanced pre-development/pre-production final feasibility stage gold project located within the prospective Rwamagaza Greenstone Belt, which forms part of the Lake Victoria Goldfield. The Project site is located at latitude 3° 5′ 27.69″S, longitude 32° 1′ 20.65″E or ARC 1960 UTM 36M 391,367.93mE 9,658,326.9mN in the Mnekezi village, Geita Region, approximately 35km southwest of Geita

Township. The closest communities to the site are the small villages of Mnekezi and Lwamagasa.

The topography at the project site comprises of gently rolling hills at an elevation of 1200 to 1250 above sea level (amsl), with flat alluvium deposits and black cotton soil filled valleys.

The climate of proposed project area is regarded as humid and the climate is classified as a tropical savannah (winter dry season), with a subtropical moist forest bio-zone.

The access road from Geita –Bukoba Highway to the site is approximately 15km and is poorly maintained dirt gravel road but passable throughout the year.

The national grid power line is available at the project but will need to be upgraded to supply power to the plant and other mining facilities as it is of low voltage now.

Water requirements for the Buckreef Project will be supplied from dewatering of abandoned underground mine as well as from nearby dam. Additional water boreholes will be drilled as the need arises.

The land in Tanzania is owned by the Government of the Republic of Tanzania but surface rights are owned by individuals. The Buckreef project area is no different, so individual locals who own land will need to be compensated to allow mining activities. The special mining license (SML04/92) covers over16 sq.km.

The scope of work for this study included the following:

- Estimation of Mineral Reserves
- Mining Method Analysis and Selection
- Development and Production Scheduling with Specialized Mining Software
- Optimization of Production rate and Sequencing
- Estimation of Equipment and manpower requirements
- Mining logistics and infrastructure design
- Project Execution Plan
- Capital and Operating cost estimation

- Benchmarking against current operations
- Financial analysis modeling and valuation
- Identification of opportunities, risks and risk mitigation

1.3 ENVIRONMENT AND PERMITTING

An Environmental Impact Assessment (EIA) for the Project was approved in 2014. This was updated in 2016 after significant changes and modifications to the approved EIA.

1.4 GEOLOGY AND HISTORY OF EXPLORATION

The Lake Victoria Goldfield was discovered in 1894 and significant exploitation began in the 1930s at the Geita Gold Mine. By 1940 Tanzania was producing 4.5 t/y of gold. Post 1990, a new phase of modern exploration and companies with a focus on Archaean exploration in the Lake Victoria Goldfields developed after significant gold discoveries in the Lake Victoria region.

The historic Buckreef Gold Mine was an underground mine developed within the BRMA and operated by the Tanzanian State during the late 1980s. Iamgold Tanzania (Iamgold) held the rights to the Buckreef Project prior to July 2009 and in 2010 TRX entered a joint venture with Stamico with respect to the project. The project comprises prospecting licenses 33.2km^2 in extent and a special mining license of 16.04km^2. Within the prospecting licenses, there are 53 primary mining licenses registered to local Tanzanians as small-scale artisanal gold operations.

The Buckreef Project area covers the eastern portion of the east-west trending Rwamagaza Greenstone Belt (RWGB) which is one of several Archaean supra-crustal belts lying within the Tanzanian Craton of East Africa.

The predominant rock type on the Buckreef property is a generatively deformed mafic-felsic sequence, which ranges in composition from Mg rich to Fe-rich mafic rocks to the north. At Buckreef, drilling has indicated the presence of thin interflows of predominantly pelitic and cherty sediments. Varieties of porphyritic textured felsic intrusions have also been documented.

Gold mineralization is primarily localized in ENE-WSW and E-W trending brittle-ductile shear zones within relatively deformed mafic volcanics. Alteration within the shear zones is characterized by a silica carbonate-

pyrite assemblage with the shear fabric being well preserved. Gold mineralization is associated with the alteration halos as well as grey quartz zones with the quartz occurring as thin veins, stringers and boudins generally parallel to the shear fabric.

1.5 DATABASE AND RESOURCES

In this study, four resource model files generated recently published mineral resource estimates independently interrogated and reviewed by Venmyn Deloitte, as part of the NI43-101 compliant resource inventory and a Preliminary Economic Assessment study as reported/published by Venmyn, at a 0.5g/t cut-off grade in 2012 and 2014 were used.

To augment these previous historical resource estimates, Mass Resources made considerations to include the waste material at an average density of 2.4g/t. In determining mineable reserves, Mass Resources used only the Measured and Indicated resources during the pit optimization exercise. The resource model files used by MaSS in the reserve estimate is summarized as Table 1.1

Ore Body		Datamine Model	Model Type	Comment	Final Model Used Opt
1	Buck reef main	mod_br_mixed_nospot	Krigged	Only Mineralasation	bm_mod_run3
2	Eastern Porphyry	mod_ep_mixed	Krigged	Only Mineralasation	ep_mod_run3
3	Bingwa	mod_bw_supercap	Krigged	Only Mineralasation	bw_mod_run3
4	Tembo	mod_tb_mixed	Krigged	Only Mineralasation	tb_mod_run3

Table 1.1 Resource Models

1.6 MINE DESIGN & RESERVES

This mining study is based on the 2014 mineral resource estimate as published by Venymn Deloitte. Mass Resources essentially overhauled and improved on the original overall mining philosophy previously expounded in the 2012 PEA report. This essentially consists of several conventional open pit layouts with access to the orebodies provided via a series of ramps into the pits.

The weathered, oxidised, near surface material permits excavation by a combination of free digging, ripping, drill and blasting. In the transition zone, a mixture of free digging, ripping, drilling and blasting methods would be employed, whilst for the deeper fresh, competent material conventional pre-splitting; drill and blasting methods would be required to extract the ore. The mining can be undertaken by shovel loading of ore and waste, and articulated dump truck hauling via the planned access ramps (Venymn, 2012).

The reserves for Buckreef project as developed by MaSS Resources are NI43-101 compliant. Reserves were calculated by first optimizing pit shells using preliminary economic parameters and then utilizing the optimized pits as templates for design of pit phases and the ultimate pit.

Reserves were calculated using Measured and Indicated resources contained inside of the pit designs. Full Grade Ore cut-off grade (FGO) calculations rely on inputs from this study and other sections of the Buckreef Feasibility study. Reserves were based on $1100/oz-Au; 0.59g/t & 0.63g/t-Au FGO was used for reserve calculation.

Two (2) optimal mining sequences have been evaluated and considered for the life of mine (LOM) production schedules described in this report and both assume that a processing plant will be established close to the Buckreef Pit and will treat ore from the Buckreef, Bingwa, Eastern Porphyry and Tembo deposits until depletion.

- **Case 1:** mining schedule based on optimized shell Pit 20 at a cut-of-grade of 0.59g/t. The pit design generated reserves come up as 17.5Mt grading at 1.89g/t **excluding** the current existing ROMPAD stockpile of 119,726t @ 1.86g/t. Life of Mine (LOM) is estimated as 15yrs with an estimated recovered gold yield of 0.91Moz at $696/oz.

- **Case 2:** mining schedule based on optimized shell Pit 16 at a cut-of-grade of 0.63g/t. This has a total mineable reserve of 9.91Mt at an average grade of 2.16g/t **excluding** the current existing ROMPAD stockpile of 119,726t @ 1.86g/t. This scenario has a Life of Mine (LOM) of 13yrs. Estimated gold to be recovered is 0.66Moz at $636/oz. Appendices AA, BB, CC and DD show different schedules for this case/scenario.

Case 1 scenario major highlights include:

- Over 15-yr LoM, a total of 17.49Mt of ore with a strip ratio of 8.1:1 will be mined.
- 1.064Moz of gold mined over the life of the project.
- 0.91Moz of gold will be produced over the life of the project.
- Initial capital cost outlay estimated at $59.6 million and sustaining capital, excluding closure costs.
- Cash operating costs of $696/oz produced equivalent US$35.95 per tonne milled. Generation of a positive IRR of 53.7%.

Case 2 scenario major highlights include:

- Over 10-yr LoM, a total of 10.96Mt of ore with a strip ratio of 6.8:1 will be mined.
- 0.75Moz of gold mined over the life of the project.
- 0.66Moz of gold will be produced over the life of the project.
- Initial capital cost outlay estimated at $59.6 million and sustaining capital, excluding closure costs.
- Cash operating costs of $639/oz produced equivalent US$38.24 per tonne milled.
- Generation of a positive IRR of 57.2%.

The Case 1 scenario presents a larger resource/reserve bases when compared to the Case 2 scenario. In, addition, Case 1 scenario by being a bigger pit compared to the Case 2 scenario, it automatically leaves room for future pit expansion at lower cost than Case 2 if sub-parallel ore-zones are discovered during mining.

In consequence, the discussion in this study considers Case 1 for the various planned open pits that constitute the Buckreef project. Table 1.2 below is a summary of the global pit design optimized reserves of 17.6Mt grading at 1.89g/t for Case 1 scenario, the main subject of this study.

Appendices AA to DD in this report are however a summary of the Case 2 scenario as a potential and viable mining option for TRX.

Scheduled Resereves Catergories - Pit Design						
Description			**Measured**	**Indicated**	**Inferred**	**Total**
Buckreef	Tonnes (T)	t	12,005,727	3,099,442	461,390	15,566,560
	Mt	t	12.01	3.10	0.46	16
	Au g/t	g/t	1.76	2.08	2.02	1.83
	Au_g	g	21,093,208	6,460,682	932,098	28,485,988
	Au kg	kg	21.09	6.46	0.93	28
	Au oz	**Oz**	**678,162**	**207,716**	**29,968**	**915,846**
Eastern Porphyry	Tonnes (T)	t	26,003	309,902	379,818	715,723
	Mt	t	0.03	0.31	0.38	0.72
	Au g/t	g/t	2.38	1.86	1.79	1.85
	Au_g	g	61,827	577,794	681,069	1,320,690
	Au kg	kg	0.06	0.58	0.68	1.32
	Au oz	**Oz**	**1,988**	**18,577**	**21,897**	**42,461**
Tembo	Tonnes (T)	t	-	270,846	31,657	302,502
	Mt	t	0.00	0.27	0.03	0.30
	Au g/t	g/t	0.00	2.22	1.86	2.19
	Au_g	g	-	602,301	58,794	661,096
	Au kg	kg	-	0.60	0.06	0.66
	Au oz	**Oz**	-	**19,364**	**1,890**	**21,255**
Bingwa	Tonnes (T)	t	218,126	576,341	111,846	906,312
	Mt	t	0.22	0.58	0.11	0.91
	Au g/t	g/t	3.14	2.80	2.59	2.86
	Au_g	g	684,864	1,616,218	289,547	2,590,630
	Au kg	kg	0.68	1.62	0.29	3
	Au oz	**Oz**	**22,019**	**51,963**	**9,309**	**83,291**
Total - Pits	Tonnes (T)	t	12,249,856	4,256,531	984,710	17,491,098
	Mt	t	12.25	4.26	0.98	17
	Au g/t	g/t	1.78	2.17	1.99	1.89
	Au_g	g	21,839,900	9,256,995	1,961,509	33,058,404
	Au kg	kg	21.84	9.26	1.96	33
	Au oz	**Oz**	**702,169**	**297,619**	**63,064**	**1,062,852**
Total - Stockpile incl	Tonnes (T)	t	12,369,582	4,256,531	984,710	17,610,824
	Mt	t	12.37	4.26	0.98	17.61
	Au g/t	g/t	1.78	2.17	1.99	1.89
	Au_g	g	22,062,590	9,256,995	1,961,509	33,281,094
	Au kg	kg	22.06	9.26	1.96	33
	Au oz	**Oz**	**709,329**	**297,619**	**63,064**	**1,070,012**

Table 1.2 Buckreef Project Pit-design ore reserves (0.59g/t cut-off grade) & Stockpile reserves

Inferred Mineral Resources/Reserves are considered geologically speculative and are not used in project economics, nor are they considered for mining plans.

The study is only restricted to open pit mining at this stage with no detailed consideration of underground mine planning that is envisaged at the end of the pit life. A mention of the underground mine development potential is briefly summarized beginning on page 99.

1.7 DEVELOPMENT AND OPERATIONS

Buckreef project has been planned as an open pit truck and loader operation. This is the best mining method for the deposit due to the

geometry of ore bodies and near surface material Trucks and loaders allows for reasonably good selectivity and cost benefits.

Equipment selected to haul waste and ore materials includes twenty 30tonnes trucks, and four shovels through the life of mine (LoM) along with additional support and ancillary equipment. MaSS produced a mining schedule using parameters for selected mining equipment.

A production schedule has been developed based on the following constraints:

- Target ore production during commercial production to be 1,500,000 tonnes per year;
- Minimization of pre-strip quantities;
- Oxides material in all pits to be treated first;
- Initial process plant feed scheduled at 60tph (Yr1-Yr4) with upgrades to 120tph (Yr5-Yr9) and 180tph (Yr10 onwards)
- A summary of the process plant feed schedule rate is shown in Table 1.3

Mining Schedule - Pit by Pit			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Buckreef Main	Waste	t	2,750,336	2,579,546	7,064,239	8,020,000	9,473,682	11,050,000	11,128,844	11,050,000	11,144,251	10,863,630	10,973,884	10,633,079	10,428,470	8,014,552	4,748,513	**129,923,025**
	Ore	t	249,664	420,454	435,761	480,000	950,000	950,000	950,000	950,000	855,749	1,136,370	1,026,116	1,366,921	1,571,530	1,985,448	2,238,546	**15,566,560**
	Grade	g/t	1.85	2.05	2.05	2.10	1.89	1.60	1.42	1.42	1.60	1.84	1.87	1.58	1.90	2.01	2.13	**1.83**
	Metal	g	462,544	862,455	893,794	1,006,585	1,792,178	1,520,042	1,346,703	1,347,215	1,372,791	2,094,231	1,920,706	2,157,451	2,981,441	3,995,653	4,760,424	**28,514,213**
	SR	t:t	11.02	6.14	16.21	16.71	9.97	11.63	11.71	11.63	13.02	9.56	10.69	7.78	6.64	4.04	2.12	**8.35**
Bingwa	Waste	t						1,493,901	1,121,066	1,115,673	680,838	38,196						**4,449,673.42**
	Ore	t						154,004	151,549	221,496	309,071	70,193						**906,312.03**
	Grade	g/t						1.76	2.32	4.82	2.25	2.92						**2.86**
	Metal	g	-	-	-	-	-	271,413	351,228	1,067,730	694,997	205,260	-	-	-	-	-	**2,590,629**
	SR	t:t	-	-	-	-	-	9.70	7.40	5.04	2.20	0.54	-	-	-	-	-	**4.91**
Eastern Porphyry	Waste	t									858,558	1,977,568	994,124	737,058	841,735	397,755		**5,806,798.44**
	Ore	t									141,442	125,815	113,540	84,449	112,561	137,916		**715,723.11**
	Grade	g/t									1.67	2.05	1.96	1.81	1.66	1.91		**1.85**
	Metal	g	-	-	-	-	-	-	-	-	235,781	257,914	222,578	153,157	187,373	263,886	-	**1,320,690.27**
	SR	t:t	-	-	-	-	-	-	-	-	6.07	15.72	8.76	8.73	7.48	2.88	-	**8.11**
Tembo	Waste	t	-	-	-	-	-	-					343,302	1,007,400	568,555			**1,919,256.99**
	Ore	t	-	-	-	-	-	-					85,364	102,203	114,936			**302,503.40**
	Grade	g/t	-	-	-	-	-	-					1.64	2.33	2.46			**2.19**
	Metal	g	-	-	-	-	-	-	-	-	-	-	139,776	238,535	282,785	-	-	**661,097.37**
	SR	t:t	-	-	-	-	-	-	-	-	-	-	4.02	9.86	4.95	-	-	**6.34**
Total	Waste	t	2,750,336	2,579,546	7,064,239	8,020,000	9,473,682	12,543,901	12,249,910	12,165,673	12,683,647	12,879,393	12,311,310	12,377,537	11,838,761	8,412,306	4,748,513	142,098,754
	Ore	t	249,664	420,454	435,761	480,000	950,000	1,104,004	1,101,549	1,171,496	1,306,262	1,332,378	1,225,020	1,553,573	1,799,026	2,123,365	2,238,546	17,491,098
	Grade	g/t	1.85	2.05	2.05	2.10	1.89	1.62	1.54	2.06	1.76	1.92	1.86	1.64	1.92	2.01	2.13	1.89
	Metal	g	462,544	862,455	893,794	1,006,585	1,792,178	1,791,455	1,697,932	2,414,945	2,303,569	2,557,406	2,283,061	2,549,144	3,451,599	4,259,539	4,760,424	33,086,629
	Ounce Mined	Oz	14,871	27,729	28,736	32,362	57,620	57,597	54,590	77,642	74,061	82,223	73,402	81,957	110,972	136,947	153,051	1,063,760
	SR	t:t	11.02	6.14	16.21	16.71	9.97	11.36	11.12	10.38	9.71	9.67	10.05	7.97	6.58	3.96	2.12	8.12
	Total Material	t	3,000,000	3,000,000	7,500,000	8,500,000	10,423,682	13,647,905	13,351,459	13,337,169	13,989,909	14,211,771	13,536,330	13,931,111	13,637,787	10,535,671	6,987,059	159,589,852

Table 1.3. LoM mining schedule and contribution of each pit (based on optimized reserves at 0.59g/t cut-off)

The process plant treatment philosophy is that all material above the cut-off grade is treated as ore to be processed through the plant.

1.8 CAPITAL COSTS

Life of Mine (LoM) capital costs excluding closure totals US$ 59.6 million (including US$ 5.42M in contingency) is summarized in Table 1.4

Capital Plan		USD
Mining	**1**	**12,649,184.00**
Excavator	4	1,249,384.00
Articulated Trucks - 24T	20	7,000,000.00
Loader	7	1,858,500.00
D8 Dozer	1	250,000.00
Grader	1	336,300.00
Water Truck	1	100,000.00
Service Truck	1	100,000.00
Light Trucks & Cars	10	415,000.00
Dewatering Pump	4	160,000.00
Survey Tool	1	45,000.00
Pit Optimisation	1	35,000.00
Mining Offices/Shop	1	300,000.00
Haul Roads	1	100,000.00
HME - Workshop Construction	1	700,000.00
Processing Plant	**1**	**35,384,625.00**
TSF Construction	1	1,250,000.00
Portable Water Plant	1	300,000.00
Laboratory	1	500,000.00
Process Plant Development	1	32,584,625.00
Generators	1	750,000.00
HR+ Community	**1**	**3,795,000.00**
Camp Facilities	1	250,000.00
Camp Houses (2Bx20+4Bx30)	50	750,000.00
Compensation - Relocation of Mnekezi road	1	250,000.00
Airport/Aerodrome	1	35,000.00
Helicopter Pad	1	10,000.00
Compensation - Relocation from SML	1	2,500,000.00
HSE	**1**	**100,000.00**
Clinic	1	100,000.00
		-

Finance + IT	**1**	**2,241,518.60**
Computer & Server	2	40,000.00
Desktop	30	45,000.00
Laptop	20	30,000.00
Networking & Communication	2	40,000.00
Process Plant Insurance - 6% Plant Cost	1	1,247,977.50
Mining Equipment Insurance - 2.5% Equip Cost	1	838,541.10
10% Contingency	**1**	**5,417,032.76**
Total Capex		**59,587,360.36**

Table 1.4 Life of Mine Capital Costs

1.9 OPERATING COSTS

LoM operating costs are estimated to total US$ 633 million as shown in Buckreef Master Scheduling file attached. This result in unit costs of US$ 35.95 per ton milled or US$ 696 per ounce produced.

1.10 ECONOMIC ANALYSIS

The financial results of this report are based upon work performed by MaSS's engineer and consultants and has been prepared on an annual basis throughout the life of mine.

The financial model is presented on an unleveraged basis and includes an estimate of income tax. The economic analyses of all four deposits results, shown in Table 1.5, indicate a net present value of US$ 243.71 million at a 5% discount rate or a net present value of US$ 140.12 million at a 10% discount rate all figures do not include depreciation and amortization costs.

Financial Model Parameters		
	Unit	**LOM Total**
Exchange Rate	2,000	
Revenue @Gold Price	1,250	1,137,594,118.97
Total INCOME	**US$**	**1,137,594,118.97**
Production Costs		
Mine Royalty and District Levy	**4.3%**	**48,916,547.12**
Fuel Cost – Trucks	US$	42,716,437.17
Tires Cost	US$	5,235,000.00
Other Support Equipment	US$	270,000.00
Fuel Cost – Crusher	US$	13,259,741.18
Load & Haul (Owning Cost)	US$	51,068,752.77-
Drill & Blast	US$	107,738,170.69

Dewatering	US$	216,650.00
Mine Haul Road Maintenance – km	US$	1,440,000.00
Contingency (day works, road repair etc)	US$	288,000.00
G&A	US$	780,000.00
Software and Planning Support	US$	450,000.00
GC - Grade Control & Lab Analysis	US$	85,863.56
Mining cost	**US$**	**223,548,615.39**
Process Plant Operational Costs	US$	237,629,118.23
Process Plant Overheads Costs	US$	6,099,000.00
Lab & Permit	US$	4,826,724.00
Processing Plant Cost	**US$**	**248,554,842.23**
Total Production Cost	**US$**	**521,020,004.74**
Labor & Benefits Cost	**US$**	**68,683,440.00**
Security Company	US$	5,374,450.00
Tanzanian Police Officers (8)	US$	795,931.50
Filling Cabinet (02)	US$	2,635.35
Maglite Rechargeable torch (40)	US$	15,367.30
Two-way Communication	US$	60,000.00
CCTV	US$	90,000.00
Access control	US$	5,000.00
Security Hardware	US$	15,000.00
Security night Jackets	US$	13,171.97
Metal Detector (Supper Scanner) 20 PC	US$	4,608.00
Gold shipment wearing/gears (Body Amor Vest); (15 Pcs)	US$	18,528.00
Total Security Cost	**US$**	**6,394,692.11**
Overhead Cost (Services Department)	US$	3,124,033.59
Mobile Equipment	US$	10,579,225.00
General Electrical Services (GES)	US$	802,535.20
Site Services	US$	2,244,000.00
Total Engineering Services	**US$**	**16,749,793.79**
Work place registration & Compliance (OSHA & FIRE)	US$	2,125.00
ISO 1800 Audit	US$	350,000.00
Supplies - General Consumables	US$	12,150.00
Safety Signs- Purchase of Paints	US$	20,100.00
General Consumables - Environment	US$	21,882.40
Permits – Environment	US$	333,890.00
Contractors/Consultants - Environment	US$	755,403.00
Environmental Monitoring	US$	279,000.00
Vegetation and Vector Control	US$	72,250.00

Waste Management	US$	64,600.00
Water treatment/portability	US$	621,000.00
TCAA aerodrome license	US$	10,200.00
Health (Clinic)	US$	396,000.00
HSE	**US$**	**2,938,600.40**
HR + Community+ Camp	**US$**	**14,790,859.41**
Finance + IT	**US$**	**2,605,814.10**
		-
Overhead Cost	US$	112,163,199.81
Total costs	US$	633,183,204.55
Operating Profit	**US$**	**504,410,914.42**
Cash from operations	**US$**	**504,410,914.42**

US$/ton Milled	$/t	35.95
US$ per Ounce	$/Oz	695.75
Total Ounces	Oz	910,075.30
Total Tonnes Mined per Year	t	159,589,852.42

Capex	59,587,360
Total Cost	692,770,564.91
Cash from Operations	**444,823,554.06**
Cumulative Cash	**444,823,554.06**
NPV (5%)	**$243,714,282.35**
NPV (10%)	**$140,118,766.99**
IRR	**53.7%**

Table 1.5 Summary of Financial Model result for LoM

While representing an excellent return on investment (53.7% IRR), the Buckreef project has the potential of increasing its resources and reserves through a close-spaced grade control drilling program as mining progresses.

1.11 CONCLUSIONS AND RECOMMENDATIONS

This mining feasibility study indicates a robust project and MaSS recommends that the project advance to detailed engineering in support of the construction of a mine and process facility at Buckreef.

It recommends that the Buckreef project is financially positive and mining operations can be executed after approval.

Key findings of the Feasibility Study are as follows:

- Using a US$ 1100/oz gold price and 0.59g/t fully cut-off grade, MaSS Resources Ltd has estimated that the Buckreef Gold Project contains a minable reserve of 17.5 million tons of ore grading 1.89 grams per ton gold. The pits designs contain waste rock material of 142.1 million tons resulting in an 8.12:1 (waste to ore) strip ratio,
- The ore-bodies are predictable and open for further expansion,
- Metallurgy is straightforward and without preg-robbing material,
- Oxide materials are free digging with very minimal need of blasting,
- Existing infrastructure (including CIC tanks and Leaching pads) should be productively incorporated into the proposed CIL process plant set up to minimize capital and operating costs.
- The mine is expected to employ around 263 workers in year 1 to year four before it increases its number to 398 employees at its full capacity

The study assessed the two major components of the project:

- Technical viability which included cut-off grade calculations, pit optimization, mine scheduling and processing schedule
- Financial valuation

The technical evaluation of the project focused on the four (4) main prospects. The geological resource estimation model was utilized in selecting an optimal pit and the subsequent pit design and mining schedule for the total resource. Work was also completed on the site/ infrastructure layout. The technical work undertaken represents a complete re-

assessment and design of the Buckreef project including current infrastructures redesign. No significant technical challenges were noted.
The financial valuation of the Buckreef project reflects an attractive return on investment. To determine the value of the Buckreef project, an assessment of the increased value of Buckreef because of mining all the Buckreef Pits was completed. Thus, the cash flow of the Buckreef (including all four deposits were analysed.

The value of Buckreef including all deposits is as follows:

- NPV (10%) US$ 140.12M (Nominal & non-escalated after tax)
- NPV (5%) US$ 243.71M (Nominal & non-escalated after tax)

The capital required for the LOM implementation of the Buckreef project is US$59.5M (including US$5.7M in contingency).

While representing an excellent return on investment (53.7% IRR), the Buckreef project has the potential of increasing its resources and reserves through a close-spaced grade control drilling program as mining progresses.

The gold price used for reserve estimations is US$1,100/oz. The input gold prices were supplied by Buckreef management and it was in line with current market estimations guidelines.

Royalties payable are based on 4% of gold revenue, and payable on dispatch of the bullion to the refinery. A district council service levy of 0.3% is also payable to the local authority on the gold revenue before deduction of refining and transport costs.

At 31 March 2017 reserves were estimated at 17.6Mt at 1.89g/t and 1.07Moz of contained gold metal. Pit optimization, pit designs and scheduling were based on the long-term gold price estimate.

2 INTRODUCTIONS AND PROJECT DESCRIPTION

2.1 TERMS OF REFERENCE

This report titled, “Updated Independent Technical Mining Reserve Estimate and Feasibility Study on the Buckreef Gold Mine Project, Tanzania, East Africa” (the “Technical Report”) was prepared to provide Tanzanian Royalty Exploration Corporation (TRX) an independent Canadian National Instrument 43-101 (NI 43-101) Mining Reserve Estimate and Valuation

Technical Report as an upgrade of the results of the 2012 published Preliminary Economic Assessment (PEA) by Venmyn Deloitte.

The Buckreef Gold Mine Project is made of Buckreef Special Mining License Area (SML04/1992) which currently encompasses four (4) gold deposits namely, the Buckreef Prospect, the Eastern Porphyry Prospect, the Bingwa Prospect and the Tembo Prospect (Figure 2.1). This Mining Technical Report has been prepared by MaSS Resources Limited at the request of Peter Tererai Zizhou, General Manager (Operations) for Buckreef Gold Company Limited.

In addition to site visits, MaSS held multiple discussions with technical personnel from the Company regarding all pertinent aspects of the project and carried out a review of available literature and historical documented reports and results on the Property. The reader is referred to those data sources, which are outlined in the References section of this report, for further detail.

Buckreef's goal for the study is to maximize the underlying value mineral resource by employing the correct project concepts, in alignment with its corporate goals and development strategies. It is expected that MaSS prepares an optimized mine plan using proven methods that provide production surety. This study is therefore expected to effectively encompass the following aspects:

- Estimation of mineral reserves
- Mining method analysis and selection
- Development and production scheduling with specialized mining software
- Optimization of production rate and sequencing
- Estimation of equipment and manpower requirements
- Mining logistics and infrastructure design
- Project execution plan
- Capital and operating cost estimation
- Benchmarking against current operations
- Financial analysis modeling and valuation
- Identification of opportunities, risks and risk mitigation

2.2 INFORMATION SOURCES

This report was prepared for Buckreef Gold Company Limited (BUCKREEF) by MaSS Resources Limited (MaSS) and is based in part on information prepared by other parties. MaSS has relied, to some extent, on geological, geochemical, engineering, metallurgical, and other reports and documents completed by others, as well as opinions from other persons. Some of these persons are Qualified Persons under the definitions of NI 43-101. The

recommendations and conclusions contained in this report are based, in part, on information from sources outside the control of Mass

The information was provided by Buckreef management and staff, and MaSS believes that this information is reliable for use in this report, without being able to independently verify its accuracy. MaSS has visited the project area once, and has relied upon Buckreef statements regarding property status, legal title, for the project, which MaSS believes to meet Tanzania mining industry standards for such work. MaSS has decided to rely on this data as necessary to complete this report.

3 PROPERTY DESCRIPTION AND LOCATION

3.1 PROPERTY LOCATION

The Buckreef Project area is in East Africa, in north-central Tanzania, near the town of Geita, approximately 185km west of the Mwanza city (Figure 4.1). For reference, the Buckreef Deposit in the central part of the Buckreef Project area is located at 03° 5′ 27.69″ S, 032° 1′ 20.65″ E (Arc 1960 UTM Zone 36M 391,367.93mE 9,658,326.9mN)

3.2 TENURE

The Buckreef Gold Project is a gold exploration project which was originally held by Iamgold prior to July 2009. The "Agreement to Redevelop the Buckreef Gold Mine (ARBGM) between Iamgold and the Ministry for Energy and Minerals included at that point, a single Special Mining License and 12 Prospecting Licenses covering 98.19km2. In July 2010, Iamgold applied to surrender all licenses relating to the ARBGM, effective 25 October 2009, and the Commissioner for Minerals withdrew all license applications relating to the ARBGM.

In 2010, TRX was invited by STAMICO on behalf of the Ministry of Energy and Minerals, to tender for the opportunity to negotiate a joint venture agreement with respect to the Buckreef Project. TRX was awarded the tender, as confirmed in a letter from the Director General of STAMICO dated 16 December 2010. In October 2011, TRX signed a joint venture agreement with STAMICO with regards to the Buckreef Project. TRX holds a 55% interest in the Buckreef Project, with STAMICO holding the remaining 45%.
In terms of the agreement, TRX will manage the Buckreef Project and is not responsible for providing mine development financing. If positive feasibility is achieved, TRX expects that the project will be financed through debt or a combination of debt and equity. Net profits will be divided in accordance with the parties' ownership interests after payment of all project expenses including debt service.
Early this year, the Buckreef gold special mining license (SML04/92) was renewed and enlarged to a total area of 16.04 square km. The licenses operated by Tanzam 2000, a subsidiary company of Tanzanian Royalty Exploration (TRX).

3.3 PERMITS AND PERMITTING PROCESS

3.3.1 Basis for Mineral Title

The state owns title to all mineral resources in The Republic of Tanzania. All permits conferring rights to explore and extract mineral resources are granted by the Minister of Energy and Minerals, ("MEM") under the Tanzania 2010 Mining Act. The Mining Act serves as the legal framework governing mining in the Tanzania.

3.3.2 Exploration Permits (Rights and Obligation)

The Ministry of Energy and Minerals (MEM) is responsible for guiding the development of the mining industry in Tanzania through the Mineral

Division. The Tanzanian Mining Act, 2010, the Explosives Act, 1963, and the Mining (Mineral Rights) Regulations, 2010, regulate the law relating to prospecting and exploiting minerals, including granting, renewals, royalties, fees and other charges.

Mineral property and control over minerals is vested in The United Republic of Tanzania. Only companies incorporated in Tanzania may hold mineral rights in Tanzania; however, exploration and mining is open to foreign concerns. Royalties are charged on gross value which for precious metals is 4% and district council where a gold mine is located is entitled to collect a 0.3% on the revenues from gold production as service levy. There is no mandatory participation by the State although joint ventures with local companies are encouraged

Mineral rights under the Mining Act include Prospecting Licenses (PL), Retention Licenses (RL), Special Mining Licenses (SML), Mining Licenses (ML), Processing Licenses, Smelting Licenses and Refining Licenses. The prospecting license is granted for an initial period of 4 years. Upon 1st renewal, if the area is greater than 20 sq. km then 50% must be relinquished and the license is then valid for a further 3 years. Upon second renewal, if the license is greater than 20sq km then 50% must be relinquished and the license is then valid for a further 2 years. Mining Licenses are granted for an initial period of 10 years for medium scale mining operations with a capital investment between US$100,000 and US$100 million and are renewable. An Environmental Certificate issued by the National Environment Management Council (NEMC) is a perquisite to the grant of a Mining License.

Special Mining Licenses (SML) are granted for large scale mining operations with a capital investment of more than US$100 million and are valid for the estimated mine life determined in the Bankable Feasibility Study (BFS). Holders of special mining licenses may enter into a Mining Development Agreement (MDA) with the Government which is subject to review every five years and at the renewal of the mineral right.

MDAs can guarantee fiscal stability for a long-term mining project, cover environmental matters which are project specific and not covered by the Mining Regulations, requirements for the procurement of goods and services available in Tanzania and the employment and training of citizens of Tanzania and the terms of State participation in long-term mining projects.

3.3.3 Project Mining Permits

The Buckreef Project is comprised of a single special mining license as shown on Figure 3.1 with six known gold deposits namely Buckreef South, Buckreef Main, Buckreef North, Eastern Porphyry, Tembo and Bingwa.

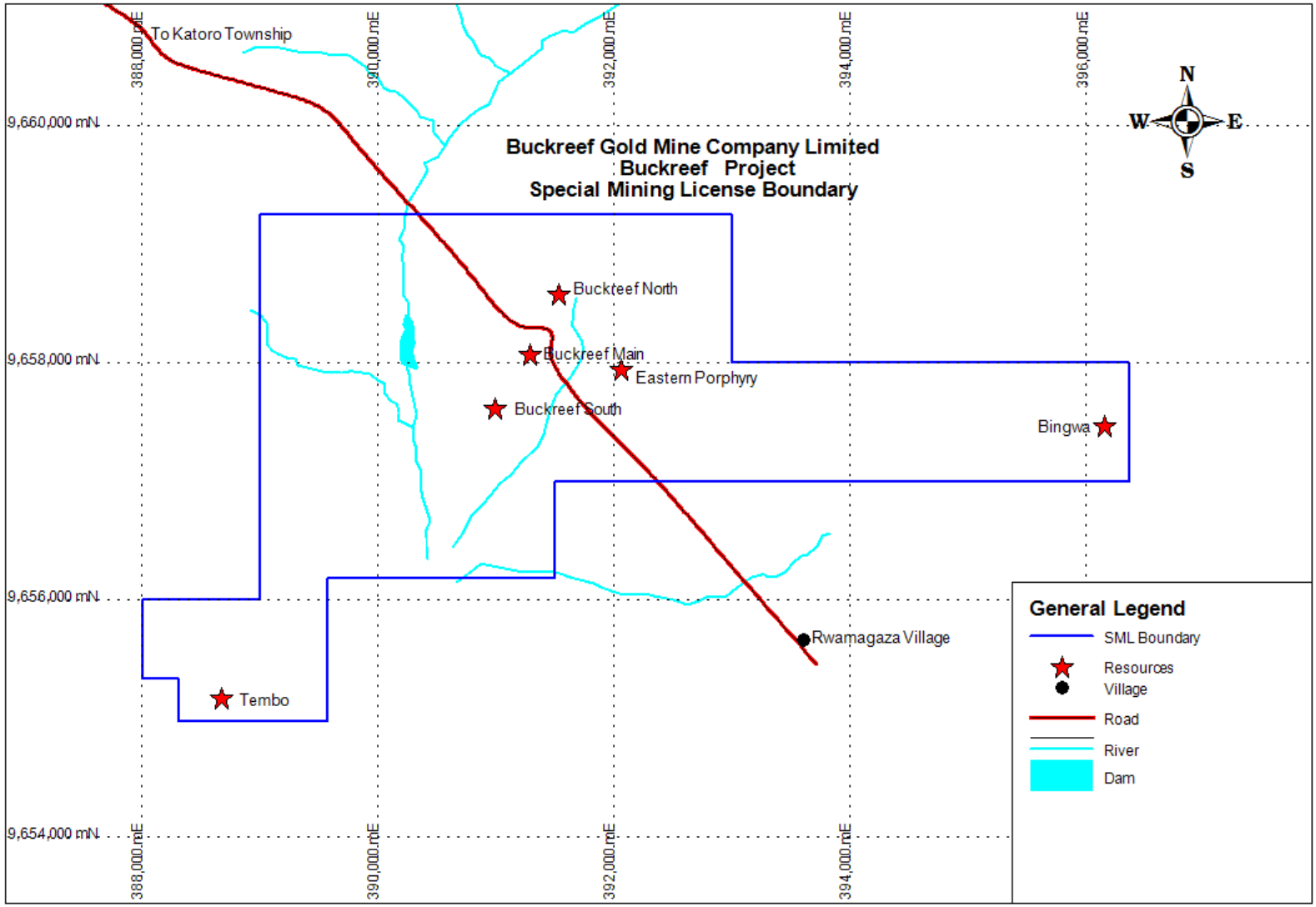


Figure 3.1 Buckreef Project Special Mining License Boundaries

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, PHYSIOGRAPHY & INFRASTRUCTURE

4.1 ACCESSIBILITY

The Buckreef Project is situated in the Geita district, approximately 110km southwest of Mwanza. The hinterland northwest of Dar es Salaam is connected by a poorly maintained bitumen road, unreliable train service and several daily commercial flights. Mwanza is the nearest major population center to the project, approximately 60km northeast of Buckreef, and is the second largest city in Tanzania with a population of 1million people.
Access to the project area is via ferry from Mwanza across Smith's Sound, then via sealed road through the township of Geita. Alternative access is via sealed road through Shinyanga and Kahama, and subsequently via gravel road north to Bulyanhulu and then west to Nyarugusu.

The project can also be accessed by scheduled light aircraft flights (Coastal Air Services) from Mwanza to the airstrips located at Bulyanhulu or Geita Gold Mines, or more directly by charter to the bush airstrips located at Buckreef Mine or Nyarugusu Village. Access to the project area can be hampered in the rainy season

The project site itself lies 15 km south-east of Katoro Township on a series of unpaved roads. Within the project area, access is via local tracks and paths which are suitable for two-wheel drive vehicles in the dry season and four-wheel drive vehicles in the wet season.

4.2 CLIMATE, LOCAL RESOURCES AND PHYSIOGRAPHY

4.2.1 Climate

The project experiences a temperate climate, with sub-humid moderate temperatures all year round. The mean annual rainfall is 1,264 millimeters (mm) (Veiga, 2004) and the Geita District has a bi-modal summer rainfall distribution, with two main rainy seasons: one from November to December and the other from February to May.

The period from June to August is usually dry. The rain occurs as localized storms rather than in a generalized downpour and runoff from the upland ridge and hardpan ferricrete areas on BRMA is very high. The run-off generates rapid response stream-flow and sheet-flow. The water table varies markedly from season to season which can influence drilling conditions.

Consequently, the dry season, occurring between May and September is preferable for drilling programs and field operations. During the wet seasons, access is limited across black cotton soils. River drainages are impassable in the wet season without suitable bridge construction.

The annual minimum and maximum temperatures for Geita range between 14°C and 30°C. September is the warmest month with an average temperature of 29.2°C at noon, while July is coldest with an average temperature of 14.6°C at night. The area has no distinct temperature seasons and the temperature is relatively constant during the year. July is on average the month with most sunshine (Henning, 2011). The proposed project area is regarded as humid and the climate is classified as a tropical savannah (winter dry season), with a subtropical moist forest bio-zone (Henning, 2011).

The climate in the Buckreef Project area is a major determinant of the geographical distribution of plant species and vegetation types. Local conditions of temperature, light, humidity and moisture vary greatly and the project design must accommodate this local climate variation to ensure that erosion is avoided, sensitive species or habitats are not destroyed, and material stockpiles are not damaged by meteorological events.

4.2.2 Physiography

The average attitude of the Geita district ranges between 1,300 to 1,100 meters above sea level (m.a.s.l). The Geita district is characterized by hilly topography in the north, west and parts of the south west, with a gentle slope towards the south and southeast (Figure 4.1). There are pediments that are gently sloping towards the drainage depressions which are vulnerable to erosion, particularly where vegetation cover has been removed through cultivation, mining or overgrazing.

The Buckreef Project is dominated by very subdued terrain. Low rolling plateaus are cut by incised rivers on north, south and west sides. Major features are long ridges capped by hard iron-rich laterite ("cuirasse"). Where indigenous vegetation has not been cleared is dominated by miombo woodland.

There is one dam and one borehole at the Buckreef site at present. Water is in relatively enough supply for the current requirement and will need to be upgraded to meet mine requirement. The current supply is enough for drilling purposes, domestic use at the camp etc.

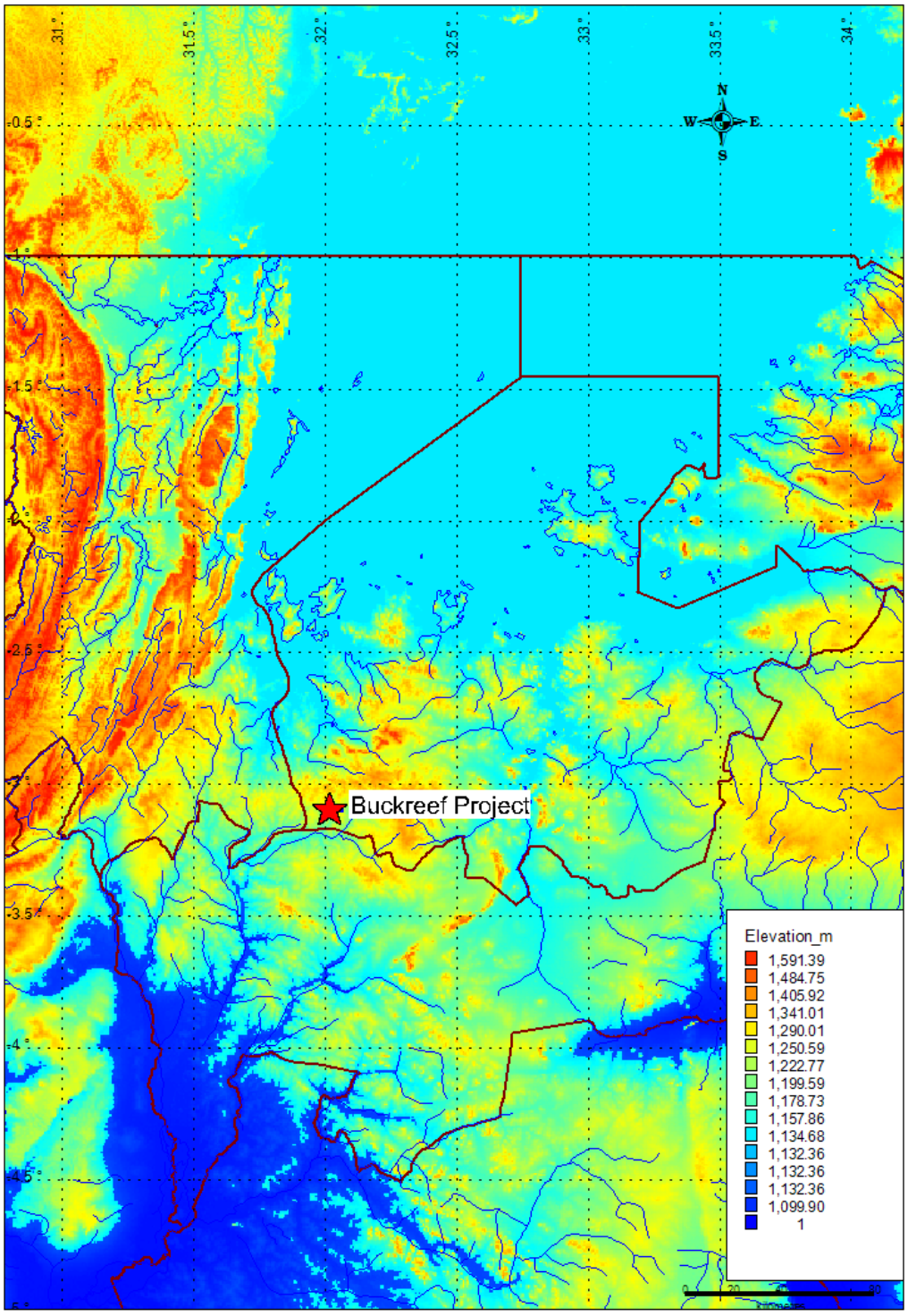


Figure 4.1 Physiographic Map of North western part of Tanzania

4.3 INFRASTRUCTURE

The infrastructure surrounding the Buckreef Project area is generally poor and unpaved roads are poorly maintained rendering access during the rainy season difficult but passable.

The project area is densely populated with individual and/or agglomerations of dwellings related to transient artisanal gold mining activities.
Exploration logistics, supplies and labor are largely provided from Mwanza and where possible, sourced locally from the villages of Rwamagaza, Katoro, Nyarugusu and Geita Mine Township. Local small pastoral villages are poor sources of logistical support and communication in the area is provided by a modern cell phone network, which has coverage in virtually all sectors of the LVG.

The surface rights are sufficient for future mining operations, processing plant, waste sites and TSF sites. Power and water availability are adequate for current requirements and will be upgradable to meet future mining requirements.

5 HISTORY

5.1 Buckreef and Eastern Porphyry

The Lake Victoria Goldfield was discovered in 1894 by German explorers and significant exploitation began in the 1930s at the Geita Gold Mine. Several small gold mines exploiting near surface reefs, operated throughout the Rwamagaza Greenstone Belt, particularly near the village of Rwamagaza. By 1940, Tanzania was producing 4.5tpa of gold (Au).

Gold bearing quartz veins were reported from the current Buckreef Mine area in 1945 and reports from the 1950s attest to ongoing production at several localities near Rwamagaza, including the Buckreef area. The extent of the small-scale local and colonial mining activities is evident from the numerous pits and adits covering the entire Buckreef tenement, however no production figures are available.

An airborne geophysical survey was flown during 1959 over the RGB, in a joint effort between the United Nations and the Tanzanian Mineral Resources Division, with a ground magnetic survey follow-up undertaken between 1965 and 1968. The Buckreef quartz vein hosted deposit was rediscovered in 1965 and the discovery was followed-up by drilling by the Tanzanian Mineral Resources Division. Post 1990, a new phase of modern exploration focused on potential Archaean deposits in the Lake Victoria region and the Lake Victoria Goldfield developed after significant gold discoveries. East Africa Mines Limited explored 40km of contiguous strike length of the Rwamagaza Greenstone Belt. During that time (2003), Spinifex Gold, the original parent company to East Africa Mines Limited, merged with Gallery Gold Limited of Australia. Iamgold Corporation acquired Gallery Gold in March 2006 and held the Buckreef Project until July 2009.

The Buckreef Mine was an underground mine exploited in the name of the Buckreef Gold Mining Company approved by the Tanzanian State Mining Company (STAMICO) in 1972 and the exploration and mining activities during this period are summarized in Table 5.1.

DATE	EXPLORATION UNDERTAKEN
1960	13 diamond drillholes by UNDP (12 in current database, UNBR01-12) identified a "possible ore zone' 107 metres long, 8 metres wide and extending to 122 metres depth.
1968	1968 13 diamond drillholes by Tanzanian Mineral Resources Division (MRD01-13).
1970s	Early 1970's underground development on 30m and 61m levels by Williamson Diamonds Ltd. Indicated ore reserve of 106,000t @ 8.7g/t Au between 23m and 76m levels using minimum mining width of 1.5m
1972	1972 Tanzanian government approved investment decision and Buckreef Gold Mining Company (BGMC)
1973-1979	Further underground development and 3 diamond drillholes (BGMDD01-03) by BGMC.
1978-81	Treatment plant and other facilities established with financial assistance from Swedish International Development Agency
1982-1988	Gold production commenced but reached only 25-40% of forecast targets.
1988	Review of operations by British Mining Consultants Ltd who found Buckreef assay laboratory assays 65% higher than overseas check assays
1990	1990 Mining ceased and workings flooded. Total ore extracted estimated at approximately100,000t @ 3-4g/t Au
1992	Aircore, RC and diamond drilling by East African Mining Corporation (now East Africa Gold Mines Ltd)
1994-1999	East Africa Mines Limited (EAM Ltd) entered into a re-development agreement with the government of Tanzania to develop the Buckreef resource into an economically viable gold mine on an 80% (EAM) and (20%) equity. The agreement runs from 1994 under 3 year period renewals to 2007 when it was last renewed for another three years
1999-2000	EAM signed a farm-in agreement with Ashanti AngloGold to explore Buckreef Project the agreement of which was terminated late 2000.
2001-2003	EAM under Spinifex run the project almost under care and maintenance with very limited exploration work based on the follow up recommendations from the final exploration report by Ashanti AngloGold.
2004-2005	Following the merger between Spinifex Gold and Gallery Gold in 2003 significant exploration work was concluded on the project and new resources established on the Buckreef Mining licence and at Rwamagaza resources were improved at Tembo, Bingwa and Miombo prospects.
2006-2009	Following the merger between Gallery Gold and IAMGOLD Corporation of Canada in March 2006 East Africa Mines Ltd was changed name to IAMGOLD Tanzania Ltd. Under IAMGOLD Tanzania limited Buckreef Project was completed up to commencement of pre-feasibility studies before the company decided to close all its exploration activities in Tanzania in 2009 and in so doing decided to surrender back to the government all its exploration portfolio under the Buckreef Re development Agreement.
2010	In March 2010 the government of Tanzania granted afresh all the surrendered licences to STAMICO, including the existed applications under IAMGOLD Tanzania Ltd.
Source:	Venmyn Deloitte 2014,

Table 5.1 Exploration and mining activities at Buckreef

Mining at Buckreef Mine ceased in 1990 due to several operational reasons and the mine flooded. Approximately 100,000t of run-of-mine (RoM) ore was mined at a diluted grade of approximately 3 grams per ton of gold (g/t Au) to 4g/t Au. In 1994, the Buckreef Redevelopment Agreement was signed between the State of Tanzania and East Africa Mines Limited and additional surface and subsurface gold resources were identified

5.2 Buckreef Prospect

Numerous mineral resource estimates have been undertaken for the Buckreef Project from 1995 through to the original mineral resource estimate for the project under TRX ownership, published by Hellman and Schofield in reports on the Buckreef, Bingwa and Tembo Prospects between 2006 and 2007. The estimates were published by TRX with Hellman and Schofield acting as the Qualified Person, and were re-published unchanged in 2011 under similar terms.

As an integral part of the 2012 PEA on TRX's Buckreef Project, Venmyn Deloitte reviewed the historic data, as well as the Hellman and Schofield geological and block models for Buckreef, Tembo and Bingwa Prospects. The review resulted in Venmyn Deloitte assuming responsibility for the project resource estimate in 2012.The National Instrument 43-101 compliant previous mineral resource estimate for the Buckreef Project PEA 2012 is summarized as follows.

	MEASURED			INDICATED			INFERRED			MEASURED+INDICATED		
Cut-off Grade (g/t)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)
0.5	**5.176**	**2.05**	**0.341**	**3.706**	**1.86**	**0.222**	**7.158**	**1.89**	**0.435**	**8.882**	**1.97**	**0.563**
0.6	4.729	2.19	0.333	3.31	2.01	0.214	6.386	2.05	0.421	8.039	2.12	0.547
0.7	4.337	2.33	0.325	2.978	2.17	0.208	5.742	2.21	0.408	7.316	2.26	0.533
0.8	3.989	2.46	0.315	2.698	2.31	0.2	5.188	2.37	0.395	6.687	2.4	0.516
0.9	3.676	2.6	0.307	2.455	2.46	0.194	4.712	2.52	0.382	6.131	2.54	0.501
1	3.394	2.74	0.299	2.243	2.6	0.187	4.298	2.67	0.369	5.637	2.68	0.486
1.1	3.136	2.88	0.29	2.056	2.74	0.181	3.934	2.82	0.357	5.191	2.82	0.471
1.2	2.905	3.01	0.281	1.889	2.88	0.175	3.613	2.97	0.345	4.794	2.96	0.456
1.5	2.332	3.42	0.256	1.485	3.3	0.158	2.84	3.41	0.311	3.817	3.37	0.414

Table 5.2: NI 43-101 Compliant Mineral Resources for Buckreef Prospect - Dec 2012
Source Venmyn 2012

5.3 Bingwa and Tembo Prospects

The mineral resources for the Bingwa and Tembo Prospects were estimated by Hellman and Schofield in 2006 and 2007 (unpublished report) and have undergone no material change since that time. Venmyn conducted a full review of the mineral resources estimation procedures and the Bingwa and Tembo mineral resources were considered current for the PEA according to Section 2.4(5) of the National Instrument Companion Policy 43-101CP.

The mineral resource classification for Bingwa Prospect was restricted to the Inferred category owing to a lack of understanding of the main controls on high grade zones within the orebody and a limitation on the bulk density data. Similarly, the Tembo Prospect classification in the Inferred category was related to paucity of bulk density data. The Mineral Resource estimates for the Bingwa and Tembo Prospects in the 2012 PEA are presented in Table 5.3 below: -

DEPOSIT	MEASURED			NDICATED			INFERRED		
	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)	Tonnes (Mt)	Au Grade (g/t)	Contained Au (Moz)
Bingwa	-	-	-	-	-	-	1.12	2.4	0.086
Tembo	-	-	-	-	-	-	0.725	2.18	0.051
TOTAL							**1.845**	**1.32**	**0.137**

Table 5.3 Summary NI 43-101 Compliant Mineral Resources of the Bingwa and Tembo (0.5g/t Au Cut-off)
Source Venmyn 2012

5.4 Historic Mineral Reserves

No historic mineral reserves have been declared for the Buckreef, Bingwa, Tembo and Eastern Porphyry Deposits

5.5 Historic Production

The gold deposit on the Buckreef Prospect was exploited by the Buckreef Mining Company Limited between 1972 and 1990 (Table 5.1) and the total production was 100,000t RoM at a grade of 3g/t Au to 4g/t Au.

6 GEOLOGICAL SETTING AND MINERALIZATION

6.1 REGIONAL GEOLOGY

The Sukumaland Greenstone belt is one of eight Achaean greenstone belts that occur within the Lake Victoria Goldfield of northern Tanzania. The stratigraphy of Lake Victoria Goldfield (LVG) can be divided into three major groups; the Lower Nyanzian, Upper Nyanzian and Kavirondian. The Sukumaland Greenstone Belt has an outer arc (Upper Nyanzian) and inner arc (Lower Nyanzian) stratigraphy cored by granitic rocks. The Rwamagaza greenstone Belt which forms the inner arc of Sukumaland Greenstone Belt (Figure 6.1) comprises dominantly mafic volcanic stratigraphy with minor felsic feldspar porphyry and quartz-feldspar porphyritic, flow-banded rhyolite all. Ultramafic rocks occur in isolated locations in the area to the west of the Busolwa-Buziba prospects.

The top of the Lower and upper Nyanzian system is overlain by Kavirondian age rocks. Apart from occurrences in North Mara, Nikonga and BulangaMurwa, the Kavirondian is not widely distributed in the LVG. The Kavirondian rocks are generally coarse clastic molasses that include polymictic conglomerate, gritstones, quartzites, shales and siltstones, metatuffs and intermediate to acidic volcanics and while no clear tectonic setting has been put forward for these rocks, it is speculated that they were deposited in small pull apart basins.

The regional metamorphic grade of the Nyanzian is largely low grade, greenschist facies though areas of amphibolite facies are recorded, for example at Msasa and Tulawaka Mine. Local contact metamorphism caused by granite intrusions is also developed, but in general higher grade metamorphic complexes are rare.

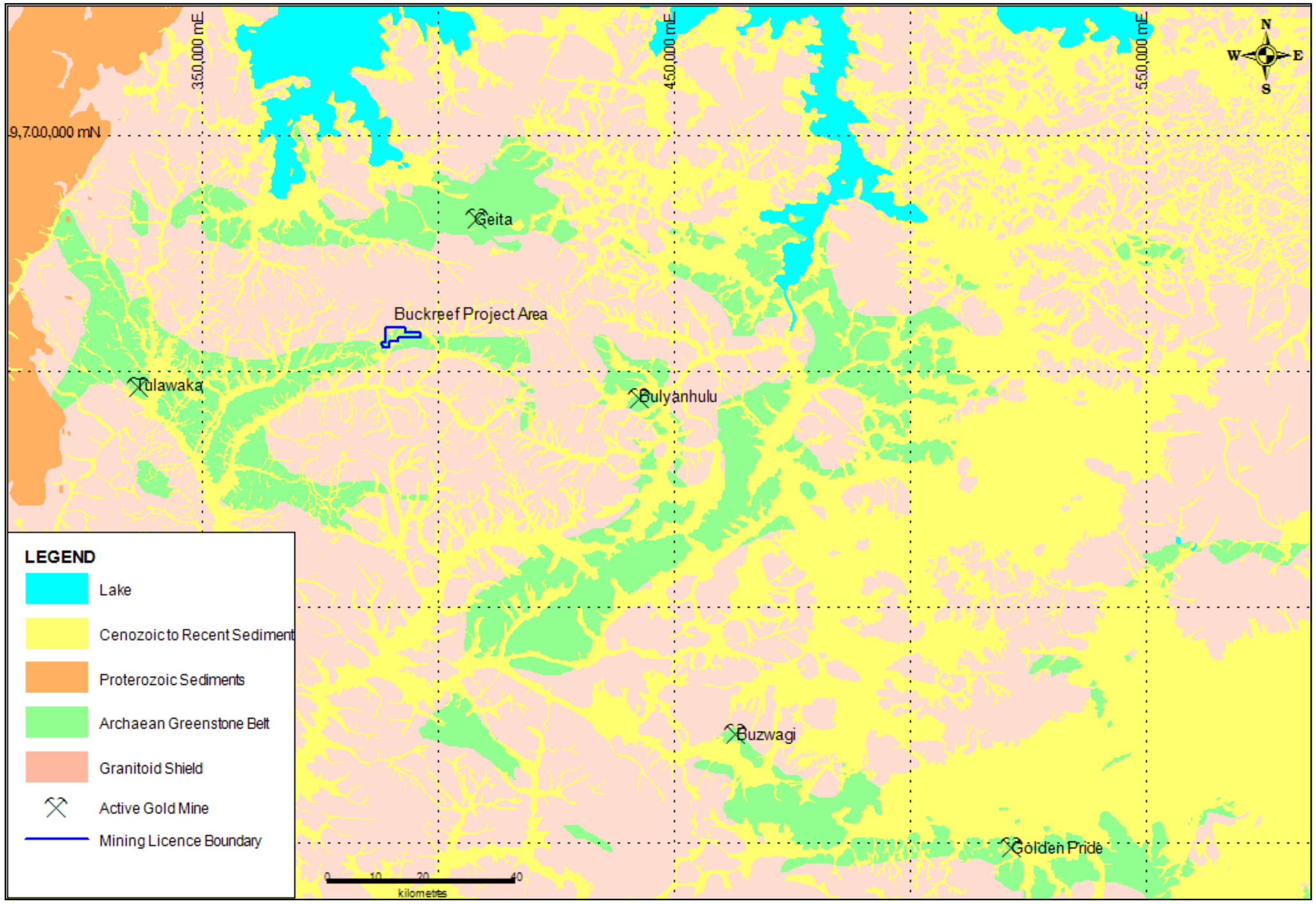


Figure 6.1: Regional Geological Settings – Buckreef

The greenstone belts are set in a terrain of syntectonic granite, granite gneisses, late kinematic granites and associated felsic intrusives. There is a general lack of detailed regional mapping and standardization of lithological names in the LVG and consequently there is no officially recognized division of this terrain. Quennel (1960) has proposed a fivefold classification for the intrusions (G1 – G5), however subsequent authors, notably Barth (1990) and the UNDP (1986b) adopted a simpler two-fold classification dividing the intrusions into synorogenic and late kinematic cycles.

The synorogenic cycle (G1, G2 and G3 granites) is comprised of migmatites, foliated and porphyroblastic granites, biotite – hornblende granite, tronhjenite, granodiorite, tonalite, adamelite, monzanite and quartz diorite. These lithologies include all those formed by interaction with the greenstone belts and the theoretical pre Nyanzian age granitoid basement. It is probable that some of these early units are synvolcanic intrusives that fed the felsic volcanism of the Nyanzian greenstones.

The late kinematic granites (G4 and G5) are probably post Nyanzian age and possibly post Kavirondian age intrusive events. Typically, these intrusive include biotite granites, porphyritic biotite granites, microgranite, feldspar porphyries and felsophyric dykes and where mixing with the greenstone belt lithologiesoccurs the rocks become locally gneissose in texture and granodioritic in chemistry. These late intrusions often appear circular and there is evidence of slight banding suggesting a diapiric origin. However, some are less regular in shape and in the Nzega, Geita and eastern Iramba Sekenke Greenstone belt appear to have an alignment along the 110^0 and 070^0 or have contacts affected by these directions.

Numerous dolerite, gabbro and ultramafic bodies have been intruded in to the Lake Victoria Goldfields. Possibly the most significant phase is related to a system of north south, west southwest trending magnetic dolerite dykes. While they rarely crop out they are often identifiable from magnetic surveys.

The trends of the north south dykes maybe divided into two sub sets, 350^0 and 010^0 (Halls et al, 1984). The 350^0 subset is largely confined to the Tanzanian craton area and where they intersect the Proterozoic age Ubendian or Usagaran belts they are highly altered hence have an age pre 2100Ma. In contrast the 010^0 subset is largely unaltered and is observed cross cutting the Lower Proterozoic Ubendian belt indicating an age younger than this orogenic event. Barth does not differentiate between the two sets and believes them both to be of Karroo age.

The regional structure is poorly understood and the correlation of specific structures from one greenstone belt to another is difficult.

Two phases of folding are generally recognized in the Nyanzian System (Barth, 1990). The first phase generated symmetric, east west trending, isoclinal folds. It is likely that this was coincident with tectonic stacking and thickening i.e. thrusting. Following this early phase, a second phase of cross folds with axial planes striking approximately 100^0 - 120^0 developed. These are coincident with major dextral lineaments that cross cut the LVG area (Figure 6.2).

A key factor in the localization of gold mineralization seems to be where this second phase and/or regional lineaments cross cut the primary east – west phase.

The Lake Victoria Goldfield is the third largest gold producing region of Africa, surpassed only by the Witwatersrand Basin in South Africa and the Tarkwa region of Ghana.

Numerous gold occurrences have been identified in the LVG, and new discoveries continue to be made. Since 1998, when the first mine, Golden Pride was commissioned, four additional large-scale mines namely, Geita, Bulyanhulu, North Mara, and Tulawaka have come into production. Geita and Bulyanhulu Mines are considered world-class deposits, together representing more than 60Moz of gold resources.

The Lake Victoria Goldfield has geological and structural similarities to major gold districts in the Canadian Shield (Val d´Or, Kirkland Lake) and the Yilgarn Craton in Western Australia (Kalgoorlie, Laverton, Leonora, Kambalda and Southern Cross).

Gold mineralization within the Lake Victoria Goldfield occurs in number of styles including: -

- quartz veins within minor brittle lineaments, most commonly worked on a small-scale by artisanal workers, due to their limited extent and erratic gold distribution (such as at Bulangamirwa workings in the Nzega Greenstone Belt);
- mineralization within major ductile shear zones;
- mineralization associated with replacement of iron formation and ferruginous sediments; and
- felsic (porphyry) hosted mineralization, such as within the Rwamagaza Greenstone Belt.

Nutt (2003) also notes that approximately 19% of known gold occurrences in the LVG are associated with or hosted in part, by felsic intrusives (excluding granitoids) and significantly at least four of the larger gold deposits have known diorite or quartz and/or feldspar porphyry's in close association ie

Geita Group (diorites and felsics), Bulyanhulu (quartz porphyry), Golden Pride (quartz porphyry or rhyolite bodies) and the Mobrama deposit – North Mara Group (siliceous felsic rock, protolith: quartz porphyry).

Regardless of the geological environment, it is accepted that structural control on the emplacement of the mineralization is critical. The following structural features have proven to be important foci of gold mineralization: -

- Structural lineaments trending at 120°;
- Flexures and splays to the 120° trend (such as at Golden Pride);
- Structural lineaments at 70° (such as at Golden Ridge); and
- Granite-greenstone contacts (such as at the Ushirombo and Rwamagaza Greenstone belts).

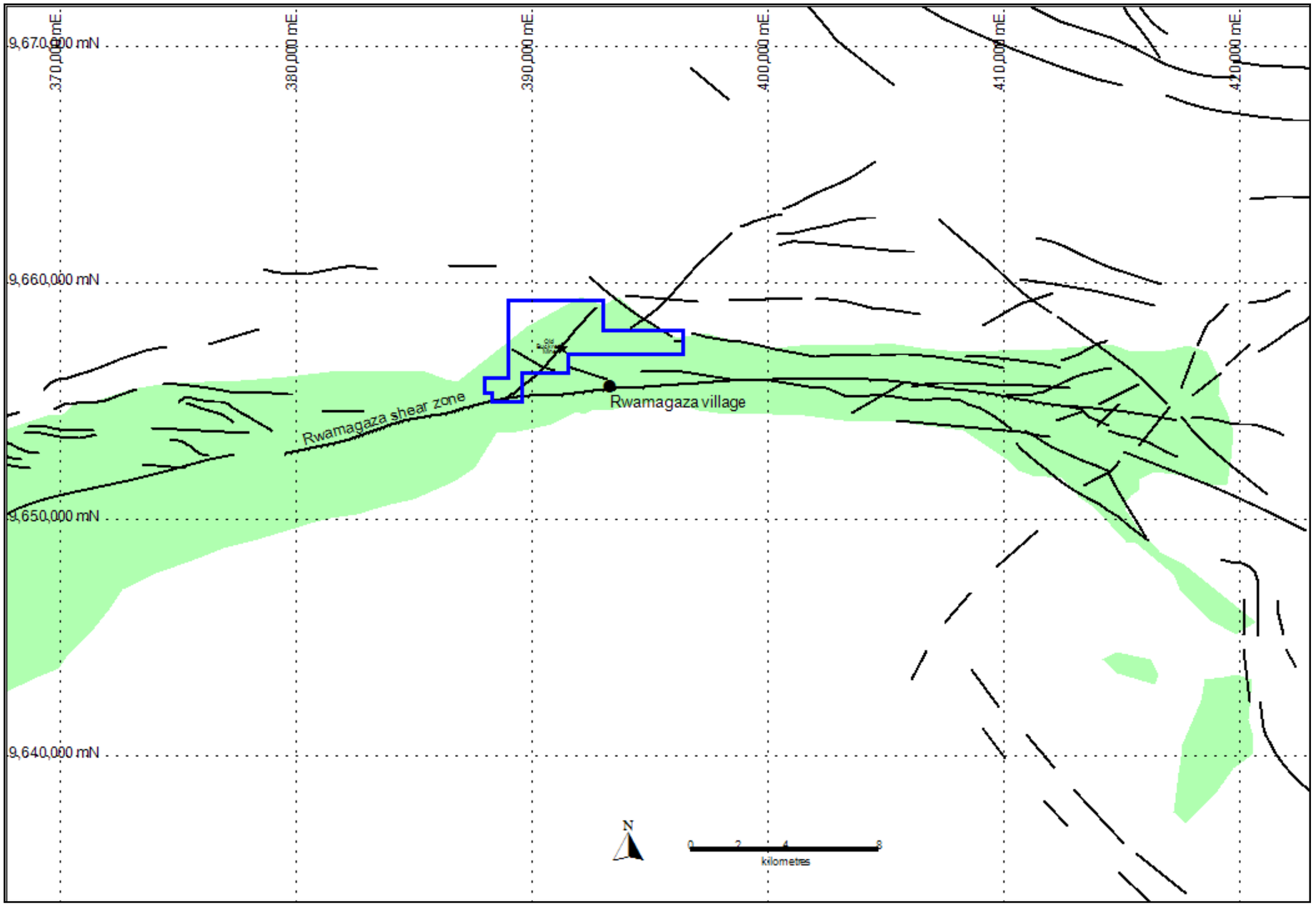


Figure 6.2: Regional Structural Settings – Buckreef

6.2 LOCAL GEOLOGICAL SETTING

Buckreef Gold Company Limited's Buckreef Project is in the regionally east-west trending Rwamagaza greenstone belt. This belt is considered a segment of the larger Sukumaland greenstone belt and is one of the larger greenstone belts in northern Tanzania.

Substantial areas of the Buckreef Project are covered by lateritic units, dominantly gravels, mbuga soil and cuirasse. Cuirasse forms some highly indurated upper facies of the lateritic regolith. Several lateritization events have resulted in weathering to depths of up to 40m. The limited bedrock exposure has hampered the development of detailed geologic models for the region.

Hill (2006) reported on a geological investigation of the Buckreef Project area for IamGold Ltd. In this PowerPoint presentation, Hill (2006) described the geology of the Buckreef Project as consisting of a tightly folded sequence of lower mafic, upper mafic-ultramafic sequence. The Lower mafic unit appears to be more deformed than upper mafic unit. The two units are separated by magnetic ultramafic flow at unconformity boundary. The mafic –ultramafic units are sandwiched between older granite to the south and young late granite to the north. The margins of granite intrusions have higher magnetic signature suggesting contact metamorphisms (Figure 6.3).

The belt is bisected by an East – West trending lineament, that is interpreted as a first-order, crustal scale, sinistral shear zone namely as the Rwamagaza Shear Zone (RSZ).

The Rwamagaza greenstone sequences have been affected by at least two deformation events. The deformation D1 forms a weak E - W trending foliation and massive "buck" quartz veins that are weakly prospective for gold mineralization. D2 corresponds to the main phase of deformation and resulted in the progressive development of NE trending shear zones, and a pervasive NE foliation. N to NNE trending dextral shear faults formed during D2 and are associated with stock-work quartz veins and significant gold mineralization.

Several published data considered that regional gold deposition is tightly constrained to the pre-Lamprophyre intrusion (2697 ±10 Ma) and pre-Kuria volcanic rocks (approx. 2660Ma).

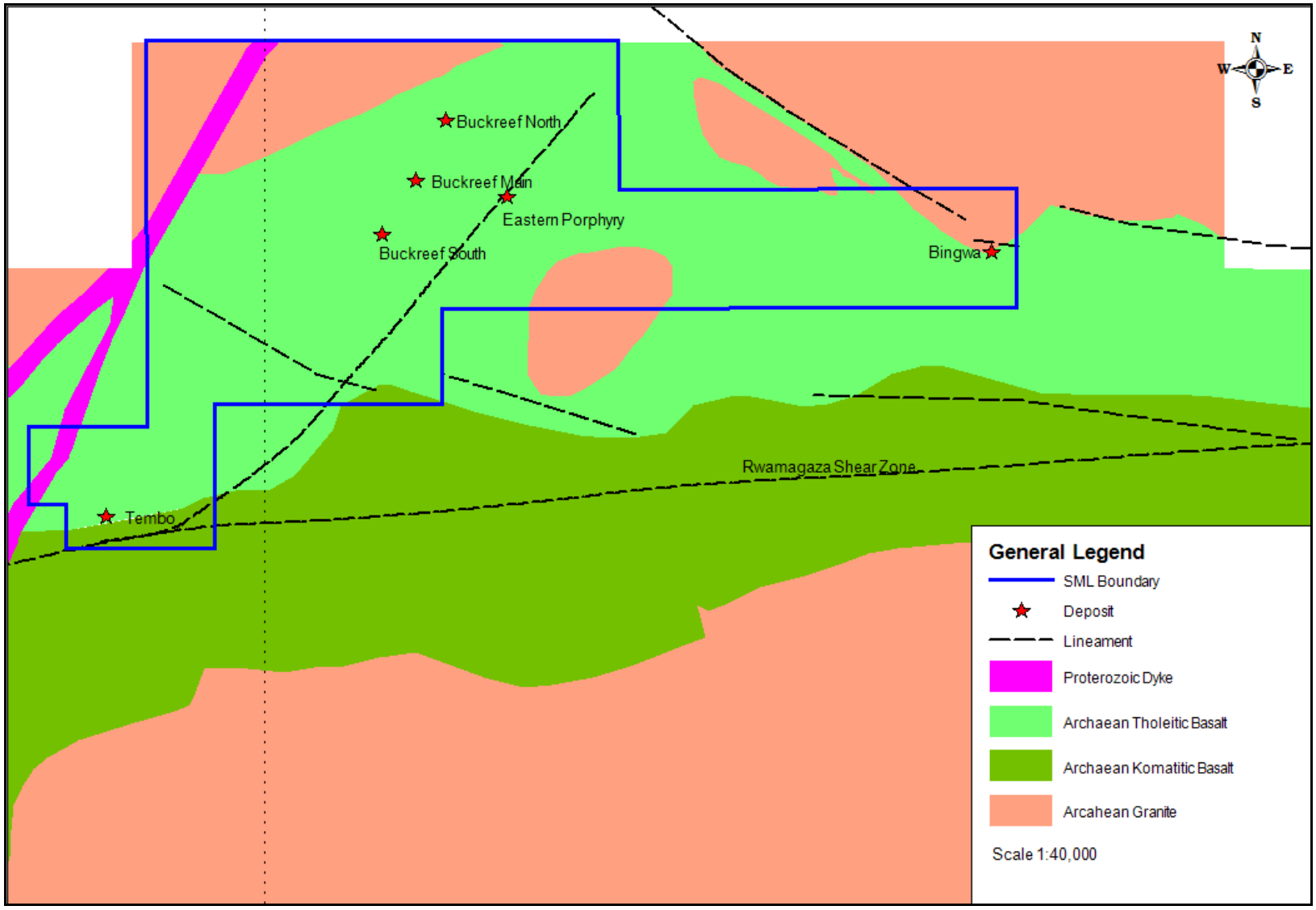


Figure 6.1 Geology of Buckreef Project Area

6.3 DEPOSIT GEOLOGY

Buckreef Gold Company Limited has defined four mineral deposits on the Buckreef Property. As estimated in this technical report, from largest to smallest based on ounces of gold, these include the Buckreef mineralized corridor, Bingwa, Eastern Porphyry and Tembo Deposits. The following descriptions are summarized from Venmyn 2012.

Buckreef Deposit

The Buckreef Prospect is a shear zone hosted gold deposit within a sequence of mafic basalts and dolerites, near basement granite. The defunct Buckreef Mine is located on a clearly defined, east-northeast/west-southwest trending, 5m-30m wide and 8km long, brittle-ductile shear zone within relatively un-deformed mafic volcanics. Based on preserved slickensides, the dominant displacement vector across the shear zone was sinistral, however the bulk of the ductile fabric is post mineralization. Gold mineralization is associated with intense brecciation and quartz, carbonate, sericite pyrite alteration in at least two phases and is controlled within the regional shear by a fault zone with a 10m true width, drilled continuously for over 1.5km strike length.

A late stage veining event characterized by white, buck quartz veins, is evident in the main zone and is barren of gold mineralization, but is the only visible sign of the structure in outcrop.

The gold mineralization at Buckreef Prospect is non-refractory in both fresh and oxide material. Deep drill-holes indicate that high grade mineralized zones plunge steeply to the north. Several narrow, more discontinuous sub-parallel zones of similar alteration and mineralization have been defined both to the west and to the east of the main fault zone.

Detailed logging of drill-hole core reveals a prominent deepening of the oxidation profile above portions of both the Main and North Zones. The base of the oxidation zone occurs between 15m and 40m, with an average depth of 30m, and the overburden consists of both black cotton soils and lateritised duricrusts with an average depth of ±3m-4m, to a maximum of 20m.

Bingwa Deposit

The Bingwa Prospect is located at the northern margin of the RGB, adjacent to a sheared contact with a granitic intrusive and is approximately 4km east of the Buckreef deposit (Figure 6.2) Gold mineralization has been identified in a drilling program over a strike length of 350m and up to 100m below

surface, with the main zone of mineralization occurring over a strike length of 150m. Gold mineralization at Bingwa is associated with quartz veining in strongly foliated and altered greenstone in a shear zone adjacent to the granitoid contact. The shear zone strikes northeast and dips steeply to the northwest. The main zone of mineralization is associated with the junction of a northwest striking, shallowly north dipping fault and the northeast striking shear zone.

Deformation, alteration and gold mineralization appear to be limited to rheological contacts, between basalt and the early quartz veins and along the margin of the granite. The difficulty in constructing continuous grade envelopes may be due to limited continuity of the early quartz vein array, and/or the possibility that the veins are folded, transposed and boudinaged within shear zones.

Most the mineralization defined to date occurs within the oxide zone, which extends to 40m-60m below surface. The entire deposit is overlain by 5m to 8m of overburden and transported alluvial. Much of the Bingwa Prospect gold mineralization in the weathered profile occurs in lower saprolite, below the redox boundary.

There is negligible upper saprolite below the overburden cover. Given that there is typically limited chemical dispersion of gold in lower mafic saprolite, this may be one of the reasons for poor lateral grade continuity at the Bingwa Prospect. However, recent work at the Bingwa Prospect indicates that mineralization is hosted within the north-northwest to south-southeast trending structures at the intersection with the major northeast-southwest shear zone. The intersection between these structures is considered to play an important role in controlling high grade zones

Eastern Porphyry Deposit

The Eastern Porphyry deposit is located 0.8km east of the Buckreef main deposit and consists of weakly to moderately sheared felsic porphyry and younger fresh feldspar quartz porphyry dykes up to 30m wide within a mafic sequence dominated by medium grained dolerite.

The Eastern Porphyry mineralization is associated with silicified and weakly pyritised shears, quartz veins and veinlets, and within quartz-feldspar porphyry. Quartz veining within the felsic unit may contain pyrite with or without low grade mineralization. However, zones of shearing within the dolerite up to 7m in width are associated with silica-carbonate-pyrite alteration.

The Eastern Porphyry structures occur within sheared basaltic lavas and medium grained dolerite intrusive of the northeast-southwest trending Nyamazama River lineament. The elongated intrusion attains a maximum thickness of 280m, but thins and disperses to the northeast and southwest into a series of relatively narrow quartz-feldspar-porphyry dykes. The Eastern Porphyry mineralization has a total strike length of approximately 1,500m. The main intrusion is coincident with a circular magnetic anomaly in the area with a diameter of 350m (Barrett, 2000). In places the quartz-feldspar-porphyry is magnetite bearing, readily deflecting a hand magnet.

The gold mineralization occurs in a similar lithological and structural setting as at Buckreef Prospect, but the intensive carbonate-silica-pyrite alteration typical of the Buckreef deposit is lacking or poorly developed. The fact that mineralization on the Nyamazama River lineament is less well developed than at Buckreef may be due to less dilation of the northeast-southwest shear compared to that of Buckreef Prospect or the presence of the porphyry intrusion which inhibited fluid flow and was less chemically reactive than the basalt.

Tembo Deposit

The Tembo deposit locates approximately 3km southwest of Buckreef Mine, adjacent to the main Rwamagaza Shear Zone. The mineralized zones at Tembo are confined to the east – west trending shears within met-basaltic volcanic package. Alteration in the mineralized zones consists of silica-carbonate-pyrite with well-preserved shear fabric. Gold mineralization is associated with grey quartz thin veins, stringers and boudins parallel to the shear fabric. At Tembo deposit, the transported and residual soil cover is 7m to 9m deep, below which, completely altered and sheared mafic material occurs to a depth of 50m. Most the oxidised zone has been exploited by artisanal mining.

6.4 MINERALIZATION

Gold mineralization on the Buckreef property is universally controlled by shear-related veining and alteration, developed in three dominant geological environments: meta-basaltic volcanic-hosted, intrusive-hosted and contacts. The meta-basaltic volcanic-hosted deposits Buckreef and Tembo, tend to consist of networks of anastomosing and steeply-dipping shear zones, exhibiting multiple, superimposed, phases of veining, alteration and deformation. The intrusive-hosted deposit, Eastern Porphyry, also exhibits multiple phases of veining, alteration and deformation, but tend to develop weak alteration and broader shear zones.

Bingwa and Eastern Porphyry are associated with intrusive contacts. This could be attributed to thermal aureole effect; however, it may also be controlled by competence contrasts and its effect on structural dilation during deformation and the consequent enhancement of permeability at these sites.

Gold is strongly associated with silica-carbonate alteration and veining. Sulphide minerals associated with mineralization consist predominantly of pyrite and minor chalcopyrite. Gold grains up to 60 microns in size have been reported in both low and high grade zones. Visible gold is known from all deposits but is not common. High amount of gold is found as inclusion in pyrite as well as fracture-filling in pyrite and chalcopyrite. Gangue minerals of interest include clay, feldspar, quartz, dolomite, and hematite and goethite in the oxide and transition material.

7 DEPOSIT TYPES

The Lake Victoria Goldfield hosts numerous small-scale and five large-scale orogenic gold deposits. Term 'orogenic gold deposit' is broad in scope and encompasses meso-thermal gold deposits, shear-hosted, lode-gold and metamorphic gold deposits. Orogenic gold is a distinctive class of mineral deposit that has been the source for much of world Au production.

The ores are widely recognized in both Phanerozoic mobile belts and older cratonic blocks. Orogenic gold deposits have formed over more than 3 billion years of Earth's history, episodically during the Middle Archaean to younger Precambrian, and continuously throughout the Phanerozoic.

Typically, orogenic gold deposits are formed in regionally metamorphosed terranes, during compressional or transpressional tectonic processes at continental plates margins, in accretionary or collisional orogenic events. In both tectonic regimes, hydrated marine sedimentary sequences are added to continental margins. Subduction related thermal events then drive extensive hydrothermal fluid systems through the hydrated accretionary sequences, which results in the emplacement of gold bearing quartz veins from depths of 15km to 20km to surface (Groves 1997).

The mineralization is commonly post the deformation of the host rock but is syn-orogenic with respect to the on-going deep crustal, subduction related thermal processes (Groves 1997). In addition, mineralization has been theorized to be associated with short-lived pulses of metamorphic fluids that are released by the rapid devolatilisation of a rock column undergoing burial in a convergent orogen.

The goldfield deposits are hosted by sedimentary units intercalated with volcanics and all are associated with quartz veining. The largest deposit at Geita is hosted by ferruginous chert-pelite units. The Rwamagaza Greenstone Belt hosts numerous small-scale gold deposits exploited by small-scale miners, as well as the Tulawaka Mine that has produced more than 1 Moz at the western limit of the RGB, 56km to the west of the Buckreef Mine.

All the deposits currently being exploited by artisanal miners in the Buckreef Project area consist of narrow discontinuous quartz veins within meta-basalts, shear zones, contact zones with felsic intrusives and metamorphic foliation.

Each of the four prospects, whilst generally formed under conditions described above, are unique in the mechanisms which concentrated the mineralization. The exploration programs undertaken have been specifically designed considering the unique set of local structural, lithologic and regional tectonic conditions which created potentially favourable sites for mineralization concentration.

8 EXPLORATION

8.1 Buckreef Mine Area Explorations

Numerous workers have performed exploration programs on and around the Buckreef Mine area. As summarized in Table 5.1 the mineralization was originally identified by a 1966 United Nations exploration program following artisanal workings.

The Buckreef deposit was subsequently explored by the Tanzanian Mineral Resources Division (Madini) and developed into a small underground mine by Buckreef Gold Mining Company, a wholly owned subsidiary of the State Mining Corporation (STAMICO).

The Buckreef Mine closed in 1990 due to low gold prices, lack of working capital resulting in an inability to purchase fuel and maintain the plant, resulting finally in the flooding of the mine.

Historically, the focus of exploration was the Buckreef Prospect area and the remainder of the tenement holding was largely under-explored resulting in limited sub-surface information. The exploration programs conducted on the Project area post 1999 are summarized in Table 8.1 and included regional mapping to 1:5000, gravity and IP surveys, reconnaissance geochemical surveys and extensive drilling programs: -

YEAR	GEOCHEMISTRY SAMPLING PROGRAM			DRILLING								GEOPHYSICS
	Soil	Rock	Termite	RAB		AC		RC		DD		
Samples	Samples	Samples	Holes	Holes	Meters	Holes	Meters	Holes	Meters	Holes	Meters	
1992	-	-	-	3	66	-	-	-	-	-	-	
1993	-	-	-	-	-	105	1,576	-	-	-	-	
1994	-	-	-	-	-	110	1,619	49	2,981	-	-	
1995	-	-	-	-	-	732	9,906	115	7,333	25	4,532	Ground magnetics and trenching
1996	505	191	-	15	122	297	3,584	31	1,148	-	-	
1997	1,486	269	-	1,300	47,061	484	7,403	382	29,428	-	-	
1998	2,152	314	-	-	-	-	-	7	653	-	-	
1999	12,807	772	-	602	16,803	43	1,744	-	-	-	-	
2000	3,477	230	-	1,253	31,073	-	-	96	9,252	3	249	
2001	-	-	-	-	-	-	-	-	-	-	-	
2002	2,718	35	-	19	789	486	14,233	79	8,200	8	1,539	
2003	1,738	-	-	-	-	1	26	6	542	-	-	
2004	4,245	204	-	130	3,033	535	14,684	385	25,743	54	11,976	IP completed by Search Geophysics
2005	289	-	-	-	-	969	32,827	467	50,493	51	7,077	
2006	129	-	-	-	-	130	4,222	234	23,316	8	1,116	
2007	-		-	-	-	498	17,600	391	32,839	14	1,166	4 blocks Ground IP survey completed
2008	-	13	481	-	-	550	14,912	107	10,255	12	809	2 blocks Ground Gravity survey completed
2009	-	-	-	-	-	-	-	-	-	-	-	
TOTAL	**29,546**	**2,028**	**481**	**3,322**	**98,947**	**4,940**	**124,336**	**2,349**	**202,183**	**175**	**28,464**	

Table 8.1 Exploration Summary for Buckreef Prospect 1992 to 2009
Source Venmyn 2014

The exploration programs by TRX have included drilling and geochemical sampling so that the total drilling undertaken for the four prospects is summarized as follows and is illustrated in Figures 8.1 – 8.5.

- Buckreef Prospect: 684 drill-holes for 97,287m;
- Tembo Prospect: 74 drill-holes for 5,713m;
- Bingwa Prospect: 136 drill-holes for 12,537m; and
- Eastern porphyry: 80 drill-holes for 10,814m.

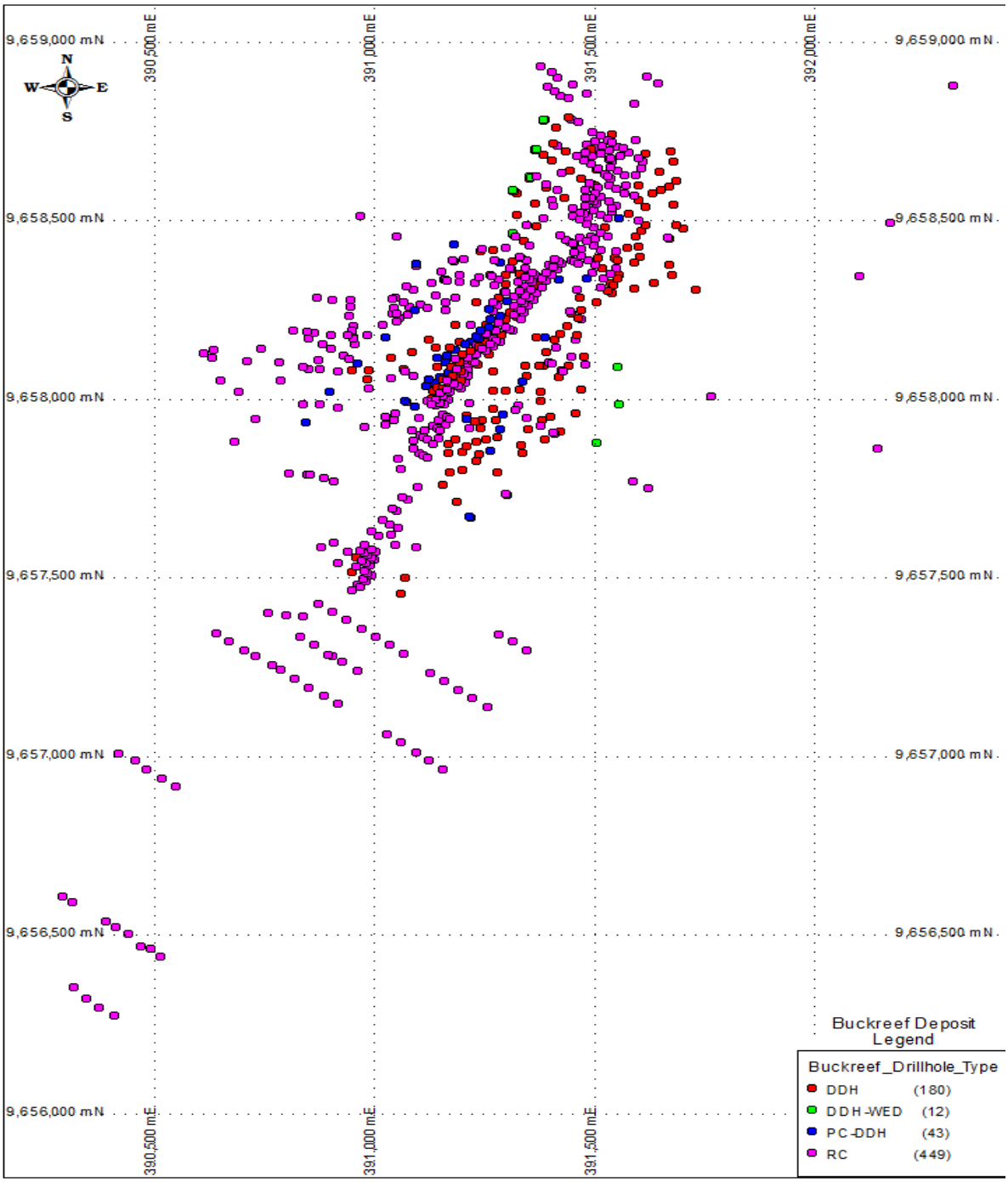


Figure 8.1*Buckreef Deposit – Exploration Drill-holes*

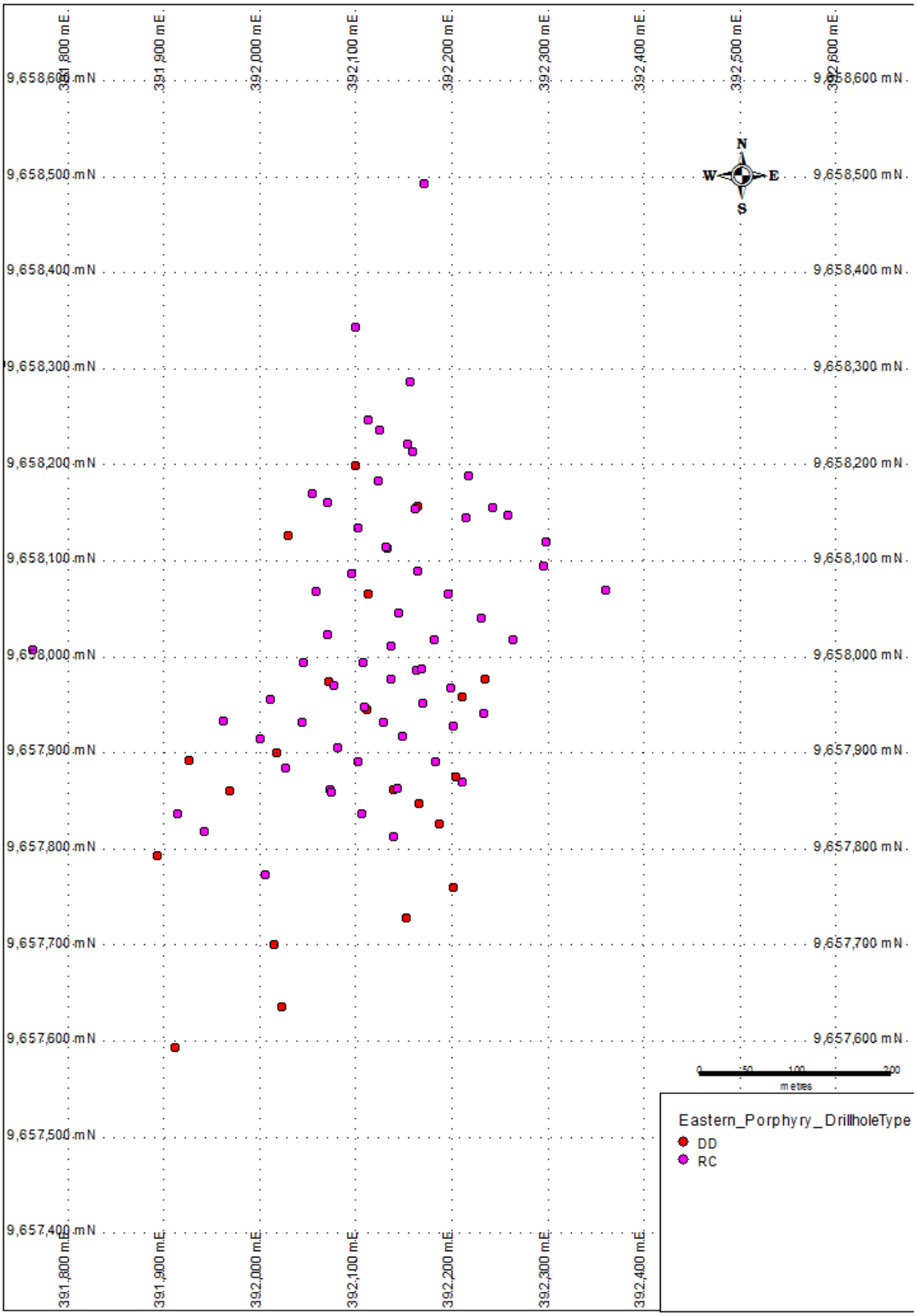


Figure 8.2 ***Eastern Porphyry Exploration Drill-holes***

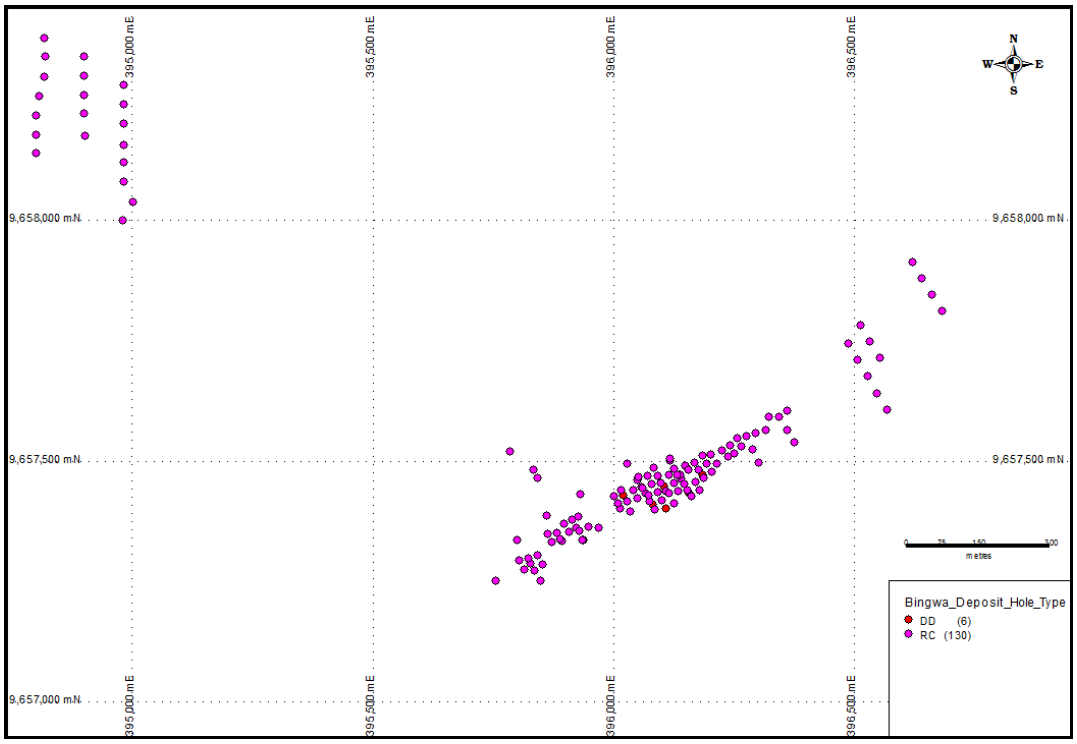


Figure 8.3 Bingwa Deposit – Exploration Drill-holes

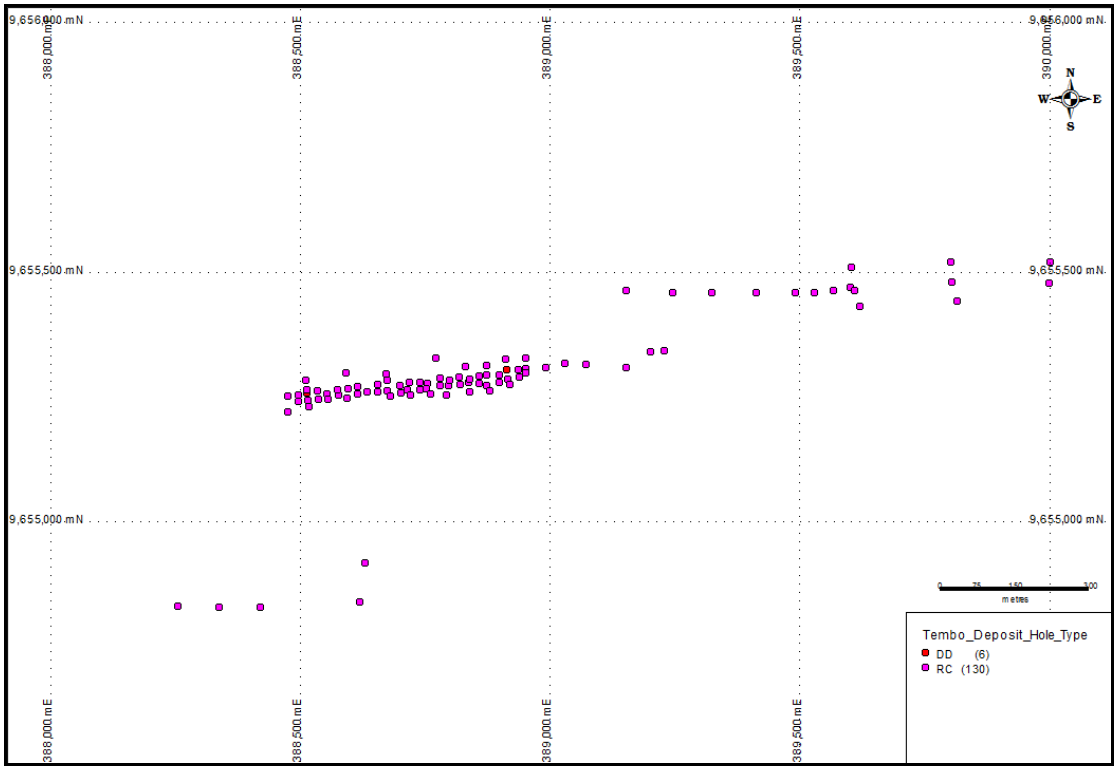


Figure 8.4 Tembo Deposit – Exploration Drill-holes

8.2 Geophysical Survey

Because of the limited bedrock exposure in the Buckreef Project area, numerous geophysical surveys have been conducted at the site in the quest for additional ore. These efforts are summarized in report by Venmyn 2014 Geophysical surveys conducted include ground gravity and dipole-dipole IP/resistivity.

8.2.1 Gravity Surveys

Spectral Geophysics (Botswana) was contracted during April 2008 to complete ground gravity surveys over 5km2 and the data was interpreted by Southern Geoscience Consultants (SGC) in Australia (Figure 10). The final results were compiled into a 1:20,000 scale geological interpretation delineating twenty-one targets and the Rwamagaza Shear Zone. Gravity surveys proved effective for the location of large first order structures and in 2008 the airborne magnetic data was interpreted into an image atlas for future target definition.

8.2.2 Induced Polarisation Surveys

During 2007, 14 IP survey blocks were completed over the project area by Spectral Geophysics and processed by SGC Australia. The results of these surveys highlighted altered fault/shears zone structures and in conjunction with magnetics can be used for targeting prospective strike extensions of existing ore bodies.

8.3 Geochemistry Surveys on BRMA

Several historical soil and rock chip sampling programs were completed over the Buckreef Project area on a grid of 100m x 100m, with closer spaced grids (80m x 40m) over historical target areas and targets with a high density of lineaments and interpreted mineralized structures. A total of 2,028 rock chip samples, 29,546 soil samples and 481 termite mound samples were taken during the period 1992-2009.

Transported laterite, combined with Mbuga soils which cover 60% of the area, hamper geochemical sampling and interpretation and Iamgold completed termite mound sampling over the problematic areas. To date the termite sample density is too low for identification of meaningful anomalies.

The results of the soil geochemistry results are consistent with the known structures in the area. The largest soils anomalies occur are over the main deposits at Buckreef Prospect.

9 DRILLING

Drilling at the Buckreef property commenced in the 1960's and has continued intermittently to the present by several different companies. The February 2014 Venymn Deloitte technical report detailed all drilling undertaken on the Buckreef project up to and including all drill programs by TRX. Since that time, no further drilling has been undertaken at the Property and this section of the report summarizes drilling carried out at the Property.

9.1 Pre-2010 Drilling

The work by Venymn Deloitte (2014) reports that the pre-2010 RC and diamond drilling at BRMA was supervised by experienced geologists and completed by professional drilling contract companies independent of Iamgold and was considered by Hellman and Schofield to be sufficiently compliant with international reporting standards to be used for the 2007 Mineral Resource estimate.

The Buckreef resource has been drilled on local grid east-west oriented drill traverses at mostly 20meter intervals along the strike of the gold mineralization above 1100mRL (surface approximately 1225mRL). Below 1000mRL to the base of drill coverage (approximately 700mRL) the deposit has been variably intersected on 100m intervals south of 2600mN and 40-50m intervals north of 2600mN.

Many drill holes are angled steep (~60^{o}) towards grid east or west normal to the strike of the gold mineralization. On many sections the drill holes targeting the near surface gold mineralization are spaced at 10mcentres providing approximate 20m spaced vertical intercept on the gold mineralization. The RC resource delineation drill spacing was completed on a 40m to 20m x 20m spacing at Buckreef. On sections targeting the near surface gold mineralization, the drill-holes were spaced at 10m centres providing approximate 20m spaced vertical intercepts on the gold mineralization.

At Buckreef Prospect, the North and Main Zone mineralization occurs in a shear zone with a true width of 10m, dipping steeply to the west. As a precaution to minimize interference and sampling by artisanal miners, the RC 1m samples were collected daily and transported to a central sample store where they were sampled and bagged.

The diamond drilling core recovery was an average of 93% (Venmyn, 2014). Most of the diamond drill-holes commenced with a tricone roller bit where

near surface sampling was not required, followed by HQ diameter, which was reduced to NQ/NQ2 when fresh rock was encountered.

Ten HQ core holes were drilled at Buckreef to twin anomalous RC and diamond drill-holes as part of a QA/QC program on historical assay practice and grade continuity. PQ metallurgical samples were collected at Buckreef Prospect.

The historic drilling programs were conducted according to specific drilling protocols and the results incorporated into Micromine™ electronic databases for use in the construction of geological sections and 3D models used in Mineral Resource estimation.

9.2 Mineral Resource Definition Drilling by TRX

Between 2011 and 2014, TRX has completed a total of 687 diamond drill holes and reverse circulation (RC) holes totaling 97,787m. The drilling programs were carried out along a 1.3km strike length of the mineralized Buckreef shear zone, which includes the Buckreef Main Zone, Buckreef North and Buckreef South deposits.

The TRX RC and diamond drilling campaigns were performed by several independent contractors namely, AfriDrill, West Side Drilling, Resource Drilling, Drillcorp, Stanley Mining Services and most recently by Tandrill. All TRX drilling campaigns were supervised experienced geologists under the management of TRX exploration manager and Qualified Person Mr P Kaniki. The drilling programs by TRX included the mineralization that occurs on the Eastern Porphyry exploration target to the east of Buckreef Main Zone.

The historical drilling on the Buckreef Main Zone was undertaken along 600m of strike, at a 20m grid spacing to variable depths ranging between 50m to150m. The 2012 program was aimed at defining mineralization between 150m and 250m depths. The results identified a wide zone of mineralization, as exemplified by two drill-holes which intersected a mineralized zone 26m wide with a grade of 4.5g/t Au at 215m depth and a zone, 19m wide with a grade of 10.58g/t Au at 155m depth. The results of the program were incorporated into the Micromine™ electronic databases for inclusion in the mineral resource estimation.

The Buckreef North Zone occurs over approximately 380m of strike and was previously drilled on a 40m grid spacing to between 11m and 150m depths. The mineralization was found to be open to the north and with depth and was identified as the primary target for increasing the near surface mineral resource base. The 2012 drilling program confirmed that the high-grade

mineralization extends northwards beyond the previous Buckreef North Zone mineral resource and examples of drill-holes intersecting the mineralization indicated a zone 46m in width with a grade of 2.31g/t Au at a depth of 28m and a 14m wide zone with a grade of 1.75g/t Au at a depth 206m.

The Eastern Porphyry target is located 800m east of Buckreef Main Zone. The mineralization in the deposit was not included in previous mineral resource estimates and the aim of the drilling program was to define a mineral resource for this deposit. A total of 80 drill-holes for 10,814m were completed and the results included in the Buckreef Project Mineral Resource estimate. Near surface mineralization was intersected as follows: -

- a 10.5m wide mineralized zone at a grade of 2.27g/t Au at a depth of 75.5m;
- a 4.8m wide mineralized zone at a grade of 3.86g/t Au at a depth of 66.0m;
- a 9.4m wide mineralized zone at a grade of 1.25g/t Au at a depth of 8.0m; and
- a 2.25m wide mineralized zone at a grade of 6.30g/t Au at a depth of 8.0m.

9.3 Sampling Procedures

It is MaSS's knowledge that Venmyn had audited sampling methodologies, procedures and operations carried out by TRX and were found suitable for the declaration of Mineral Resources. These drilling programs have resulted in the various resource estimates over the years and have ended up in the current resource estimate which has been critically reviewed by Venmyn Deloitte in April 2014 report.

The sampling methodology employed was dependent upon the drilling method. The protocols adhered to during the drilling and sampling campaigns were independently reviewed and considered by Venmyn (2014) to be within industry standard. The sampling of the diamond drill-hole core was conducted by qualified geologists in the full-time employment of Iamgold and more recently, in the fulltime employment of TRX. In addition, both Iamgold and TRX recognized that collection of samples, particularly for RC, Air Circulation (AC) and Rotary Air Blast (RAB) samples, could introduce bias to assay results and therefore specific sampling methodology and submission procedures were followed.

The RC drilling sampling methodology comprised collection through a cyclone at 1m intervals into large plastic bags. Each meter sample was riffle

split on site, weighed and moisture content recorded for every meter interval. RC assay samples were taken as 3m composites. During composite sampling, the individual 1m riffle split reduced samples were collected in the field and retained for future analysis if warranted. Unique Sample ID ticket books with corresponding tear off sample tickets were printed and used to record sample details and assay samples.

RC holes were stopped if persistent wet samples were encountered. Most RC samples collected since 1992 were homogenized and reduced to 2kg to 3kg on site by passing reduced samples at least 4 times through a single tier Jones riffler, which is demonstrated to be a more representative sample than that produced by stacked three tier splitters.

The entire length of AC and RAB drill-holes was collected as 1m samples and composited into 3m samples for assay.

For diamond drill-hole core was logged and processed for sampling on site. Most diamond drilling was NQ/NQ2 and core loss and drillers inconsistencies were noted. Sample intervals for assaying were normally standard 1m or 0.5m lengths, varying on lithological boundaries when required. Lithological based samples did not exceed 1m in length. The core was sawed length ways. Regular cleaning of the core, core yard, saw and sampling equipment along with a prohibition on jewelry in the core yard, all minimized potential contamination.

Retained RC, AC and RAB samples were stored in central sample stores at the Buckreef site, whilst the retained half of the diamond drill-hole core was stored in galvanized core trays at the Buckreef core yard for future reference.

All assay samples were batched on site. The half-core samples were considered by TRX to be representative of the mineralization and no sample bias is expected. No drilling, recovery or sampling factors are considered to have materially impacted the representatively of the samples.

9.4 Rock Density Measurements

Bulk densities were determined by “weight in air versus weight in water” determinations for 1,232 samples; 837 from diamond drill-hole core and 395 from RC samples for oxide, transitional and primary material. Based on this data set the following bulk densities for the conversion of resource volumes to tonnes were determined: -

- oxide zone, 2.0g/cm3;
- transition zone, 2.5g/cm3; and
- fresh rock, 2.8g/cm3.

10 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The following procedures have largely been taken from Venmyn"s 2014 technical report on the Buckreef Project. Sample preparation and analysis methods are well known for the period of TRX drilling at Buckreef. Prior to the TRX involvement, preparation and assay methods are not well known. As a result, Venmyn has reviewed the procedures used by TRX and verified the data from Buckreef based on their QA/QC procedures. The reviews of historical data have been done by Hellman and Schofield in 2006, 2007 and 2011 mineral resource estimation.

The review of the 194-re-assay data by Hellman and Schofield indicated acceptable assaying precision between the Buckreef, Humac and SGS Laboratories and suggested acceptable correlation between assay methods. The results of the review of 1,978 historic duplicate pairs indicated good replication.

In all cases, the assaying of the four CRM used, returned values within an acceptable range (±10%) of the recommended grade. The field blanks results showed that no significant cross contamination in the sample preparation stage occurred. Scatter plots of laboratory referee analyses show a good correlation.

The results of the RC drill-holes and their twinned diamond drill-holes indicated good visual correlation. Internal zones of low grade were reflected similarly in the two sampling methods. Spot checks on the calculated gold intersections proved satisfactory and the mineralized widths determined from both methodologies proved to be very similar.

The Iamgold QA/QC data available provided assurance that the database is not flawed by sampling or assaying bias. The most conclusive data are the results from the diamond drill-hole twinning of the earlier RC intercepts. A positive bias toward the diamond core assaying is thought to be partly due to the undervaluing of the sample gold grade by the AR assaying used historically. The re-assaying programs undertaken by Iamgold of archival sample pulps by fire assay at two independent assay laboratories support this conclusion. Venmyn considered the QA/QC performance to be good and the data suitable for incorporation in mineral resource estimates.

10.1 Quality Assurance and Quality Control

A comprehensive Quality Assurance/Quality Control, ("QA/QC" or "QC") program was established for the Buckreef Project by current operator i.e. TRX and by another operator post STAMICO. The field QA/QC protocols included insertion of regular CRM standards, duplicates and blanks in the field for all sample batches collected at Buckreef, Tembo, Bingwa and Eastern Porphyry.

The resultant QC data was reviewed on receipt of assay data and assessed monthly, which permitted immediate intervention on sampling and analytical issues. Field QA/QC protocols comprised the following: -

- Commercially available CRM samples from Geostats (Australia) were inserted into Iamgold sample batches at a minimum frequency of 1 in 40 within recognized mineralized zones (G302-4 at 1.68g/t Au; G6996-7C at 5.99g/t Au; G997-5 at 7.31g/t Au and G999-4 at 3.02g/t Au);
- The TRX mineral resource definition drilling program utilized SGS Lakefield standards which have been listed in Table 10.1.
- Field duplicates comprised splits off the sample cyclone and the sample interval was selected by the geologist. Duplicates are taken at a nominal frequency of 1 in 40; and
- Blanks were 1m drill samples that had returned an assay value of less than 0.01 g/t Au, confirmed by re-sampling the interval and submitting for check analysis. Blank positions were selected by the geologist and were inserted within zones of mineralization. This permitted assessment of cross contamination from higher grade samples during the sample preparation stage. Blanks were submitted at a nominal frequency of 1 in 40.

STANDARD	STANDARD GOLD CONTENT (g/t) Au	STANDARD DEVIATION
SGS 10-3020	3.660	0.150
SGS AUOI-5	2.226	0.073
SGS AUOM-3	3.229	0.082
SGS OXK48	3.557	0.019
SGS SJ32	2.645	0.027
SGS 0180	3.140	0.220
SGS 0174	2.120	0.140
SGS 0232	3.290	0.200
SGS 00058	1.530	0.110
SGS AUOI-4	2.186	0.092

Table 10.1 Review of the TRX QA/QC Standards Analysis
Source: Venmyn ITR Feb 2014

11 DATA VERIFICATION

Data validation and verification for Buckreef resource estimates have been thoroughly investigated by Hellman and Schofield in 2006, 2007 and 2011 Mineral Resource estimation. Venmyn has also verified the data and reported their finding in 2012 and 2014 technical reports. The data verification exercises concluded that the surface drill-hole data was adequate for the geostatistical estimation processes employed in the mineral resource estimation. The data was spatially well represented and of an adequate support level for estimating deposits of this nature.

The procedures and codes of practice employed by TRX and Iamgold personnel regarding drilling, geological logging and sample preparation conform to industry standards. The QA/QC information indicates that the analytical procedures were appropriate, that no significant contamination or analytical bias is noted. Venmyn Deloitte therefore considers that the exploration data is founded in acceptable protocols and adequate for use in geological modelling and geostatistical estimation.

Buckreef project data verification included but not limited to the collar positions of the TRX drill-holes, drill-hole survey data and checks of lithological logging of the drill-hole intersections was undertaken by Venmyn Deloitte in 2011 as far as the drilling program had progressed at that time. Field verification of the TRX mineral resource drilling program post this date has not been undertaken, as the procedures for the program were considered suitable and the new data comprises less than 5% of the total database.

Reviews of the drilling, sampling, QA/QC databases were undertaken both by Hellman and Schofield and Venmyn Deloitte. The data verification for the combined Iamgold and TRX drilling and sampling campaigns is generally satisfactory and essentially comprised: -

- Assessing that no overlapping intervals exist;
- That collar coordinates and survey information exist for each drill-hole identifier (BHID);
- That no gaps exist in the data; and
- That no duplicates were present

The validation and verification methods illustrated in different reports and verbal discussions with the TRX personnel brings MaSS to a confident level that the whole process was done in a proper manner. The level and results of blanks, duplicates standards and re-sampled core were reviewed by

Venmyn which found that the sampling campaigns produced good samples, good data quality and so good representative of samples. Previous audits conducted by Hellman and Schofield, and Venmyn on the project including re-logging of drill-holes, QAQC analysis, re-interpretation of results and validation of data together with other works as H & S recommendations, the Resource Estimation reports by H&S, the Venmyn reports all suggest a reasonable degree of confidence to MaSS that data verification was of good quality to support further works as no clear or obvious limitation has been observed.

Thus, the exploration data used by Venmyn to estimate gold resource on Buckreef project in 2014 was acceptable and adequate for use in geological modeling and geostatistical estimation

12 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

The original geological and mineral resource block models created by Hellman and Schofield proved problematic in that the proprietary in-house software used to develop the models. The mineral resource estimates were based partially on a historic dataset that was verified and deemed suitable for mineral resource estimation by Hellman and Schofield, as well as Iamgold exploration data, which is similarly of a standard compliant with National Instrument and JORC reporting requirements.

The Buckreef Project 2012 PEA recommended that the geological models and mineral resource block models be re-developed in an easily recognizable format and estimation system that would be entirely compatible with the pit optimization software. In 2013 CAE Mining interrogated the resource estimates and verified by Venmyn Deloitte. The results of this re-modelling exercise were reported in the Venmyn February 2014 ITR.

The estimates by Venmyn Deloitte are NI 43-101, JORC and SAMREC compliant. Given that there had been no material changes since the issue of that report, MaSS Resources Ltd has no reason to modify the estimates as the geo-statistical and geological assumptions remain valid, as do the criteria for classification into Inferred and Indicated Mineral Resource categories. Further, no new work has been undertaken since the publication of the resource estimate by Venmyn Deloitte in February 2014.

Prospect	MEASURED			INDICATED			INFERRED			MEASURED+INDICATED			EXPLORATION TARGET		
	Tonnes (Mt)	Grade (g/t)	Contained Gold (oz Au)	Tonnes (Mt)	Grade (g/t)	Contained Gold (oz Au)	Tonnes (Mt)	Grade (g/t)	Contained Gold (oz Au)	Tonnes (Mt)	Grade (g/t)	Contained Gold (oz Au)	Tonnes (Mt)	Grade (g/t)	Contained Gold (oz Au)
Buckreef	8.902	1.72	491,529	13.100	1.41	594,456	7.528	1.33	322,902	22.002	1.53	1,085,985	4.385	1.10	155,321
Eastern Porphyry	0.087	1.20	3,366	1.016	1.17	38,355	1.239	1.39	55,476	1.103	1.18	41,721	1.324	1.14	48,664
Tembo	0.017	0.99	531	0.185	1.77	10,518	0.267	1.29	16,521	0.202	1.71	11,048	0.095	1.12	3,429
Bingwa	0.906	2.83	82,387	0.569	1.38	25,274	0.312	1.36	12,922	1.475	2.26	107,661	0.049	1.25	1,982
TOTAL	**9.912**	**1.81**	**577,813**	**14.870**	**1.40**	**668,603**	**9.346**	**1.36**	**407,821**	**24.782**	**1.56**	**1,246,415**	**5.853**	**1.11**	**209,396**

Table 12.1 NI 43-101 Compliant Mineral Resource Estimate for Buckreef Gold Company Ltd at 0.5g/t Au Cut-off Grade as at January 2014
Source: Venmyn Deloitte ITR Feb 2014

New geological wireframes were developed by CAE Mining Limited. The gold mineralization is not specifically restricted to structures or lithologies and the volume wireframes were therefore designed as mineralization envelopes largely unconstrained by geological or structural limitations but constrained on lower grade limits specifically chosen for each deposit. High grade domains were identified within each deposit and separately modeled. A

prerequisite for the project was that all the models should be in the UTM coordinates system with the same block model origin and orientation to facilitate later use in mine planning packages.

The sample populations for the various geological domains were obtained by selecting the 1m composites within the wireframes of the domains, the re-compositing at 2m to reduce variability in the interests of obtaining unambiguous variograms. Capping analyses were carried out for each domain population in the three prospects (Tembo, Buckreef and Eastern Porphyry) where potential outliers were not markedly clustered in local high grade areas and in these instances re-domaining was not warranted. For the Bingwa prospect three extreme values were capped at the upper limit of the 99% confidence interval of the 66-sample sub-population which is approximately twice the maximum of the others.

Variography was carried out accordingly considering domains for each prospect where key field controlled horizontal variograms were used to yield noisy but applicable results. Specific Gravity values from all prospects and the three alteration zones (fresh, transitional and oxide) were considered sufficient for the estimation purposes. The final geological and resource models were completed in Datamine software. The Buckreef Project was modelled for gold grade only using the shell of the wireframe models as hard boundaries where only data within the wireframes were used in the estimates.

To attain a required level of confidence in determination of Mineral reserves the study should indicate that the mine plan and schedule is technically achievable and economically viable. According to Venmyn February 2014 ITR no mineral reserves had been declared for the project. It was therefore commented that it was important to note that mineral resources that are not mineral reserves do not have demonstrated economic viability. Consequently, it was reported that the Measured and Indicated Mineral resources for the Buckreef Gold Mine Project are as shown in Table 12.1 above.

The increased number of drill-holes for the 2014 estimates at Buckreef and Eastern Porphyry prospects resulted in this new mineral resource estimates. This increase in Resource (from 2012) was brought by the increase in geological confidence due to additional bulk density determination and in-fill drilling.

This study has now arrived at mineral reserve estimates and gives the financial analysis, mine plan and schedule. The estimates will be economically viable, profitable and technically achievable. Financial

modeling and analysis of the Buckreef Project operations have determined that the Project operations will be executed at recommended factors described in this report. MaSS Resources financial modeling and analysis are based on the proposed successive open-pit mining of the four deposits. Table 12.2 below shows the reserve estimates as specified by this study at two different cut-off pit optimizations.

Prospect	Classification	Cut-off (g/t)	Tonnage (Mt)	Gold (g/t)	Gold (troy oz)
	Measured + Indicated	**0.59**	**12.80**	**1.76**	**725,907**
	Inferred		**0.33**	**1.79**	**18,718**
	Measured + Indicated	0.63	8.06	1.99	520,165
Buckreef	Inferred		0.16	2.47	13,001
	Measured + Indicated	**0.59**	**0.38**	**1.77**	**21,924**
	Inferred		**0.34**	**2.05**	**22,401**
	Measured + Indicated	0.63	0.27	2.13	18,442
Eastern Porphyry	Inferred		0.29	2.24	21,097
	Measured + Indicated	**0.59**	**0.96**	**2.94**	**90,966**
	Inferred		**0.02**	**1.21**	**894**
	Measured + Indicated	0.63	0.20	1.89	13,393
Tembo	Inferred		0.09	3.02	8,482
	Measured + Indicated	**0.59**	**0.23**	**2.04**	**14,803**
	Inferred		**0.09**	**2.93**	**8,851**
	Measured + Indicated	0.63	0.83	2.88	87,583
Bingwa	Inferred		0.02	1.36	800

Table 12.2 Mineral Reserve Estimate for Buckreef Gold Company Ltd at 0.59 and 0.63g/t Au Cut-off Grade with base case highlighted

12.1 MINERAL RESERVE ESTIMATES

The Mineral Reserve is that portion of the mineral resource that has been identified as mineable within a design pit and incorporates criteria such as mining recoveries and waste dilution. The Mineral Reserves form the basis for the Feasibility Study production plan.

The resource models for each of the four deposits considered for ore reserves were obtained from site during the visit. The table below lists the resource models.

	Ore Body	Datamine Model	Model Type	Comment	Final Model Used Opt
1	Buck reef main	mod_br_mixed_nospot	Krigged	Only Mineralasation	bm_mod_run3
2	Eastern Porphyry	mod_ep_mixed	Krigged	Only Mineralasation	ep_mod_run3
3	Bingwa	mod_bw_supercap	Krigged	Only Mineralasation	bw_mod_run3
4	Tembo	mod_tb_mixed	Krigged	Only Mineralasation	tb_mod_run3

Table 12.3 Resource Models

The resources models were found containing only the mineralization portion. The manipulation was undertaken to include the waste at an average density of 2.4g/t. For determining reserves only, the Measured and Indicated material were used during the optimization.

The Buckreef mining operation will initially involve only open-pit mining. An underground mining component is planned for in future development; hence, all the Mineral Reserves are deemed to be open pit Mineral Reserves.

Mineral Resources and Reserves Comparison

There was difference in tonnes for Buckreef and Tembo deposit. Other deposits were found to be the same. The difference was due to the adjusted cut-off grade application

12.2 RESOURCE-RESERVE RECONCILIATION FACTORS

During the optimization process, no reconciliation factor was applied.

Mineral Resources

Table 12.4 Updated Mineral Resource 2017

MASS Jan 2017	New Mineral Resource Estimate for the BRMA at 0.50g/t Cut-Off (24th Jan 2017), Pit Optimized, Provisional Classification																	
Prospect	Measured Resource						Indicated Resource						Inferred Resource					
	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz
Buck Reef	13,843,000	13.84	1.68	23,270,083	23,270	748,150	11,737,000	11.74	1.32	15,528,051	15,528	499,238	5,150,075	5.15	1.27	6,561,195	6,561	210,947
Eastern Porphyry	86,963	0.09	1.20	104,703	105	3,366	1,016,131	1.02	1.17	1,192,938	1,193	38,354	1,240,190	1.24	1.39	1,727,584	1,728	55,543
Tembo	77,490	0.08	1.10	85,084	85	2,736	441,362	0.44	1.49	658,512	659	21,172	157,813	0.16	2.29	362,023	362	11,639
Bingwa	906,728	0.91	2.83	2,562,413	2,562	82,383	569,431	0.57	1.38	786,384	786	25,283	312,411	0.31	1.29	402,073	402	12,927
Total	14,914,181	14.91	1.74	26,022,283	26,022	836,636	13,763,924	13.76	1.32	18,165,884	18,166	584,047	6,860,489	6.86	1.32	9,052,876	9,053	291,057

Table 12.5 Previous Mineral Estimates 2013

Venmyn-Deloitte May 2013	0.5g/t Cut-Off																	
Prospect	Measured						Indicated						Inferred					
	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz
Buck Reef	8,902,000	8.90	1.72	15,311,440	15,311	491,529	13,100,000	13.10	1.41	18,471,000	18,471	594,456	7,528,000	7.53	1.33	10,012,240	10,012	322,902
Eastern Porphyry	87,000	0.09	1.20	104,400	104	3,366	1,016,000	1.02	1.17	1,188,720	1,189	38,355	1,239,000	1.24	1.39	1,722,210	1,722	55,476
Tembo	17,000	0.02	0.99	16,830	17	531	185,000	0.19	1.77	327,450	327	10,518	267,000	0.27	1.93	515,310	515	16,521
Bingwa	906,000	0.91	2.83	2,563,980	2,564	82,387	569,000	0.57	1.38	785,220	785	25,274	312,000	0.31	1.29	402,480	402	12,922
Total	9,912,000	9.91	1.81	17,996,650	17,997	577,813	14,870,000	14.87	1.40	20,772,390	20,772	668,603	9,346,000	9.35	1.36	12,652,240	12,652	407,821

Mineral Reserve - Optimization

Table 12.6 Updated Mineral Reserves 2017

MASS Jan 2017	New Mineral Reserve Estimate for the BRMA at 0.59g/t Cut-Off (24th Jan 2017), Pit Optimized, Provisional Classification																	
Prospect	Measured Reserve						Indicated Reserve						Inferred Reserve					
	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz
Buck Reef	9,351,496	9.35	1.79	16,730,761	16,731	537,906	3,450,443	3.45	1.69	5,847,466	5,847	188,000	325,706	0.33	1.79	582,199	582	18,718
Eastern Porphyry	32,815	0.03	1.85	60,787	61	1,954	352,104	0.35	1.76	621,111	621	19,969	340,058	0.34	2.05	696,745	697	22,401
Tembo	709,739	0.71	3.35	2,376,135	2,376	76,395	252,526	0.25	1.79	453,234	453	14,572	23,036	0.02	1.21	27,802	28	894
Bingwa	19,158	0.02	1.54	29,591	30	951	206,458	0.21	2.09	430,837	431	13,852	94,046	0.09	2.93	275,310	275	8,851
Total	10,113,208	10.11	1.90	19,197,275	19,197	617,207	4,261,531	4.26	1.73	7,352,647	7,353	236,393	782,846	0.78	2.02	1,582,057	1,582	50,864

Table 12.7 Previous Mineral Reserve estimates 2013

MSA 07-October-2013	0.5g/t Cut-Off above 200 m below surface, 1.5 g/t deeper than 200 m below surface* - Final Classification																	
Prospect	Measured Reserve						Indicated Reserve						Inferred Reserve					
	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz	Tonnes (T)	Mt	Au g/t	Au_g	Au kg	Au oz
Buck Reef	11,425,322	11.43	1.71	19,591,331	19,591	629,876	3,787,319	3.79	1.84	6,955,987	6,956	223,640	2,435,053	2.44	1.72	4,181,142	4,181	134,427
Eastern Porphyry				0			702,994	0.70	0.82	575,081	575	18,489	5,234,172	5.23	1.13	5,900,813	5,901	189,716
Tembo	151,215	0.15	1.50	227,387	227	7,311	708,685	0.71	1.37	971,368	971	31,230	112,365	0.11	1.54	172,843	173	5,557
Bingwa	162,898	0.16	1.16	188,859	189	6,072	1,027,359	1.03	2.17	2,233,395	2,233	71,805	258,491	0.26	1.19	306,509	307	9,854
Total	11,739,435	11.74	1.70	20,007,577	20,008	643,259	6,226,356	6.23	1.72	10,735,832	10,736	345,165	8,040,081	8.04	1.31	10,561,307	10,561	339,554

13 MINING METHODS

The current study is based on a Geological resource model by Venmyn Deloitte (2014) at a cut-off grade of 0.5g/t Au.

The study conforms to criteria defined in the Environmental Impact Assessment (EIA) and with special regards to minimizing the open pit mine footprint. The study also conforms to the Buckreef Gold Company Ltd's reserve and resource estimating procedures and guidelines.

Different open pits will be developed to provide the ore feed for the Carbon-in-Leach (CIL) operation. The topography over the area is generally level, with gently rolling slope towards Nyamazovu and Nyamazama rivers. The conditions are well suited for open mining and no major physical obstacles are apparent.

The mine facilities will be sited to minimize impacts on the river channels and environment at large. Mine plan and equipment selection addressed the following key items:

- Compliance with approved EIA and development consent conditions.
- Target ore production during commercial production to be up to 1,500,000 tonnes per year
- Open pit mining methodology.
- Selective mining of ore and associated waste to maximise reserves.
- Rapid vertical development to maximise NPV.
- Maximisation of pit slope angles.
- Minimisation of unit operating costs using the optimal applicable equipment.

Open pit mining is the most appropriate mining method for the Buckreef Gold Project resource to support the overall concept study strategy of low capital cost and an estimated LoM. The geometry of the orebody is that of a steeply dipping, narrow shear zone that precludes extraction of the entire drilled Mineral Resource

Based on the topography and geology of the mining area, site preparation will involve clearing ground for access to the mine, process plant area, administration offices, vehicle parking and maintenance areas, health facilities, camping facilities, ROM pads, explosives magazines, Tailings Storage Facility (TSF), waste dumps and other mining related infrastructures. The control of the drainage systems including dewatering is

important taking into consideration the nearness of the mining areas (Pit) to the rivers. Options including Bundwall construction on the river sides should be considered which may eventually be part of the Waste Rock dump. The proposed mine site layout is attached with this report (Appendix 001).

The overall mining method for project consists of several conventional open pit layouts on each deposit with access to the orebodies provided using a series of ramps into the pits.

The Buckreef Gold Project deposits consist of an upper, weathered, oxidised zone overlying a variable transition zone and lower, primary, fresh sulphide orebodies with depth. The weathered, oxidised, near surface material permits excavation by a combination of free digging, ripping, drill and blasting. In the transition zone, a mixture of free digging, ripping, drilling and blasting methods will be employed, while for the deeper fresh, competent material conventional pre-stripping, drill and blasting methods will be used to extract the ore.

The mining can be undertaken by shovel loading of ore and waste, and Articulated Dump Trucks hauling via the planned access ramps. Other supporting mining fleet like dozers, graders, water carts and utility vehicles will be required to maintain the mining operation.

In this report, MaSS Resources Ltd, briefly highlights the significant deeper level extensions or the modelled ore-bodies with a view for future extraction using underground mining techniques.

13.1 BASIS OF EVALUATION

The mine plan and mining cost estimate developed in this study is based on the geological block model generated by Venmyn in 2014. Mining cost is based on the current international practice and blended with Tanzania operating market.

13.2 GENERAL DESIGN CRITERIA

13.2.1 Site Description

Buckreef gold project will be operated from four open pit areas that will be developed in sequence to provide the ore feed for the CIL operations. The topography over the area is generally level, with gently rolling relief. The geometry and attitude of the deposits are well suited for open mining and no

major physical obstacles are apparent. The project located near seasonal rivers as well as wetland. There are some villages in the area and the mine facilities have been sited to minimize impacts on these.

13.2.2 Geotechnical Parameters

13.2.2.1 Pit Slope Stability

SRK conducted a rock mass evaluation on drilled material from Buckreef project so that can be utilized in mine planning. Analyses conducted by SRK were based on data collected by others and detail geotechnical logging by SRK staff on four oriented core holes (three PQ metallurgical holes and one older partial HQ hole).

The available geotechnical data was used by SRK to facilitate rock mass characterization to support development of a geotechnical model suitable for a feasibility level pit slope evaluation. The results of the field collection programs indicated a presence of two prominent domains of rock strength at Buckreef Project.

From rock mass characterization, along with available information on site geology, the materials were divided into two individual domains; weak near surface saprolite and saprocks and strong un-weathered basement parent rocks.

The following headings summarize the findings from the SRK assessment.

- ✓ Saprolite encountered at Buckreef Project is characterized by high degrees of weathering and reduced rock mass strength. The upper saprolite zone is typically comprised soil strength materials, while the lower saprolite comprises variably weathered and fractured rock of R2 – R4 (25 –100MPa) strength
- ✓ Country Rock strength is consistently R5 (100 – 250MPa).
- ✓ FF/m in fresh mafic and felsic litho types is low (<2/m; RQD typically >90%).
- ✓ Major structures are present, but are rarely observed to degrade the rock mass
- ✓ Orebody Rock strength is typically R5 strength (100 – 250MPa).
- ✓ Distinct foliation is present in the orebody, extending out into the proximal country rock. Foliation strength was strong, with only minor foliation breaks observed.
- ✓ Shear structures hosting the orebody appear to be of a strong and resealed nature

Further Geotechnical Data Collection

An ongoing geotechnical data collection program should be undertaken during pit development including geotechnical mapping and documentation of rock mass (particularly structure) and ground water conditions. The geotechnical data collection should concentrate on providing important data such as discontinuity persistence, spacing and variations in orientation that will proper bench design. The data collected should be used to collect parameters to be used in the geotechnical models.

13.2.3 Economic Criteria

The optimization of the pits and the application of cut-off grade criteria are based on a gold price of US$1,100/oz. Since each of the gold deposits may have unique metallurgical characteristics and specific operating costs associated with them, the cut-off grades applied to each deposit may vary.

13.3 MINE DESIGN

13.3.1 Mine Production Rate

The target overall mine ore production rate is about 1,035,931tonnes per year ("1.036Mtpa") of ore to feed the CIL processing plant at a rate of 60t/h for the first four years, 120t/h from fifth year to ninth year and 180t/t from tenth year onwards. The first three years the plant will process approximately 360,000 tonnes per annum

13.3.2 Mining Method Overview

The mining method utilized will be conventional open pit mining, like that used at many other operations in the country. Moderately size mining equipment will be used (truck sizes of a nominal 24tonne capacity) to meet the production requirements.

Some of the materials encountered in the open pits will be less competent and will allow free digging. As the pits deepen, harder rock will be encountered and some degree of drilling and blasting will be required. Shovel and excavators will load the haul trucks.

Waste dumps will be developed adjacent to all the pits. It is assumed that some ore material will be stockpiled and processed at the end of the mine operational life.

13.3.3 Pit Optimization and Pit Design

To determine the size of the Buckreef Project open-pits, each have been optimized using industry standard methods based on the criteria described here-in below.

The resource models received from Buckreef site office were only containing the mineralization portion. The first step was performing the model data checks that include checking for zero densities, missing cells, and grade errors. Waste blocks were added to the resource models to cover projected practical pit limits and filling the waste to the entire model. The models are also depleted using the topography.

The ore is dipping vertically hence giving future opportunity for Underground. To peruse the Underground option, extensive drilling will be required to increase the confidence level. The mining cost adjustment factor were applied all models for pit optimization.

The model was then imported into the NPV Scheduler optimization software (Datamine) where by three resource categories, measured, indicated and inferred, were considered during the exercise. In this case only full grade ore was considered for process plant treatment. Any portions of the mineralized shear zone/orebody with grades 0.33-0.59g/t, was classified as mineralized waste rock that can be stockpiled elsewhere other than the waste rock dump.

13.3.4 COSTS AND CUT-OFF GRADE ESTIMATIONS

13.3.4.1 Gold price & selling costs

During this feasibility study for Buckreef, tremendous price volatility was present in the market place particularly from November 2016 until present. Determining a steady state forecast was difficult and MaSS in consultation with Buckreef office considered a conservative price estimating approach to be prudent in highlighting the project potential.

An analysis of the monthly average gold pricing was completed for the past two years referencing the Kitco fix from historical databases. The two-year rolling average gold price as of January 2017 was between US$1,366.25/oz and US$1049.40/oz.

Upon examination of these two-year prices, a gold price of $1,100/oz was used for the base case in the reserve estimations. This price was set just

under the spot high value recorded in this period i.e. US$ 1,366.25. The selected gold price is in line with a figure provided by Buckreef officials.

The cost of selling gold at $48.40/oz produced includes costs for refining, transport, royalty at 4% of gross revenue. No other costs are included like subscription in to World Gold Council. Table below provides more details.

Cost of Selling - Components		
		2017 - Zero base
Refining & Transport	$/oz	4.40
Royality @ 4%	$/oz	44.00
Total Selling Cost	**$/oz**	**48.40**

Table 13.1 Cost parameters for optimization

13.3.4.2 Cut off grades types

Four types of economic cut-off grades exist: Full Grade Ore (FGO); Marginal Grade Ore (MO); Mineralized Waste (MW) and Incremental Ore (IO). During the planning process the first three are determined from the input parameters and applied in the scheduling and allocation of material destination.

At the time of determining economic cut-off grades, direct mining costs are considered as sunk cost. The decision to mine would have been made during the LG pit optimization stage.

At the pit optimization stage the following apply:

- Mining costs are used to determine the theoretical shell selection for practical pit design,
- No uneconomical ore will be mined has it has no ability to drive the extend of the theoretical shell,
- Cut-off grades are therefore used to determine the destination of rock on a truck that has reached the pit rim, i.e. whether the rock reports to waste or to any of the other mineralized rock categories detailed below,
- Ore rock normally carry more cost (additional or premium ore cost) over and above the normal cost required to bring waste to the pit rim. This includes such costs as grade control, finer blasting, blast movement monitoring and others.

In determining CoGs, the upfront or project capital is considered a sunk cost whereas SIBC or sustaining capital is included. The FGO and MGO constitute the ore reserves. Although the pit optimization is only done with

the FGO portion, MO and MW are used during the scheduling process to identify material that could be processed at the end of the LOM of operation when FGO is depleted or be used as incremental ore (IO) during the operation. Full definitions and formulae for each are detailed below.

13.3.5 CUT OFF GRADE CLASSIFICATION

13.3.5.1 Full Grade Ore Cut-off

The Full Grade Ore (FGO) cut-off is the breakeven grade where all costs, except direct mining cost, carry the full operation. The key assumption is that direct mining costs are sunk since the decision to mine would have been made already. What would be outstanding at that stage is determining the destination of the material in line with its ability to pay for varying levels of other input costs. Material above FGO CoG will be processed as it is mined, subject to stockpile variations.

The following formula is used to calculate the FGO cut-off:

$$g = \frac{Cp + Ca + Cr + Cmf + Com + Csibc + Cmc}{m * r * (P - Cs)}$$

Where:

- *Cp is the total Processing Costs (Fixed & Variable) in $/t of ore treated*
- *Ca is Administration & General cost in $/t of ore treated*
- *Cr is the cost of rehandle in $/t treated*
- *Cmf is Mining, Contractor (<10%) and Geology Fixed cost in $/t treated*
- *Com is the difference between ore and waste mining cost in $/t treated*
- *Csibc is Non-mining stay in business capital & Items of a capital nature in $/t treated over life of mine*
- *Cmc is Mine Closure cost incurred during the life of mine in US$/t treated*
- *r is the metallurgical recovery (%)*
- *m is the mine call factor (100%)*
- *P is the gold price in $/oz*
- *Cs is the cost of selling gold (refining, royalties, Management Fees) in $/oz*

13.3.5.2 Marginal Grade Ore Cut-off

Material above this cut-off grade will be processed after all of the material above the Full Grade Ore Cut-off is processed or when the FGO can no longer fill up the existing processing plant's capacity.

Costs included in the calculation will be the same as detailed in FGO with the following exceptions: a) 100% rehandle will be assumed in the treatment costs b) Fixed mining costs will not be included c) SIB Capital is excluded, and d) Reduced overheads to reflect the attendant lower levels of activities at that stage in the life of the mine.

The formula for the estimation of the MGO cut-off grade is:

$$Mar = \frac{Cp + Ca + Cr + Cmf}{m * rmo * (P - Cs)}$$

Where:

- *Ore costs have to conform to the strategy that MGO will be treated at the end of life of mine*
- *Cp is the total Processing Costs (Fixed & Variable) as adjusted for full MGO treatment in $/t treated*
- *Ca is the reduced Administration & General cost as will be required during MGO treatment only in $/t treated*
- *Cr is the cost of rehandle in $/t treated at 100% rehandle*
- *Cmf is Mining and Geology Fixed cost required for remaining work (stockpile control, survey, planning) in $/t treated*
- *rmo is the recovery at MGO (low) grade*

13.3.5.3 Mineralized Waste Cut-Off

MW (Mineralized Waste) is the material below the MGO cut-off grade that may become economical in future with a higher gold price, substantially lower costs or new technology that can result in reduction of cost and / or improve recovery. It is classified as waste in reporting and is not included in reserve.

$$Mw = \frac{Cp + Ca + Crmw + Cmf}{m * rmo * (\Pr es - Cs)}$$

MW cut-off is the breakeven grade where cost as determined for MGO and the resource gold price is used.

Where:

- *COST to conform to the MGO treatment after mining strategy*
- *Cp is the total Processing Costs (Fixed & Variable) as adjusted for full MGO treatment in $/t treated*
- *Ca is the reduced Administration & General cost as will be required during MGO treatment only in $/t treated*
- *CrMW is the cost of rehandle MW (from distant stockpiles) in $/t treated at 100% rehandle*
- *Cmf is Mining and Geology Fixed cost required for remaining work (stockpile control, survey, planning) in $/t treated*
- *rmo is the recovery at MW (very low) grade*
- *Pres is the Resource gold price*

13.3.5.4 Incremental Ore Cut-Off

If insufficient FGO is mined to fill the plant, treatment of IO (Incremental Ore) can be considered to fully utilize plant capacity. IO grade will be lower than MGO grade and requires an economic viability exercise to determine if

it is financially beneficial to treat the IO during the FGO treatment. The grade of IO is too low to be treated on its own.

$$Mio = \frac{Cp\,\mathrm{var} + Cr}{m * rio * (P - Cs)}$$

IO (Incremental ore) cut-off is the breakeven grade where only variable cost is considered as all fixed cost is represented in the FGO that is treated concurrently.

Where:

- *Cp var is the variable Processing Costs in $/t treated*
- *Cr is the cost of rehandle in $/t treated*
- *rio is the recovery at IO (very low) grade*

13.3.5.5 Cut-off grade calculations

Table 13.2 below shows calculation of cut- off grade for Buck reef, Bingwa, Tembo and eastern porphyry deposits. Gold price used is $/oz 1100 as agreed with TRX. Royalty of 4% is also factored in. Mine call factor is assumed at 100%. Other time costs categories are as shown in the Table 4.

The Final FGO Cut-off grade for Buck reef main and Eastern Porphyry is 0.59g/t.

Cut-off grades are therefore used to determine the destination of rock on a truck that has reached the pit rim.

Full grade - COG	Escalation		0%	100%					
				Buckreef Main			Eastern Porphyry		
Full Grade Cut-off grade				Oxide	Trans	Fresh	Oxide	Trans	Fresh
Revenue	Gold price	$/oz		1,100	1,100	1,100	1,100	1,100	1,100
	Royalty	%		4%	4%	4%	4%	4%	4%
	Net gold revenue	$/oz		1,056	1,056	1,056	1,056	1,056	1,056
	Net gold revenue	$/g		33.95	33.95	33.95	33.95	33.95	33.95
Recovery	Gold recovery	%		91.0%	92.0%	93.0%	91.0%	92.0%	93.0%
MCF	Mine Called Factor	%		100%	100%	100%	100%	100%	100%
Ore costs									
Time cost	*HR + Community*	$/t		*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*
	Supply Chain	$/t		*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*
	Finance + IT+Dar Office	$/t		*0.34*	*0.34*	*0.34*	*0.34*	*0.34*	*0.34*
	Security	$/t		*0.64*	*0.64*	*0.64*	*0.64*	*0.64*	*0.64*
	HSE(Clinic+Safety+Env)	$/t		*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
	Camp	$/t		*1.82*	*1.82*	*1.82*	*1.82*	*1.82*	*1.82*
	Salaries & Benefits	$/t		*3.02*	*3.02*	*3.02*	*3.02*	*3.02*	*3.02*
	Engineering - services	$/t		*2.68*	*2.68*	*2.68*	*2.68*	*2.68*	*2.68*
	Management Fees	$/t		*0.02*	*0.02*	*0.02*	*0.02*	*0.02*	*0.02*
	Mining	$/t		*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*
	Total time cost	$/t		11.18	11.18	11.18	11.18	11.18	11.18
Environmental	Decommissioning and Restoration	$/t		0.00	0.00	0.00	0.00	0.00	0.00
Sustaining capital cost	Total sustaining capital cost $ / t ore	$/t		0.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Processing cost	Plant process cost	$/t		7.16	7.16	7.16	7.16	7.16	7.16
Road ore haulage:	*Road haulage unit cost*	*$/t/km*		*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Road haulage distance (one way)	*km*		*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Total road halage cost	$/t		-	-	-	-	-	-
Total ore cost	Total ore cost	$/t		18.34	18.34	18.34	18.336	18.336	18.336
Cut-off	Full Grade Cut-off grade	g/t		0.59	0.59	0.58	0.59	0.59	0.58

Table 13.2 Parameters used to generate cut-off grade for two deposits

			Buckreef Main			Eastern Porphyry			Bingwa			Tembo		
Marginal Grade Cut-off grade			Oxide	Trans	Fresh	Oxide	Trans	Fresh	Oxide	Trans	Fresh	Oxide	Trans	Fresh
Revenue	Gold price	$/oz	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
	Royalty	%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
	Net gold revenue	$/oz	1,056	1,056	1,056	1,056	1,056	1,056	1,056	1,056	1,056	1,056	1,056	1,056
	Net gold revenue	$/g	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95
Recovery	Gold recovery	%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
MCF	Mine Called Factor	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Ore costs														
Time cost:	*HR + Community*	*$/t*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*	*0.09*
	Supply Chain	*$/t*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*
	Finance + IT	*$/t*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*
	Security	*$/t*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*	*0.15*
	HSE(Clinic+Safety+Env)	*$/t*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*
	Camp	*$/t*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*	*0.43*
	Salaries & Benefits	*$/t*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*	*0.70*
	Engineering - services	*$/t*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*	*0.62*
	Management Fees	*$/t*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Mining	*$/t*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Total time cost	$/t	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14
Environmental	Decommissioning and Restoration	$/t	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Sustaining capital cost:	Total sustaining capital cost $ / t ore	$/t	0.58	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*	*0.58*
Processing cost:	Plant process cost	$/t	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.16
Road ore haulage:	*Road haulage unit cost*	*$/t/km*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Road haulage distance (one way)	*km*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*5.00*	*5.00*	*5.00*	*3.00*	*3.00*	*3.00*
	Total road halage cost	$/t	-	-	-	-	-	-	-	-	-	-	-	-
Total ore cost:	Total ore cost	$/t	10.11	10.11	10.11	10.107	10.107	10.107	10.107	10.107	10.107	10.107	10.107	10.107
Cut-off	Full Grade Cut-off grade	g/t	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33

Table 13.3 Marginal cut-off grade calculations

For each deposit, the optimization analysis provides profitability, grade, ore and waste and tonnage data for the varying gold prices. A pit selection criterion of selecting revenue factor 1 was applied. The pit with maximum revenue is selected at this point.

The next step after optimization was to design an operational open pit that would form the basis for the mine production plan. This pit may be subdivided into mining phases for production scheduling; however, these internal phases collectively do not affect the ore reserves contained within the ultimate pit.

The open pit is designed to have 5m height benches with ramp width of 8m. Articulated dump trucks are to be used for haulage.

No specific report was used during the estimation of final angles but consultation and discussion during the site visit was agreed as per number indicated in the table below. Ramp width of 8m was applied in all pit designs. The width of the ramp is sufficient to accommodate two trucks passing each other.

A summary of the overall angles used in all pits optimizations are shown in a table below. Slopes for pit optimization were flattened to accommodate haul ramps where required.

		Weathering Profiles		
Parameters		Weathered Material	Transional	Unweathered
Buckreef Main	Bench Height	5	10	10
	Berm Widith	2.5	2.5	5
	Batter angle	60	80	80
	Stack height	40	40	40
	Ramp widith	10	10	10
Tembo	Bench Height	5	10	10
	Berm Widith	2.5	2.5	5
	Batter angle	60	80	80
	Stack height	40	40	40
	Ramp widith	10	10	10
Bingwa	Bench Height	5	10	10
	Berm Widith	2.5	2.5	5
	Batter angle	60	80	80
	Stack height	40	40	40
	Ramp widith	10	10	10
Eastern Porphyry	Bench Height	5	10	10
	Berm Widith	2.5	2.5	5
	Batter angle	60	80	80
	Stack height	40	40	40
	Ramp widith	10	10	10

Table 13.4 Pit design criteria

A set of nested pits for each deposit is produced during the pit optimizations exercise. See the table for all four deposits which were consider. The pit with the optimum NPV was chosen as the ultimate theoretical pit for each area.

This selected pit will be used as guideline to design the final practical pit in Datamine general mine planning (GMP) software.

Buckreef Main

In selecting optimal pit shell, the shell with minimal stripping ratio and high NPV was selected. In this case pit number 20 meets the criteria. Optimization results for Buckreef Main at different gold prices are shown in Table 13.5. Ultimately, the $1,100/oz Au price shell was used for the mine design. Images of the Buckreef project optimized pit shells are shown in Figure 13.1

Gold price US$1100												
	Incremental						Cumulative					
Phases	Ore	Au	Total Waste	SR	Cost	Value	Ore	Au	Total Waste	SR	Cost	Value
	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)
Pit 1 (1) 5.00%	1,425	102	1,798	1.26	307	70,398	1,425	102	1,798	1.26	307	70,398
Pit 2 (2) 10.00%	572	34	1,364	2.39	407	16,541	1,997	136	3,162	1.58	332	86,939
Pit 3 (3) 15.00%	830	51	3,116	3.75	435	19,917	2,827	187	6,277	2.22	360	106,855
Pit 4 (4) 20.00%	355	18	1,519	4.27	536	5,542	3,183	205	7,796	2.45	375	112,397
Pit 5 (5) 25.00%	826	49	5,985	7.25	545	12,428	4,009	254	13,781	3.44	408	124,825
Pit 6 (6) 30.00%	503	31	4,370	8.68	565	6,751	4,512	285	18,151	4.02	425	131,576
Pit 7 (7) 35.00%	997	58	9,528	9.56	617	9,382	5,509	343	27,679	5.02	458	140,958
Pit 8 (8) 40.00%	630	29	4,735	7.52	708	3,392	6,138	372	32,414	5.28	477	144,350
Pit 9 (9) 45.00%	285	13	2,495	8.76	738	1,334	6,423	385	34,909	5.43	486	145,684
Pit 10 (10) 50.00%	533	23	4,469	8.39	777	1,850	6,956	409	39,377	5.66	503	147,534
Pit 11 (11) 55.00%	1,413	62	13,456	9.52	816	3,048	8,369	471	52,833	6.31	544	150,582
Pit 12 (12) 60.00%	775	38	9,246	11.93	826	1,568	9,144	508	62,079	6.79	565	152,151
Pit 13 (13) 65.00%	390	18	4,536	11.63	870	586	9,534	526	66,615	6.99	575	152,737
Pit 14 (14) 70.00%	308	13	3,310	10.74	913	321	9,842	539	69,925	7.10	583	153,058
Pit 15 (15) 75.00%	276	12	3,388	12.29	938	249	10,118	551	73,313	7.25	591	153,307
Pit 16 (16) 80.00%	1,568	64	18,440	11.76	973	416	11,686	615	91,752	7.85	631	153,722
Pit 17 (17) 85.00%	401	18	5,672	14.14	994	134	12,087	633	97,424	8.06	641	153,857
Pit 18 (18) 90.00%	830	41	14,496	17.46	1,017	115	12,917	674	111,920	8.66	664	153,971
Pit 19 (19) 95.00%	140	7	2,608	18.70	1,059	17	13,057	681	114,529	8.77	668	153,988
Pit 20 (20) 100.00%	**71**	**4**	**1,967**	**27.64**	**1,086**	**3**	**13,128**	**685**	**116,495**	**8.87**	**671**	**153,991**
Pit 21 (21) 105.00%	158	7	2,891	18.27	1,122	(17)	13,286	692	119,386	8.99	675	153,974
Pit 22 (22) 110.00%	201	8	2,955	14.70	1,142	(29)	13,487	700	122,341	9.07	681	153,945
Pit 23 (23) 115.00%	833	38	15,949	19.14	1,162	(298)	14,320	739	138,290	9.66	706	153,647
Pit 24 (24) 120.00%	62	4	1,803	29.05	1,226	(27)	14,382	742	140,093	9.74	708	153,620
Pit 25 (25) 125.00%	170	7	3,231	19.05	1,229	(56)	14,552	749	143,324	9.85	713	153,564
Pit 26 (26) 130.00%	203	9	3,875	19.12	1,256	(79)	14,754	758	147,199	9.98	719	153,485
Pit 27 (27) 135.00%	109	5	2,546	23.45	1,307	(56)	14,863	763	149,745	10.08	723	153,429
Pit 28 (28) 140.00%	1,668	76	38,354	22.99	1,337	(1,309)	16,531	839	188,099	11.38	779	152,121
Pit 29 (29) 145.00%	613	30	15,761	25.73	1,371	(337)	17,144	869	203,861	11.89	799	151,784
Pit 30 (30) 150.00%	125	6	3,191	25.45	1,373	(54)	17,144	869	203,861	11.89	799	151,784

Table 13.5 Optimization results for Buckreef Main (Pit 20 selected as optimum)

The selected pit contains 3% of inferred resource. The rest of resource categories in optimized pit shell are as shown in Figure 13.1. Maximum NPV of US$153,991,000 is obtained from selected pit shell.

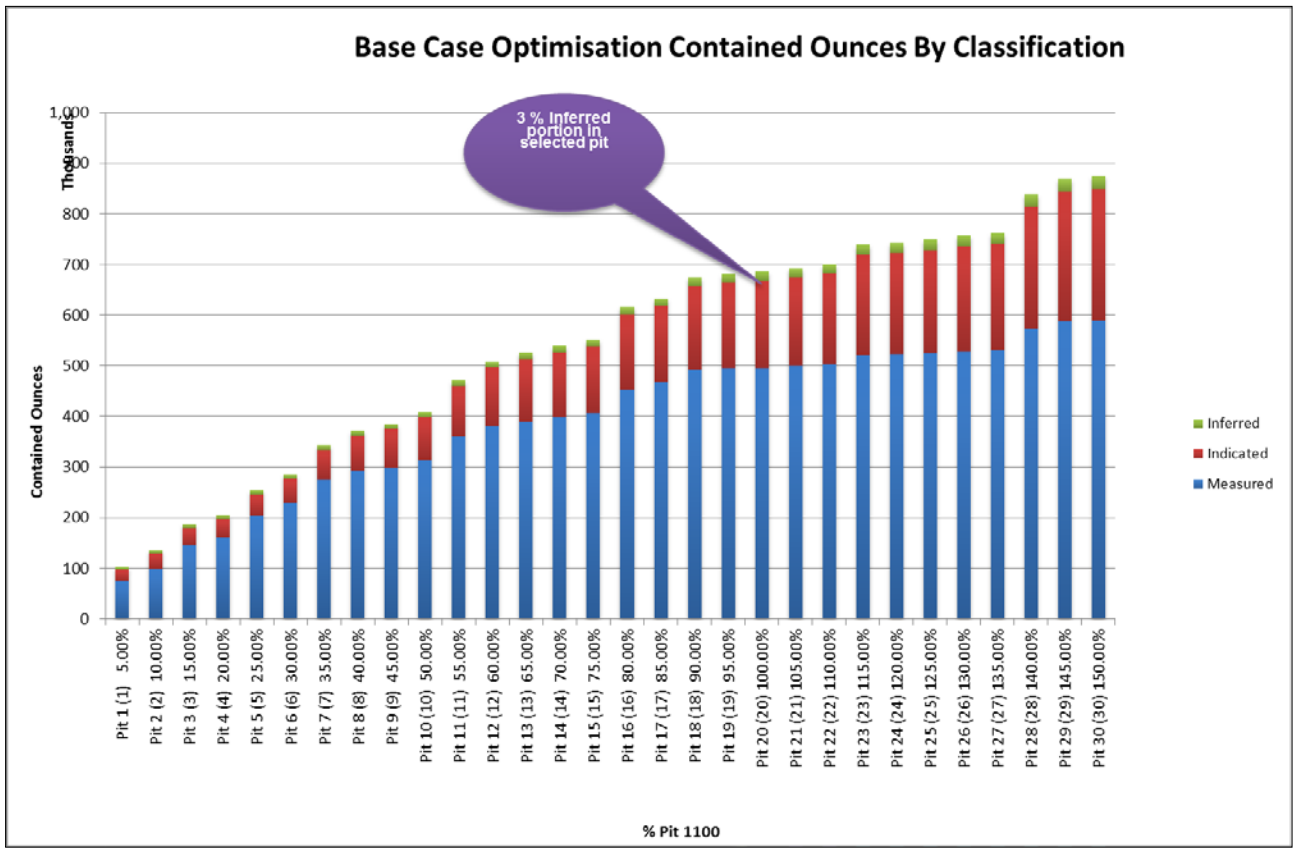


Figure 13.1 Buckreef-main selected pit

Bingwa

Bingwa pit is the second largest pit after Buckreef main pit. An optimization result indicates a maximum NPV of US$62,433,000 can be obtained from pit shell number 16. Hence this shell is selected as an optimal pit. In the selected pit shell (16), only 0.03% is the inferred portion of the mineral resource.

Optimization results for Bingwa are shown in Table 13.6. and Figure 13.2

Gold price	$1100/oz											
	Incremental						*Cumulative*					
Phases	Ore	Au	Total Waste	SR	Cost	Value	Ore	Au	Total Waste	SR	Cost	Value
	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)
Pit 1 (1) 5.00%	441	57	347	0.79	161	50,769	441	57	347	0.79	161	50,769
Pit 2 (2) 10.00%	52	3	127	2.42	395	1,982	494	60	474	0.96	173	52,751
Pit 3 (3) 15.00%	18	1	64	3.44	482	534	512	61	537	1.05	178	53,285
Pit 4 (4) 20.00%	104	4	287	2.75	611	1,775	616	65	824	1.34	205	55,060
Pit 5 (5) 25.00%	132	7	768	5.83	512	3,784	748	73	1,592	2.13	236	58,843
Pit 6 (6) 30.00%	42	1	144	3.45	744	433	790	74	1,736	2.20	246	59,277
Pit 7 (7) 35.00%	2	0	8	5.27	722	19	791	74	1,745	2.20	246	59,296
Pit 8 (8) 40.00%	9	0	26	3.06	835	57	800	75	1,771	2.21	248	59,353
Pit 9 (9) 45.00%	84	5	1,014	12.13	655	1,832	883	79	2,784	3.15	273	61,185
Pit 10 (10) 50.00%	18	1	329	18.65	676	458	901	81	3,114	3.46	280	61,643
Pit 11 (11) 55.00%	8	1	228	28.39	678	262	909	82	3,341	3.68	284	61,905
Pit 12 (12) 60.00%	47	1	265	5.61	910	233	956	83	3,607	3.77	295	62,138
Pit 13 (13) 65.00%	10	1	212	21.98	793	162	966	84	3,819	3.95	299	62,300
Pit 14 (14) 70.00%	12	1	169	14.65	886	97	978	84	3,988	4.08	302	62,397
Pit 15 (15) 75.00%	3	0	12	4.75	1,010	5	980	84	4,001	4.08	303	62,403
Pit 16 (16) 80.00%	**5**	**0**	**78**	**15.53**	**943**	**30**	**985**	**85**	**4,079**	**4.14**	**305**	**62,433**
Pit 17 (21) 105.00%	50	3	1,369	27.23	1,129	(76)	1,036	87	5,448	5.26	332	62,357
Pit 18 (23) 115.00%	1	0	13	13.16	1,157	(2)	1,037	87	5,462	5.27	332	62,355
Pit 19 (24) 120.00%	3	0	61	21.64	1,219	(12)	1,039	88	5,522	5.31	334	62,343
Pit 20 (25) 125.00%	150	7	3,603	23.98	1,243	(884)	1,190	95	9,126	7.67	402	61,459
Pit 21 (26) 130.00%	7	0	203	27.50	1,276	(51)	1,197	95	9,329	7.79	405	61,409

Table 13.6 Optimization results for Bingwa

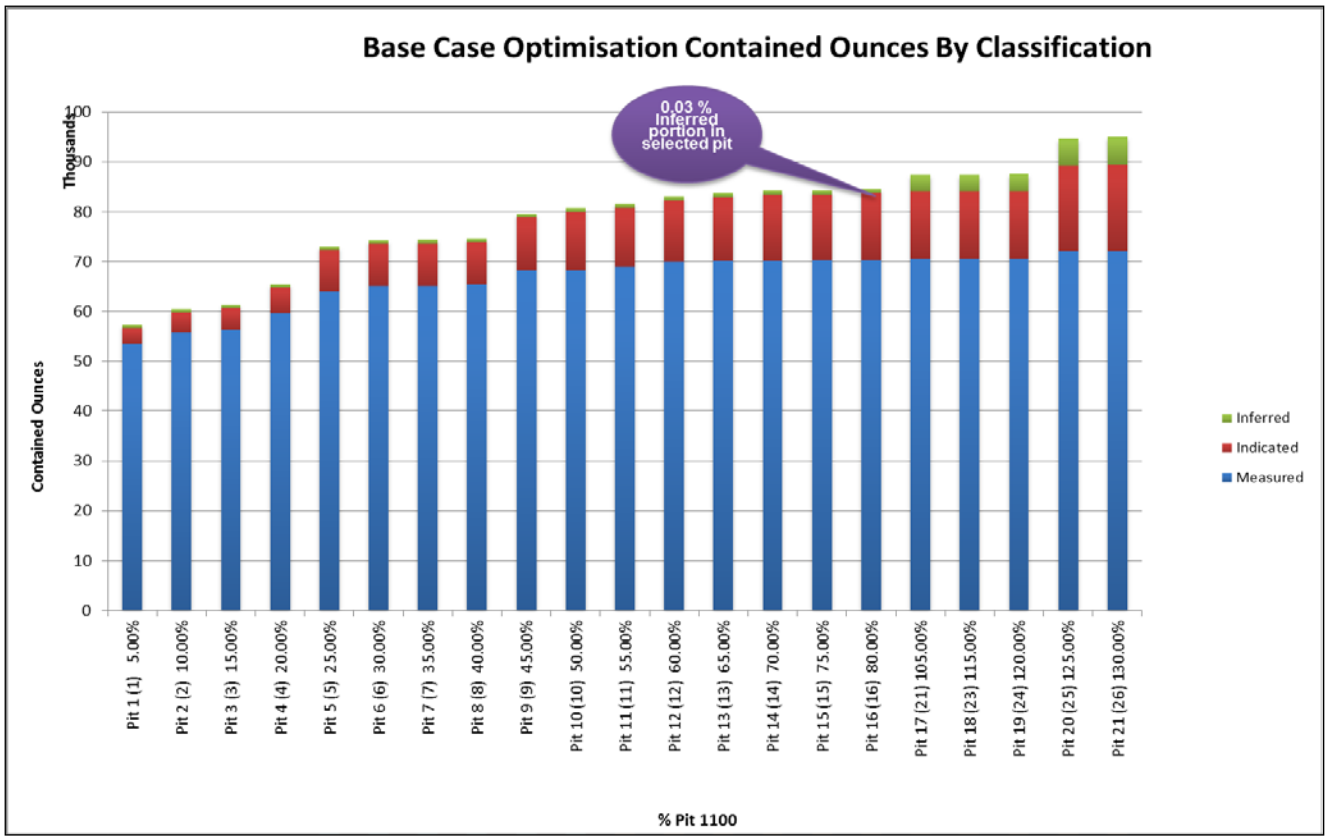


Figure 13.2 Bingwa selected pit

Eastern Porphyry

Eastern porphyry optimization results indicate the most profitable pit shell will yield maximum NPV of US$15,071,000 Pit shell number 19 (Table 13.7) is the selected shell. In the selected shell 50% of the ounces are in the inferred resource category. The inferred portion of resource contained in the selected pit sell requires to be updated to measured and indicated through further exploration and/or grade control drilling prior to actual mining.

Optimization results for Eastern porphyry at different levels are shown in Table 13.7

Gold price	$1100/oz											
	Incremental						Cumulative					
Phases	Ore	Au	Total Waste	SR	Cost	Value	Ore	Au	Total Waste	SR	Cost	Value
	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)
Pit 1 (1) 5.00%	134	9	173	1.29	323	6,575	134	9	173	1.29	323	6,575
Pit 2 (2) 10.00%	48	3	140	2.90	361	2,098	182	12	313	1.72	333	8,673
Pit 3 (3) 15.00%	46	3	247	5.32	389	1,990	228	16	560	2.45	345	10,663
Pit 4 (4) 20.00%	41	3	241	5.83	464	1,316	270	19	801	2.97	362	11,979
Pit 5 (5) 25.00%	11	0	29	2.67	694	117	281	19	830	2.96	369	12,096
Pit 6 (6) 30.00%	20	2	220	11.29	500	682	300	21	1,050	3.50	379	12,779
Pit 7 (7) 35.00%	5	0	70	13.09	575	156	305	21	1,120	3.67	383	12,934
Pit 8 (8) 40.00%	13	1	111	8.50	700	191	319	22	1,232	3.87	392	13,125
Pit 9 (9) 45.00%	1	0	6	11.00	746	8	319	22	1,238	3.88	393	13,133
Pit 10 (10) 50.00%	16	1	136	8.63	746	187	335	22	1,374	4.10	405	13,320
Pit 11 (11) 55.00%	6	0	61	10.09	831	50	341	23	1,434	4.21	409	13,370
Pit 12 (12) 60.00%	12	1	151	12.96	804	129	352	23	1,585	4.50	420	13,499
Pit 13 (13) 65.00%	4	0	26	5.87	941	16	357	23	1,612	4.51	423	13,515
Pit 14 (14) 70.00%	105	6	1,734	16.50	855	847	462	29	3,346	7.24	512	14,362
Pit 15 (15) 75.00%	60	3	1,050	17.35	904	362	523	33	4,395	8.41	552	14,724
Pit 16 (16) 80.00%	70	4	1,156	16.48	951	258	593	36	5,551	9.37	591	14,982
Pit 17 (17) 85.00%	20	1	312	15.61	994	52	613	37	5,863	9.57	601	15,033
Pit 18 (18) 90.00%	12	0	106	8.78	1,053	10	625	38	5,968	9.55	606	15,043
Pit 19 (19) 95.00%	100	3	801	7.99	1,066	28	725	41	6,769	9.34	641	15,071
Pit 20 (21) 105.00%	4	0	24	5.94	1,108	(0)	729	41	6,793	9.32	643	15,070
Pit 21 (23) 115.00%	14	1	390	28.37	1,175	(31)	743	42	7,183	9.67	653	15,039
Pit 22 (26) 130.00%	11	0	119	11.16	1,218	(20)	753	42	7,301	9.69	658	15,020
Pit 23 (28) 140.00%	4	0	13	3.00	1,152	(2)	758	42	7,314	9.65	659	15,017

Table 13.7 Optimization results for Eastern porphyry

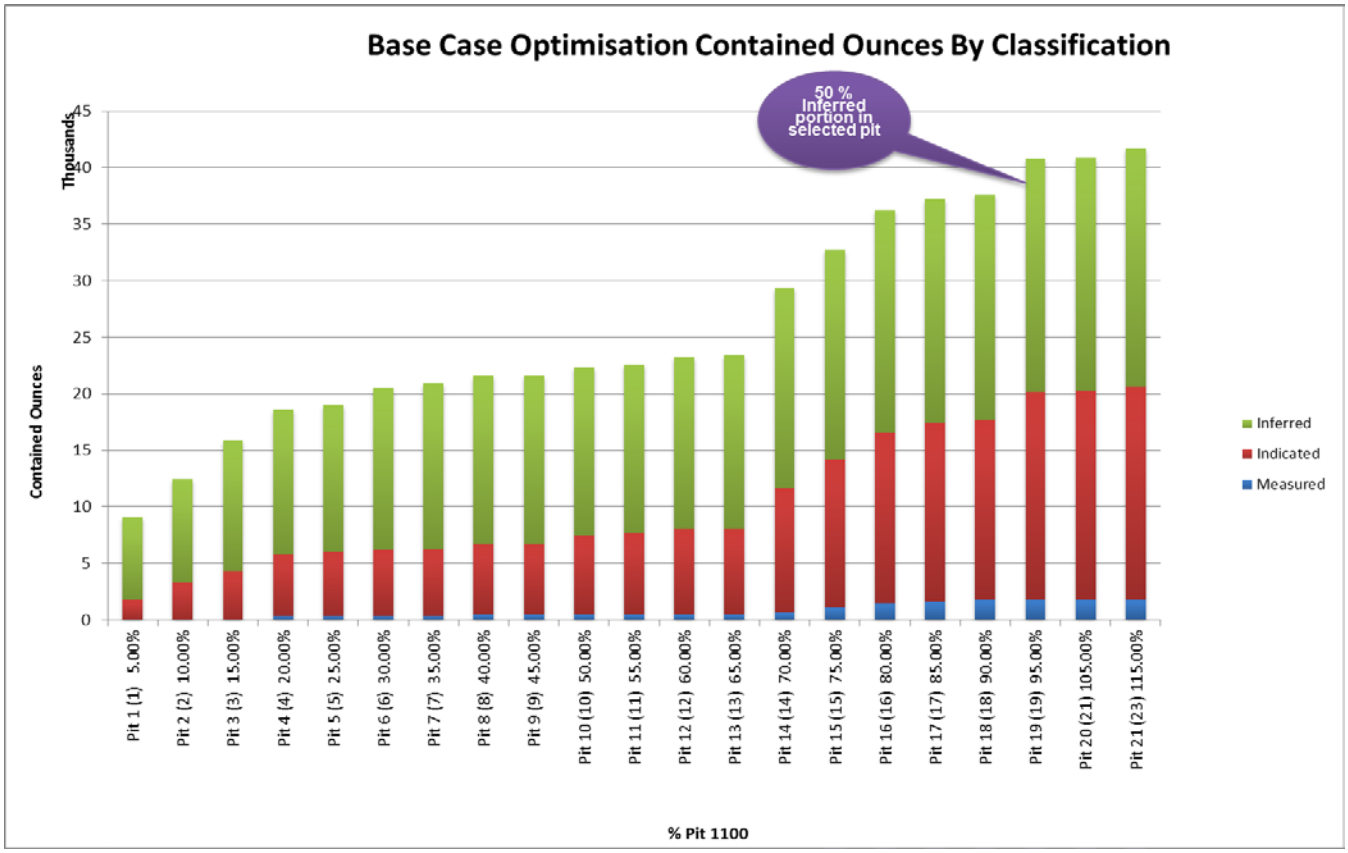


Figure 13.3 Eastern Porphyry-selected pit

Tembo

Tembo optimization results indicates pit shell number 19 (Figure 13.4) is the most viable pit shell. This pit yields a maximum NPV of US$ 11,614,000. In the selected pit shell 37% of the contained ounces are falling in inferred resource category. Optimization results for Tembo are shown in Table 13.8. The result shows that 37 % of ore materials from this pit are categorized as

inferred material that cannot form part of the ore reserves. The inferred portion of resource contained in the selected pit sell requires to be updated to measured and indicated through further exploration and/or grade control drilling prior to actual mining.

Gold price	$1100/oz											
	Incremental						Cumulative					
Phases	Ore	Au	Total Waste	SR	Cost	Value	Ore	Au	Total Waste	SR	Cost	Value
	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)	(t'000)	(oz'000)	(t'000)	(t/t)	($/oz)	$('000)
Pit 1 (1) 5.00%	78	6	90	1.15	298	4,439	78	6	90	1.15	298	4,439
Pit 2 (2) 10.00%	36	3	150	4.21	339	1,981	114	9	239	2.11	312	6,420
Pit 3 (3) 15.00%	35	3	191	5.41	392	1,641	149	11	430	2.89	331	8,061
Pit 4 (4) 20.00%	12	1	69	5.65	473	416	161	12	499	3.10	340	8,477
Pit 5 (5) 25.00%	31	2	268	8.64	478	1,186	192	14	767	3.99	362	9,663
Pit 6 (6) 30.00%	30	2	245	8.12	567	785	222	16	1,012	4.55	385	10,448
Pit 7 (7) 35.00%	3	0	72	22.79	442	226	225	17	1,084	4.81	387	10,674
Pit 8 (8) 40.00%	15	1	176	11.53	622	373	241	18	1,260	5.23	400	11,047
Pit 9 (9) 45.00%	6	0	42	6.58	778	65	247	18	1,301	5.27	405	11,112
Pit 10 (10) 50.00%	9	0	46	5.14	866	54	256	18	1,347	5.26	413	11,167
Pit 11 (11) 55.00%	3	0	33	10.24	808	35	259	18	1,381	5.33	416	11,201
Pit 12 (12) 60.00%	1	0	10	7.88	855	10	260	18	1,391	5.34	418	11,211
Pit 13 (13) 65.00%	11	0	83	7.30	894	66	272	19	1,474	5.42	428	11,276
Pit 14 (14) 70.00%	12	1	312	25.57	818	206	284	20	1,786	6.29	447	11,482
Pit 15 (15) 75.00%	7	1	179	25.14	875	88	291	20	1,964	6.75	458	11,570
Pit 16 (19) 95.00%	27	1	531	19.50	1,048	44	318	22	2,496	7.84	497	11,614
Pit 17 (20) 100.00%	1	0	11	8.54	1,085	0	320	22	2,506	7.84	498	11,614
Pit 18 (21) 105.00%	20	1	461	22.80	1,115	(17)	340	23	2,968	8.73	527	11,597
Pit 19 (22) 110.00%	**32**	**1**	**367**	**11.60**	**1,144**	**(40)**	**372**	**24**	**3,334**	**8.97**	**556**	**11,557**
Pit 20 (24) 120.00%	7	0	80	11.28	1,187	(15)	379	24	3,414	9.02	562	11,542
Pit 21 (25) 125.00%	1	0	91	130.81	1,299	(18)	379	24	3,505	9.24	566	11,524
Pit 22 (26) 130.00%	1	0	6	6.26	1,173	(1)	380	24	3,511	9.23	567	11,523

Table 13.8 Optimization results for Tembo

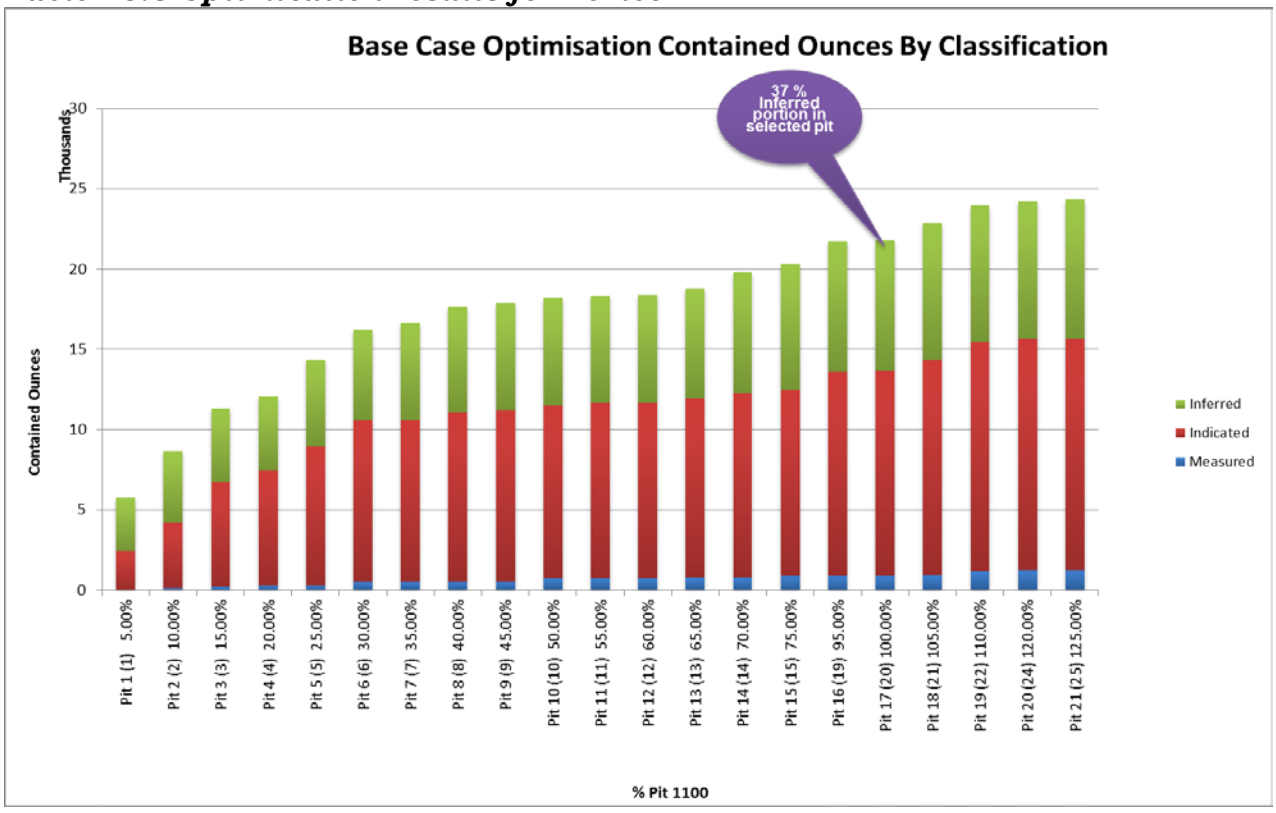


Figure 13.4 Tembo selected pit

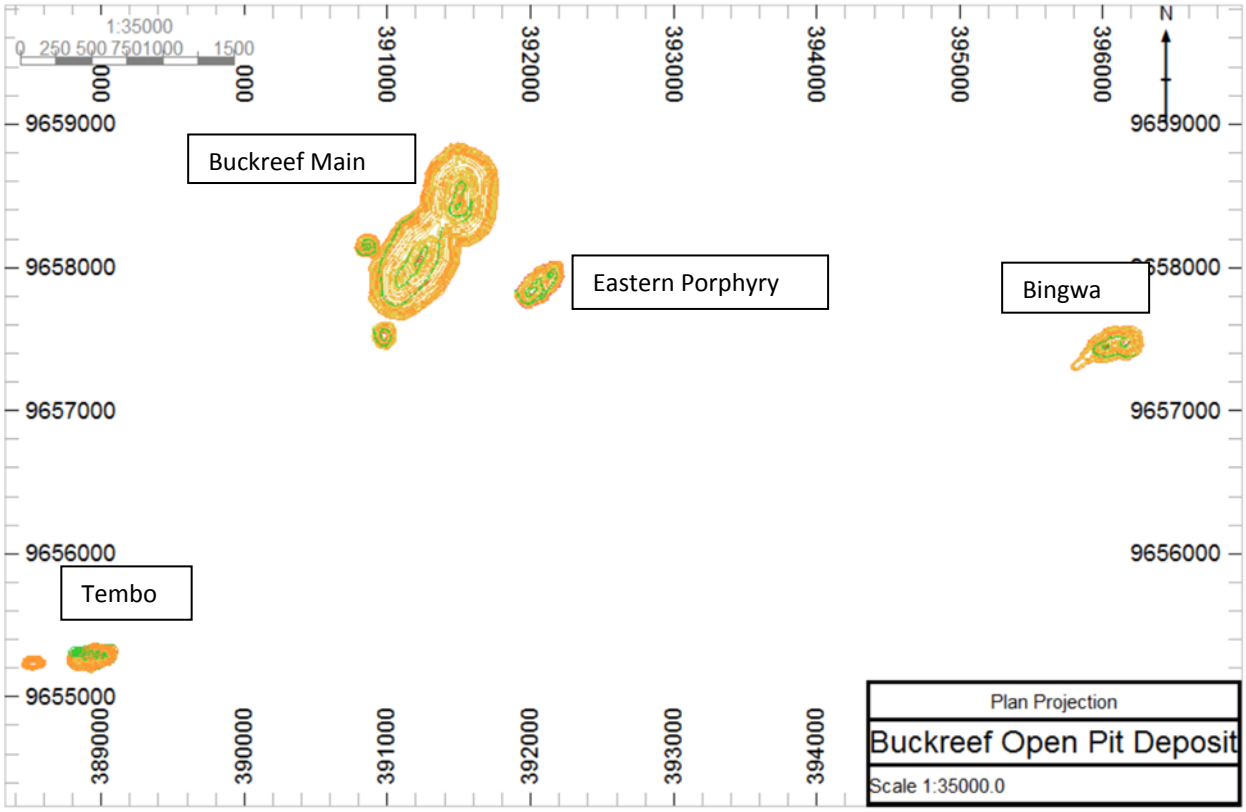


Figure 13.5: Buckreef Project, Diagrammatic regional location image

Figure 13.5 above shows the regional location of the five deposits that make up the Buckreef project as described in this study.

A significant amount of the resource for both the Eastern Porphyry and Tembo deposits are within the inferred category essentially indicating a need for further detailed drilling that can be planned as part of a comprehensive grade control drilling, a pre-requisite to actual mining. This would allow the inferred resource to be upgrade to Measured and Indicated category on which actual mining extraction will then be based as per normal industry and international standards.

13.4 MINE DESIGNS

This section provides details related to the pit designs and internal phases or push-backs used to assist with production sequencing. All pit designs are based on selected shell from optimization. Pits design were performed and this formed a basis of ore reserves estimations.

13.4.1 Buckreef Pits

The Buckreef Pits were subdivided into two phases, oxide and sulphide mining phases.

The reserve tonnage for each category in different pits are shown in Table 13.9

Plant Feed Schedule			
Prospect	**Ore**	**Unit**	**LoM Total**
Buckreef Main	Oxide	t	1,105,878.66
	Grade	g/t	2.01
	Sulphide	t	14,460,681.07
	Grade	g/t	1.82
Bingwa	Oxide	t	305,552.69
	Grade	g/t	2.04
	Sulphide	t	600,759.34
	Grade	g/t	3.28
Tembo	Oxide	t	187,567.84
	Grade	g/t	2.02
	Sulphide	t	114,935.57
	Grade	g/t	2.46
Eastern Porphyry	Oxide	t	267,256.75
	Grade	g/t	1.85
	Sulphide	t	448,466.36
	Grade	g/t	1.84

Table 13.9 Summary of ore types tonnage in different pits

Detailed breakdown of ore material, waste material and pit mining sequences are found in Appendix 002

13.4.1.1 Buckreef Main

The Buckreef main pit which is most ore reserves generator contains underground potential like other pits. The underground potentiality for this project is not considered at this stage, therefore the mining method used to declare reserves are estimated based on open pit approach. Below is the 3D-Buckreef main pit orebody orientation.

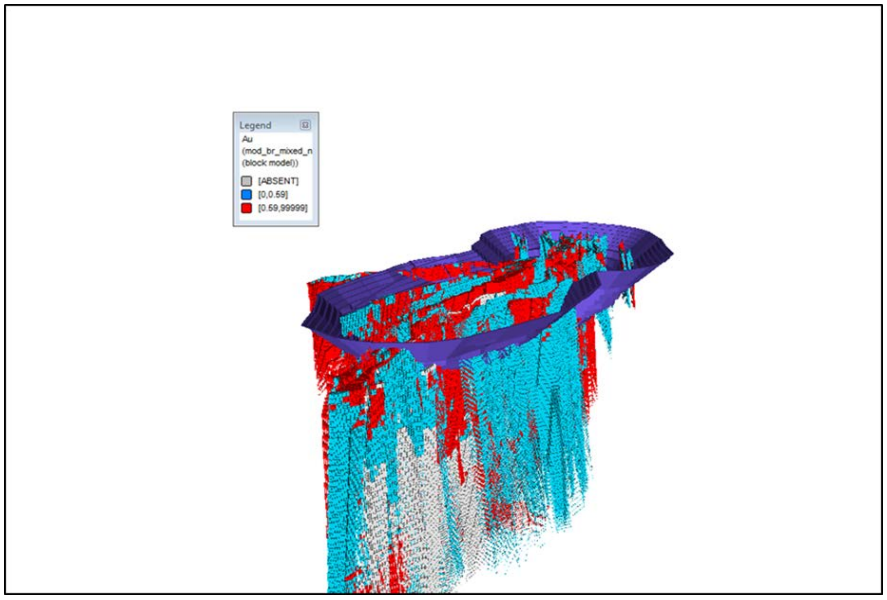


Figure 13.6 3D-Buckreef main pit ore body orientation

Buck reef main pit

Buckreef main pit is designed to have one ramp system with a flat portion connecting two min-pits at 1150 mrl. The pit covers a total area of 34.2 acre, with a total length of 1.1km and 0.400km width. Pit depth is approximately 195m from the surface, and pit ends at 1035mrl.

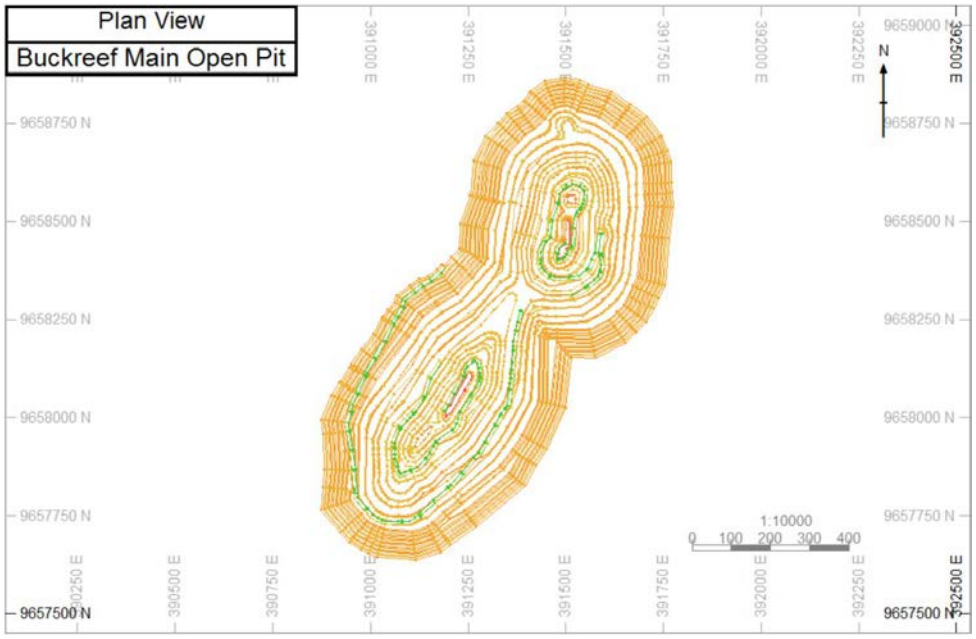
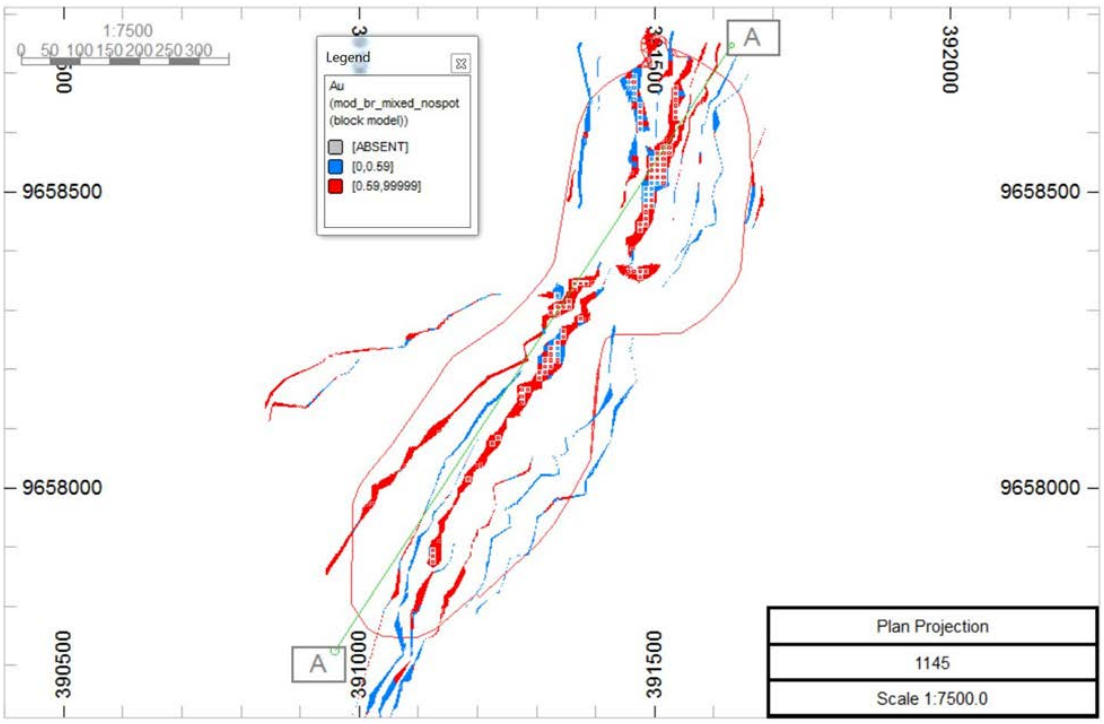
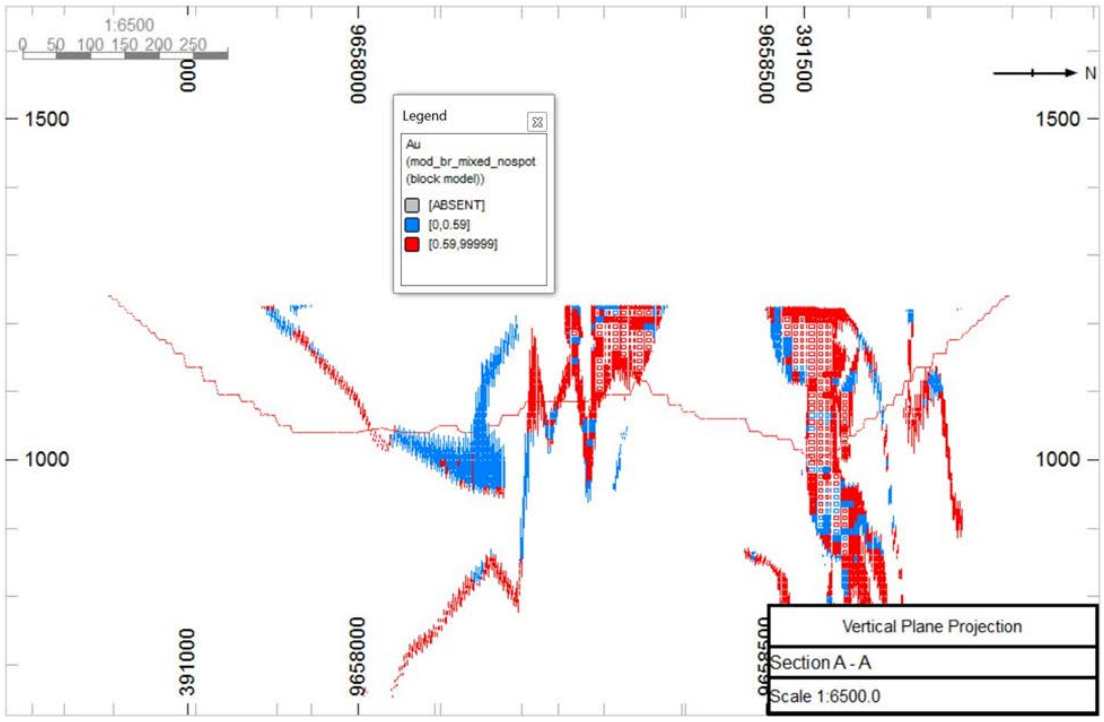


Figure 13.7a: Buckreef main pit open plan view

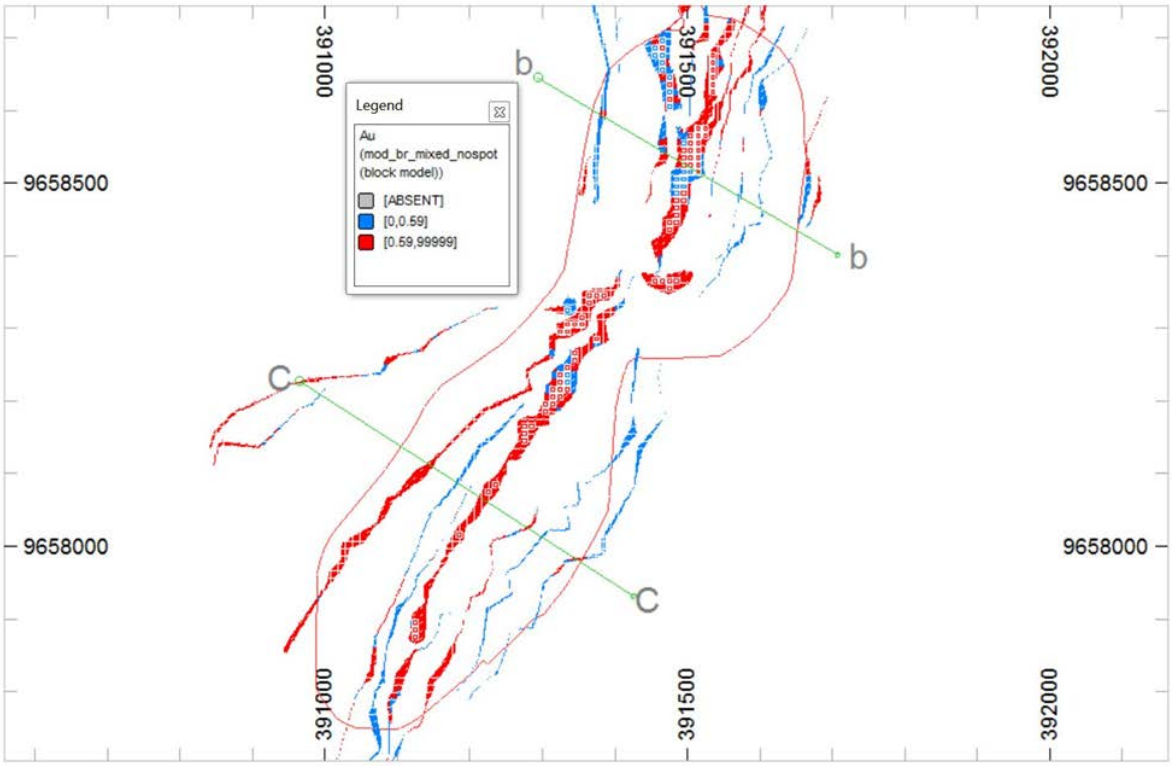
Buckreef Main orebody outlines sliced at 1145mrl: Longitudinal section produced along line a-a



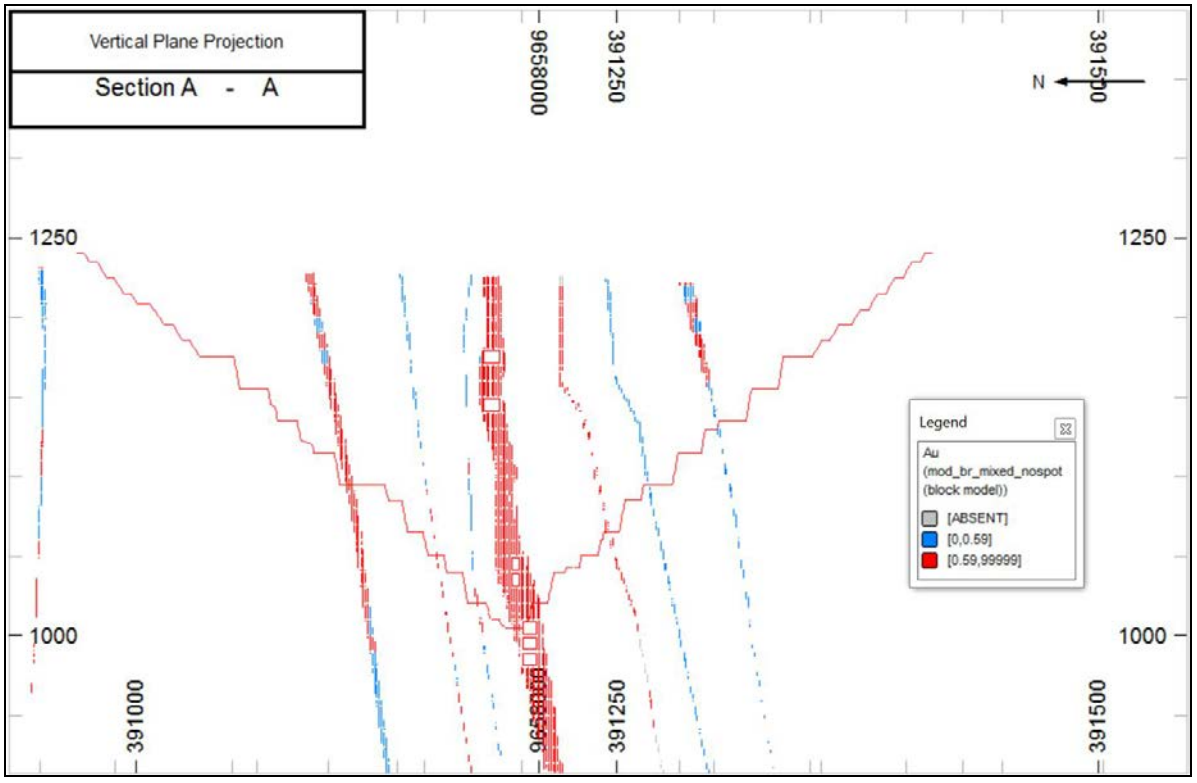
Longitudinal Section a-a



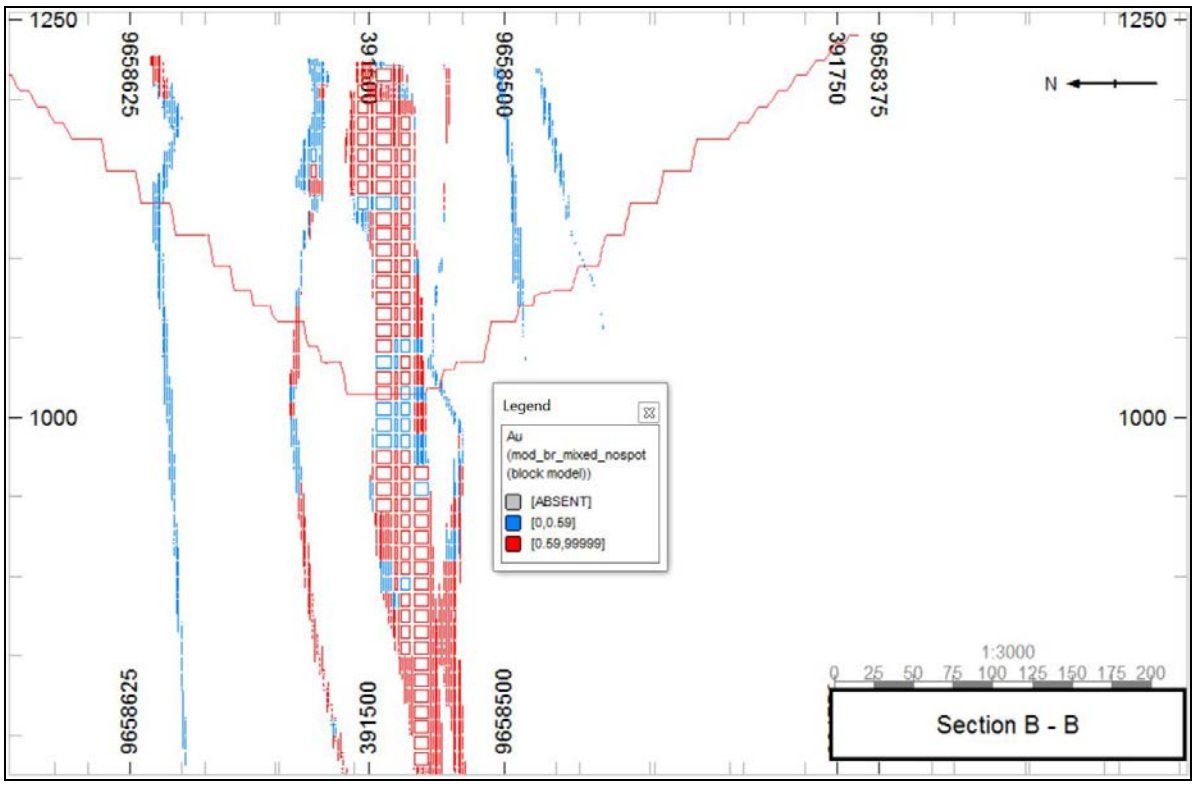
Buckreef Main orebody sliced at 1170mrl: Cross sections produced along line b-b and c-c all looking NW.



Cross Section a-a: Looking NNW



Cross Section b-b: Looking NNW



Bingwa pit

Bingwa pit is designed to have a total length of 0.52km and width of approximately 200m.The pit covers a total area of 7.2 acres. 3D view of Bingwa pit is shown below Figure 13.8. Bingwa pit has 70m depth, the pit ends at 1170mrl.

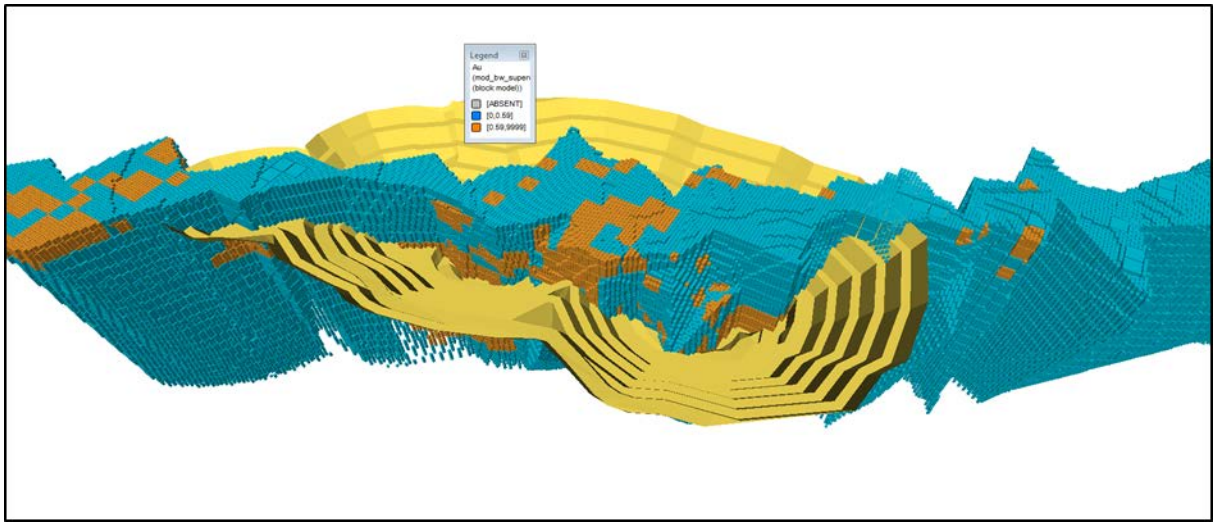


Figure 13.8 Bingwa pit orebody orientations

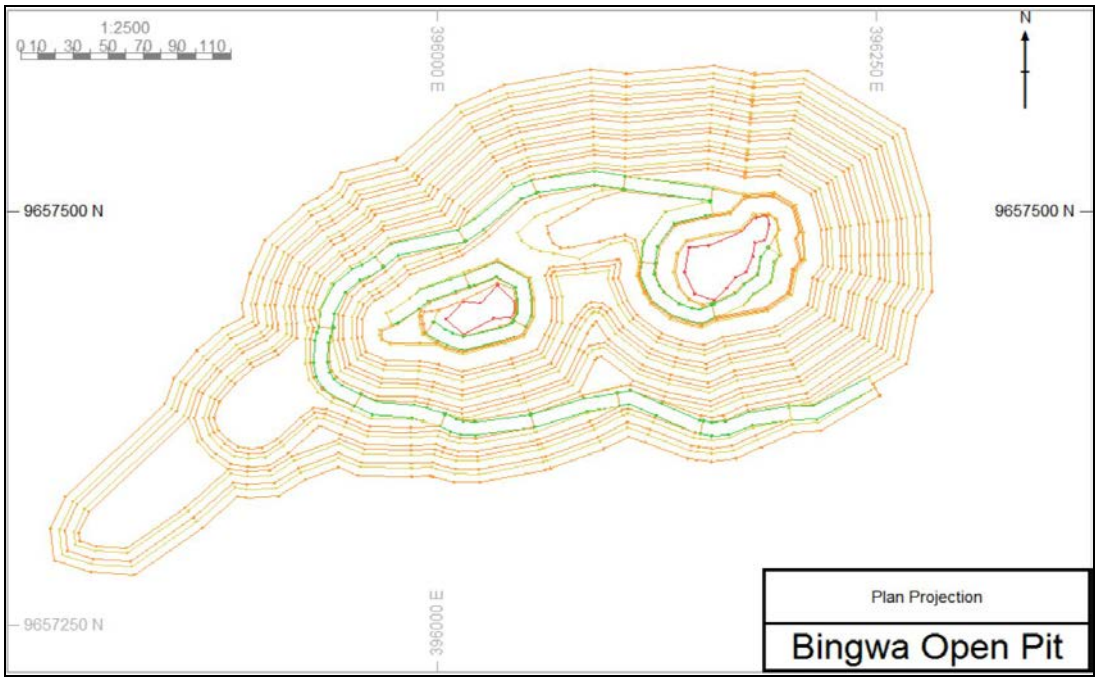


Figure 13.9 Bingwa Pit open plan view

Bingwa Main orebody: Longitudinal section produced along line a-a

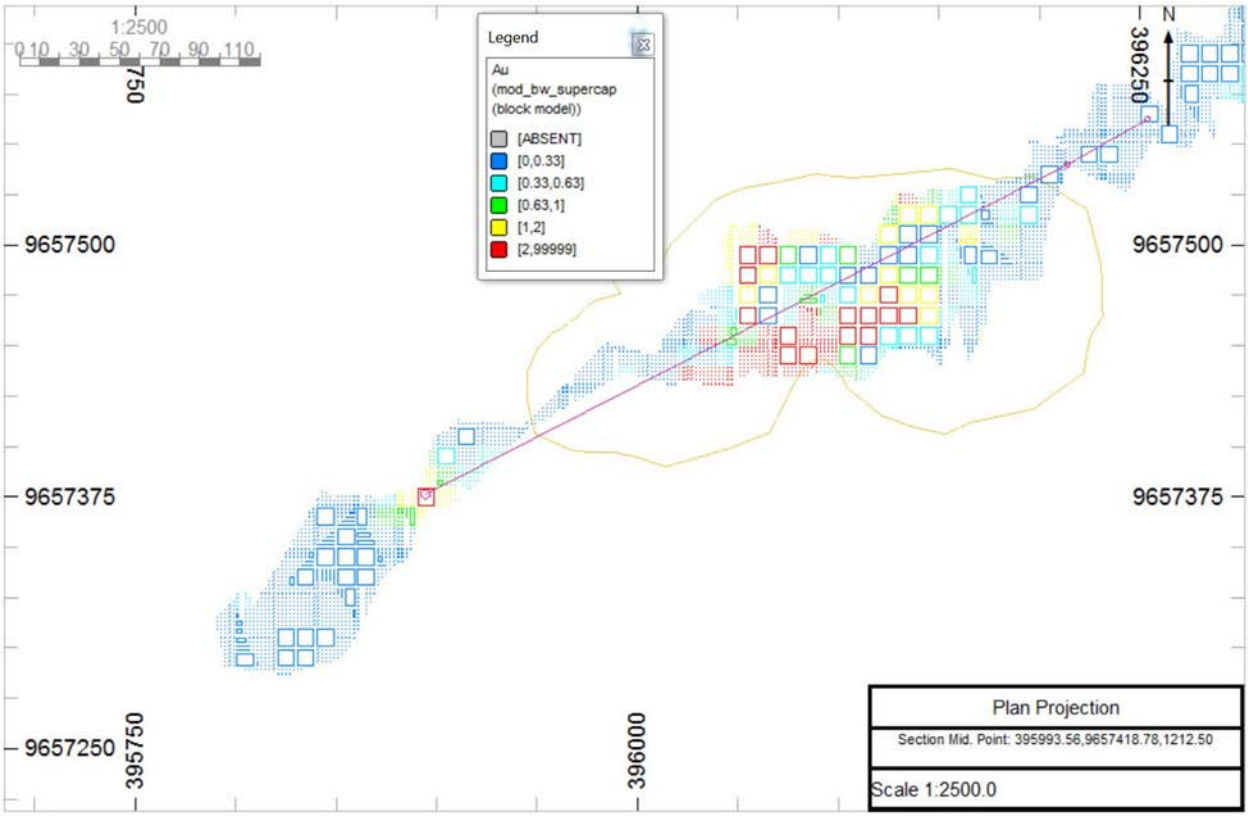
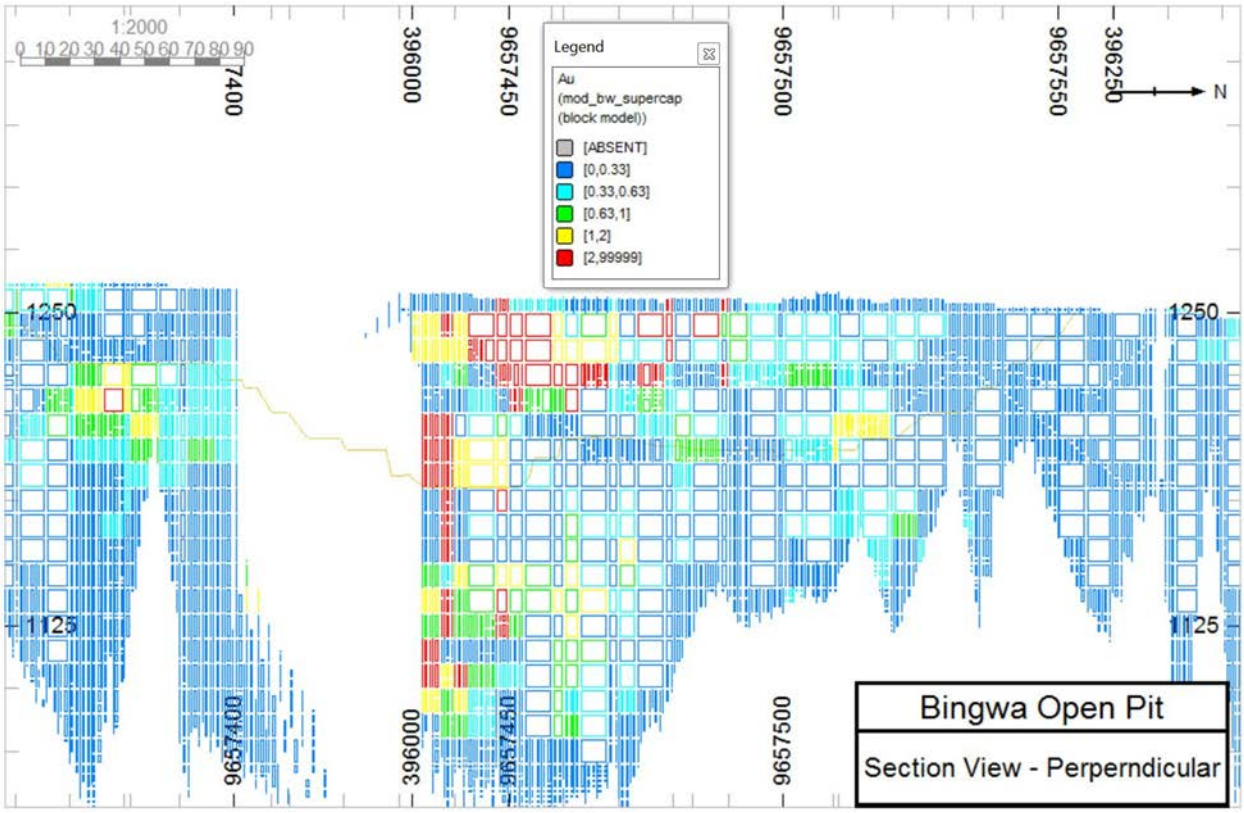


Figure 13.10 Bingwa Longitudinal Section a-a



Tembo Pit

Two pits were design around Tembo ore body. These pits are referred as Tembo1 and Tembo2. Tembo 1 is the smaller pit with dimension of 164m by 97m whereas Tembo 2 has dimensions of 335 m in length and 170m in width.

Tembo pit orebody orientations

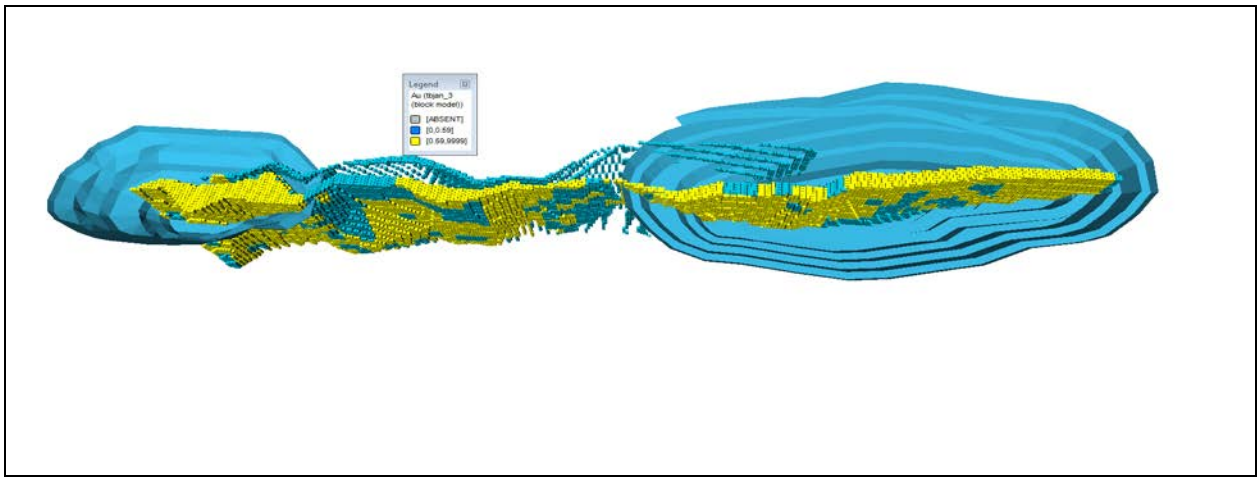


Figure 13.11 Tembo Pit open plan view

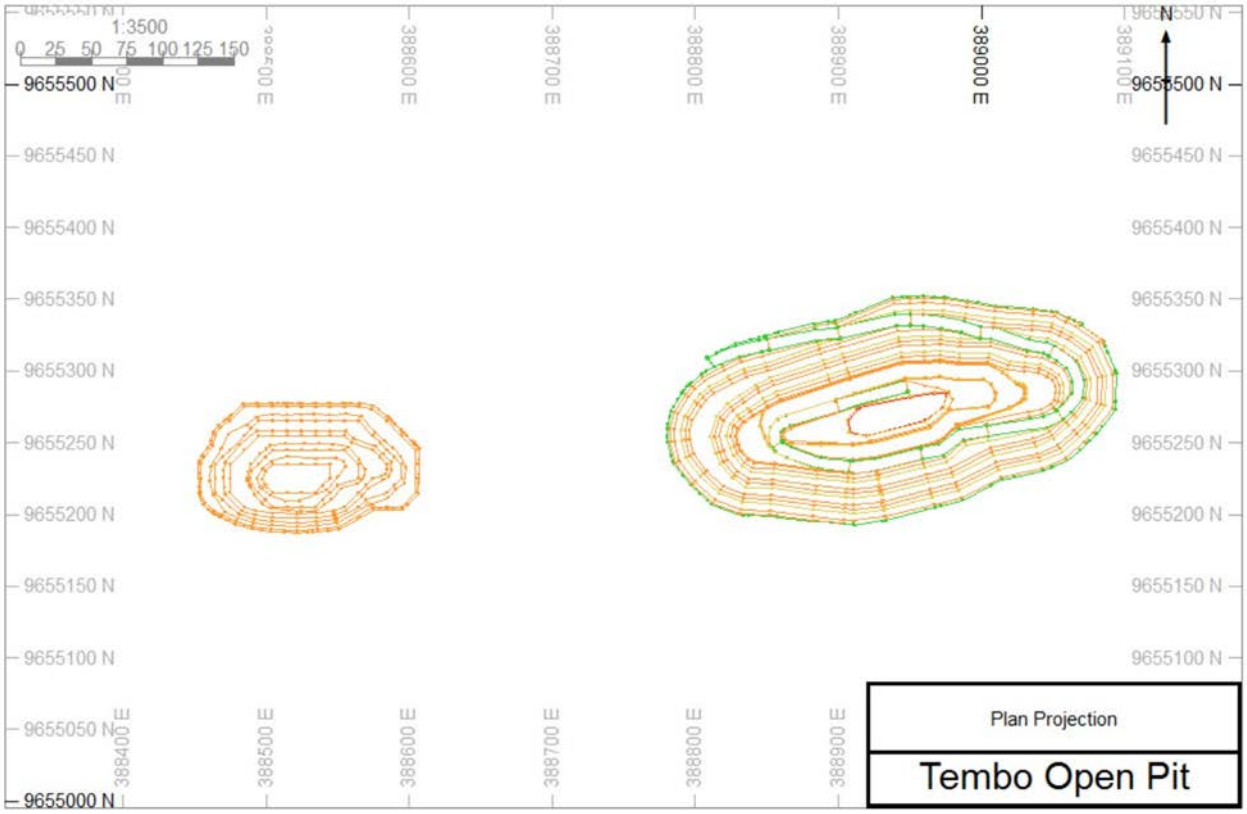


Figure 13.12 Tembo Pit Longitudinal section produced along line a-a

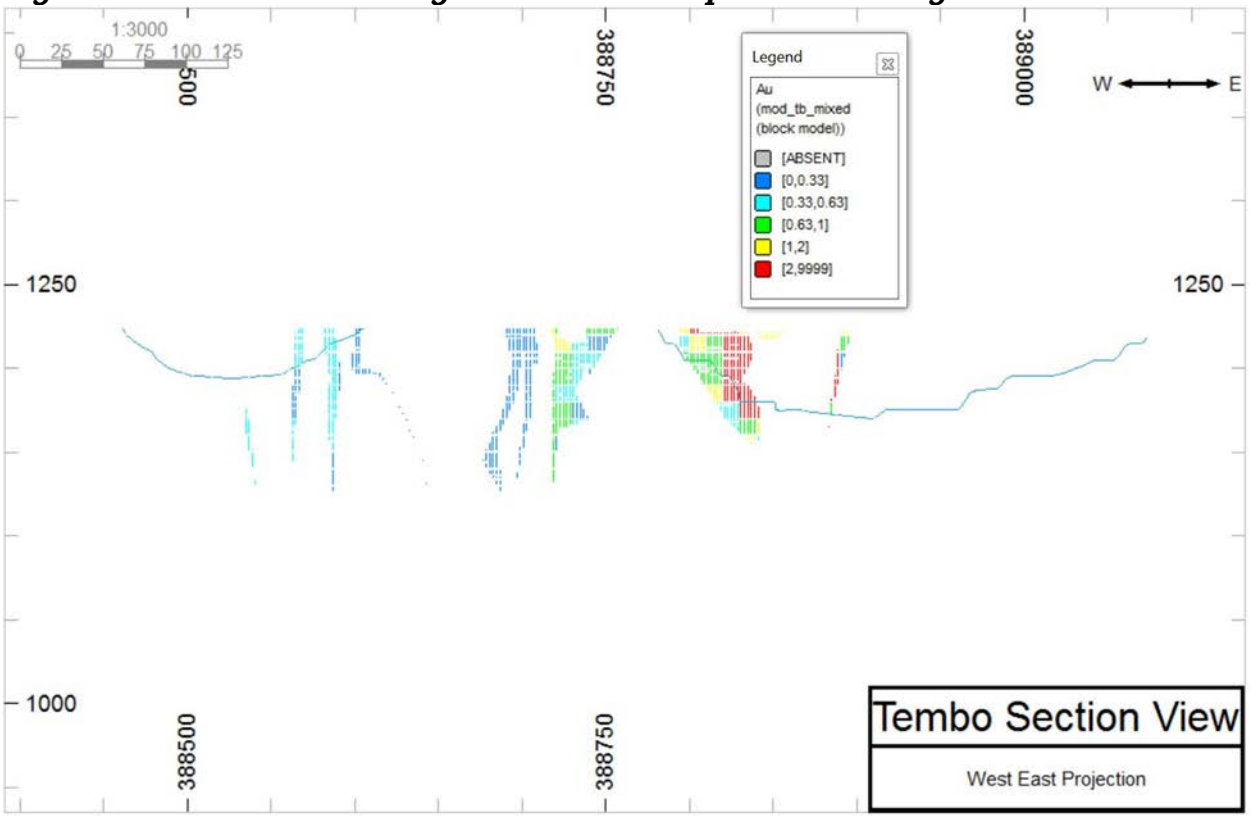


Figure 13.13 Eastern Porphyry pit open plan view

13.5 MINE PRODUCTION SEQUENCE AND SCHEDULE

Production of ore and waste will begin in the first year of operation at the Buckreef gold project. The mining schedule is based upon all proven and probable reserves located within pits defined using only measured and indicated resources.

The pit ranking approach where by all the pits were ranked to understand which pit brings more cash was used. The ranking did not only consider the value the pit is making but the accessibility and the current plant configuration were taken into account.

Since the process plant will first be calibrated using oxide material before sulphide starts to be blended. At a gold price of $1,100/oz, the schedule had to ensure enough cash is generated to exceed all in costs for the business and still return reasonable cash flow. This strategy should be revisited and reviewed annually in the next business planning cycle considering available information and evolving business climate.

Cash generation (all costs including capital) is considered a strategic objective.

The study introduced the following to the schedule:

- Mining production operations start and continued in Buckreef Main for the first four (4) year, the focus will be treating the oxide material.

- After four years, Bingwa pit will be introduced, this pit contains large amount of inferred, during this four-year window, the mine will upgrade the resource to measured and indicated category. Most of the material is oxide and this gives opportunity to treat the material with lower cost.

- The bench by bench mining approach is considered for this type of ore body. The ore body is vertical so ore body selectivity is limited in almost all the pits. This approach brings more benefits in the middle of the life of mine.

- The gold production profile has therefore been maintained at an average of 30,000 oz per annum over the next three years due to stripping requirement.

- Year one is predominantly scheduled for waste stripping in Buckreef main pit. During this year, major works of haul road and other site infrastructure construction will take place.

The Buckreef main pit remains the backbone of the mine over current LOM. The pit has ore of higher tonnages and higher plant recovery same as the rest of the pits. Therefore, it is of strategic importance that the ore supply from this pit flows constantly.

The Bingwa project is mostly oxide and it contains a larger amount of low grade as well. Enough time is given to this pit to allow grade control to take place. The grade control will turn this project into a pit of higher value because its ore body is thick and consistence as compared to the rest of the pits.

The cost production in this pit is the lowest to half compared to other pits. This pit is potential to provide the background grade and tonnages required to fill up the plant during the project mid-life.

Mining perimeters generated and evaluated in Datamine provide the tonnes and grade classified into ore and waste for Oxide, Transitional and Sulphide material. The resource reconciliation factor was also applied for the material at the run of mine stockpile.

To assist the sequencing, cash cost per recovered ounce for each cutback or pit was calculated and ranked from lowest to highest. To maximize the return on investment, pits with the lowest cash cost (or in other words highest cash margins) are sequenced first. See Table 17 below. Other considerations were:

- Percentage of oxidation,

- Plant capacity,

- Satellite Haulage capacity, and
- Bench turnover rate.

Description		Buckreef Main	Bingwa	Eastern Porphyry	Tembo
Waste	t	129,923,025	4,449,673	5,806,798	1,919,257
Ore	t	15,566,560	906,312	715,723	302,503
Grade	g/t	1.83	2.86	1.85	2.19
Metal	g	28,514,213	2,590,629	1,320,690	661,097
SR	t:t	8	5	8	6
Ounce Mined	Oz	**916,753**	**83,291**	**42,461**	**21,255**
Distance From Rom Stockpile	km	0.1	3.0	1.2	5.0
Infe	%	0.03%	0.03%	50%	37%
Gold Price - $/Oz	US$/Oz	1,100	1,100	1,100	1,100
Total Cost per ounce produced	US$/Oz	671	305	641	556
Profit (Loss) - Total	US$	**153,991**	**62,433**	**15,071**	**11,557**
Ranking		1	2	3	4

Table 13.10 Pit ranking by revenue contribution

This sequencing is totally independent of any sequencing information obtained from the nested pits in NPV's Scheduler. Figure 13.14 gives a LOM schedule profile showing ore and waste tonnes to be mined. A full LOM schedule is indicated in Table 13.12 (Appendix 002).

The ore treatment philosophy is that all material above the cut off is treated. The grade control is potentially very important to increase the confidence of the ore body and increase the tonnage. It is very important to note that marginal material is separated stockpiled for treatment at end of life after all mining has stopped, i.e. under reduced cost structure. The full detailed plant schedule is as indicated on Appendix 005

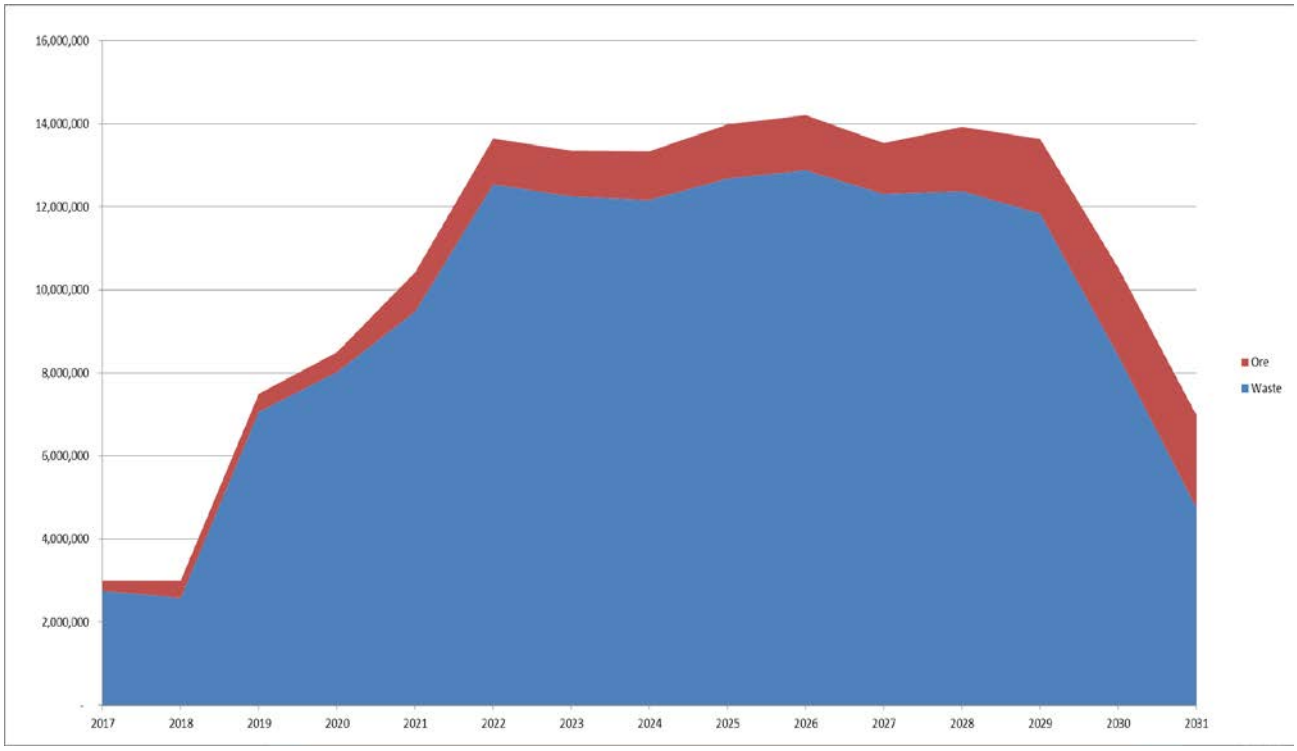


Figure 13.10 LoM schedule profile showing ore and waste mined tonnes

Production Sequence Chart															
Pit	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**	**Y12**	**Y13**	**Y14**	**Y15**
Buckreef Main															
Bingwa															
Tembo															
Eastern Porphyry															

Table 13.11 Production Sequence Chart

Several mine sequencing alternatives were investigated by MaSS to identify the sequence that allows full-capacity gold production as rapidly as possible with minimum front-end total material movement, as well as sequences that exploit the oxide material from all pits. MaSS notes that the schedule that is presented in this study is a feasible.

MaSS recommends that BGCL discuss the schedule with the mining contractor to ensure the production schedule optimizes the use of the mining fleet.

Mining Schedule - Pit by Pit			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Buckreef Main	Waste	t	2,750,336	2,579,546	7,064,239	8,020,000	9,473,682	11,050,000	11,128,844	11,050,000	11,144,251	10,863,630	10,973,884	10,633,079	10,428,470	8,014,552	4,748,513	**129,923,025**
	Ore	t	249,664	420,454	435,761	480,000	950,000	950,000	950,000	950,000	855,749	1,136,370	1,026,116	1,366,921	1,571,530	1,985,448	2,238,546	**15,566,560**
	Grade	g/t	1.85	2.05	2.05	2.10	1.89	1.60	1.42	1.42	1.60	1.84	1.87	1.58	1.90	2.01	2.13	**1.83**
	Metal	g	462,544	862,455	893,794	1,006,585	1,792,178	1,520,042	1,346,703	1,347,215	1,372,791	2,094,231	1,920,706	2,157,451	2,981,441	3,995,653	4,760,424	**28,514,213**
	SR	t:t	11.02	6.14	16.21	16.71	9.97	11.63	11.71	11.63	13.02	9.56	10.69	7.78	6.64	4.04	2.12	**8.35**
Bingwa	Waste	t						1,493,901	1,121,066	1,115,673	680,838	38,196						**4,449,673.42**
	Ore	t						154,004	151,549	221,496	309,071	70,193						**906,312.03**
	Grade	g/t						1.76	2.32	4.82	2.25	2.92						**2.86**
	Metal	g	-	-	-	-	-	271,413	351,228	1,067,730	694,997	205,260	-	-	-	-	-	**2,590,629**
	SR	t:t	-	-	-	-	-	9.70	7.40	5.04	2.20	0.54	-	-	-	-	-	**4.91**
Eastern Porphyry	Waste	t									858,558	1,977,568	994,124	737,058	841,735	397,755		**5,806,798.44**
	Ore	t									141,442	125,815	113,540	84,449	112,561	137,916		**715,723.11**
	Grade	g/t									1.67	2.05	1.96	1.81	1.66	1.91		**1.85**
	Metal	g	-	-	-	-	-	-	-	-	235,781	257,914	222,578	153,157	187,373	263,886	-	**1,320,690.27**
	SR	t:t	-	-	-	-	-	-	-	-	6.07	15.72	8.76	8.73	7.48	2.88	-	**8.11**
Tembo	Waste	t	-	-	-	-	-	-					343,302	1,007,400	568,555			**1,919,256.99**
	Ore	t	-	-	-	-	-	-					85,364	102,203	114,936			**302,503.40**
	Grade	g/t	-	-	-	-	-	-					1.64	2.33	2.46			**2.19**
	Metal	g	-	-	-	-	-	-	-	-	-	-	139,776	238,535	282,785	-	-	**661,097.37**
	SR	t:t	-	-	-	-	-	-	-	-	-	-	4.02	9.86	4.95	-	-	**6.34**
Total	Waste	t	2,750,336	2,579,546	7,064,239	8,020,000	9,473,682	12,543,901	12,249,910	12,165,673	12,683,647	12,879,393	12,311,310	12,377,537	11,838,761	8,412,306	4,748,513	142,098,754
	Ore	t	249,664	420,454	435,761	480,000	950,000	1,104,004	1,101,549	1,171,496	1,306,262	1,332,378	1,225,020	1,553,573	1,799,026	2,123,365	2,238,546	17,491,098
	Grade	g/t	1.85	2.05	2.05	2.10	1.89	1.62	1.54	2.06	1.76	1.92	1.86	1.64	1.92	2.01	2.13	1.89
	Metal	g	462,544	862,455	893,794	1,006,585	1,792,178	1,791,455	1,697,932	2,414,945	2,303,569	2,557,406	2,283,061	2,549,144	3,451,599	4,259,539	4,760,424	33,086,629
	Ounce Mined	Oz	14,871	27,729	28,736	32,362	57,620	57,597	54,590	77,642	74,061	82,223	73,402	81,957	110,972	136,947	153,051	1,063,760
	SR	t:t	11.02	6.14	16.21	16.71	9.97	11.36	11.12	10.38	9.71	9.67	10.05	7.97	6.58	3.96	2.12	8.12
	Total Material	t	3,000,000	3,000,000	7,500,000	8,500,000	10,423,682	13,647,905	13,351,459	13,337,169	13,989,909	14,211,771	13,536,330	13,931,111	13,637,787	10,535,671	6,987,059	159,589,852

Table 13.12 Tonnage production in every year

The ore treatment philosophy is that all material above the cut off is treated. The grade control is potentially very important to increase the confidence of the ore body and increase the tonnage. It is very important to note that marginal material is separated stockpiled for treatment at end of life after all mining has stopped, ie under reduced cost structure

13.6 EQUIPMENT SELECTION

The strategy of operating this project is by the use of Owner mining for the first 4 years after which management will decide to continue mining in-house or move to contract mining. Guideline productivity calculations were done to understand truck and excavator requirement for the project. Material properties were considered in productivity calculation. For this study the following assumptions were made;

- Swell factor of 30%
- Moisture content of 7% and 2% for oxide and transition respectively were applied.

13.7 OPEN PIT MINING PRACTICES

The four Buckreef pits will form a single operating unit, employing common conventional mining practices and equipment at all the pits.

13.7.1 Drilling and Blasting

It is expected that the oxide materials will not require drilling and blasting, however, part of the transition rock tonnage and all the sulphide rock will need to be drilled and blasted. The drilling operating costs are based on the use of a T 1500 / Atlas Copco (ROCL8) type top hammer drill; however, another machine of the same capacity can be used.

The drilling costs include the driller and driller helper labor costs, maintenance labor costs, and drill consumables including fuel, lubricants, drill rig parts, drill string and bit costs, operating and maintenance costs.

The blasting costs include the blasting crew labor costs, explosive and blasting accessory costs.

13.7.2 Loading of Ore and Waste

Cat 316 F L is selected to match 24t trucks type. This shovel has a bucket capacity of 6 tonnes. Minimum of three excavators will be required to meet production schedule. The schedule requires operating maximum of two pits at any given time.

13.7.3 Haulage

24t trucks (Cat 725C) have been selected to be used for the haul. The proposed equipment specification is as indicated on the below Table 17. Average of 15 trucks will be required to meet production schedule.

The truck operating cost is based on the projected number of truck operating hours and includes truck driver labor, maintenance labor, fuel, lubricants, parts, tire and truck body operating costs.

13.7.4 Auxiliary Pit Services and Support Equipment

The primary mining operations will be supported by an ancillary equipment fleet including bulldozer, road grader, water truck, maintenance trucks and other service vehicles. Table 13.15 below shows the selected equipment productivity calculations.

Table 13.13 Equipment specification

Material	Moisture content	Swell factor
ox	7%	30%
tr	2%	30%
su	0%	30%

	2	3	4	5	6	7	8	9	10	11	12
Shovel and excavator specs	Rated load (t)	Bucket (m3)	Fill factor ox	Fill factor tr	Fill factor su	1st bucket dump (s)	Swing time ox	Swing time tr	Swing time su	mins / op hr	SMU Factor
Cat 316F L	6	2.5	0.85	0.85	0.85	39	33	36	39	54.00	1.03

	2	3	4	5	6	7
Truck specs	Rated load (t)	Spot time at exc (s)	Spot and dump (s)	mins / hr	SMU Factor	Add que time
24t truck (Cat 725C2)	24.0	50.8	47.0	54	1.01	7%

	2	3	4	5	6	7	8	9	10
	Ore SG			**Waste SG**			**Overall SG from sched**		
Pit	oxide	trans	sulp	oxide	trans	sulp	oxide	trans	sulp
Buckreef Main	1.80	2.40	3.00	1.80	2.40	3.00	1.80	2.40	3.00
Eastern Porphyry	1.80	2.40	3.00	1.80	2.40	3.00	1.80	2.40	3.00

Table 13.14 Equipment productivity calculations.

Ore and selective waste		Buckreef						Eastern Porphyry					
		Ore			Waste			Ore			Waste		
		ox	tr	su	ox	tr	su	ox	tr	su	ox	tr	su
Average insitu SG		1.80	2.40	3.00	1.80	2.40	3.00	1.80	2.40	3.00	1.80	2.40	3.00
Cat 316F L													
Rated Bucket Payload	tonne	6	6	6	6	6	6	6	6	6	6	6	6
Rated Bucket Volume	m3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Moisture Content		7%	2%	0%	7%	2%	0%	7%	2%	0%	7%	2%	0%
Swell factor		30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Loose SG of Material	t/m3	1.49	1.88	2.31	1.49	1.88	2.31	1.49	1.88	2.31	1.49	1.88	2.31
Bucket Fill Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tonnage per Pass	tonne	3.7	4.7	5.8	3.7	4.7	5.8	3.7	4.7	5.8	3.7	4.7	5.8
24t truck (Cat 725C2)													
Rated Payload	Tonne	24	24	24	24	24	24	24	24	24	24	24	24
No Passes (unrounded)		6.4	5.1	4.2	6.4	5.1	4.2	6.4	5.1	4.2	6.4	5.1	4.2
No Passes (integer)		6.0	5.0	4.0	6.0	5.0	4.0	6.0	5.0	4.0	6.0	5.0	4.0
Use integer passes	(Y/N)	n	n	n	n	n	n	n	n	n	n	n	n
Tonnage per Load	Tonne	24	24	24	24	24	24	24	24	24	24	24	24
Volume per Load	m3	16.1	12.7	10.4	16.1	12.7	10.4	16.1	12.7	10.4	16.1	12.7	10.4
Truck Fill Factor	%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BCM per load	bcm	13.3	10.0	8.0	13.3	10.0	8.0	13.3	10.0	8.0	13.3	10.0	8.0
Cycles													
Swing Cycle Time	Seconds	33	33	33	33	33	33	33	36	39	33	36	39
1st Bucket Dump	Seconds	39	39	39	39	39	39	39	39	39	39	39	39
Truck Spot Time	Seconds	51	51	51	51	51	51	51	51	51	51	51	51
Total Truck Load Time	mins	4.4	3.7	3.2	4.4	3.7	3.2	4.4	4.0	3.6	4.4	4.0	3.6
Theoretical Productivity													
Trucks/Hour		13	16	19	13	16	19	13	15	17	13	15	17
BCMs/Hour		180	161	150	180	161	150	180	152	135	180	152	135
Tonne/Hour		324	388	449	324	388	449	324	364	406	324	364	406
Effective mins per hour	mins	54	54	54	54	54	54	54	54	54	54	54	54
SMU Factor Estimate		1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Effective mins per SMU hour	mins	52	52	52	52	52	52	52	52	52	52	52	52
Projected Productivity													
Trucks/ SMU Hour		12	14	16	12	14	16	12	13	15	12	13	15
BCMs/ SMU Hour		157	141	130	157	141	130	157	132	118	157	132	118
Tonne/ SMU Hour		282	337	391	282	337	391	282	317	353	282	317	353

13.8 UNDERGROUND MINING POTENTIAL

Mining of the Buckreef open pit will commence in year 0 (pre-stripping). Production from the underground can commence towards the end of current LOM of the open pit via development of an access decline/ramp without leaving a crown pillar below the pit floor. An accurate cutover point between open pit and underground can be calculated by comparing the cost to mine one tonne of mineralized material considering waste movement and development costs by both methods.

13.8.1 Underground Mineralization

The main Buckreef prospects are near surface deposits that are amenable to be mined by open pit methods which in this project are assumed to extend to a depth of 150-200 meters below surface. This is an arbitrary cutoff point and it is most likely that further optimization of the mineralization through grade control drilling would result in either deeper or wider pits given the grades and vein thickness (Figure 13.15). The two vein systems being considered are assumed to be robust in terms of continuity and thickness. The extents of the zone are 300m long and 15m wide at depths below 150m. The dip is assumed to be sub-vertical to vertical.

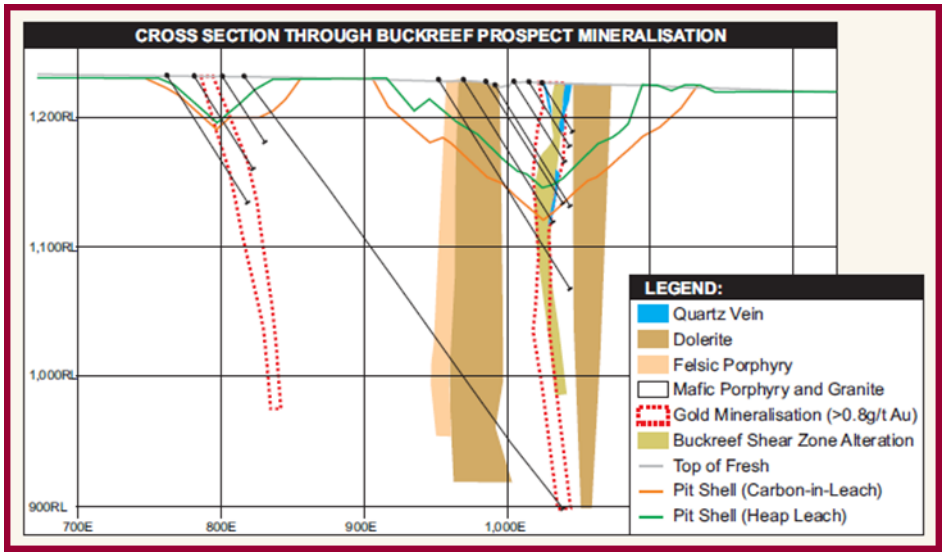


***Figure 13.11a* Schematic Section of Mineralisation at Buckreef**

One of the vein has already been mined in the past and openings extend down to 150m from surface. Considerable caution would need to be exercised if mining near the old workings as voids may not have been surveyed correctly and ground conditions around old workings are often unstable.

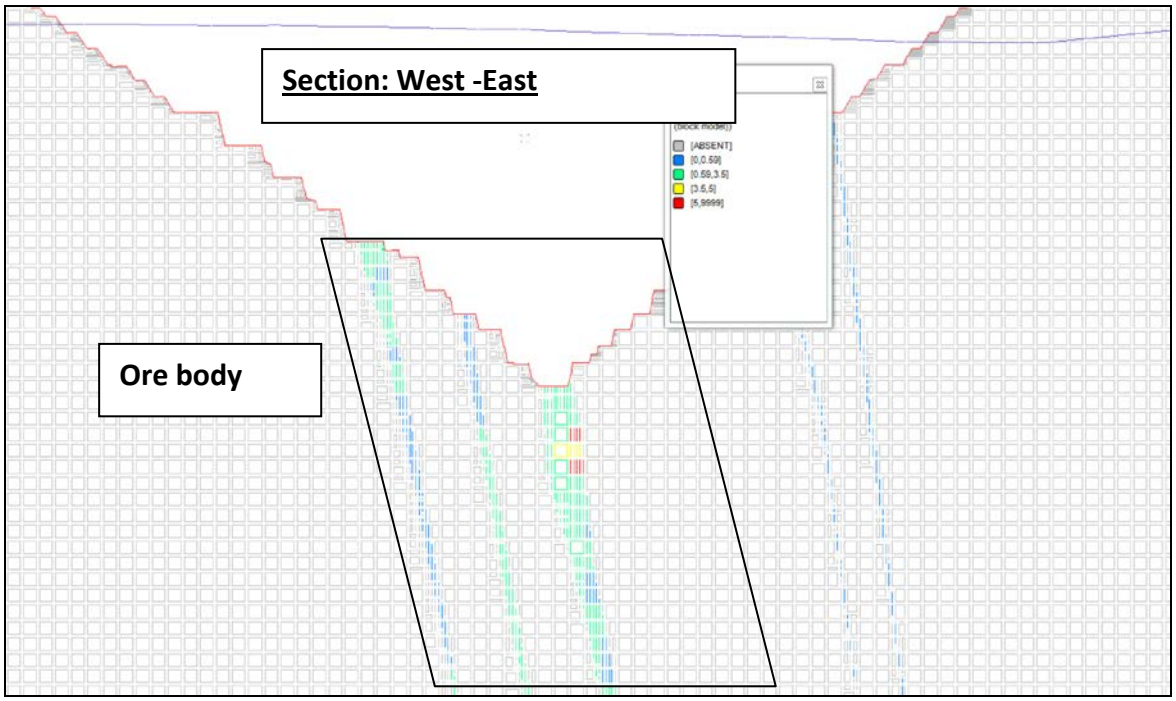


Figure 13.15b: Section view - West East Buckreef Main Pit

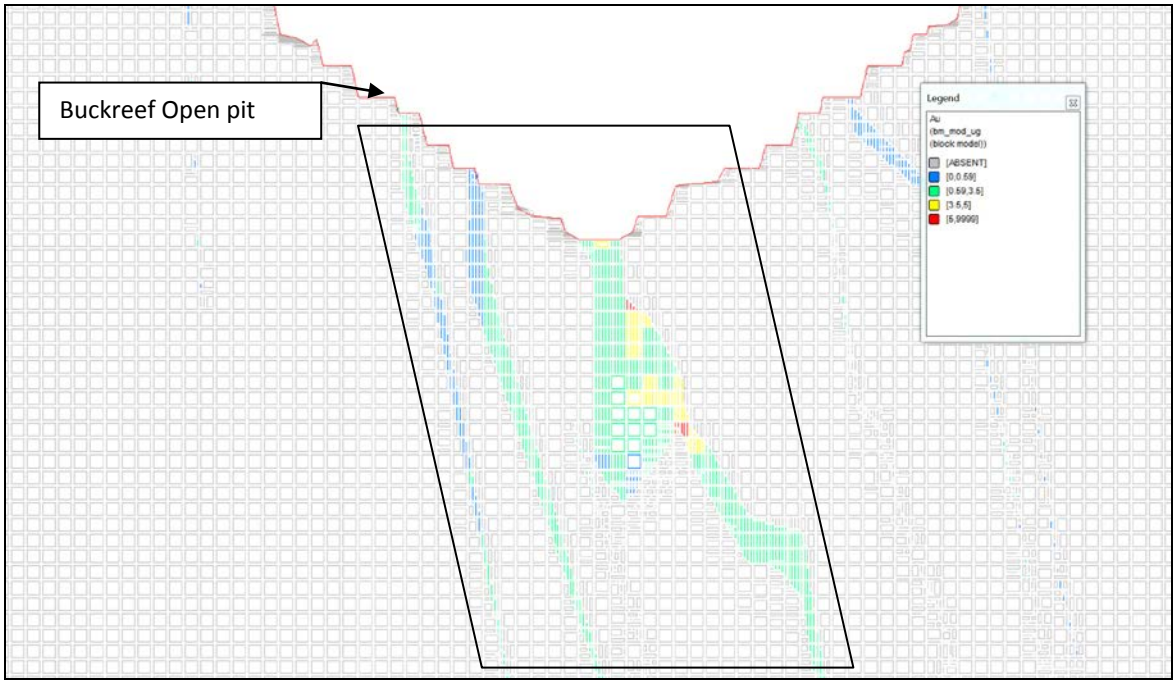


Figure 112.15c: Section View - North South Buckreef Main Pit

13.8.2 Designs

No designs have been drafted for this study but assumptions based on similar operations have been used to estimate the amount of development required.

Access is assumed to be by a spiral decline located preferably in the footwall and driven at a gradient of -1 in 7. The size will depend on the projected annual productivity but is likely to be about 5.5m wide by 5.5m high. This will allow use of up to 50t capacity underground trucks which helps maximize production.

The decline will be kept about 80m from the mineralized zone so that mining does not cause stress on it. The waste access crosscut will be mined to intersect the mineralized zone at the approximate mid-point. From the waste access an ore drive will be driven along the footwall contact for the length of the zone.

A return airway and parallel fresh air intake/emergency egress will be rise mined to the surface either by raise borer or cage raising. Connections between levels will be long hole blasted or mined by hand held machines.

13.8.3 Materials Inventory

No materials inventory (reserves) has been estimated for this study. From initial ore-body modelling, an assumption that the bulk of the inferred resource for the Buckreef Main deposit estimated to contain about 35.54Mt grading 1.50g/t Au will constitute the bulk of the underground resource inventory.

The geological continuity and grade distribution of the Buckreef mineralisation is well constrained and the upside potential to define additional Mineral Resources in extensions of the known ore body has been confirmed through drilling.

Exploration should concentrate on laterally expanding open pit mineralization down to say 100m and on deeper high grade underground targets. Further detailed drilling will ensure that the project economics would improve accordingly. Accordingly, drilling should be concentrated in this target to firm up a resource estimate.

13.8.4 Method Selection

As this study is conceptual no detailed evaluation has been completed on the optimum mining method and associated cost. It is assumed that open stoping is the likely method and appropriate costs and productivities have been used. The method selected will depend very much on ground conditions which will also influence the mining costs.

Methods range from caving/sub level caving techniques, open stoping or some form of stope and fill. Caving methods are less expensive than methods requiring fill although there is generally a higher ore recovery with

fill methods. Caving methods are generally capable of higher production rates but can also suffer from higher dilution.

As the zone is only 15m wide it would not be practical to employ caving techniques because unless the ground conditions were very poor the walls would not fail as required.

If the ground is reasonably competent open stoping would be the optimum method for cost but would entail leaving pillars to support the openings. The benefit of using a fill method is that a high percentage of the mineral is recovered but this needs to be compared to the extra cost of filling the void which can be 30% of the total mining cost.

13.8.5 Production Rates

Theoretically the zone contains an average of 12,000t of mineral per vertical meter. It is considered achievable to mine about 40 vertical meters a year which would yield about 500,000tpa of mill feed. Rates more than this are achievable given ideal circumstances but generally are not sustainable over extended periods. For the depth of deposit trucks could haul up to 800,000tpa but it is unlikely that stoping could produce that quantity. Given the level of the study 500,000tpa will be the proposed output.

13.8.6 Equipment Selection

At this stage, there is no details of the equipment have been discussed however, if entering a mining contract; it would become the contractor's responsibility to ensure good availability of the equipment. The proposed extraction method is open stoping, leaving pillars at regular intervals.

Standard equipment for underground mining will comprise electro hydraulic Jumbos and long hole rigs, diesel front end loaders and trucks. The equipment will be interchangeable between the lodes for flexibility. It is probable that an underground access will connect the two lodes though they have been costed to have separate decline accesses.

14 MINERAL PROCESSING AND METALLURGICAL TESTING

14.1 INTRODUCTION

The Buckreef Project gold deposits have been subjected to numerous metallurgical test-work programs undertaken over a 13-year period and the results of the various studies were independently reviewed for the 2012 PEA

both for suitability and representivity, but also to determine the likely outstanding test-work required for any future studies.

Further metallurgical test-work was conducted at SGS Southdale Laboratories in South Africa in 2008 and by SGS Lakefield in South Africa in 2014 which focused on simulated heap leach tests. In June 2016, TRX shipped a four (4) tonne representative bulk sample from Buckreef project to Emisha Mining Innovations in South Africa for more metallurgical test.

14.2 REVIEW OF HISTORICAL TEST-WORK

According to Venmyn 2014 report, the initial metallurgical test-work on the BRMA deposits was conducted by Independent Metallurgical Laboratories (IML) Australia and reported by Metallurgical Project Consultants (Pty) Ltd) (MPC). In summary, the test-work results completed for composited, representative samples from BRMA between 1999 and 2006 were as follows: -

- BRMA oxide material was free milling with cyanidation recoveries in the low 90%s;
- BRMA sulphide mineralization from Main, West and North Zones of the Buckreef Prospect had highly variable recovery by cyanidation, returning values between the mid 70%s and low 90%s;
- The mineralization was moderately hard but no detailed comminution test-work had been conducted until 2006; and
- Recovery improved with decreasing grind size, suggesting flotation followed by fine grinding as a potential processing route.

Phase 2 of the metallurgical test-work program by IML began in 2006 on a selection of representative diamond cores samples from the BRMA. Composite samples from the Buckreef Main and Buckreef North domains were created, to represent the expected RoM mineralization, and were subjected to a series of baseline tests through a range of process routes to identify the most appropriate treatment methodology and generate preliminary project evaluation and engineering data.

Oxide mineralization types were evaluated by “whole ore” leaching and gravity/leaching treatment routes and additional investigations into flotation and finer grinding for the preliminary mineralization types were carried out by MPC in 2007 (MPC).

The test-work results indicated: -

- Moderate to high gravity recoveries for all mineralization types;

- The presence of coarse gold led to significant variability in the total gold recoveries for all process routes, although the variability was not sufficient to mask the comparison between process routes;
- The removal of gravity gold prior to leaching resulted in an improvement in gold recovery for all mineralization types;
- Given the relatively low cost of gravity recovery circuits and the operational benefits of excluding coarse gold from the leach circuits, it was recommended that gravity recovery be included in any project analysis;
- Fine grinding of the primary mineralization types prior to leaching returned a modest benefit during the analysis;
- The magnitude of the recovery increase was unlikely to be sufficient to justify inclusion of flotation and fine grinding in any project analysis;
- Preliminary coarse mineralization leaching and coarse gravity/leaching were also investigated by MPC to determine the heap and vat leach amenability;
- Comminution test-work was carried out to develop preliminary design criteria for the prefeasibility process design. The test-work indicated that all the ore types were amenable to conventional multi-stage crushing and ball milling or single-stage crushing and Semi Autogenous Grind (SAG) milling; and
- Oxide ore contains a high clay component and may suffer from material handling problems when treated on its own.

In 2008, a study was undertaken to establish the amenability of the BRMA material to dissolution via heap leaching (simulated) and bottle rolling. Ten samples were composited and exported to SGS Southdale Laboratories in South Africa for analysis. The samples were crushed to specific sizes (50mm, 25mm, 12.5mm, 6mm and 2.34mm) and underwent simulated heap leaching using the following conditions: -

- Pre-conditioning for 1 hour;
- Cyanide addition (5kg/tonne);
- Dissolution for 7 days; and
- Samples were taken every day for analysis.

14.3 TRX Metallurgical Test-work

Metallurgical test-work composites were prepared from the PQ size diamond drill-hole core for the oxide, transition and fresh ore from the Bingwa Prospect. Three representative sub-samples of each of the high grade and low grade material were split and crushed to 6mm, 12mm, 15mm and 20mm screen sizes.

Simulated heap leach tests were undertaken by SGS Lakefield South Africa (2014) on the 12 samples to ascertain the optimal crush size to use for column leach test work. This entailed bottle rolling each sample for 7 days in excess leach conditions.

SGS Lakefield also commissioned a column heap leach test on each of the oxide, transition and fresh ore samples. An amount of~80 kg of each of the 6mm, 12mm, 15mm and 20mm screen sizes were sampled for the required test-work. The material was placed in a 190mm diameter column, simulating a heap height of 4.0m. A leach solution containing cyanide (NaCN) and lime (CaO) was then pumped into the column at a rate of 10lh/m2. After saturation of the column, approximately 4,200ml of pregnant solution was collected from the columns every 24 hours and analysed for gold, NaCN and CaO concentrations for a period of 60 days. After leaching, the ore beds were washed with water for 4 days at the same rate as the leach solution and then allowed to drain. A profile analysis of the solids contained in the columns was then carried out (top, middle and bottom, followed by 48-hour batch dissolution tests on the profile sub-samples of the heap leach column tails, which were subjected to milling to a target grind of 80% passing 75 micron.

The results of the percolation column leach tests on composite samples were as follows: -

- Oxide material (92% passing through 6mm): returns a gold recovery of 76% in 66 days with greater than 72% recovery in 40 days, at a moderate cyanide consumption of 0.2kg/t;
- Transition material (100% passing through 12mm): returns a gold recovery of 79% obtained in the first ten days;
- Fresh material (100% passing through 12mm): returns a gold recovery of 55% obtained in the first ten days.

The results of the previous 2008 leach test-work provided very similar results to the 2014 test-work and show that grind size optimizations and trade-off studies will have to be undertaken to minimize costs and maximize effectiveness of gold recovery. The best recovery is for the oxide material at 72% to 76% depending on the exposure time, with recoveries of 79% and 55% for the transition and fresh material respectively.

14.3.1 Metallurgical Test work by Emisha Mining Innovations

The possibility of utilizing heap leach technology as was proposed on Venmyn 2012 and 2014 reports on the Buckreef Project was recently investigated and tested but has since been less efficient than the traditional gravity-CIL route for the following reasons:

- The oxide component of the deposits, which has been shown to be heap leach amenable, contains clay, which creates channeling and coating of the particles, rendering them partly impervious to cyanide leaching;
- Heap leach of milled ore is inefficient and the RoM material would require agglomeration using lime and cement, thereby increasing operating expenses;
- The sulphide component of the fresh ore is unlikely to be amenable to heap leaching and the recovery of gold would be adversely affected, with recoveries of 35-50% overall;

Due to above reasons the heap leach process was suspended and four-ton representative bulk metallurgical samples were shipped in June 2016 to Emisha Mining Innovations (EMI) in Johannesburg, South Africa. The test work was proposed by EMI and approved by TRX. These samples were then subjected to the following specific test-work:

- Particle size distribution (PSD);
- Gold department study;
- Milling;
- EDS Vertical Mill Settings Optimization;
- Gold cyanidation test work;
- Reagent consumption and reagent suite optimization;
- Settling tests for the residual tailings material;

Results of the Emisha test work were as follows:

- The results confirm that significant >40% of the raw feed, is 'right size' material. These initial findings indicating that a significant portion of the raw feed has already been reduced in size by the effects of weathering and alteration to right size particles (i.e. a size that will allow for leach to achieve high recoveries
  - ✓ Up to 40 percent of the un-milled (i.e. 'as mined ore') is already at a size of <300 microns.
  - ✓ With single pass milling through the EDS mills that increased to 87 percent passing 300 microns.

Actuals in grams - 315 g for test

Screen Size (mm)	13,2	4	1	0,6	0,3	0,15	0,075	0,145	PAN
Feed Wet before Milling	60,0	56,0	41,0	11,0	18,0	14,0	5,0	2,0	108,0
					147grams				
Single Pass Milling Wet	315,0	299,0	13,0	9,0	16,0	18,0	14,0	8,0	221,0
					277grams				

% Passing

Screen size (mm)	13,2	4	1	0,6	0,3	0,15	0,075	0,045	PAN
Feed Wet before Milling	80,95	63,17	50,16	46,67	40,95	36,51	34,92	34,29	
Single Pass Milling Wet	100	100	95,65	92,64	87,29	81,27	76,59	73,91	

Table 14.1 Wet PSD for Buckreef Oxide (after Emisha, 2016)

- The study indicates that the gold occurs over all the size fractions and that coarse gold able to be recovered via gravity could be as high as 50 percent, but in practice this might be somewhat lower at about 35 percent
- The sizing analyses indicate that significant gold is sitting in the fine 25-micron fraction easily recovered by leaching and or gravity.
- Gold cyanidation test work; excellent recoveries up to 93 percent can be achieved by a combination of gravity followed by CIL leach. The leach kinetics is still unclear and additional test-work is required. The leach kinetics in this test-work do not reflect the earlier 2012 metallurgical test results, and so detailed work should be carried out to confirm this detail.
- The test work indicates that the cyanide consumption is a bit on the high side at 1.80kg/tonne and the lime consumption at1.25kg/tonne is advantageously low. The technique that Maelgwyn use to do the consumption test is one where excess cyanide is added (i.e. 5kg/ton) and then after the test-work they measure the remaining cyanide strength and the difference is the consumption. This methodology can tend to over-read the actual so we can expect a better consumption in practice.

Sample ID	Reagent addition		Head grade	Residue	Recovery
	NaCN kg/t	CaO kg/t	Assayed Au (g/t)	Assayed Au g/t	(Calc Head) Au %
Sulphides, milled no Carbon	5	0.6	4.6	0.93	79.8
Sulphides, milled with Carbon	5	0.6	4.6	0.67	85.4
Oxides, milled no Carbon	5	1.3	1.93	0.34	82.4
Oxides, milled with Carbon	5	1.3	1.93	0.12	93.8

Table 14.2 Gold Recoveries – Effect of Grind / Preg-robbing (after Emisha 2016)

14.3.2 Emisha's comments on the Metallurgical test work

This is on-going but preliminary results highlight the following points:

- ✓ Gold recoveries were high, in the lower 90 percent, but this was at a grind of 80 percent passing 75 microns.
- ✓ Gravity gold is a very important facet of the recovery plant and this step will be installed in the plant via two off Falcon 1350's with final clean up on a Deister Table.
- ✓ Cut off size for grinding has been preliminarily set at between 200 and 250 microns and this cut will be achieved by cyclones which can be adjusted in the field to cut as low as100 microns. This is a coarse grind but it seems that the Buckreef oxide gold is easily leached and acceptable recoveries can be achieved with a relatively coarse grind
- ✓ Pregnant Robbers in the oxides are evidenced by the recoveries increasing from 82.4%to 93.8% when carbon is added early on the cycle
- ✓ The residence time to obtain acceptable leach recoveries are planned for 22 hours, and this information has been used to design the leach tanks.
- ✓ Settling tests at 300 microns will be carried out to assist in the final tank designs.

14.4 GOLD RECOVERY FLOW SHEET

The proposed method of gold recovery from the Buckreef deposits consists of conventional crushing and grinding followed by gravity concentration and cyanidation of the gravity tailings.

The process plant design will be based on gold CIL technology, which will consist of scrubber, crushing, primary EDS mills, falcon gravity concentrator, secondary EDS mills, leaching with cyanide solution, adsorption of the pregnant solution, elution and gold smelting.

The metallurgical flow sheet selections are based on results of test- work which resulted on recovery circuit summarized in figure 14.1 as follows:

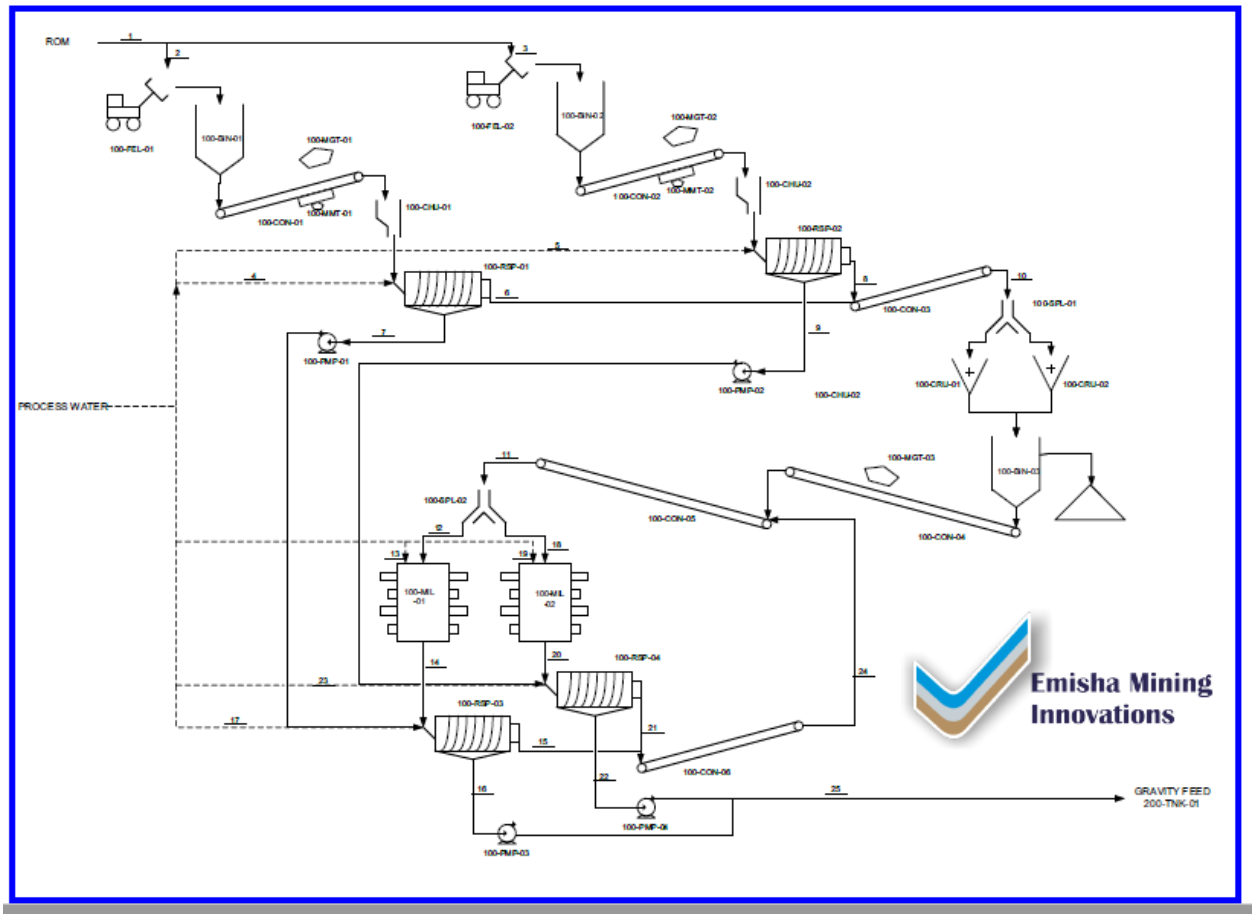


Figure 14.1 Process Flow Diagrams

14.5 PROCESSING PLANT EQUIPMENT AND MACHINERY

Proposed Processing Plant and Mine Operations Buildings and Safety

Based on the production schedule of 1,500,000t/year, Emisha who is designing processing plant will provide a list of all proposed major equipment and machinery of the gold recovery plant.

15 PROJECT INFRASTRUCTURE

The Buckreef Project is planned to use some of the infrastructure that were used for heap leaching processing. A gravel road currently passes to the east of the Project through the Mnekezi village.

The proposed infrastructure for the mining and ore processing operations includes several open pits, waste rock stockpiles, and related facilities; and maintenance buildings for mobile open pit equipment. Facilities will include office space, accommodation houses, power supply and distribution networks, fuel storage tanks, a warehouse and laydown area. The infrastructure on site will be designed to accommodate and support an efficient mining and ore processing operation.

Some of the current infrastructures are affected by the Buckreef main pit and relocation plan is required before mining commencement. During the feasibility study exercise, the processing plant was found to be within 300m from the crest of the pit. Mining production requirement is still in favour that the plant does not require relocation.

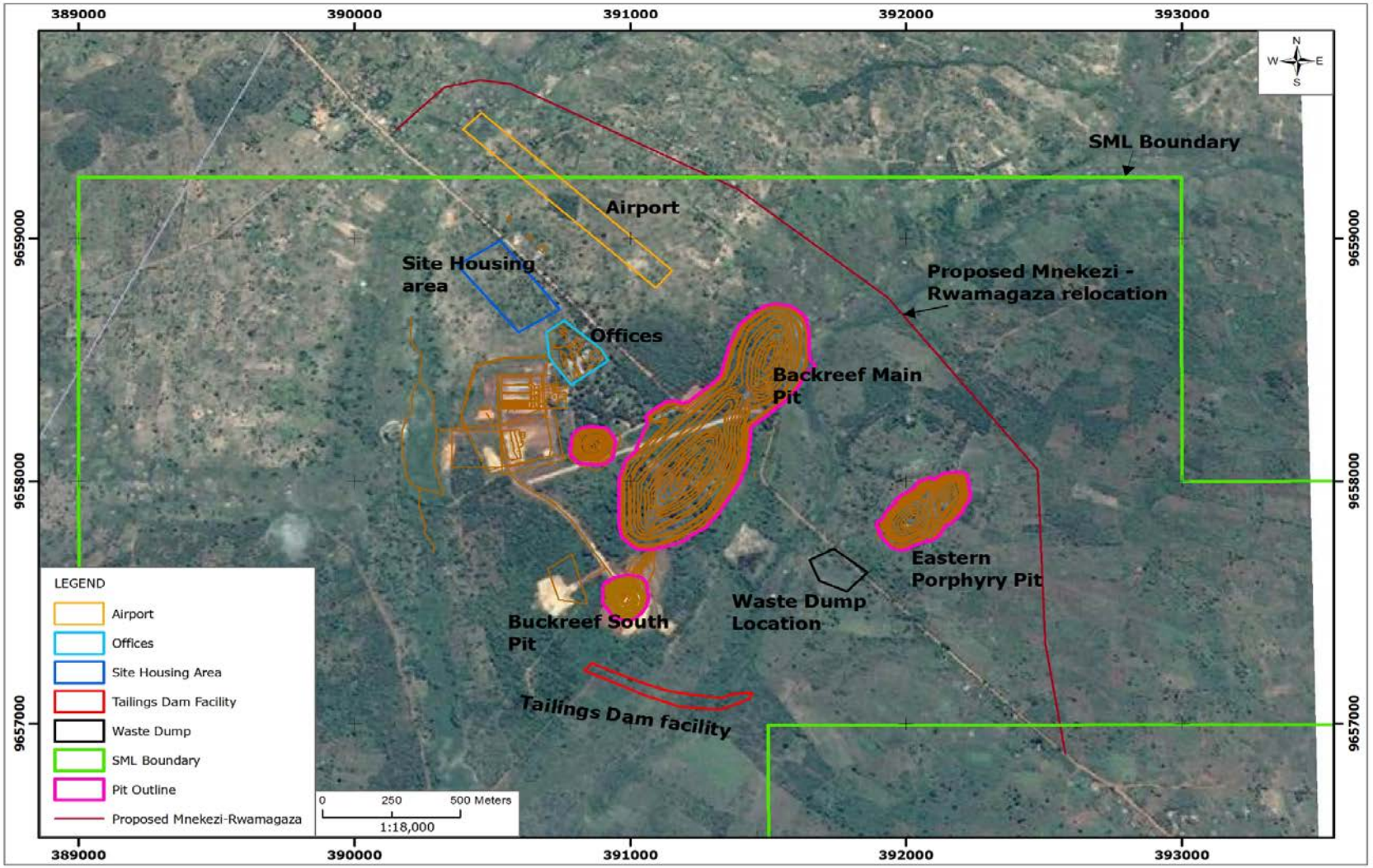


Figure 15.1 Proposed Infrastructure Layout

The air strip location area is proposed in Figure 15.1 and is fully indicated in appendix 001. This proposed area is slightly outside the SML boundary.

Tailings storage facility (TSF) is also proposed for relocation, the current position of the TSF is very close to the stream less that 30m from the toe of the stream. It is therefore recommended for relocation. The proposed area is optimal considering the position of the processing plant.

15.1 SEISMICITY

Buckreef Gold Mine Project is located approximately 360 km north-east of the seismically active Lake Tanganyika Rift seismic zone. According to the Global Seismic Hazard Map produced by the Global Seismic Hazard Assessment Program (GSHAP, 2015), the site is in an area of low seismicity but borders an area of moderate seismicity about 67km in the Southwest.

The risk of catastrophic failure during a seismic event because of liquefaction of top soils and saprolite material is negligible as the natural water table lies well below the clay and saprolite zones. Nevertheless, potential instability because of seismic ground acceleration and loading on low shear strength defects cannot be ruled out. The seismic acceleration coefficient applicable to the site is between 0.04g and 0.08g for a return period of 475 years (10% chance of exceedance in 50 years). Further study at the final design stage is recommended to ensure the hazard from the nearby source zone of moderate seismicity to the east of the site does not warrant an increase in the peak accelerations quoted above.

A search of seismic events (from the USGS/NEIC 1973 – present database) indicated that there have been 16 earthquakes of magnitude 3 or above since 1973 within a 300-km radius of the site. The most significant event was a M5.3 event in December1983, the epicentre of which was 92 km from site. The most recent earthquake event in September 2016 in Bukoba, was a 5.9 magnitude in Richter scale and the epicentre was 40km deep. This area is about 240km northwest of the Buckreef Mine Area. It is considered that these peak accelerations experienced at Buckreef Gold Mine from this event would have been negligible.

16 COST ANALYSIS

16.1 OPERATING AND CAPITAL COST ANALYSIS

Capital and operating costs have been estimated for the proposed Buckreef Project. These costs were developed in support of a projected cash flow for the operation, which would assess the financial viability of the project.

The entire project was analyzed benching all the cost under the gold production. The gold price used to evaluate the project is $1,250/oz. This is as per financial guidelines from Buckreef management. All the cost is derived from first principle. The details are attached in Table 16.1 and 17.1 showing all relevant cost that has been included for evaluation.

The capital investment required for this project was also estimated from first principle. Source of this data includes the current Tanzania operating market and local contractors and suppliers were approached during this analysis.

16.2 MINING COST ESTIMATES

Mining cost was calculated from first principles and included:

- Load and haul operating cost.
- Ancillary mining fleet operating cost.
- Drill and blast operating cost.
- Direct production and maintenance labor cost.
- Miscellaneous fuel (over and above items already listed).
- Support equipment (Lighting plants, water pump etc.), and
- Other maintenance running costs (workshop power, small tools and consumables, fixed / mobile workshop equipment etc.).

16.3 TOTAL ORE COST AND PROCESS RECOVERY

The processing cost for optimization in each pit area was set to the total ore cost. Table 13.2 above details the total ore cost values for the main deposits.

16.4 CAPITAL AND DEVELOPMENT COST ESTIMATES

16.4.1 Capital cost estimates

The capital cost is required to purchase the Mining equipment, the processing plant, power generation system etc. Some of the equipment for open pit mining operation will be hired and its costs considered under as operating costs of the company. The entire project was analyzed benching all the cost under the gold production. The gold price used to evaluate the project is $1,250/oz. All the cost is derived from first principle. The details

are attached in appendices 006 and 007 showing all relevant cost that has been included for evaluation.

Capital and development cost estimates were estimated based on the market survey and actual costs sourced from operating mines in Tanzania. Local contractors and suppliers were approached during this analysis.

Development and Capital Cost estimates have been divided into five major categories, which are;

- Mining
- Processing Plant
- Human Resources and Community
- Health, Safety and Environment
- Finance + IT

Capital costs for the Buckreef Project are summarized in Table 16:1. The costs are based on the estimate for an Initial 60t/h processing plant fed by an open pit mine, with a fifteen-year life-of-mine (LOM).

Initial capital requirements are estimated at US$ 32.32 million including US$8.25 million for pre-stripping.

Capital Plan		Unit Cost - USD	USD		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Mining	1	12,649,184	12,649,184	-	7,167,492	150,000	40,000	4,760,692	-	-	-	531,000	-	-
Excavator	4	312,346	1,249,384	-	624,692			624,692						
Articulated Trucks - 30T	20	350,000	7,000,000	-	3,500,000			3,500,000						
Loader	7	265,500	1,858,500	-	796,500	-		531,000				531,000		
D8 Dozer	1	250,000	250,000	-	250,000									
Grader	1	336,300	336,300	-	336,300									
Water Truck	1	100,000	100,000	-	100,000	-								
Service Truck	1	100,000	100,000	-	100,000									
Light Trucks & Cars	10	41,500	415,000	-	415,000									
Dewatering Pump	4	40,000	160,000	-	40,000		40,000	80,000	-		-			
Survey Tool	1	45,000	45,000	-	45,000									
Pit Optimisation	1	35,000	35,000	-	35,000									
Mining Offices/Shop	1	300,000	300,000	-	150,000	150,000								
Haul Roads	1	100,000	100,000	-	75,000			25,000						
HME - Workshop Construct	1	700,000	700,000	-	700,000									
Processing Plant	1	35,384,625	35,384,625	-	10,449,625	525,000	2,500,000	12,650,000	70,000	-	90,000	9,100,000	-	-
TSF Construction	1	1,250,000	1,250,000	-	250,000	500,000		500,000						
Portable Water Plant	1	300,000	300,000	-	300,000									
Laboratory	1	500,000	500,000	-	500,000									
Process Plant Development	1	32,584,625	32,584,625	-	8,999,625	25,000	2,500,000	11,800,000	70,000		90,000	9,100,000		-
Generators	1	750,000	750,000	-	400,000			350,000						
HR+ Community	1	3,795,000	3,795,000	-	3,445,000	100,000	250,000	-	-	-	-	-	-	-
Camp Facilities	1	250,000	250,000	-	100,000	100000	50000							
Camp Houses (2Bx20+4Bx3	50	15,000	750,000	-	550,000		200000							
Compensation - Relocation	1	250,000	250,000	-	250,000									
Airport/Aerodrome	1	35,000	35,000	-	35,000									
Helicopter Pad	1	10,000	10,000	-	10,000									
Compensation - Relocation	1	2,500,000	2,500,000	-	2,500,000									
HSE	1	100,000	100,000	-	70,000	-	30,000	-	-	-	-	-	-	-
Clinic	1	100,000	100,000	-	70000		30000							
			-	-										
Finance + IT	1	2,241,519	2,241,519	-	755,165	15,000	45,000	1,426,354	-	-	-	-	-	-
Computer & Server	2	20,000	40,000	-	20,000	-	-	20000						
Desktop	30	1,500	45,000	-	15,000	15,000	15,000							
Laptop	20	1,500	30,000	-	20,000	-	10,000							
Networking & Communicati	2	20,000	40,000	-	20,000	-	20,000							
Process Plant Insurance - 6	1	1,247,978	1,247,978	-	539,978	-	-	708,000	-					
Mining Equipment Insuranc	1	838,541	838,541	-	140,187	-	-	698,354	-					
10% Contigency	1	5,714,597	5,417,033	-	2,188,728	79,000	286,500	1,883,705	7,000	-	9,000	963,100	-	-
Total Capex			59,587,360	-	24,076,010	869,000	3,151,500	20,720,750	77,000	-	99,000	10,594,100	-	-

Table 16.1 Buckreef Project Capital Cost by activities

17 ECONOMIC ANALYSIS OF THE PROJECT

The Project economics have been evaluated using the discounted cash flow method, by considering annual processed tonnages and grades for the ore. The associated process recoveries, metal prices, operating costs and refining charges, royalties and capital expenditures (both initial and sustaining) were also considered.

17.1 REVENUE ESTIMATES

The major highlights of the economic analysis are as follows:

Gold Production

The Life of Mine (LOM) gold production will be as follows:

- Gold: LOM average annual production of 53,534 ounces per annum.
- Gold: LOM production of 910,075 ounces

Direct Operating Costs

LOM average cash operating costs of US$ 696.00 per ounce gold is inclusive of mining, production, assay, Engineering services and general administration costs.

Net Present Value (NPV) pre-Tax

The value of Buckreef including all deposits is as follows:

NPV (5%) US$ 243,714,282.35

NPV (10%) US$ 140,118,766.99

While representing an excellent return on investment (53.7% IRR), the Buckreef project has the potential of increasing its reserves if infill drilling program will be executed.

Financial Model Parameters		
	Unit	**LOM Total**
Exchange Rate	2,000	
Revenue @Gold Price	1,250	1,137,594,118.97
Total INCOME		**1,137,594,118.97**
Production Costs		
Mine Royalty and District Levy	**4.3%**	**48,916,547.12**
Fuel Cost	US$	42,716,437.17
Tires Cost	US$	5,235,000.00

Other Support Equipment	US$	270,000.00
Fuel Cost	US$	13,259,741.18
Load & Haul (Owning Cost)	US$	51,068,752.77
Drill & Blast	US$	107,738,170.69
Dewatering	US$	216,650.00
Fixed Fee – Contractor	US$	-
Mine Haul Road Maintenance - km	US$	1,440,000.00
Contingency (dayworks, road repair etc)	US$	288,000.00
G&A	US$	780,000.00
Software and Planning Support	US$	450,000.00
GC - Grade Control & Lab Analysis	US$	85,863.56
Mining cost	**US$**	**223,548,615.39**
Process Plant Operational Costs	US$	237,629,118.23
Process Plant Overheads Costs	US$	6,099,000.00
Lab & Permit	US$	4,826,724.00
Processing Plant Cost	**US$**	**248,554,842.23**
Total Production Cost	**US$**	**521,020,004.74**
Labor & Benefits Cost	**US$**	**68,683,440.00**
Security Company	US$	5,374,450.00
Tanzanian Police Officers (8)	US$	795,931.50
Filling Cabinet (02)	US$	2,635.35
Maglite Rechargeable torch (40)	US$	15,367.30
Two-way Communication	US$	60,000.00
CCTV	US$	90,000.00
Access control	US$	5,000.00
Security Hardware	US$	15,000.00
Security night Jackets	US$	13,171.97
Metal Detector (Supper Scanner) 20 PC	US$	4,608.00
Gold shipment wearing/gears (Body Amor Vest); (15 Pcs)	US$	18,528.00
Total Security Cost	**US$**	**6,394,692.11**
Overhead Cost (Services Department)	US$	3,124,033.59
Mobile Equipment	US$	10,579,225.00
General Electrical Services (GES)	US$	802,535.20
Site Services	US$	2,244,000.00
Total Engineering Services	**US$**	**16,749,793.79-**
Work place registration & Compliance (OSHA & FIRE)	US$	2,125.00
ISO 1800 Audit	US$	350,000.00
Supplies - General Consumables	US$	12,150.00
Safety Signs- Purchase of Paints	US$	20,100.00
General Consumables - Environment	US$	21,882.40

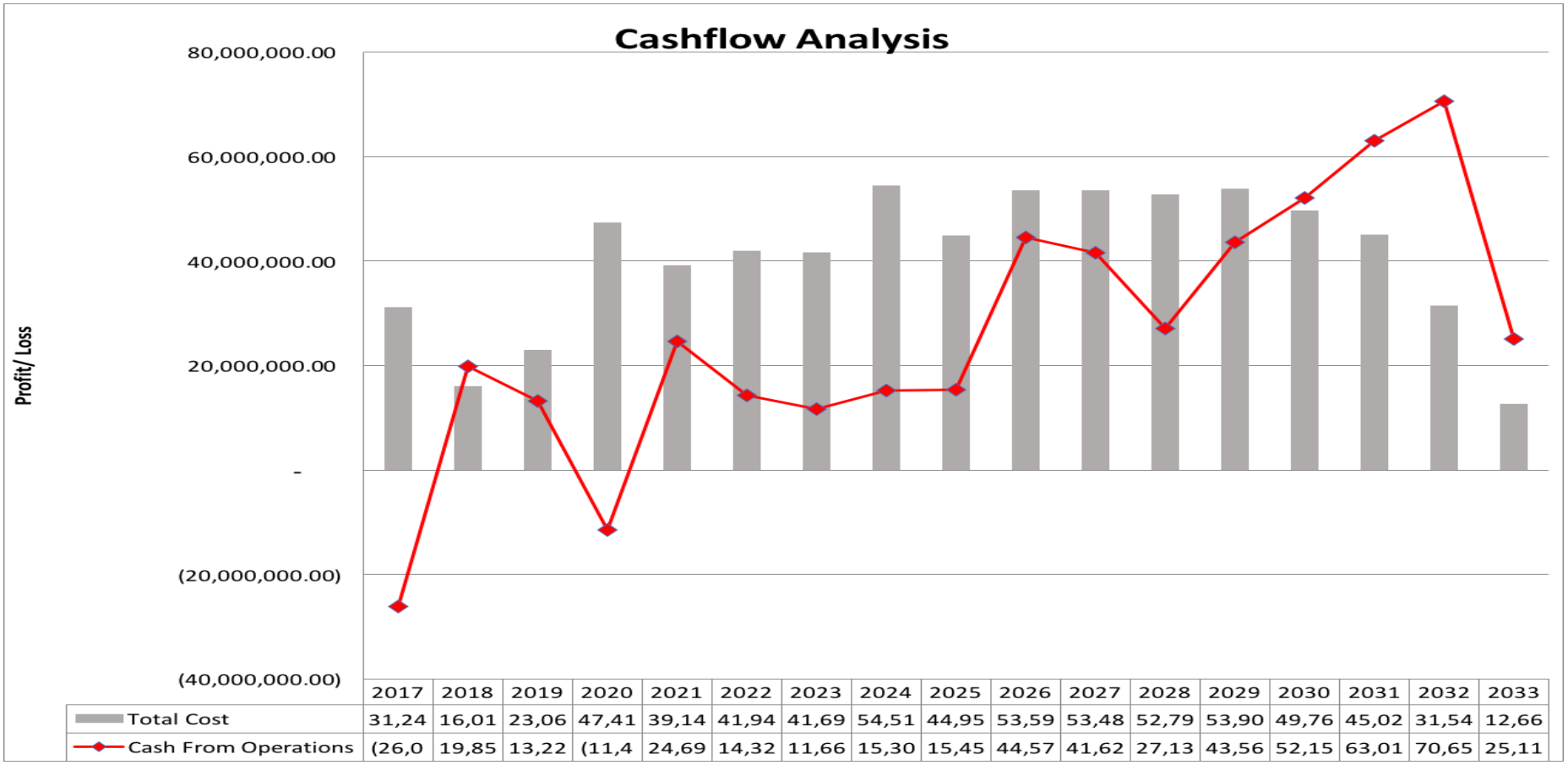
Permits – Environment	US$	333,890.00
Contractors/Consultants - Environment	US$	755,403.00
Environmental Monitoring	US$	279,000.00
Vegetation and Vector Control	US$	72,250.00
Waste Management	US$	64,600.00
Water treatment/portability	US$	621,000.00
TCAA aerodrome license	US$	10,200.00
Health (Clinic)	US$	396,000.00
HSE	**US$**	**2,938,600.40**
HR + Community+ Camp	**US$**	**14,790,859.41**
Finance + IT	**US$**	**2,605,814.10**
		-
Overhead Cost	US$	112,163,199.81
Total costs	US$	633,183,204.55
Operating Profit	US$	**504,410,914.42**
Cash from operations	US$	**504,410,914.42**

US$/ton Milled	$/t	35.95
US$ per Ounce	$/Oz	695.75
Total Ounces	Oz	910,075.30
Total Tonnes Mined per Year	t	159,589,852.42

Capex	59,587,360
Total Cost	692,770,564.91
Cash from Operations	**444,823,554.06**
Cumulative Cash	**444,823,554.06**
NPV (5%)	**$243,714,282.35**
NPV (10%)	**$140,118,766.99**
IRR	**53.7%**

Table 17.1 Buckreef Financial Model Result-Summary

17.1.1 Cash Flow Analysis



	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Cost	31,24	16,01	23,06	47,41	39,14	41,94	41,69	54,51	44,95	53,59	53,48	52,79	53,90	49,76	45,02	31,54	12,66
Cash From Operations	(26,0	19,85	13,22	(11,4	24,69	14,32	11,66	15,30	15,45	44,57	41,62	27,13	43,56	52,15	63,01	70,65	25,11

Figure 17.1 Buckreef project Cash flow

17.2 SENSITIVITY ANALYSIS

Sensitivity analysis was performed on the financial model built. Key parameters varied were:

- gold price,
- metallurgical recovery and
- operating costs

The parameters were increased from 0% to 30% and decreased from 0% to -30% as well. Impact on project NPV was then assessed.

17.2.1 Gold price sensitivity

Gold price is very sensitivity to project NPV; increase in gold price by 20% will result into double project NPV. In opposite manner, decrease in gold price has a negative impact on project NPV. However, the project remains viable with a 30% decrease in Gold price. Positive NPV is obtained with this change.

17.2.2 Metallurgical recovery sensitivity

Metallurgical recovery follows the same trend as gold price variations. A decrease in recovery results into low project NPV. This is an important parameter to be monitored as slight negative change in recovery has big impact on project profitability.

17.2.3 Operating costs sensitivity

The project is sensitive to OPEX. A decrease in operating cost result into cash-flow saving and hence increase in project NPV.

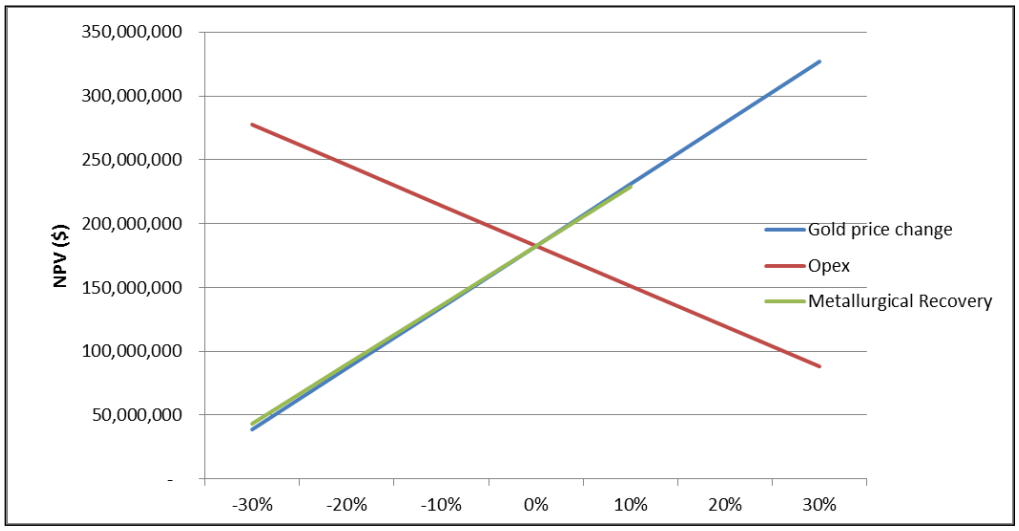


Figure 17.2 Sensitivity analyses on key parameters

17.2.4 Discussion

When ranked, the sensitivity analysis indicates that the Project is most sensitive to gold price. From a cost perspective, the Project is more sensitive to operating expenditure than metallurgical recovery. The metallurgical recovery is already high value.

18 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL IMPACT

18.1 ENVIRONMENTAL BASELINE

18.1.1 Environmental Studies

The Buckreef Project is primarily an undeveloped exploration project, although the project area includes the defunct Buckreef Mine area that was exploited by STAMICO until the mine closed in 1994. The historic mine site will ultimately form part of the future operation developed within the Buckreef Prospect.

Several environmental and environmental management plan studies have been performed on the project area. The environmental Scoping Studies for the project was conducted by URS from Australia in collaboration with MTL Consulting a local company. A Social Impact Assessment (SIA) was undertaken by Social Sustainability Services Ltd of Australia and the University of Dar es Salaam in 2006.

The environmental and socio-economic baseline for the project is documented in the Environmental and Social Impact Assessment (ESIA) performed by ENATA Ltd 2014. This document was submitted to the NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC). This report was approved by NEMC and an EIA certificate was awarded on 19th May 2014. The ENATA Ltd ESIA was subsequently updated by Sphere Envirotech & Engineering (T) Ltd, to reflect changes which were implemented from 19th May 2014 after the issuance of the Environmental Impact Assessment Certificate in compliance with Section 92 (1) of the Environmental Management Act No.20 of 2004 and the proposed future changes following mining operations changes.

The approved ESIA for the Buckreef Project covers areas which encompass the Buckreef Main, South and North, Eastern Porphyry, Tembo and Bingwa deposits.

18.1.2 Terrestrial Environment

18.1.2.1 Regional Setting

Regionally, the Buckreef special mining license lies within the Rwamagaza Greenstone Belt part of Sukumaland Greenstone Belt. The Buckreef Project covers the eastern portion of the east-west trending RGB, which is

composed of a monotonous sequence of basaltic flows with well-preserved volcanic features (e.g. pillow lavas). Serpentinized ultramafic bodies are found parallel to the flow stratigraphy and are interpreted to represent lower unit of the greenstone sequence

18.1.2.2 Local Setting

The landscape in the project area is characterized by alternating areas covered with hard laterite and sheet wash Mbuga soils. The host rocks are subject to varying degrees of weathering. To a depth of 30-40 m from surface, the host rock is completely weathered to a high-clay saprolite. From 40-60 m weathering decreases until the fresh rock contact is reached below 60 m. The transition from saprolite to fresh rock is generally gradational.

18.1.2.3 Deposit Geology

In general, the resource occurs in four separate deposits. Two deposits are hosted in altered, sheared and silicified mafic rocks, one in altered intrusive porphyritic rocks, and the last in a mixture of mafic and contact between greenstone sequence and granite.

18.1.2.4 Mineralization

Gold mineralization at the Buckreef deposit is directly related to the degree of quartz veining, which can show associated haloes of finely disseminated pyrite. Gold mineralization is mostly non-refractory in fresh and oxide material and associated with fine-grained pyrite within grey quartz veining. Gold is typically fine in nature with significant gold is sitting in the fine 25-micron fraction size.

18.1.2.5 Resource

The potentially economic resource defined in the Venmyn report of February 2014 identified mineralized material of 9.91Mt at a grade of 1.81g/t Au for 0.58Moz contained metal containing 828,000 in measured category as well as 14.87Mt at a grade of 1.40g/t Au for 0.67Moz contained metal in indicated category.

18.1.3 Geomorphology

18.1.3.1 Topography

The project area topography consists of gently rolling hills at an elevation of 1200 to 1250 above sea level (amsl), with flat alluvium deposits and black cotton soil filled valleys. The average elevation difference is 50m on profiles north-south and east-west over 5km. This equates to an average elevation slope of 0.01m per km or 1%.

18.1.3.2 Soil

Most of the soils in the area are iron-rich due to the widespread presence of "cuirasse" or hard laterite on the property. In river valleys and drainages saturated, clay-rich soils known as Mbuga can be found but account for only a small proportion of all soils present.

In general, soils in the project area which have not been exposed to artisanal mining activities show no pollution in the form of mercury, cyanide, or heavy metals while soils located where artisanal mining has been conducted are often found to possess contaminant levels higher than established guidelines.

A study was conducted on the stream water and sediment quality as well as on the groundwater quality in 2009 (Sphere, 2016). In terms of geochemistry the stream water and sediment quality concluded that:

- Arsenic and Cr were above probable effects levels in stream sediments,
- Sediment quality showed no enrichment in metals
- Mercury in sediment samples were below guideline values
- Natural elevation of F, NO3, Al, Cr, Cu and Pb were above Canadian guidelines for aquatic life.

18.1.4 Hydrology

18.1.4.1 Surface Water

Surface water is scarce in the Project area but wetlands are developed in drainage channels. The main surface water flow in the project area is a dammed Nyamazovu River i, small stream to the west of the BRMA, which was used historically as a fresh water supply for the Buckreef process plant. Another important drainage channel is that of the Nyamazama stream, which forms a confluence with the Nyikonga approximately 12km to the southeast of Buckreef mine. Due to the low topographic relief of the area the river is extremely shallow, typically no more than 1-2 m in depth, but may reach a width of 50 m during the height of flow each year.

Considering the proximity of the rivers course within the Project area, Plans including the treating and recycling water from storm water storage have been considered. This is to save the wastage of water and ensure the surface run-off are directed and kept away from the operation consequently reducing chances of the interference to the mining activities as well as the stability of the Pit walls. A storm water management plan will be implemented for the Mine Project area to ensure that water resources are

protected from pollution and that run-off is managed in accordance with the applicable environmental legal requirements. Storm water will be a valuable water resource and can be effectively used to decrease water use from water sources and thus potentially decrease costs.

18.1.4.2 Groundwater Resources Assessment

Tests from the drill-holes show that ground water level depth is shallow at an average of 6.34meters below ground level (6.34mbgl). This suggests that only shallow structures and perhaps the unconfined aquifers were intersected. Nevertheless, assessment will focus on understanding the impact of excavating the open pit and abstracting groundwater on the hydro geological regime. The three pits (Buckreef, Bingwa and Eastern Porphyry) and the ROM Pad may be affected by the ground water from the two main rivers (Nyamazama and Nyamazovu). It is therefore important to make a frequent follow up on the soil behavior and its contribution to the charge of the ground water.

18.1.5 Atmospheric

18.1.5.1 Climate

The Buckreef Project is in the northwest region of Tanzania. The area has a moderately warm tropical climate with minimal variation through the year. Daily temperatures vary between 22°C and 30°C with a mean annual daily temperature of 25°C.

The region gets an average of 900 mm – 1200 mm of rainfall per annum. There are two distinct rainy seasons; the long rains or Masika from March to May and the short rains or Vuli from late September to December. The rainy seasons are characterized by short storm events, which lead to highly localized variations in rainfall. Storm events are often interspersed with relatively long dry spells. Between the two rainy seasons, is a long dry spell, occurring from June to August, which makes the area drought prone. During hot and rain season the humidity ranges between 35% and 60% respectively.

Evaporation remains relatively high throughout the year although daily evaporation rates decrease during the rainy seasons because of increased cloud cover. Average daily evaporation throughout the year varies between 4.5 and 7.2 mm/day (1,642.5 mm/yr.).

18.1.6 Biological

18.1.6.1 Vegetation

There are several vegetation zones in the project area. Their presence is strongly related to proximity to water and human activities. Barren land, shrub-steppe, grassland, and forest zones all occur naturally and generally correspond to the increasing presence of water.

The project area is still covered with categories of natural vegetation types with diversity of life forms including trees, shrubs, herbs, climbers, grasses, sedges and reeds. The most common vegetation in the project area is Acacia polyacantha woodland and Miombo woodland. Human activities in the form of agriculture, pastoralism, artisanal mining, and settlements areas to generate firewood have had a distinct impact on the vegetation in the project area.

Pastoralism is practiced widely with cattle, sheep, and goats foraging in the woods and plain areas as they are able, however, the quality of feed is poor. The potential for damage to an already fragile ecosystem from overgrazing is high.

18.1.6.2 Wildlife

The area like most of the savannah areas is a very good habitat for several species of animals and birds. DikDik (Madoquaswaynei), lesser kudu (Strepsicerosimberbis) and greater kudu (Strepsicerosstrepsiceros) can all be found in the project area. It also includes the reedbuck, bushbuck, orb, hyena, serval cat, jackal, Nile crocodiles, short snouted crocodiles, baboons etc. Bird species include the shoebill (Balaenicepsrex). Other species are wattled crane (Bugeranuscarunculatus), ducks, geese, guinea fowls, bastards, plovers, vultures, Spur winged goose (Plectroptermsgumbensis) etc.

18.2 SOCIOECONOMIC

18.2.1 Introduction

The Buckreef Project lies entirely within the Geita District in Geita region. The area is by large undeveloped tracts of land, poor infrastructure, and a largely rural population. There are three villages immediate to project area. The villages are Mnekezi located at the northwest and Kaseme at the west end of the project. Rwamagaza village which is the center for artisanal miners is located around five kilometers southeast of Buckreef mine.

The political environment in the country is stable with a growing influence of opposition parties in a country traditionally run on single party basis for

decades. The parliamentary and presidential elections were held in October 2015. Generally, the elections were peacefully and successfully held in the country.

Currently there is no incident reported regarding the trespassing or intruding into the mine area.

The mine drilled a bore hole of water as one the community engagement project and the project has been handled over to the Mnekezi village authority.

The social license to operate will be greatly enhanced judging by the current response from different stakeholders that include villagers and their leaders, interfaith organizations, local and regional government and the government leaders at a national level.

18.2.2 Population

In 2012, the total population of Mnekezi village was approximately 1820. The largest village is Rwamagaza with a population of 3202. These are the immediately villages which will be impacted by the proposed Buckreef mine.

It is notable that among the residents of the project area, 75% are under the age of 35 and more than 50% have an age less than 20. There are slightly more women than men. This demographic is amplified in the dry season when lack of rain makes it impossible to farm and young men of working age engage themselves in artisanal gold mining activities.

18.2.3 Ethnicity

Historically, the Geita region was sparsely populated by the original inhabitants namely, the Wazinza in the east, northeast and north and the Wasumbwa tribe in the west. A slow migration westward of Sukuma people from the east through the region resulted in deforestation of the area, together with agriculture and grazing. Except for the original Wasumbwa, most of the remainder populations are immigrants living in large, straggly settlements.

Most of the residents in the project area belong to the Sukuma tribe. Rwamagaza village has many ethnic groups than Mnekezi. Apart from Sukuma tribe other tribes available in Rwamagaza are Waha, Wasumbwa, Wachaga, Wakurya, Wajaluo and Wazinza whereas in Mnekezi village Wasumbwa and Wazinza make minor population. The local language spoken in the project area is Sukuma.

There are several churches for different denominations: Catholics, Seventh Day Adventists, Lutherans and various Pentecostal sects serving residents from different ethnic groups.

18.2.4 Health

The most prevalent disease in the project area is malaria. Over 50% of all sickness treated in the region is malaria.

HIV/AIDS is not only the threat to the health of the region's population but also to the economic and social well-being of the people. Available statistics shows that the rate of HIV & AIDS infections in the region has been decreased from 8.2% to 4.5% in December 2011. The leading group due to infections is the youth group age aging between 15-24 years. Geita district had the highest number of reported AIDS cases accounting to 40.8% of all reported cases in the region. Nyang'hwale district had 872 cases equivalent to 4.1%.

Mnekezi has a dispensary staffed by four nurses and one doctor which serves residents of the project area. At Rwamagaza village there is a dispensary with one doctor and four nurses as well.

18.2.5 Infrastructure

The project area is served by well-maintained dirt roads which run along the northwest -southeast margins of the property from Rwamagaza to Katoro. Several trucking company and buses provide transport for goods and people. Private vehicles are generally confined to motorbikes, bicycles, and a few private cars.

A low voltage national grid line runs along the Katoro – Rwamagaza dirt road. Currently, Buckreef camp is connected to the national grid for its electrical supplies. In addition, several generators are used as emergency power supply during national grid outages. There are no fixed telephone lines. Residents rely on cellular telephone coverage for communication which is good. The Televisions which are easily accessible in the project area includes ITV, TBC1, Star TV, East Africa Television and Capital Television. Most these television stations are accessed through paid satellite dishes.

18.2.6 Employment

18.2.6.1 Farming

Agriculture is by far the most prevalent form of employment in the project area. More than 77% of the labor force is engaged in subsistence farming. Crops most commonly grown are maize, paddy, cassava, beans, groundnuts, sorghum and sweet potatoes while the major cash crops are cotton and

tobacco. Where sufficient water is available, rice and vegetables are also grown (in mbuga soil); both for personal consumption and as cash crops. Issues affecting the successes of farming in the project area include poor soil, and lack of equipment.

18.2.6.2 Livestock

Livestock is the second most important economic activity in Geita Region. The climate of the region also favors growth of improved dairy breed particularly promotion of dairy cattle through cross breeding. The livestock kept in the region are cattle, goats, sheep, donkeys, pigs, chicken and ducks. Overgrazing is a common occurrence. Lack of pasture and veterinarians, and poor knowledge of sound livestock management practices all present challenges to cattle keepers.

18.2.6.3 Commerce

Trade and commerce are an important activity. Rwamagaza market is held twice in a week, Tuesday and Friday. There are small shops, a crop and second-hand clothes market in Rwamagasa-CCM. For the surrounding villages, this is really a town with its several bars, eating places (migahawa) and guest houses. The center is always full of people engaged in trading.

Katoro Township in the north is a big business center providing manufactured goods as well as produce from local farmers.

18.2.6.4 Gold Mining

Gold mining is a popular and well organized activity regionally. Artisanal mining is an important and growing source of income in the project area. Miners are of two types: residents and migrants. Residents are local people, mostly women and children, who work local deposits by hand during the dry season when agriculture is limited or not possible. Migrants may be individuals who drift through the area hoping to find a likely spot to work or more often, bands of workers, organized, and financed by gold buyers.

Artisanal mining practices have already been hampered by the proposed Project, and illegal miners on the project will have to be removed once the project is implemented. Several small-scale operations in the area operating under Primary Mining Licenses provide employment to the local populations, and TRX will offer employment to the local population.

18.3 ENVIRONMENTAL MANAGEMENT

The mine abides by the Tanzanian environmental laws and regulations. The processing plant is close to the Mnekezi River. As such the necessary standards and work practices have been put in place to ensure minimal

disturbance or contamination to the water.
The environmental and social impact assessment (ESIA) for Buckreef project has been awarded by NEMC. On an ongoing basis, the mine applies for water discharge and forest clearance permits as and when required. The mine is currently putting together a robust rehabilitation plan that will be executed once the operations commence. This plan will be running parallel as the operation continues and will lead to a comprehensive mine closure plan.

The closure planning will be enhanced if GoT could complete the development and share the land use and the master plans for the region and local area. The mine will likely to partner with the GoT soon to complete these vital plans. Appendix 003 indicates all possible applicable laws or policy that the company will have to comply with.

The mine is planning to engage and register for ISO 14001 (environmental management systems) certification.

18.3.1 Air Quality Management

18.3.1.1 Introduction

The three primary sources of airborne impact on the project area environment are dust, emissions, and noise. Air quality in the project area is generally good as there is presently little industrial activity to generate impacts. The greatest current source of made-made dust in the project area is from vehicles. The limited amount of traffic at present has resulted in this having little impact. In early 2014 TRX commissioned M/s ENATA Ltd (a registered and certified EIA firm) to conduct Environmental and Social Impact Assessment (ESIA) for the Buckreef project.

18.3.1.2 Air quality and Dust

Dust can affect the health of plants and trees, that of workers, the neighboring population, and general aesthetics of the project area. Regarding Tanzania's Environmental Management (Air Quality Standards) Regulations (2007) the observed air quality at the Mine site is within acceptable level (ENATA, 2014). The study findings showed that the average oxygen level was 20.9% whereas the ambient temperature was 33.7°C. Air gaseous contaminants of CO, CO2, and SO2 were not detected whereas the concentration of NOx was scanty

During the pre-production and construction phases of the project, earthmoving and heavy and light vehicle traffic will generate dust. During production, mining, blasting, crushing and conveying operations will also be potential dust producers. The dust survey by ENATA on the project area

shows that the particulates (dust) level showed that on the average basis, the particulates emissions to the compound was below the threshold value set by the World Health Organization. The exceptional was a point that assessed at the primary school (Rwamagasa Primary School), whose particulate was excessive due to the active nearby students' play field that generated dust.

The effects of dust will be mitigated through prevention and implementation of controls. Dust controls include water sprays in the ROM bin and at transfer points on conveyors between the crushing/sizing circuits and the ROM pad. Transfer points will be enclosed where ever possible and equipment will be designed and laid-out to facilitate clean-up minimizing the build-up of fine, dust-generating material. Employees in the plant area will wash equipment down with water to ensure that clean-up itself does not expose personnel to inhaled dust hazards. Dust masks and respirators will be mandatory when working in areas where dust hazards exist. Prevention seeks to keep dust from being generated.

Mining operations will employ a water truck to suppress dust generated by mobile mining equipment, particularly haul trucks. Adherence to the prescribed traffic plan, following designated routes, and observing maximum speed limits of 50kph will enhance dust suppression efforts while limiting dust generation.

18.3.1.3 Noise

Noise from construction and production activities can cause health effects and annoyance for both workers and the community. The two largest sources of noise will be the crushing/sizing circuit, power generation plant and the mining fleet. The noise recorded by ENATA during baseline study shows that in the production and residence areas the noise levels were within acceptable level below the threshold value of 90 dB(A). However, the generator shed had excessive noise level, about 90 dB(A). To attenuate noise from operations to reasonable background levels), the project has been designed so that no community or home is closer than 250m to mine infrastructure.

The first three years of operation will be on oxide materials. These are free digging material as they contain high amount of clay minerals. The soft nature of the material will reduce the noise generated during crushing and sizing. As the bulk of the village is over 300m distant from the work site noise generated by equipment will not exceed permissible limits.

Noise and vibration levels caused by blasting activities as well as the operation of heavy machines will be measured to minimize any adverse impacts on neighboring populations and mine infrastructures. These measures will include blasting and traffic control, and implementing buffer zones. Given the proximity of people to the Project, additional noise control measures may be necessary if the population surrounding the mine site will grow motivated by the presence of the mine. It's important for the mine to establish its buffer zone to ensure a secured safe distance from surrounding population.

Noise levels and air quality parameters in the project area have been measured as part of baseline survey so that a comparison can be made to those experienced during construction and operations.

18.3.2 Water Quality Management

18.3.2.1 Water Supply

Water to sustain operations will be captured during the rainy season in an existing dam constructed on the Nyamazovu River which flows seasonally, 0.8km west of the proposed plant site as well as from flooded old underground shaft. The old underground shaft is estimated to yield 25,000m^3/month of water (Sphere, 2016).

Water Balance

Total annual water usage by operations is approximately 1.65 M m^3 including 1.2 M m^3 for heap leach operations, 400,000m^3 for dust suppression, and 50,000m^3 of potable water for drinking, ablutions, and safety showers. A further 300,000m^3 is expected to evaporate over the course of year from storage ponds. Offsetting this is about 750,000m^3 of water added to the system through direct precipitation and collection of runoff from the open pits and excess water from the leach pad. As a result, the total amount of raw water required to meet operational needs each year is 1.2 M m^3. Figure 14.1 provides details of water usage for the project on an annual basis.

Excess Water Management and Detoxification

Ideally, four ponds will be used to treat water from the processing plant. One pond will be used for settling the finer material from the plant. The second and third pond will be used for detoxification and recycling water back to the plant. Storm water drain will be emergency holding pond as all water will be circulated back to the plant. All cyanide already in solution will be reused in plant

Monitoring

The principal purpose of the monitoring program is to provide information necessary to determine the mine's operational and environmental performance with regards to the quality of air, water, soil, fauna and flora within and around the mining area. The company will establish a monitoring program that will capture background quality of environmental media. Key physical and chemical data such as footprint size, volume and chemical characteristics of potential sources over lifetime of the project will be captured. The fate and transport of contaminants along perceived pathways with the aim of verifying or possibly exclude pathways of concern will be documented.

Buckreef Gold Company Limited will keep track of its environmental performance by the annual reporting to government as required by legislation.

18.3.2.2 Waste Management

18.3.2.2.1 Waste Rock Dump

Waste Rock Dump will be located on the south-west portion of the project area. Keeping the waste rocks close to the pit is important in minimizing impacts associated with construction, maintenance and operation of haul roads. It is also planned that some of the waste rocks will be returned for backfilling portions of the pits during mining. Much of the waste rock units from Buckreef deposit are considered non-acid forming (NAF) except for dolerite and undifferentiated mafic volcanic units that had roughly 10% of the samples categorized as PAF (Potential Acid Forming). Most units have very low concentrations of total sulphide minerals available for potential acid production

18.3.2.2.2 Process Waste

Process waste from CIC plant is presents in the form of the leached-out material stacked on the tailing pads. Throughout the mine life and in perpetuity thereafter, this material remains stacked on the lined pad preventing leach solution or precipitation seeping from the tailing storage into the ground.

Acid-Base Accounting (ABA) test work indicates that the mine waste rock samples and tailings samples are all non-acid producing. The ABA analyses reported sulphur contents of between below detection (0.01% and 1.56%) The one waste rock sample that contained 4% pyrite equates to 1.78% sulphur, confirming study estimates that most sulphur analyzed in the ABA analyses is due to sulphur in pyrite. As a preliminary assessment of the leachability of specifically tailings material from Buckreef mine, a sample

composed of four tailings surface samples of the old TSF was submitted for toxicity leaching procedure (TCLP) and acid base accounting (ABA) analysis. Mineralogical as well as major and trace element analysis was also undertaken and the results presented in Venmyn (2014) report

The mineralogical composition of the composite TSF samples as determined by X-ray diffraction is approximately as follows: -

- quartz (SiO2) content >50%;
- plagioclase (NaAlSi3O8) content 10% to 20%
- dolomite (CaMgCO3)2 content 3% to 10%;
- pyrite (FeS2) content 3% to 10%; and
- gypsum (CaSO4.2H2O).

Most of the material is naturally basic in nature (absence or low sulphide content) and cannot generate acid. For the small portion of the material which has the potential to generate acid the surrounding host rock provides enough buffering capacity to maintain a neutral pH.

18.3.2.2.3 Domestic and Industrial Waste

A designated waste disposal site will be established to accept and store domestic waste generated at the mine site. The facility will be fenced, constructed, and operated in compliance with all applicable regulations.

Burnable waste will be burned in an incinerator at the waste disposal site. Wood from packing crates and reagent packaging would be the most common types of burnable waste generated by the mine. Hydrocarbon waste such as contaminated rags, drained oil filters and contaminated timber, papers and soil will be Bioremediation at a land farm.

18.3.3 Overburden and Soil

Employment of open pit mining will require clearing of the vegetation and top soil cover and excavation of overburden material. The stripped material will be separated so that the fertile top soil and vegetation are stockpiled separately for future use in rehabilitation. The less fertile soils and weathered rocks will be stockpiled together at a site selected for waste rock dumping.

More typically, soils will not be contaminated. Where the depth of the soil permits, material will be stripped prior to mining and stockpiled to be used to provide a growth medium for progressive and final rehabilitation.

18.3.4 Progressive Rehabilitation

The mine will practice progressive rehabilitation. As mining moves from one operating area to another throughout the mine life completed, pits and

waste dumps will be rehabilitated. Progressive rehabilitation has been undertaken and planned in accordance with final decommissioning and closure objectives. Progressively re-vegetate, as available, portions of the Waste Rock Dump and Tailings Storage Facilities by applying 0.15m of topsoil followed by seeding with preferably local plan species.

18.3.5 Rehabilitation and Closure

Buckreef Gold Company Limited will form "Mine Closure Committees" at both local and national levels. This will be established by the Company through consultations with relevant authorities. It is the Mine Closure Committees that will review from time to time the implementation of the plan and set priorities of the future use of the various mine infrastructures. The committees will advise the company whether the mine pit should be filled after mining or be used as a water storage dam, or whether the mine buildings should be demolished or used by the locals for other purposes and other closure priorities will be decided by the closure committees. The local closure committee will be chaired by the Geita District Commissioner and the national one is usually chaired by the Commissioner for Minerals. Members of the two committees are selected through consultations with the local authorities and the Ministry of Energy and Minerals. Whatever decisions will be made the committees, the company has considered the following closure strategies on the prevailing Environmental and Social Management Plan;

- ✓ Prevent or minimize adverse long term social and environmental impacts;
- ✓ Create a self-sustaining ecosystem or alternate land use based on an agreed set of objectives;
- ✓ Enable all stakeholders to have their interests considered during mine closure;
- ✓ Ensure the process of closure occurs in an orderly, cost-effective and timely manner;
- ✓ Ensure that the cost of closure is adequately represented in company budgets;
- ✓ Ensure clear accountability and sufficient resources, for the implementation of the closure plan;

- ✓ Establish appropriate indicators for evaluating success of the closure process. The achievements from this process will justify relinquishment of the Mining License lease;

The long term post-closure land use objective for the site is to return the footprint within the Special Mine License area to a self-sustaining condition which will support the following land uses:

- ✓ Subsistence agriculture including limited livestock grazing, bee keeping and crop production.
- ✓ Opportunities to promote rain water harvesting that will be used for grazing animals, irrigation farming and domestic use.
- ✓ Establishment of grassland habitats on the waste rock dumps and the tailings storage facility.
- ✓ Implementation of the Mine Closure Plan is predicated on results derived from rehabilitation research and progressive closure activities; and
- ✓ community and stakeholder consultations that will involve the identification of post-closure impacts, the development and implementation of inspection and monitoring programs to verify acceptable performance, and the development and implementation of corrective action plans, as appropriate.

19 FISCAL, LEGAL AND REGULATORY

All the 4 deposits used in reserve estimation are within the mine's special mining license (SML) area and the mine has permits for their exploitation. The SML expires in 2025, whereas the excavation and processing of the ore reserves here reported is up to 23years from the day of depletion.

The mine is not abided by the MDA, the regulatory law applicable to this project is current Mining Act of 2010 where by the royalty of 4 percentage is applicable to the gross income. The new Mining Act was enacted on the 1st of November 2010. The new licensing rules should not affect the Buckreef's block of licenses only on renewals of which for SML will be based on mining plan. One positive aspect of the new Act is that PL's and applications are now handled by the Commissioner for Minerals, which should expedite the licensing procedures. Moreover, the Licensing Section of MEM, under the CM's administration, is now equipped with the Flexi-Cadastral system and to manage mineral properties across the country. However, the MEM is implementing an Online Transaction Mining Flexi Cadastre Portal on which all applications and management will be done online and will reduce movements to MEM head quarter and increase transparency.

Illegal mining and processing is still existent at various parts around Buckreef project, notably in Rwamgaza village and Nyarugusu Village.

At the timing of compiling this report, there were no known risks that could result in the loss of ownership in part or in whole of the deposits that were used in estimating the reserves at February 2017.

20 INTERPRETATION, SUMMARY AND CONCLUSIONS

The positive results of the mine design, costing and financial assessment Feasibility Study of the Buckreef Project have confirmed that progression of the project to the pre-production (pre-stripping), process plant fabrication and construction and mine production stage is warranted based on the following factors:

- The optimized Mineral Reserves are sufficient to sustain an initial LOM of >15 years.
- Based on a gold price of US$1,250 per troy ounce, the project has an internal rate of return ("IRR") of 53.7% and a net present value ("NPV") of US$243.71 million, at a 5% discount rate.
- A highly encouraging NPV return of over 50% with positive returns starting in Year 2.

- Gold production will average 53,530 troy ounces per annum and 910,070 troy ounces over the 15-year mine life.
- Significant potential to increase the immediate resource and reserve base via a grade control drilling program prior to the pre-stripping/pre-production program.
- The Buckreef Project benefits particularly from being an open pittable gold deposit, which can be brought rapidly into production to benefit from the current favorable gold market conditions. The definite upside potential to define further Mineral Resources serves to provide focus for future exploration and expansion of the project;
- The economic analysis indicates that the mining sequence Case 1 (optimized Pit 20) is the most favorable.
- The capital cost of the three progressive process plant upgrades are clearly advantageous as they afford a staggered capital investment, the bulk of which will be generated from operations after year 3.
- The flexible mine design with room to improve and further refine the pit design to encompass pit slopes of 60° to 90° if the sub-parallel ore-zones defined at the pilot South Pit are confirmed during grade control drilling. Improvement in the pit shell shape from smaller conical pits to larger, simple pits would be advantageous in decreasing the stripping ratios;
- Lower grade mineralization, classed as uneconomic waste, could be easily upgraded to mineralized ore during the grade control drilling thereby increasing the resource/reserve base;
- the mine schedule will be refined and further optimized as the grade control drilling results are processed;
- Despite the need to obviously improve ~10-20km of access and haul roads as well as dismantle and relocate office and housing infrastructure outside the 500m safe blasting zone, this has been shown to be manageable with prudent financial management;
- the impact of the costs and logistics of the power supply to the mine and process plant and/or diesel supply for the power generation will

be critical to the project but has been staggered over several phases determined by the process plant upgrades such that it is manageable and viable;
- the results of the environmental sensitivity reviews have proved favourable in that no unmanageable environmental risks have been identified. Initial indications are that no requirement for a lined TDF will necessary (Venymn, 2012). The proposed plant sites, TDF and waste disposal sites are all downslope of the main infrastructure thus use of gravity drainage will significantly reduce transportation costs;
- A trade-off study of the benefits of contractor mining as opposed to owner mining will be undertaken for the from year 4 onwards will be reviewed critically as the mine development progresses;
- The proposed Buckreef process plant design is based on gold Carbon-in-Leach (CIL) technology, which will consist of scrubber, crushing, primary EDS mills, falcon gravity concentrator, secondary EDS mills, leaching with cyanide solution, adsorption of the pregnant solution, elution and gold smelting.

MaSS Resources concludes that the positive mine design, costing and financial study outcomes have provided a valuable basis for the development of the Buckreef Gold Project. Several identified refinements, optimizations and alternatives will collectively improve the project financial outlook and outcome as the mining progresses. The Buckreef Project benefits particularly from being an open pit table gold deposit, which can be brought rapidly into production to benefit from the current favourable gold market conditions.

Given the economic sensitivity to ore grade, exploration efforts should focus on finding and defining higher grade mineralization in areas of potential low strip ratios. MaSS Resources considers that the Buckreef Project has opportunity for resource expansion and merits further exploration. There is a significant opportunity to expand the resources and reserves at Buckreef Main that has been demonstrated with drilling results extending beyond optimised pit shells. A close-spaced grade control drilling program as mining progresses is recommended. To assess underground potential, MaSS's recommends step out and infill diamond drilling, RC drilling, with supporting geology, geochemistry and ground IP/Mag geophysics exploration techniques to be applied.

21 DISCLAIMER AND RISKS

This Independent Technical Report has been prepared by MaSS Resources Limited. In the preparation of the report, MaSS has utilized information provided to them by Tanzanian Royalty Exploration Corporation and MaSS has verified this information making due enquiry of all material issues that are required to comply with the National Instrument 43-101 code.

OPERATIONAL RISKS

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

POLITICAL AND ECONOMIC RISK

Factors such as political and industrial disruption, currency fluctuation and interest rates could have an impact on Tanzanian Royalty Exploration Corporation future operations, and potential revenue streams can also be affected by these factors. The majorities of these factors are, and will be, beyond the control of Tanzanian Royalty Exploration Corporation or any other operating entity.

FORWARD LOOKING STATEMENTS

This Independent Mining Design and Costing Technical Report contains forward-looking statements. These forward-looking statements are based on the opinions and estimates of MaSS Resources Limited, Tanzanian Royalty Exploration Corporation and its previous specialist consultants at the dates the various NI43-101 compliant statements and press releases 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 MaSS Resources' and Tanzanian Royalty Exploration Corporation's 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 projects, and changes to regulations affecting them. Although MaSS Resources believes the expectations reflected in its forward-looking statements to be reasonable, MaSS Resources Limited does not guarantee future results, levels of activity, performance or achievements.

REFERRENCE

- RSG Global, - Metallurgical Test-work Review and Recommendations for the Buckreef Project, July 2004
- Metallurgical Project Consultants Pty Limited, - Phase 2 Metallurgical Test-work Summary, February 2007
- Hellman & Schofield Pty Ltd (H&S), Estimates of the Gold Resources at Buckreef Prospect – Tanzania, June 2007
- Sound Mining (SMS), Buckreef Gold Project Mining Study, - Preliminary Economic Assessment, January 2012
- Venmyn Independent Projects (Pty) Limited, - National Instrument 43-101 Preliminary Economic Assessment of Tanzania Royalty Exploration Corporation's Buckreef Gold Mine, Re-development Project in Tanzania, May 31st, 2012
- ENATA LTD, - Environmental Impact Assessment for Gold Mining Project at Mnekezi Village in Geita District, Geita Region, Tanzania; February 2014
- Venmyn Deloitte, - Update National Instrument 43-101, Independent Technical Report on the Buckreef Project in Tanzania for Tanzanian Royalty Exploration Corporation; February 24th, 2014
- Mark Noppe, - Reporting Mineral Resources and Ore Reserves – How Confident are we? – MINERAL RESOURCE & ORE RESERVE ESTIMATION bulletin, June 2014
- Sphere Envirotech & Engineering (T)Ltd – Buckreef Gold Mine, Environment Management Plan (EMP) Update, January 2016
- Tanzania Minerals Audit Agency: https://www.tmaa.go.tz - Accessed on 23rd January 2017.

UNITS

m = meter
oz = Ounce
g/t = grams per tonne
s.g. = Specific Gravity
t/d = tons per day
US$ = United States Dollar

GLOSSARY AND ABBREVIATIONS

Archaean	Geological eon – subdivision of the Precambrian 2.5Ga to 3.8Ga
Assay	A chemical test performed on a sample of ore or minerals to determine the amount of valuable metals contained.
Basalt	Fine grained mafic volcanic rock
Borehole	A hole drilled from surface or underground, in which core of the rock is cut by a diamond drill bit as the cutting edge.
Bulk sample	A large sample of mineralized rock, frequently hundreds of tonnes, selected in such a manner as to be representative of the potential orebody being sampled. Used to determine metallurgical characteristics. Large sample which is processed through a small-scale plant, not a laboratory.
Carbon-in-leach	The recovery process in which Au is leached from Au ore pulp by cyanide and simultaneously adsorbed onto activated carbon granules in the same vessel. The loaded carbon is then separated from the pulp for subsequent Au removal by elution. The process is typically employed where there is a naturally occurring Au adsorbent in the ore.
CM	Commissioner for Minerals
CoG	Cut-off Grade
Conglomerate	Sedimentary rock comprising of pebbles in a finer grained matrix
Cross section	A diagram or drawing that shows features transected by a vertical plane drawn at right angles to the longer axis of a geologic feature.
Cyanidation	Method of extracting gold by dissolving in potassium cyanide solution
Density	Measure of the relative “heaviness” of objects with a constant volume, density = mass/volume
Deposit	Any sort of earth material that has accumulated through the action of wind, water, ice or other agents.
Development	Underground work carried out for opening up a mineral deposit. Includes shaft sinking, crosscutting, drifting and raising.

Diamond drilling	A drilling method, where the rock is cut with a diamond bit, to extract cores.
Dip	The angle that a structural surface, i.e. a bedding or fault plane, makes with the horizontal measured perpendicular to the strike of the structure.
Dyke	Intrusive igneous rock vertically or sub-vertically emplaced.
Estimation	The quantitative judgement of a variable.
Exploration	Prospecting, sampling, mapping, diamond drilling and other work involved in the search for mineralization.
Exploration License/ Property	A Mineral Asset which is being actively explored for Mineral deposits or petroleum fields, but for which economic viability has not been demonstrated.
Facies	An assemblage or association of mineral, rock, or fossil features reflecting the environment and conditions of origin of the rock.
Fault	A fracture in earth materials, along which the opposite sides have been displaced parallel to the plane of the movement
Feasibility study	A definitive engineering estimate of all costs, revenues, equipment requirements and production levels likely to be achieved if a mine is developed. The study is used to define the economic viability of a project and to support the search for project financing.
GoT	Government of Tanzania
Grade	The relative quantity or percentage of gold within the rock mass. Measured as grams per tonnes in this report.
Greenstone Belt	Archaean sequence of mafic and ultramafic rocks
Hanging wall	The overlying unit of a stratigraphic horizon, fault ore body or stope
In situ	In its original place, most often used to refer to the location of the mineral resources.

Indicated Mineral Resource	That part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and average mineral content can be estimated with a reasonable level of confidence. It is based on exploration sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed and sufficient minerals have been recovered to allow a confident estimate of average mineral value.
Inferred Mineral Resource	That part of a mineral resource for which tonnage, grade and average mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified by geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited or of uncertain quality and reliability.
Laterite	Residual soil in humid climates form the leaching of silica and aluminium and enrichment in iron
Lava	Molten silicate material extruded by a volcano.
License, Permit, Lease or other similar entitlement	Any form of license, permit, lease or other entitlement granted by the relevant Government department in accordance with its mining legislation that confers on the holder certain rights to explore for and/or extract minerals that might be contained in the land or ownership title that may prove ownership of the minerals.
LBMA	The London Bullion Market Association
Life-of-Mine/LoM	Expected duration of time that it will take to extract accessible material.
Liberation	Release of Au from the host rock through processing.
Lithologies	The description of the characteristics of rocks, as seen in hand-specimens and outcrops based on colour, grain size and composition.
Lode	Metalliferous ore that fills a fissure

Mineral Reserve	The economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified. Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserve.
Mineral Resource	A concentration of material of economic interest in or on Earth's crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated from specific geological evidence and knowledge, or interpreted from a well constrained and portrayed geological model. Mineral Resources are subdivided, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated and Measured categories. A deposit is a concentration of material of possible economic interest in, on or near the Earth's crust. Portions of a deposit that do not have reasonable and realistic prospects for eventual economic extraction must not be included in a Mineral resource.
Measured Mineral Resource	That part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill-holes. The locations are spaced closely enough to confirm geological and grade continuity.
MEM	Ministry of Energy and Minerals
Mineralization	The presence of a target mineral in a mass of host rock.
Mining Property	A Mineral Asset which is in production.

National Instrument 43-101	Canadian National Instrument on the reporting of exploration, mineral resources and mineral reserves for the TSX.
Opencast / Open pit	Surface mining in which the ore is extracted from a pit. The geometry of the pit may vary with the characteristics of the ore body.
Orebody	A continuous well defined mass of material of sufficient ore content to make extraction economically feasible.
Overburden	The alluvium and rock that must be removed in-order to expose an ore deposit.
Porphyry	Fine grained igneous rock with large feldspar crystals
Probable reserves	The economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is estimated with a lower level of confidence than a Proved Reserve. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified.
Prospect	A deposit with the potential for economic extraction.
Pyrite	Fool's gold a common yellow sulphide mineral, FeS. Pyrite forms under a wide range of pressure-temperature conditions, and so is found in many geological environments.
Quartzite	A metamorphic rock consisting primarily of quartz grains, formed by the recrystallisation of sandstone by thermal or regional metamorphism or a sandstone composed of quartz grains cemented by silica.
Recovered grade/Yield	The actual grade of ore realised after the mining and treatment process.
Reef	Mineralized lode.

Rehabilitation	The process of restoring mined land to a condition approximating to a greater or lesser degree its original state. Reclamation standards are determined by the Russia Federation Department of Mineral and Energy Affairs and address ground and surface water, topsoil, final slope gradients, waste handling and re-vegetation issues.
Rhyolite	One of a group of extrusive rocks commonly showing flow texture, and typically porphyritic, with phenocrysts of quartz and potassium feldspar in a glassy to microcrystalline groundmass.
Sample	The removal of a small amount of rock pertaining to the deposit which is used to estimate the grade of the deposit and other geological parameters.
Sampling	Taking small pieces of rock at intervals along exposed mineralization for assay (to determine the mineral content).
Saprolite	In situ weathered profile on laterite terrane where the soil comprises mostly clays
Sedimentary	Formed by the deposition of solid fragmental or chemical material that originates from weathering of rocks and is transported from a source to a site of deposition.
SIBC:	Stay in business capital; the capital required for replacement rather than new capital items; also, known as sustaining capital
Specific gravity/S.G.	Measure of quantity of mass per unit of volume, density.
STAMICO	State Mining Corporation of Tanzania
Stockpile	A store of unprocessed ore or marginal grade material.
Stripping	Removal of waste overburden covering the mineral deposit.
Stripping ratio	Ratio of ore rock to waste rock.
Subduction	The movement of one crustal plate (lithospheric plate) under another so that the descending plate is consumed.
Tailings	The waste products of the processing circuit. These may still contain very small quantities of the economic mineral.
Tailings dam	Dams or dumps created from waste material from processed ore after the economically recoverable metal or mineral has been

	extracted.
Tonnage	Quantities where the tonne is an appropriate unit of measure. Typically used to measure reserves of metal-bearing material in-situ or quantities of ore and waste material mined, transported or milled.
Trenching	Making elongated open-air excavations for the purposed of mapping and sampling.
TRX	Tanzanian Royalty Exploration
Veins	A tabular or sheet like body of one or more minerals deposited in openings of fissures, joints or faults, frequently with associated replacement of the host rock.
Yield/Recovered grade	The actual grade of ore realised after the mining and treatment process.

APPENDICES

Appendix 001: Proposed Mine Site Layout

Appendix 002: Mining Production Schedule – Pit Mining Sequences

Appendix 003: Applicable Laws and Policies to Comply

Appendix 004: Current Risks and Opportunities Associated with the Project

Appendix 005: Plant Feed Schedule

Appendix 006: Capital Schedule

Appendix 007: Financial Model Summary

Appendix AA: Case 2 - Mining Production Schedule – Pit Mining Sequences (Pit 16)

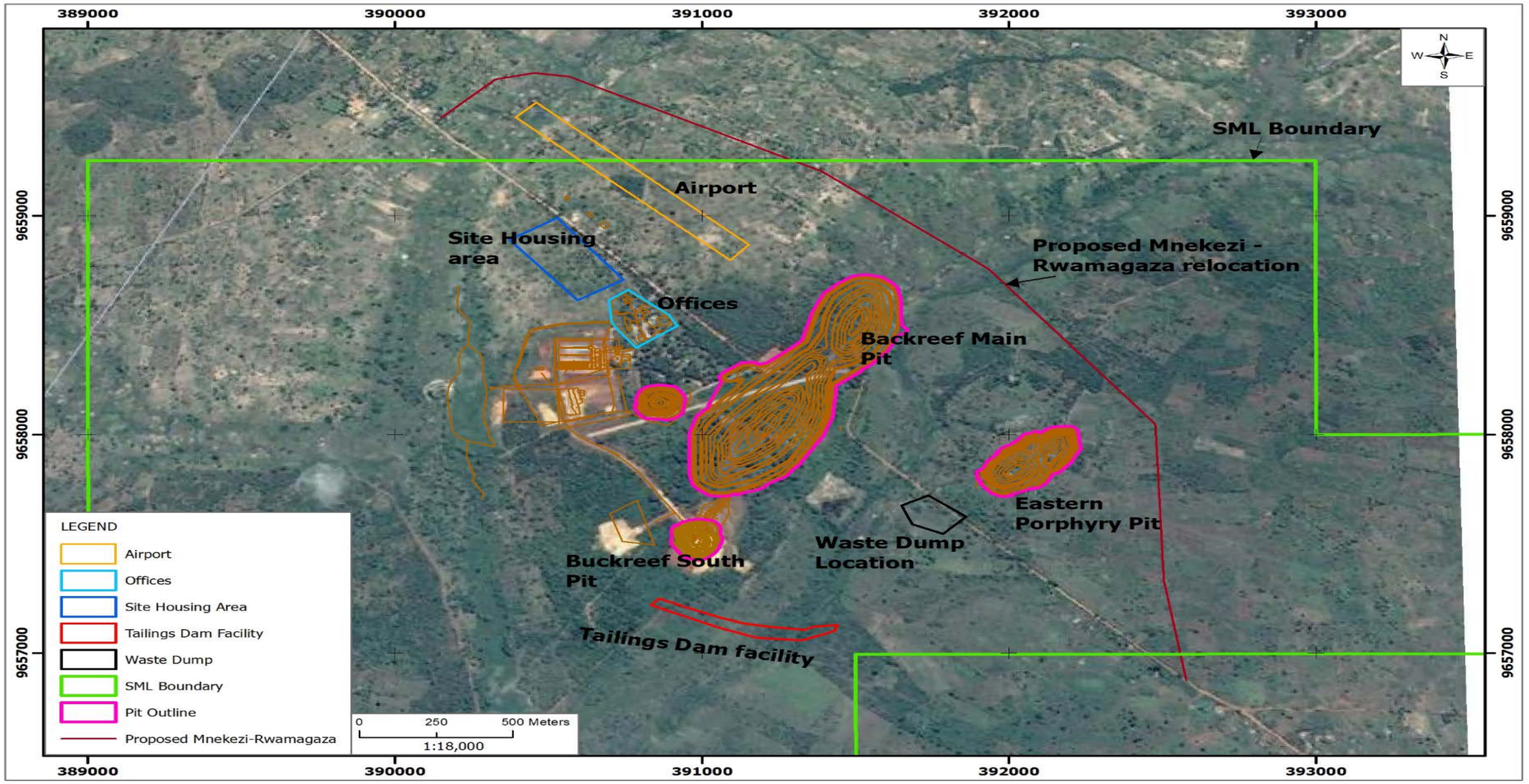
Appendix BB: Case 2 - Plant Feed Schedule (Pit 16)

Appendix CC: Case 2 - Capital Schedule (Pit 16)

Appendix DD: Case 2 - Financial Model Summary (Pit 16)

Appendix EE: Qualified Persons Certificates

Appendix 001: Proposed Mine Site Layout



Appendix 002: Mining Production Schedule – Pit Mining Sequences

Mining Schedule - Pit by Pit			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Buckreef Main	Waste	t	2,750,336	2,579,546	7,064,239	8,020,000	9,473,682	11,050,000	11,128,844	11,050,000	11,144,251	10,863,630	10,973,884	10,633,079	10,428,470	8,014,552	4,748,513	**129,923,025**
	Ore	t	249,664	420,454	435,761	480,000	950,000	950,000	950,000	950,000	855,749	1,136,370	1,026,116	1,366,921	1,571,530	1,985,448	2,238,546	**15,566,560**
	Grade	g/t	1.85	2.05	2.05	2.10	1.89	1.60	1.42	1.42	1.60	1.84	1.87	1.58	1.90	2.01	2.13	**1.83**
	Metal	g	462,544	862,455	893,794	1,006,585	1,792,178	1,520,042	1,346,703	1,347,215	1,372,791	2,094,231	1,920,706	2,157,451	2,981,441	3,995,653	4,760,424	**28,514,213**
	SR	t:t	11.02	6.14	16.21	16.71	9.97	11.63	11.71	11.63	13.02	9.56	10.69	7.78	6.64	4.04	2.12	**8.35**
Bingwa	Waste	t						1,493,901	1,121,066	1,115,673	680,838	38,196						**4,449,673.42**
	Ore	t						154,004	151,549	221,496	309,071	70,193						**906,312.03**
	Grade	g/t						1.76	2.32	4.82	2.25	2.92						**2.86**
	Metal	g	-	-	-	-	-	271,413	351,228	1,067,730	694,997	205,260	-	-	-	-	-	**2,590,629**
	SR	t:t	-	-	-	-	-	9.70	7.40	5.04	2.20	0.54	-	-	-	-	-	**4.91**
Eastern Porphyry	Waste	t									858,558	1,977,568	994,124	737,058	841,735	397,755		**5,806,798.44**
	Ore	t									141,442	125,815	113,540	84,449	112,561	137,916		**715,723.11**
	Grade	g/t									1.67	2.05	1.96	1.81	1.66	1.91		**1.85**
	Metal	g	-	-	-	-	-	-	-	-	235,781	257,914	222,578	153,157	187,373	263,886	-	**1,320,690.27**
	SR	t:t	-	-	-	-	-	-	-	-	6.07	15.72	8.76	8.73	7.48	2.88	-	**8.11**
Tembo	Waste	t	-	-	-	-	-	-					343,302	1,007,400	568,555			**1,919,256.99**
	Ore	t	-	-	-	-	-	-					85,364	102,203	114,936			**302,503.40**
	Grade	g/t	-	-	-	-	-	-					1.64	2.33	2.46			**2.19**
	Metal	g	-	-	-	-	-	-	-	-	-	-	139,776	238,535	282,785	-	-	**661,097.37**
	SR	t:t	-	-	-	-	-	-	-	-	-	-	4.02	9.86	4.95	-	-	**6.34**
Total	**Waste**	t	**2,750,336**	**2,579,546**	**7,064,239**	**8,020,000**	**9,473,682**	**12,543,901**	**12,249,910**	**12,165,673**	**12,683,647**	**12,879,393**	**12,311,310**	**12,377,537**	**11,838,761**	**8,412,306**	**4,748,513**	**142,098,754**
	Ore	t	**249,664**	**420,454**	**435,761**	**480,000**	**950,000**	**1,104,004**	**1,101,549**	**1,171,496**	**1,306,262**	**1,332,378**	**1,225,020**	**1,553,573**	**1,799,026**	**2,123,365**	**2,238,546**	**17,491,098**
	Grade	g/t	**1.85**	**2.05**	**2.05**	**2.10**	**1.89**	**1.62**	**1.54**	**2.06**	**1.76**	**1.92**	**1.86**	**1.64**	**1.92**	**2.01**	**2.13**	**1.89**
	Metal	g	**462,544**	**862,455**	**893,794**	**1,006,585**	**1,792,178**	**1,791,455**	**1,697,932**	**2,414,945**	**2,303,569**	**2,557,406**	**2,283,061**	**2,549,144**	**3,451,599**	**4,259,539**	**4,760,424**	**33,086,629**
	Ounce Mined	Oz	**14,871**	**27,729**	**28,736**	**32,362**	**57,620**	**57,597**	**54,590**	**77,642**	**74,061**	**82,223**	**73,402**	**81,957**	**110,972**	**136,947**	**153,051**	**1,063,760**
	SR	t:t	**11.02**	**6.14**	**16.21**	**16.71**	**9.97**	**11.36**	**11.12**	**10.38**	**9.71**	**9.67**	**10.05**	**7.97**	**6.58**	**3.96**	**2.12**	**8.12**
	Total Material	t	**3,000,000**	**3,000,000**	**7,500,000**	**8,500,000**	**10,423,682**	**13,647,905**	**13,351,459**	**13,337,169**	**13,989,909**	**14,211,771**	**13,536,330**	**13,931,111**	**13,637,787**	**10,535,671**	**6,987,059**	**159,589,852**

Appendix 003: Applicable Laws and Policies to Comply

The Act / Policy/Law	Description of the Legslation
The Environmental Management Act, No 20 of 2004	The Act provides the legal and regulatory framework for implementation of the National Environmental Policy
The National Environmental Policy, 1997;	Provides for sustainable management of the environment and provides a framework for protection of the environment by considering environmental and social aspects in mainstream decision-making
Environmental Impact Assessment and Audit Regulations, No 349 of 2005	The Environmental Impact Assessment (EIA) and Audit Regulations (No 349 of 2005) provide for the requirements and procedures for undertaking EIAs for different types of projects
The Land Act, No 6 of 1999,	The Land Act promotes the fundamentals of the National Land Policy by clearly classifying land tenure, land administration procedures, rights of occupancy and interest, leases of land and related matters. Of particular interest are the two categories of the right of occupancy of land of citizens and non-citizens, and the three categories into which Tanzanian land has been classified (Reserved Land, Village Land and General Land). All land in Tanzania is public land vested in the President as trustee on behalf of the citizens of Tanzania
National Land Policy, 1997	
The Land Use Planning Act, No 6 of 2006	
The Forest Act, No 14 of 2002	The Forest Policy presents directives which apply to forest land management, forest-based industries and products, ecosystem conservation and management and institutions and human resources. The policy requires that and EIA be conducted for all projects changing the use of forest land or which may cause damage to a forest environment
The National Forest Policy, 1996	The Forest Act enforces the Forest Policy, and additionally delineates the Tanzanian Forest types and assigns responsibility for their management
The Wildlife Act, No 5 of 2009	The Wildlife Act protects wildlife and wildlife habitat, regulates development activities, conserves viable populations of flora and fauna species, mitigates human-wildlife conflicts, and enforces the EIA Process for developments proposed in protected areas in order to minimise negative environmental impacts
The Tanzania Wildlife Policy, 1998	The wildlife Policy aims to involve a broader section of society in wildlife protection, utilization, management and development of protected areas, in order to promote sustainable utilization of wildlife resources.
The National Water Act, 1974 and Amendment No 1 of 1999	The Water Act aims to ensure water use without conflicts and without pollution by the effective management and protection of water resources. The Act places a regime of water rights which govern access to water use, and stipulate pollution control standards
The National Water Policy, 2002	The Water Policy, 2002, addresses the proper use, conservation and protection of water resources for human consumption and the environment
Water Resources Management Act, 2009	The Water Resources Management Act, 2009, provides the framework for sustainable management and development of water resources in Tanzania, by prescribing principles for water resource management, prevention and control of water pollution, and stakeholder participation in the implementation of the Water Policy
The Road Act, No 13 of 2007	The Road Act governs all activities pertaining to road construction, development and upgrades, and sets out different categories of roads, road reserve areas and utilisation
The Transport Policy, 2003	The Transport Policy aims to enhance transport while promoting environmental protection by addressing issues of pollution and safety
The Occupational Health and Safety Act, No 5 of 2003	The Act provides for the safety, health and welfare of people at work and the protection of persons against health and safety hazards in connection with people at work. The Act specifically requires the employer to ensure the safety of workers by providing, for example, safety gear (PPE) and regular medical examinations at the workplace
The Mining Act, No 14 of 2010	The Mining Act is the principal legislation relating to the management of mining activities in Tanzania
The Explosives Act, No 56 of 1963	The Explosives Act requires all parties who wish to use explosives to hold an explosive licence

Appendix 004a: Current Risks Associated with the Project

Risk associated with the Project				
Risk	**Potential Consequences**	**Mitigation Action Plan**	**Expected Outcome and Residual Risk**	**Expected Date for Completion of Mitigation**
Tanzania - Buckreef				
Security threat illegal miners, trespassers, theft	Potential incursions/ interference in production areas	Revised security strategy: Sector Program Enhanced coordination process with national authorities, Police	Reduction in incursions/ interference in production areas including exploration areas	The mine to indicate timeline
	Potential theft of assets	Enhance investigation accountability Enhance internal investigations and forensics Enhance response mechanism for dealing with large crowds	Reduction of theft of assets	
Power Plant Failure/ National Power grid stability	A worst-case scenario is a Maximum Foreseeable Loss for the power plant (UDS) and mining production business interruption for a period of 3 months, if there is a fire or an explosion.	Engange the Government power supply agency to explore possibility of special power grid Assess and evaluate possible standby power generation	A guarantee on quality of preventive maintenance of Diesel engines New contract guaranteeing service levels.	The mine to indicate timeline
Ore Body perfomance	Recovery of estimated grade	Ore sampling and lab test analysis	Planning for GC and Infill drilling program	The mine to indicate timeline - best before the major operation
Risk around achieving the tonnes treated from process plant, combined effect of TPH and run time.	Impact on gold production for the business period.	Adhere to scheduled maintanance programs and reliability stratergies	Good plant perfomance and Concistency Gold production	Route mnaintance cshedule

Appendix 004b: Current Opportunities Associated with the Project

Opportunities associated with the Project		
Item	**Description of Opportunity**	**Impact**
1	Treating Marginal Grade Ore (All Oxide below the current COG) in the plant feed. COG for Marginal grade is 0.33g/t.	Potential to gain or increasing additional Ounces and further improve NPV.
2	Ore Loss and Dilution Control	Improve RRF and other reconcilliation factors
3	Infill Drilling for all ore body deposit	Ore modelling for underground potential

Appendix 005: Plant Feed Schedule

Plant Feed - Schedule			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		Total
	No of Working days	days	365	366	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365		7302
	Operating hours per day	hrs	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
	Effective Utilisation	%	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%		92
	Plant Hours	hours	7,884	8,345	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	8,322	-	671,784
	Minining Ore Tonnes																				
Buckreef Main	Oxide	t	249,664	420,454	435,761																1,105,879
	Grade	g/t	1.85	2.05	2.05																2.01
	Sulphide	t	-	-	-	480,000	950,000	950,000	950,000	950,000	855,749	1,136,370	1,026,116	1,366,921	1,571,530	1,985,448	2,238,546	-	-	-	14,460,681
	Grade	g/t	-	-	-	2.10	1.89	1.60	1.42	1.42	1.60	1.84	1.87	1.58	1.90	2.01	2.13	-	-	-	1.82
Bingwa	Oxide	t	-	-	-	-	-	154,004	151,549	-	-	-	-	-	-	-	-	-	-	-	305,553
	Grade	g/t	-	-	-	-	-	1.76	2.32	-	-	-	-	-	-	-	-	-	-	-	2.04
	Sulphide	t	-	-	-	-	-	-	-	221,496	309,071	70,193	-	-	-	-	-	-	-	-	600,759
	Grade	g/t	-	-	-	-	-	-	-	4.8	2.2	2.9	-	-	-	-	-	-	-	-	3.28
Tembo	Oxide	t	-	-	-	-	-	-	-	-	-	-	85,364	102,203	-	-	-				187,568
	Grade	g/t	-	-	-	-	-	-	-	-	-	-	1.64	2.33	-	-	-				2.02
	Sulphide	t	-	-	-	-	-	-	-	-	-	-	-	-	114,936	-	-				114,936
	Grade	g/t	-	-	-	-	-	-	-	-	-	-	-	-	2.46	-	-				2.46
Eastern Porphyry	Oxide	t	-	-	-	-	-	-	-	-	141,442	125,815	-	-	-	-	-	-	-	-	267,257
	Grade	g/t	-	-	-	-	-	-	-	-	1.67	2.05	-	-	-	-	-	-	-	-	1.85
	Sulphide	t	-	-	-	-	-	-	-	-	-	-	113,540	84,449	112,561	137,916	-	-	-	-	448,466
	Grade	g/t	-	-	-	-	-	-	-	-	-	-	1.96	1.81	1.66	1.91	-	-	-	-	1.84
Total	Oxide	t	249,664	420,454	435,761	-	-	154,004	151,549	-	141,442	125,815	85,364	102,203	-	-	-	-	-	-	1,866,256
	Grade	g/t	1.85	2.05	2.05	-	-	1.76	2.32	-	1.67	2.05	1.64	2.33	-	-	-	-	-	-	1.99
	Sulphide	t	-	-	-	480,000	950,000	950,000	950,000	1,171,496	1,164,820	1,206,563	1,139,656	1,451,370	1,799,026	2,123,365	2,238,546	-	-	-	15,624,842
	Grade	g/t	-	-	-	2.10	1.89	1.60	1.42	2.06	1.78	1.91	1.88	1.59	1.92	2.01	2.13	-	-	-	1.88
			249,664	420,454	435,761	480,000	950,000	1,104,004	1,101,549	1,171,496	1,306,262	1,332,378	1,225,020	1,553,573	1,799,026	2,123,365	2,238,546	-	-	-	17,491,098
			1.85	2.05	2.05	2.10	1.89	1.62	1.54	2.06	1.76	1.92	1.86	1.64	1.92	2.01	2.13	-	-	-	
				80,233.74	63,559	19,320	48,640	(105,364)	(102,909)	(172,856)	(307,622)	165,582	272,940	(55,613)	(301,066)	(625,405)	(740,586)	1,497,960	553,736	-	
Plant Feed		tph	60	60	60	60	120	120	120	120	120	180	180	180	180	180	180	180	180	180	
Calculated throughput		tpa	78,840	500,688	499,320	499,320	998,640	998,640	998,640	998,640	998,640	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	-	
Plant throughput max 1,500,000t		tpa	78,840	500,688	499,320	499,320	998,640	998,640	998,640	998,640	998,640	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	1,497,960	553,736	-	17,610,824
	Stockpile balance	119,726	290,550	210,316	146,757	127,437	78,797	184,161	287,069	459,926	767,547	601,965	329,026	384,639	685,705	1,311,110	2,051,696	553,736	-	-	8,470,437
	Grade	1.86	1.86	1.86	1.86	1.86	1.86	1.62	1.54	1.74	1.75	1.70	1.56	1.87	1.89	1.95	2.01	2.01	2.01	2.01	1.87
	% Oxide		100%	100%	100%	31%	0%	15%	15%	0%	14%	8%	6%	7%	0%	0%	0%	0%	0%	0%	**18%**
	% Sulphide		0%	0%	0%	69%	100%	85%	85%	100%	86%	92%	94%	93%	100%	100%	100%	100%	100%	100%	**82%**
	Tonnes Treated	Tonnes	**78,840**	**500,688**	**499,320**	**499,320**	**998,640**	**998,640**	**998,640**	**998,640**	**998,640**	**1,497,960**	**1,497,960**	**1,497,960**	**1,497,960**	**1,497,960**	**1,497,960**	**1,497,960**	**553,736**	**-**	**17,610,824**
		g/t	1.86	2.02	2.03	2.09	1.88	1.64	1.56	2.06	1.76	1.92	1.86	1.56	1.92	2.01	2.13	2.01	2.01	2.01	**1.89**
	Metal	g	146,252	1,011,292	1,011,700	1,042,424	1,882,407	1,638,791	1,554,277	2,058,616	1,761,084	2,875,229	2,791,736	2,343,765	2,873,976	3,004,957	3,185,516	3,013,374	1,113,925	-	**33,309,320**
	Reserve Recon Factor	%	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	**0.97**
	Feed Grade	g/t	1.80	1.96	1.97	2.03	1.83	1.59	1.51	2.00	1.71	1.86	1.81	1.52	1.86	1.95	2.06	1.95	1.95	-	**1.83**
	Metal	g	141,864	980,953	981,349	1,011,152	1,825,935	1,589,627	1,507,649	1,996,857	1,708,251	2,788,972	2,707,984	2,273,452	2,787,756	2,914,808	3,089,951	2,922,973	1,080,507	-	**32,310,040**
	Oxide Recovery	%	0.91	0.91	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	**0.94**
	Sulphide Recovery	%	0.85	0.85	0.85	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	**0.87**
	Oxide Metal Au - Plant Recovery	g	129,096	892,667	902,841	290,603	-	230,434	215,066	-	227,430	220,194	145,061	145,807	-	-	-	-	-	-	**3,399,199**
	Sulphide Metal Au - Plant Recovery	g	-	-	-	603,719	1,588,564	1,169,702	1,112,604	1,737,266	1,275,685	2,222,609	2,221,687	1,842,954	2,425,348	2,535,883	2,688,257	2,542,986	940,041	-	**24,907,306**
	Gold recovered	kg	129,096.4	892,667.2	902,840.7	894,322.6	1,588,563.5	1,400,135.6	1,327,670.3	1,737,265.7	1,503,114.9	2,442,803.0	2,366,748.3	1,988,761.6	2,425,348.0	2,535,882.9	2,688,257.0	2,542,986.5	940,041.0	-	**28,306,505.1**
		oz	**4,151**	**28,700**	**29,027**	**28,753**	**51,074**	**45,015**	**42,686**	**55,854**	**48,326**	**78,538**	**76,093**	**63,940**	**77,977**	**81,531**	**86,429**	**81,759**	**30,223**	**-**	**910,075**
		Koz	4.15	28.70	29.03	28.75	51.07	45.02	42.69	55.85	48.33	78.54	76.09	63.94	77.98	81.53	86.43	81.76	30.22	-	910.08

Appendix 006: Capital Schedule

Capital Plan		Unit Cost - USD	USD		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Mining	1	12,649,184	12,649,184	-	7,167,492	150,000	40,000	4,760,692	-	-	-	531,000	-	-
Excavator	4	312,346	1,249,384	-	624,692			624,692						
Articulated Trucks - 30T	20	350,000	7,000,000	-	3,500,000			3,500,000						
Loader	7	265,500	1,858,500	-	796,500	-		531,000				531,000		
D8 Dozer	1	250,000	250,000	-	250,000									
Grader	1	336,300	336,300	-	336,300									
Water Truck	1	100,000	100,000	-	100,000	-								
Service Truck	1	100,000	100,000	-	100,000									
Light Trucks & Cars	10	41,500	415,000	-	415,000									
Dewatering Pump	4	40,000	160,000	-	40,000		40,000	80,000	-		-			
Survey Tool	1	45,000	45,000	-	45,000									
Pit Optimisation	1	35,000	35,000	-	35,000									
Mining Offices/Shop	1	300,000	300,000	-	150,000	150,000								
Haul Roads	1	100,000	100,000	-	75,000			25,000						
HME - Workshop Constructior	1	700,000	700,000	-	700,000									
Processing Plant	1	35,384,625	35,384,625	-	10,449,625	525,000	2,500,000	12,650,000	70,000	-	90,000	9,100,000	-	-
TSF Construction	1	1,250,000	1,250,000	-	250,000	500,000		500,000						
Portable Water Plant	1	300,000	300,000	-	300,000									
Laboratory	1	500,000	500,000	-	500,000									
Process Plant Development	1	32,584,625	32,584,625	-	8,999,625	25,000	2,500,000	11,800,000	70,000		90,000	9,100,000		-
Generators	1	750,000	750,000	-	400,000			350,000						
HR+ Community	1	3,795,000	3,795,000	-	3,445,000	100,000	250,000	-	-	-	-	-	-	-
Camp Facilities	1	250,000	250,000	-	100,000	100000	50000							
Camp Houses (2Bx20+4Bx30)	50	15,000	750,000	-	550,000		200000							
Compensation - Relocation of	1	250,000	250,000	-	250,000									
Airport/Aerodrome	1	35,000	35,000	-	35,000									
Helicopter Pad	1	10,000	10,000	-	10,000									
Compensation - Relocation fr	1	2,500,000	2,500,000	-	2,500,000									
HSE	1	100,000	100,000	-	70,000	-	30,000	-	-	-	-	-	-	-
Clinic	1	100,000	100,000	-	70000		30000							
			-	-										
Finance + IT	1	2,241,519	2,241,519	-	755,165	15,000	45,000	1,426,354	-	-	-	-	-	-
Computer & Server	2	20,000	40,000	-	20,000	-	-	20000						
Desktop	30	1,500	45,000	-	15,000	15,000	15,000							
Laptop	20	1,500	30,000	-	20,000	-	10,000							
Networking & Communication	2	20,000	40,000	-	20,000	-	20,000							
Process Plant Insurance - 6%	1	1,247,978	1,247,978	-	539,978	-	-	708,000	-					
Mining Equipment Insurance -	1	838,541	838,541	-	140,187	-	-	698,354	-					
10% Contigency	1	5,714,597	5,417,033	-	2,188,728	79,000	286,500	1,883,705	7,000	-	9,000	963,100	-	-
Total Capex			59,587,360	-	24,076,010	869,000	3,151,500	20,720,750	77,000	-	99,000	10,594,100	-	-

Appendix 007: Financial Model Summary

			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
INCOME			US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$
Exchange Rate		2,000																		
Revenue @Gold Price		1,250	5,188,180.99	35,874,895.41	36,283,752.86	35,941,424.05	63,841,880.99	56,269,257.29	53,356,989.28	69,817,988.33	60,407,834.22	98,172,428.08	95,115,908.84	79,925,214.72	97,470,939.32	101,913,164.07	108,036,838.40	102,198,645.20	37,778,776.92	1,137,594,118.97
Total INCOME			5,188,180.99	35,874,895.41	36,283,752.86	35,941,424.05	63,841,880.99	56,269,257.29	53,356,989.28	69,817,988.33	60,407,834.22	98,172,428.08	95,115,908.84	79,925,214.72	97,470,939.32	101,913,164.07	108,036,838.40	102,198,645.20	37,778,776.92	1,137,594,118.97
Production Costs																				
Mine Royalty (%)		4.3%	223,091.78	1,542,620.50	1,560,201.37	1,545,481.23	2,745,200.88	2,419,578.06	2,294,350.54	3,002,173.50	2,597,536.87	4,221,414.41	4,089,984.08	3,436,784.23	4,191,250.39	4,382,266.06	4,645,584.05	4,394,541.74	1,624,487.41	48,916,547.12
Fuel Cost	US$		876,504.00	877,353.60	1,726,104.00	2,419,849.60	2,873,838.56	3,634,755.07	3,564,793.83	3,561,421.45	3,715,468.04	3,767,827.66	3,608,423.57	3,701,591.76	3,632,367.33	2,796,805.55	1,959,333.16	-	-	42,716,437.17
Tyres Cost	US$		195,000.00	225,000.00	315,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	225,000.00	135,000.00	45,000.00	45,000.00	5,235,000.00
Other Support Equipment	US$		10,000.00	10,000.00	10,000.00	10,000.00	15,000.00	17,500.00	17,500.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	10,000.00	10,000.00	270,000.00
Fuel Cost	US$		446,549.76	447,773.18	446,549.76	446,957.57	744,929.28	744,929.28	744,929.28	744,929.28	744,929.28	1,042,900.99	1,042,900.99	1,042,900.99	1,042,900.99	1,042,900.99	1,042,900.99	1,042,900.99	446,957.57	13,259,741.18
Load & Haul (Owning Cost)	US$		960,000.00	960,000.00	2,400,000.00	2,720,000.00	3,335,578.25	4,367,329.45	4,272,466.75	4,267,894.04	4,476,770.77	4,547,766.86	4,331,625.72	4,457,955.48	4,364,091.84	3,371,414.71	2,235,858.93	-	-	51,068,752.77
Drill & Blast	US$		117,000.00	234,000.00	877,500.00	6,630,000.00	8,130,471.98	9,360,000.00	9,421,498.21	10,090,901.97	9,828,164.88	9,444,543.17	9,917,258.74	9,700,752.63	10,318,349.63	8,217,823.35	5,449,906.13	-	-	107,738,170.69
Dewatering	US$		7,000.00	7,700.00	8,400.00	9,800.00	12,250.00	14,000.00	17,500.00	17,500.00	17,500.00	17,500.00	17,500.00	17,500.00	17,500.00	17,500.00	17,500.00	-	-	216,650.00
Fixed Fee - Contractor	US$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mine Haul Road Maintanance - km	US$		86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	57,600.00	1,440,000.00
Contigency (dayworks, road repair etc)	US$		17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	11,520.00	288,000.00
G&A	US$		52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	-	-	780,000.00
Sofware and Planning Support	US$		30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	-	-	450,000.00
GC - Grade Control & Lab Analysis	US$		-	-	-	12,600.00	10,710.00	9,103.50	7,737.98	6,577.28	5,590.69	5,590.69	5,590.69	5,590.69	5,590.69	5,590.69	5,590.69	-	-	85,863.56
Mining cost	US$		2,797,733.76	2,947,506.78	5,969,233.76	12,839,887.17	15,713,458.06	18,738,297.29	18,637,106.05	19,299,904.01	19,399,103.66	19,436,809.36	19,533,979.71	19,536,971.55	19,991,480.48	15,882,715.28	11,051,769.90	1,201,580.99	571,077.57	223,548,615.39
Process Plant Operational Costs	US$		990,906.30	6,292,933.73	6,275,739.92	6,275,739.92	12,551,479.85	12,551,479.85	12,551,479.85	13,470,228.65	13,869,684.65	20,804,526.97	20,804,526.97	20,804,526.97	20,804,526.97	20,804,526.97	20,804,526.97	21,029,220.97	6,943,062.71	237,629,118.23
Process Plant Overheads Costs	US$		108,000.00	324,000.00	324,000.00	324,000.00	357,600.00	357,600.00	357,600.00	357,600.00	357,600.00	430,800.00	430,800.00	430,800.00	430,800.00	430,800.00	430,800.00	430,800.00	215,400.00	6,099,000.00
Lab & Permit	US$		275,184.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	121,380.00	4,826,724.00
Processing Plant Cost	US$		1,374,090.30	6,912,277.73	6,895,083.92	6,895,083.92	13,204,423.85	13,204,423.85	13,204,423.85	14,123,172.65	14,522,628.65	21,530,670.97	21,530,670.97	21,530,670.97	21,530,670.97	21,530,670.97	21,530,670.97	21,755,364.97	7,279,842.71	248,554,842.23
Total Production Cost			4,394,915.85	11,402,405.02	14,424,519.06	21,280,452.33	31,663,082.79	34,362,299.20	34,135,880.44	36,425,250.16	36,519,269.18	45,188,894.74	45,154,634.76	44,504,426.75	45,713,401.84	41,795,652.30	37,228,024.92	27,351,487.71	9,475,407.69	521,020,004.74
Labour & Benefits Cost	US$		978,480.00	1,630,800.00	3,261,600.00	3,261,600.00	4,520,400.00	4,520,400.00	4,520,400.00	4,520,400.00	5,343,000.00	5,343,000.00	5,343,000.00	5,343,000.00	5,343,000.00	5,343,000.00	5,343,000.00	2,260,200.00	1,808,160.00	68,683,440.00
Security Company	US$		296,675.00	296,675.00	296,675.00	296,675.00	312,500.00	312,500.00	312,500.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	325,025.00	5,374,450.00
Tanzanian Police Officers (8)	US$		46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	46,819.50	795,931.50
Filling Cabinet (02)	US$		1,000.00	-	-	-	500.00	1,000.00	-	-	-	-	90.23	-	45.12	-	-	-	-	2,635.35
Maglite Rechargable torch (40)			1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	806.40	806.40	241.92	72.58	-	-	-	
Two way Communication			60,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CCTV			30,000.00	-	-	-	30,000.00	-	-	-	30,000.00	-	-	-	-	-	-	-	-	
Access control	US$		5,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,000.00
Security Hardware			15,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Security night Jackets	US$		1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	691.20	691.20	207.36	62.21	-	-	-	13,171.97
Metal Detector (Supper Scanner) 20 PC	US$		1,152.00	-	-	1,152.00	-	-	-	-	1,152.00	-	-	-	-	1,152.00	-	-	-	4,608.00
Gold shippment wearing/gears (Body Amor Vest); (15 Pcs	US$		4,632.00	-	-	4,632.00	-	-	-	-	4,632.00	-	-	-	-	4,632.00	-	-	-	18,528.00
Total Security Cost	US$		462,774.50	345,990.50	345,990.50	351,774.50	392,315.50	362,815.50	361,815.50	374,340.50	410,124.50	374,340.50	373,432.33	373,342.10	372,338.90	377,763.28	371,844.50	371,844.50	371,844.50	6,214,324.81
Overhead Cost (Services Department)	US$		209,218.50	209,218.50	219,218.62	219,218.62	219,218.62	219,218.62	214,168.50	214,168.50	219,218.62	219,218.62	219,218.62	219,218.62	219,218.62	86,940.58	86,940.58	86,940.58	43,470.29	3,124,033.59
Mobile Equipment	US$		357,120.00	357,120.00	357,120.00	357,120.00	736,720.00	736,720.00	736,720.00	736,720.00	736,720.00	736,720.00	760,250.00	721,850.00	721,850.00	721,850.00	721,850.00	721,850.00	360,925.00	10,579,225.00
General Electrical Services (GES)	US$		44,184.00	45,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	17,755.20	17,755.20	17,755.20	8,877.60	802,535.20
Site Services	US$		136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	68,000.00	2,244,000.00
Total Engineering Services	US$		746,522.50	747,522.50	771,522.62	771,522.62	1,151,122.62	1,151,122.62	1,146,072.50	1,146,072.50	1,151,122.62	1,151,122.62	1,174,652.62	1,136,252.62	1,136,252.62	962,545.78	962,545.78	962,545.78	481,272.89	16,749,793.79
Work place registration & Compliance (OSHA & FIRE)	US$		500.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	-	-	-	2,125.00
ISO 1800 Audit	US$		-	-	100,000.00	-	-	100,000.00	-	-	100,000.00	-	-	50,000.00	-	-	-	-	-	350,000.00
Supplies - General Consumables	US$		900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	12,150.00
Safety Signs- Purchase of Paints	US$		1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	750.00	750.00	750.00	750.00	750.00	750.00	600.00	20,100.00
General Consumabales - Environment	US$		1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	21,882.40
Permits - Environment	US$		19,220.00	20,120.00	29,220.00	16,770.00	22,570.00	16,770.00	19,220.00	20,120.00	19,220.00	16,770.00	22,570.00	16,770.00	19,220.00	20,120.00	19,220.00	16,770.00	19,220.00	333,890.00
Contractors/Consultants - Environmet	US$		25,000.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	44,000.00	34,600.00	32,000.00	34,600.00	34,601.00	34,602.00	755,403.00
Environmental Monitoring	US$		10,000.00	10,000.00	10,000.00	22,500.00	22,500.00	22,500.00	22,500.00	22,500.00	22,500.00	16,500.00	16,500.00	13,500.00	13,500.00	13,500.00	13,500.00	13,500.00	13,500.00	279,000.00
Vegetation and Vector Control	US$		4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	72,250.00
Waste Management	US$		3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	64,600.00
Water treatment/potability	US$		45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	22,500.00	22,500.00	22,500.00	6,750.00	6,750.00	621,000.00
TCAA aerodrome licence	US$		600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	10,200.00
Health (Clinic)	US$		30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	15,000.00	15,000.00	15,000.00	15,000.00	13,500.00	13,500.00	9,000.00	396,000.00
HSE			142,057.20	181,182.20	266,282.20	190,332.20	172,132.20	290,332.20	168,782.20	193,682.20	268,782.20	184,332.20	149,932.20	195,532.20	116,082.20	114,382.20	114,457.20	96,258.20	94,059.20	2,938,600.40
HR + Community+ Camp	US$		320,193.94	657,964.94	657,964.94	657,964.94	985,874.94	1,075,874.94	1,075,874.94	1,075,874.94	1,075,874.94	1,167,854.94	1,163,234.94	1,127,234.94	1,091,234.94	1,055,234.94	891,714.94	393,384.94	317,501.44	14,790,859.41
Finance + IT	US$		128,256.82	183,496.74	183,496.74	183,496.74	183,496.74	183,496.74	183,496.74	183,496.74	183,496.74	183,496.74	129,169.46	113,929.55	129,169.46	113,929.55	113,129.55	110,879.55	115,879.55	2,605,814.10
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overhead Cost	US$		2,778,284.95	3,746,956.87	5,486,856.99	5,416,690.99	7,405,341.99	7,584,041.99	7,456,441.87	7,493,866.87	8,432,400.99	8,404,146.99	8,333,421.54	8,289,291.40	8,188,078.11	7,966,855.75	7,796,691.97	4,195,112.97	3,188,717.58	112,163,199.81
Total costs	US$		7,173,200.80	15,149,361.89	19,911,376.04	26,697,143.31	39,068,424.78	41,946,341.19	41,592,322.31	43,919,117.03	44,951,670.17	53,593,041.73	53,488,056.31	52,793,718.15	53,901,479.95	49,762,508.05	45,024,716.89	31,546,600.68	12,664,125.27	633,183,204.55
Operating Profit	US$		(1,985,019.81)	20,725,533.52	16,372,376.82	9,244,280.74	24,773,456.21	14,322,916.09	11,764,666.97	25,898,871.30	15,456,164.06	44,579,386.35	41,627,852.53	27,131,496.57	43,569,459.37	52,150,656.02	63,012,121.51	70,652,044.53	25,114,651.65	504,410,914.42
Cash from operations	US$		(1,985,019.81)	20,725,533.52	16,372,376.82	9,244,280.74	24,773,456.21	14,322,916.09	11,764,666.97	25,898,871.30	15,456,164.06	44,579,386.35	41,627,852.53	27,131,496.57	43,569,459.37	52,150,656.02	63,012,121.51	70,652,044.53	25,114,651.65	504,410,914.42
			-27.67%	136.81%	82.23%	34.63%	63.41%	34.15%	28.29%	58.97%	34.38%	83.18%	77.83%	51.39%	80.83%	104.80%	139.95%	223.96%	198.31%	79.66%
Percentage of Cost Recovery/Profit			72.33%	236.81%	182.23%	134.63%	163.41%	134.15%	128.29%	158.97%	134.38%	183.18%	177.83%	151.39%	180.83%	204.80%	239.95%	323.96%	298.31%	179.66%
US$/ton Milled	$/t		90.98	30.26	39.88	53.47	39.12	42.00	41.65	43.98	45.01	35.78	35.71	35.24	35.98	33.22	30.06	21.06	22.87	35.95
US$ per Ounce	$/Oz		1,728.26	527.85	685.96	928.49	764.95	931.82	974.39	786.31	930.17	682.38	702.93	825.67	691.25	610.35	520.94	385.85	419.02	695.75
Total Ounces	Oz		4,150.54	28,699.92	29,027.00	28,753.14	51,073.50	45,015.41	42,685.59	55,854.39	48,326.27	78,537.94	76,092.73	63,940.17	77,976.75	81,530.53	86,429.47	81,758.92	30,223.02	910,075.30
Total Tonnes Mined per Year	t		3,000,000.00	3,000,000.00	7,500,000.00	8,500,000.00	10,423,682.02	13,647,904.52	13,351,458.60	13,337,168.87	13,989,908.65	14,211,771.43	13,536,330.38	13,931,110.86	13,637,786.99	10,535,670.96	6,987,059.15	-	-	159,589,852.42
Capex			24,076,009.98	869,000.00	3,151,500.00	20,720,750.38	77,000.00	-	99,000.00	10,594,100.00	-	-	-	-	-	-	-	-	-	59,587,360
Total Cost			31,249,210.78	16,018,361.89	23,062,876.04	47,417,893.69	39,145,424.78	41,946,341.19	41,691,322.31	54,513,217.03	44,951,670.17	53,593,041.73	53,488,056.31	52,793,718.15	53,901,479.95	49,762,508.05	45,024,716.89	31,546,600.68	12,664,125.27	692,770,564.91
Cash From Operations			(26,061,029.79)	19,856,533.52	13,220,876.82	(11,476,469.64)	24,696,456.21	14,322,916.09	11,665,666.97	15,304,771.30	15,456,164.06	44,579,386.35	41,627,852.53	27,131,496.57	43,569,459.37	52,150,656.02	63,012,121.51	70,652,044.53	25,114,651.65	444,823,554.06
Cumlative Cash			(26,061,030)	(6,204,496.26)	7,016,380.55	(4,460,089.09)	20,236,367.12	34,559,283.21	46,224,950.19	61,529,721.49	76,985,885.54	121,565,271.89	163,193,124.42	190,324,620.99	233,894,080.36	286,044,736.38	349,056,857.89	419,708,902.41	444,823,554.06	448,236,336.42
NPV (5%)																				$243,714,282.35
NPV (10%)																				$140,118,766.99
IRR																				53.7%

MaSS Resources Ltd

BUCKREEF GOLD COMPANY LIMITED

Appendix AA: Mining Production Schedule – Pit Mining Sequences (Pit 16)

Mining Schedule - Pit by Pit			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Buckreef Main	Waste	t	2,980,430	2,280,057	6,564,053	6,905,298	7,928,472	7,913,047	8,036,414	7,445,110	6,487,273	5,666,327	**62,206,481**
	Mineralised Waste (**0.33 - 0.63**)	t	2,691	214,791	263,798	314,262	313,919	437,886	215,287	307,758	348,245	159,392	**2,578,030**
	Grade (g/t)	g/t	0.45	0.48	0.47	0.47	0.48	0.48	0.49	0.49	0.49	0.47	**0.48**
	Low grade (**0.63 - 1.00**)	t	1,799	164,111	175,514	219,196	294,085	517,660	404,044	353,791	317,296	233,525	**2,681,021**
	Grade (g/t)	g/t	0.78	0.81	0.81	0.81	0.80	0.79	0.81	0.80	0.81	0.82	**0.80**
	Medium Grade (**1.00 - 2.00**)	t	11,180	204,197	295,445	363,305	388,799	445,128	585,714	549,190	515,245	538,776	**3,896,978**
	Grade (g/t)	g/t	1.37	1.41	1.40	1.40	2.30	1.44	1.48	1.48	1.45	1.49	**1.54**
	High Grade (**>2.00**)	t	3,957	137,141	201,202	248,124	333,067	183,299	258,496	344,155	332,204	895,374	**2,937,019**
	Grade (g/t)	g/t	4.21	4.44	4.72	4.56	3.70	3.20	3.17	3.76	3.81	3.42	**3.73**
	Metal	g	33,423	1,029,389	1,503,239	1,817,996	2,361,486	1,635,872	2,012,599	2,387,608	2,267,542	4,057,433	**19,106,587**
	SR	t:t	176.14	4.94	10.16	8.69	8.11	7.29	6.61	6.22	5.87	3.49	**6.81**
Bingwa	Waste	t	-	-	-	-	912,743	1,215,572	916,179	637,934	-	-	**3,682,428.00**
	Mineralised Waste (**0.33 - 0.63**)	t	-	-	-	-	35,306	99,764	94,938	91,228	-	-	**321,235.17**
	Grade (g/t)	g/t	-	-	-	-	0.46	0.46	0.45	0.48	-	-	**0.46**
	Low grade (**0.63 - 1.00**)	t	-	-	-	-	12,968	53,208	48,132	51,516	-	-	**165,823.92**
	Grade (g/t)	g/t	-	-	-	-	0.78	0.79	0.79	0.72	-	-	**0.77**
	Medium Grade (**1.00 - 2.00**)	t	-	-	-	-	17,944	69,450	47,687	83,060	-	-	**218,141.13**
	Grade (g/t)	g/t	-	-	-	-	1.36	1.40	1.47	1.75	-	-	**1.55**
	High Grade (**>2.00**)	t	-	-	-	-	21,040	61,964	123,477	109,847	-	-	**316,327.83**
	Grade (g/t)	g/t	-	-	-	-	4.02	5.29	8.48	4.92	-	-	**6.33**
	Metal	g	-	-	-	-	119,147	467,868	1,155,666	723,309	-	-	**2,465,990.65**
	SR	t:t	-	-	-	-	18.25	7.12	4.61	2.98	-	-	**5.72**
Eastern Porphyry	Waste	t	-	-	-	-	-	-	1,072,427	1,032,516	900,281	538,624	**3,543,848.00**
	Mineralised Waste (**0.33 - 0.63**)	t	-	-	-	-	-	-	52,588	60,727	123,306	106,159	**342,780.41**
	Grade (g/t)	g/t	-	-	-	-	-	-	0.43	0.43	0.44	0.43	**0.43**
	Low grade (**0.63 - 1.00**)	t	-	-	-	-	-	-	27,947	31,372	22,717	22,415	**104,450.71**
	Grade (g/t)	g/t	-	-	-	-	-	-	0.84	0.81	0.79	0.77	**0.81**
	Medium Grade (**1.00 - 2.00**)	t	-	-	-	-	-	-	23,500	31,341	67,925	26,981	**149,747.36**
	Grade (g/t)	g/t	-	-	-	-	-	-	1.48	1.55	1.52	1.53	**1.52**
	High Grade (**>2.00**)	t	-	-	-	-	-	-	23,673	43,304	86,153	50,870	**203,999.18**
	Grade (g/t)	g/t	-	-	-	-	-	-	3.14	3.18	3.21	3.17	**3.19**
	Metal	g	-	-	-	-	-	-	132,541	211,802	397,584	219,858	**961,784.13**
	SR	t:t	-	-	-	-	-	-	14.98	10.31	5.79	6.43	**8.48**
Tembo	Waste	t	-	-	-	-	-	-	-	392,363	1,091,311	328,648	**1,812,322.00**
	Mineralised Waste (**0.33 - 0.63**)	t	-	-	-	-	-	-	-	10,273	7,821	7,343	**25,436.22**
	Grade (g/t)	g/t	-	-	-	-	-	-	-	0.48	0.49	0.52	**0.49**
	Low grade (**0.63 - 1.00**)	t	-	-	-	-	-	-	-	18,437.23	13,370.72	8,155.66	**39,963.62**
	Grade (g/t)	g/t	-	-	-	-	-	-	-	0.84	0.87	0.80	**0.84**
	Medium Grade (**1.00 - 2.00**)	t	-	-	-	-	-	-	-	33,310.92	43,175.98	38,841.22	**115,328.12**
	Grade (g/t)	g/t	-	-	-	-	-	-	-	1.49	1.39	1.39	**1.42**
	High Grade (**>2.00**)	t	-	-	-	-	-	-	-	23,844.66	45,371.52	63,204.62	**132,420.80**
	Grade (g/t)	g/t	-	-	-	-	-	-	-	2.67	3.67	3.59	**3.45**
	Metal	g	-	-	-	-	-	-	-	129,139	238,441	287,737	**655,317.14**
	SR	t:t	-	-	-	-	-	-	-	5.33	10.78	3.05	**6.39**
Total	**Waste**	**t**	**2,980,430**	**2,280,057**	**6,564,053**	**6,905,298**	**8,841,215**	**10,201,046**	**9,985,109**	**9,375,688**	**8,478,865**	**6,533,599**	**71,245,079**
	Mineralised Waste (0.33 - 0.63)	**t**	**2,691**	**214,791**	**263,798**	**314,262**	**349,225**	**590,238**	**370,952**	**532,565**	**479,372**	**272,894**	**3,267,482**
	Grade (g/t)	**g/t**	**0.45**	**0.48**	**0.47**	**0.47**	**0.48**	**0.48**	**0.47**	**0.48**	**0.48**	**0.45**	**0.47**
	Low grade (0.63 - 1.00)	**t**	**1,798.50**	**164,110.66**	**175,514.31**	**219,196.20**	**307,052.85**	**570,868.16**	**480,122.78**	**455,116.70**	**353,383.36**	**264,095.90**	**2,991,259**
	Grade (g/t)	**g/t**	**0.78**	**0.81**	**0.81**	**0.81**	**0.80**	**0.79**	**0.81**	**0.79**	**0.81**	**0.82**	**0.80**
	Medium Grade (1.00 - 2.00)	**t**	**11,180.24**	**204,196.96**	**295,444.62**	**363,304.62**	**406,742.67**	**514,578.19**	**656,901.19**	**696,902.19**	**626,345.34**	**604,599.07**	**4,380,195**
	Grade (g/t)	**g/t**	**1.37**	**1.41**	**1.40**	**1.40**	**2.26**	**1.43**	**1.48**	**1.51**	**1.45**	**1.48**	**1.53**
	High Grade (>2.00)	**t**	**3,957.45**	**137,140.62**	**201,201.85**	**248,124.00**	**354,107.00**	**245,263.13**	**405,645.12**	**521,151.25**	**463,727.67**	**1,009,448.81**	**3,589,767**
	Grade (g/t)	**g/t**	**4.21**	**4.44**	**4.72**	**4.56**	**3.72**	**3.73**	**4.79**	**3.91**	**3.68**	**3.42**	**3.92**
	Metal	**g**	**33,423**	**1,029,389**	**1,503,239**	**1,817,996**	**2,480,633**	**2,103,740**	**3,300,806**	**3,451,858**	**2,903,567**	**4,565,028**	**23,189,679**
	Ounce Mined	**Oz**	**1,075**	**33,096**	**48,330**	**58,450**	**79,754**	**67,637**	**106,123**	**110,980**	**93,352**	**146,769**	**745,566**
	SR	**t:t**	**176.14**	**4.94**	**10.16**	**8.69**	**8.61**	**8.11**	**6.71**	**5.92**	**6.21**	**3.62**	**6.80**
	Total Material	**t**	**3,000,057**	**3,000,297**	**7,500,012**	**8,050,185**	**10,258,342**	**12,121,993**	**11,898,730**	**11,581,423**	**10,401,694**	**8,684,636**	**85,473,782**

Appendix BB: Plant Feed Schedule (Pit 16)

Plant Feed - Schedule			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
	No of Working days	days	365	366	365	365	365	365	365	365	365	365	365	365	365	365	365	4384
	Effective Utilisation	%	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
	Plant Hours	hours	33,580	33,672	33,580	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611	403,328
	Minining Ore Tonnes																	
Buckreef Main	Oxide	t	16,936	505,448	672,161	830,625	-	-	-	-	-	-	-	-	-	-		2,025,170
	Grade	g/t	1.97	2.04	2.24	2.19	-	-	-	-	-	-	-	-	-	-		2.16
	Sulphide	t	-	-	-	-	1,015,951	1,146,087	1,248,254	1,247,137	1,164,744	1,667,676	-	-	-	-		7,489,849
	Grade	g/t	-	-	-	-	2.32	1.43	1.61	1.91	1.95	2.43	-	-	-	-		1.97
	Minelarised Waste	t	2,691	214,791	263,798	314,262	313,919	437,886	215,287	307,758	348,245	159,392	-	-	-	-		2,578,030
	Grade	g/t	0.45	0.48	0.47	0.47	0.48	0.48	0.49	0.49	0.49	0.47	-	-	-	-		0.48
Bingwa	Oxide	t	-	-	-	-	51,952	184,622	219,295	-	-	-	-	-	-	-		455,870
	Grade	g/t	-	-	-	-	2.29	2.53	5.27	-	-	-	-	-	-	-		3.82
	Sulphide	t	-	-	-	-	-	-	-	244,423	-	-	-	-	-	-		244,423
	Grade	g/t	-	-	-	-	-	-	-	2.96	-	-	-	-	-	-		2.96
	Minelarised Waste	t	-	-	-	-	35,306	99,764	94,938	91,228	-	-	-	-	-	-		321,235
	Grade	g/t	-	-	-	-	0.46	0.46	0.45	0.48	-	-	-	-	-	-		0.46
Tembo	Oxide	t	-	-	-	-	-	-	-	75,593	101,918	110,201	-	-	-	-		287,713
	Grade	g/t	-	-	-	-	-	-	-	1.71	2.34	2.61	-	-	-	-		2.28
	Sulphide	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	Grade	g/t	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0
	Minelarised Waste	t	-	-	-	-	-	-	-	10,273	7,821	7,343	-	-	-	-		25,436
	Grade	g/t	-	-	-	-	-	-	-	0.48	0.49	0.52	-	-	-	-		0.49
Eastern Porphyry	Oxide	t	-	-	-	-	-	-	75,120	106,017	176,794	100,266	-	-	-	-		458,197
	Grade	g/t	-	-	-	-	-	-	1.76	2.00	2.25	2.19	-	-	-	-		2.10
	Sulphide	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	Grade	g/t	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	Minelarised Waste	t	-	-	-	-	-	-	52,588	60,727	123,306	106,159	-	-	-	-		342,780
	Grade	g/t	-	-	-	-	-	-	0.43	0.43	0.44	0.43	-	-	-	-		0.43
Total	Oxide	t	16,936	505,448	672,161	830,625	51,952	184,622	294,415	181,610	278,712	210,468	-	-	-	-		3,226,950
	Grade	g/t	1.97	2.04	2.24	2.19	2.29	2.53	4.38	1.88	2.28	2.41	-	-	-	-		2.40
	Sulphide	t	-	-	-	-	1,015,951	1,146,087	1,248,254	1,491,560	1,164,744	1,667,676	-	-	-	-		7,734,272
	Grade	g/t	-	-	-	-	2.32	1.43	1.61	2.09	1.95	2.43	-	-	-	-		2.00
	Minelarised Waste	t	2,691	214,791	263,798	314,262	349,225	537,649	362,814	469,986	479,372	272,894	-	-	-	-		3,267,482
	Grade	g/t	0.45	0.48	0.47	0.47	0.48	0.48	0.47	0.48	0.48	0.45	-	-	-	-		0.47
			16,936	505,448	672,161	830,625	1,067,903	1,330,709	1,542,669	1,673,170	1,443,456	1,878,144	-	-	-	-		
			1.97	2.04	2.24	2.19	2.32	1.58	2.14	2.06	2.01	2.43	-	-	-	-		
				(32,408.24)	(199,121)	(357,585)	(121,823)	(384,629)	(596,589)	(727,090)	(497,376)	(932,064)	946,080	946,080	946,080	946,080	122,187	
Plant Feed - Capacity		tph	60	60	60	60	120	120	120	120	120	120	120	120	120	120	121	
Plant throughput max 1,000,000t		tpa	78,840	473,040	473,040	473,040	946,080	946,080	946,080	946,080	946,080	946,080	946,080	946,080	946,080	946,080	122,187	11,080,947
	Stockpile balance	119,726	57,822	90,230	289,351	646,936	768,759	1,153,388	1,749,977	2,477,067	2,974,444	3,906,507	2,960,427	2,014,347	1,068,267	122,187	-	-
	Grade	1.86	1.87	2.02	2.21	2.19	2.27	1.83	2.01	2.04	2.03	2.18	2.18	2.18	2.18	2.18	2.18	-
	Minelarised Waste - Stockpiled		2,691	217,482	481,280	795,542	1,144,767	1,682,416	2,045,230	2,515,216	2,994,588	3,267,482	3,267,482	3,267,482	3,267,482	3,267,482	3,267,482	3,267,482
	Grade	1.86	0.45	0.48	0.47	0.47	0.47	0.48	0.47	0.48	0.48	0.47	0.47	0.47	0.47	0.47	0.47	0.47
	% Oxide		100%	100%	100%	100%	68%	20%	31%	19%	29%	22%	0%	0%	0%	0%	0%	**42%**
	% Sulphide		0%	0%	0%	0%	32%	80%	69%	81%	71%	78%	100%	100%	100%	100%	100%	**58%**
	Tonnes Treated	Tonnes	**78,840**	**473,040**	**473,040**	**473,040**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**946,080**	**122,187**	**11,080,947**
		g/t	1.87	2.04	2.24	2.20	2.34	2.14	2.14	2.06	2.01	2.18	2.18	2.18	2.18	2.18	2.18	**2.16**
	Metal	g	147,751	963,387	1,057,920	1,041,739	2,213,303	2,028,818	2,024,301	1,951,824	1,903,075	2,065,330	2,065,330	2,065,330	2,065,330	2,065,330	266,740	**23,925,506**
	Geology - Reserve Recon Factor	%	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	1.97	**0.97**
	Feed Grade	g/t	1.82	1.98	2.17	2.14	2.27	2.08	2.08	2.00	1.95	2.12	2.12	2.12	2.12	2.12	4.30	**2.09**
	Metal	g	143,318	934,485	1,026,182	1,010,487	2,146,904	1,967,953	1,963,572	1,893,270	1,845,983	2,003,370	2,003,370	2,003,370	2,003,370	2,003,370	525,478	**23,474,481**
	Oxide Recovery	%	0.93	0.94	0.94	0.94	0.93	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	**0.93**
	Sulphide Recovery	%	0.85	0.85	0.85	0.87	0.85	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.84	0.84	**0.85**
	Oxide Metal Au - Plant Recovery	g	133,286	878,416	964,611	949,858	1,365,303	360,993	574,389	341,627	511,192	418,935	-	-	-	-	-	
	Sulphide Metal Au - Plant Recovery	g	-	-	-	-	577,011	1,378,008	1,176,692	1,330,958	1,132,881	1,355,194	1,682,830	1,682,830	1,682,830	1,682,830	441,401	
Gold Recovered		kg	133,286.1	878,416.3	964,611.2	949,858.0	1,942,314.1	1,739,001.8	1,751,081.3	1,672,584.9	1,644,072.9	1,774,128.9	1,682,830.5	1,682,830.5	1,682,830.5	1,682,830.5	441,401.2	**20,622,078.3**
		oz	**4,285**	**28,242**	**31,013**	**30,539**	**62,447**	**55,910**	**56,299**	**53,775**	**52,858**	**57,040**	**54,104**	**54,104**	**54,104**	**54,104**	**14,191**	**663,015**
		Koz	4.29	28.24	31.01	30.54	62.45	55.91	56.30	53.77	52.86	57.04	54.10	54.10	54.10	54.10	14.19	663.02

Appendix CC: Capital Schedule (Pit 16)

Capital Plan		Unit Cost - USD	USD		2017 YR1	2018 YR2	2019 YR3	2020 YR4	2021 YR5	2022 YR6	2023 YR7	2024 YR8	2025 YR9	2026 YR10
Mining Total	1	10,407,884	10,407,884	-	6,179,592	150,000	40,000	4,038,292	-	-	-	-	-	-
Excavator	4	312,346	1,249,384	-	624,692			624,692						
Articulated Trucks - 30T	14	396,800	5,555,200	-	2,777,600			2777600						
Loader	4	265,500	1,062,000	-	531,000	-		531000						
D8 Dozer	1	250,000	250,000	-	250,000									
Grader	1	336,300	336,300	-	336,300									
Water Truck	1	100,000	100,000	-	100,000	-								
Service Truck	1	100,000	100,000	-	100,000									
Light Trucks & Cars	10	41,500	415,000	-	415,000									
Dewatering Pump	4	40,000	160,000	-	40,000		40000	80,000	-		-			
Survey Tool	1	45,000	45,000	-	45,000									
Pit Optimisation	1	35,000	35,000	-	35,000									
Mining Offices/Shop	1	300,000	300,000	-	150,000	150,000								
Haul Roads	1	100,000	100,000	-	75,000			25,000						
HME - Workshop Construction	1	700,000	700,000	-	700,000									
Processing Plant Total	1	26,284,625	26,284,625	-	10,449,625	525,000	-	15,150,000	70,000	-	90,000	-	-	-
TSF Construction	1	1,250,000	1,250,000	-	250,000	500000		500000						
Portable Water Plant	1	300,000	300,000	-	300,000									
Laboratory	1	500,000	500,000	-	500,000									
Process Plant Development	1	23,484,625	23,484,625	-	8,999,625	25000		14,300,000	70000		90000			
Generators	1	750,000	750,000	-	400,000			350000						
HR+ Community Total	1	3,795,000	3,795,000	-	3,445,000	100,000	250,000	-	-	-	-	-	-	-
Camp Facilities	1	250,000	250,000	-	100,000	100000	50000							
Camp Houses (2Bx20+4Bx30)	50	15,000	750,000	-	550,000		200000							
Compensation - Relocation of Mnekezi road	1	250,000	250,000	-	250,000									
Airport/Aerodrome	1	35,000	35,000	-	35,000									
Helicopter Pad	1	10,000	10,000	-	10,000									
Compensation - Relocation from SML	1	2,500,000	2,500,000	-	2,500,000									
HSE	1	100,000	100,000	-	70,000	-	30,000	-	-	-	-	-	-	-
Clinic	1	100,000	100,000	-	70000		30000							
			-	-										
Finance + IT	1	2,258,461	2,258,461	-	730,467	15,000	45,000	1,467,994	-	-	-	-	-	-
Computer & Server	2	20,000	40,000	-	20,000	-	-	20000						
Desktop	30	1,500	45,000	-	15,000	15,000	15,000							
Laptop	20	1,500	30,000	-	20,000	-	10,000							
Networking & Communication	2	20,000	40,000	-	20,000	-	20,000							
Process Plant Insurance - 6% Plant Cost	1	1,397,978	1,397,978	-	539,978	-	-	858,000	-					
Mining Equipment Insurance - 2.5% Equip Cost	1	705,484	705,484	-	115,490	-	-	589,994	-					
10% Contigency	1	4,243,097	4,284,597	-	2,087,468	79,000	36,500	2,065,629	7,000	-	9,000	-	-	-
Total Capex			49,234,028	-	23,617,620	869,000	401,500	24,169,908	77,000	-	99,000	-	-	-

Appendix DD: Financial Summary (Pit 16)

			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
INCOME			US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$
Exchange Rate		2,000																
Revenue @Gold Price		1,250	5,356,557.83	35,302,176.55	38,766,212.30	38,173,304.55	78,058,560.95	69,887,758.70	70,373,214.84	67,218,566.55	66,072,714.20	71,299,461.96	67,630,322.32	67,630,322.32	67,630,322.32	67,630,322.32	-	811,029,817.70
															-	-	-	
Total INCOME			5,356,557.83	35,302,176.55	38,766,212.30	38,173,304.55	78,058,560.95	69,887,758.70	70,373,214.84	67,218,566.55	66,072,714.20	71,299,461.96	67,630,322.32	67,630,322.32	67,630,322.32	67,630,322.32	-	811,029,817.70
Production Costs																		0
Mine Royalty	(%)	4.3%	230,331.99	1,517,993.59	1,666,947.13	1,641,452.10	3,356,518.12	3,005,173.62	3,026,048.24	2,890,398.36	2,841,126.71	3,065,876.86	2,908,103.86	2,908,103.86	2,908,103.86	2,908,103.86	-	34,874,282.16
Fuel Cost			819,873.62	820,764.02	1,584,506.08	2,020,246.43	2,489,259.08	2,885,098.59	2,837,677.49	2,770,281.52	2,519,706.98	2,155,003.89	-	-	-	-	-	20,902,417.70
Tyres Cost	US$		225,000.00	225,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	165,000.00	165,000.00	165,000.00	165,000.00	-	4,350,000.00
Other Support Equipment	US$		100,000.00	100,000.00	100,000.00	100,000.00	200,000.00	200,000.00	200,000.00	200,000.00	200,000.00	200,000.00	100,000.00	100,000.00	100,000.00	100,000.00	-	2,000,000.00
Fuel Cost	US$		248,083.20	248,762.88	248,083.20	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	248,309.76	-	3,476,336.64
Load & Haul	US$		1,500,028.30	1,500,148.36	3,750,006.13	4,025,092.36	5,129,171.10	6,060,996.69	5,949,365.09	5,790,711.67	5,200,846.93	4,342,318.00	-	-	-	-	-	
Drill & Blast	US$		117,002.21	234,023.14	877,501.44	5,667,042.52	6,268,809.79	7,549,003.09	7,212,337.30	6,947,950.10	7,000,445.26	4,180,491.66	-	-	-	-	-	46,054,606.52
Dewatering	US$		25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	-	-	-	-	-	250,000.00
Fixed Fee - Contractor	US$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mine Haul Road Maintanance - km	US$		86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	86,400.00	-	1,209,600.00
Contigency (dayworks, road repair	US$		17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	17,280.00	-	241,920.00
G&A	US$		52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	52,000.00	-	-	-	-	-	520,000.00
Sofware and Planning Support	US$		30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	-	-	-	-	-	
GC - Grade Control & Lab Analysis	US$		560,325.78	560,325.78	560,325.78	560,325.78	476,276.91	404,835.38	344,110.07	292,493.56	248,619.53	211,326.60	-	-	-	-	-	4,218,965.16
Mining cost	US$		3,780,993.10	3,899,704.18	7,736,102.63	13,236,696.85	15,427,506.65	17,963,923.51	17,407,479.71	16,865,426.60	16,033,608.46	11,953,129.90	616,989.76	616,989.76	616,989.76	616,989.76	-	83,223,846.01
Process Plant Operational Costs	US$		1,001,943.90	6,011,663.42	6,011,663.42	6,011,663.42	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	12,023,326.85	1,552,827.66	140,823,030.28
Process Plant Overheads Costs	US$		184,000.00	184,000.00	184,000.00	184,000.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	231,400.00	3,281,400.00
Lab & Permit	US$		295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	295,344.00	
Processing Plant Cost	US$		1,481,287.90	6,491,007.42	6,491,007.42	6,491,007.42	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	12,550,070.85	2,079,571.66	144,104,430.28
Total Production Cost			5,492,612.99	11,908,705.19	15,894,057.18	21,369,156.37	31,334,095.61	33,519,167.98	32,983,598.80	32,305,895.81	31,424,806.02	27,569,077.61	16,075,164.46	16,075,164.46	16,075,164.46	16,075,164.46	2,079,571.66	262,202,558.46
Labour & Benefit Cost Total	US$		1,312,560.00	4,375,200.00	4,375,200.00	4,375,200.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00	6,345,600.00		77,894,160.00
Security Company	US$		296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	296,675.00	178,005.00	106,803.00	32,040.90	9,612.27	-	3,293,211.17
Tanzanian Police Officers (16)	US$		46,819.50	93,690.00	93,690.00	93,690.00	93,690.00	93,690.00	93,690.00	93,690.00	93,690.00	93,690.00	56,214.00	56,214.00	16,864.20	5,059.26	-	1,024,380.96
Filling Cabinet (02)	US$		1,000.00	-	-	-	500.00	1,000.00	-	-	-	-	90.23	-	45.12	-	-	2,635.35
Maglite Rechargable torch (40)	US$		1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	1,344.00	806.40	806.40	241.92	72.58	-	15,367.30
Two way Communication	US$		60,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-		
CCTV	US$		30,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-		
Access control	US$		5,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-		
Security Hardware	US$		15,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-		
Security night Jackets	US$		1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	1,152.00	691.20	691.20	207.36	62.21	-	13,171.97
Metal Detector (Supper Scanner)	US$		1,152.00	-	-	1,152.00	-	-	-	-	1,152.00	-	-	-	-	-	-	3,456.00
Gold shippment wearing/gears (Bo	US$		4,632.00	-	-	4,632.00	-	-	-	-	4,632.00	-	-	-	-	-	-	13,896.00
Total Security Cost	US$		462,774.50	392,861.00	392,861.00	398,645.00	393,361.00	393,861.00	392,861.00	392,861.00	398,645.00	392,861.00	235,806.83	164,514.60	49,399.50	14,806.31	-	4,366,118.74
Mobile Equipment	US$		357,120.00	357,120.00	357,120.00	357,120.00	679,120.00	679,120.00	679,120.00	679,120.00	679,120.00	679,120.00	102,210.00	102,210.00	102,210.00	102,210.00		5,912,040.00
General Electrical Services (GES)	US$		44,184.00	45,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	59,184.00	17,755.20	17,755.20	17,755.20	17,755.20	-	633,860.80
Site Services	US$		136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	136,000.00	66,000.00	66,000.00	66,000.00	66,000.00	-	1,624,000.00
Total Engineering Services	US$		746,522.50	747,522.50	771,522.62	771,522.62	1,093,522.62	1,093,522.62	1,088,472.50	1,088,472.50	1,093,522.62	1,093,522.62	242,905.78	242,905.78	242,905.78	242,905.78	-	10,559,748.84
Work place registration & Compliai	US$		500.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	-	2,125.00
ISO 1800 Audit	US$		-	-	100,000.00	-	-	100,000.00	-	-	100,000.00	-	-	50,000.00	-	-	-	350,000.00
Supplies - General Consumables	US$		900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	450.00	450.00	450.00	450.00	-	10,800.00
Safety Signs- Purchase of Paints	US$		1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	750.00	750.00	750.00	750.00	-	18,000.00
General Consumabales - Environm	US$		1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	1,287.20	-	18,020.80
Permits - Environment	US$		19,220.00	20,120.00	29,220.00	16,770.00	22,570.00	16,770.00	19,220.00	20,120.00	19,220.00	16,770.00	22,570.00	16,770.00	19,220.00	20,120.00	-	278,680.00
Contractors/Consultants - Environ	US$		25,000.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	63,600.00	39,600.00	44,000.00	34,600.00	32,000.00	-	651,600.00
Environmental Monitoring	US$		10,000.00	10,000.00	10,000.00	22,500.00	22,500.00	22,500.00	22,500.00	22,500.00	22,500.00	16,500.00	16,500.00	13,500.00	13,500.00	13,500.00	-	238,500.00
Vegetation and Vector Control	US$		4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	4,250.00	-	59,500.00
Waste Management	US$		3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	3,800.00	-	53,200.00
Water treatment/potability	US$		45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	22,500.00	22,500.00	-	585,000.00
TCAA aerodrome licence	US$		600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	-	8,400.00
Health (Clinic)	US$		30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	15,000.00	15,000.00	15,000.00	15,000.00	-	360,000.00
HSE			142,057.20	181,182.20	266,282.20	190,332.20	172,132.20	290,332.20	168,782.20	193,682.20	268,782.20	184,332.20	149,932.20	195,532.20	116,082.20	114,382.20	-	2,633,825.80
HR + Community+ Camp	US$		363,774.94	803,234.94	803,234.94	803,234.94	1,239,914.94	1,329,914.94	1,329,914.94	1,329,914.94	1,329,914.94	1,329,914.94	1,302,194.94	1,266,194.94	1,230,194.94	1,194,194.94	-	15,655,749.10
Finance + IT	US$		133,256.82	188,496.74	188,496.74	188,496.74	188,496.74	188,496.74	188,496.74	188,496.74	188,496.74	188,496.74	134,169.46	118,929.55	134,169.46	118,929.55	-	2,335,925.46
Management Fee (Cooperate)		0.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overhead Cost	US$		3,160,945.95	6,688,497.37	6,797,597.49	6,727,431.49	9,433,027.49	9,641,727.49	9,514,127.37	9,539,027.37	9,624,961.49	9,534,727.49	8,410,609.21	8,333,677.07	8,118,351.88	8,030,818.78	-	113,555,527.93
Total costs	US$		8,653,558.94	18,597,202.56	22,691,654.67	28,096,587.86	40,767,123.10	43,160,895.46	42,497,726.17	41,844,923.18	41,049,767.50	37,103,805.10	24,485,773.68	24,408,841.53	24,193,516.34	24,105,983.24	2,079,571.66	423,736,931.01
Operating Profit	US$		(3,297,001.11)	16,704,973.98	16,074,557.63	10,076,716.69	37,291,437.85	26,726,863.23	27,875,488.67	25,373,643.37	25,022,946.69	34,195,656.86	43,144,548.64	43,221,480.79	43,436,805.98	43,524,339.08	(2,079,571.66)	387,292,886.69
Profit / Loss	US$		(3,297,001.11)	16,704,973.98	16,074,557.63	10,076,716.69	37,291,437.85	26,726,863.23	27,875,488.67	25,373,643.37	25,022,946.69	34,195,656.86	43,144,548.64	43,221,480.79	43,436,805.98	43,524,339.08	(2,079,571.66)	387,292,886.69
			-38.10%	89.83%	70.84%	35.86%	91.47%	61.92%	65.59%	60.64%	60.96%	92.16%	176.20%	177.07%	179.54%	180.55%	0.00%	91.40%
Percentage of Cost Recovery/Profit			61.90%	189.83%	170.84%	135.86%	191.47%	161.92%	165.59%	160.64%	160.96%	192.16%	276.20%	277.07%	279.54%	280.55%	0.00%	191.40%
US$/ton Milled	$/t		109.76	39.31	47.97	59.40	43.09	45.62	44.92	44.23	43.39	39.22	25.88	25.80	25.57	25.48	-	38.24
US$ per Ounce	$/Oz		2,019.38	658.50	731.68	920.03	652.83	771.97	754.86	778.15	776.60	650.49	452.57	451.14	447.16	445.55	-	639.11
Total Ounces	Oz		4,285.25	28,241.74	31,012.97	30,538.64	62,446.85	55,910.21	56,298.57	53,774.85	52,858.17	57,039.57	54,104.26	54,104.26	54,104.26	54,104.26	-	663,015.23
Total Tonnes Mined per Year	t		3,000,057	3,000,297	7,500,012	8,050,185	10,258,342	12,121,993	11,898,730	11,581,423	10,401,694	8,684,636	-	-	-	-	-	86,497,369.24
Capex			23,617,620.03	869,000.00	401,500.00	24,169,908.18	77,000.00	-	99,000.00	-	-	-	-	-	-	-	-	49,234,028
Total Cost			32,271,178.97	19,466,202.56	23,093,154.67	52,266,496.04	40,844,123.10	43,160,895.46	42,596,726.17	41,844,923.18	41,049,767.50	37,103,805.10	24,485,773.68	24,408,841.53	24,193,516.34	24,105,983.24	2,079,571.66	472,970,959.22
Ptofit/Loss			(26,914,621.14)	15,835,973.98	15,673,057.63	(14,093,191.49)	37,214,437.85	26,726,863.23	27,776,488.67	25,373,643.37	25,022,946.69	34,195,656.86	43,144,548.64	43,221,480.79	43,436,805.98	43,524,339.08	(2,079,571.66)	338,058,858.48
Cumlative P/L			(26,914,621)	(11,078,647.16)	4,594,410.47	(9,498,781.02)	27,715,656.83	54,442,520.06	82,219,008.73	107,592,652.10	132,615,598.79	166,811,255.65	209,955,804.29	253,177,285.08	296,614,091.06	340,138,430.14	338,058,858.48	669,908,472.67
NPV (5%)																		$30,732,623.50
NPV (10%)																		$56,343,143.08
IRR																		57.2%

MaSS Resources Ltd

BUCKREEF GOLD COMPANY LIMITED

Appendix EE: Qualified Persons Certificates

Alistides Simon Ndibalema

NI 43-101 Mining Technical Feasibility Report for the TRX Buckreef Project, April 2017

MaSS Resources Ltd
P.O Box 11461
Mwanza, Tanzania
Telephone: +255 754 742 372
Email: alistidesn@gmail.com

CERTIFICATE OF THE AUTHOR OF "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED"

I, Alistides, MAusIMM (992022) do hereby certify that: -

- I am a Minerals Industry Advisor of MaSS Resources Ltd
- I graduated with a B.Sc.Hons (Mining Engineering) degree from the University of the Dar-es-salaam in 2004;
- I am a member/fellow of the following professional associations: -
  - Member Institute of Engineers Tanzania
  - Member Austlasian Institute of Mining and Metallurgy (992022)
- I have practiced my profession from 2004 to date
- I visited the Project in December 2016
- I have read the definition of „Qualified Person" as set out in NI43-101 and certify that by reason of my education and affiliation with a professional association (as defined in NI43-101), I fulfill the requirements to be a „Qualified Person" for the purposes of NI43-101;
- I have had no prior involvement with the properties that are the subject of the Technical Report;
- I have read NI43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;
- I am responsible for all Sections of the Technical Report entitled "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED";
- At the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;
- I am independent of the issuer applying all of the tests in Section 1.4 of NI43-101; and
- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 30th Day of April 2017 at Mwanza, Tanzania.

Alistides Samson Ndibalema
B.Sc.Hons (Mining Engineering)

MINERALS INDUSTRY ADVISOR

Benjamin Clavery Safi, MSc in Mineral Exploration

NI 43-101 Mining Technical Feasibility Report for the TRX Buckreef Project, April 2017

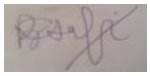
MaSS Resources Ltd
P.O Box 11461
Mwanza, Tanzania
Telephone: +255 754 578 911
Email: safi970@hotmail.com

CERTIFICATE OF THE AUTHOR OF "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED"

I, Benjamin, do hereby certify that: -

- I am a Mineral Exploration Principal Consultant of MaSS Resources Limited;
- I am a graduate of University of Rhodes in South Africa with an MSc. in Exploration Geology (2010), of University of Dar-es-Salaam (TZ) with a B.Sc. in Geology (1998), and I have practiced my profession in exploration geology and consulting, continuously since July 1998;
- I am a member/fellow of the following professional associations: -
  - Member Geological Society of Tanzania 2005
  - Member Society of Economic Geology 2010
- I have practiced my profession from 1998 to date;
- I visited the Project in December 2016;
- I have read the definition of "Qualified Person" as set out in NI43-101 and certify that by reason of my education and affiliation with a professional association (as defined in NI43-101), I fulfill the requirements to be a "Qualified Person" for the purposes of NI43-101;
- I have had no prior involvement with the properties that are the subject of the Technical Report;
- I have read NI43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;
- I am responsible for all Sections of the Technical Report entitled "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED";
- At the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;
- I am independent of the issuer applying all of the tests in Section 1.4 of NI43-101; and
- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 30th Day of April 2017 at Mwanza, Tanzania.



Benjamin Clavery Safi
Msc in Exploration Geology
TGS and SEG

EXPLORATION GEOLOGIST

Charles Sayi Mihayo, BSc Geology

NI 43-101 Mining Technical Feasibility Report for the TRX Buckreef Project, April 2017

MaSS Resources Ltd
P.O Box 11461
Mwanza, Tanzania
Telephone: +255 622 305 172
Email: sayicharzi@gmail.com

CERTIFICATE OF THE AUTHOR OF "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED"

I, Charles, do hereby certify that: -

- I am a Principal Consulting Geologist and a Director of MaSS Resources Limited;
- I am a graduate of University of Dar-es-Salaam (Tanzania) with a B.Sc. in Geology (1998), and have practiced my profession in exploration Geology, mining Geology and consulting, continuously since December 1999;
- I am a member of the following professional associations: -
    - Member Geological Society of Tanzania 2004
    - Member Geological Society of South Africa (968026) since 2013 to 2017.
- I visited the Project in December 2016;
- I have had no prior involvement with the properties that are the subject of the Technical Report;
- I have read NI43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;
- I am responsible for all Sections of the Technical Report entitled "NATIONAL INSTRUMENT 43-101 UPDATED INDEPENDENT TECHNICAL MINING RESERVE ESTIMATE AND ECONOMIC FEASIBILITY STUDY ON THE BUCKREEF GOLD MINE PROJECT, TANZANIA, EAST AFRICA BY MaSS RESOURCES LIMITED";
- At the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;
- I am independent of the issuer applying all of the tests in Section 1.4 of NI43-101; and
- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 30th Day of April 2017 at Mwanza, Tanzania.

Charles Sayi Mihayo
B.Sc.Hons (Geol.)
PRINCIPAL CONSULTING GEOLOGIST