mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT

ENVIRONMENTAL IMPACT ASSESSMENT REPORT and ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

(EMP upgrade/update in respect of existing Mining Right)

SWARTBERG MINE

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT:	**Kamgab Minerale (Pty) Ltd**
TEL NO:	**027 761 8766 / 082 8060860**
FAX NO:	**027 213 1175**
POSTAL ADDRESS:	**PO Box 243 Vredendal 8800**
PHYSICAL ADDRESS:	**Vioolsdrift Commonage, N7, North of Steinkopf**

FILE REFERENCE NUMBER SAMRAD: NCS30/5/1/2/3/2/1(552)MR

November 2021
Report #: 2063/DEMP

Contents

List of Figures:

List of Photos

List of Appendices:

List of Abbreviations:

CBA	Critical Biodiversity Area
DAEARDLR	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform
DMRE	Department Mineral Resources and Energy
DSR	Draft Scoping Report
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Programme
ESA	Ecological Support Areas
FEPA	Freshwater Ecosystem Priority Areas
GNR	Government Notice Regulation
Ha	Hectare (10 000m²)
I&AP	Interested and Affected Party
MPRDA	Mineral and Petroleum Resources Development Act
MWP	Mining Work Programme
NEMA	National Environmental Management Act
NEMAQA	National Environmental Management: Air Quality Act
NEMBA	National Environmental Management: Biodiversity Act
NEMWA	National Environmental Management: Waste Management Act
ngl	natural ground level
NKBK	Ngwao Boswa jwa Kapa Bokone (Northern Cape Heritage Authority)
NWA	National Water Act
POD	Public Open Day
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SKEP	Succulent Karoo Ecosystem Project
SLP	Social and Labour Plan
SPC	Site Plan Consulting (depending on context)
SPC	Spatial Planning Category (depending on context)
SWOT	Strengths, Weaknesses, Opportunities and Threats
WUL(A)	Water Use Licence (Application)

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process—

(a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

(b) Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) Identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;

(d) Determine the—-

  (i) Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and

  (ii) Degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources, and

    (cc) can be avoided, managed or mitigated;

(e) Identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;

(f) Identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;

(g) Identify suitable measures to manage, avoid or mitigate identified impacts; and

(h) Identify residual risks that need to be managed and monitored.

PART A: SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

1 Contact Person and correspondence address

1.1 Details of the EAP

Refer Appendix 1 for copy of CV and relevant experience.

EAP:	**Site Plan Consulting**		
Contact Person:	**Craig Donald**		
Registration:	**EAPASA (2020-2124)**		
Company:	**Site Plan Consulting**		
Physical address:	**Shop 5, Goede Hoop Shopping Centre, Broadway Blvd, Strand**		
Postal address:	**PO Box 28, Strand**		
Postal Code:	**7139**	Cell	**084 511 1520**
Telephone:	**021 854 4260**	Fax	**None**
E-mail:	**craig@siteplan.co.za**		

1.2 Expertise of the EAP.

(1) The qualifications of the EAP (with evidence).
(2) Summary of the EAP's past experience. (In carrying out the Environmental Impact Assessment Procedure)

Refer CV attached as Appendix 1.

2 Description of the property.

Farm Names:	**Lot 226 (Vioolsdrift Settlement)**
Application area (Ha)	**401.7ha**
Magisterial district:	**Namaqualand**
Distance and direction from nearest town:	**The site is located approximately 47km N of Steinkopf along the N7 (and 20km S of Vioolsdrift).**
21 digit Surveyor General Code for each farm portion:	**C0530013. Note that this portion of land is not a registered farm in the SG database. It is denoted as an "*Allotment Township*"**

3 Locality map

(Show nearest town, scale not smaller than 1:250000).

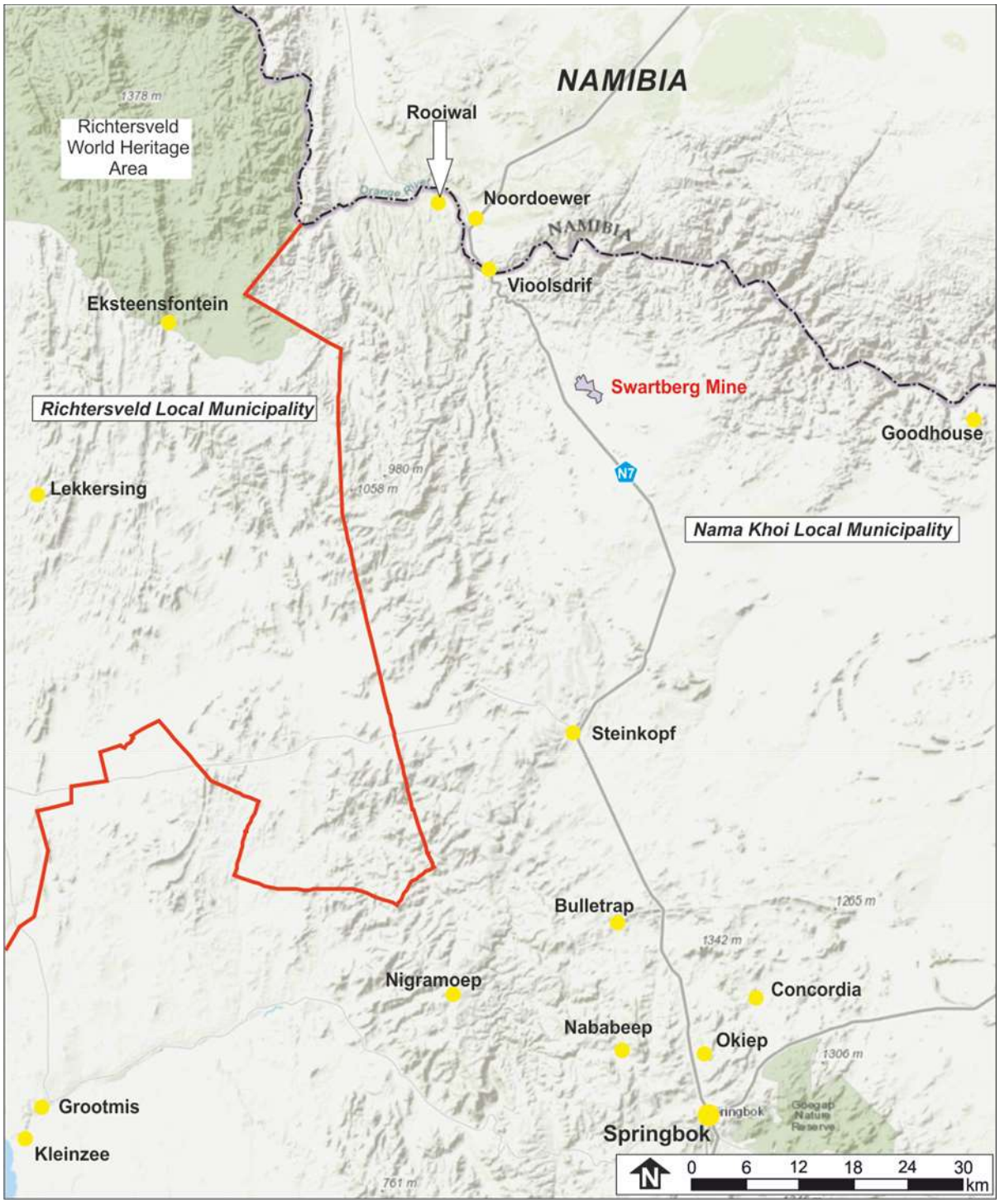
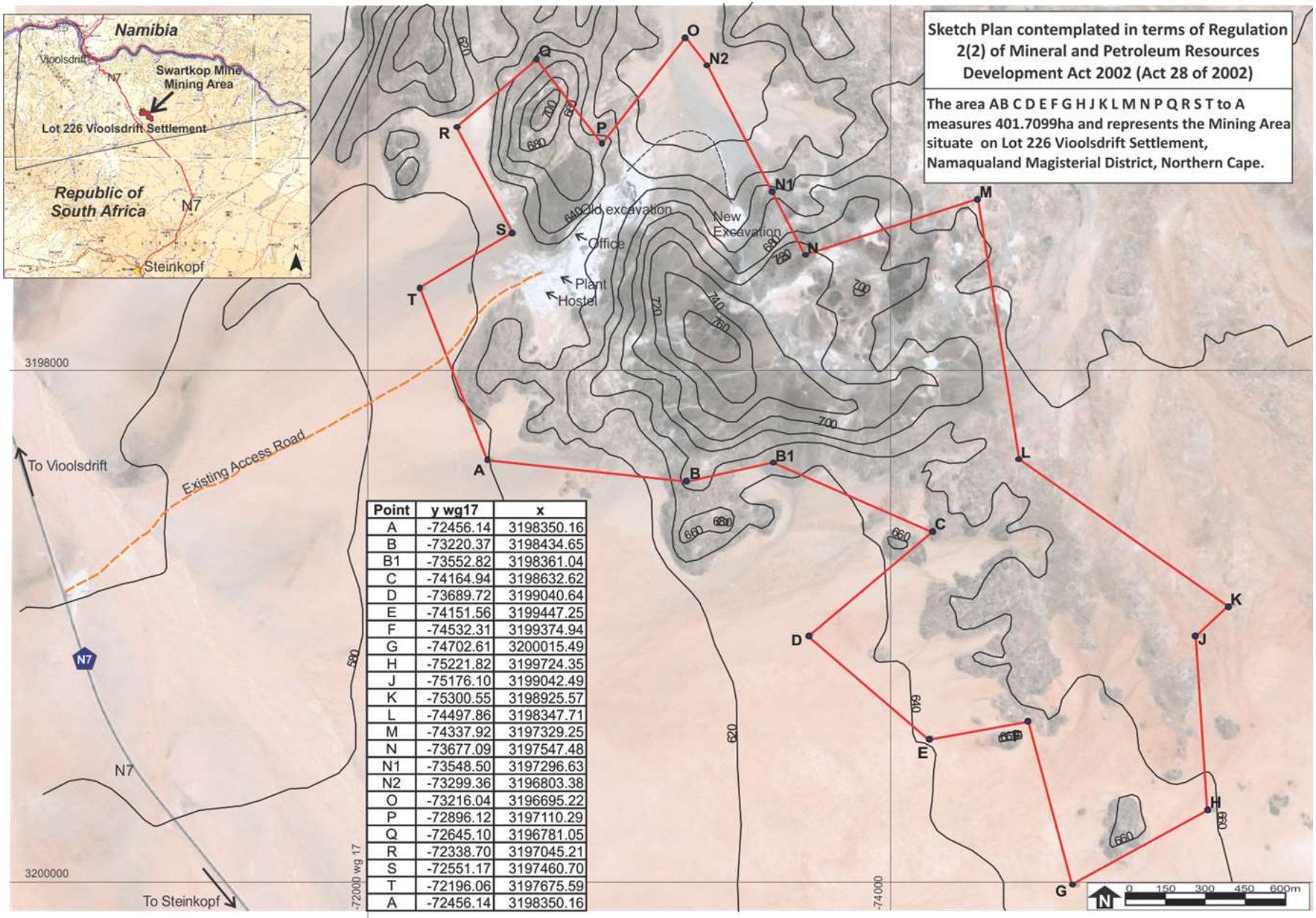


Figure 1: Locality Plan



Point	y wg17	x
A	-72456.14	3198350.16
B	-73220.37	3198434.65
B1	-73552.82	3198361.04
C	-74164.94	3198632.62
D	-73689.72	3199040.64
E	-74151.56	3199447.25
F	-74532.31	3199374.94
G	-74702.61	3200015.49
H	-75221.82	3199724.35
J	-75176.10	3199042.49
K	-75300.55	3198925.57
L	-74497.86	3198347.71
M	-74337.92	3197329.25
N	-73677.09	3197547.48
N1	-73548.50	3197296.63
N2	-73299.36	3196803.38
O	-73216.04	3196695.22
P	-72896.12	3197110.29
Q	-72645.10	3196781.05
R	-72338.70	3197045.21
S	-72551.17	3197460.70
T	-72196.06	3197675.59
A	-72456.14	3198350.16

Figure 2: Regulation 2(2) Plan showing detail location

4 Description of the scope of the proposed overall activity.

4.1 Amendments necessitating this MPRDA Section 102 Application

This project is already underway and the application relates to the amendment / updating of the EMP. The following are the main component areas at the mine described in more detail below:

1) The logistical facility area which includes office, workshop, water purification, wash bay, salvage yard, diesel tank and weighbridge facility.
2) Main plant and plant residue site. Processing plant not in use at present.
3) Main excavation currently being backfilled.
4) Kloof Section excavation and overburden dump.
5) Hostel and manager's accommodation.

The only legal vehicle to bring about an amendment / update if the EMP is through Section 102 application (in terms of MPRDA). Such application requires an updated EA.

4.2 Project Description

The total project consists of the following components. Photos are all contained at the end of this chapter:

4.2.1 Mining

Mining is conducted as a surface mine hard rock drill and blast operation. Drilling is undertaken by a team using pneumatic hand held drills. The shot rock is collected from the floor by means of front-end loader and taken to the sorting platform for sorting of waste material.

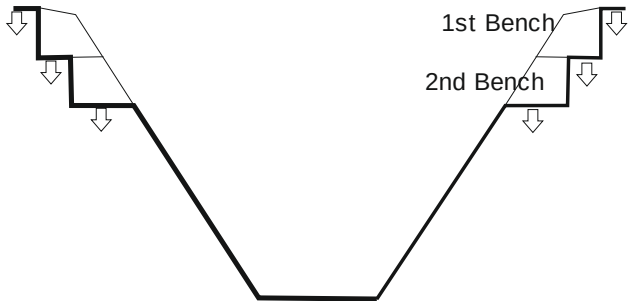
Mining of the Main Section excavation has ceased and mining at present only takes place in the more recently established Kloof Section. The proposal is to continue mining the Kloof Section, spoil overburden on the dump adjacent to that excavation, backfill the main (old) excavation through reprocessing of existing plant residue material and sorted material from the Kloof section and to explore new sections within the 401.7ha mining right area.

The following factors have a direct impact on the formulation of the mine plan as contained further below:

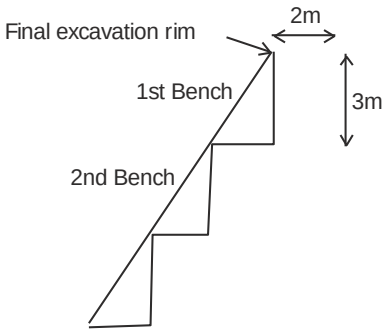
- The existing excavation configuration at Kloof Section. High faces, narrow adit and narrow floor have necessitated that the excavation be made wider so as to facilitate the benching of the sides of the excavation to obtain a more stable excavation. The existing narrow excavation is a result of the mining of only the feldspar and no advance into the surrounding amphibolite koppies to widen the excavation. Note that the amphibolite is an unsaleable product.
- Geological constraints (i.e. potential slip failures on the shear plane etc) also require that use of smaller face heights be initiated in order to retain advancing face stability.
- None of the facilities are visible from the N7 given the low ridge between these and the N7.

- The undercutting of the high northern face of the Main Section excavation has to-date been somewhat rectified by the backfilling of that portion of the excavation. Such backfilling will continue to take place using waste rock generated through the processing of the plant residue rock dump.

Initial perimeter bench establishment to be conducted as follows:



Final face on bench configuration is as follows:



Mine Layout Plan and Phasing

Mining in the main section has been completed and the proposed 30 year mine plan for the Kloof Section is as shown in figure 4 to consist of 3 phases as follows:

Phase 1:

- Advance current faces to the north and south with no westward advance beyond shear.
- Widen the adit from the current 3m wide adit to the dimensions as shown in figure 4. This process has been initiated as seen in photo 3.
- Lower the floor by a further 5m

Phase 2:

- Continue advance of the North and South faces
- In addition, initiate the westward advance of the western face
- Lower floor by another 15m to be 20m below present level

Phase 3:

Phase 3 can only be fully finalized after exploration of the areas surrounding Kloof section has been completed, but assumes:

- Continued advance of faces (mostly to the west)
- Lower floor to 40m below current levels

Suggested exploration to prove reserves in the Kloof Section

Given the good vertical and horizontal profile we have in the northern and southern faces of the Adit and mine bowl with general uniformity of good pegmatite and Feldspar recoverability in the floor, the most feasible way of establishing extent and recoverability at acceptable costs is a combination of percussion drilling and trial pitting whereby:

The trial pitting programme is to be conducted as follows;

- On a 10x15m grid with scheduling starting adjacent to the Adit and moving in gridlines both to the north and to the south
- Each hole to be blasted to a minimum 1m deep to expose fresh pegmatite in outcrop areas and to a maximum 2m deep in areas where the mica-lath cap is encountered (to prove the nature of the cap which is a good indicator of well differentiated pegmatite below it) or alternatively to deepen the pit to attempt to penetrate such cap and prove the Feldspar quality.
- No trial pitting is advocated in the black rock outcrop areas unless there are definite indications that pegmatite underlies the surface outcrop at depth of less than 1,5m.

A percussion drilling programme using a crawler rig with at least five 3,3m long rods is to be employed as follows to establish the extent of the pegmatite body relative to the dark country rock:

- Drill 5 percussion holes in the floor of the bowl and 2 holes in the Adit to a depth of 18m (to establish/prove the vertical lens shape pegmatite body configuration).
- Drill 4 percussion holes to 18m depth each along the Google photograph northern contact line between pegmatite and dark country rock (to establish such contact) or the presence of an extension of the currently exposed dolerite dyke.
- Drill 4 percussion holes to 18m depth each along the south-eastern contact line between pegmatite and dark country rock

4.2.2 Mine and Plant residue

Overburden from the Kloof Section will be dumped as a continued extension to the current dump east of the Kloof Section adit. Current overburden dump at the Kloof Section measures 1.58ha to a depth in the order of 3m.

The required future Kloof Section overburden dump extent is based on an estimate of the waste rock generated through mining. Table in Para 4.2.4 shows the calculation used in achieving the expected waste rock volume requiring spoiling as follows. Note that this is ***maximum*** waste rock volume that will require spoiling at the Kloof Waste Rock dump. The holder believes that a significant percentage of this could in fact be transported with the product, where the sorted waste will be backfilled into the main excavation:

Phase	Waste Rock (tight m³)	Waste Rock (Bulked m³) 1.2x
Phase 1	16 953	20 343
Phase 2	101 790	122 148
Phase 3	146 215	175 458
Total	**264 958m³**	**317 950m³**

If 7m mine residue disposal dump depth is assumed for all overburden from the Kloof Section, then the total requiring spoiling would be the 317 950m³ plus the 36 000m³ already spoiled there, amounting to 353 950m³. To spoil that to 7m deep would require a total disturbance area of 5.3ha. However given the existing disturbance of 1.5ha, then the remaining disturbance area is in the order of 3.8ha of virgin area will be required for spoiling.

Feldspar ore from Kloof Section will be transported to the sorting section on the backfill platform of the Main Section excavation. All waste material from this sorting operation is pushed over the leading edge of the backfill to extend the backfill operation.

The operation at present has not advanced mining in the Kloof Section for some time as the holders have concentrated their efforts on the reprocessing of the previously dumped plant residue. Figure 3 shows the location of the previous plant residue material which is being reprocessed. All of that waste material generated by the reprocessing is used to backfill the main excavation.

Because of safety concerns, the backfilling along the south has been prevented from extending beyond its current limit (to avoid possible high wall collapse). The current limit is demarcated by a berm of the backfill surface – see photo 13.

4.2.3 Processing Plant

There are remnants of the previous processing plant on site – refer photo 6. The plant has not been used for some time and is unlikely to be utilised in the future. However, provision is made in this update of the EMP to re-establish the processing plant should it be required. The plant will be re-established on its current footprint if contemplated.

Processing plant would consist of single stage crusher, to a screen and winnowing plant, to a conveyor leading material to sorting tables for hand sorting.

4.2.4 Reserves & Lifespan

The following table shows the expected reserves and lifespan in the remainder of the Kloof Section excavation: Lifespan is based on sales of 15 000tons per annum.

Phase	Pegmatite (m³)	% Feldspar	Waste Rock (tight)	Bank Feldspar (m³)	Feldspar (tons)	Lifespan
Phase 1	29 742	43%	16 953	12 789	33 251	2.2
Phase 2	169 650	40%	101 790	67 860	176 436	11.5
Phase 3	243 692	40%	146 215	97 477	253 440	16.5
Total	**443 084**		**264 958**	**178 126**	**463 127**	**30. 2**

4.2.5 Water Use

No water is used in the process. Water is only used for workshop and for domestic and sanitary use. Water is brought in by tanker from Vioolsdrift and filtered through a 2-stage water purification plant on site – refer photo 9. Water volumes used are absolutely minimal at about 5m³/day.

4.2.6 Logistical Facilities

The following logistical facilities are located on site (Refer Figure 3)

- The site is fully supplied with electricity from the national grid. All necessary electrical infrastructure is on site.
- Office, stores, ablutions and workshop (Refer Photo 7)
- Fuel storage in suitably bunded fuel tank (Refer Photo 14)
- Weighbridge and dispatch facility (Refer Photo 8)
- Salvage yard (Photo 1)
- Hostel facility (Refer Photo 11)
- Managers residence (Photo 10)

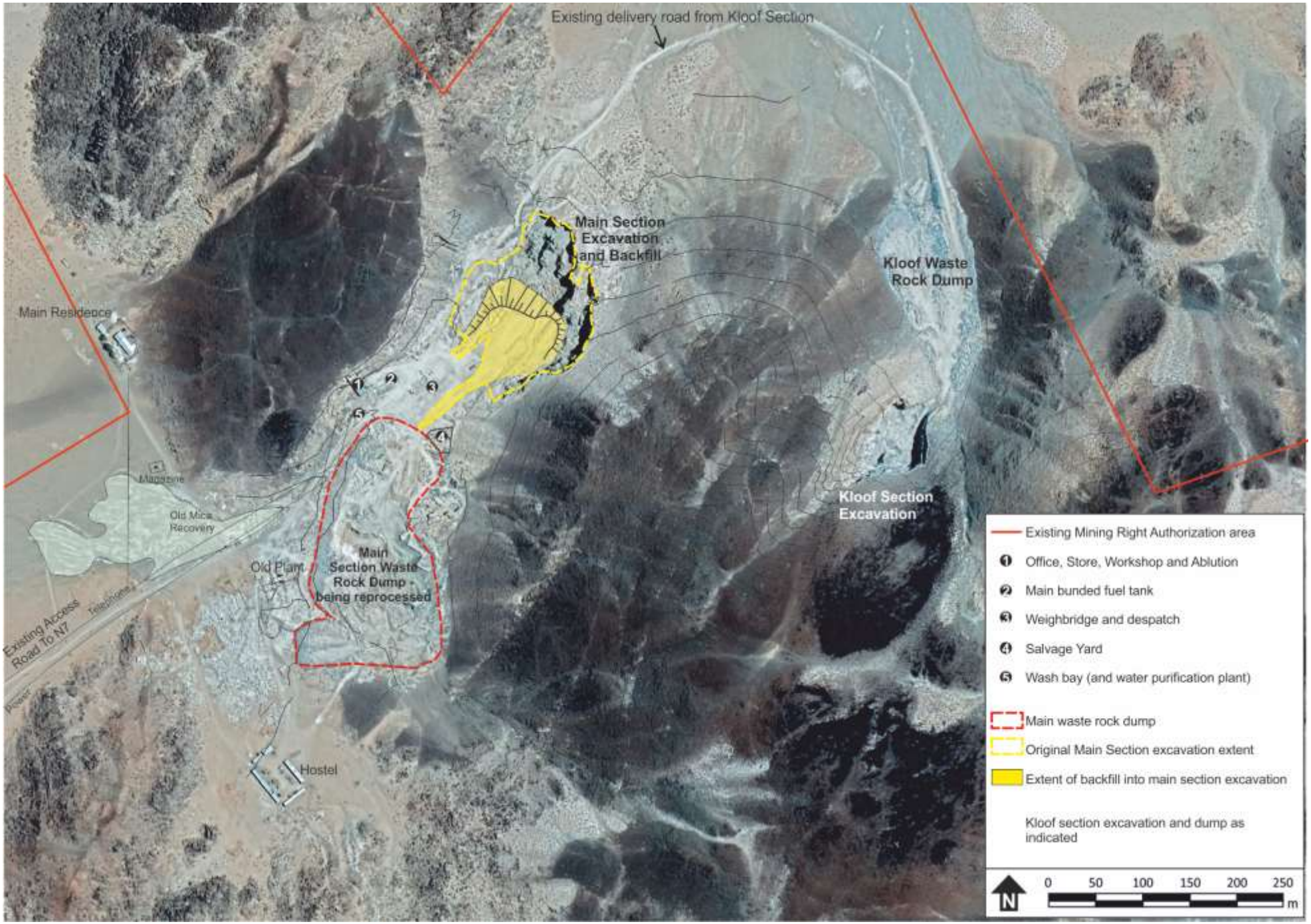


Figure 3: Existing Overall Site Layout Plan

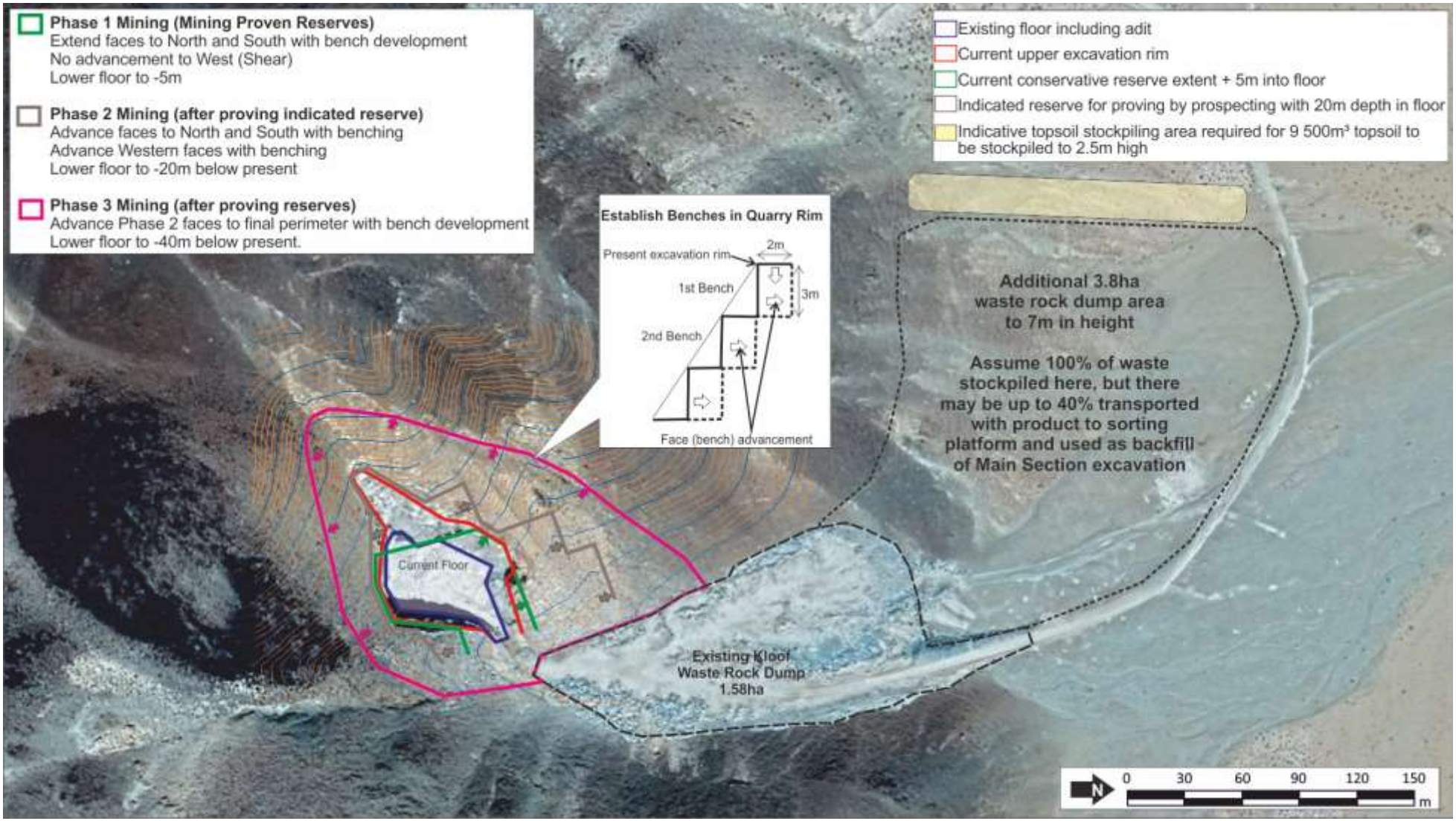


Figure 4: Kloof Section (Provisional Mine Plan subject to further exploration)

Photo 1: General view of the main excavation and logistical facility looking north, with the hostel in the west and the main excavation in the east.

Photo 2: Looking west from the top of the Main Section excavation at the backfill which has taken place to date.

Photo 3: General overview of the Kloof Section from the north showing the recent bench development (orange area) and just off picture right is the main overburden dump seen in Photo 5.

Photo 4 : Looking NE from the slope above the hostel, showing the main plant residue dump being hollowed out from the inside for re-processing and backfilling of the main section excavation.

Photo 5: Looking north from the adit of the Kloof Section excavation at the main section access road and the existing waste dump.

Photo 6: Remnants of the old Processing Plant with the plant residue dump in the background being reprocessed from the east.

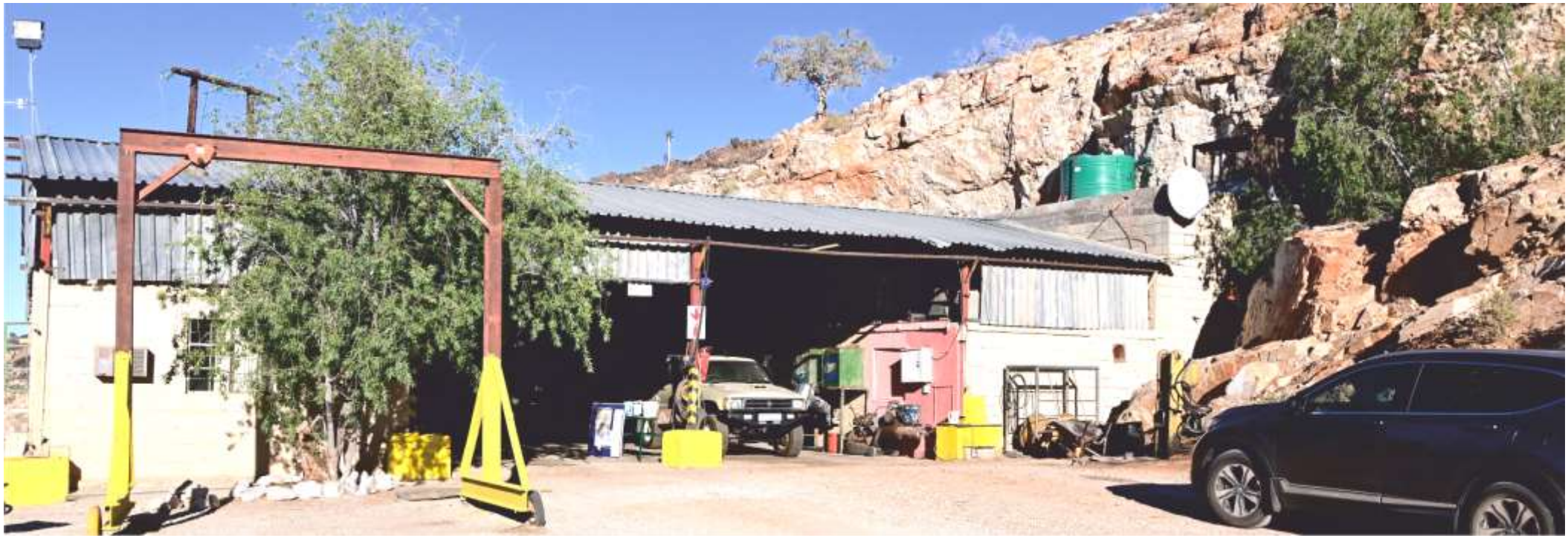


Photo 7: Office, Stores, Workshop and ablution facility

Photo 8: Weighbridge and dispatch facility

Photo 9: Small water purification plant

Photo 10: The manager's residence near the entrance to the activity areas

Photo 11: The Hostel complex

Photo 12: Magazine

Photo 13: The sorting operation on the backfill platform. Note the safety berm before the face in the south (on the backfill platform).

Photo 14: The bunded fuel tank. The bund was a bricked structure, but has recently been plastered at the DMRE's instruction

Photo 15: Drip trays in position. Needs more attention given the oil stains still on surface

Photo 16: Wash bay facility with a very basic oil trap. Oil trap must be upgraded and covered despite very low rainfall

Photo 17: Neat / upgraded designated parking areas for seldom used machinery

Photo 18: Recently fenced salvage yard. Note the large tank is currently used for used oil storage. This needs a bund, or can be replaced by the 1000l tanks (but must still be supplied with a bund).

Photo 19: Recent management interventions have been initiated to improve general site condition with good demarcation of activity areas.

Photo 20: Status of access road. It is imperative that no access to adjacent veld be allowed or that the road not be allowed to widen from its current footprint.

5 Listed and specified activities

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m^2)	LISTED ACTIVITY (Mark with X)	LISTING NOTICE *(GNR 983, GNR 984 or GNR 985), as amended 2017*	WASTE MANAGEMENT AUTHORISATION (Mark with X)
Mining Right.	401.7ha	X	GNR984: Activity # 17	
1. "ESTABLISHMENT" ACTIVITIES:				
1.1. Provide concrete apron at bunded fuel tank with oil trap	±20m²			
1.2. Upgrade oil trap at Wash Bay	3 stage trap			
1.3. Provide concrete apron and oil trap at Workshop	±50m²			
1.4. Formalise used oil storage and construct bund for used oil container				
1.5. Re-establish processing plant if considered (on existing footprint)	1.2ha	X	GNR984: Activity # 17	
1.6. Provide chemical toilets at Kloof Section when operational	2 toilets			
1.7. Total disturbance area of current and proposed disturbances (including road and tracks) is very close to 20ha. Cautionary approach assumes greater than 20ha disturbance and the appropriate listed activity is thus applied for.	>20ha	X	GNR 984: Activity 15	
2. OPERATIONAL PHASE ACTIVITIES				
A. Main Section and Logistical Facilities				
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.	3.1ha	X[1]	GNR984: Activity # 17	
2.2. Hauling material from waste rock dump to surface of backfill				
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform, if transported)				Backfill does not constitute waste disposal, so no waste licence required
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening	1.2ha	X	GNR984: Activity # 17	
2.5. Loading and delivery of saleable product Includes use of delivery route to N7	2.3km >4m	X	GNR985: Activity # 4	
2.6. Use of workshop				
2.7. Use of bunded fuel tank	<80m³			
2.8. Use of Wash Bay				

[1] Reprocessing takes place by hand sorting only (but still included to ensure compliance with NEMA listing)

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m^2)	LISTED ACTIVITY (Mark with X)	LISTING NOTICE *(GNR 983, GNR 984 or GNR 985), as amended 2017*	WASTE MANAGEMENT AUTHORISATION (Mark with X)
2.9. Water is sourced from Orange River, trucked in and passed through purification plant				
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².	Max 200m² and less than 25 000tons	X (NEMWA)	Category A: Activity 10[2]	X
2.11. Hazardous waste transported off site for handling at licenced facility				
B. Kloof Section				
2.12. Advance of excavation through drilling and blasting	Estimated 3.0ha remaining of 3.7ha total	X	GNR984: Activity # 17 GNR 985: Activity # 12	
2.13. Loading of shot rock and waste rock				
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.	Assume wider than 4m. 850m	X	GNR985: Activity 4	
2.15. Topsoil removal ahead of waste rock dump advance	Estimated additional 3.8ha for total of 5.0ha	X	GNR985: Activity 12 GNR 985: Activity # 14 /23	
2.16. Waste rock dump development: Up to total of 5.0ha to 7m deep maximum[3] (i.e. additional 3.8ha)	Additional 3.8ha	X	GNR983: Activity 19 GNR983: Activity # 48[4]	X
3. DECOMMISSIONING PHASE ACTIVITIES		**X**	**GNR 983: Activity # 22**	
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps				
3.2. Cover waste rock dump in Kloof section with removed sand cover				
3.3. Demolish all unrequired structures				
3.4. Remove all protruding foundations and footings				
3.5. Remove all pipelines and cables				
3.6. Remove diesel tank & decontaminate				
3.7. Remove weighbridge concrete structures				
3.8. Rip / scarify all hardened areas				
3.9. Retain access roads for future use				
4. AFTERCARE PERIOD				
4.1. Remove alien vegetation, if present				

[2] Using DEA toolkit (http://iwmp.environment.gov.za/guideline/2/2-2-3), assume 270.1kg/person/year (Middle income) x 20 people on the mine = 5 402kg per annum x 30 years = 162 060kg or 162tons (far below the 25 000ton limit).

[3] This calculation of area assumes worst case scenario for dumping where 100% of waste material from the Kloof Section is dumped here. In reality, a significant percentage of the waste will be transported with the product to the sorting platform and used as backfill in the Main Section excavation.

[4] Development/ extension of infrastructure (assuming the waste rock dump is classified as infrastructure) within 32m of water course.

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m^2)	LISTED ACTIVITY (Mark with X)	LISTING NOTICE *(GNR 983, GNR 984 or GNR 985), as amended 2017*	WASTE MANAGEMENT AUTHORISATION (Mark with X)
4.2. Conduct final performance assessment				
4.3. Lodge closure Application				
4.4. DMR Grant Closure Application				

Listed Activities Identified in Table above:

Listed Activity	Listed activity description	Comment
GNR 983: Activity # 19	The infilling or depositing of any material of more than 10 m^3 into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m^3 from a watercourse.	Note that Activity 19 is excluded if part of a mining permit application but not specifically excluded as part of Mining Right application, so it is retained here.
GNR 983: Activity # 22	The decommissioning of any activity requiring –) a closure certificate in terms of section 43 of the MPRDA); or i) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure;	
GNR 983: Activity # 48	The expansion of— …. (i) Infrastructure or structures where the physical footprint is expanded by 100m^2 or more; or …. where such expansion [or expansion and related operation] occurs— (a) within a watercourse; or… (c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse;	
GNR 984: Activity # 15	The clearance of an area of 20 hectares or more of indigenous vegetation….	Total disturbance area of current and proposed disturbances (including road and tracks) is very close to 20ha. Cautionary approach assumes greater than 20ha disturbance and the appropriate listed activity is thus applied for
GNR 984: Activity # 17	Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the MPRDA), including— associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource [,] ; or the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;	
GNR 985: Activity # 4	The development of a road wider than 4m with a reserve less than 13.5m: ii) Outside Urban Area: … ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	
GNR 985: Activity # 12	The clearance of an area of 300m^2 or more of indigenous vegetation: ii) Within critical biodiversity areas identified in bioregional plans	

Listed Activity	Listed activity description	Comment
GNR 985: Activity # 14	The development of—… ii) Infrastructure or structures with a physical footprint of 10m² or more;… (a) within a watercourse; or… (c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse;	
GNR 985: Activity # 23	The expansion of—… ii) Infrastructure or structures with a physical footprint of 10m² or more;… (a) within a watercourse; or… (c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse;	

6 Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be mined and for a linear activity, a description of the route of the activity)

Refer Chapters 4 and 5.

7 Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (A description of the policy and legislative context within which the development is proposed)	REFERENCE WHERE APPLIED (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
National Environmental Management Act	Entire document including public participation	Environmental Authorization from DMR as competent authority
NEMA Regulations	Application	Governs listed activities and content of reports
Mineral and Petroleum Resources Development Act	Template for documentation	DMR application and process
Namakwa Bioregional Plan	Vegetation / Biodiversity	CBA definition
SKEP	Vegetation / Biodiversity	The site is not located in a Geographic Priority Area
Mapping of NC CBA's	Vegetation / Biodiversity	CBA Definition
Municipality's SDF and IDP	Need and Desirability (Para 9.1)	End Use informant.
National Water Act	Water related elements	Water Use Licence application if required
National Heritage Resources Act	Para 23.1.2	Document consulted with SANBI and NBKB.
EIA Guideline and Information Document Series' "Guideline on Need and Desirability	Need and Desirability (Para 9.1)	Guideline for information utilized in this document
EIA Guideline 5 Assessing alternatives and impacts	Cumulative Impact Assessment (Para 9.2)	Guideline for information utilized in this document
NEMWA	Application has been made with this EA Application	Disposal mine residues. Methodology and Environmental Controls
Hazardous Substances Act, 1973 (Act 15 of 1973)	Hazardous Materials Handling in upcoming EMP	The measures proposed must take the Act into account.
Noise and dust regulations and recommendations	Noise and dust reduction measures	The mitigation measures proposed take the requirements into account.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (A description of the policy and legislative context within which the development is proposed)	REFERENCE WHERE APPLIED (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
NEM: AQA	Air Emissions Licence not required	NA.
Land Use Planning Act, 2014 (Act No. 13 of 2014)	Not applicable until after EA has been (if) granted.	A land use application may be required
National Dust Control Regulations (Government Notice No. R. 827 of 1/11/2013)	Dust control	Dust control measures to be implemented and monitoring required
List of waste management activities promulgated in GN No. 921 of 29 November 2013 (as amended);	Waste Management	Application for waste licence required
National Waste Information Regulations promulgated in GN No. R. 625 of 13 August 2012	Waste Management	Waste handling protocol to be described in EMP
Waste Classification and Management Regulations promulgated in GN No. R. 634 of 23 August 2013	Waste Management	Waste handling protocol to be described in EMP
National Norms and Standards for the Storage of Waste promulgated in GN No. 926 of 29 November 2013	Waste Management	Waste handling protocol to be described in EMP
Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits From a Prospecting, Mining, Exploration or Production Operation. Govt Notice R632 2015	Mine residue handling	Mine residue handling to be finalised in EMP
Regulation 16(1)(b)(v) of the EIA Regulations, 2014 (as amended)	Requires that application for EA must be go together with web based Screening Tool	Screening tool lodged under separate cover

8 Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of

8.1 Need and desirability analysis

The 2017 EIA Guideline and Information Document Series' "Guideline on Need and Desirability" has been used to consider this aspect.

Important: The need and desirability should not **only** focus on the actual production phase of this site's lifespan but also concentrate on the long term / permanent post project land use proposal. As background to the following paragraphs, the **proposed eventual land use for the site is still subject to public input, but is anticipated to be rehabilitated as far as is possible to match surrounding wilderness area (albeit with altered topography).**

Need refers to timing of a project whilst desirability refers to the placing of the activity. In this case, there can hardly be any argument against the need and desirability of the project which reprocesses existing unrehabilitated dumps and in the process provides an opportunity to rehabilitate portions of the significantly disturbed site. The project also creates significant number of jobs for up to 30 years.

The first port of call in considering need and desirability is a determination of how the proposed project fits in with the Municipal Integrated Development Plan (IDP), and the Spatial Development Framework (SDF). The SDF classifies the site in the 2014 SDF document is "Extensive Agricultural Area" – Refer Figure 8 below.

The SDF contains a number of Spatial Objectives. Where applicable / relevant to this operation and process, these are quoted below:

"SPATIAL OBJECTIVE 1: To improve connectivity and linkages to the region as a whole and to specific areas of economic importance, in order to promote accessibility to opportunities and services".

"*SPATIAL OBJECTIVE 3: To develop sustainable and diverse local economies by the utilisation of opportunities in the different spatial categories*". Under this Spatial Objective there is specific mention of mining as quoted hereunder:
"MINING

- *There is a concentration of minerals around the Springbok area, as well as in a broad band along the south of the Orange River. Although many of these sources have been depleted, there are still plenty occurrences that can be exploited and this should be considered for small scale mining.*
- *The Industrial mining corridor as indicated in the PSDF must be investigated for opportunities and exploited where possible.*
- *To solve the disputes and issues related to mining rights and to investigate the possibility for local communities to gain access and limited mining rights in areas to be identified for this".*

"SPATIAL OBJECTIVE 4: To protect the pristine and unique natural environment with its four distinct bio-geographical regions by means of effective management and managed use".

- *To protect the natural spaces affected by the Terrestrial and Aquatic Critical Biodiversity areas against development and overgrazing, due to its vital role in maintaining biodiversity.*
- *To support the Critical Biodiversity Corridor Linkages towards the surrounding municipalities.*
- *To rehabilitate all mining areas and damaged areas in the region and to remove and terminate unwanted activities and undesirable structures in and around protected areas.*

The conclusion that can be drawn from the information obtained from the SDF is that development is to be encouraged **provided** that it is conducted in an environmentally responsible manner which does not generate significant negative impact on especially the tourism industry and Critical Biodiversity Areas (especially corridors). Figure 5 overleaf

shows the Mining Right area located in area classified in the SDF as Critical Biodiversity area, but the existing mine and proposed future development does not result in any detrimental impact to any corridor or biodiversity linkage.

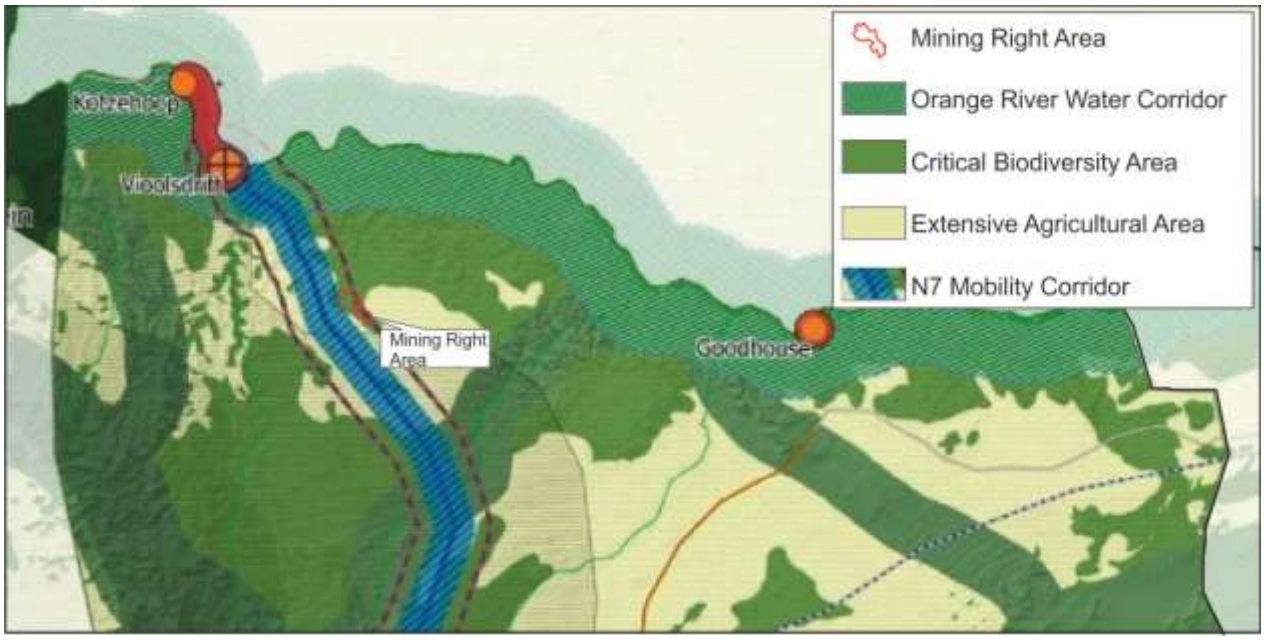


Figure 5: Excerpt from May 2014 SDF

The following tables are from the published 2017 Guideline on Need and Desirability:

8.1.1 Securing ecological sustainable development and use of natural resources

Securing ecological sustainable development and use of natural resources

1.	**How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?**	
1.1.	How were the following ecological integrity considerations taken into account:	
1.1.1.	Threatened Ecosystems	The only future additional disturbance will be realized through the extension of the Kloof Section excavation and waste rock dump. The excavation will extend from current 0.7ha to measure maximum 3.7ha whilst the 1.5ha waste rock dump will be expanded by 3.8ha to measure 5.3ha (for total additional disturbance area of 6.8ha): . 1) Figure 11 shows the Critical Biodiversity Area (CBA) mapping for the area. It shows that the disturbance areas have been acknowledged as such in the CBA mapping and that the vegetation which is remaining falls into CBA 2. The closest Protected Area is further than 10km distant (being the Richtersveld National Park). 2) Mucina and Rutherford classifies the veld type as Eastern Gariep Rocky Desert which is not classified as Critically Endangered, Endangered nor Vulnerable in terms of the NEM:BA listed Ecosystems (GNR 32689). 3) The site is located just outside of the Greater Richtersveld Geographic Priority area of SKEP (Succulent Karoo Ecosystem Project)
1.1.2.	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	
1.1.3.	Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"),	
1.1.4.	Conservation targets.	The vegetation type (Eastern Gariep Rocky Desert) is **not** classified as Critically Endangered, Endangered or Vulnerable in terms of NEM: BA. Mucina and Rutherford (2006) record that the Eastern Gariep Rocky Desert is *Least Threatened* in terms of its conservation status, despite the fact that none is formally conserved against a target of 34%. It is probable that the vegetation in the rocky slopes around the excavation form the vegetation of the Eastern Gariep Rocky Desert whilst the vegetation on the plains and hill wash where the Kloof Section overburden dump is proposed is located on the Eastern Gariep Plains Desert. Also not classified as Critically Endangered, Endangered or Vulnerable in terms of NEM: BA and despite a target of 34% conservation, none is conserved in formal protected areas.
1.1.5.	Ecological drivers of the ecosystem.	The site is located in an arid landscape with low rainfall in the order of 40mm. Summers are hot with average temperatures reaching over 30°C. Mucina and Rutherford state: "*Heavy grazing and arid climate combined with the ease of accessibility to stock meant that pastoral activities in the past have significantly altered the structure and composition of the vegetation in this unit*". *Prosopis* infestation is a problem in around springs or aquifers.
1.1.6.	Environmental Management Framework	No EMF could be sourced from the Nama Khoi Municipality

1.1.7.	Spatial Development Framework, and	The SDF shows the site to be located in "CBA" (Refer Figure 5). Whilst the SDF certainly drives the notion that tourism is critical to the Nama Khoi Municipality and that such tourism is ensured through maximization of conservation of natural vegetation, landscapes and views, the SDF also acknowledges the role of mining in the area.
1.1.8.	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	None relevant.
1.2.	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts	This is an operational mine and the bulk of disturbances have already occurred however the following have a bearing: 1) The only extension of activities takes place at the Kloof Section where MAXIMUM additional 6.8ha (say 7ha) of disturbance will take place through excavation and waste rock dump extension 2) The existing Plant residue dump at the Main Section is currently being reprocessed and used to backfill the existing Main Section pit. 3) Wherever possible, all waste material will be used to backfill the pit. Full mitigation and monitoring efforts aimed at minimising or preventing any negative impacts are contained in the EMP section of this document.
1.3.	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	As stated above, the extension of the Kloof Section excavation and waste rock dump will disturb a maximum of 7ha above and beyond the current disturbance which has taken place. The only other real risk of pollution to the site and surrounds is through hydrocarbon pollution. All mitigation and monitoring efforts aimed at minimising or preventing any negative impacts are addressed in the EMP which contain full Hydrocarbon policy (in part 34.2). The aim of the rehabilitation programme will be to maximise the wilderness land capability of the site once mining has been completed.
1.4.	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	The continued mining at Kloof Section will generate overburden which will require spoiling on site. The aim is to maximise backfilling at the Main Section excavation, but there will be waste host rock material which will not be transported for processing and will thus not be backfilled. That material which cannot be backfilled will generate a Mine Residue dump as an extension to the existing Kloof Section dump (additional 3.8ha). Minimal domestic waste is generated at this site. The waste which is generated will either be disposed of in the main Section excavation under the backfill or be transported directly to the closest Municipal landfill site. Dumping of domestic / general waste under backfill has been included as a listed activity for approval.

1.5.	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The Draft Scoping Report was submitted to SAHRA for comment. Their interim comment dated July 30, 2021 (Refer Appendix 5: Heritage Matters) noted that: 1) Specialist compiled letter of Exemption must be provided and 2) No Palaeontological Impact Assessment was required. The Letter of Exemption was compiled by Specialist J Kaplan of Agency for Cultural Resource Management and lodged to SAHRA on the SAHRIS portal. Copy included in Appendix 5.
1.6.	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Mining generally depletes non-renewable resources. In terms of equitable use of the resource, the applicant has met all the legal requirements of the mining charter, the application is subject to all Mineral (MPRDA) and Environmental (NEMA) legislation and the public participation associated therewith. The application is also subject to input from several commenting authorities .
1.7.	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardize the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	None. Given the mining and disturbance which has taken place here already and the absolutely low carrying capacity of the veld and the small scale of the additional development, there will be no jeopardy in respect of carrying capacity, limits of acceptable changes and thresholds. NA, mining does represent the use / exploitation of a resource. The operation uses absolutely minimal water and fuel. The applicant has / will continue to meet all the requirements of the MPRDA and Mining Charter.

1.7.1.	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialized growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	This mining operation does not lower the dependency on use of resources to maintain economic growth. The resources it does use are diesel, water and labour. Waste generation is limited.
1.7.2.	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources against a proposed development alternative?)	The natural resources used (apart from the Feldspar target mineral) are absolutely minimal. In terms of the use of the Feldspar, there can be no other use for this natural resource apart from leaving it in the ground. The Feldspar is an important constituent in glass making. It is unlikely that the use of this resource will impact on any future generation's equity. The only alternative to this use is wilderness/ grazing. The impact of this small mine in the larger Vioolsdrift / Steinkopf commonages is insignificant, and after successful rehabilitation the site could still function as grazing and / or wilderness area (albeit with modified topography).
1.7.3.	Do the proposed location, type and scale of development promote a reduced dependency on resources	No.
1.8.	How were a risk-averse and cautious approach applied in terms of ecological impacts	
1.8.1.	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	The Scoping report was lodged with the Heritage Authorities (on SAHRIS) to determine whether any Heritage Studies were required. The Draft Scoping was also distributed to determine any specialist input requirement. None were requested by commenting authorities.
1.8.2.	What is the level of risk associated with the limits of current knowledge?	Given the current focus on reprocessing and very slow rate of excavation advance (of the future Kloof Section Excavation and Dump), the risk is assessed as very low
1.8.3.	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Given the limits of knowledge in respect Heritage, it was required that the Heritage authorities be consulted in the Draft Scoping phase. The Draft Scoping Report was submitted to SAHRA for comment. Their interim comment dated July 30, 2021 (Refer Appendix 5: Heritage Matters) noted that: 1) Specialist compiled letter of Exemption must be provided and 2) No Palaeontological Impact Assessment was required. The Letter of Exemption was compiled by Specialist J Kaplan of Agency for Cultural Resource Management and lodged to SAHRA on the SAHRIS portal. Copy included in Appendix 5.

1.9.	How will the ecological impacts resulting from this development impact on people's environmental right in terms following:	
1.9.1.	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	The negative impacts have been identified in this document. Measures taken to avoid, minimise, manage and remedy negative impacts as well as monitoring are contained in the EMP section of this document.
1.9.2.	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Proposed measures taken to enhance positive impacts are contained in the EMP section of this document.
1.10.	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socioeconomic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	The economic base in this area was copper mining to the south and farming along the Orange River to the North. The commonage area is utilised for grazing . Copper mining has now ceased and unemployment is high with an associated increase in social issues affecting the towns to the south. The proposed continuation of the operation cannot result in any negative socio economic impact. The ecological impact will not diminish any other persons or group of persons' potential livelihood.
1.11.	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/ targets/ considerations of the area?	At this stage of the process, it is clear that if the site is properly managed during its operational phase and decommissioning rehabilitation is conducted to a high level, then the residual impact will be insignificant and the site could still function to its pre-mining capability – but particular care must be taken to avoid high dangerous faces.
1.12.	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Not applicable to this operational project.
1.13.	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Provisional cumulative impact has been described as insignificant on all aspects of the ecology (as described in para 8.2)

8.1.2 Promoting justifiable economic and social development

2.	**Promoting justifiable economic and social development**	
2.1.	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:	
2.1.1.	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	The IDP targets economic growth and makes continual reference to the impact of mining having left the area. So, although mining is prized for its ability to create jobs, the value of the tourism industry has not been discounted and appears to be a focus for the area. This project does not negatively impact on tourism as it takes place in a previously disturbed area and is all but invisible from all tourist routes. The proposed development meets targets of the IDP in that it does facilitate development as well as creating jobs (up to 30) for the life of the project.
2.1.2.	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	Not applicable
2.1.3.	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	The EMP will contain full description of the proposed rehabilitation of the site so that it can best integrate into the surrounding wilderness / grazing land.
2.1.4.	Municipal Economic Development Strategy ("LED Strategy").	The Municipality area is characterised by low employment rates and virtually any economic development has the potential for large multiplier effects.
2.2.	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	
2.2.1.	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	Although the full operation is small scale and temporary in nature (i.e. up to 30 years), the proposed development does lend itself to economic development and skills development in that time. Mining Right requires the compilation of a Social and Labour Plan which incorporates Local Economic Development.
2.3.	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities	
2.4.	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	It is highly unlikely that the use of this resource will impact on any future generation's environment to any significant degree. The only alternative to this use is wilderness/ grazing. The impact of this small mine in the larger Vioolsdrift / Steinkopf commonages is insignificant, and after rehabilitation the site could still function as grazing and / or wilderness area (albeit with modified topography).
2.5.	In terms of location, describe how the placement of the proposed development will:	
2.5.1.	result in the creation of residential and employment opportunities in close proximity to or integrated with each other	NA

2.5.2.	reduce the need for transport of people and goods	NA
2.5.3.	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	NA
2.5.4.	compliment other uses in the area,	Provided rehabilitation occurs as per the EMP, then the impact will be insignificant.
2.5.5.	be in line with the planning for the area,	Provided rehabilitation occurs as per the EMP, then the impact will be insignificant.
2.5.6.	for urban related development, make use of underutilised land available with the urban edge,	Not applicable
2.5.7.	optimise the use of existing resources and infrastructure	Not applicable.
2.5.8.	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	Not applicable.
2.5.9.	discourage "urban sprawl" and contribute to compaction/densification,	Not applicable.
2.5.10.	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	Not applicable.
2.5.11.	encourage environmentally sustainable land development practices and processes	Provided rehabilitation occurs as per the EMP, then the impact will be insignificant.
2.5.12.	take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	The location has been chosen because of its availability of Feldspar.
2.5.13.	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	Not applicable.
2.5.14.	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	The Draft Scoping Report was submitted to SAHRA for comment. Their interim comment dated July 30, 2021 (Refer Appendix 5: Heritage Matters) noted that: 1) Specialist compiled letter of Exemption must be provided and 2) No Palaeontological Impact Assessment was required. The Letter of Exemption was compiled by Specialist J Kaplan of Agency for Cultural Resource Management and lodged to SAHRA on the SAHRIS portal. Copy included in Appendix 5.
2.5.15.	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	Not applicable.

2.6.	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1.	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	None
2.6.2.	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	There is no risk to these socio-economic aspects through the continued operation at this site.
2.6.3.	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Not applicable.
2.7.	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following	
2.7.1.	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts	The negative impacts have been identified in part 13 of this document. Measures taken to avoid, minimise, manage and remedy negative impacts are detailed in the EMP section of this document.
2.7.2.	Positive impacts. What measures were taken to enhance positive impacts?	See line item 2.7.1 above
2.8.	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	The impact on natural resources is very low in the long term (provided all future mitigation and rehabilitation measures are implemented).
2.9.	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations	The following aspects contribute / will contribute to the best practical environmental option: 1) Proposed operational rehabilitation 2) Decommissioning rehabilitation 3) Backfill of Main Section excavation 4) Removal of Main Section waste rock dump through reprocessing 5) Minimal disturbance footprint

2.10.	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	There is no unfair discrimination against any person as a result of the proposed mining. The company meets all its mining charter requirements.
2.11.	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	All legislation has been adhered to.
2.12.	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	All mines are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMR.
2.13.	What measures were taken to:	
2.13.1.	Ensure the participation of all interested and affected parties.	Refer Part 11 for description of completed and future Public Participation
2.13.2.	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.	Refer Part 11 for description of completed and future Public Participation
2.13.3.	Ensure participation by vulnerable and disadvantaged persons.	The application was advertised in 2 local newspapers and advertised on poster at the site entrance. In addition, the applicable ward councilor/s was notified.
2.13.4.	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	None.
2.13.5.	Ensure openness and transparency, and access to information in terms of the process.	Refer Part 11 for description of completed and future Public Participation
2.13.6.	Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and,	Refer Part 11 for description of completed and future Public Participation
2.13.7.	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted.	Refer Part 11 for description of completed and future Public Participation

2.14.	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	All Mining Rights are accompanied by a Social and Labour Plan. Such SLP contains opportunities for educational development of community members as well as a compulsory LED project implementation for the betterment of the community.
2.15.	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	All mines are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMR.
2.16.	Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1.	the number of temporary versus permanent jobs that will be created,	The project will continue to provide employment for up to 30 people.
2.16.2.	whether the labour in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	Yes
2.16.3.	the distance from where labourers will have to travel,	Staff are housed on site
2.16.4.	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	Staff are employed locally, but distance are too large to allow for daily transport in and out of the site.
2.16.5.	the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	The proposed mining operation will not take any jobs away in any other sector (eg tourism).
2.17.	What measures were taken to ensure:	
2.17.1.	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Refer Part 11 for future description of Public Participation which includes all relevant State Departments at all levels of governance
2.17.2.	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures	Not applicable
2.18.	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	Environmental impact has been assessed to be insignificant to moderate in all aspects of the environment provided rehabilitation takes place as per the EIA/EMP. The proposed project was subject to extensive public participation to ensure all public are aware of and have input into the planning and approval process.

2.19.	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The management of impact is the responsibility of the applicant with monitoring and auditing largely by independent parties. The Mineral legislation requires that Closure be granted before the applicant can relinquish responsibility for the site. Such closure process is arduous and requires enforced participation by and satisfaction of relevant State Departments and applies to all disturbances whether generated by the incumbent or not.
2.20.	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	In terms of operational control of environmental impact and pollution, the EMP must prescribe measures to be put in place to monitor and then mitigate / manage or avoid any known or unexpected impact. In addition, all holders are responsible to annually update a calculation to determine the costs of Immediate Closure of the site. Such calculation is based on DMR Guideline and the value of the fund must be provided to the DMR either in form of cash or by bank Guarantee. Should the holder "disappear", then the fund is used by the State to rehabilitate the site.
2.21.	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	The only feasible alternative applicable to this application is the no go option.
2.22.	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Refer Para 8.2

8.2 Cumulative Impact Assessment

The assessment of cumulative impacts on a site specific basis is often a complex operation. The aim of this impact analysis is ultimately to determine at which point the combined impacts from several operations (similar or dissimilar) in the area will affect the environment or part thereof to such a negative degree that the project should not be allowed to proceed.

Always remember that mining is a place-bound operation (as opposed to say housing or shopping development which is less dependent on geology or other factors).

No cumulative impact assessment is conducted for this site given the small scale of activities in the surrounding landscape and lack of surrounding land uses.

9 Motivation for the development footprint

Including a full description of the process followed to reach the proposed footprint.

This is an existing operation. The development footprint contained within this document is based on the status quo and existing facilities and activity areas on site. The only logical "additions" to the current site layout are:

- The minimal advance of the excavation into the Kloof Section (3.2ha). This extension is based on known geological interpretation.
- The 3.8ha extension requirement for the Kloof Waste rock dump area based on the only suitable area for extension of the existing waste rock dump.

10 Details of all alternatives considered.

10.1 Property on which or location where it is proposed to undertake the activity

The option of an alternative site has not been investigated.

10.2 Type of activity to be undertaken

Mining will continue to be undertaken at this site.

10.3 Design or layout of the activity

The site layout is largely based on pre-existing site layout. The current site layout is probably the most logical and pragmatic alternative given the confines of topography and geology.

10.4 Technology to be used in the activity

In the past the material was sent through a crusher and screening plant to a hand sorting conveyor. This option was problematic in that the material to be sorted was small and hand sorting took a long time and missed significant amounts of Feldspar (hence the reprocessing of the plant residue dumps).

At the moment, the blasted material is hand sorted and no plant is in place. It is unlikely that a processing plant will be re-established on site but the option is retained in this EMP and EA.

10.5 Operational aspects of the activity

Any alternative operational aspect will be considered and implemented if it represents a more suitable alternative.

10.6 Option of not implementing the activity

Provided operational and decommissioning rehabilitation takes place a high level of compliance with the provisions of any EMP prescriptions, then there is no reason why the activity should not go ahead.

11 Details of the Public Participation Process Followed

The draft scoping report served as the initial basis document for public input. As a result, the description which follows is the public participation methodology that has taken place and that which is still due to occur after the distribution of this draft EIA/EMP.

Note that the public participation process is to be conducted simultaneously for the Waste Licence, using the draft Scoping Report and draft EIA/EMP as information document. It is required that the advert be placed in 2 local newspapers to meet the regulations in respect of Public Participation for the abovementioned processes.

Refer Appendices 3 and 4 for copies of documentation and correspondence.

Public participation has taken place and will continue to take place in the following manner:

1) The **landowner** is the State and the land is managed by Nama Khoi Municipality.
2) **Surrounding landowners**: Given the absolute isolation of the site no surrounding landowners will be consulted.
3) **Residents of Steinkopf and Vioolsdrift / Rooiwal**: were alerted to the application and existence of draft Scoping Report through posters at the site entrance and newspaper adverts.
4) **State Departments**: Registered mail was sent or reports couriered or emailed to the following State departments and NGOs (according to their preference) – Refer Appendix 3:
    a. Department of Environment & Nature Conservation (now Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAEARDLR)
    b. Department of Water and Sanitation
    c. Dept. of Agriculture Forestry and Fisheries
    d. Municipality – Manager's Office and Environmental Section
    e. SAHRA
    f. Land Claims Commissioner.

5) **Broader public** were notified in 3 ways – Refer Appendix 3:
    a. By way of newspaper advert in 2 local newspapers (Plattelander and Namakwalander)
    b. By way of posters placed at project entrance. Posters measured 62 x 40cm as per NEMA regulations.
    c. Though notification of the local councilor.

    Please note that each of these notifications contained details as to:
    - How to contact the EAP
    - How to get to see a copy of the draft Scoping report with notice that copies of the draft Scoping Report were available at Public Libraries of Steinkopf and Springbok and Municipal extension office at Rooiwal or available per email or hard copy by post

6) Receipt of all comments in respect of the draft Scoping Report – Refer Appendix 4.

7) Compilation of final Scoping report with copies of all received comments.

8) Finalization of a draft EMP including:
    a. Specialist studies if required.
    b. Response to comments in respect of the draft scoping report

9) Distribution of draft EIA-EMP to registered I&AP's as well as all State Departments and NGOs listed above for 30 day commenting period - This is where we are now in the process

Future Process

10) If comments received on draft EIA/EMP make material change to EMP, then redistribution of 2nd draft version of the EIA-EMP will take place

11) Lodging of Final EMP to DMR with all comments and changes made as required.

Interested and Affected Parties: **List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Para in this report where the issues / responses were incorporated.**
Landowner					
Managed by Nama Khoi Municipality Jacques Cloete Jacques.cloete4@gmail.com PO Box 17, Springbok, 8240 4 Namakwa Street, Springbok Tel 027 718 8100	Courier and email		No response yet		
Surrounding Landowners					
NONE					
Municipal Representatives					
Nama Khoi Municipality: Municipal Manager: Samantha Titus 4 Namakwa St Springbok 8240 (027) 718 8100 info@namakhoi.gov.za Samantha.titus@namakhoi.gov.za	email		No response yet		
Nama Khoi Municipality: Environmental Section: Technical Department Jacques Cloete Jacques.cloete@namakhoi.gov.za	Email		No response yet		
Ward Councillor – Ward 2 Susan Cloete susanjanecloete@gmail.com 063 693 4692	Email		No response yet		
Organs of state and NGO's (Responsible for infrastructure that may be affected Roads, Eskom, Telkom, DWS etc.)					
Department of Environment and Nature Conservation : Northern Cape Head of Department Kimberlite Building, 162 George St, West End Kimberley, 8301 Tel 053 807 7300	courier	17 June 2021	Receipt of report acknowledged by Theresa Wessels (and distributed internally).		

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Department of Environment and Nature Conservation : Northern Cape Private Bag X16 Springbok 8240 Tel: 027 718 8800 (053 807 7300) Peter Cloete Email: peter.denc87@gmail.com	Email		No response yet		
Department of Water and Sanitation: Mr Abe Abrahams: Chief Director: Northern Cape Private Bag X6101 Kimberley 8300 Tel: (053) 830 8800 Cell: 082 883 6741 AbrahamsA@dws.gov.za	Email and registered mail	14 June 2021	Acknowledgement of receipt and distribution to managers by Mr Franks Lindiwe		
DWS Northern Cape Region 28 Beaconsfield Road Kimberley 8301 Ms V Ramugondo ramugondov@dws.gov.za	Email		No response yet		
Dept. of Agriculture Forestry and Fisheries(Springbok): 2 Hospital Street, Springbok, 8240 PO Box 18 Springbok, 8240 District Manager Mr Darren Engelbrecht E: darrenlengelbrecht@gmail.com Tel: 027 712 1315	Courier		No response yet		
Department of Public Works Ruwayda Baulackay Private Bag X5002, Kimberley, 8300 Tel: 053 838 5202 Cell: 083 459 7602 Email: ruwayda.baulackay@dpw.gov.za	email		No response yet		
Communities					
Community of Vioolsdrift (Newspaper adverts in 2 local newspapers) as well as posters. Copies of Scoping report left at local libraries					

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Commission On Restitution Of Land Rights: Regional Land Claims Commission: Northern Cape. Tel: (053) 807 5700 Ryan.oliver@drdlr.gov.za					
Traditional Leaders					
Other Competent Authorities					
SAHRA/HNC Lodgement on Heritage electronic lodging system: SAHRIS			Done on 5 July 2021 Comment received on 30 July 2021		
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

Note that final comments must be in within 30 days and will be forwarded to the DMR as soon as possible after that.

12 The Environmental attributes associated with the development footprint alternatives.

12.1 Type of environment affected by the proposed activity.

12.1.1 Geology

General

The Swartberg pegmatite swarm occurs inter-intruded with what appears, as shown in Figure 7 to be a concentrated swarm of dykes and sills of dark mineral rocks (diorites and amphibolites).

Typical of pegmatite swarms, the white pegmatite outcrops are seen in Figure 6 as occurring randomly within the hill and showing common control over neither their occurrence or size nor any relationship with the dark mineral rocks or the exposed grey gneiss country rock around the hill. The GoogleEarth® imagery shows the Kloof pegmatite as being one of the larger pegmatites in the swarm and the recent mining thereof has indicated a suitable feldspar texture (crystal intergrowth with quartz and micas) which permits economical recovery thereof.

Within any pegmatite body the complexity and the unpredictability of the mineral occurrence, the crystal size and the intergrowth pattern is unfortunately as unpredictable as the extent of the pegmatite body itself, other than in particularly well-zoned pegmatites which are in the minority.

Background to the Main excavation's geology

The Main Excavation is located in a large pegmatite body which strikes NE/SW for 500m. The pegmatite occurs in a terrain generally consisting of grey gneissic granite (host rock) and is somewhat complicated by the presence of two amphibolite bodies adjacent to the pegmatite. The total pegmatite occurrence appears to strike parallel to two large quartz-diorite dykes further west and the pegmatite itself consists of 2 sub-intrusions. The main pegmatite consists either of two pegmatites or of a single pegmatite sheared along a shear plane striking SW/NE.

The detail geology shows the pegmatite / amphibolite contact as well as differentiation in especially the SE wall zone of the pegmatite where it ranges in crystalline texture between the following:

- Coarse intergrown feldspar and quartz (target material for mining) with recoverable feldspar >100mm
- Granitic textured zones varying from normal granitic texture to graphic texture.

In addition, the amphibolite/gneiss country rock shows variation between the following rock types:

- Amphibolite proper
- Grey gneiss
- Biotite / amphibolite schist
- Diorite (Dolerite)

The main zoned feldspar body in the central pegmatite consists of almost entirely pure Feldspar with only sub-ordinate large quartz masses and mica replacement bodies (restricted to the upper horizon). In addition, a concentration of quartz veins and micas is associated with the main shear zone in the mine.

On the north-western contact with the adjacent amphibolite, there is a narrow 1 - 2m contact zone in the pegmatite showing the following as revealed by an overburden removal blast:

- elongated micas
- veins of tantalite.
- some copper oxide stains with showings of beryl.

The pegmatite body is interpreted as being well zoned in the upper (NW) hanging wall with the following generalized characteristics:

Weathering Features

Red iron oxide discolouration in the main west face is a weathering feature and not a zonal pegmatite feature. Consequently it is interpreted in this study as having a maximal depth approximately parallel to the original land surface i.e.: dipping north-westward at ±15° (this interpretation should however be confirmed by core drilling of vertical holes to the west of the main face). Material in this weathered zone should be stockpiled separately as overburden and as iron stained feldspar for possible later sale as low grade material.

Structural Geology

The pegmatite is characterised by the following structural elements

- A shear zone striking 040 – 055° and dipping 39 – 50°N with associated quartz veins with extensive mica developments as seen in Photo 6. This shear zone poses a major threat to face stability of the south-east faces of the mining excavation as well as to haul road stability. Recent mining has however largely removed this earlier unstable situation and future mining must be conducted so as to avoid re-developing.
- Vertical joints on 040° which can lead to failure of projecting (overhanging) rock bodies.
- Closely spaced horizontal and vertical joints on 000, 018 and 315° which allow for good blast fragmentation.

In addition, a concentration of quartz veins and micas is associated with the main shear zone in the mine. On the north-western contact with the adjacent amphibolite, there is a narrow 1 - 2m contact zone in the pegmatite showing the following as revealed by an overburden removal blast:

- elongated micas
- veins of tantalite.
- some copper oxide stains with showings of beryl.

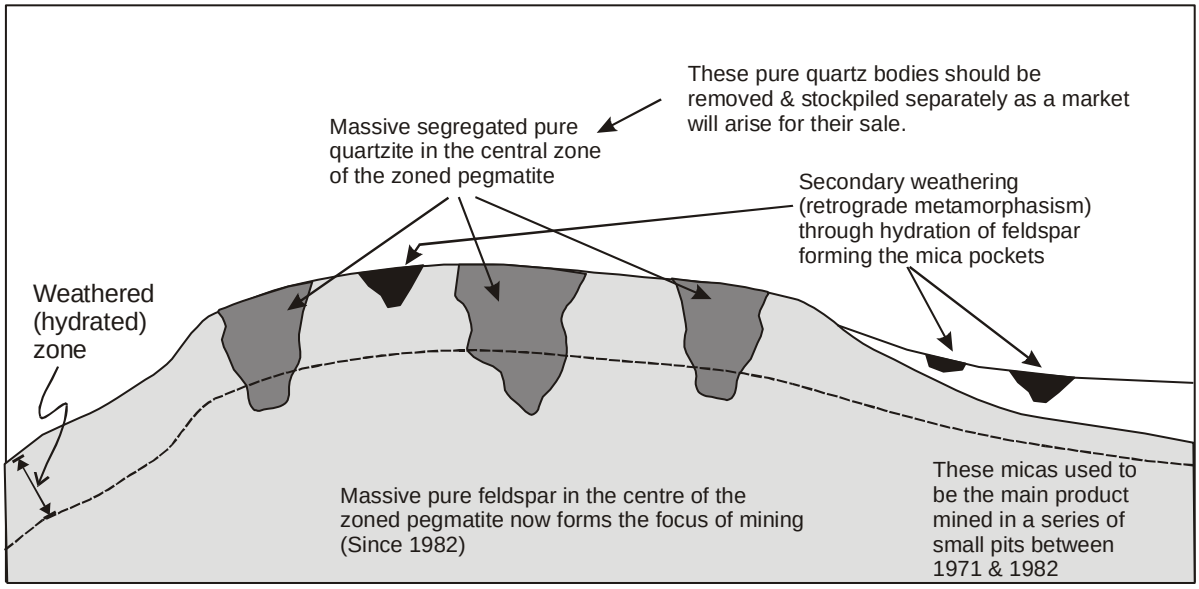


Figure 6: Quartz and mica structures in relation to the zoned pegmatite body

The pegmatite body is interpreted as being slightly zonal with the following generalized characteristics:

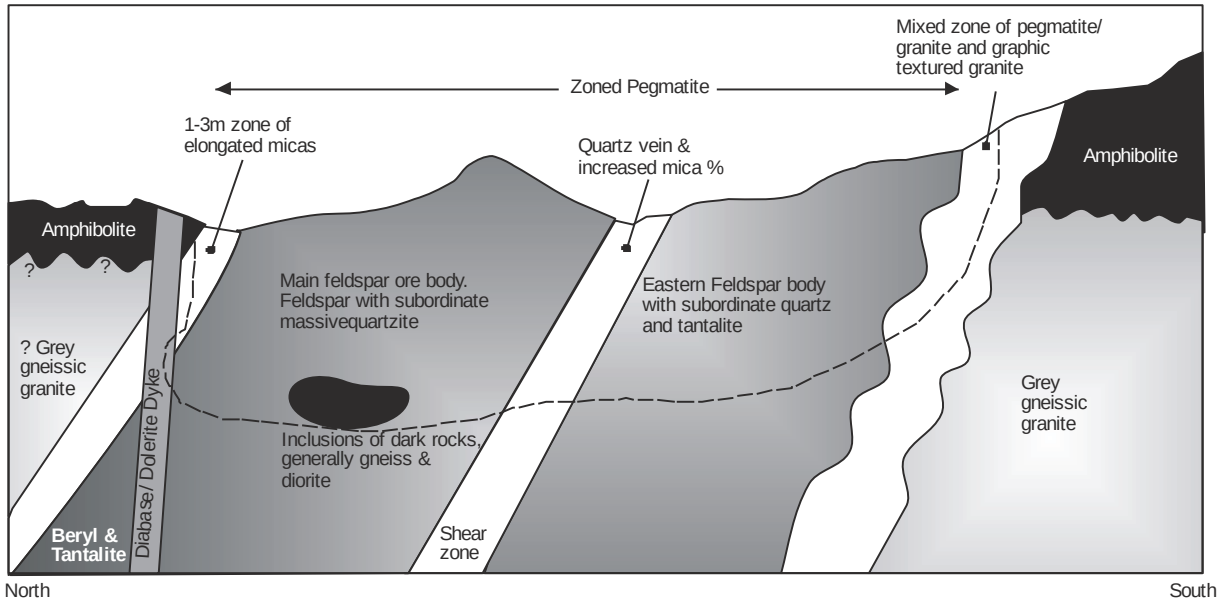


Figure 7: Geological cross section across the main excavation pegmatite

<u>Kloof Ore Body – Geological Observations</u>

Cross-sections above and Figure 4 relate the observations made in the mine which underlie the current interpretation of the rock body and its potential extent which also forms the basis of the recommended exploration to confirm these indications and reinforce resource/reserve estimates.

i) As the Kloof pegmatite body outcrops in the bottom and both sides of a north-easterly trending kloof with an increasing elevation of its lateral contacts (north-westerly and south-easterly contacts) with the dark rocks, the body is interpreted as having a south-west, north-east longitudinal form and in light of its termination to the north-east at low level and to the south-west at high level, possessing a

lens-shaped form (as opposed to a north-easterly dipping sill-shape body) which sill shape is intimated by thin pegmatitic sill intrusions in the country rock to its north-east and north but with no evidence of the thick body's continuity.

ii) In the north-west foot-wall the side of a steeply inclined dark mineral dyke? (mass of country rock) is exposed with no indication as yet whether it is intrusive into the pegmatite or the pegmatite intrusive into the dark rock. The strike of the "dyke" is south-west, north-east with a south-easterly dip ±70º i.e. sub-parallel to the numerous "diabase" dykes of the area and parallel to that left of the Swartberg Main Adit, that being a dolerite dyke.

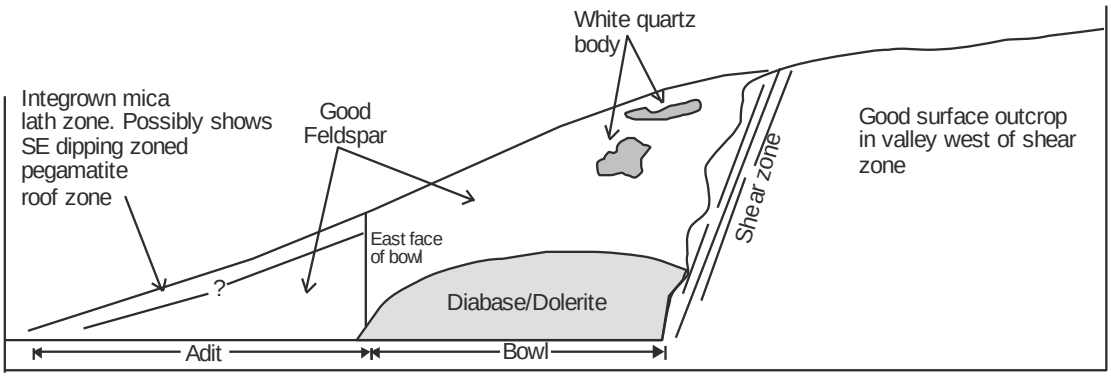
iii) A further contact (exposure) of country rock occured in the south-west corner of the excavation at floor level with this contact being east-west, and above which pegmatite occurs in the 20m face. Such contact now mined away. Within that south face, very good coarse Feldspar occurred/s with a high level of differentiation, with pure quartz forming a large mass of 2.5m diameter in the face.

iv) Near the top of the south face an elongated xenolith of grey gneiss measuring ±6m long x 1m high occurs (typical of the xenoliths which occurred in Swartberg Main).

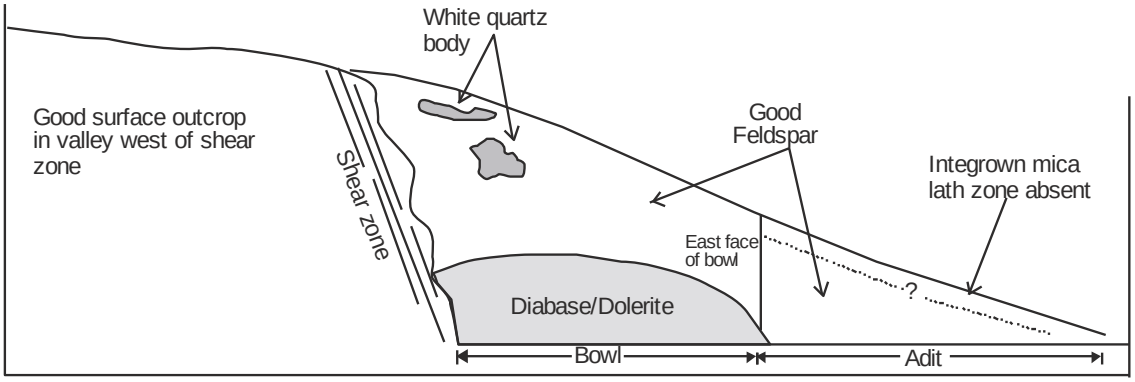
v) In the west face the pegmatite is continuous but structurally deformed by a vertical shear-zone with a north-north-east strike (sub-parallel to the major shear which occurs parallel to the south-east face in Swartberg Main).

vi) Within the upper 2m below natural ground level where the adit broadens into the Kloof Mine Section, there is a ± 1m thick zone of mica-lath inter-growth with granular textured Feldspar. This zone appears to be dipping south-east semi-parallel to the slope of the hill and has the same petrological composition and structure as the 3m thick zone which defines the north-west extent of the Swartberg Main pegmatite and given its gradation into the central body of the Main pegmatite presented the Swartberg Main pegmatite as a distinctly "zoned pegmatite". Strict extrapolation of this phenomenon would present the Kloof pegmatite as a south-eastward dipping body and will also explain the "sill" outcrop trace-line which delineates the Kloof body and appears to extend into the hill in the north-east. Within such model the pegmatite body has the potential to extend to the south below the dark mineral capping (unless the current footwall exposure of country rock is the indication of contact only metres beyond the south-face). Such interpretation would concur with a normal vertical contact lens-shaped pegmatite body which shows no lateral zoning in its contact with the country rock. In respect of the possible implications of the mica-lath roof zone for extension of the pegmatite to the north of the Adit, both this roof zone model and the outcrop trace of light coloured rock in the GoogleEarth imagery indicate a favourable extension of the pegmatite in the middle and lower slope of the hill towards the north.

vii) Good recoverable Feldspar occurs in the south wall of the Adit and east wall of the Kloof excavation bowl as well as in the north wall of the Adit and extending further north in the north-east corner of the bowl. Such good Feldspar extends in the north face of the bowl from floor level upwards in the north-east and north face of the bowl and above the dolerite dyke in the north-western corner of the bowl.



Cross Section Looking South West



Cross Section Looking North

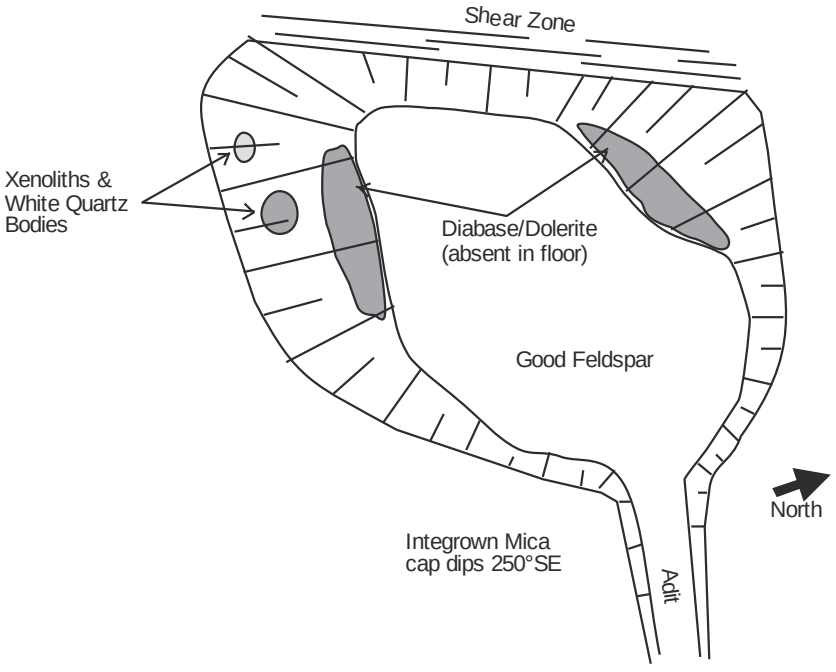


Figure 8: Cross sections and plans showing geological understanding of Kloof Section

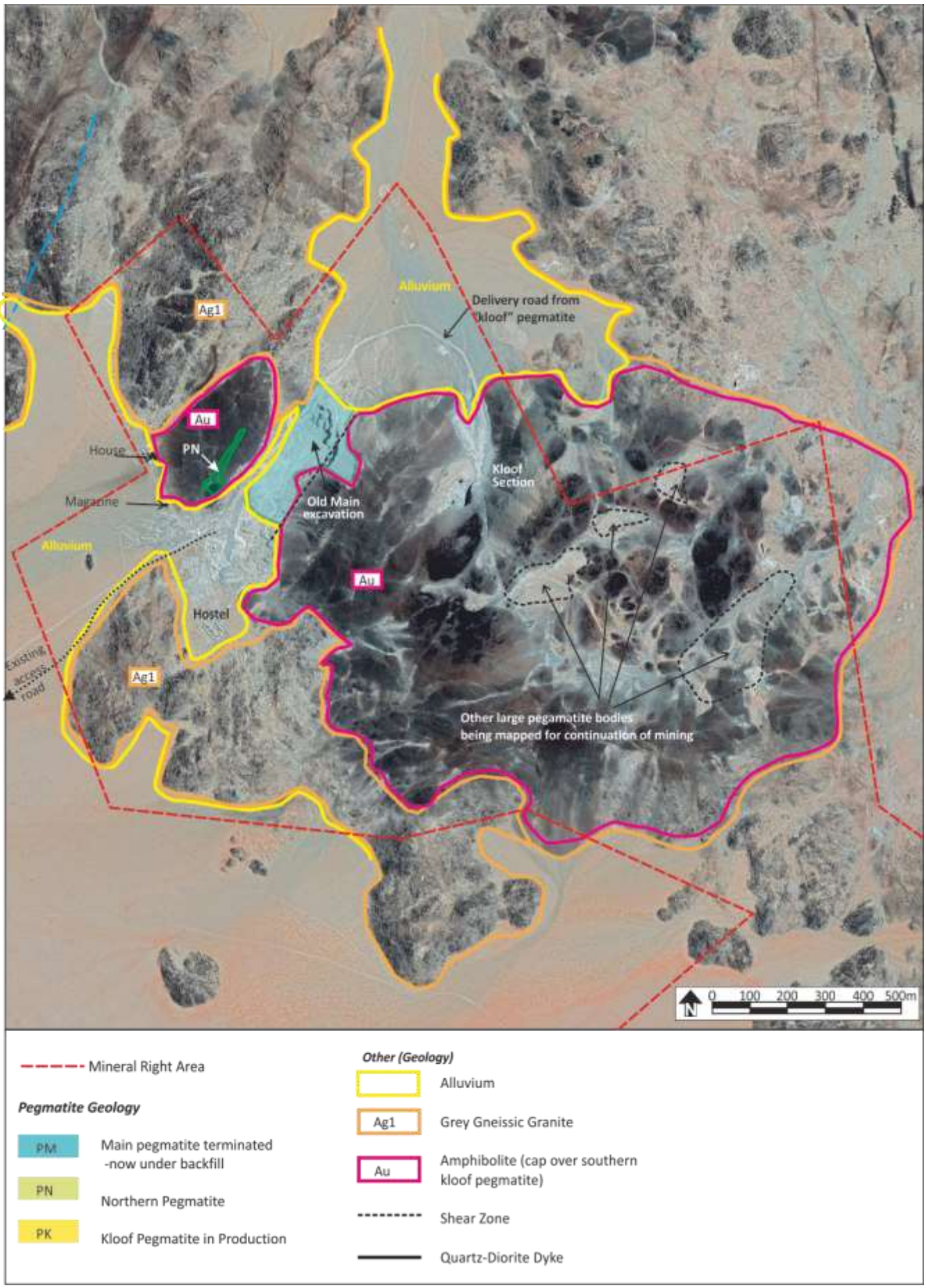


Figure 9: Sub-Regional Geological Context

12.1.2 Topography

The hills of the Swartberg rise out of the fluvial plains which surround the site. The N7 is located approximately 2.5km west of the quarry across the fluvial plain. The view of the excavation is largely eliminated by a low ridge to the SW of the excavation.

The main excavation and all logistical facilities are located on a raised saddle between the two (amphibolite) hills to the north and south of the main excavation pegmatite body.

The Kloof Section is located on a north facing slope in a shallow valley, about one third of the way to the top of the koppie to the east of the main excavation.

Impact of Existing operation

There are five main areas of existing impact with regard to topography:

- The main plant residue rock dump which is subject to further reprocessing. All waste material is utilised in the backfilling of the Main Section excavation. The positive impact of this initiative is enhanced by the fact that the high faces of the Main Section excavation were being undercut and were potentially unsafe.
- The Main Section excavation is unlikely to be completely backfilled to natural pre-mining contours, but the previous significant impact is reducing with backfilling. The impact is currently moderate. The small scale of the excavation reduces the impact from significant to moderate.
- The existing development of the Kloof section excavation. The existing pit is a steep sided excavation over an area of about 0.7ha, resulting in moderate to significant impact on topography. It is imperative that benching be put in place to reduce the impact. The ±30 year excavation configuration is shown in Figure 4. Should the steep sides not be mitigated, then the impact is significant in respect of topographical "safety".
- Kloof Section Waste rock dump: The current waste rock dump measures 1.5ha to 3m in height. The impact is at present insignificant but will increase with advance.
- The existing smaller scattered waste stockpiles in the stockpile area are temporary and impact is insignificant

Activity	***Spatial extent of impact***	***Duration***	***Probability***	***Impact rating***
Dump reprocessing	Current waste rock dumps over area of 3.1ha. Diminishing with reprocessing	Life of mine if all re-processed and backfilled, otherwise permanent	Probable	Moderate reducing
Main Section excavation	2.1ha	Permanent	Definite	Moderate, reducing
Kloof Excavation	Current 0.7ha	Permanent	Certain	Moderate / Significant
Kloof Waste Rock dump	Currently 1.5ha	Permanent	Certain	Insignificant, increasing
Ad hoc heaps and stockpiles	Ad hoc	Life of operation	Certain	Insignificant

12.1.3 Visual Impact

The main contributing factor to high visual impact associated with pegmatite mining is the difference in colour between the white minerals of pegmatites and in this case the contrasting black outcrops of the amphibolite hills surrounding the excavation.

The site is located at a distance of 2,5km from the N7 and the upper reaches of the main excavation is distantly visible to the view from the N7. This impact is reduced by the presence of a low ridge to the west of the excavation (between the excavation and the N7). This low ridge also hides the plant and existing dump areas from view. Note that the activities at the kloof pegmatite are not visible from any public road or residence.

In light of visual impact on the wilderness landscape, all future logistical facilities must be restricted to the "enclosed" low lying sandy plain area (Figure 4).

12.1.4 Soil

The excavation and immediately surrounding area has been disturbed by mining activities and would generally only have had a very thin layer of growing medium made up mostly of quartz shards. On the original main excavation pegmatite outcrop (now largely mined) soils were either absent or of the Mispah form, on the valley floors and fluvial plains however the soils are deeper Clovelly form (Paleishewel Series) (up to 2-3m).

Topsoil is largely absent from the Kloof excavation expansion area and any recovery of topsoil is in any event very difficult in such rocky conditions (refer photo 3).

For the purposes of topsoil management at the Kloof excavation, the upper 15cm will be classified as topsoil with its grass seed bank (wherever present).

There is no sub-soil on the pegmatite and amphibolite koppies. However on the plain, the subsoil is present to an undetermined depth. It is made up of the same material as the topsoil and very little if any differentiation between the top- and subsoil exists. This material has a high erosion potential if not sufficiently sloped given the lack of vegetation to bind the soil, but in light of the low rainfall, erosion is very slow.

Impact of Existing Mining

Impact on topsoil / subsoil has resulted from the:

- Development of the Main Section excavation over an area of 2.1ha
- Development of the Main Section Waste rock dump over an area of 3.1ha
- Development of previous plant and current logistical facilities and manoeuvring area over 3.1ha
- Develop of the Kloof Section excavation
- Development of Kloof section waste rock dump
- Development of Main access road and road between Main and Kloof Sections.

Note that there will be no further impact on soil emanating from the main excavation (given its cessation and use as backfill site) nor from the main section's waste rock dump, as this dump will not be extended any further (and will in fact reduce in size).

Existing impacts on soil are quantified as follows:

Activity	*Spatial extent*	*Duration*	*Probability*	*Impact Rating*
Main excavation development	2.1ha	Permanent	Definite	Moderate
Main Waste Rock Dump	3.1ha (Reducing)	Possibly temporary if all waste reprocessed	Possible, But impact has occurred	Moderate to insignificant
Plant and Logistical Facility area	3.1ha	Life of mine	definite	Moderate to insignificant
Kloof excavation	0.7ha	Permanent	Definite	Moderate
Kloof Waste rock dump	1.5ha	Permanent (not removed ahead of dumping)	Definite	Moderate to Insignificant
Access track and track between Main and Kloof Section	3-4m wide	Life of mine (and beyond)	Definite	Insignificant

12.1.5 Pre – Project Land Capability

The wilderness / grazing land capability has been completely disturbed by the work conducted during the establishment and operational phases of this operation.

The extent of existing / previous disturbances is as follows as shown in figure 3:

a) Main section excavation 1.2ha, currently undergoing backfill
b) Main Section waste rock dump – 3.1ha currently reducing due to reprocessing
c) Old plant area and current logistical facility area – 3.1ha
d) Current excavation and waste rock dump at Kloof Section.

The existing impact is insignificant and the site can return to its original land capability post mining (albeit with a modified topography).

12.1.6 Natural Vegetation

The main sources of information typically used at Scoping Stage are:

- Mucina and Rutherford mapping (2006): Vegetation of South Africa, Lesotho and Swaziland.
- CBA mapping from SANBI's CBA mapping (2017 Northern Cape).
- The classification of the vegetation types according to Critically Endangered, Endangered, Vulnerable or Least Threatened classification in terms of NEM: BA.

In addition, reference is made here to specialist study conducted in 2002.

The Mucina and Rutherford mapping (Refer Figure 10) shows the Mining Right area to be located within the Eastern Gariep Rocky Desert. According to National Environmental Management Biodiversity Act's schedule in respect of the National List of Ecosystems that are Threatened and in Need of Protect published in GN1002 (9/12/12), this vegetation type is classified as least threatened.

The site is located just outside of the Greater Richtersveld Geographic Priority Area identified in SKEP.

Eastern Gariep Rocky Desert Conservation Targets:

Conservation Target (percent of area) from NSBA	34%
Protected (percent of area) from NSBA	0%
Remaining (percent of area) from NSBA	99.7%
Description of conservation status from NSBA	Least threatened

Description of the Protection Status from NSBA	Not protected
Area (sqkm) of the full extent of the Vegetation Type	2568.2km²

Eastern Gariep Plains Desert Conservation Targets:

Conservation Target (percent of area) from NSBA	34%
Protected (percent of area) from NSBA	0%
Remaining (percent of area) from NSBA	99.7%
Description of conservation status from NSBA	Least threatened
Description of the Protection Status from NSBA	Not protected
Area (sqkm) of the full extent of the Vegetation Type	1578.0km²

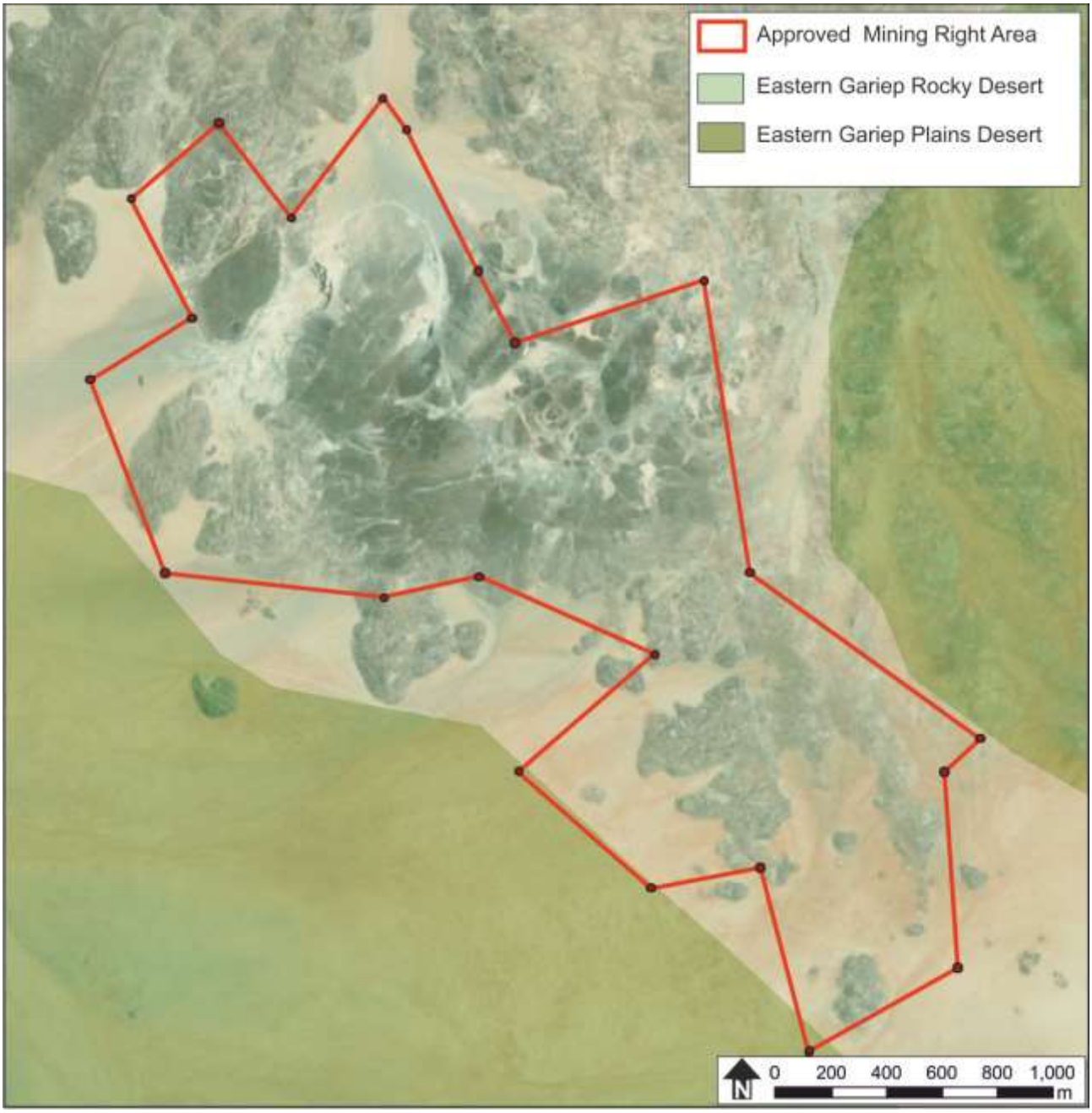


Figure 10: Vegetation Classification (Mucina and Rutherford)

Rocky Desert Distribution

All the rocky desert areas along the Orange River, including Groot Pellaberge, Dabenorisberge, Abbasasberge and many smaller mountains between Pella and Vioolsdrif. Also some mountains mapped further south well away from the Orange River such as the

Haramoebberge and Witberg. Altitude about 250–1 205 m at the highest peak of the Groot Pella.

Rocky Desert Conservation
Target 34%. None conserved in South Africa in statutory conservation areas. This unit also occurs north of the Orange River in Namibia where it is potentially conserved through the ownership of the Farm Tsams by the Namibian Ministry of Environment and Tourism.

Plains Desert Distribution
Comprises the sheet wash plains east of the Richtersveld, which lead down to the Orange River at Henkries, Goodhouse, Kabis, Klein Pella/Kambreek and the vicinity of Onseepkans. Also mapped on plains west of Pella to south of Vuurdoodberg Mountain (and Goodhouse) in the west, forming a broad east-west passage between the mountains to the north that fringe or are close to the Orange River and the more broken east-west line of hills and mountains to the south (for example Annakoppies, Grootberg, Witberg, Haramoebberge, Bantamberg and Amankop). Also found at lower reaches of the Kaboep River in the east. This unit also occurs north of the Orange River in Namibia. Altitude roughly 250–900 m.

Plains Desert Conservation
Target 34%. None conserved in statutory conservation areas. Few intact examples of this vegetation remain. Heavy grazing and arid climate combined with the ease of accessibility of the vegetation to stock mean that pastoral activities in the past have significantly altered the structure and composition of vegetation of this unit. In some areas *Prosopis* shows potential to become a serious problem, especially around natural springs or aquifers. Some very restricted areas are cultivated, mainly with date palms and grape vines.

Figure 11 shows the CBA mapping according to SANBI's 2016 Northern Cape mapping. It shows the current disturbance areas in the Mining Right area to be largely transformed (i.e. blank area) but with the undisturbed areas categorised as CBA 2.

A botanical assessment of the site was conducted on 30 June 2002 and the findings were as follows (Full report contained in Appendix 2). Note that such study did not include the Kloof Section, but it can be reasonably extrapolated in this case:

<u>The western sandy plain (vlakte) *[and Sandy hill wash where Kloof Section dump extension is planned]*</u>
This area near the entrance to the site shows moderate to heavy disturbance with the remaining patches of natural vegetation heavily overgrazed. The local and regional conservation value is "low".

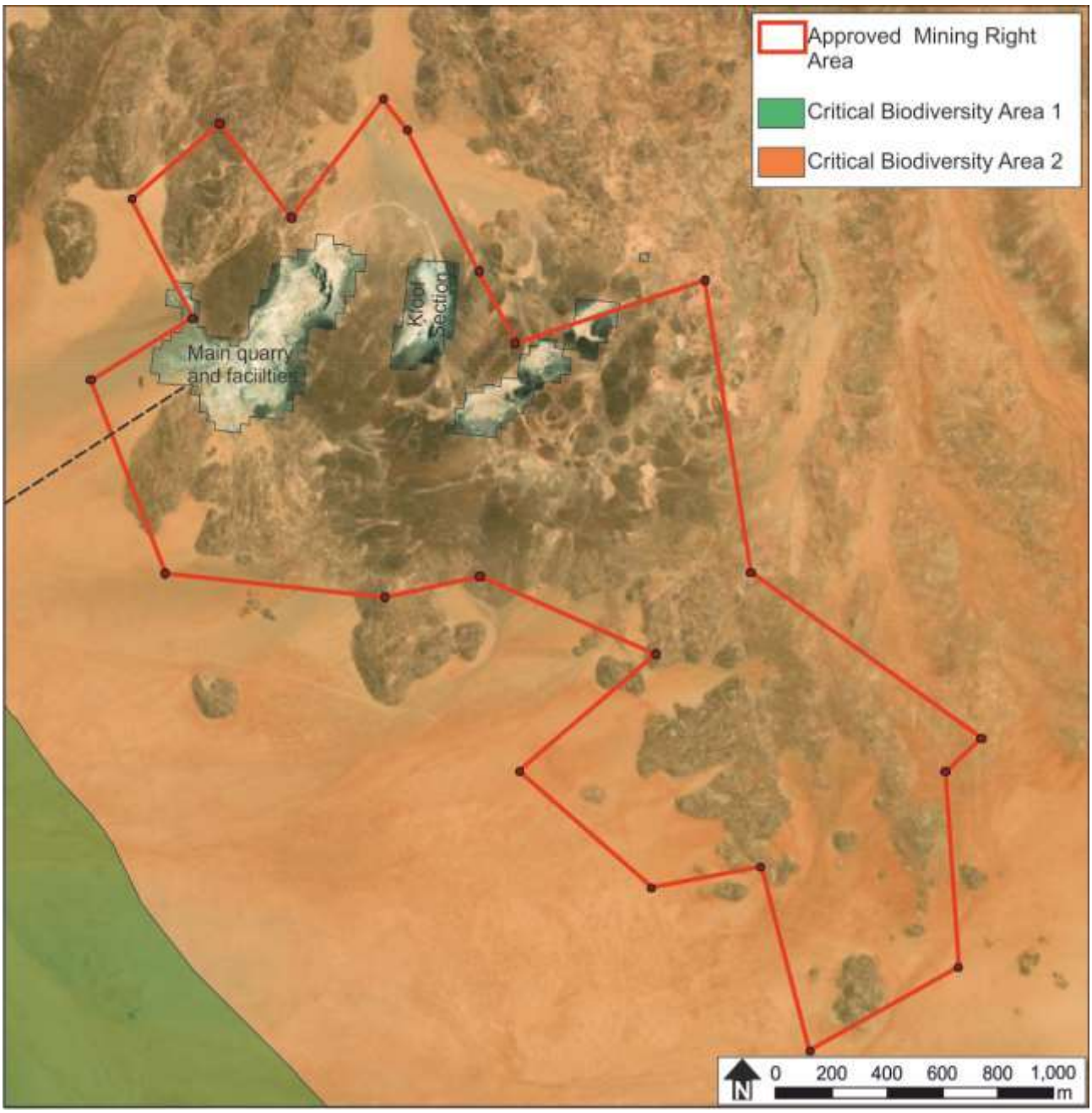


Figure 11: CBA Data – 2016 CBA Mapping for the Northern Cape

Species noted in this area are all well represented in the region and include:

- *Mesembryanthenum crytallinum* (ysplant)
- *Psilocaulon rapaceum* (asbos)
- *Brownanthus sp*
- *Codon royenii*
- *Tribulus terrestis*
- *Sisyndite spartea*
- *Zygophyllum leptpetalum*
- *Augea capensis*
- *Dyerophytum africanum*

Annuals

- *Heliophila sp*

Grasses (Very low grass cover (<1%))

- *Eanneapogon devauxii*
- *Stipagrostis obtusa* (small bushman grass)
- *Stipagrostis uniplumis* (silky bushman grass)

In the area closer to the N7 (200m from the mine entrance) the vegetation is less disturbed (but still over grazed) with succulents typical of undisturbed areas.

The local and regional vegetation conservation value in this area is given as "Moderate to High".

Species noted here:

- *Euphorbia friedrichae* (Red Data Book listed as "Indeterminate")
- *Sarocaulon flavescens* (boesmankers)
- *Ebracteola spinea* (regionally endemic vygie)
- *Ebracteola fulleri* (regionally endemic vygie)

The North-eastern overburden dump area

Dominant species here are shrubby succulents, which are generally widespread and include:

- *Ceraria namaquensis*
- *Ceraria fruticulosa*
- *Senecio cephalophorus*
- *Euphorbia decussata*
- *Aridaria noctiflora*
- *Hereroa hesperantha,*
- *Boscia foetida* (shepherd's tree)

No rare or localised species were found in this area

The local and regional conservation value of this area is given as Moderate.

Existing quarry perimeter (the pegmatite vein) *[Main Section Excavation and by extension probably similar at Kloof Section]*

The vegetation on the pegmatite vein on Swartberg has been largely destroyed by the quarrying operations, and it is likely that many species that were restricted to this habitat are, or are now very nearly, locally extinct.

Dwarf succulents. No bulbous species were noted, other than an unidentified species of *Tenicroa (with* a single, thin leaf; possibly a new species).

- *Anacampseros baeseckii*
- *Crassula garibina.*
- *Conophytum devium*
- *Conophytum longum*
- *Clydiae,*

Woody shrubs are very rare in the area and the only one noted was *Lycium oxycarpum.*

The dominant species are widespread leaf and stem succulents such as:

- *Senecio cephalophorus,*
- *Euphorbia decussata,*
- *Arenifera sp.,*
- *Ceraria fruticulosa,*
- *Ceraria narnaquensis,*
- *Crassula sericea,*
- *Crassula namaquensis,*
- *Zygophyllum leptopetalum,*
- *Phyllobolus sp*
- *Tylecodon ventricosus.*
- *Acanthopsis hofmannseggiana.*
- *Commiphora capensis*
- *Commiphora cervifolia*
- *Aloe dichotoma* (kokerboom)
- *Stapelia similisalso*
- *Sarcostemma viminale*
- *Ceraria fruticulosa,*
- *Euphorbia gariepina,*
- *Arenifera* sp
- *Hoodia gordonii* (ghaap)
- *Tylecodon hallii*

No *Pachypodium namaquanum* (halfmens) could be seen, and it is assumed that these have been removed, as they (one small plant ±150mm tall) have been reported from the site.

In addition to the findings of the botanical survey it must be added that many mature very beautiful halfmens specimens are located between 1 and 1,5km SE of the mine in the east slopes of the Swartberg.

The local and regional conservation value of the vegetation within 40m of the existing excavation edge is generally Moderate.

Endangered or rare species

No *Pachypodium namaquanum* (halfmens) could be seen, and it is assumed that these have been removed, as they (one small plant ±150mm tall) had been reported on the site.

Invader or exotic species

Nicotiana glauca is noted to have seeded along the access road and must be uprooted and burned as it is noticed.

12.1.7 Animal Life

Vast expanses of the same vegetation surrounding the site provide a habitat suitable for species typical of the area. These include rodents (rats, mice, shrews etc.), reptiles

(snakes) birds and insects. The large scale of the habitat type when compared to the extent of the existing activities negates any significance of any impact in this regard.

12.1.8 Surface Water

None within 500m of the main excavation but a small episodic stream is located immediately below the kloof excavation site. The existing Kloof section waste rock dump has been developed on top of a small stream. The catchment above that dump is very small (in the order of 22ha). According to mine personnel, when the rare rainfall episodes do occur, then the water flows below the dump and disappears into the permeable sands of the fluvial plain (which is what normally happens anyway).

The proposed dump extension is located on portion of a wide dendritic hill wash feature (Fluss). There is no defined stream channel west of the access road but some water flows from the higher lying rocky area over these permeable soils. All the channels in the affected area are blind channels flowing into the sands and there is absolutely no risk of any sediment /silt inflow into the Orange River system.

Refer Figure 12 overleaf showing the elements described above.

As the streams are highly episodic, sampling is not possible within the compilation period of this report. As no chemical processing of the products is undertaken, no pollution of water can occur and assessment of surface water clearly will be of little value as there are no users of any surface water in any event.

12.1.9 Ground Water

No groundwater has been encountered at this operation. As groundwater quality and yield in this entire area is very poor there are no users of any groundwater and as the mine does not chemically process any minerals, no pollution of groundwater is expected.

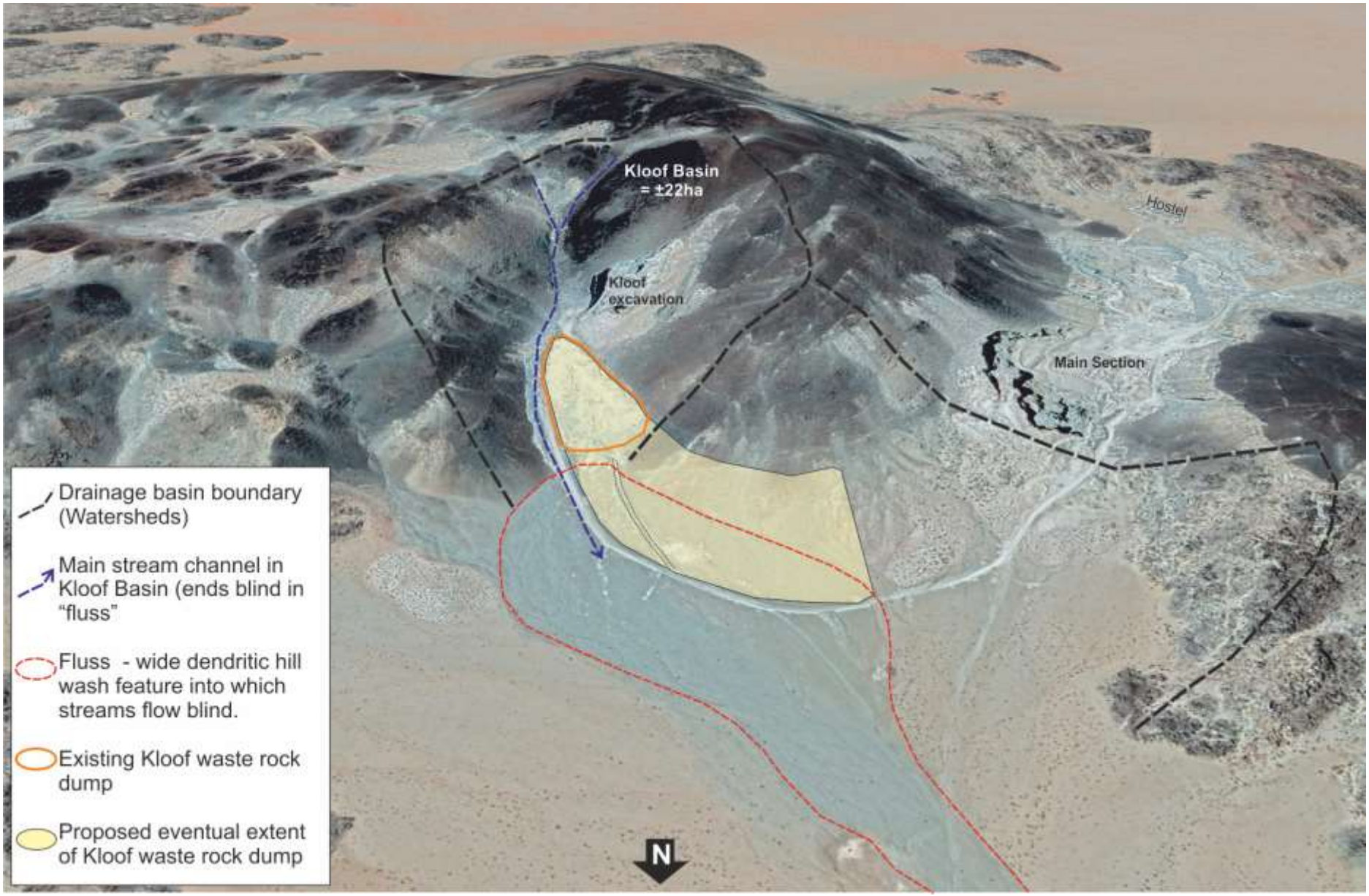


Figure 12: Surface Water Regime

12.1.10 Air Quality

National Standards and Legislative context

(a) Dust standard applied.

NEM:AQA

The stipulations in the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) with revisions in Government Notice R.827, published in Government Gazette No. 36974 of 1 November 2013 must be considered in any future dust monitoring and reporting. A Standard for the acceptance dust fall rate is set out in Table 1 for residential and non-residential areas.

Restriction Area	Dust fall rate (D) : mg.m-2.day-1 , 30-day average)	Permitted frequency of exceeding dust fall rate
Residential	D < 600	Two within a year, no sequential months
Non-Residential	600 < D < 1 200	Two within a year, no sequential months

SANS1929:2004

Attention is drawn to paragraph 4.8.4 of the extract from SANS regarding recognition that certain enterprises need to operate within "band 3" by virtue of "the practical operation of the enterprise..." provided that the best available control technology is applied for the duration".

"DUST FALL STANDARDS SANS 1929:2004

4.8 Dust Deposition

4.8.1 General

The four-band scale to be used in the evaluation of dust deposition is given in 4.8.2 and target, alert and action levels indicated in 4.8.3. Permissible margins of tolerance are outlines in 4.8.4 and exceptions noted in 4.8.5

4.8.2 Evaluation Criteria for Dust Deposition

Dust deposition rates shall be expressed in units of mg m² day-1 over a 30-day averaging period. Dust deposition shall be evaluated against a four-band scale as presented in Table 9.

Table 9 – Four-band scale evaluation criteria for dust deposition

Band number	Band description label	DUSTFALL RATE (D) (*mg* /m² /day [1] 30-day average)	Comment
1	Residential	D < 600	Permissible for residential and light commercial.
2	Industrial	600< D < 1 200	Permissible for heavy commercial and industrial.
3	Action	1 200 < D < 2 400	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	2 400 < D	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

4.8.3 Target, Action and Alert Thresholds are given in Table 10

Table 10 – Target, action and alert thresholds for dust deposition

Level	DUSTFALL RATE (D) (mg/ m² /day [1] 30-day average)	Averaging period	Permitted frequency of exceedances
Target	300	Annual	
Action residential	500	30 days	Three within any year, no two sequential months
Action industrial	1 200	30 days	Three within any year, no two sequential months.
Alert threshold	2 400	30 days	None. First exceedance requires remediation and compulsory report to authorities.

4.8.4 Margin of Tolerance

An enterprise may submit a request to the authorities to operate within Band 3 (ACTION Band), as specified in Table 9, for a limited period, providing that this is essential in terms of the practical operation

of the enterprise (for example the final removal of a tailings deposit) and provided that the best available control technology is applied for the duration.

No margin of tolerance will be granted for operations that result in dustfall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

4.8.5 Exceptions
Dustfalls that exceed the specified rates but that can be shown to be the result of some extreme weather or geological event shall be discounted for the purpose of enforcement and control. Such event might typically result in excessive dustfall rates across an entire metropolitan region, and not be localised to a particular operation. Natural seasonal variations, such as dry windy period during the Highveld spring will not be considered extreme events for this definition"

In respect of dust, the ambient dust levels are low and any existing dust impact is the result of:

- Existing mining on the site. No processing occurs, however dust generation from unsurfaced roadways and stockpiles can be reasonably high in this arid area.
- Occasional vehicles on unsurfaced roads in the area.
- Wind generated dust on a regional level (especially during dry times)

12.1.11 Noise

(a) Standards to be applied

National standards / recommendations:

SANS 0103 titled "The Measurement and Rating of Environmental Noise with regard to Land Use, Health, Annoyance and Speech……" and its recommended levels shall apply.

Recommended limits: Assuming working hours of between 06h00 and 19h00 which classifies as daytime, a recommended maximum noise level of **45dBA** is set in terms of the table below, row a.

Type of district	Equivalent Continuous Rating Level for Noise ($L_{AEQ,T}$) - (dBA)					
	Outdoors			Indoors		
	Day-night ($L_{R,dn}$)	Daytime ($L_{Req,d}$)	Night-time ($L_{Req,N}$)	Day-night ($L_{R,dn}$)	Daytime ($L_{Req,d}$)	Night-time ($L_{Req,N}$)
RESIDENTIAL DISTRICTS						
Rural districts	**45**	**45**	**35**	**35**	**35**	**25**
Suburban districts (little road traffic)	**50**	**50**	**40**	**40**	**40**	**30**
Urban districts	55	55	45	45	45	35
NON-RESIDENTIAL DISTRICTS						
Urban districts (some workshops, business premises, main roads)	60	60	50	50	50	40
Central business districts	65	65	55	55	55	45
Industrial districts	70	70	60	60	60	50

Expected community response

In terms of community response to noise, SANS recommendations are to be used as follows:

Excess dB above ambient	Estimated Community / Group Response	
	Category	Description
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Wide spread complaints
15	Strong	Threats of community / group action
20	Very Strong	Vigorous community / group action

In addition, the general noise industry rule of “ambient +7 dB” shall serve as a good indicator above which levels are generally “not acceptable”.

(b) Ambient Noise sources on site

The following equipment/activities currently generate noise in the area.

i) The most significant noise source (but still minor) is the mine generated noise
ii) Noise from the traffic on the N7.

12.1.12 Traffic

At present the site is only accessed by employees and delivery traffic. The traffic generation is in the order of 2-4 trucks per working day (i.e. absolutely insignificant traffic generation).

12.1.13 Surrounding land use

Surrounding land use is of importance in that it determines / defines the users/ uses that may be impacted by the mine. Surrounding land uses often inform the mine plan / method and in this case consists of the following:

- The site is located on the Vioolsdrift South Commonage and the main land use is the occasional goat grazing (normally further south)
- The N7 between Steinkopf and Vioolsdrift is located ±2km east of the quarry
- At the turnoff to the mine, a small farmstall type development used to be in place. It is now abandoned and is not part of the mine and does not fall within the mining right area.
- The official 4x4 trial from the N7 to Henkries Mond runs east-west ±4km south of the mine.
- Other surrounding mines in the pegmatites include the distantly located Groenhoekies and Blesberg Mines

It is clear that this mine is extremely isolated (in spite of its proximity to the N7) and there is no risk of any impact on any surrounding land user or land use.

12.2 Environmental and current land use map.

Refer figures as follows:

Figure 3: Existing Overall Site Layout Plan
Figure 4: Kloof Section (Provisional Mine Plan subject to further exploration)
Figure 5: Excerpt from May 2014 SDF
Figure 6: Quartz and mica structures in relation to the zoned pegmatite body
Figure 7: Geological cross section across the main excavation pegmatite
Figure 8: Cross sections and plans showing geological understanding of Kloof Section
Figure 9: Sub-Regional Geological Context
Figure 10: Vegetation Classification (Mucina and Rutherford)
Figure 11: CBA Data – 2016 CBA Mapping for the Northern Cape
Figure 12: Surface Water Regime
Figure 13: Decommissioning Rehabilitation

13 Impacts and risks identified including the nature, significance, consequence, extent, duration & probability of the impacts

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

Note that in this report (and in the Draft Scoping Report), the potential impacts identified:

1) Are potentially typical for such activities as identified through experience of the EAP in planning and monitoring of similar activities. Whenever impacts cannot be known because of lack of information, such potential impact would have been included for assessment by specialist study. At Swartberg the only potential unknown impact was in respect of Heritage / Cultural Impact which was subject to SAHRA input. They required no further study but did require a Letter of Exemption from a specialist - Refer Appendix 5.
2) Are in respect of proposed and ongoing activities. Impacts which occurred during establishment or development of the site have already been assessed in part 14 under the relevant environmental aspect heading.

This will still be subject to further public participation to identify additional / different impacts (and possible mitigation measures (in the upcoming EMP)).

Step one is to identify applicable impacts, as per table below. Second step is to ascribe significance and details as per table thereafter. Note that in the table below the following applies:

Negative impact which may or may not take place
Beneficial impact (will not be assessed further in order to reduce length of report)

Activity	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water & Erosion	Ground Water	Animal Life	Noise	Air Quality	Social/ Economic	Archaeology/ Cultural	Hydrocarbon	Traffic /Access
1. "ESTABLISHMENT" ACTIVITIES:														
1.1. Provide concrete apron at bunded fuel tank with oil trap														
1.2. Upgrade oil trap at Wash Bay														
1.3. Provide concrete apron and oil trap at Workshop														
1.4. Formalise used oil storage and construct bund for used oil container														
1.5. Re-establish processing plant if considered (on existing footprint)														
1.6. Provide chemical toilets at Kloof Section when operational														
2. OPERATIONAL PHASE ACTIVITIES														
A. Main Section and Logistical Facilities														
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.														
2.2. Hauling material from waste rock dump to surface of backfill														

Activity	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water & Erosion	Ground Water	Animal Life	Noise	Air Quality	Social/ Economic	Archaeology/ Cultural	Hydrocarbon	Traffic /Access
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)														
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening														
2.5. Loading and delivery of saleable product Includes use of delivery route to N7														
2.6. Use of workshop														
2.7. Use of bunded fuel tank														
2.8. Use of Wash Bay														
2.9. Water is sourced from Orange River, trucked in and passed through purification plant														
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².														
2.11. Hazardous waste transported off site for handling at licenced facility														
B. Kloof Section														
2.12. Advance of excavation through drilling and blasting (No topsoil available)														
2.13. Loading of shot rock and waste rock														
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.														
2.15. Topsoil removal ahead of waste rock dump advance –														
2.16. Waste rock dump development														
3. DECOMMISSIONING PHASE ACTIVITIES														
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.														
3.2. Cover waste rock dump in Kloof section with removed sand cover														
3.3. Demolish all unrequired structures														
3.4. Remove all protruding foundations and footings														
3.5. Remove all pipelines and cables														
3.6. Remove diesel tank & decontaminate														
3.7. Remove weighbridge concrete structures														
3.8. Rip / scarify all hardened areas														
3.9. Retain access roads for future use														
4. AFTERCARE PERIOD														
4.1. Remove alien vegetation, if present														
4.2. Conduct final performance assessment														
4.3. Lodge closure Application														
4.4. DMR Grant Closure Application														

Note that the following table will only contain negative impacts (those highlighted in Red).

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
1. "ESTABLISHMENT" ACTIVITIES:								
1.1. Provide concrete apron at bunded fuel tank with oil trap								
1.2. Upgrade oil trap at Wash Bay								
1.3. Provide concrete apron and oil trap at Workshop								
1.4. Formalise used oil storage and construct bund for used oil container								
1.5. Re-establish processing plant if considered (on existing footprint)								
1.5.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
1.5.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
1.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
1.6. Provide chemical toilets at Kloof Section when operational								
2. OPERATIONAL PHASE ACTIVITIES								
A. Main Section and Logistical Facilities								
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.								
2.1.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.1.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.2. Hauling material from waste rock dump to surface of backfill								
2.2.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.2.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.2.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)								
2.3.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.3.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.3.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening								
2.4.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.4.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.4.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.5. Loading and delivery of saleable product Includes use of delivery route to N7								
2.5.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.5.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.5.4. Traffic	Traffic entering and existing site onto N7. Limited traffic generated from site- 2 trucks per day, staff live on site, visitors seldom enter site	Local / Intersection	Life of mine	Definite	Insignificant	No	No	Can be managed (if required).
2.6. Use of workshop								
2.6.1. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.7. Use of bunded fuel tank								
2.7.1. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.8. Use of Wash Bay								
2.8.1. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.9. Water is sourced from Orange River, trucked in and passed through purification plant								
2.9.1. Surface Water (Use)	Abstraction of ±5m³ / day water from Orange River near Rooiwal	Local	Life of mine	Definite	Insignificant	No	No	Must be managed

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².								
2.10.1. Hydrocarbon / Leachate	Potential generation of hazardous leachate or hydrocarbon pollution from tainted domestic / general waste inadvertently being disposed of in pit	Local (If any)	Permanent	Unlikely	Insignificant to moderate	Cannot be reversed	No	Must be avoided
2.11. Hazardous waste transported off site for handling at licenced facility								
2.11.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.11.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.11.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
B. Kloof Section								
2.12. Advance of excavation through drilling and blasting (No topsoil available)								
2.12.1. Topography	Development of excavation with faces and benches	Maximum surface area in order of 3.7ha	Permanent	Probable (extent may be less)	Moderate to Significant	Could be backfilled but unlikely	No	Must be mitigated (shaped)
2.12.2. Soil	Disturbance of soil profile during exaction development	Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Permanent (no topsoil removal takes place)	Definite with pit advance	Insignificant in respect of soil	No	Yes	It is impossible to remove topsoil from the rocky environment but that which is located will be used

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.12.3. Land Capability	Loss of grazing / wilderness are on excavation footprint	Maximum surface area in order of 3.7ha	Permanent[5]	Definite	Insignificant	Partial	Yes	Can be mitigated through shaping of pit to allow eventual revegetation on benches and floor
2.12.4. Vegetation	Loss of vegetation on excavation footprint	Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Permanent	Definite	Insignificant	No	Yes	Can be mitigated through transplant programme
2.12.5. Animal Life	Loss of habitat with excavation advance	Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Permanent	Definite	Insignificant	No	Yes	Mitigation required (catch and release or chasing)
2.12.6. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.12.7. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.12.8. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.13. Loading of shot rock and waste rock								
2.13.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.13.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.13.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.								
2.14.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational

[5] The *Wilderness* land capability can be considered to be returned after mining has been completed, but it will be an altered habitat type. Grazing cannot be contemplated here after mining, nor is it currently occurring in these hills.

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.14.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.14.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.15. Topsoil removal ahead of waste rock dump advance.	Note that no topsoil has been removed ahead of existing dump development							
2.15.1. Soil	Removal of soil ahead of dump development	Up to 3.8ha to a depth of at least 250mm	Life of mine, to be used in rehabilitation	Must occur	Moderate	Yes	No	This is a management measure to allow for rehabilitation of future dump.
2.15.2. Land Capability	Loss of grazing / wilderness are on dump footprint	Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Incremental increase with expansion of dump	Definite	Insignificant	Yes	No	Can be returned with return of soil as cover of waste rock dump
2.15.3. Vegetation	Disturbance of vegetation on dump footprint	Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Incremental increase with expansion of dump	Definite	Insignificant	Yes	No	Can be returned with return of soil as cover of waste rock dump
2.15.4. Animal Life	Loss of habitat with dump soil removal advance	Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Temporary	Definite	Insignificant	No	Yes	Mitigation required (catch and release or chasing)
2.15.5. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.15.6. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.15.7. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
2.16. Waste rock dump development								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
2.16.1. Topography	Development of dump to 7m in height over additional area of 3.8ha	Total eventual area = 5.3ha	Permanent	Definitely will be a dump but may be smaller[6]	Insignificant to moderate	Conceivably (but unlikely)	No	Must be mitigated through shaping
2.16.2. Land Capability	Addressed in line item 2.15.2 above							
2.16.3. Surface Water	The proposed dump extension is located on portion of a wide dendritic hill wash feature (Fluss). There is no defined stream channel west of the access road but some water flows from the higher lying rocky area over these permeable soils. All the channels in the affected area are blind channels flowing into the sands – Refer Figure 12.	Total eventual area of dump = 5.3ha (from current extent of 1.5ha)	Permanent	No dumping east of access road to eliminate impact on possible stream channel	None if dump retained west of access road	Conceivably (but unlikely)	No	Avoided
2.16.4. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
2.16.5. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
2.16.6. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
3. DECOMMISSIONING PHASE ACTIVITIES								
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.								

[6] The calculated waste rock volume assumes that all waste will be disposed of on this dump, however it is possible that up to 40% of the waste material will be transported with feldspar to the sorting area on the backfill platform. Once the Feldspar has been removed, then that waste material will be used in the backfill of the Main Section excavation.

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
3.1.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
3.1.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
3.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
3.2. Cover waste rock dump in Kloof section with removed sand cover								
3.2.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
3.2.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
3.2.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided
3.3. Demolish all unrequired structures								
3.4. Remove all protruding foundations and footings								
3.5. Remove all pipelines and cables								
3.6. Remove diesel tank & decontaminate								
3.7. Remove weighbridge concrete structures								
3.8. Rip / scarify all hardened areas								
3.8.1. Noise	Noise generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Avoided through ensuring silencers are operational
3.8.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant	No	No	Dust could be allayed by wetting, but unlikely to be required given isolation of site.
3.8.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant (if cleared)	Yes	No	Can be avoided

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss	avoid, manage/ mitigate
3.9. Retain access roads for future use								
4. AFTERCARE PERIOD								
4.1. Remove alien vegetation, if present								
4.2. Conduct final performance assessment								
4.3. Lodge closure Application								
4.4. DMR Grant Closure Application								

14 Methodology used in determining and ranking the nature, significance of potential environmental impacts

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

An initial table was compiled which described each activity (whether listed or not in terms of NEMA), potential impact, significance and duration. Such table was included in the draft Scoping report which was made available to all identified Interested and Affected Parties. Any relevant responses received would then inform a revision of the site layout plan – No relevant comments were received.

The impacts are rated according to nature, extent, duration, probability of occurring and significance.

a) The significance level is based on the following criteria:

Significance		***Criteria***
Negative	Significant (S)	• Recommended level always exceeded with associated widespread community action • Disturbance to areas that are pristine, have conservation value, are important resource to humans and will be lost forever • Complete loss of land capability • Destruction of rare or endangered specimens • May affect the viability of the project
	Moderate (M)	• Moderate measurable deterioration and discomfort • Recommended level occasionally violated – still widespread complaints • Partial loss of land capability • Complete change in species variety or prevalence • May be managed • Is insignificant if managed according to EMP provisions
	Minor/ (I) Insignificant	• Minor deterioration. Change not measurable • Recommended level will rarely if ever be violated • Sporadic community complaints • Minor deterioration in land capability • Minor changes in species variety or prevalence
	Negligible	• An impact will occur but it is barely discernible and not worthy of further investigation
Positive	Minor	• Improvements in local socio-economics
	Significant	• Major improvements in local socio-economics with some regional benefits

b) The **duration** is classified as:
- Permanent (post-closure)
- Life of Mine (LOM)
- Temporary

c) The **probability** is ranked as:
- Definite/Certain
- Possible
- Unlikely

15 The positive & negative impacts that the activity & alternatives will have on the affected environment and the community.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

Impacts on the environment are restricted in type given the previous use and disturbance that has already taken place. The following paragraphs describe the negative and positive impacts of the operation from this point forward (including those operational impacts which are on-going such as noise, dust, visual impact):

The operation has the following **negative impacts** (in no particular order) on the environment and community:

Topography:

There will be permanent impact on topography through the following activities:

1) The further extension of the Kloof Section excavation. Kloof Section excavation covers a surface area of 0.7ha. It is proposed to extend this to a maximum area of 3.7ha dependent on actual Feldspar presence which will be determined by drilling programme ahead of advance. It is critical that faces and benches be developed to limit impact on topography.
2) The extension of the waste rock dump at the Kloof Section. The existing dump measures 1.5ha and it is proposed to extend this to a maximum total of 5.0ha to 7m in height. It is most likely that the extent of this dump will be less than calculated because:
    a. There may be less Feldspar reserve proved by drilling than expected in this documentation. There will not be more. The attached mine plan shows the absolute maximum extent of the Feldspar lens.
    b. It has been estimated by the mine manager that up to 40% of the waste rock will be transported to the sorting platform on the backfill of the main section excavation. Once sorted, the waste material will be used to continue the backfill of the Main Section pit.
3) Positive impact on topography will occur through:
    a. Removal of the Main Section plant residue material to reprocessing. At present the Holders are hollowing out the dump from closest to the Main Section excavation and the perimeter slopes are still in place. But the proposal is to continue reprocessing that material until the entire dump is removed.
    b. The waste material resultant from the reprocessed plant residue material is used to backfill the Main Section excavation.

Vegetation:

The vegetation specialist in 2002 assessed the impact rating of vegetation disturbance as moderate to high depending on location. The Kloof Excavation extension could

conceivably result in high impact whilst the dump development will result in moderate impact. These impacts can be ameliorated with a search and rescue programme ahead of disturbance. If considered this would have to be done using the services of specialist botanist.

Soil:
Soil removal can only occur in respect of the Kloof Section dump development. It is virtually impossible to remove topsoil ahead of excavation development in the Kloof excavation area, but monitoring will be conducted ahead of face advance by site manager and operator, and if any topsoil is available for removal then it will be removed and added to the Kloof waste rock dump topsoil stockpile – refer Figure 4.

Noise and dust:
Limited impact and will not impact on any surrounding land use or user.

Hydrocarbon Impact
The potential exists for impact from Hydrocarbon pollution and measures must be put in place to avoid such impact as well as interventions required should such hydrocarbon leak ever take place.

The only **positive impacts** are the socio economic impact which accrues through employment opportunities (direct and indirect), income from sales as well income and demand for down the line suppliers and services.

16 The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

This table was compiled in the pre-scoping phase before issues and concerns may have been raised by affected parties – to date, no comments have been received.

Impact	Possible Mitigation	Level of risk
Topography: Negative Impact on topography will arise through the development of Kloof section excavation and dump, whilst positive impact will occur through reprocessing of Main Section Plant residue and backfilling of Main Section excavation	Maximise backfilling. In case of excavation, ensure that faces and benches are in place along pit edges as opposed to 1 large high steep dangerous face. In case of dumps, shape dump leading edges to mimic natural contours. Limit slopes to less than angle of repose to allow cover material to stabilize on the slope.	It is acknowledged that such impact will occur. The risk would be associated with indiscriminate dumping and excavation development outside of the plan, and chasing the "eye" of the reserve. This chasing of the eye has happened before at this site and must be guarded against by ensuring faces and benches in the excavation. As a result of past experience, risk is assessed as high in respect of the excavation.

Impact	Possible Mitigation	Level of risk
Land Capability: Wilderness /grazing land lost to mining disturbances. Impact is ascribed an insignificant rating.	The Holder must adhere to the Mine Plan and not allow for indiscriminate disturbances (dumping or excavations) outside of approved areas	Risk is low provided all proposed mitigation measures are successfully implemented.
Soil / Vegetation: As described in Part 17, the only soil and vegetation impact is assessed to occur when the excavation is extended in the Kloof Section and the Kloof Section dump is developed to the north.	Removed topsoil from the dump advance will be stockpiled for proposed use during rehabilitation of the dump. Topsoil must be replaced as soon as feasible if any dump section reaches its final configuration, but it is understood that soil may be stockpiled for an extended period. Other mitigation measures include: Don't allow unnecessary access into surrounding veld. No poaching or trapping of animals is permitted. Ensure staff report any snare or poaching noted. Alien / exotic plant management must take place	The risk that topsoil will not survive the lifespan of the operation is High. Topsoil loss will occur through wind and water erosion.
Dust impact from the operation	Can be controlled with use of water.	Minimal risk given isolation of site. Must be controlled in terms of employee health regulations
	Limit speed on internal roads as well as access roads to the site	
	If dust result in any complaints from surrounding parties (highly unlikely), then a dust monitoring programme must be established and best options installed to eliminate any future dust from that source.	
Noise	The impacts of noise must limited more because of employee health reasons than for any impact on surrounding land users or land use	Minimal risk given isolation of site. Must be controlled in terms of employee health regulations
	All vehicles must be equipped with working silencers	
Waste / Hydrocarbon impact	Hydrocarbon management policy must be developed	Risk is low given relatively small scale of the activities and proposed interventions.
	Any transfer of fuel must take place using suitable funnels and pumping equipment	
	Staff to be trained in respect of hydrocarbon pollution and contamination clearing methodologies to be employed	

Impact	Possible Mitigation	Level of risk
	Any regular servicing of plant and equipment to take place at the workshop or at head office site	
	Separate waste streams and handle accordingly	

16.1 Motivation where no alternative sites were considered.

Not applicable as this EIA-EMP serves the existing right of the established mine.

16.2 Statement motivating the alternative development location within the overall site.

Motivation for the use of the site doesn't strictly apply in this case given that it's the use of an existing previously disturbed operational site and the proposed continuation results in minor additional disturbances. However the following does apply in respect of motivation for continued use of this site:

a) The overriding factor is the geology and the availability of material suitable for financially feasible operation in an area which is not sterilized by surrounding land uses.

b) The main client of this mine is Consol Glass who requires this high quality Feldspar in their manufacturing. Locating another site with such quality Feldspar is in itself an unlikely proposition but would in any event result in additional impacts from start-up.

c) Site Plan Consulting has been visiting this site for decades and this EAP has been encouraged by the general advance in environmental management (and safety) at this site. The major improvement has been the backfilling of the Main Section Pit, but there have been improvements in the general housekeeping at the site. Even though there are still improvements to be made in the environmental management it is clear that the trend is in a positive direction and that future mining and rehabilitation will be of higher level than in previous years.

d) The project results in direct income, employment in an area of high unemployment and income to down the line industries.

17 Description of the process undertaken to identify, assess & rank the impacts & risks the activity will impose on the preferred site through the life of the activity.

(Including a description of all environmental issues and risks that were identified during the environmental impact assessment process and an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

The existing mine layout plan of facilities and activities was considered within the option of an alternative layout but no merits could be found to justify an alternative layout.

The scoping report described the layout and consideration of impacts and was distributed to I&APs for comment. No relevant comments were received in respect of site layout or alternatives to the existing site layout.

17.1 Description of all environmental issues and risks that were identified during the environmental impact assessment process.

The issues that were identified are described fully under their relevant headings and tables in Part 13 and will not be repeated in this paragraph.

17.2 Assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures

- For significance of each issue and risk – Refer table in para 13
- For indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures – Refer Table in Part 13
- Actual mitigation measures are described in Para 34.

17.3 Assessment of each identified potentially significant impact and risk

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated.
1. "ESTABLISHMENT" ACTIVITIES:				
1.1. Provide concrete apron at bunded fuel tank with oil trap				
1.2. Upgrade oil trap at Wash Bay				
1.3. Provide concrete apron and oil trap at Workshop				
1.4. Formalise used oil storage and construct bund for used oil container				
1.5. Re-establish processing plant if considered (on existing footprint)				
1.5.1. Noise	Noise generated by plant equipment	Insignificant	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Insignificant
1.5.2. Air Quality	Dust generated by plant equipment	Insignificant	Impact to be insignificant when managed through dust mitigation measures	Insignificant
1.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
1.6. Provide chemical toilets at Kloof Section when operational				
2. OPERATIONAL PHASE ACTIVITIES				
A. Main Section and Logistical Facilities				
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.				
2.1.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.1.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated.
2.2. Hauling material from waste rock dump to surface of backfill				
2.2.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.2.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.2.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)				
2.3.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.3.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.3.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening				
2.4.1. Noise	Noise generated by earthmoving equipment	Insignificant	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Insignificant
2.4.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Impact to be insignificant when managed through dust mitigation measures	Insignificant
2.4.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.5. Loading and delivery of saleable product Includes use of delivery route to N7				
2.5.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant

ACTIVITY whether listed or not listed.	**POTENTIAL IMPACT**	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE**	**SIGNIFICANCE** if mitigated.
2.5.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.5.4. Traffic	Traffic entering and existing site onto N7. Limited traffic generated from site- 2 trucks per day, staff live on site, visitors seldom enter site	Insignificant	Ensure signage in place	Insignificant
2.6. Use of workshop				
2.6.1. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.7. Use of bunded fuel tank				
2.7.1. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.8. Use of Wash Bay				
2.8.1. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.9. Water is sourced from Orange River, trucked in and passed through purification plant				
2.9.1. Surface Water (Use)	Abstraction of ±5m³ / day water from Orange River near Rooiwal	Insignificant	None required, except to not waste water unnecessarily	Insignificant
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².				
2.10.1. Hydrocarbon / Leachate	Potential generation of hazardous leachate or hydrocarbon pollution from tainted domestic / general waste inadvertently being disposed of in pit	Potentially moderate if waste type not monitored and hazardous waste allowed to be buried	Control through management and monitoring	Insignificant
2.11. Hazardous waste transported off site for handling at licenced facility				

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated.
2.11.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.11.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.11.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
B. Kloof Section				
2.12. Advance of excavation through drilling and blasting				
2.12.1. Topography	Development of excavation with faces and benches. Maximum surface area in order of 3.7ha	Moderate to significant (especially in respect of safety)	Control through design measures (Faces on benches as opposed to a vertical highwall)	Moderate
2.12.2. Soil	Disturbance of soil profile during exaction development. Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Insignificant. Topsoil not readily available in excavation area	Manage through topsoil management measures and pre-disturbance monitoring	Insignificant in respect of soil
2.12.3. Land Capability	Loss of grazing / wilderness are on excavation footprint	Insignificant	Remedy through design measures and rehabilitation	Insignificant
2.12.4. Vegetation	Loss of vegetation on excavation footprint	Insignificant	Remedy through rehabilitation /relocation	Insignificant
2.12.5. Animal Life	Loss of habitat with excavation advance	Insignificant	None feasible	Insignificant
2.12.6. Noise	Noise generated by drilling and blasting	Insignificant	None feasible	Insignificant
2.12.7. Air Quality	Dust generated by drilling and blasting	Insignificant	None feasible	Insignificant
2.12.8. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.13. Loading of shot rock and waste rock				
2.13.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.13.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant

ACTIVITY whether listed or not listed.	**POTENTIAL IMPACT**	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE**	**SIGNIFICANCE** if mitigated.
2.13.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.				
2.14.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.14.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.14.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.15. Topsoil removal ahead of waste rock dump advance.	Note that no topsoil has been removed ahead of existing dump development			
2.15.1. Soil	Removal of soil ahead of dump development. Up to 3.8ha to a depth of at least 250mm	Moderate (if not removed)	Remedy through design measure and rehabilitation	Insignificant
2.15.2. Land Capability	Loss of grazing / wilderness are on dump footprint. Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Insignificant	Remedy through design measure and rehabilitation	Insignificant
2.15.3. Vegetation	Disturbance of vegetation on dump footprint Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Potentially moderate	Control / avoid through transplanting programme (Design and rehabilitation measure)	Insignificant
2.15.4. Animal Life	Loss of habitat with dump soil removal advance. Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Insignificant	None feasible	Insignificant
2.15.5. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated.
2.15.6. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.15.7. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
2.16. Waste rock dump development				
2.16.1. Topography	Development of dump to 7m in height over additional area of 3.8ha	Moderate	Remedy through shaping and rehabilitation	Insignificant to moderate
2.16.2. Land Capability	Addressed in line item 2.15.2 above	Insignificant	Remedy through design measure and rehabilitation	Insignificant
2.16.3. Surface Water	The proposed dump extension is located on a wide dendritic hill wash feature. There is no defined stream channel west of the access road but water flows from the higher lying rocky area over these permeable soils – Refer Figure 12.	Insignificant	Control through dump location	None if dump retained west of access road
2.16.4. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
2.16.5. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
2.16.6. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
3. DECOMMISSIONING PHASE ACTIVITIES				
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.				
3.1.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
3.1.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
3.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated.
3.2. Cover waste rock dump in Kloof section with removed sand cover				
3.2.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
3.2.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
3.2.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
3.3. Demolish all unrequired structures				
3.4. Remove all protruding foundations and footings				
3.5. Remove all pipelines and cables				
3.6. Remove diesel tank & decontaminate				
3.7. Remove weighbridge concrete structures				
3.8. Rip / scarify all hardened areas				
3.8.1. Noise	Noise generated by earthmoving equipment	Insignificant	Ensure vehicular silencers are operational.	Insignificant
3.8.2. Air Quality	Dust generated by earthmoving equipment	Insignificant	Control through dust control measures when necessary	Insignificant
3.8.3. Hydrocarbon	Potential Hydrocarbon leaks	Insignificant / moderate	Manage and remedy through the Hydrocarbon Management Protocol	Insignificant / None (if cleared)
3.9. Retain access roads for future use				
4. AFTERCARE PERIOD				
4.1. Remove alien vegetation, if present				
4.2. Conduct final performance assessment				
4.3. Lodge closure Application				
4.4. DMR Grant Closure Application				

17.4 Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	RECOMMENDATIONS INCLUDED IN EIA (Mark with an X where applicable)	REFERENCE
Heritage: Letter of Exemption submitted to SAHRA. Compiled by specialist Jonathan Kaplan (ACRM)	The Draft Scoping Report was submitted to SAHRA for comment. Their interim comment dated July 30, 2021 (Refer Appendix 5: Heritage Matters) noted that: 1) Specialist compiled letter of Exemption must be provided and 2) No Palaeontological Impact Assessment was required. The Letter of Exemption was compiled by Specialist J Kaplan of Agency for Cultural Resource Management and lodged to SAHRA on the SAHRIS portal. Copy included in Appendix 5.	X	Para 26.1.2

18 Environmental impact statement

18.1 Summary of the key findings of the environmental impact assessment

The critical factor in assessing this operation and the EMP is that the site is already operational and all activity types are already in process. The only expansion of activities is the extension of the Kloof excavation and Kloof waste rock dump.

As a result, the operational impacts are known and have largely been dealt with in the operation. Site Plan Consulting has been visiting the site for several decades and has noted a significant improvement in environmental management and general site husbandry. The re-processing of the main plant residue dump and the backfilling of that material into the original pit will result in significantly reduced residual topographical impact, given the very high and dangerous vertical faces which prevailed.

Care must be taken at the Kloof excavation to ensure that such high vertical faces do not result and that the excavation edges are developed with faces and benches.

18.2 Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.

Refer Figures 3 and 4: Mine Layout Plan. Such figure also shows the overall disturbance areas.

Refer Figure 13 Decommissioning Rehabilitation Plan shows the Rehabilitation areas measured in hectares.

18.3 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

Objectives are non-specific / less measureable aims of the rehabilitation/impact management programme.

Outcomes are the measurable effects the rehabilitation /impact management must accomplish.

18.3.1 Impact Management objectives are as follows:

1) To eliminate any visual impact onto the N7 (being an acknowledged tourist route)
2) To ensure that the proposed operation does not contravene policies of local / municipal SDF and other policy documentation

3) Limiting any environmental nuisance factors especially noise and dust resulting from the activities at this site.
4) Continuation of the recent improvement in site husbandry and general housekeeping around the site
5) Minimising/elimination of any possible (albeit unlikely) impact on surface water and groundwater regime through especially sound hydrocarbon management
6) To limit the residual impact of the operation, especially in respect of the remaining excavations and dumps

18.3.2 Impact Management outcomes are as follows:

The site is located in an extremely isolated area (despite its proximity to the N7) and the scale and speed / advance of the operation is very slow. As a result impacts related to noise and dust are limited in scope to the actual site and must be controlled more in respect of health and safety requirements than for any nuisance factor that they may cause.

In respect of visual impact on the N7 it is critical that no further activities be permitted in that visual envelope with the exception of the removal of the main plant residue dump for reprocessing backfilling into the pit. This is easily achieved given that all logistical facilities are in place and the very small scale of visual impact as a result of the low rise between the operation and the N7 as well as the narrow entrance "valley" to the operation.

The holder must ensure strict adherence to the monitoring and attenuation protocol in respect of Hydrocarbon pollution as described later in this text. All surface spills must be dealt with immediately and in accordance with the measures prescribed.

Should operational environmental management and decommissioning rehabilitation of the site take place in accordance with the these prescriptions then the site should integrate into the surrounding fabric with the main impact being the alteration of topography through the remaining Kloof excavation and Dump (and any residual main excavation and shaped residual main plant waste dump)

18.4 Final proposed alternatives.

Not applicable as the mine is a well-established going concern with no reason to consider alternatives.

19 Aspects for inclusion as conditions of Authorisation.

The following conditions must be included as conditions of authorisation:

1) All aspects and measures prescribed in the EMP must be strictly applied.

20 Description of any assumptions, uncertainties and gaps in knowledge.

None known.

21 Reasoned opinion as to whether the proposed activity should or should not be authorised

21.1 Reasons why the activity should be authorized or not.

The most recent site visit showed a definite improvement in environmental management at this site as compared to preceding decades. While it must be acknowledged that the previous mining practices resulted in very dangerous main excavation, that situation has been significantly improved by the reprocessing of the main waste rock dump and the backfilling of that material into the pit.

Provided the prescriptions of the EMP are adhered to and the measures put in place then there is no reason why the authorisation should not be granted.

21.2 Conditions that must be included in the authorization

21.2.1 Specific conditions to be included into the compilation and approval of EMPr

The following conditions must be included as conditions of authorisation:

- All aspects and measures prescribed in the EMP must be strictly applied.

21.2.2 Rehabilitation requirements

None, except to state that all prescriptions of the EMP must be met in achieving closure and facilitating post mining land use.

22 Period for which the Environmental Authorisation is required.

30 years.

23 Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

Confirmed in respect of the EMPr.

There was no Basic Assessment.

24 Financial Provision

This is an operational authorised mine and as such is subject to the Financial Provision regulations which require annual updates of the calculation of the quantum required for full rehabilitation of the site. Such fund is calculated on the basis that the holder absconds and that the rehabilitation would be carried out by contractors.

The holders have met this obligation and the required Financial Guarantees are in place at the DMRE.

25 Deviations from the approved scoping report and plan of study.

25.1 Deviations from the methodology used in determining the significance of potential environmental impacts and risks.

(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation).

None.

25.2 Motivation for the deviation.

Not applicable.

26 Other Information required by the competent Authority

26.1 Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-

26.1.1 Impact on the socio-economic conditions of any directly affected person.

Socio-economic impact occurs as a result of the following parties' socio-economic status being altered:

- Landowner: Positive impact in respect of surface rental and / or other income as a result of the mining.
- Mining Company and employees: Guaranteed income for duration of the project.
- Consumer: Guaranteed continued supply of raw material
- The applicant company is bound by prescriptions of the Social and Labour Plan to contribute to the community's skills development and must also implement a Local Economic Development project which meets the satisfaction of the DMR and local authority.
- The social and labour plan also prescribes skills development for staff and community members.

26.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

The Draft Scoping Report was submitted to SAHRA for comment. Their interim comment dated July 30, 2021 (Refer Appendix 5: Heritage Matters) noted that:

1) Specialist compiled letter of Exemption must be provided and
2) No Palaeontological Impact Assessment was required.

The Letter of Exemption was compiled by Specialist J Kaplan of Agency for Cultural Resource Management and lodged to SAHRA on the SAHRIS portal. Copy included in Appendix 5.

27 Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist.

The alternatives are considered in para 10 and 15 under the relevant template headings.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

28 Details of the EAP,

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

Refer Para 1.

29 Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, herein as required).

Yes. Refer in Part A: Paras 4 and 5.

30 Composite Map

(Provide a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

Refer Figures 3 and 4: Mine Layout Plan.

31 Description of Impact management objectives including management statements.

31.1 Determination of closure objectives.

(Ensure the closure objectives are informed by type of environment)

The closure objectives are driven by the proposed end use for the site. In this case the end use is to maximise the site's integration with the surrounding wilderness function. To this end the following components / measures are required:

1) Ensure that the excavation edges at the Kloof excavation are shaped appropriately as defined in this EMP
2) Ensure that topsoil removal takes place ahead of the Kloof Waste Rock dump development (Refer Figure 4) and that such topsoil is used as cover material for that dump after completion. The final Waste Rock dump must be shaped to mimic natural contours prior to cover with soil.
3) No structures, infrastructure or equipment is to remain on site after closure
4) All ad hoc dumps and residual dumps are preferably backfilled into the main pit or shaped to mimic natural contours.

Refer Appendix 7: Closure Plan for details of the closure decommissioning activities to achieve the closure objectives.

31.2 The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.

The full Environmental Management System will consist of:

- Implementation of measures as prescribed in this text (especially the mine plan as per Parts 4 and 5 and rehabilitation management measures prescribed in Part 34).
- Environmental Awareness and Induction Training of staff (Appendix 6).
- Monitoring (Refer Part 36) through:
    - Continual on site in-house monitoring.
    - Environmental Audit every 2 years by independent party.
- Emergency Action Plans for Environmental incidents.
- Inspections by DMR/DEA environmental officers as legislated.
- In house ECO to visit site at least on a 6-monthly basis to guide housekeeping and site management.

31.3 Potential risk of Acid Mine Drainage.

(Indicate whether or not the mining can result in acid mine drainage).

None

31.4 Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.

NA

31.5 Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.

NA

31.6 Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.

NA

31.7 Volumes and rate of water use required for the mining, trenching or bulk sampling operation.

NA

31.8 Has a water use licence has been applied for?

No WULA is required.

32 Impacts to be mitigated in their respective phases

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
1. "ESTABLISHMENT" ACTIVITIES:				
1.1. Provide concrete apron at bunded fuel tank with oil trap				
1.2. Upgrade oil trap at Wash Bay				
1.3. Provide concrete apron and oil trap at Workshop				
1.4. Formalise used oil storage and construct bund for used oil container				
1.5. Re-establish processing plant if considered (on existing footprint)				
1.5.1. Noise	Noise generated by plant equipment : Local	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
1.5.2. Air Quality	Dust generated by plant equipment: Local	Impact to be insignificant when managed through dust mitigation measures	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
1.5.3. Hydrocarbon	Potential Hydrocarbon leaks: Local	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
1.6. Provide chemical toilets at Kloof Section when operational				
2. OPERATIONAL PHASE ACTIVITIES				
A. Main Section and Logistical Facilities				

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.				
2.1.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.1.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.1.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.2. Hauling material from waste rock dump to surface of backfill				
2.2.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.2.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.2.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)				
2.3.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.3.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.3.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening				
2.4.1. Noise	Noise generated by earthmoving equipment: Local impact	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.4.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Impact to be insignificant when managed through dust mitigation measures	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.4.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.5. Loading and delivery of saleable product Includes use of delivery route to N7				
2.5.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.5.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.5.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.5.4. Traffic	Intersection and N7 – 2-3 trucks per day maximum	Ensure signage in place	National Traffic Regulations	Life of mine
2.6. Use of workshop				
2.6.1. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.7. Use of bunded fuel tank				
2.7.1. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.8. Use of Wash Bay				
2.8.1. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.9. Water is sourced from Orange River, trucked in and passed through purification plant				
2.9.1. Surface Water (Use)	Abstraction of ±5m³ / day water from Orange River near Rooiwal	None required, except to not waste water unnecessarily	National Water Act (Section 21), if applicable	Life of mine
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².				
2.10.1. Hydrocarbon / Leachate	Potential generation of hazardous leachate or hydrocarbon pollution from tainted domestic / general waste inadvertently being disposed of in pit	Control through management and monitoring	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.11. Hazardous waste transported off site for handling at licenced facility				
2.11.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.11.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.11.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
B. Kloof Section				
2.12. Advance of excavation through drilling and blasting				
2.12.1. Topography	Development of excavation with faces and benches. Maximum surface area in order of 3.7ha	Control through design measures (Faces on benches as opposed to a vertical highwall)	EMP Prescriptions	Life of mine

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.12.2. Soil	Disturbance of soil profile during exaction development. Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Remedy through topsoil management measures	EMP Prescriptions	Life of mine
2.12.3. Land Capability	Loss of grazing / wilderness are on excavation footprint. Maximum surface area in order of 3.7ha	Remedy through design measures and rehabilitation	EMP Prescriptions	Life of mine
2.12.4. Vegetation	Loss of vegetation on excavation footprint. Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	Remedy through rehabilitation /relocation	EMP Prescriptions	Life of mine
2.12.5. Animal Life	Loss of habitat with excavation advance. Maximum surface area in order of 3.7ha (less existing 0.7ha pit)	None feasible	NA	NA
2.12.6. Noise	Noise generated by earthmoving equipment: Local impact	None feasible	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.12.7. Air Quality	Dust generated by earthmoving equipment: Local impact	None feasible	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.12.8. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.13. Loading of shot rock and waste rock				
2.13.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.13.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.13.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.				
2.14.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.14.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.14.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.15. Topsoil removal ahead of waste rock dump advance.	Note that no topsoil has been removed ahead of existing dump development			
2.15.1. Soil	Removal of soil ahead of dump development. Up to 3.8ha to a depth of at least 250mm	Remedy through design measure and rehabilitation	EMP Prescriptions	Life of mine
2.15.2. Land Capability	Loss of grazing / wilderness is on dump footprint. Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Remedy through design measure and rehabilitation	EMP Prescriptions	Life of mine
2.15.3. Vegetation	Disturbance of vegetation on dump footprint. Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha.	Control / avoid through transplanting programme (Design and rehabilitation measure)	EMP Prescriptions	Life of mine
2.15.4. Animal Life	Loss of habitat with dump soil removal advance. Maximum additional surface area in order of 3.8ha to yield total dump area of 5.3ha	None feasible	NA	NA
2.15.5. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.15.6. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.15.7. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
2.16. Waste rock dump development				
2.16.1. Topography	Development of dump to 7m in height over additional area of 3.8ha for total eventual area of 5.3ha	Remedy through shaping and rehabilitation	EMP Prescriptions	Life of mine

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
2.16.2. Land Capability	Addressed in line item 2.15.2 above	Remedy through design measure and rehabilitation	EMP Prescriptions	Life of mine
2.16.3. Surface Water	The proposed dump extension is located on a wide dendritic hill wash feature. There is no defined stream channel west of the access road but water flows from the higher lying rocky area over these permeable soils. Total eventual area of dump = 5.3ha (from current extent of 1.5ha) – Refer Figure 12	Control through dump location	EMP Prescriptions	Life of mine
2.16.4. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Life of Mine
2.16.5. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Life of Mine
2.16.6. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Continuously daily
3. DECOMMISSIONING PHASE ACTIVITIES				
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.				
3.1.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Decommissioning
3.1.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Decommissioning
3.1.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Decommissioning
3.2. Cover waste rock dump in Kloof section with removed sand cover				
3.2.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Decommissioning

Activities and Environmental Aspect	Size and Scale of disturbance	Mitigation Measures	Compliance With Standards	Time Period
3.2.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Decommissioning
3.2.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Decommissioning
3.3. Demolish all unrequired structures				
3.4. Remove all protruding foundations and footings				
3.5. Remove all pipelines and cables				
3.6. Remove diesel tank & decontaminate				
3.7. Remove weighbridge concrete structures				
3.8. Rip / scarify all hardened areas				
3.8.1. Noise	Noise generated by earthmoving equipment: Local impact	Ensure vehicular silencers are operational.	Recommended standards in SANS 0103-1983. Refer para 12.1.11	Decommissioning
3.8.2. Air Quality	Dust generated by earthmoving equipment: Local impact	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEMAQA (Act no. 39 of 2004) regulations - Refer para 12.1.10	Decommissioning
3.8.3. Hydrocarbon	Hydrocarbon leaks: Local impact – potentially basin wide scale	Manage and remedy through the Hydrocarbon Management Protocol	Hydrocarbon Management Protocol (as per Para 34.2)	Decommissioning
3.9. Retain access roads for future use				
4. AFTERCARE PERIOD				
4.1. Remove alien vegetation, if present				
4.2. Conduct final performance assessment				
4.3. Lodge closure Application				
4.4. DMR Grant Closure Application				

33 Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph 31);

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
1. "ESTABLISHMENT" ACTIVITIES:		
1.1. Provide concrete apron at bunded fuel tank with oil trap		
1.2. Upgrade oil trap at Wash Bay		
1.3. Provide concrete apron and oil trap at Workshop		
1.4. Formalise used oil storage and construct bund for used oil container		
1.5. Re-establish processing plant if considered (on existing footprint)		
1.5.1. Noise	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Recommended standards: refer para 12.1.11
1.5.2. Air Quality	Impact to be insignificant when managed through dust mitigation measures	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
1.5.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
1.6. Provide chemical toilets at Kloof Section when operational		
2. OPERATIONAL PHASE ACTIVITIES		
A. Main Section and Logistical Facilities		
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.		
2.1.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.1.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.1.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.2. Hauling material from waste rock dump to surface of backfill		
2.2.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.2.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.2.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)		
2.3.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.3.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.3.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening		
2.4.1. Noise	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Recommended standards: refer para 12.1.11
2.4.2. Air Quality	Impact to be insignificant when managed through dust mitigation measures	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.4.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.5. Loading and delivery of saleable product Includes use of delivery route to N7		
2.5.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.5.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.5.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.5.4. Traffic	Ensure signage in place	Legislated signage – National road traffic legilsation
2.6. Use of workshop		
2.6.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.7. Use of bunded fuel tank		
2.7.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.8. Use of Wash Bay		
2.8.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.9. Water is sourced from Orange River, trucked in and passed through purification plant		
2.9.1. Surface Water (Use)	None required, except to not waste water unnecessarily	Ensure abstraction rates do not exceed WULA levels.
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².		
2.10.1. Hydrocarbon / Leachate	Control through management and monitoring	Management in terms of the hydrocarbon management protocol
2.11. Hazardous waste transported off site for handling at licenced facility		
2.11.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.11.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.11.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
B. Kloof Section		

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.12. Advance of excavation through drilling and blasting		
2.12.1. Topography	Control through design measures (Faces on benches as opposed to a vertical highwall)	Design, rehabilitation standards and end use objective
2.12.2. Soil	Remedy through topsoil management measures	Topsoil management as per para 34.1
2.12.3. Land Capability	Remedy through design measures and rehabilitation	Linked to topsoil management (as per para 34.1)
2.12.4. Vegetation	Remedy through rehabilitation /relocation	Linked to topsoil management (as per para 34.1)
2.12.5. Animal Life	None feasible	Linked to topsoil management (as per para 34.1)
2.12.6. Noise	None feasible	Recommended standards: refer para 12.1.11
2.12.7. Air Quality	None feasible	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.12.8. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.13. Loading of shot rock and waste rock		
2.13.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.13.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.13.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.		
2.14.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.14.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.14.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.15. Topsoil removal ahead of waste rock dump advance.		
2.15.1. Soil	Remedy through design measure and rehabilitation	Topsoil management as per para 34.1
2.15.2. Land Capability	Remedy through design measure and rehabilitation	Linked to topsoil management (as per para 34.1)

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.15.3. Vegetation	Control / avoid through transplanting programme (Design and rehabilitation measure)	Linked to topsoil management (as per para 34.1)
2.15.4. Animal Life	None feasible	Linked to topsoil management (as per para 34.1)
2.15.5. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.15.6. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.15.7. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
2.16. Waste rock dump development		
2.16.1. Topography	Remedy through shaping and rehabilitation	Shaping of dump (Design measure, rehabilitation standard and end use objective and Linked to topsoil management (as per para 34.1)
2.16.2. Land Capability	Remedy through design measure and rehabilitation	Linked to topsoil management (as per para 34.1)
2.16.3. Surface Water	Control through dump location	Linked to topsoil management (as per para 34.1)
2.16.4. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
2.16.5. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
2.16.6. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
3. DECOMMISSIONING PHASE ACTIVITIES		
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.		
3.1.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
3.1.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
3.1.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
3.2. Cover waste rock dump in Kloof section with removed sand cover		
3.2.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11

ACTIVITY whether listed or not listed. And **POTENTIAL IMPACT**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
3.2.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
3.2.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
3.3. Demolish all unrequired structures		
3.4. Remove all protruding foundations and footings		
3.5. Remove all pipelines and cables		
3.6. Remove diesel tank & decontaminate		
3.7. Remove weighbridge concrete structures		
3.8. Rip / scarify all hardened areas		
3.8.1. Noise	Ensure vehicular silencers are operational.	Recommended standards: refer para 12.1.11
3.8.2. Air Quality	Control through dust control measures when necessary	Recommended standards SANS 1929:2004 and NEM:AQA- Refer para 12.1.10
3.8.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Management in terms of the hydrocarbon management protocol
3.9. Retain access roads for future use		
4. AFTERCARE PERIOD		
4.1. Remove alien vegetation, if present		
4.2. Conduct final performance assessment		
4.3. Lodge closure Application		
4.4. DMR Grant Closure Application		

34 Impact Management Actions

The management of environmental damage as a result of this undertaking consists of the following with detail description below:

1) Topsoil handling methodology (including Vegetation management) as per para 34.1 below
2) Hydrocarbon pollution prevention must take place in accordance with the Hydrocarbon pollution prevention methodology in para 34.2 below.
3) Excavation and waste rock dump shaping in para 34.3
4) No go area demarcation is explained in para 35.4

34.1 Topsoil Handling Methodology

The management of topsoil is of utmost importance. Without topsoil management, the disturbed area is subject to several other potential long term impacts such as lack of revegetation or extended revegetation time, dust generated off denuded areas and prolonged visual scarring.

The elements of vegetation and topsoil management consist of the following:
1) Sweep for and transplant any vegetation identified by botanist
2) Topsoil removal and storage
3) Excavation of dump development
4) Return of topsoil

Vegetation sweep and transplant
The extension / advance of both quarry faces and waste rock dump fortunately takes place very slowly. Before any advance is planned, it is required that a botanist be consulted to identify, remove and transplant any vegetation species requiring such transplanting. Timing is therefore critical and the botanist can be called upon up to several years ahead of the proposed development to conduct such task.

Topsoil removal and storage:
In the case of the excavation development (Kloof), it is unlikely that any topsoil will be sourced from this rocky terrain. However, in the unlikely event that some removable topsoil is located then such topsoil must be placed in the topsoil stockpile below the Kloof Waste Rock dump (as per figure 4).

In the case of the waste rock dump, the upper 250mm material is to be treated as topsoil. Calculation of volume: 3.8ha at min. 250mm = 9500m³. The material is to be removed to stockpile below the edge of the eventual dump as shown in Figure 4. The 9 500m³ soil if stockpiled to 2.5m deep will require area of approximately 3 800m² (as indicated in Fugure 4)

The rehabilitation would entail the replacement of the topsoil over the entire shaped dump to between 180mm to 200mm thickness to ensure sufficient material for cover of the entire eventual dump.

No active revegetation is proposed.

34.2 Hydrocarbon (Fuel and Lubricant, domestic and industrial solid waste and sewage management) Protocol

34.2.1 Domestic Waste handling

Max volume generated: Using DEA toolkit (http://iwmp.environment.gov.za/guideline/2/2-2-3), assume 270.1kg/person/year (Middle income[7]) x 20 people on the mine = 5 402kg per annum x 30 years = 162 060kg or 162tons (far below the 25 000ton limit).

The system in place before the 2020 Environmental Audit was that the domestic waste was buried in the pit that is being backfilled. However, without approved waste disposal licence the applicant has been warned to not continue that system and at present takes a "bakkie" load of domestic waste to the dump in Okiep/Springbok. The holder did note that the Municipal waste truck did pass by the mine's gate on the N7 from Vioolsdrift to Okiep / Springbok, but would not turn-off into the mine to collect domestic waste.

The mining right holders therefore wish to apply for a waste licence to dump domestic waste into the pit which is currently being backfilled. Should backfilling of that excavation cease for any reason, then the dumping of domestic waste will not be permitted.

The domestic waste system would comprise of the following activities:

a) All domestic waste must be collected in bins, clearly marked per waste stream, located strategically around the site (i.e. at the office, the processing plant and at the workshop).
b) The domestic waste is to be collected from such bins on a daily basis and placed in the designated temporary storage area.
c) Such waste must be checked for presence of any prudentially leachate producing substances. Such potentially hazardous material (i.e. paint tins, brushes, oily rags etc.) must be handled as industrial waste as described below).
d) The "cleaned" domestic waste can be dumped over the leading edge of backfill for eventual cover with backfilled material

NOTE: If the dumping of domestic waste licence is not approved, then the holder must continue with the current practice of transporting of waste to the Municipal landfill site.

34.2.2 Hydrocarbons and Industrial waste

[7] The median income at this site is unlikely to be as high as Middle income and the waste generated will be even lower than the calculated rates.

The principle behind Hydrocarbon Management is that all industrial waste is separated from domestic waste and stored temporarily in a facility which does not allow for any potential leak onto natural soil (i.e. through bunds, drip trays, etc). The collected hydrocarbon and industrial waste must then be disposed of at suitable facility (or collected by recycling company (such as Oilkol which is currently the practice)). The following systems / facilities must be put in place to meet this principle:

a) Diesel Fuel receipt, storage and dispensing
Given the bunded diesel tank on-site and the storage and use of hydraulic oils and greases, in the management of fuel supply, receipt, storage and use, the following procedures will be followed, cautions taken and facilities built to properly manage this operational sector:
- The fuel delivery bowser driver will be cautioned to adhere to safe driving speeds and drive cautiously at the mine and along the access road.
- During dispensing of fuel to field vehicles via fuel trailer, the dispensing vehicle is to be fitted with suitable pumps and funnel extensions to reduce the risk of spillage in the transfer of fuels.
- Most mobile equipment will refuel at the refuelling point of the existing diesel tank. Hence the tank requires the provision of a concreted service apron.

b) Hydrocarbon storage (excluding diesel): New and Used
All new oils and grease are currently stored in drums in the workshop complex. The storage area should be supplied with a low bund (2 brick courses high, plastered) for potential leak containment.

All used oil must be stored in receptacles located in bunded facility. All dirty-rags, oily parts and filters must be placed in designated and marked drums. These are all collected by Oilkol (or similar) recycling company and removed from site to be handled appropriately.

c) Daily greasing will be conducted to a program by a service vehicle with staff properly trained in induction training to properly manage the avoidance of grease and oil spillage.

d) On-site repairs
Routine servicing of vehicles as well as any repairs will be conducted at the workshop. The workshop must be fitted with concrete apron, drains and oil trap.

e) Soil decontamination of dipped or spilled hydraulic oil or diesel.
A commercially available oil spill decontamination kit (such as Drizit kits) shall be kept on-site at the lubricant store container for use in event of hydrocarbon contamination of soils.

f) Emergency repairs on-site

In the event of a breakdown with repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent oil contamination.

g) Parking area drip trays
Any mobile equipment: truck, excavator or loader parking area shall be provided with drip trays. Such drip trays are currently in place but site visit did show that these drip trays need to be extended beyond current size – see photo 15.

h) Washbay
There is a wash bay on site (as per photo 16). The existing oil trap must be supplied with cover (despite the low rainfall).

i) Salvage Yard
An area has been identified and demarcated (by fences) as a scrap yard for temporary storage of scrap steel and equipment prior to sale as scrap. Arrange for regular sale & collection of scrap and finally during decommissioning rehabilitation

j) Miscellaneous and General measures:
- In the event of soil contamination, the oil and contaminated soils are to be placed in black disposal bags or used drums and transported to a suitable licensed facility for disposal.
- No used oils are to be used as dust suppressants on manoeuvring areas.
- All waste receptacles must be inaccessible to animals in the store contained.

All staff involved in mobile plant operation and maintenance are to be trained/ made aware through Induction Training in the management of fuels and lubricants including:
- Deleterious effects of oil / fuel on the environment.
- Handling method and reporting procedure (also in terms of emergency plan readiness in case of large oil spill.
- All operators are to check their equipment for leaks and report such leaks on a daily basis.

34.2.3 Mine residue disposal sites

Overburden from the Kloof Section will be dumped as a continued extension to the current dump east of the Kloof Section adit. Current overburden dump at the Kloof Section measures 1.2ha to a depth in the order of 3m.

The required future Kloof Section overburden dump extent is based on an estimate of the waste rock generated through mining. Table in Para 4.2.4 shows the calculation used in achieving the expected waste rock volume requiring spoiling as follows:

Phase	Waste Rock (tight m³)	Waste Rock (Bulked m³) 1.2x
Phase 1	16 953	20 343
Phase 2	101 790	122 148
Phase 3	146 215	175 458
Total	**264 958m³**	**317 950m³**

If 7m mine residue disposal dump depth is assumed for all overburden from the Kloof Section, then the total requiring spoiling would be the 317 950m³ plus the 36 000m³ already spoiled there, amounting to 353 950m³. To spoil that to 7m deep would require a total disturbance area of 5.0ha. However given the existing disturbance of 1.2ha, then the remaining disturbance area is in the order of 3.8ha of virgin area will be required for spoiling.

Feldspar ore from Kloof Section will be transported to the sorting section on the backfill platform of the Main Section excavation. All waste material from this sorting operation is pushed over the leading edge of the backfill to extend the backfill operation.

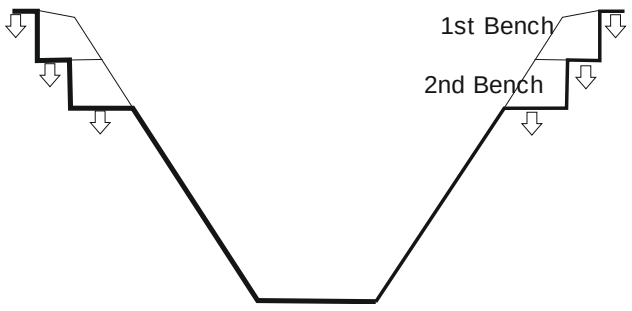
The operation at present has not advanced mining in the Kloof Section for some time as the holders have concentrated their efforts on the reprocessing of the previously dumped plant residue. Figure 3 shows the location of the previous plant residue material which is being reprocessed. All of that waste material generated by the reprocessing is used to backfill the main excavation.

Because of safety concerns, the backfilling along the south has been prevented from extending beyond its current limit (to avoid possible high wall collapse). The current limit is demarcated by a berm of the backfill surface – see photo 13.

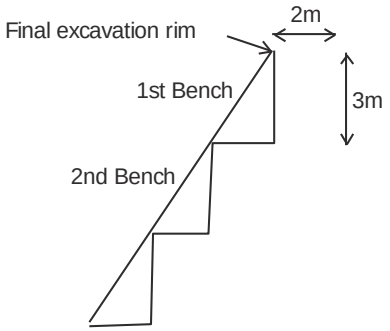
34.3 Excavation and waste rock dump shaping

It is required that the Kloof excavation be developed as a series of faces on benches as described in the mine plan in part 4. This is to avoid the situation which occurred in the main excavation with excessively high dangerous vertical faces. The proposal is as follows:

Initial perimeter bench establishment to be conducted as follows:



Final face on bench configuration is as follows:



The waste rock dump must be shaped prior to cover with soil through sloping of all leading edges to 1: 3 and rounding all sharp edges.

34.4 Demarcation of No-Go areas Management:

It is not required that no go areas be demarcated by physical markers, but staff must be educated / trained to understand that no access is permitted outside of current activity area and no unnecessary driving through the veld is permitted.

The no go area management is included in Environmental Induction Training (which forms part of the Environmental Awareness Programme).

35 Financial Provision

35.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Reg 22(2)(d).

The closure objectives are driven by the proposed end use for the site. In this case the end use is to maximise the site's integration with the surrounding wilderness function. To this end the following components / measures are required:

1) Ensure that the excavation edges at the Kloof excavation are shaped appropriately as defined in this EMP
2) Ensure that topsoil removal takes place ahead of the Kloof Waste Rock dump development and that such topsoil is used as cover material for that dump after completion. The final Waste Rock dump must be shaped to mimic natural contours prior to cover with soil.
3) No structures, infrastructure or equipment is to remain on site after closure
4) All ad hoc dumps and residual dumps are preferably backfilled into the main pit or shaped to mimic natural contours.

Refer Appendix 7: Closure Plan for details of the closure decommissioning activities to achieve the closure objectives.

35.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

As the draft EIA-EMP now contains the definition of post mining land use and the mechanisms of decommissioning rehabilitation to achieve such post mining land use and is being circulated for public participation in this matter and subject to comment by the municipal planning authority, the participatory phase of this draft EIA-EMP will confirm the outcome of consultation with the landowner and I&APs.

35.3 Rehabilitation plan describing and showing the scale and aerial extent of the main mining activities and the anticipated mining area at the time of closure

Refer Figure 10: Decommissioning Rehabilitation Plan overleaf and within the context of the prescribed Draft Closure Plan as contained in Appendix 7 which details the decommissioning activities comprising the closure plan together with the extent (hectarage) of each activities.

35.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

Figure 13 below clearly shows the compatibility of the rehabilitation plan with the closure objectives.

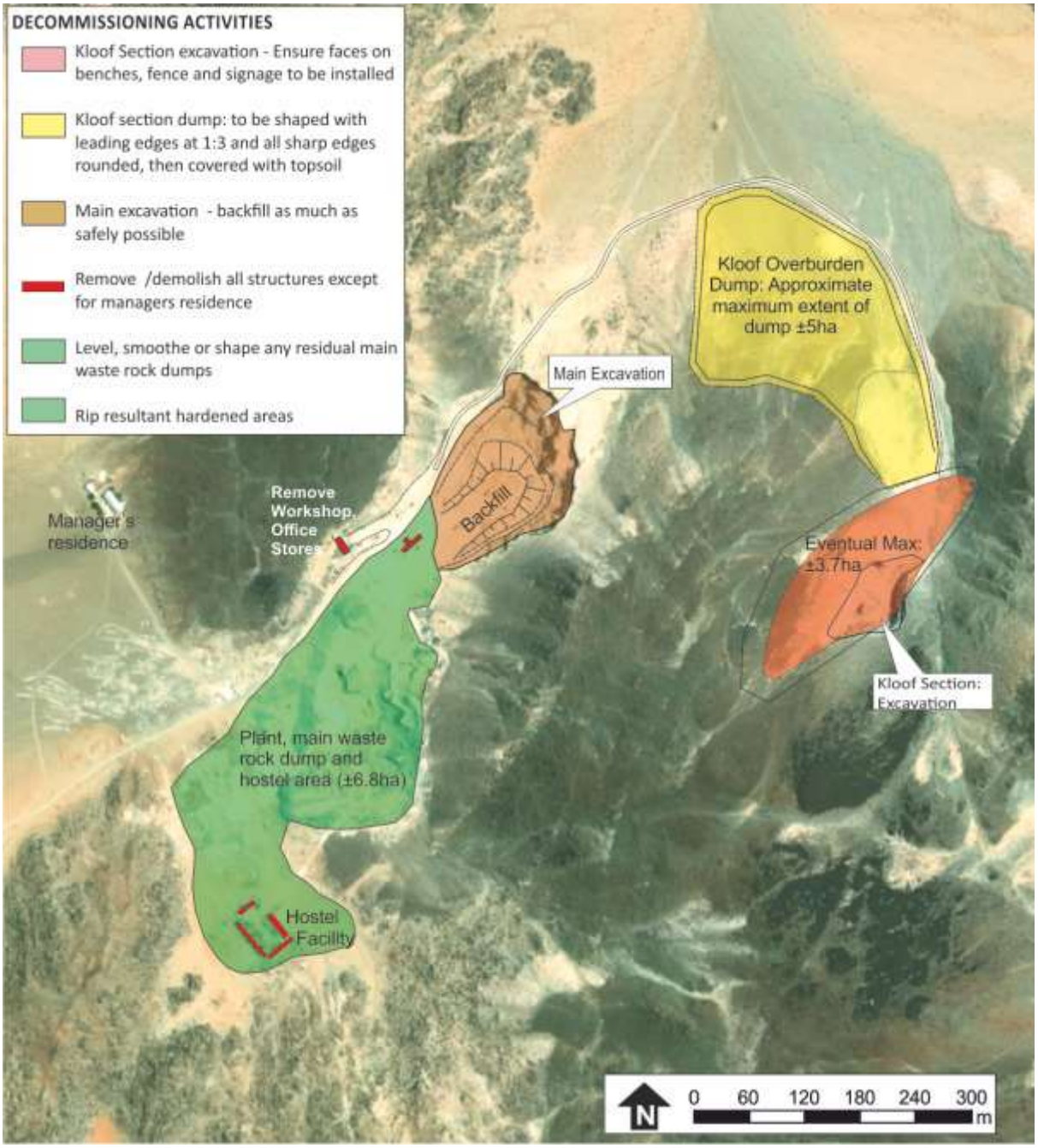


Figure 13: Decommissioning Rehabilitation

35.5 Confirm financial provision will be provided as determined.

As the quarry is a going concern and a guaranteed Financial Provision already exists at DMR and is updated annually.

36 Mechanisms for monitoring compliance and performance assessment.

36.1 Components, Principles and Roles of Monitoring System

In order to ensure that all aspects of the operation are monitored effectively, the following components will be put in place:

1. *Legally required Environmental Audit*: All mines are required by law to conduct Environmental Audits every 2 years or as per EMP prescribed interval. Such audits are compiled in terms of Reg 34 and Appendix 7 of NEMA and must be compiled by independent party.
2. *Appointment of ECO*: It is required that an ECO be appointed for the site. Such ECO need not be in the permanent employ of the applicant but must visit the site at least twice per annum and monitor and record at least the following :
    a. Adherence with the EMP
    b. Management and production management are acquainted with the EMP
    c. Monitoring as contemplated in the EMP is undertaken at prescribed intervals and monitoring required by staff is conveyed to all staff members through discussion of the Induction Training Report.
    d. Ensuring that the staff members are acquainted with the line of reporting of Environmental Incidents
    e. Management and persons tasked with daily visual monitoring record any environmental incidents in an Environmental Incidents Register
    f. Continued environmental training and awareness forms a designated element of each monthly mine health and safety meeting
3. *Internal Monitoring and its formalisation*: Internal monitoring is required in terms of the content of para 36.2 below. The issue that typically arises out of the system is that no formal record of internal monitoring takes place. It is required that management design forms/ reports containing details of the monitoring as required in terms of the table below. These must be made available to the DMR, the ECO, independent Environmental Auditor. The quarry manager shall be responsible for maintaining the overall record of monitoring and reporting thereon to form part of the manager's monthly report. Specific staff members must be assigned areas of responsibility in terms of monitoring and their reporting must form part of the formal reporting by the mine manager.
4. Note further that the requirement for monitoring must be impressed upon all *staff* members during their *environmental training with the induction training manual Appendix 6 serving as the base*.

36.2 Table showing monitoring actions per impact

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
1. "ESTABLISHMENT" ACTIVITIES:				
1.1. Provide concrete apron at bunded fuel tank with oil trap		Ensure that it has been supplied	EAP (during Environmental Audit)	Audit undertaken every 2 years
1.2. Upgrade oil trap at Wash Bay		Ensure that it has been supplied	EAP (during Environmental Audit)	Audit undertaken every 2 years
1.3. Provide concrete apron and oil trap at Workshop		Ensure that it has been supplied	EAP (during Environmental Audit)	Audit undertaken every 2 years
1.4. Formalise used oil storage and construct bund for used oil container		Ensure that it has been supplied	EAP (during Environmental Audit)	Audit undertaken every 2 years
1.5. Re-establish processing plant if considered (on existing footprint)				
1.5.1. Noise	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	No formal monitoring required	NA	NA
1.5.2. Air Quality	Impact to be insignificant when managed through dust mitigation measures	Visual	Site Manager and operator	Continuous
1.5.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
1.6. Provide chemical toilets at Kloof Section when operational		Ensure that it has been supplied	EAP (during Environmental Audit)	Audit undertaken every 2 years
2. OPERATIONAL PHASE ACTIVITIES				
A. Main Section and Logistical Facilities				
2.1. Continue reprocessing of existing waste rock dump. No further extension of main pit will occur.				

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.1.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.1.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.1.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.2. Hauling material from waste rock dump to surface of backfill				
2.2.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.2.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.2.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.3. Continue backfill main section waste rock into main pit (and later with any waste material resultant from material transported from the Kloof Section and sorted on the backfill platform)	This is a mitigation measure. Site manager to ensure that no ad hoc dumping of waste rock material takes place and that all such material is backfilled.	Report on backfilling	EAP (during Environmental Audit)	Audit undertaken every 2 years
2.3.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.3.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.3.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.4. Use of processing plant (if contemplated (unlikely)): Crushing and screening				
2.4.1. Noise	If noise from plant becomes an issue (unlikely) then install control through noise control measures at source	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.4.2. Air Quality	Impact to be insignificant when managed through dust mitigation measures	Visual	Site Manager and operator	Continuous
2.4.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.5. Loading and delivery of saleable product. Includes use of delivery route to N7				
2.5.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.5.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.5.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.5.4. Traffic	Ensure signage in place	Ensure signage is legible and visible to traffic	Site Manager	Monthly
2.6. Use of workshop				
2.6.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Ensure apron is free of hydrocarbon staining. Ensure oil trap in functioning order and cleared after (if) rains	Operator and general staff	Continuous and daily
2.7. Use of bunded fuel tank				

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.7.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Ensure apron is free of hydrocarbon staining. Ensure oil trap in functioning order and cleared after (if) rains	Operator and general staff	Continuous and daily
2.8. Use of Wash Bay				
2.8.1. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Ensure apron is free of hydrocarbon staining. Ensure oil trap in functioning order and cleared after (if) rains	Operator and general staff	Continuous and daily
2.9. Water is sourced from Orange River, trucked in and passed through purification plant				
2.9.1. Surface Water (Use)	None required, except to not waste water unnecessarily	Site manager to record water delivery dates and volumes	Site Manager	As required
2.10. Domestic / General waste into main section pit to be covered by backfill. Floor area of remaining backfill measures only 159m².				
2.10.1. Hydrocarbon / Leachate	Control through management and monitoring	Domestic waste to be screened prior to final dumping for any hazardous waste	Site manager to assign responsibility	As required, but prior to any dumping into pit.
2.11. Hazardous waste transported off site for handling at licenced facility				
2.11.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.11.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.11.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
B. Kloof Section				

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.12. Advance of excavation through drilling and blasting				
2.12.1. Topography	Control through design measures (Faces on benches as opposed to a vertical highwall)	Ensure that no dangerous high wall results in the excavation by providing faces on benches	Site manager	At every blast
2.12.2. Soil	Remedy through topsoil management measures	Ensure that any topsoil which may be present is removed to stockpile and stockpiled in the correct place	Operator, Site Manager to discuss before every access into natural veld	At every excavation advance
2.12.3. Land Capability	Remedy through design measures and rehabilitation	Linked to topsoil monitoring above		
2.12.4. Vegetation	Remedy through rehabilitation /relocation	Ensure that any vegetation which needs to be transplanted is transplanted. Requires specialist input	Specialists to visit site and check extension area for any transplant specimens	Need only happen once. Entire area can be inspected. Note: Specialist to choose best time of year to ensure maximum showing of vegetation
2.12.5. Animal Life	None feasible	NA	NA	NA
2.12.6. Noise	None feasible	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.12.7. Air Quality	None feasible	Visual	Site Manager and operator	Continuous
2.12.8. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.13. Loading of shot rock and waste rock				
2.13.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.13.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.13.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.14. Hauling of shot rock and waste rock. Road already in place. Use of road.				
2.14.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.14.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.14.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.15. Topsoil removal ahead of waste rock dump advance.				
2.15.1. Soil	Remedy through design measure and rehabilitation	Ensure that topsoil to at least 250mm is removed to stockpile / berm and stockpiled in the correct place	Operator, Site Manager to discuss before every access into natural veld	At every excavation advance
2.15.2. Land Capability	Remedy through design measure and rehabilitation	Linked to topsoil monitoring above		
2.15.3. Vegetation	Control / avoid through transplanting programme (Design and rehabilitation measure)	Ensure that any vegetation which needs to be transplanted is transplanted. Requires specialist input	Specialists to visit site and check extension area for any transplant specimens	Need only happen once. Entire area can be inspected. Note: Specialist to choose best time of year to ensure maximum showing of vegetation
2.15.4. Animal Life	None feasible	NA	NA	NA
2.15.5. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.15.6. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.15.7. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
2.16. Waste rock dump development				
2.16.1. Topography	Remedy through shaping and rehabilitation	Ensure that overburden dumped to correct thickness in the correct place. Ensure leading edges are shaped appropriately	Site Manager and operator	At occurrence
2.16.2. Land Capability	Remedy through design measure and rehabilitation	Linked to topsoil monitoring above		
2.16.3. Surface Water	Control through dump location	The dump is located on alluvial "Fluss" but actual stream channel is avoided– refer figure 12.	Site Manager and operator	At occurrence
2.16.4. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
2.16.5. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
2.16.6. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
3. DECOMMISSIONING PHASE ACTIVITIES				
3.1. Finalise shaping of all remnant dumps and level all ad hoc dumps.				
3.1.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
3.1.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
3.1.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
3.2. Cover waste rock dump in Kloof section with removed sand cover				

Source activity & Impacts requiring monitoring programmes	Mitigation Measures	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
3.2.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
3.2.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
3.2.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
3.3. Demolish all unrequired structures				
3.4. Remove all protruding foundations and footings				
3.5. Remove all pipelines and cables				
3.6. Remove diesel tank & decontaminate				
3.7. Remove weighbridge concrete structures				
3.8. Rip / scarify all hardened areas				
3.8.1. Noise	Ensure vehicular silencers are operational.	Ensure equipment and vehicle silencers are operational	Site Manager and operator	Check daily and report on occurrence
3.8.2. Air Quality	Control through dust control measures when necessary	Visual	Site Manager and operator	Continuous
3.8.3. Hydrocarbon	Manage and remedy through the Hydrocarbon Management Protocol	Check equipment for leaks daily and continuous for hydraulic pipe burst	Operator and general staff	Continuous and daily
3.9. Retain access roads for future use				
4. AFTERCARE PERIOD				
4.1. Remove alien vegetation, if present				
4.2. Conduct final performance assessment				
4.3. Lodge closure Application				
4.4. DMR Grant Closure Application				

37 Indicate the frequency of the submission of the performance assessment report.

Environmental Audit reporting is required once every 2 years.

38 Environmental Awareness Plan

38.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

The applicant will use and expand on the Draft Environmental Awareness Induction Training Manual attached as Appendix 6 hereto. Such documentation will form the basis of induction Training on appointment of new employees, will be posted on the notice boards in the staff canteen/rest room and will serve the discussion thereof on Environmental Matters during the monthly mine health and safety meetings.

38.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Refer proposed draft course documentation in Appendix 6 as well as proposed monitoring in part 36.

39 Specific information required by the Competent Authority

The following reporting must take place:

1) Annual update of the Rehabilitation fund quantum calculation (on the anniversary of the last one)
2) Environmental Audit Report once every 2 years (including monitoring results).
3) In addition, the applicant is required to report on Mining Charter requirements, Social and Labour Plan Progress reports annually and to review of SLP every 5 years.

40 UNDERTAKING

The EAP herewith confirms the:

a) Correctness of the information provided in the reports
b) Inclusion of comments and inputs from stakeholders and I&APs
c) Inclusion of inputs and recommendations from the specialist reports where relevant and
d) Acceptability of the project in relation to the finding of the assessment and level of mitigation proposed.

UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I, Craig Donald herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties to date has been correctly recorded in the report.

Signature of the EAP
DATE: 23 November 2021

UNDERTAKING REGARDING LEVEL OF AGREEMENT

I Craig Donald herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP
DATE: 23 November 2021

Appendix 1:

CV of EAP and Declaration

Name: **CRAIG DONALD**

Date of Birth: 26 February 1967

Parent Firm: Site Plan Consulting

Position in Firm: Member

Years with the Firm: Since 1989

Nationality: South African

Qualifications:

Year	Qualification	Institution
1984	Senior Certificate Matriculation	Plumstead High School
1992	National Higher Diploma: Town & Regional Planning (*cum Laude*)	Cape Technikon
1995	Minerals and Metals Extraction short course	Continuing Engineering Education, University of Witwatersrand
1997	National Diploma: Surface Mine Management	Technikon SA
1999	Principles for Environmental Management short course	Environmental Evaluation Unit of University of Cape Town
2003	Masters of Business Administration	University of Cape Town

Languages : English (first language)
Afrikaans (second language)

Key Qualifications:
I have many years practical experience in diverse spatial and mine planning projects after completing a National Higher Diploma in Town and Regional Planning.

After joining Setplan (in 1989), my main involvement was the preparation of environmental management programmes (mainly in surface mining related field) and geographic information systems. In order to obtain a deeper understanding of the relevant issues, I completed a

Surface Mine Management course as well as short courses such as the Environmental Evaluation course run by the EEU of UCT. I completed a part-time MBA at UCT in 2003 and became a member of Site Plan Consulting CC in 2006.

In that time I have developed experience in use of Word, Excel, CorelDraw and ArcView GIS and expanded my tasks as follows.

Main tasks:
The main focus of work experience has been in the licencing, physical and environmental planning, monitoring and closure of surface mining operations. The mines have varied in:

- Size from small sand mines to the largest aggregate or diamond producers,
- Products from clay to diamonds,
- Location from the Alexander Bay to East London/KZN coastal areas as well as inland in Free State and Limpopo
- Scale and type of environmental impact.

In respect of the licencing and physical planning of surface mines, the work entails *inter alia* the compilation of:

- Mining and Prospecting Work Programmes: a detailed mine / prospect plan and project description including cash flow forecast / budget to determine mine's economic viability and cost of prospecting
- Social and Labour Plan: Legislated document required to describe how the mine will maximise its socio-economic impact through enforced education, training and corporate social responsibility programmes for the staff and surrounding community.

In respect of the environmental planning, the work has entailed the compilation of Environmental Management Plans and Programmes in accordance with the requirements of the Mineral and Petroleum Resources Development Act with due regard for National Environmental Management Act (before the amalgamation of these 2 pieces of legislation in December 2014). Such EMP's have been conducted with full public participation and liaison with and full input form specialists as required. Such documents also required the calculation of the financial quantum required for closure / decommissioning activities. This quantum is recalculated on an annual basis once the project is operational.

In respect of monitoring the work involves conducting of environmental audits to measure the level of compliance of actual site conditions against the prescriptions of the EMP. The auditing task also served to highlight any shortcomings in the EMP.

Closure of surface mining operations has entailed the conducting of all public participation and the lodging of all documentation required.

In addition, the work also entails annual updates of Rehabilitation Quantum calculations for almost all of the approved Mining Rights in the list below. These calculations were conducted using both the Guideline of the DMR and as Itemised costs in certain relevant operations.

Relevant Project Experience:

Prospecting Rights (including public participation and compilation of EMPlans (inclusive of EIAs)):

- For Salt on Papendorp Pan as community initiative
- EMPs only for 7 Heavy Mineral Prospects of the West Coast
- Firlands (Gordons Bay) for aggregate
- Zoet and Zuur Diamond pipe (Boshof, Free State)
- Several Alluvial Diamond prospects on West Coast and inland West Coast (Western and Northern Cape)
- Phosphate prospect (Saldanha)
- Aggregate prospect near Oyster Bay in Eastern Cape
- Cobalt, Copper, Molybdenum, Nickel, Lead, Zinc, Silver, Gold & Platinum Group Minerals on 13 farms in the Kenhardt Magisterial District
- Nickel and related minerals on 8 farms near Kliprand
- Kaolin at Langklip (near Saldanha)
- Base minerals around Oena Mine in Northern Cape
- 6 sites for Uranium in the Karoo
- Nickel prospect at Oup near Pofadder
- Commissioners Pan Salt Prospect
- Gypsum prospects near Kimberley, Vanrhysdorp and in the Bushmanland
- Sand sources for Atlantis Foundries (Western Cape)

Mining Permits and Rights (including full Public Participation and compilation of EMPs inclusive of EIAs)

- Caledon Manganese Mining Permit
- Pentlands Granite Quarry Mining Right near Empangeni (KZN)
- Gamohaan Aggregate Quarry near Kuruman
- Cawood Salt Mine at Sout River mouth (Amendment of existing Right)
- Kuipersbult Aggregate Mining Right near Lephalale (Limpopo) as source for Medupi Power station construction
- Dikpens Gypsum Mine Extension (Bushmanland)
- Yserfontein Pan Gypsum mine - update of EMP
- Gypsum Mine for PPC near Vanrhynsdorp
- Transand Aggregate mine near Hartenbosch
- Aggregate and sand mine on municipal owned land in Gansbaai (Permit and Right)
- Sand mining permit near Salmonsdam Nature Reserve, Stanford
- Limestone Mining Right north of Klawer
- Sand Mining permits near Gouritz River / Vlees Bay
- Gecko Fert Phospate Mining Right near Langebaanweg
- Oyster Bay Mining Right application for Aggregate
- Moddergat Sand Mining Right (between Worcester and Villiersdorp)
- Mining Right for Manganese near Swellendam
- Involvement to a greater or lesser degree in at least 50 other Mining Permit and Mining Right applications
- EMP updates / amendments (some of which did not require public participation) for several operations (at least 20).

Environmental Performance /Audit Assessments (monitoring) of the following sites on one off or regular basis. First compiled in terms of MPRDA prescriptions and since December 2014 guided by NEMA requirements:

- Crammix Clay Mine (Brakenfel)
- Botriver Sand mine (Steyns)
- Cawood Salt Mine (Sout River)
- Swellendam Manganese Mine
- Buffelsbank Diamond Mine
- Gecko Fert Phosphate Prospects
- Cape Lime Limestone Mine near Vredendal
- Denron operations (Sand and Aggregate) Knysna / Plettenberg Bay area
- Dimension Stone Mines of Verde Bitterfontein (Namaqualand)
- Limestone quarries in Bredasdorp and Vredendal
- Cawood Salt Mine on West Coast
- 3 x Salt Mines north of Upington
- PPC Gypsum Mine near Vanrhynsdorp
- Lafarge Western Cape operations including Tygerberg, Dorstberg, Peak and Saldanha Quarries
- Various Afrimat aggregate operations throughout the country

Closure Applications (for mining and prospecting operations):

- Gecko Fert Phosphate Prospecting Rights and Mining Permit
- Knysna Whitebridge Quarry
- Denron Funda and Helderwater Quarry – Plettenberg Bay
- Crammix Clay Mine
- Vaale Valley Sand Mine (Mossel Bay)
- Various Dimension Stone bulk samples for Verde Bitterfontein (Namaqualand)
- Bergsig / Farm 292 Closure (Hartenbos)
- Klipfontein Sand Mine (Vlees Bay)
- Welbedagt Gravel Permit (Herbertsdale / Mossel Bay)

"One Environmental System" applications (Post 8 December 2014) all conducted in terms of NEMA process:

- Cape Lime Sand Mine (Schaap Kraal operation) – Afrimat
- Atlantis Foundries Sand Mine – ZLLD Sand Mining (Pty) Ltd
- De Hoek Sand Mining Right – Buy-Line Trading (Pty) Ltd
- Denver Quarry Section 102 (MPRDA)– Afrimat
- Desert Rose Dimension Stone Mine – Application only
- Naroogna Pan Salt Mine – United Salt (Pty) Ltd
- Stanford Quarry Extension – Afrimat
- Bester Calcrete Mining Permit – West Coast Calcrete
- Commissioner Pan Salt Mine – Dwaggas Salt Works (Pty) Ltd
- Lezmin Sand Mine (Gouritz Area) – Lezmin 2021 CC
- Yzerfontein Gypsum Mine (Section 102) – St Gobain Construction Materials (SA)
- Skietkuil Quarry Mining Permit – Skietkuil Quarries CC
- Honingklip Gravel Mining Permit – Western Cape Construction Materials (Pty) Ltd

- Johnsons Clay Brick (Section 102)
- Okiep Dumps Reprocessing Application – O'okiep Copper Company Ltd
- Karoo One / Bo Plaas Sand and Gravel Mining Permit
- Bosluispan Diamond Mine (Section 102 Application) – Kori Diamonds (Pty) Ltd
- Oena Diamond Mine (Section 102 Application) – African Star Minerals

Section 24G Applications:

- Makulu Quarry – Denron
- Swellendam Manganese Mine – Sikhova Environmentally Friendly Building Solutions
- Illegal Waste Disposal Site – Die Kop – Plettenberg Bay

DECLARATION OF THE EAP

I, CRAIG DONALD declare that —

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- ~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

Signature of the environmental assessment practitioner:

Name of company: Site Plan Consulting

Date: 26 | 07 | 2015

SOUTH AFRICAN POLICE SERVICE
VISPOL HEAD
2015 -07- 25
SOMERSET WEST
AMAPOLISA OMZANTSHI AFRICA

SAPS MAIN ROAD SOMERSET WEST 0851801303

APPENDIX 2:

BOTANICAL ASSESSMENT
(Nick Helme)

NICK HELME BOTANICAL SURVEYS
PO Box 22652 Scarborough 7974
Ph/fax: (021) 780 1420 cell: 082 82 38 350 email: botanick@iafrica.com
Not registered for VAT.
Accounts payable to : N.A.Helme

BOTANICAL ASSESSMENT OF SWARTBERG MINE SOUTHEAST OF VIOOLSDRIF

NICK HELME

July 2002

1. INTRODUCTION AND STUDY AREA

This botanical assessment was commisioned by Setplan to help inform decisions regarding the ongoing environmental management of Swartberg Mine southeast of Vioolsdrif. The mine follows a northeast trending pegmatite vein from the western base of Swartberg, and the area is being actively mined, with the excavation currently about 50m deep and at least 100m wide. The existing heavily disturbed area already covers about 12ha. The vein is rich in feldspar, mica, and quartz. The surrounding rocks are dark red to black granites (?amphibolites) which get very hot in summer and the area around the vein is thus only sparsely vegetated. There are other small patches of pegmatite nearby, including a contiguous arm to the northwest which is being mined. There are also small outcrops of white quartz, notably just northeast of the main excavation.

The mine is located largely within the biogeographic region of Bushmanland, in an extremely arid area which forms part of the Gariep centre of plant endemism, which is the richest succulent plant region in the world (van Wyk and Smith 2001). The Gariep centre (basically the Orange River valley from Augrabies to the river mouth at Alexander Bay) has also been identified as one of the 25 key plant conservation areas in the world by Conservation International (2000), and plants restricted to this area are known as regional endemics for the purposes of this report. Local endemics are species restricted to the area bounded by Steinkopf, Vioolsdrif, and Goodhouse. The site was visited on 30 June 2002.

2. THE VEGETATION

The vegetation on the Swartberg is strikingly different from that on the Blesberg, with the latter having many Namaqualand elements not present on the former. The area is much more heavily grazed (by goats) than the Blesberg, and this may help account for the sparseness of the vegetation.

2.1 The western sandy vlakte

The gently sloping vlakte near the entrance have been heavily to moderately disturbed, but there are still some patches of natural vegetation. Soils tend to be deep sandy gravels derived from granites. Numerous alluvial elements are present in the flora, indicating that this area is something of a drainage zone. The area is heavily grazed, and there is little evident grass. All species noted here are common and widespread and include *Mesembryanthemum crytallinum* (ysplant), *Psilocaulon rapaceum* (asbos), *Brownanthus* sp., *Codon royenii*, *Sisyndite spartea*, *Zygophyllum leptopetalum*, *Augea capensis*, *Tribulus terrestris* (dubbeltjie), *Dyerophytum africanum*, various annuals such as *Heliophila* sp., and various grasses including *Enneapogon desvauxii*, *Stipagrostis uniplumis* (silky Bushman grass), and *Stipagrostis obtusa* (small Bushman grass). Grass cover is very low, less than 1%. This area will rehabilitate well if all dumped material is concentrated in an area closest to the excavation, and the sands lightly scarified perpendicular to the prevailing winds.

Further towards the N7, about 200m from the mine entrance, the vegetation becomes less disturbed, although still overgrazed, and here one finds some succulents more typical of undisturbed areas. Most striking is the odd *Euphorbia friedrichae* (Red Data Book listed as "Indeterminate"), plus *Sarcocaulon flavescens* (boesmankers), and the regionally endemic vygies *Ebracteola spinea* and *Ebracteola fulleri*.

The local and regional conservation value of the partly disturbed vlakte area within 200m of the mine entrance is Low, and the undisturbed area closer to the N7 is of Moderate – High local and regional importance.

2.2 The northeastern overburden dump area

The proposed expansion direction of the overburden dumps in the northeast will have a substantial negative impact on the shrubby succulent vegetation that is found on these rocky quartzite slopes. The area is dominated by relatively widespread shrubby succulents such as *Ceraria namaquensis, Ceraria fruticulosa, Senecio cephalophorus, Euphorbia decussata, Aridaria noctiflora*, and *Hereroa hesperantha*, plus the small tree *Boscia foetida* (sheperd's tree). No rare or localised species were found in this area, probably because it is a relatively recent habitat derived from the nearby quartz outcrop that has been largely removed by the excavation.

The local and regional conservation value of this area is Moderate.

2.3 Existing quarry perimeter

Due to the intense summer heat and aridity the majority of plants in the area are found in the coolest habitats, which tends to mean the pale coloured rocks that reflect some of the heat, such as quartz and feldspar/pegmatite. Relatively few plants can tolerate the extreme heat of the darker gneiss boulders that dominate the hills in the area. Many plants are wedged tightly into shaded crevices, often on south facing slopes, for extra protection from the heat and aridity. The vegetation of the pegmatite vein is therefore much richer than the surrounding granite areas, and the pegmatites support a number of species never found on pure granite/gneiss.

The vegetation on the pegmatite vein on Swartberg has been largely destroyed by the quarrying operations, and it is likely that many species that were restricted to this habitat are, or are now very nearly, locally extinct.

The most interesting plants on the pegmatite vein are the dwarf succulents. No bulbous species were noted, other than an unidentified species of *Tenicroa* (with

a single, thin leaf; possibly a new species). *Anacampseros baeseckii* is a common dwarf succulent throughout Bushmanland, as is *Crassula garibina*. Three small *Conophytum* species are locally restricted to the pegmatite and/or quartz outcrops, but none are common on this site. The locally endemic *Conophytum devium* is restricted to pegmatite (feldspar) areas, and has a small population about 50m northeast of the current northwestern excavation. It is likely that this species was very common on the pegmatite outcrop prior to quarrying, but is now rare on the site, being restricted to small pegmatite patches away from the main deposit. Slightly northeast of this species are two further local endemics, *Conophytum longum* and *C. lydiae*, but in very limited numbers (<15 of each species), growing in shallow gravel pans (with feldspar elements) between granite boulders. I suspect that these populations are outside the area to be excavated, judging by the map I was given.

Woody shrubs are very rare in the area, unlike on the nearby Blesberg, and the only one noted was *Lycium oxycarpum*. The dominant species are widespread leaf and stem succulents such as *Senecio cephalophorus, Euphorbia decussata, Arenifera* sp., *Ceraria fruticulosa, Ceraria namaquensis, Crassula sericea, Crassula namaquensis, Zygophyllum leptopetalum, Phyllobolus sp.*, and *Tylecodon ventricosus*. One of the most common species is a small non-succulent, very spiny perennial known as *Acanthopsis hofmannseggiana*. Also present on the quartz outcrop very close to the existing excavation are the regionally endemic succulent trees *Commiphora capensis* and *Commiphora cervifolia*. A number of excavated, dead specimens of these species were seen near the overburden dump. A few *Aloe dichotoma* (kokerboom) occur about 80m north of the vein, and 20m south of the main excavation is a young plant that has been knocked over, perhaps by blasting shrapnel. The small widespread succulent *Stapelia similis* also occurs north of the excavation. South of the excavation the common succulent *Sarcostemma viminale* forms dense patches on the quartz vein, in association with *Ceraria fruticulosa, Euphorbia gariepina,*

and *Arenifera* sp. The succulent *Hoodia gordonii* (ghaap) also occurs here, along with a few specimens of the regional endemic *Tylecodon hallii*. Most specimens of this latter species were found south of the southern escavation. No *Pachypodium namaquanum* (halfmens) could be seen, and it is assumed that these have been removed, as they have been reported form the site.

The species of conservation concern recorded in the areas immediately around the excavation (within 40m of the current edge) thus include the regionally endemic succulent trees *Commiphora capensis* and *C. cervifolia*, and the regionally endemic 0.4m succulent *Tylecodon hallii*. These species are not Red Data Book listed, and are fairly common in the region.

Some plants around the quarry edge have been damaged by rock shrapnel from the blasting.

The local and regional conservation value of the vegetation within 40m of the existing quarry edge is generally Moderate.

3. CONCLUSIONS AND RECOMMENDATIONS

- Three regionally endemic plant species occur within 40m of the existing quarry edge, which puts them at risk. The species are not Red Data Book listed, and are regionally quite common. The species are not capable of being transplanted due to their long root systems.
- Mitigation is recommended (in terms of the above) if quarrying is to continue, and I would recommend that quarrying be allowed to expand only on a limited basis in a southerly direction (the current direction), with no significant widening (by more than 20m) of the quarry to the north. Of particular concern in the north is the presence of the three locally endemic *Conophytum* species about 50m northeast of the current northwestern excavation. These species are not found immediately south of the quarry.

- If possible the white quartz outcrop south of the main excavation should be left intact as it supports a number of interesting species not found on the adjacent granites.
- The vlakte areas should rehabilitate quite well naturally, once the dumped material is removed, but it may help to scarify the area (perpendicular to the prevailing winds) to allow windblown seeds to accumulate in the small sandy hollows.

APPENDIX 3:

Correspondence Sent
(Including Newspaper adverts and Poster Placement)

KENNISGEWING VAN OPDATERING VAN OMGEWINGSBESTUURSPLAN EN OPROEP VIR KOMMENTAAR: SWARTBERG MYN

Let daarop dat die aansoek om opdatering / wysiging van die bestaande verouderde Omgewingsbestuursprogram (EMP) deur Kamgab Minerale (Edms) Bpk ingedien is by die Departement van Minerale Hulpbronne: Noord-Kaap. Sodanige aansoek word gedoen in terme van Artikel 102 van die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne (Wet 28 van 2002, soos gewysig) vir bestaande bedrywighede op Gedeelte van Lot 226 (Vioolsdrift South Commonage).

'n Afskrif van die Konsep-omvangsverslag is beskikbaar vir openbare ondersoek by die Steinkopf Openbare Biblioteek (Pioneier St), Springbok Biblioteek (Namakwa St) en Nama Khoi Rooiwal Dienspunt-kantoor. 'n Digitale afskrif kan per e-pos beskikbaar gestel word van die onderstaande kontakbesonderhede.

Die voorgestelde aktiwiteite veroorsaak waarskynlik die volgende gelyste aktiwiteite ingevolge Regeringskennisgewings 983, 984 en 985 wat in 2017 gewysig is ingevolge die Wet op Nasionale Omgewingsbestuur (Wet 107 van 1998, soos gewysig). Volledige beskrywing vervat in die konsep Omvangsverslag:

Kennisgewing Lys 1: Aktiwiteit # 19, Aktiwiteit # 22 en Aktiwiteit # 48.
Kennisgewing Lys 2: Aktiwiteit # 15 en Aktiwiteit # 17
Kennisgewing Lys 3: Aktiwiteit # 4, Aktiwiteit # 12, Aktiwiteit # 14, Aktiwiteit # 23, en
Lys van afvalbestuursaktiwiteite: GNR 921: Aktiwiteit 9 (Kategorie B)

Om geïdentifiseer te word en geregistreer te word as 'n belanghebbende en / of geaffekteerde party (I&AP) en / of kommentaar te lewer op die Konsep Omvangsverslag, word u uitgenooi om u naam, kontakinligting en belangstelling in die saak en / of kommentaar in te dien, skriftelik, om die adres hieronder binne 30 dae van hierdie publikasie te bereik. Let daarop dat slegs geregistreerde belanghebbende en geaffekteerde partye voortaan op die hoogte sal bly van die aansoekstatus, sowel as die ontvangs van afskrifte van alle relevante dokumentasie.

Daar is verdere geleentheid om kommentaar op hierdie aansoek te lewer, indien u as 'n I&AP registreer:

Site Plan Consulting
Posbus 28 Strand
7139.
Tel: (021) 854 4260.
E-pos: craig@siteplan.co.za.
Kontakpersoon: Craig Donald.

OKIEP SPOG BINNEKORT MET NUWE NAMAQUALAND MININIG MUSEUM

"Die visie en missie is eertens die bewaring van ons inklusiewe myngeskiedenis vir die nageslag."

M. Mostert

OKIEP – Ek het al genoem dat ek graag deur museums dwaal en ou geskiedenis indrink. Ek dink ek was die enigste gereelde besoeker aan die Knysna-mynmuseum, 'n piepklein huisie in die middedorp. Dan het ek daardeur gestap en opnuut alles geniet. Ek het selfs my sussie na die Millwood-museum gesleep en my toneelspeler-leerders deur Fraserburg se museum geneem.

Daarom is ek rasende opgewonde saam met Malcolm Mostert oor die Namaqualand Mining Museum wat op 1 Julie in die Okiep Country Hotel gaan open. Ek gaan van die eerste besoekers wees en gereeld daar inloer. Hy gaan later vir my 'n seisoenkaartjie gee.

Malcolm noem dat die museum 24/7 oop sal wees. Daar is 'n geringe toegangsfooi van R20 per persoon wat vir onderhoudskoste gebruik sal word. Die hotel se gaste mag dit verniet besig?g. Skoolgroepe is welkom om dit te besoek en dit sal gra?s opvoedkundige uitstappies wees.

Die geskiedenis van die bloeitydperk van die kopermynbou in Namakwaland word in die museum uitgestal en vertel. Die buitengewone ryk myngeskiedenis het in 1682 begin toe die inheemse Nama-stamme met die Europeërs wat in die Kaap aangekom het, begin handel dryf het. Simon van der Stel stuur toe 'n ekspedisie na Namakwaland, maar met geen geluk om ryk minerale op te spoor nie.

In 1685 het hy self 'n ekspedisie hierheen gelei en koper by Carolusberg ontdek. Die myn staan vandag nog bekend as die Simon van der Stel-myn. Die Engelse van Cornwall het in 1855 in Okiep begin myn en dit het die eerste kommersiële myn in Suid-Afrika geword. Met die draai van die 18de eeu was die Okiep Kopermyn die rykste van sy soort in die wêreld.

Malcolm noem "Die visie en missie van die Namaqualand Mining Museum is eerstens die bewaring van ons inklusiewe geskiedenis en opvoeding vir toekoms?ge generasies. Baie dankie aan Dudley Wessels en sy vrou, Ale?a, vir hul kundigheid om die ware in die museum te versamnel en uit te stal."

IEC TEGNIES GEREED VIR OKTOBER-VERKIESING

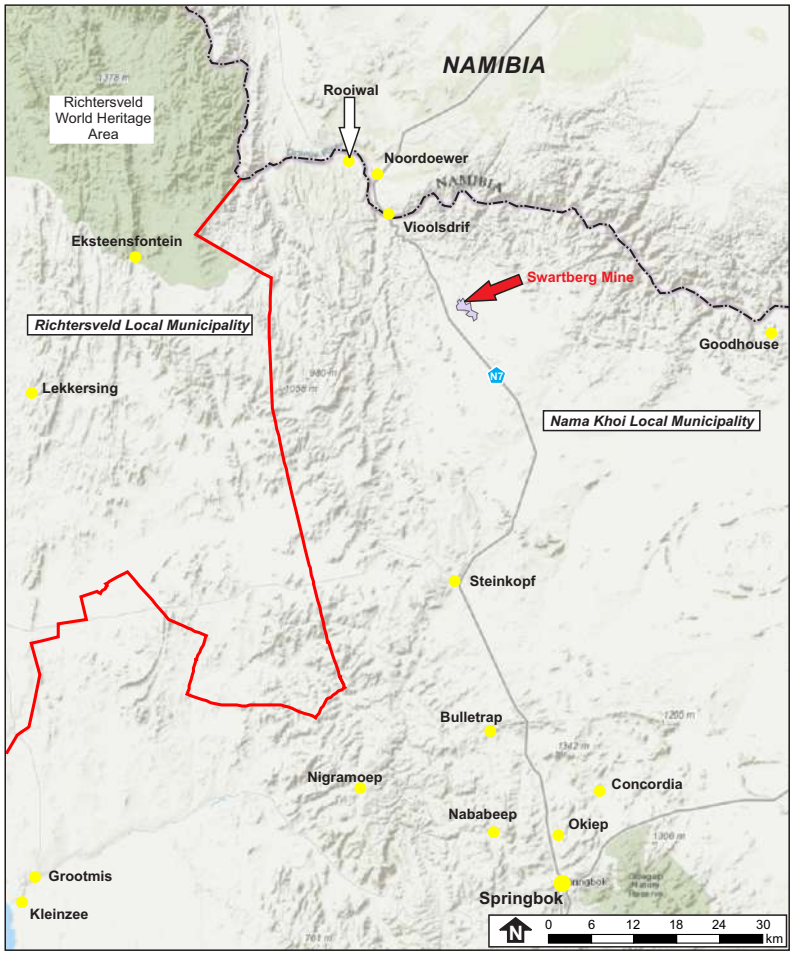
M. Mostert

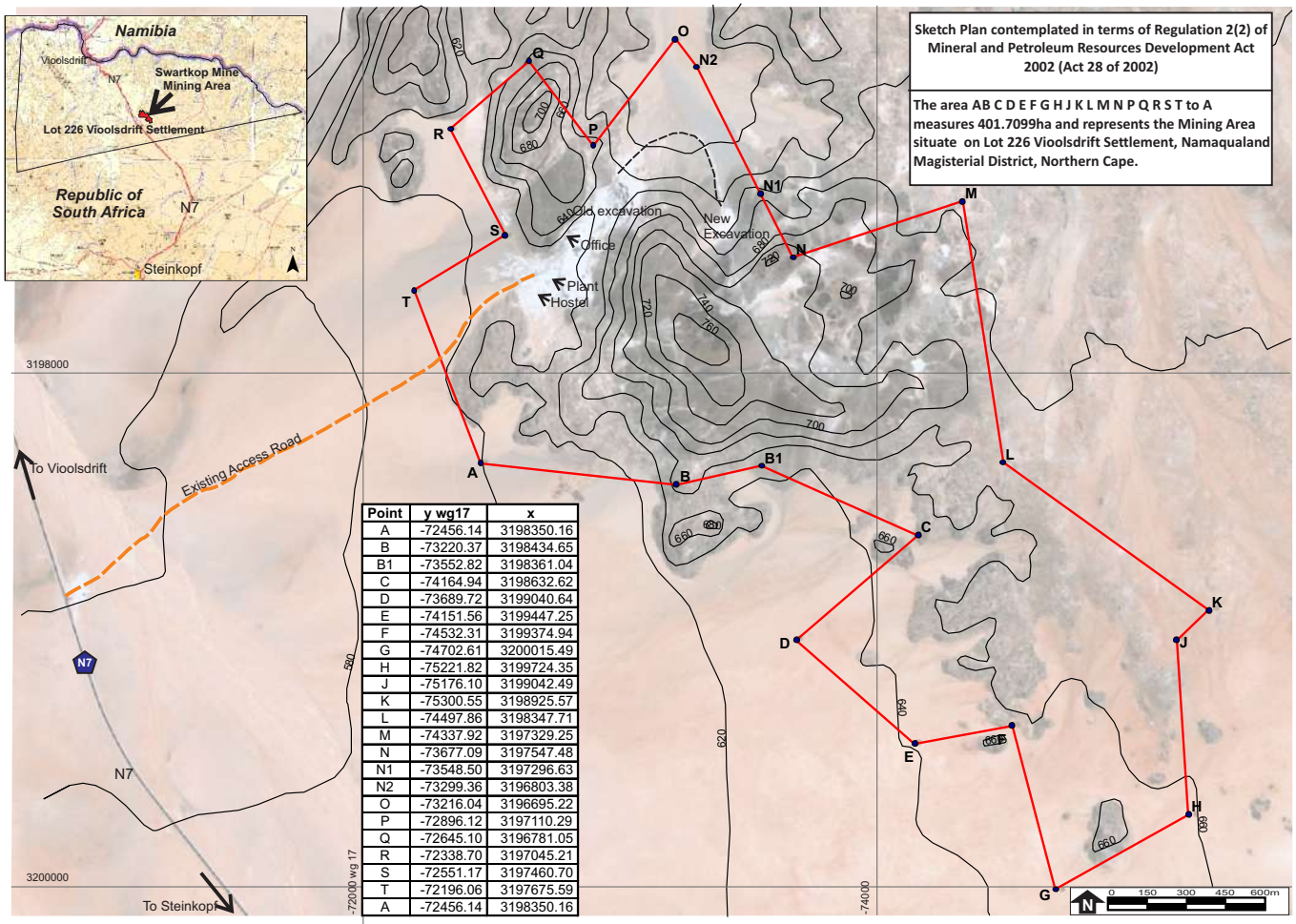
SUID-AFRIKA - Die verkiesing in Oktober kruip nader. Terwyl ons sukkel met beurtkrag en krag in my tuisdorp wat net af bly, het die Verkiesingskommissie van Suid-Afrika (IEC) gesê hulle is tegniesgesproke gereed vir die 2021 plaaslike regeringsverkiesings.

Die voorsi?er van die kommissie, Glen Mashinini, het Woensdag, 9 Junie, tydens die amptelike loodsing van die munisipale verkiesings die aankondiging gemaak toe die kommissie 'n mobiliseringsveldtog bekendgestel het wat we?ge stemgereg?gdes aanmoedig om te registreer en aan die Oktober-verkiesing deel te neem.

Mashinini het gesê dit is 'n moeilike taak om onder sulke onseker en onvoorspelbare omstandighede vir die land se vyfde munisipale verkiesing gereed te maak. Hulle moet ook seker maak dat hulle die reëls wat die kons?tusie voorskryf, nougeset nakom. Hy het die versekering gegee dat die kommissie beslis gereed is. Die IEC glo die 2021 munisipale verkiesing behoort voort te gaan soos sake nou staan.

"Gebaseer op die kons?tusie, die wet, operasionele gereedheid vir die verkiesing en deeglike assessering van die huidige pandemie, is die kommissie van mening dat hulle gereed is." Die assessering is in oorleg met die gesondheids- en rampbestuurgesaghebbendes en verskeie kundiges uitgevoer. Die kommissie het ook breedvoerige ondervinding van meer as 100 lande en terreine dwars oor die wêreld geraadpleeg wat suksesvolle verkiesings onder Covid-19-omstandighede gehou het.





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R	-72338.70	3197045.21
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T	-72196.06	3197675.59
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NOTICE OF UPDATE OF ENVIRONMENTAL MANAGEMENT PLAN & CALL FOR COMMENTS: SWARTBERG MINE

Please be advised that Application for update / amendment of existing outdated Environmental Management Programme (EMP) has been lodged by Kamgab Minerale (Pty) Ltd to the Department of Mineral Resources: Northern Cape. Such application is made in terms of Section 102 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002, as amended) for existing operation on Portion of Lot 226 (Vioolsdrift South Commonage).

A copy of the Draft Scoping Report is available for public scrutiny at the Steinkopf Public Library (Pioneier St), Springbok Public Library (Namakwa St) and Nama Khoi Rooiwal Dienspunt office. A digital copy can be made available (contact details below).

The proposed activities probably trigger the following listed activities in terms of Government Notices 983, 984 and 985 amended in 2017 under the National Environmental Management Act (Act 107 of 1998, as amended). Full description contained in the draft Scoping Report:
Listing Notice 1: Activity # 19, Activity # 22, and Activity # 48.
Listing Notice 2: Activity # 15 and Activity # 17
Listing Notice 3: Activity # 4, Activity # 12, Activity # 14, Activity # 23
List of Waste Management Activities: GNR 921: Activity 9 (Category B)

In order to be identified and registered as an interested and / or affected party (I&AP) and/or to provide comment on the Draft Scoping Report, you are invited to submit your name, contact information and interest in the matter and /or comments, in writing, to reach the address below by 13 July 2021. Note that only registered Interested and Affected Parties will be kept abreast of the application status in future as well as receiving copies of all relevant documentation. There will be further opportunity to comment on this application, if you register as an I&AP: **Site Plan Consulting** PO Box 28 Strand 7139. Tel: (021)854 4260. Fax: (021)854 4321. Email: craig@siteplan.co.za. Contact person: Craig Donald.

KENNISGEWING VAN OPDATERING VAN OMGEWINGSBESTUURSPLAN EN OPROEP VIR KOMMENTAAR: SWARTBERG MYN

Let daarop dat die aansoek om opdatering / wysiging van die bestaande verouderde Omgewingsbestuursprogram (OBP) deur Kamgab Minerale (Edms) Bpk ingedien is by die Departement van Minerale Hulpbronne: Noord-Kaap. Sodanige aansoek word gedoen in terme van Artikel 102 van die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne (Wet 28 van 2002, soos gewysig) vir bestaande bedrywighede op Gedeelte van Lot 226 (Vioolsdrift South Commonage).

'n Afskrif van die Konsep-omvangsverslag is beskikbaar vir openbare ondersoek by die Steinkopf Openbare Biblioteek (Pioneier St), Springbok Biblioteek (Namakwa St) en Nama Khoi Rooiwal Dienspunt-kantoor. 'n Digitale afskrif kan per e-pos beskikbaar gestel word van die onderstaande kontakbesonderhede.

Die voorgestelde aktiwiteite veroorsaak waarskynlik die volgende gelyste aktiwiteite ingevolge Regeringskennisgewings 983, 984 en 985 wat in 2017 gewysig is ingevolge die Wet op Nasionale Omgewingsbestuur (Wet 107 van 1998, soos gewysig). Volledige beskrywing vervat in die konsep Omvangsverslag:

Kennisgewing Lys 1: Aktiwiteit # 19, Aktiwiteit # 22 en Aktiwiteit # 48. Kennisgewing Lys 2: Aktiwiteit # 15 en Aktiwiteit # 17
Kennisgewing Lys 3: Aktiwiteit # 4, Aktiwiteit # 12, Aktiwiteit # 14, Aktiwiteit # 23, en Lys van afvalbestuursaktiwiteite: GNR 921: Aktiwiteit 9 (Kategorie B)

Om geïdentifiseer te word en geregistreer te word as 'n belanghebbende en / of geaffekteerde party (B&AP) en / of kommentaar te lewer op die Konsep Omvangsverslag, word u uitgenooi om u naam, kontakinligting en belangstelling in die saak en / of kommentaar in te dien, skriftelik, om die adres hieronder voor 13 Julie 2021 te bereik. Let daarop dat slegs geregistreerde B&AP voortaan op die hoogte sal bly van die aansoekstatus, sowel as die ontvangs van afskrifte van alle relevante dokumentasie. Daar is verdere geleentheid om kommentaar op hierdie aansoek te lewer, indien u as 'n B&AP registreer:

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:22 AM
To: samantha.titus@namakhoi.gov.za; info@namakhoi.gov.za
Cc: jacques.cloete@namakhoi.gov.za
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

Nama Khoi Local Municipality
Municipal Manager
4 Namakwa St Springbok, 8240 **(email)**

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

Att: Ms Samantha Titus

Email: samantha.titus@namakhoi.gov.za
Email: info@namakhoi.gov.za

Dear Madam,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

In the Municipality's capacity as:

1) Manager of the land in question being Lot 226 Viooldsrift South Settlement
2) Planning and Environmental Authority

you are hereby advised that an application for amendment/update of outdated EMP has been lodged to Department Mineral Resources and Energy (DMRE): Northern Cape. Such application has been lodged by Kamgab Minerals (Pty) Ltd in terms of Section 102 of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended (MPRDA)) and provisions of the National Environmental Management Act (NEMA) as well as provisions of the National Environmental Management: Waste Act.

As such, included herewith please find a copy of the Draft Scoping Report in respect of the envisaged amendments/updates for your perusal.

You are hereby requested to provide any comment you have in respect of the attached documents to the contact details below by July 16. Should you require any extension of time, please let me know timeously in order that I can arrange for such extension.

As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this amendments/update this EMP amendment/update.

EAP Contact Details:

Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

NOTE: This report has also been sent by courier for attention of Mr Jacques Cloete

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:25 AM
To: 'susanjanecloete@gmail.com'
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

Dear Madam

As Ward Councillor, you are hereby advised that an application for amendment/update of outdated EMP has been lodged to Department Mineral Resources and Energy (DMRE): Northern Cape. Such application has been lodged by Kamgab Minerals (Pty) Ltd in terms of Section 102 of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended (MPRDA)) and provisions of the National Environmental Management Act (NEMA) as well as provisions of the National Environmental Management: Waste Act.

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EAP Contact Details:
Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald
Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:32 AM
To: 'peter.denc87@gmail.com'
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.
Attachments: Swartberg Mine.kml

Department of Environment and Nature Conservation: (Springbok) 14 June 2021
Head of Department Our ref: 2063
Private Bag X16, Springbok, 8240 DMR Ref: NCS (552) MR

(Email)

Att: Peter Cloete Email: peter.denc87@gmail.com
Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this amendments/update this EMP amendment/update.

EAP Contact Details:
Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Link to Draft Scoping Report. https://www.dropbox.com/s/70lque05bauwqzg/Draft%20Scoping_Swartberg%20Mine_552MR.pdf?dl=0
- KML File showing location of Swartberg Mine

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:41 AM
To: AbrahamsA@dws.gov.za
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

Dept. of Water and Sanitation (Upington)
Private Bag X6101 Kimberley 8300

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

(Reg Mail and Email)

Att: Mr A Abrahams
Email: AbrahamsA@dws.gov.za
Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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As such, included herewith please find a copy of the Draft Scoping Report in respect of the envisaged amendments/updates for your perusal.

You are hereby requested to provide any comment you have in respect of the attached documents to the contact details below by July 16, 2021. Should you require any extension of time, please let me know timeously in order that I can arrange for such extension.

As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this amendments/update this EMP amendment/update.

EAP Contact Details:
Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald
Attachments:

- Draft Scoping Report.

NOTE: This correspondence has been sent by Registered mail with a copy of the document

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:44 AM
To: 'ramugondov@dws.gov.za'
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

Dept. of Water and Sanitation (Upington)
28 Beaconsfield Road Kimberley 8300

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

(Couriered and Email)

Att: V Ramugondo

Email: ramugondov@dws.gov.za

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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EAP Contact Details:
Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald
Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:46 AM
To: 'ruwayda.baulackay@dpw.gov.za'
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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You are hereby requested to provide any comment you have in respect of the attached documents to the contact details below by July 16, 2021. Should you require any extension of time, please let me know timeously in order that I can arrange for such extension.

As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this EMP amendment/update.

EAP Contact Details:
Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald
Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Monday, June 14, 2021 11:49 AM
To: 'Jacques.cloete4@gmail.com'
Subject: FW: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

From: Craig Donald [mailto:craig@siteplan.co.za]
Sent: Monday, June 14, 2021 11:22 AM
To: samantha.titus@namakhoi.gov.za; info@namakhoi.gov.za
Cc: jacques.cloete@namakhoi.gov.za
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

Nama Khoi Local Municipality
Municipal Manager
4 Namakwa St Springbok, 8240 **(email)**

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

Att: Ms Samantha Titus

Email: samantha.titus@namakhoi.gov.za
Email: info@namakhoi.gov.za

Dear Madam,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

In the Municipality's capacity as:

1) Manager of the land in question being Lot 226 Viooldsrift South Settlement
2) Planning and Environmental Authority

you are hereby advised that an application for amendment/update of outdated EMP has been lodged to Department Mineral Resources and Energy (DMRE): Northern Cape. Such application has been lodged by Kamgab Minerals (Pty) Ltd in terms of Section 102 of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended (MPRDA)) and provisions of the National Environmental Management Act (NEMA) as well as provisions of the National Environmental Management: Waste Act.

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As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this amendments/update this EMP amendment/update.

EAP Contact Details:
Company: Site Plan Consulting

Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za
Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald
Attachments:

- Draft Scoping Report.

NOTE: This report has also been sent by courier for attention of Mr Jacques Cloete

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

SITE PLAN CONSULTING

ENVIRONMENTAL GEOLOGY. ENVIRONMENTAL IMPACT. STRATEGIC MANAGEMENT. MINE PLANNING. GIS MANAGEMENT / TRAINING
Shop 5 Goedehoop Shopping Centre, Broadway Boulevard Strand, 7140
PO Box 28 Strand 7139
Tel: 021 - 854 4260 Fax: 021 - 854 4321

Dept. of Water and Sanitation (Upington)
Private Bag X6101 Kimberley 8300

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

(Reg Mail and Email)

Att: Mr A Abrahams

Email: AbrahamsA@dws.gov.za

Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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EAP Contact Details:

Company:	Site Plan Consulting
Contact Person:	Craig Donald
Tel:	021 854 4260 / 0845111520
Email:	craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING

ENVIRONMENTAL GEOLOGY. ENVIRONMENTAL IMPACT. STRATEGIC MANAGEMENT. MINE PLANNING. GIS MANAGEMENT / TRAINING

Shop 5 Goedehoop Shopping Centre, Broadway Boulevard Strand, 7140
PO Box 28 Strand 7139
Tel: 021 - 854 4260 Fax: 021 - 854 4321

Dept. of Agriculture Forestry and Fisheries (Springbok)
District Manager
2 Hospital Street, Springbok, 8240

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

(Courier and Email)

Att: Mr Darren Engelbrecht

Email: darrenlengelbrecht@gmail.com

Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this EMP amendment/update.

EAP Contact Details:

Company:	Site Plan Consulting
Contact Person:	Craig Donald
Tel:	021 854 4260 / 0845111520
Email:	craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING

ENVIRONMENTAL GEOLOGY. ENVIRONMENTAL IMPACT, STRATEGIC MANAGEMENT, MINE PLANNING. GIS MANAGEMENT / TRAINING

Shop 5 Goedehoop Shopping Centre, Broadway Boulevard Strand, 7140
PO Box 28 Strand 7139
Tel: 021 - 854 4260 Fax: 021 - 854 4321

Department of Environment and Nature Conservation: (Kimberley)
Head of Department
Kimberlite Building, 162 George St, West End
Kimberley, 8301

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR
(Couriered)

Dear Sir/Madam,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

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EAP Contact Details:

Company:	Site Plan Consulting
Contact Person:	Craig Donald
Tel:	021 854 4260 / 0845111520
Email:	craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

SITE PLAN CONSULTING

ENVIRONMENTAL GEOLOGY. ENVIRONMENTAL IMPACT. STRATEGIC MANAGEMENT. MINE PLANNING. GIS MANAGEMENT / TRAINING

Shop 5 Goedehoop Shopping Centre, Broadway Boulevard Strand, 7140
PO Box 28 Strand 7139
Tel: 021 - 854 4260 Fax: 021 - 854 4321

Nama Khoi Local Municipality
Technical Department Head
4 Namakwa St Springbok, 8240

(Courier and email)

14 June 2021
Our ref: 2963
DMR Ref: NCS (552) MR

Att: Mr Jacques Cloete

Email: jacques.cloete@namakhoi.gov.za
Email: Jacques.cloete4@gmail.com

Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

We have been informed by our client that you are the correct person to contact in respect of the Municipality's role as Manager of the land in question. If that is not so, please let me know so that we can contact the relevant person / body.

You are hereby advised that an application for amendment/update of outdated EMP has been lodged to Department Mineral Resources and Energy (DMRE): Northern Cape. Such application has been lodged by Kamgab Minerals (Pty) Ltd in terms of Section 102 of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended (MPRDA)) and provisions of the National Environmental Management Act (NEMA) as well as provisions of the National Environmental Management: Waste Act.

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EAP Contact Details:

Company:	Site Plan Consulting
Contact Person:	Craig Donald
Tel:	021 854 4260 / 0845111520
Email:	craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

CC: Municipal Manager

REGISTERED LETTER
GEREGISTREERDE BRIEF

(with an insurance option/met 'n versekeringsopsie)

Post Office

Full tracking and tracing/Volledige volg en spoor

Addressed to/Geadresseer aan

Dept of Water & Sanitation
P. Bag X6101
Kimberley

8300 Postcode / Postkode

The value of the contents of this letter is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2 000.00 is available and applies to domestic registered letters only.-

Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

Postage paid R ____ c
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Insurance/Versekering R ____ c
Total/Totaal R ____ c

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Versekerde waarde van inhoud R 15 ____ c

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

Initial of accepting officer

Date stamp

Strand 15 DEC 2021 7139

701281

Track and Trace

REGISTERED LETTER
(with a domestic insurance option)
ShareCall 0860 111 502 www.sapo.co.za
RC361161764ZA
CUSTOMER COPY 301028R
Kliëntekopie

Paraaf van aanneem-beampte

Datumstempel

STAREXPRESS (PTY) LTD

REG. No. 2019/332451/07 • VAT No. 4810141343

P.O. Box 2676
SOMERSET WEST
7129
TEL: (021) 853 0430
FAX: (021) 853 0446

1774990

Acc No.	Date:	Shipper:	Shipper ref./Waybill No.
SITOO1			2063

PLEASE COMPLETE ALL SHADED AREAS

SENDER: Site Plan Cons	RECEIVER: Dept Agric. Forestry, fishe
ADDRESS: PO Box 28	STREET ADDRESS: 2 Hospital St
CITY: Strand CODE: 7139	CITY: Springbok CODE: 8240
CONTACT: C Donald TELEPHONE: 021 8544260	COUNTRY:
SPECIAL INSTRUCTIONS:	CONTACT: D. Engelbrecht TELEPHONE: 027 712 1315

QTY	DESCRIPTION OF CONTENTS	DIMENSIONS	VOL. Kg's	ACTUAL Kg's
1	Flyer			
	TOTAL			

TARIFF			
HANDLING			
SAME DAY SURCHARGE			
SAT. DELIVERY/ COLLECTION			
NON-DOCUMENT SURCHARGE			
INSURANCE			
IMPORT CUSTOMS DISBURSEMENTS			
OTHER			
SUB/TOTAL			
VAT			
TOTAL R			

INTERNATIONAL		DOMESTIC	
DOCUMENT COURIER		OVERNIGHT COURIER	
SMALL PARCEL COURIER		EARLY BIRD	
AIRFREIGHT		SAME DAY EXPRESS	
ROAD FREIGHT		NEXT DAY	
OTHER		ECONOMY CARGO	

SATURDAY	DEL	COLL
OTHER		
INSURANCE	YES	NO
INS. VALUE		
CUSTOMS VALUE		

I AGREE TO BE BOUND BY THE STANDARD TRADING CONDITIONS CONTAINED OVERLEAF

SENDER'S SIGNATURE	RECEIVED BY:	RECEIVER'S SIGNATURE:
SENDER'S NAME (PRINT)		RECEIVER'S NAME (PRINT)
CONSUMER'S GUARANTEE: THE CONSIGNOR GUARANTEES PAYMENT TO THE CORPORATION FOR CONSIGNMENT CHARGES IN THE EVENT THAT THE CONSIGNEE FAILS TO PAY WITHIN 30 DAYS	DATE: 14/04/21 TIME: 13:29	DATE: TIME:

STAREXPRESS (PTY) LTD

REG. No. 2019/332451/07 • VAT No. 4810141343

P.O. Box 2676
SOMERSET WEST
7129
TEL: (021) 853 0430
FAX: (021) 853 0446

1774989

PLEASE COMPLETE ALL SHADED AREAS

Acc No.	Date:	Shipper:	Shipper ref./Waybill No.
SITOOL			2063

SENDER: Site Plan Consult	RECEIVER: Nama Khoi Municipal
ADDRESS: PO Box 28	STREET ADDRESS: 4 Namakwa St
CITY: Strand CODE: 7139	CITY: Springbok CODE: 8240
CONTACT: C Dandd TELEPHONE: 021 8544260	COUNTRY:
SPECIAL INSTRUCTIONS:	CONTACT: J. Cloete TELEPHONE: 027 718 8100

QTY	DESCRIPTION OF CONTENTS	DIMENSIONS	VOL. Kg's	ACTUAL Kg's
1	Flyer			
	TOTAL			

INTERNATIONAL		DOMESTIC	
DOCUMENT COURIER		OVERNIGHT COURIER	
SMALL PARCEL COURIER		EARLY BIRD	
AIRFREIGHT		SAME DAY EXPRESS	
ROAD FREIGHT		NEXT DAY	
OTHER		ECONOMY CARGO	

SATURDAY	DEL	COLL
OTHER		
INSURANCE	YES	NO
INS. VALUE		
CUSTOMS VALUE		

TARIFF		
HANDLING		
SAME DAY SURCHARGE		
SAT. DELIVERY/ COLLECTION		
NON-DOCUMENT SURCHARGE		
INSURANCE		
IMPORT CUSTOMS DISBURSEMENTS		
OTHER		
SUB/TOTAL		
VAT		
TOTAL R		

I AGREE TO BE BOUND BY THE STANDARD TRADING CONDITIONS CONTAINED OVERLEAF

SENDER'S SIGNATURE	**RECEIVED BY:**	**RECEIVER'S SIGNATURE:**
SENDER'S NAME (PRINT) L Mostert		**RECEIVER'S NAME (PRINT)**
CONSUMER'S GUARANTEE: THE CONSIGNOR GUARANTEES PAYMENT TO THE CORPORATION FOR CONSIGNMENT CHARGES IN THE EVENT THAT THE CONSIGNEE FAILS TO PAY WITHIN 30 DAYS.	**DATE:** 11/06/21 **TIME:** 13:29	**DATE:** **TIME:**

STAREXPRESS (PTY) LTD

REG. No. 2019/332451/07 • VAT No. 4810141343

P.O. Box 2676
SOMERSET WEST
7129
TEL: (021) 853 0430
FAX: (021) 853 0446

1774991

PLEASE COMPLETE ALL SHADED AREAS

Acc No.	Date:	Shipper:	Shipper ref./Waybill No.
SITOO1			2063

SENDER: Ste Mar Cons.	RECEIVER: Dept Enviran. & Natur Conser.
ADDRESS: PO Box 28	STREET ADDRESS: Kimberley Building 162 George Str, Westen
CITY: Strand CODE: 7139	CITY: Kimberley CODE: 83-1
CONTACT: C Donald TELEPHONE: 021 8544260	COUNTRY:
SPECIAL INSTRUCTIONS:	CONTACT: Head of Dept TELEPHONE: 053 807 7300

QTY	DESCRIPTION OF CONTENTS	DIMENSIONS	VOL. Kg's	ACTUAL Kg's
1	Flyer			
	TOTAL			

INTERNATIONAL		DOMESTIC	
DOCUMENT COURIER		OVERNIGHT COURIER	
SMALL PARCEL COURIER		EARLY BIRD	
AIRFREIGHT		SAME DAY EXPRESS	
ROAD FREIGHT		NEXT DAY	
OTHER		ECONOMY CARGO	

SATURDAY	DEL	COLL
OTHER		
INSURANCE	YES	NO
INS. VALUE		
CUSTOMS VALUE		

TARIFF		
HANDLING		
SAME DAY SURCHARGE		
SAT. DELIVERY/ COLLECTION		
NON-DOCUMENT SURCHARGE		
INSURANCE		
IMPORT CUSTOMS DISBURSEMENTS		
OTHER		
SUB/TOTAL		
VAT		
TOTAL R		

I AGREE TO BE BOUND BY THE STANDARD TRADING CONDITIONS CONTAINED OVERLEAF

SENDER'S SIGNATURE	RECEIVED BY: Blihan	RECEIVER'S SIGNATURE:
SENDER'S NAME (PRINT) C. Mossman		RECEIVER'S NAME (PRINT)
CONSUMER'S GUARANTEE: THE CONSIGNOR GUARANTEES PAYMENT TO THE CORPORATION FOR CONSIGNMENT CHARGES IN THE EVENT THAT THE CONSIGNEE FAILS TO PAY WITHIN 30 DAYS.	DATE: 14/06/21 TIME: 13:29	DATE: TIME:

Craig Donald

From: Craig Donald <craig@siteplan.co.za>
Sent: Thursday, November 25, 2021 8:49 AM
To: 'ryan.oliver@drdlr.gov.za'
Subject: Land claims: Swartberg Mine
Attachments: Swartberg Mine Area.kml

Good Morning

I trust that email sees you in good health.

I am busy compiling an updated EMP for the Swartberg Mine. I need to find out whether any land claims are applicable to this portion of land.

The mine is located on portion of Lot 226 (Vioolsdrift Settlement). I know this is a huge portion of land but the mine site is located approximately 47km N of Steinkopf along the N7 (and 20km S of Vioolsdrift). I have included a KML file in case it will help

Let me know if you need any other information.

Regards

Craig Donald

SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

APPENDIX 4:

Correspondence Received

Craig Donald

From: TWessels <TWessels@ncpg.gov.za>
Sent: Thursday, June 17, 2021 3:12 PM
To: craig@siteplan.co.za
Cc: croninroad@gmail.com; BBotes; BFisher; Bernadette BJulius; Larato LwaModise; Suzaan SGreeff; TMakaudi; Zanele ZMogorosi
Subject: KAMGAB MINERALE (PTY)LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

Dear Mr Craig Donald

KAMGAB MINERALE (PTY)LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP) IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE CALL FOR COMMENTS ON DRAFT SCOPING REPORT

On behalf of the Acting HOD, Mr LMM Wa Modise we hereby acknowledge receipt of the above-mentioned document and content noted thereof.

Trust you would find this in order

Regards

Theresa Wessels
Office of the Head of Department
Cell:+27(0) 609891917
Fax: +27 (0) 53 8077367
Tel: + 27 (0) 53 8077303
fax2email: 0865550804
Agriculture, Environmental Affairs, Rural Development and Land Reform Private Bag X6102, Long Street, SASKO Building Kimberley
8300

Craig Donald

From: Franks Lindiwe <FranksL@dws.gov.za>
Sent: Monday, June 14, 2021 5:22 PM
To: Feni Ntombizanele (KBY); Mokhoantle Lerato (KBY); Hlengani Alexia (UPN); Kgaphola Mashudu (UPN)
Cc: Van Dyk Gawie (KBY); craig@siteplan.co.za
Subject: FW: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT
Attachments: Draft Scoping_Swartberg Mine_552MR.pdf

Dear Managers

Kindly note for your attention.

Regards

From: Craig Donald [mailto:craig@siteplan.co.za]
Sent: 14 June 2021 11:41 AM
To: Abrahams Abe (KBY)
Subject: KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT

Dept. of Water and Sanitation (Upington)
Private Bag X6101 Kimberley 8300

14 June 2021
Our ref: 2063
DMR Ref: NCS (552) MR

(Reg Mail and Email)

Att: Mr A Abrahams
Email: AbrahamsA@dws.gov.za
Dear Sir,

KAMGAB MINERALE (PTY) LTD: AMENDMENT/UPDATE OF ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP), IN RESPECT OF ACTIVITIES ON LOT 226 VIOOLSDRIFT SOUTH COMMONAGE: CALL FOR COMMENT ON DRAFT SCOPING REPORT.

You are hereby advised that an application for amendment/update of outdated EMP has been lodged to Department Mineral Resources and Energy (DMRE): Northern Cape. Such application has been lodged by Kamgab Minerals (Pty) Ltd in terms of Section 102 of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended (MPRDA)) and provisions of the National Environmental Management Act (NEMA) as well as provisions of the National Environmental Management: Waste Act.

As such, included herewith please find a copy of the Draft Scoping Report in respect of the envisaged amendments/updates for your perusal.

You are hereby requested to provide any comment you have in respect of the attached documents to the contact details below by July 16, 2021. Should you require any extension of time, please let me know timeously in order that I can arrange for such extension.

As a recognised Interested and Affected party, you will receive further documentation during the forthcoming draft Environmental Impact Assessment and Environmental Management Program report (EIA-EMPr) phase, and will be kept abreast of the status of this amendments/update this EMP amendment/update.

EAP Contact Details:

Company: Site Plan Consulting
Contact Person: Craig Donald
Tel: 021 854 4260 / 0845111520
Email: craig@siteplan.co.za

Please do not hesitate to contact us should you require any additional information.

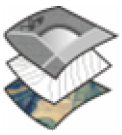
Yours Faithfully

Craig Donald

Attachments:

- Draft Scoping Report.

NOTE: This correspondence has been sent by Registered mail with a copy of the document



SITE PLAN CONSULTING
Tel: 021 854 4260
Fax: 021 854 4321
Cell: 084 511 1520

Appendix 5:

Heritage Matters

Swartberg Mine

Our Ref:

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 16734

Date: Friday July 30, 2021

Interim Comment

In terms of Section 38(3), 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Kamgab Minerals

Update of existing EMP for Swartberg Mine. Northern Cape

Site Plan Consulting have been appointed by Kamgab Minerale (Pty) Ltd to conduct an Environmental Authorisation (EA) Application for proposed mining activities at the Swartberg Feldspar Mine near Vioolsdrift, Northern Cape Province (NC30/5/1/2/3/2/1(552)MR).

A draft Scoping Report (DSR) has been submitted in terms of the National Environmental Management Act, 1998 (NEMA) and the 2017 Environmental Impact Assessment (EIA) Regulations for activities that trigger the Mineral and Petroleum Resources Development Act, 2002 (MPRDA)(As amended). The proposed mining activities will include an amendment to the existing EMP to allow for continued mining and backfill the main (old) excavation with all waste rock material and to explore new section within the 401.7 ha mining right area.

The DSR notes that no heritage assessment should be required as the area is extensively disturbed, however new areas in the Kloof section are to be explored. It is also unclear if any assessment of the impact to heritage resources was conducted as part of the original Mining Right application.

Interim Comment

The assessment of the impact to heritage resources is a requirement in terms of section 24(4)(b)(iii) of NEMA. Additionally, any EA application must comply with section 38(8) and 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA).

However, as the area is highly disturbed and the area to be explored in the Kloof section is small, a Letter of Recommendation for Exemption for Further Studies may be provided as per the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessments. This report must be compiled by a qualified archaeologist and submitted as part of the EIA phase of the EA application.

No further assessment of the impact to palaeontological heritage is required as the proposed development footprint is located in an area of low to negligible sensitivity for palaeontological resources as per the SAHRIS

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

PalaeoSensitivity map.

The draft EIA and appendices must be submitted in order for an informed comment to be issued.

Further comments will be issued upon receipt of the above requested documents.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Natasha Higgitt
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: https://sahris.sahra.org.za/node/577186
(DMR - NC, Ref: NCS30/5/1/2/3/2/1(552)MR)

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Agency for Cultural Resource Management
Specialists in Archaeological Studies and Heritage Resource Management

20 November, 2021

Att: Ms Natasha Higgitt
SAHRA
PO Box 4637
Cape Town
8001

Dear Ms Higgitt,

ARCHAEOLOGICAL HERITAGE: PROPOSED LETTER OF EXEMPTION FROM FURTHER SPECIALIST STUDIES & MITIGATION

UPDATE OF THE EXISTING EMP FOR THE SWARTBERG FELDSPAR MINE NEAR VIOOLSDRIFT, NORTHERN CAPE

SAHRA CaseID: 16734

1. Introduction

ACRM was instructed by Site Plan Consulting, on behalf of Kamgab Minerale (Pty) Ltd to conduct a desktop screening study for the update of the existing Environmental Management Plan (EMP) for the Swartberg Feldspar Mine (Lot 226 Vioolsdrift Settlement) near Vioolsdrift, in the Namaqualand region of the Northern Cape (Figures 1-4). The Swartberg Mine is located approximately 47km north of Steinkopf along the N7, and 20km south of Vioolsdrift.

2. Project description

This project is already underway, and the application merely relates to the amendment/updating of the current EMP.

The following are the main component areas at the mine (refer to photos 1-6)

- The logistical facility area which includes office, workshop, water purification, wash bay, salvage yard, diesel tank and weighbridge facility.

- Main plant and plant residue site. Processing plant not in use at present.

- Main excavation currently being backfilled.

- Kloof Section excavation and overburden dump.

- Hostel and manager's accommodation

Mining is conducted as a surface mine hard rock drill and blast operation. Drilling is undertaken by a team using pneumatic handheld drills. The shot rock is collected from the floor by means of front-end loader and taken to the sorting platform for sorting of waste material. Mining of the Main Section excavation has ceased and mining at present only takes place in the more recently established Kloof Section (Figure 5).

No. 5 Stuart Road Rondebosch, 7700 Phone/Fax 021-6857589
E-mail: acrm@wcaccess.co.za Mobile: 082 321 0172

The proposal is to continue mining the Kloof Section, spoil overburden on the dump adjacent to that excavation, backfill the main (old) excavation through reprocessing of existing plant residue material and sorted material from the Kloof section, and to explore new sections within the Mining Right Area.

The excavation will extend from the current 0.7ha to measure maximum 3.7ha, whilst the 1.2ha waste rock dump will be expanded by 3.8ha to measure 5.0ha (for a total additional disturbance area of 6.8ha).

The proposed 30 year mine plan for the Kloof Section is as shown in Figure 6.

3. Approach to the study

A desk top study was undertaken that entailed a detailed search of the SAHRIS content management website.

4. Archaeological context

Historically, the interior of Namaqualand, was occupied by the Little Namaqua, a Khoekhoen pastoralist group who herded sheep and cattle and lived in temporary encampments of mat/grass huts. The Little Namaqua is known to have moved seasonally with their livestock and historical reports indicate that they may have followed a transhumance cycle between the Kamiesberg in the summer months and the Sandveld in the winter months (Webley 1992). Since the Little Namaqua had no clearly defined territorial boundaries, it was easy for the colonial Trekboers to settle in the area, when loan farms were granted after 1750. The Little Namaqua eventually retreated to so-called `reserves' such as Leliefontein, Steinkopf, Kommaggas, Carolusberg, Concordia and the Richtersveld (Webley & Halkett 2010).

Archaeological research has been conducted on the banks of the Orange River, but these have taken place in the Richtersveld region of the Northern Cape (Halkett 1999; Smith et al 2001; Webley 1997; Orton & Halkett 2010). Research indicates that intensive hunter-gatherer occupation of the Namaqualand region started around four thousand years ago during the Later Stone Age, but most of our current information comes from the coastal zone (Webley 1992; Dewar 2007).

A search of SAHRIS (South African Heritage Information System) has shown that no archaeological work has been done in the area surrounding the Swartberg Mine, with the closest regional town being Springbok about 50kms further to the south. A Heritage Impact Assessment (HIA) for a large agricultural development on the banks of the Orange River near Henkries about 30kms east (as the crow flies) from Swartberg Mine, recorded a very small number of Later Stone Age (LSA) tools on the soft alluvial sands (Kaplan 2016).

Until fairly recently little archaeological work had taken place in the Springbok area, where most research has concentrated on the Namaqualand coast, the Richtersveld and further south in the Kamiesberg (Webley 1992). With the development of an emerging alternative energy industry, and improved infrastructure development, several Heritage Impact Assessments (HIA's) have taken place in Springbok and the surrounding area, with mixed results. For example, only three stone flakes were encountered over a large area during an HIA for a proposed wind energy farm near Springbok, where some faded rock art and a burial were also recorded (Kaplan 2010), while a few stone flakes were encountered in the proposed powerline servitude between Springbok and Nababeep during a field scoping assessment for the same study. Low density scatters of Later Stone Age quartz flakes, chunks, a few cores and utilized pieces were documented by Kaplan (2008) alongside

DR2595 near Bulletrap about 15kms north of Springbok, during an assessment of several borrow pits. No pre-colonial archaeological remains were documented during scoping for a proposed water pipeline between Rooiwinkel and Nababeep north of Springbok (Kaplan 2011a) either, or between Okiep and Bulletrap alongside the N7 (Kaplan 2011b). A few stone tools and a possible grave were encountered by Smith (2013) during a HIA for a proposed solar energy farm near Carolusberg east of Springbok, while ephemeral scatters of stone tools, a stone walled Herder kraal, colonial-era artefacts and a grave were also encountered by Smith (2013b) during a HIA for a proposed solar energy farm near Nababeep. No archaeological resources were encountered by Gaigher (2012) during a HIA for a proposed solar energy farm south of Springbok, and no pre-colonial archaeological traces were encountered by Morris (2012) during a survey of the proposed upgrading of the Goegap Nature Reserve facilities a few kilometres south east of Springbok east. Isolated MSA and LSA tools were recorded during a study for a large, regional water supply scheme connecting the small surrounding towns of Okiep, Concordia and Carolusberg. Several graves/grave markers were also recorded, while a dispersed scatter of tools, pottery and a Herder kraal were recorded alongside a small stream bed north of Carolusberg (Kaplan 2016).

Indications are that the majority of the surveys so far undertaken, suggests a paucity of archaeological traces in the Springbok area of the Northern Cape.

4.1 Graves

It is unlikely that any graves or typical grave features occur in the application area, given that the footprint area has been severely transformed by historical mining operations.

5. Anticipated impact

Given the severely modified receiving environment (refer to photos 1-6), any potential impact of further mining operations on Pre-colonial archaeological resources is rated as being Low.

It is further noted that the bulk of proposed future mining/processing of Feldspar, will take place in already disturbed (i. e historically mined) areas.

6. Conclusion

Indications are that no important archaeological resources will be encountered in the footprint area of the Swartberg Feldspar Mine near Vioolsdrift.

While Stone Age implements may occur within the 30-year Mining Application Area, the significance of the finds are likely to be graded as Low.

7. Recommendations

Given the already severely transformed context of the receiving environment, and anticipated low impact significance of the mine on archaeological resources, there are no objections on archaeological grounds, to updating the existing Swartberg Mine EMP.

It is therefore recommended that exemption from further specialist archaeological studies and mitigation be granted.

8. References

Dewar, G.I. 2007. The Archaeology of the Coastal Desert of Namaqualand, South Africa: A regional synthesis. Unpublished PhD Dissertation, Department of Archaeology, University of Cape Town.

Gaigher, S. 2012. Heritage Impact Assessment Report Basic Assessment, proposed establishment of the Brax Energy Photovoltaic Solar Park on a Portion of the Farm Voelklip near Springbok in the Northern Cape Province. Report prepared for Shawn Johnston Sustainable Future/Savannah Environmental

Halkett, D. 1999. A Phase 1 Archaeological Impact Assessment of heritage resources in the Trans Hex Diamond Concession, Richtersveld. Report prepared for Trans Hex Group Ltd. Archaeology Contracts Office, University of Cape Town.

Kaplan, J. 2016a. Heritage Impact Assessment, Henkries Agricultural Development, Remainder of Farm Steinkopf No. 22, Springbok, Northern Cape. Report prepared for Enviroafrica. ACRM, Cape Town.

Kaplan, 2016b. Heritage Impact Assessment, Namaqualand Regional Water Supply Scheme – upgrade of the water supply pipeline from Okiep to Concordia and Carolusberg, Northern Cape. Report prepared for Enviroafrica. ACRM, Cape Town

Kaplan, 2011a Archaeological scoping the proposed construction of a new water pipeline between Rooiwinkel and Nababeep, Northern Cape. Report prepared for EnviroAfrica. ACRM Cape Town

Kaplan, J. 2011b. Archaeological scoping the proposed construction of a new pipeline between Bulletrap and Okiep, Northern Cape. Report prepared for EnviroAfrica. ACRM Cape Town

Kaplan, J. 2010. Archaeological Impact Assessment for a proposed wind energy facility near Springbok, Northern Cape. Report prepared for DJ Environmental Consultants. ACRM, Cape Town.

Kaplan, 2008. An archaeological assessment of three proposed borrow pits alongside DR2595 N7 to Bulletrap, Northern Cape Province. Report prepared for Irme van Zyl Environmental Consultants.

Morris, D. 2012. Archaeological Impact Assessment, Phase 1 for inclusion in Basic Assessment Report 25/2011. Proposed upgrading of the Goegap Nature Reserve near Springbok, Northern Cape. Report prepared for Van Zyl Environmental Consultants. McGregor Museum, Kimberly

Orton, J. & Halkett, D. 2010. Stone tools, beads and a river: Two Holocene Microlithic sites at Jakkalsberg in the northwestern Richtersveld, Northern Cape, South Africa. South African Archaeological Bulletin 65:13-25.

Site Plan Consulting, 2021. Scoping Report, Swartberg Mine. Report prepared for Kamgab Minerale (Pty) Ltd. Site Plan Consulting, Cape Town.

Smith, A. B. 2013a. Proposed Solar PV Facility Melkboskuil Farm 132/6 Carolusberg: A Heritage Impact Assessment. Report prepared for Footprint Environmental Services.

Smith, A. B. 2013b. Proposed Solar PV Facility Klipdam Farm 134/17 Springbok, Northern Cape: A Heritage Impact Assessment. Report prepared for Footprint Environmental Services.

Smith, A.B., Halkett, D., Hart, T. & Mutti, B. 2001. Spatial patterning, cultural identity and site integrity on open sites: evidence from Bloeddrift 23, a pre-colonial herder camp in the Richtersveld, Northern Cape Province, South Africa. South African Archaeological Bulletin 56:23-33

Webley, L. 1992. The history and archaeology of pastoralist and hunter-gatherer settlement in the north-western Cape, South Africa. Unpublished D. Phil thesis: University of Cape Town.

Webley, L. 1997. Jakkalsberg A and B: the cultural material from two pastoralist sites in the Richtersveld, Northern Cape. Southern African Field Archaeology 6:3-19

Figure 1. Locality Map

Figure 2. Google earth satellite map showing the regional context of the study site

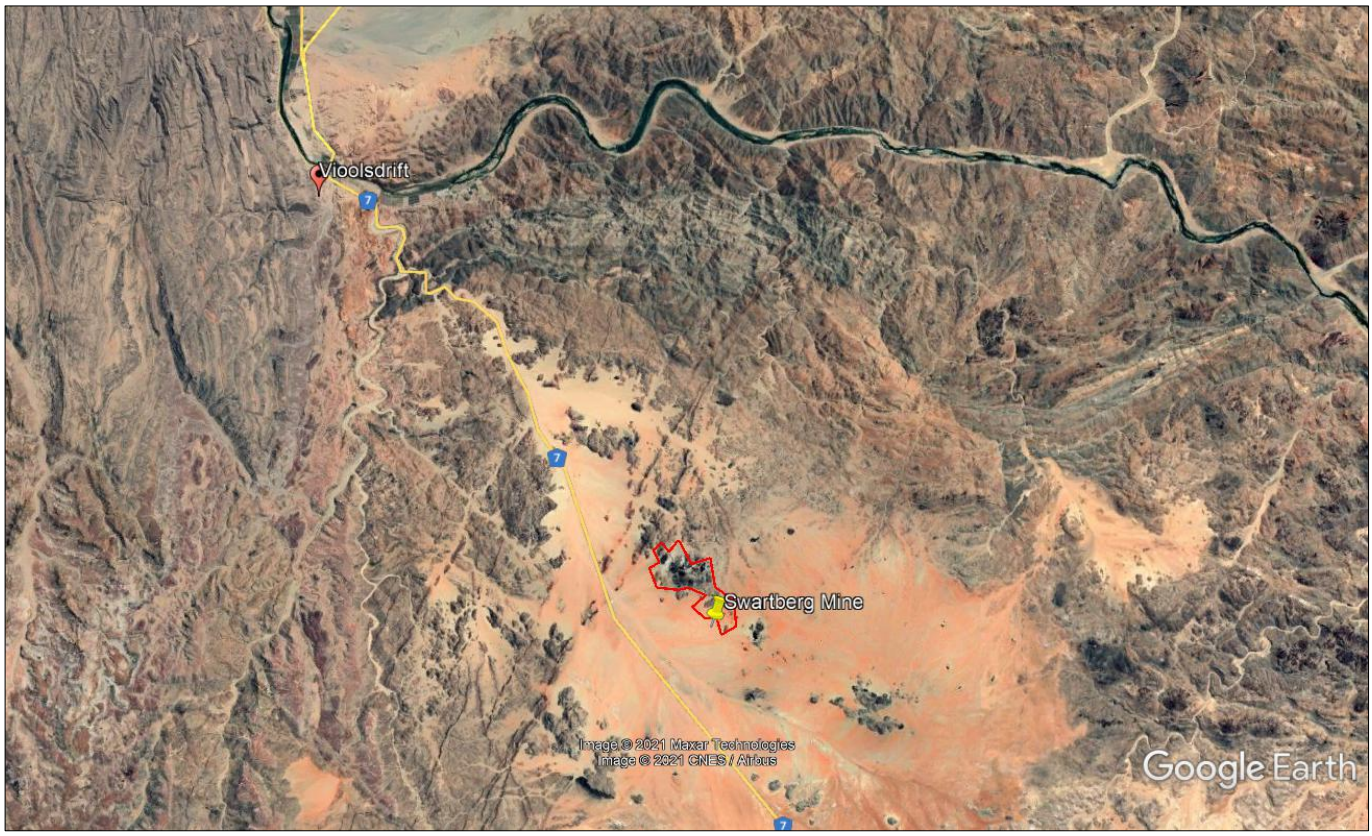


Figure 3. Goole satellite map showing the Swartberg Mine and surrounding land use

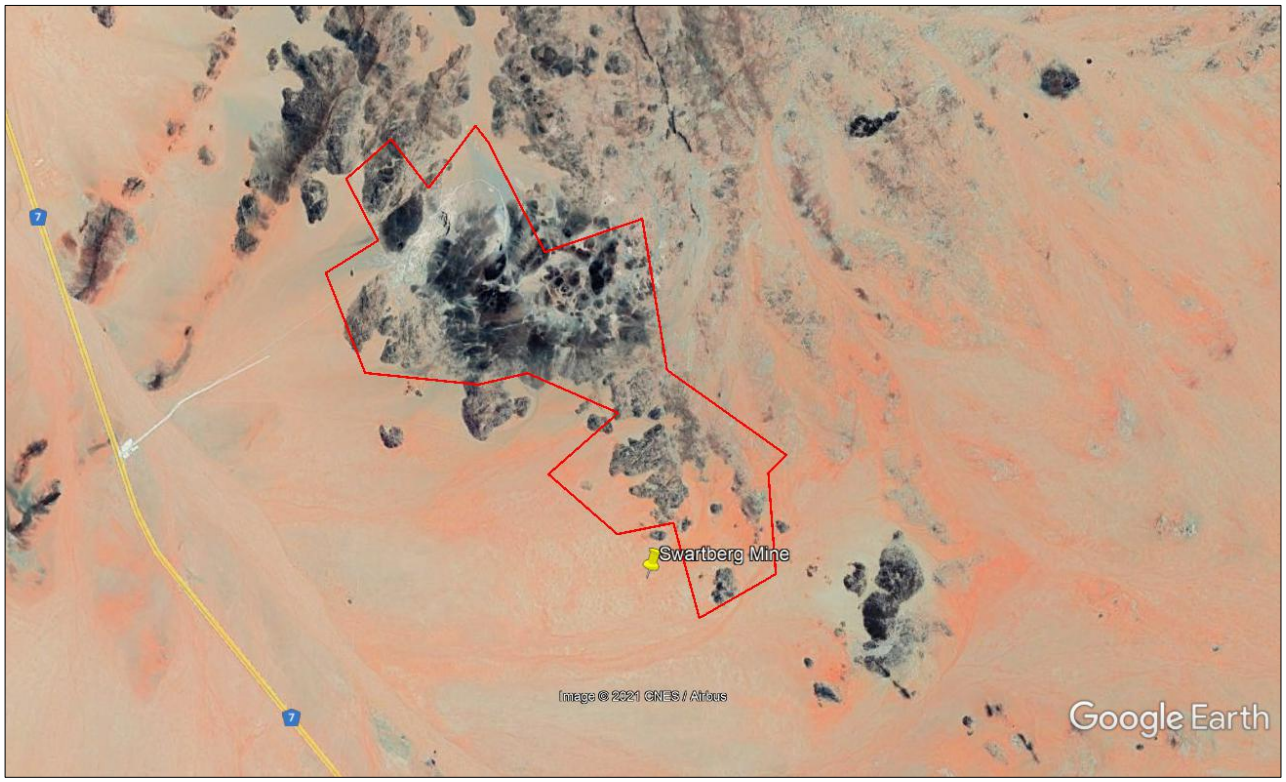


Figure 4. Close up Google satellite map of the Swartberg Mine Right Area

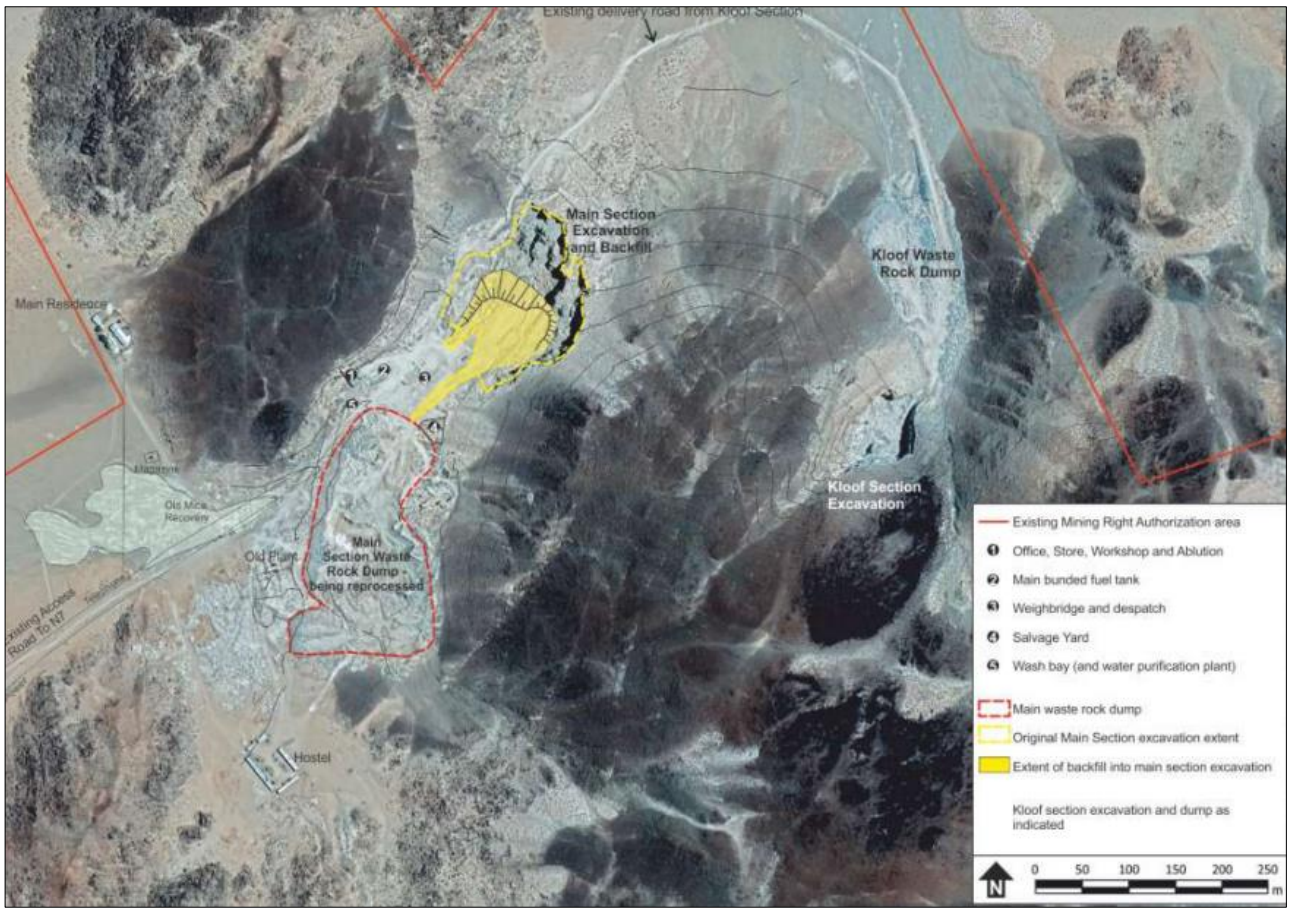


Figure 5. Existing Site Layout Plan for the Swartberg Feldspar Mine (Site Plan Scoping Report 2021)

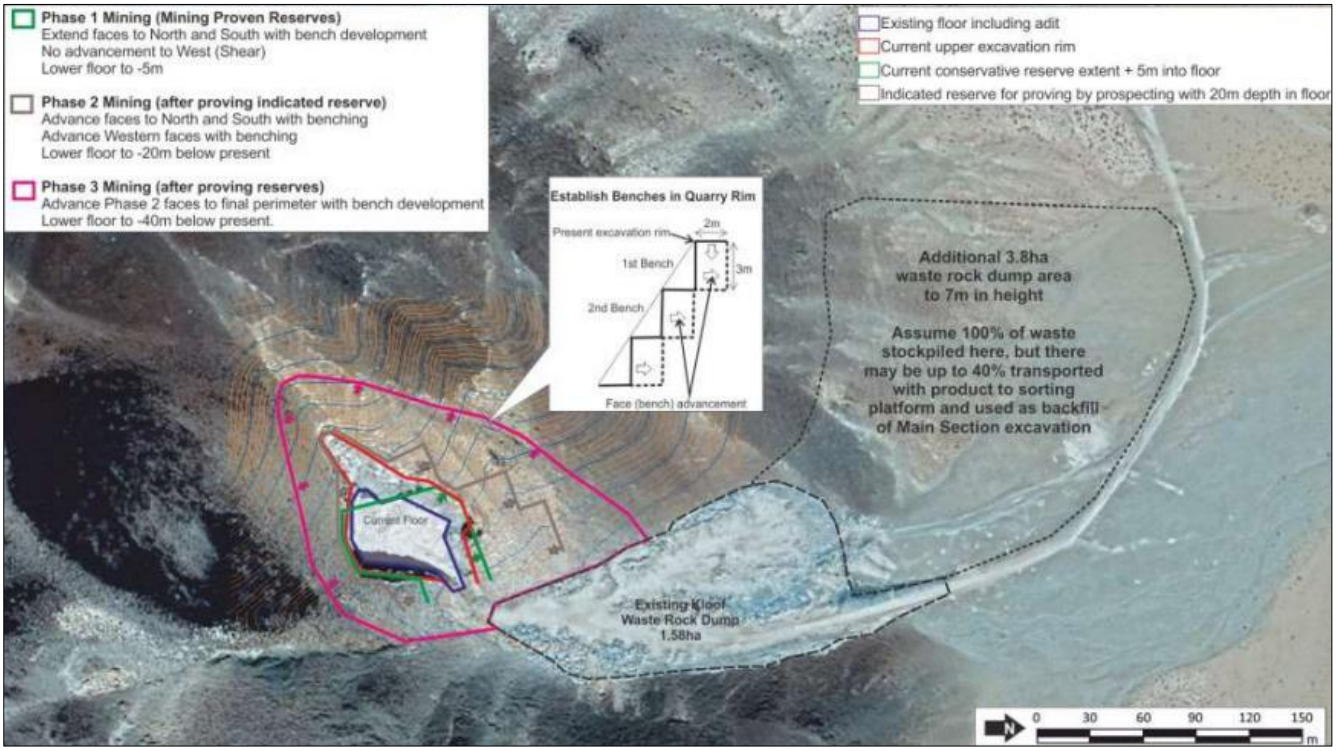


Figure 6. 30 year mine plan (Site Plan Scoping Report 2021.11.22

Photo 1: General view of the main excavation and logistical facility looking north, with the hostel in the west and the main excavation in the east.

Photo 2: Looking west from the top of the Main Section excavation at the backfill which has taken place to date.

Photo 3: General overview of the Kloof Section from the north showing the recent bench development (orange area) and just off picture right is the main overburden dump seen in Photo 5.

Photo 4 : Looking NE from the slope above the hostel, showing the main plant residue dump being hollowed out from the inside for re-processing and backfilling of the main section excavation.

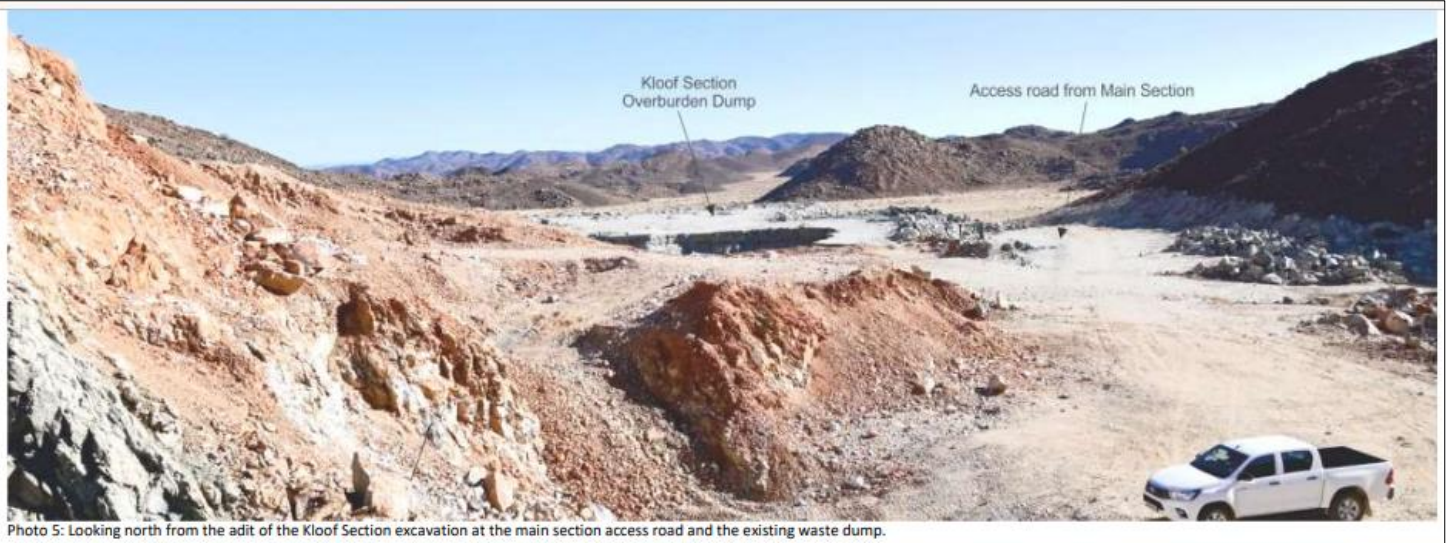


Photo 5: Looking north from the adit of the Kloof Section excavation at the main section access road and the existing waste dump.

Photo 6: Remnants of the old Processing Plant with the plant residue dump in the background being reprocessed from the east.

No. 5 Stuart Road Rondebosch, 7700 Phone/Fax 021-6857589
E-mail: acrm@wcaccess.co.za Mobile: 082 321 0172

APPENDIX 6

DRAFT INDUCTION ENVIRONMENTAL TRAINING: Swartberg Mine

DRAFT INDUCTION ENVIRONMENTAL TRAINING:
Swartberg Mine.

Afrikaans below the English text

November 2021

A. INTRODUCTION

Environmental management is a ***team effort***. All management and staff are responsible for avoiding environmental damage and ensuring good environmental management. Environmental Training forms part of the overall Environmental Management System (EMS). Such EMS also contains:

- Compiling EMP
- Conducting Environmental Audits
- Increasing of Environmental Awareness

Staff must be made aware of Site Sensitivities as a matter of urgency. These include:

- Even through the area outside of disturbance area looks vacant and devoid of life, these areas must be retained in its natural state and not unnecessarily disturbed.
- Disturbances in this part of the world take a very long time to rehabilitate
- The importance of staying within disturbed areas and demarcated roadways.
- The importance, responsibility and methodology of proposed monitoring programme.
- Good on-site management of fuel and lubricants is essential

The keys to achieving this are:

- Being aware of the environment and the need to protect it
- Understanding and recognising the things to protect and the do's and don'ts
- Knowing the reporting procedure
- Taking pride in good environmental housekeeping

THE AIM of this course is to get every person to be able to recognize environmental infringements and constantly prevent, monitor and report any infringements.

Legal Requirements

- Requirement of the MPRDA
  - to have an EMP Environmental Management Programme
    (show the document, the approved EMPR, to all staff in the induction and briefly note the items it covers)

- National Environment Management Act

Targets:

- Good results in biennial Environmental Audits
- Good Neighbourly Relations
- Reduction in the Rehabilitation fund quantum which the company has to provide as a guarantee

Why do you need Environmental Management?

1. Housekeeping

It is an integral part of normal good management (Good Housekeeping) on the mine site together with:

- Safety
- Efficiency (Productivity)
- Planning (specific activities in specific areas)
- Monitoring

2. The mine is part of the larger environment:

This larger environment includes the requirement that the following factors specifically be borne in mind:

- Alien vegetation control
- Although there are no adjacent land users, the mine is located in a pristine rural / wilderness area
- Poaching and plant removal
- Care in the use of poison
- Care in the control of oil/fuel leaks

4. Who does the damage to the Environment?

a) Management:

(i) by not being fully informed themselves of the content of the EMP and other decisions/controls

(ii) by not informing the staff of proper procedure and the environmental consequences of incorrect activities

(iii) by not conducting regular monitoring

(iv) by not developing their own personal sensitivity to environmental impact

(v) By not planning and constructing adequate fine tailings impounds

b) Equipment Operators:

(i) by driving equipment or moving items like pipes or cables outside of demarcated roadways, movement areas.

NB: Always stay in roadways

(ii) by dumping material in veld (outside of demarcated areas)

(iii) by beginning to move material or dump other material before topsoil has been removed

(iv) By not reacting and immediately reporting fuel or oil or hydraulic fluid leaks

(v) By developing ad hoc dumps and excavations not in keeping with the mine plan

c) General Staff:

(i) Use of the veld as a toilet (NOT ALLOWED)

(ii) Littering with lunch wrappings, bottles

(iii) Short-cut walking paths through veld which we want to keep natural

5. What the Staff should be aware of and to look out for:

- Allocated storage or dump areas
  - Don't dump anywhere else!!
  - If in doubt ask first!!

- Recognise natural veld areas and
  - Don't disturb them
  - Don't drive into them
  - Don't walk through them
  - Don't use them as toilet areas

- Recognise alien vegetation
  - Ask about the procedure to control each type

- Oil, fuel or hydraulic leaks
  - As soon as you see these, report them to the operator or the foreman/manager
  - Use drip trays when needed

- Report littering

- Recognise soil erosion and report it

- Recognise silt run-off and report it

- Recognise (know the difference between) domestic waste and industrial waste and use correct bins for oil/fuel polluted items

- Know the refuelling and oil change procedure: if you are involved in it know how to avoid pollution

6. Reporting Emergencies (eg Fuel/oil Spills)

Staff to be instructed on Procedures for Environmental Emergencies.

7. Archaeological and cultural Artefacts

If artefacts or bones are noticed/ discovered on–site the operator must stop and notify management immediately. Staff are to be made aware of the mitigation measures (upcoming)

8 Other environmental incidents reporting procedure

These include littering, silt run-off, erosion etc. Report these as soon as possible, byrt at least at end of shift or lunch time to supervisor / manager

9. Penalties for Environmental Damage

- Fines
- Conditions of employment contract

KONSEP INDUKSIE OMGEWINGSOPLEIDING:
Swartberg-myn.

November 2021

A. INLEIDING

Omgewingsbestuur is 'n spanpoging. Alle bestuur en personeel is verantwoordelik om omgewingskade te vermy en goeie omgewingsbestuur te verseker. Omgewingsopleiding vorm deel van die algemene omgewingsbestuurstelsel (OBS). Sulke OBS bevat ook:

- Samestelling van EMP
- Die uitvoer van omgewingsoudits
- Toeneming van omgewingsbewustheid

Personeel moet dringend bewus gemaak word van die sensitiwiteit van die area. Dit sluit in:

- Al lyk die gebied wat buite die versteuringsgebied leeg en sonder lewe is, moet hierdie gebiede in hul natuurlike toestand behou word en nie onnodig versteur word nie.
- Versteurings in hierdie wêrelddeel neem baie lank om te rehabiliteer
- Die belangrikheid daarvan om binne versteurde gebiede en afgebakende paaie te bly.
- Die belangrikheid, verantwoordelikheid en metodologie van die voorgestelde moniteringsprogram.
- Goeie bestuur van brandstof en smeermiddels op die perseel is noodsaaklik

Die sleutels om dit te bereik is:

- Bewus te wees van die omgewing en die noodsaaklikheid om dit te beskerm
- Die dinge om te beskerm en die moets en moenies te verstaan en te herken
- Ken die verslagdoeningsprosedure
- Om trots te wees op goeie huishoudelike omgewing

Die doel van hierdie kursus is om elke persoon in staat te stel om inbreuke op die omgewing te herken en om oortredings voortdurend te voorkom, te monitor en aan te meld.

Regsvereistes

Dit is ‘n vereiste van die MPRDA (Minerale Wet) en NEMA (Omgewings Wet) om 'n omgewingsbestuursprogram te hê (toon die dokument, die goedgekeurde OBP aan alle personeel in die inlywing en let kortliks op die items wat dit dek)

Teikens:

- Goeie resultate in tweejaarlikse omgewingsoudits
- Goeie buurverhoudinge

- Vermindering van die Rehabilitasie fonds kwantum wat die maatskappy as waarborg moet lewer.

B. Waarom het u Omgewingsbestuur nodig?

1. Huishouding

Dit is 'n integrale deel van die normale goeie bestuur (Goeie huishouding) op die mynterrein, tesame met:

- Veiligheid
- Doeltreffendheid (produktiwiteit)
- Beplanning (spesifieke aktiwiteite in spesifieke gebiede)
- Monitering

2. Die myn is deel van die groter omgewing:

Hierdie groter omgewing bevat die vereiste dat die volgende faktore spesifiek in ag geneem moet word:

- Uitheemse plantegroei-beheer
- Alhoewel daar geen aangrensende grondgebruikers is nie, is die myn in 'n ongerepte landelike / wildernisgebied geleë
- Stroping en verwydering van plante
- Sorg vir die gebruik van gif
- Sorg vir die beheer van olie- / brandstoflekke

C. Wie rig die skade aan die omgewing aan?

a) Bestuur:

(i) deur hulself nie volledig oor die inhoud van die EMP en ander besluite / beheermaatreëls in kennis te stel nie
(ii) deur nie die personeel in kennis te stel van die regte prosedure en die omgewingsgevolge van verkeerde aktiwiteite nie
(iii) deur nie gereeld te monitor nie
(iv) deur nie hul eie persoonlike sensitiwiteit vir omgewingsimpak te ontwikkel nie
(v) Deur nie voldoende fyn afwerkings te beplan en te konstrueer nie

b) Toerustingoperateurs:

(i) deur toerusting te bestuur of voorwerpe soos pype of kabels buite afgebakende paaie, bewegingsareas te verskuif.
(i) NB: Bly altyd in paaie
(ii) deur materiaal in die veld te stort (buite afgebakende gebiede)
(iii) deur materiaal te begin skuif of ander materiaal te stort voordat bogrond verwyder is
(iv) Deur nie te reageer nie en onmiddellik brandstof- of olie- of hidrouliese vloeistoflekkasies aan te meld
(v) Deur ad hoc-vullishope en opgrawings te ontwikkel wat nie in ooreenstemming met die mynplan is nie

c) Algemene Personeel. Die volgende is nie toegelaat nie:

(i) Gebruik van die veld as 'n toilet

(ii) Gestrooi met middagete, bottels
(iii) Kortpadpaaie deur veld wat ons natuurlik wil hou

D. Waarvoor moet die personeel oplet:

- Toegewysde stoor- of stortareas
    - Moenie nêrens anders stort nie !!
    - Vra eers as u twyfel !!

- Herken natuurlike veldgebiede en
    - Moenie hulle steur nie
    - Moenie in hulle ry nie
    - Moenie deur hulle loop nie
    - Moenie dit as toiletareas gebruik nie

- Herken uitheemse plantegroei
    - Vra die prosedure om elke tipe te beheer

- Olie-, brandstof- of hidrouliese lekkasies
    - Rapporteer dit by die operateur of die voorman / bestuurder sodra u dit sien
    - Gebruik drupbakke indien nodig

- Rapporteer rommelstrooi

- Herken gronderosie en rapporteer dit

- Herken die afloop van die slik en rapporteer dit

- Herken (ken die verskil tussen) huishoudelike afval en industriële afval en gebruik die regte vullisdromme vir besoedelde olie- of brandstofvoorwerpe

- Ken die hervul- en olieveranderingsprosedure: as u daarby betrokke is, weet hoe om besoedeling te voorkom

E. Aanmelding van noodgevalle (bv. Brandstof- / oliestortings)

Personeel moet onderrig word oor prosedures vir omgewingsgevalle.

F. Argeologiese en kulturele artefakte

As artefakte of bene op die terrein opgemerk / ontdek word, moet die operateur die bestuur onmiddellik stop en daarvan in kennis stel. Personeel moet bewus gemaak word van die versagtingsmaatreëls (komende)

G Ander prosedure vir raporteringoor omgewingsvoorvalle

Dit bevat rommelstrooiing, slikafloop, erosie, ens. Rapporteer dit so gou as moontlik, begin ten minste aan die einde van die skof of etenstyd aan die toesighouer / bestuurder.

H. Boetes vir omgewingsbeskadiging

- Boetes
- Diensvoorwaardes

APPENDIX 7:

CLOSURE PLAN
(in terms of NEMA Appendix 5)

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

CLOSURE PLAN

SWARTBERG MINE

SUBMITTED IN TERMS OF APPENDIX 5 of the NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (AS AMENDED).

NAME OF APPLICANT:	**Kamgab Minerale (Pty) Ltd**
TEL NO:	**027 761 8766 / 082 8060860**
FAX NO:	**027 213 1175**
POSTAL ADDRESS:	**PO Box 243 Vredendal 8800**
PHYSICAL ADDRESS:	**Vioolsdrift Commonage, N7, North of Steinkopf**
FILE REFERENCE NUMBER SAMRAD:	**NCS30/5/1/2/3/2/1(552)MR**

Report #:2063/C
November 2021

Table of Contents

1 Details of EAP-

1.1 The EAP who prepared the closure plan.

Name of the Practitioner: Craig Donald – Site Plan Consulting
Tel No: 021 854 4260
Fax No: 021 854 4321
E-mail address: craig@siteplan.co.za

1.2 The expertise of the EAP.

Name:	**CRAIG DONALD**
Date of Birth:	26 February 1967
Parent Firm:	Site Plan Consulting
Position in Firm:	Member (50%)
Years with the Firm:	Since 2004 as member
Nationality:	South African
Professional Registration:	EAPASA (Reg #: 2020/2124)

Qualifications:

Year	Qualification	Institution
1984	Senior Certificate Matriculation	Plumstead High School
1992	National Higher Diploma: Town & Regional Planning (*cum Laude*)	Cape Technikon
1995	Minerals and Metals Extraction short course	Continuing Engineering Education, University of Witwatersrand
1997	National Diploma: Surface Mine Management	Technikon SA
1999	Principles for Environmental Management short course	Environmental Evaluation Unit of University of Cape Town
2003	Masters of Business Administration	University of Cape Town

Languages : English (first language)
Afrikaans (second language)

Employment History & Key Qualifications:
1989 -2004: Settlement Planning Services
2004 till present: Site Plan Consulting CC (as 50% member)

I was initially employed by Settlement Planning Services (a Town Planning Consultancy) as a technician during my Higher Diploma in Town and Regional Planning as part of my experiential training. Under the mentorship of Stephen van der Westhuizen my main involvement was the compilation of Environmental Management Programmes (mainly in surface mining related field) and geographic information systems. There was little guidance and no templates for the compilation of the EMPs and between Mr van der Westhuizen and myself, we developed a document structure acceptable to the then Department of Minerals.

In order to obtain a deeper understanding of the relevant issues, I completed a Surface Mine Management course as well as short courses such as Mineral and Metal Extraction and the immersive Environmental Evaluation course run by the EEU of UCT. I completed a part-time MBA at UCT in 2003.

In 2004 I joined Mr van der Westhuizen's Site Plan Consulting CC as a 50% member and since then have been serving mostly the Surface Mining industry in all environmental related matters as well other aspects in their licencing and legislated environmental requirements in maintaining said approvals (if granted).

Main tasks:
I have many years practical experience in diverse environmental, spatial and mine planning projects. In that time I have developed experience in use of Word, Excel, CorelDraw and ArcView GIS.

The main focus of work experience has been in the licencing, physical and environmental planning, monitoring and closure of surface mining operations. The mines have varied in:

- Size from small sand mines to the largest aggregate or diamond producers,
- Products from clay to diamonds,
- Location from the Alexander Bay to East London/KZN coastal areas as well as inland in Free State and Limpopo
- Scale and type of environmental impact.

In respect of the licencing and physical planning of surface mines, the work entails *inter alia* the compilation of:

- Mining and Prospecting Work Programmes: a detailed mine / prospect plan and project description including cash flow forecast / budget to determine mine's economic viability and cost of prospecting
- Social and Labour Plan: Legislated document required to describe how the mine will maximise its socio-economic impact through enforced education, training and corporate social responsibility programmes for the staff and surrounding community.

In respect of the environmental planning, the work has entailed the completion of Environmental Authorisation Application forms and the compilation of Basic Assessments, Scoping Reports, Environmental Impact Assessments, Environmental Management Plans and Programmes dependent on application requirements in accordance with either or both the Mineral and Petroleum Resources Development Act and the National Environmental Management Act (with the amalgamation of these 2 pieces of legislation in December 2014). These have all entailed full public participation and liaison with and full input from specialists as required.

In respect of monitoring the work involves conducting of environmental audits to measure the level of compliance of actual site conditions against the prescriptions of the EMP. The auditing task also serves to highlight any shortcomings in the EMP.

Closure of surface mining operations has entailed the conducting of all public participation and the lodging of all documentation required.

In addition, the work also entails annual updates of Rehabilitation Quantum calculations for almost all of the approved Mining Rights in the list below. These calculations are conducted using both the Guideline of the DMR and as Itemised costs in certain relevant operations. In addition to the list below, we have been calculated the rehabilitation quantum for Alexkor and De Beers (now Transhex) operations on the West Coast as well as Lower Orange River operations of Transhex (now LOR-D/Plateaux Diamonds).

The following lists represent the projects wherein I have been the lead EAP. I have been involved in other projects as an assistant to the lead EAP. Note that although I (and Site Plan Consulting) have always adhered to the principles of NEMA in the EIA process, the amalgamation of the Minerals and Petroleum Resources Development Act and National Environmental Management Act as the "One Environmental System" only came into effect in December 2014. The projects I have conducted under that system have been listed separately under the relevant project experience which follows.

Relevant Project Experience:
Prospecting Rights (including public participation and compilation of EMPlans (inclusive of EIAs)):

- For Salt on Papendorp Pan as community initiative supported by Cawood Salt (Pty) Ltd
- EMPs only for 7 Heavy Mineral Prospects of the West Coast (Basileus Group)
- Firlands (Gordons Bay) for aggregate - Afrimat
- Zoet and Zuur Diamond pipe (Boshof, Free State)
- Several Alluvial Diamond prospects on West Coast and inland West Coast (Western and Northern Cape) – Surfzone (Pty) Ltd, et al.

- Phosphate prospect (Saldanha) –Gecko Fert (Pty) Ltd
- Aggregate prospect near Oyster Bay in Eastern Cape – Denron Group
- Cobalt, Copper, Molybdenum, Nickel, Lead, Zinc, Silver, Gold & Platinum Group Minerals on 13 farms in the Kenhardt Magisterial District – Lehumo Resources (Pty) Ltd
- Nickel and related minerals on 8 farms near Kliprand – Hondekloof Nickel (Pty) Ltd
- Kaolin at Langklip (near Saldanha) – Seeland Development Trust on behalf of local community.
- Base minerals around Oena Mine in Northern Cape – African Star Resources (Pty) Ltd
- 6 sites for Uranium in the Karoo (Tasmin Pacific Minerals Ltd)
- Nickel prospect at Oup near Pofadder – Lehumo Resources (Pty) Ltd
- Commissioners Pan Salt Prospect – Dwaggas Soutwerke (Pty) Ltd
- Gypsum prospects near Kimberley, Vanrhysdorp and in the Bushmanland (St Gobain Group)
- Sand sources for Atlantis Foundries (Western Cape) – ZLLD Sand Mining (Pty) Ltd
- Salt at Gemsbok Horn (North of Upington) – Transalt (Pty) Ltd

Mining Permits and Rights (including full Public Participation and compilation of EMPs inclusive of EIAs)

- Caledon Manganese Mining Permit – Rand Gold Reclamation (Pty) Ltd
- Pentlands Granite Quarry Mining Right near Empangeni (KZN) – Masa Mzantsi Cement (Pty) Ltd
- Gamohaan Aggregate Quarry near Kuruman (Permit) – Afrimat Group
- Cawood Salt Mine at Sout River mouth (Amendment of existing Right) – Cawood Salt (Pty) Ltd
- Kuipersbult Aggregate Mining Right near Lephalale (Limpopo) as source for Medupi Power station construction – Afrimat Group
- Dikpens Gypsum Mine Extension (Bushmanland) – St Gobain Group
- Yserfontein Pan Gypsum - Amendment of Mining Right including update of EMP – St Gobain Group
- Gypsum Mine near Vanrhynsdorp - Mining Right – PPC (Right now owned by St Gobain Group)
- Transand Aggregate mine near Hartenbos - Mining Right – Transand (Pty) ltd
- Aggregate and sand mine on municipal owned land in Gansbaai (Permit and Right)- Sisiza Ukhanyo Trading 410 (Pty) Ltd
- Sand mining permit near Salmonsdam Nature Reserve, Stanford – DJ Transport (Pty) Ltd
- Limestone Mining Right north of Klawer – Now held by Afrimat (previously Cape Lime (Pty) Ltd
- Sand Mining permits near Gouritz River / Vlees Bay – Transand Group
- Phospate Mining Right near Langebaanweg - Gecko Fert (Pty) Ltd
- Oyster Bay Mining Right application for Aggregate – Denron Group
- Moddergat Sand Mining Right (between Worcester and Villiersdorp) – Afrimat Group
- Mining Right for Manganese near Swellendam – Aquarella (Pty) Ltd
- Involvement to a greater or lesser degree in at least 50 other Mining Permit and Mining Right applications
- EMP updates / amendments (some of which did not require public participation) for several operations (at least 20).

Environmental Performance /Audit Assessments (monitoring) of the following sites on once-off or regular basis. First compiled in terms of Reg 55 of MPRDA prescriptions and since December 2014 guided by NEMA requirements (Appendix 5 and Regulation 34 of NEMA):

- Crammix Clay Mine (Brakenfel)
- Botriver Sand mine (Steyns)
- Cawood Salt Mine (Sout River)
- Swellendam Manganese Mine
- Buffelsbank Diamond Mine
- Gecko Fert Phosphate Prospects
- Cape Lime Limestone Mine near Vredendal
- Denron operations (Sand and Aggregate) Knysna / Plettenberg Bay area
- Dimension Stone Mines of Verde Bitterfontein (Namaqualand)
- Limestone quarries in Bredasdorp and Vredendal
- Lime Sand near Saldanha – Marine Lime
- Cawood Salt Mine on West Coast
- 3 x Salt Mines north of Upington
- PPC Gypsum Mine near Vanrhynsdorp
- Lafarge Western Cape operations including Tygerberg, Dorstberg, Peak and Saldanha Quarries
- Maskam Gypsum Mine near Vanrhynsdorp
- Nama Copper: Retreatment of existing dumps at Nababeep
- Various Afrimat aggregate operations throughout the country
- Setting up of Environmental Monitoring Committee at Yzerfontein Gypsum Mine
- Setting up of Environmental Monitoring Committee at George K1 Quarry
- Johnsons Brick Clay Mine (Oudtshoorn)

Closure Applications (for mining and prospecting operations):

- Gecko Fert Phosphate Prospecting Rights and Mining Permit
- Knysna Whitebridge Quarry
- Denron Funda and Helderwater Quarry – Plettenberg Bay
- Crammix Clay Mine (Brackenfel)
- Vaale Valley Sand Mine (Mossel Bay)
- Various Dimension Stone bulk samples for Verde Bitterfontein (Namaqualand)
- Bergsig / Farm 292 Closure (Hartenbos)
- Klipfontein Sand Mine (Vlees Bay)
- Welbedagt Gravel Permit (Herbertsdale / Mossel Bay)

"One Environmental System" applications (Post 8 December 2014) all conducted in terms of NEMA EIA process:

- Cape Lime Sand Mine (Schaap Kraal operation) – Afrimat
- Atlantis Foundries Sand Mine Ptn 8 – ZLLD Sand Mining (Pty) Ltd
- Atlantis Foundries Sand Mine Prospect (Ptn 4 & 5) – ZLLD Sand Mining (Pty) Ltd
- De Hoek Sand Mining Right – Buy-Line Trading (Pty) Ltd
- Denver Quarry Section 102 (MPRDA)– Afrimat
- Desert Rose Dimension Stone Mine – Application only
- Naroogna Pan Salt Mine – United Salt (Pty) Ltd
- Stanford Quarry Extension – Afrimat
- Bester Calcrete Mining Permit – West Coast Calcrete
- Commissioner Pan Salt Mine – Dwaggas Salt Works (Pty) Ltd
- Lezmin Sand Mine (Gouritz Area) – Lezmin 2021 CC
- Yzerfontein Gypsum Mine (Section 102) – St Gobain Construction Materials (SA)
- Skietkuil Quarry Mining Permit – Skietkuil Quarries CC
- Honingklip Gravel Mining Permit – Western Cape Construction Materials (Pty) Ltd
- Johnsons Clay Brick Oudtshoorn (Mining Right Amendment)
- Okiep Dumps Reprocessing Application – O'okiep Copper Company Ltd
- Karoo One / Bo Plaas Sand and Gravel Mining Permit
- Salt Prospect – Gemsbok Horn (N Cape) – Transalt (Pty) Ltd
- Bosluispan Diamond Mine (Section 102 Application) – Kori Diamonds (Pty) Ltd
- Oena Diamond Mine (Section 102 Application) – African Star Minerals
- Welbedagt East Gravel – Mossel Bay - Buyline Trading
- Gemsbok Horn Salt Prospect – Upington – Industrial Salt
- Okiep Tailings Investigation – OCC – Okiep and Carolusberg
- Regulation 31 Application: Kliprug Quarry for Batch Plant - Afrimat
- Kolkies River Gypsum Mine – Ceres- Space Minerals – not yet lodged
- Grootwitpan Salt Mine - North of Upington- United Salt

Section 24G Applications:

- Makulu Quarry – Denron
- Swellendam Manganese Mine – Sikhova Environmentally Friendly Building Solutions
- Illegal Waste Disposal Site – Die Kop – Plettenberg Bay
- Smalblaar Quarry – Stockpiling area – Afrimat

2 Introduction

This Closure Plan has been compiled using the stipulated content as per Appendix 5 of NEMA. It has been compiled from the content of the EMP to which this plan is attached as well as site visits.

The public participation has been conducted as part of the application for Mining Right and all of the aspects in this closure plan have been subject to public input.

3 Closure objectives.

The overall objective is to limit the impact of operational mining and residual post mining impacts.

The closure objectives are driven by the proposed end use for the site. In this case the end use is to maximise the site's integration with the surrounding wilderness function. To this end the following components / measures are required:

1) Ensure that the excavation edges at the Kloof excavation are shaped appropriately as defined in this EMP
2) Ensure that topsoil removal takes place ahead of the Kloof Waste Rock dump development and that such topsoil is used as cover material for that dump after completion. The final Waste Rock dump must be shaped to mimic natural contours prior to cover with soil.
3) No structures, infrastructure or equipment is to remain on site after closure
4) All ad hoc dumps and residual dumps are preferably backfilled into the main pit or shaped to mimic natural contours.

In order to achieve these closure objectives the following management objectives must serve the project during operation:

- To avoid any disturbance of virgin areas in the continued operation of this site (except those permitted in terms of the EMP)
- To continue the use of existing facilities thereby providing for a minimal additional residual impact to that presented by the disturbed existing site.
- To consider and implement industry known attenuation measures to limit operational impacts of dust, noise and hydrocarbon
- To recognise the value of topsoil and ensure the maximization of its collection and storage during the lifespan of this operation
- Access to no go areas must be prevented through environmental education of all staff members.
- Achieving minimal operational impacts during life of mine.
- Achieving a minimal additional post mining residual impact

4 Proposed mechanisms for monitoring compliance with & performance assessment against the closure plan and reporting thereon.

It is estimated that decommissioning rehabilitation will take at 3 - 6 months to complete. The following is required in terms of monitoring, actions taken and reporting of the decommissioning rehabilitation toward closure:

1) Post operational phase Environmental Audit (before implementing decommissioning rehabilitation): The aim of this audit is to ensure that the measures as proposed in the EMP and this closure plan are still valid for the site. This audit is internal and is not required that it be distributed to the competent authority (although there is no reason why it cannot be if the holder so wishes).
2) This audit will inform any additional measures or specifics not contemplated in detail in the EMP.
3) Decommissioning rehabilitation is then conducted
4) Post decommissioning *Draft* Environmental Audit is then undertaken. Any shortcomings must be rectified, and the *Final* Environmental Audit is then compiled.
5) Such Final document is included as part of the Closure Application as lodged.

5 Measures to rehabilitate the environment affected by activities and associated closure to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development (including a handover report).

The following measures are prescribed in the decommissioning of this site:

1.1.	Finalise shaping of all remnant dumps and level all ad hoc dumps in the main activity area (i.e. not the Kloof Excavation area)
1.2.	Install stock proof fence above each excavation and danger signpost
1.3.	Shape and cover waste rock dump in Kloof section with removed sand cover
1.4.	Demolish all unrequired structures
1.5.	Remove all protruding foundations and footings
1.6.	Remove all pipelines and cables
1.7.	Remove diesel tank & decontaminate
1.8.	Remove weighbridge concrete structures
1.9.	Rip / scarify all hardened areas
1.10.	Retain access roads for future use
Aftercare Period	
1.1.	Remove alien vegetation if present

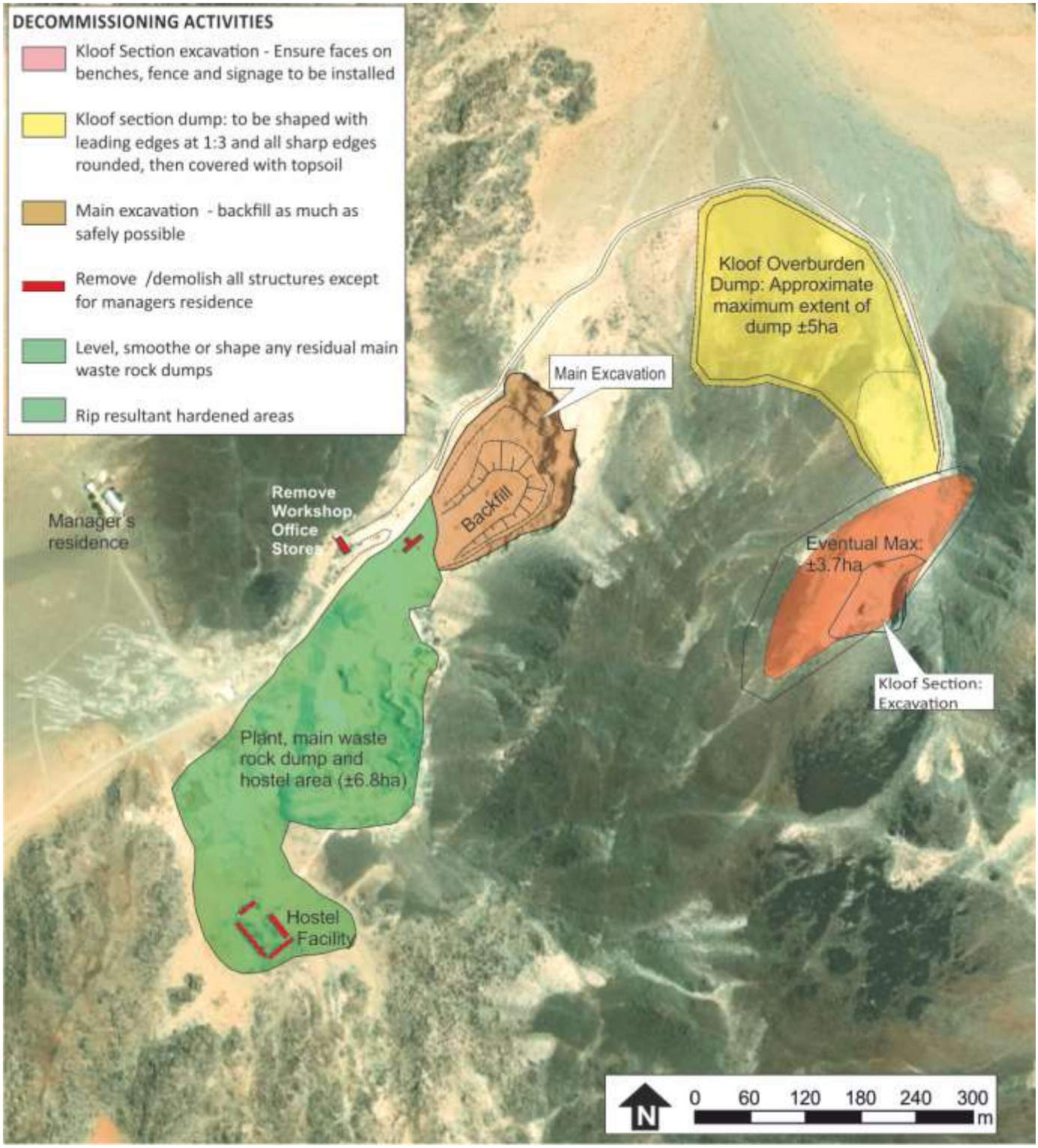


Figure 1: Rehabilitation Plan showing measured areas and compatibility with proposed end use

6 Information on any proposed avoidance, management and mitigation measures that will be taken to address the environmental impacts resulting from the undertaking of the closure activity.

The impacts (and proposed mitigation measures required) that will arise out the undertaking of the closure activities are as follows:

Activity	Impact (+ve or –ve)	Scale of impact	Avoidance, Management or Mitigation	Proposed Management / Mitigation Measures	Significance with mitigation, Probability & Duration of Impact
1. Finalise shaping of all remnant dumps and level all ad hoc dumps (excluding Kloof Waste Rock dump dealt with under line item 3 below).	Land capability & Topography (+ve)	Current disturbance area around main excavation, main waste rock dump (which may have been completely reprocessed and backfilled into pit at time of closure), and old plant area (6.8ha)	Positive impact to enhance potential for reintegration of land parcel into surrounding wilderness fabric	Ensure no steep slopes, round all sharp edges and slope all slopes to maximum 1:3	Insignificant, Definite and Permanent
	Noise	Very Local	Mitigation	Ensure all silencers are operational	Insignificant. Definite. On occurrence
	Air Quality	Local. Seldom exceed Mining Right area	NA	None feasible	Insignificant. Definite. On occurrence
	Hydrocarbon	Site Specific	Management required on occurrence	Hydrocarbon management as per para 7.1.4 below	Insignificant. Possible. Until cleanup.
2. Install livestock proof fence around each excavation and danger signpost	Safety	Excavation edge extent	Management of potential residual safety issue	Excavation edge shaping as per para 7.1.1 below	Insignificant, Possible, Permanent
3. Finalise shaping and cover waste rock dump in Kloof section with previously removed sand cover	Topography	5.0ha Kloof Waste Rock Dump. Average 7m thick	This rehabilitation measure is a positive impact to enhance potential for reintegration of land parcel into surrounding wilderness fabric	Level surface of dump if required, Slope sides to 1:3, round all sharp edges and cover with previously stockpiled soil cover	Moderate, Definite and Permanent

Activity	Impact (+ve or –ve)	Scale of impact	Avoidance, Management or Mitigation	Proposed Management / Mitigation Measures	Significance with mitigation, Probability & Duration of Impact
	Land Capability, Soil and Vegetation	5.0ha Kloof Waste Rock Dump. Average 7m thick	This rehabilitation measure is a positive impact to enhance potential for reintegration of land parcel into surrounding wilderness fabric	Slope sides to 1:3, round all sharp edges and cover with previously stockpiled soil cover	Moderate, Definite and Permanent
	Noise	Very Local	Mitigation	Ensure all silencers are operational	Insignificant. Definite. On occurrence
	Air Quality	Local. Seldom exceed Mining Right area	NA	None feasible	Insignificant. Definite. On occurrence
	Hydrocarbon	Site Specific	Management required on occurrence	Hydrocarbon management as per para 7.1.4 below	Insignificant. Possible. Until cleanup.
4. Remove all plant, structures and logistical facilities	Land Capability	Positive : Allows for return of land capability	Mitigation	Remove	Positive, definite, insignificant, permanent
5. Remove all protruding foundations and footings					
6. Remove all pipelines and cables					
7. Remove diesel tank & decontaminate					
8. Remove weighbridge concrete structures					
9. Rip / scarify all hardened areas	Land Capability	Positive: Enhances rehabilitation potential of disturbed areas	Mitigation measure	This is a rehabilitation measure	Insignificant to moderate, Definitely, Permanent
	Noise	Very Local	Mitigation	Ensure all silencers are operational	Insignificant. Definite. On occurrence
	Air Quality	Local. Seldom exceed Mining Right area	NA	None feasible	Insignificant. Definite. On occurrence
	Hydrocarbon	Site Specific	Management required on occurrence	Hydrocarbon management as per para 7.1.4 below	Insignificant. Possible. Until cleanup.
10. Retain access roads for future use					

Activity	Impact (+ve or –ve)	Scale of impact	Avoidance, Management or Mitigation	Proposed Management / Mitigation Measures	Significance with mitigation, Probability & Duration of Impact
Aftercare Period					
11. Remove alien vegetation if present	Land Capability (+ve)	Site Specific	This is a mitigation measure	Removal of alien vegetation encourages indigenous vegetation growth	Insignificant. Definite. Permanent.
	Vegetation (+ve)	Site Specific	This is a mitigation measure	Removal of alien vegetation encourages indigenous vegetation growth	Insignificant. Definite. Permanent.

7 Description of the manner in which it intends to-

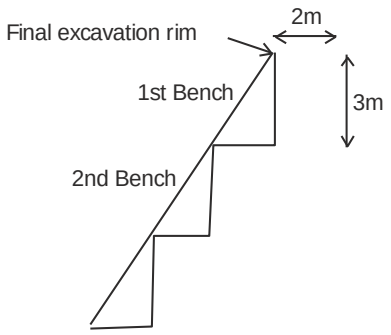
7.1 Modify, remedy, control or stop any action, activity or process which causes pollution or degradation during closure

The management of environmental damage as a result of the undertaking of decommissioning and closure activities at this site consists of the following with detail description below:

1) Shaping of excavations and perimeter safety is described in para 7.1.1. The shaping of the Kloof waste rock dump and any remnant *ad hoc* dumps is also described in para 7.1.1
2) Topsoil handling methodology as it relates to closure activities as per para 7.1.2 below. No active revegetation will take place as natural revegetation will eventually take place.
3) Hydrocarbon pollution prevention must take place in accordance with the Hydrocarbon pollution prevention methodology in para 7.1.3 below

7.1.1 Excavation Shaping, Safety and other Topographical Controls

In order to maximise the safety of the residual excavation the excavation must be fenced at least 5m from edge of the excavation. The fence must be danger signposted. It is critical during the life of mine in the Kloof Section that the excavation is developed with faces on benches as per schematics below to maximise post mining safety of the excavation:



The Kloof waste rock dump is to be rehabilitated as per the following measures. Note that these could conceivably occur during the life of mine when the dump has reached its final extent along its edges:

1) Slope the edges to no steeper than 1:3 slope.
2) Round all sharp edges to mimic natural contours
3) Cover with soil to approximately 180-200mm thick to ensure sufficient cover for entire dump (Note that the soil must be removed to 250mm deep ahead of waste rock dump advance).

4) No active revegetation will take place and the dump's soil cover will be allowed to revegetate naturally – it will be a very long term process.

7.1.2 Topsoil handling as it applies to Decommissioning Rehabilitation.

Main excavation, plant, logistical facility area and main waste rock dump area:
No topsoil was removed ahead of these developments. It would not be advised to remove sand / soil from any other location to this area given the impact it would generate ta the source of material. For this reason the rehabilitation of these areas entails:

1) Levelling of all small *ad hoc* dumps and shaping of any larger residual dumps to maximum 1:3 slope
2) Removal of all structures, protruding footings, cables and pipelines
3) Ripping of the resultant hardened area. The ripped "furrows" will allow for trapping of windblown sand and seeds for future long term rehabilitation. This will be a very long term period (perhaps decades), but given the isolation and nature of the area, this is deemed sufficient.

Kloof Waste Rock Dump area
It was noted in the EIA/EMP that the existing Kloof waste rock dump had been developed without topsoil removal and storage. As a result, there is no cover material available for the current facility. Therefore, in the future it is proposed that the upper 250mm material be removed ahead of dump advance and that it be spread as cover material at a thickness of less than 250mm to cater for the shortfall.

The upper 250mm in situ material is to be treated as topsoil. Calculation of volume: 3.8ha at min. 250mm = 9500m³. The material is to be removed to berms alongside the edge of the eventual dump. The rehabilitation would entail the replacement of the topsoil over the entire shaped dump to between 180mm to 200mm thickness to ensure sufficient material for cover of the entire eventual dump. This will not all occur as decommissioning rehabilitation but would occur incrementally as the dump reached its final configuration in certain areas during eth operational phase.

No active revegetation is proposed.

7.1.3 Decommissioning / Closure Hydrocarbon Management and Domestic and Industrial Waste Management Protocol

Domestic Waste handling
The operators must be trained to keep their domestic waste (in the form of lunch wrappers, cigarette boxes, etc.), in their cab for the day. The material must then be temporarily stored in a bin at the main control area for removal to licenced facility as and when required. The volumes are absolutely minimal.

Fuel receipt, storage and dispensing:

In the management of fuel supply, receipt, storage and use, the following procedures will be followed, cautions taken and facilities built to properly manage this operational sector:

- The fuel delivery bowser driver will be cautioned to adhere to safe driving speeds and drive cautiously at the mine and along the access road.
- At the time of decommissioning there may be no diesel tank installation at the site and fuel may be required to be brought in by diesel bowser as required.
- During dispensing of fuel to field vehicles via fuel trailer, the dispensing vehicle is to be fitted with suitable pumps and funnel extensions to reduce the risk of spillage in the transfer of fuels.

Emergency and other repairs on site:

In the event of a breakdown with repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent oil contamination.

In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in a bin for disposal in a regional industrial waste handling site. Used filters are not to be buried at the site of repair (nor discarded in an excavation to be backfilled).
- In the event of soil contamination, the oil and contaminated soils are to be placed in black disposal bags and transported to suitable facility.
- All operators are to check their equipment for leaks and report such leaks on a daily basis.

7.2 Remedy the cause of pollution or degradation and migration of pollutants during [after] closure;

The only potential pollutant which is likely to be encountered during closure will be hydrocarbons such as diesel fuel, hydraulic oils and other greases. Refer para 7.1.3 for handling methodology.

7.3 Comply with any prescribed environmental management standards or practices; and

As described in part 4, the holder is bound by a sequence of environmental audits during and after closure which will ensure compliance with this closure plan and EMP.

7.4 Comply with any applicable provisions of the Act regarding closure;

The holder will comply with all aspects of the legislation in respect of closure and will be guided in such by EAP.

8 Time periods within which the measures contemplated in the closure plan must be implemented;

The decommissioning rehabilitation / closure plan will be implemented in a period of 3-6 months from the date upon which decommissioning is proposed to be initiated. Such rehabilitation measures will take a maximum of 3-6 months to be completed.

9 The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of closure

Not applicable.

10 Details of all public participation processes conducted in terms of regulation 41 of the Regulations:

This closure plan was widely distributed for public comment in the draft EIA/EMP. Full details of such public participation are contained in Part 11 of the EIA/EMP.

10.1 Copies of any representations and comments received from registered interested and affected parties;

Refer part 11 of EIA/EMP for details of comments received as they relate to closure.

10.2 A summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments;

Refer Part 11 of the EIA/EMP.

10.3 The minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;

Refer Part 1 of the EIA/EMP

10.4 Where applicable, an indication of the amendments made to the plan as a result of public participation processes conducted in terms of regulation 41 of these Regulations

Not related to decommissioning / closure activities

10.5 Where applicable, details of any financial provisions for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts

Not applicable given the already approved rehabilitation fund quantum for decommissioning rehabilitation which is required for all operational mines.